CONOCO

CONTINENTAL OIL COMPANY

P. O. BOX 460
HOBBS, NEW MEXICO

PRODUCTION DEPARTMENT
HOBBS DISTRICT
JACK MARSHALL
DISTRICT MANAGER
G. C. JAMIESON
ASSISTANT DISTRICT MANAGER

1001 NORTH TURNER
TELEPHONE: EX 3-4141

March 10, 1965

WFX 197
Dup Cpy 2-5

New Mexico Oil Conservation Commission (3)
P. O. Box 2088
Santa Fe, New Mexico

U. S. Geological Survey (3)
P. O. Box 1857
Roswell, New Mexico

Commissioner of Public Lands
P. O. Box 1148
Santa Fe, New Mexico

Gentlemen:

Re: Supplemental Plan of Operation, MCA Unit Secondary Recovery Project, Maljamar Field, Lea County, New Mexico

The New Mexico Oil Conservation Commission Order No. R-2403, dated December 31, 1962, approved the Continental Oil Company-operated MCA Unit secondary recovery project consisting of pressure maintenance by water injection into six (6) Maljamar Pool wells (Grayburg-San Andres), and set forth procedures for obtaining administrative approval for expansion of the MCA Unit secondary recovery project.

Continental Oil Company respectfully requests administrative approval to expand the central pilot water injection area bounded by water injection wells MCA Unit No. 68, MCA Unit No. 116, MCA Unit No. 235, and MCA Unit No. 113 in Sections 21 and 28, Township 17 South, Range 32 East, Lea County, New Mexico, to encompass all of Sections 28 and 21, and the south half of the south half of Section 16, all in Township 17 South, Range 32 East, Lea County, New Mexico.

Under the proposed expansion, it is proposed to convert the following MCA Unit wells to water injection:

Well	Location
No. 10	Unit P - Sec. 16 - 17S - 32E
No. 12	Unit N - Sec. 16 - 17S - 32E
No. 26	Unit D - Sec. 21 - 17S - 32E
No. 28	Unit B - Sec. 21 - 17S - 32E
No. 42	Unit H - Sec. 21 - 17S - 32E
No. 45	Unit F - Sec. 21 - 17S - 32E
No. 70	Unit J - Sec. 21 - 17S - 32E
No. 90	Unit P - Sec. 21 - 17S - 32E
No. 150	Unit H - Sec. 28 - 17S - 32E
No. 175	Unit L - Sec. 28 - 17S - 32E
No. 178	Unit J - Sec. 28 - 17S - 32E
No. 207	Unit P - Sec. 28 - 17S - 32E
No. 209	Unit N - Sec. 28 - 17S - 32E

It is planned to continue water injection into MCA Unit Wells No. 68, No. 116, No. 235, and No. 113.

In conjunction with the expansion, it is proposed to cease gas injection into MCA Unit No. 47 in Unit E, Section 21, T-17S, R-32E, and to convert No. 47 to a producer when response to water injection is indicated by periodic tests of No. 47.

In support of this request and as required by Rule 701-B, the following data is attached:

1. A plat showing location of the proposed injection wells and location of all wells within a radius of two miles from the injection wells and formations from which wells are producing or have produced. Lessees of record are indicated on the plat.

2. Logs of the proposed injection wells which are available.

3. A diagrammatic sketch of all proposed injection wells, including casing depths, cement tops, producing interval, and proposed tubing and packer setting depths.

4. A water injection well data sheet.

At present, a total of approximately 4,400 BWPD is being injected into MCA Unit Wells No. 68, No. 116, No. 235, and No. 113. Upon completion of the proposed expansion, it is planned to inject a total of approximately 14,000 BWPD in the 17 injection wells in Sections 16, 21 and 28. Exact volumes to be injected in each well will be dependent upon net producing interval open and injection pressures encountered.

The casing pattern of these wells is influenced by the fact that in this particular area there are no fresh water sands.

Water supply for the proposed expansion will be obtained from the MCA Unit Water Leases now furnishing water for the pilot secondary recovery project.

A copy of this letter with attached data is being forwarded by certified mail to the State Engineer's Office, Box 1079, Santa Fe, New Mexico, and to the offset operators.

Your consideration and approval of the proposed expansion is respectfully requested.

Yours very truly,

Jack Marshall

JM-DFW

By Certified Mail:

cc: State Engineer
Box 1079
Santa Fe, New Mexico

E. C. Donohue
Sun-Tex Petroleum Company
Drawer 1372
El Paso 48, Texas

Hudson & Hudson
1510 First National Building
Fort Worth, Texas

By Regular Mail:

cc: NMOCC-Hobbs JWK GW RGP

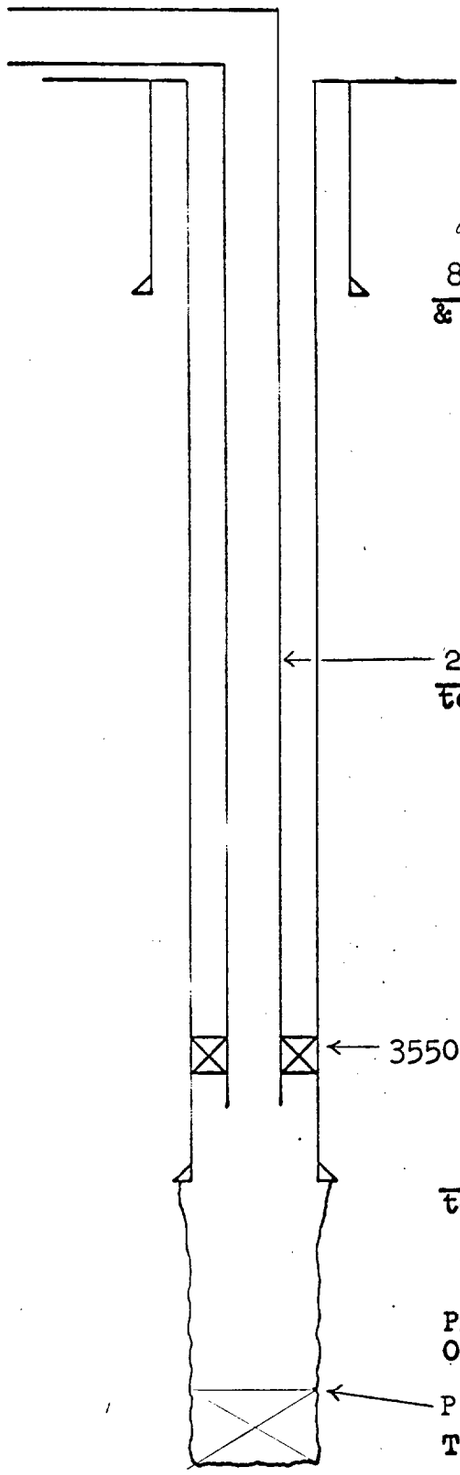
LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE

MCA UNIT
WATER INJECTION WELL DATA

Drilled by The Texas Co. 1940-41

WELL - MCA UNIT NO. 12
Elev.-G.E. 4032'

N-16-17S-32E



8 1/4" Lined casing to 5" casing

8 1/2 "OD Surface casing set at 842'
& cemented to surface with NA* sacks.
50 sacks

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3550'

3550'

7 "OD casing set at 3605' & cemented
to (?) with NA* sacks.

Producing Zone
O.H. 3605' to 3987'

P.B.D. 3985'
T.D. 4122'

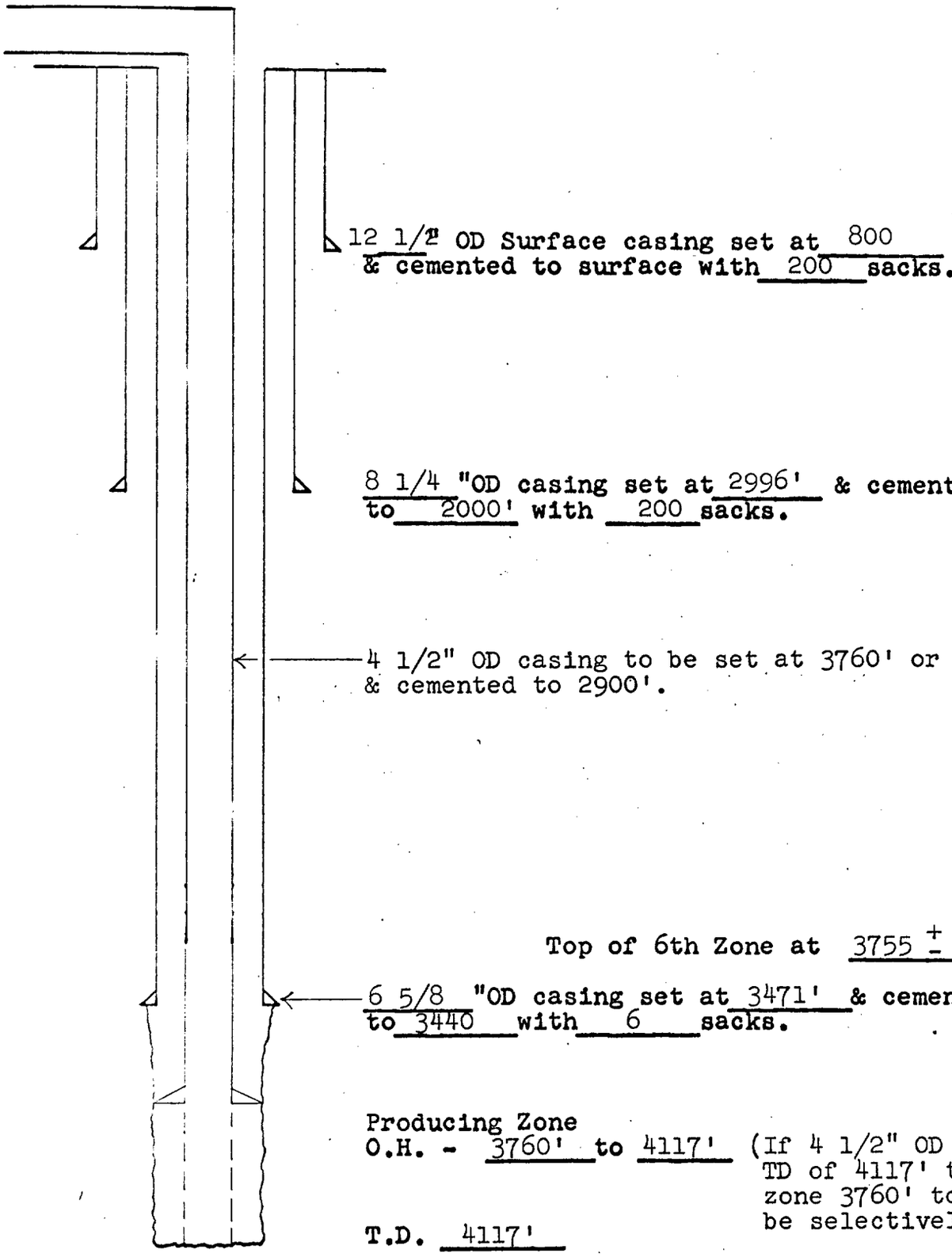
PROPOSED WORK

1) Clean out to 3985'(PBD)
2) Connect up well for water injection down tubing as indicated.
3) Annulus (7"-8 1/2") will be left open to check for communication.
4) If communication occurs - 7" OD casing will be re-cemented.

*Not Available

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 28
Elev.-D.F. 4032'



12 1/2 OD Surface casing set at 800
& cemented to surface with 200 sacks.

8 1/4 "OD casing set at 2996' & cemented
to 2000' with 200 sacks.

4 1/2" OD casing to be set at 3760' or 4117'
& cemented to 2900'.

Top of 6th Zone at 3755 ± '

6 5/8 "OD casing set at 3471' & cemented
to 3440 with 6 sacks.

Producing Zone
O.H. - 3760' to 4117' (If 4 1/2" OD casing set to TD of 4117' the producing zone 3760' to 4117' will be selectively perforated).

