

CASE 3689: Application of SUNRAY
DX for a dual completion and
salt water disposal.

Case No.

3689

Application, Transcript,
Small Exhibits, Etc.



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

November 8, 1967

Sunray Oil Company
P. O. Box 1416
Roswell, New Mexico 88201

Attention: Mr. John Hastings

Gentlemen:

Your letter of November 1, with attachments, seeks approval to dispose of produced salt water from Navajo tribal lease 14-20-603-1043 into the Organ Rock formation by injecting down the annulus between the 5½" production string and the 9-5/8" casing and 7-5/8" liner in your No. 2 Navajo Table Mesa well located in the SW¼SE¼ sec. 27, T. 28 N., R. 17 W., N.M.P.M., San Juan County, New Mexico.

The method you propose for disposal of produced salt water is hereby approved subject to like approval by the appropriate officials of the State of New Mexico. Any change in this system must receive prior approval from this office.

You are requested to notify our Farmington office when the installations are completed so that a field inspection of the system can be made.

Sincerely yours,

(ONE) BILLY J. SHOGER

BILLY J. SHOGER
Acting Oil and Gas Supervisor

cc:
Farmington
NMOCC, Santa Fe ✓
Roswell

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

December 4, 1967


Mr. Booker Kelly
White, Gilbert, Koch & Kelly
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Re: Case No. 3689
Order No. R-3351
Applicant: SUNRAY DX OIL COMPANY

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 x

Other Mr. Frank Irby

Sunray DX Oil Company

District Office



Case 2689

P. O. Box 1416
Roswell, New Mexico
November 2, 1967

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

RE: Application to Dispose of Salt Water
Navajo Table Mesa Lease
San Juan County, New Mexico

Gentlemen:

Sunray DX Oil Company hereby notifies the Oil Conservation Commission of Sunray's desire to dispose of produced salt water from its Navajo Table Mesa Lease, San Juan County.

We propose to dispose of such water by injection into the Navajo Table Mesa No. 2. This well is currently producing from the Table Mesa Formation. A dual completion is planned with disposal being down the annular space between the intermediate and producing casing strings.

All information necessary to this application is attached. In accordance with Rule 701, Sunray respectfully requests that this matter be scheduled for hearing before the Commission, as soon as possible.

Copies of this letter, with attachments, have been sent to the State Engineer Office in Santa Fe, the Oil Conservation Commission Office in Aztec, and the USGS Office in Farmington, as evidenced by the attached postal receipts.

Yours truly,

SUNRAY DX OIL COMPANY

John Hastings
John Hastings
District Engineer

JH/RLM/nsh

Attachments

cc: State Engineer Office, Santa Fe
NMOCC, Aztec
USGS, Farmington

67 Nov 3 AM 10 57

DOCKET MAILED

Date 11-16-67
h

Case 3689

PROPOSED SWD WELL

SUNRAY DX NAVAJO TABLE MESA NO. 2

790' FSL & 1980' FEL of Section 27, T-28-N, R-17-W
San Juan County, New Mexico

DISPOSAL ZONE:	Organ Rock
ZONE DEPTH:	5505' - 5525'
INJECTION FLUID:	Salt water produced from Navajo Table Mesa Lease, Table Mesa - Penn C.
ANTICIPATED VOLUMES:	1400 BWP
INJECTION METHOD:	Dual completion with water being disposed of down the annulus between the 5-1/2" production string and 9-5/8" casing and 7-5/8" liner. Water will be pumped down annulus by pump, which will be sized to handle approximately 1500 BWP at a maximum pressure of 1000 PSIG. See workover program and well sketch method of completion. See log for injection zone.

S-115-9B

☐ DRILLING PROGRAM☒ WORKOVER PROGRAM

WELL	STATE	DATE
Navajo Table Mesa #2	New Mexico	October 31, 1967
FIELD	OBJECTIVE	ELEVATION
Table Mesa - Penn C	Dual Complete For SWD	5363 K. B.
LOCATION		
790' FSL & 1980' FEL of Section 27, T-28-N, R-17-W, San Juan County, New Mexico		

PROPOSED WORK	CASING DESIGN
<ol style="list-style-type: none"> 1. MI & RU rotary workover rig. 2. Pull pump and tubing. 3. Set wire line 5 1/2" BP @ approx. 6300'. 4. Tie onto 5 1/2" csg & work. If stretch point isn't deep enough, run free point by dialog. 5. Cut csg w/mechanical cutter on tubing @ approx. 6000' if feasible, and pull csg. 6. Run Lane Wells PFC Log from 5650' to 5400' and from 1900' to 1700'. 7. Perforate 4-1/2" holes @ 1800' in 9 5/8". Set cmt retainer @ approx. 1750'. Cmt w/260 sxs incore poz cmt w/12% gel and 2# Gilsonite per sx. Tail in w/100 sxs neat cmt w/2# Gilsonite per sx. Cement requirements are based on 85% fill to circulate cmt to surface and cover Dakota Zone. If cmt doesn't circulate, run temp. survey. WOC 18 hrs. 8. Drill retainer and pressure test to 1000# for 30 min. 9. Perforate 1-1/2" hole/foot in 7 5/8" from 5525' to 5505'. 10. Run tubing and 9 5/8" ret. pkr and set @ approx. 4900'. Use tailpipe to approx. 5550'. Load backside to 1000 PSIG. 11. Acidize w/500 gallons mud acid. Spot acid and pump in. Do not exceed 6000 PSIG. 12. Pump into formation to establish injection rates and pressures. Attempt to establish inj. rate of 2 BPM @ 1000 PSIG or less. If not feasible, additional acidizing will be necessary. 13. If rates are suitable, pull tubing and pkr. 14. Run in and dress off top of 5 1/2" csg. 15. Run 5 1/2" csg w/Bowen Midas csg. bowl. Join csg w/csg bowl. 16. Run pump. Put well on production. 17. Install lines, tank and pump. Connect to 9 5/8" casinghead and commence injection. 	<p>13 3/8", H-40, 48# @ 265'</p> <p>9 5/8", J-55, 36# and N-80, 40# @ 5201'</p> <p>7 5/8", X-Line, 26.40# liner @ 6913'. Top 4951'.</p> <p>5 1/2", J-55, 15.5# & 17.0# and N-80, 17# @ 7376'.</p> <p>See Well Sketch Attached.</p>
MUD PROGRAM AND REMARKS	
<p>ALL INSTRUCTIONS TO DRILLING CREWS MUST BE DIRECTED THROUGH</p> <p>C. T. McClanahan</p> <p>APPROVED BY</p> <p>R. L. Maness</p>	

