

CASE 1574 Application of [illegible]
for approval of a [illegible] [illegible]
act in GARRISON-JACKSON POL.

*John Speer
Assoc of Farmers
- amount*

Case No.

2576

Application, Transcript,
and Exhibits, Etc.



TONEY ANAYA
GOVERNOR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

March 27, 1985

50 YEARS



1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

N. H. Truitt, Area
Production Superintendent
ARCO Oil and Gas Company
P. O. Box 1710
Hobbs, New Mexico 88240

Dear Mr. Truitt:

Your letter of March 15, 1985, to Mr. Les Clements relative to temporary shut-in of Keel West Area Waterflood injection wells has been forwarded to me for reply.

As this shut-in period is for a period of one year and is for the purpose of evaluating how and if the waterflood project should be continued, this will not be considered as a shut-in period under Division Rule 705B. However, prior to April 1, 1986, ARCO must contact the supervisor of the Division's Artesia district office with a plan for restarting the project, extending the shut-in period, or the plugging of injection wells which are not to be used for injection or production.

Sincerely,

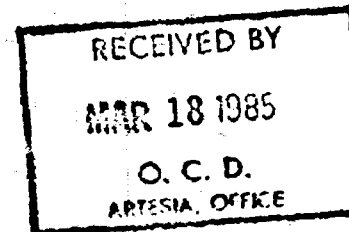
R. L. STAMETS
Director

RLS/fd

cc: Prentiss Childs
Les Clements

Case 2576

ARCO Oil and Gas Company
Permian District - West Area
P.O. Box 1710
Hobbs, New Mexico 88240
Telephone 505 392 3551



March 15, 1985

Mr. Les Clements
New Mexico Oil Conservation Division
Drawer DD
Artesia, New Mexico 88210

Re: Keel West Waterflood
Sections 3, 4, 5, 6, 7, 8, 9
T17S, R31E, Eddy County, New Mexico


Dear Mr. Clements:

ARCO Oil and Gas Company respectfully requests approval to shut-in the water injection wells of the Keel West Waterflood for a test period of one year beginning April 1, 1985. During this test period, ARCO will monitor the inactive injectors to ensure the integrity of the casing. If any problems arise, ARCO will address them immediately. After one year, each injection well will either be returned to injection, converted to a producer or plugged and abandoned.

The proposed test period will allow ARCO to fully evaluate the effectiveness of this waterflood and complete its current reservoir study of this flood. Currently, the Keel West Waterflood operations are not profitable due to declining production rates and high operating costs. Terminating the injection should return the leases to a profitable status. The granting of this request will allow ARCO to determine the most efficient way to recover the maximum amount of oil from this field without waste.

If you should have any questions or need further information regarding this proposal, please feel free to contact me.

Very truly yours,


N. H. Truitt
Area Production Supt.

NHT/JRL:jc

Case # 2576



SINCLAIR OIL & GAS COMPANY

MAIN OFFICE OCC
Albuquerque, New Mexico

Not a unit

1953 APR 23 AM 11 26, 1963
APR 23 1963

New Mexico Oil Conservation Commission
P. O. Drawer 99
Artesia, New Mexico

Re: East-West Waterflood Project
Grayburg Jackson Pool
Elddy County, New Mexico

Gentlemen:

Response to water injection has been received on our H. E. West "A" and "B" leases. The present total project allowable is 71 barrels per day. Present production is 125 barrels per day and appears to be increasing rapidly. The maximum allowable which this project will be eligible to receive according to Rule 701-E-3 is 796 barrels per day.

An allowable increase of 130 barrels per day is requested on the following wells.

<u>Well Name</u>	<u>Present Allowable</u>	<u>Requested Increase</u>
H. E. West "A" #2	9	15
" " #5	5	20
" " #6	2	35
" " #10	15	5
H. E. West "B" #4	4	10
" " #5	3	10
" " #7	3	5
Total	41	130

Yours very truly,

SINCLAIR OIL & GAS COMPANY

Fred Burns,
Dist. Supt.

cc: OCC - Santa Fe
cc: Eng. File, File

No. 17-62

DOCKET: EXAMINER HEARING - THURSDAY - JUNE 7, 1962

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, as Alternate Examiner:

CASE 2571: Application of Randall F. Montgomery for an exception to
Order R-111-A, or in the alternative for three unorthodox
oil well locations, Lea County, New Mexico. Applicant,
in the above-styled cause, seeks exception to the pro-
visions of Order R-111-A, insofar as it pertains to the
re-entry and casing program on five plugged and abandoned
wells in the Salt Lake Pool, four of which are located in
Section 7, and one of which is located in Section 18, all
in Township 20 South, Range 33 East, Lea County, New Mexico.
Applicant further seeks permission, as an alternative
request, to drill three new wells at unorthodox locations
in the Salt Lake Pool as follows:

- (1) Brooks - 7 Well No. 6, to be located 10 feet from
the South line and 2310 feet from the East line;
- (2) Brooks - 7 Well No. 7, to be located 330 feet from
the South line and 1320 feet from the West line;
- (3) Brooks - 7 Well No. 8, to be located 1320 feet from
the South line and 1980 feet from the West line;

all in Section 7, Township 20 South, Range 33 East, Lea
County, New Mexico.

CASE 2572: Application of Tenneco Oil Company for an exception to
Rule 21-a of Order No. R-1670, Basin-Dakota Gas Pool, San
Juan County, New Mexico. Applicant, in the above-styled
cause, seeks permission to commingle the gas production
from two wells in the Basin-Dakota Gas Pool located on the
H. O. Watson Lease in Section 22, Township 27 North, Range
12 West, San Juan County, New Mexico, as an exception to
the provisions of Rule 21-a of the Rules for the prorated
gas pools of Northwestern New Mexico, Order No. R-1670.
Applicant proposes to install one common tank battery and
separating facility and to allocate monthly gas production
to each well on the basis of deliverability tests and
average flowing tubing pressures.

- CASE 2573: Application of Phillips Petroleum Company for approval of an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval to locate its Santa Fe Well No. 68 at an unorthodox oil well location in the Vacuum-Abo Pool, 1650 feet from the North line and 1090 feet from the East line of Section 34, Township 17 South, Range 35 East, Lea County, New Mexico.
- CASE 2574: Application of J. Gregory Merrion and Associates for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order of the Commission force pooling all interests in the Basin-Dakota Pool in the W/2 of Section 35, Township 25 North, Range 6 West, Rio Arriba County, New Mexico.
- CASE 2575: Application of Val R. Reese & Associates, Inc. for the creation of a new oil pool and for special pool rules, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Gallup production in Township 23 North, Range 7 West, Rio Arriba County, New Mexico, and further seeks the adoption of special rules and regulations for said pool similar to the special rules presently governing the Escrito-Gallup Oil Pool which provide for 320-acre gas proration units and 80-acre oil proration units (Order No. R-1793-A).
- CASE 2576: Application of Sinclair Oil & Gas Company for approval of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a waterflood project in the Grayburg-Jackson Pool, Eddy County, New Mexico, with the injection of water to be through seven wells located on the H. E. West "A" and "B" leases in Sections 3 and 4, Township 17 South, Range 31 East; applicant proposes to operate the waterflood project under the provisions of Rule 701.
- CASE 2577: Application of Newmont Oil Company for approval to drill a water injection well, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks permission to drill the State "A" Well No. 3, to be located 1295 feet from the South line and 2615 feet from the East line of Section 36, Township 17 South, Range 29 East, Eddy County, New Mexico, for use as a water injection well in the Loco Hills Pool Waterflood Project.
- CASE 2578: Application of Newmont Oil Company for approval of a development plan for the Loco Hills Waterflood Project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a plan of development for the Loco Hills Waterflood Project, Eddy County, New Mexico, which would permit

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Docket No. 17-62

CASE 2578: (Continued)

the conversion of wells to water injection by stages. The applicant proposes to operate said waterflood project under the terms and conditions of Order No. R-2178 which established a buffer zone in a portion of the project area.

CASE 2579:

Application of Neil E. Salsich for approval of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a waterflood project in the Square Lake Pool with the injection of water into the Grayburg formation of the Square Lake Pool through five wells located in Section 36, Township 16 South, Range 29 East, Eddy County, New Mexico. Applicant requests that the waterflood be governed by Rule 701 except that administrative approval is sought to allow expansion of the waterflood by the conversion of one additional well in Unit H of Section 35 prior to response from water injection.

