CASE 3390: Application of PAN AM. FOR POOL RULES FOR THE EAST HIGHTOWER-LOWER PENN POOL.

_ASE NO.

3390

pplication,
ranscripts,
mall Exhibits
ETC.

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. 3390
Order No. R-3058-A

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR SPECIAL RULES FOR THE
EAST HIGHTOWER-LOWER PENNSYLVANIAN POOL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

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

NOW, on this 11th 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-3058, dated April 18, 1966, temporary Special Rules and Regulations were promulgated for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, for a period of 18 months.

(3) That pursuant to the provisions of Order No. R-3058, this case was reopened to allow the operators in the subject pool to appear and show cause why the East Hightower-Lower Pennsylvanian Pool should not be developed on 40-acre spacing units.

(4) That the evidence establishes that one well in the East Hightower-Lower Pennsylvanian Pool can efficiently and economically drain and develop 80 acres.

(5) That the Special Rules and Regulations promulgated by Order No. R-3058 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 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-3058 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 East Hightower-Lower Pennsylvanian Pool, promulgated by Order No. R-3058, 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/

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

October 11, 1967

Re: Case No. 3390
Order No. R-3058-A
Applicant:
PAN AMERICAN

Mr. Guy Buell
Pan American Petroleum Corporation
Post Office Box 1410
Fort Worth, Texas

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

Docket No. 31-67

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 4, 1967

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 3661: Application of Sunray DX Oil Company for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Bough "E" zone of the Pennsylvanian formation in the interval 9248 feet to 9254 feet in its New Mexico Federal "F" Well No. 1 located in Unit H of Section 13, Township 8 South, Range 34 East, Milnesand Field, Roosevelt County, New Mexico.

CASE 3390 (Reopened)

In the matter of Case No. 3390 being reopened pursuant to the provisions of Order No. R-3058, which order established 80-acre spacing units for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, for a period of 18 months. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3662: Application of El Paso Natural Gas Company for a non-standard gas proration unit and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of a 230.32-acre non-standard gas proration unit comprising all of lots 9, 10, 11, 12, 13, and 14 of Section 6, Township 21 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to be dedicated to its Shell State Com "E" Well No. 1 at an unorthodox location for said pool 3300 feet from the North line and 1980 feet from the East line of said Section 6.

CASE 3663: Application of Stoltz & Company for an amendment to Order No. R-3238, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3238 which authorized applicant's use of Lane Salt Lake in Township 10 South, Ranges 32 and 33 East, Lea County, New Mexico, for salt water disposal purposes. Applicant specifically seeks the amendment of paragraph (3) of Order No. R-3238 to correct the maximum permitted water level for disposal purposes in said lake and to correct the ground elevation of the reference well in said order. The above corrections are necessitated by a re-survey of the subject lake.

GOVERNOR
JACK M. CAMPBELL
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

April 18, 1966

DOCKET MAILED
Date 9/21/67

Re: Case No. 3390
Order No. R-3058
Applicant:
Pan American Petroleum Corp.

Mr. Guy Buell
Pan American Petroleum Corporation
Post Office Box 1410
Fort Worth, Texas

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 order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

DOCKET MAILED
Date 9/21/67

Other Atwood & Malone - Box 700, Roswell, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF PAN AMERICAN PETROLEUM CORPORATION FOR SPECIAL RULES FOR THE EAST HIGHTOWER-LOWER PENNSYLVANIAN POOL, LEA COUNTY, NEW MEXICO.	)	No. 3390

ENTRY OF APPEARANCE

The undersigned, Atwood & Malone of Roswell, New Mexico, a firm of attorneys, all of whose members are duly licensed to practice law in the State of New Mexico, hereby enters its appearance as local counsel with Guy Buell, Esquire, or J. K. Smith, Esquire, of the Texas Bar, for Pan American Petroleum Corporation in the above entitled cause.

DATED at Roswell, New Mexico, this 5th day of April, 1966.

ATWOOD & MALONE

By Paul C. Malone

Attorneys for Pan American
Petroleum Corporation
Post Office Drawer 700
Roswell, New Mexico

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. 3390
Order No. R-3058

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR SPECIAL RULES FOR THE
EAST HIGHTOWER-LOWER PENNSYLVANIAN POOL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 13, 1966, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 18th day of April, 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 the applicant, Pan American Petroleum Corporation, seeks the promulgation of temporary special rules and regulations for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, including a provision for 80-acre spacing units.

(3) 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 East Hightower-Lower Pennsylvanian Pool.

(4) 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.

(5) That the temporary special rules and regulations should be established for an 18-month 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.

(6) That this case should be reopened at an examiner hearing in October, 1967, at which time the operators in the subject pool should be prepared to appear and show cause why the East Hightower-Lower Pennsylvanian Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

That temporary Special Rules and Regulations for the East Hightower-Lower Pennsylvanian Pool are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EAST HIGHTOWER-LOWER PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the East Hightower-Lower Pennsylvanian Pool or in the Lower Pennsylvanian formation within one mile thereof, and not nearer to or within the limits of another designated Lower 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 5.67 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 location of all wells presently drilling to or completed in the East Hightower-Lower Pennsylvanian Pool or in the Lower 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 May 1, 1966.

(2) That each well presently drilling to or completed in the East Hightower-Lower Pennsylvanian Pool or in the Lower 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 October, 1967, at which time the operators in the subject pool may appear and show cause why the East Hightower-Lower 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

Jack M Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

esr/

Docket No. 10-66

DOCKET: REGULAR HEARING - WEDNESDAY - APRIL 13, 1966

OIL CONSERVATION COMMISSION - 9 A.M., THE INN MOTOR HOTEL, CONVENTION CENTER, 200 SOUTH LINAM, HOBBS, NEW MEXICO

ALLOWABLE (1) Consideration of the oil allowable for May, 1966;

(2) Consideration of the allowable production of gas for May, 1966, from thirteen prorated pools in Lea, Eddy, and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for May, 1966.

CASE 3389: Application of David Fasken for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle in the wellbore, production from the North Bagley-Upper Pennsylvanian, North Bagley-Middle Pennsylvanian, and North Bagley-Lower Pennsylvanian Oil Pools in his Felmont Collier Well No. 1, located in Unit H of Section 9, Township 11 South, Range 33 East, Lea County, New Mexico, with the provision that no more than one top allowable could be produced from said well.

CASE 3376: Application of T. E. Brown, Jr. and Claudyne Brown Thorp for compulsory pooling, Lea County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all oil and gas mineral interests in the Lusk-Strawn Pool underlying the NE/4 of Section 7, Township 19 South, Range 32 East, Lea County, New Mexico. Said order to be effective the date of first production from said land and pool.

CASE 3390: Application of Pan American Petroleum Corporation for special rules for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, including a provision for 80-acre proration units.

CASE 3391: Application of The Atlantic Refining Company for three waterflood projects, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on each of three separate contiguous leases, pending unitization, by the injection of water into the Yates and Upper Queen formations, Shugart Pool, through five wells located in Sections 34 and 35, Township 18 South, Range 31 East, Eddy County, New Mexico. Applicant further seeks an administrative procedure whereby the project areas could be consolidated or expanded to include other lands upon unitization and whereby additional injection wells could be approved.

CASE 3392: Southeastern New Mexico nomenclature case calling for an order for the creation, extension and contraction of certain pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

a) CREATE A new gas pool for San Andres production designated as the South Crossroads-San Andres Gas Pool. The discovery well is W. K. Byrom, T. P. State No. 1, located in Unit K of Section 10, Township 10 South, Range 36 East, NMPM. Said pool described as:

TOWNSHIP 10 SOUTH, RANGE 36 EAST, NMPM
SECTION 10: SW/4

b) EXTEND the Chaveroo-San Andres Pool to include therein:

TOWNSHIP 7 SOUTH, RANGE 33 EAST, NMPM
SECTION 24: SW/4
SECTION 25: W/2
SECTION 26: S/2
SECTION 28: NE/4
SECTION 35: NW/4

c) EXTEND the South Corbin-Queen Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
SECTION 34: N/2

d) EXTEND the Jenkins-Cisco Pool to include therein:

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM
SECTION 25: NW/4

e) EXTEND the Justis-Blinebry Pool to include therein:

TOWNSHIP 24 SOUTH, RANGE 37 EAST, NMPM
SECTION 26: SW/4

f) EXTEND the Morton-Lower Wolfcamp Pool to include therein:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM
SECTION 12: SE/4

g) EXTEND the Querecho Plains-Pennsylvanian Pool to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
SECTION 15: SW/4
SECTION 22: NW/4

h) EXTEND the Scarborough-Yates-Seven Rivers Pool to include therein:

TOWNSHIP 26 SOUTH, RANGE 37 EAST, NMPM
SECTION 30: SW/4

i) EXTEND the Indian Basin-Upper Pennsylvanian Gas Pool to include therein:

TOWNSHIP 21 SOUTH, RANGE 23 EAST, NMPM
SECTION 29: All
SECTION 32: All

j) CONTRACT the Red Lake Pool by the deletion therefrom of the following lands:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
SECTION 31: SE/4 NE/4 and E/2 SE/4

k) EXTEND the Artesia Pool to include the lands deleted from the Red Lake Pool in Paragraph (j) above.

l) EXTEND the Linda-San Andres Pool to include therein:

TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM
SECTION 8: N/2 NE/4

CASE 3393: Northwestern New Mexico nomenclature case calling for an order for the abolishment, creation and extension of certain pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

a) ABOLISH the Rattlesnake-Pennsylvanian "B" Gas Pool which comprises the following-described area:

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 2: S/2
SECTION 11: N/2

b) ABOLISH the Rattlesnake-Pennsylvanian "CD" Oil Pool which comprises the following-described area:

TOWNSHIP 29 NORTH, RANGE 18 WEST, NMPM
SECTION 18: S/2 NW/4 and SW/4
SECTION 19: N/2 NW/4 and W/2 NE/4

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 1: SW/4
SECTION 2: E/2 and E/2 SW/4
SECTION 11: E/2 NW/4 and NE/4
SECTION 12: NW/4, E/2 SW/4 and SE/4
SECTION 13: NE/4

c) CREATE the Rattlesnake-Pennsylvanian "BCD" Oil Pool with vertical limits being from 6404 feet to 6827 feet on the log of the Continental Oil Company Rattlesnake Well No. 136, located in Unit J of Section 2, Township 29 North, Range 19 West, San Juan County, New Mexico, and with horizontal limits described as follows:

TOWNSHIP 29 NORTH, RANGE 19 WEST, NMPM
SECTION 2: S/2
SECTION 11: N/2
SECTION 12: All

d) EXTEND the Ballard-Pictured Cliffs Pool to include therein:

TOWNSHIP 24 NORTH, RANGE 6 WEST, NMPM
SECTION 17: NW/4
SECTION 18: NE/4

e) EXTEND the South Blanco-Pictured Cliffs Pool to include therein:

TOWNSHIP 23 NORTH, RANGE 2 WEST, NMPM
SECTION 14: SW/4
SECTION 15: W/2 and SE/4
SECTION 22: NE/4
SECTION 23: S/2

TOWNSHIP 25 NORTH, RANGE 4 WEST, NMPM
SECTION 1: SE/4
SECTION 2: SE/4

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM
SECTION 3: SW/4
SECTION 10: N/2 and SE/4

f) EXTEND the Blanco-Mesaverde Pool to include therein:

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM
SECTION 10: E/2

TOWNSHIP 26 NORTH, RANGE 6 WEST, NMPM
SECTION 17: All
SECTION 18: All
SECTION 20: N/2
SECTION 21: N/2

TOWNSHIP 26 NORTH, RANGE 7 WEST, NMPM
SECTION 13: S/2

TOWNSHIP 27 NORTH, RANGE 9 WEST, NMPM
SECTION 26: W/2

g) EXTEND the South Blanco-Tocito Oil Pool to include therein:

TOWNSHIP 26 NORTH, RANGE 5 WEST, NMPM
SECTION 18: SE/4
SECTION 19: NE/4
SECTION 20: N/2

FORM 470 2-57

PAN AMERICAN PETROLEUM CORPORATION

MAIN OFFICE OCC

MAR 7 AM 8:13

P. O. Box 268
Lubbock, Texas 79401
March 3, 1966

File: RES-3173-986.510.1

Subject: Application of Pan American Petroleum Corporation for Adoption of Temporary Rules, Hightower, East (Lower Penn) Pool, Lea County, New Mexico

Case 3390

Mr. A. L. Porter (3)
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

Dear Sir:

Pan American, as operator of one of the two wells in the subject pool, respectfully requests that a hearing before an Examiner be docketed to consider its application for adoption of temporary rules for the Hightower, East (Lower Penn) Pool, Lea County, New Mexico.

