

CASE 3532: Application of HENRY S.  
BIRDSEYE for a waterflood project,  
McKinley County, New Mexico.

CASE No.  
3532

Application,  
TRANSCRIPTS,  
SMALL Exhibits  
ETC.

dearnley-meier reporting service, inc.

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

11200 SIMAS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
February 21, 1967

EXAMINER HEARING

IN THE MATTER OF:

Application of Henry S. Birdseye  
for a waterflood project,  
McKinley County, New Mexico.

Case No. 3532

BEFORE:

ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3532.

MR. HATCH: Case 3532: Application of Henry S. Birdseye for a waterflood project, McKinley County, New Mexico.

(Whereupon, Applicant's Exhibits 1-5 marked for identification)

(Witness sworn)

MR. BIRDSEYE: My name is Henry S. Birdseye, Albuquerque, New Mexico, the Applicant in this case, No. 3532, which seeks to establish a pilot waterflood in the so-called Chaco Wash-Mesaverde Pool, Township 20 North, Range 9 West, McKinley County, New Mexico. Some fifteen wells have previously been drilled in this pool by other operators. The amount of oil which has been produced, there is some uncertainty connected with it, but it's in the order of two to three thousand barrels from stray sand or sands within the Menefee Formation of the Mesaverde group, at depths ranging from 300 to 400 feet. I am now the owner of an oil and gas lease from the Santa Fe Railroad covering the southeast quarter of Section 21, the southwest quarter of Section 22 and the northwest quarter of Section 27, Township 20 North, Range 9 West. Off the record.

(Whereupon, a discussion was held off the record.)

MR. BIRDSEYE: The Applicant in this case seeks to institute an inverted five spot waterflood covering

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approximately four acres in Unit P of Section 21, Township 20 North, Range 9 West, with the injection well to be drilled at a distance of forty-five feet northwest of the Scanlon and Shepard No. 3 Santa Fe Well, an abandoned oil well. Four production wells will be drilled in a square pattern surrounding the injection well. These are referred to on the exhibit which is Applicant's Exhibit 1, as wells No. 1, 2, 3, and 4.

Well No. 1 is located 565 feet from the south and east lines of Section 21. No. 2 is 565 feet from the south line and 165 feet from the east line. No. 3 is 165 feet from the south and east lines. No. 4 is 165 feet from the south line and 565 feet from the east line. Injection Well, I-1 is located 360 feet from the south and east lines. The source of water for this pilot waterflood will be the Chaco Oil Company No. 20-1 Santa Fe Well, located 660 feet from the south and east lines of Section 20 Township 20 North, Range 9 West. The water supply well produces Artesian water from the Hospah and Gallup zones co-mingled at a depth of between 2,600 and 2,900 feet.

Applicant's Exhibit 2 is a schematic diagram of the proposed injection well, showing a seven and seven eighths inch diameter hole drilled to a depth of 332 feet which is believed to be the base of the oil sand in the Scanlon and

Shepard No. 3 Santa Fe Well. Six inch O.D. casing will be cemented at the top of the sand anticipated at 317 feet and at the request of the State Engineer's Office the plan shown in this schematic sketch will be revised to include circulating cement to the surface of the ground. Two-inch line pipe will be run as tubing for injection in this well and it will have the necessary complements of surface equipment. It will be an open hole completion.

Applicant's Exhibit 3 is a water analysis from the water supply well, which was performed by Sinclair Research Laboratories in 1958. It shows the water to contain total solids of 2,332 parts per million. It is brackish water and has proved highly satisfactory in the Chaco Oil Company Red Mountain Waterflood without treatment in a closed system.

Applicant's Exhibit 4 is an ownership plat showing leases with a radius of some two miles of the proposed pilot flood. In Applicant's opinion the only leasee which would be affected by the proposed pilot flood are J.R. Scanlon and John Burwinkle of Albuquerque who hold state leases on Section 28 Township 20 North, Range 9 West. Applicant has already reached an agreement with Mr. Scanlon and Burwinkle to unitize Applicant's acreage with theirs in the event that the pilot flood is successful on the basis of acre feet of net pay.

Applicant's Exhibit 5 is a letter signed by John B. Burwinkle on behalf of Scanlon and Burwinkle supporting the Application in this case. It is proposed that, in the event that the pilot waterflood is successful and it should be stated here that the success depends primarily on the continuity of the pay sand between the wells that the waterflood would be expanded to include all of the productive area from the pay sand or sands and included in the application is a request for administrative procedure to provide for expansion and unorthodox locations as needed. I think that concludes my introductory statement, Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q You will drill five new wells here then, as I understand it?

A That is correct, all of the previously drilled wells having been plugged and abandoned.

Q Did you tell us what you were going to call these wells?

A By number?

Q By number and name and lease and so forth.

A They will all be drilled on the Santa Fe lease.

I think I described by footage the location of the production wells No.s 1 through 4 and the injection well is I-1.