CASE 2580:

Application of Waterflood Associates, Inc., for approval of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a waterflood project in the Robinson Pool with the injection of water to be through six wells located in Section 35, Township 16 South, Range 31 East, Eddy County, New Mexico; applicant requests that the waterflood project be governed by Rule 701.

CASE 2581:

Application of Waterflood Associates, Inc. for approval of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a waterflood project in the Square Lake Pool by the injection of water to be through two wells located in the NE/4 of Section 3, Township 17 South, Range 30 East, Eddy County, New Mexico; applicant requests that the waterflood project be governed by Rule 701.

CASE 2582:

Applicant of Waterflood Associates, Inc., for approval of a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a waterflood project in the Artesia Pool by the injection of water to be through one well located in the W/2 NW/4 of Section 21, Township 18 South, Range 28 East, Eddy County, New Mexico; applicant requests that the waterflood project be governed by Rule 701.

MAIN OFFICE OCC

BEFORE THE OIL CONSERVATION COMMISSION OF THE
STATE OF NEW MEXICO

1962 MAY 21 AM 11:09

IN THE MATTER OF THE APPLICATION
OF SINCLAIR OIL & GAS COMPANY FOR
APPROVAL OF A WATERFLOOD PROJECT
IN THE GRAYBURG-JACKSON POOL,
EDDY COUNTY, NEW MEXICO

CASE No. 2576
ORDER No. _____

A P P L I C A T I O N

SINCLAIR OIL & GAS COMPANY, a Maine corporation with an operating office in Midland, Texas, hereby makes application under Rule 701 for approval to institute a water injection operation under its H. E. West "A" and "B" leases in the Grayburg-Jackson Pool, Eddy County, New Mexico, and in support thereof shows:

1.

That Sinclair Oil & Gas Company is the owner and operator of its H. E. West "A" lease comprising the N/2 of Section 3 and the E/2 of Section 4, Township 17 South, Range 31 East, and its H. E. West "B" lease comprising the S/2 of Section 3, the W/2 of Section 4, and all of Section 9, Township 17 South, Range 31 East, in the Grayburg-Jackson Pool, Eddy County, New Mexico. Said leases are in an advance stage of depletion, and applicant desires to institute a secondary recovery program by waterflooding. Applicant proposes initially to convert seven wells to water injection in cooperation with Newmont Oil Company, which is the offset operator, along the north lease line. The Grayburg and San Andres formations are the zones proposed to be flooded.

2.

Attached and filed herewith is a plat showing the location of the proposed injection wells and the location of all other wells within the radius of two miles from said proposed injection wells, and showing also the lessees and operators within the two-mile radius.

*Also
Section 17*

*Doak to
M. L. L. 5/28/62*

3.

There were no logs run on the injection wells at the time of completion, or afterwards, and hence none are available for filing with this application.

4.

A description of the casing program for the proposed injection wells is tabulated as follows:

H. E. West	"A"	#4	7" @ 3169
"	"	#7	5-1/2" @ 3234
"	"	#8	5-1/2" @ 3246
"	"	#9	7" @ 3198
H. E. West	"B"	#11	D & A No Record
"	"	#3	7" @ 3291
"	"	#6	7" @ 3123

5.

Applicant proposes to inject fresh water from the Lea County Underground Water Basin into the Grayburg and San Andres formations at the interval from 3100 feet to 3500 feet below the surface and at an average rate of 350 to 400 barrels per day into each injection well.

6.

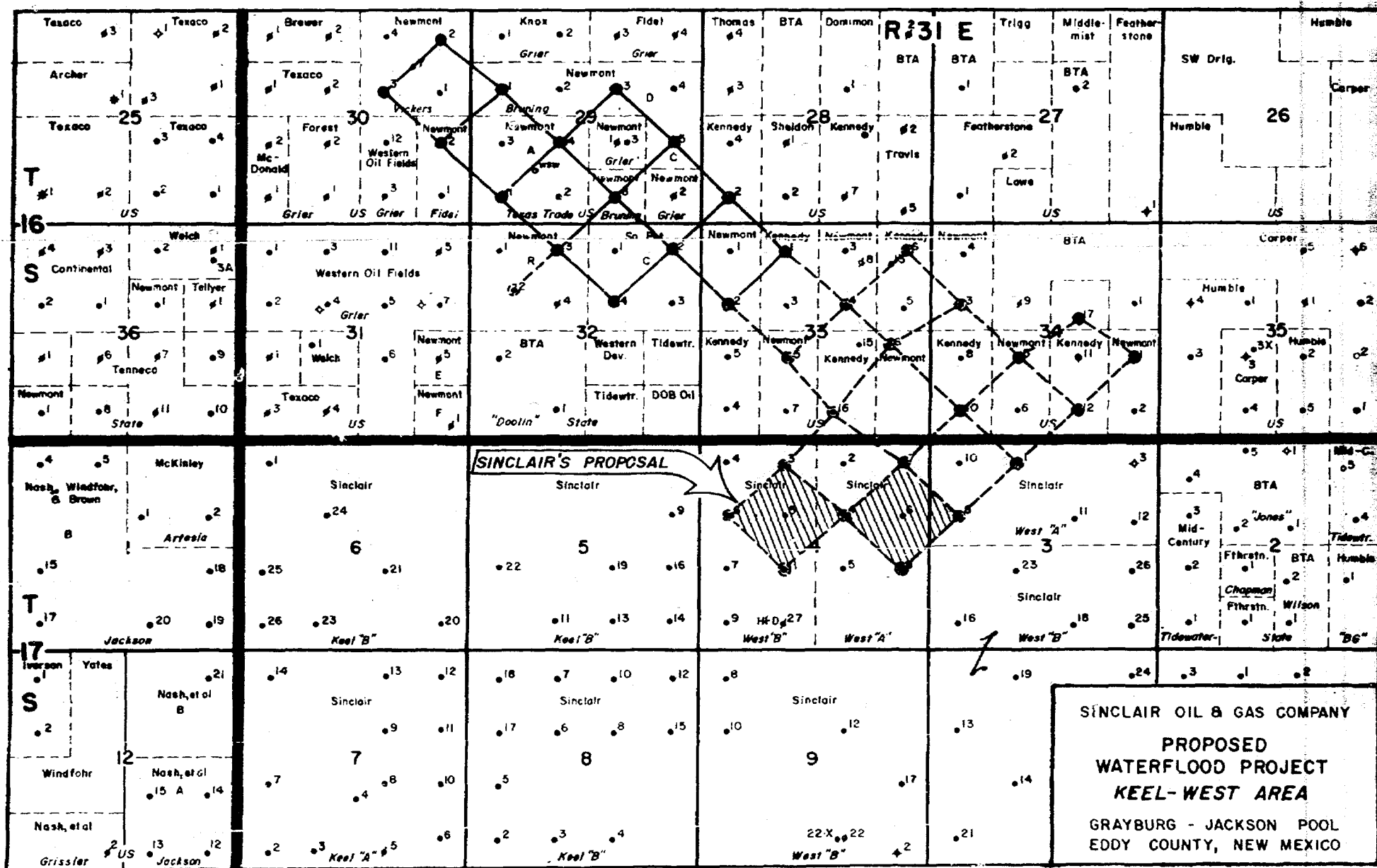
Applicant proposes that the waterflood project should be governed by the provisions of Rule 701 of the Commission's Rules and Regulations, including those provisions regarding allocation of allowables. Applicant also proposes to submit to the Commission monthly progress reports of the waterflood project in accordance with Rule 704 and Rule 1119 of the Commission's Rules and Regulations. Applicant further alleges that the granting of this application will be in the interest of prevention of waste and will not impair correlative rights.

WHEREFORE, applicant prays that the Commission set this application for public hearing before an Examiner in Santa Fe, New Mexico, that notice be issued according to law, and that upon hearing this application be granted.

