Well Records for Artificial Penetration #1

Cheney Ranch #1

(API No. 1900190)

FORM 159 (9-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Coalinga, California, May 26, 19 52

Mr Philip C Clark Acting Agent
Jergins Oil Company
Rte 5 Box 475
Bakersfield California

Dear Sir

Your report of abandonment of Well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M.D.B. & M., ——— oil field, Fresno County, dated February 12, 1952, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have been fulfilled.

OK 5-27-52
GLP

GMH:ef
cc: Company Long Beach

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Deere
Deputy Supervisor

40779 S 51 6900 SPO

FORM 103.
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Jergins Oil Company FIELD (Panoche Creek Area)

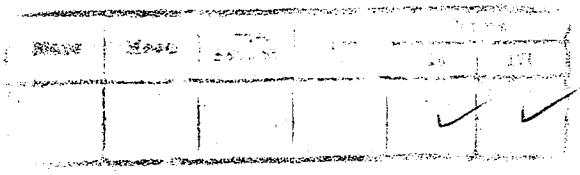
Well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.

Signed Philip C. Clark

Date February 12, 1952 Title Acting Agent
(President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. **Use this form in reporting the history of all important operations at the well, together with the dates thereof, prior to the first production.** Include in your report such information as size of hole drilled to cementing or landing depth of casings, number of sacks or number of feet of cement drilled out of casing, depth at which cement plugs started, and depth at which hard cement encountered. If the well was dynamited, give date, size, position and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position and results of pumping or bailing.

Date	
1951	9284TD Intention to abandon dated July 16, 1942 not approved.
10-25	Filed supplementary notice.
11-6	A. L. Scott, Contractor, rigged mast and sandline.
	Well blew gas for 45 minutes thru 1/2" valve making condensate at rate of 14 gallons per hour.
8	Well blew out approximately 30 bbls. of casing head gasoline when uncapped.
	Ran in 125 bbls. of water to fill 8-5/8" casing.
9	Pumped in 25 bbls. of water displacing some 20 bbls. of condensate.
	Bailed sand and shale 6624-6640.
10	Bailed sand, shale and some rocks 6640-6680; casing bad at 6721.
12	Bailed sand and shale 6680-6728 to top of junk in 6-5/8" liner.
13	Bailed sand 6683-6720.
	Dumped 23 sacks of cement in stages from 6720.
14	P.6480 Tested location and hardness of cement plug at 6480 for Division of Oil and Gas.
	Burned gasoline in sump. Closed well in with casing full.
11-29	Scott moved in hydraulic jacks and gin pole.
	Found gas leaking by plug with pressure on head.
30	Measured in well to 5100 feet.
	P.5037 McCullough set Type B bridging plug in 8-5/8" casing at 5037.
	Dumped 6 sacks of cement with dump bailer at 5037; capped well.
12-1	"Still making gas" after locating plug at 5037.
	Dumped 14 sacks of construction cement mixed with 1½ sacks of Cal-Seal; replaced head and applied 500# pressure with hydraulic pump.
	Shut well valve on head over night.
2	Found 100# pressure on casing. Could not find cement plug.
	Dumped 9 sacks of cement with 1/2 sack of Cal-Seal at 5037.
	Replaced head and pressured well to 100# and closed in.
3	Gas pressure still 100#; found no cement.
	P.4016 McCullough set second 8-5/8" expanding plug at 4016.
5	Pressure still 100#. No. 2 plug apparently not holding.
6	Dumped 9 sacks of cement at 4016 and repressured casing at 200#.
7	Released pressure; found no cement.
	Dumped 3 loads of mud followed by 20 sacks of common cement at 4016 and repressured well at 150#.
	Standing cemented for 4 days.



HISTORY
Jergins Oil Company
"Cheney Ranch" 1
February 12, 1952

1951

12-11	P.3980	Checked cement plug at 3980. Experienced difficulty with 8-5/8" and 13-3/8" landing base.
12		Welder would not cut off head on account of gas.
13		Welder checked gas, cut off head and welded on pulling nipple.
14		Pulled 8-5/8" casing at 3000# with only 2 inch stretch. Worked casing at 3000# for 3½ hours increasing stretch to 5 inches at 3500#.
15		Worked casing at 4500#. Shot 8-5/8" casing at 1600, 1424, 1214, 1050 and 908. Pulled 24 feet at 3750# and 54 feet at 1050#. Ran plug to stub of 8-5/8" casing.
17	P.887	Dumped 14 sacks of cement in stages on stub of 8-5/8" at 908. Pulled 22 good joints of 8-5/8" 36# R3 casing, cutting off joints that would not unscrew.
19		Ran bailer to 549 and dumped 19 sacks of construction cement below shoe of 13-3/8".
20		Found cement at 515 and dumped 16 more sacks of construction cement 515-503 into 13-3/8" casing.
21	P.503	Tested location and hardness of cement plug at 503 for Division of Oil and Gas.
22		Filled 13-3/8" casing with earth material 503-26 KB. Mixed and dumped 8 sacks of cement at 26 filling 13-3/8" to bottom of cellar. Welded cap on 13-3/8" in cellar some 5 feet below surface of ground and abandoned well 12-22-51.

PCC/jwr

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 5-5554

Coalinga, Calif. December 27, 19 51

Mr. Philip C. Clark
Rte. 5, Box 475, Bakersfield, Calif.
Acting Agent for JERGINS OIL COMPANY

DEAR SIR:

Operations at your well No. "Cheney Ranch" 1 Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., ----- Field, in Fresno County, were witnessed by G. W. Hunter, representative of the supervisor, on December 21, 19 51. There was also present A. L. Scott, Contractor, and D. Ainsworth, Helper.

Casing Record 13-3/8" cem. 529'; 8-5/8" cem. 6676' W.S.O. shot 1412', 1204', 1050' and 908', pulled from 908'; 6-5/8" liner ld. 6658'-7215', perf. 6721-6793', 6953-7215', bad 6718-6723'. Junk: Sub. and bit 6720-6723'. T.D.(present hole) 7215', plugged with cement 6720-6480', 908'- ? and 549-503'.

Junk (sidetracked)(1st hole). 6-5/8" liner 6720-7188'. T.D. 9284', plugged with cement 7775-7662'?, 7326-7191', and 6720-6691'.

The operations were performed for the purpose of witnessing the location and hardness of a cement plug placed from 549' to 503' in the process of abandonment.

The inspector arrived at the well at 2:00 p.m. and Mr. Scott reported:

1. The 8-5/8" casing was shot at 1412', 1204', 1050' and 908' and pulled from 908'.

2. A total of 14 sacks of cement was dumped in stages on the stub of the 8-5/8" casing at 908'.

3. On December 19 and 20, 1951, 35 sacks of cement was dumped in stages beginning at 549', filling to 503'.

THE INSPECTOR NOTED that the bailer could not be spudded below 503' and brought up samples of set cement.

The inspection was completed at 3:40 p.m.

THE LOCATION AND HARDNESS OF THE CEMENT PLUG AT 503' ARE APPROVED.

GWH:ef
cc: Company, Long Beach
Mr. A. L. Scott

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Peirce Deputy

115

16330 10-49 17,500 ⓢ SPO

FORM 109-D

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 5-5538

Coalinga, Calif. November 16, 1951

Mr. Philip C. Clark
Rte. 5, Box 475, Bakersfield, Calif.
Acting Agent for JERGINS OIL COMPANY

DEAR SIR:

Operations at your well No. "Cheney Ranch" 1 Sec. 29, T. 14 S., R. 13 E., H.D. B. & M., Field, in Fresno County, were witnessed by G. W. Hunter, representative of the supervisor, on November 14, 1951. There was also present F. A. Jones, Production Foreman and W. V. David, Hoist Operator.

Casing Record 13-3/8" cem. 529'; 8-5/8" cem. 6676', W.S.O.; 6-5/8" liner ld. 6658'-7215', perf. 6721'-6793', 6953'-7215', bad 6718'-6723'. Junk: Sub. and bit 6720'-6723'. T.D. (present hole) 7215', plugged with cement 6720'-6480'.

Junk (sidetracked)(1st hole) 6-5/8" liner 6720'-7188'. T.D. 9284', plugged with cem. 7775'-7662'?, 7326'-7191'; and 6720'-6691'.

The operations were performed for the purpose of witnessing the location and hardness of a cement plug placed from 6720' to 6480' in the process of abandonment.

~~The inspector arrived at the well at ... and Mr. ... reported.~~

ON NOVEMBER 13, 1951, THE INSPECTOR WAS PRESENT AT THE WELL FROM 9:00 a.m. TO 11:00 a.m. AND NOTED:

1. The hole was cleaned out to 6720'.
2. Two sacks of cement was dumped at 6720'.
3. Cementing operations were continuing.

ON NOVEMBER 14, 1951, THE INSPECTOR WAS PRESENT AT THE WELL FROM 9:15 a.m. TO 11:00 a.m. AND MR. JONES REPORTED that on November 13, 1951, a total of 23 sacks of cement was dumped in stages beginning at 6720'.

THE INSPECTOR NOTED THAT the bailer could not be spudded below 6480' and brought up samples of set cement.

THE LOCATION AND HARDNESS OF THE CEMENT PLUG AT 6480' ARE APPROVED.

GHH:ef
cc: Company, Long Beach
Mr. A. L. Scott

R. D. BUSH
State Oil and Gas Supervisor

By G. H. Peirce Jr. Deputy

16330 10-49 17,500 ② SPO

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 5-9342

Coalinga, Calif. November 8, 19 51

MR. Philip C. Clark
Rte. 5,
Box 475, Bakersfield, Calif.

Acting Agent for JERGINS OIL COMPANY

DEAR SIR:

Your supplementary proposal to abandon Well No. "Cheney Ranch" 1,

Section 29, T. 14S., R. 13E., M.D. B. & M., ----- Field, Fresno County,

dated Nov. 5, 1951, received Nov. 8, 1951, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:
"The new conditions are as follows:
T.D. original hole 9284, plg. w/cmt. 7775-7662?, 7326-7191, 6720-6691.
6-5/8" liner 6720-7188 sidetracked.
T.D. present hole 7215.
13-3/8" cmt. 529;
8-5/8" cmt. 6676, W.S.O.;
6-5/8" ld. 6658-7215, perf. 6721-6793, 6953-7215, bad 6718-6723.
Junk: Sub and 6-1/2" bit 6720-6723.
Standing idle since 1-4-41."

PROPOSAL:
"We now propose
1) To plug top of 6-5/8" liner with cement 6718-6638;
2) To pull all 8-5/8" casing possible;
If from below 1950:
3) To place cement plug in open hole 1950-1850;
If from above 1950:
4) To cap stub of 8-5/8" casing with 40 feet of cement;
5) To plug shoe of 13-3/8" casing with cement 549-509;
6) To plug 13-3/8" casing at surface with 10 feet of cement.
(All hole not plugged with cement to be filled with mud or surface dirt.)"

DECISION:
THE PROPOSAL IS APPROVED PROVIDED THAT this Division shall be notified to witness the placing and location and hardness of the cement plugs at 6638' and at 1850' or on the stub of the 8-5/8" casing.

Blanket Bond
GGP:ef
cc: Company, Long Beach
Mr. A. L. Scott

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Terrell Deputy

43268 4-51 25M SPO

FORM 123 (9-48)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

Route 5, Box 475
Bakersfield 6-8187

Bakersfield, Calif. November 5, 1951

DIVISION OF OIL AND GAS

Coalinga, Calif.

Our notice to you dated July 16, 1942, stating our intention to

abandon (Drill, deepen, redrill, abandon) well No. "Cheney Ranch" 1,

Sec. 29, T. 14 S., R. 13 E., M.D. B. & M. -Field,

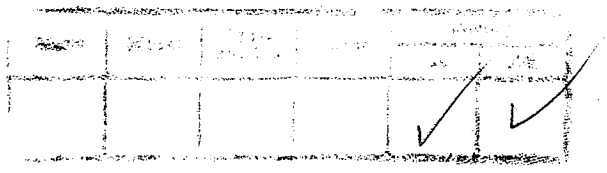
Fresno County, must be amended on account of changed or recently discovered conditions.

The new conditions are as follows:

T.D. original hole 9284, plg. w/cmt. 7775-7662?, 7326-7191, 6720-6691.
6-5/8" liner 6720-7188 sidetracked.

T.D. present hole 7215.
13-3/8" cmt. 529;
8-5/8" cmt. 6676, W.S.O.;
6-5/8" ld. 6658-7215, perf. 6721-6793, 6953-7215, bad 6718-6723.
Junk: Sub and 6-1/2" bit 6720-6723.

Standing idle since 1-4-41.



We now propose

1) To plug top of 6-5/8" liner with cement 6718-6638;

2) To pull all 8-5/8" casing possible;

If from below 1950:

3) To place cement plug in open hole 1950-1850;

If from above 1950:

4) To cap stub of 8-5/8" casing with 40 feet of cement;

5) To plug shoe of 13-3/8" casing with cement 549-509;

6) To plug 13-3/8" casing at surface with 10 feet of cement.

(All hole not plugged with cement to be filled with mud or surface dirt.)

Please give copy of report to:
Mr. A. L. Scott, Contractor

Jergins Oil Company
(Name of operator)

By Philip C. Clark
Philip C. Clark, Acting Agent.

17988 11-49 8750 SPO

Coalinga, California
July 16, 1946

Mr. Harry A. Campbell, Agent
Jergins Oil Company
c/o Motel El Rancho
Fresno, California

Dear Sir:

Under date of July 16, 1942, you filed a Notice of Intention to Abandon well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Fresno County. The proposal was not approved by this Division, and our report No. F 5-5868, dated July 22, 1942, outlined the requirements for the abandonment of the well.

In order that our records may be brought to date, I would appreciate a statement as to the present condition and status of the well, and whether or not any of the outlined work has been done.

Very truly yours

[signature]
Deputy Supervisor

RWW:ef

cc: Company, Long Beach

9/3/46 Harry Campbell telephoned at 2:00pm from Bakersfield & stated. - Well is "Idle" and no work has been done. Will eventually perform work - impractical at present time.
Rw.

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 5-5068

Coalinga, Calif. July 22 1942

MR. Harry A. Campbell

Rt. 6, Box 102, Bakersfield, Calif.

Agent for IDELING OIL COMPANY

DEAR SIR:

Your proposal to abandon Well No. "Cheney Ranch" 1,

Section 29, T. 14 S, R. 15 E, M.D. B. & M., Field, Fresno County,

dated July 16 1942, received July 22 1942, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

RECORDS IN ADDITION TO THOSE SHOWN IN THE NOTICE QUOTED BELOW:

T.D. original hole 9284', plugged with cement, with 80 sacks at 7775', 7526'-7191', and 6 720'-6691'. 6-5/8" liner sidetracked 6730'-7150' in original hole.
T.D. present hole 7215'.
The well has produced only small amounts of gas and distillate in its present condition.

THE NOTICE STATES:

"The present condition of the well is as follows:
1. 13-3/8" cemented at 529'.
2. 8-5/8" cemented at 6676'.
3. 6-5/8" liner 6358' to 7215'. Perforations 7215' - 6953' and 6793' to 6721'.
4. Liner kinked at 6718' to 6723'. With diamond pt. bit and sub at 6720±.
5. Well capped with bull plug and valve in 8-5/8" since Jan. 1, 1941. Shut in pressure 900#."

PROPOSAL:

"The proposed work is as follows:
1. Spot weld bull plug and lock valve, move out derrick and racks, build tight fence around cellar."

DECISION:

This Division cannot consider the abandonment of a well with 900# shut-in pressure merely by capping it at the surface.
YOUR PROPOSAL IS THEREFORE NOT APPROVED.

The well may be abandoned, however, provided that:
1. All perforations shall be plugged with cement and a 20' cement plug placed on the top of the 6-5/8" liner.
2. In case the well cannot be cleaned out below 6718', it should be plugged with cement from 6718' to about 6630'.
3. All hole not plugged with cement shall be filled with heavy mud or surface dirt.
4. The well shall be securely capped at the surface.

No bond required.

EJK:v
cc Company, Long Beach
RDBush

R. D. BUSH
State Oil and Gas Supervisor

By E. J. Kaplan Deputy

FORM 108. 23860 8-35 5M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin

Long Beach Cal. July 16 1942

MR. E. J. Kaplow

Deputy State Oil and Gas Supervisor

Coalinga Cal.

DEAR SIR:

In compliance with Section 16, Chapter 718, Statutes of 1915, as amended, notice is hereby given that it is our intention to abandon well No. Cheney Ranch #1, Sec. 29, T. 14 S. R. 13 E., M.D. B. & M., ~~Panoche District~~ Oil Field, Fresno County, commencing work on the 27th day of July 19 42

The present condition of the well is as follows:

1. 13-3/8" cemented at 529'.
2. 8-5/8" cemented at 6676'.
3. 6-5/8" liner 6658' to 7215'. Perforations 7215' - 6953' and 6793' to 6721'.
4. Liner kinked at 6718' to 6723'. With diamond pt. bit and sub at 6720± .
5. Well capped with bull plug and valve in 8-5/8" since Jan. 1, 1941. Shut in pressure 900#.

The proposed work is as follows:

1. Spot weld bull plug and lock valve, move out derrick and racks, build tight fence around cellar.

Reference to file of data

Maps	Model	Cross Section	Cards	Forms	
				114	121
				✓	✓

DIVISION OF OIL AND GAS
RECEIVED
JUL 22 1942
COALINGA, CALIFORNIA

Respectfully yours

JERGINS OIL COMPANY
Name of Company or Operator

By H. A. Campbell
H. A. CAMPBELL, Engineer

ADDRESS NOTICE TO DEPUTY STATE OIL AND GAS SUPERVISOR IN CHARGE OF DISTRICT WHERE WELL IS LOCATED

FORM 100.
CALIFORNIA STATE PRINTING OFFICE

SUBMIT LOG IN DUPLICATE

FILL IN BLANK IN WITH TYPEWRITER. WRITE ON ONE SIDE OF PAPER ONLY

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG OF OIL OR GAS WELL

Operator Jergins Oil Company Field Panoche District

Well No. #1 Sec. 29, T. 14S, R. 13E, MD B. & M.