T.D. 4117'

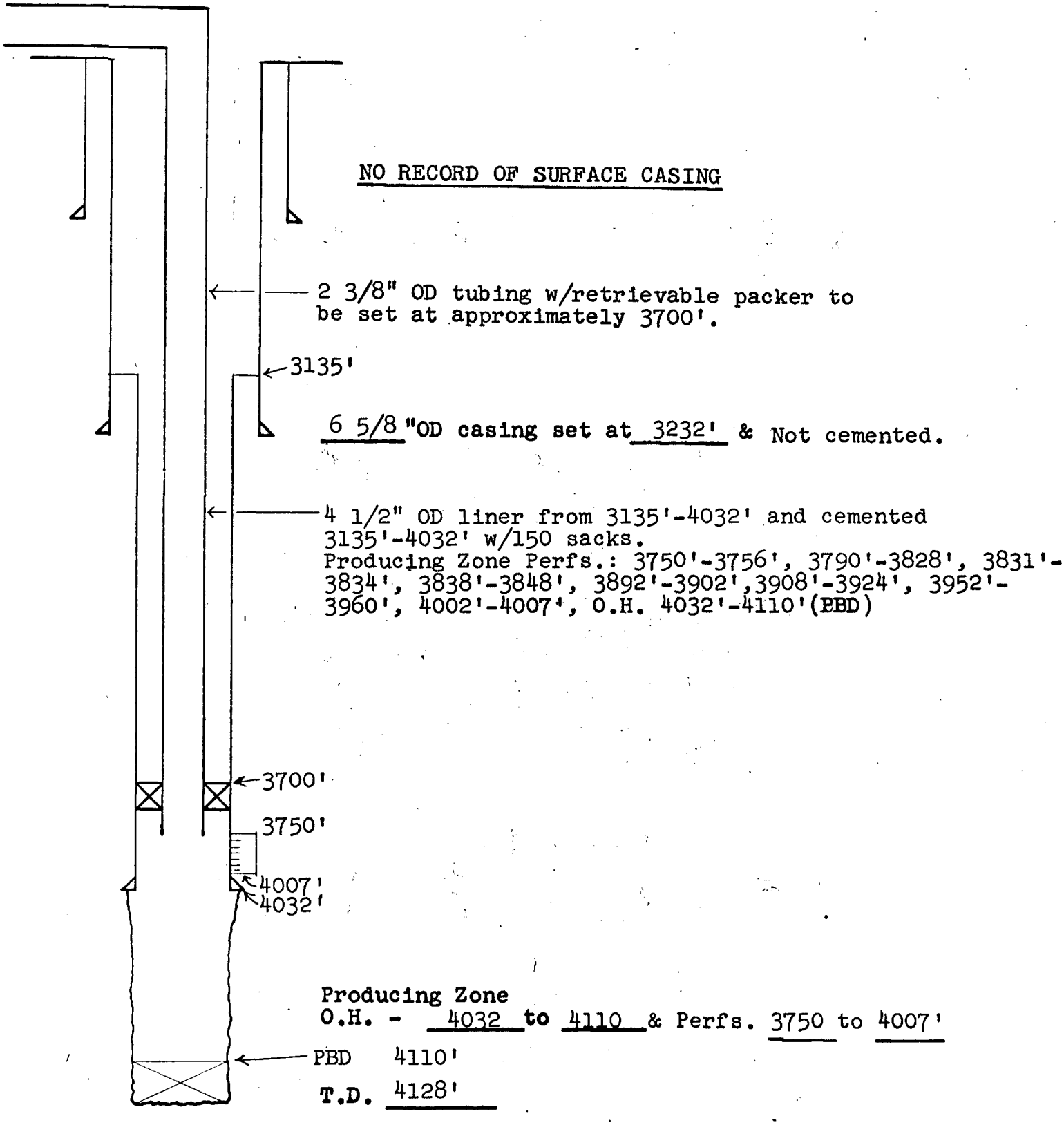
PROPOSED WORK

1) Run open hole log to TD of 4117'.
2) Run 4 1/2" OD casing to TD of 4117' or to 3760' and cement to approximately 2900'.
3) Perforate selected intervals if casing set to TD and fracture.
4) Clean out to TD. Connect up well for injection down the casing.

NOTE: The 6 5/8" OD casing may be cut & pulled.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 10
Elev. G.L. 4009'

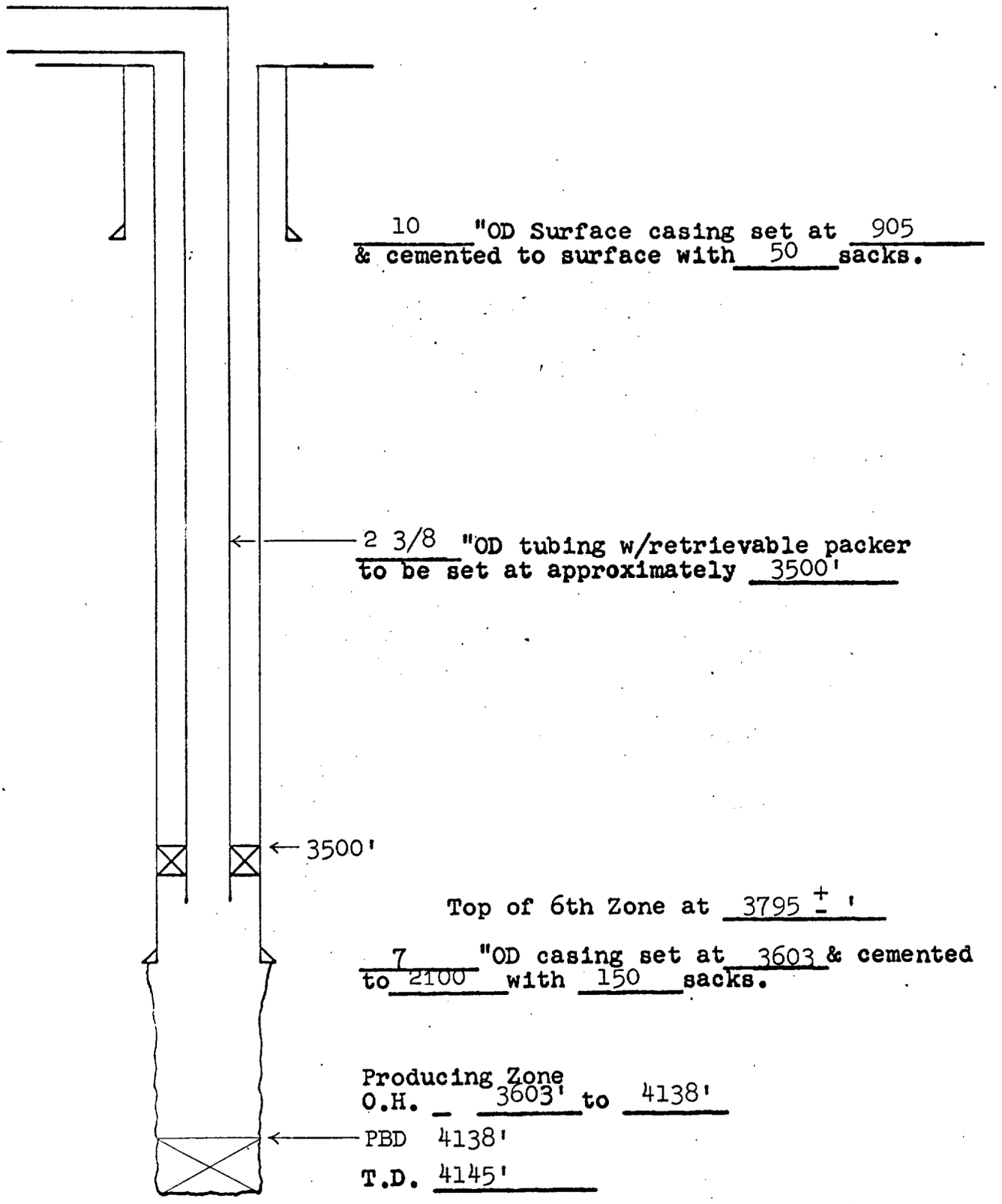


PROPOSED WORK

1) Clean out to PBD of 4110'
2) Connect up for water injection down tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 26
Elev.-D.F. 4054'

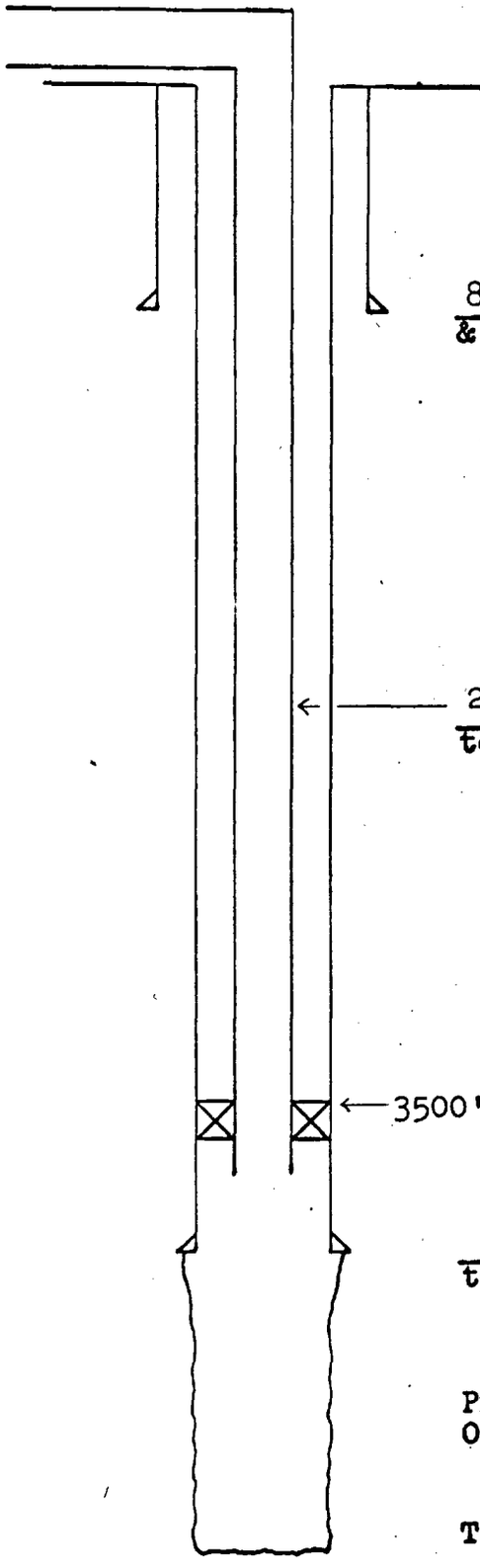


PROPOSED WORK

1) Clean out to PBD of 4138'
2) Connect up for water injection down the tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 42
Elev.-D.F. 4015



8 1/4 "OD Surface casing set at 2950'
& cemented to ~~surface~~ 2900' with 20 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500'

←3500'

Top of 6th Zone at 3695 ±

6 5/8 "OD casing set at 3555' & cemented
to 3400' with 20 sacks.

Producing Zone
O.H. - 3555' to 4093'

T.D. 4093'

PROPOSED WORK

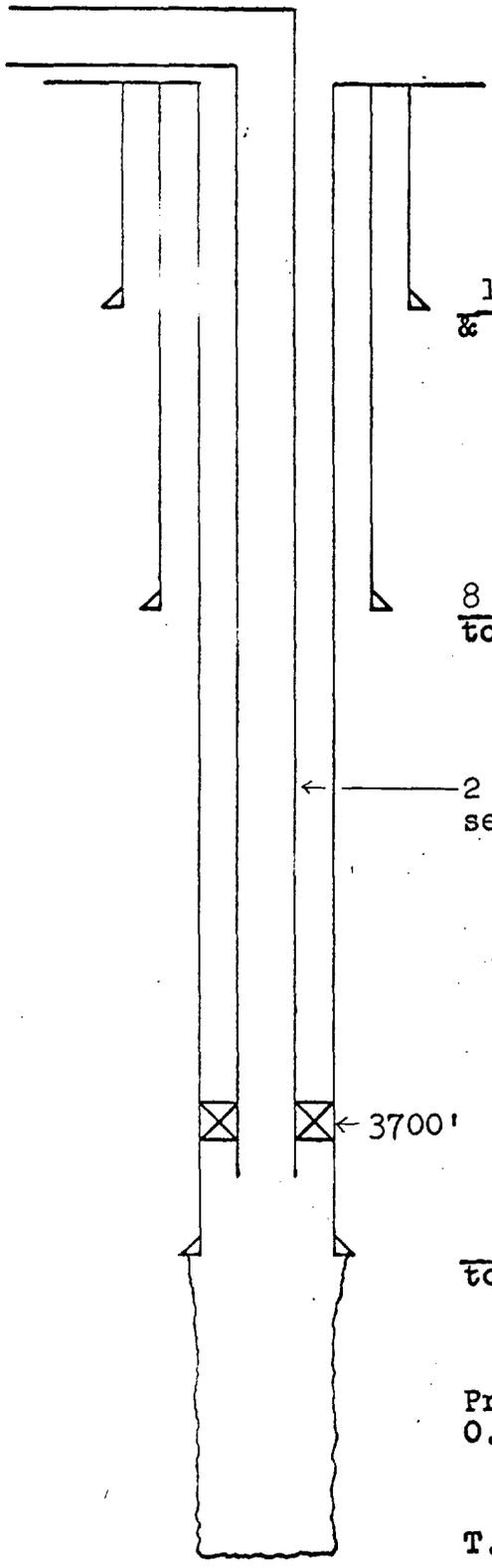
1) Clean out to TD of 4093'
2) Run tubing with packer to be set as shown and connect up well for water injection down the tubing as indicated.

