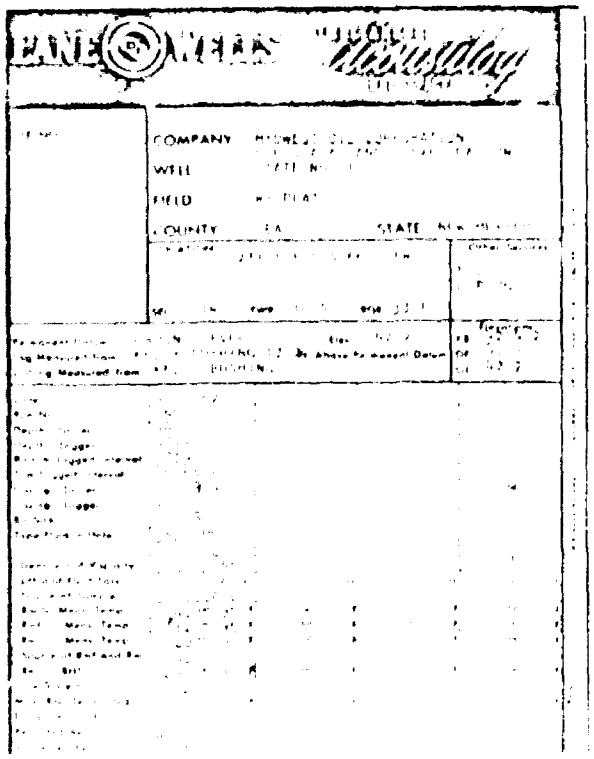
CASE 3513: Application of MIDWEST OIL CORPORATION for special pool rules for VADA-PENN. POOL, LEA CO.

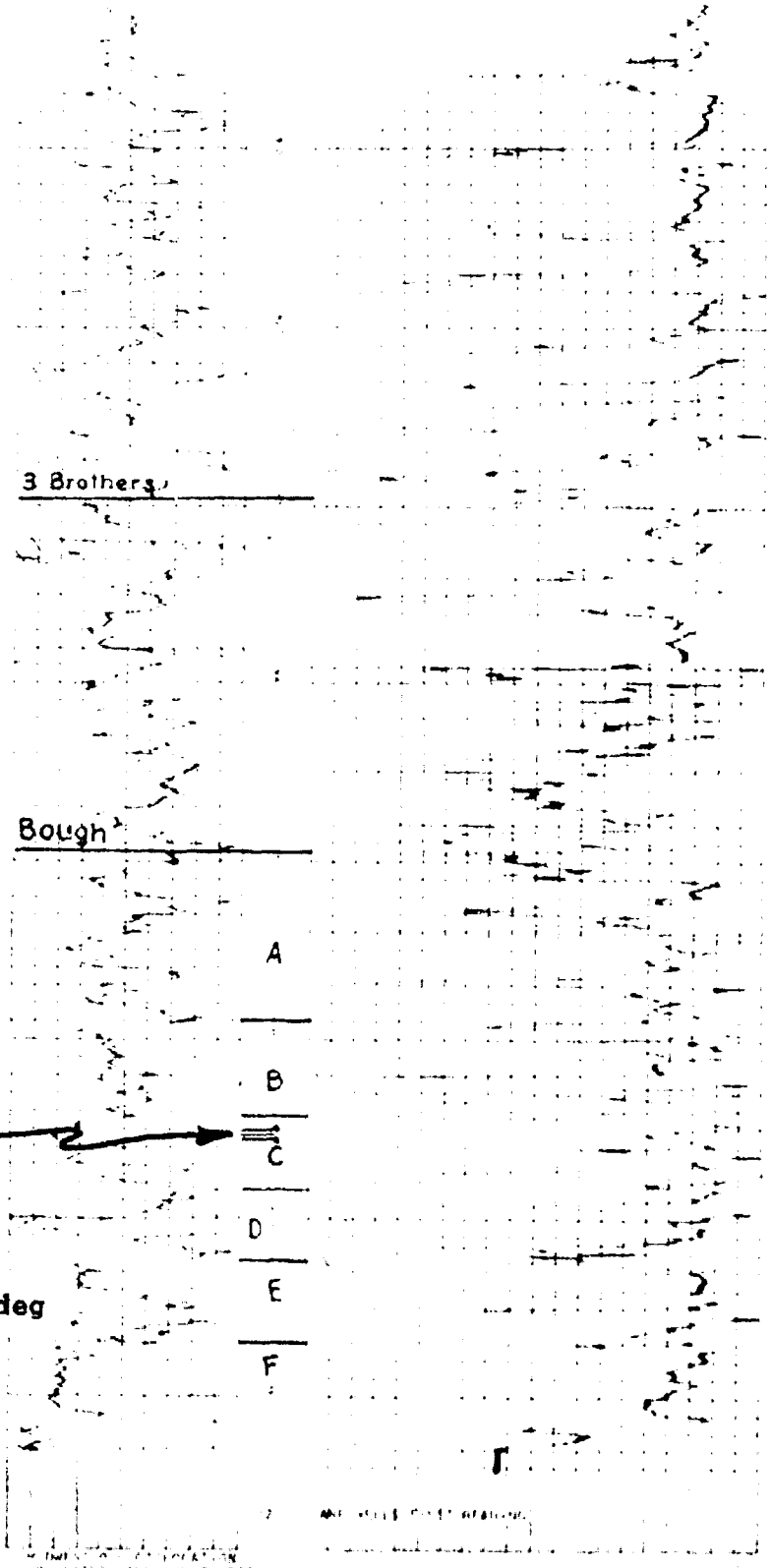
CASE NO.
3513

Application,
Transcripts,
Small Exhibits
ETC.

MIDWEST OIL CORP.
MIDLAND, TEXAS



(1)



Bough "C"

Pf 9650-54
A w/250
F-94.18 BO +
368 BXW, 24 hrs.
(G1)
GOR 1432, Gv 45 deg

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 2513

SCHLUMBERGER WELL SURVEYING CORPORATION

COMPANY [illegible] - MID-CONTINENT PET. CO.

WELL N.M. STATE [illegible] # 1

FIELD WILDCAT

LOCATION [illegible] T-10S-R33E

COUNTY LEA

STATE NEW MEXICO

Location of Well
1980' F NL
1980' F WL
Sec. 1-10S-33E

FS-GRL
(LL-ML)

Elevation DF 4261.7
KB 4264.2
GL 4250.5

FILING No.

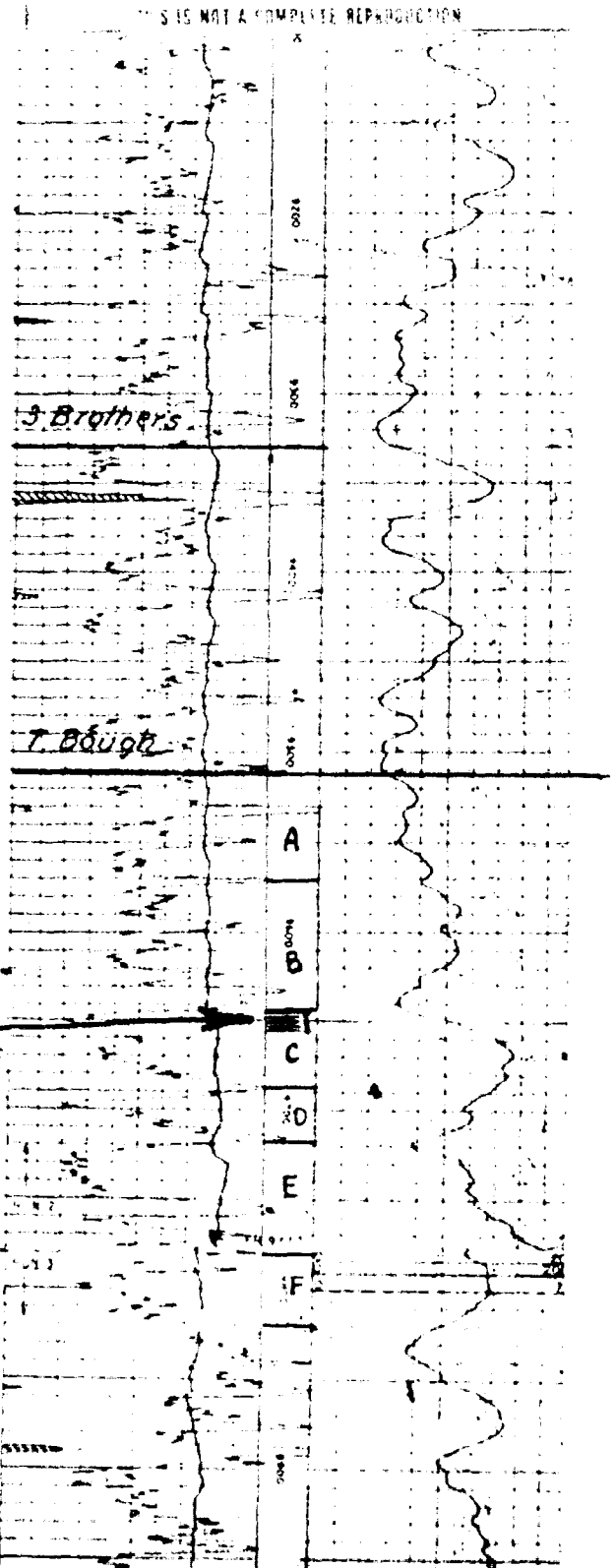
	1	2	3	4
Date	9-26-55	9-26-55	9-15-55	11-5-55
Depth-Driller	3968	3971	10829	12634
Depth-Logger	3973	3971	9777	10829
Bottom Logged Interval	3973	3971	1052	1805
Top Logged Interval	335	3971	3971	
Casing Driller	334	3970	3970	
Depth-Reader	3971	3780	10830	12637
Bottom Logged Interval	3970	3775	10846	12631
Drlg. Measured From	KB 13.4' Abv.			
Mud Type	Salt Wat	Gel-Chem	Gel-Impregnated	Gel
Density	10.8	9.5	9.6	9.5
Viscosity				
Resistivity	4.35	3.90	4.37	4.83
Resistivity BHT	4.104	4.05	4.04	4.157
Rm @	5		5	5
Source of Rm	Sa		Sa	Sa
Rmf @	3.4		3.4	3.4
Source of Rmf				
Rmc @				
Source of Rmc				
Rm @ BHT	2.4	2.05	2.04	2.157
Time Since Circ.	5		5	5
Max. Rec. Temp.	104	150	157	172
Equip. Location				
Recorded By				
Witnessed By				

REMARKS

Run 1 [illegible] 4000'/hr.

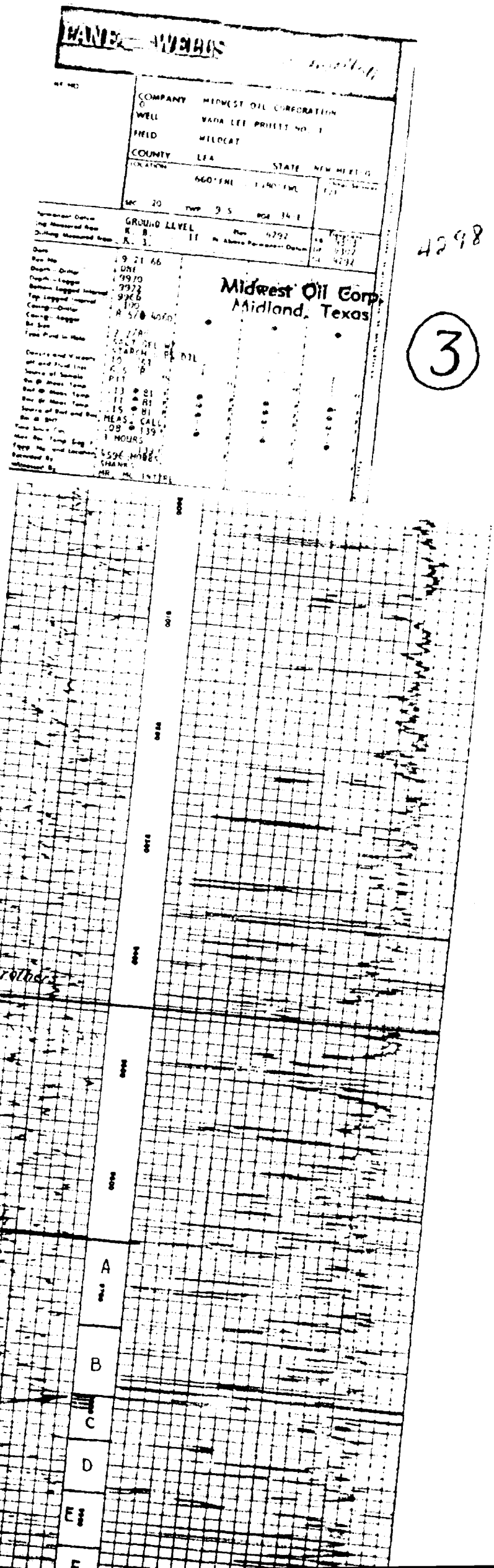
Run 2 [illegible]

THIS IS NOT A COMPLETE REPRODUCTION



Bough "C"
Pf 9645-56
w/500
A w/5000
IPF 341 BOPD, 14/64"
GOR 2000 Gv.45.7 deg.

2



Bough "C"
P - 9792-9802
W w/500
F - 234 BO + 567 BXW
24 hrs, GOR 1130
Gravity 45.1 deg

SCHLUMBERGER WELL SURVEYING CORPORATION

SCHLUMBERGER

COMPANY	[illegible] OIL COMPANY
WELL	[illegible]
FIELD	[illegible]
LOCATION	[illegible]
COUNTY	LEA
STATE	NEW MEXICO

Other Surveys: [illegible]

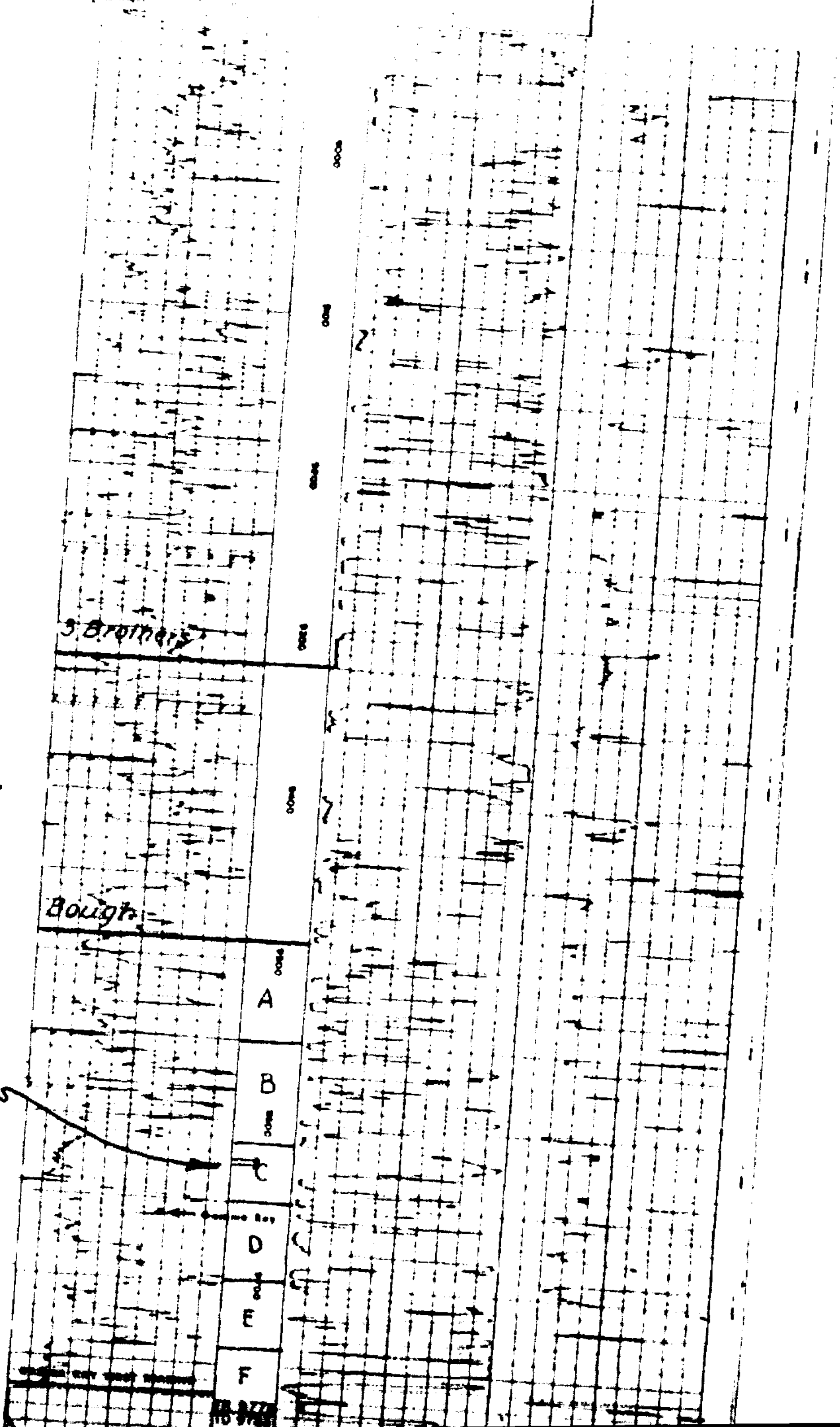
Location of Well: 1980 FROM [illegible] / 1980 FROM [illegible]

Elevation: K.B. 4267, D.F. 4267, or G.L. 4253

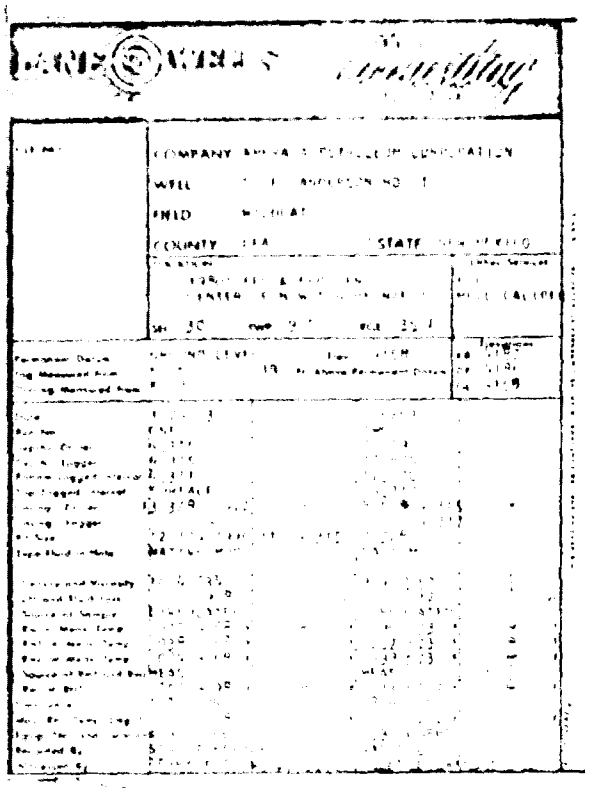
Log Depths Measured From KB 13 Ft. above [illegible]

RUN No.	[illegible]
Date	[illegible] 60
First Reading	[illegible]
Last Reading	[illegible]
Feet Measured	[illegible]
Csg. Schlum.	[illegible]
Csg. Driller	[illegible]
Depth Reached	[illegible]
Bottom Driller	[illegible]
Mud Nat.	[illegible]
Dens. Visc.	[illegible]
Mud Resist.	[illegible]
Res. BHT	[illegible]
pH	[illegible]
Wtr. Loss	[illegible]
Rmf	[illegible]
Rmc	[illegible]
Bit Size	[illegible]
Interval 1	[illegible]
Interval 2	[illegible]
Opr. Rig Time	[illegible]
Truck No.	[illegible]
Recorded By	[illegible]
Witness	[illegible]

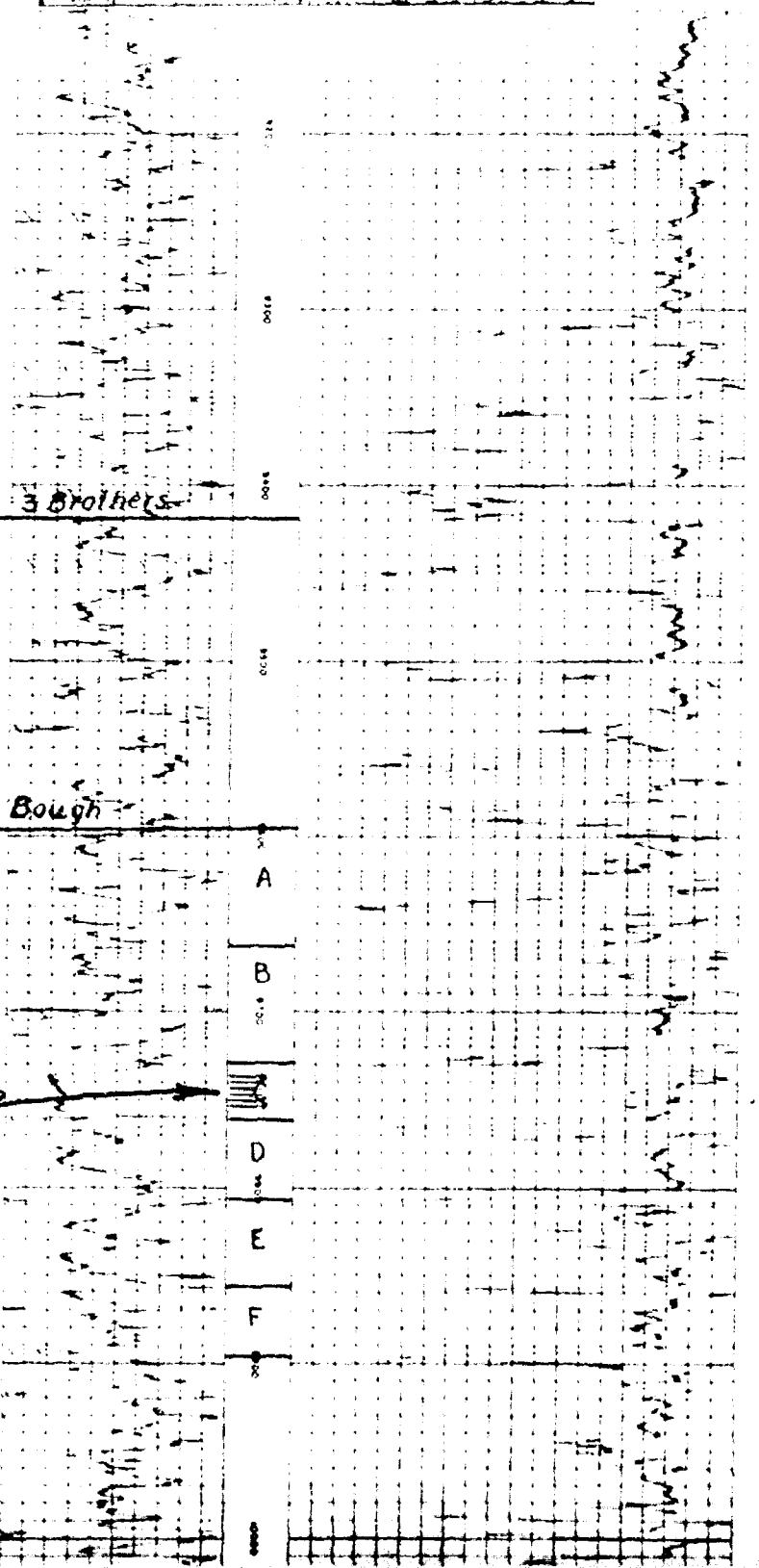
(4)



BOUGH "C"
PF 9626-27
A7500
LPP 36 80 + 257 BXG
24 hr Gr 46.1



5



Bough "C"
Pf 9737-55
A w/500
IPF-314 BOPD,
12/64"
GOR 1423, Gr 45.3

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. 3513
Order No. R-3179

APPLICATION OF MIDWEST OIL CORPORATION
FOR SPECIAL POOL RULES, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 4, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 18th day of January, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the Vada-Pennsylvanian Pool was created and defined by Order No. R-3166, with horizontal limits comprising the NW/4 of Section 20, Township 9 South, Range 34 East, NMPM, Lea County, New Mexico, and vertical limits comprising the Bough "C" zone of the Pennsylvanian formation.

(3) That the applicant, Midwest Oil Corporation, seeks the promulgation of special rules and regulations for the Vada-Pennsylvanian Pool, including a provision for 160-acre proration units.

(4) That the evidence fails to establish that one well in the Vada-Pennsylvanian Pool can efficiently and economically drain and develop 160 acres, or that 160-acre spacing units, even on a temporary basis, would be in the interest of conservation.

(5) That the applicant's request for 160-acre spacing units should be denied.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Vada-Pennsylvanian Pool.