HORACE N. BURTON
P. O. Box 1470
Midland, Texas

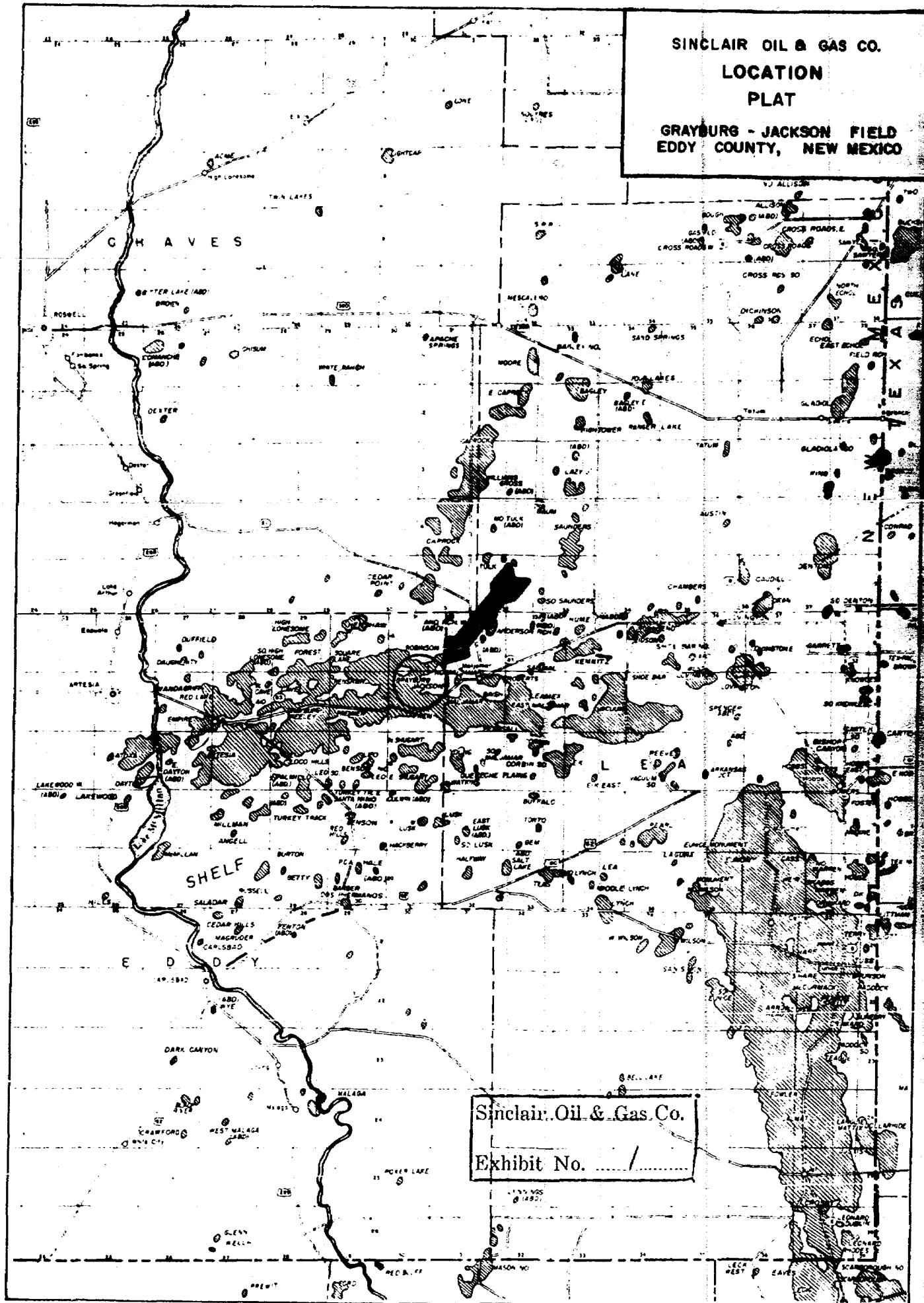
GILBERT, WHITE AND GILBERT

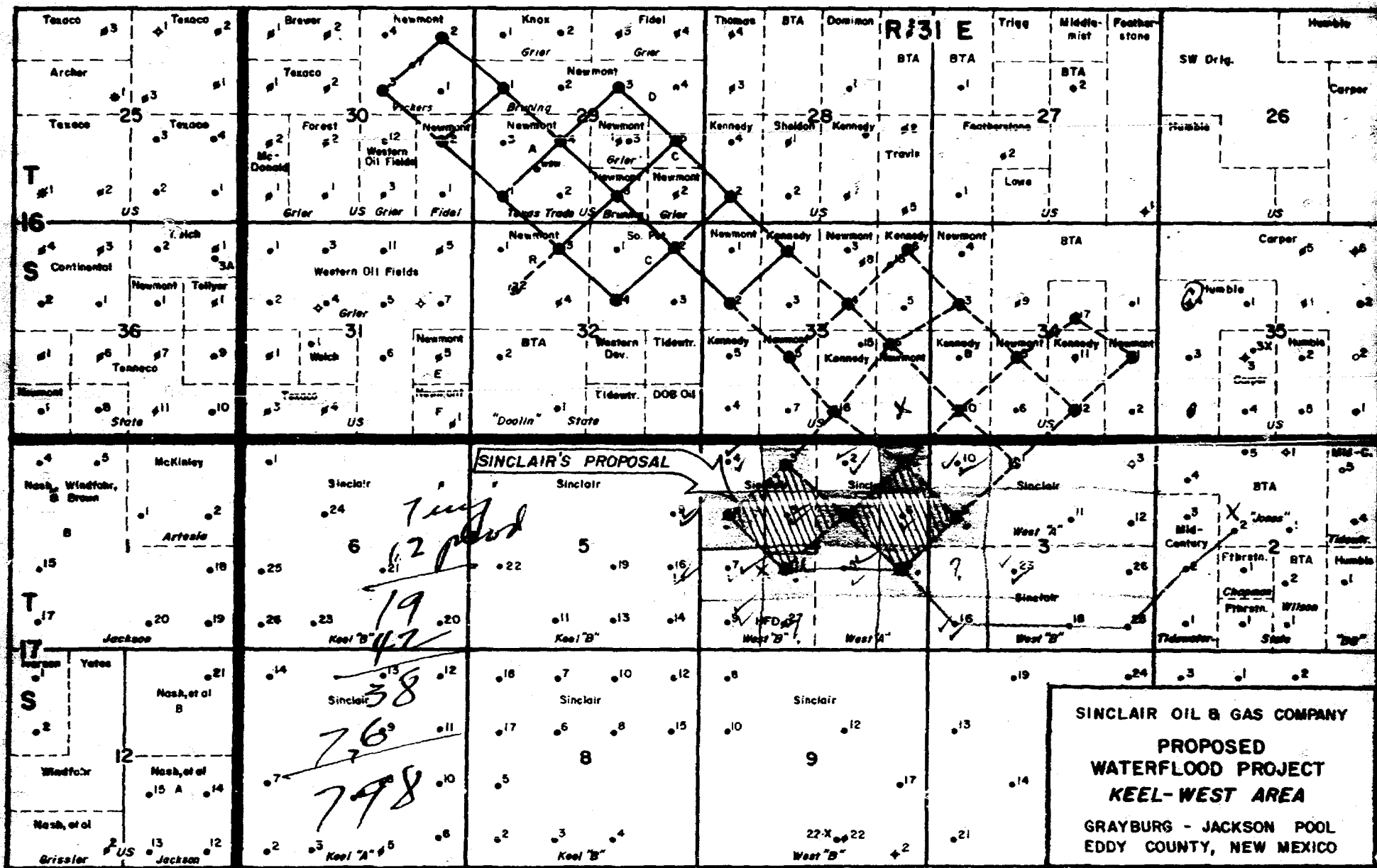
By William Boone
Bishop Building
Santa Fe, New Mexico



SINCLAIR OIL & GAS CO.
LOCATION
PLAT

GRAYBURG - JACKSON FIELD
EDDY COUNTY, NEW MEXICO





Sinclair Oil & Gas Co.
 Case 2576
 Exhibit No. 2



SINCLAIR OIL & GAS COMPANY
P.O. BOX 1470 MIDLAND, TEXAS MU 1061 3-2761

R. L. ELSTON
VICE PRES. & DIVISION MANAGER

June 8, 1962

*File
Case 2576*

State Engineer's Office
Santa Fe, New Mexico

Attention: Mr. Frank Irbey

Gentlemen:

At the hearing in Santa Fe, New Mexico, on June 7, 1962, on Sinclair's application to start a waterflood project on our E. E. West "A" and E. E. West "B" leases, ~~located in the Santa Fe River Section, New Mexico. Mr. Frank Irbey stated at the hearing that the cement did not circulate to the surface on the surface casing on the seven mentioned injection wells listed on our Exhibit 3.~~

A check of our progress reports on the wells in question shows that no mention is made of whether or not the cement circulated on any of the wells. Only on the E. E. West "B" Well No. 11 is mention made that the cement definitely did circulate. However, our general procedure is to circulate the cement on surface casing as a matter of routine practice.