Location 330 S, 330 E W½ Cor. Sec. 29 Elevation 392

In compliance with the provisions of Chapter 718, Statutes of 1915, as amended, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date August, 1941 Signed A. A. J. (signature)

H. A. Campbell (Engineer or Geologist) T. McCarty (Superintendent) Title Agent (President, Secretary or Agent)

Commenced drilling 11-19-39 Completed drilling 8-8-40 Drilling tools ~~Cable~~ Rotary

Total depth 9284 Plugged depth

Junk Diamond Point Bit and Sub. 6½"

GEOLOGICAL MARKERS	DEPTH
Base Pleocene	3120
Base Domengine	4590
Top Moreno	4820
Top Panoche	7800

Commenced producing 1st Comp. 7/9/40 (date) Flowing/gas lift/pumping (cross out unnecessary words)

	Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Initial production 24 hrs.	Gas			170	20	300
Production after ~~30 days~~						

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforations
13-3/8"	529	Swf.		New			17½	320	
8-5/8	6676	Swf.		New			12¼	350	

DIVISION OF OIL AND GAS
RECEIVED
SEP 18 1941
COALINGA, CALIFORNIA

PERFORATIONS

Size of Casing	From	To	Size of Perforations	Number of Rows	Distance Between Centers	Method of Perforations
6-5/8	6688 ft.	6768 ft.	120 M	6	6"	Shop
"	6945 ft.	7186 ft.	" "	(C.P. at 6945 80 Sax)		
	ft.	ft.	above liner side tracked. Following now in hole.			
6-5/8	7215 ft.	6953 ft.	100 Mesh	6"	6"	Shop
	6793 ft.	6721 ft.	Now in hole bad at 6718 (below shoe of 8-5/8")			

Electrical Log Depths 8791 to 529 (Attach Copy of Log)

FORM 103.
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Jergins Oil Company FIELD Panoche Area

Well No. Cheney Ranch #1, Sec. 29, T. 14S, R. 13E, MD B. & M.

Signed

Date August 14, 1941 Title

(President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. Use this form in reporting the history of all important operations at the well, together with the dates thereof, prior to the first production. Include in your report such information as size of hole drilled to cementing or landing depth of casings, number of sacks of cement used in the plugging, number of sacks or number of feet of cement drilled out of casing, depth at which cement plugs started, and depth at which hard cement encountered. If the well was dynamited, give date, size, position and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position and results of pumping or bailing.

DIVISION OF OIL AND GAS
RECEIVED
SEP 18 1941
COALINGA, CALIFORNIA

November 19 to July 10

Date

11-19-39 Spudded in with rotary tools.

11-19-39 Twisted off kelley at depth of 130'. Recovered fish.

11-22-39 Cemented 13-3/8" casing at 529' with 320 sacks construction cement. Got cement returns.

11-26-39 Twisted off pin at top of drill collars at 1482' leaving 130' of drill collars (8"), Hughes 12¼" rock bit and reamer in hole. Twisted off at 10:00 p.m.

11-27-39 Took hold of fish at about 3:00 a.m. with socket, but fish was stuck. Pulled 55 points. Started pumping in circulating oil at 3:00 p.m.

11-28-39 Pumped in 185 barrels oil. No circulation; oil went away into sand. Fish came loose at 4:00 a.m. changed mud.

3-12-40 Drilled and cored to 7580'. 12¼" hole to 7324'; 8¼" from 7324-7586'.

3-14-40 Cemented 8-5/8" at 6676' with 350 sacks Victor high temperature oil well cement. Final pressure 750#.

3-22-40 Drilled out with 4½" drill pipe. Top of cement plug 6633'. Held 500# on casing for 3 minutes before drilling cement. Treated mud with Sementox. Shoe at 6676'. Drilled cement to 6681'.

3-23-40 Ran Johnson formation packer with top of packer at 6661'; 900' water cushion. Valve open 9:29 a.m. Fair puff for 20 seconds. Broke packer at 10:29 a.m. Found water 25' above trip valve and 40' of good medium mud in bottom of drill pipe and drill collar. Water shut off o.k.'d by S.D.O. & G. Drilled out cement (bottom 6704'. Treated mud with Sementox.)

3-24-40 Wall-scraped 12¼" hole 7195-7324' fair high-gravity oil showing while wall scraping. Pumped in 100 sacks Victor high temperature oil well cement through drill pipe hanging at 7360'. Final pressure 700#. Pulled 4 joints and single and circulated. Top cement 7187'.

FORM 103.
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Jergins Oil Company FIELD Panoche Area

Well No. Cheney Ranch #1, Sec. 29, T. 14S, R. 13E, MD B. & M.

Signed

Date Title
(President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. Use this form in reporting the history of all important operations at the well, together with the dates thereof, prior to the first production. Include in your report such information as size of hole drilled to cementing or landing depth of casings, number of sacks of cement used in the plugging, number of sacks or number of feet of cement drilled out of casing, depth at which cement plugs started, and depth at which hard cement encountered. If the well was dynamited, give date, size, position and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position and results of pumping or bailing.

Date

3-27-40 Johnson formation test 6676-7187'. Packer 6669'; 3/8" bean; tail piece 6693'; no cushion. Valve open 10:15 a.m. Good steady air blow for 14'. Gas to surface at 10:29. Intermittent pulsating gas blow to 1:05 p.m. Estimated at 50,000-100,000 cubic feet of moderately wet (2 g.p.m.) gas. Actually 1.88. Closed valve 1:05-1:28; built up 25#. Opened valve 1:28-1:39. Blew down fast. Closed valve 1:39-2:00; built up 25#. Opened valve 2:00-2:40, gas heading. Closed valve 2:40-3:03, built up 25#. Opened valve 3:03-3:19. Closed valve 3:19-3:46, built up 50#. Opened valve 3:46-4:15. Broke packer 4:25 p.m. Pulled pipe. 14 stands plastered with 1/4" ring heavy gassy mud. Net rise 2640' of mud, thin at top becoming heavy and somewhat gas cut in lower 13 stands. 1st and 3rd stands were very gassy and a good deal of mud blew out of pipe. Bean was open. No water. Temperature 162°. Pressure below bean when valve opened 1150#. Pressure below bean when valve closed 1900#.

3-29-40 Scraped 12 1/4" hole 6681-7187' including cement 6681-6704'.

3-30-40 Ran packer on 2 1/2" tubing; packer set at 6626' with skeeter bill to 6669'. Started swabbing 9:20 a.m. Swabbed intermittently till noon March 31st.

3-31-40 Lowering fluid to about 4000'. Bridging in tubing. Well made occasional blows of mud and small gas. Found fluid at 400' (1st time it had raised appreciably) at 11:00 a.m. Connected up head. Well built up to 700# at 1:00 p.m. Opened

4-1-40 valve at 3:06 p.m. Blew down to 0# in 1/2 hour. Bridged again in tubing. Knocked out bridge in tubing and ran sinker bar to bottom. Well made one good blow in morning; smell gas in afternoon; none in late afternoon.

4-2-40 Broke packer at 1:00 a.m.

4-3-40 Cleaned out. Found 8' medium hard bridge 6705-13' (took 5 points weight); hard bridge (took all weight of pipe) 6716-21'. Ditch very gassy with strong colors oil after returns from bottom below this bridge. Mudded off fairly quickly with 73# mud. Medium bridge 6735-47'. Bridges appeared to be shale. Ditch very gassy while cleaning out below 6950'. Mudded off fairly quickly with 73# mud. Drilled out cement 7187-7363' with 8 1/2" bit. Wall scraped cement out of hole to 12 1/4 from 7187-7324'. Treated mud with Sementox.

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4-5-40 Cleaned out to 7580'.

4-6-40 Began coring ahead.

FORM 103.
CALIFORNIA STATE PRINTING OFFICE

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Jergins Oil Company FIELD Panoche Area

Well No. Cheney Ranch #1, Sec. 29, T. 14S, R. 13E, MD B. & M.

Signed

Date August 14, 1941 Title
(President, Secretary or Agent)

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Date

4-26-40 J.F.T. 8320-8407'; Total depth 8407'. Packer 8320'; ½" bean; 21' tail piece; 980' water cushion. Valve opened 3:09 a.m. Open 48 minutes. Good steady air blow for 26 minutes; good intermittent air blow next 22 minutes. Packer stuck but was jarred loose at 3:57 a.m. Net rise (excluding mud that came in when packer was jarred loose) 3036'. Details of net rise:
1 stand oil-spotted muddy water with smell gas.
1 stand medium mud.
4 stands slightly muddy water.
28½ stands salty water, becoming warm and more salty toward bottom.
Valve leaked during jarring on packer and bottom 36 stands were filled with heavy mud.
Pressure rose from 950# to 1300# during time valve opened. Temperature 222°.
Left 1' of packer rings in hole. Drilled up.

5-6-40 Cored to 8969'.

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5-7-40 Cleaned out and began coring ahead.

5-8-40 Ran Schlumberger to 8972' (correct T.D.) Ran Geophone.

5-22-40 Cored to 9284' (T.D.). 7-5/8" hole to 8964'; 5-5/8" from 8964' to 9284'. Pumped in 30 sacks Victor high temp. oil well cement through drill pipe hanging at 7775'. Ran 7 joints 2½" on bottom of drill pipe. Top not located.

5-23-40 Wall scraped hole to 12¼" from 7210-7324'. Pumped in 100 sacks Victor high temp. oil well cement through drill pipe hanging at 7326'. Final pressure 710#. Stood 2½ hours. Top located at 7250'. (Took 5 points) and top would not wash away. Washed out a good deal of unset cement above 7250'.

5-24-40 Pumped in 43 sacks Victor h.t.o.w. cement through drill pipe hanging at 7249½'. Final pressure 1000#. Mud thick and took high pressure to pump down. Took 3 points at 7244 after standing 2½ hours. Pumped away a good deal of unset cement above 7244'. Mud very thick after washing cement out. Pumped in 39 sacks h.t.o.w. cement at 7245' at noon. Located top at 7191' at 7:00 p.m. (took 6 points.)

5-25-40 Ran in with wall-scraper and found hole caving badly 15' below shoe. Changed mud to 93# antelope P-95; ran bits and wall scrapers up to 12½" from May 25-31st. Found hold caving badly at about 6690' and 6850'. Scraped cement which was fairly firm on walls 7166-91'. Hard cement at 7090'. Mudded off cave and got hole in

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DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR Jergins Oil Company FIELD Panoche Area

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Date August 14, 1941 Title

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Date

good shape.

6-2-40 Hung 6-5/8" liner at 7188' and cemented through ports at 6945' with 80 sacks Victor high temperature oil well cement.

Liner details:

Top:	Liner hanger-3'	Top of liner ~~6694'~~ 6649 E.L.	
Next	38.7'	Blank	
Next	82.1'	perforated, 120 mesh	
Next	170.7'	Blank	
Next	3.9'	Baker basket	
Bottom	243.3'	perforated, 120 mesh, bull-nosed at bottom.	
Overall length	541.7'		

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6-4-40 Ran in with drill pipe. Found mushy mud. Contaminated cement as high as 6100'. Cleaned out to 6942'.

6-5-40 Ran tubing on bottom of drill pipe and obtained easy circulation through perforations 6687-6769'. No circulation could be obtained through ports at 6945' and around blank with 1300#. There is apparently a seal in back of blank pipe.

6-6/7-40 Ran packer, but it would not go. Pulled out, scraped cement off 8-5/8" casing below 6100' with 7-5/8" fish tail bit.

6-8/9-40 Ran new 2½" tubing and Lane Wells packers. First packer would not set; second packer would set, but would not hold 600# pump pressure. Swabbed a little; pulled out.

6-10/12-40 Ran 71-2/3 stands and double of 2½" tubing without packer and swabbed until fluid level at 5200'. Fluid rose to 4900' and tubing plugged at 5400'. Pulled out.

6-13/14-40 Washed well for 10 hours to 6769' recovering fine chips of shale, cement and cakes of mud. Weight of colored water at end of washing was 64#. Well was clean. Pulled drill pipe. Ran tubing and circulated 1½ hours at 6769'. Pulled back until 71½ stands new tubing and double old tubing in hole and swabbed to 6430' on June 16th. No rise in fluid; well showed only trace of gas. Pulled tubing.

6-14-40

6-17-40 Ran in with drill pipe and 5-5/8" rock bit to drill out baffle. Bit would not go below 6752'; hung up from 6712 to 6752'. Liner probably crooked.

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Date	
6-18-40	Cut liner at 6720'. Jarred 25' and recovered 38.7' blank and 32.45' 120 mesh perforated. Perforated joint was crooked; top of crook at about 6697' in well; or in core-about 40% of perforations were tightly plugged with cement; a few at about where crook began (6697' in well) were tightly plugged with small shale chips. Cleaned out to 6720' with 7-5/8" fish tail; could not get by top of fish.
6-20-40	Pumped in 70 sacks Victor high temp. oil well cement through drill pipe hanging at 6720'. Stood 7 hours; located top at 6660'.
6-27-40	Ran in with bit. Top cement 6654'. Drilled out to 6691'. Changed mud to Antelope P-95.
6-28-40	Eastman single shot at 6691'-3°20', S. 16° W. Oriented Eastman knuckle joint N. 70° W. and drilled 5¼" hole to 6707'. Survey instrument went to 6696' and read 3°20', S. 35° W.
6-29-40	Single shot at 6725' - 6°5'; S. 38° W. " " " 6780' - 8°; S. 47° W. At top of 1st sand (6720') now hole is about 2' from original.
6-30-40	Single shot at 6822' - 8½°; S. 50° W.
7-1-40	" " " 6851' - 8-3/4°; S. 50° W. " " " 6869' - 8½°; S. 50° W.
7-2-40	" " " 6897' - 8-3/4°; S. 52° W. " " " 6925' - 8°40'; S. 50° W. At top of 2nd sand (6950') new hole is 28' from original hole. Single shot at 6956' - 8°30'; S. 50° W.
7-4-40	" " " 7012' - 8°30'; S. 45° W.
7-5-40	" " " 7048' - 8°35'; S. 42° W.
7-6-40	Redrilled to 7215' (equivalent stratigraphic depth of about 7208' in 1st hole). Ran 7-5/8" reamer to bottom.
7-7-40	Hung 557.03' of 40# 6-5/8" liner, including 100 mesh perforation 7215-6953' and 6793-6721', at 7215'. Top of liner hanger 6658'. Liner details:

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STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

FIELD Panoche Area COMPANY Jergins Oil Company

Sec. 29, T. 14S, R. 13E, MD B. & M., Well No. Cheney Ranch #1

Signed

Date August 14, 1941 Title

President, Secretary or Agent

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reason for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "sidetracked" or left in the well, give its size and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

Bottom 261.82'	100 mesh perf.
Next 159.90'	Blank
Next 72.56'	100 mesh perf.
Top 58.14'	Blank
Hanger 4.61'	

Ran 7116.58' of 2½" upset tubing.

7-8-40 Displaced mud to 7115' with 440 barrels Coalinga Nose 30° oil. Began swabbing at 4:30 p.m. Swabbed to 1900'. Well began blowing oil out of hole at midnight. It
7-9-40 was necessary to run swab a few times to keep well flowing. Blowed all oil out of hole by evening. Built up 500# on casing, and flowed est. 750 mcf of wet gas
7-10-40 through ½" bean. Ran swab to 6500'.

7-10/12-40 Flowing at diminishing rate.

7-12-40 Tubing plugged and casing pressure rose to 1440 lbs. at which time a casing bean was installed and the pressure was released. Owing to the dehydrating effect of the gas on the mud still in the hole it was decided to acidize the hole through tubing.

7-16-40 Rigged up and started to pull tubing. Would not come. Placed acid in casing. Started to clean out tubing using acid.

7-17/18/19 Bailing on tubing pulled loose.

7-20-40 Pulled tubing. Bottom 300' badly crooked. Started bailing. Found liner bad at 6718' to 6723'. Probably due to caving in cavity.

7-21/22-40 Bailing.

7-23-40 Ran in roller to try to get by bad place. Twisted off roller.

7-24 to 7-31 Fishing.

8-1-40 Recovered roller. Ran in with diamond point bits and twisted off, leaving sub and bit in hole. 6½' fish in hole.

8-2 to 8-5 Fishing.

8-6-40 Ran tubing to 6559'.

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DIVISION OF OIL AND GAS

History of Oil or Gas Well

FIELD Panoche Area COMPANY Jergins Oil Company

Sec. 29, T. 14S, R. 13E, MD B. & M., Well No. Cheney Ranch #1

Signed W. W. O'Kane

Date August 14, 1941 Title Agent

President, Secretary or Agent

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8-7-40 Swabbing.

8-8-40 Well flowing.

8-8-40 to 1-4-41 Well flowing intermittently small amount of gas and distillate.

1-4-41 Pulled tubing to use in Cheney #2.

1-4-41 To date well idle. No pressures. Bean on casing open.

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[illegible] OIL COMPANY - Cheney Ranch #1

Location: 330'S and 330'E of W.¼ corner of Section 29, 14/13

Elevation: 402 d.f. 392 G.