(7) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(8) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(9) That this case should be reopened at an examiner hearing in January, 1968, at which time the operators in the subject pool should be prepared to appear and show cause why the Vada-Pennsylvanian Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) That the request of the applicant, Midwest Oil Corporation, for 160-acre spacing units in the Vada-Pennsylvanian Pool is hereby denied.

(2) That temporary Special Rules and Regulations for the Vada-Pennsylvanian Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
VADA-PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian formation within one mile thereof, and not nearer to or within the limits of another designated Pennsylvanian oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 4.77 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before February 1, 1967.

(2) That each well presently drilling to or completed in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian formation within one mile thereof shall receive a 40-acre allowable until a Form C-102 dedicating 80 acres to the well has been filed with the Commission.

(3) That this case shall be reopened at an examiner hearing in January, 1968, at which time the operators in the subject pool may appear and show cause why the Vada-Pennsylvanian Pool should not be developed on 40-acre spacing units.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr/

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. 3513
Order No. R-3179-A

APPLICATION OF MIDWEST OIL CORPORATION
FOR AN AMENDMENT TO ORDER NO. R-3179,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 27, 1967, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of October, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That by Order No. R-3179, dated January 18, 1967, temporary Special Rules and Regulations were promulgated for the Vada-Pennsylvanian Pool, Lea County, New Mexico, providing for 80-acre spacing units, limited well locations, and an 80-acre proportional factor of 4.77 for allowable purposes, and providing that said temporary rules be reconsidered at an examiner hearing to be held in January, 1968.

(3) That the applicant, Midwest Oil Corporation, seeks amendment of the temporary Special Rules and Regulations promulgated by Order No. R-3179 to provide for 160-acre spacing units and the establishment of a 160-acre proportional factor of 4.77 for allowable purposes.

(4) That the applicant also seeks to have said rules and regulations, as proposed, made permanent.

(5) That the evidence presented indicates the establishment of 160-acre spacing units and a 160-acre proportional factor of 4.77 in the Vada-Pennsylvanian Pool for a temporary period of one year only is warranted.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the temporary Special Rules and Regulations promulgated by Order No. R-3179 should be amended to provide for 160-acre spacing units and the establishment of a 160-acre proportional factor of 4.77 for allowable purposes.

(7) That the temporary Special Rules and Regulations promulgated by Order No. R-3179, as amended by this order, should continue in effect for a period of one year from the effective date of this order to allow the operators in the subject pool to gather additional reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(8) That this case should be reopened at an examiner hearing in September, 1968, at which time the operators in the subject pool may appear and show cause why the Vada-Pennsylvanian Pool should not be developed on less than 160-acre spacing units and to show cause why the 160-acre proportional factor of 4.77 assigned to the subject pool should or should not be retained.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Vada-Pennsylvanian Pool, Lea County, New Mexico, promulgated by Order No. R-3179, are hereby amended to read in their entirety as follows, effective October 15, 1957:

SPECIAL RULES AND REGULATIONS
FOR THE
VADA-PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian

formation within one mile thereof, and not nearer to or within the limits of another designated Pennsylvanian oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit consisting of less than 160 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (158 through 162 acres) shall be assigned a proportional factor of 4.77 for allowable purposes, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before October 15, 1967.

(2) That each well presently drilling to or completed in the Vada-Pennsylvanian Pool or in the Bough "C" zone of the Pennsylvanian formation within one mile thereof shall, after October 15, 1967, receive an allowable in the same proportion to a standard 160-acre allowable for the pool as the acreage presently dedicated to the well bears to 160 acres, until Form C-102 dedicating 160 acres to the well has been filed with the Commission, or until a non-standard unit containing less than 160 acres has been approved.

(3) That this case shall be reopened at an examiner hearing in September, 1968, at which time the operators in the subject pool may present the results of interference tests and other pertinent evidence to show cause why the subject pool should not be developed on less than 160-acre spacing units and to show cause why the 160-acre proportional factor of 4.77 assigned to the subject pool should or should not be retained.

(4) That Order No. R-3179 entered by the Commission on January 18, 1967, is hereby superseded.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr

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. 3513
Order No. R-3179-B

APPLICATION OF MIDWEST OIL CORPORATION
FOR SPECIAL POOL RULES, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 4, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 12th day of September, 1968, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That by Order No. R-3179-A, dated October 4, 1967, temporary Special Rules and Regulations were promulgated for the Vada-Pennsylvanian Pool, Lea County, New Mexico, providing for 160-acre spacing units and a 160-acre proportional factor of 4.77 for allowable purposes,

(3) That pursuant to the provisions of Order No. R-3179-A, this case was reopened to allow the operators in the subject pool to appear and show cause why the Vada-Pennsylvanian Pool should not be developed on less than 160-acre spacing units and show cause why the 160-acre proportional factor of 4.77 should or should not be retained.

(4) That the evidence establishes that the Vada-Pennsylvanian Pool has been and will be efficiently and economically drained and

developed under the Special Rules and Regulations promulgated by Order No. R-3179-A.

(5) That the Special Rules and Regulations promulgated by Order No. R-3179-A have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(6) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result in the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-3179-A should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Vada-Pennsylvanian Pool, promulgated by Order No. R-3179-A, are hereby continued in full force and effect until further order of the Commission.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr/

Docket No. 1-67

DOCKET: EXAMINER HEARING - WEDNESDAY [illegible]

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 3439: (This case continued from the October 11, 1966 examiner hearing and will be dismissed).

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Scanlon and Shepard and all other interested parties to show cause why the following Scanlon and Shepard wells in Township 20 North, Range 9 West, McKinley County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program: Santa Fe Pacific Railroad Lease: Wells Nos. 1, 3, 4, 5, 7, and 8, all in Unit P, No. 10 in Unit H, and No. 2 in Unit L, all in Section 21; Well No. 6 in Unit L and Nos. 9 and 12 in Unit M of Section 22 and Nos. 11 and 13 in Unit D of Section 27, Ray Well No. 1 in Unit C, State Wells Nos. 1 and 2 in Unit A, and State K-1883 No. 1 in Unit B, all in Section 28.

CASE 3440: (This case continued from the October 11, 1966, examiner hearing and will be dismissed).

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Osborn & Weir, and all interested parties, to show cause why the following Osborn & Weir wells in Township 20 North, Range 9 West, McKinley County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program: Scanlon Well No. 17 in Unit P of Section 21 and Nos. 14 and 18 in Unit M of Section 22, Scanlon Ray Wells No. 5 in Unit A and No. 6 in Unit C of Section 28.

CASE 3441: (This case continued from the October 11, 1966, examiner hearing and will be dismissed).

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit LaMar Trucking, Inc., and all interested parties, to show cause why their State Well Well No. 1 located 495 feet from the North and West lines of Section 28, Township 20 North, Range 9 West, McKinley County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program.

CASE 3506: Application of Standard Oil Company of Texas for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Maljamar-Grayburg Unit Area comprising 3,441 acres, more or less, of Federal, State and Fee lands in

(Case 3506 continued)

Sections 2, 3, 4, 8, 9, 10, 11, 14, and 15, Township 17 South, Range 32 East, Lea County, New Mexico.

CASE 3507: Application of Standard Oil Company of Texas for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Maljamar-Grayburg Waterflood Project in its proposed Maljamar-Grayburg Unit Area by the injection of water into the Grayburg formation through thirteen additional injection wells. Applicant also seeks administrative procedure for further expansion of said project at a later date.

CASE 3508: Application of Phillips Petroleum Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of the Vacuum Abo Unit Area, comprising 3640 acres, more or less, of State and Fee lands in Townships 17 and 18 South, Range 35 East, Lea County, New Mexico.

CASE 3509: Application of Phillips Petroleum Company for a pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in its Vacuum-Abo Unit by the injection of gas into the Abo Reef formation through two wells located in Section 33, Township 17 South, Range 35 East, and Section 4, Township 18 South, Range 35 East, Vacuum-Abo Reef Pool, Lea County, New Mexico. Applicant further seeks the promulgation of special rules to govern operation of said pressure maintenance project.

CASE 3278 (Reopened)

In the matter of Case No. 3278 being reopened pursuant to the provisions of Order No. R-2944, which order established 80-acre spacing units for the Stateline-Ellenburger Pool, Lea County, New Mexico, for a period of eighteen months. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3277 (Reopened)

In the matter of Case No. 3277 being reopened to consider the necessity for the continuance of the special allowables assigned to wells in the Stateline-Ellenburger Pool, Lea County, New Mexico.

CASE 3510: Application of United States Smelting Refining and Mining Company for an unorthodox gas well location, Lea County, New Mexico. Applicant in the above-styled cause, seeks approval for its Federal Well No. 2 at an unorthodox location 760 feet from the South line and 2080 feet from the West line of Section 11, Township 20 South, Range 34 East, Lea-Pennsylvanian Gas Pool, Lea County, New Mexico.

CASE 3511: Application of Thomas A. Dugan for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Navajo Federal Well No. 1 completed in the Gallup formation at an unorthodox gas well location 660 feet from the North and West lines of Section 26, Township 28 North, Range 15 West, San Juan County, New Mexico, said well to be dedicated to the NW/4 of said Section 26.

CASE 3512: Application of Pubco Petroleum Corporation for force-pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin-Dakota Gas Pool underlying the S/2 of Section 21, Township 26 North, Range 6 West, Rio Arriba County, New Mexico, and allocating well costs including a risk factor for a well to be drilled on said spacing unit.

CASE 3513: Application of Midwest Oil Corporation for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Vada-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre proration units.

CASE 3514: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider suspending the scheduled cancellation of underproduction which accrued to certain wells in the Eumont Gas Pool during the first six months of 1966 and which was not made-up during the second six months period and was therefore subject to cancellation January 1, 1967. The underproduction being considered for suspension of cancellation accrued as a result of the sale of the connecting pipeline for said wells from an intra-state company to an inter-state company resulting in necessity for FPC approval of sales. The wells, which were shut-in and not produced during the period FPC approval was being obtained, are certain wells formerly connected to Southern Union Gas Company and owned by the following operators: [illegible], Ho-Tex, Penrose, Tidewater, Fields, Atlantic, Skelly, Clark & Christie, Aztec, and Great Western Drilling.

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. 3261
Order No. R-2931-B
NOMENCLATURE

APPLICATION OF AMERADA PETROLEUM CORPORATION
FOR A POOL EXTENSION AND SPECIAL RULES, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing de novo at 9 a.m. on August 17, 1966, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 19th day of August, 1966, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That by Order No. R-2931, dated June 15, 1965, temporary Special Rules and Regulations were promulgated for the Jenkins-Cisco Pool, Lea County, New Mexico, with the provision that said temporary rules be reconsidered at a hearing to be held in July, 1966.

(3) That the applicant, Amerada Petroleum Corporation, seeks amendment of the Special Rules and Regulations promulgated by Order No. R-2931 to provide for 160-acre oil proration units, and the establishment of a 160-acre proportional factor of 6.77 for allowable purposes.

(4) That the evidence establishes that one well in the Jenkins-Cisco Pool can efficiently and economically drain and develop 160 acres.

(5) That the applicant has not presented sufficient evidence concerning the reservoir characteristics of the Jenkins-Cisco Pool to enable the Commission to determine that a 160-acre proportional factor of 6.77 for allowable purposes will not cause reservoir damage.

(6) That the Special Rules and Regulations promulgated by Order No. R-2931, as amended by this order, will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(7) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-2931, as amended by this order, should be continued in full force and effect until further order of the Commission.

(8) That this case should be reopened at an examiner hearing in February, 1967, at which time the operators in the subject pool may appear and show cause why the 160-acre proportional factor of 4.77 assigned to the Jenkins-Cisco Pool should not be retained.

(9) That the applicant, Amerada Petroleum Corporation, also seeks extension of the horizontal limits of the subject pool to include the following additional area in Lea County, New Mexico:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 19: N/2 SW/4

(10) That the horizontal limits of the Jenkins-Cisco Pool should be extended to include the lands described in Finding No. (9) above.

IT IS THEREFORE ORDERED:

(1) That the horizontal limits of the Jenkins-Cisco Pool in Lea County, New Mexico, are hereby extended to include the

following-described area:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 19: N/2 SW/4

(2) That the Special Rules and Regulations governing the Jenkins-Cisco Pool, promulgated by Order No. R-2931, are hereby amended to read in their entirety as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
JENKINS-CISCO POOL

RULE 1. Each well completed or recompleted in the Jenkins-Cisco Pool or in the Cisco formation within one mile thereof, and not nearer to or within the limits of another designated Cisco oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit consisting of less than 160 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located no nearer than 660 feet to the outer boundary of the proration unit boundary and no nearer than 330 feet to any governmental quarter-quarter section line.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an

application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (158 through 162 acres) shall be assigned a proportional factor of 4.77 for allowable purposes, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Jenkins-Cisco Pool or in the Cisco formation within one mile thereof are hereby approved; that the operator of any well ... ing an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before September 1, 1966.

(2) That each well presently drilling to or completed in the Jenkins-Cisco Pool or in the Cisco formation within one mile thereof shall, after September 1, 1966, receive an allowable in the same proportion to a standard 160-acre allowable for the pool as the acreage presently dedicated to the well bears to 160 acres, until Form C-1... dicating 160 acres to the well has been filed with the Commission, or until a non-standard unit containing less than 160 acres has been approved.

(3) That this case shall be reopened at an examiner hearing in February, 1967, at which time the operators in the subject pool may a... ow cause why the 160-acre proportional factor of 4.77 assigned to the Jenkins-Cisco Pool should not be retained.

(4) That Order No. R-2931-A entered by the Commission on July 14, 1966, is hereby superseded.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

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

S E A L

esr/

Docket No. 30-67

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 27, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3622: (Continued from the July 26, 1967 Examiner Hearing)

Application of Ryder Scott Management Company for a waterflood buffer zone, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the N/2 NE/4, SW/4 NE/4 of Section 20, Township 18 South, Range 28 East, Eddy County, New Mexico, as waterflood buffer zone in the Artesia Pool offsetting its waterflood project in Section 21 and Cima Capitan's waterflood project in Section 17 of the same township.

CASE 3658: Application of Continental Oil Company for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a 240-acre non-standard gas proration unit comprising the NE/4 NW/4, NW/4 NE/4, and E/2 E/2 of Section 10, Township 20 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to be dedicated to its Sanderson B-1 Well No. 2 at a non-standard location 1650 feet from the North line and 330 feet from the East line of said Section 10.

CASE 3659: Application of Continental Oil Company for an amendment to Order No. R-3115, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3115 to substitute its SEMU Well No. 56 located in Unit I of Section 25, Township 20 South, Range 37 East, Eumont Pool, Lea County, New Mexico, as a water injection well in its Eumont Hardy Waterflood Project in lieu of SEMU Well No. 55 located in Unit J of said Section 25.

CASE 3660: Application of Tenneco Oil Company for a waterflood project and for an exception to Rule 104 C-I, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Upper Sand of the South Hospah Upper Sand Oil Pool on its Hospah Lease through five wells located in Units A, B, F, G, and H of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, and on its Hospah "A" Lease through one well located in Unit L of said Section 12. Applicant, further seeks an exception to the well location requirements of Rule 104 C-I to permit the drilling of more than one well on a 40-acre tract, said wells being located closer than 660 to each other and with each 40-acre tract being subject to a single 40-acre allowable. The above exceptions, for the South Hospah Upper Sand Oil Pool and the South Hospah Lower Sand Oil Pool, would be applicable to Tenneco's leases comprising the SE/4 of Section 11 and all of Section 12, Township 17 South, Range 9 West.

Docket No. 30-67

CASE 3513: (Reopened)

Application of Midwest Oil Corporation for an amendment to Order No. R-3179, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3179 which order denied 160-acre spacing for the Vada-Pennsylvanian Pool, Lea County, New Mexico, and established 80-acre spacing on a temporary basis. Applicant seeks the reopening of Case 3513 on the basis of new information not available at the time of the original hearing and the promulgation of temporary rules for said pool, including a provision for 160-acre proration units.

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WESTERN UNION
TELEGRAM

1201 (4-60)

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

(103)

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DANIEL S NUTTER=

NEW MEXICO OIL CONSERVATION COMMISION

SANTA FE NMEX=

CABOT CORP SUPPORTS MIDWEST OIL CORPORATIONS REQUEST FOR SPECIAL FIELD RULES INCLUDING 160 ACRE PRORATION UNITS IN THE VEDA-PENNSYLVANIAN POOL LEA COUNTY CASE NUMBER 3513=

PERCY C O'QUINN CABOT CORP=

'67 JAN 3 PM 1

Case 3513

=160 3513

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Ralph Lowe Estate

Phone MU 4-7441

Box 832 Midland, Texas 79701

September 22, 1967

AIR MAIL

Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

Attention: Mr. Daniel S. Nutter

Gentlemen:

Reference is made to Docket No. 30-67 and specifically Case No. 3513 at Examiner's Hearing, September 27, 1967.

This is to advise that Ralph Lowe, as operator, concurs in the findings of Midwest Oil Corporation's studies of the Vada Pennsylvanian Pool, Lea County, New Mexico, and strongly supports 160 acre spacing and 80 acre allowables for this pool.

Yours very truly,

James L. Morris

James L. Morris
for Ralph Lowe Estate

JLM:jsh

'67 SEP 25 AM

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 1/9/67

CASE [redacted] 3513 Hearing Date 9 am 1/4/67
DSN @ 9F

My recommendations for an order in the above numbered cases are as follows:

Enter an order approving 80 acre spacing units for ~~Dev.~~ the Vada-Pennsylvanian Pool, Lea County, for a period of one year.

Although applicant, Amidust Oil Corp requested 160-acre spacing units, they failed to show that 1 well would drain 160 acres and that 160 acre spacing, even on a temporary basis would be in the interest of conservation. Allow an 80-acre proration factor of 4.77 - for the pool.

Vertical limits are the Bough C zone of the Pennsylvanian & horizontal limits are NW/4 of 20-9S-34E as defined in recent nomenclature order.

[signature]

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

REGISTER

HEARING DATE SEPTEMBER 27, 1967 TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
V T Lyon	Continental Oil Co	Hobbs
B T Nelson	"	"
J. Wittock	Tenneco Oil Co.	Durango, Colo.
LB Plunk	Tenneco Oil Co.	Durango, Colo.
Richard S. Morris	Montgomery, Federici & Andrews - Santa Fe	
Jason W. Kellahin	Kellahin & Fox	Santa Fe, N. M.
Bill Baker	Midwest Oil Corp	Midland, Texas
Dick Davis	" " "	" "
Booth Kelly	Midwest Oil Corp	Santa Fe

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This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL
CHAIRMAN OF THE BOARD

R. W. McFALL
PRESIDENT

SYMBOLS
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LA053 NSA249

NS MDA066 PD=MIDLAND TEX 26 1142A CDT=

NEW MEXICO OIL CONSERVATION COMM=

STATE LAND OFFICE BLDG SANTA FE NMEX=

RE CASE 3513 APPLICATION OF MIDWEST OIL CORP. FOR AMENDMENT TO ORDER NO. R-3179 TO ESTABLISH 160-ACRE SPACING FOR VADA-PENN POOL LEA COUNTY, NEW MEXICO. BTA OIL PRODUCERS CONCURS IN THE RECOMMENDATION BY MIDWEST OIL CORP FOR 160 ACRE PER WELL SPACING WITH EACH WELL LOCATED WITHIN 150 FEET OF THE CENTER OF ANY GOVERMENTAL QUARTER-QUARTER SECTION OR LOT WITHIN THE 160 ACRE STANDARD UNIT=

BTA OIL PRODUCERS BY R L HALVORSEN==

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

THE SUPERIOR OIL COMPANY
P. O. BOX 1900
MIDLAND, TEXAS 79701

September 5, 1968

Rec. after hearing

file

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Subject: Case 3513 Reopened on
Vada-Pennsylvanian Pool

Gentlemen:

Regarding the hearing on September 4, 1968, to review temporary field rules for the Vada Pennsylvanian Field, The Superior Oil Company respectfully requests that the 160 acre spacing be retained and the allowable factor of 4.77 be continued.

Bottomhole pressure data on three wells drilled by Superior in the subject field indicates that each well will drain in excess of 160 acres. Whereas, original bottomhole pressure in the Bough C reservoir in the Vada Pennsylvanian Pool was 3575 psi, drill stem test pressures (the only pressures available) taken during completion of our wells show the following: On the Hutcherson Com No. 1 in C-27-9S-34E stabilized shut-in bottomhole pressure on December 9, 1967, was 2593 psig at a depth of 9855 (-5611). Our Hutcherson "A" Com No. 1 in B-27-9S-34E had a stabilized shut-in bottomhole pressure of 2494 psig at 9880 (-5639) on April 1, 1968. And our Pruitt Com No. 1 in L-22-9S-34E had a stabilized shut-in bottomhole pressure of 2352 psig at 9830 (-5573) on June 20, 1968.

The large difference between the original and the above reservoir pressures, plus the gradual reduction in the above pressures as each successive well was drilled at a later date, all illustrate clearly to us that drainage has occurred to wells developed on 160 acre spacing. We thus respectfully request that the 160 acre spacing be continued or be made permanent, whichever the Commission deems advisable.

Attached for your review are results of the drill stem tests taken on our three wells in the Vada-Pennsyivanian Field.

Very truly yours,

THE SUPERIOR OIL COMPANY

D. H. Collins, Jr.
District Engineer

DHC/es

MIDDLE LANE PENN POOL

Bough C Zone
Lea County, New Mexico

		Midwest Lle State No. 1		Midwest State B No. 1		Midwest Skelly State No. 1	
		Oil	Water	Oil	Water	Oil	Water
1962	Oct.	472	2676				
	Nov.	873	7706				
	Dec.	444	3699				
		1789	14,081				
1963	Jan.	308	2919				
	Feb.	1273	12,412				
	Mar.	811	8348				
	Apr.	1089	10,389				
	May	711	7189				
	June	1482	13,449				
	July	1097	9873				
	Aug.	829	746				
	Sept.	850	8075				
	Oct.	749	7116				
	Nov.	870	8265				
	Dec.	604	5738				
		10,676	94,519				
1964	Jan.	601	5709				
	Feb.	643	6108				
	Mar.	900	8550				
	Apr.	861	8180				
	May	525	4988				
	June	547	5197				
	July	1343	12,757	895	8503		
	Aug.	1004	954	326	310		
	Sept.	946	8987	recompleted in Bough "A"			
	Oct.	990	9405				
	Nov.	547	5197				
	Dec.	1573	14,944				
		10,480	90,978				
1965	Jan.	1863	13,702				
	Feb.	1862	14,586				
	Mar.	2825	20,744				
	Apr.	2445	18,122				
	May	2622	19,006				
	June	2871	16,354				
	July	3427	25,194				
	Aug.	2549	18,564			4806	11,700
	Sept.	3005	22,100			4690	14,000
	Oct.	3787	27,846			5652	13,150
	Nov.	2649	19,448			5335	12,465
	Dec.	3213	23,868			4307	10,000
		33,118	239,564			24,790	61,315
1966	Jan.	3241	23,868			5206	11,500
	Feb.	3351	24,752			3295	7,300
	Mar.	4551	33,592			6553	14,500
	Apr.	4343	35,880			5740	12,760
	May	4417	31,824			6147	13,650
	June	4160	8116			5750	12,707
	July	4896	9792			6076	12,152
	Aug.	5354	8727			6806	12,115
	Sept.	5464	8742			7186	7,833
	Oct.	5696	9057			7091	7,729
	Nov.	5873	9127			6440	6,960
	Dec.						
		51,346	203,477			66,290	119,206

LANE WOLFCAMP POOL

(Bough "C" Zone)
Lea County, New Mexico
Production History

WELL	CUMULATIVE PRODUCTION OIL	WATER
Aztec Oil & Gas		
State LW #1	148,395	151,700
State LW #2	51,339	63,200
Cities Service		
State AY #1	39,707	72,235
Humble Oil & Refg.		
N. M. State AM #1	71,539	248,374
Sunray DX		
N. M. State "F" #1	245,528	9,784
N. M. State "F" #2	171,431	911,197
N. M. State "I" #1	101,820	117,106
N. M. State "I" #2	79,362	78,273
Tenneco		
Lane Unit #1	119,358	165,431
TOTAL - Nine Wells	1,028,479	1,817,282
AVERAGE	114,275	201,920

JENKINS WOLFCAMP POOL

(Bough "C" Zone)
Lea County, New Mexico
Production History

WELL	CUMULATIVE PRODUCTION OIL	WATER
Sun Oil Co.		
McNulty #1	162,477	150,894
Meta Schmidt #1	7,297	36,020
Trice Production Co.		
Hutchenson #1	55,531	296,312
TOTAL - ~~Two~~ Three Wells	225,305	483,226
AVERAGE	75,102	161,075

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Applic EXHIBIT NO. 3
CASE NO. 2213

RESERVE ESTIMATE

Vada Lee Pruitt No. 1
Lea County, New Mexico

POROSITY	7.4%
WATER SATURATION	28.0%
FORMATION VOLUME FACTOR	1.7
RECOVERY FACTOR (estimated)	35%
NET PAY	12'

OIL IN PLACE $= \frac{7758 \times 0.074 \times 0.72}{1.7}$

$= 243$ bbl/acre-ft

RECOVERABLE OIL $= 243 \times 0.35$

$= 85$ bbl/acre-ft

$= 85 \times 12$

$= 1020$ bbl/acre

$= 81,600$ bbl/80 acres

$= 163,200$ bbl/160 acres

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
_____ EXHIBIT NO. _____
CASE NO. _____

BEFORE EXAMINER UTZ
OIL CONSERVATION
EXHIBIT NO. 3
CASE NO.