In our opinion, the information available to date regarding this pool, indicates the necessity for, and we plan to request, the following temporary rules:

1. 80-acre proration units, more or less, consisting of the N/2, S/2, E/2 or W/2 of a governmental quarter section.

2. Each well drilled or recompleted in the Hightower, East (Lower Penn) Pool, subject to the effective date of the rules, shall be located within 150' of the center of a governmental quarter-quarter section.

3. Allocation of production to be based on 100% acreage assigned to a well's proration unit.

As noted on the attached plat, Pan American and Texam are the respective producers of the two wells now located in this pool. In our opinion, the establishment of the above rules on a temporary basis will be in the interest of conservation and protection of correlative rights.

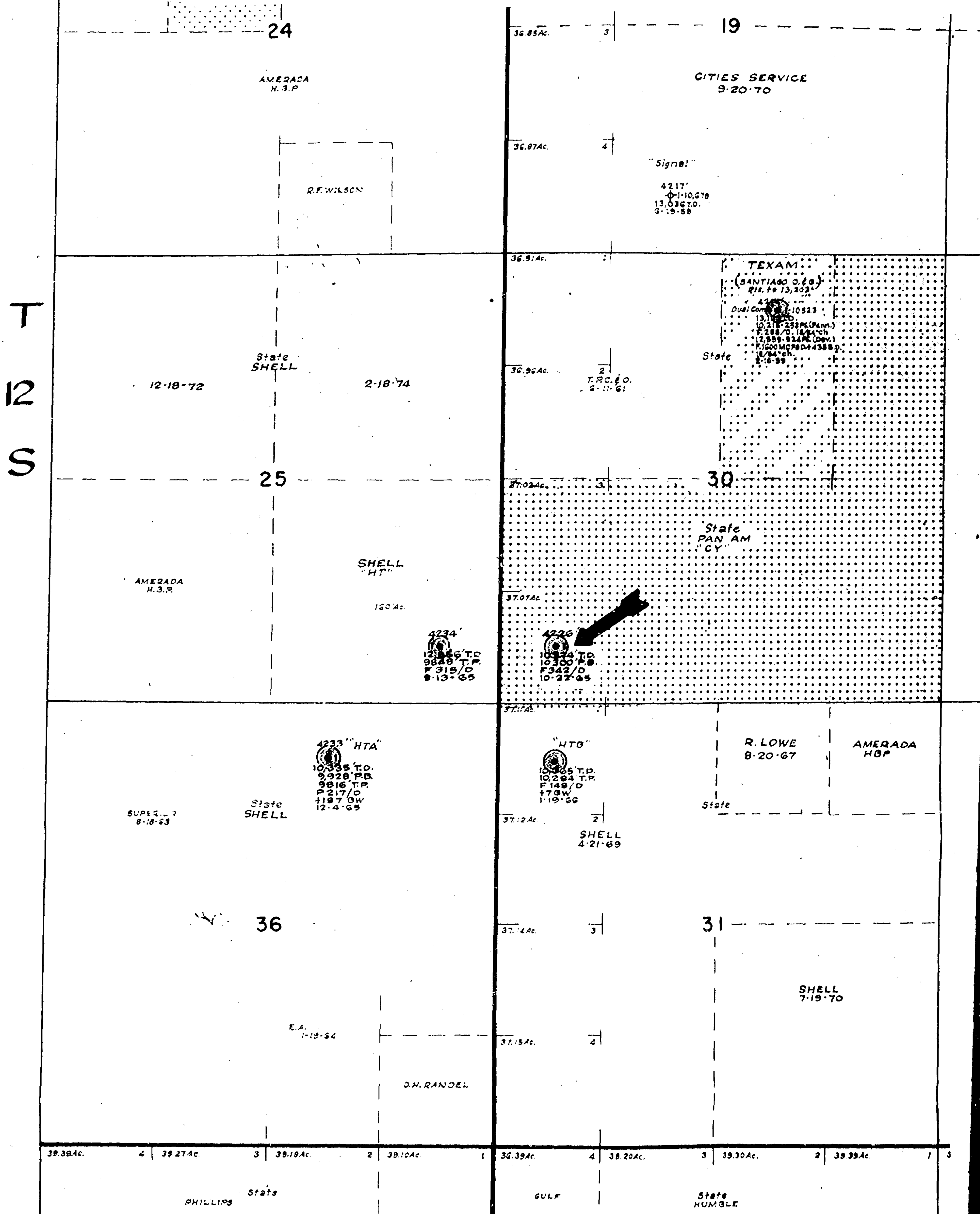
Yours very truly,

Neil S. Whitmore
District Production Superintendent

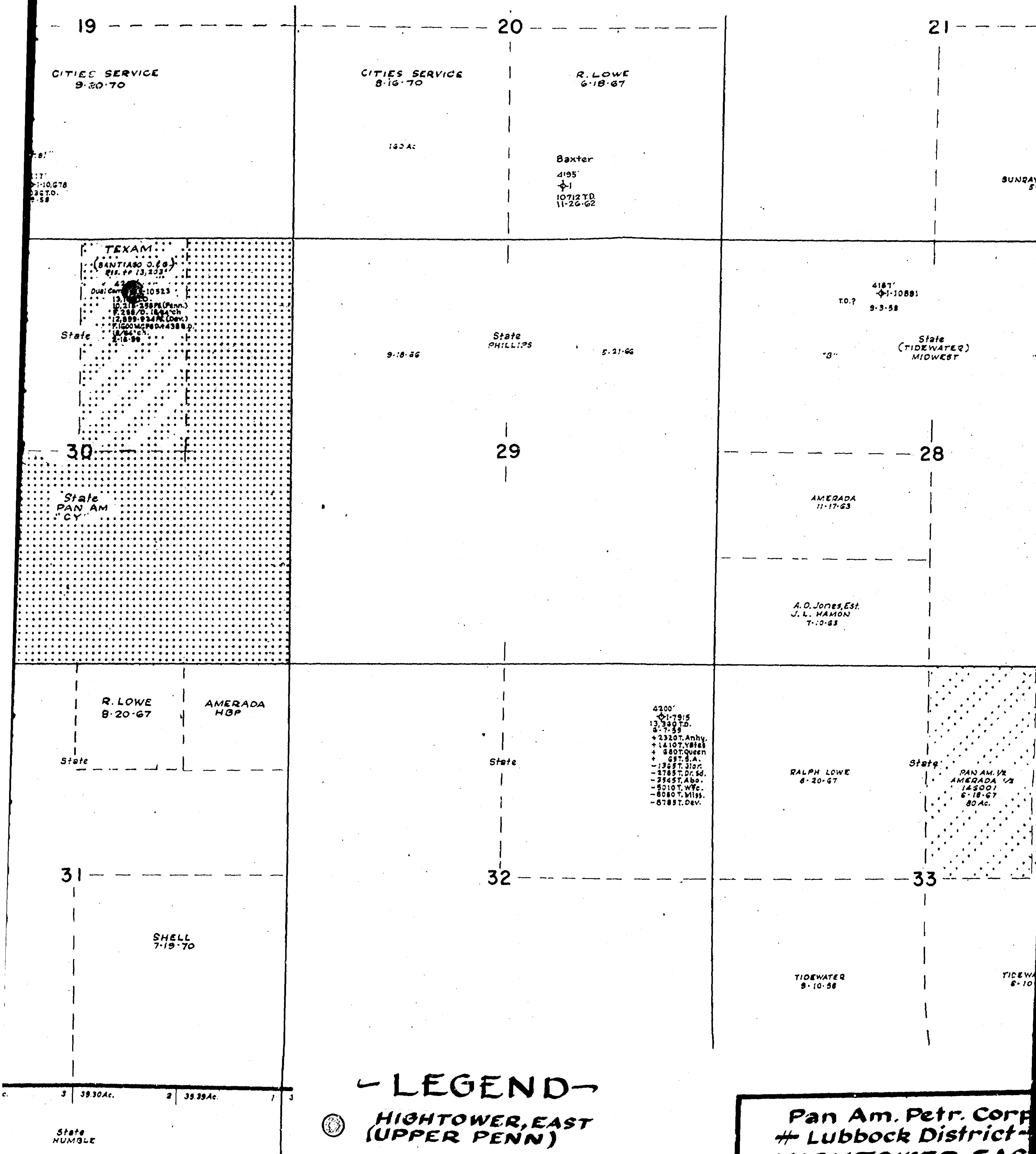
WCC:jn
Attachment
cc: Texam Oil Corporation
Shell Oil Company

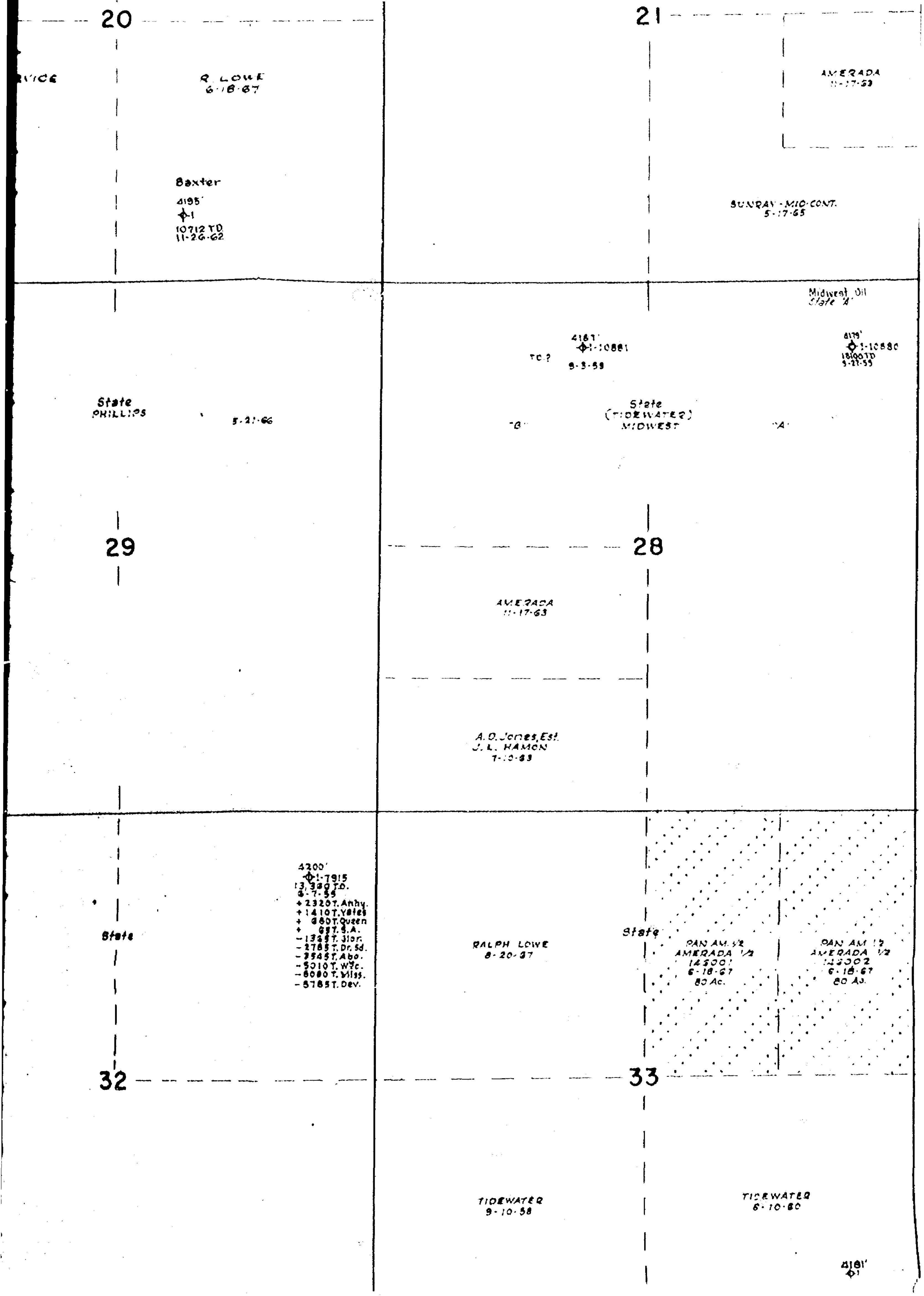
DOCKET MAILED

Date 3-22-66



T
12
S
24
19
25
30
36
31
AMERADA
H.B.P.
CITIES SERVICE
9-20-70
R.F. WILSON
"Signal"
4217'
13,036 T.D.
6-19-58
TEXAM
State
SHELL
12-18-72
2-18-74
T.P.C.& O.
6-11-61
State
PAN AM
"CY"
SHELL
"HT"
AMERADA
H.B.P.
160 Ac.
4234'
F 315/D
8-13-65
4226'
10,300 P.B.
F342/D
10-22-65
4233 "HTA"
10,335 T.D.
9,928 P.B.
9816 T.P.
P217/D
12-4-65
"HTB"
10,294 T.P.
F 149/D
1-19-66
State
SHELL
R. LOWE
8-20-67
AMERADA
HBP
State
SHELL
4-21-69
SHELL
7-19-70
E.A.
1-19-64
O.H. RANDEL
36.85Ac.
36.87Ac.
36.9Ac.
36.96Ac.
37.02Ac.
37.07Ac.
37.12Ac.
37.15Ac.
39.39Ac.
39.27Ac.
39.19Ac.
36.39Ac.
38.20Ac.
39.30Ac.
39.39Ac.
State
PHILLIPS
GULF
State
HUMBLE