SUBMITTED BY

R. L. Maness

C. T. McClanahan

APPROVED BY

67 Nov 3

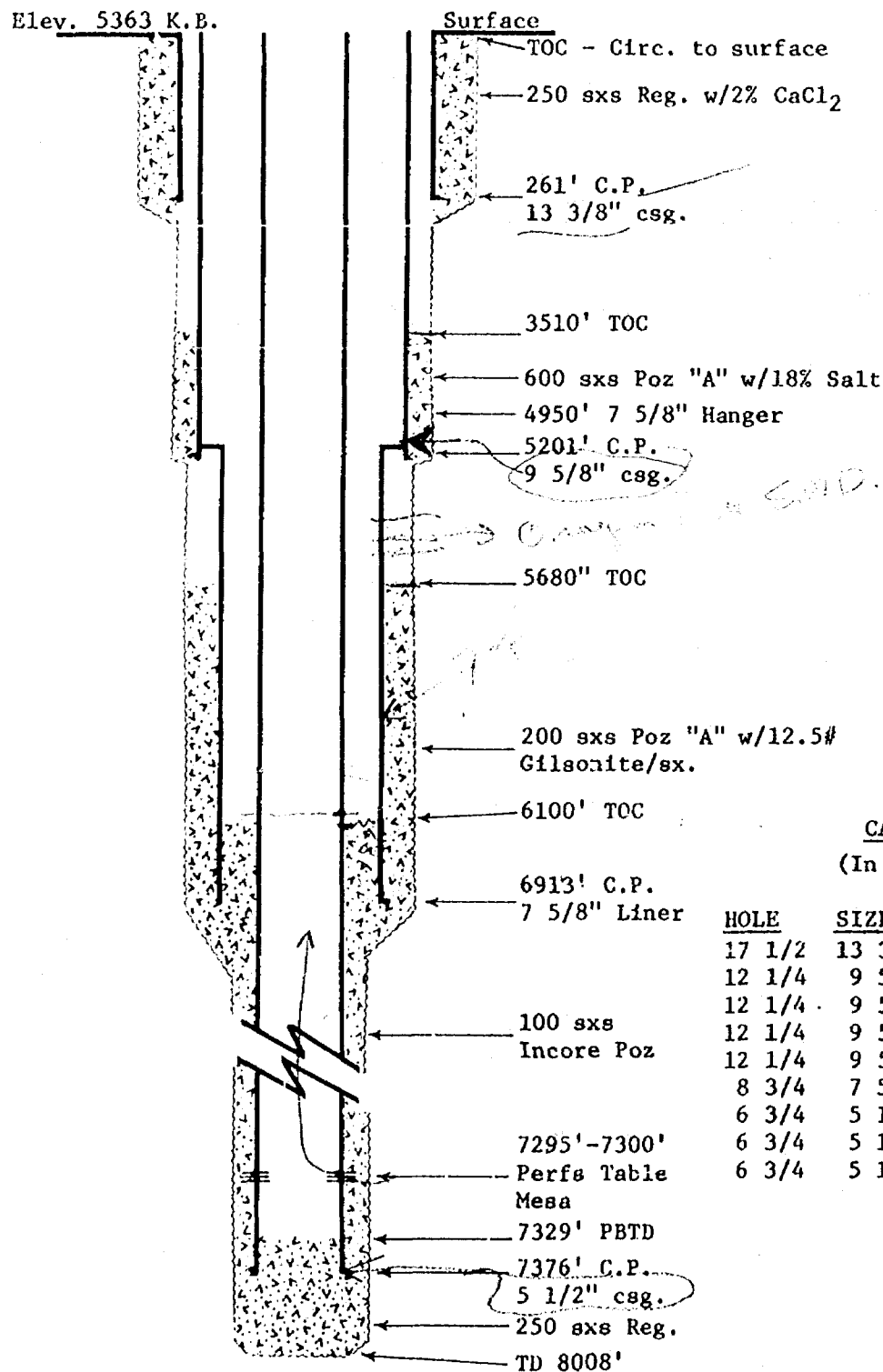
NAVAJO TABLE MESA NO. 2

Clare 36.89

790' FSL & 1980' FEL of Section 27, T-28-N, R-17-W

San Juan County, New Mexico

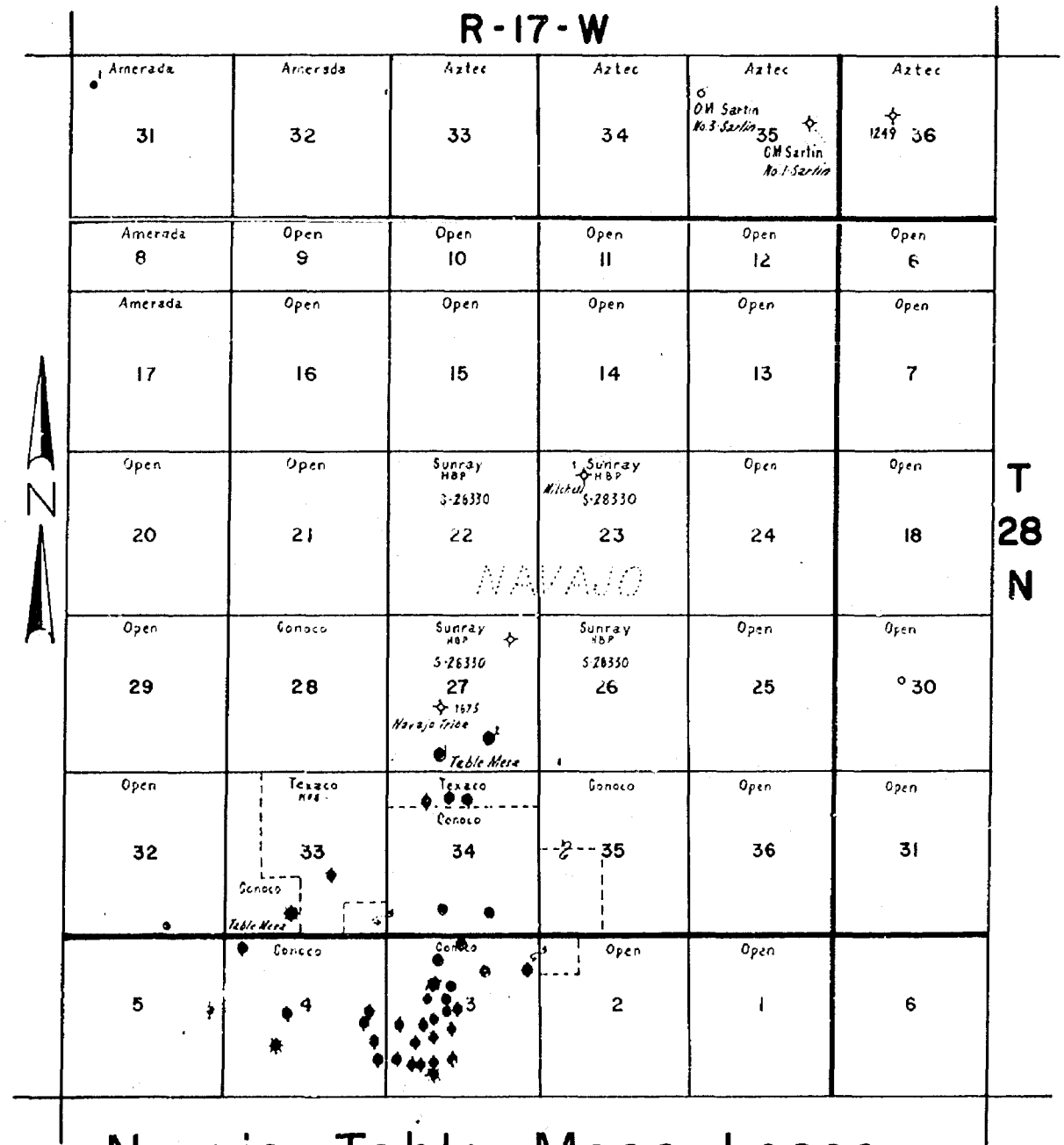
Elev. 5363 K.B.



CASING DESCRIPTION

(In Order as in Hole)

HOLE	SIZE	FOOTAGE	WEIGHT	GRADE
17 1/2	13 3/8	265	40.0#	H-40
12 1/4	9 5/8	33	40.0#	J-55
12 1/4	9 5/8	3466	36.0#	J-55
12 1/4	9 5/8	1013	40.0#	J-55
12 1/4	9 5/8	689	40.0#	N-80
8 3/4	7 5/8	1960	26.4#	X-Line
6 3/4	5 1/2	5340	15.5#	J-55
6 3/4	5 1/2	1315	17.0#	J-55
6 3/4	5 1/2	721	17.0#	N-80



Navajo Table Mesa Lease San Juan, Co. N.Mex.

- Pennsylvanian
- Dakota
- Mississippian

Page 3689

No. 473640

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>Mr. Frank Leby</i>		POSTMARK OR DATE <i>NOV 2 1967</i>
STREET AND NO. <i>State Capitol</i>		
P. O., STATE, AND ZIP CODE <i>Santa Fe N.M. 87501</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee

POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— (See other side)
NOT FOR INTERNATIONAL MAIL

No. 473641

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>U. S. G. S.</i>		POSTMARK OR DATE <i>NOV 2 1967</i>
STREET AND NO. <i>Petroleum Club Plaza</i>		
P. O., STATE, AND ZIP CODE <i>Farmington N. Mex.</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee

POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— (See other side)