VADA PENN POOL
LEA COUNTY, NEW MEXICO
BHP AND PRODUCTION HISTORY

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Sunray #1-F	12/10/55	1-10-33	3,623	
Sunray #2-F	4/9/56	1-10-33	3,583	18,778
Sunray #1-I	7/5/56	36-9-33	3,577	39,045
Aztec #1-LW	9/1/56	2-10-33	3,520	59,788
Tenneco "Lane Unit" #1	11/22/56	1-10-33	3,366	116,105
Cities Service #1-AY	1/28/57	1-10-33	3,378	165,129
Union Pruitt #1-21	6/1/63	21-9-34	3,454	1,026,303
Sunray State #1-AO	11/11/63	16-10-34	3,300	1,028,901
Sunray State #1-AP	6/26/64	17-10-34	3,205	1,068,366
Midwest Skelly St. #1	8/3/65	10-10-33	2,802	1,172,401
Cactus #1 Atlantic State	8/22/65	32-9-34	3,161	1,184,943
Sunray State #1-"AW"	12/7/65	20-10-34	2,949	1,222,856
Enfield #1 Medlin	10/8/66	28-9-34	2,932	1,381,643
Midwest #1 Pruitt	10/18/66	20-9-34	3,121	1,413,760
Cabot #1 Pruitt	1/27/67	20-9-34	2,933	1,495,993
Midwest #2 Pruitt	4/6/67	17-9-34	2,896	1,593,310

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Midwest #1-A Pruitt	5/28/67	17-9-34	2,514	1,638,000
Midwest #2-A Pruitt	7/24/67	17-9-34	2,834	1,739,675
Midwest I #1 (Humble AM #1)	7/29/67	11-10-33	2,831	
Ralph Lowe D #1	8/10/67	16-9-34	2,750	1,770,000
C. B. Reed #1	8/10/67	3-10-33	2,960	1,770,000
BTA Vada A #1	10/7/67	21-9-34	2,764	1,884,677
Midwest State J #1	10/14/67	11-10-33	2,144	1,930,000
Midwest State K #1	10/21/67	2-10-33	2,698	1,940,000
BTA Lane A #1	10/21/67	21-9-34	2,915	1,940,000
BTA Vada B #2	11/13/67	20-9-34	2,567	2,010,000
Midwest Skelly St. #2	11/15/67	10-10-33	1,732	2,010,000
BTA Vada C #3	11/26/67	21-9-34	2,624	2,060,000
BTA Anderson A #1	12/6/67	6-10-34	2,821	2,070,000
Midwest #1-C Pruitt	12/10/67	20-19-34	2,355	2,080,000
BTA Max #1	12/11/67	30-9-34	3,035	2,080,000
BTA Lane C #4	12/14/67	6-10-34	2,868	2,090,000
Superior Hutcherson #1	12/20/67	27-9-34	2,818	2,110,000
BTA Vada D #4	12/26/67	28-9-34	2,693	2,170,000
BTA Price A #1	1/16/68	15-9-34	2,861	
Midwest State L #1	1/18/68	2-10-33	2,662	

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
BTA Lane C #5	1/28/68	6-10-34	2,908	2,300,185
BTA Anderson A #3	1/28/68	6-10-34	2,874	2,300,185
BTA Max #2	1/28/68	30-9-34	2,918	2,300,185
Del Apache Vada State #1	1/30/68	16-9-34	2,792	2,300,185
Trobaugh Wood #1	2/4/68	29-9-34	2,687	2,320,000
BTA Enfield #1	3/6/68	28-9-34	2,534	2,447,167
BTA Hanson #1	3/7/68	1-10-33	2,419	2,452,000
Midwest State K #2	3/9/68	2-10-33	2,797	2,462,000
Midwest State L #2	3/17/68	2-10-33	2,706	2,480,000
Midwest Hutcherson #1	3/13/68	9-9-34	2,678	
Midwest Howard Cook #1	3/17/68	31-9-34	2,766	2,480,000
BTA Somico #1	3/18/68	20-10-34	2,389	2,490,000
Trobaugh Wood #2	3/20/68	29-9-34	2,643	
BTA Newkirk #1	3/22/68	29-9-34	2,616	2,560,000
BTA Watson #1	3/24/68	9-9-34	2,877	2,570,000
Southland Royalty #2 Vada-State	4/29/68	32-9-34	2,916	2,850,194
Union Pruitt # 1-21	5/7/68	21-9-34	2,540	2,850,000
BTA Somico #2	5/17/68	20-10-34	2,447	3,000,000
Southland Royalty #3 Vada-State	5/20/68	32-9-34	3,008	3,030,000
BTA Mar #2	5/27/68	5-10-34	2,470	3,100,000

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Midwest #2 Tankersley	6/2/68	30-9-34	2,665	3,150,000
Southland Royalty #4 Vada-State	8/5/68	32-9-34	2,562	3,750,000
Midwest D. V. Cook #2	8/23/68	31-10-34	2,257	3,950,000
Union Newman-Federal #1	8/24/68	29-9-34	2,267	3,960,000

WELL DATA

Vada Lee Pruitt No. 1
Vada Penn Pool
LEA COUNTY, NEW MEXICO

LOCATION:	Unit C. Sec 20, T-9-S, R-34-E, Lea County, New Mexico
COMPLETION DATA:	September 28, 1966
PRODUCING FORMATION:	Bough "C"
PERFORATIONS:	9792-9800
COMPLETION TEST:	Pumped 234 BO & 567 BW in 24 hours - GOR 1130
BOTTOM HOLE PRESSURE:	3113 at 9796 on 10-2-66
PERMEABILITY:	58 md. (from drill stem test analysis)
P. I. :	2.59

ECONOMICS

Vada Pennsylvanian Pool
Lea County, New Mexico

GROSS INCOME		$2.87/bbl.
WORKING INTEREST INCOME (87.50%)		2.51/bbl.
OPERATING COSTS AND TAXES		0.50/bbl.
NET WORKING INTEREST INCOME		2.01/bbl.

	80 ACRES	160 ACRES
ESTIMATED RECOVERY	81,600 bbl.	163,200 bbl.
TOTAL NET INCOME	$164,000	$328,000
DEVELOPMENT PER WELL	$175,000	$175,000
NET PROFIT PER WELL	($11,000)	$153,000
RATIO OF INCOME TO INVESTMENT	0.94	1.87

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. [illegible]

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 4, 1968

EXAMINER HEARING

IN THE MATTER OF:

Case 3513 being reopened pursuant to the provisions of Order No. R-3179-A, which Order established 160-acre spacing units and a 160-acre proportional factor of 4.77 for allowable purposes for the Vada-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year.

Case 3513

(Reopened)

BEFORE: Elvis A. Utz
Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3513.

MR. HATCH: Case 3513, reopened. In the matter of Case Number 3513 being reopened pursuant to the provisions of Order Number R-3179-A, which Order established 160-acre spacing units and a 160-acre proportional factor of 4.77 for allowable purposes for the Vada-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year.

MR. MORRIS: Mr. Examiner, I am Richard Morris of Montgomery, Federici, Andrews, Hannahs and Morris, Santa Fe, appearing for Midwest Oil Corporation which was the Applicant for the original rules and for the rules that are now in effect in this pool. We will have two witnesses to present evidence in this case.

MR. UTZ: All right, sir. Are there any other appearances in this case?

MR. KELLAHIN: If the Examiner please, Jason Kellahin of Kellahin and Fox, Santa Fe, appearing for BTA. We will have one witness.

MR. JACOBS: If the Commission please, Ronald Jacobs representing Skelly Oil Company. We have no testimony or evidence we will support.

MR. WHITE: If the Examiner please, Charles White of Santa Fe, New Mexico, appearing on behalf of Tenneco. We have

no witnesses but will make a statement.

MR. JORDAN: J. B. Jordan, Union Oil Company of California, Roswell. We will have a statement at the end of the testimony.

MR. MILLER: Gilbert E. Miller, Union Texas Petroleum, Midland, Texas. We have a statement at the end of the testimony.

MR. UTZ: Are there any other appearances? You may bring your witnesses forward and have them sworn, please.

MR. MORRIS: I'll ask Mr. Blackwell and Mr. Pulte, both, to stand and be sworn, please.

MR. UTZ: I believe you had a witness. Do you want to let him stand and be sworn at the same time?

MR. KELLAHIN: Robert Halvorsen.

(Witnesses sworn.)

MR. UTZ: You may proceed.

MR. MORRIS: Mr. Examiner, at the offset, I'll ask the Examiner to take notice of the record in the following cases: 3513, referring to the hearing that was held in January of 1967; that was the original hearing for rules in this pool as a result of which 80-acre rules were adopted. That case was reopened at the request of Midwest Oil Corporation in September of 1967, again, Case 3513, as a result of which the present rules for the Vada-Pennsylvanian Pool were adopted.

Case 3708, which came to hearing in January of 1968 upon the application of BTA to extend the operation of the Vada-Pennsylvanian rules, or rather, to extend the horizontal limits of the Vada-Pennsylvanian pool, and a corresponding extension of the rules to cover that additional acreage.

I'd ask that the Examiner take notice of the record in those three hearings.

MR. UTZ: The Examiner will so do.

RICHARD BLACKWELL

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Blackwell, please state your name, by whom you are employed, where you are located?

A Richard Blackwell. I'm employed by Midwest Oil Corporation in Midland, Texas.

Q What is your position with Midwest?

A I'm a geologist.

Q Would you briefly state to the Examiner your education and experience in the petroleum industry?

A I have a B. S. Degree in geology from the University of Oklahoma, received in 1956; and I have approximately thirteen

years experience in exploration and geology with two companies, Sinclair Oil and Gas Company and Midwest Oil Corporation, all of which has been in Midland, Texas, and it encompassed all of the Permian Basin in southeastern New Mexico.

Q And are you familiar with the geology in the Vada-Pennsylvanian Pool?

A Yes, I am.

MR. MORRIS: Are the witness's qualifications acceptable?

MR. UTZ: Yes, they are.

MR. MORRIS: May I ask the Examiner to mark that as Exhibit 1.

MR. UTZ: How many exhibits do you have, Dick?

MR. MORRIS: Just one from this witness and one from our next witness.

MR. UTZ: Do you want to mark the exhibit?

MR. MORRIS: You might as well mark that while you're at it here. That's Number 2.

(Whereupon, Applicant's Exhibits Numbers 1 and 2 were marked for identification.)

Q Mr. Blackwell, please refer to what's been marked Exhibit Number 1 in this case, state what that is and what it shows.

A Exhibit Number 1 is a structure map contoured on top

of the Bough-C line which is the pay in the Vada pool area. We wish to show by this structure map that this is indicated to be a typical stratigraphic trap with an up-dip limit, limited by low permeability.

We intend to show with this that there is a continuity of reservoir throughout the trend through the Vada pool here.

Q The Vada pool is outlined in red on this map?

A The Vada pool is outlined in red on this map.

Q In your opinion, Mr. Blackwell, does this exhibit accurately portray the structure of the Bough-C Formation through this pool?

A Yes, it does.

Q Do you have anything further you wish to add to your testimony with respect to this exhibit?

A Only the fact that on one of these maps, we have an area outlined in green. This is an area that encompasses a map of Exhibit 2, I believe it is, which is a larger scale than this map. But other than what I stated, as far as the structure, that's about all.

Q Was this exhibit prepared by you or under your direction?

A It was prepared by me.

MR. MORRIS: We offer Midwest Exhibit Number 1 in

this case.

MR. UTZ: Without objection, Midwest Exhibit Number 1 will be entered into the record in this case.

(Whereupon, Applicant's Exhibit Number 1 was admitted in evidence.)

MR. MORRIS: That's all I have from this witness. Mr. Pulte will testify with respect to some of the engineering aspects in this matter.

MR. UTZ: Now, all this map purports to show is the contour of the top of the Bough-C?

MR. BLACKWELL: That is correct.

MR. UTZ: It has nothing to do with permeability?

MR. BLACKWELL: No. Strictly structure on top of the Bough-C which tends to show that there is no indication of any sort of structural separation along this trend.

MR. UTZ: Are there any other questions? The witness may be excused.

MR. MORRIS: Mr. Pulte.

JOHN PULTE

called as a witness, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Pulte, please state your name, by whom you are

employed and in what capacity.

A John Pulte with Midwest Oil Corporation in Midland.

MR. UTZ: Would you spell your name, please?

MR. PULTE: P-u-l-t-e.

Q How are you employed with Midwest?

A As a petroleum engineer.

Q Have you previously qualified before the Commission or one of its Examiners and had your qualifications accepted of record?

A Yes, I have.

Q Please refer to what has been marked as Exhibit Number 2 in this case and state, first, just what that exhibit is.

A This is the bottom hole pressure information map. It shows the --

Q Excuse me, now. Does the aerial extent of this map coincide with the green outline that is on Exhibit Number 1 in this case?

A Yes, it does.

Q Will you state what this exhibit shows?

A Okay. This map shows the decreasing trend in reservoir pressure as development takes place and is presented as evidence of reservoir communication and the ability of the well to drain at least 160 acres. All pressures are corrected to a subsea datum of minus 5500 and they're either drillstem test pressures

or conventional bottom hole pressures taken at the time of drilling or completion.

Two periods of development are noted. The first, during the middle '50s in the Old Lane Pool, and the second beginning with the discovery of the Vada-Penn Pool in October, 1966. The wells showing pressures and dates of completion, colored in green, are included in the first period, and the Vada-Penn discovery well is also colored in green for reference.

The Lane Pool wells were all completed during the period, December, '55 to January, '57, and the last well was plugged in 1965. Cumulative production is 1,200,000 barrels of oil and an unknown volume of water. During this period, three dry holes which were later re-entered and recompleted were drilled in Section 21, 28 and 32, Township 9, Range 33.

As each well was drilled, a lower pressure was measured: 3428 psi in the Union Pruitt in June of 1963; 3233 psi in the Cactus Atlantic State in March, 1955; and 2961 in the Infield well in October, 1966, which demonstrates pressure communication and the effect of fluid withdrawal from the Lane Pool area. Even wells in the Jenkins Pool appear to be affected from this withdrawal.

The first well drilled in May of 1963 measured a pressure of 3409. The second period of development begins with

the drilling of the Vada-Penn Pool discovery well in October of 1966, the Midwest Pruitt Number 1, in Section 29, Thirty-Four. Reservoir pressure was measured at 3113 psi at the time, and as drilling progressed, pressures decreased.

Development in this area took place more or less simultaneously with development in the Lane Pool area where the same pattern of decreasing pressures occurred.

The sequence of drilling through 1967 is shown in each area by the circled red numbers. By the time the previously-mentioned dry holes were re-entered and completed, a severe decrease in pressure occurred from that measured initially. At the time of completion, the nearest well to the Union Pruitt well was one-half mile away and the nearest well to the Infield well, for all practical purposes, was a mile away.

The BTA Hooker 1-A was actually closer, but was completed only 15 days prior to the time the Infield well was completed.

In conclusion, with a few exceptions, bottom hole pressures do indicate reservoir continuity and communication sufficient to drain at least 160 acres.

Q Mr. Pulte, I believe you stated your conclusion at the end, but just for emphasis, what is your opinion as to the size of spacing unit that can be efficiently drained and developed by one well in this pool?

A The pressure history in the area strongly indicates that one well will drain at least 160 acres.

Q Mr. Pulte, have you examined the pressure information that has been prepared by BTA that they intend to present when it comes their turn to present evidence in this hearing?

A Yes, I have.

Q In your opinion, from your examination of that information, is it correct?

A Yes, it is correct. It shows, further, the same picture of decreasing bottom hole pressures.

Q And does it substantiate your opinions with respect to the efficiency of drainage over at least 160 acres in this pool?

A Yes, it does.

Q Have you examined the information prepared by BTA that will be submitted by it at this hearing concerning the cost and the economics of development in this pool?

A Yes, I have.

Q Do you agree with the matters that will be presented by BTA in this regard?

A Yes, I do.

Q I'm informed, Mr. Pulte that one of the matters that will be presented by BTA concerning their costs will concern the

cost that is involved in water disposal in this field. Do you have any comments you'd like to make with respect to what Midwest's costs of water disposal were?

A Yes. We have made estimates, cost estimates, of installing a disposal system and it will cost us from ten to $12,000.00 per producing well to dispose of produced water.

Q Over what period of time is that figured?

A Over a five-year period.

Q In your opinion, Mr. Pulte, do the costs and expenses of operation in this pool justify development on anything less than 160 acre spacing?

A No, it does not. We could not develop on less than 160 acres.

Q What is your recommendation to the Commission as to the action that it should take with respect to the rules that are presently in effect in the Vada-Pennsylvanian Pool?

A We recommend that the rules be made permanent for 160-acre spacing and 80-acre allowable, 4.77 factor.

Q In other words, that the present rules be made permanent?

A Right.

Q Was Exhibit Number 2 prepared by you?

A Yes, it was.

MR. MORRIS: At this time, we offer Midwest's Exhibit Number 2 into evidence.

MR. UTZ: Without objection, Exhibit Number 2 will be entered into the record in this case.

(Whereupon, Applicant's Exhibit Number 2 was admitted in evidence.)

MR. MORRIS: Mr. Examiner, we realize that we have not presented a full picture here in support of making these rules permanent; however, we do believe that our testimony here, when taken in conjunction with the evidence to be offered by BTA, that our witness has referred to, will make the complete case and I didn't want to leave the Examiner with the impression that we thought we had done it all ourselves and that BTA's case would be just supplementary. That is all that I have of this witness at this time.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Pulte, you didn't make a graph, pressure versus time production to show these pressures, did you?

A This will be presented by BTA.

Q By BTA. It's your contention here that these pressures shown on Exhibit 2 show a pressure decline versus time production?

A Correct.

Q You did say something about, or unless I misunderstood you, to the effect that you felt that the Jenkins area has been drained by this Lane area, was that what you said?

A It appears to be effected, possibly. Mainly, the time that the first well the Jenkins Pool drilled was in May of '63 and this compares with the pressure in that Union Pool well in Section 21, also taken in the middle of '63, June of '63. Both of them are very close; 3428 in the Union Pruitt, 3409 in the Jenkins.

Q There have been a couple of dry holes drilled in those two areas, have there not?

A There has, true. And it's possible that there isn't good permeability, but there could still be sufficient to affect the entire area.

Q The well in Section 30 of 9 South, 34 East, which was drilled 5-6-63, was that a discovery well for the Jenkins area?

A I do not know which one was the discovery well. The first well that I was able to pick out of my figures was the Number 1 colored in green, the pressures colored in green.

Q Well, that appears to be the highest pressure —

A That's right.

Q -- on the wells that you have shown here. You're not

questioning the nomenclature of the Vada Pools in reference to this statement, are you?

A No.

Q You're just trying to show a lot of drainage.

A Right. Possible.

MR. UTZ: Are there any other questions of the witness? You may be excused.

MR. KELLAHIN: Would you mark those, please?

(Whereupon, BTA Exhibits Numbers 1 through 7, inclusive, were marked for identification.)

R. L. HALVORSEN

called as a witness, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A R. L. Halvorsen.

Q By whom are you employed, Mr. Halvorsen?

A BTA Oil Producers.

Q What is your position?

A Chief Engineer and General Manager.

Q Have you testified before the Oil Conservation Commission and made your qualifications as an engineer a matter

of record?

A Yes.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, sir.

Q Mr. Halvorsen, are you familiar with the case in 3513 now being heard before this Commission?

A Yes, sir, I am.

Q Did you testify in the previous case, Number 3708, on January 10th, 1968?

A Yes, sir, I did.

Q Now, referring to what has been marked as BTA's Exhibit Number 1, would you identify that exhibit, please?

A Exhibit Number 1 is a land plat showing the outline of the present limits of the Vada-Penn Pool, and on this plat, it's designated, the various old field names that have been now included within the Vada field limits, mainly, the Lane Field and the Simanolo Field and the Vada.

Q Now, that includes areas that you testified as to in Case Number 3708, does it not?

A Yes, sir, it does.

Q Does that include the additions that were made to the Vada Pool in the hearing held in August?

A Yes, sir.

Q That is, the pool, as of September the 1st, then, is that correct?

A That's correct.

Q Now, referring to what has been marked as BTA's Exhibit Number 2, would you identify that exhibit?

A Exhibit Number 2 is a tabulation of the production, of the Bough-C production from wells included within this area. It's tabulated by fields as listed in the Oil Conservation Commission records and is totalled and it shows the cumulative oil production by months from this area.

Q Now, does that include the area presently included in what has been defined as the Vada Pool?

A Yes, sir, it does.

Q Referring to what has been marked as BTA's Exhibit Number 3, would you identify that exhibit?

A Exhibit Number 3 is a tabulation of initial reservoir pressures and approximate accumulated oil at the time the reservoir pressure was measured for numerous wells within the present limits of the Vada-Penn Pool.

Q Now, have you prepared two exhibits using the basic information on Exhibits 2 and 3 to show cumulative oil production versus bottom hole pressure and cumulative oil pressure

versus time?

A Yes, sir, I have.

Q Now, referring to what has been marked as Exhibit Number 4, would you identify that exhibit?

A Exhibit Number 4 is a plot of reservoir pressure versus cumulative oil production. This plot shows a color code for pressures measured in the various original field designations. For example, the Lane area is colored in yellow, and the Vada area in green and the Simanola area in red. I've also indicated in circles on these plots, additional code numbers that I will discuss to show that wells are capable of draining in excess of 160 acres.

Q Now, referring to the numbers that you have shown in circles, what is the significance of those numbers?

A These numbers indicate what, in my opinion, are key wells to show the drainage affects in this field area. For example, the pressure point indicated by the Number 1 refers back to Exhibit 3 as the Sunray Number 1-F, completed in December, 1955, having a bottom hole pressure of 3623 pounds. This was the first completion in this Vada-Penn area. It's designated as being in the old Lane Pool area which it was classified at that time.

This is an indication of what virgin reservoir pressure

should be in the Bough-C Formation at this minus 5500 datum. The pressure point marked by Number 2 is the Union Pruitt Number 1-21. That's situated in Section 21 of Nine, Thirty-Four, completed as a dry hole in June, 1963, and its pressure recorded by drillstem test of that well was 3454 pounds.

At that time, a total of 1,260,303 barrels had been produced from the outlined area.

MR. UTZ: Where is that well located on your listing, again?

THE WITNESS: That's on the first page. It's approximately midway down the page. It's the seventh well down the page.

MR. UTZ: 3454, you say?

THE WITNESS: That is correct.

MR. UTZ: Section 21, 9 South, 34 East?

THE WITNESS: Yes, sir.

Q Now, you said that there had been cumulative production prior to the time that well was drilled, is that correct?

A Yes, sir, that's correct. All of this production came from the Lane field area.

Q And at what distance from this subject well?

A Approximately three, three and a half miles.

Q Now, does that indicate that that well had been

subjected to drainage, in your opinion?

A Yes, sir, it does.

Q Now, you say that well was completed as a dry hole. Was it later recompleted?

A Yes, sir, it was. If you'll refer to pressure point Number 11 on my graph, this well was re-entered in May of 1968 by Union Oil Company and they have calculated bottom hole pressure, at that time, to be 2540 pounds. This represents a 914 pound pressure drop with absolutely no production from the well bore.

This pressure could have been drawn down only by surrounding wells and the spacing pattern in the vicinity of this Union Pruitt Number 1-21 is 160 acres per well.

Q Does that indicate, in your opinion, that one well will actually drain in excess of 160 acres?

A Yes, sir, it does.

Q Now, do you have some other dry holes that were drilled in the area?

A Yes, sir. We have two additional wells that were originally completed as dry holes and have since been re-entered and completed as producers. The next one I wish to discuss is identified as Item 4 on the pressure chart, and Number 4 is the Cactus Atlantic State Well Number 1 situated

in Section 32, Nine, Thirty-Four.

This well was re-entered by Southland Royalty and completed as a producer. Let me back up. At the time that was drilled, drillstem test indicated the reservoir pressure to be 3161 pounds. It was re-entered by Southland Royalty as their Number 3 Vada State in May of 1968. At that time, they measured a bottom hole pressure of 3008 pounds indicating 153 pound drawdown with no production from the well.