Q So you would call them Birdseye Santa Fe No. 1, 2, 3, and so forth?

A Yes, that is correct.

Q The I-1 will be the injection well?

A That is correct. Unfortunately there are no log analyses of the wells in this pool. There are five fragments of the electric logs which are, in my opinion, of little value because they review only a brief open hole interval below casing and therefore, cannot be correlated with each other. They are not included as exhibits because in Applicant's opinion, they are meaningless. However, I do have copies of them here and if the Examiner requests I will be happy to provide copies, but they are in Applicant's opinion unreliable and of no value in predicting conditions which will be encountered in the five new wells to be drilled.

Q Since they are of no value to you, I am quite sure they wouldn't be of any value to us. Now, your injection will be down two-inch line pipe into an open hole section?

A Yes, sir.

Q What kind of injection pressures do you anticipate?

A We would anticipate the pressures the well had, injection pressures here, to be similar to those at Red Mountain which initially average about 300 pounds per square



inch.

Q Well head?

A Well head, and we would anticipate an initial injection rate in injection well I-1 of some fifty barrels a day for the first two weeks or so, gradually increasing to a maximum on the order of 100 barrels per day. The scale, incidentally, on this map which is Applicant's Exhibit 1 is not shown, but it is a scale of one inch to two hundred feet.

Q You have already stated that you are going to circulate cement behind the six-inch casing. Do you know what the ground water situation is in this area?

A It varies due to the extreme anticlinal nature of the Menefee Formation, but I can say reliably that the wells drilled by Scanlon and Shepard in this area previously, most of them were drilled with air down to a depth of 170 feet or so, so there is no shallow ground water table in this area.

Q So the casing will be new in these wells, I presume?

A Frankly, the decision hasn't been made. In the interest of economy I would prefer to use good used casing. We have had, I might say, in the Red Mountain field no evidence whatever of corrosion even in the very old wells, which we inherited that were drilled more than thirty years ago and certainly, in none of our own wells which were drilled in

the period of 1957 through 1963, there has been no corrosion whatever and we don't anticipate different conditions in this pool.

MR. UTZ: Are there other questions?

MR. HATCH: Did you prepare these exhibits yourself?

A Yes, sir, with the exception of the letter from Mr. Burwinkle and these exhibits are now submitted to the Examiner.

MR. UTZ: Without objection, Exhibits 1 through 5 will be entered into the record in this case.

(Whereupon, Applicant's Exhibits  
1-5 admitted in evidence)

MR. UTZ: Witness may be excused. Statements?

(Witness excused.)

MR. HATCH: I have a letter from the State Engineer's Office approving granting the application providing the cement is circulated to the surface. I think Mr. Birdseye has already discussed that.

MR. BIRDSEYE: Applicant agrees to do this.

MR. UTZ: Case will be taken under advisement.  
Hearing is adjourned.

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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATE WITNESSES, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

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STATE OF NEW MEXICO )  
COUNTY OF BERNALILLO ) ss

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

Kay Embree  
Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3532, heard by me on Sept. 21, 1962.  
Shirley A. [Signature], Examiner  
New Mexico Oil Conservation Commission

Henry S. Birdseye

CONSULTING GEOLOGIST  
P. O. BOX 8294  
ALBUQUERQUE, NEW MEXICO  
PHONE AL 5-4916

2 February, 1967

Mr. Daniel S. Nutter  
N. M. Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

*Case*  
*3532*

Dear Mr. Nutter:

Pursuant to Rule 701 of the Commission, I hereby respectfully apply for a hearing to establish rules for a secondary recovery (water flood) program for the Chaco Wash Mesaverde Pool, McKinley County, New Mexico.

Initially, applicant desires to inject water into a stray sandstone member of the Menefee (Mesaverde) formation, at an average depth of 325 feet, in a pilot water flood in the SE $\frac{1}{4}$  SE $\frac{1}{4}$  Section 21, Township 20 North, Range 9 West, N.M.P.M., McKinley County, New Mexico.

In the pilot program, an inverted five-spot pattern is planned, employing wells to be drilled as follows:

- I-1: 360 feet from the South and East lines (injection)
- 1: 565 feet from the South and East lines (production)
- 2: 565 feet/South line, 165 feet/East line "
- 3: 165 feet/South and East lines "
- 4: 165 feet/South line, 565 feet/East line "

Water will be supplied from the Chaco Oil Company #20-1 Santa Fe well, located 660 feet from the South and East lines of Section 20, T 20 N, R 9 W, N.M.P.M., which produces brackish artesian water from the Hospah and Gallup zones, between 2600 and 2900 feet.

Request is also made for administrative procedure to provide for expansion and unorthodox locations as needed in applicant's lease from the Santa Fe Pacific Railroad Company, which encompasses the SE $\frac{1}{4}$  Section 21, the SW $\frac{1}{4}$  Section 22, and the NW $\frac{1}{4}$  Section 27, T 20 N, R 9 W.