534	561	17	5'	Clay, tan (brownish grey) few silty streaks.
			1'	Silt, tan, soft.
			3'	Clay, tan as above with few silty streaks.
			8'	Silt, clayey, tan, soft, becoming more silty in bottom 3'
				Lost. Drilled rapidly, probably soft silt or sand.
561	1085			Core gap
1085	1105	20	2½'	Silt, clayey, grey with red splotches, compact to firm.
			3½'	Silt, brownish grey, compact.
			6'	Silt, soft, dark brown to grey, micaceous, sandy in top 6".
			8'	Silt, grey to greenish grey, clayey streaks, compact.
1105	1325			Core gap
1325	1345	1½	1½'	Gravel, soft, with rounded cobbles as large as 2" in matrix of dark grey, coarse grained sand. Cobbles of dark volcanic rock, black chert, jasper, etc.
				Note:— It is not known what part of the interval the 1½' recovered came from. Entire 20' was probably soft gravel or sand.
1345	1682			Core gap
1682	1702	12	6'	Silt, clayey, reddish brown, firm.
			6'	Clay, reddish brown, silty streaks, firm with scattered pebbles.
				Note:— Lower part of core drilled sticky and part lost was probably clay.
1702	1982			Core gap
1982	2006	17	5'	Clay, reddish brown, compact to firm, carbonaceous splotches.
			6'	Silt, brown with green splotches, compact to soft.
			6'	Clay, light brown with silty streaks and splotches.
				Lost, clay or silt.
2006	2294			Core gap
2294	2314	7	6'	Clay, light brown, silty spots, becoming siltier toward bottom.
			1'	Silt, sandy, bluish brown, splotched, becoming sandier at base. No cut.
				Lost. Probably soft silt or fine sand.
2314	2455			Core gap
2455	2481	26	7'	Clay and claystone, light brown, silty streaks as above.
			4'	Silt and siltstone, light brown sandy.
			15'	Siltstone, light brown to reddish brown, with streaks claystone and sandy siltstone.

2451	2507	20	20'	Siltstone, clayey, light brown to reddish brown. Lost. Probably same.
2507	2534	26	14½'	Silt and siltstone, light brown, sandy streaks, becoming sandier in last 2'
			5½'	Sand, loose, grey, medium to coarse grained.
			2'	Sand and gravel, loose grey, cobbles as large as 1". Sand is coarse grained. No cut.
2534	2616			Core gap
2616	2642	21	5'	Silt, brown, clayey, soft, grey, splotched.
			3'	Sand, greyish brown, fine-medium, soft, silty, carbonaceous.
			8'	Clay and claystone, reddish brown, sandy with irregular spots and streaks medium bluish green sand in top 5' (2625-30).
			5'	Clay and claystone as above but red. Lost, probably as above.
2642	2745			Core gap
2745	2773	26	2'	Siltstone, brown.
			2½'	Clay, red, gritty.
			3½'	Siltstone, brown, clayey.
			2'	Silt, brown, soft, becoming sandy in lower 2'
			6'	Sand, brown, soft, silty, medium to coarse becoming gravelly in lower 3'. No cut.
			10'	Siltstone and claystone, brown to reddish brown with sandy streaks and spots, becoming more clayey in lower 3'.
2773	2919			Core gap
2919	2945	8	2'	Siltstone, sandy, reddish brown with scattered coarse sand grains.
			6'	Siltstone, sandy, green with abundant fine sand, Serpentinous, splotched with reddish brown, micaceous, clayey streaks. Lost. Probably as above.
2945	3031			Core gap
3031	3057	26	5'	Siltstone, sandy, green with hard green limy sandstone at top. Last 6" hard, limy and sandy. No cut.
			9'	Siltstone, sandy and sandstone, red, clayey streaks, verry ill-sorted. No cut in sandy streaks.
			8'	Siltstone and claystone, green.
			4'	Siltstone and claystone, red with green streaks.
3057	3084	6	1'	Sand, bluish green, fine grained, soft, shaley.
			2'	Siltstone, reddish brown, sandy
			1'	Sand, green, soft, gravelly. Pebbles up to 3/4".
			2'	Siltstone, brown, sandy spots, clayey streaks. Lost. Drilled tough. Probably clayey siltstone as in bottom of core.

3084	3111	27	17½'	Siltstone and claystone, mostly soft and crumbles badly, green, red and brown, sandy spots. Some streaks of hard green siltstone.
			3½'	Sand, green, soft, fine grained, very clayey.
			6'	Siltstone and claystone, green and red, sandy spots as in upper 17' of core.
3111	3138	23	11'	Claystone and siltstone, mainly red with green streaks, sandy streaks as in proceeding core.
			6'	Siltstone, very sandy, green, hard streaks.
			6'	Sand, green, massive, very clayey, firm to hard with limy streaks, very ill sorted varying from fine to gravelly with cobbles 3" long in bottom 2'. So ill sorted its permeability would be low. No cut.
				Lost 5' probably sand and gravel as it drilled soft with rough spots.
				Probably base of Big Blue in proceeding core at 3122'.
3138	3161	18	3'	Conglomerate, grey, soft to firm, cobbles up to 2" in coarse sand matrix. No cut.
			6'	Siltstone and shale, greenish grey, sandy, becoming sandier toward bottom.
			9'	Sand, grey, fine grained, very clayey and silty at top becoming sandier and somewhat coarser toward bottom. No cut in best sand 1' from bottom.
				Lost. Probably sand.
3161	3186	25	½'	Shale, silty, dark grey, very carbonaceous, woody fragments.
			2½'	Siltstone, grey to greenish grey, becoming sandy in bottom 1'. Carbonaceous, fish scales.
			6'	Conglomerate, compact to firm, grey, cobbles up to 3" in matrix of coarse sand. No cut.
			16'	Sand, grey, medium grained, clayey, occasional pebbly streaks and tan cobbles, soft to firm. No cut, looks WET, 2" shale at 3170, greyish green, fairly well bedded, indicated poor dip at 5-10°.
3186	3203	12	5'	Sand, grey, compact, medium-grained, clay. No cut.
			7'	Conglomerate and streaks pebbly sand, grey, firm to hard, sand is medium to coarse, cobbles to 3". Fragment of large oyster at 3199 and 4" hard limy siltstone shell.
				Lost. Probably conglomerate. Cored very rough at base.
				Note:- No cut, no stains, no odor in any of sand 3172-3203'. This sand seems to be in Marine, near shore and may be Temblor sand, top of which is 3122'.
3203	3227	5	1½'	Sand, greenish grey, very clayey, fine grained, with thin streaks green shale.
			1'	Conglomerate, very hard, greenish grey, lime cemented, with abundant fragments of oyster shells. Cobbles up to 3".
			2'2"	Siltstone, dark grey, sandy, oyster shell fragments near top. 5" cobbles in middle. Fish scales. Slickensided plane 45-60°.
			4"	Sandstone, dark grey, conglomeratic, lime cemented, very hard, with abundant pearly oyster shells and fragments, slightly burned in coring.

				Lost. Drilled hard and rough, probably similar to core recovered.
3227	3233			Core gap
3233	3262	5	5'	Siltstone, green, irregular to blocky fracture, sandy in upper 2', few white calcareous spots suggestive of badly leached forams. Some pebbles and limy material in sandy top 2'. Lost. Probably green siltstone.
3262	3288	26	8'	Siltstone, sandy, green with three 1' sandstone streaks, coarse to pebbly at 3266. Slickensided fracture plane dipping 43° at 3267, calcite on plane, laminae of green shale below plane dip 45°. Irregular. Those dips are probably depositional. 1/4" fragments shale in the sand, badly cross-bedded sand at 3269, dips 30°±.
			6'	Siltstone, green, sandy spots and streaks, irregular to blocky fracture, clayey and slickensided at 3274'.
			3'	Siltstone ditto, clayey in bottom 1½', slickensided.
			3'	Siltstone, as above, sandier.
			3'	Siltstone as above, less sandy.
			3'	Siltstone as above, becoming clayey in bottom 1'. Few slickensided fractures dipping 20° at 3286. Some calcite on planes.
				Note:- Few white calcareous spots in core suggestive of badly leached forams.
3288	3313	8	3'	Siltstone, greenish grey, very sandy with numerous 1/4" sandy ribs dipping 45°, slight cross-bedding. Dips seem fair but may be depositional.
			2'	Claystone, green, sandy, crumbly, slickensided common.
			3'	Siltstone, green, sandy, massive, becoming more sandy toward bottom. Few nearly vertical slickensided fracture planes. Lost. Probably sandy siltstone or sand.
3313	3338	25	6'	Sand, greenish grey to green, very clayey, firm, friable, massive, medium grained with scattered coarse grains.
			1½'	Conglomerate, hard, greenish grey, lime cemented, abundant shell fragments apparently oysters.
			6½'	Sand, grey, fine to medium, silty, soft to firm, massive, pebbly in top 1'. No cut, stains or odor. Looks WET. Sand would be fair reservoir.
			11'	Siltstone, green, very sandy at top becoming much less sandy toward bottom.
3338	3362	24	19'	Sand, grey, medium to coarse, silty, soft with tan firm streaks, massive, no cut, stains or odor. Would make good reservoir. Looks WET, with few pebbles in bottom 1'.
			4'	Siltstone, shaley, green, sandy streaks, rather thinly bedded with strong indications of nearly flat dip.
			1'	Sand, dark grey, fine grained, very clayey, firm.

3362	3389	26	2'	Sand, dark grey, compact, fine grained, abundant fish scales and sharks teeth.
			3'	Sand, greenish grey, fine grained, clayey, massive.
			21'	Sand, grey, soft, medium to coarse with ½' firm lime cemented sandstone with abundant large oysters at 3369. Carbonacepus at 3368. Firm streaks and abundant oysters 3371-74. No cuts, stains or odor. Massive, looks WET, 6" pebbly streak at 3380.
3389	3418	26	26'	Sand, grey, soft, medium to coarse, massive, slightly clayey, mushy. Would make very good reservoir. No cut, stains or odor. Looks WET, sand becomes fine grained and much more clayey in bottom 2'.
				Lost, probably sand.
3418	3445	27	2½'	Sand, very clayey, dark grey, fine grained with scattered pebbles, soft, rare skull fragments.
			3½'	Siltstone, very sandy, green in upper 2', dark grey in lower 1'.
			3'	Siltstone, dark grey in upper 1', green in lower 1', sandy grading into 1' greenish grey clayey sand at bottom.
			3'	Siltstone, green, sandy with 1/2' grey, coarse soft sand at 3429.
			6'	Sand, light grey, soft, massive, coarse grained, looks WET.
			3'	Sand, somewhat finer and firmer than above, clayey with numerous streaks green clayey beds showing irregular but low dips of 5-15°.
			4½'	Sand, light grey, coarse, massive, soft, looks WET.
			½'	Green siltstone grading into:-
			1'	Dark grey sandy siltstone.
3445	3472	2½	1'	Siltstone, dark grey, sandy in upper 1'. Fish scales.
			1½'	Siltstone, green, very sandy.
				Lost. Bottom 10' of core drilled rough.
3472	3499	27	18'	Sand, bluish grey, fine to medium, clayey, massive, compact, with 3" dark grey sandy siltstone at 3481 and with 3" dark grey fairly well bedded shale with streaks sand in middle at 3483, nearly flat dip, becoming coarse in last 3'
			6'	Sand, grey, coarse, soft, massive, looks WET, becoming pebbly in lower 3' with pebbled up to 1/2" in diameter.
			3'	Shale, dark grey, sandy streeks, with 6" coarse sand 1' from bottom and coarse sand in core head at extreme bottom. Dips on shale and silty streaks are nearly flat and appear to be good.
3499	3525	26	2'	Shale, dark grey, very silty with numerous laminae fine grey sand, soft, beds nearly flat-lying.
			10½'	Sand, grey, soft, medium to coarse, massive with 6" shale streak at 3504, not at bottom, pebbly in upper 1½'.
			1½'	Conglomerate, pebbles and cobbles up to 1" in sand matrix.
			2½'	Sand, grey, soft, coarse with scattered pebbles, no cut, stains or odor.
			3½'	Shale, hard dark brown, well bedded in upper 2' becoming massive with vlocky fracture in lower 1', somewhat platy, silty, brittle. Impression and casts of abundant Leda, fish scales common. Abundant forams (flood). Mould of one large gastropod. The calcareous shells have been disolved from

				the large fossils and most of the small ones are badly leached. Dips 2-3° (somewhat irregular but are certainly nearly flat). Some shell fragments present. Top of Kreyenhagen group at 3521'.
3525	3543			Core gap
3543	3570	15	15'	Shale, silty dark brown, badly fractured and crumbly, slightly brittle. Cores rapidly. Forams, fish scales. Forams include Plectofrondicularia packhardi and poorly preserved Uvigerina cocoaensis?? No Leda found. May be Tumey Shale, core has slickensides at 3563. Lost. Top 19' of core drilled soft and was made in 45'. next 6' took 2 hours. Bottom 2' was soft and wad drilled in 10'. Probably shale.
3570	3597	27	27'	Shale, silty, dark brown, fairly hard with soft almost punky streaks, fairly well bedded, blocky fracture but with irregular fractures and crumbly 6-8' from top and 6' from bottom. Very abundant forams mostly Plectfrondicularia packhardi, a few Nodosaria, some coiled forms and possibly Uvigerina cocoaensis. Large Pelecypod at 3582'. Gas escaping from fractures in the shale. Good dips at 3588 of 80° on greyish brown silty laminations. No cut from silty streaks.
3597	3624	15	15'	Siltstone, hard, dark brown, blocky to irregular fracture, not well bedded, few slickensides, abundant forams, mostly Plectofrondicularia packardi becoming harder and siltier in lower 9'. Gas was escaping from core when pulled. It was strong enough to be heard and could be smelled. Lost. Probably siltstone, but may be sandy.
3624	3647	18	18'	Siltstone, hard, dark brown, massive, very abundant forams including Plectofrondicularia packardi, Nodosaria, Uvigerina cocoaensis? and others. Blocky fractures at angles of 5-8° suggest dip. Core gave good gas flame from lighted match at END OF barrel before core was removed and gas bubbled through mud fairly strongly after core was removed. Becomes slightly better bedded and brittle in lower 3'. Pecten interradiatus?? at 3641'. Lost. Bottom 4' of core drilled very rough. Probably hard shale.
3647	3669	22	11½'	Shale, hard, dark brown, fairly well bedded, brittle. This was dug out of top of core barrel in order to insert the rubber. Abundant forams. Fish scales. Middle part of core could not be extracted under 1000# pumppressure. Probably hard shale.
			11'	Shale, silty, hard, dark brown, not well bedded, slightly brittle. Abundant forams, including plectofrondicularia packardi, Uvigerina cocoaensis? and others. Fish scales. No gas noted. Core breaks with blocky fractures at low angles of 5-10°.

3669	3690	0	0'	Missed core. Drilled like hard shale and ditch showed hard shale. Core head cut out and circulation 6" above shoe. Probably kept core from entering barrel. Probably shale.
3690	3717	5	5'	Shale, dark brown, silty, poorly bedded, slightly brittle, fractures at angles of 6-11° roughly along bedding planes. Abundant forams including Plectofrondicularia packardi, Uvigerina cocoaensis? and others. Pecten interradiatus? and shell fragments, fish scales. Top 3' of core drilled hard, lower 2' was soft. Probably all shale.
3717	3739	22	22'	Shale, silty, hard, dark brown, poorly bedded, slightly brittle, blocky fractures at angles of 2-10°. Abundant forams as in proceeding core. This core is not as well bedded as proceeding, and upper part might be described as siltstone, with low slickensides in lower 1', possibly due to core barrel.
3739	3764	6	1'	Siltstone, sandy bluish grey.
			4½'	Shale, hard dark brown, poorly bedded with few thin streaks fine grey sand at 3742' and few streaks at 3744'.
			½'	Sand, grey, fine grained, silty, micaceous, "clean looking", typical of Kreyenhagen sand. No cut, smell or odor. Forams abundant, fish scales. Bottom 2' of core burned. Some gas bubbling from fractures in shale at 3743-44. Blocky fractures at angles of 8° suggest dip. It is not know what part of interval core recovered came from. No change was noticed during coring.
3764	3789	11	8'	Shale, hard, brown, silty, fairly well bedded, slightly brittle fish scales. Abundant forams as in proceding cores, with 6" hard grey fine grained silty sandstone at 3767'.
			3'	Shale as above with 6" hard grey fine grained sandstone at 3774'. Very irregular contact between this sand and shale suggests that this may be a sandstone dike. Shale in core head. Gas bubbling from fractures in shale when core was pulled. Dips of rather irregular fractures vary from 5-12° with best 7-8°.
3789	3814	25	25'	Shale, brown, firm to soft, silty, slightly brittle, fish scales. Abundant forams including Plectofrondicularia packardi, Nodosaria, especially toward bottom of core. Common Pecten interradiatus. Shale is fairly well bedded and fractures at angles of 7-8° which is probably dip. Few thin streaks tight, fine grained sandstone at 3810. Some gas bubbling from fractures in shale. Few slickensided planes at 30-40°.
3814	3839	23	23'	Shale, brown, firm to soft, silty as proceding core. Pecten interradiatus and shell fragments. Foram fauna seems to be changing. Some gas in core. Core fractures at angle of 8° which is probably dip.