MR. UTZ: What was your initial pressure on that well?

THE WITNESS: 3161 pounds.

MR. UTZ: Okay.

MR. UTZ: Okay.

A The third so-called dry hole has been re-entered and made a producer and is indicated as Number 5 on my pressure plot. It was the Infield Number 1 Midland completed as a dry hole in October of 1966. Bottom hole pressure --

MR. UTZ: Where is that located?

THE WITNESS: That's in Section 28, Nine, Thirty-four.

MR. UTZ: Well Number what?

THE WITNESS: Well Number 1. It's presently called BTA Infield Number 1.

MR. UTZ: Okay.

A Bottom hole pressure measured, at that time, was

2932 pounds. BTA re-entered that well in March of 1968 and we measured a bottom hole pressure of 2534 pounds. This indicates a drawdown of 398 pounds with absolutely no production from the well.

Q Now, just as a general proposition and referring to your Exhibit Number 4, does the exhibit, as a whole, indicate that there has been a uniform pressure decline indicating drainage over a large area?

A Yes, it does. I might go further and say that if you follow the color codes, for example, the yellow colored dots there, you'll notice that each -- this would pertain to the wells drilled and completed in the vicinity of the old Lane Pool shows that each of the pressures recorded, with slight variation, is less than original pressure.

Q Now, are each of those pressure points, other than the dry holes that were re-entered, virgin pressures in the well, in particular well bores?

A These are initial pressures measured in the well before any hydrocarbon or water withdrawals. I might add, also, that this is also obvious for wells in the Simanola area; the wells colored in red.

You'll note Point Number 3 being Sunray's State Number 1 A-O situated in Section 16 of Ten, Thirty-four,

measured 3300 pounds in November of 1963. Pressure Point Number 10 is BTA's Somico Number 1, completed in March of 1968. This is situated in Section 20, Ten, Thirty-four, and it recorded a pressure of 2389 pounds, and it was situated, at that time, approximately one-half mile from the nearest production in the Simanola Field which, in that area, also shows that greater than 160 acre drainage is taking place.

Q Now, referring to what has been marked as Exhibit Number 5, would you identify and discuss that exhibit?

A Exhibit Number 5 is a plot of pressure versus time. It shows the same pressure points plotted versus time as the field was developed. It shows, essentially, the same characteristic that pressure is declining with time as it is with cumulative withdrawals.

Q Now, the wells marked with the triangles are the holes which were completed as dry and then re-entered and completed for production, is that correct?

A That is correct.

Q And the numbers are the same as those on Exhibit Number 4?

A That is correct.

Q Now, at the time of the hearing in June of 1968, did you prepare some reservoir data?

A Yes, I did.

Q Have you found any reason to change any of that data, Mr. Halvorsen?

A No, sir, we have not.

Q Referring to what has been marked as Exhibit Number 6, is that an exhibit that was offered at the hearing in January of 1968?

A Yes, it was.

Q And that gives the reservoir data, to the best of your information, --

A That is correct.

Q -- to this pool?

A This is average reservoir data for the area in question, and it was discussed in detail at the January 10 hearing.

Q Now, referring to what has been marked as Exhibit Number 7, would you identify that exhibit?

A Exhibit Number 7 is a tabulation of the economics for drilling, comparing 80-acre economics versus 160-acre development. The 80-acre economics show very little, if any, profit, a 1.07 return on investment; whereas, the 160-acre spacing will permit a 2.15 ratio of income to investment.

Q Now, that Exhibit Number 7 is the same information you offered in Case 3708 in January of 1968?

A Yes, sir, it is.

Q Has there anything occurred which would change your economics in this Vada area?

A The only modification that I would make to these economics would be to allow additional operating and development expense for disposal of water.

Q Now, this new pool does make large volumes of water, does it not?

A It does.

Q And that's reflected on one of your exhibits.

A Yes, Exhibit Number 2.

Q Exhibit Number 2. What disposition is being made of this water?

A This water, a portion of it, is being collected by commercial water disposal companies for subsurface disposal. A portion is now going into pits, but plans are being developed to dispose of this water underground.

Q Have you any cost figures on what this water disposal will run?

A BTA estimates that it will cost approximately $10,000.00 per well over the life of the well to dispose of water.

Q Now, that would then adversely affect your economics as shown on Exhibit Number 7?

A Yes, it would, slightly.

Q Were Exhibits 1 through 7 prepared by you or under your supervision?

A Under my supervision, yes.

MR. KELLAHIN: At this time, I offer into evidence Exhibits 1 through 7.

MR. UTZ: Without objection, Exhibits 1 through 7 will be entered in the record in this case.

(Whereupon, BTA's Exhibits Numbers 1 through 7, inclusive, were admitted in evidence.)

Q (By Mr. Kellahin) Mr. Halvorsen, you heard testimony offered by Midwest with regard to the geology in the Vada area. Are you in agreement with that?

A Yes, sir. Essentially, the geology as presented by Midwest agrees very well with our interpretation of the structure.

Q And does it agree with the cross section which you offered in Case Number 3708 in January of 1968?

A Yes, sir, that still applies.

Q What recommendation do you make as to the adoption of pool rules for the Vada-Pennsylvanian Pool?

A I recommend that the present 160-acre spacing rules be made permanent and that the 4.77 allowable factor be retained.

Q Now, the 4.77 allowable factor, is that the factor for 80-acre spacing? Is that correct?

A That's correct.

Q For what reason do you recommend an 80-acre allowable for 160-acre spacing?

A As we've discussed in previous hearings, this is approximately the maximum oil production we can make from these wells using equivalent that will fit our economics, installation of larger pumping equipment, larger sized casing, et cetera. Could permit us to produce more oil, but we don't think that's feasible. We're very content with the 80-acre allowable.

Q Now, in your opinion, will one well efficiently and economically drain and develop 160-acres in the Vada Pool?

A Yes, a minimum of 160 acres.

MR. KELLAHIN: That's all I have on direct examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Halvorsen, referring to Exhibit Number 6, I note there's no permeability information on there. Do you have any available?

A No, sir, I do not. We have no cores and none made available to me.

Q No cores in the Vada?

A I have not seen any. I don't know of any core data available. The only well we attempted to core was a dry hole. I believe Midwest had a similar experience.

Q You wouldn't want to use that, though.

A No. There is a dry hole by virtue of being -- the pay being dense in that area. This occurs in this area.

Q Referring to Exhibit Number 7, where you show an operating cost attached as 50 cents a barrel, do you have an estimate how much higher that will be on a per barrel basis due to water disposal?

A Approximately five cents.

Q A nickel a barrel?

A Yes, sir. There's initial expense, also, but it will be approximately five cents.

Q Practically all the wells drilled in this pool are actually drilled on 160 acre pattern, were they not?

A Yes, sir, they were.

Q And in particular, the three examples you gave where you had a substantial drop in pressure and no production from the well bore, were drilled on at least 160 acre spacing.

A Yes, sir.

MR. UTZ: Are there any other questions of the witness? The witness may be excused. Is that all you have, Mr. Kellahin?

MR. KELLAHIN: That's all I have, Mr. Utz. I was advised this morning that Sun Oil Company would send a telegram which has probably not yet been received, and would state that we have no objection to the Examiner giving the same consideration to that telegram as to other like communications.

MR. UTZ: Other telegrams?

MR. KELLAHIN: Yes, sir.

MR. UTZ: Any statements in this case?

MR. WHITE: Tenneco Oil Company supports Midwest and BTA and we respectfully urge the Commission to adopt the special pool rules.

MR. JACOBS: Mr. Examiner, Ronald Jacobs for Skelly Oil Company. Skelly Oil Company, likewise, supports the recommendations made by Midwest and BTA and urges the Commission to adopt, as permanent rules, the present temporary rules including the 4.77 factor for this, for the allowable. It appears to us that this is somewhere in the vicinity of the wells MER, the fields MER, if each well would produce that.

We feel that evidence has demonstrated that one well will adequately, efficiently and economically drain at least 160 acres.

MR. UTZ: You mean, its oil and water, MER?

MR. JACOBS: Yes.

MR. JORDAN: Mr. Examiner, J. B. Jordan, Union Oil Company of California, Roswell, and I have a letter from our engineering department in Midland. It's addressed to the New Mexico Oil Conservation Commission, State Land Office, Santa Fe, New Mexico. Attention: Mr. D. S. Nutter. In regards to the Vada-Penn Pool rules be reviewed in Case 3513, reopened, Order Number R-3179-A. Gentlemen: Union Oil Company of California is in support of establishment of permanent 160-acre spacing units and 160-acre proportional factor of 4.77 for allowable purposes in the Vada-Pennsylvanian Pool, Lea County, New Mexico.

We believe that the established spacing unit of 160 acres can be efficiently and economically drained and developed by one well. We further believe that utilization of permanent field rules as above-described will protect correlative rights and prevent economic waste caused by the drilling of unnecessary wells.

It's signed, H. R. Willis, District Engineer.

MR. UTZ: Thank you. Mr. Miller, do you have a statement?

MR. MILLER: Mr. Examiner, Union Texas Petroleum

has reviewed the presentation and they also recommend that the 160-acre proportional, 160-acre spacing units and 160-acre proportional factor of 4.77 for allowable purposes be established as permanent rules.

MR. UTZ: That was an 80-acre proportional factor, 4.77, I believe.

Are there any other further statements?

MR. HATCH: The Commission has received communications from Cabot Corporation, Ralph Lowe Estate, Delaware Apache, and Allen K. Trobaugh in support of the Applicant in this case.

MR. UTZ: No further statements, the case will be taken under advisement. We'll take a ten minute recess.

I N D E X

E X H I B I T S

Number	Marked for Identification	Received in Evidence
Applicant's Exhibit Number 1	5	7
Applicant's Exhibit Number 2	5	13
BTA Exhibits Numbers 1 through 7	15	26

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

I, CHARLOTTE MACIAS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 2nd day of October, 1968.

Notary Public

My Commission Expires:

February 10, 1971.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3513 heard by me on Sept. 4, 1968.

, Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 27, 1967

EXAMINER HEARING

IN THE MATTER OF:

Application of Midwest Oil Corporation for an amendment to Order No. R-3179, Lea County, New Mexico.

Case 3513

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3513.

MR. HATCH: Application of Midwest Oil Corporation for an amendment to Order No. R-3179, Lea County, New Mexico.

MR. MORRIS: Mr. Examiner I am Dick Morris of Montgomery, Federici and Andrews, Santa Fe, appearing for the applicant, Midwest Oil Corporation. We will have two witnesses, Mr. Don Davis and Mr. Bill Baker. I ask that they both stand and be sworn at this time.

(Witnesses sworn)

(Applicant's Exhibits marked for identification 1 through 6-R)

MR. MORRIS: Mr. Examiner, this application concerns Order No. R-3179 dated January 18, 1967, a copy of which I will furnish you for your information. That order was entered upon the application of Midwest Oil Corporation seeking 160-acre oil proration units following the initial discovery in the Vada-Pennsylvanian Pool. At that time the Commission felt that the evidence presented was insufficient to justify 160-acre spacing so that the request was denied and the Commission established 80-acre spacing in the field and provided that at the end of the year, that would have been January, 1968, the Applicant or any other interested party can come in and show what the spacing should be in the pool.

As our evidence will show, the pool has developed, I think, more rapidly than anyone could have foreseen, and we now have evidence to present that we believe will show that one well can efficiently and economically drain a proration unit of 160-acres.

We'll have two witnesses, Mr. Davis, a Geologist, just with respect to one exhibit, and Mr. Baker will present the application from the engineering standpoint.

D O N A L D W I L L I A M D A V I S, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Davis, will you please state your name, where you reside, by whom you are employed, and in what capacity?

A I am Donald William Davis. I am employed by Midwest Oil Corporation as a geologist in it's Midland, Texas District Office in Midland, Texas.

Q Will you please state to the examiner your education and experience in the petroleum industry?

A I graduated from the University of Oklahoma in 1950, with a Bachelor of Science Degree in Geology. I have had approximately fifteen years of experience in subsurface geology,

primarily with the Bay Petroleum Corporation, Tennessee Gas Transmission Company, and Midwest Oil Corporation.

Q What is your experience been geographically?

A West Central Texas, West Texas, Southeastern New Mexico, Western Canada, Eastern United States.

Q How long have you held your present position as Geologist with the Midland District of Midwest Oil Corporation?

A I was transferred from Denver to Midland in May of this year. At that time I took over a portion of Southeastern New Mexico as my area to handle, and the Vada area is in this area.

Q What have you done to familiarize yourself with the development in the Vada-Pennsylvanian Pool?

A Well, this is an area we have been actively developing. Made subsurface studies along with the whole area subsurface studies.

Q Have you examined the logs of all Wells that have been drilled in this area?

A Yes, sir.

MR. MORRIS: Are the witnesses qualifications acceptable, Mr. Examiner?

MR. UTZ: Yes, sir.

Q (By Mr. Morris) Mr. Davis, will you refer to what

has been marked as Exhibit 1-R in this case? By way of explanation, we have marked all of our exhibits with an "R" because this is a reopened case, so as to avoid confusion. And will you explain what that exhibit shows?

A Exhibit 1 contains two parts, a stratigraphic log cross-section and a structure contour map, contoured on top of the Bough C, which is the producing zone in the field. The map also, of course, shows the present stage of development of the field. It's noted that we have or there are seven completed oil wells in the field. There are two different locations, one BTA in the southwest quarter of Section 21, and one in the northeast quarter of Section 19 by Mr. Reed. I believe that the BTA Vada is still drilling. Mr. Reed's well has run casing and appears to be unsuccessful in completion of the well from the Bough C at this time.

The structure map itself shows a structural nosing over the productive area. We feel at this time, however, that the primary trapping mechanism of the field is a porosity pinch-out up-dip. We feel that this evidenced by the performance of our No. Pruitt, and, also Mr. Reed's Ainsworth Well in Section 19.

We feel that there is definitely additional development drilling, and that the structure may or may not,

probably not, is probably not critical to the development of the reservoir. As far as we know there are no other producing zones in the field, to date, and apparently we have no indication that any zones might produce.

The cross-section shows the correlation of the Bough C, which is the producing zone, and other beds in the vicinity of the Bough C. I think the cross-section clearly demonstrates that all wells which are shown on the cross-section, all producing wells in the field are producing from the same reservoir. The perforations are, of course, shown in red, the producing perforations of each well.

Q Which well was the initial well in the field?

A The discovery well was the Midwest No. 1 Vada-Pruitt.

Q That's the second well from the left on the cross-section?

A Correct.

Q Are the completion dates for the wells shown at the bottom of each of these logs on the cross-section?

A Yes. At the bottom we have shown the total depth of the well, the initial potential, both oil and water, the completion date of the well.

Q Just counting the wells it appears that Midwest is

the operator of four of the seven producing wells in the field at this time.

A Yes, sir. That's correct.

Q Adjacent to the log on the cross-section, do you have shown all of the drillstem test information that is available in this Pool?

A We have shown all the drillstem test information that were valid tests. The missruns, which were largely due to packer failures, packer seat failures, are not shown as they added no information.

Q Is there anything further you wish to add to your testimony concerning this Exhibit, Mr. Davis?

A I guess not.

Q Was this Exhibit prepared by you or under your direction?

A It was prepared under my supervision. The contouring is mine.

MR. MORRIS: We offer Exhibit 1-R into evidence, Mr. Examiner.

MR. UTZ: We have an objection? Exhibit 1-R will be added into the record of this Case.

(Whereupon, Exhibit 1-R was admitted into evidence)

MR. MORRIS: That's all we have for Mr. Davis.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Davis, in your opinion, has this pool been delineated at this time?

A No, it hasn't.

Q Do you feel that there are other locations that would merit drilling?

A Yes, sir, I do.

Q Did I understand you to say that the BTA Vada-1 was a dry hole?

A No, sir. I believe that well is still drilling, the BTA.

Q It hasn't reached total depth?

MR. MORRIS: I believe the witness was referring to the Reed Well over in Section 19.

Q (By Mr. Utz) And that was a dry hole?

A It's not a dry hole. Officially we don't know what the ultimate outcome will be. Mr. Reed said they were presently shut down. They had made three attempts to complete the well, break the formation down with acid and they never did get a good break-down on it -- three treatments.

Q If your application was granted -- Well, I think your engineer can answer this question.

MR. UTZ: Are there other questions? The witness may be excused.

(Witness excused)

B I L L B A K E R, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Baker, will you state your name, where you reside, by whom you are employed and in what capacity?

A Bill Baker. I am from Midland, Texas and I am employed by Midwest Oil Corporation as a Petroleum Engineer.

Q Have you previously testified before the Oil Commission, or one of it's Examiners, and had your qualifications established and accepted as a matter of record?

A Yes, sir, I have.

Q Did you testify previously in the original case for field rules in this pool, that resulted in Order No. R-3179?

A Yes, sir, I did.

Q Mr. Baker, will you refer to Exhibit 2-R and bring the Commission and the Examiner up to date on the production history that has occurred in the subject pool since the initial discovery?

A Exhibit 2-R is an Exhibit showing the production

history from all the present wells that are completed in the Vada-Penn. The first well listed is our discovery well. At the time of the first Hearing, we only had this one well with production information on, consisting of some three months. We now have production information of ten months on this well, along with other wells which have been completed in the Pool. We have shown the monthly oil and water production for each well. The cumulative production for each well shown at the right-hand edge of the Exhibit. The total monthly production listed under "total" at the bottom of the exhibit and the cumulative production listed under "cumulative" for the entire field, by months.

This exhibit indicates the type of production that we have from the Bough C, as can be seen. A large amount of water is produced by most of the wells in the field, averaging a little over fifty per cent water production.

Q What is your average production per day from the well that Midwest operates?

A This would be in the neighborhood of 200 barrels of oil per day with equal amount of water.

Q In your opinion, what is the drive mechanism in this pool?

A Primarily a solution gas drive. Possibly there is a

small effect from water drive. I would say very small though.

Q Refer next, Mr. Baker, to both Exhibit 3-R and 4-R and state what those exhibits are.

A Exhibit 3-R is a graphical presentation of the bottom-hole pressure history from the Vada-Penn Pool, with the bottom pressure being plotted against cumulative production from the field. The data which was used to make this graph is shown on Exhibit 4-R. They contain essentially the same things, one is tabular form and one in graphical form. Referring to Exhibit 3-R, the first point on the plot labeled No. 1 shown in red, and also corresponding to the well labeled No. 1 in the lower right-hand corner, is the original pressure from the field. This was taken on our Pruitt No. 1 at the time of completion. The bottom-hole pressure of 3113 pounds. The second point is a pressure taken by Cabot Carbon Company on a drillstem test from our Pruitt No. 1. This pressure was 2923 pounds, which was a drop of some 190 pounds from the original pressure.

MR. UTZ: Which well was that?

THE WITNESS: The Cabot Carbon Pruitt No. 1.

MR. MORRIS: That's the No. 2 well depicted?

A Shown in red as No. 2. It's in the northeast border of Section 20.

MR. UTZ: That was 20 --

THE WITNESS: 2923.

MR. UTZ: All right.

A This showed a pressure drop of 190 pounds which had occurred over a distance of 1320 foot as a result of production of 21,200 barrels of oil from our Pruitt No. 1.

Q Now, this information you do have tabulated on Exhibit 4, is that correct?

A Yes. We were referring to both Exhibits at the same time.

Q All right, go ahead.

A The third point is the bottom-hole pressure taken on our Pruitt No. 2 at the time of completion. This pressure was 2896. It represented a drop in a reservoir pressure of 217 pounds from the original pressure. This drop had occurred over a distance of some 1867 foot from the nearest producing well, which is the Midwest Pruitt No. 1.

The fourth point is the Midwest Pruitt A No. 1. This, also, is a bottom-hole pressure taken immediately after completion. The pressure recorded on this test was 2509 pounds or a drop of 604 pounds from original reservoir pressure. This well, I feel sure, was being influenced by production from both the Midwest Pruitt No. 1 and the Cabot Carbon Pruitt No. 1 causing this large decrease in bottom-hole pressure.

Q How far distant is that well from the two wells that you just mentioned?

A From the Cabot Well it would be 1320 feet;from the Midwest Pruitt No. 1, it would be 1867 feet. Point No. 5 is a pressure taken on the Midwest Pruitt A No. 2. This pressure was 2831 and indicated a drop of 282 pounds in reservoir pressure at this location.

Q That well is up over, or approximately a mile away from Well number -- that you have shown as Well Number 4 in this Exhibit. Is that correct?

A No. Approximately a half a mile away.

Q All right. Yes, excuse me.

A 2640 feet. This pressure indicates that we had lost 280 pounds of reservoir pressure over this distance, while the other wells in the reservoir had produced 105,500 barrels of oil. The final points shown on the graph is a drillstem test pressure on the Ralph Lowe State D Number 1. This pressure was 2780 pounds or a drop of 333 pounds from our original reservoir pressure of 3113. This well is located some 2950 feet from the closest producing well in the reservoir.

Q In addition to the information shown on this graph and tabulation, do you have any information available from interference tests between any wells in this pool?

A No, sir, I do not. We attempted to run an interference

test between the Midwest Pruitt No. 1 and the Pruitt No. 2. Both of those wells were on hydraulic pump at the time we attempted this test. We pulled the pump and ran a bomb on the hole on top of our pump, and left it seven days and pulled it out again and looked at it and the clock had stopped on the first day, so we could not get an interference test, due to the expense of leaving the well shut in and working with wells that are not capable of making up production when they are shut down. We did not try to run another interference test after that.

Q Based on the bottom-hole pressure history that you have and it's plot against production, can you draw any conclusion with respect to the effective drainage which is occurring in this reservoir?

A Yes, sir, I think very definitely. I would conclude that the wells in this reservoir are capable and are draining much more than the necessary acreage for the 160-acre spacing.

Q Just in summary how do you draw that conclusion?

A If a well were located in the center of a quarter, it would have a radius of some 1320 feet to the edge of that quarter section or to the limits of where another well would be draining in another quarter section. However, this would not get the corners. So, if a well can effectively drain a

[illegible]

A Yes, sir. [illegible] original hearing. I have [illegible] somewhat from the first one. [illegible]

Q Would you just [illegible] Exhibit and in what respect they differ [illegible] estimate that you made at the [illegible] rules?

A This Exhibit [illegible] differs from the original [illegible]

MR. UTZ: Is there a change in formation volume factor?

THE WITNESS: Yes, sir. Originally I used 1.7 which I believed to be too high. I lowered that to .145. We didn't have an analysis of the reservoir fluid. We don't definitely know what the formation volume factor is. This has been determined from correlation charts as best it could be determined.

Q (By Mr. Morris) Mr. Baker, isn't thirty-five per cent an unusually high recovery factor for a solution gas drive reservoir?

A Yes, sir, this is very high. It appears to be optimistic, but from our experience in the middle Lane-Penn, in the Enbe Penn, this type recovery will be attained from this type reservoir. Using these figures, referring to the two bottom lines on the exhibit, we come up with the reserves of 19,200 barrels for 80-acres and 182,400 barrels for 160-acre drainage.

Q Using this estimate of reserves have you gone further and prepared a brief study as to the economics of development on 160-acre spacing as against 80-acre spacing?

A Yes, sir. I have shown as Exhibit 6-R, on this exhibit I have listed a gross income of $2.92 a barrel, which

is five cents a barrel higher than we had at the time of our first hearing, due to the increase in the price of crude. We show a net working interest income, after deducting royality and operating costs and taxes of $2.05 a barrel. Applying this figure to reserves on 80-acre spacing we show a total net income of $186,960.00. I have listed a development cost per well of $175,000.00.

Q Is this in line with your experience on the four wells you have drilled in this field?

A Actually this is a smaller figure than the amount we have spent on our four wells. I don't know what the other operators have spent. Our original well cost $205,000.00 to drill. Our average runs in the neighborhood of 185,000 rather than the 175,000 figure that I have used.

Q You would hope that additional development wells could be drilled for $175,000?

A Yes, sir. Using this figure, this indicates a net profit per well of $11,960.00 on 80-acre spacing or ratio of income to investment of 1.07. Referring to the next column, we show the economics, 160-acre spacing, Using the reserves calculated on the preceding exhibit, we have a total net income of $373,920.00, the same development cost figure, a net profit per well of $198,920.00; a ratio of income to investment of

2.14.

Q Now, Mr. Baker, this, as you have shown here, is a ratio of income to investment and not profit to investment?

A Not profit to investment. That is correct. This is income to investment.

Q In preparing this economic study did you take into consideration any income from gas production?

A No, sir, I did not. We have only recently begun to sell the gas from the Pruitt field or the Vada field. I do not consider this. This would add approximately three cents a barrel to our net working interest income.

Q Would that substantially change the profit per well or your ratio of income to investment?