A copy of the application, complete with all attachments, will be furnished to the State Engineer's office prior to 10 February, 1967.

Yours very truly,  
*Henry S. Birdseye*  
Henry S. Birdseye, Operator

HSB:lm  
copy: State Engineer's Office  
enclosures: exhibits

DOCKET MAILED

Date *2-7-67*  
*HC*

THE FOLLOWING ATTACHMENTS ACCOMPANY THIS APPLICATION:

1. Plat showing the location of the proposed injection well and other wells within a radius of two miles which are producing or have produced. Note: the only other productive wells within two miles are in the Red Mountain Mesaverde Pool, a plat of which is also included.

Plat showing lessees within a radius of two miles

2. No log of the proposed injection well is available, it not having been drilled yet. However, the injection well will be located 45 feet northwest of the Scanlon #3 Santa Fe, which produced from the Menefee formation, 317-325'. This well has now been plugged and abandoned.

3. Diagrammatic sketch of the proposed injection well.

4. Injection will be made into the Menefee formation at a depth of 317-332 feet. Initially, from 50-100 barrels of water will be injected per day. Injection water will be obtained from Chaco Oil Company #20-1 Santa Fe well, 660' south and east lines of Section 20, T20N, R9W. This well produces artesian water (brackish) from Hospah-Gallup zones, 2660-2800 feet.

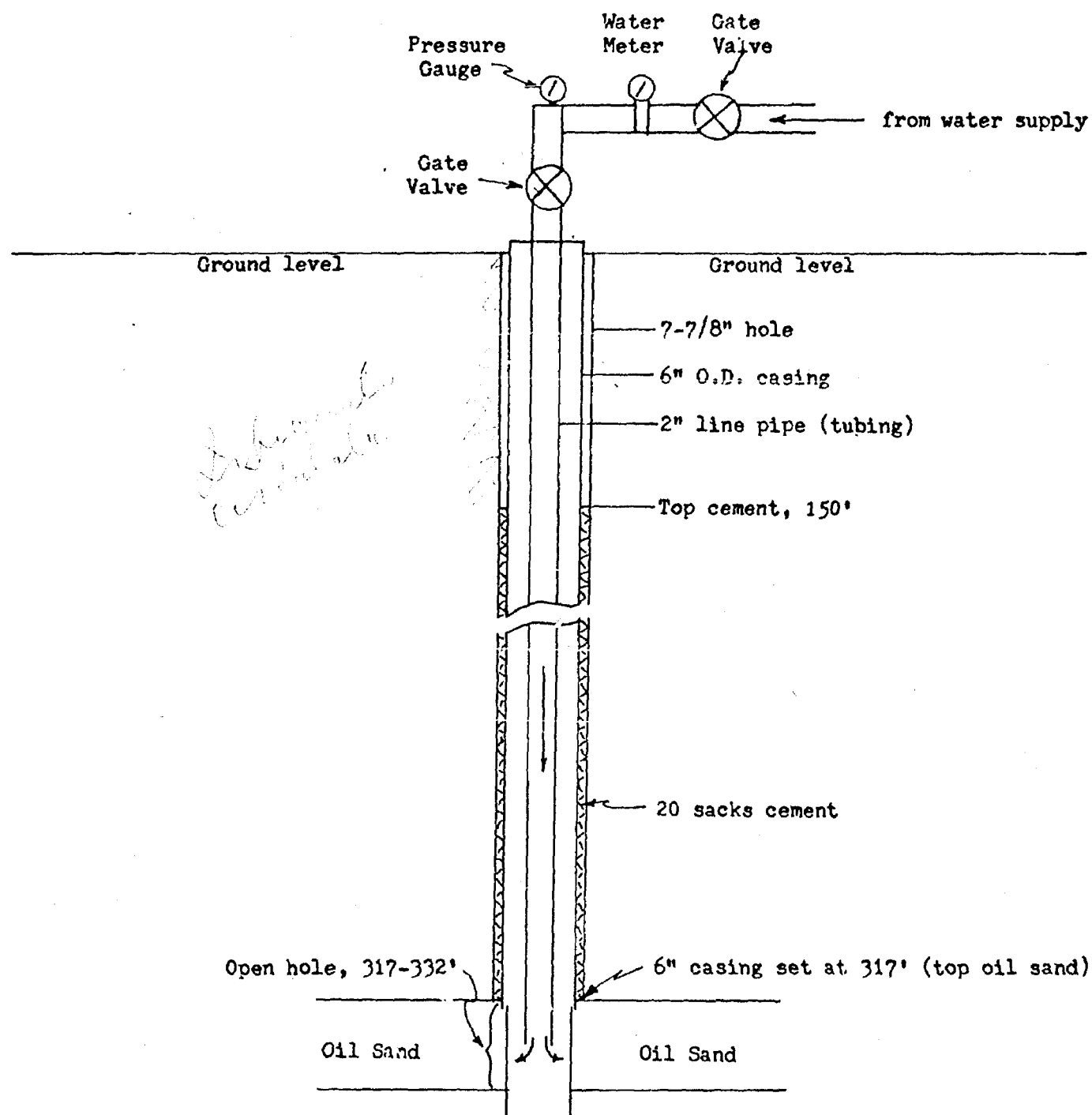
A copy of water analysis from water supply well is included.