NOT FOR INTERNATIONAL MAIL

No. 473642

RECEIPT FOR CERTIFIED MAIL—30¢

SENT TO <i>New Mex. Oil Con. Com.</i>		POSTMARK OR DATE <i>NOV 2 1967</i>
STREET AND NO. <i>1000 Rio Brazos Rd.</i>		
P. O., STATE, AND ZIP CODE <i>Albuquerque N. Mex.</i>		
EXTRA SERVICES FOR ADDITIONAL FEES		
Return Receipt Shows to whom and date delivered <input type="checkbox"/> 10¢ fee	Shows to whom, date, and where delivered <input type="checkbox"/> 35¢ fee	Deliver to Addressee Only <input type="checkbox"/> 50¢ fee

POD Form 3800 Mar. 1966 NO INSURANCE COVERAGE PROVIDED— (See other side)
NOT FOR INTERNATIONAL MAIL

Price 3689

67 Nov 28 1967

November 22, 1967

Sunray DX Oil Company
P. O. Box 1416
Roswell, New Mexico

Attn. Mr. John Hastings
District Engineer

Gentlemen:

Receipt of a copy of your application to the Oil Conservation Commission and attachments thereto, which seeks authority to dispose of salt water through your Table Mesa #2 well by a dual completion is gratefully acknowledged.

I do not understand how you will be able to protect the Dakota formation below the 1800 foot depth unless the annulus between 9 5/8 inch casing and the bore wall contains no fluids or solids and you intend to drop the cement from the perforations at 1800 feet to the top of the cement at 3510 feet.

Yours truly,

FEI/ma
cc-Oil Conservation Comm.

S. E. Reynolds
State Engineer

By:
Frank E. Irby
Chief
Water Rights Div.