3839	3864	15	15'	Shale, brown, soft, silty, slightly brittle as in preceding core. Fish scales. Pecten interradiatus and other shell fragments. Forams common but fauna seems to be changing. Increased number of Nodosaria, but no Frondicularia seen. Smell gas. Core fractures at angles of 8° which is probably dip. Lost. Bottom 10', drilled thought it might be sand so another core was run.
3839	3864			Core gap??
3864	3886	17	17'	Shale, hard, dark brown, silty, fairly well bedded with fractures and few brown silty laminations showing dip of 8°. Abundant forams including Plectofrondicularia packardi, Nodosaria and others. Pecten. Fish scales, shell fragments. Shale is firmer and more brittle near top, becomes softer toward base. Few bubbles of gas when core was pulled. Top 2' cored very hard and required 1½ hrs. A few pieces hard shale at top of core may represent this. Fractures at angles of 16° in lower few feet of core but these probably are not dips.
3886	4278			Core gap
4278	4304	26	5'	Shale, dark brown, silty, soft to firm, crumbly, few fractures at 45°, dip about 8°, fish scales, forams. Becoming siltier toward base.
			7'	Sand, grey, compact, soft, massive, fine to medium, no oil stains, cut or odor. Porosity fair though sand contains a good deal of fine material.
			3'	Shale, dark brown as above but firmer. Dips 5-8°.
			5'	Sand, grey, compact, soft, massive, fine to medium as above, but a little coarser. No cut, stains or odor.
			6'	Shale, dark brown, silty, soft, to firm as above. Fish scales, forams. Dip 5-10°. No gas when core was pulled.
4304	4330	26	26'	Shale, dark brown, silty, soft and flaky to firm and slightly brittle, crumbly, fairly well bedded, fish scales, forams. Dips somewhat irregular and vary from 6-10° with best about 9°. Small amount of gas.
4330	4355	25	25'	Shale, dark brown, silty, mostly soft, flaky and crumbly but with few firm streaks in upper 10' of core. Well bedded with numerous thin (1/2-1/4") brown limy ribs in upper 20' of core. These dip at angles of 5-15° but best dips seem 7-8°. Fish scales, fish teeth and forams. 1' soft grey, crumbly shale at 4340'. 3" hard, grey fine sandstone at 4341'. 3" grey shale at 4347'. 6" hard grey fine sandstone (looks like dike) at 4354'. Some gas in core. Note:- Thin limy ribs and thin streaks grey shale suggest basal Kreyenhagen.

4355	4381	26	7'	Shale, dark grey to brown with light brown streaks and lenses. Abundant forams. Fish scales. Dip 10-15°.
			19'	Sand, grey with bluish cast, compact to firm, fine to medium, micaceous, common angular grey shale fragments in sand. Porosity only fair as sand is ill sorted and fairly tight. Showed small amount of gas when pulled. No cut, stains or odor.
4381	4407	26	3'	Sand, grey, massive, compact, soft, fine-medium, choked with fine material, porosity poor. No cut. 1/4" asphaltic residue 6" from bottom of sand.
			4⅓'	Shale, dark brown to grey, soft, crumbly, forams.
			11⅔'	Sand, grey, massive, fine, choked with fine material, soft, compact, as sand above. Porosity probably fairly low.
			7'	Shale, dark brown to brownish grey, soft, crumbly and flaky, forams. A few gas bubbles when core was pulled.
4407	4433	21	9'	Shale, dark brown, soft, flaky, well bedded. Silty, fish scales, forams.
			6'	Shale, light brown, firm, silty and limy laminations. Two pieces sent for orientation.
			6'	Shale, dark brown as above with 1' light brown, silty laminated shale as above at 4424. This was sent for orientation. Dip 6-9°. Lost, probably shale.
4433	4460	27	7'	Shale, dark brown, somewhat greyish, soft, flaky, crumbly, forams.
			6"	Sand, green, firm, fine, glauconitic.
			1'	Shale, grey, soft, crumbly with thin streak bentonite.
			6"	Sand, green, firm, fine, glauconitic 4" thick.
			16'	Shale, dark grey to dark brown, soft, very crumbly with several thin (1/4-1/2") streaks bentonite notably at 4445, 4448, 4453 and with 4" compacr, fine, grey sand at 4452, become greyer toward bottom.
			2'	Sand, green, fine, firm, glauconitic. Dip 8°. No cut, stains or odor. Few bubbles of gas.
4460	4486	19	5'	Shale, grey, silty, soft to firm, micaceous, poorly bedded, some pyrite, looks slightly bentonitic, sandy spots and streaks.
			6'	Siltstone, grey, micaceous, clusters and spots of pyrite shell fragments at 4469, blocky fractures. Shell fragments common, pelecypods.
			6"	Sand, grey, fine, mushy, soft, some may have been lost as about 2' of core in here is not accounted for.
			5'	Siltstone, grey to greenish grey, micaceous, clusters and spots of pyrite, middle part is clayey and might be called silty claystone. Mainly blocky fractures but clayey material is irregularly fractured. Discocyclina at 4478.
			2½'	Hard, grey, limy sandy siltstone, in top 1' becoming softer, sandier and greener in lower 1'. Driller reported 6" of fairly hard 6' from bottom. Few bubbles of gas.

4486	4511	20	16'	Sand, grey, soft to compact, fine to medium, silty. Porosity seems only fair, but sand would make much better reservoir than Kreyenhagen sands 4283-4400.
			4'	Siltstone, clayey, grey, shell fragments common, few small pelecypods, shows poor bedding and might be described as silty shale. Gas in fractures in siltstone.
				Lost. Probably shale.
4511	4534	17	17'	Siltstone with streaks silty claystone, greyish green to grey, fairly soft and crumbles badly. Mica common. Pyrite spots and cluster. Shell fragments and small pelecypods fairly common, sandy in bottom 1'.
				Lost, probably shale.
4534	4560	26	17'	Claystone, silty, green to grey, crumbly to badly fractured at irregular angles. Shell fragments and Discocyclina. Few slickensides.
			9'	Siltstone, greyish green, blocky fracture, common small pelecypods and shell fragments. Bottom 3' sandy with 6" grey hard lime cemented fine sandstone at 4559, very fossiliferous in lower 3'. Some gas in core.
4560	4586	18	4'	Siltstone, greyish green, clayey streaks becoming sandier toward base, shell fragments, pelecypods, discocyclina.
			14'	Sand, greyish green, firm to hard, fine grained, silty streaks lignite. Very fossiliferous with Turritella, small pelecypods and abundant shell fragments. Grey limy sandstone 4570-75'. Becomes softer in lower 1', carbonaceous in lower 6", few scattered pebbles in lower few feet, gas bubbling from core, Sand is tight, poor reservoir rock. Lost bottom 8' probably sand.
4586	4613	24	24'	Claystone, dark grey, silty with streaks siltstone, shell fragments and small pelecypods. Pyrite and mica fairly common, forams 4" fine grey sand at 4601 and at 4589. Few slickensides. 6" hard, grey, limy siltstone streak "shell" at 4610.
				Lost. Cored soft, probably sand or soft shale. Some gas in core.
4613	4639	26	26'	Claystone, dark grey, silty with streaks siltstone, especially in upper part of core. Crumbly, forams, shell fragments present but scarce, Mica common, pyrite, few slickensides, few small pelecypods, few finely sandy spots. Core is siltier than preceding and might be described as siltstone. Core becomes clayeyer toward base. Small gas in core.
4639	4641			Core gap ?
4641	4659	18	3'	Claystone, dark grey, very badly broken in coring and part may not be true core.
			8'	Siltstone, dark grey, pyritic, micaceous with 4" streak firm, grey sand 1' from top. Clayey streaks, poorly sorted and bedded, common slickensides, finely sandy spots, clayey in bottom 1'.
			1'	Shale, mushy, very badly fractured into 1/8" fragments, dark grey, gouge-like type, soft, no cut.

4641	4659	(Cont'd)	8'	Sandstone, soft, light grey, friable, fine, tight, would make poor reservoir rock, limy and harder in bottom few inches. Top 3' of core drilled soft, balance hard with hard shell at bottom. No gas.
4659	4686	26	2'	Sandstone, grey, very hard, very fine grained, lime cemented "shell", abundant pyrite.
			24'	Claystone, dark grey, some with greenish cast, with 4" soft grey mushy sand at 4663 (fine-grained) silty streaks. Considerably fractured with common slickensides, possibly due to coring. Some pyrite, 6" soft grey fine mushy sand at 4669. Becomes siltier and with forams in bottom 6' and streaks siltstone with forams in bottom 3'.
4686	4712	26	12'	Siltstone, dark grey becoming greenish grey, with streaks claystone, forams, abundant pyrite, 1' lime comented gritty, very ill sorted sandy siltstone at 4667. Coarse grains of dark rock in siltstone.
			14'	Siltstone, sandy, dark greenish grey, massive, tight. Sandy parts are very fine. Very poor reservoir. Not friable. No cut. Gas in lower 10'. Becomes a little sandier at base.
4712	4738	26	26'	Sandstone, soft, dark grey to greyish green, difficulty friable, silty, very fine, carbonaceous, few shell fragments and poorly preserved Mega fossils at 4729 and 4731. Few coarse quarts grains 4719-20. Leaves green line when cut out with hatchet. Sand is tight, very poor reservoir, no cut, stains or odor. No gas. Hard shell reported at bottom may not have been recovered.
4738	4764	24	24'	Sandstone, soft to hard, greenish grey in upper 8' becoming grey below, very fine, silty, tight, some mica and pyrite, slightly friable, massive, no cut, stains or odor. Sand is much the same as preceding core but is grey. It is too tight for reservoir rock. Becomes very hard, limy and pyritic in lower 6"
4764	4790	21	16'	Sandstone, soft, very silty, grey, slightly friable, massive, becoming greener, harder with common pyrite and mica but with scattered coarse grains.
			5'	Gritty, very hard and lime cemented in lower 1'. Abundant pyrite. Shell fragments and pelecypods? at 4780-82'. Grit 4781-82', fish scales, dark grey, hard abundant pyrite, mica and carbonaceous material in bottom of core. No coarse grains. small gas in core. Note:- The grit 4781-82' is very hard and lime cemented. It contains shell fragments and common coarse grains and pebbles up to 3/8" of quartz and black chert. No Spiroglyphus could be found.

4790	4816	6	8'	Sandstone, soft to firm, dark grey, fine grained, silty massive, common clusters pyrite. Mica, fish scales common at 4793', becoming very dark grey and more carbonaceous in lower 3'. Seems a little softer toward bottom but no change in drilling. A few bubbles of gas. Note:- A characteristic of preceding cores of silty sandstone is that the fine powdered material is green. The cores look green on the outside where rubbed by the barrel and surfaces cut with hatchet are green. The interior fresh surfaces are mostly dark grey to greenish grey.

Top definite Cretaceous - 4810±

4816	4842	21	2'	Siltstone, fairly soft, finely sandy, dark greyish brown, micaceous, common shell fragments. Leda. Small rounded fragments and pebbles of hard fine sandstone, limy up to 1", possible Inoceramus, pearly.
			2'	Siltstone, sandy, light grey, very hard, lime cemented with abundant shell fragments. Fossiliferous.
			17'	Siltstone, dark greyish brown with purplish cast in places, micaceous, massive, finely sandy, common shell fragments. rounded pebbles of hard, fine brown sandstone, common 4820-21. Arenaceous forams common. No cut in sandier streaks. No stains or odor. Poor bedding in few places with cross bedded laminations of grey fine sand at 4834' indicating dip of about 6°. Smell gas in core.
4842	4868	26	26'	Siltstone, dark greyish brown with distinct purple cast, sandy, micaceous, massive, sandier than preceding core with few streaks of very silty fine sand. Shell fragments present but uncommon. Fish remains and scales, sandier streaks give no cut, odor or stains. Woody material at 4862'. Smellgas in core.
4868	4894	26	18'	Siltstone, dark grey with slight brownish cast in places, finely sandy, pyritic, micaceous, sandy spots and streaks. fish scales, forams, chiefly arenaceous. No Mega fossils. Blocky fractures at angles suggesting low dips.
			8'	Sandstone, dark greenish grey to green, hard, fine grained, massive, very abundant pyrite. Few woody fragments, Abundant glauconite, some mica. Green where cut with hatchet, becomes coarser toward base. No gas.
4894	4910	6	3'	Sandstone, very hard, dark greyish green in top 1' as in preceding core, grey and lime cemented in lower 2', medium to coarse grained at top becoming fine toward base, pyritic, numerous dark grey carbonaceous spots and few woody fragments. No fossils noted, no cut.
			3'	Sand, light grey, fairly soft, very friable, fine, silty but well sorted, quartzose, no oil stains, odor or cuts. Sand would make fair reservoir as porosity seems fair. No gas. Lost 10'. Driller reported 1' hard shell in middle of core and 1½' hard shell at bottom with firm material possibly sand in between.

4910	4911			Core gap
4911	4929	6	6'	1" hard silty sandstone at top. Sand, grey to dark grey, firm to hard, fine to medium, friable, very carbonaceous, micaceous, silty, well sorted, some pyrite, massive. Porosity seems fair. Somewhat coarser and probably more porous streak at 4912', had strong sulphur odor. Probably WET. Pearly shell fragment at 4915'. Possibly some anauxite present. No gas. No stains, no oil odor, no cut. Grey sandy siltstone in core catcher. Lost 12'. Probably sand to 4926. Hard shell 4926-29'.
4929	4955	10	3"	Sandstone, grey, very hard, lime cemented "shell", fine, with few shell fragments. This was at top of core but it was believed to represent "shell" 4944-47'.
			6'9"	Sandstone, grey to dark grey, fairly soft and friable in places, fine, silty, carbonaceous, massive with 2" lime cemented "shell" at 4952. Quartzose.
			3'	Sand, fairly soft, grey, fine grained, silty, micaceous with abundant pearly shell fragments in lower 1'. Sand is massive, quartzose and a little coarse at bottom, very friable. No gas, cut, stains or odor. Porosity rather low. Baculite 4954'. Drilled very hard 4944-47, soft 4952-55'.
4956	4964	9	7'	Sandstone, fairly soft, grey to dark grey, fine, silty, massive, slightly friable, carbonaceous, some mica. Poor reservoir rock. No gas, cut, stains or odor.
			2'	Sandstone, light grey, extremely hard, lime cemented, fine. Cross bedded but suggests fairly low dip.
4964	4990	2	2'	Sandstone, light grey, extremely hard, lime cemented, fine to medium, micaceous, with poor cross bedded dips varying from 13-18°. Few shell fragments. 2 pieces of very hard limy fine grained sandstone loose above this 2' contains forams which are somewhat suggestive of Siphogenerinoides and fairly common pearly shell fragments. No gas. It is believed the 2' recovered is from 4988-90'. Core drilled hard (5' per hour) and quite uniformly except 1½' near top was softer and bottom seemed harder.
4990	5016	26	3"	Soft grey sand at top. No cut
			1'	Sandstone, dark grey, fine, carbonaceous, silty with laminations suggesting dip of about 5°.
			½'	Soft grey sand.
			½'	Conglomerate, grey, fairly soft with rounded pebbles and cobbles of black chert, quartz and dark volcanic rock in matrix of grey sand. Fossiliferous with pearly shell fragments and one dark grey lustrous shell at least 1" long.
			23'9"	Sand, light grey to white, soft, medium, massive, very friable, well sorted, quartzose, porous with 3" lime cemented "shell" at 5000'. "Salt and pepper appearance". Sand is obviously porous and would make good reservoir. No gas noted in core. No cut, oil stains or oil odor. Sand has wet appearance and is probably WET.

5016	5042	14	1' 1' 12'	Sand, firm, medium to coarse, grey, porous, sugary, massive. Sandstone, grey, medium, lime cemented, very hard. Sand, grey, "pepper and salt" appearance, soft with few firm streaks, massive, medium to coarse, very friable, well sorted, quartzose, porous, carbonaceous streaks and splotches especially at 5025-26'. Odor of sulphur at 5024 and 5030. 8' lime cemented and hard at 5023. Dip 8°+. Sand is very porous and would make excellent reservoir. No gas, cut, stains or odor. Almost certainly WET. Lost: 12' which was probably sand. Core drilled about same except for "shell" 2' from top.
5042	5068	20	20'	Sand, grey, soft, medium to coarse, massive, quartzose, well sorted, porous. Would make excellent reservoir. No gas, No cut, oil stains or odor.
5068	5077	8	8'	Sand, grey, firm, very friable, medium to coarse, well sorted, massive, quartzose, porous as in preceding core. No gas, cut, stains or odor. Looks WET. excellent reservoir.
5077	5087	9	9'	Sand, grey, firm, friable, massive, medium to coarse, porous, as in preceding core with thin (-1-4") streaks dark grey carbonaceous, micaceous, fine grained sand in lower 6'. Cross bedded in places. No gas, cut, odor or stains.
5087	5097	10	2" 8" 2" 9'	Grey, fine sand at top. Very hard, grey, lime cemented sandstone "shell". Sand, grey, firm, medium, massive, as in preceding core. Sand, grey to dark grey, firm to hard, difficulty friable, micaceous, fine with medium streaks, carbonaceous. No gas, cut, stains or odor. Rather poor reservoir. Some cross bedding.
5097	5107	10	10'	Sand, dark grey, hard, fine, difficulty friable, massive, very silty, carbonaceous, porosity appears low. Poor reservoir ~~rock~~ No gas, cut, stains or odor. Woody material and two small pelecypods and few shell fragments at 5105.
5107	5117	10	10'	Sand. Top 1' in sand, dark grey, very silty, micaceous, carbonaceous, fine, rest of sand is light grey, firm, friable, fine, massive, well sorted, porous. Becomes coarser in lower few feet. No gas, cut, stains or odor. Fair reservoir. Looks WET.
5117	5127	9	8" 8'4"	Sandstone, light grey, very hard, lime cemented, fine. Sand, light grey, firm, medium, friable, massive, well sorted. quartzose, porous. Becoming coarser toward base. No gas, cut, stains or odor.
5127	5137	0	0'	Lost. Drilled like sand.