19
20
21
CITIES SERVICE
9·20·70
CITIES SERVICE
8·16·70
R. LOWE
6·18·67
Baxter
4195'
1
10712 T.D.
11-26-62
SUNRAY
TEXAM
(SANTIAGO O.&G.)
State
State
PHILLIPS
9·18·66
5·21·66
4187'
1-10881
T.D.?
9-3-58
"B"
State
(TIDEWATER)
MIDWEST
30
29
28
State
PAN AM
"CY"
AMERADA
11·17·63
A. O. Jones, Est.
J. L. HAMON
7·10·63
R. LOWE
8·20·67
AMERADA
HBP
State
State
4200'
1-7915
13,340 T.D.
6·7·59
+2320 T. Anhy.
+1410 T. Yates
+ 680 T. Queen
+ 63 T. S.A.
-1365 T. Glor.
-2785 T. Dr. Sd.
-3545 T. Abo.
-5010 T. Wfc.
-6080 T. Miss.
-8785 T. Dev.
RALPH LOWE
8·20·67
State
PAN AM. 1/2
AMERADA 1/2
14600 1
6·18·67
80 Ac.
31
32
33
SHELL
7·19·70
TIDEWATER
9·10·56
3 39.30 Ac.
2 39.39 Ac.
State
HUMBLE
-LEGEND-
HIGHTOWER, EAST
(UPPER PENN)
Pan Am. Petr. Corp
Lubbock District


20
21
R. LOWE
6-18-67
AMERADA
11-17-63
Baxter
4195'
1
10712 TD
11-26-62
SUNRAY - MID-CONT.
5-17-65
Midwest Oil
State 'A'
4181'
1-10881
TD ?
9-3-59
4179'
1-10880
10900 TD
5-21-59
State
PHILLIPS
5-21-66
State
(TIDEWATER)
MIDWEST
29
28
AMERADA
11-17-63
A. D. Jones, Est.
J. L. HAMON
7-10-63
4200'
1-7915
13,350 TD.
8-7-59
+ 2320 T. Anhy.
+ 1410 T. Yates
+ 880 T. Queen
+ 65 T. S.A.
- 1325 T. Glor.
- 2785 T. Dr. Sd.
- 3545 T. Abo.
- 5010 T. Wfc.
- 8080 T. Miss.
- 5785 T. Dev.
State
RALPH LOWE
8-20-67
State
PAN AM. 1/2
AMERADA 1/2
14500'
6-18-67
80 Ac.
PAN AM. 1/2
AMERADA 1/2
14500'
6-18-67
80 Ac.
32
33
TIDEWATER
9-10-58
TIDEWATER
6-10-60
4181'
1

LEGEND

GHTOWER, EAST
PPER PENN)

Pan Am. Petr. Corp.
Lubbock District
HIGHTOWER, EAST

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
~~Santa Fe, New Mexico~~
Hobbs, New Mexico
April 13, 1966

REGULAR HEARING

IN THE MATTER OF:

Application of Pan American Petroleum Corporation for special rules for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico.

Case No. 3390

BEFORE:

Mac Easely, Lt. Governor
Guyton B. Hayes, Land Commissioner
A. L. (Pete) Porter, Secretary-Director

TRANSCRIPT OF HEARING

MR. PORTER: The hearing will come to order, please. Take up next, Case 3390. I would like to call for appearances in the case.

MR. BUELL: For Pan American Petroleum Corporation, Guy Buell, we have one witness.

MR. PORTER: Are there any other appearances in this case? Mr. Buell would you have your witness take the chair over here?

(Witness sworn)

(Whereupon, Applicant's Exhibits 1 through 6 marked for identification.)

* * *

W I L L I A M C. C O W E N, a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Cowen, will you state your name, by whom you are employed, in what capacity, and in what location?

A William C. Cowen, employed by Pan American Petroleum Corporation in Lubbock, Texas, as a Petroleum Engineer.

Q Does Pan American's Lubbock office have supervision over activities in the area of the East Hightower-Lower Pennsylvanian Oil Pool?

A Yes, sir, it does.

Q I believe you have testified, and your qualifications are a matter of public record, are they not?

A Yes, sir.

Q In connection with this subject case, I wish you would look first at what has been marked as our Exhibit 1; what is that exhibit?

A Exhibit Number 1 is a base map. The red arrow indicates the location of the East Hightower Field in relation to the Hightower Field and the Ranger Lake Penn Field, which is over to the East of our well.

Q In other words, this is just more or less an orientation map so that the Commission and Staff can see where the East Hightower is in respect to the other pools?

A Yes, sir.

Q What does it produce from?

A From the Devonian and also the Permo-Penn.

Q The Ranger Lake, what does it produce from?

A From the Penn interval.

Q Is it a similar Penn interval to the East Hightower Penn Pool?

A Yes, sir, we believe it's a comparable zone being produced in the Lower Penn.

Q In order that the Commission and the Commission Staff can evaluate your testimony and exhibits from the standpoint

of your recommendations, I wish you would look now at Exhibit 2 which is a copy of the rules that we're recommending here, today, and they are prepared in the normal form, and containing the normal standard provisions. I won't ask him to read the provisions but to summarize the more pertinent provisions.

A Rule 2 specifically asks that we be allowed to assign an 80 acre proration unit, which would be in the North, South, East or West half of a governmental quarter section.

Rule Number 4 fixes the location of wells at 150 feet from the center of a governmental quarter-quarter section.

And Rule Number 6 is in regards to the proportional factor which we request as be assigned as 5.67 for the allowable on these Lower Penn wells.

Q Mr. Cowen, is there production from any other reservoir in the East Hightower area?

A Yes, sir, Upper Penn.

Q Does the Upper Penn have pool rules?

A Yes, sir, they have been established as temporary rules.

Q With respect to those rules, are the rules you're proposing here identical as those previously adopted for the

Upper Penn?

A Yes, sir.

Q Would you look, now, at your Exhibit Number 3?

A Exhibit Number 3 is a map showing the two current completions in the East Hightower Lower Penn Pool, which are colored in orange.

Q Small orange dots?

A Yes, sir.

Q Other data colored in orange on the map is in regards to the production from these two completions and also DST information, and completion attempts made on other wells in the pool. What is the significance of the wells colored with a green dot?

A This indicates completion in the Upper Penn pool.

Q All right, sir. Would you briefly relate for the record the pertinent information obtained from all these wells in this area, starting first with the discovery well for the Lower Penn pool?

A The discovery well is now Texam's State 1-30. It has produced some 83,000 barrels of oil as of the first of February, 1966, and is currently producing about 19,000 barrels of oil a day. The other Lower Penn completion is our State "CY" Well Number 1 located in the Southwest corner of Section 30. It is now producing some 19,000 barrels of oil and is

shown to have been tested in January flowing 224 barrels of oil a day. To the West of our State "CY" Well Number 1, Shell tested its State "HT" Well Number 1. However, the packer failed in the Lower Penn and there was no representative tests obtained and no completion attempt made in the Lower Penn. That is an Upper Penn single completion. To the Southwest, Shell has completed their State "HTA" Well Number 1, and the Lower Penn was not tested and no completion was attempted in that well.

The South offset to Pan American State Number 1 is Shell's "HTB" Well Number 1. This well attempted completion in the Lower Penn and it flowed 114 barrels a day. However, it's now shut in and that is an Upper Penn single completion well.

The only other well on the map is located to the North of the discovery well, and this was drilled by Phillips as its Signal Well Number 1, and it's indicated that completion attempt was made in the Lower Penn. However, it was unsuccessful and the well was dry and abandoned.

Q What data are reflected on this exhibit?

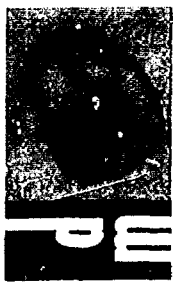
A This exhibit shows our structural interpretation for the Lower Cisco Carbonate, which is another way of saying the Lower Penn, according to the other geologists, and it's noted that the contour interval for this structure

is 20 feet, and in addition there is a trace of the cross section, which will be presented later, running generally from the Southwest to the Northeast.

Q That cross section you mentioned has been identified as Exhibit 4. Would you briefly discuss that exhibit for the record?

A Exhibit 4 shows the three wells previously mentioned, and these are Shell's State "HT" Well Number 1; Pan American State "CY" Well Number 1; and Texam's State 1-30 Well Number 1. This cross section shows the DST and completion information for each well, and in addition it shows a datum line at minus 5800 feet at which the three wells, the logs for the three wells are hung on the cross section. In addition, the top of the Lower Cisco Carbonate is shown, which is also the top of the Lower Penn Zone.

Q Mr. Cowen, you mentioned that production in this area was also had from the Upper Penn. While we're looking at this exhibit, in your opinion, is the Upper Penn virtually separate from the Lower Penn?



A Yes, sir, as noted on our log, State "CY" Well Number 1, there is an apparent shaling section 1030 feet, and extends to 10,100'. This interval is correlative and is believed to separate the Upper Penn from the Lower Penn.

Q Do you have any other comments on this exhibit?

A No, sir.

Q Mr. Cowen, let me direct your attention to what has been marked as our Exhibit Number 5. What is that exhibit?

A Exhibit 5 is a summary of the reservoir and production data from the Pan American State "CY" Number 1.

Q Is it a combination exhibit, date obtaining the "CY" reservoir, and so on?

A Yes, sir.

Q Would you relate for the record the pertinent reservoir data?

A Starting at the top, it shows Net Pay of 25 feet, which is based on log analysis; shows an Average Porosity of 7.5 percent; Estimated Water Saturation of 35 percent, and we feel that this interval is being produced by solution gas drive.

Q You mentioned that the Ranger Lake was producing from a comparable Penn interval earlier in your testimony?

A Yes, sir, we feel that it is.

Q How would you compare the Ranger Lake Penn from the East Hightower?

A We feel it is comparable, however it appears that the Ranger Lake Penn pay has a higher quality than we have here in the Lower Penn interval of the East Hightower Pool.

Q Let me ask you this, Mr. Cowen. Have exhaustive engineering studies been made of the Ranger Lake Penn Reservoir?

A Yes, sir, and we have some of that data available.

Q I notice on this Exhibit 5 that you have shown there that you have calculated the drainage area of Number 1 to a hundred acres, is that correct?

A Yes, sir.

Q Would you state for the record precisely how you made that drainage calculation?

A This is determined using data which we have available from the Ranger Lake Penn Pool as noted about the center of this exhibit. We obtained an original bottom hole pressure from DST on our State "CY" Well Number 1, about 3,759 PSI. This was done in October, 1965. In January of 1966 we obtained another bottom hole pressure and we estimated the stabilized pressure at that time to be 2550 PSI, which is equal to about 68 percent of the original pressure which was recorded. Using this value and using the Ranger Lake Penn data that we have available, it appears that as of January, 1966, we had produced about 11 1/2 percent of the primary recoverable oil. This would equal some 17,200 barrels as of that same date, which would allow the ultimate recovery for our State "CY" Well Number 1 to equal 150,000

barrels of oil.

From Ranger Lake it was determined that ultimate recovery would equal some 500 barrels per acre. Using these two figures we could then arrive at a drainage area of 100 acres.

Q In other words, with recovery of 1500 barrels an acre, and predicted of 150,000, it was very simple calculations to arrive at your hundred acre drainage?

A Yes, sir.

Q Is the production data more or less self-explanatory?

A Yes, sir.

Q What is Exhibit 6?

A Exhibit 6 is a comparison of development economics from 80 acre proration units and 40 acre proration units.