Docket No. 36-67

DOCKET: EXAMINER HEARING - WEDNESDAY - NOVEMBER 29, 1967

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

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

- CASE 3689: Application of Sunray DX Oil Company for a dual completion and salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Navajo Table Mesa Well No. 2, located in Unit O of Section 27, Township 28 North, Range 17 West, San Juan County, New Mexico, in such a manner as to permit the production of oil from the Table Mesa-Pennsylvanian "C" Oil Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the Organ Rock formation through perforations in said intermediate casing from approximately 5505 feet to 5525 feet.
- CASE 3690: Application of Roger C. Hanks, Ltd., for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar-U Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing units and the establishment of 80-acre allowables for said 160-acre units.
- CASE 3691: Application of Roger C. Hanks, Ltd., for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Bough "C" zone of the Pennsylvanian formation adjacent to the Bar-U Pennsylvanian Pool in its Tidewater State Well No. 1 located in Unit H of Section 31, Township 8 South, Range 33 East, Chaves County, New Mexico.
- CASE 3692: Application of Skelly Oil Company for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the expansion of its Lovington Paddock Unit Waterflood Project, Lovington Paddock Pool, by the conversion to water injection of seven additional wells located in Sections 25 and 35, Township 16 South, Range 36 East; Section 30, Township 16 South, Range 37 East; Sections 1 and 12, Township 17 South, Range 36 East; and Section 6, Township 17 South, Range 37 East, Lea County, New Mexico.
- CASE 3693: Application of Atlantic Richfield Company for an exception to Order No. R-3221, Lea County, New Mexico. Applicant, in the above-styled cause, on its own behalf and as operator of the Denton Salt Water Disposal System, seeks an exception to the provision of Paragraph (6) of Commission Order No. R-3221 which requires that certain unlined pits used for the disposal of produced salt water be filled, leveled, and compacted. Applicant proposes that said pits be left open in the Denton Field, Lea County, New Mexico, to permit their use for temporary emergency storage of produced water in connection with individual tank batteries connected to the Denton Salt Water Disposal System operated by Atlantic Richfield Company.

CASE 3694: Application of Mallard Petroleum Inc., for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox gas well location of its Alves Well No. 1, located 660 feet from the South line and 990 feet from the East line of Section 6, Township 20 South, Range 36 East, Lea County, New Mexico, said well being completed as an apparent extension of the North Osudo-Morrow Gas Pool.

CASE 3695: Application of Tenneco Oil Company for Special Pool Rules, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the South Hospah Upper Sand Oil Pool and the South Hospah Lower Sand Oil Pool, McKinley County, New Mexico, to provide that wells drilled in said pools could be located anywhere on the 40-acre unit except that no well could be located closer than 330 feet to the outer boundary of the lease nor closer than 200 feet to another well producing from the same pool. Applicant further proposes that any existing well not located in accordance with the above requirements be granted an exception to said requirements.

Case 3689

Recd 11-29-67

Rec. 11-30-67

1. Grant Seaway permission to
Really complete their Harvey's
Dable Mesa # 2-790/S, 1980/E lines sec.
27-28-17, Dable Mesa Pennsylvanian (C) ~~Gas~~ Pool.
2. The Dakota formation at approx
1487' from G.L. (3862' S.S.) shall be
cemented behind the 9 5/8 casing.
3. The manner of cementing shall be
satisfactory to the Ogden district
supervisor.
4. The Permian formation will be
produced thru 2 3/4 tubing
with a packer set at approx
7270'.
5. The saline water will be
injected into the Oregon Rock
formation from 5505-25
thru the 9 5/8 x 5 1/2 casing
annulus.

Thos. R.

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. 3689
Order No. R-3351

APPLICATION OF SUNRAY DX OIL COMPANY
FOR A DUAL COMPLETION AND SALT WATER
DISPOSAL, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 29, 1967, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

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

FINDS:

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

(2) That the applicant, Sunray DX Oil Company, seeks authority to complete its Navajo Table Mesa Well No. 2, located in Unit O of Section 27, Township 28 North, Range 17 West, NMPM, San Juan County, New Mexico, as a dual completion to produce oil from the Table Mesa-Pennsylvanian "C" Oil Pool through 2 3/8-inch tubing in the 5 1/2-inch casing and to dispose of produced salt water down the annulus between the 5 1/2-inch production casing and the intermediate casing string of 9 5/8-inch casing and 7 5/8-inch liner into the Organ Rock formation, with injection into the perforated interval from approximately 5505 feet to 5525 feet.

(3) That the produced salt water should be continuously treated prior to injection to prevent casing corrosion and coupon corrosion tests shall be conducted continuously on said well and

-2-

CASE No. 3689

Order No. R-3351

the results thereof filed quarterly with the Commission until further notice from the Secretary-Director of the Commission.

(4) That approval of the dual completion and salt water disposal as set out above will prevent the drilling of unnecessary wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

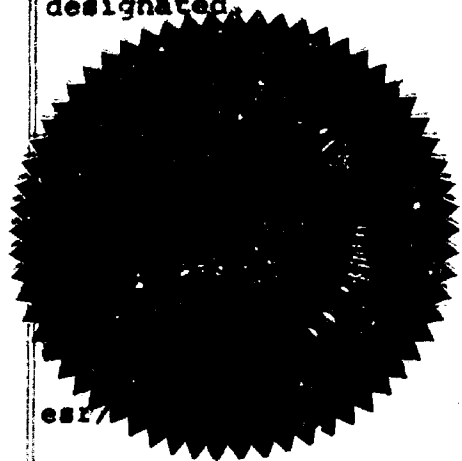
(1) That the applicant, Sunray DX Oil Company, is hereby authorized to complete its Navajo Table Mesa Well No. 2, located in Unit O of Section 27, Township 28 North, Range 17 West, NMPM, San Juan County, New Mexico, as a dual completion to produce oil from the Table Mesa-Pennsylvanian "C" Oil Pool through 2 3/8-inch tubing in the 5 1/2-inch casing and to dispose of produced salt water down the annulus between the 5 1/2-inch production casing and the intermediate casing string of 9 5/8-inch casing and 7 5/8-inch liner into the Organ Rock formation, with injection into the perforated interval from approximately 5505 feet to 5525 feet;

PROVIDED HOWEVER, that the produced salt water shall be continuously treated prior to injection to prevent casing corrosion, and provided further, that coupon corrosion tests shall be conducted continuously on said well and the results thereof filed quarterly with the Commission until further notice from the Secretary-Director of the Commission;

PROVIDED FURTHER, that the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(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
DAVID F. CARGO, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6671 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 29, 1967