It is therefore my opinion that the cement did circulate to surface on the surface casing in these wells.

Yours very truly,

Douglas Cunningham

Douglas Cunningham

Enc: 2

CC: New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico
Attention: Mr. D. S. Nutter

MAIN OFFICE 000

1962

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 6/12/62

CASE 2576

Hearing Date 9am 6/7/62
DSN @ SF

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

Enter an order approving
Sinclair Oil Company's Square
Lake Waterflood Project, authorizing
applicant to convert to water injection
the following wells:

West "A"	No 8	Unit E	Sec 3	Top 175 ft	Shale
West "A"	No 4	Unit G	Sec 4	"	"
West "A"	No 7	Unit A	Sec 4	"	"
West "A"	No 9	Unit I	Sec 4	"	"
West "B"	No 3	Unit C	Sec 4	"	"
West "B"	No 6	Unit E	Sec 4	"	"
West B	No 11	Unit K	Sec 4	"	"

Standard waterflood order in all respects

[Signature]
Staff Engineer

State of New Mexico
Oil Conservation Commission



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

June 21, 1962

Re: Case No. 2576
Order No. 2-2266
Applicant:
Sinclair Oil & Gas Company

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

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

Carbon copy of order also sent to:

OTHER _____

Note: Letter advising you the allowable which this project will be eligible to receive under provisions of Rule 701-E-3, will follow. Ida

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. 2576
Order No. R-2268

APPLICATION OF SINCLAIR OIL & GAS
COMPANY FOR APPROVAL OF A WATER-
FLOOD PROJECT, EDDY COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on June 7, 1962, at Santa Fe, New Mexico, before Daniel S. Watter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 21st day of June, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Watter, 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, Sinclair Oil & Gas Company, seeks approval of a waterflood project in the Grayburg-Jackson Pool with the injection of water to be through seven wells located in Sections 3 and 4, Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the proposed project area are in an advanced stage of depletion and should be classified as "stripper" wells.

(4) That approval of the subject application will neither cause waste nor impair correlative rights; provided, however, that unless agreed to by all parties, the transfer of allowables across lease lines where royalty ownership is diverse should not be authorized.

-2-

CASE No. 2576
Order No. R-2268

IT IS THEREFORE ORDERED:

(1) That the applicant, Sinclair Oil & Gas Company, is hereby authorized to institute a waterflood project in the Grayburg-Jackson Pool with the injection of water through the following-described wells in Township 17 South, Range 31 East, SBPM, Eddy County, New Mexico:

West "A" Well No. 8, Unit E, Section 3;
West "A" Well No. 4, Unit G, Section 4;
West "A" Well No. 7, Unit A, Section 4;
West "A" Well No. 9, Unit I, Section 4;
West "B" Well No. 3, Unit C, Section 4;
West "B" Well No. 6, Unit E, Section 4; and
West "B" Well No. 11, Unit K, Section 4.

(2) That the waterflood project shall be governed by Rule 701, including the allowable provisions thereof.

PROVIDED HOWEVER, That unless otherwise agreed to by all parties and evidence thereof furnished the Commission, the transfer of allowables within the project area of this waterflood shall be authorized only insofar as the transfer is made between wells having common royalty ownership.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



EDWIN L. MECHEM, Chairman



E. S. WALKER, Member



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



esr/

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

December 5, 1962

**Mr. R. M. Anderson
Sinclair Oil & Gas Company
Post Office Box 1470
Midland, Texas**

Dear Sir:

Reference is made to Order No. R-2268, Case No. 2576, entered by the Commission approving Sinclair's Keel-West Waterflood Project, Grayburg-Jackson Pool, Eddy County, New Mexico.

According to our calculations, when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 798 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i. e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

C
O
P
Y

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

-2-

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

cc: Oil Conservation Commission
Artesia, New Mexico

C
O
P
Y

Memo

From

D. S. Nutter
Chief Engineer

Bx 1470

To R. M. Anderson
Sinclair Oil & Gas Co
Midland

Reference is made to
Order no R-2268, Case no
2576, entered by the
Commission approving
Sinclair's Keel-West
Waco Flood Project,
Mayburg Jackson Pool
Edley County, Texas

198 BPD

798



SINCLAIR OIL & GAS COMPANY

520 East Broadway
Hobbs, New Mexico

September 25, 1962

New Mexico
Oil Conservation Commission
P.O. Drawer DD
Artesia, New Mexico

RECEIVED

OCT 1 1962

attn: Mr. M. L. Armstrong
District Supervisor

O. C. C.
ARTESIA, OFFICE

Dear Sir:

As authorized by the New Mexico Oil Conservation Commission Order No. R-2268, this Company has commenced the operation of a waterflood project in the Grayburg-Jackson Pool, Eddy County, New Mexico.

Water injection into the below listed wells was started on September 19, 1962.

H.E. West "A" Well No. 7, A-4-17S-31E

H.E. West "A" Well No. 8, E-3-17S-31E

H.E. West "A" Well No. 9, I-4-17S-31E

H.E. West "B" Well No. 6, E-4-17S-31E

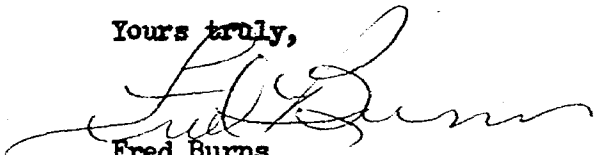
H.E. West "B" Well No. 11, K-4-17S-31E

Request the allowable assigned each of the above listed wells in the proration schedule be canceled and they be classified as water injection wells effective September 19, 1962.

Water injection into the H.E. West "A" No. 4 and the H.E. West "B" No. 3 has not yet commenced. These two wells are being worked over and water injection will start in the near future. Your office will be notified by letter when injection into these wells is started.

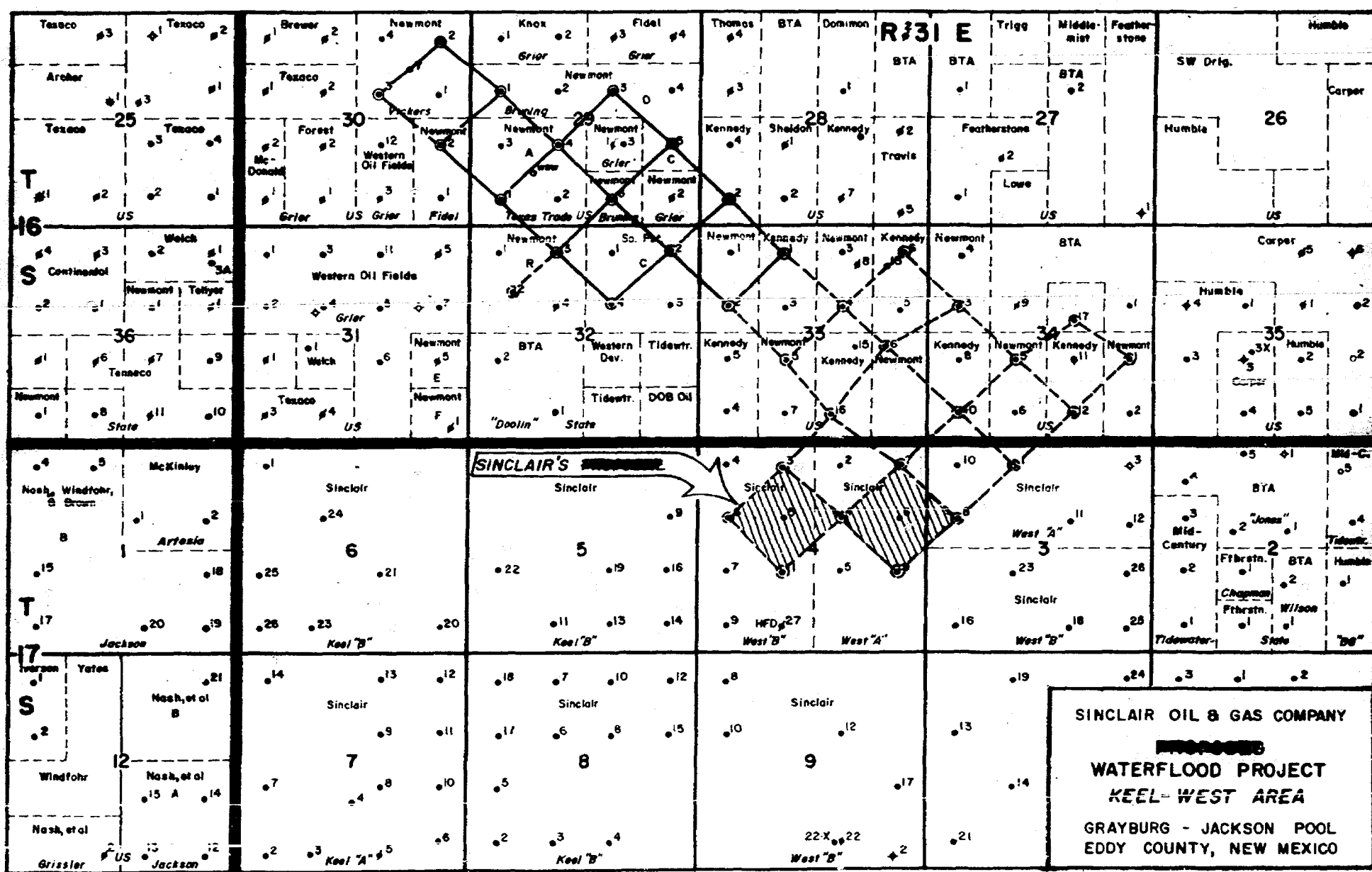
A plat of this Grayburg-Jackson waterflood project is attached.