5. A duplicate of this letter with all attachments, has been sent to the State Engineer's Office, Santa Fe,

HENRY S. BIRDSEYE

PAGE NO. Three

*Case 3532*



DIAGRAMMATIC SKETCH, INJECTION WELL

CHACO WASH WATER FLOOD

HENRY S. BIRDSEYE

PAGE NO. Four

*Case 35-32*

WATER ANALYSIS, HOSPAH-GALLUP ZONE, CHACO OIL CO.

No. 20-1 SANTA FE WELL, SE $\frac{1}{4}$  SE $\frac{1}{4}$  Sec. 20-20N-9W

SINCLAIR RESEARCH LABORATORIES

TULSA, OKLAHOMA

Sample # S-7104. Analyst: SIP:HE Formation: Gallup Depth: 2772'

Sample Taken 7-30-58; Rec'd: 8-11-58; Analyzed: 8-19-58

CONSTITUENTS, PARTS/MILLION		MEQ. PER LITER	REACTING VALUES, %
Potassium	None		
Sodium	338	14.71074	46.84
Lithium	None		
Calcium	10	0.49900	1.58
Magnesium	6	0.49344	1.58
Barium	None		
Strontium	None		
Manganese	None		
Carbonate	36	1.19880	3.81
Bicarbonate	381	6.24459	19.89
Hydroxide	None		
Sulphate	1,409	3.97339	12.65
Chloride	152	4.28640	13.65
TOTAL SOLIDS	2,332	Spec. Grav. 1.003	pH 8.26 @ 78°F

Primary salinity: 52.50; Primary alkalinity: 41.08; Chloride salinity: 51.90

HENRY S. BIRDSEYE

PAGE NO. Five

*Page 3522*

OIL AND GAS LEASE OWNERSHIP

VICINITY OF CHACO WASH WATER FLOOD

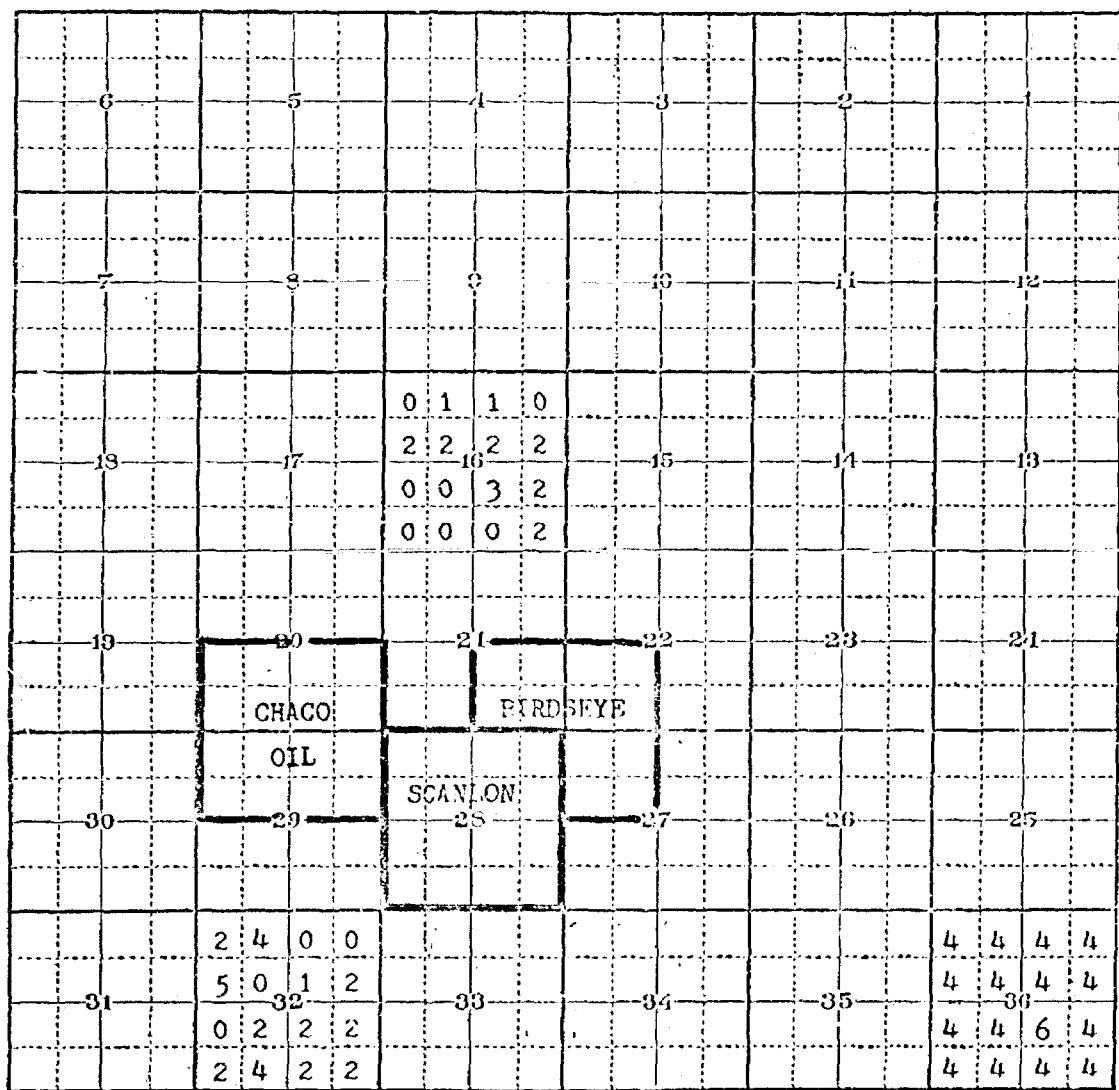
Form 974.