EXAMINER HEARING

IN THE MATTER OF:)
)
)

Application of Sunray DX Oil)
Company for a dual completion and)
salt water disposal, San Juan County,)
New Mexico.)
)

Case 3689

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

Santa Fe, NEW MEXICOHearing Date NOVEMBER 29, 1967TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
John Hastings RALPH MANESS	Sunray DX Oil SUNRAY DX Oil	Roswell ROSWELL
E.M. PRINGLE	ATLANTIC Richfield	Roswell
L.C. Hudry	" "	"
P.T.M. Gral'n	U.S.G.S.	Farmington
Chas. E. Hinkle	Roger C. Hanks, Ltd	Roswell, N.M.
J.B. GRANT	SKELLY Oil Co.	Tulsa, OKLA
LARRY R. HALL	" " "	HOBBS N.M.
BERT O. BROWN	" " "	" "
RAY T. COX	✓ ✓ ✓	✓ ✓
Homer Olsen Jr.	Mallard Pet. Inc	Midland, Texas
Roger C. Hanks	Roger C. Hanks, Ltd	Wichita Falls, Tex
John B. Allred	"	"
Booker Kelly	archib. beller, k. b. s. kelly	S.F.
Nina Duthame	RW Byram & Co.	SF. Austin

MR. UTZ: Case 3689.

MR. HATCH: Case 3689. Application of Sunray
DX Oil Company for a dual completion and salt water disposal,
San Juan County, New Mexico.

MR. KELLY: Booker Kelly of White, Gilbert, Koch
and Kelly of Santa Fe, New Mexico, on behalf of the Applicant.
We have one witness and ask that he be sworn.

(Witness sworn)

MR. UTZ: Are there other appearances in this case?
You may proceed.

JOHN HASTINGS

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

DIRECT EXAMINATION

BY MR. KELLY:

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

A John Hastings; I am District Engineer with Sunray
DX Oil Company in Roswell.

Q Have you previously qualified as an expert witness
before this Commission?

A Yes, I have.

(Whereupon Applicant's Exhibit
1 marked for identification)

Q Would you refer to what has been marked as Exhibit number 1, briefly state what Sunray seeks by this application?

A Yes. Sunray DX Oil Company is seeking approval to dual complete a Navajo Table Mesa Number 2 Well for the purpose of disposing of produced salt water in the annulus between the 9 and 5/8ths inch intermediate casing string and the 5 and a half inch production casing string.

Q That is located in the southeast of Section 27 as shown on the plat?

A Yes, the subject well is located seven hundred and ninety feet from the south line and nineteen hundred and eighty feet from the east line of Section 27, Township 28 North, Range 17 West of San Juan County, New Mexico.

Q What is the present status of the well?

A The well is presently producing approximately eighty barrels of oil per day and one thousand barrels of salt water a day.

Q Are there any other wells in the area that you will inject their water from?

A No, we will serve only the two wells on our lease.

MR. UTZ: How much salt water did you say?

A Approximately a thousand barrels per day from the number 2 well.

Q (By Mr. Kelly) How much from the Number 1 well?

A About three to four hundred barrels.

Q Now, what is being done with this water now?

A It is being put in an open pit.

(Whereupon, Applicant's Exhibit
2 marked for identification)

Q Referring to what has been marked Exhibit 2, would you explain the proposed installation to the Examiner?

A Yes. Exhibit 2 is a diagrammatic sketch of the present well. It shows a 13 and 3/8ths inch surface casing set at 261 feet and cement was circulated to the surface. 9 and 5/8ths inch intermediate string was then run to 5201 and cemented back to 3510. 7 and 5/8ths inch liner was then run to 6913 and cemented back to 5680. The well was then drilled to a TD of approximately eight thousand eight feet, 5 and a half inch production casing was then run to 73,76 and cemented back to 6100.

Q What is the zone that you are going to inject in?

A We plan to inject the salt water into the Oregon Rock formation at approximately fifty-five hundred feet.

Q And where is that in relation to the Dakota in this area?

A The top of the Dakota in this particular area -- now this is on, oh, approximately thirty miles south and west

of Farmington, where the beds are getting quite a bit shallower, it's over in this direction. The top of the Dakota is at 1490 and the base of the Dakota is at 1680.

Q Had you contemplated injecting into the Dakota at one time?

A We had considered this; subsequently we had water analysis run of the water from the Dakota in that area and it proved it to have, oh, approximately 6,000 parts per million total solids which I understand is considered suitable for use by livestock.

Q Now, in your opinion, is your casing and cementing program adequate to protect any fresh water zones that might be contaminated by your injection program?

A Yes, it is.

Q Do you feel that it will prevent migration from this field to any other zone?

A Yes, we do.

Q Do you feel that the Oregon Rock zone will take the water in the quantities you expect to inject?

A Yes, and this is based on core analysis as well as the fact that we experienced extreme low circulation through this area while we were drilling our Number 1 Well.

Q Now, you stated that now you have about a thousand

to fourteen hundred a day of salt water that you are putting in pits?

A That's correct.

Q Do you expect that these quantities will go up substantially?

A No, because we are operating at essentially the capacity of our lifting equipment now.

Q How long will these wells be on production?

A We would expect remaining life of from three to five years.

Q Do you have an idea of what the cost of this workover program will be?

A Yes, approximately twenty thousand dollars.

Q Is that the total cost of the project?

A This is the well work. Approximately another twenty thousand will be spent in service equipment.

Q What alternatives do you have other than leaving the water where it is?

A The first thing we had considered was hauling water. We would expect a minimum of twenty-five cents per barrel charge for hauling this water which you can see the economics would be prohibitive. Another alternative considered, was drilling a new well and we would forecast approximately fifty

thousand dollars expenditure to drill a new well to the Oregon Rock and complete it.

Q Are there any other wells in the area that you could use?

A No, there is not.

(Whereupon, Applicant's Exhibit Number 3 marked for identification)

Q Now, Exhibit number 3 is a summary of the workover program; is there anything you want to add on that?