5137	5147	10	10'	Sand, grey, firm becoming soft in bottom 2', medium becoming coarse in bottom 2', massive, friable, well sorted, porous. No gas, cut, stains or odor. Few calcareous fragments suggesting shell fragments at 5146. Excellent reservoir, looks WET. Head and catcher dropped off inner barrel. Pulled pipe to recover head. Note:- Recovered 3" hard, grey, fine, slightly limy sandstone from head. This may represent hard streak 5143-45'. If so, bottom 4' of this core was lost and top 4' represents bottom 4' of preceding core. Few small bubbles of gas in sandstone.
5147	5152	4	2" 3'10"	Sandstone, hard, grey, lime cemented. Sand, dark grey, fine, firm, carbonaceous, massive, very silty, micaceous, no gas, cut, stains or odor. Poor reservoir. Difficulty friable.
5152	5161	9	9'	Sand, dark grey, silty, fine, massive, firm, carbonaceous, micaceous as preceding core but not as silty. Drillers report small gas. Few shell fragments at 5160' which are only slightly pearly. No cut, stains, or odor. Poor reservoir. Difficulty friable.
5161	5170	6	3" 4'3" 1½'	Sand, dark grey as in preceding core. Sand, grey, firm, fine grained, friable, massive, porosity only fair. Fair reservoir. No cut. Sand, dark grey, fine, silty, carbonaceous, micaceous, massive,
5170	5179	9	9'	Sand, light grey, massive, fine in upper part grading into medium in lower few feet, friable, firm, porous, fair reservoir. No cut, stains or odor. No gas.
5179	5188	6	2' 4'	Sandstone, light grey, very hard, medium, lime cemented, massive, No fossils. Sand, light grey, firm to soft, medium, friable, massive, porous. Good reservoir. No gas, cut, stains or odor. Lost 3'. no doubt sand.
5188	5198	9	9'	Sand, light grey, medium, friable, massive as above in top 1' grading into fine darker grey, silty and less friable. Sand toward bottom, carbonaceous spots in lower 5'. No gas, cut, stains or odor.
5198	5207	10	10'	Sand, grey to dark grey, fine, firm, friable near top, difficulty friable in lower few feet, massive carbonaceous and micaceous expecially in lower few feet. No gas, cuts, stains or odor. Poor reservoir.
5207	5217	4	4'	Sand, dark grey, fine, firm difficulty friable, massive, very carbonaceous and micaceous, silty. Very poor reservoir.
5217	5226	9	9'	Sand, dark grey, fine, firm, massive, silty, carbonaceous, micaceous. Poor reservoir. No gas, cut, stains or odor. 4" limy sandstone at 5220. Shell fragment at 5221'.

5226	5236	7	7'	Sand, dark grey, very silty, fine, massive, carbonaceous, micaceous. Few shell fragments. No gas, cut, stains or odor. Siltier than preceding cores. Very poor reservoir.
5236	5245	2	2'	Sandstone, light grey, very hard, lime cemented, medium grained. No fossils. It took 1 hr to core top 2'. Then cored next 7' in 1/2 hr. Lost 7' probably sand.
5245	5255	0	0'	Lost entire core. 3" piece of hard, lime cemented sandstone from preceding core was left in hole and jammed crosswise into head. Drilled like sand, somewhat hard 5247-48'.
5255	5259	0	0'	Found 4" piece hard grey, fine lime cemented sandstone in head. At least one small coiled fossil present. Looks like small gastropod. This piece is believed to be from core 97, 5236-45'. Drilled like sandy shale.
5259	5262	1/2	1/2'	Siltstone, sandy, dark grey, carbonaceous, micaceous, much like sand in cores 5217-36', but much shalyer. 5255-62' has cored slower and seems more shaly than above. No cut, gas, stains or odor.
5262	5267	2 1/2	2 1/2'	Sand, very silty, dark grey, micaceous, fine, carbonaceous. No cut. Not a reservoir. Firm. Few small shell fragments.
5267	5276	5	5'	Silt, dark grey, sandy, carbonaceous, micaceous, firm, slightly friable. Similar to dark grey sand in preceding cores but less sandy. Few shell fragments and one small ribbed fossil at 5268'.
5276	5285	2	2'	Silt, dark grey as above in top few inches. Rest of core is dark grey as above silty sand becoming hard and lime cemented in lower 3".
5285	5288	4"	4"	Sandstone, grey, fine, very hard, lime cemented.
5288	5297	9	6 1/2'	Sandstone, grey, very hard, medium, massive except for poor bedding near top, micaceous.
			1 1/2'	Sand, light grey, firm, fine to medium, micaceous.
			1'	Sand, dark grey, very silty, micaceous, fine friable, No gas, cut, stains or odor.
				Possible dip for orientation at 5288'.
5297	5306	9	9'	Silt, dark grey, very sandy, firm, carbonaceous, micaceous, poorly bedded especially in upper 2'. Sandy streaks and spots. Much like preceding dark grey material but not as sandy.
5306	5316	6	6'	Silt, dark grey as above, poorly bedded, sandy, with bottom 3' sandstone, grey, very hard, fine, massive, lime cemented.

5316	5325	9	3'	Sand, grey, medium massive, friable, no cut.
			1'	Sandstone, fine, grey, very hard, lime cemented with common shell fragments and one pelecypod.
			5'	Sand, dark grey, fine, silty, carbonaceous, micaceous.
5325	5335	3	3'	Sand, dark grey, fine.
5335	5344	2	2'	Sand, dark grey, firm, silty, fine, carbonaceous, micaceous. few shell fragments.
5344	5347	5	5'	Sand, dark grey, fine, silty, few shell fragments.
5347	5349		0	Core gap
5349	5358	9	9'	Sand, dark grey, fine, silty, carbonaceous, micaceous. No cut, few shell fragments.
5358	5368	9	9'	Sand, dark grey, firm, fine, silty, massive, carbonaceous, micaceous with lime cemented very hard "shells" 5362-63½ and 5366.
5368	5377	7	6'	Sand, dark grey, fine, silty, firm, carbonaceous, micaceous as preceding cores but becoming very silty in lower few feet. Two pearly common pelecypods at 5369'. Shell fragments common.
			1'	Sandstone, grey, very fine, silty, very hard, lime cemented. These sands are very tight and of low porosity and would not act as a reservoir.
5377	5386	2½	2½'	Sand, as above but very silty, might be called a sandy silt. Shell fragments common.
5386	5395	8	8'	Silt, sandy, firm, dark grey as above but is becoming less sandy. Some shell fragments.
5395	5404	9	9'	Sand, dark grey, very fine, very silty as above. Common shell fragments some of which are pearly. One small Gastropod from 5400'.
5404	5411	7	6'	Sand, dark grey, very fine, very silty, firm, massive, carbonaceous, micaceous as preceding cores. Few shell fragments.
			1'	Sandstone, grey, fine, very hard, lime cemented.
5411	5420	8	1'	Sandstone, grey, hard, lime cemented.
			7'	Sand, dark grey, very fine, very silty as in preceding core but some sandier. Few shell fragments.
5420	5430	1	1'	Sand, dark grey as above.
5430	5435	4	4'	Sand, dark grey, very silty, very fine, as above. Shell fragments and 1/4" ribbed Gastropod at 5431'.
5435	5440	1½	1½'	Sand, dark grey as above, very silty. Few shell fragments.
5440	5449	8	5'	Siltstone, top 2" hard, grey, limy, remainder dark grey with slight brownish cast. Lower 2' is sand, massive, carbonaceous,

5440	5449 (cont'd)		3'	micaceous as preceding cores but beds are becoming less sandy. Sandstone, grey, very fine, silty, very hard lime cemented.
5449	5458	9	9'	Siltstone, dark brownish grey, sandy, somewhat carbonaceous and micaceous but much less so than preceding cores, massive. Few shell fragments of which some are pearly.
5458	5467	4	4'	Siltstone, dark brownish grey, sandy as preceding core.
5467	5476	2½	2½'	Siltstone, dark brownish grey as above.
5476	5483	4	1'	Sand, grey, fine, fairly soft, massive, no cut.
			1'	Siltstone, dark grey, sandy with streaks sand.
			1'	Sandstone, grey, very hard, fine, lime cemented.
			1'	Siltstone, dark grey as above, with few sandstone pebbles. Few bubbles of gas. Few shell fragments.
5483	5492	2	2'	Siltstone, dark brownish grey, finely sandy, massive, carbonaceous, some mica, becomes sandier toward bottom. Fossiliferous in top few inches with elongated slightly curved costate char burned? cylindrical, tapering. Fossil(as illustrated). These are not Siphogenerinoides, might be Baculite. Smell gas. Fossils at 5483'.
5492	5499	2	2'	Siltstone, sandy, dark brownish grey, massive, micaceous with shell fragments and some fossils including a few elongated costate ones as described from previous core. Only one gas bubble seen.
5499	5504	0	0'	No recovery. Drilled hard, may be siltstone as above.
5504	5510	6	6'	Siltstone, dark brownish grey, carbonaceous, micaceous in phaces, finely sandy, shell fragments fairly common. Elongated ribbed, tapering cylindrical fossil as previously described fairly common. Pearly shell fragments in lower few inches (may be pelecypod). Blocky fracture.
5510	5519	1	1'	Siltstone, dark brownish grey as above except not sandy. Shell fragments and elongated, tapering, cylindrical fossil which may be Baculite fairly common.
5519	5524	5	5'	Siltstone, dark brownish grey as above. Shell fragments and some elongated, cylindrical, tapering fossil common. An unknown fossil placed at 5523. Siltstone is harder than previously and is also somewhat browner.
5524	5529	5	5'	Siltstone, dark brownish grey as above, but seems firmer, carbonaceous and micaceous spots, shell fragments common. Few Mega fossil impressions. Some elongated, tapering, ribbed fossil common.
5529	5535			Core gap (core missing).

5535	5540	4"	4"	Siltstone as above with elongated, tapering fossils.
5540	5546	6	6'	Siltstone, dark brownish grey, carbonaceous, micaceous, blocky fractures, finely sandy, streaks with abundant shell fragments and few poorly preserved Mega fossils especially at 5543'. Some of shells are pearly. Few elongated, cylindrical fossils as in preceding cores. At least two long shells which seem to be stems of some kind. Some gas in core.
5546	5552	0	0'	Lost core. Probably siltstone.
5552	5558	10	4'	Siltstone (recovery from previous core), dark brownish grey, fossiliferous especially at 5552'.
			6'	Siltstone, hard, dark brownish grey, fossilferous with abundant shell fragments and few Mega fossils, carbonaceous, micaceous in places, massive. Some fossils are pearly. Elongated cylindrical ribbed fossils again present. A good deal of gas, strongest in some time.
5558	5561	3"	3"	Siltstone, hard, dark grey, massive, micaceous, carbonaceous. Common shell fragments and two small pelecypods. Elongated, cylindrical fossil as above.
5561	5568	7	7'	Siltstone, dark brownish grey, hard, massive, micaceous, carbonaceous, tough, more clayey than preceding. Shell fragments, some of which are pearly are common. Few smapp pelecypods. Elongated, cylindrical fossil as above. One fossil with horny shell at 5563. Fossiliferous. Hard, tough drilling.
5568	5575	6	6'	Siltstone, dark brownish grey, very massive and tough, hard, carbonaceous, micaceous, Fossiliferous with abundant shell fragments some of which are pearly and a few pelecypods. Some gas in core. Elongated, cylindrical, ribbed, slightly curved, fossil present as in preceding cores.
5575	5585	6"	6"	Siltstone as above. May have recovered bottom of preceding core and missed this one entirely.
5585	5590	5	5'	Siltstone, hard, dark brownish grey, massive, carbonaceous, micaceous. Shell fragments common. Few small Mega fossils. Elongated, ribbed, cylindrical fossil as in preceding cores. small gas in core. A 1" limy siltstone rib at 5587'.
5590	5599	9	9'	Siltstone as above with sandy spots in lower 2'. Few pearly shell fragments. Not as hard and is somewhat more crumbly than preceding core.
5599	5608	9	9'	Siltstone, dark brownish grey, massive, micaceous, carbonaceous, as preceding core but with spots and thin streaks of fine sand and it is crumbly (slightly). Shell fragments fairly common. 1" limy rib at 5602'.
5608	5617	9	9'	Siltstone, dark brownish grey with spots fine sand. Shell fragments common and few Mega fossils. Less crumbly than preceding core.

5617	5626	0	0'	Lost core because inner barrel stopped at 920', evidently on piece of last core. Drilled same as preceding but bottom must have been sand.
5626	5629	6	3'	Sand, grey, soft to firm, fine, massive, friable, rather tight and porosity is only fair. No gas, cut, stains, or odor. Poor reservoir. Probably represents bottom of preceding core.
			3'	Siltstone, dark brownish grey, finely sandy, massive, micaceous carbonaceous as in preceding cores. Sandy spots. Few shell fragments.
5629	5634	5	5'	Siltstone, dark greyish brown, massive, micaceous, carbonaceous, finely sandy with spots fine sand especially in upper 1'. Few shell fragments, some of which are pearly. Few gas bubbles.
5634	5643	9	5'	Siltstone, hard, dark greyish brown, micaceous, carbonaceous as above. Few shell fragments Becomes sandy in lower 1' and grades into:-
			4'	Sand, grey, fine, soft to firm, friable, silty, massive, tight, poor reservoir. No cut, stains, odor or gas in sand. 3" lime "shell" at bottom. Few bubbles of gas in shale above sand when core was opened but it was noticeable that no bubbles of gas came out of sand. Some pyrite in sand.
5643	5652	9'	2'	Sandstone. Light grey, fine, very hard, lime cemented "shell".
			1'	Sandstone, dark grey, firm, fine.
			6'	Siltstone, finely sandy especially in top 2', hard, greyish brown to dark brownish grey, micaceous, carbonaceous, common pyrite. Similar to siltstones above but browner and poorly bedded in few places. Pyritized woody fragment at 5651'. Few shell fragments. Silty cross bedded streaks in sandstones at top indicate low dip of 5-10°. Fair amount of gas from lower part of core.
5652	5661	8	8'	Siltstone, dark brownish grey to greyish brown (looks browner when fresh). Clayey, massive, hard, dense, slightly micaceous and carbonaceous, blocky fracture with slight evidence of bedding in places. Few shell fragments. Some gas in core. Woody fragment at 5656. Few sandy spots.
5661	5670	7	8"	Sand, grey, soft, fine, silty, poor reservoir. No cut, stains or odor.
			6'4"	Sandstone, grey, very hard, fine, lime cemented "shell". No fossils.
5670	5678	3	2'8"	Siltstone, dark brownish grey, hard, dense, micaceous, carbonaceous with sandy spots, blocky fractures, becoming sandy in lower 1'. Few shell fragments and curved, cylindrical, ribbed fossil previously described.
			4"	Sand, grey, very fine, very silty, soft. No cut, stains or odor Part of core lost may have been sand as it drilled soft.
5678	5686	6	6'	Siltstone, hard, dark brownish grey to greyish brown, massive, slightly carbonaceous and micaceous, few sandy spots, clayey,

5678	5686	(cont'd)		clusters of pyrite. Few shell fragments and few elongated, curved, ribbed fossil previously noted.
5686	5691	2	1½' ½'	Siltstone, sandy, dark grey similar to above but sandy. Sandstone, grey, fine, lime cemented, hard. Driller not certain whether he drilled through lime "shell" or not as bit was worn out.
5691	5700	6	2½'	Siltstone, hard dark brownish grey, as above becoming sandy in lower 1'. Micaceous, carbonaceous, some pyrite. Few shell fragments. Forams??
			3½'	Sand, grey, soft, fine to medium, massive, porous, good reservoir. No gas, cut, stains or odor in sand. Looks WET. some gas in siltstone.
5700	5706	1½	1½'	Siltstone as above,. Small gas in core.
5706	5710	9	5½'	Siltstone, hard, dense, dark brownish grey, pyritic, micaceous, carbonaceous as preceding core but harder, massive. Fossiliferous with abundant shell fragments, forams, elongated tapering ribbed fossils and others. This represents recovery from preceding core 5701-06'. Some gas.
			3½'	Shale, hard, dark brownish grey, dense, silty, poorly bedded, micaceous, carbonaceous, pyritic with hard limy concretions as large as 1½" in diameter in lower 1'. Fossiliferous with common shell fragments, forams and few elongated, ribbed fossils as above except harder and poor bedding developed.
5710	5718	8	8'	LOOKS LIKE SAME SERIES AS ABOVE Shale, hard, dark brownish grey, silty, poorly bedded, dense, micaceous, carbonaceous. Pyritic, slightly more clayey than preceding core. Fossiliferous with common shell fragments, forams and small chain type fossil fragments. Pyritized woody material at 5713. Possible poor dip for orientation in cross bedded silty laminations at 5714. No gas. Drilled very slowly. This seems to be same series except it is becoming clayeyer and poorly bedded and harder. Cores have distinct brownish cast when fresh but become greyer on drying.
5718	5727	2	2'	Shale, hard, dense, silty, dark brownish grey, very poorly bedded, micaceous, pyritic, carbonaceous. Fossiliferous with common shell fragments, calcareous forams. 2 small pelecypods and chain type(as illustrated). Some gas. Pyritized woody fragment.
5727	5729	8	8'	Siltstone, dark brownish grey, clayey, hard, dense, pyritic, micaceous, carbonaceous as above but becoming sandy in bottom few inches. Fossiliferous as preceding cores. Few concretions up to 1½" in diameter. Slightly bedded in upper few feet and might be described as shale. Some gas in core. No cut in sandy spots at bottom. Upper 6' of core represents recovery from preceding core.
5729	5738	9	4'	Siltstone, clayey, dark brownish grey, hard, pyritic, micaceous, somewhat carbonaceous as preceding. Fossiliferous with common shell fragment, forams and few poorly preserved

5729	5738 (Cont'd)			gastropods.
			5'	Sand, grey, firm, somewhat friable, massive, silty streaks, well sorted, some mica. No cut in sand. Drilled reports fair gas incore. No stains or odor in sand. Sand is rather tight and porosity is probably only fair. Not a very good reservoir. Sand becomes a little coarser toward bottom of core. Shale at top drilled slowly, sand drilled soft and fast. Gas in core.
5738	5745	7	7'	Sand, grey, firm, somewhat friable, massive, slightly silty in upper few feet, well sorted, fairly tight, some mica and pyrite in core. No cut, stains or odor. Driller reports no gas noted when removed. Only fair reservoir as porosity seems only fair.
5745	5754	1½	1½'	Sand, grey, fine, silty, firm, somewhat friable, mica and pyrite common. Sand seems tight and is poor reservoir. No cut, stains or odor and no gas noted. 3" brownish grey siltstone in bottom. Lost 7' probably recovered in next core.
5754	5759	6	6'	Siltstone, dark greyish brown, very clayey, hard, crumbly in places, micaceous, carbonaceous, pyrite present. Fossiliferous with common shell fragment and some forams. Probably represents interval 5748-54'. 5754-59' recovered in next core. No gas noted. The shale is becoming browner but is still same series of beds.
5759	5764	10	10'	Siltstone and claystone, firm, dark greyish brown, micaceous, carbonaceous, pyritic as above, except quite crumbly. Fossiliferous with some shell fragments and forams. No gas noted.
5764	5773	7	3'	Sand, grey, soft, silty, fine to medium, massive, mica and pyrite present, fairly well sorted. Porosity looks fair. No gas noted, no cut, stains or odor. Fair reservoir.
			4'	Siltstone, clayey, dark greyish brown, fossiliferous as above, becoming sandy in lower 1'.
5773	5780	6	3'	Sand, grey, fine to medium, soft, massive, well sorted, porosity fair and would make a fair reservoir. Looks WET.
			1½'	Sandstone, grey, fine, lime cemented very hard.
			1½'	Siltstone, brownish grey, fossiliferous with shell fragments and forams. No gas noted.
5780	5788	8	4'	Siltstone, dark brownish grey (looks brown when fresh), very clayey as above. Fossiliferous with shell fragments and forams.
			1'	Sand, grey, very fine, silty, silty laminations, dip at 20°± but may not be good dip.
			3'	Siltstone, very clayey as above. Shell fragments and forams, looks browner than above. No gas noted.
5788	5798	0	0'	Undoubtedly hard shale.
5798	5807	8	8'	Shale, silty, hard, dark brownish grey, very poorly bedded but better bedded than preceding cores, pyritic, micaceous, carbonaceous. Looks brown when fresh. Forams, shell fragments. A little gas in core. Hard, grey, fine sand in bottom 4". No cut.