*T.* 20 N.

*R.* 9 W.

New Mexico Principal

*Act.*



8-217

SCALE: -One inch = 1 mile.

U.S. GOVERNMENT PRINTING OFFICE

- Key: 1 = EVCO Development  
 2 = Sullivan, Inc.  
 3 = Geo. Fredericks  
 4 = Walter Duncan  
 5 = H. O. Carr  
 6 = Del-Lea

No other leased lands within 2-miles radius





STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

February 16, 1967

ADDRESS CORRESPONDENCE TO:  
STATE CAPITOL  
SANTA FE, NEW MEXICO 87501

Mr. A. L. Porter, Jr.  
Secretary-Director  
Oil Conservation Commission  
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Mr. H. S. Birdseye dated February 2, 1967 which seeks the establishment of rules for a secondary recovery program for the Chaco Wash Mesaverde Pool, McKinley County and the authorization to injection water into the Menefee formation in a pilot water-flood.

After reviewing the application and the exhibits and discussing them with Mr. Birdseye, it is my opinion that the granting of the application will not constitute a threat to any fresh waters which may exist in the area, provided that the cement in the annulus surrounding the casing is circulated to the surface. Therefore, this office offers no objection to the granting of the application provided the cement surrounding the casing is circulated to the surface.

FEI:ma  
cc-H. S. Birdseye

Yours truly,

S. E. Reynolds  
State Engineer

By: *Frank E. Irby*  
Frank E. Irby  
Chief  
Water Rights Div.

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. 3532  
Order No. R-3199

APPLICATION OF HENRY S. BIRDSEYE  
FOR A WATERFLOOD PROJECT, MCKINLEY  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 21, 1967, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 23rd day of February, 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, Henry S. Birdseye, seeks permission to institute a waterflood project in the Chaco Wash-Mesaverde Oil Pool by the injection of water into the Menefee zone of the Mesaverde formation through his Birdseye-Santa Fe Well No. I-1 to be located 360 feet from the South line and 360 feet from the East line of Section 21, Township 20 North, Range 9 West, NMPM, McKinley County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby the Secretary-Director of the Commission is authorized to approve expansion of said project and the drilling of additional injection wells and producing wells at unorthodox locations.

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

-2-

CASE No. 3532

Order No. R-3199

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Henry S. Birdseye, is hereby authorized to institute a waterflood project in the Chaco Wash-Mesaverde Oil Pool by the injection of water into the Menefee zone of the Mesaverde formation through his Birdseye-Santa Fe Well No. I-1 to be located 360 feet from the South line and 360 feet from the East line of Section 21, Township 20 North, Range 9 West, NMPM, McKinley County, New Mexico.

(2) That the subject waterflood project is hereby designated the Birdseye Chaco Wash Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the Birdseye Chaco Wash Waterflood Project and the drilling of such other additional injection wells and producing wells at unorthodox locations as may be necessary to complete an efficient water injection pattern, provided that the application therefor has been filed in accordance with Rule 701 B of the Commission Rules and Regulations, and provided further, that a copy of the application has been sent to all offset operators and no such operator has objected within 15 days.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*David F. Cargo*  
DAVID F. CARGO, Chairman

*Guyton B. Hays*  
GUYTON B. HAYS, Member

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

S E A L

esr/

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 28, 1967

C  
Mr. Henry S. Birdseye  
Post Office Box 8294  
Albuquerque, New Mexico

O  
Dear Mr. Birdseye:

Enclosed herewith is Commission Order No. R-3199 recently entered in Case No. 3532, approving the Birdseye-Chaco Wash. Waterflood Project.

P  
Initial injection is to be through the one authorized water injection well, which shall be equipped with tubing and with casing set at the top of the oil pay and cemented to the surface.