A I might just briefly go through the workover program. We would plan to set a wire line bridge plug in our 5 and a half inch casing at approximately 6300 feet; then we would run with the mechanical cutter, cut off our casing at 6,000 feet and pull that casing and we would perforate with 4 one half inch holes in our 9 and 5/8ths inch intermediate casing string at approximately 1800 feet and circulate cement to cover Dakota formation. We would then drill cement out of the casing, pressure test to a thousand pounds for thirty minutes. We would then go on down, perforate the zone 5505 to 5525 with one, one half inch hole per foot and acidize this formation, pump into the formation and establish injection rates. We would then dress off the top of our 5 and a half inch casing, run our 5 and a half inch casing with a casing bowl and join the

casing back together, put the well back on production and start injection into the annulus with our salt water.

Q Now, you have a log of the well; would you explain that to the Examiner?

(Whereupon Applicant's Exhibit 4 marked for identification)

A Yes, Exhibit 4 is a gamma ray neutron log of our Navajo Table Mesa, Number 2 Well and on this log are marked the formation tops showing the top of the Dakota at approximately 1490 feet. Also showing our producing interval and also the Oregon Rock interval where we propose to dispose of our water.

Q Now, in your opinion, is the procedure suggested by Sunray, the most effecient, economical way of getting rid of this salt water?

A Yes, we feel that it is.

Q You feel it would have any adverse affect on any of the operators in the area?

A No, it would not.

Q Were Exhibits 1 through 4 prepared by you or under your supervision?

A Yes, they were.

MR. KELLY: We move the introduction of the Applicant's Exhibits 1 through 4.

MR. UTZ: Without objection, Exhibits 1 through 4

will be entered into the record in this case.

(Whereupon Applicant's Exhibits
1 through 4 were offered and
admitted in evidence)

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

CROSS EXAMINATION

BY MR. UTZ:

Q Have you performed any of this work yet?

A Yes, sir, we have.

Q And you know -- you cemented the Dakota?

A Yes, sir.

Q Where did you cut the 7 and 5/8ths inch liner?

A It was not necessary to cut the 7 and 5/8ths liner.

Q I mean the 5 and a half, I'm sorry.

A At essentially 6300 -- no, 6,000 feet. The program
went just as we had set out in our workover program with no
problems.

Q And you perforated the 9 and 5/8ths?

A Yes, sir.

Q And that was perforated where?

A To cover the Dakota formation?

Q Yes.

A At 1800 feet.

Q And how did the squeeze job go?

A Well, we circulated and we did not fill to the surface and therefore we pumped cement in from the surface and completed the cement job.

Q You don't know how far it circulated?

A Yes, we ran a temperature survey. The top of the cement was approximately a hundred feet above the top of the Dakota. I believe it was two hundred feet. I believe the top of the cement was 1290. The top of the Dakota is at 1490.

Q 1490?

A Yes, the top of the cement is now, I believe, 1290.

Q So you ran cement from 1390 to 1290?

A No, sir, from 1800 to 1290.

Q No, I mean this second stage where you put it down the annulus with tubing, was it?

A No, sir. Now, we perforated the first time and circulated from 1890 to 1290 and then cement was pumped in from the surface on the second stage.

Q To the surface?

A No, from the surface.

Q All right. You perforated at 1800?

A Right.

Q You circulated cement to 1290?

A That's right.

Q Then you put more cement from the surface?

A That's right.

Q Okay. Where is that cement?

A Temperature survey wasn't run after the second cement job.

Q How much did you put in?

A I believe it was a hundred fifty sacks.

Q That was pumped through tubing from the surface?

A Yes. Now, before we went into this second cement job, we did talk with the Aztec people with the Conservation Commission before going ahead with this second stage.

Q What is your calculation of how much cement you have got above the Dakota?

A The top of the Dakota is 1490 so by temperature survey, we have at least two hundred feet of cement above the Dakota.

Q You had two hundred feet on your first job, didn't you?

A Yes, sir.

Q How much on the second job?

A A hundred fifty sacks, I believe, calculated to be the amount required to go down to the top of the cement, 1290.

Q So you think you have the annulus almost full?

A Yes, sir, it should be.

Q That's what I was trying to get at.

A Now, when we begin our water injection we also intend to inject a corrosion inhibitor with this water to further insure that no casing damage will take place due to corrosion. Actually, the circulating of the cement over the Dakota interval was just merely more insurance to insure that we would not contaminate that zone.

Q So you are going to treat the water?

A Yes.

Q And your injection zone is from 5505 to 5525, was it?

A Yes.

Q You feel that will take the water?

A Yes, sir, after we did our acid work we pumped into the formation and established injection rights and it appears it will be suitable.

Q So the job is complete now?

A Yes, sir, although water injection has not begun.

Q Now, how are you going to produce the oil; through tubing?

A Yes, we have a four inch hydraulic pump in the well.

Q What size tubing?

A 2 and 3/8ths.

Q And that is set at what depth?

A The tubing?

Q Yes.

A Approximately 7200.

Q You don't plan to produce any more water simply because you don't plan to put another pump in the well, the pump is pumping at capacity now?

A This is the capacity of our 4-inch hydraulic pump.

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

(Witness excused)

MR. UTZ: The case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
JOHN HASTINGS	
Direct Examination by Mr. Kelly	2
Cross Examination by Mr. Utz	9

E X H I B I T S

<u>EXHIBIT</u>	<u>MARKED</u>	<u>OFFERED AND ADMITTED</u>
Applicant's 1	2	9
Applicant's 2	4	9
Applicant's 3	7	9
Applicant's 4	8	9