Yours truly,


Fred Burns
District Superintendent

FB/DW/dnw

Orig&cc: OCC-Artesia w/2 copies plat
2cc: OCC-Hobbs w/2 copies plat
cc: HFD, JM, File



Sinclair Oil & Gas Co.
Case 1576
 Exhibit No. *3*

SINCLAIR OIL & GAS COMPANY
 GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO
 PROPOSED WATERFLOOD PROJECT
 H. E. West "A" & H. E. West "B" Leases
 List of Proposed Injection Wells

*4-6-52
 Caliche - 1500
 Ravatler
 200-500
 Salada well*

Lease and Well No.	Elev.	T. D.	Completion Date	Surface		Sacks Cement	Oil String		Sacks Cement	Completion Interval
				Size	Depth		Size	Depth		
H. E. West "A" # 4	3,940 GL	3,441	9-15-54	8 5/8	706	100	7	3,169	200	OH 3,169-3,441
H. E. West "A" # 7	3,967 GL	3,386	6-23-55	8 5/8	760	100	5 1/2	3,234	200	OH 3,234-3,386
H. E. West "A" # 8	3,954 GL	3,404	9-21-55	8 5/8	769	100	5 1/2	3,246	200	OH 3,246-3,404
H. E. West "A" # 9	3,931 GL	3,375	12- 3-55	8 5/8	719	100	7	3,198	200	OH 3,198-3,375
H. E. West "B" # 3	3,947 GL	3,500	5- 3-46	10 3/4	708	100	7	3,291	100	OH 3,291-3,500
H. E. West "B" # 6	3,937 GL	3,556	5-10-51	10 3/4	674	100	7	3,123	200	OH 3,123-3,556
H. E. West "B" #11	3,920 GL	3,574	2-25-54	8 5/8	683	100	7	3,146	200	OH 3,146-3,574

GRAYSON JACKSON POOL
SODDY COUNTY, NEW MEXICO
PRODUCTION DATA

SINCLAIR OIL & GAS COMPANY D. B. WEST "A" & "B" LEASES

WEST "A"				WEST "B"							
Mo.	Oil-Bbl.	Mo.	Water-Bbl.	Mo.	Gas-MCF	Mo.	Oil-Bbl.	Mo.	Water-Bbl.	Mo.	Gas-MCF
1952											
1	355	0	594	1,158	0	1,673					
2	323	0	541	840	0	1,421					
3	349	0	588	1,555	0	2,135					
4	321	0	537	3,065	0	3,264					
5	239	0	400	3,022	0	3,046					
6	307	0	514	3,362	0	3,171					
7	273	0	457	3,606	0	3,114					
8	256	0	429	3,325	0	3,235					
9	244	0	450	3,038	0	2,940					
10	350	0	645	2,679	0	2,848					
11	280	0	469	2,570	0	2,543					
12	278	0	436	3,109	0	3,076					
1953											
1	264	0	442	3,509	0	3,458					
2	231	0	387	2,844	0	2,781					
3	260	0	435	3,134	0	3,121					
4	184	0	308	3,228	0	3,359					
5	182	0	305	3,568	0	4,664					
6	167	0	280	3,359	0	3,637					
7	243	0	407	3,028	0	4,008					
8	112	0	187	2,984	0	3,991					
9	308	0	514	2,878	0	3,916					
10	301	0	502	2,935	0	3,878					
11	681	0	1,139	2,769	0	3,764					
12	1,235	0	1,809	2,347	0	3,065					
1954											
1	1,270	0	1,860	2,987	0	4,625					
2	1,121	0	1,643	3,464	0	5,314					
3	1,238	0	1,811	3,986	0	5,713					
4	1,193	0	716	3,869	0	6,170					
5	1,232	0	739	3,551	0	5,048					
6	1,189	0	680	3,082	0	4,490					
7	1,193	0	686	3,290	0	4,447					
8	1,217	0	686	3,241	0	4,447					
9	1,847	0	1,080	3,139	0	4,576					
10	2,423	0	1,350	3,279	0	4,180					
11	2,404	0	1,300	3,002	0	3,870					
12	3,467	0	2,200	2,958	0	3,730					

Sinclair Oil & Gas Co.

Exhibit No. 6

Ce 2576

WEST "A"			WEST "B"		
Mo. Oil-Ebl.	Mo. Water-Ebl.	Mo. Gas-MCF	Mo. Oil-Ebl.	Mo. Water-Ebl.	Mo. Gas-MCF
<u>1955</u>					
1	3,819	0	2,355	2,901	0
2	4,436	0	2,451	2,581	0
3	4,991	0	2,540	2,623	0
4	4,522	0	2,388	2,470	0
5	3,603	0	2,316	2,586	0
6	4,816	0	3,707	2,286	0
7	4,084	0	3,702	2,504	0
8	3,971	0	3,658	2,187	0
9	3,290	0	3,325	2,039	0
10	5,444	0	3,286	2,507	0
11	4,749	0	3,270	1,892	0
12	5,883	0	3,288	2,320	0
<u>1956</u>					
1	5,478	0	3,123	2,069	0
2	5,105	0	3,097	1,853	0
3	4,963	0	3,123	2,205	0
4	4,112	0	3,104	1,948	0
5	4,545	0	3,246	2,020	0
6	3,597	0	3,193	1,598	0
7	4,210	0	3,208	1,991	0
8	3,920	0	3,202	2,302	0
9	3,521	0	3,185	2,317	0
10	3,799	0	3,144	2,448	0
11	3,308	0	3,155	2,397	0
12	3,234	0	3,090	2,405	0
<u>1957</u>					
1	3,174	0	3,075	2,209	0
2	2,954	0	3,042	1,808	0
3	3,252	0	3,235	1,977	0
4	3,211	0	2,847	2,277	0
5	3,148	0	2,880	2,244	0
6	2,507	0	2,625	2,152	0
7	2,146	0	2,562	2,118	0
8	2,541	0	2,634	2,062	0
9	2,519	0	2,692	1,954	0
10	2,330	0	2,668	2,533	0
11	2,302	0	2,656	2,549	0
12	2,198	0	2,569	3,112	0

WEST "A"			WEST "B"		
No.	Oil-Bbl.	Water-Bbl.	No.	Oil-Bbl.	Water-Bbl.
1958			1958		
1	2,400	0	1	3,612	0
2	2,365	0	2	3,563	0
3	2,080	0	3	4,003	62
4	1,958	0	4	3,521	60
5	2,175	0	5	3,791	62
6	1,843	0	6	3,468	60
7	1,843	0	7	4,454	62
8	2,359	0	8	4,599	62
9	1,771	0	9	4,213	60
10	1,924	0	10	5,250	62
11	1,663	0	11	5,738	60
12	1,553	0	12	6,060	62
1959			1959		
1	1,813	0	1	6,990	62
2	1,793	0	2	6,556	56
3	1,935	0	3	6,856	62
4	1,594	0	4	5,786	60
5	805	0	5	5,769	62
6	1,225	0	6	6,803	60
7	1,562	0	7	7,117	62
8	1,566	0	8	7,060	90
9	1,105	0	9	6,731	60
10	1,375	0	10	8,103	62
11	1,570	0	11	7,124	60
12	1,883	0	12	7,090	91
1960			1960		
1	2,456	0	1	10,427	91
2	2,052	0	2	6,484	112
3	2,377	0	3	6,141	155
4	2,084	0	4	5,539	150
5	1,970	0	5	6,197	155
6	1,342	0	6	5,527	150
7	2,131	0	7	5,253	93
8	2,282	0	8	5,010	0
9	1,827	0	9	4,391	0
10	1,966	0	10	4,757	0
11	1,746	0	11	4,837	0
12	1,549	0	12	4,338	0