Y  
As to allowable, our calculations indicate that when the authorized injection well has been placed on injection, the project will be eligible to receive 140 barrels per day under the provisions of Rule 701-E-3. This is based on one injection well and the first three producing wells in the SE/4 SE/4 of Section 21.

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.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

-2-

Mr. Henry S. Birdseye  
Post Office Box 8294  
Albuquerque, New Mexico

February 28, 1967

C  
O  
P  
Y  
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/DSH/ir

cc: Mr. Frank Irby  
State Engineer Office  
Santa Fe, New Mexico

Oil Conservation Commission:  
Hobbs and Astec, New Mexico

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

February 23, 1967

Mr. Henry S. Birdseye  
Post Office Box 8294  
Albuquerque, New Mexico

Re: Case No. 3532  
Order No. R-3199  
Applicant:  
  
Henry S. Birdseya

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

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

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC           x            
 Artesia OCC                             
 Aztec OCC           x            
 State Engineer           x          

Other \_\_\_\_\_

Case 3532

Heard 2-21-67

Rec. 2-21-67

Grant Henry S. Birdseye permission to Drill one injection well ~~and~~ to inject water for a pilot waterflood to be known as the Chaco ~~water~~ <sup>water</sup> waterflood.

The injection well ~~will~~ be:

Birdseye - Santa Fe # I-1

360/S, 360/E lines sec. 21 - 20 N 9 W.

Letter should accompany order to effect that cement or 6' O.D. csg. shall be circulated to surface.

Adm. approval for expanding flood.  
E. L. H.

Docket No. 6-67

DOCKET: EXAMINER HEARING - TUESDAY - FEBRUARY 21, 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 3530: Application of Atlantic Richfield Company for suspension of cancellation of underproduction, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order suspending the cancellation of underproduction attributable on July 31, 1966, to its State "A" Gas Com. Well No. 1 located in Unit G, Section 36, Township 29 North, Range 11 West, and to its State "B" Gas Com. Well No. 1 located in Unit N of Section 16, Township 29 North, Range 10 West, Basin-Dakota Gas Pool, San Juan County, New Mexico, said underproduction not having been made-up during the 6-month period ending January 31, 1967, due to said wells having been shut-in November, 1966, upon the transfer of the connecting pipeline from an intrastate status to an interstate status and subsequent unavoidable delay in obtaining FPC approval for the sale of gas from said wells in interstate commerce.

CASE 3531: Application of Texas Pacific Oil Company for two water-flood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute two water-flood projects in the South Eunice Pool by the injection of water into the Seven Rivers-Queen formations through one well in Unit N of Section 7, and one well in Unit N of Section 9, both in Township 22 South, Range 36 East, Lea County, New Mexico.

CASE 3243: (Reopened)

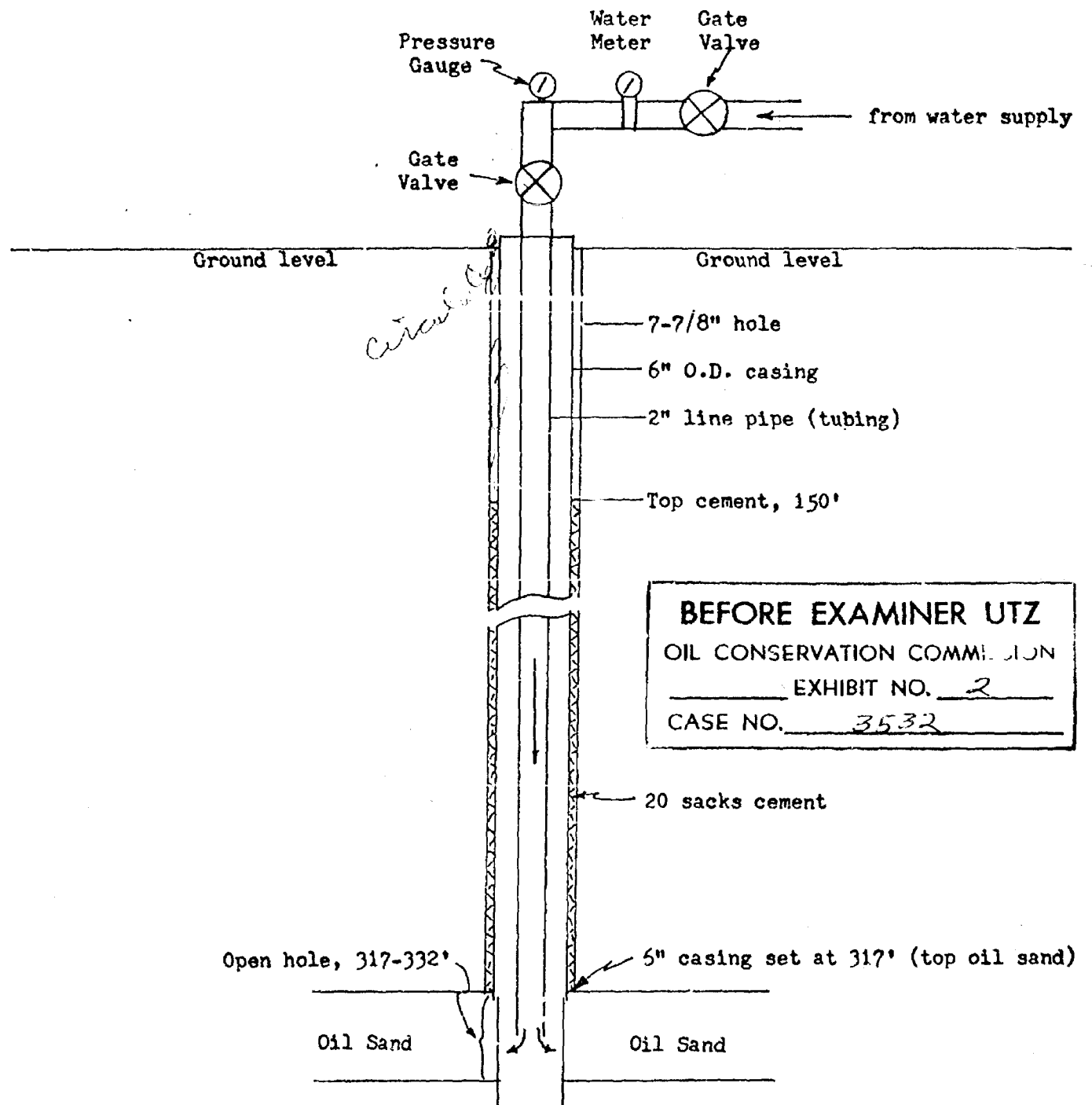
In the matter of Case No. 3243 being reopened pursuant to the provisions of Order No. R-2919, which order established 640-acre spacing for the Dagger Draw-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should not be developed on 320-acre spacing units.