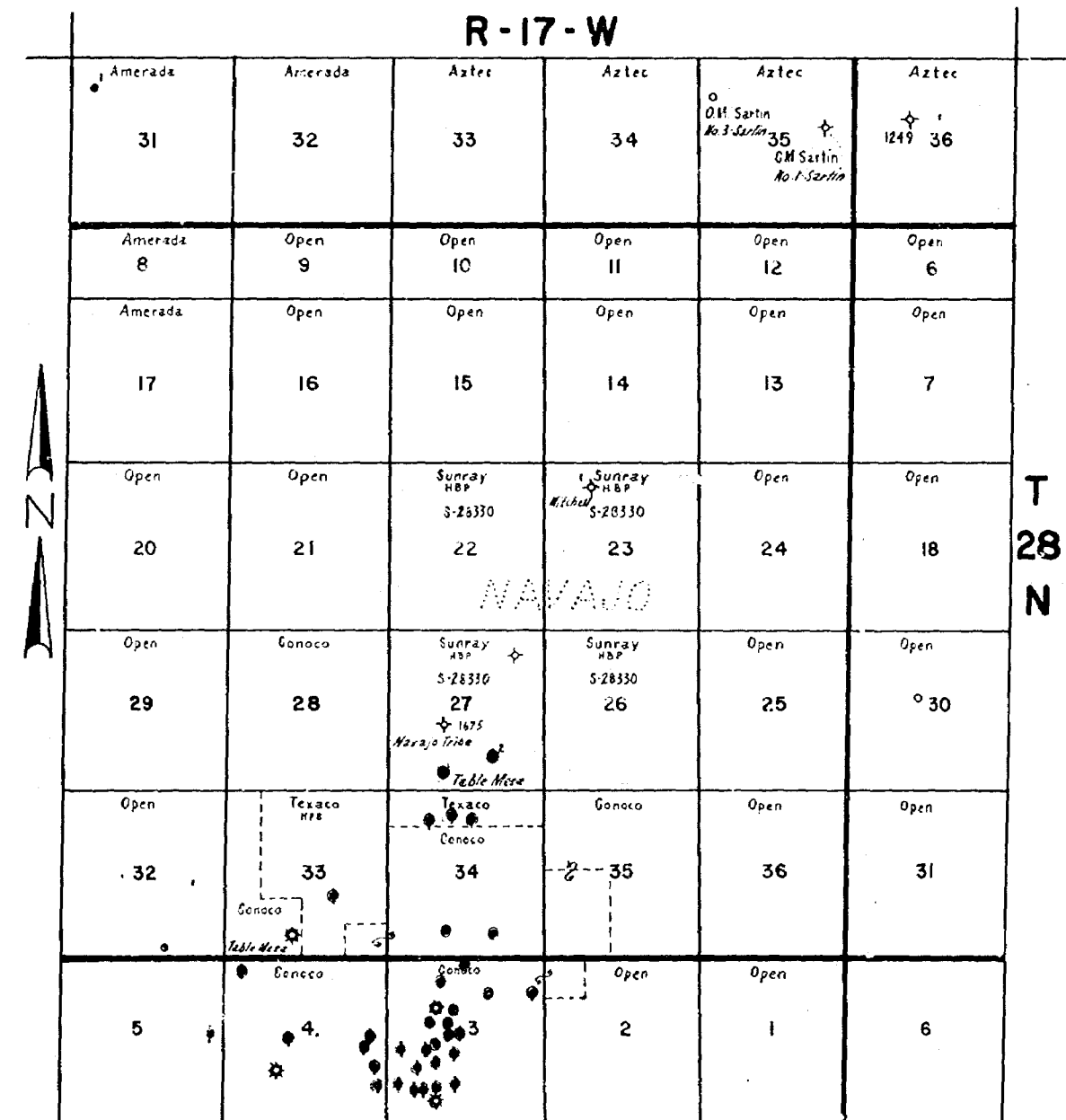
Witness my Hand and Seal this 5th day of
December, 1967.

Kay Embree
Notary Public

Nov. 13, 1971

I do hereby certify that the foregoing is a complete record of the proceedings in the earlier hearing of Case No. 3689, heard by me on June 19, 1967.

Richard D. [illegible] Registrar
New Mexico Oil Conservation Commission



Navajo Table Mesa Lease San Juan, Co. N.Mex.