FUTURE WORK DEPENDING UPON WATERFLOOD PERFORMANCE

1) Deepen to 4135'
2) Run open hole logs.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 45
Elev.-D.F. 4061'



10 " OD Surface casing set at 2301'
& cemented to surface with 300 sacks.

8 5/8 "OD casing set at 3050' & cemented to 2400' with 78 sacks.

2 3/8" OD tubing w/retrievable packer to be set at approximately 3700'.

3700'

Top of 6th Zone at 3769 ± '

7 "OD casing set at 3821' & cemented to 3000' with 80 sacks.

Producing Zone
O.H. - 3821' to 4106'

T.D. 4106'

PROPOSED WORK

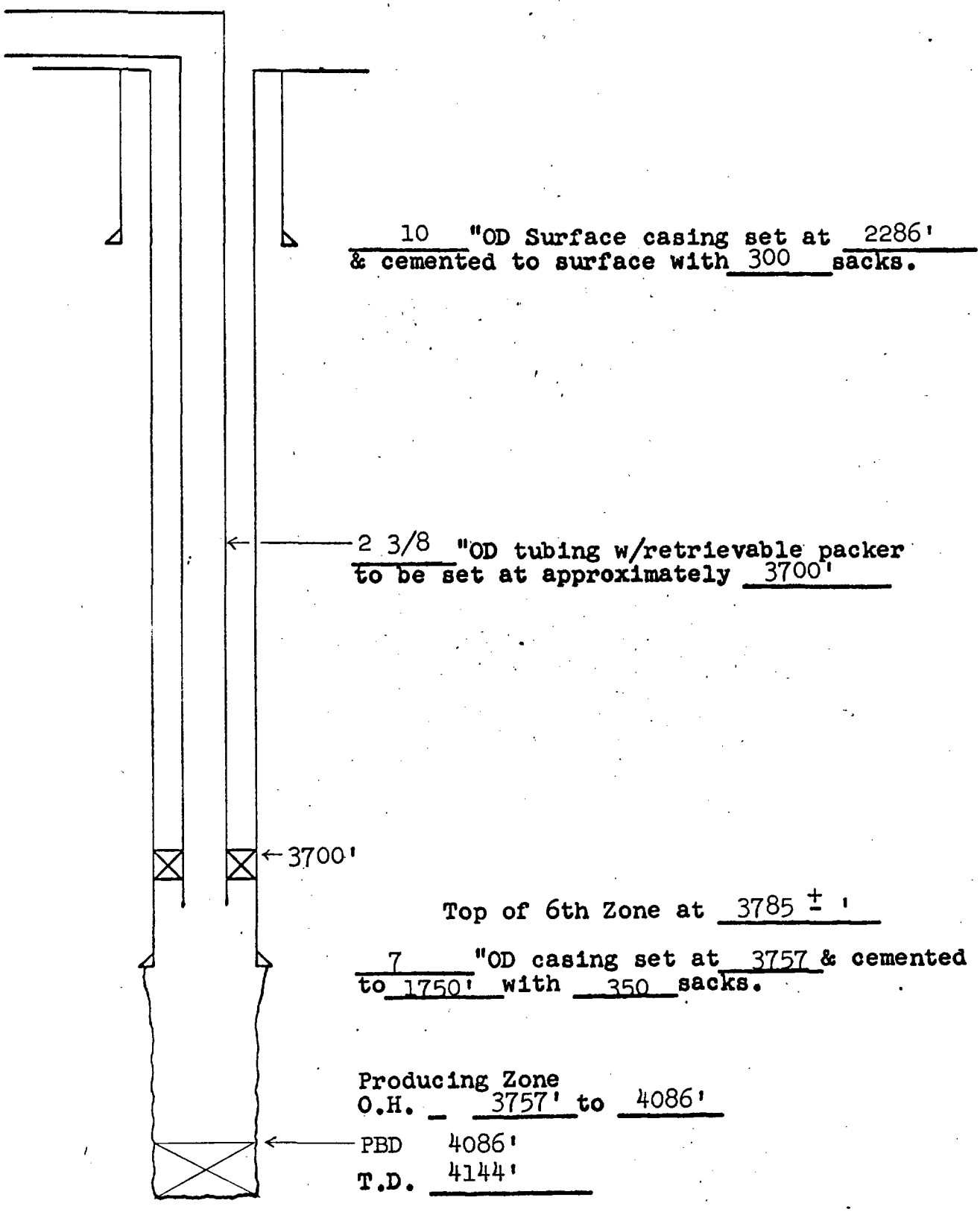
1) Clean out to TD of 4106'
2) Connect up well for water injection down tubing as indicated.

FUTURE WORK

1) Deepen well 75' to 4181'
2) Run Gamma Ray-Neutron log.
3) Perforate additional Grayburg zone presently cased off.
4) Stimulate new open hole and perforated zones if deemed necessary.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 70
Elev.-D.F. 4044'

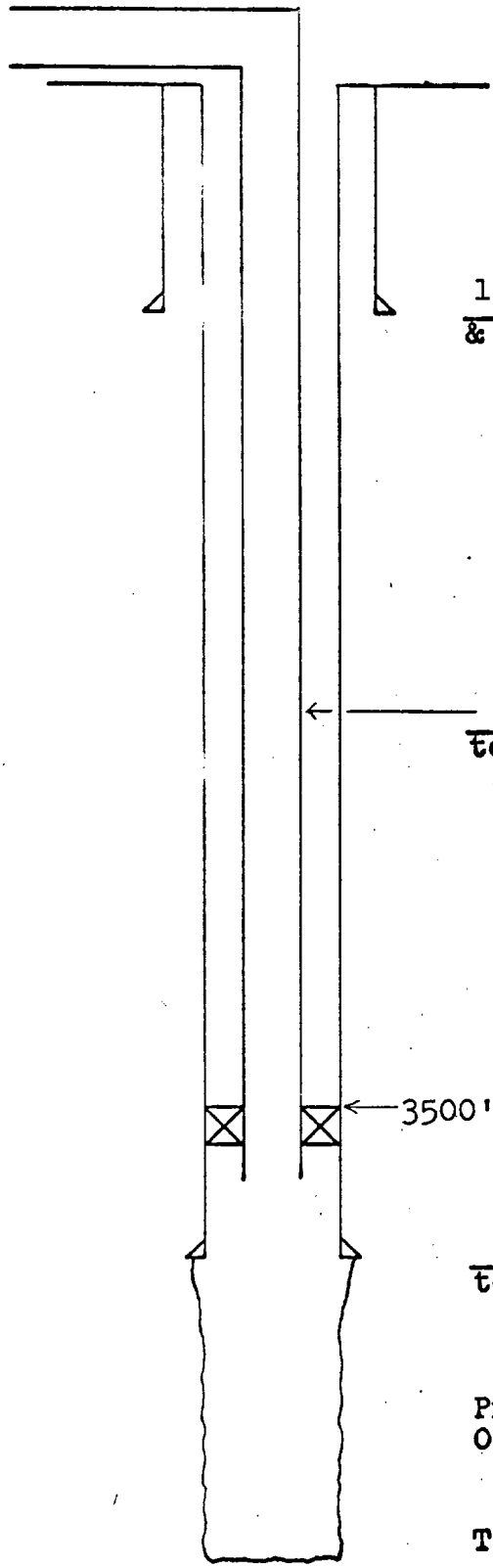


PROPOSED WORK

1) Clean out to PBD of 4086' or to TD of 4144' if possible to obtain circulation. If not able to establish circulation, well will be drilled out to 4144' at a later date.
2) Connect up well for water injection down tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 90
Elev.-D.F. 4034'



12 "OD Surface casing set at 20'
& cemented to surface with 25 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500'

3500'

Top of 6th Zone at 3781 ± '

7 "OD casing set at 3590' & cemented
to 1800 with 450 sacks.

Producing Zone
O.H. - 3590' to 4124'

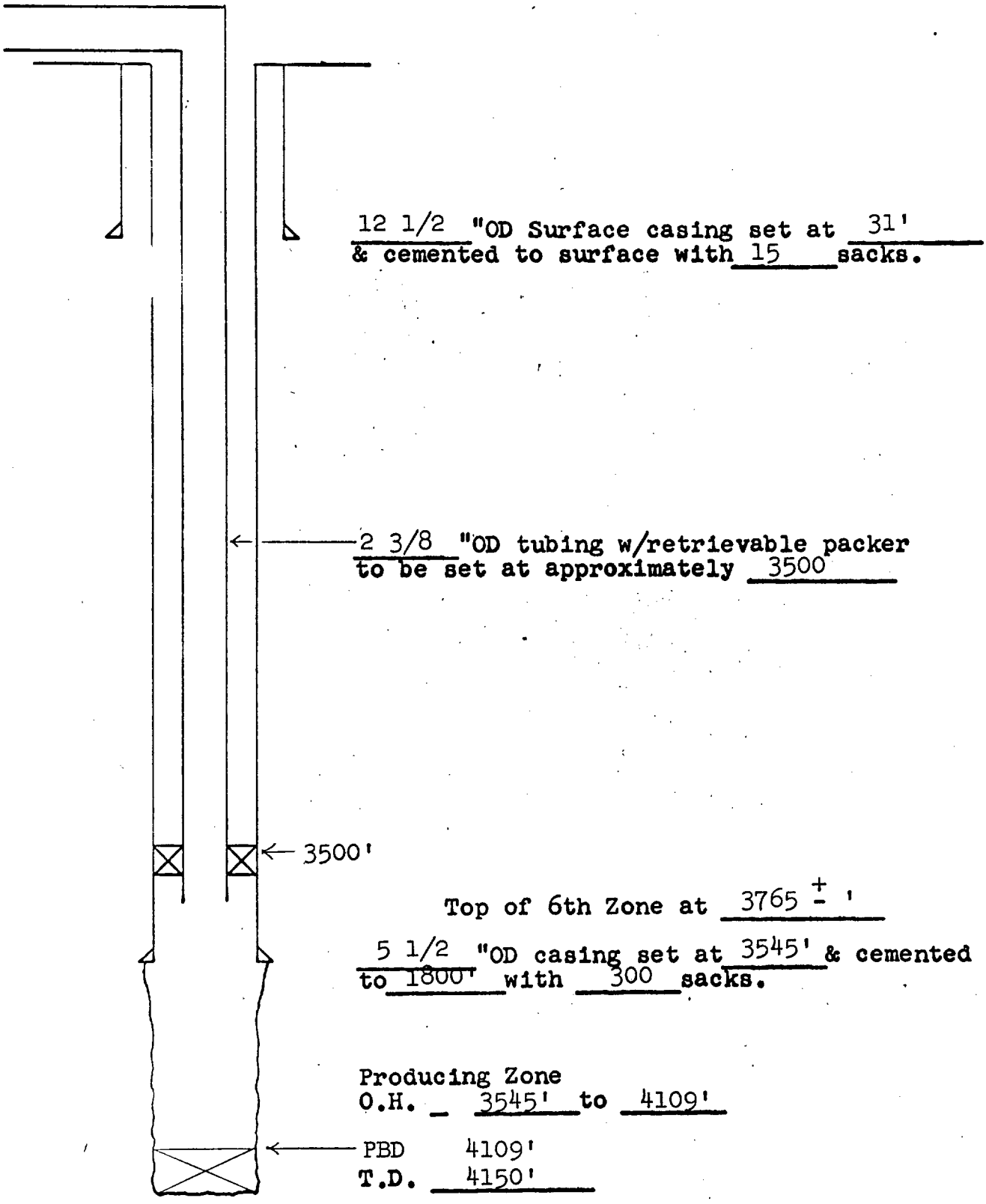
T.D. 4124'

PROPOSED WORK

1) Clean out to TD of 4124'
2) Connect up for water injection down tubing as indicated.
3) In the future it is tentatively planned to deepen well 30' to new TD of approximately 4154', run open hole log (GR-Sonic) and treat new hole with acid.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 150
Elev.-D.F. 4003'



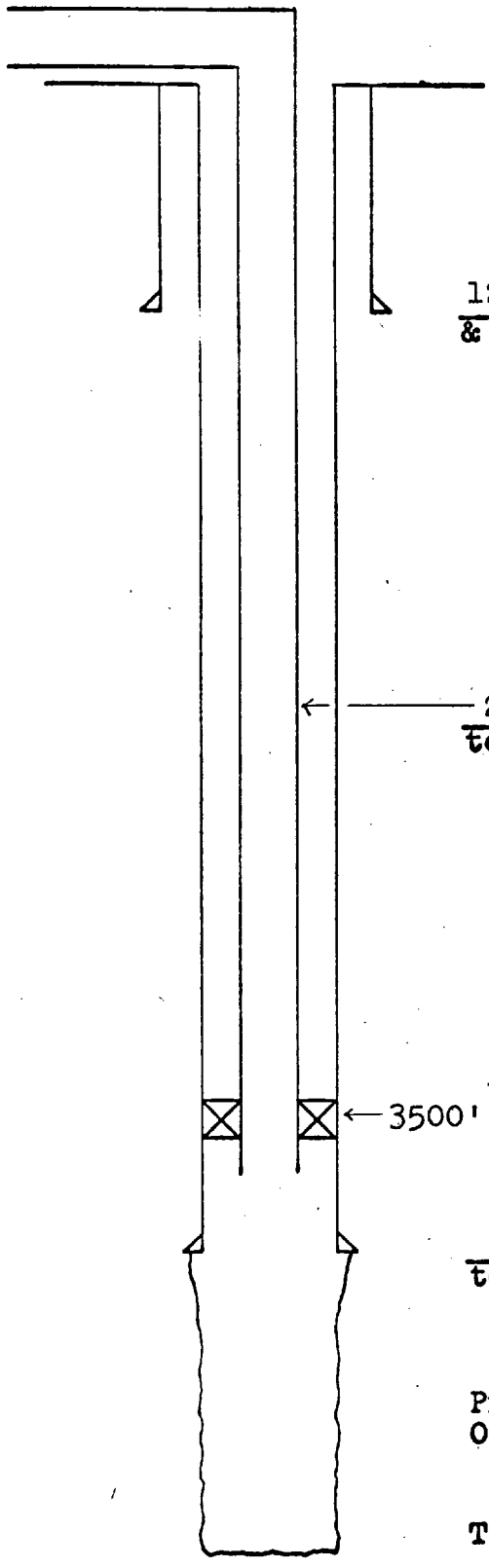
PROPOSED WORK

1) Clean out to 4109', drill out to 4150' if possible to establish circulation (If not possible to establish circulation, well will be drilled out at a later date).