A No, sir, it would not.

Q Mr. Baker, are you familiar with the present rules for the Vada-Pennsylvanian Pool, as contained in Order Number R-3179?

A Yes, sir, I am.

Q Do you have any recommendations at the present time as to the amendment of those Rules?

A Yes, sir. I would propose that the rules be amended to provide for 160-acre proration units rather than 80-acre proration units.

Q Do you have any recommendation with respect to the

allowable factor that should be provided?

A Yes, sir, I would propose that the present 80-acre allowable factor of 4.77 be retained.

Q Would you explain why you're recommending, in essence, that an 80-acre allowable be assigned to this pool even though it be given 160-acre proration units?

A The wells in this pool are not capable of making any more than an 80-acre allowable for only a short time after completion. Since they cannot make more than would be provided by 4.77 factor we would propose that this factor be retained.

Q I believe you stated earlier, Mr. Baker, that your average production per day from the four wells that Midwest operates, is around 200 barrels of oil a day?

A Yes, sir.

Q What recommendation do you have with respect to well locations, in the event the Commission should amend the rules to provide for 160-acre proration or spacing units?

A I would recommend that the present well location requirements of 150 feet from the center of any governmental quarter-quarter section be retained.

Q In other words, you would recommend what, in common parlence, is referred to as a flexible location requirement?

A Yes, sir, very definitely.

Q In your opinion would the adoption of flexible well location requirements have any beneficial effect upon further development in this Pool?

A Yes, sir, I think it would. It would provide for more development, I believe, than would be attained under six location requirements.

Q Go back, Mr. Baker, and look at Exhibit No. 1-R showing the location of all the wells in the field, and point out, if you will, where these well locations would fit into any rigid pattern that the Commission might adopt.

A Considering the normal fixed pattern of northeast and southwest quarters, the Midwest Pruitt No. 1, the Midwest Pruitt No. 2, the Midwest Pruitt A No. 1, and "A" No. 2 would fit this pattern.

Q What wells would not fit the pattern?

A The Ralph Lowe State D No. 1 would be off pattern. The Cabot Carbon Pruitt No. 1 would be off pattern. The BTA Well, which is presently drilling, would be off pattern, and the Reed Ainsworth Well, if it is a successful well, would be off pattern.

Q At the present time, Mr. Baker, the field rules were set up on temporary acre spacing with provision made that they were to be reconsidered next January. If the Commission

sees fit for granting your application and to amend the Order at this time, do you have any recommendation as to whether the rules should be temporary or permanent, and do you have any recommendation whether the case should be reopened at a later time or not?

A I would recommend that the rules from the result of this hearing be made permanent.

Q And what is the reason for your recommendation?

A I don't think additional development in this field will provide any additional information that would be helpful in determining the drainage situation in this pool.

Q Then to summarize your testimony, Mr. Baker, is it your opinion that one well in this pool can efficiently and economically drain and develop 160 acres?

A Yes, sir, it is.

Q And is it your opinion that the establishment of 160-acre spacing and proration in it's, as you have suggested, would be in the interest of conservation?

A Yes, sir.

Q Have you received any indication from any of the other operators in the pool whether they concur or do not concur in your proposed amendment to the pool rules?

A Yes, sir, we have. We have received a letter from

Ralph Lowe concurring with our proposed rules. I have discussed this with BTA, with Cabot Carbon, and with Charles B. Reed, and they all concur with our proposal for 160-acre spacing.

Q Were Exhibits 2-R through 6-R prepared by you or under your direction?

A Yes, sir, they were.

MR. MORRIS: We offer those exhibits into evidence Mr. Examiner.

MR. UTZ: Without objection, the Exhibits 2-R through 6-R will be entered into the record of this Case.

(Whereupon, Exhibits 2-R through 6-R were entered in evidence)

CROSS EXAMINATION

BY MR. UTZ:

Q Do you have a pipeline connection in this area at this time?

A No, sir, we do not.

Q What are the prospects?

A I think the prospects are fairly good with the development that has taken place. We have not been able to get a definite commitment from any pipeline. We have two possibilities that I think one of the two will develop in the near future.

Q What is it costing you to truck the oil out at this time?

A Nineteen cents a barrel.

Q Are any of the wells off the recommended 160-acre pattern that you have recommended?

A None of the producing wells in the field are the BTA Well, as spotted on here, is not off of this pattern either, However, I do not know the exact footage on the BTA Well. The Ralph Lowe State D No. 2 was drilled within these limits. It is not a 660 location, it is a 560 foot location. I believe from the southern edge of the northwest quarter of Section 16.

Q That's within the 150 foot tolerance, isn't it?

A Yes, sir, it is within that tolerance.

Q So as far as your recommended spacing is concerned, the only one you are not sure of is the BTA-Vada-1.

A That is correct.

MR. MORRIS: I might point out, Mr. Examiner, that the well should be located in accordance with the rule of 150 feet from the center of the quarter-quarter section, inasmuch as it would be governed by the present rules of the pool. It appears to be within one mile of the boundary of the pool and the present rules are 150 feet from the center of

either quarter-quarter section of the unit at the present time.

Q (By Mr. Utz) I note that on your Exhibit 5-R that you have used for reserves the relationship of two to one between 80 and 160-acres. Is it your opinion that efficient drainage is as good on 160 as it is on 80?

A Approximately so, with the kind of pressure reduction we are experiencing through the reservoir, I feel that you would have good drainage over 160-acres.

Q Do you have any permeability information?

A Yes, sir, I do. I do not have anything that I consider reliable. We cored our Midwest Pruitt A, No. 1. The results of this core indicated a maximum permeability or a permeability in the range of about three millidarcies. It also indicated a porosity in the range of four per cent. I do not feel that this is reliable data.

Our log on this well indicates a maximum porosity in the range of twelve per cent. Our initial potential on this well, as shown on Exhibit 1-R, was 552 barrels of oil and 175 barrels of water per day. I don't think this kind of fluid would be obtained from the reservoir with a four per cent porosity and a three millidarcy permeability.

We also have a drillstem test analysis taken from the Midwest Vada-Pruitt No. 1. This information was shown in

the original hearing. This analysis indicated a permeability of fifty-eight millidarcies for the Bough C.

Q Which well was that?

A The Midwest Vada-Pruitt No. 1, the discovery well in the field.

Q Is it your intention to make any further attempts as to interference tests?

A No, sir. Not unless we happen to get us a good flowing well. It was quite expensive to run an interference test between two pumping wells where you have a hydraulic casing pump in the hole. It takes seven days loss of production plus the expense of pulling the tubing and the pump and running a bomb in the hole on the tubing, and then pulling it out again to retrieve the bomb to see what your results are. We have run bottom-hole pressure tests on all of our wells. None of the other wells in the field have had any bottom-hole pressure tests run on them. We don't feel that we can justify the expense of any more attempts at an interference test.

Q How expensive is an interference test to run, not including the delayed production.

A The test itself, not including the production or the cost of pulling the tubing and running it back, costs about $700 for the bomb and running it in the hole. That was the

approximate cost of the misrun we had.

Q The loss of production in such a test is merely a loss of current income, is it not?

A That is correct.

Q An interference test is substantially cheaper than drilling on 80-acre spacing, is it not?

A Yes, sir. that's quite true. However, our economics to us, can't justify drilling on 80-acre spacing in this reservoir.

Q In your Exhibit 3-R it is based on the premise that the initial bottom-hole pressure was 3113 on all wells completed, is that correct?

A Yes, sir, or very close to that -- above 3,000 pounds anyway.

Q So, if that assumption is made, then this Exhibit would show interference?

A **Yes, sir,** in fact it definitely would.

Q It would give you no indication as to the efficiency of the interference or the drainage?

A No, sir.

Q I would gather that it's your intention not to run any further annual bottom-hole tests as far as drainage is concerned in this pool?

A We will continue to run the bottom-hole pressure tests on each well that we complete.

Q That's required anyway, is it not?

A No, sir, I don't believe it is. I don't think the rules have been established requiring annual bottom-hole pressure tests in this field. However, I was referring to the test immediately after completion which we will continue to run.

Q What's the quality of the water that is being produced in this area?

A It is brackish water.

Q What's the disposition of the water?

A It is being disposed of in surface pits. I might add that we have purchased two Penn wells, approximately three miles from the Vada field. One of these wells is an abandoned salt water disposal well. The other is an abandoned Penn producer. We purchased these expressly for the purpose of disposing of water from the Vada field into these two wells. We propose to form a joint system with other operators in the field and lay a line to these two wells to dispose of this water.

Q Which direction from the field are these wells?

A Southwest. They're in the old abandoned Lane field.

MR. UTZ: Are there any other questions?

REDIRECT EXAMINATION

BY MR. MORRIS:

Q Just one or two further questions. Is this area at the present time within any Order of the Commission prohibiting disposal of salt water in surface pits?

A No, sir, it is not.

Q In the event such an order is entered, or in the event you proceed with your plans to dispose of salt water by sub-surface disposal, will that be an additional expense, over and above the operating cost that you have incorporated into your economic study in Exhibit 6-R?

A Very definitely. I have not made any estimate of the cost of this system. I would estimate a minimum of $50,000 to install a disposal system to these two disposal wells. It will probably be much higher than that.

MR. MORRIS: That's all I have Mr. Examiner.

MR. UTZ: Are there any further questions? The witness may be excused.

(Witness excused)

MR. UTZ: Any statements?

MR. MORRIS: I have a very brief statement. I don't want to go back over all of the evidence by any means. I would point out to the Examiner, and to the Commission, that it has

to be recognized and admitted that plot of bottom-hole pressure history against cumulative production is not conclusive by any means on the question of effective drainage, but it is the best information that is available and it looks like the best information that is going to be available in this pool. When this is considered in connection with the economic picture we certainly believe that 160-acre spacing at this time, is justified.

I think the Examiner is well aware that the Commission, in the past, has granted wide spacing merely upon economic consideration. Even where there is almost no information available with respect to the efficiency of the drainage or at least nothing, no conclusive information available with respect to it.

As Mr. Baker has testified here, the economics of the development here, considered alone, require that the operators in this field not develop on any closer pattern than 160 acres. We feel that the Commission should give primary consideration here to the economics of this proposal. And, also, I don't mean to belittle the study that has been made with respect to the plot of pressure against cumulative production, but, even if we had no such plot, we believe that the economics of the situation would justify the request for

160-acre spacing.

The only other thing that I have, Mr. Examiner, to ask if there are communications in your file with respect to the positions of other operators in the pool.

MR. UTZ: Yes, sir, the attorney has such communications.

MR. HATCH: We have communications from BTA Oil Producers, from Ralph Lowe's State, from Cabot Corporation concurring in the recommendations of the applicant. We don't have anything from Mr. Reed.

MR. MORRIS: That's all I have.

MR. UTZ: Any other statements? The case will be taken under advisement and the hearing is adjourned.

I N D E X

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 23rd day of October, 1967.

Ada Dearnley
Notary Public

My Commission Expires:

June 19, 1971

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3563, heard by me on Oct. 27 1967.

Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 4, 1967

IN THE MATTER OF:

Application of Midwest Oil Corporation for special pool rules, Lea County, New Mexico

Case No. 3513

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will call next, Case 3513.

MR. HATCH: Case 3513: Application of Midwest Oil Corporation for special pool rules, Lea County, New Mexico.

(Whereupon, Applicant's Exhibits 1-7 marked for identification)

MR. MORRIS: If the Examiner please, I am Dick Morris of Montgomery Federici & Andrews, Santa Fe, appearing on behalf of the Applicant, Midwest Oil Corporation. We will have two witnesses, Mr. McIntyre and Mr. Baker and I ask that they both stand and be sworn at this time, please.

(Witnesses sworn)

NORBERT MCINTYRE, called as a witness, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Will you please state your name, where you reside, by whom you are employed and in what capacity?

A My name is Norbert McIntyre. I work for Midwest Oil Corporation. I work out of Midland, Texas.

Q What is your position with Midwest?

A I am a geologist.

Q Have you previously testified before the Commission or one of its examiners and had your qualifications made a matter of record?

A Yes, I have.

Q Are you familiar with the application of Midwest Oil Corporation in Case 3513?

A That's correct.

Q Mr. McIntyre, will you refer to what has been marked as Exhibit No. 1 in this case, state what it is and what it shows?

A This is a regional map of the northwest part of Lea County, New Mexico, showing the Middle Lane-Vada, Jenkins-Wolfcamp, and Jenkins-Cisco Pool, all of which produce from the Bough C formation.

Q Would you point out the location of the discovery well in the Vada-Penn Pool?

A The discovery well in the Vada-Penn pool is in the northeast quarter of the northwest quarter of Section 20, 9 South, 34 East.

Q Are there other wells drilling or staked in this Vada-Pennsylvanian pool?

A Currently Cabot Corporation is drilling a well 1320 east of our discovery well at last count. Now, it's hard to see. It's right in the middle between the D and TW in Midwest on this map.

MR. NUTTER: That would be one 40-acre location directly east?

A Yes, sir, they are currently 9,400 and fishing and we have authorized expenditures to drill one in the southwest, southwest of 17 which would be a northwest diagonal to our discovery well.

Q (By Mr. Morris) That will be drilled by Midwest?

A That's correct, assuring we can obtain permission from the Commission.

Q Mr. McIntyre, on this plat you have various wells designated by red numerals. What is the reason for that?

A These are tight logs from the various pools in the area, including the pools I have named and in Exhibit 2 I have a log section which indicates that all of these wells which are designated by numbers are producing from the Bough C Formation.

Q Do you have included in that set of tight logs a well in the Jenkins-Cisco Pool?

A That's correct. That would be Number 5 in Exhibit 2.

Q Mr. McIntyre, have you previously furnished to the Commission information that would show the separation of these various pools that you have just mentioned?

A Yes, I have. In our discovery allowable hearing I submitted to the Commission log sections which included the wells within this immediate vicinity.

Q Your purpose in showing that these pools are all producing from the Dough C is not to show any connection between pools?

A No. In fact, our attempt was to show separation between the pools.

Q Do you have anything further you wish to present to the Commission from a geologic standpoint?

A Nothing outside of the two exhibits which are marked here and the logs which I have reproduced poorly, I will admit, on Midwest Louisiana Land Separation State No. 1, we got a poor log there, so it's kind of misty when you look at it, but I think on the original it would probably indicate what I am trying to show and these logs are for no other purpose than to indicate that these pools which I have shown here are all producing from the same zone.

Q That's for the purpose of some comparisons Mr. Baker will make in his testimony?

A That's correct.

Q Was Exhibit 1 prepared by you and under your direction?

A That's correct.

Q And was the information shown in red on the tight logs being Exhibit 2 prepared under your direction?

A That's correct.

MR. MORRIS: We offer Exhibit 1 and 2 into evidence.

MR. NUTTER: Applicant's Exhibits 1 and 2 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 and 2 admitted in evidence.)

MR. NUTTER: Are there any questions of Mr. McIntyre? You may be excused.

(Witness excused)

BILL BAKER, called as a witness, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Baker, will you please state your name, where you reside, by whom you are employed and in what capacity?

A Bill Baker, from Midland, Texas. I work for Midwest Oil Corporation as a Petroleum Engineer.

Q Have you previously testified before the Commission or one of its examiners and had your qualifications established as a matter of record?

A Yes, sir, that's correct.

Q Are you familiar with the application of Midwest Oil Corporation in this case?

A Yes, sir, I am.

Q In line with Mr. McIntyre's testimony, Mr. Baker, I

will ask you to refer first to various data collected on the other pools in this general area producing from the Bough C zone. In that regard, will you refer to what has been marked Exhibit No. 3 in this case?

A On Exhibit No. 3 we have production history from the Lane-Wolfcamp Pool and the Middle Lane Pool.

Q Will you just point out the pertinent features of the production history that you have collected on this exhibit?

A Yes, sir, I think this production that we show here will probably be similar to that that we obtain from the Vada-Penn and that's the object in showing this. The Lane-Wolfcamp is a depleted pool. There are no wells producing there now. We had nine wells in that pool which produced a little over a million barrels of oil, almost two million barrels of water, the per well average was 114,000 barrels of oil and the water percentage was 63% which is similar to our Vada-Penn.

Q What is the status of production in that pool at the present time?

A It is depleted. There is no Bough C production in Lane-Wolfcamp. Shown below this is the Jenkins-Wolfcamp Pool, for all practical purposes depleted. There is one well still producing about ten barrels a day. These three wells

have averaged 75,000 barrels of oil per well and the water percentage has been 68% in that pool. On the next page we have the Middle Lane Pool. I show three wells here, pretty good production history on the Midwest LLE State No. 1. Our State B No. 1 was recompleted in the Bough C zone. Although it is still open in the Bough C I did not show any production for this well. And our Skelly State has a year's production history that we show. Recently, there have been two other wells completed but we only have here two or three month's production history so I did not include it in this one. The main thing I would like to show on this is the production history for LLE State No. 1. The well started out at a low rate. It continued to produce at a low rate of some 600 to 1,000 barrels per month for almost two years, until we changed our production method and found out a little bit more about producing in the Bough C Formation, At which time, the production began to increase and as you can see, it has continued to increase through 1965 and 1966. The water production percentage has decreased. This is shown as a very sharp decrease in May of '66, which is incorrect, but that's the way it got reported through the engineering committee. However, it did change over a period of about a year from some 90% down to 61% which it is producing at the present time and we are obtaining similar production from

our Skelly State.

Q This also shows the cumulative production that has been experienced from the LLE State No. 1?

A Yes, our cumulative production is shown at 107,000 barrels of oil.

On your next exhibit, Exhibit 4, I have a reserve estimate which is made for the LLE State No. 1. The data that we use was taken from core analyses, used a recovery factor of 35% which is estimated and I think fairly high recovery factor for any pool and, as you can see, our reserves come out to a figure of 32,000 barrels for 80 acres.

Q That is the spacing in the Middle Lane Pool?

A That is the spacing, yes. We have already produced 107,000 barrels and our production is increasing, so obviously there is some gross error here, which we can account for part of it in the net pay figure. This well does have an effective net pay of six feet. However, we know as we get away from the well to the north and to the west the net pay increases. We can double this figure and still only have a recovery figure of 64,000 barrels of oil.

Q That is for 80 acres?

A For 80 acres. Therefore, I maintain that we are draining a very much larger area than 80 acres with this well.

Q And there you are referring to the cumulative

production that you have experienced from this well of better than 107,000 barrels of oil?

A That is correct.

Q And you attribute it mostly to the ability of the LLE State to drain an area considerably in excess of 80 acres?

A Yes, I think this is true for all Bough C.

Q If you would, refer next to Exhibit Number 5.

A This is a reserve estimate on our Vada-Lea Pruitt Number 1. The porosity and water saturation figures are taken from log analysis. We have again formation volume factor of 1.7, recovery factor of 35% and net pay in this well of twelve feet. This gives us a recoverable oil figure of 81,600 barrels per 80 acres or 163,200 barrels for 160 acres.

Q Now, Mr. Baker, comparing the reservoir characteristics between the Vada-Penn and the Middle Lane as shown on the previous exhibit and looking at the recovery that you expect on 80 acres and 160 acres, what conclusions can you draw as to the probable ability of a well in the Vada-Penn to drain 160 acres?

A The reservoir characteristics are very similar. We do have a better well, I think, in the Pruitt area than we had in our LLE as far as net pay is concerned. However, I think the drainage of the two would be very similar, that is, I think the Vada-Lea Pruitt would certainly drain as large an area as the LLE State, which is in the Middle Lane Pool.

Q What would be your opinion as to the ability of a well in the Vada-Penn Pool to drain a proration unit of 160 acres in size?

A I think a well in the Vada-Penn would definitely drain 160 acres. I believe that a well in any of these Penn pools that we have talked about will probably drain 160 acres.

Q Refer, if you will, to Exhibit No. 6 and explain the economics as you see them now, of production in the Vada-Pennsylvania.

A We are selling our oil to a trucking firm there. We are having to truck it, therefore, we have a gross income of two eighty-seven per barrel for our oil. Operating cost and taxes we figure at fifty cents per barrel, which gives us a net working interest income of two dollars and one cent per barrel. Looking below this at our figures listed under 80 acres and under 160 acres, using the estimated recovery that we had on a previous exhibit on 80 acres we would have a total net income of $164,000.00 as compared to $328,000.00 on 160 acres. The Vada-Lea Pruitt No. 1 cost us $175,000.00 to drill and I have used this figure as our development cost.

Q Let me interrupt you there. Why do you feel that $175,000.00 would be the estimated cost of a development well in this pool?

A This figure includes, of course, our pumping

equipment also, but I don't think we spent any money unnecessarily in drilling this discovery well. We ran two drillstem tests, whereas, in a development well, we possibly would run one. Other than that I don't see that there would be any difference in cost. We did not drill below the Penn. I think the cost would be essentially the same. On 80-acre spacing we would fail to realize a profit using these figures, whereas, on 160-acre spacing we do show that we would have a profit of $153,000.00 or a ratio of income to investment of 1.87 for 160-acre spacing.

Q Now, before we talk about our proposed rules and the allowables to be assigned under our proposal, would you refer to Exhibit 7 and point out some of the well data on your Pruitt No. 1 and especially the completion tests and production tests that have been run on this well?

A Exhibit 7 shows what little information we do have in this pool. Coming down to the fifth line our completion test, we pumped 234 barrels of oil, 567 barrels of water in 24 hours, with a GOR of 1130.

Q Have you other test information to report to the Commission that is not shown on this exhibit?

A Yes, sir, this test shown here was on September 28, 1966. We submitted another test to the Commission on November 16. During this test the well produced 336 barrels of oil,

450 barrels of water, with a GOR of 1,315. Following this test, we did produce the well at rates of up to 351 barrels of oil per day, which has been our maximum production from the well. Our latest test is dated December 29th, at which time we produced 297 barrels of oil per day with 300 barrels of water. Our GOR on this test was 360 and we had reduced the capacity of our surface equipment. Therefore, this test is somewhat smaller than the last one submitted to the Commission.

Q If the capacity of your pumping equipment were increased, would you expect the well to test higher than the 297 barrels of oil produced on your most recent test?

A Yes, sir, I believe we could produce net rates above 300 barrels a day. As I say, we had produced it at 351.

Q Would you now explain to the Examiner your proposal for special rules and regulations in this pool?

A If I may go back just a minute --

Q Oh, sure.

A There is one or two more things on Exhibit 7 I would like to point out. Our original bottomhole pressure was 3,113 pounds. We show a permeability of 58 millidarcies which was made from analyses of a drillstem test NNI of 2.59 on this particular well also from drillstem test data. I believe that's all I have.

Q Now, if you would, go into the proposed rules for the pool.

A We would propose essentially the same rules the Commission has established for the Jenkins-Cisco Pool. That is, we would like 160-acre proration units with flexible locations and we are proposing an allowable factor of 5.77.

Q How was the proposal of 5.77 for the allowable factor arrived at?

A For 160 acres the normal factor is 6.77 which, with our basic unit allowable of 52 barrels, would give a daily allowable of 352 barrels per day. Now, this obviously is a little high. It would be at the capacity of our well. In fact, a barrel or two over, and we do not see any use in asking for an allowable that we cannot produce and 80-acre allowable would be 248 barrels per day, which is somewhat under the capacity of the present well in the field, so we are asking for a factor of 5.77 which, with our 52 barrel basic unit allowable would give an allowable of 300 barrels per day.

Q Three hundred barrels per day is roughly in line with your most recent production test also?

A That is correct.

Q On that test, did you say that your well had produced with a gas-oil ratio of 260?

A That is right.

Q So in your estimation, I take it, that would be a reasonable allowable for this pool, assuming that other wells are going to be similar to your discovery well?

A That is correct. I believe a similar well in this pool could produce 300 barrels a day allowable.

MR. MORRIS: Mr. Baker has referred to the rules for the Jenkins-Cisco Pool. Those were adopted by Order No. R-2931 B in Case No. 3261 on August 19, 1966. I have a copy of those rules that I will submit.

Q Were Exhibits 3 through 7 prepared by you or under your direction?

A Yes, sir, they were.

MR. MORRIS: We offer Exhibits 3 through 7 into evidence.

MR. NUTTER: Applicant's Exhibits 3 through 7 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 3-7 admitted in evidence.)

Q (By Mr. Morris) Do you have anything further to offer to the Commission?

A No, sir.

MR. MORRIS: That's all I have at this time.

MR. NUTTER: Does anyone have any questions of Mr.

Baker?

BY MR. NUTTER:

Q These various reservoir factors that you have got here on Exhibit No. 5, your porosity, water saturation, formation volume factors and net pay, how were each of these arrived at, please?

A The porosity and water saturation came from log analysis from the Vada-Lea Pruitt No. 1; formation volume factor taken from a reservoir fluid analysis from a well in the Lane-Wolfcamp pool; the recovery factor is estimated and the net pay figure is from log analysis from our Vada-Lea Pruitt.