5807	5816	8	6'	Claystone and siltstone, dark greyish brown, crumbly, poorly bedded in places and might be called a shale, micaceous, carbonaceous. Fossiliferous, with fairly common shell fragments few small pelecypods and common calcareous forams. Hard shale with fine sandy laminations 5809-10, (dip 6°) would be good for orientation. Concretions present.
			½'	Sand, grey, fairly soft, very silty, slightly friable, very fine, tight. No cut or odor.
			1½'	Siltstone and claystone as above, sandy spots. Some gas in core.
5816	5825	1	1'	Sand, grey, very fine, very silty, slightly friable, massive, fairly soft. No cut, stains or odor. Carbonaceous streaks.
5825	5827	0	0'	Drilled like shale. Made 2' and tried to pick up ths and preceding core but could not.
5827	5834	4	2'	Shale, silty, brown, crumbly, poorly bedded, micaceous. Fossiliferous with forams, few small pelecypod fragments and pieces of large shell 1½" in diameter.
			1'	Sandstone and shale. Sand is grey and hard becoming limy at bottom. Contact angle 75°. Looks like sandstone dike or large concretion.
			1'	Shale, dark greyish brown, clayey, poorly bedded. Forams. clusters of pyrite.
5834	5841	7	1'	Shale, dark greyish brown, clayey, crumbly, fossiliferous with shell fragments, forams and few small pelecypods.
			1'	Siltstone, firm, sandy spots.
			5'	Sand, grey, firm, fine, silty, slightly friable, massive. No cut, stains or odor. Drilled reports some gas from this sand when core was opened. None apparent 1/2 hr after removal from barrel. Sand is rather tight, porosity only fair. Sand has a drier appearance than previous sand cores. Silty or carbonaceous laminations at 5837. Dip 20°± probably not true dip.
5841	5850	5	3'	Sandstone, light grey, very hard, fine, lime cemented, streak of shale filling 60° fracture in bottom 1'.
			1'	Sand, grey, firm, fine, slightly friable, carbonaceous tight. No cut, stains, gas or odor when removed. Porosity low. Silty concretion in sand.
			1'	Siltstone, sandy, dark greyish brown becoming very sandy at base. No gas in core when removed. A sand of this character should retain some odor if it carried any appreciable amount of gas.
5850	5858	5	1'	Shale, hard, dark greyish brown, silty with streaks clay shale, poorly bedded, shell fragments, forams and small Gastropods.
			1'	Sand, grey, very fine, very silty and clayey, tough, carbonaceous, slightly friable. Poor reservoir.
			½'	Shale, dark greyish brown, clayey with silty streaks, hard, micaceous. Forams and few shell fragments. A 6" streak of fine very silty grey sand at 5852'.
			½'	Sand, grey, very fine, very silty, tough as at top of core.
			2'	Shale, dark greyish brown, silty as above becoming very sandy in lower 1' where it is carbonaceous. Shell fragments, forams.

5850	5858 (Cont'd)			Poorly bedded. Small amount of gas bubbling from core but not enough to sizzle or be heard. No cut, stains or odor in sand. streaks though these sands are tight and should give some odor if they contained much gas. Possible orientation at 5854'. (Dip 9°).
5858	5867	9	2'	Sand, grey, hard becoming limy cemented in lower 1/2'. Cross bedded, fine, very tight, with thin streaks dark shale.
			7'	Shale, dark greyish brown, hard, partly clay shale with poor bedding and partly very silty, micaceous as preceding core, shell fragments and forams. Smell gas in core. 6" streak fine grey tight sand at 5861' and lower 1' of core is sandy. Extreme bottom is shale. No cut or odor in sand streaks.
5867	5876	9	9'	Shale, clay, silty spots, dark greyish brown, hard but crumbly, micaceous, fossiliferous, with common calcareous forams, common shell fragments some of which are pearly, few small Gastropods which may be Pleurotoma and Amauropsis and few pelecypod fragments. Shale is poorly bedded. Drillers report very small amount of gas in cores #182-187 (5867-5910).
5876	5885	9	9'	Shale, clay, silty, spots dark greyish brown, crumbly, micaceous, spots of pyrite as above with 1' hard siltstone at 5877'. Siltstone has 1/2" wide sandstone streak dipping across core at 70°, looks like dike. Fossiliferous with common calcareous forams, shell fragments and some pearly pelecypod fragments.
5885	5894	2	2'	Shale, clay as above with 6" firm silty streak in middle, calcareous forams and one small pearly pelecypod. Shell fragments.
5894	5897	5	5'	Shale, clay, silty spots, dark greyish brown, crumbly with few firmer slightly brittle streaks, pyrite and some mica present. Fossiliferous with common calcareous forams, shell fragments and few pelecypods. Shale is poorly bedded.
5897	5905	2	2'	Shale as above.
5905	5910	8	8'	Shale, silty, hard, dark brownish grey, better bedded than above with blocky fractures, slightly brittle, fractures indicating low dips of 5°±, Fossiliferous with shell fragments, calcareous forams and some pelecypod fragments.
5910	5916	6	6'	Shale, hard, dark brownish grey shale, better bedded than preceding cores, fairly brittle with sub parallel to conchoidal fractures. Fossiliferous with common calcareous forams, shell fragments, one large shell and one probable Baculite at 5911'. Sandstone dike cuts bottom 1'. No gas when removed.
5916	5924	4	4'	Shale, hard, dark greyish brown to brownish grey, clayey with silty streaks, poorly bedded but like preceding core it is better bedded than those above, sub parallel to conchoidal fractures, brittle, compact in upper 2', crumblu in lower 2', micaceous, carbonaceous spots, some pyrite. Fossiliferous with abundant calcareous forams, including elongated ones, looks like form of Nodosaria, few shell fragments. Drillers report no

5916	5924 (cont'd)			gas in 5916-5934'. Very hard, carbonaceous sandstone "shell" in bottom 2".
5924	5925	5	5'	(4' pick up) Shale, dark brownish grey, clayey and somewhat silty, hard, poorly bedded, crumbly and flaky, slightly brittle. Fossiliferous with common calcareous forams, shell fragments some of which are pearly, 1/8" Gastropod which may be Lunatia.
5925	5934	5	5'	Shale, hard, dark brownish grey as above, poorly bedded with sub parallel fractures indicating 5°± dips in upper 2', crumbly flaky and slightly silty in lower 3'. Fossiliferous as above. Piece of one fossil placed at 5926'. 3" extremely hard dark grey limestone at 5930' in bottom of core. Very dense.
5934	5935	3	3'	(2' pick up) Shale as above, very crumbly, forams, fish scales and 1/8" Gastropod as in above core. No gas.
5935	5943	8	8'	Shale, hard, dark brownish grey, clayey with silty streaks, very crumbly with conchoidal fractures, very poorly bedded, flaky, micaceous, slightly brittle, as crumbly shales above. Fossiliferous with common calcareous forams, fairly common shell fragments. Some pyrite.
5943	5952	5	3'	Shale, clay becoming silty in lower 1', hard, dark brownish grey, crumbly, micaceous as above. Forams but less than above, few shell fragments. Limestone concretions at 5745'.
			1'	Siltstone, very sandy, dark grey, micaceous, carbonaceous, massive, becomes a fine tight sand in lower few inches. No cut.
			1'	Shale, hard, dark brownish grey, crumbly as above.
5952	5957	9	9'	Shale, hard, clay with silty streaks, dark brownish grey, very crumbly, slightly brittle, poorly bedded as above. Fossiliferous with forams but not as many as above, few shell fragments. 2" very hard, dark grey, pyritic, micaceous, carbonaceous, sandy siltstone at extreme bottom. Pyritized woody material in siltstone.
5957	5966	1"	1"	Shale, similar to above but more compact and not crumbly. Entire core drilled like shale.
5966	5970	2½	2½'	Shale as above in top few inches grading into a dark greyish brown, hard, fine, siltstone, micaceous, pyritic, calcareous forams. Few shell fragments.
5970	5976	½	½'	Few pieces of hard dark greyish brown crumbly shale at top, then very hard dense dark grey, micaceous, pyritic siltstone. One or two shell fragments and few forams. Entire core drilled very hard and slowly. Clusters of pyrite. No signs of gas.
5976	5979	3	3'	Shale, hard, dark brownish grey, better bedded than above with sub parallel to conchoidal fractures, silty, slightly brittle, slightly crumbly but more compact than preceding. Few calcareous forams. Pyrite common and some mica.
5979	5986	6	2'	Shale, hard as above, calcareous forams.

5979	5986 (cont'd)		3½'	Sandstone, hard, grey, fine, lime cemented, "shell" splotched with shale in upper 2' and with cross bedded thin streaks dark shale in lower 1'.
			6"	Chert, very hard, brown, contact between chert and underlying dark shale with laminae of fine grey sand dips 35°. 2" below is contact between grey sand and dark shale that dips 15°. Bottom 3" hard dark shale with sandy spots in bottom.
5986	5994	0	0'	Lost core.
5994	5995	9	9'	Shale, hard, dark brownish grey, poorly bedded, crumbly, brittle, micaceous and pyritic, streaks and clusters, not as silty as preceding and more brittle. Few calcareous forams.
5995	6004	9	9'	Shale, A 6" hard, fine grey cross bedded sandstone 6" from top. Dip 25°. Rest hard, silty, dark brownish grey, poorly bedded but mostly breaks with sub paralles fractures, slightly crumbly, brittle, micaceous, calcareous forams, grades through 6" of siltstone into 6" of grey, fine, hard, tight shale, splotched sand in bottom.
6004	6009	5	5'	2" hard, grey, fine sandstone in contact with shale at angle of 70°. Probable a dike. 2" below this sand laminations in shale dip 20°. Shale, hard, dark brownish grey, poorly bedded but with sub parallel fractures indicating dip of 5-10°, crumbly and flaky, sligthly brittle, few sandy spots, thin laminations of mica and pyrite. Fish scales. Calcareous forams.
6009	6018	8	8'	6" hard, grey fine lime cemented sandstone at top. Shale, hard, dark brownish grey, poorly bedded, very crumbly and flaky, clayey with silty streaks, micaceous, pyritic with 1/2" hard fine grey sand at 6010, 4" grey hard limy sandstone dipping 35° at 6011 and 1" hard grey fine limy sandstone at 6017 dipping 63°. These are probably dikes. Sandstone streaks contain shell fragments. No forams found in shale. Not brittle as in preceding cores. Driller reports no gas noted.
6018	6027	5	5'	Shale, as above except better bedded, less mica and pyrite and it is slightly brittle. No shell fragments, no forams seen with hand lens. No gas. Shale is hard but is crumbly. 6" hard grey, fine cemented sandstone splotched with shale 1' from bottom and thin sand streak in catchers. Dip at contact of shale and sandstone of 15°. No odor, stains or cut in sand streaks.
6027	6033	9	9'	Shale, firm, clay, dark brownish grey (looks browner when fresh) crumbly, poorly bedded with sub parallel to conchoidal fracture slightly brittle. Some mica. No forams noted. No gas.
6033	6037	1	1'	Shale, firm clay, dark brownish grey. No forams noted. No gas. balance of core drilled like shale. Slightly sticky.
6037	6042	6	6'	(1' pick up) shale, dark brownish grey (browner when fresh). hard clay, poor to fair bedding, very crumbly and disintegrates badly, slightly brittle, silty spots, some mica, spots of pyrite

6037	6042 (cont'd)			No shell fragments or forams found. Occasional fish scale. Drillers report no gas in cores 209-213 (6037-6070). Thin (1/2") sandstone dike cuts across lower 3' of core at angle of 80°.
6042	6051	9	9'	Shale as above with 4" green, medium, hard glauconitic sandstone at 6045, and sandstone dike cutting core at angles of 10-80° at 6047-48. Few fish scales in shale. No shell fragments or forams found. Poor contact of glauconitic sandstone and shale dips 13°.
6051	6060	8	4'	Shale as above but is more clayey with 1" fine, grey, sand at 6052 and 4" fine, grey hard, friable sand at 6054. No fossils, fish scales.
			4'	Sandstone, firm, fine, grey, massive, slightly friable in places, tight with 4" very clayey shale at 6058'. No cut, stains or odor.
6060	6068	0	0'	Recovered in next core.
6068	6070	9	6'	Shale, hard, dark brownish grey (looks browner when fresh), poor to fair bedding, very crumbly, slightly brittle, clayey. No fossils found. Few fish scales. Shale is similar to preceding core.
			3'	Sandstone, firm, grey, fine, tight, probably dike of shale-sand contact in upper 6". Dips 75-80°. Bottom 2" is shale.
6070	6079	9	9'	Shale as above but seems better bedded, more compacted and less crumbly. Few silty spots. Fine, grey, hard, sandstone dike cuts lower 4' of core nearly vertically. Few bubbles of gas. No fossils found. Brown limy concretion at 6071'.
6079	6088	9	9'	Shale, clay, hard, dense, dark brownish grey to greyish brown, fairly well bedded with sub parallel fractures of 5°±, less crumbly than preceding cores but very similar, brittle with 3" sandstone dike cutting top 1' of core at 60° and 6" very hard better bedded brittle dense shale at 6080'. It required 1 hr to drill. A few bubbles of gas.
6088	6096	5	5'	Shale, clay, hard, dense, dark brownish grey (looks browner when fresh), poorly bedded with sub parallel fractures indicating low dip, crumbly, slightly brittle, slightly soapy and slick, with 2" hard fine, grey, lime cemented sandstone 6" from bottom. Contacts of sand with shale dip 20-25°. Probably a dike. No fossils noted with hand lens. Few fish scales. Drillers report no gas in cores. Some pyrite and mica in shale. some pyritized pin points mah represent pyritized diatoms.
6096	6103	10	10'	Shale, with 1/4" micaceous, pyritic, silty rib at 6097'.
6103	6111	7	7'	Shale, except more brittle with nearly vertical fractures in top 1' and 1/8" seam of lignite at 6104, and lignitic lamination at 6110. No fossils noted. Few fish scales and teeth.
6111	6119	9	9'	Shale as above except well bedded from 6115-17' and entire core is fairly well bedded. In well bedded part sub paralles

6111	6119 (cont'd)			fractures gives dips from 2-6° with average about 4°. A 1/2" fine grey, pyritic sandstone dike cuts core at angle of 47° at 6117'. Shale has a little more mica and pyrite than above and is brittle. No fossils noted with hand lens.
6119	6123	4	4'	Shale, clay, hard, dense, dark brownish grey, (looks browner when fresh) micromicaceous, somewhat pyritic, fairly well bedded 6119-21', well bedded (but not thin bedded) 6121-23', brittle, crumbly in upper 2'. Common fish scales. No shell fragments or calcareous forams noted with hand lens but few possible arenaceous forams or small sand spots present. Well bedded shale 6121-23' breaks into biscuits 1-2" long with apparently good dips varying from 1-3° with best about 1½°.
6123	6132	9	9'	Shale, clay, hard, dense, dark brownish grey (looks browner when fresh), micromicaceous, brittle, somewhat slick occasional spots pyrite, well bedded 6123-24½' as in preceding core, fairly well bedded in balance of core, crumbly except in top 1', with ½" sandstone dike dipping 33° at 6127' and 8" sandstone dike dipping 30° at bottom. Sandstones are fine, grey hard, silty and tight. Small amounts of dry bituminous? residue at 6124 and 6131'. Pyritized woody fragment at 6125'. No fossils except in upper 1½' where there seem to be some arenaceous and possibly a few calcareous forams. Some fish remains. Dips in well bedded part vary from 1-3° with best ones about 2°.
6132	6141	9	9'	Shale, clay, as above, well bedded 6133-35', fairly well bedded in balance of core. Dips as high as 6° but average is about 2°. Shale is slightly crumbly but is becoming more compact. Fish scales and teeth, but no calcareous forams found with hand lens. Some arenaceous forams. A 3" fine, hard grey, sandstone dike at 6133'. No cut in sandstone.
6141	6146	1½	1½'	Shale, clay as above but more compact. The shale fractures as separates into fairly large fragments but is not crumbly. Fish remains but no forams found. Spots of pyrite.
6146	6149	0	0'	Lost core. Drilled very slowly. Probably hard shale.
6149	6153	1½	1½'	Shale, clay, hard, dense, dark greyish brown to brownish grey (looks browner when fresh), compact but crumbles slightly along fractures into large fragments, well bedded with subparallel to irregular fractures indicating dip of 1-4° (best one about 2°) brittle, micro-micaceous, occasional spots of pyrite. No shell fragments. No forams noted with hand lens. Few fish scales. One or two small spots which are probably bituminous residue.
6153	6162	9	9'	Shale as above but distinctly brown (when wet) from 6155-72'. Few dark black spots up to 1/2" which are probably bituminous, residue as in preceding core. Fish scales and teeth some of which are pyritized. More pyrite than in preceding core. Few arenaceous forams and possible calcareous at 6159'.