2) Connect up for water injection down tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 175
Elev.-D.F. 3959'



12 1/2 "OD Surface casing set at 20'
& cemented to surface with 15 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500

←3500'

Top of 6th Zone at 3700 ± '

5 1/2 "OD casing set at 3547 & cemented
to 1800 with 300 sacks.

Producing Zone
O.H. - 3547' to 4125'

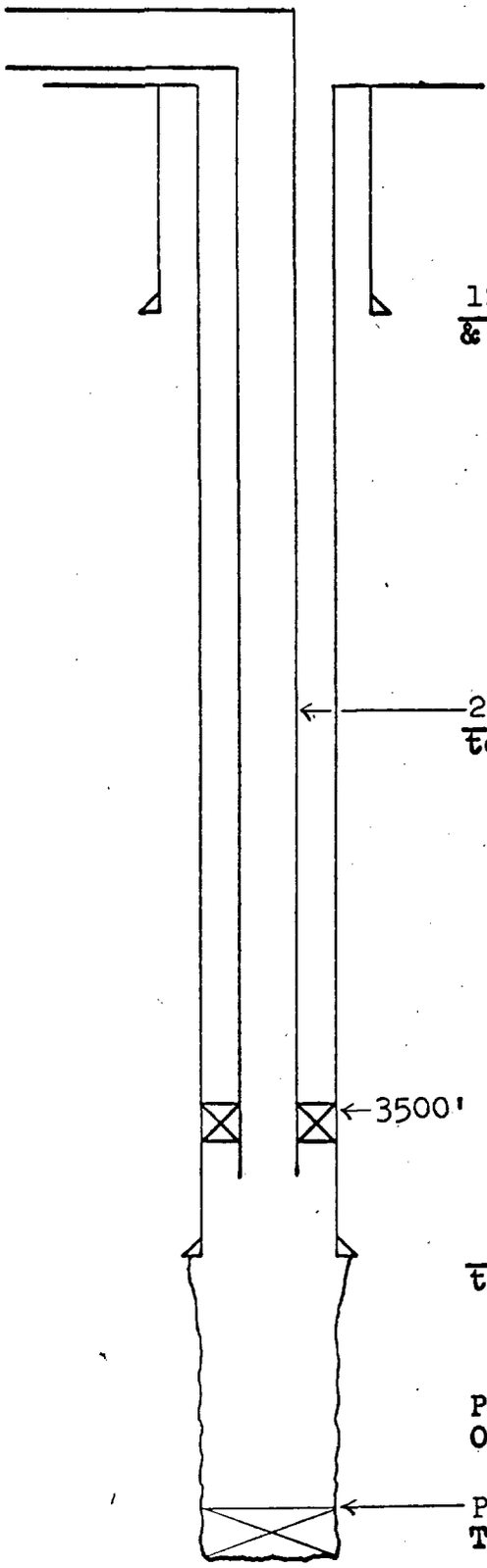
T.D. 4125'

PROPOSED WORK

1) Clean out to TD of 4125!
2) Connect up for water injection down the tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 178
Elev.-D.F. 3960



12 1/2 "OD Surface casing set at 21'
& cemented to surface with 15 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500

←3500'

Top of 6th Zone at 3825 ±

5 1/2 "OD casing set at 3546 & cemented
to 1800 with 300 sacks.

Producing Zone
O.H. 3546' to 4017'

PBD 4017'
T.D. 4156'

PROPOSED WORK

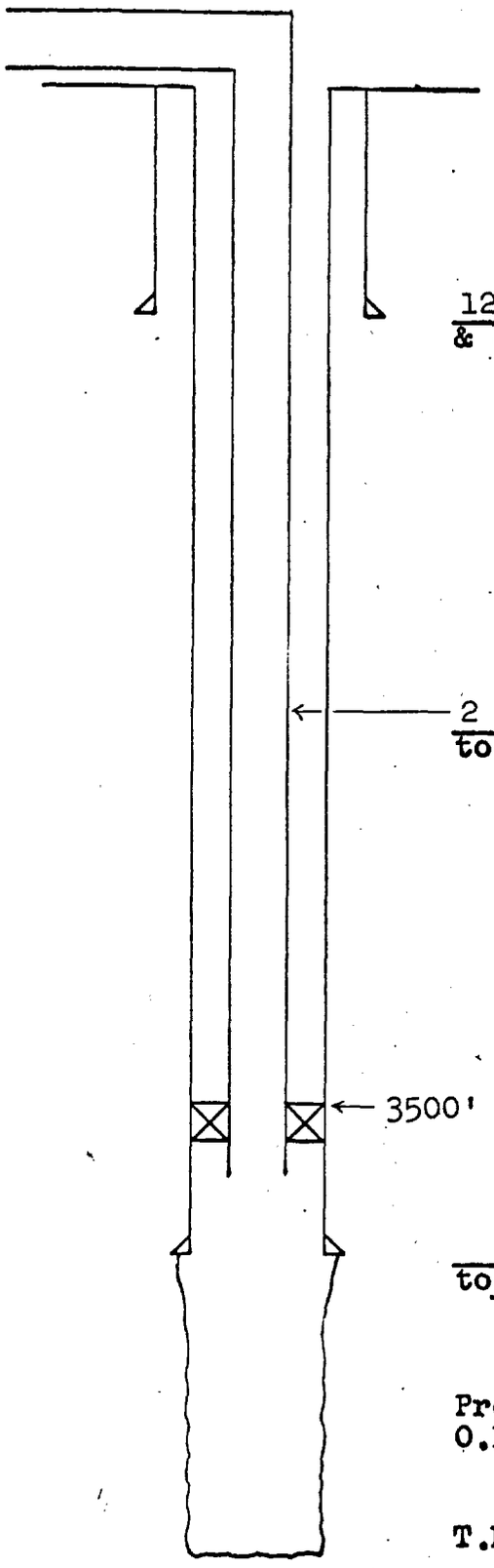
1) Clean out to 4017'
2) Connect up for water injection down the tubing as indicated.

FUTURE WORK

1) Drill out to 4130'

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 207
Elev.-D.F. 3954'



12 1/2 "OD Surface casing set at 21'
& cemented to surface with 15 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500'

3500'

Top of 6th Zone at 3885 ± '

5 1/2 "OD casing set at 3566' & cemented
to 1800' with 300 sacks.

Producing Zone
O.H. 3566' to 4125'

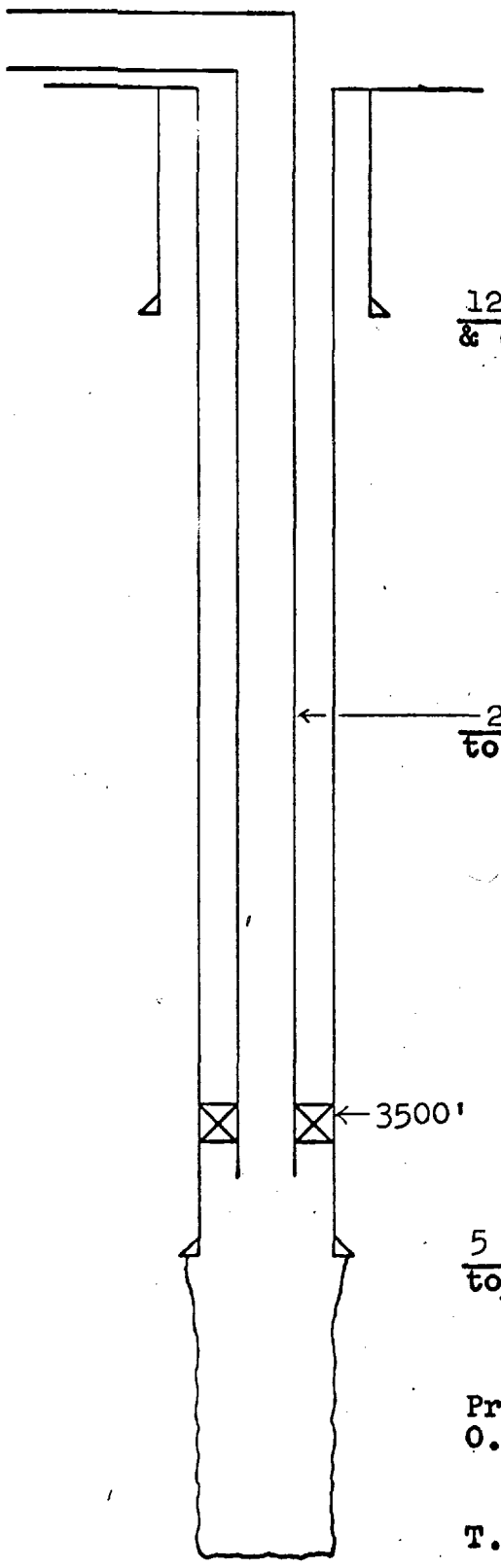
T.D. 4125'

PROPOSED WORK

1) Clean out to TD of 4125'
2) Connect up for water injection down the tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 209
Elev.-D.F. 3942'



12 1/2 "OD Surface casing set at 29'
& cemented to surface with 14 sacks.

2 3/8 "OD tubing w/retrievable packer
to be set at approximately 3500

3500'

Top of 6th Zone at 3814 ± '

5 1/2 "OD casing set at 3559 & cemented
to 1800 with 300 sacks.

Producing Zone
O.H. 3559 to 4025

T.D. 4025

PROPOSED WORK

1) Clean out to TD of 4025'
2) Connect up for water injection down the tubing as indicated.

MCA UNIT
WATER INJECTION WELL DATA

Lease & Well No.	Total Depth and/or PBD	Surface Casing OD	Surface Casing Depth	Surface Casing Sacks Cement	Surface Casing Cement Top	Intermediate Casing OD	Intermediate Casing Depth	Intermediate Casing Sacks Cement	Intermediate Casing Cement Top	Production Casing OD	Production Casing Depth	Production Casing Sacks Cement	Production Casing Cement Top	Producing Interval
MCA #10	4128' 4114'PBD	No record				6-5/8"	3232'	none		4-1/2"	3135' to 4032'	150	3135' est.	3750-4007- Perf. 4032-4110- OH
12	4122' 3987'PBD	8-1/2"	842'	NR	NR	None				7"	3605'	NR	NR	3605-3987- OH
26	4145' 4138'PBD	10"	905	50	Surface	None				7"	3603'	150	2100' est.	3603-4138- OH
28	4117'	12-1/2	800	250	Surface	8-1/4	2996'	200	2000	6-5/8"	3471'	6*	3440' est.	3471-4117- OH
42	4093'	8-1/4	2950	20	2900' est.	None				6-5/8"	3555'	20	3400' est.	3555-4093- OH
45	4106'	10"	2301	300	Surface	8-5/8	3050'	78	2400	7"	3821'	80	3000' est.	3821-4106- OH
70	4144' 4086'PBD	10"	2286	300	Surface	None				7"	3757'	**350	1700' (TempSurv)	3757-4086- OH
90	4124'	12"	20	25	Surface	None				7"	3590'	450	1800' est.	3590-4124- OH
150	4150' 4109'PBD	12-1/2"	31	15	Surface	None				5-1/2"	3545'	300	1800' est.	3545-4109- OH
175	4125'	12-1/2"	20	15	Surface	None				5-1/2"	3547'	300	1800' est.	3547-4125- OH
178	4156' 4017'PBD	12-1/2"	21	15	Surface	None				5-1/2"	3545'	300	1800' est.	3546-4017- OH
207	4125'	12-1/2"	21	15	Surface	None				5-1/2"	3566'	300	1800' est.	3566-4125- OH
209	4025'	12-1/2"	29	14	Surface	None				5-1/2"	3559'	300	1800' est.	3559-4025- OH

*Propose setting new string of 4-1/2" OD casing to TD or to 3760' and cementing to approximately 2900 feet. The 6-5/8" OD casing may be cut and pulled.