Q You said the formation volume factor was taken from a reservoir fluid analysis from the Lane-Wolfcamp Pool?

A Yes, sir, I believe that is correct. We have used this in previous testimony before the Commission. It was actually taken from our testimony in the Middle Lane-Penn Pool case.

Q What formations does this Lane-Wolfcamp Pool include? Does it also include the Bough C zone?

A The Lane-Wolfcamp is the Bough C zone, yes, sir. There was some difference in nomenclature there, which I think has later been straightened out. The Lane Pool produced from two different formations. There was a Lane-Penn Pool and the Lane-Wolfcamp. However, what is known as the Lane-

Wolfcamp was Bough C production.

Q Of the Pennsylvanian?

A Yes, sir, I think that's shown on Exhibit 2.

Q You are not comparing a Wolfcamp volume formation to the Bough C?

A No, sir, from the name you would think --

Q Then your net pay of twelve feet you arrived at by log analysis?

A Yes, sir.

Q No core taken on this?

A No core.

Q And your 35% recovery factor is just an estimate?

A That's just an estimate.

Q Now, you haven't, in the economics of the pool, given any consideration to the value of the gas to be produced?

A No, sir I have not. We do not have a gas market at the present time.

Q You haven't given any credence to the possibility of a pipeline connection and an increased value in your oil from pipeline connection rather than trucking it?

A We possibly will obtain a pipeline connection. However, from our experience in this area, it will possibly take two or three years before pipeline will connect us

That was our experience in the Middle Lane-Penn and there were some conditions there too that we had to meet before a pipeline would come in.

Q Well, normally, it would be expected that adequate reserves would have to be developed. Where is the nearest pipeline connection at the present time?

A The nearest pipeline connection that I am aware of is in the Jenkins-Cisco which is to the east of us.

Q Five miles?

A Four or five miles.

Q I am particularly interested, Mr. Baker, in this Exhibit No. 3 in production decline chart for this LLE State No. 1. Are you sure it's not upside down?

A It appears to be. That's why I didn't bring a decline curve. I was afraid you might not believe me.

Q Actually, what did happen there in December of 1964 when your production showed its first substantial increase?

A In December of '64 we changed our method of production. We changed. We had hydraulic equipment in, however, we changed from a tubing pump to casing pump. Also, we made some changes in personnel which also made some difference.

Q Started producing more water?

A Yes, sir.

MR. NUTTER: Are there any other questions of Mr. Baker?

REDIRECT EXAMINATION

BY MR. MORRIS:

Q With respect to these questions that were asked you by the Examiner concerning the Lane-Wolfcamp Pool and where you obtained your formation volume factors, are you familiar with the tight logs that are Exhibit No. 2 in this case that were testified to by Mr. McIntyre?

A Yes, sir, I am.

Q And those show that in all of the pools referred to, the producing interval was and is the Bough C Formation?

A It is definitely the Bough C, that is correct.

Q Has that information been checked with the Hobbs office of the Commission?

A Yes, sir, we were a little concerned over this nomenclature a year or so previous to this and we did check with the Commission in Hobbs and kind of got ourselves straightened out as to what the proper nomenclature should be.

Q Also with respect to the economics of the situation, assuming that you have got a pipeline connection and assuming that you had some gas production that would increase your income, would that materially affect the economics and the ratio of income to investment that you would expect on your 80-acre and 160-acre calculations?

A No, sir, it would not affect them greatly. I think with a pipeline connection and with the sale of gas, our net

working interest income would not increase more than twenty cents per barrel, which still would not enable us to show a profit on 80-acre spacing.

MR. MORRIS: That's all I have.

MR. NUTTER: Are there any other questions of Mr. Baker? He may be excused.

(Witness excused)

MR. NUTTER: Do you have anything further, Mr. Morris?

MR. MORRIS: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3513?

MR. HATCH: Telegram from Cabot Corporation dated January 3, 1967, "Cabot Corporation supports Midwest Oil Corporation's request for special field rules including 160-acre proration units in Vada-Penn Pool, Lea County, Case No. 3513."

MR. NUTTER: Thank you. If there is nothing further, we will take the case under advisement and call a fifteen minute recess.

(Recess)

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, KAY EMBREE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

Kay Embree
Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3513, heard by me on 1-4 19 67.
[signature], Examiner
New Mexico Oil Conservation Commission

RESERVE ESTIMATE

Middle Lane Pool
Lea County, New Mexico

RESERVOIR DATA -	Midwest LLE State No. 1
Porosity	6.1%
Water Saturation	30.6%
Formation Volume Factor	1.7
Recovery Factor	35%
Net Pay	6'

Oil In Place

$$= \frac{7758 \times 0.061 \times 0.694}{1.7}$$

= 193 bbl/acre-foot

Recoverable Oil

= 19340.35

= 67.5 bbl/acre-foot

= 67.5 X 6

= 405 bbl/acre

= 32,400 bbl/80 acres

MIDDLE LANE TO VADA (PENN) TREND

RESERVOIR DATA

POROSITY	Range	5-10%
POROSITY	Average	8%
WATER SATURATION	Estimate	30%
FORMATION VOLUME FACTOR		1.50 (Borden's Correlation)
RECOVERY FACTOR	Estimate	35%
NET PAY	Range	4-12'
NET PAY	Average	10'
BUBBLE POINT - EST.		3200' (From Reservoir Pressure Performance)
RESERVOIR PRESSURE @ ABANDONMENT		500
OIL GRAVITY		46° API @ 60°
GAS GRAVITY		0.825
SOLUTION GOR		Est. 1000 CF/Bbl.
OIL IN PLACE		$= \frac{7758 \times 0.08 \times 0.70}{1.50}$
		= 290 Bbl/Acre Ft.
ESTIMATED ULTIMATE RECOVERABLE OIL		= 290 x 35% or 102 Bbl/Acre Ft.
		= 102 x 10' or 1020 Bbl/Acre
		= 81,600 Bbl/80 Acres
		=163,200 Bbl/160 Acres
ESTIMATED % DEPLETED		$= \frac{3200 - 2700}{3200 - 500}$ X 100 or 18.5%
THUS RECOVERABLE OIL @ 1/1/68 @ 81.5% is:		= 66,500 Bbls/80 acres
		=133,000 Bbls/160 Acres

MIDDLE LANE TO VADA (PENN) TREND

ECONOMICS

GROSS INCOME (OIL & GAS)	$3.20/Bbl.
WORKING INTEREST INCOME @ 87.5%	2.80/Bbl.
OPERATING COSTS AND TAXES	0.50/Bbl.
NET WORKING INTEREST INCOME	$2.30/Bbl.

ASSUMING NO DEPLETION OF RESERVES:

ACRES PER WELL	80	160
ESTIMATED RECOVERY - BBLS	81,600	163,200
TOTAL NET INCOME	$188,000	$376,000
DEVELOPMENT COST PER WELL	$175,000	$175,000
NET PROFIT PER WELL	$ 13,000	$201,000
RATIO OF INCOME TO INVESTMENT	1.07	2.15

ALLOWING FOR ESTIMATED DEPLETION OF RESERVES:

ESTIMATED RECOVERY - BBLS	66,500	133,000
TOTAL NET INCOME	$153,000	$306,000
DEVELOPMENT COST PER WELL	$175,000	$175,000
NET PROFIT (LOSS) PER WELL	($ 12,000)	$131,000
RATIO OF INCOME TO INVESTMENT	0.87	1.75

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

January 18, 1967

Mr. Richard S. Morris
Seth, Montgomery, Federici & Andrews
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 3513
Order No. R-3179
Applicant:

MIDWEST OIL CORPORATION

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF MIDWEST OIL CORPORATION FOR AN AMENDMENT TO ORDER NO. R-3179, VADA-PENNSYLVANIAN POOL, LEA COUNTY, NEW MEXICO.

Case No. 3513

A P P L I C A T I O N

Comes now Midwest Oil Corporation by its attorneys and applies to the New Mexico Oil Conservation Commission for an amendment to Order No. R-3179 for the purpose of establishing 160-acre oil proration units in the Vada-Pennsylvanian Pool, Lea County, New Mexico, and in support of its application states:

1. By Order No. R-3179 entered on January 18, 1967, in Case No. 3513, the Commission established special rules and regulations for the Vada-Pennsylvanian Pool, Lea County, New Mexico, providing for 80-acre oil proration units with a proportional allowable factor of 4.77.

2. On the basis of information that has become available since the time of the original hearing in this case and since the entry of Order No. R-3179, it now appears that one well can effeciently and economically drain and develop in the area in excess of 160 acres.

3. In order to prevent the economic loss that would be caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, and to otherwise prevent waste and protect correlative rights, the Commission should amend its Order No. R-3179 to provide for 160-acre oil proration units with a proportional allowable factor of 6.77.

Order No. R-3179 should be further amended to dispense with the necessity of reopening Case No. 3513 and in the event 160-acre oil proration units are established on a temporary basis

the order should provide for said rules to become permanent one year after the date of the order unless sooner reopened by the Commission or any interested party.

WHEREFORE, applicant requests tnat this application be set for hearing before the Commission or one of its examiners and that the Commission enter its order amending Order No. R-3179 in accordance with this application.

MONTGOMERY, FEDERICI & ANDREWS

By _____

P. O. Box 2307
Santa Fe, New Mexico
Attorneys for Midwest Oil Corporation.

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, CHAIRMAN OF THE BOARD
R. W. McFALL, PRESIDENT

SYMBOLS
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LA094 NSC519

NS MDA105 PD=MIDLAND TEX 3 315P CDT=
1980 SEP 3 PM 2 51
NEW MEXICO OIL CONSERVATION COMM, ATTN ELVIS A UTZ=
STATE LAND OFFICE BLDG SANTA FE NMEX=

RE THE CASE 3513 (REOPENED). DELAWARE APACHE CORP SUPPORTS THE APPLICANT, MIDWEST OIL CORP IN THE ESTABLISHEMENT OF PERMANENT 160 ACRE SPACING UNITS AND 160 ACRE PROPORTIONAL FACTOR OF 4.77 FOR ALLOWABLE PURPOSES FOR THE VADA PENN. POOL LEA COUNTY NMEX=

DELAWARE APACHE CORP L Z WILLIAMS AREA ENGINEER==

3513 160 160 4.77 VADA PENN=

WU1201(R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
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WESTERN UNION TELEGRAM

W. P. MARSHALL, CHAIRMAN OF THE BOARD
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LA044 NSA353

NS MDA072 PD=MIDLAND TEX 3 1117A CDT=
1980 SEP 3 AM 11 (1220) 32
NEW MEXICO OIL CONSERVATION COMMISSION,
ATTN DAN S NUTTER= OR ATTN ELVIS A UTZ STATE LAND OFFICE BLDG SANTA FE NMEX=

REGARDING CASE #3513 THE RALPH LOWE ESTATE STRONGLY RECOMMENDS THE PERMANENT ADOPTION OF 160 ACRE SPACING UNITS WITH THE PROPORTIONAL 160 ACRE FACTOR OF 4.77 FOR ALLOWABLE PURPOSES FOR THE VADA-PENN POOL, LEA COUNTY NMEX=

RALPH LOWE ESTATE BY HARVIN L LANDUA CO EXECUTOR==

WU1201(R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
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WESTERN UNION TELEGRAM

W. P. MARSHALL
CHAIRMAN OF THE BOARD

R. W. McFALL
PRESIDENT

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1932.

-A009 NSC082
NS MDA029 PD=MIDLAND TEX 3 927A CDT=

60 SEP 3 AM 8 49

Sept 4th Hearing

:NEW MEX OIL CON COMM=
SANTA FE NMEX=

:WITH RE TO CASE #3513 CABOT CORP REQUEST CONTINUANCE OF
160 ACRE SPACING IN THE VADA PENNSYLVANIAN POOL LEA
COUNTY NMEX=
CABOT CORP PERCY C OQUINN==

60 SEP 3 AM 9 07

:#3513 160=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

WU1201 (TR2-65)

Union Oil Company of California

500 N. Marienfeld, Midland, Texas 79701
Telephone (915) MU 2-9731

Midland District

August 30, 1968

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico
Attention: Mr. D. S. Nutter

Gentlemen:

Vada Pennsylvanian Pool Rules Review
Case 3513 Reopened
Order Number R-3179-A

Union Oil Company of California is in support of the establishment of permanent 160-acre spacing units and a 160-acre proportional factor of 4.77 for allowable purposes in the Vada Pennsylvanian Pool, Lea County, New Mexico.

We believe that the established spacing unit of 160 acres can be efficiently and economically drained and developed by one well. We further believe that the utilization of permanent field rules as above described will protect correlative rights and prevent economic waste caused by the drilling of unnecessary wells.

Very truly yours,

UNION OIL COMPANY OF CALIFORNIA

H. R. Willis
District Engineer

HRW:rb

Docket No 30-67

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 27, 1967

9 A M - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3622: (Continued from the July 26, 1967 Examiner Hearing)

Application of Ryder Scott Management Company for a waterflood buffer zone, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the N/2 NE/4, SW/4 NE/4 of Section 20, Township 18 South, Range 28 East, Eddy County, New Mexico, as waterflood buffer zone in the Artesia Pool offsetting its waterflood project in Section 21 and Cima Capitan's waterflood project in Section 17 of the same township.

CASE 3658: Application of Continental Oil Company for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a 240-acre non-standard gas proration unit comprising the NE/4 NW/4, NW/4 NE/4, and E/2 E/2 of Section 10, Township 20 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to be dedicated to its Sanderson B-1 Well No. 2 at a non-standard location 1650 feet from the North line and 330 feet from the East line of said Section 10.

CASE 3659: Application of Continental Oil Company for an amendment to Order No. R-3115, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3115 to substitute its SEMU Well No. 56 located in Unit I of Section 25, Township 20 South, Range 37 East, Eumont Pool, Lea County, New Mexico, as a water injection well in its Eumont Hardy Waterflood Project in lieu of SEMU Well No. 55 located in Unit J of said Section 25

CASE 3660: Application of Tenneco Oil Company for a waterflood project and for an exception to Rule 104 C-I, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Upper Sand of the South Hospah Upper Sand Oil Pool on its Hospah Lease through five wells located in Units A, B, F, G, and H of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico, and on its Hospah "A" Lease through one well located in Unit L of said Section 12. Applicant, further seeks an exception to the well location requirements of Rule 104 C-I to permit the drilling of more than one well on a 40-acre tract, said wells being located closer than 660 to each other and with each 40-acre tract being subject to a single 40-acre allowable. The above exceptions, for the South Hospah Upper Sand Oil Pool and the South Hospah Lower Sand Oil Pool, would be applicable to Tenneco's leases comprising the SE/4 of Section 11 and all of Section 12, Township 17 South, Range 9 West.

Docket No. 30-67

CASE 3513: (Reopened)

Application of Midwest Oil Corporation for an amendment to Order No. R-3179, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3179 which order denied 160-acre spacing for the Vada-Pennsylvanian Pool, Lea County, New Mexico, and established 80-acre spacing on a temporary basis. Applicant seeks the reopening of Case 3513 on the basis of new information not available at the time of the original hearing and the promulgation of temporary rules for said pool, including a provision for 160-acre proration units.

3513

Heard 9-27-67

Rec. 9-28-67

1. Grant Midwest a 160 Ac. spacing order for the Vada Penn oil Pool. Give them a 1 yr. temporary order.
Call hearing for Aug. 1968. Require results of interference tests to be reported at hearing.

2. Spacing 150' from center of any legal 1/4 1/4 section

3. usual 160 order otherwise.

[signature]

Docket No. 26-68

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 4, 1968

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3847: (Continued from the August 21, 1968, Examiner Hearing)

Application of K. K. Amini for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Bough "C" zone of the Pennsylvanian formation underlying the NE/4 of Section 5, Township 10 South, Range 34 East, Lea County, New Mexico. Said acreage to be dedicated to a well to be drilled in the SW/4 NE/4 of said Section 5, adjacent to the Vada-Pennsylvanian Pool.

CASE 3513: (Reopened)

In the matter of Case No. 3513 being reopened pursuant to the provisions of Order No. R-3179-A, which order established 160-acre spacing units and a 160-acre proportional factor of 4.77 for allowable purposes for the Vada-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year All interested parties may appear and show cause why the pool should not be developed on less than 160-acre spacing units and show cause why the 160-acre proportional factor of 4.77 should or should not be retained.

CASE 3849: Application of Penroc Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg formation through its Phillips State Well No. 4 located in Unit I of Section 27, Township 17 South, Range 28 East, Artesia Pool, Eddy County, New Mexico.

CASE 3850: Application of Pan American Petroleum Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Bough (Permo-Pennsylvanian) formation in the interval from approximately 9590 feet to 9634 feet in its Federal "A" Well No. 3 located in Unit J of Section 13, Township 9 South, Range 35 East, Bough (Permo-Pennsylvanian) Pool, Lea County, New Mexico.

CASE 3851: Application of Mobil Oil Corporation for a waterflood expansion, Lea County, New Mexico Applicant, in the above-styled cause, seeks authority to expand its Bridges State Waterflood Project by the injection of water into the San Andres formation through an injection well recently completed at a location 660 feet from the South line and 560 feet from the West line of Section 24, Township 17 South, Range 34 East, Vacuum Pool, Lea County, New Mexico.

CASE 3852: Application of Mobil Oil Corporation for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the triple completion (conventional) of its Bridges State Well No. 126 located in Unit J of Section 11, Township 17 South,

Range 34 East, Lea County, New Mexico, in such a manner as to produce oil from the Abo, Middle Pennsylvanian and Morrow formations, Vacuum Field, through parallel strings of tubing.

CASE 3651: (Reopened)

In the matter of Case No 3651 being reopened pursuant to the provisions of Order No. R-3315, which order created the North Morton Permo-Pennsylvanian Pool, Lea County, New Mexico, and established 80-acre spacing units for said pool for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3853: Application of Tenneco Oil Company for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the expansion of its Mesa Queen Waterflood Project, Mesa-Queen Pool, by the conversion to water injection of two additional wells located in the SW/4 NW/4 of Section 20 and the NW/4 SE/4 of Section 16, both in Township 16 South, Range 32 East, Lea County, New Mexico. Applicant further seeks an administrative procedure whereby said project could be expanded to include additional lands and injection wells as may be necessary to complete an efficient injection pattern.

CASE 3854: Application of Sinclair Oil & Gas Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates formation in the perforated interval from 3636 feet to 3700 feet in its Ballard DE Federal Well No. 6 located in Unit L of Section 22, Township 20 South, Range 34 East, Lynch Field, Lea County, New Mexico.

CASE 3431: (Reopened):

In the matter of Case No. 3431 being reopened pursuant to the provisions of Order No. R-3100-A to permit Sinclair Oil & Gas Company to show cause why its W. H. Turner Well No. 1 located in Unit L of Section 29, Township 21 South, Range 37 East, Lea County, New Mexico, a dual completion in the Drinkard and Blinebry Oil Pools, should not be completed in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations.

CASE 3855: Application of Sunray DX Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Seven Rivers formation in the interval from approximately 3693 feet to 3733 feet in its H. D. Greer Well No. 1 located in Unit C of Section 21, Township 22 South, Range 36 East, South Eunice Pool, Lea County, New Mexico.

CASE 3856: Application of Skelly Oil Company for a waterflood project, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Gallup formation through its Jicarilla "B" Wells Nos. 5 and 6 located in Units L and F, respectively, of Section 32, Township 25 North, Range 5 West, Otero-Gallup Pool, Rio Arriba County, New Mexico.

CASE 3857: Application of Coastal States Gas Producing Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Tulk-Pennsylvanian Pool in Township 14 South, Range 32 East, Lea County, New Mexico, including a provision for 160-acre spacing and proration units with the assignment of 80-acre allowables.

In the alternative, applicant seeks the creation of a new pool for Pennsylvanian oil production from its State "26" Well No. 1 located in Unit D of Section 26, said Township and Range, and promulgation of the aforesaid special rules therefor.

ALLEN K. TROBAUGH

OIL OPERATOR

509 FIRST NATIONAL BANK BLDG.
MIDLAND, TEXAS
79701

(915) 683-2738

August 30, 1968

In re: Docket No. 26-68
Case No. 3513 (Reopened)
Vada Pennsylvanian Pool
Lea County, New Mexico

Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

Attention: Elvis A. Utz, Examiner, or
Daniel S. Nutter, Alternate Examiner

Gentlemen:

I am unable to attend the hearing scheduled for September 4, 1968, owing to prior business commitments. I did not receive official notice of the hearing, and only learned today from Midwest Oil Corporation that it had been scheduled.

I am the operator of two wells in Units A and C, Section 29, T-9-S, R-34-E, in the Vada Pennsylvanian Pool, and support Midwest Oil Corporation's and BTA Oil Producers' position that one well will adequately drain 160 acres. I further support a 160 acre proportional factor of 4.77 for allowable purposes for this field.

I have exchanged bottom hole pressure data with both Midwest Oil Corporation and BTA Oil Producers to aid in the preparation of their testimonies, and concur with their conclusions that pressure data support the foregoing.

Respectfully,

ALLEN K. TROBAUGH

AKT:gp
cc: BTA Oil Producers
Midwest Oil Corporation

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

October 4, 1967

Mr. Richard S. Morris
Seth, Montgomery, Federici & Andrews
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 3513
Order No. R-3179-A
Applicant:
MIDWEST OIL CORPORATION

DOCKET MAILED
Date 8/22/68

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other

DOMESTIC SERVICE

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TELEGRAM	
DAY LETTER	
NIGHT LETTER	

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WESTERN UNION
TELEGRAM

1208 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE

Check the class of service desired; otherwise the message will be sent at the full rate

FULL RATE	
LETTER TELEGRAM	
SHORE-SHIP	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

MAIN OFFICE

'67 SEP 27 AM 8

CONFIRMATION OF WIRE

September 26, 1967

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

Re Case 3513 application of Midwest Oil Corp. for Amendment to Order No. R-3179 to establish 160-acre spacing for Vada-Penn Pool Lea County, New Mexico. BTA Oil Producers concurs in the recommendation by Midwest Oil Corp. for 160 acre per well spacing with each well located within 150 feet of the center of any governmental quarter-quarter section or lot within the 160 acre standard unit.

BTA OIL PRODUCERS
By R. L. Halvorsen

RLH:gh
11:15 A. M.

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF MIDWEST OIL CORPORATION FOR THE ESTABLISHMENT OF SPECIAL RULES AND REGULATIONS IN THE VADA-PENNSYLVANIAN POOL, LEA COUNTY, NEW MEXICO.

Case No. 3513

A P P L I C A T I O N

Comes now Midwest Oil Corporation and applies to the New Mexico Oil Conservation Commission for the establishment of special rules and regulations in the Vada-Pennsylvanian Pool, Lea County, New Mexico, and in support of its application states:

1. Midwest Oil Corporation is the owner and operator of the Pruitt Well No. 1 located in the NE¼ NW¼ of Section 20, Township 9 South, Range 34 East, Lea County, New Mexico.

2. In Case 3503 to be heard before the Commission on December 16, 1966, the Commission will consider, and in all probability will create, a new pool for oil production, to be designated the Vada-Pennsylvanian Pool comprising the NW¼ of Section 20, Township 9 North, Range 34 East, Lea County, New Mexico, based upon the said Pruitt Well No. 1.

3. Midwest Oil Corporation proposes the establishment of special rules and regulations for the Vada-Pennsylvanian Pool, including provisions for 160-acre oil proration units, flexible well locations and a factor of 5.77 for allowable purposes.

4. The information presently available from the subject well with respect to the subject pool indicates that one well can efficiently and economically drain and develop a proration unit comprising 160 acres.

5. Approval of this application will prevent waste and protect correlative rights.

DOCKET MAILED
Date 12-22-66

WHEREFORE, Midwest Oil Corporation requests that this application be set for hearing before one of the Commission's examiners on January 4, 1967 and that the Commission enter its order creating special rules and regulations for the Vada-Pennsylvanian Pool in accordance with this application.

MONTGOMERY, FEDERICI & ANDREWS

By _____

P. O. Box 2307
Santa Fe, New Mexico
Attorneys for Midwest Oil Corporation.

P. O. BOX 235

PHONE MU 2-7925

COASTAL STATES GAS PRODUCING COMPANY
NORTH TEXAS DIVISION
WILCO BUILDING
MIDLAND, TEXAS
79701

December 26, 1967

Mr. Clarence E. Hinkle
Hinkle, Bondurant and Christy
P. O. Box 10
Roswell, New Mexico 88201

Dear Mr. Hinkle:

Enclosed are Exhibits 1 through 7 and 1-R through 6-R from Case 3513 which your office had furnished us. These were inadvertently left out of the transcripts which we returned to you. I apologize for any inconvenience this may have caused your office. We appreciate your furnishing this information.