Q All right, sir. Would you briefly summarize the comparisons as reflected on this exhibit?

A As previously noted on Exhibit 5, we had a drainage area of 100 acres, and for that amount of acreage we would recover about 150,000 barrels of oil. Therefore, for 80 acres we would expect to recover 120,000, and then for 40 acres, of course, we would have one half of that, which is 60,000 barrels of oil. Using the same costs for drilling a well, whether it's located on 40 acres or 80 acres, and deducting operating expenses, we show a profit on the 80

acre drainage area of about $130,250.00. For 40 acre development we would actually show a loss of about $4650.00, with payout indicated as 9 months for the 40 acre well and 7 months for the 80. The difference being to the allowable that could be assigned due to 40 and 80 acre units, or return on 80 acres would be 1.0, and there would be no return on investment to a 40 acre well.

Q In making this economic comparison you've used reserve data?

A Yes, sir.

Q While the characteristics are similar, it is a better quality pay than we have at East Hightower?

A Yes, sir.

Q So, to that extent your economic evaluation as reflected by Exhibit 6, is optimistic?

A It would be, yes, sir.

Q Even under these is no return on 40 and an R.O.I. of only 1.0 on an 80 acre development?

A Yes, sir.

Q In your opinion, if the Commission should adopt the rules as you recommended, do you feel that conservation will be preserved and that correlative rights will be protected?

A Yes, sir, under the 40 acre plan we can see that

economic waste would occur; and under the 80, economic waste is marginal at best, and we feel that correlative rights would be protected.

MR. BUELL: That's all we have by way of direct examination, and I would like to formally offer Pan American's Exhibits 1 through 6, inclusive.

(Whereupon, Applicant's Exhibits 1 through 6 offered into evidence.)

MR. PORTER: Without objection they will be admitted.

(Whereupon, Applicant's Exhibits 1 through 6 admitted into evidence.)

MR. BUELL: Could I inquire whether the Commission has any correspondence from Texam, the other operators in these pools?

MR. PORTER: That would be from Texam? Do you have a copy of the letter that they have written us?

MR. BUELL: They have written Pan American. I couldn't tell from this letter whether they were going to communicate with the Commission or not, but I did want the record to reflect that they are in agreement.

MR. PORTER: Would you indicate that.

MR. BUELL: May I offer that as an exhibit?

(Whereupon, Applicant's Exhibit 7 marked for identification.)

(Whereupon, Applicant's Exhibit 7 offered into evidence.)

MR. PORTER: Pan American's Exhibits 1 through 7 will be admitted.

(Whereupon, Applicant's Exhibits 1 through 7 admitted into evidence.)

MR. BUELL: It is a letter from Texam dated March 15, 1966, and the last paragraph thereof says, "We have no objection to temporary field rules as you have proposed, and trust this program will be expeditiously processed to your satisfaction on March 23, 1966".

MR. PORTER: May the record show that there were 7 exhibits, 1 through 7. Any questions of the witness; Mr. Nutter?

CROSS-EXAMINATION

BY MR. NUTTER:

Q Did you make any calculation of reserves using the volumetric method?

A Yes, sir, we did.

Q What did the reserve picture look like on the volumetric calculation?

A Less than we have indicated here; be on the order of a hundred and two thousand barrels instead of a hundred and twenty thousand for eighty acres.

Q Do you have a formation factor?

A We have estimated one.

Q What is it?

A We estimated it as 1.2.

Q Do you have a solution gas-oil ratio?

A We used the original ratio, which was 1,050 cubic feet per barrel.

Q And then to obtain the 102,000 barrels of recoverable oil, what recovery factor did you use, please?

A Recovery factor of 17 percent.

MR. NUTTER: I believe that's all, thank you.

MR. PORTER: Anyone else have a question of the witness? Any statements to be made in the case?

MR. BUELL: May it please the Commission, I might state by way of closing statement, that we would request that these rules, if adopted on a temporary basis, be for a period of 18 months. I might also point out that the way the hearing was advertised, it might be that the Commission might permit permanent adoption of the rules, and Pan American would have no objection.

We're not positive that development is complete, there may be additional development, but I fear that the best case we'll be able to make is an economic case, and I think coming back in the future, the economics will be poorer instead

of better. I believe the record would reflect permanent rules on the economic basis.

MR. PORTER: You don't think the economics would justify the cost of another hearing, Mr. Buell?

MR. BUELL: My witness may not agree with me, but I don't think so.

MR. PORTER: If nothing further the Commission will take the case under advisement and take up Case 3391.

I N D E X

E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
Applt's 1.	2	12	12
Applt's 2.	2	12	12
Applt's 3.	2	12	12
Applt's 4.	2	12	12
Applt's 5.	2	12	12
Applt's 6.	2	12	12
Applt's 7.	12	13	13

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, BOBBY J. DAVIS, 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 3rd day of May, 1966.

Bobby J. Davis
NOTARY PUBLIC

My Commission Expires:

March 13, 1969.

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

October 4, 1967

EXAMINER HEARING

IN THE MATTER OF:

Case No. 3390 being reopened pursuant to the provisions of Order No. R-3058, which order established 80-acre spacing units for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, for a period of 18 months.

CASE 3390
(Reopened)

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The next case is 3390, reopened.

MR. HATCH: In the matter of Case Number 3390 being reopened pursuant to the provisions of Order Number R-3058, which order extablished 80-acre spacing units for the East Hightower-Lower Pennsylvanian Pool, Lea County, New Mexico, for a period of 18 months.

MR. BUELL: Are you ready for appearances, Mr. Examiner?

MR. NUTTER: Have you got one?

MR. BUELL: Yes, sir. For Pan American Petroleum Corporation, Guy Buell, we have one witness, Mr. Newman.

MR. NUTTER: What are you going to do for local representation?

MR. BUELL: I already have an appearance from Atwood and Malone in Roswell in Case 3390.

MR. NUTTER: It's worn out.

MR. BUELL: No, sir, I looked at that very carefully, and it's a continuing association.

MR. NUTTER: I see, they haven't disassociated you yet.

MR. BUELL: No, sir, thank goodness.

(Witness sworn)

ELMER DAVIS NEWMAN, having been first duly sworn, was examined

and testified as follows:

(Whereupon, Applicant's Exhibits 1 through 8 were marked for identification.)

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Newman, would you state your complete name, by whom you are employed, and in what capacity, and at what location, please sir.

A My name is Elmer Davis Newman. I am employed by Pan American Petroleum Corporation as a Petroleum engineer is the Ft. Worth division office.

Q Would you briefly state your educational background in engineering, Mr. Newman?

A I graduated with a B. S. Degree in Mechanical Engineering from Texas Technological College in Lubbock, in February, 1964.

Q What have you done in the field of engineering since graduation?

A Immediately after graduation, I went to work for Pan American Petroleum Corporation in the Levelland area office, where I worked for two and a half years, in various phases of engineering work. After that time, I was transferred to the Ft. Worth Division office, where I worked up to the present

time, also, in various engineering jobs.

Q Have you made a study of the East Hightower- Lower Penn Oil Pool?

A I have.

Q May it please the Examiner, are his qualifications accepted by the Commission?

MR. NUTTER: Well, it depends on whether he is named after that famous old radio commentator, Elmer Davis.

A No.

MR. NUTTER: No relation to him? Well, we will accept his qualifications.

MR. BUELL: Is that good or bad, that he wasn't?

MR. NUTTER: Well, it just depends. Since he isn't, that's good.

Q (By Mr. Buell) Mr. Newman, the purpose of this hearing is to review the temporary rules that are currently in effect and the Commission can accept data in evidence and testimony, to adopt permament rules. It might be helpful if you would just very briefly summarize the rules that are now in existence for this pool on a temporary basis.

A Well, sir, briefly, the temporary 80-acre rules for this pool are just typical rules for an 80-acre pool in the State of New Mexico.

Q All right, sir. Let me ask you what your recommendation to this Commission will be at the outset of the hearing here, so that the Examiner can evaluate your testimony and exhibits from the standpoint of your recommendation? What is your recommendation to the Commission?

A My recommendation is that the current temporary pool rules calling for 80-acre spacing be made permanent.

Q All right, sir. Now, in connection with your testimony is this case, I wish you would look first at what has been identified as our Exhibit Number 1. What is that Exhibit, Mr. Newman?

A Exhibit Number 1 is a map of the East Hightower-Upper and Lower Penn pool area, in Lea County, New Mexico.

Q Is this a multi-pay area, with respect to the Penn formations as a whole?

A Yes, sir, it is. There are Upper Penn completions and Lower Penn completions.

Q This hearing relates to the Lower Penn. How have you distinguished on this exhibit, the two differing completions?

A The lower Penn pool wells are shown in orange, the upper Penn pool wells are shown in green.

Q Do you happen to recall what type rules the commission

has adopted for the upper Penn?

A They are basically the same as the temporary rules for the Lower Penn.

Q But they are permanent 80-acre rules?

A They are, sir.

Q All right, sir. How many lower Penn wells do we have now?

A There are three. Texam, State Number 1, Pan American State, CY State Number 1, and Boren-Shell, State Number 1.

Q As a matter of interest, let me ask you this: What are the current Commission-set horizontal limits for the East Hightower-Lower Penn Oil Pool.

A The current horizontal limits consist of all of Section 30, except the southeast quarter of Township 12, south range 34 east, Lea County, New Mexico.

Q All right, that doesn't include a well I see in the northeast quarter of Section 25. What is the name of that well?

A That is Boren-Shell, State Number 1.

Q Is that a recent completion?

A It is.

Q Would it be your recommendation to the Commission that the horizontal limits be extended to include that well?

A Yes.

Q All right, sir. I noticed also, on Exhibit 1, that you have a line connecting five wells, shown on this Exhibit. What is the significance of that line?

A This is a trace of cross section, structural cross section AA prime.

Q Are you ready to go into that now?

A Yes.

Q It's posted on the board, Mr. Newman, and identified as Pan American Exhibit Number 2. Do you want to go over to that Exhibit?

A All right.

Q And I will ask you to briefly comment on it, if you will.

A Briefly, sir, it covers the five wells as shown on the plat, Exhibit 1, with the top of the lower Penn interval, shown by this line. The three lower Penn completions, Boren-Shell, State Number 1, Pan American State CY Number 1 and Texam State Number 1. This well is to upper Penn completions that penetrated, but were not completed in the lower Penn as shown across this.

Q What are the data that you have on the Exhibit at the bottom of each well log?

A All right, sir. First of all, I have the total depth, the initial completion data, the initial potential, as well as the completion date. Lower Penn drillstem tests are shown on these logs, in any workover and recompletion data, pertaining to the wells.

Q All right, sir. How have you distinguished the completion interval of the three wells that are in the lower Penn pool?

A The perforations of the three lower Penn producing wells are colored in orange, as shown here, here, and here (Indicating).

Q And making your subsurface study of this pool, did you find that we have varying zones of porosity in the lower Penn formation?

A Yes, sir.

Q Would you comment on that briefly, please, sir.

A All right. It appears that Texam's State Number 1 is completed in a higher porous interval than Pan American State CY Number 1, and Boren-Shell State Number 1. However, it appears that the Boren-Shell State Number 1 and Pan American CY Number 1, are completed in the same lower zone of porosity.

Q With respect to future exhibits that you will be discussing, let me ask you this; did the Texam State Number 1 test

the same correlative zone of porosity that the Pan American Well or the Boren Well are completed in?

A It did.

Q All right, sir. Do you have any other comments on this cross-section, Mr. Newman?

A No.

Q All right, sir. Do you want to come back to your seat, please?

A All right.

Q Would you look next at what has been identified as our Exhibit Number 3. What is that exhibit?

A Exhibit Number 3 is a tabulation of production from Texam State Number 1, Pan American State CY Number 1, and also, it shows a few cumulative oil production numbers.

Q Now, you have included only two of the three pool wells. Why did you leave the Boren Well off of this tabulation?

A There was no production data available as of August 1, 1967, which is the cutoff date for this tabulation.

Q These data seem self explanatory, Mr. Newman. I will ask you to state for the record, the cumulative oil production from the pool as of 8-1-67.

A The cumulative oil produced as of August 1, 1967, was 162,823 barrels of oil.

Q All right, sir. Would you look next, please, at what has been identified as our Exhibit 4? What is that exhibit?

A Exhibit Number 4 is a tabulation of pressure information obtained from the lower porosity interval, the one that Pan American, State CY Number 1 and Boren-Shell State Number 1 are completed in.

Q Now, these are pressure data, which you evaluated in reaching your engineering conclusion, as to the drainage area of the well in this pool, based on pressure interference data?