**Recemented 9-26-64 w/250 sx from 2370-1750'.

March 17, 1965

Continental Oil Company
P. O. Box 460
Hobbs, New Mexico 88240

Attention: Mr. Jack Marshall

Re: Maljamar Cooperative Unit Agreement
Lea County, New Mexico

Gentlemen:

This office acknowledges the receipt of your Supplemental Plan of Operation for the Maljamar Cooperative Unit dated March 10, 1965. Section 10 of the Unit Agreement provides for approval by the Commissioner only if such plan of operation involves a basic deviation from the initial plan of operation. This does not appear to be the case. However, if you need the Commissioner's approval, please furnish this office the additional copies which you wish approved.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
(Mr.) Ted Bilberry, Director
Oil and Gas Department

GBH/mmr/d
cc: United States Geological Survey
P. O. Drawer 1857, Roswell, New Mexico
Attention: Mr. John A. Anderson
Oil Conservation Commission
P. O. Box 2088, Santa Fe, New Mexico

March 17, 1965

Continental Oil Company
P. O. Box 460
Hobbs, New Mexico 88240

Attention: Mr. Jack Marshall

Re: Maljamar Cooperative Unit Agreement
Lea County, New Mexico

Gentlemen:

This office acknowledges the receipt of your Supplemental Plan of Operation for the Maljamar Cooperative Unit dated March 10 1965. Section 10 of the Unit Agreement provides for approval by the Commissioner only if such plan of operation involves a basic deviation from the initial plan of operation. This does not appear to be the case. However, if you need the Commissioner's approval, please furnish this office the additional copies which you wish approved.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY:
(Mr.) Ted Bilberry, Director
Oil and Gas Department

GBH/mmr/d

cc: United States Geological Survey
P. O. Drawer 1857, Roswell, New Mexico
Attention: Mr. John A. Anderson
Oil Conservation Commission
P. O. Box 2088, Santa Fe, New Mexico

CONTINENTAL OIL COMPANY

P. O. Box 460
Hobbs, New Mexico
April 5, 1965

New Mexico Oil Conservation Commission (3)
P. O. Box 2088
Santa Fe, New Mexico

United States Geological Survey (3)
P. O. Box 1857
Roswell, New Mexico

Commissioner of Public Lands
P. O. Box 1148
Santa Fe, New Mexico

Re: Supplemental Plan of Operation, MCA Unit, Lea County, New Mexico (MCA Unit Well No. 12)

Gentlemen:

Please refer to our Supplemental Plan of Operation, MCA Unit, Lea County, New Mexico dated March 10, 1965.

Attached is a revised schematic diagram for MCA Unit No. 12. In addition to indicating amount of cement used to cement the surface and production casings, the diagram is revised under Proposed Work (Item 1) to show clean out to TD of 4122' instead of clean out to PBD of 3985'.

Your approval of this change for MCA Unit No. 12 is respectfully requested.

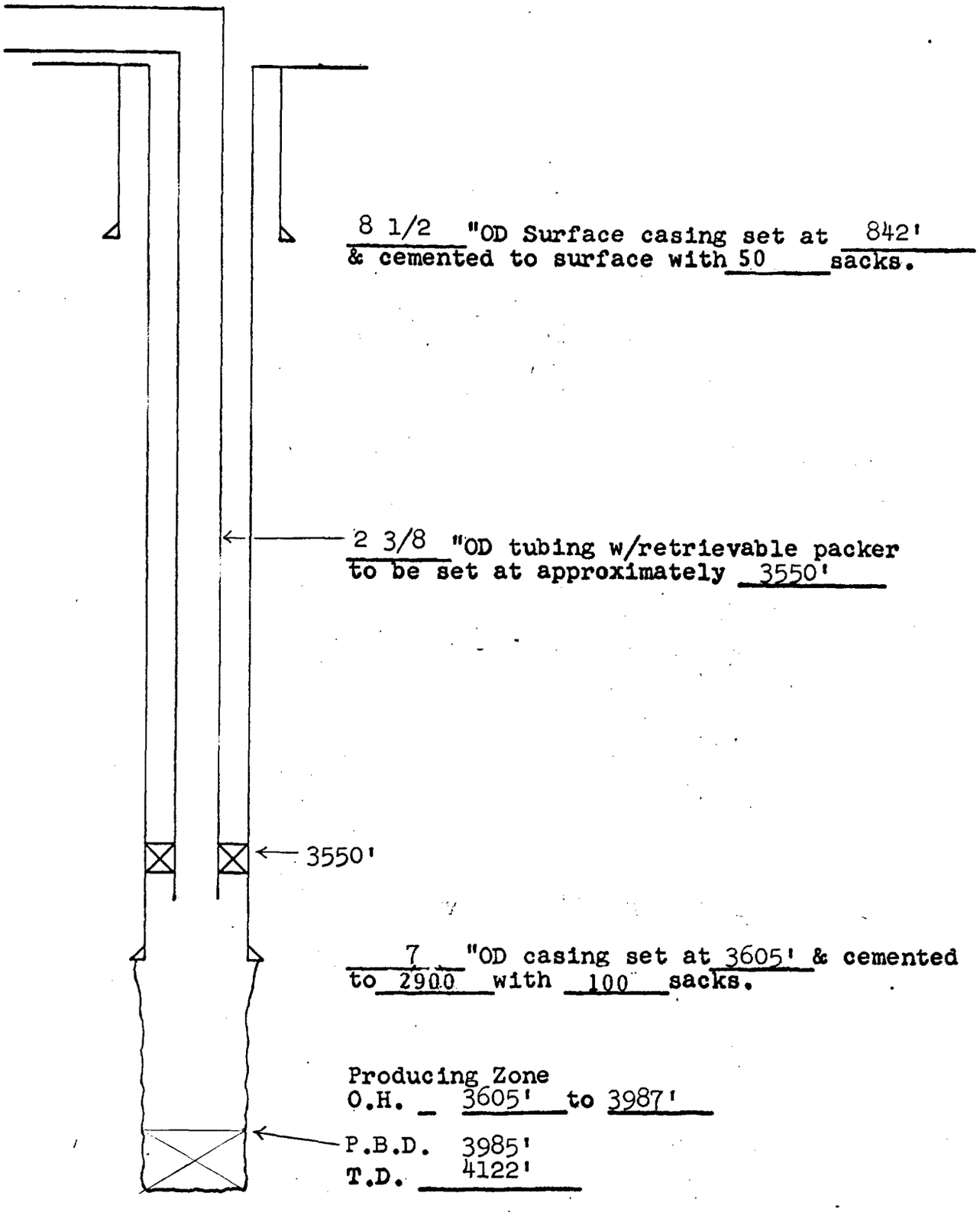
Yours very truly,

G. C. JAMIESON
Asst. District Manager
Hobbs District

GCJ-JS
cc: NMOCC Hobbs, JWK GW RGP
Attach

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 12
Elev.-G.L. 4032'



PROPOSED WORK

1. Clean out to 4122" (TD)
2. Connect up well for water injection down tubing as indicated.

By Certified Mail:

State Engineer
Box 1079
Santa Fe, New Mexico

E. C. Donohue
Sun-Tex Petroleum Company
Drawer 1372
El Paso 48, Texas

Hudson and Hudson
1510 First National Bldg.
Ft. Worth, Texas

Attach

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO

COPY

March 18, 1965

Continental Oil Company
P. O. Box 460
Hobbs, New Mexico

Attention: Mr. Jack Marshall

Re: Supplemental Plan of Operation, MCA Unit, Lea County, New Mexico

Gentlemen:

Reference is made to your application dated March 19, 1965, in which you request administrative approval for conversion of thirteen wells to water injection wells. This is to inform you that the proposed completion of your MCA Unit Well No. 12 as shown on the schematic drawing cannot be considered adequate for injection purposes and will not be approved unless revised. It is suggested that the well be completed in the same manner as the proposed completion of MCA Unit Well No. 28 or run a survey of the type developed by Lane-Wells to determine whether or not the casing has been cemented and the extent of the cement behind the 7-inch casing, if any. If by means of a survey it is determined that adequate cement has been used, it is requested that this office be furnished one copy of the survey.

The well file on record at this office contains a copy of Form C-103, filed by The Texas Company, showing the surface casing to have been cemented with 50 sacks on 12-19-40.

Very truly yours,

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

ALP/JEK/og
cc: Mr. Frank Irby

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO

March 1, 1964

Continental Oil Company
P. O. Box 460
Hobbs, New Mexico

Attention: Mr. Jack Marshall

Re: Supplemental Plan of
Operation, MCA Unit, Lea
County, New Mexico

Gentlemen:

Reference is made to your application dated March 19, 1964, in which you requested administrative approval for conversion of thirteen wells to water injection wells. This is to inform you that the proposed conversion of your MCA Unit Well No. 11 as shown on the schematic drawing **cannot be considered** favorable for injection purposes **and will not be approved** unless revised. It is **suggested that the well be completed** in the same **manner** as the **proposed completion of MCA Unit** Well No. 12 or run a survey of the type developed by Lane-Wells to determine whether or not the casing **has been** cemented and the extent of the cement behind the 7-inch casing. If any. **If** by **means of** a survey it is determined that adequate cement has been used, it is requested that this office be furnished one **copy** of the **survey.**

The well file on record at **this office contains a copy** of Form C-103, filed by The **Texas Company, showing the surface** casing to have been **commenced with 50 sacks on 12-19-40.**

Very truly yours,

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

ALP/DMC/og
cc: Mr. Frank Irby

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

March 23, 1965

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

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

Dear Mr. Porter:

Reference is made to the application of Continental Oil Company dated March 10, 1965 and received March 16, 1965 which seeks approval of a supplemental plan of operation, MCA Unit, secondary recovery project, Maljamar Field.

This office offers no objection to the granting of the application and the use of the 13 wells listed in the application for injection purposes so long as they are constructed and equipped in the manner set forth on the diagrammatic sketches submitted with the application, with these exceptions:

(1) MCA Unit #12 gives no information whatever to show that the formations above the injection zone will be protected from the fluids injected.

(2) MCA Unit #28. Since no statement is made concerning the life of the project and no statement is made concerning the grade of 4½inch casing to be installed in this unit, there is no evidence that the construction and equipment will provide protection to the formations above the injection zone by the injected fluids.

(3) MCA Unit #42. It is noted that only 20 sacks of cement were used in cementing the 6 5/8 inch casing set at 3555. No statement is made in the application as to what the injection pressures are expected to be. The construction of this well does not give me reason to believe that it is capable of withstanding the planned injection.

For the above reasons, I object to Units 12, 28 and 42 being included in the approval of the application until such time as

Continental Oil Company can show beyond any reasonable doubt that these wells as finally constructed and equipped will control the injected fluids.

Yours truly,

S. E. Reynolds
State Engineer

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

FEI/ma
cc-Continental Oil Co.
F. H. Hennighausen

CONTINENTAL OIL COMPANY

P. O. BOX 460
HOBBS, NEW MEXICO

PRODUCTION DEPARTMENT
HOBBS DISTRICT
JACK MARSHALL
DISTRICT MANAGER
G. C. JAMIESON
ASSISTANT DISTRICT MANAGER

1001 NORTH TURNER
TELEPHONE: EX 3-4141

March 24, 1965

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

Attention of Mr. A. L. Porter, Secretary-Director

Re: Supplemental Plan of Operation,
MCA Unit, Lea County, New Mexico

Gentlemen:

Please refer to your subject letter of March 18, 1965, concerning your disapproval of the converting of MCA Unit Well No. 12 to water injection.

Upon re-examination of our well records, we have found a WELL LOG HISTORY which indicated The Texas Company to have cemented the 7" OD casing set at 3605, with 100 sacks of cement. We estimate the cement top to be at 2900'.

Attached is a copy of the WELL LOG HISTORY indicating the cementing job. Also attached are two copies of the revised schematic diagram of the MCA Unit No. 12.

Your approval of the converting of MCA Unit No. 12 as indicated on the schematic drawing is respectfully requested.