6162	6170	8	8'	Shale as above, brown (when wet), to purple. No dark black bituminous spots noted. Few probable arenaceous and possible calcareous forams. Dips 1-4° with average about 2°. Spots and small clusters of pyrite. Very tough and massive and purple 6166-68'. Driller reports few bubbles gas incore and in ditch. Note:- Shales in preceding cores are more like Moreno as usually described than preceding more crumbly shale.
6170	6179	9	9'	Shale as above, distinctly purple when fresh especially 6172-74'. Few arenaceous forams. Shale is becoming better bedded. No gas.
6179	6188	9	9'	Shale, clay, dark greyish brown (becomes almost grey on drying). hard, dense, slick, fairly brittle, compact but mostly crumbles along fractures into fairly large fragments, slightly silty, well bedded (but not thin bedded), dips irregular from 1-4° withaverage about 2°, micro-micaceous, occasional spots pyrite as above. Fish romains common, few spots of pyritized woody material no shell fragments, few arenaceous forams, but no calcareous forams noted with hand lens. One piece contains a spot which may be a poorly preserved Uvigerina.
6188	6197	9	9'	Shale as above.
6197	6202	9	9'	Shale as above, many more small spots and clusters of pyrite than in preceding cores and core is noticeably heavier. Shale has a purplish cast. Apparently good dips as high as 5° but average is 2-3°.
6202	6206			Core gap (core missing).
6206	6215	6	6'	Shale as above. Small (1/16") yellowish-orange spots which have been rather rare in preceding cores are more common in this. Some of these resemble very badly leached forams. Dip seems a little higher, 3-5° with average about 4°.
6215	6222	10	10'	Shale as above. Few orange spots. These probably do not represent forams. No gas noted when core was pulled.
6222	6231	9	9'	Shale as above except a little thinner bedded. Through middle of core the shale fractures, sub-parallel to bedding into 1/2-1" biscuits. Dip varies 2-5° with most about 4°. A 1/4" hard grey, fine, tight sandstone dike cuts core at angle of 37° at 6224'. Abundant pyritized forams were found at 6224-25'. Those are elongated (up to 3/4"), straight, cylindrical, tubular, narrow and exterior where it can be seen has numerous fine longitudinal ridges. What remains in interior seems to be numerous small globules. A few calcareous Nodosaria were seen, and there may be other forams.
6231	6238	7	7'	Shale, clay, hard, dense, dark brown in upper 3' and lower 1½' brownish purple in middle 3', well bedded at top and bottom, tough and massive in middle 3', slick, fairly brittle, compact and not crumbly, micro-micaceous, pyritic with common small spots and clusters, fish remains common, few possible

6231	6238	(Cont'd(		arenaceous forams. No shell fragments, no calcareous forams noted with hand lens. Dip 3-5°. Shale is gradually becoming better and more thinly bedded.
6238	6248	10	10'	Shale, hard, dark greyish brown, dense, well bedded as above, shale fractures into fairly large fragments more than preceding core but is not crumbly. Fish remains common and few spines similar to those at 6224'. Few arenaceous forams and some doubtful calcareous forams. Dips 3-5° (somewhat irregular) with average about 4°.
6248	6249			Core gap
6249	6256	1	1'	Shale, clay, very hard, dense, slick, dark greyish brown, brittle, well bedded but not thin bedded, micro-micaceous, pyritic with spots and small clusters of pyrite, compact, tough, not crumbly. No shell fragments. Fish remains common. Probable arenaceous forams but no calcareous forams noted with hand lens. Few smallspots of bituminous residue at top of core. Dips 3-5°, average 4°.
6256	6257	3	3'	Shale as above. Plugged bit, inner barrel would not seat, had to pull out of hole.
6257	6264	0	0'	Drilled like hard slick shale.
6264	6266	0	0'	Lost core. Drilled like shale. Recovered few pieces mushy brown Kreyenhagen shale with abundant Plectofrondicularia. This evidently caved and was picked up in core catcher and head.
6266	6271	5	5'	Shale, hard, tough, poorly bedded, purplish brown in upper 3' hard, dense, well bedded, dark brownish grey, in lower 2'. Fish scales, some of which are pyritized, common clusters and spots of pyrite. No forams.
6271	6274	3	3'	Shale, clay, hard, dense, dark greyish brown, slick, well bedded to semi-platy (bedding as thin as 1/4" in places), semi-porcellaneous with bluish cast on exterior where rubbed against core barrel, micro-micaceous, compact but fractures on standing especially in lower 1', fairly brittle. A few very poorly preserved possible forams in lower few inches. These are Siphogenerinoides. No gas.
6274	6280	4	4'	Shale, clay, hard, dense, dark greyish brown, slick, well bedded, semi-platy fracturing along bedding into pieces as thin as 1/4", semi-porcellaneous with bluish cast on exterior as above. Abundent Siphogenerinoides, occasional Nodosaria, Plectofrondicularia (wide form) and a few coiled forms. Dip 4°.
6280	6287	3	3'	Shale, similar to above but notably has porcellaneous and becoming slightly crumbly. Siphogenerina present but in much less abundance than preceding core. No gas.

6287	6292	5	5'	Shale, hard, clay, dense, dark greyish brown, well bedded similar to preceding cores but only slightly porcellaneous in top 2' and not at all below. Few Siphogenerina in upper 1'. Common calcareous forams to bottom of core but no Siphos noted on examination when wet below 6281'. Shale is slightly crumbly and exterior is washed and scraped by fluid and catchers rather than glazed as in above core. No gas.
6292	6297	9	9'	Shale, clay, hard, dense, greyish brown, well bedded fractures readily on standing and crumbles into fairly small pieces, slightly brittle, slightly porcellaneous in upper 1'. Fish scales some of which are pyritized. Common calcareous forams especially in lower part of core, including Siphogenerinoides.
6297	6306	9	9'	Shale as above with abundant calcareous forams including Siphogenerinoides. Note:- 2' of similar shale, but more thinly bedded (as thin as 3/16"), less crumbly and fairly porcellaneous was recovered under fish tail in drill collars after drilling from 6306-13'. This contains less common forams, including Siphogenerinoides and Nodosaria. It must come from interval 6306-13'.
6306	6425			Core gap
6425	6428	2	2'	Shale, clay, hard, dense, dark greyish brown (looks browner when fresh), brittle, well bedded and becoming thin bedded, slightly crumbly and flaky, slightly slick, very similar to shale above 6306'. Very abundant calcareous forams including abundant Siphogenerinoides. Dip 4°. Fish scales common, some pyrite.
6428	6437	5	5'	Shale as above but thin bedded. A brown limy lamination at 6430', dips 4°. A 1" streak of bluish grey, fine to medium, fairly soft, silty, friable sand is present 1" below limy streak at 6430'. This dips 4° at contact with overlying shale No cut, stains or odor. This does not look like a dike but may be. A 1/4-3/4" dike of hard, white, fine limy sandstone cuts core at 34° at 6433. Abundant forams as above.
6437	6443	9	9'	Shale as above with small (1/2-1" sand spots at 6434' and 6435', a dike of sandstone cutting entire side of core at 80° at 6435', and a 1/4" dike cutting at angle of 20° at 6435½', a 1/4" streak of sand at 6440' and a 1/8" streak at 6449½', a spot at 6442'. Abundant forams as above, small brown limy streaks or concretions at 6435'.
6443	6451	6	6'	Shale as above but browner and tougher 6444-48'. Forams common but much less abundant and seem mainly Nodosaria rather than Siphos. Becoming "poker-chip" type in streaks.
6451	6459	8	8'	Shale, clay, hard, dense, dark greyish brown to brownish grey thin bedded, "poker-chip" type, fairly brittle, slightly crumbly and flaky, similar to above. Common calcareous forams including Siphogenerinoides. Few grey-blue sand spots 6453½-54' and 6457-59', some of which are elongated and may be dikes. No gas noted.

6459	6469	10	10'	Shale as above except with common light brown limy concretionary spots and brown limy streaks, one of which gives apparently excellent dip of 4°. Common forams as above including Siphos. A few bubbles of gas noted.
6469	6478	9	4'	Sandstone, grey, firm, fine, massive, difficulty to slightly friable, tight, silty, fairly well sorted, splotched with dark shale in places, becoming hard, white and lime cemented 6472-73'. No cut, stains or odor, but a few bubbles of gas from the sand were noted when core was extracted. Some thought the sand had a slight sweetish odor but this may have been from the hot mud. Porosity probably low, poor reservoir.
			2'	Shale, as in preceding core but more crumbly. Irregular dips of 2-6°. Forams less common but small ones are present.
			3'	Sandstone, grey as above except few somewhat softer spots. No cuts, stains or odor. Porosity probably a little higher. Shale-sand contact at 6475' dips 24°, sand-shale contact at 6478' dips 40°, sand is cross bedded 6475-76' with dips as high as 65°. Bottom 3" of core is hard shale. It is believed the sands 6469-78 are dikes.
6478	6487	3	3'	Brown shale fragments in fine grey firm sand, some clean sand. No cut.
6487	6491	0	0'	No recovery.
6491	6492	1	1'	Shale fragments.
6492	6498	6	6'	Brown shale thin bedded, abundant forams throughout.
6498	6507	7	7'	As above.
6507	6514	11	5'	As above.
			6'	Spalling dark grey shale with occasional thin sand (1/8" streaks and carbonaceous matter, not well bedded.
6514	6523	9	9'	Dark grey spalling shale, few forams.
6523	6532	10	9'	As above. Organic material scarce.
			1'	Grey, fine silty sand. Probably part of a dyke.
6532	6541	0	0'	Core missing
6541	6543	1	1'	Grey firm, fine sand.
6543	6545			Core gap
6545	6550	2	2'	Hard dark greyish brown shale (spalling). 2" fine grey sand at top.
6550	6555	0	0'	No recovery.
6555	6557	0	0'	No recovery.

6557	6563	6	6'	Dark greyish brown spalling shale. Organic material scarce.
6563	6572	0	0'	No recovery.
6572	6573	10	10'	(9' pick up) Dark greyish brown spalling shale. Scarce forams.
6573	6574	0	0'	No recovery.
6574	6579	6	6'	Dark brown shale, spalls, abundant forams, few gas bubbles when fresh.
6579	6587	8	8'	Brownish grey shale as above, abundant forams and fish remains.
6587	6594	10	10'	(3' pick up) Brown shale, more brown than above, more abundance of forams and fish remains. Dips up to 9°, Pecten shaped bi-valve occurs in this core near bottom about 1/2" diameter.
6594	6596			Core gap
6596	6605	3	3'	Brown shale as above, abundant forams and fish remains.
6605	6608	10	10'	(7' pick up) Same as above, forams and fish remains not so numerous.
6608	6616	6	6'	Brown shale, well bedded non spalling, fairly hard, abundant forams, abundant pyritized organic matter. Hole 3° S. 10 W.
6616	6625	9	9'	Very dark brown spalling shale, fair amount fish remains, no forams noted. Dip flat.
6625	6632	7	7'	As above.
6632	6639	6	6'	As above, scarce pyritized fish remains.
6639	6646	9	9'	As above, scarce pyritized fish remains. Dip up to 2°.
6646	6654	8	8'	As above.
6654	6663	9	6' 3'	As above. Brown shale, dark. 3 2"-2" fine bedded grey sand streaks, very hard to friable, appear to be lenticular streaks, not dikes, places bedded parallel to shale. Dips 0-2°. No cut, no odor. Occasional carbonaceous fragments in sand. Sand dark grey silty to light grey clean.
6663	6672	9	9'	Dark brown shale, thin bedded spalling with scarce pyritized fish remains and no forams noted. Drills hard but spalls when dry.
6672	6681	5	5'	Dark brown shale, few thin 1/8" grey sand streaks in bottom tray. 3" of alternate shale and sand, sands lenticular.

6681	6685	9	9'	(5' pick up) Hard brown well bedded shale, rare fish remains, spalling.
6685	6694	1	1'	Hard to medium dark brown shale.
6694	6695	3	3'	(2' pick up) As above. Scarce fish remains. Spalling.
6695	6700	8	1'	Shale as above.
			1'	Grey fine carbonaceous silty sand.
			5'	Shale as above.
			1'	Shale as above with 4" fine hard carbonaceous sand.
6700	6708	8	8'	Dark brown spalling shale, scarce fish remains, very gassy.
6708	6716	8	3'	Firm to spalling dark brown shale, very gassy.
			5'	Grey, dry, firmly friable to medium hard, fine clean sand. Rich gas odor. Gas bubbling from sand. This is very good looking gas sand. No cut with CCl_4.
6716	6724	7	½'	Shale
			1'	Sand
			½'	Shale
			1'	Sand
			2'	Shale
			1'	Sand
			1'	Shale, all gassy, good odor
6724	6732	10	4'	Shale, gassy
			6'	Firm, fine grey sand, gassy, flashed at end of barrel. Sand not wet, no cut, good odor but not as good as in core 6708-16.
6732	6741	9	9'	Fine grey dry clean gas sand, odor not so prominent.
6741	6748	2	2'	Sand as above, fair odor.
6748	6753	10	10'	Spalling dark brown shale, good gas show, rare thin 1/2'-1" hard calcareous sand streaks. No odor, no cut.
6753	6761	3	3'	Dark brown shale as above with 1/2" streak sand in middle. Dip low.
6761	6764	2	2'	Shale as above.
				Overhole 7'.
6771	6780	9	9'	Shale as above with few thin streaks grey sand (thickest is 1") Some gas.
6780	6789	9	9'	Shale as above with ½" grey, medium sand at 6787. Some gas.
6789	6798	9	9'	Shale as above with 1' sand at 6790 and 1/2' at 6792.
6798	6807	9	6'	Shale as above with 6" hard, brown, fine, very silty sand at 6802.
			3'	Sand, grey, hard, fine to medium, silty, somewhat friable. No odor or cut. Tight, porosity low. No gas.

6807	6816	9	1' 8'	Sand as above but fine. Shale as above.
6816	6825	9	2' 4' 2' 1'	Shale as above with 6" grey sand at 6817'. Sandstone, grey, fine, lime cemented in top 2', softer in bottom 1'. Shale as above with thin streaks grey sand. Sand, hard, grey, medium, no odor.
6825	6834	9	9'	Shale as above with thin streaks sand at 6832.
6834	6843	9	9'	Shale as above with thin streaks grey sand at 6834 and 1' GREY sand at 6837'.
6843	6852	7	7'	Shale as above
6852	6859	8	8'	Shale as above and sand, hard, grey, fine in thin streaks and laminations. No cuts or odor. Several pieces for possible orientation.
6859	6868	9	5' 3' 1'	Sand, grey, fine, tight as above with shale lamination. Sand, grey, fine, tight with some shale lamination. Shale as above.
6868	6877	9	9'	Shale as above.
6877	6886	9	9'	Shale as above, carbonaceous material at 6882'.
6886	6895	8	8'	Shale as above with two 1/4" streaks grey, fine sand and 6" hard, grey, lime cemented "shell" at 6892'.
6895	6904	9	9'	Shale as above with several thin (1/4") streaks grey fine sand. Fair gas.
6904	6913	9	9'	Shale as above with few spots and streaks fine, grey, silty sand. Fair gas.
6913	6921	3	3'	Shale as above with one 1/2" sand streak cutting core at 20°. Lower 4" of core drilled harder. Stripped dogs. Few inches of core recovered at bottom seems harder. May be getting into harder shale. Fair gas.
6921	6923	5	5'	Shale, dark brown, slightly silty, clay, fairly soft, flaky, few harder streaks well bedded as above. Few fish scales. No forams noted. Slightly micaceous, few small dark black splotches which may be carbonaceous or petroleum residue. Traces of gas sizzles. No odor. Few spots hard, grey, fine sand.
6923	6932	5	3' 1½' ½'	Shale as above. Sand, grey, firm but friable, fine to medium, silty, micaceous, rather tight. Porosity probably only fair. Parts in 3/4" biscuits at angle of 25°. Gives odor when fresh of gas but disappears quickly. Some gas in sand. No cut. Poorly sorted. Shale as above.