CASE 3532: Application of Henry S. Birdseye for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Menefee zone of the Mesaverde formation through one well located in Unit P of Section 21, Township 20 North, Range 9 West, Chaco Wash-Mesaverde Oil Pool, McKinley County, New Mexico. Applicant further seeks an administrative procedure for expansion of said project and for the drilling of injection wells and producing wells at unorthodox locations.



HENRY S. BIRDSEYE

PAGE NO. \_\_\_\_\_



DIAGRAMMATIC SKETCH, INJECTION WELL

CHACO WASH WATER FLOOD

HENRY S. BIRDSEYE

PAGE NO. \_\_\_\_\_

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 3  
CASE NO. 3532

WATER ANALYSIS, HOSPAH-GALLUP ZONE, CHACO OIL CO.

No. 20-1 SANTA FE WELL, SE $\frac{1}{4}$  SE $\frac{1}{4}$  Sec. 20-20N-9W

SINCLAIR RESEARCH LABORATORIES

TULSA, OKLAHOMA

Sample # S-7104. Analyst: SIP:HE Formation: Gallup Depth: 2772'

Sample Taken 7-30-58; Rec'd: 8-11-58; Analyzed: 8-19-58

CONSTITUENTS, PARTS/MILLION		MEQ. PER LITER	REACTING VALUES, %
Potassium	None		
Sodium	338	14.71074	46.84 ✓
Lithium	None		
Calcium	10	0.49900	1.58 ✓
Magnesium	6	0.49344	1.58 ✓
Barium	None		
Strontium	None		
Manganese	None		
Carbonate	36	1.19880	3.81 ✓
Bicarbonate	381	6.24459	19.89 ✓
Hydroxide	None		
Sulphate	1,409	3.97339	12.65 ✓
Chloride	152	4.28640	13.65 ✓
TOTAL SOLIDS	2,332	Spec. Grav. 1.003 pH 8.26 @ 78°F	