	WEST "A"			WEST "B"		
	Mo. Oil-Sbl.	Mo. Water-Ebl.	Mo. Gas-MCF	Mo. Oil-Ebl.	Mo. Water-Ebl.	Mo. Gas-MCF
<u>1961</u>						
1	1,781	0	3,156	6,037	0	11,868
2	1,360	0	2,740	5,527	0	12,613
3	1,645	0	3,722	5,708	93	13,405
4	1,408	0	4,295	5,653	90	15,031
5	1,461	0	4,019	5,605	93	14,025
6	1,183	0	4,013	5,009	90	15,650
7	1,282	0	2,761	4,515	124	12,996
8	1,361	0	3,823	4,358	0	14,310
9	1,088	0	2,820	4,258	0	13,679
10	1,315	62	3,659	4,171	124	13,935
11	1,253	90	3,363	3,995	210	13,667
12	1,189	93	3,314	3,941	186	13,819
<u>1962</u>						
1	1,158	124	3,206	3,724	248	13,244
2	1,246	112	2,706	3,271	224	11,994
3	1,385	155	3,423	3,928	248	14,679
4	1,441	150	3,670	3,108	240	12,438
5						
6						
7						
8						
9						
10						
11						
12						

SINCLAIR OIL & GAS COMPANY
GRAYBURG-JACKSON POOL, EUDY COUNTY, NEW MEXICO
PROPOSED WATERFLOOD PROJECT
H. E. West "A" & H. E. West "B" Leases
List of Wells to be in Project Area

<u>Lease</u>	<u>Well No.</u>	<u>April 1962, Daily Average Production</u>	
		<u>Oil-Bbls</u>	<u>Water-Bbls</u>
<u>Injection Wells</u>			
H. E. West "A"	4	2	1
H. E. West "A"	7	6	1
H. E. West "A"	8	3	2
H. E. West "A"	9	4	0
H. E. West "B"	3	3	0
H. E. West "B"	6	4	0
H. E. West "B"	11	2	0
<u>Producing Wells</u>			
H. E. West "A"	2	3	0
H. E. West "A"	5	4	0
H. E. West "A"	10	4	0
H. E. West "B"	4	3	1
H. E. West "B"	7	2	0
H. E. West "B"	9	2	0
H. E. West "B"	16	5	0
H. E. West "B"	23	7	0
J. L. Keel "B"	9	3	1
J. L. Keel "B"	16	3	0
H. E. West "A"	6	2	0
" " "B"	5	2	0

Water Flood Project

3.5 - 6527

Sinclair Oil & Gas Co.
Case 2576
Exhibit No.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

June 7, 1962

EXAMINER HEARING

IN THE MATTER OF:

Application of Sinclair Oil & Gas Company for
approval of a waterflood project, Eddy County,
New Mexico. Applicant, in the above-styled
cause, seeks approval of a waterflood project in
the Grayburg-Jackson Pool, Eddy County, New Mexico,
with the injection of water to be through seven
wells located on the H. E. West "A" and "B"
Leases in Sections 3 and 4, Township 17 South,
Range 31 East; applicant proposes to operate the
waterflood project under the provisions of Rule
701.

CASE NO.
2576

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: Case 2576.

MR. MORRIS: Application of Sinclair Oil & Gas Company
for approval of a waterflood project, Eddy County, New Mexico.

MR. KELLY: William Booker Kelly of Gilbert, White and
Gilbert, Santa Fe, appearing on behalf of Sinclair.

I have one witness.

(Witness sworn.)

(Whereupon, Applicant's Exhibits
Nos. 1 through 9, Marked for
Identification.)

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MR. KELLY: Before we start, I would like to refer the Examiner to the Application. There are a couple of errors in there that we would like to correct now.

In paragraph 1, we have set out the description of the area comprising the proposed injection project which covers H. E. West "A" and "B" leases. That description should include Section 10, Section 10 includes part of the "B" lease.

MR. MORRIS: We may have a problem on our notice here, Mr. Kelly. The case was advertised, notice was given with reference to Section 3 and 4.

MR. KELLY: Well, I would like to bring this to the Commission's attention. In our Application we refer to Section 3 and 4 as just where the injection wells are now, we also referred to the surrounding land.

MR. NUTTER: Where is Section 10, is that this Section directly south of 3 here on the Exhibit that's attached to the Application?

MR. KELLY: Yes. It's not shown, it's right next to 10 and right below 3. I mean, right next to 9.

MR. NUTTER: That's an extension of the West "B" lease down there, all of Section 10?

MR. KELLY: Yes.

MR. MORRIS: I believe the notice in the case was given with respect to where the injection wells would be located on Section 3 and 4, so I believe we are all right.

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MR. KELLY: Then, the other error is in paragraph 4. We have a listing of the injection wells and one is listed as H. E. West "B" No. 1; that should be H. E. West "B" No. 11.

DOUGLAS W. CUNNINGHAM,

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

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name, position and employer, please?

A I am Douglas W. Cunningham, I'm a Petroleum Engineer, I work for Sinclair Oil and Gas Company in Midland, Texas.

Q Have you previously testified before the Commission, Mr. Cunningham?

A No, I have not.

Q Could you give the Commission a brief summary of your technical background and training?

A I graduated in 1957 from Texas Technological College in Lubbock with a degree, B.S. in Petroleum Engineering. I went to work for Sinclair in September, 1957, and I have worked for Sinclair ever since in various capacities, as Field Engineer, Reservoir Engineer, Section and Unitization.

Q As part of your professional work, have you made a study of the Grayburg-Jackson field?

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A I have.

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

MR. NUTTER: Yes, sir, please proceed.

Q (By Mr. Kelly) What does Sinclair seek by this application?

A Sinclair Oil and Gas Company is by this application seeking approval of a waterflood project of our H. E. West "A" and "B" leases in the Grayburg-Jackson Pool, Eddy County, New Mexico.

Q I refer you to what has been marked as Exhibit No. 1, would you explain that to the Commission?

A Exhibit 1 is merely a location plat which locates the Grayburg-Jackson Pool in relationship to the surrounding pools on the artesia vacuum trend. Our lease that we plan on flooding, both of these leases, are located within the circle on the location plat, figure number one.

Q I refer you to Exhibit No. 2, will you explain this to the Commission?

A Exhibit 2 shows the area of the H. E. West "A" and H. E. West "B". It shows the 7 injection wells that we plan on using. It further shows a present waterflood which is underway in the Square Lake field by Newmont Oil Company. The red circled wells are, as we understand, the present injection wells in which Newmont is injecting water into the Grayburg-San Andres reservoir. The yellow wells circled, as we understand, have already

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been allowed by the Commission to be an expansion of this Newmont flood which will occur on or about July 1st, 1962. Then, the green wells are further expansion that Newmont has requested to be allowed on April 1st, 1963.

The yellow wells on Sinclair's leases are located in cooperation with the already successful Newmont flood. The green line X-X. is a cross-section line trace which we will present the cross-section in a minute as another exhibit.

Q Now, the yellow dots represent the proposed Sinclair injection wells?

A On the West "A" and West "B" lease, belong to Sinclair, they are the proposed injection wells.

Q Do you have an exhibit showing the project area?

A Yes, we have defined the project area as set out in paragraph E-2 and we will present that in a later exhibit.

Q You have testified that the Exhibit 2 shows the present Newmont waterflood project?

A That's correct.

Q And its proposed extensions?

A Yes.

Q Would you refer to Exhibit No. 2, and explain that to the Commission?