A That is correct.

Q All right, sir. I will ask you to comment very briefly on each of the pressures shown here, starting with the first one, the head of your tabulation.

A All right. The first pressure is a drillstem test pressure taken off of the lower porosity interval on Texam State Number 1, in December of 1958. The pressure shown was 3700 pounds.

Q All right, sir. Let me ask you this, so I will be sure that I understand. The pressures that are reflected on this Exhibit were all taken on the lower zone of porosity. The porosity in which the Boren Well and the Pan American Well

are completed?

A That is correct.

Q All right, sir. Would you comment on the next pressure?

A The next pressure was taken in June of 1965, on Shell State HT Number 1, it also being a drillstem test pressure of 3804 pounds.

Q This pressure was almost six and a half years after the completion of the discover well of Texam, but yet, it is about the same magnitude. Why didn't you notice any draw-down?

A There was no production from this lower porosity interval, since the Texam well was completed in the upper Penn zone.

Q All right, sir. Go on, now, to your next pressure.

A The next pressure was a drillstem pressure taken on the Pan American State CY Well, Number 1, in October of 1965. The pressure was 3759 pounds.

Q So, all of these first three pressures are actually virgin pressures of the lower zone of porosity?

A That is correct. There was no production from the lower zone in Shell State HT Number 1, either.

Q What is in your next pressure?

A The next pressure was taken in January of 1966, on

Shell State HTB Number 1, it being a drillstem test pressure of 2850 pounds.

Q Now, we had some production from this lower zone of porosity when this pressure was taken, hadn't we?

A That is correct. From Pan American CY Number 1.

Q How much below the initial pressure of our CY Number 1, was the pressure on the HTB Number 1?

A Approximately 900 pounds.

Q How far away, from our well, is the Shell HTB Number 1?

A 1320 feet.

Q Let me ask you this, Mr. Newman, would the area of a circle, the radius of which is 1320 feet, include in excess of 80 acres?

A Yes.

Q So based on these data, it appears conclusive that the Pan American Well was at that time, draining in excess of 80 acres?

A Yes, sir.

Q All right, sir. What is your next pressure on this tabulation?

A The next pressure was also taken in January of 1966. It was a bottom hole pressure survey on Pan American State CY

Number 1, and showed a pressure of 2550 pounds.

Q Now, this is some 300 pounds lower than the pressure on the Shell State HTB Number 1, taken at about the same time. Does that alarm you, that its pressure was 300 pounds lower than the initial pressure on the Shell Well?

A No.

Q Is that about what you would expect?

A Yes, sir.

Q All right, sir. What is the next pressure?

A The next pressure was taken on Pan American State CY Well Number 1, in April of 1967, and was 1480 pounds.

MR. NUTTER: This is the bottom hole pressure survey again?

A Yes, sir, that is correct.

Q (By Mr. Buell) Was this a stabilized pressure?

A It had to be extrapulated slightly to be stabilized.

Q Let me ask you this. Have you extrapulated all of these pressures to what you felt would be a stabilized pressure?

A If they did not indicate the need of stabilized pressure, they were extrapulated.

Q All right, sir. What is your next pressure on this exhibit?

A The next pressure was taken on Boren-Shell State

Number 1, in July of 1967. It being a drillstem test pressure showing 3450 pounds.

Q All right, sir. How much below original virign pressure of this lower zone of porosity was the pressure, the initial pressure on the Boren Well?

A Approximately 300 pounds.

Q How far is it away from the Pan American Well?

A 2960 feet.

Q And again, these data show drainage by the Pan American Well for in excess of 80 acres?

A Yes, sir.

Q All right, sir. Mr Newman, let me ask you this, you have discussed these pressure interference data shown on Exhibit Four; do your engineers have another method available to you, that you can use to determine the drainage area of a well?

A Yes, sir, we do.

Q How would you describe that method?

A By comparing pour volume in decline -- production decline curve reserve -- reserves.

Q Have you made a study using that method on wells in the lower Penn Pool?

A I have.

Q Did you make such a study on all three wells?

A No, I did not.

Q Why not?

A There was not sufficient production data available on Boren-Shell State Number 1 to establish a decline trend and decline curve reserves.

Q All right. In connection with your study of that method of determining drainage, let me direct your attention, now, to what has been identified as our Exhibit Number 5. What is that exhibit?

A Exhibit Number 5 is a decline curve for Texam State Well Number 1. It has barrels of oil per month plotted on the vertical log scale and the time across the bottom.

Q Would you explain the significance of this exhibit from the standpoint of your ultimate objective of determining drainage?

A All right, sir. We plotted this to establish decline rate, or perhaps I should say, to observe and establish decline rate so that we could extrapulate it, the economic limits of the well which would give us total reserves for the well. These total reserves are shown as 180,458 barrels.

Q Do you have that total reserve figure tabulated on Exhibit 5?

A Yes, sir, it is just below the title block in the upper righthand corner.

Q All right, sir. Would you go now to what has been identified as our Exhibit 6. What is that exhibit?

A Exhibit Number 6 is a similar curve for Pan American State CY well Number 1. Again it's barrels of oil per month plotted on a vertical log scale and time plotted on a horizontal scale.

Q What were the production decline reserves determined for this well?

A 134,865 barrels of oil.

Q Is that also noted on the Exhibit?

A Yes, sir, in the lower righthand corner.

Q All right, sir. After you have determined your production decline reserve, what is the next step in this method?

A The next step was to determine pour volume reserves and make a comparison of the pour volume and decline curve reserve.

Q Have you done that for these two wells?

A I have.

Q Would you look then, at Exhibit 7, Mr. Newman, and briefly state for the record, what that Exhibit reflects?

A Exhibit Number 7 shows the method by which the pour volume reserves were calculated and the method by which they were compared to the decline curve reserves for Pan American

State CY Number 1 and Texam State Number 1.

Q I notice that you have this exhibit broken down into three items distinguished by Roman numerals. Would you discuss first, the item under Roman numeral 1?

A All right, sir. Under Roman numeral 1 we calculated the pour volume reserves in terms of reserve in barrels of oil per acre-foot. Some of the data that we used to calculate this number was an average water saturation of thirty-five per cent porosity of seven and a half per cent, a recovery factor of twenty per cent and reservoir volume factor of 1.2. Using this data we calculated reserves in barrels of oil per acre-foot of sixty-three stock-tank barrels.

Q All right, sir. After you determined that figure, what was your next step?

A The next step was to determine the pay in the Lower Penn zone, from log analysis.

Q All right, sir. Now, I believe the Roman numeral 2 shows that determination for our State CY Well Number 1. Would you briefly discuss that item, please?

A Under Roman numeral 2, as shown by log analysis, we determined there is twenty-five feet of pay in the Lower Penn interval and multiplying the sixty-three stock-tank barrels of oil per acre-foot, times the twenty-five feet, we get 1575

barrels of oil per acre recoverable reserves. By recalling, the decline curve analysis showed reserves of 134,865 stock-tank barrels and by dividing this by the 1575 we get a drainage area of 85.6 acres.

Q All right, sir. Now, would you discuss this same procedure on the Texam State Number 1?

A Under Roman numeral 3, by log analysis, we concluded there are twenty-six feet of pay in the lower interval of Texam State Number 1. Again multiplying the sixty-three stock-tank barrels of oil per acre-foot, times twenty-six feet, we get 1638 barrels of oil per acre recoverable reserves. Again, recalling decline curve analysis, shows that this well had reserves of 180,458 stock-tank barrels and dividing this by 1638, we get a drainage area of 110.1 acres.

Q So, these data,using the other method available to you, confirm your pressure interference data that a well in this pool will drain in excess of eighty acres?

A That's right.

Q All right, sir. Let's look at the other side of the car now. We have looked at the physical facts of drainage. Let's look at the economics of various development patterns and let me ask you this. In your opinion would forty acre development in this pool be economical?

A No.

Q In connection with your economic study, Mr. Newman, let me direct your attention to what has been identified as our Exhibit Number 7. What is that exhibit?

A Exhibit 8, I believe.

Q Exhibit Number 8, pardon me.

A Exhibit Number 8 is return on investment charge for Pan American State CY lease in the Hightower, East Hightower-Lower Penn Pool.

Q Would you briefly discuss the data and the basis that you used in preparing this Exhibit?

A As shown in the upper lefthand corner of the page, the basis is $122,600.00 well cost; $12,000.00, lease and lift equipment cost; these are actual costs on our Pan American State CY Number 1. 6.3 per cent direct taxes, $125.00 per well per month operating costs; twelve and a half per cent royalty plus 5.46 per cent overriding interest and a crude oil value of $3.04 per barrel and $5,000.00 workover costs.

Q All right, sir, using these data, what did you do then?

A Using this data I calculated and plotted the line shown on the page.

Q What would you call that, a ROI curve?

A Yes, sir.

Q What have you plotted that line against?

A Well, sir, on the vertical scale is return on the investment; on the horizontal scale is gross reserves, stock-tank barrels of oil. This is gross reserves before royalty and taxes.

Q All right, sir. Now, you have established your reserves on the Pan American CY Number 1. Using those reserves, let me ask you this question. What would your ROI be on forty-acre development?

A Assuming that we would cut the reserves approximately in half our ROI would be only 0.1.

Q Clearly uneconomic?

A That's right.

Q What would the ROI be on the eighty-acre development?

A It would be 1.2.

Q Rather marginal economics, even on eighty?

A That is correct.

Q All right, sir. Now, have you prepared a similar exhibit for the Texam Well?

A No, I haven't.

Q Assuming the same basic data that you used on our State CY lease and knowing the reserves of the Texam Well, let me ask you whether or not in your opinion, using the reserves

on that well, forty-acre development would be economical?

A No, sir, it would not.

Q Mr. Newman, in your opinion, do these data and exhibits and testimony which you presented, show pretty conclusively that the proper rules for the existing wells in the pool, are the rules that are now in effect?

A Yes, sir.

Q Do you think it would be even more mandatory that these rules be continued, if you assumed future development in the pool?

A Yes, sir, I do.

Q Can you say at this time that there will not be any more development?

A No.

Q Would you anticipate that there will be?

A Possibly so.

Q Do you have anything else that -- well, wait, let me ask you this; do you feel that these rules will serve conservation as well as protect the correlative rights of all the owners and interests, if they are made permanent by this Commission?

A I do.

Q Do you have anything else that you care to add?

A No.

MR. BUELL: May it please the Examiner, that's all we have by way of Direct. I would like to furnish for the Commission's files, a letter from each of the other two operators in the Pool, from Texam Oil Corporation, which concurs in our recommendation for permanent rule and a letter from Sam Boren, Oil Producer,also concurring. And I would like to formally offer Pan American's Exhibits 1 through 8.

MR. NUTTER: Pan American's Exhibits 1 through 8 will be admitted into evidence. Are there any questions of the witness?

(Whereupon Applicant's Exhibits 1 through 8 were admitted into evidence)

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Newman, in Roman numeral 1 of Exhibit 7 you have assumed thirty-five saturation, seven and a half per cent porosity, recovery factor of twenty per cent and 1.2 reservoir volume factor. Actually, these two wells, which you have got in this Pool, the Texam Well and the Pan American Well, in essence, are producing from two separate reservoirs, aren't they?

A That is correct.

Q Are these the average figures for both reservoirs?

A Well, sir, it appears from log analysis that the Penn -- even though they are different zones of Penn porosity, that they are very comparable in water saturation and porosity, with the ranges in both saturation and porosity being about the same --

Q So this figure that you have used, be it from one well or the other, is representative of both wells?

A Yes, sir.

Q And the only difference, then, between the two wells, is one foot of net pay?

A That is correct.

Q Now, what was your reason that you explained, that the drillstem tests on the Shell State HT number 1, was 104 pounds higher than the Texam drillstem test pressure?

A Well, sir, I didn't attempt to explain it being higher. I would assume that it was probably accuracy of the instruments. There is one possibility that they were not able to get a final shut-in pressure on Shell's State HT Number 1, because of packer leakage. It's shown on the cross-section under the drillstem test data, so this initial pressure could possibly be slightly higher, because of the packer leagage at the time that they took it, after the initial preflow.

Q That would make it lower, wouldn't it?

A No, sir, I don't believe so. Not with the hydro-static head of the mud column.

Q I see. It would be the hydro-static head raising the pressure, right?

A Right.

Q Do you think that the initial reservoir pressure would be more in line with the Texam pressure and the CY pressure, then?

A Yes, sir, I think it would be.

Q Some were slightly over 3700 pounds --

A Yes, sir.

Q Would be the original pressure?