- Pennsylvanian
- Dakota
- Mississippian

BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

SUNBA-1 EXHIBIT NO. 2

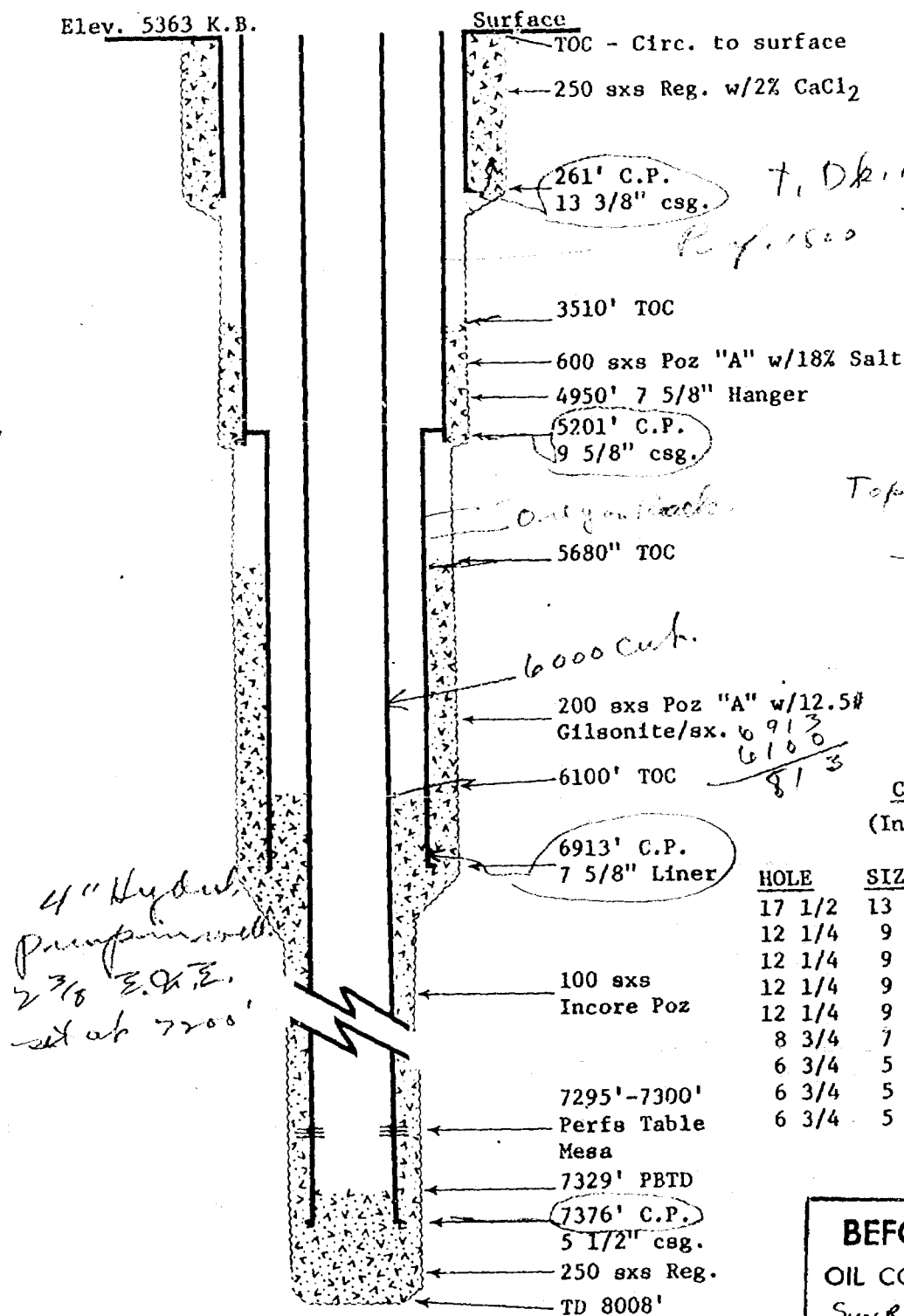
CASE NO. 3689

NAVAJO TABLE MESA NO. 2

790' PSL & 1980' FEL of Section 27, T-28-N, R-17-W

San Juan County, New Mexico

Elev. 5363 K.B.



Handwritten notes:
 7, Dk. 1490 + 100 cement
 R. 1500 T.C. 1290 - now.
 1390 - 1290
 150 sxs pumped.
 then taking for
 surface.
 200 + 150 sxs bring.
 all at once to surface.
 Top of gamma beds.
 5502-25

Handwritten notes:
 4" Hyd. pump
 2 3/8 E.G.E.
 set at 7200'

CASING DESCRIPTION
(In Order as in Hole)

HOLE	SIZE	FOOTAGE	WEIGHT	GRADE
17 1/2	13 3/8	265	40.0#	H-40
12 1/4	9 5/8	33	40.0#	J-55
12 1/4	9 5/8	3466	36.0#	J-55
12 1/4	9 5/8	1013	40.0#	J-55
12 1/4	9 5/8	689	40.0#	N-80
8 3/4	7 5/8	1960	26.4#	X-Line
6 3/4	5 1/2	5340	15.5#	J-55
6 3/4	5 1/2	1315	17.0#	J-55
6 3/4	5 1/2	721	17.0#	N-80

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 Survey EXHIBIT NO. 2
 CASE NO. 3689

S-115.9B

☐ DRILLING PROGRAM☒ WORKOVER PROGRAM

WELL	STATE	DATE
Navajo Table Mesa #2	New Mexico	October 31, 1967
FIELD	OBJECTIVE	ELEVATION
Table Mesa - Penn C	Dual Complete For SWD	5363 K. B.
LOCATION		
790' FSL & 1980' FEL of Section 27, T-28-N, R-17-W, San Juan County, New Mexico		

PROPOSED WORK	CASING DESIGN
<ol style="list-style-type: none"> 1. MI & RU rotary workover rig. 2. Pull pump and tubing. 3. Set wire line 5 1/2" BP @ approx. 6300'. 4. Tie onto 5 1/2" csg & work. If stretch point isn't deep enough, run free point by dialog. 5. Cut csg w/mechanical cutter on tubing @ approx. 6000' if feasible, and pull csg. 6. Run Lane Wells PFC Log from 5650' to 5400' and from 1900' to 1700'. 7. Perforate 4-1/2" holes @ 1800' in 9 5/8". Set cmt retainer @ approx. 1750'. Cmt w/260 sxs incore poz cmt w/12% gel and 2# Gilsonite per sx. Tail in w/100 sxs neat cmt w/2# Gilsonite per sx. Cement requirements are based on 85% fill to circulate cmt to surface and cover Dakota Zone. If cmt doesn't circulate, run temp. survey. WOC 18 hrs. 8. Drill retainer and pressure test to 1000# for 30 min. 9. Perforate 1-1/2" hole/foot in 7 5/8" from 5525' to 5505'. 10. Run tubing and 9 5/8" ret. pkr and set @ approx. 4900'. Use tailpipe to approx. 5550'. Load backside to 1000 PSIG. 11. Acidize w/500 gallons mud acid. Spot acid and pump in. Do not exceed 6000 PSIG. 12. Pump into formation to establish injection rates and pressures. Attempt to establish inj. rate of 2 BPM @ 1000 PSIG or less. If not feasible, additional acidizing will be necessary. 13. If rates are suitable, pull tubing and pkr. 14. Run in and dress off top of 5 1/2" csg. 15. Run 5 1/2" csg w/Bowen Midas csg. bowl. Join csg w/csg bowl. 16. Run pump. Put well on production. 17. Install lines, tank and pump. Connect to 9 5/8" casinghead and commence injection. 	<p>13 3/8", H-40, 48# @ 265'</p> <p>9 5/8", J-55, 36# and N-80, 40# @ 5201'</p> <p>7 5/8", X-Line, 26.40# liner @ 6913'. Top 4951'.</p> <p>5 1/2", J-55, 15.5# & 17.0# and N-80, 17# @ 7376.</p> <p>See Well Sketch Attached.</p>
MUD PROGRAM AND REMARKS	
<div style="border: 1px solid black; padding: 5px; transform: rotate(-2deg);"> <p>BEFORE EXAMINER UTZ</p> <p>OIL CONSERVATION COMMISSION</p> <p>SURV. EXHIBIT NO. <u>3</u></p> <p>CASE NO. <u>3689</u></p> </div>	
ALL INSTRUCTIONS TO DRILLING CREWS MUST BE DIRECTED THROUGH	
C. T. McClanahan	
SUBMITTED BY	APPROVED BY
R. L. Maness	