Yours very truly,

Jack Marshall

JM-JS
cc: NEW MEXICO STATE ENGINEER
Attn: Mr. Frank Irby
Box 1079
Santa Fe, New Mexico

JWK
Attach

New Mexico School of Mines
STATE BUREAU OF MINES AND MINERAL RESOURCES
Socorro, New Mexico

WELL LOG DIVISION

COUNTY Lea
FIELD Maljamar
COMPANY The Texas Company
LEASE State "O" Well No. 1
LOCATION (¼) SE SW
SEC. 16, T-17-S, R-32-E
330 feet from South line and
2310 feet from West line
COMMENCED 12-18-41
COMPLETED 2-13-41

CASING
Diam., In-[illegible]tom
8½" 8[illegible]
7" 3605

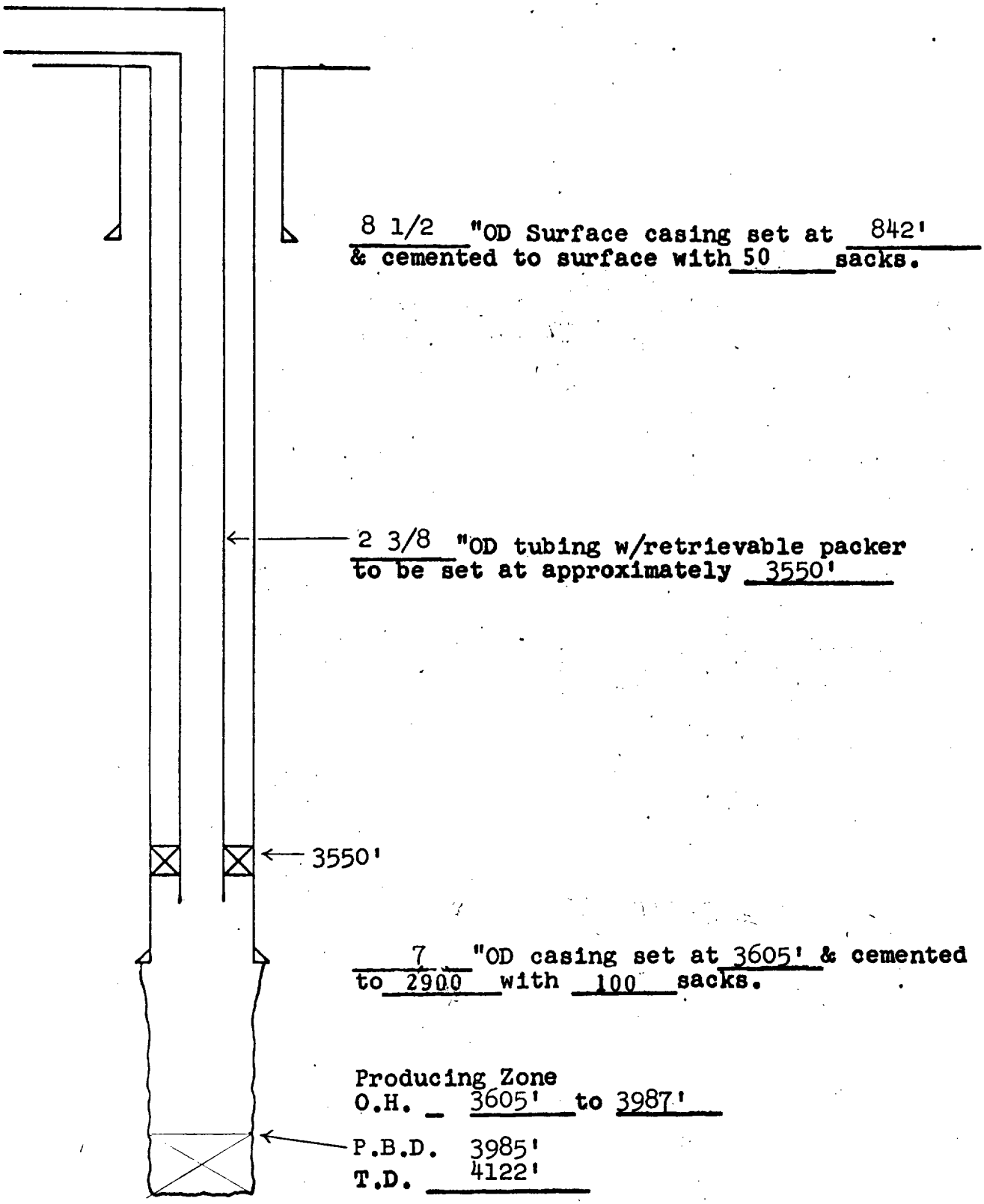
ELEVATION 4032 FEET
Initial Daily Production:
Open 83 bbls. Oil

FORMATION	BOTTOM, FEET
Sand	25
Red bed	90
Blue Shale	135
Grey sand	145
Grey shale	175
Red sand and rock	530
Gray sand - Hard	533
Red sand and rock	600
Red shale	725
Red sandy rock and shale	810
Anhydrite	830
Red rock	835
Anhydrite, broken	950
Red shale	975
Red rock	1010
Salt	1025
Salt and red rock	1080
Salt, potash and red bed	1145
Salt	1525
Salt and potash	1765
Salt	1825
Anhydrite	1840
Salt and potash	2000
Anhydrite	2045
Red rock	2070
Broken anhydrite	2385
Grey shale	2390
Anhydrite, broken	2550
Anhydrite, broken lime	2555
Anhydrite	2741
Lime - GAS increase	2750
Anhydrite	3120
Sand - Increase GAS	3145
Lime	3170
Anhydrite	3235
Lime	3255
Anhydrite, broken	3395
Red sand	3420
Anhydrite	3425
Lime	3435
Anhydrite, lime small increase in GAS and OIL	3480
Red Sand	3495
Lime and anhydrite	3545
Grey lime	3745
Sandy lime	3760
Lime	3940
Lime, soft-Showing OIL	3950
Soft lime 300' OIL in hole	3970
Hole bridged -ran 3605' of 7" casing. Cemented w/100 sacks cement.	
Grey lime	4025
Grey lime	4030
Grey lime and blue shale	4045
Lime	4122
TOTAL DEPTH	4122
Plugged back to 3985'. Shot with 100 quarts. Cleaned out and ran 3981' of tubing. 3' off bottom. American packer set 3485'	
water 4/21-22	

ILLEGIBLE

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 12
Elev.-G.L. 4032'

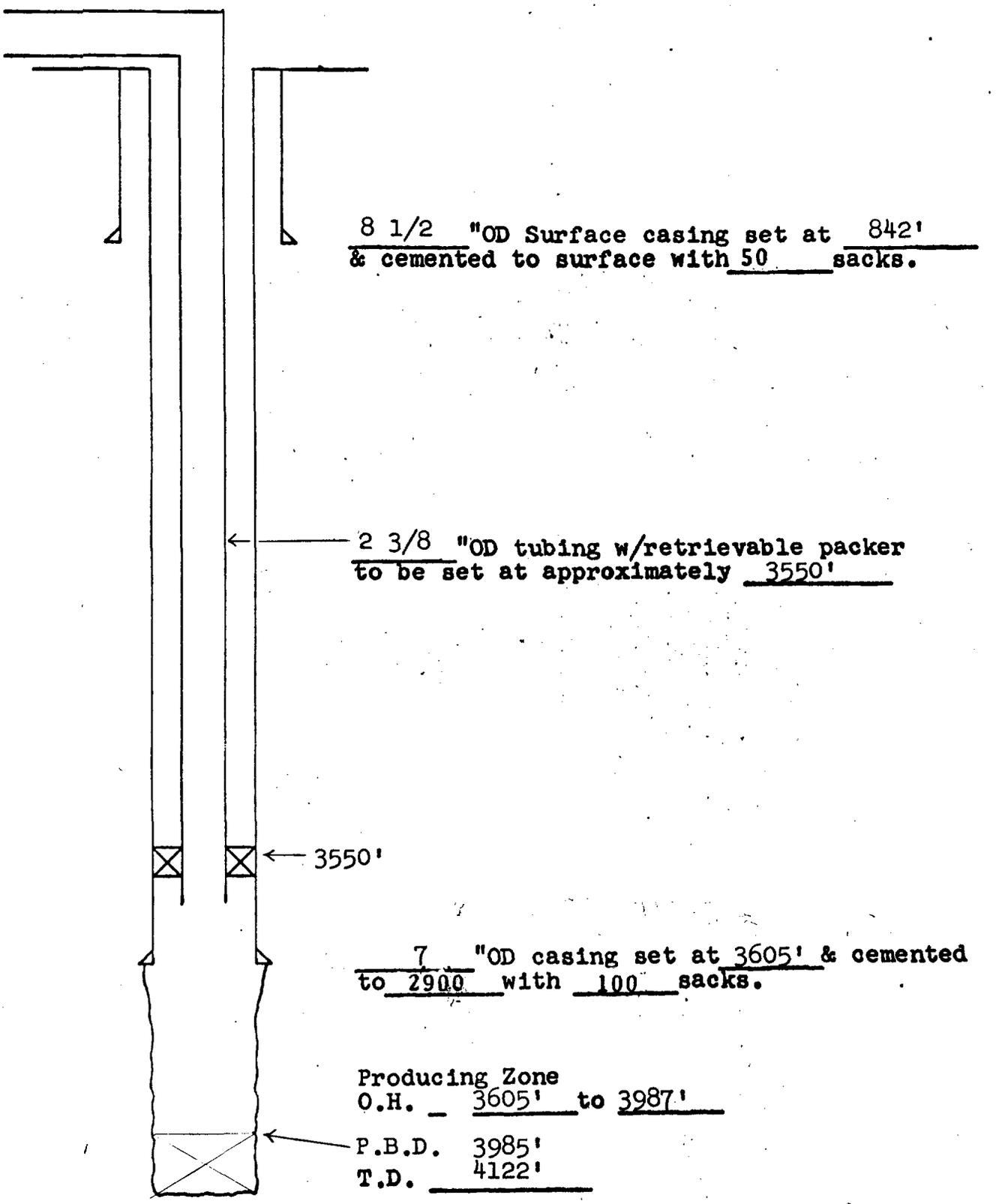


PROPOSED WORK

1) Clean out to 3985'(PBD)
2) Connect up well for water injection down tubing as indicated.
3) ~~Annulus (7"-8 1/2") will be left open to check for communication.~~
4) ~~If communication occurs - 7" OD casing will be re-cemented.~~

MCA UNIT
WATER INJECTION WELL DATA

WELL - MCA UNIT NO. 12
Elev.-G.L. 4032'



PROPOSED WORK

1) Clean out to 3985'(PBD)
2) Connect up well for water injection down tubing as indicated.
~~3) Annulus (7"-8 1/2") will be left open to check for communication.~~
~~4) If communication occurs - 7" OD casing will be re-cemented.~~

CONOCO

CONTINENTAL OIL COMPANY

P. O. BOX 460
HOBBS, NEW MEXICO

PRODUCTION DEPARTMENT
HOBBS DISTRICT
JACK MARSHALL
DISTRICT MANAGER
G. C. JAMIESON
ASSISTANT DISTRICT MANAGER

1001 NORTH TURNER
TELEPHONE: EX 3-4141

April 6, 1965

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

Attention of Mr. A. L. Porter, Jr., Secretary-Director

Re: Supplemental Plan of Operation
MCA Unit, Lea County, New Mexico

Gentlemen:

Please refer to previous subject correspondence and Mr. Frank E. Irby's letter of March 23, 1965, concerning MCA Unit No. 12, No. 28 and No. 42.

In regard to Mr. Irby's questions concerning the above-mentioned wells, we submit the following data:

1. MCA Unit No. 12 - refer to our letter dated March 24, 1965. Re-examination of our records revealed the 7" O.D. casing to be set at 3605' and cemented with 100 sacks of cement. Estimated top of cement at 2900'.

2. MCA Unit No. 28 - pulled 7" O.D. casing. Ran 4 1/2" O.D., 9.5#, J-55 casing to 4117' and cemented with 200 sacks cement. Top of cement at 2900' by temperature survey. Perforated casing 3726-4090' with total of 16 shots.

3. MCA Unit No. 42 - 6 5/8" O.D. casing set at 3555' and cemented to 3400' with 20 sacks. It is proposed to inject down tubing with packer set at 3500'. Anticipated initial injection pressure in this well is from 1200 to 1500 psi.

We realize that injection difficulties may arise in this well due to the amount of cement used. As re-cementing costs of the 6 5/8" O.D. casing will be from $6,000 to $10,000, we are proposing the following procedure prior to re-cementing:

A. Production casing - surface casing annulus and production casing - tubing annulus will be left open after injection started to check for communication.

B. After injection is started, a radioactive tracer survey will be run to determine zones of water entry.

The above-mention procedure will indicate if recementing of the 6 5/8" OD casing is required.

Your consideration and approval of converting MCA Unit Wells No. 12, No. 28 and No. 42 to water injection is respectfully requested.

Yours very truly,

GCJ-JS

cc by Certified Mail: State Engineer
P. O. Box 1079
Santa Fe, New Mexico

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

April 9, 1965

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

Dear Mr. Porter:

Reference is made to the application of Continental Oil Company dated April 10, 1965 which seeks approval of a supplemental plan of operation for their MCA Unit secondary recovery project in the Maljamar Field. Further reference is made to their letters addressed to you under date of March 24th and April 6th pertaining to this application.