A Yes, sir.

Q What kind of production are they getting out of this Boren well at this time; do you have any idea?

A I believe that the potential, on file with the Commission, is 182 barrels of oil and 144 barrels of water per day. It was taken on August 11, 1967.

Q It was just completed in August?

A Yes, that is correct.

Q Then you don't know how the well is holding up to date?

A No, I don't.

Q These other two wells have declined, and they are both marginal wells now, aren't they?

A Yes, sir, that is correct.

Q You indicated that there might possibly be additional development in the reservoir in the future. Do you know whether Pan American has any plans at this time to drill any additional wells?

A Sir, we do not have any immediate plans. The reason that we don't is, that there is a considerable risk factor in area. For instance, between our State CY number 1 and Texam State number 1, there is the possibility of some drainage from the two wells. There is also the possibility that the two Penn intervals that are productive, the Upper and Lower porosity zones, might be either of pour quality in this location or not present.

Q Since they are producing from two separate reservoirs, they might both pitch out in the middle there?

A That's right. Examples of that are CY Number 1. We perforated an interval exactly correlative to the upper part interval as Shell's HT Number 1 and we didn't get anything out of it, and returned it to lower Penn production.

Q And it's on forty-acre location?

A Yes, sir.

MR. NUTTER: Are there any other questions of Mr. Newman? He may be excused. Do you have anything further Mr. Buell?

MR. BUELL: No, sir, we do not, Mr. Examiner.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3390, reopened? We will take the case under advisement and call case 3626.

I N D E X

EXHIBIT	MARKED	OFFERED AND ADMITTED
Applicant's Exhibits 1 through 8	3	22

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JIMMIE DON PETTY, 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 26th day of October, 1967.

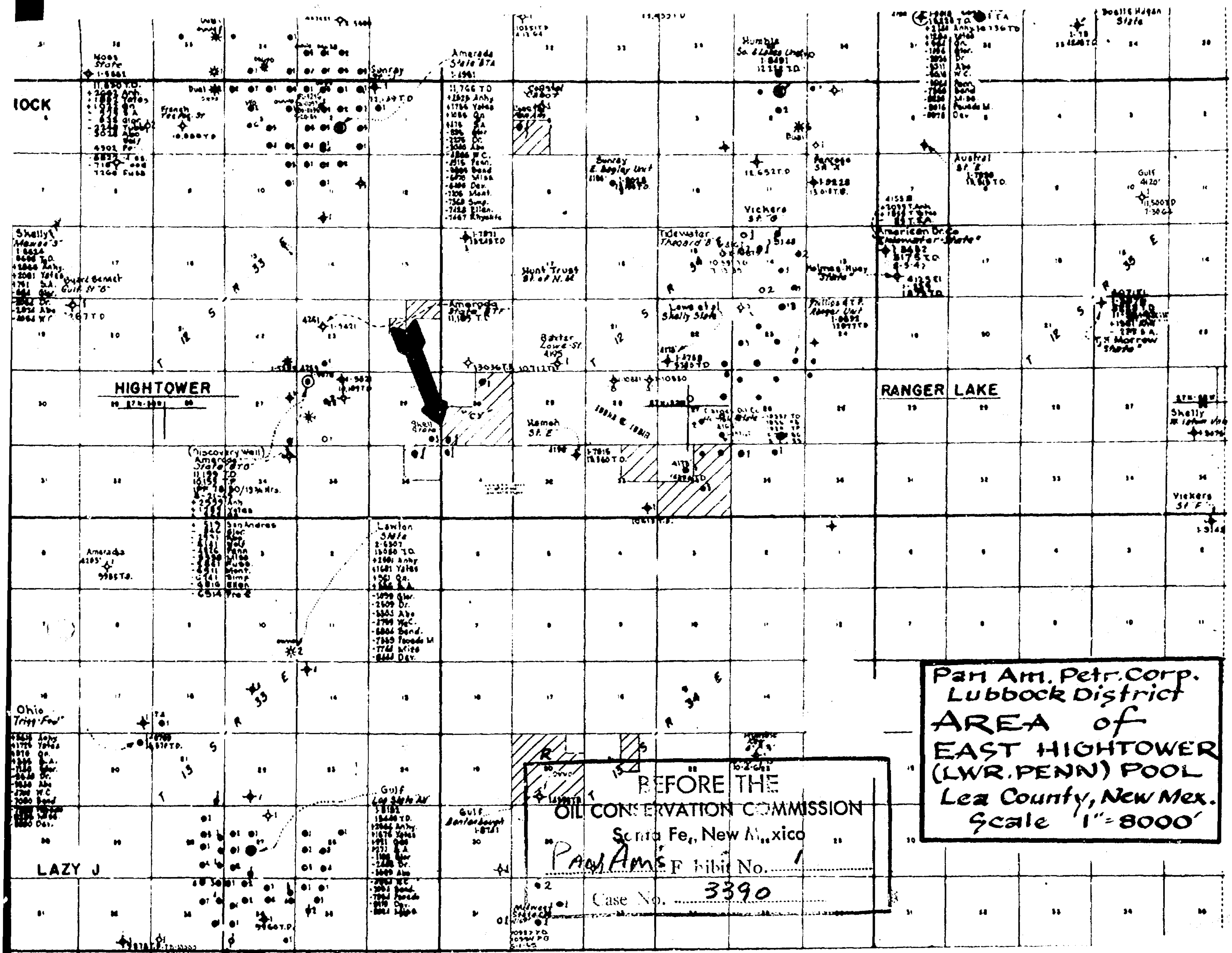
Jimmie Don Petty
Notary Public

My Commission Expires:

September 15, 1971

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3390 heard by me on 10/4, 1967.

, Examiner
New Mexico Oil Conservation Commission



HIGHTOWER
RANGER LAKE
LAZY J
(Discovery Well)
Amerada State
Humble
Vickers
Tidewater
Sunray
Lawton State
Gulf
Shelly
Ohio
Pan Am. Petr. Corp.
Lubbock District
AREA of
EAST HIGHTOWER
(LWR. PENN) POOL
Lea County, New Mex.
Scale 1"=8000'
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Pan Am's Exhibit No. 1
Case No. 3390

ATTACHMENT
SUGGESTED TEMPORARY RULES AND REGULATIONS
FOR THE
EAST HIGHTOWER (LOWER PENN) POOL
LEA COUNTY, NEW MEXICO

RULE 1. Each well completed or recompleted in the East Hightower-Lower Penn Pool or in the Lower Penn formation within one mile thereof, and not nearer to or within the limits of another designated Lower Penn 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 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 nonstandard unit comprising a governmental quarter-quarter section 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 nonstandard 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 nonstandard unit within 30 days after the Secretary-Director has received the application.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
PAN AMS Exhibit No. 2
Case No. 3390

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

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 locations 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 5.67 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.

Case 333

ATTACHMENT
RESERVOIR AND PRODUCTION DATA
PAN AMERICAN'S STATE "CY" WELL NO. 1
EAST HIGHTOWER (LOWER PENN) POOL
LEA COUNTY, NEW MEXICO

RESERVOIR DATA

Net Pay, Feet	25
Average Porosity, %	7.5
Est. Water Saturation, %	35
Producing Mechanism	Solution Gas Drive
Lithology	Partially Dolomitized Limestone
Oil-Water Contact, Feet	Below - 6077
Reservoir Temperature, °F	164
Est. Original Bottom Hole Pressure from DST, psi	3,759
Est. Stabilized Bottom Hole Pressure, (1-21-66) psi	2,550
Percent Stabilized Pressure, (1-21-66) Is Of Original Pressure, %	68
Est. Percent of Recoverable Oil Produced, (1-21-66), %	11.5
Est. Production to 1-21-66, BO	17,200
Est. Ultimate Recovery, BO	150,000
Est. Ultimate Recovery, BOPA	1,500
Est. Drainage Area, Acres	100

PRODUCTION DATA

Date	BO	BW	MCF	GOR
10-65	1,597	0	1,683	1,055
11-65	5,282	0	9,743	1,850
12-65	6,058	0	11,182	1,840
1-66	6,415	0	11,084	1,720
Cum. 2-1-66	19,352	0	33,692	

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 5
Case No. 3396

ATTACHMENT
ECONOMIC COMPARISON FOR DEVELOPMENT WELLS
EAST HIGHTOWER (LOWER PENN) POOL
LEA COUNTY, NEW MEXICO

	40 Acres	80 Acres
RESERVES		
Oil, bbls.	60,000	120,000
VALUE		
Oil, $/bbl.	3.01	3.01
GROSS W. I. INCOME*		
Oil, $	148,000	296,000
INVESTMENT		
Well, $	122,600	122,600
Lease Equipment, $	2,000	2,000
Pump Equipment, $	10,000	10,000
Total, $	134,600	134,600
OPERATING EXPENSE, $**	18,050	31,150
PROFIT PER WELL, $	- 4,650	130,250
PAYOUT, MONTHS	9	7
PRODUCTIVITY DURING PAYOUT, BOPD	206	250
RETURN ON INVESTMENT	NONE	1.0

* After 12.5% Royalty plus 5.46% ORI

** Includes 6.3% taxes, operating expense of $125/month and workover costs of $5,000.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
PAN AM Exhibit No. 6
Case No. 5290

RECEIVED
Lubbock District Office
MAR 16 1966

TEXAM OIL CORPORATION
BOX 1663 MU 2-7971
305 N. MARIENFELD
MIDLAND, TEXAS 79701

March 15, 1966

Mr. Neil S. Whitmore
District Production Superintendent
Pan American Petroleum Corporation
P. O. Box 268
Lubbock, Texas

Dear Sir:

Thank you for the logs and the Form C-105 pertaining to your State CY well #1 in Lea County, New Mexico.

The Texam Oil Corporation #1-30 is still producing from the perforations 10218-258'. There has been no additional stimulation since the well was originally completed.

We have no objections to the temporary field rules as you have proposed and trust that this program will be expeditiously processed to your satisfaction on March 23, 1966.

Yours very truly,

R. L. Redline, Jr.
President

RLRjr:css

4-13 Wk
The Inn Motor Hotel
200 S. Linam St.
Hobbs / 9:00 AM

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Pan Am's Exhibit No. 7
Case No. 3390

2514 HIGHLAND PARK VILLAGE SUITE 11-12-DALLAS 5, TEXAS
LAkeside 8-7770

Sam Boren oil producer

September 28, 1967

Mr. Neil Whitmore
Box 1410
Fort Worth, Texas

Re: East Hightower Field
80-acre Spacing Rule

Dear Mr. Whitmore:

Please convey to the Railroad Commission our approval of the 80-acre spacing rulte in the East Hightower Field with our hope that the Commission will continue the 80-acre rule in effect.

I have drilled two wells in this field and, based upon our production from these wells, it is my earnest belief that the spacing would be more equitable on 160-acre spacing because I do not think you can economically drill wells in this field even on 80 acres.

Sincerely yours,

SHB:r

Sam Boren

Texam Oil Corporation

★ 322 FIRST STATE BANK BUILDING
★ MIDLAND, TEXAS 79701
★ 915 MU 2-7971

September 29, 1967

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas

ATTENTION: Mr. Neil Whitmore

In Re: East Hightower (Penn) Field
Lea County, New Mexico

Gentlemen:

Pursuant to our telephone conversation I wish to advise that Texam concurs in your proposal for 80 acres well spacing in the captioned field. Please keep us advised as to any further developments in this matter. If we may be of further service please advise.

Yours very truly,

Richard D. Collins
Vice President

RDC:css

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO

Determination of Drainage Area
By Comparison of Pore Volume
and Decline Curve Reserves

I. Calculation of Pore Volume Reserves

Reserves in Barrels of Oil Per Acre Foot =

$$\frac{7758\ (1 - Sw)\ (\emptyset)\ (RF)}{RVF}$$

Where:

1. Sw is water saturation. By log analysis this has been determined to average 35% for the Hightower, East (Lower) Penn Pool.
2. $\emptyset$ is porosity which log analysis indicates averages 7.5% for the Hightower, East (Lower) Penn Pool.
3. RF is recovery factor which is 20% of the original oil-in-place.
4. RVF is reservoir volume factor which is 1.2 reservoir barrels per stock tank barrel.

Reserves in Barrels of Oil Per Acre Foot =

$$\frac{7758\ (1.00 - 0.35)\ (0.075)\ (0.20)}{1.2} =$$

63 Stock Tank Barrels.

II. Pan American's State "CY" Well No. 1

By log analysis there is 25 feet of pay in the Lower Penn Interval. Therefore:

63 Stock Tank Barrels of oil per Acre-Foot x 25 Feet = 1,575 BO per acre recoverable reserves. By decline curve analysis, reserves are 134,865 Stock Tank Barrels of Oil.
134,865 BO ÷ 1,575 BO per acre = 85.6 acres drainage area.