Very truly yours,

B. Pat McCarley
Petroleum Engineer

BPMcC:lb

Enclosures

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

September 12, 1968

Mr. Richard S. Morris
Montgomery, Federici, Andrews,
Hannahs & Morris
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 3513
Order No. R-3179-B
Applicant:
Midwest Oil Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of drder also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other Jason Kellahin, Ronald Jacobs, Charles White, J. B. Jordan, and Gilbert Miller

VADA PENN POOL
LEA COUNTY, NEW MEXICO
BHP AND PRODUCTION HISTORY

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Sunray #1-F	12/10/55	1-10-33	3,623	
Sunray #2-F	4/9/56	1-10-33	3,583	18,778
Sunray #1-I	7/5/56	36-9-33	3,577	39,045
Aztec #1-LW	9/1/56	2-10-33	3,520	59,788
Tenneco "Lane Unit" #1	11/22/56	1-10-33	3,366	116,105
Cities Service #1-AY	1/28/57	1-10-33	3,378	165,129
Union Pruitt #1-21	6/1/63	21-9-34	3,454	1,026,303
Sunray State #1-AO	11/11/63	16-10-34	3,300	1,028,901
Sunray State #1-AP	6/26/64	17-10-34	3,205	1,068,366
Midwest Skelly St. #1	8/3/65	10-10-33	2,802	1,172,401
Cactus #1 Atlantic State	8/22/65	32-9-34	3,161	1,184,943
Sunray State #1-"AW"	12/7/65	20-10-34	2,949	1,222,856
Enfield #1 Medlin	10/8/66	28-9-34	2,932	1,381,643
Midwest #1 Pruitt	10/18/66	20-9-34	3,121	1,413,760
Cabot #1 Pruitt	1/27/67	20-9-34	2,933	1,495,993
Midwest #2 Pruitt	4/6/67	17-9-34	2,896	1,593,310

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Midwest #1-A Pruitt	5/28/67	17-9-34	2,514	1,638,000
Midwest #2-A Pruitt	7/24/67	17-9-34	2,834	1,739,675
Midwest I #1 (Humble AM #1)	7/29/67	11-10-33	2,831	
Ralph Lowe D #1	8/10/67	16-9-34	2,750	1,770,000
C. B. Reed #1	8/10/67	3-10-33	2,960	1,770,000
BTA Vada A #1	10/7/67	21-9-34	2,764	1,884,677
Midwest State J #1	10/14/67	11-10-33	2,144	1,930,000
Midwest State K #1	10/21/67	2-10-33	2,698	1,940,000
BTA Lane A #1	10/21/67	21-9-34	2,915	1,940,000
BTA Vada B #2	11/13/67	20-9-34	2,567	2,010,000
Midwest Skelly St. #2	11/15/67	10-10-33	1,732	2,010,000
BTA Vada C #3	11/26/67	21-9-34	2,624	2,060,000
BTA Anderson A #1	12/6/67	6-10-34	2,821	2,070,000
Midwest #1-C Pruitt	12/10/67	20-19-34	2,355	2,080,000
BTA Max #1	12/11/67	30-9-34	3,035	2,080,000
BTA Lane C #4	12/14/67	6-10-34	2,868	2,090,000
Superior Hutcherson #1	12/20/67	27-9-34	2,818	2,110,000
BTA Vada D #4	12/26/67	28-9-34	2,693	2,170,000
BTA Price A #1	1/16/68	15-9-34	2,861	
Midwest State L #1	1/18/68	2-10-33	2,662	

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
BTA Lane C #5	1/28/68	6-10-34	2,908	2,300,185
BTA Anderson A #3	1/28/68	6-10-34	2,874	2,300,185
BTA Max #2	1/28/68	30-9-34	2,918	2,300,185
Del Apache Vada State #1	1/30/68	16-9-34	2,792	2,300,185
Trobaugh Wood #1	2/4/68	29-9-34	2,687	2,320,000
BTA Enfield #1	3/6/68	28-9-34	2,534	2,447,167
BTA Hanson #1	3/7/68	1-10-33	2,419	2,452,000
Midwest State K #2	3/9/68	2-10-33	2,797	2,462,000
Midwest State L #2	3/17/68	2-10-33	2,706	2,480,000
Midwest Hutcherson #1	3/13/68	9-9-34	2,678	
Midwest Howard Cook #1	3/17/68	31-9-34	2,766	2,480,000
BTA Somico #1	3/18/68	20-10-34	2,389	2,490,000
Trobaugh Wood #2	3/20/68	29-9-34	2,643	
BTA Newkirk #1	3/22/68	29-9-34	2,616	2,560,000
BTA Watson #1	3/24/68	9-9-34	2,877	2,570,000
Southland Royalty #2 Vada-State	4/29/68	32-9-34	2,916	2,850,194
Union Pruitt # 1-21	5/7/68	21-9-34	2,540	2,850,000
BTA Somico #2	5/17/68	20-10-34	2,447	3,000,000
Southland Royalty #3 Vada-State	5/20/68	32-9-34	3,008	3,030,000
BTA Mar #2	5/27/68	5-10-34	2,470	3,100,000

COMPANY & WELL	DATE	LOCATION S-T-R	BHP @ -5500'	CUMULATIVE OIL PRODUCTION BBL.
Midwest #2 Tankersley	6/2/68	30-9-34	2,665	3,150,000
Southland Royalty #4 Vada-State	8/5/68	32-9-34	2,562	3,750,000
Midwest D. V. Cook #2	8/23/68	31-10-34	2,257	3,950,000
Union Newman-Federal #1	8/24/68	29-9-34	2,267	3,960,000

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL
CHAIRMAN OF THE BOARD

R. W. McFALL
PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
International Telegram

(1038).

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA038 DA198

D LLM46 PDB=TLX DALLAS TEX 4 1004A CDT= 1968 SEP 4 AM 9 48

=ELVIS UTZ, NEW MEXICO OIL CONS. COMM=
STATE LAND OFFICE BLDG SANTA FE NMEX=

IN RE. CASE NO. 3513.=
SUN OIL COMPANY, AN OPERATOR IN VADA PENN POOL,
REQUESTS COMMISSION CONSIDER ASSIGNING 160 ACRE
PROPORTIONAL FACTOR OF 6.77 TO 160 ACRE UNITS RATHER
THAN PRESENT ASSIGNMENT OF 4.77 TO 160 ACRE UNITS IN FIELD=
SUN OIL CO BY A R BALLOU==

3513 160 6.77 160 4.77 160=

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Case 3513
Heard - 9-~~4~~-68
Rec. 9-5-68.

1. Evidence presented showed communication on a 160 Ac. pattern. Grant a permanent order for R-3179-A for the Vada Penn Pool. Evidence also showed that the pool nomenclature is correct.

Ernest A. Utz

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL
CHAIRMAN OF THE BOARD

R. W. McFALL
PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

(3021)

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point...

LA 104 NSB415

NS MDA086 PD=MIDLAND TEX 4 300P CDT=
NEW MEXICO OIL CONSERVATION COMMISSION= 1968 SEP 4 PM 2 31
STATE LAND OFFICE BLDG SANTA FE NMEX=

REGARDING CASE #3513 FACING HEARING ON VADA PENN POOL LEA COUNTY NMEX SOUTHLAND ROYALTY CO AS AN OPERATOR IN THE VADA PENN POOL AND IN THE INTEREST OF PREVENTION OF WASTE STRONGLY RECOMMENDS AND URGES CONTINUATION OF TEMPORARY RULES AND ADOPTION OF 160 ACRE SPACING FOR THE VADA PENN POOL LEA COUNTY NMEX=
SOUTHLAND ROYALTY CO ALTON C GOODRICH DISTRICT PROCUCTION SUPT=

68 SEP 4 PM 2 [illegible]

WU1201(R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Memo

From
I.R.TRUJILLO
ADMIN.ASSISTANT

To

you may want
to reopen 3513
and include this
wire.

Ike

THE SUPERIOR OIL COMPANY

P. O. BOX 1900
MIDLAND, TEXAS 79701

September 5, 1968

Rec. after hearing

file

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Subject: Case 3513 Reopened on
Vada-Pennsylvanian Pool

Gentlemen:

Regarding the hearing on September 4, 1968, to review temporary field rules for the Vada Pennsylvanian Field, The Superior Oil Company respectfully requests that the 160 acre spacing be retained and the allowable factor of 4.77 be continued.

Bottomhole pressure data on three wells drilled by Superior in the subject field indicates that each well will drain in excess of 160 acres. Whereas, original bottomhole pressure in the Bough C reservoir in the Vada Pennsylvanian Pool was 3575 psi, drill stem test pressures (the only pressures available) taken during completion of our wells show the following: On the Hutcherson Com No. 1 in C-27-9S-34E stabilized shut-in bottomhole pressure on December 9, 1967, was 2593 psig at a depth of 9855 (-5611). Our Hutcherson "A" Com No. 1 in B-27-9S-34E had a stabilized shut-in bottomhole pressure of 2494 psig at 9880 (-5639) on April 1, 1968. And our Pruitt Com No. 1 in L-22-9S-34E had a stabilized shut-in bottomhole pressure of 2352 psig at 9830 (-5573) on June 20, 1968.

The large difference between the original and the above reservoir pressures, plus the gradual reduction in the above pressures as each successive well was drilled at a later date, all illustrate clearly to us that drainage has occurred to wells developed on 160 acre spacing. We thus respectfully request that the 160 acre spacing be continued or be made permanent, whichever the Commission deems advisable.

Attached for your review are results of the drill stem tests taken on our three wells in the Vada-Pennsylvanian Field.

Very truly yours,

THE SUPERIOR OIL COMPANY

D. H. Collins, Jr.

D. H. Collins, Jr.
District Engineer

DHC/es

	1st Min.	2nd Min.				
Flow Time	5	180	Date	12-9-67	Ticket Number	460655 S
Closed In Press. Time	60	120	Kind of Job	OPEN HOLE	Halliburton District	LOVINGTON
Pressure Readings	Field	Office Corrected	Tester	C. L. CASTELLOW	Witness	MR. EARL STUBBS
Depth Top Gauge	9845 Ft.	Blanked no Off	Drilling Contractor	NOBLE DRILLING COMPANY		LC
BT. P.R.D. No.	1398	Hour 24 Clock	Elevation	--	Top Packer	9836'
Initial Hydro Mud Pressure	5224	5168	Total Depth	9859'	Bottom Packer	9842'
Initial Closed in Pres.	2591	2607	Interval Tested	9842' - 9859'	Formation Tested	Bough C
Initial Flow Pres.	- 1 / 1327 2	1274 / 1354	Casing or Hole Size	7 7/8"	Casing Perfs. Top / Bot.	
Final Flow Pres.	- 1 / 2591 2	1393 / 2603	Surface Choke	1" Adj.	Bottom Choke	5/8"
Final Closed in Pres.	2591	2610	Size & Kind Drill Pipe	4 ½" FH	Drill Collars Above Tester I.D. - LENGTH	2.50" - 180'
Final Hydro Mud Pressure	5224	5156	Mud Weight	9.8	Mud Viscosity	45
Depth Cen. Gauge	Ft.	Blanked Off	Temperature 148 °F Est. / °F Actual		Anchor Size & Length ID 2.50" / OD 5 3/4" X	17'
BT. P.R.D. No.		Hour Clock	Depths Mea. From	Rotary Table	Depth of Tester Valve	9816 Ft.
Initial Hydro Mud Pres.			Cushion TYPE none AMOUNT Ft.		Depth Back Pres. Valve	none Ft.
Initial Closed in Pres.			Recovered	FLOWED: 32 Bbls. XXX of Gas cut oil & water.		
Initial Flow Pres.	1 / 2		Recovered	REVERSED: 59 Bbls. XXX of gas cut oil & water.		
Final Flow Pres.	1 / 2		Recovered	FLOWED: 8 Bbls. XXX of gas cut mud.		
Final Closed in Pres.			Recovered	Feet of		
Final Hydro Mud Pres.			Oil A.P.I. Gravity	44.4	Water Spec. Gravity	
Depth Bot. Gauge	9855 Ft.	Blanked yes Off	Gas Gravity		Surface Pressure	psi
BT. P.R.D. No.	1397	Hour 24 Clock	Tool Opened	12:20 P.M. A.M. P.M.	Tool Closed	6:25 P.M. A.M. P.M.
Initial Hydro Mud Pres.	5248	5169	Remarks	Opened tool for a 5 minute first flow. Tool		
Initial Closed in Pres.	2537	2593		a 60 minute initial closed in pressure. Reopened		
Initial Flow Pres.	- 1 / 1248 2	1300 / 1341		tool for a 180 minute final flow with good blow -		
Final Flow Pres.	- 1 / 2537 2	1408 / 258[illegible]		gas surface in 5 minutes. Fluid 31 minutes. Clos-		
Final Closed in Pres.	2537	2593		ed tool for a 120 minute final closed in pressure.		
Final Hydro Mud Pres.	5202	5153	COPY TO: [illegible] DATE: [illegible]			

Legal Location Sec. - Twp. - Rng. 27 - T 9S - R 34E

Field Area WEST X ROADS

County LEA

State NEW MEXICO

Test No. 5

Well No. 1

Lease Name HUTCHERSON UNIT Com.

Lease Owner/Company Name THE SUPERIOR OIL COMPANY

Mea. From Tester Valve

FORMATION TEST DATA

Gauge No. 1398	Depth 9845'	Clock 24 hour	Ticket No. 460655

	First Flow Period		Initial Closed In Pressure			Second Flow Period		Final Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
P_0	.000	1274	.000		1393	.000	1334	.000		2603
P_1	.015	1393	.020		2605	.1007	2439	.0402		2607
P_2			.040		2607	.2014	2591	.0804		2607
P_3			.060		2607	.3021	2589	.1206		2607
P_4			.080		2607	.4028	2596	.1608		2607
P_5			.100		2607	.5035	2600	.2010		2607
P_6			.120		2607	.6040	2603	.2412		2607
P_7			.140		2607			.2814		2610
P_8			.160		2607			.3216		2610
P_9			.180		2607			.3618		2610
P_{10}			.200		2607			.4020		2610

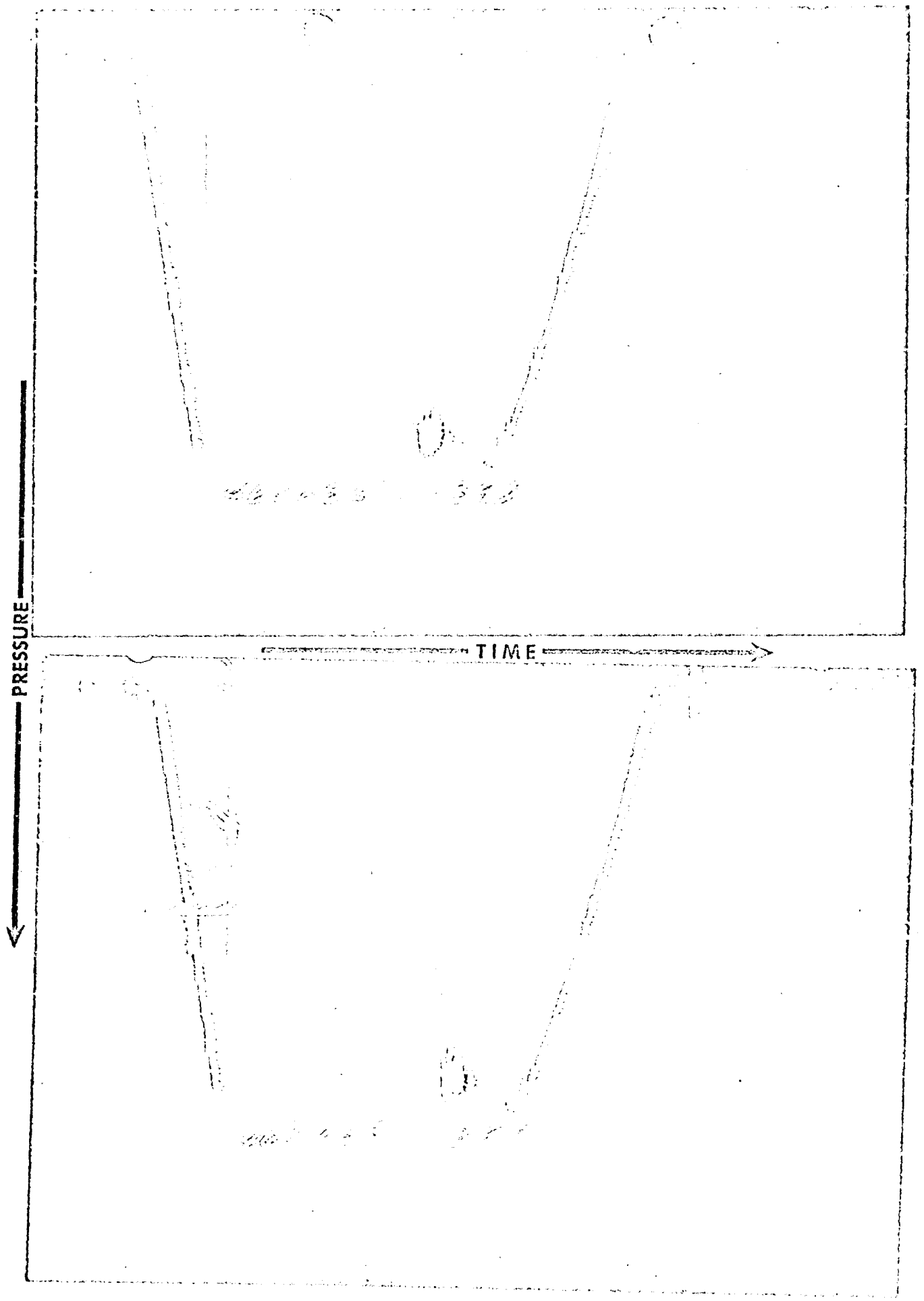
Gauge No. 1397	Depth 9855'	Clock 24 hour	

P_0	.000	1300	.000		1408	.000	1341	.000		2586
P_1	.017	1408	.0201		2589	.1022	2418	.0403		2589
P_2			.0402		2589	.2044	2575	.0806		2593
P_3			.0603		2593	.3066	2575	.1209		2593
P_4			.0804		2593	.4088	2579	.1612		2593
P_5			.1005		2593	.5110	2586	.2015		2593
P_6			.1206		2593	.6130	2586	.2418		2593
P_7			.1407		2593			.2821		2593
P_8			.1608		2593			.3224		2593
P_9			.1809		2593			.3627		2593
P_{10}			.2010		2593			.4030		2593

Reading Interval	6	30	12 Minutes

REMARKS:

SPECIAL PRESSURE DATA



Each Horizontal Line Equal to 1000 p.s.i.

JOHNSTON TESTERS

SURFACE INFORMATION

Description (Rate of Flow)	Time	Pressure (P.S.I.G.)	Surface Choke
Opened Tool (4-1-68)	2350	-	-
CLOSED FOR INITIAL SHUT-IN	2350	-	-
FINISHED SHUT-IN (4-2-68)	0059	-	-
RE-OPENED TOOL	0100	0	1/4"
FAIR BLOW FOR REMAINDER OF TEST.			
CHANGED TO 1/2" CHOKE	0200	0	"
CHANGED TO 1" CHOKE	0245	-	1/2"
CLOSED FOR FINAL SHUT-IN	0331	-	1"
FINISHED SHUT-IN	0531	-	"
PULLED PACKER LOOSE	0603	-	"

Cushion Type	Amount	Pressure	Bottom Choke Size
	-		5/8"

MUD DATA

Mud Type GEL Wt. 9.8
Viscosity 44 Water Loss 8.4 C.C.
Resist. of Mud .12 @ 65 °F; of Filtrate .1 @ 68 °F
Chloride Content 72000 PPM

EQUIPMENT & HOLE DATA

Type Test M. F. E. OPEN HOLE
Formation Tested BOUGH C.
Elevation 4240 K.B. Ft.
Net Productive Interval - Ft.
Estimated Porosity - %
All Depths Measured From KELLY BUSHING
Total Depth 9892 Ft.
Main Hole/Casing Size 7 7/8"
Rat Hole/Liner Size -
Drill Collar Length 300' I.D. 2.4"
Drill Pipe Length 9517' I.D. 3.8"
Packer Depth(s) 9842 Ft.

MULTI-FLOW EVALUATOR FLUID SAMPLE DATA

Sampler Pressure 25 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas .1
cc. Oil -
cc. Water 2420
cc. Mud -
Tot. Liquid cc. 2420
Gravity - °API @ - °F.
Gas/Oil Ratio - cu. ft./bbl.

	RESISTIVITY	CHLORIDE CONTENT
Recovery Water	.1 @ 70 °F.	64000 ppm
Recovery Mud	- @ - °F.	
Recovery Mud Filtrate	- @ - °F.	- ppm
Mud Pit Sample	.12 @ 65 °F.	
Mud Pit Sample Filtrate	.1 @ 68 °F.	72000 ppm

RECOVERY DESCRIPTION	FEET	BARRELS	% OIL	% WATER	% OTHERS	API GRAVITY	RESISTIVITY	CHL. PPM
DRILLING MUD	-	7				@ °F.	.1 @ 68 °F.	72000
SALT WATER	-	69				@ °F.	.1 @ 70 °F.	65000
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	

THE SUPERIOR OIL CO.

Remarks: APR - 9 1968 COPY TO: H. U. BROUSSARD
DATE: H. L. FRANQUES
ENGINEERING DEPT. MIDLAND DISTRICT DON MATHEWS (2)

This well was dry hole.

Address P.O. BOX 1900; MIDLAND, TEXAS

Company THE SUPERIOR OIL COMPANY
Well HUTCHERSON A #1
Test Interval 9842' TO 9892'

Location 1980' FEL & 660 FNL Field VADA PENN
Test # 1 SEC. 27-T9S-R34E
Date 4-1-68

County LEA State NEW MEXICO
Technician ADKINS (HOBBS) Test Approved By MR. F. E. BOWEN

Field Report No. 08469 B
No. Reports Requested 5

JOHNSTON TESTERS

PRESSURE DATA

Instrument No.	J-103			Field Report No. 08469 B
Capacity (P.S.I.G.)	6400			
Instrument Depth	9880'			
Instrument Opening	INSIDE			
Pressure Gradient P.S.I./Ft.				
Well Temperature °F.	158			

TIME DATA

		Pressure			Time Given	Time Computed
Initial Hydrostatic Mud	A	5125				
Initial Shut-in	B	2494			60 Mins.	62 Mins.
Initial Flow	C	1540			9 Mins.	6 Mins.
	C-2	307			- Mins.	- Mins.
	C-3	274			- Mins.	- Mins.
Final Flow	D	2500			151 Mins.	153 Mins.
Final Shut-in	E	2500			120 Mins.	119 Mins.
Final Hydrostatic Mud	F	5053				
Remarks:	C-1	3054				

CHART INDICATES TOOL PLUGGED DURING THE INITIAL FLOW PERIOD.

*Shut in pressure did not reach static reservoir pressure.

Clock Travel 0.02002 inches per min.