A Exhibit No. 3 is merely a list of the proposed injection wells. It shows the wells numbers, the lease names, the elevations, the total depths, the completion dates, the size

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and depth of the surface casing, the sacks of cement that the cement was set with, the size and depth of the oil string and the sacks of cement that the oil string was set with, and the completion interval of the 7 different injection wells that we plan to use. By the way, the H. E. West "B" 11, is shown on this plat which we corrected and has the correct casing program on this exhibit here.

Q Now, go on to Exhibit 4, the structure map.

A Exhibit 4 is the structure map of the Grayburg-San Andres reservoir contoured on top of the Grayburg, has a contour interval of 25 feet in the vicinity of the pilot project that Sinclair is proposing. The pilot project itself is outlined in red pencil there. The structure shows it in the vicinity of the Sinclair lease, the dip is generally in a southeast direction, dips about 100 feet per mile.

Q Now, go on to Exhibit 5.

A Exhibit No. 5 is the cross-section X-X referred to which was, the trace of which was shown on Exhibit No. 2. We had no logs to submit to the Commission on our proposed injection wells since those wells were never logged. The cross-section has some well logs on it of existing wells in the area, and it also shows a schematic of what we think the Grayburg-San Andres reservoir looks like underneath the injection wells that we propose to use there, at least Number 9 and Number 11. It shows

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the different production zones of the Grayburg-San Andres reservoir in this area. It's my opinion that the reservoir configuration shown here on the cross-section is the same as underneath our West "A" and West "B" lease.

Q I refer you to Exhibit No. 6, will you explain that to the Commission?

A Exhibit 6 is just a production tabulation of the monthly oil, water and gas produced from the West "A" and West "B" leases for a 10 year period from 1952 through April of 1962.

Q Now, treating Exhibits 7 and 8 together, would you explain that to the Commission?

A Exhibit 7 and Exhibit 8 are graphs of the production figures which were given in Exhibit 6 there. Exhibit 7 is a graph of the H. E. West "A" production, production history information for the 10 year period, and the Exhibit 8 is a production history of H. E. West "B" lease for that 10 year period.

Q On Exhibit No. 6 your records go back to 1952. When were these leases first drilled?

A The H. E. West "A", the first well completed as a commercial producer was drilled March the 17th, 1939; on the West "B", the first commercial producer was drilled May the 3rd, 1946.

Q Now, your Exhibit 7, showing your curve of your production history on H. E. West "A" shows a jump around the year '55, is that due to new drilling?

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A Yes, it is. The number of wells curve there in the bottom, it shows that we developed the lease a little bit more in 1955.

Q Then, on H. E. West "B", shown on Exhibit 8, new drilling is indicated, the jump of 1958?

A 1958, 1959, we had quite a bit of drilling on the West "B" there.

Q In your opinion are both of the leases in advanced stages of depletion?

A Yes, sir. The daily average production for all the wells on the H. E. West "A" lease, there are 10 wells, the average daily production during April was 4.8 barrels per day and H. E. West "B", for 24 wells, the average daily production was 4.3 barrels of oil per day per well.

MR. NUTTER: 4.3?

A Yes.

Q (By Mr. Kelly) Now, go on to Exhibit No. 9 and explain that to the Commission.

A Exhibit 9 is a list of the wells to be in the project area. This is the project area defined in paragraph E-2 of Rule 701. It shows the injection wells and then it shows the producing wells, further, it shows the April, 1962 daily average oil and water production. That average production for the project area for oil is 3.5 barrels of oil per day during April, 1962.

Q Now, the land involved on these two leases, is it

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federal land?

A Yes, it is.

Q Have you received any type of approval from the United States Geological Survey?

A We have been in correspondence with United States Geological Survey and we have sent them a copy of this Application. They have informed us they would give us tentative approval, but they haven't given us their final consent at this time. I presume they will send the Commission notification.

Q On your waterflood project, what is the source of your water going to be?

A The source of our water will be the Lea County Underground Water Basin.

Q Do you have wells outside the project area producing into common facilities with wells in the project area?

A Yes, we do.

Q Is Sinclair planning to abide by Order R-1644 requiring monthly reports on the production of the wells outside the area?

A Yes, we will.

Q Is it Sinclair's intention to cooperate with all operators in the area in order to protect correlative rights?

A Yes.

Q How many barrels a day do you plan to inject in each well?



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A We plan to inject from 350 to 400 barrels a day in each injection well.

Q Is this similar to the amounts that Newmont is injecting into their project?

A I understand that they're injecting around 400 barrels per day in their wells.

Q In your opinion would the granting of this Application protect correlative rights and prevent waste?

A Yes, sir, I believe it would.

Q Were Exhibits 1 through 9 prepared by you or under your direction?

A Yes.

MR. KELLY: We move the introduction of Exhibits 1 through 9.

MR. NUTTER: Sinclair's Exhibits 1 through 9 will be introduced in evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 9 Introduced and Received into Evidence.)

MR. KELLY: That's all I have on Direct.

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

MR. MORRIS: Yes, sir, I do.

MR. NUTTER: Mr. Morris.

CROSS EXAMINATION

BY MR. MORRIS:



Q Mr. Cunningham, you stated that your water source would be the Underground Lea Water Basin?

A Yes.

Q Is that to be derived from wells to be drilled by your company or are you going to purchase water from an independent water company?

A At the present time we have the water lease some 19½ miles east of our lease and up on the cap. We also at this time have applications in for water rights on acreage which is closer to our proposed project. These applications are pending. We don't know the status of them. We don't know whether we'll be granted these water rights or not, but in order that we may cooperate with Newmont's proposed extension, Newmont has offered to sell us water which they get from the Lea County Underground Water Basin. It's possible, if we cannot get our injection lines in in time to cooperate with Newmont, that we may purchase water temporarily from Newmonth.

Q Do you at this time have any intention of expanding this project area in a determined direction?

A No, sir. We don't know actually how it will respond to flooding. We will expand it so far in compliance with Rule 701.

Q Sinclair, I note from Exhibit 2, owns a substantial amount of acreage surrounding this pilot, so if expansion is to be made you won't have many problems with protecting correlative rights in

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this area, will you?

A That's right. Sinclair owns 8 sections here, right in the immediate area.

Q Now, your color coding on Exhibit No. 1, everything below the township line are Sinclair wells and everything above the township line are wells operated by others, is that correct?

A That's right, yes.

Q Then, this well No. 1 in the North Half of Section 3 which is colored in green on my exhibit --

A It shouldn't be.

Q Pardon me?

A It should not be green. See, that is Newmont's planned expansion.

Q That's one of Newmont's?

A They hope that we cooperate with them when we get ready, but it's not our plan at the present time. We don't know how we will want to expand our flood.

MR. NUTTER: At any rate this would be in the April, 1963 expansion?

A That's right. It would be in the April expansion, 1963.

What was your question about that well, Mr. Morris?

Q (By Mr. Morris) I was trying to determine who the operator of it was?

A It's our well.



Q And I couldn't tell, really, from my exhibit whether it was colored green or not, but you have answered my question.

A It is not supposed to be colored green. However, that well is a dry hole and we will have to re-enter or re-drill it if we want to use it.

MR. MORRIS: I believe that's all I have.

BY MR. NUTTER:

Q Mr. Cunningham, referring to your Exhibit No. 5, the cross-section. I see quite a few pays here. How many of these various pays are going to be actually under injection?

A We plan to inject into our 7 injection wells in open hole. We don't know right now which of these pays will take water or which won't. We plan on running injectivity profiles at intervals to determine which pays are taking water at which time, we will run liners and perforate preferentially as signified by our history here.

Q At the present time are these wells all completed open hole?

A Yes, sir.

Q In each case is the pipe set above the top of the Loco Hills?

A I'm not familiar with all of the wells on the lease, whether or not the casing on each well is above the Loco Hills, I don't know.

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Q So, you are not sure if the Loco Hills would be open in all of them?

A No, sir.

Q Is each well drilled to a depth sufficient to take the Lovington pay?

A No, sir, we can see right here, this A-9 is not drillable to take either the Premier nor the Vacuum nor the Lovington. If we, from injection in other wells, saw that we needed the Premier and Vacuum and to open another whole section, I believe we would go in and deepen that well.

Q Is it an injection well?

A Number 9 will be an injection well.

Q Do you contemplate drilling a well in the Northwest Quarter of the Southwest Quarter of Section 3?

A At this time we don't contemplate drilling any wells. If our information that we gain from our pilot indicates that a well should be drilled for efficient drainage of the acreage, I am sure we will.