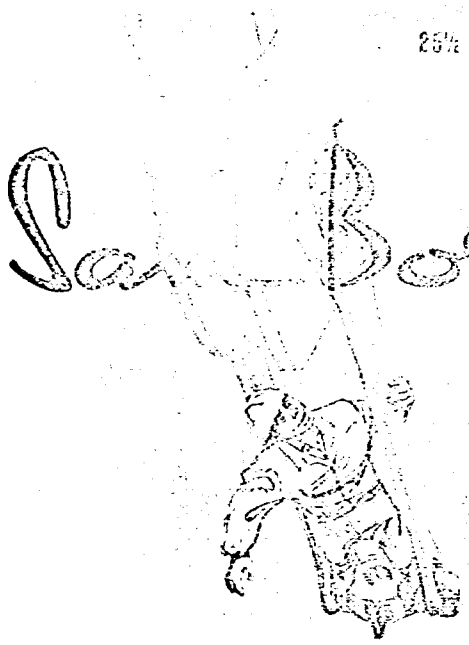
III. Texam's State Well No. 1

By log analysis there is 26 feet of pay in the Lower Penn Interval. Therefore:

63 Stock Tank Barrels of oil per Acre-Foot x 26 Feet = 1,638 BO per acre recoverable reserves. By decline curve analysis, reserves are 180,458 Stock Tank Barrels of Oil.
180,458 BO ÷ 1,638 BO per acre = 110.1 acres drainage area.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pan Am's EXHIBIT NO. 7
CASE NO. 3390 (Reopened)
(10-4-67)

2514 HIGHLAND PARK VILLAGE-SUITE 11-12-DALLAS 5, TEXAS
LAkeside 8-7770



Sam Boren oil producer

September 28, 1967

Mr. Neil Whitmore
Box 1410
Fort Worth, Texas

Re: East Hightower Field
80-acre Spacing Rule

Dear Mr. Whitmore:

Please convey to the Railroad Commission our approval of the 80-acre spacing rulte in the East Hightower Field with our hope that the Commission will continue the 80-acre rule in effect.

I have drilled two wells in this field and, based upon our production from these wells, it is my earnest belief that the spacing would be more equitable on 160-acre spacing because I do not think you can economically drill wells in this field even on 80 acres.

Sincerely yours,

SHB:r

Sam Boren

2515 HIGHLAND PARK VILLAGE SUITE 11-12 DALLAS 5, TEXAS
LAkeside 8-7770

Sam Boren
oil producer

September 28, 1967

Mr. Neil Whitmore
Box 1410
Fort Worth, Texas

Re: East Hightower Field
80-acre Spacing Rule

Dear Mr. Whitmore:

Please convey to the Railroad Commission our approval of the 80-acre spacing rulte in the East Hightower Field with our hope that the Commission will continue the 80-acre rule in effect.

I have drilled two wells in this field and, based upon our production from these wells, it is my earnest belief that the spacing would be more equitable on 160-acre spacing because I do not think you can economically drill wells in this field even on 80 acres.

Sincerely yours,

SHB:r

Sam Boren

Texam Oil Corporation

★ 322 FIRST STATE BANK BUILDING
★ MIDLAND, TEXAS 79701
★ 915 MU 2-7971

September 29, 1967

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas

ATTENTION: Mr. Neil Whitmore

In Re: East Hightower (Penn) Field
Lea County, New Mexico

Gentlemen:

Pursuant to our telephone conversation I wish to advise that Texam concurs in your proposal for 80 acres well spacing in the captioned field. Please keep us advised as to any further developments in this matter. If we may be of further service please advise.

Yours very truly,

Richard D. Collins
Vice President

RDC:css

Texam Oil Corporation

★ 322 FIRST STATE BANK BUILDING
★ MIDLAND, TEXAS 79701
★ 915 MU 2-7971

September 29, 1967

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas

ATTENTION: Mr. Neil Whitmore

In Re: East Hightower (Penn) Field
Lea County, New Mexico

Gentlemen:

Pursuant to our telephone conversation I wish to advise that Texam concurs in your proposal for 80 acres well spacing in the captioned field. Please keep us advised as to any further developments in this matter. If we may be of further service please advise.

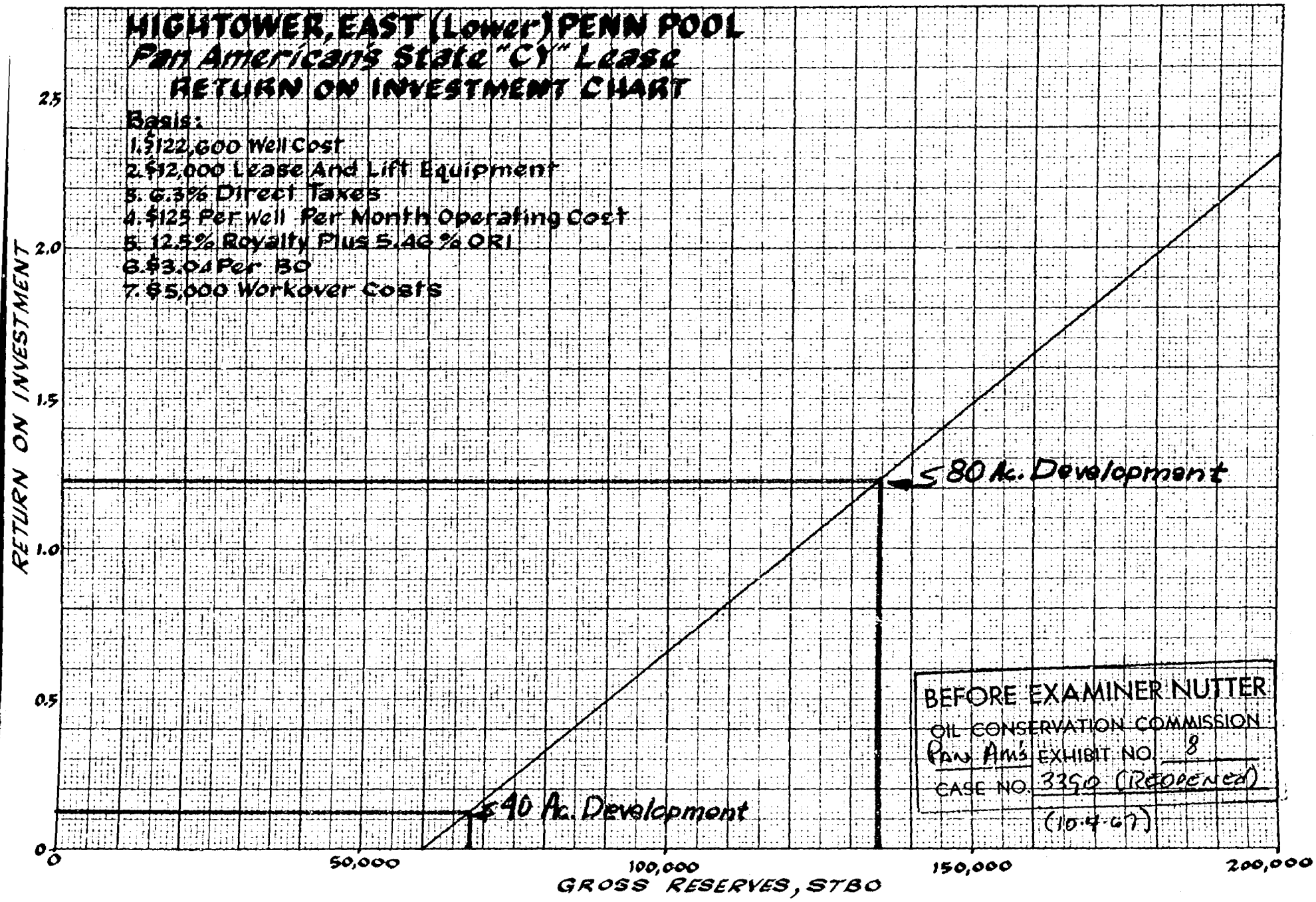
Yours very truly,

Richard D. Collins
Vice President

RDC:css

HIGHTOWER, EAST (Lower) PENN POOL
Pan American's State "CY" Lease
RETURN ON INVESTMENT CHART

Basis:
1. $122,600 Well Cost
2. $12,000 Lease And Lift Equipment
3. 6.3% Direct Taxes
4. $125 Per Well Per Month Operating Cost
5. 12.5% Royalty Plus 5.40 % ORI
6. $3.04 Per BO
7. $5,000 Workover Costs



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pan Am's EXHIBIT NO. 8
CASE NO. 3390 (Reopened)
(10-4-67)

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO
BOTTOM HOLE PRESSURE DATA FOR LOWER PENN ZONE COMPARABLE TO
COMPLETION INTERVAL IN PAN-AM STATE "CY" NO. 1
AND BOREN SHELL STATE NO. 1

DATE YEAR - MONTH	WELL	APPROXIMATE STABILIZED BOTTOM HOLE PRESSURE	
1958 - December	Texam State No. 1	3700 PSI	(1) DST
1965 - June	Shell State "HT" No. 1	3804 PSI	(1) DST
1965 - October	Pan Am State "CY" No. 1	3759 PSI	(1) DST
1966 - January	Shell State "HTB" No. 1	2850 PSI	(1) DST
	Pan Am State "CY" No. 1	2550 PSI	(2) BHP Survey
1967 - April	Pan Am State "CY" No. 1	1480 PSI	(2) BHP Survey
1967 - July	Boren Shell State No. 1	3450 PSI	(1) DST

(1) Drill-Stem Test Pressures
(2) BHP Survey Pressures

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pan Am's EXHIBIT NO. 4
CASE NO. 3390 (Reopened)
(10-4-67)

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO
TABULATION OF PRODUCTION

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
1959	1					1,973
	2	1,973	1,973			6,939
	3	4,966	6,939			11,832
	4	4,893	11,832			14,947
	5	3,115	14,947			18,716
	6	3,769	18,716			22,362
	7	3,646	22,362			25,404
	8	3,042	25,404			27,438
	9	2,034	27,438			28,419
	10	981	28,419			29,976
	11	1,557	29,976			31,669
	12	1,693	31,669			34,133
1960	1	2,464	34,133			35,626
	2	1,493	35,626			37,643
	3	2,017	37,643			39,407
	4	1,764	39,407			40,844
	5	1,437	40,844			42,010
	6	1,166	42,010			43,005
	7	995	43,005			44,242
	8	1,237	44,242			44,793
	9	551	44,793			45,468
	10	675	45,468			46,006
	11	538	46,006			46,113
	12	107	46,113			46,365
1961	1	252	46,365			46,442
	2	77	46,442			46,506
	3	64	46,506			47,470
	4	964	47,470			48,463
	5	993	48,463			49,220
	6	757	49,220			50,108
	7	888	50,108			50,842
	8	734	50,842			51,433
	9	591	51,433			51,952
	10	519	51,952			52,410
	11	458	52,410			53,553
	12	1,143	53,553			54,222
1962	1	669	54,222			55,046
	2	824	55,046			

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
PAN AM'S EXHIBIT NO. 3
CASE NO. 3390 (REOPENED)
(10-4-67)

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
1962	3	573	55,619			55,619
	4	582	56,201			56,201
	5	639	56,840			56,840
	6	967	57,807			57,807
	7	553	58,360			58,360
	8	668	59,028			59,028
	9	652	59,680			59,680
	10	635	60,315			60,315
	11	706	61,021			61,021
	12	647	61,668			61,668
1963	1	581	62,249			62,249
	2	550	62,799			62,799
	3	711	63,510			63,510
	4	624	64,134			64,134
	5	587	64,721			64,721
	6	659	65,380			65,380
	7	627	66,007			66,007
	8	638	66,645			66,645
	9	648	67,293			67,293
	10	548	67,841			67,841
	11	513	68,354			68,354
	12	789	69,143			69,143
1964	1	534	69,677			69,677
	2	627	70,304			70,304
	3	619	70,923			70,923
	4	659	71,582			71,582
	5	625	72,207			72,207
	6	624	72,831			72,831
	7	606	73,437			73,437
	8	630	74,067			74,067
	9	512	74,579			74,579
	10	635	75,214			75,214
	11	563	75,777			75,777
	12	670	76,447			76,447
1965	1	627	77,074			77,074
	2	540	77,614			77,614
	3	636	78,250			78,250
	4	596	78,846			78,846
	5	602	79,448			78,448
	6	584	80,032			80,032