Primary salinity: 52.50; Primary alkalinity: 41.08; Chloride salinity: 51.90

HENRY S. BIRDSEYE

PAGE NO. \_\_\_\_\_

BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

OIL AND GAS LEASE OWNERSHIP

EXHIBIT NO. 4

VICINITY OF CHACO WASH WATER FLOOD

CASE NO. 3532

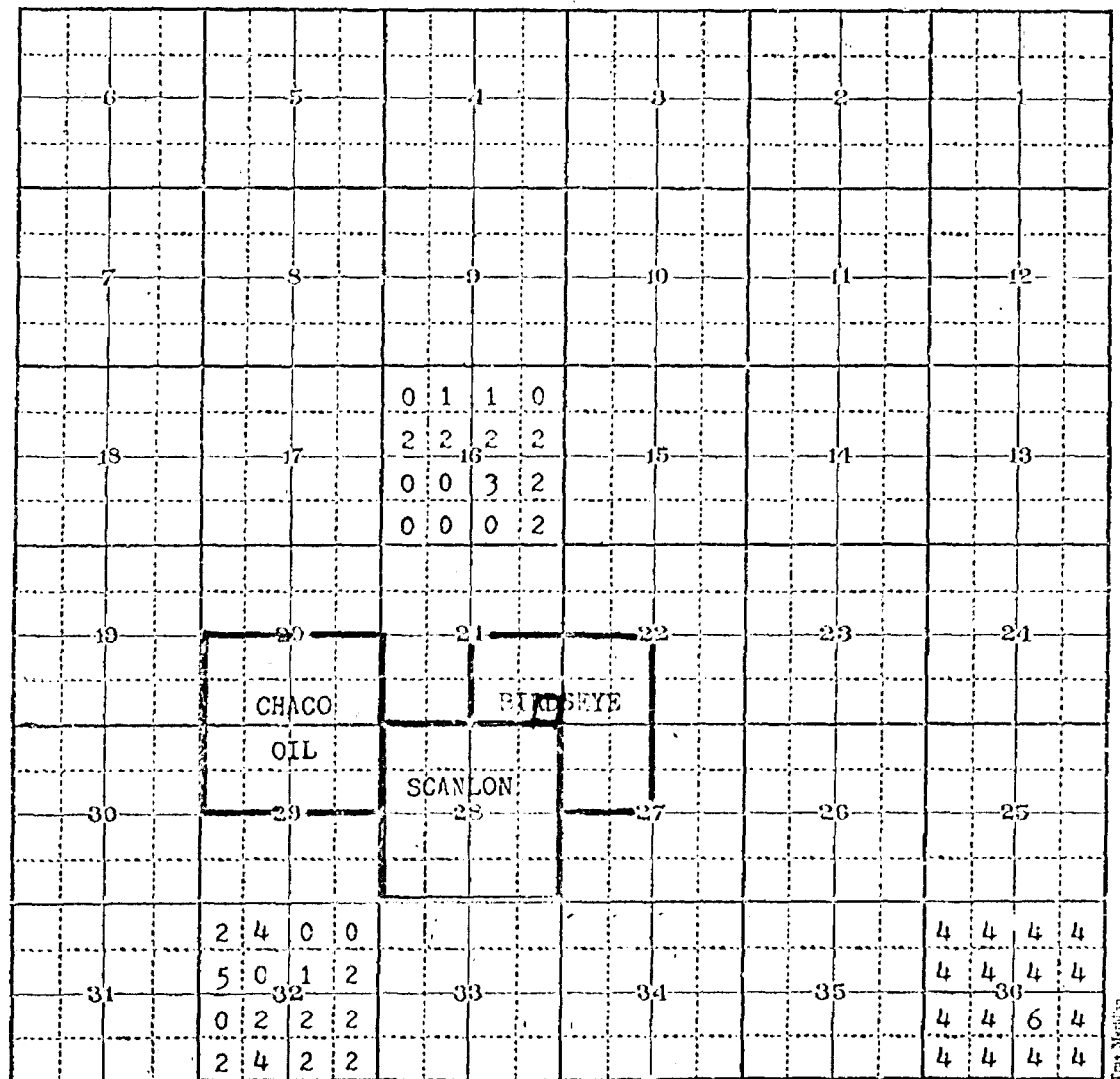
Form 014.

T. 20 N.

R. 2 W.

New Mexico Principal

Mer.



8-257

SCALE: One Inch = 1 mile.

U.S. GOVERNMENT PRINTING OFFICE

Key: 1 = EVCO Development  
 2 = Sullivan, Inc.  
 3 = Geo. Fredericks  
 4 = Walter Duncan  
 5 = H. O. Carr  
 6 = Del-Lea

No other leased lands within 2-miles radius

BOOKKEEPING  
INCOME TAX  
SYSTEMS ANALYSIS

JOHN V. BURWINKLE JR.

Business Services

Professional Building - 120 Vassar Drive S.E.

Albuquerque, New Mexico 87106

TELEPHONE  
242-6553

February 20, 1967

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 5  
CASE NO. 3532

Mr. Henry S. Birdseye  
P. O. Box 8294  
Albuquerque, N. M.

Re: N.M. O.C.C. Case No. 3532

Dear Sir:

Reference is made to your application for a pilot water flood of the Chaco Wash Mesaverde pool, the pilot flood to be commenced in Unit P of Section 21, T. 20 N., R. 9 W., N.M.P.M., McKinley County, New Mexico.

My associates and I are the lessees of the Northeast One-Quarter of Section 28, T. 20 N., R. 9 W. If your pilot water flood is successful, we have agreed to unitize our lease with yours on a basis involving acre-feet of net pay.

Therefore, we favor the institution of your pilot flood, as requested in Case No. 3532 before the Commission.

Yours very truly,

*John V. Burwinkle Jr.*  
John V. Burwinkle, Jr.

JVB/1

Henry S. Kordover

DOCKET MAILED

Date 2-9-67

SF RR

pr

1 inij

SE SE 21:20-9

4 grad

mot. by

Mesquite zone Mesquite

Chaco Wash - Mesquite

Adm procedure expansion

of flood & methods of locs.