In view of the statements contained in these two letters, I withdraw objection to Units 12, 28 and 42 being included in approval of the application.

Yours truly,

S. E. Reynolds
State Engineer

By: Frank E. Irby
Chief
Water Rights Division

FEI/ma
cc-Continental Oil Co.
F. H. Hennighausen

Location of Well

S. 28 T. 17 R. 32
660' fr S, 1980' fr W/L's.

SCHLUMBERGER ELECTRICAL LOGS

COMPANY: BARNEY COCKBURN

WELL: BAISH #B-30

FIELD: MALJAMAR

SURVEY: SEC. 28-17-32

COUNTY: LEA

STATE: NEW MEXICO FILING NO:

PROBLEM: STUDY OF THE PAY

COMPANY Barney Cockburn
January 1, 1941

COUNTY Lea, N.M. No
FIELD OR Maljamar
SURVEY Sec. 28-17-32
WELL Baish #B-30

First Reading	4022 ft.	Started run	2:00		a.m
Last Reading	3546 ft.	Finished run	4:00		a.m
Footage Measured	476 ft	Time well occupied by outfit	2		hrs
Casing Shoe Depth: DRILLER	3559 ft	Time waiting at well	3		hrs
Casing Shoe Depth: SCHLUMBERGER	3546 ft.	Total time incurred by run	8		hrs
Bottom Depth DRILLER	4025 ft	Mileage incurred by run	60		Mi
Total Depth Reached	4022 ft.				

MUD CHARACTERISTICS

Nature: Oil Viscosity: --
Weight: -- Resistivity: -- @ °F
Bottom Temperature: 89 °F

Diameters of hole: from Csg. to T.D. 4 7/8"
from to
from to

REMARKS

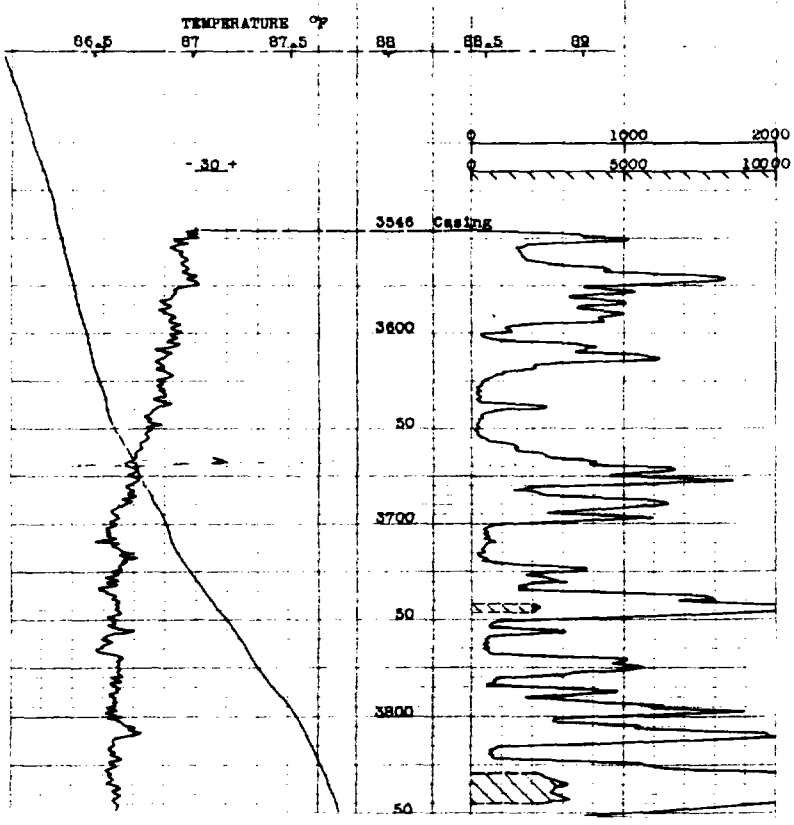
MEASUREMENTS TAKEN FROM ROTARY TABLE

THE TEMPERATURE CURVE INDICATES THE PRESENCE OF OIL AND/OR GAS IN THE SAND AND SANDY LIME IN THE FOLLOWING SECTIONS:
3859 to 3924'
3953 to TOTAL DEPTH, (BROKEN SECTION)
3700 to 3784', (BROKEN SECTION)
3617 to 3657'

MCA No. 209

Date January 1, 1941 Observers: E. S. Griffith

SELF-POTENTIAL LOG-millivolts | INTERPRETATION | DEPTHS 2" & 5" INCHES PER 100' | GEOL LOG | RESISTIVITY LOG - ohms. m²m.



ILLEGIBLE

Location of Well
S. 28 T. 17 R. 32
1980' fr S&E/L's

Scale: 1 4000'

Elevation:

SCHLUMBERGER ELECTRICAL LOGS

COMPANY: BARNEY COCKBURN

WELL: BAISH #B-25

FIELD: MALJAMAR

SURVEY: SEC. 28-17-32

COUNTY: LEA

STATE: NEW MEXICO FILING NO:

PROBLEM: STUDY OF THE PAY

COMPANY Barney Cockburn
WELL Baish #B-25
FIELD OR SURVEY Maljamar Sec. 28-17-32
COUNTY Lea, N.M. No.
December 10, 1940

First Reading	3925	ft.	Started run	4:45		p. m.
Last Reading	3543	ft.	Finished run	7:30		p. m.
Footage Measured	382	ft.	Time well occupied by outfit	2-3/4		hrs.
Casing Shoe Depth: DRILLER	3550	ft.	Time waiting at well	2-1/4		hrs.
Casing Shoe Depth: SCHLUMBERGER	3543	ft.	Total time incurred by run	9-1/2		hrs.
Bottom Depth DRILLER	3925	ft.	Mileage incurred by run	60		Mi.
Total Depth Reached	3925	ft.				

MUD CHARACTERISTICS

Nature: Oil Viscosity:
Weight: Resistivity: @ °F
Bottom Temperature: 91.5 °F

Diameters of hole: from Csg. to T.D. : 4-7/8"
from to :
from to :

REMARKS

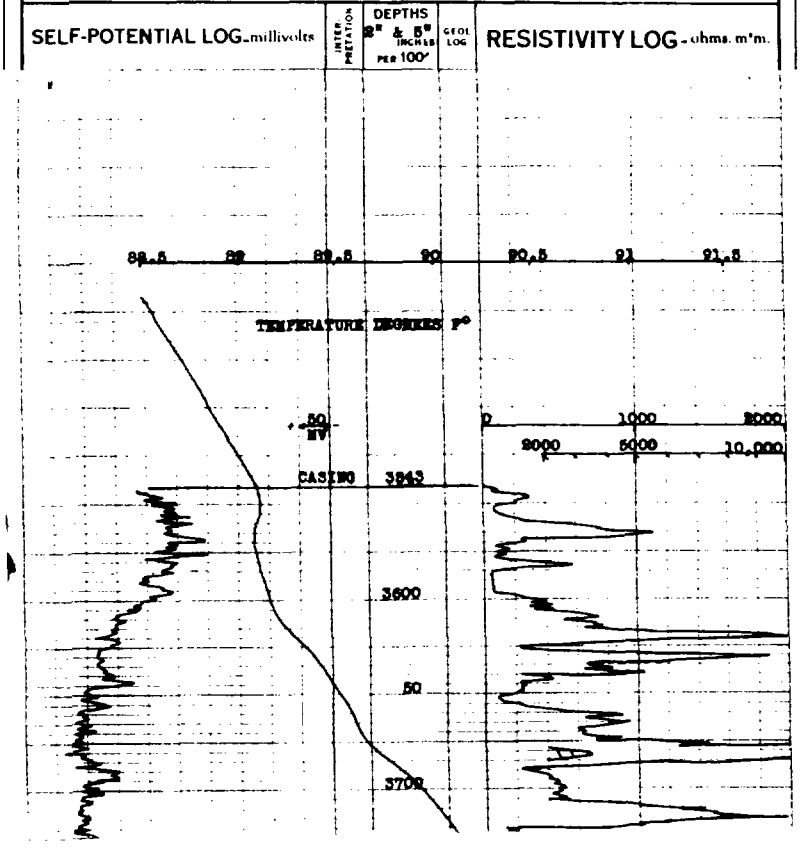
MEASUREMENTS TAKEN FROM ROTARY TABLE

THE TEMPERATURE SURVEY INDICATES THE POSSIBILITY OF THE PRESENCE OF OIL/GAS IN THE POROUS SAND AND SANDY LIMES IN THE FOLLOWING SECTIONS:
3570 - 3615 SAND & SANDY LIME
3640 - 3680 SAND & SANDY LIME
3720 - 3647 SAND & SANDY LIME
3830 - 3900 SAND AND SANDY LIME
THERE IS ALSO A POSSIBILITY THAT SOME OIL/GAS IS PRESENT IN THE SANDY LIME FROM 3800-3830, AND 3900-3925

FLUID LEVEL: 650

MCA No. 178

Date December 10, 1940 Observers: R. T. Wade



SCHLUMBERGER ELECTRICAL LOGS

COMPANY: BARNEY COCKBURN

WELL: BAISH #3-28

FIELD: MALJAMAR

SURVEY: SEC. 28-17-32

COUNTY: LEA

STATE: NEW MEXICO FILING NO

PROBLEM: STUDY OF THE PAY

Rec.	4003	ft.	Started run	12:00	p. m.	
Rec.	3586	ft.	Finished run	2:30	p. m.	
age	417	ft.	Time well occupied by outfit	5	hrs	
ing	3586	ft.	Time waiting at well	3	hrs	
rom	3586	ft.	Total time incurred by run	10½	hrs	
rom	3586	ft.	Mileage incurred by run	60	Mi.	
ed by	4003	ft				

MUD CHARACTERISTICS

ture 011 Viscosity:

ight Resistivity: @ °F

ttom Temperature: 91 °F

Diameters of hole: from Csg. to T.D. : 4-7/8"; from ... to ... :

REMARKS

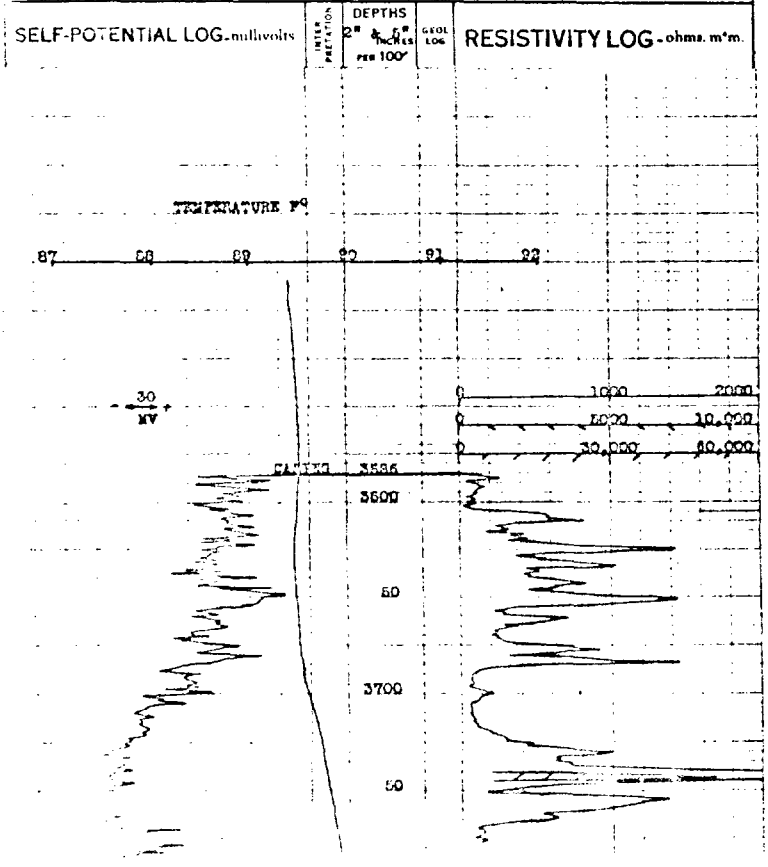
MEASUREMENTS TAKEN FROM ROTARY TABLE

FLUID LEVEL 900'

THE TEMPERATURE CURVE INDICATES THE PRESENCE OF OIL AND/OR GAS IN THE SAND AND SANDY LIME IN THE FOLLOWING SECTIONS:

3921 to 4003, BEST PAY 3950 to 4003
3885 to 3893
3866 to 3876
3819 to 3838
3768 to 3807
3688 to 3722

Date December 28, 1940 Observers: R. T. Wade



ILLEGIBLE

Location of Well

S. 28 T. 17 R. 32
1980' fr S, 660'
fr W/L

Scale 1 : 1000

Elevation

SCHLUMBERGER ELECTRICAL LOGS

COMPANY: BARNEY COCKBURN

WELL: BAISH #B-23

FIELD: MALJAMAR

SURVEY: 28-17-32

COUNTY: LEA

STATE: NEW MEXICO FILING NO:

PROBLEM: STUDY OF THE PAY

COMPANY Barney Cockburn
October 3, 1940

WELL Baish B-23
SURVEY 28-17-32
FIELD OR Maljamar
COUNTY Lea, N.M. No.