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
1965	7	584	80,616			80,616
	8	625	81,241			81,241
	9	555	81,796			81,796
	10	609	82,405	1,597	1,597	84,002
	11	548	82,953	5,282	6,879	89,832
	12	570	83,523	6,058	12,937	96,460
1966	1	585	84,108	6,415	19,352	103,460
	2	561	84,669	5,912	25,264	109,933
	3	610	85,279	5,310	30,574	115,853
	4	573	85,852	5,566	36,140	121,992
	5	576	86,428	4,750	40,890	127,318
	6	565	86,993	4,782	45,672	132,665
	7	567	87,560	3,793	49,465	137,025
	8	493	88,053	1,116	50,581	138,634
	9	500	88,553	1,678	52,259	140,812
	10	466	89,019	2,522	54,781	143,800
	11	416	89,435	1,590	56,371	145,806
	12	640	90,075	1,821	58,192	148,267
1967	1	614	90,689	1,682	59,874	150,563
	2	523	91,212	2,012	61,886	153,098
	3	576	91,788	1,575	63,461	155,249
	4	461	92,249	516	63,977	156,226
	5	602	92,851	1,902	65,879	158,730
	6	496	93,347	1,641	67,520	160,867
	7	611	93,958	1,345	68,865	162,823

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO
TABULATION OF PRODUCTION

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
1959	1					
	2	1,973	1,973			1,973
	3	4,966	6,939			6,939
	4	4,893	11,832			11,832
	5	3,115	14,947			14,947
	6	3,769	18,716			18,716
	7	3,646	22,362			22,362
	8	3,042	25,404			25,404
	9	2,034	27,438			27,438
	10	981	28,419			28,419
	11	1,557	29,976			29,976
	12	1,693	31,669			31,669
1960	1	2,464	34,133			34,133
	2	1,493	35,626			35,626
	3	2,017	37,643			37,643
	4	1,764	39,407			39,407
	5	1,437	40,844			40,844
	6	1,166	42,010			42,010
	7	995	43,005			43,005
	8	1,237	44,242			44,242
	9	551	44,793			44,793
	10	675	45,468			45,468
	11	538	46,006			46,006
	12	107	46,113			46,113
1961	1	252	46,365			46,365
	2	77	46,442			46,442
	3	64	46,506			46,506
	4	964	47,470			47,470
	5	993	48,463			48,463
	6	757	49,220			49,220
	7	888	50,108			50,108
	8	734	50,842			50,842
	9	591	51,433			51,433
	10	519	51,952			51,952
	11	458	52,410			52,410
	12	1,143	53,553			53,553
1962	1	669	54,222			54,222
	2	824	55,046			55,046

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
						55,619
1962	3	573	55,619			56,201
	4	582	56,201			56,840
	5	639	56,840			57,807
	6	967	57,807			58,360
	7	553	58,360			59,028
	8	668	59,028			59,680
	9	652	59,680			60,315
	10	635	60,315			61,021
	11	706	61,021			61,668
	12	647	61,668			62,249
1963	1	581	62,249			62,799
	2	550	62,799			63,510
	3	711	63,510			64,134
	4	624	64,134			64,721
	5	587	64,721			65,380
	6	659	65,380			66,007
	7	627	66,007			66,645
	8	638	66,645			67,293
	9	648	67,293			67,841
	10	548	67,841			68,354
	11	513	68,354			69,143
	12	789	69,143			69,677
1964	1	534	69,677			70,304
	2	627	70,304			70,923
	3	619	70,923			71,582
	4	659	71,582			72,207
	5	625	72,207			72,831
	6	624	72,831			73,437
	7	606	73,437			74,067
	8	630	74,067			74,579
	9	512	74,579			75,214
	10	635	75,214			75,777
	11	563	75,777			76,447
	12	670	76,447			77,074
1965	1	627	77,074			77,614
	2	540	77,614			78,250
	3	636	78,250			78,846
	4	596	78,846			78,448
	5	602	79,448			80,032
	6	584	80,032			

YEAR	MONTH	TEXAM'S STATE NO. 1 MONTHLY OIL PROD.	TEXAM'S STATE NO. 1 CUM. OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 MONTHLY OIL PROD.	PAN AMERICAN'S STATE "CY" NO. 1 CUM. OIL PROD.	POOL CUMULATIVE OIL PRODUCTION
1965	7	584	80,616			80,616
	8	625	81,241			81,241
	9	555	81,796			81,796
	10	609	82,405	1,597	1,597	84,002
	11	548	82,953	5,282	6,879	89,832
	12	570	83,523	6,058	12,937	96,460
1966	1	585	84,108	6,415	19,352	103,460
	2	561	84,669	5,912	25,264	109,933
	3	610	85,279	5,310	30,574	115,853
	4	573	85,852	5,566	36,140	121,992
	5	576	86,428	4,750	40,890	127,318
	6	565	86,993	4,782	45,672	132,665
	7	567	87,560	3,793	49,465	137,025
	8	493	88,053	1,116	50,581	138,634
	9	500	88,553	1,678	52,259	140,812
	10	466	89,019	2,522	54,781	143,800
	11	416	89,435	1,590	56,371	145,806
	12	640	90,075	1,821	58,192	148,267
1967	1	614	90,689	1,682	59,874	150,563
	2	523	91,212	2,012	61,886	153,098
	3	576	91,788	1,575	63,461	155,249
	4	461	92,249	516	63,977	156,226
	5	602	92,851	1,902	65,879	158,730
	6	496	93,347	1,641	67,520	160,867
	7	611	93,958	1,345	68,865	162,823

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO
BOTTOM HOLE PRESSURE DATA FOR LOWER PENN ZONE COMPARABLE TO
COMPLETION INTERVAL IN PAN AM STATE "CY" NO. 1
AND BOREN SHELL STATE NO. 1

DATE YEAR - MONTH	WELL	APPROXIMATE STABILIZED BOTTOM HOLE PRESSURE
1958 - December	Texam State No. 1	3700 PSI (1)
1965 - June	Shell State "HT" No. 1	3804 PSI (1)
1965 - October	Pan Am State "CY" No. 1	3759 PSI (1)
1966 - January	Shell State "HTB" No. 1	2850 PSI (1)
	Pan Am State "CY" No. 1	2550 PSI (2)
1967 - April	Pan Am State "CY" No. 1	1480 PSI (2)
1967 - July	Boren Shell State No. 1	3450 PSI (1)

(1) Drill-Stem Test Pressures
(2) BHP Survey Pressures

Ex. 3390
Ex. # 4

HIGHTOWER, EAST (LOWER) PENN POOL
LEA COUNTY, NEW MEXICO

Determination of Drainage Area By Comparison of Pore Volume and Decline Curve Reserves

I. Calculation of Pore Volume Reserves

Reserves in Barrels of Oil Per Acre Foot =

$$\frac{7758\ (1 - Sw)\ (\phi)\ (RF)}{RVF}$$

Where:

1. Sw is water saturation. By log analysis this has been determined to average 35% for the Hightower, East (Lower) Penn Pool.
2. ϕ is porosity which log analysis indicates averages 7.5% for the Hightower, East (Lower) Penn Pool.
3. RF is recovery factor which is 20% of the original oil-in-place.
4. RVF is reservoir volume factor which is 1.2 reservoir barrels per stock tank barrel.

Reserves in Barrels of Oil Per Acre Foot =

$$\frac{7758\ (1.00 - 0.35)\ (0.075)\ (0.20)}{1.2} =$$

63 Stock Tank Barrels.

II. Pan American's State "CY" Well No. 1

By log analysis there is 25 feet of pay in the Lower Penn Interval. Therefore:

63 Stock Tank Barrels of oil per Acre-Foot x 25 Feet = 1,575 BO per acre recoverable reserves. By decline curve analysis, reserves are 134,865 Stock Tank Barrels of Oil.
134,865 BO ÷ 1,575 BO per acre = 85.6 acres drainage area.

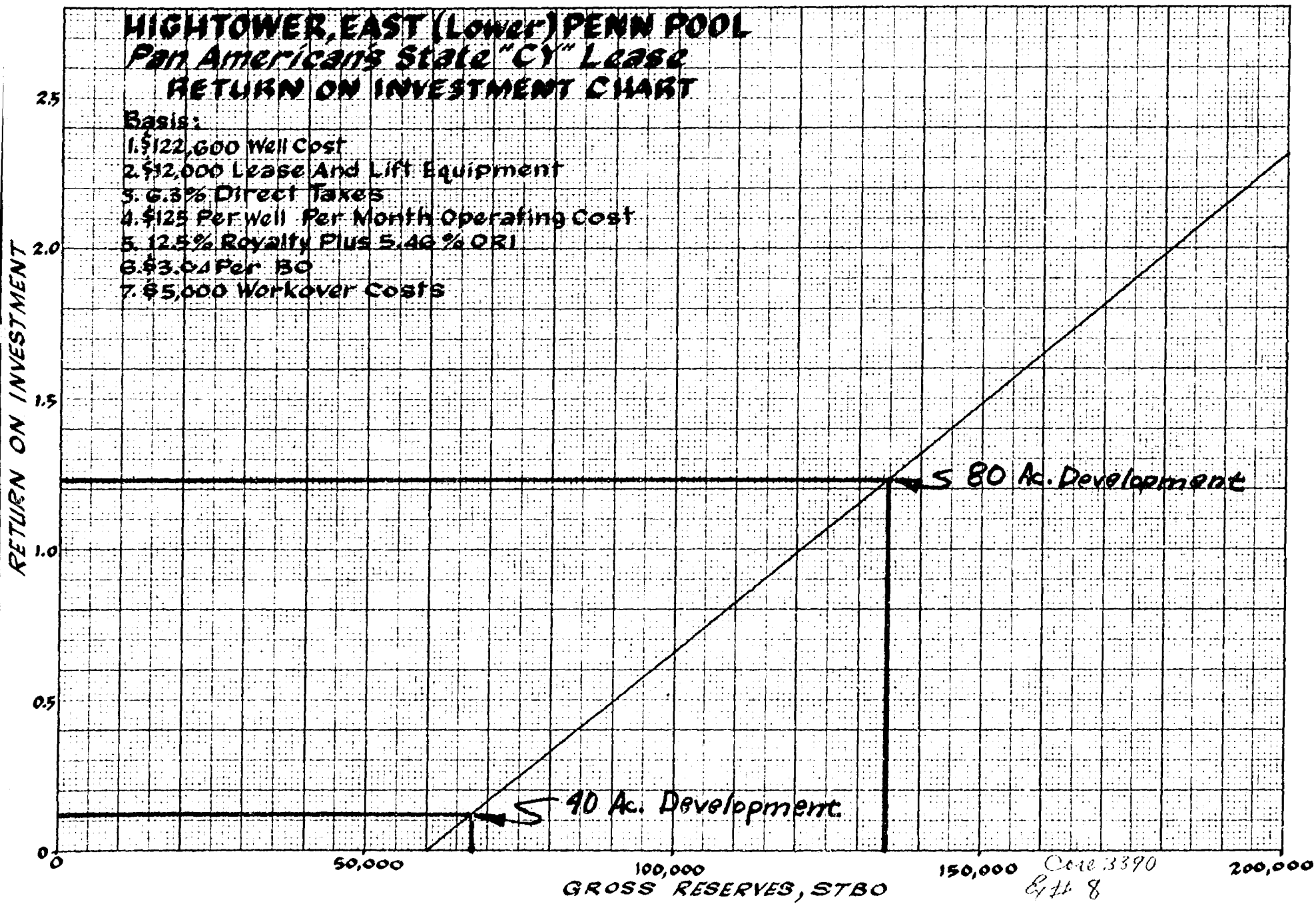
III. Texam's State Well No. 1

By log analysis there is 26 feet of pay in the Lower Penn Interval. Therefore:

63 Stock Tank Barrels of oil per Acre-Foot x 26 Feet = 1,638 BO per acre recoverable reserves. By decline curve analysis, reserves are 180,458 Stock Tank Barrels of Oil.
180,458 BO ÷ 1,638 BO per acre = 110.1 acres drainage area.

HIGHTOWER, EAST (Lower) PENN POOL
Pan American's State "CY" Lease
RETURN ON INVESTMENT CHART

Basis:
1. $122,600 Well Cost
2. $12,000 Lease And Lift Equipment
3. 6.3% Direct Taxes
4. $125 Per Well Per Month Operating Cost
5. 12.5% Royalty Plus 5.46% ORI
6. $3.04 Per BO
7. $5,000 Workover Costs



Core 3390
Ext 8