Q What about Well No. 27 in the Southeast of the Southwest of Section 4?

A It's shown on Exhibit 2, isn't it?

Q Yes, sir.

A That well is a deep test, it was drilled to the Devonian, it never has been tried in the Grayburg-San Andres or Grayburg-Jackson Pool.



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Q Do you at this present time contemplate completing it?

A There again, we will be governed by what we find out. If our production data indicates that well should be perforated we will go in and perforate.

Q But for the time being those two 40-acre tracts will not be completed in the Grayburg-Jackson?

A That's correct. We haven't listed those as in the proposed project area.

Q Evidently on this Exhibit No. 9, you have about 17 wells in your project area, I'm short one but I have enough. No, I still don't have it.

A On the map you mean?

Q Yes, sir.

A Which well, Mr. Nutter?

Q My project area only has 16 wells in it and yours has 17. I must be missing one somewhere.

A Of course, the 7 injection wells are colored in yellow. The West "A" No. 2 is north of our No. 4 injection well.

Q Yes?

A The West 5 "A", 5 is south of injection well No. 4.

Q Yes?

A The West "A" 10 is north of injection well West "A" 8.

Q Yes?

A The West "B" 4 is north of the West "B" 6 injection well. The West "B" 7 is south.



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Q Wait a minute. The West "B" 4 is in "D" of Section 4?

A Yes, sir.

Q Okay.

A And the West "B" 7 is south of the injection well No. 6, on the "B" Lease.

Q Yes?

A The H. E. West "B" 9 is then south of the No. 7.

Q Yes?

A The H. E. West "B" 16 is in Section 3.

Q Yes; in the Unit "L"?

A Yes, sir. And the West "B" 23 is diagonally northeast of that well.

Q Right.

A And the Keel "B" 9 is directly west of the injection well 6 on the West "B", and the Keel "B" 16 is directly south of the Keel No. 9.

Q Well, now, I wasn't counting the Keel wells, Mr. Cunningham. Is the lease ownership identical on the Keel lease as on the West leases?

A I believe the ownership is the same, Mr. Nutter. The percentage royalty, I think, is a different scale.

Q The royalty over there is a little different?

A I think so.

Q Is that oil produced with the West "B" lease at the present time?



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A The Keel "B" lease. I think it is.

Q And held in the same tank battery or does each well have its own tank battery, the Keel "B" and the West "B"?

A The Keel is in a separate battery than the West "B".

Q Now, I find that Exhibit 9 is short a well. It doesn't include West "A" No. 6, Mr. Cunningham, as a producing well?

A You are right, it does not.

Q Do you happen to have the production figures for that well?

A Neither does it include the West "B" No. 5. The two center producing wells in both five-spots have been left out. Yes, sir.

Q Now somebody is short a well again.

A We had the West "A" center in there, but we didn't have the West "B" which is in the center there. The West "A" No. 6 produced two barrels of oil per day and no water, and the West "B" No. 5 also produced two barrels of oil per day and no water. That would lower my average oil production figure that I gave you a while ago very slightly.

Q So, you have 7 injection wells and 12 producing wells for a total of 19 wells?

A Yes, sir, that's right.

Q What is the maximum amount of oil that any of the wells on either of these leases makes or do these -- now, these



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production decline charts that you have that would be Exhibit No. 8 and Exhibit No. 7, that's the total wells on the lease and not necessarily in the project area?

A That's correct. That is the total wells on the "A" lease and the total wells on the "B" lease. There are 24 on the "B" lease and 10 on the "A" lease.

Q Are all of the wells which are included in these decline charts 7 and 8 pretty much the same as the producing rates reflected on Exhibit 9 for the wells in the project area?

A Pretty much the same, you mean in production?

Q In production.

A Average production, well, the average production for the wells in the project area, as you recall, were about 3.5 and the average for all the wells on the "A" is 4.8 and on the "B" is 4.3.

Q So, there may be some wells outside the project that are a little bit better, but not much?

A They're a little bit better.

Q What's the best well on either lease?

A What the highest well in the area is. There are two wells producing 11 barrels of oil per day, the H. E. West "A" No. 21 and then the H. E. West "B" No. 25 produces 12 barrels per day.

Q Those are the best wells in the area?

A Yes, sir.



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

MR. KELLY: I would like to amend Exhibit 9 to show the H. E. West "B" and the H. E. West "A" 5 and 6, with those figures on it.

MR. NUTTER: Does anyone have anything further or any further questions of Mr. Cunningham?

MR. IRBY: Frank Irby. May I ask a few questions?

MR. NUTTER: Yes, sir.

MR. IRBY: Frank Irby, State Engineer's Office.

BY MR. IRBY:

Q Mr. Cunningham, on your Exhibit No. 3, this surface casing is set from 674 to 769 feet. Can you tell me what formation that is in, please? What kind of a formation is it into the salt?

A I think I can find that for you, Mr. Irby. In this area the first four to six hundred feet of formation are composed of caliche and sand; directly underneath this caliche and sand we strike the Rustler formation which consists of anhydrite with interbedded red shale. The Rustler varies from 200 to 500 feet in thickness throughout northern Eddy, so I would say the surface casing is set in the Rustler; the Salido, which is the salt, comes beneath that formation.

Q Don't each of these wells penetrate through anhydrite, are you able to tell me that?

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A I don't know.

Q But it would have penetrated either anhydrite or a tight red shale?

A I would think so from the stratigraphy of the area there. It should have struck either anhydrite or red shale in the Rustler where it's set.

Q This hundred sacks of cement which was used along the surface string, in each instance did that circulate to the surface?

A I don't know, Mr. Irby. I didn't read any of the cement surveys on the wells. I don't even know for sure that they made cement surveys. I would say from the data presented from one of the engineers this morning as to the amount of surface casing and the amount of cement he was going to put in his wells there, it should have circulated.

Q I would think it was circulated if the hole wasn't extremely large. I don't know why you would drill a big hole. Would you be able to check that out and furnish me the answer to that question?

A Yes, sir. If we have temperature surveys, I can sure furnish them to you.

MR. IRBY: Thank you.

A I will.

MR. IRBY: Thank you.

BY MR. NUTTER:

Q Mr. Cunningham, what has been the average productivity



on primary from these wells?

A The average cumulative recovery has been right about 30,000 barrels per well. I have actual cumulative from each lease. I'll just read you those figures and we can easily divide by the number of wells.

I find I didn't write it down after all, but from my best recall, the West "A" lease has recovered approximately 230,000 barrels and the West "B" approximately 500,000 barrels.

Q The West "A" has 10 wells, so that would be an average of 20,000?

A That would be about 20,000 per well.

Q And the West "B" has recovered approximately what?

A As I recall, 500,000 barrels. The figure would be in this report if you would like for me to look for it.

Q I would appreciate knowing what the wells averaged on primary.

A That would be approximately 20,000 for both of those leases if those figures were correct. I'm sure I have it in this report. The West "A" and this cumulative figure was as of September 1st, 1961, so it's a little bit better now. The West "A", 264,411, and the West "B", 526,722.

Q Have you made an estimate as to what your secondary recovery will be on this project?

A No, sir, we have not made an estimate of the secondary recovery from the entire leases. We think that it

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will be considerable and based on some of the recoveries from Newmont's flood, it would be about 70,000 barrels per 80 acre five-spot.

Q So where the wells have produced maybe an average of 25 or 26 thousand barrels on primary on a 40 acre tract, then an 80 acre five-spot would produce 70,000?

A Approximately 70,000.

Q Or, 35,000 per 40?

A Yes, sir.

Q So, you do expect secondary recovery to exceed the primary by some percent?

A Either approximate or exceed, I couldn't say which. If it's a real successful, I think it should approximate primary anyway.

MR. NUTTER: Any further questions of Mr. Cunningham?
He may be excused.

(Witness Excused.)

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

MR. KELLY: No, nothing further.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2576?

MR. PORTER: I'm Harold Porter, representing Waterflood Associates; we are a diagonal offset of Sinclair, our leases being Section 35, of 16, 31 and we would like to state that we support Sinclair's Application on the understanding that

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the pattern presently established will be continued in that area.

MR. NUTTER: Anything further?

We will take Case 2576 under advisement and call Case 2579.

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

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 was reported by me in Stenotype and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said Proceedings, to the best of my knowledge, skill and ability.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19th, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2576, heard by me on June 7, 1962.

Asst. Examiner
Examiner
New Mexico Oil Conservation Commission

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