First Reading	3864	ft.	Started run	12:00		m.
Last Reading	3536	ft.	Finished run	2:00		p. m.
Footage Measured	328	ft.	Time well occupied by outfit	2		hrs.
Casing Shoe Depth: DRILLER	3550	ft.	Time waiting at well	0		hrs.
Casing Shoe Depth: SCHLUMBERGER	3536	ft.	Total time incurred by run	10		hrs
Bottom Depth DRILLER	3868	ft	Mileage incurred by run	60		Mi
Total Depth Reached	3864	ft				

MUD CHARACTERISTICS

Nature: Oil Viscosity:
Weight: Resistivity: @ F
Bottom Temperature: 87 °F

Diameters of hole: from Csg. to T.D. 8"
from to
from to

REMARKS

MEASUREMENTS TAKEN FROM THE FLOOR

THE TEMPERATURE CURVE INDICATES THE PRESENCE OF OIL/OR GAS IN THE POROUS SANDS AND SANDY LIMES;

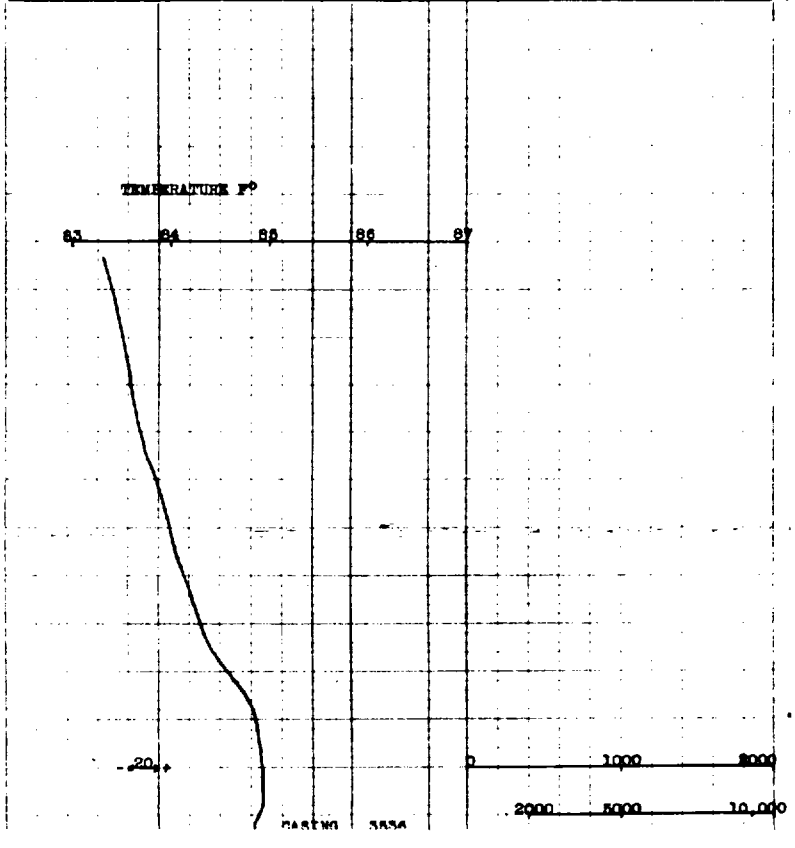
3741-3755 - Sand and Sandy Lime
3802-3810 - Sandy Lime
3815-3824 - Sand
3828-3842 - Sand
3846-3852 - Sandy Lime

THERE IS ALSO A SHOW IN THE SAND FROM 3626-3642, AND A COOLING AT THE CASING SHOE

MCA No. 175

Date OCTOBER 3, 1940 Observers: R. T. Wade

SELF-POTENTIAL LOG - millivolts	INTERPRETATION	DEPTHS 2" & 5" INCHES PER 100'	STRATIGRAPHIC LOG	RESISTIVITY LOG - ohms. m²m.



ILLEGIBLE

LANE WELLS COMPANY

Radioactivity Log

COMPANY: KEWANEE OIL COMPANY

WELL: BAISH B-22

FIELD: MALJAMAR

LOCATION: SEC. 28, T-17-S, R-32-E

COUNTY: LEA STATE: NEW MEXICO

NMOA 150

COMPANY: KEWANEE OIL COMPANY

WELL: BAISH B-22

FIELD: MALJAMAR

LOCATION: 1980' FNL & 660' FEL OF SEC. 28, T-17-S, R-32-E

COUNTY: LEA STATE: N MEX.

Well Location

LOG ZERO	GROUND LEVEL	ELEV. 4003
DRLG. ZERO	GROUND LEVEL	ELEV. 4003
PERM. DATUM	GROUND LEVEL	ELEV. 4003

TYPE OF LOG	GAMMA RAY
RUN NO.	ONE-OW
DATE	8-5-57
TOTAL DEPTH (DRILLER) S. L.	4150
EFFECTIVE DEPTH (DRILLER)	4142
TOP OF LOGGED INTERVAL	1700
BOTTOM OF LOGGED INTERVAL	4130
TYPE OF FLUID IN HOLE	OIL
FLUID LEVEL	FULL
MAXIMUM RECORDED TEMP.	
SOURCE STRENGTH & TYPE	
SOURCE SPACING — IN.	
DETECTOR CLASS	CHAMBER
DETECTOR TYPE	E127
LENGTH OF MEAS. DEVICE — IN.	36
O.D. OF INSTRUMENT — IN.	3 5/8
TIME CONSTANT — SECONDS	4
LOGGING SPEED FT./MIN.	18-40
STATISTICAL VARIATION — IN.	RECORDED
SENSITIVITY REFERENCE	274
RECORDED BY	SUTTON & ORNKOVIC
WITNESSED BY	HARRISON

WELL RECORD

RUN	BIT SIZE	CASING	WT.—LB.	FROM WELL RECORD			FROM LOG		
ONE		5 1/2		SURFACE	TO	3545	SURFACE	TO	3545
ONE	7 7/8			3545	TO	3685	3545	TO	3685
ONE	4 3/4			3685	TO	4150	3685	TO	4132
					TO			TO	
					TO			TO	

ILLEGIBLE

LANE WELLS COMPANY

Radioactivity Log

WELL FILE

COMPANY: BUFFALO OIL CO.
WELL: RAISH A NO. 6
FIELD: MALJAMAR
COUNTY: LEA STATE: NEW MEX.
LOCATION:

COMPANY: BUFFALO OIL CO.
WELL: RAISH A NO. 6
FIELD: MALJAMAR
COUNTY: LEA STATE: NEW MEX.
LOCATION: 1980' FS & EL'S SEC. 21, T-17-S, R-32-E

Location of Well

mCA 70

SEC 21

LOG MEAS. FROM TUBING HEAD ELEV. 4044
DRLG. MEAS. FROM TUBING HEAD ELEV. 4044
PERM. DATUM TUBING HEAD ELEV. 4044

	GAMMA RAY	NEUTRON	CALIPER	
TYPE OF LOG	GAMMA RAY	NEUTRON	CALIPER	
RUN NO.	ONE	ONE	ONE	
DATE	6-28-56	6-28-56	6-28-56	
TOTAL DEPTH (DRILLER) SAND LINE	4144	4144	4144	
EFFECTIVE DEPTH (DRILLER)	4144	4144	4144	
TOP OF LOGGED INTERVAL	SURFACE	SURFACE	3680	
BOTTOM OF LOGGED INTERVAL	4120	4129	4129	
TYPE OF FLUID IN HOLE	OIL	OIL	OIL	
FLUID LEVEL	838	838	838	
MAXIMUM RECORDED TEMP.				
SOURCE STRENGTH & TYPE		600-N		
SOURCE SPACING — IN.		8.25		
LENGTH OF MEASURING DEVICE — IN.	36	9.1	24" ARMS	
O.D. OF INSTRUMENT — IN.	3 5/8	3 5/8	3 1/2	
TIME CONSTANT — SECONDS				
LOGGING SPEED FT./MIN.	20 & 40	20 & 40	20	
STATISTICAL VARIATION — IN.				
SENSITIVITY REFERENCE	274	275		
RECORDED BY	SCHLOTTERBACK			
WITNESSED BY	FOSTER	FOSTER	FOSTER	

RECORDED SIMULTANEOUSLY

WELL RECORD

RUN NO.	BIT SIZE	CASING	WT.—LB.	FROM WELL RECORD		FROM LOG	
1	12 1/2"	10"	40	SURFACE TO	2286	SURFACE TO	2287
1	8 5/8"	7"	20	SURFACE TO	3757	SURFACE TO	3735
1	6 1/4"	O.H.		3757 TO	4144	3735 TO	4131
				TO		TO	
				TO		TO	
				TO		TO	

Location of Well

S. 21 T. 17 R. 32

Scale: 1" = 4000'

Elevation:

SCHLUMBERGER ELECTRICAL LOGS

COMPANY: MALJAMAR OIL & GAS COMPANY

WELL: BAISH #A-9

FIELD: MALJAMAR

SURVEY: SEC. 21-17-32

COUNTY: LEA

STATE: NEW MEXICO FILING No.:

PROBLEM: STUDY OF THE PAY

COMPANY: Maljamar O&G Co.
January 23, 1941

WELL: Baish #A-9
SURVEY: Sec. 21-17-32
FIELD OR: Maljamar
COUNTY: Lea, N.M. No.:

First Reading		: 4137 ft.	Started run	: 2:15		p.m.
Last Reading		: 3599 ft.	Finished run	: 5:30		p.m.
Footage Measured		: 538 ft.	Time well occupied by outfit	: 3¾		hrs.
Casing Shoe Depth:	DRILLER	: 3600 ft.	Time waiting at well	: -		hrs.
	SCHLUMBERGER	: 3599 ft.	Total time incurred by run	: 7¼		hrs.
Bottom Depth	DRILLER	: 4138 ft.	Mileage incurred by run	: 60		Mi.
Total Depth Reached		: 4137 ft.				

MUD CHARACTERISTICS

Nature: Oil Viscosity:

Weight: Resistivity: @ °F

Bottom Temperature: 86.5 °F

Diameters of hole: from Csg. to T.D. : 7"; from to :; from to :

REMARKS

MEASUREMENTS TAKEN FROM FLOOR
FLUID LEVEL - 3100'

THE TEMPERATURE SURVEY INDICATES THE POSSIBILITY OF THE PRESENCE OF OIL AND/OR GAS IN THE POROUS SAND AND SANDY LIME OF THE FOLLOWING SECTIONS:

4010 - 4086 SAND & SANDY LIME
4086 - 4095 LIME
3988 - 3992 LIMY SAND
3812 - 3882 SAND & SANDY LIME
3741 - 3751 SAND

ALSO POSSIBILITY OF SOME OIL AND/OR GAS:

3688 - 3710 SAND & SANDY LIME
3667 - 3681 SANDY LIME

Date January 23, 1941 Observers: R. T. Wade

Halliburton
OIL WELL CEMENTING CO.

NEA #10 File 16

Map

RADIOACTIVITY LOG

NATURAL GAMMA RADIATION INDUCED GAMMA RADIATION

COMPANY BUFFALO OIL COMPANY FILE
WELL STATE A # 1
FIELD Maljamar
County Lea State N.M.

COMPANY BUFFALO OIL COMPANY
FILE
WELL STATE A # 1
FIELD Maljamar
COUNTY Lea STATE New Mex
SEC. 16 TWP. 17-S RGE. 32-E
SURVEY

Location
250' from East
250' from South
Sec. 16
Twp. 17-S
Rge. 32-E

GRNG(CALIPER)
Elev. D.F. N.A.
K.B. N.A.
Grd. 4009'

Log Measured From	Ground level		Elevation	4009'
Drilling Measured From	Ground level		Elevation	4009'
Permanent Datum	Ground level		Elevation	4009'

Type Log	GAMMA	N.GAMMA		
Run No.	ONE	ONE		
Date	4-23-56	4-23-56		
Footage Logged	4102'	4102'		
Total Depth, Driller	4111'	4111'		
Total Depth, Logged	4102'	4112'		
Type of Fluid in Hole	Oil	Oil		
Fluid Level	2518'	2518'		
Max. Temp.	95 F	95 F	F	F
Neutron Source Strength		400 mg		
Source to Center of Counter	in.	19 in.	in.	in.
Length Meas. Device-in	29 in	14 in		
O.D. of Instrument-in	3 5/8"	3 5/8"		
Time Constant-sec.	1 & 2	1 & 2		
Logging Speed Ft. min.	See Remarks			
Neutron Source Code		Yellow		
Truck No.	4567	4567		
Recorded by	P.C. Harris			
Witnessed by	Vince Foster			