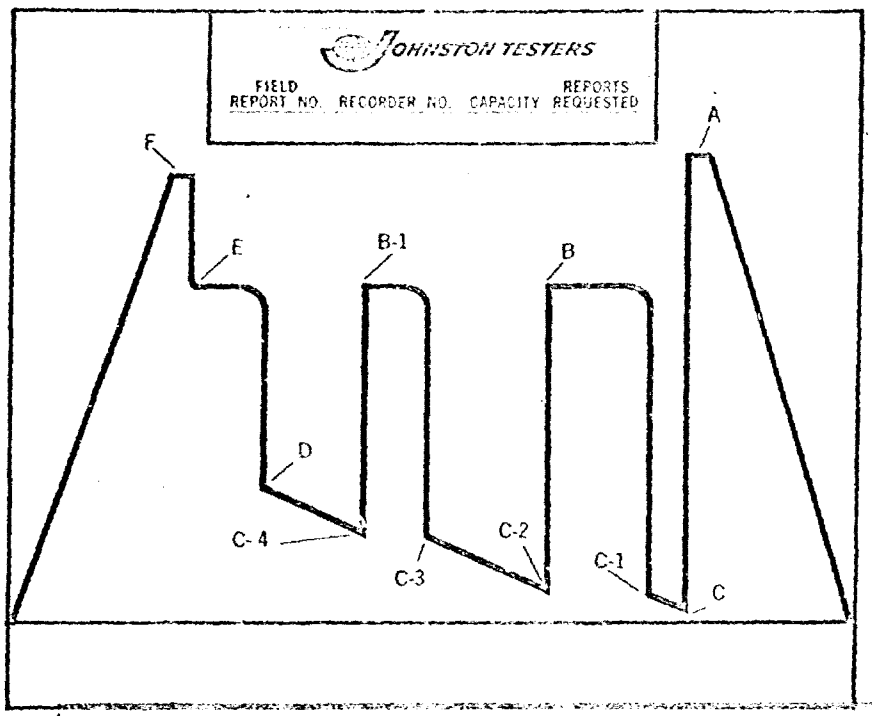
PRESSURE INCREMENTS

INITIAL SHUT-IN — FINAL SHUT-IN

Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$	Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$	Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$
C-2 0	307					D 0	2500	
5	2494					10	2500	
10	2494					20	2500	
15	2494					30	2500	
20	2494					40	2500	
25	2494					50	2500	
30	2494					60	2500	
35	2494					70	2500	
40	2494					80	2500	
45	2494					90	2500	
50	2494					100	2500	
55	2494					110	2500	
60	2494					E 119	2500	
B 62	2494							

JOHNSTON TESTERS

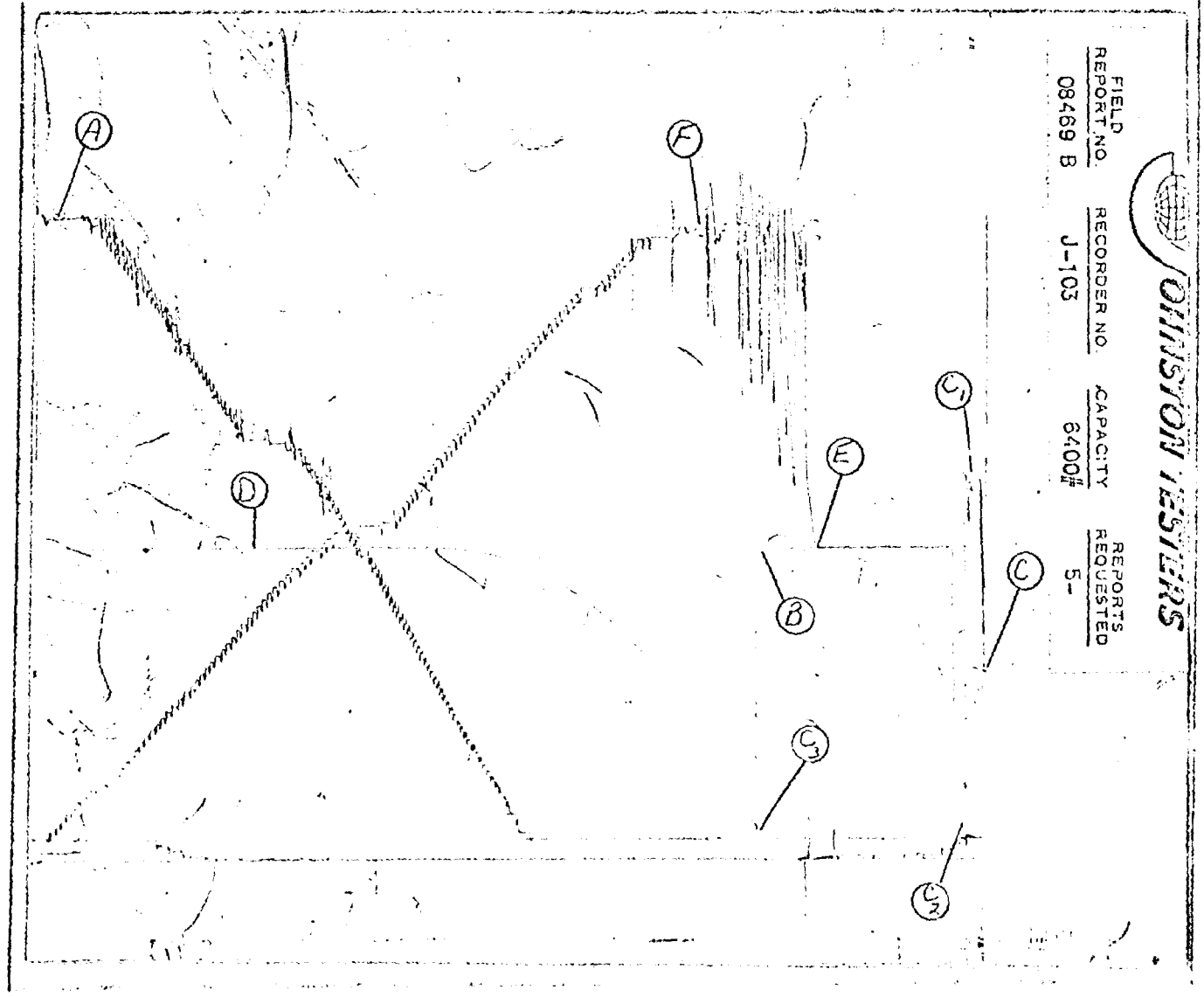
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



A. Initial Hyd. Mud
B. Initial Shut-in
C. Initial Flow
D. Final Flow
E. Final Shut-in
F. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings, (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
B-1, B-2, B-3, etc. Subsequent Shut-in Pressures
C-1, C-2, C-3, etc. Flowing Pressures
D-1, D-2, D-3, etc. Subsequent Final Flow Pressures
E-1, E-2, E-3, etc. Subsequent Final Shut-in Pressures
F-1, F-2, F-3, etc. Final Hyd. Mud Pressures
Z — Special pressure points such as pumping pressure recorded for formation breakdown.



JOHNSTON TESTERS

SURFACE INFORMATION

Description (Rate of Flow)	Time	Pressure (P.S.I.G.)	Surface Choke
Opened Tool	0723	-	-
GAS TO SURFACE	0723	52	1"
CLOSED FOR INITIAL SHUT-IN	0728	-	"
FINISHED SHUT-IN	0828	-	"
RE-OPENED TOOL	0829	-	"
STRONG BLOW			
GAS	0929	230	1/4"
ESTIMATED 350 MCF/DAY.			
GRADUALLY DECREASING FOR			
REMAINDER OF TEST.			
CLOSED FOR FINAL SHUT-IN	1044	-	"
FINISHED SHUT-IN	1254	-	"
PULLED PACKER LOOSE	1256	-	"

Cushion Type	Amount	Pressure	Bottom Choke Size
	-		5/8"

MUD DATA

Mud Type SALT GEL Wt. 9.7
Viscosity 37 Water Loss 10.0 C.C.
Resist. of Mud .16 @ 74 °F. of Filtrate .14 @ 75 °F
Chloride Content 69000 PPM

EQUIPMENT & HOLE DATA

Type Test M. F. E. OPEN HOLE
Formation Tested BOUGH C
Elevation 4260 K.B. Ft.
Net Productive Interval - Ft.
Estimated Porosity - %
All Depths Measured From KELLY BUSHING
Total Depth 9837 Ft.
Main Hole/Casing Size 7 7/8"
Rat Hole/Liner Size -
Drill Collar Length 150' I.D. 2.4"
Drill Pipe Length 9656' I.D. 3.8"
Packer Depth(s) 9789 & 9795 Ft.

MULTI-FLOW EVALUATOR FLUID SAMPLE DATA

Sampler Pressure 1100 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas 4.8
cc. Oil 280
cc. Water 1600
cc. Mud -
Tot. Liquid cc. 1880
Gravity 44.4 °API @ 60 °F.
Gas/Oil Ratio 2935 cu. ft./bbl.

	RESISTIVITY	CHLORIDE CONTENT
Recovery Water	.12 @ 92 °F.	69000 ppm
Recovery Mud	- @ - °F.	
Recovery Mud Filtrate	- @ - °F.	- ppm
Mud Pit Sample	.16 @ 74 °F.	
Mud Pit Sample Filtrate	.14 @ 75 °F.	69000 ppm

RECOVERY DESCRIPTION	FEET	BARRELS	% OIL	% WATER	% OTHERS	API GRAVITY	RESISTIVITY	CHL. PPM
REVERSED OUT:						@ °F.	@ °F.	
FREE OIL	-	35				44.4 @ 60 °F.	@ °F.	
SALT WATER	-	31				@ °F.	.12 @ 92 °F.	69000
RECOVERED BELOW CIRCULATING SUB:						@ °F.	@ °F.	
DRILLING MUD	50	.29				@ °F.	@ °F.	
SALT WATER	100	.58				@ °F.	@ °F.	
						@ °F.	@ °F.	
						@ °F.	@ °F.	

Remarks: THE SUPERIOR OIL CO.
JUN 26 1968
COPY TO: H. L. FRANQUES
DATE: M. U. BROUSSARD

Address BOX 1900; MIDLAND, TEXAS ENGINEERING DEPT. MIDLAND DISTRICT DON MATHEWS xc

Company THE SUPERIOR OIL COMPANY Field VADA PENN
Well PRULTT COM. #1 Location 830' FSL 660' FWL, SEC. 20-T9S-R34E
Test Interval 9795' TO 9837' Test # 1 Date 6-20-68

County LEA State NEW MEXICO Field Report No. 10202
Technician ADKINS (HOBBS) Test Approved By MR. JIM WINFIELD No. Reports Requested 5

JOHNSTON TESTERS

PRESSURE DATA

Instrument No.		J-005			
Capacity (P.S.I.G.)		6400			
Instrument Depth		9830'			
Instrument Opening		INSIDE			
Pressure Gradient P.S.I./Ft.					
Well Temperature °F.		162			
Initial Hydrostatic Mud	A	5122			
Initial Shut-in	B	2352			
Initial Flow	C	546			
	C-2	571			
	C-3	539			
Final Flow	D	2324			
Final Shut-in	E	2345			
Final Hydrostatic Mud	F	5191			
Remarks:	C-1	500			
	C-4	2171			
	C-5	2152			

Field Report No. 10202 B

TIME DATA

	Time Given	Time Computed
	60 Mins.	62 Mins.
	5 Mins.	4 Mins.
	- Mins.	- Mins.
	- Mins.	- Mins.
	135 Mins.	134 Mins.
	130 Mins.	130 Mins.

*Shut in pressure did not reach static reservoir pressure.

Clock Travel 0.02031 inches per min.

PRESSURE INCREMENTS

INITIAL SHUT-IN

Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$
C-2 0	571	
5	2321	
10	2333	
15	2338	
20	2340	
25	2343	
30	2345	
35	2347	
40	2348	
45	2349	
50	2351	
55	2352	stabilized
60	2352	
B 62	2352	

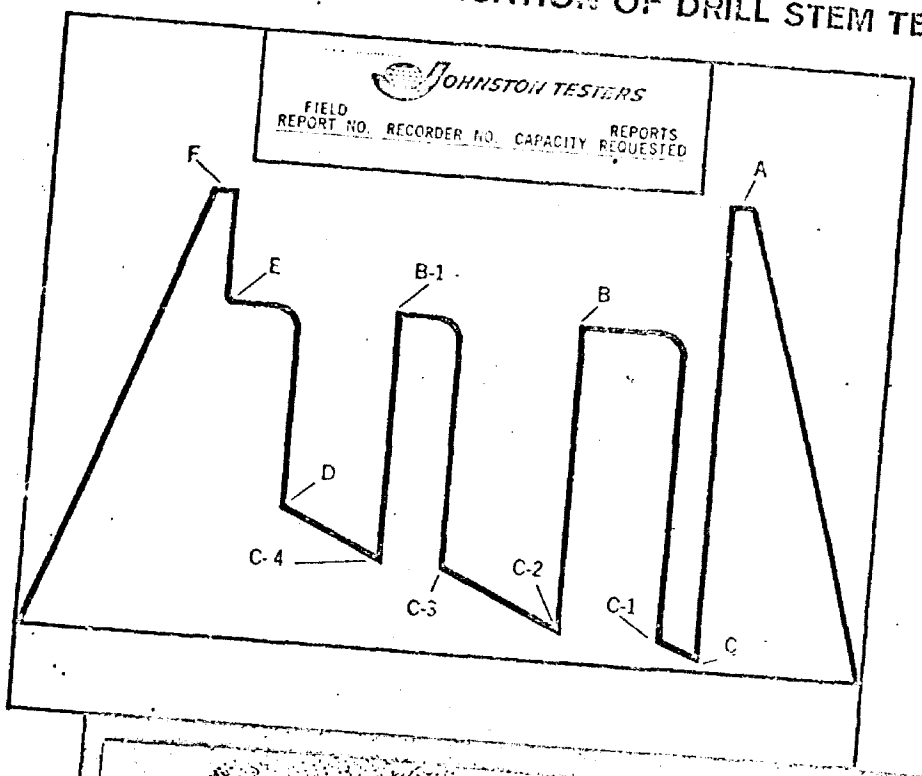
Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$

FINAL SHUT-IN

Point Minutes	Pressure	$\frac{T+\Delta t}{\Delta t}$
D 0	2324	
10	2345	
20	2345	
30	2345	
40	2345	
50	2345	
60	2345	
70	2345	
80	2345	
90	2345	
100	2345	
110	2345	
120	2345	
E 130	2345	

JOHNSTON TESTERS

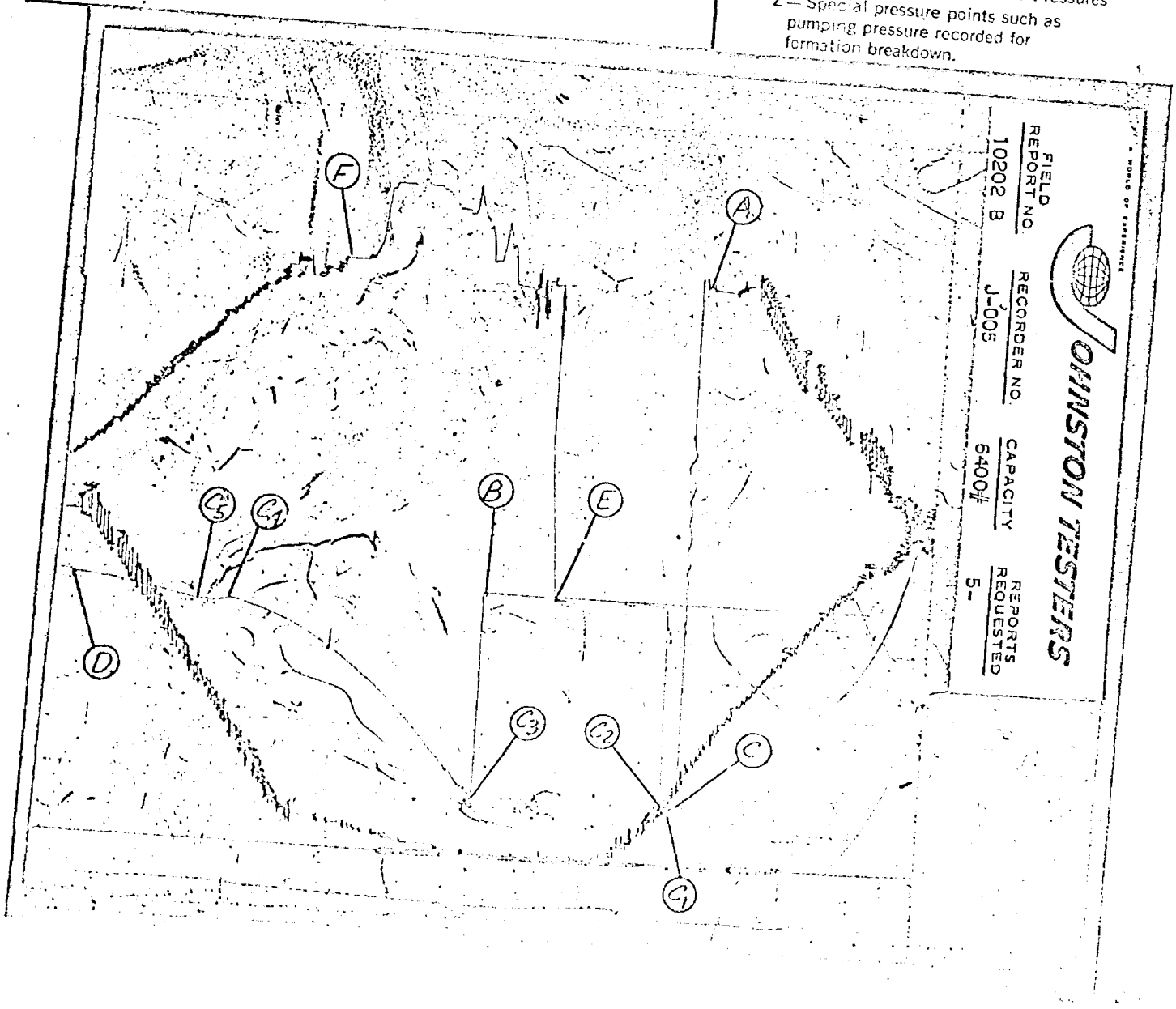
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



A. Initial Hyd. Mud
B. Initial Shut-in
C. Initial Flow
D. Final Flow
E. Final Shut-in
F. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings, (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
B-1, B-2, B-3, etc. Subsequent Shut-in Pressures
C-1, C-2, C-3, etc. Flowing Pressures
D-1, D-2, D-3, etc. Subsequent Final Flow Pressures
E-1, E-2, E-3, etc. Subsequent Final Shut-in Pressures
F-1, F-2, F-3, etc. Final Hyd. Mud Pressures
Z — Special pressure points such as pumping pressure recorded for formation breakdown.

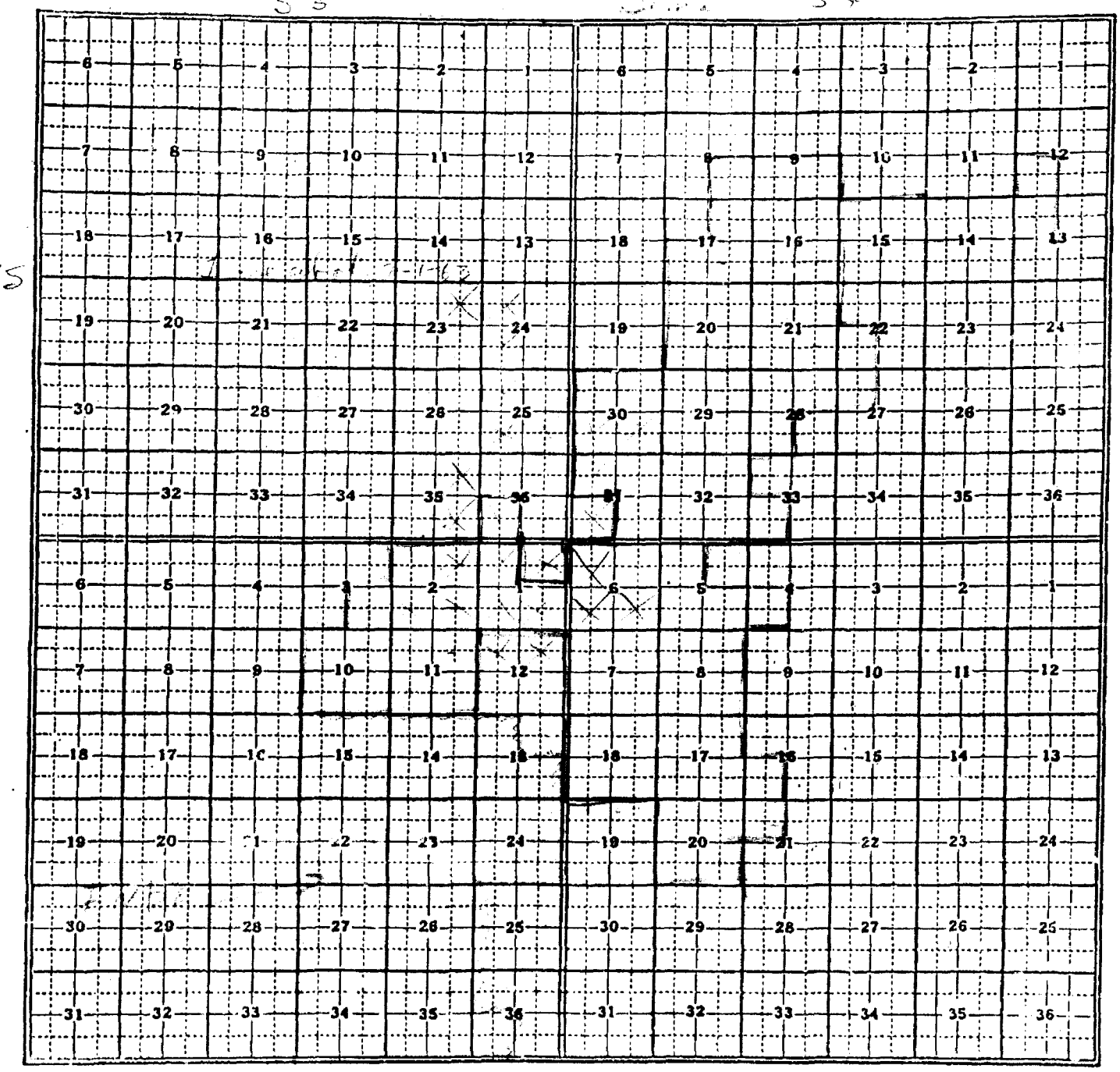


_____ County, _____

Township _____ Range _____ Township _____ Range _____

Township _____ Range _____ Township _____ Range _____

Form 104—(Four on Township)



VADA PENNSYLVANIAN POOL
PRODUCTION HISTORY

WELL	COMPLETION DATE		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Cum.
Midwest Pruitt No. 1	10-13-66	O	4,700	6,565	5,668	6,801	6,025	8,412	7,152	6,973	4,873	8,166	5,660	70,995
		W	11,313	9,900	8,502	10,201	9,037	12,156	10,318	13,761	2,924	4,900	3,396	96,408
Midwest Pruitt No. 2	4-15-67	O							1,373	2,725	1,904	2,524	1,886	10,412
		W							410	813	571	757	566	3,117
Midwest Pruitt A No. 1 0,17,9S,34E	6-1-67	O									6,925	6,244	6,944	20,113
		W									2,978	2,123	2,361	7,462
Midwest Pruitt A No. 2 G,17,9S,34E	7-22-67	O											6,944	6,944
		W											1,667	1,667
Cabot Pruitt No. 1	1-27-67	O					1,055	5,535	3,172	4,303	3,837	4,858	5,010	27,770
		W					7,000	7,600	4,028	5,921	5,282	6,572	6,918	43,331
Ralph Lowe State D No. 1 L,16,9S,34E	8-9-67	O											2,348	2,348
		W											2,300 (est)	2,300
Ralph Lowe State D No. 2 E,16,9S,34E	9-16-67	O												
		W												
TOTAL		O	4,700	6,565	5,668	6,801	7,080	13,947	11,697	14,001	17,539	21,792	28,792	
		W	11,313	9,700	8,502	10,037	16,037	19,756	14,756	20,495	11,755	14,352	17,208	
CUMULATIVE		O	4,700	11,265	16,933	23,734	30,814	44,761	56,458	70,459	87,998	109,790	138,582	
		W	11,313	21,013	29,515	39,716	55,753	75,509	90,265	110,760	122,515	136,867	154,075	

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-A
CASE NO. 3713

VADA PENNSLYVANIAN POOL
BHP DATA

WELL	DATA	HOURS S.I.	DATUM	BHP	dP	CUMULATIVE PROD
MOC Pruitt No. 1	10-2-66	72	-5493	3113		0
Cabot Pruitt No. 1	1-23-67	2 (DST)	-5490	2923	190	21,200
MOC Pruitt No. 2	4-6-67	144	-5490	2896	217	47,000
MOC Pruitt A No. 1	5-28-67	72	-5490	2509	604	70,000
MOC Pruitt A No. 2	7-24-67	48	-5490	2831	282	105,500
Lowe State D No. 1	8-5-67	1 (DST)	-5490	2780*	333	114,300

* Extrapolated from 1 hour ISIP of 2719 psi

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Applicant EXHIBIT NO. 4-E
CASE NO. 3473

Vada Pennsylvanian Pool

RESERVE ESTIMATE

POROSITY	7.0%
WATER SATURATION	28.0%
FORMATION VOLUME FACTOR	1.45
RECOVERY FACTOR (estimated)	35%
NET PAY	12'
OIL IN PLACE	$= \frac{7758 \times 0.070 \times 0.72}{1.45}$
	= 270 bbl/acre-ft
RECOVERABLE OIL	= 270 X 0.35
	= 95 bbl/acre-ft
	= 95 X 12
	= 1140 bbl/acre
	= 91,200 bbl/80 acres
	= 182,400 bbl/160 acres

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5-L
CASE NO. 3413

Vada Pennsylvanian Pool

ECONOMICS

GROSS INCOME	$2.92/bbl.	
WORKING INTEREST INCOME (87.50%)	2.55/bbl.	
OPERATING COSTS AND TAXES	0.50/bbl.	
NET WORKING INTEREST INCOME	2.05/bbl.	
	80 ACRES	160 ACRES
ESTIMATED RECOVERY	91,200 bbl.	182,400 bbl.
TOTAL NET INCOME	$186,960	$373,920
DEVELOPMENT COST PER WELL	$ 175,000	$175,000
NET PROFIT / WELL	$11,960	$198,920
RATIO OF INCOME TO INVESTMENT	1.07	2.14

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Applicant EXHIBIT NO.
CASE NO. 3573