6932	6939	7	7'	Shale as above. A ½" grey sand streak cuts core at 20° at 6934, gas in shale.
6939	6943	2	2'	Shale as above, bottom of core gassy.
6943	6948	4	4'	Shale as above with 1/4" sand streak cutting core at 20° at 6944'. and 4" hard, grey, silty, lime cemented sandstone "shell" at 6946'. Gas in core, it sizzles, no odor. Rare forams, Nodosaria
6948	6957	1	1'	Shale as above, some gas.
6957	6958	9	1' 8'	Shale as above. Sandstone, fairly hard and is hard to cut with a hatchet, predominately grey but with brown silty streaks, tight, very difficulty friable in places, fine to medium, silty, ill sorted, massive, micaceous. Porosity and permeability probably low and sand would make a rather poor reservoir. No cut or odor, slight traces of gas. A good deal of fine material chokes pores of sand. Top of Sand- 6950'.
6958	6967	3	3'	Sandstone, hard, grey and lime cemented in top 1', grey to brown and silty, very slightly friable, fine, similar to above but harder and tighter. Slight trace of gas, no odor. A 1/4" sandstone dike cut silty sand core at 70° at 6959'.
6967	6971	10	10'	Sandstone, grey, firm, very slightly friable, slightly softer than in core 6957-58', fine fairly well sorted but a good deal of fine material chokes pores. Porosity and permeability poor. Poor reservoir. Traces of gas, seem fainter than above No cut or odor. Shaly at 6970-71'.
6971	6980	9	9'	Sand, grey, fine to very fine, massive, very similar to preceding core, no traces of gas or odor.
6980	6988		5'	Sand, grey, very fine as above, but harder and not at all friable. 4" hard grey fine, lime cemented "shell" at bottom. some gas in sand, much more prominent in the "shell" at bottom.
6988	6993	5	5'	Shale, firm, dark brown, slightly silty, micaceous, flaky as shale above the sand. Fish scales. Few pearly very small shells. Fair gas.
6993	7001	5	3' 2'	Shale as above. Sand, hard, grey, massive, fine to medium, ill sorted, softer than sand above, fairly friable, micaceous, slight gas. 3" shale at bottom, no odor.
7001	7003	1	1'	Shale, hard, dark brown as above, but harder. Fair gas. This cored very hard, 2' in 3 hours and it is believed this recovery is from previous core rather than this very hard drilling.

7003	7009	5	4"	Extremely hard, greenish grey limestone "shell", probably represents very hard drilling 7001-03'.
			6"	Cavings, grey sand and shale, or badly ground up core.
			3'	Shale, dark brown, silty, flaky as preceding shale. Common fish remains, small black splotches which are probably petroleum residue, no forams found. Gassy.
			1'2"	Sand, grey, hard, fine, slightly friable, massive, fairly well sorted but there is a good deal of grey powdery material between grains and porosity and permeability seem fairly low, rather tight. Good gasoline odor. No cut, some glauconite in sand. The dark minerals in the sand give it a slight dark grey appearance.
				Top of Sand- 7007'.
7009	7018	7	7'	Sand, grey, fine to medium, fairly friable in top 2' and lower 1', firm to hard, porosity and permeability better, would make fair reservoir. Bubbles of gas, good gasoline odor in top 1½', odor fades out through middle of core where sand is tighter, strong odor in bottom 1', no cut with CCl_4. Sand does not taste salty, is dry in appearance and does not look wet.
7018	7026	7½	7½'	Sand, grey, firm, friable, fine to medium but some coarser than preceding core with rare scattered coarse grains, becomes fine at bottom, glauconite present, massive, much as preceding core but porosity and permeability seem better. Fair gasoline odor in upper 2' and lower 1' but none detected in Middle of core. No cut with CCl_4, would make fair reservoir. Lost 5' which was probably all sand.
7026	7035	½	½'	Sand, grey, fine to medium, friable, firm as preceding core. the ½' recovered was in core head and had to be pounded out, hence was broken. Slight gasoline odor, probably some gas. No cut with CCl_4, sand is dry and powdery and does not look WET. There is a slight brownish staining on freshly broken pieces of this and preceding core. Odor and this staining disappear quickly.
7035	7041	½	½'	Sand, grey, badly broken in driving from core. Shoe. No odor. fine to medium grained, pulled barrel at 7045', got this ½'.
7041	7050	6	6'	Note:- Driller thought this cored a little more shaley than preceding. Sand, grey, almost medium grained, firm, friable. Few gas bubbles but no odor. Looks like good reservoir, porosity and permeability seem higher.
7050	7058	2	2'	Sand, grey, similar to above, few bubbles of gas, no odor.
7058	7061	9	3'	Shale, hard, dark brown, silty, micro-micaceous, well bedded, flaky, fish remains, no forams, gassy.
			6'	Sand, grey, fine, firm to hard, (harder than preceding), fairly well sorted, becomes fine at bottom. Porosity and permeability appear lower than preceding especially in bottom 2'. Some glauconite present. Gassy, no odor or cut. Only slightly

7058	7061 (Cont'd)			friable. Fairly tight.
7061	7068	2	2'	Sand, grey, hard, fine, tight, not friable except in bottom few inches. Gassy, no cut or odor, finer and tighter than preceding.
7068	7072	3	3'	Sand, grey, firm, fine to medium, fairly friable. Sand is softer, more friable than above. Porosity and permeability appear as good as sand about 7050'. Gassy but no cut or odor.
7072	7077	4	1'	Sand as above.
			1'	Shale, hard, dark brown with 3" streak grey sandstone. Contacts dip 22-28°.
			2'	Sand, firm, grey, fine, fair reservoir. No cut or odor. Very little gas noted.
7077	7086	10	10'	Shale, hard, dark brown, flaky as above with 1" streak of hard grey fine sandstone at 7080'. A 6" streak at 7082' and a 4" streak at 7086'. Bottom 1" of core is shale. Good gas.
7086	7095	7	7'	Shale, hard, dense, dark brown, well bedded and thin bedded, silty, similar to shale in preceding core but harder. Brittle, fish remains common, no forams noted. Good gas, dip about 4-5°.
7095	7104	10	4'	Shale as above, common fish remains but no forams noted. Good gas.
			6'	Sand, grey, firm, fine to medium, massive, fairly friable, massive, glauconite becoming more common. Very similar to sand 7007-77. Porosity and permeability appear fair though there is a good deal of fine material in pores. Would make fair reservoir, slight odor. No cut, some gas. Does <u>not</u> look wet.
7104	7112	8	8'	Sand, grey, hard, fine, massive, "tight", somewhat darker grey, difficulty friable, porosity and permeability seem lower than preceding core, sand would be a rather poor reservoir, slight odor, slight gas. No cut, odor disappears quickly.
7112	7122	10	10'	Sand, grey, hard and tight as preceding core in top 3', slight gas, no odor. Poor reservoir. 3" dark brown shale at 7115. Good gas, sand 7115-22 grey, firm, fine, massive, fairly friable, porosity and permeability fair. Would make fair reservoir. Fairly good gas and good gasoline odor especially in bottom 1½' where odor persists for at least 12 hours. Gas burns readily in can after sample stood 8 hours.
7122	7130	8	1'	Shale, hard, dark brown as preceding shale. Streaks of grey fine sand, good gas. Top 3" similar to sand above, good odor.
			7'	Sand, grey to dark grey, very fine, silty and clayey, very tight, hard, numerous thin streaks and laminations of dark silty shale, tough. Good gas, no odor, no cut. A very poor reservoir. Porosity and permeability low.

7130	7137	5	5'	Shale, hard, dark brown, dense, slightly silty, somewhat brittle, flaky, well bedded and thin bedded, micro-micaceous, similar to preceding shales. Common fish remains but no forams noted. Good gas. No odor.
7137	7144	8	6'	Shale, hard, dark brown as above but seems more compact and better bedded. Becomes very silty in bottom 6" and bottom 1" is fine grey sand, hard. Dip 4-5°. Good gas, no odor, common fish remains, no forams noted.
7144	7149	2	2'	Shale as above, good gas.
7149	7157	8	2'	Shale as above with few grey, fine, silty sand streaks.
			3'	Sand, grey, firm, silty, tight, mica common, no cut, very poor reservoir.
			3'	Shale, dark brown, shale in this core is softer, flaky and silty, fish remains common, no forams, good gas in core, few sand streaks in lower 3'. Fine grey sand in bottom 2" of core.
7157	7166	9	1'	Shale as above
			2'	Sand, grey, hard, fine, tight
			1'	Shale as above.
			1'	Sand as above.
			4'	Shale as above with few streaks fine grey, tight sand as above. Sands would make poor reservoir. Good gas in core.
7166	7175	9	1'	Shale, hard, dark brown, slightly brittle as above but harder and better bedded.
			4'	Sand, grey, firm, fine, massive, fairly friable, somewhat clayey which makes it tough and hard to cut or break, micaceous, some glauconite. Gassy, odor which seems to be of a heavier product than gasoline. Gas burned at and off barrel before core was extracted.
			1'	Shale as above with sandy spots.
			3'	Sand, as above with 6" shale at 7174'. Sand is gassy and has some odor. Occasional shale splotches. These sands would make poor to fair reservoir. Sand does <u>not</u> look wet.
				<u>Top of Sand- 7167'</u>
7175	7184	9	9'	Sand, grey, firm to hard, fine, similar to preceding core but seems cleaner with less shaly material and porosity and permeability are probably better. Sand is dry and powdery and does <u>not</u> look wet. It is only slightly friable, good gas. Fair odor. No cut. Sand is slightly coarser than preceding.
7184	7193	5½	5½'	Sand, grey as preceding except becoming slightly coarser. Good gas, fair petroleum? odor. No cut.
7193	7200	8½	8½'	Sand, grey as above but cleaner and more friable, especially in upper 3-4'. Well sorted, porosity and permeability look fairly good. Fair gas and petroleum odor especially in upper 3'.

7200	7209	9	9'	Sand, grey, firm, fine, clean, fairly friable as above. Good odor, fair gas, no cut. Petroleum odor, porosity and permeability fair. Fair reservoir. Sand does not look wet.
7209	7218	8	½'	Sand, grey, hard, fine, fairly friable, massive as preceding.
			2'	Sandstone, grey, hard, fine, lime cemented "shell".
			½'	Shale, hard, dark brown, silty as preceding shales.
			2'	Sand, grey, firm, fine, massive, tight, fairly friable, clayey at top.
			1'	Shale as above.
			2'	Sand, grey, fine with scattered coarse grains and gritty 6" from bottom, very clayey, tough. Porosity and permeability low. Not a reservoir. Carbonaceous splotches, woody fragments and petroleum residue (Gilsonite?) in bottom 1'. Gas in core, no cut, no odor. Cross bedding in lower 1' of sand. Character of beds suggests lagoonal deposition and possibly a transitional series.
7218	7227	9	6'	Sand, grey, firm, fine, clayey and tight much like bottom of preceding core 7218-19', becoming much less clayey, less tough, fairly friable but still clayey and tight 7219-24'.
			3'	Shale, hard, dark brown, well bedded, slightly brittle, micromicaceous with streaks and splotches of sand. Some pyrite. Fish remains common, no forams noted.
7227	7234	8	6'	Shale, dark brown similar to above with streaks non bedded siltstone especially 7227-29 and thin streaks cross bedded fine grey sand. Gilsonitic material common, fish remains.
			2'	Sand, grey, hard, tight, micaceous, shaley, very poor reservoir. Good gas and possible slight odor in bottom 1'.
7234	7242	4	4'	Sandstone, fairly hard, fine, grey, tight, micaceous, much more dense and more impervious than sands up the hole. difficulty friable, porosity and permeability low. Very poor reservoir. A little gas, fair odor. Seems to be grading into better sand at bottom.
7242	7247	4	½'	Hard brown shale.
			3½'	Firm, friable, fine grey sand, good odor, gassy.
7247	7256	9	9'	Medium fine grained, friable at top, firmly friable at bottom, fairly tight, gassy, odor fair, fairly hard bottom ½'.
7256	7265	9	4'	As above, faint odor, gassy.
			2'	Hard lime cemented sandstone, probably local
			3'	As 4' above, faint odor, gassy, sand below hard streaks no different from sand above
7265	7274	10	10'	Sand, grey, fairly friable, good sharp odor, not gassy.
7274	7283	9	9'	Sand, medium fine, friable, softer than above.
7283	7292	9	9'	Medium grained, friable grey sand, mud gassy, fair odor.

7292	7296	4½	3'	Sand, firm, grey, medium, slightly friable as above but harder. No gas or odor.
			1½'	Sandstone, grey, very hard, lime cemented "shell", very little if any gas. No odor. Shell is medium grained in top 6", fine in lower 1'.
7296	7301	3	3'	Sandstone, light grey, extremely hard, fine, lime cemented "shell" on bottom 1½' of preceding core. No gas, no odor. Entire core drilled at rate of 1' per hour except about 7300 where 6" went a little faster. Thickness of shell 7301 is 6½'.
7301	7304	3	1'	Hard calcareous sandstone shell.
			8"	Friable, medium grained grey sand.
			4"	Hard shaley sandstone, gassy.
			1'	Shaley poorly sorted sandstone.

Note:- Sands 7301-21' are much darker grey than those above 7295' chiefly because of large amount of biotite and they are shaley. Sands 7301-21' look as if they might be WET.

7304	7313	9	1'	Firm to hard medium grained grey sand.
			3"	Dark brown shale.
			9"	Soft, friable sand
			4'	Firmly friable, medium grained grey sand, micaceous, shaley, tight, gassy, no odor.
			3'	Friable, medium grained grey sand, possibly wet.
7313	7322	9	8'	Firm to hard, medium grey sand, very difficulty friable with small 3" streak of hard shale at 7315, sand is micaceous, shaley, tight, possibly WET, very little gas in first 8' of sand, no odor.
			1'	Hard brown shale, good gas.
7322	7326	4	4'	Hard brown shale, sizzled after being washed, good gas, common fish remains, no forams noted.
7326	7335	9	4'	Shale, hard, dark brown, dense as shales above, fair gas, common fish remains.
			5'	Sand, firm, grey, fine, silty, tight, shaley at top and common shale splotches at 7334½', few bubbles of gas, no odor, very poor reservoir. Looks WET, laminations of shale in sand might give oriented dip.
7335	7342	7	7'	Sandstone, grey, extremely hard, dense, fine, very micaceous with large flakes of biotite, lime cemented "shell" with somewhat softer not strongly lime cemented hard medium grey slightly friable sand in upper 6". Few bubbles of gas 7335-36'. No gas in "shell"
7342	7346	2	2'	Sandstone, grey, fine, extremely hard, very micaceous, lime cemented, as above. Entire core was same sandstone "shell" No gas.

7348	7349	1/2	1/2'	Sandstone, grey, very hard, lime cemented "shell" as above. No gas.
7349	7353	6	6'	Sandstone, grey, very hard, lime cemented, "shell" as above.
7353	7360	7	3'	Sandstone, grey, very hard, lime cemented, as preceding. Bottom of shell 7356'. No gas.
			4'	Sandstone, firm, grey, fine, massive, not friable, porosity and permeability low, tight, poor reservoir. Micaceous, may be WET though too tight to yield much fluid, small increase of gas on ditch after coring this sand. Few bubbles of gas in core. No odor.
7360	7369	9	1'	Sandstone, hard, grey, lime cemented as 7335-56'.
			8'	Sand, grey, hard, fine to medium tight, micaceous, difficulty friable, massive except in bottom 4" where abundant dark silty laminations indicate low dip. Porosity fair, permeability low. Poor reservoir. Slight trace of gas in core. No odor, no cut. Looks wet. A little coarser and softer than preceding core.

7369	7378	8	8'	Sand, grey, fine to very fine, silty, hard, very difficulty friable, micaceous, well bedded with abundant silty laminations dipping 7-12° with best and average about 10°. Though slight cross bedding is present, these should be good for orientation. Very poor reservoir. A little more gas than last core. No odor, no cut. Some glauconite.
7378	7387	9	9'	Sand, grey, hard, fine, tight, micaceous, with silty laminations at about 7378-79'. Very difficulty friable, very poor reservoir, very little gas. No odor or cut. Some glauconite.
7387	7396	9	6'	Sand, as above but medium grained, very slight traces of gas. No odor, no cut.
			3'	Sandstone, hard, grey, medium grained becoming coarse in lower 1/2', not a strongly cemented lime "shell", very slight traces of gas.
7396	7405	7	7'	Sand, grey, hard, medium, difficulty friable becoming soft and friable in bottom 1'. Porosity and permeability fair especially in friable streak 7402-03'. Lost 2' probably good sand, very slight trace of gas, no odor, no cut. Sand looks WET.
7405	7412	7	7'	Sand, grey, firm, compact, fairly friable, medium, well sorted, fairly clean, with some softer friable streaks. Porosity and permeability fair but better than preceding. Very little gas, no odor. Looks like fairly good reservoir. Looks WET.
7412	7421	9	9'	Sand, grey, firm with fairly soft friable streaks, similar to above. Common glauconite. No gas or odor. Looks WET.

7421	7430	6	6'	Sand, grey, firm but softer than preceding, friable streaks, fairly well sorted, medium, massive, micaceous, porosity and permeability fair. No gas, no odor. Looks WET.
7430	7435	4½	3½'	Sandstone, grey, fair firm, medium, much as preceding core but compacted and partially cemented, very difficulty friable. Looks WET. No gas, no odor.
			1'	Shale, hard, dense, dark brownish grey, similar to preceding shales but harder and not flaky. Forams, including Nodosaria. No gas, but this 1' of shale was pulled by coming out of the hole with the pipe, grey limy streaks in shale, dip 5-10°.
7435	7444	2"	2"	Shale, silth and sandy, micro-micaceous, dark brownish grey, similar to preceding Cretaceous shales but sandy, several pieces and ground up slush from Kreyenhagen in cavings in upper 1' in barrel. Several hard limy pieces, few bubbles of gas in mud. First part of core went slowly, middle and lower part cored easily. Probably grading into sand. Few forams in shale.
7444	7446	2	2'	Sand, grey, firm, compact, medium, uniform, massive, slightly friable, fairly well sorted, some glauconite, some mica, fair reservoir. No odor, no gas, no cut. Looks WET, fairly "tight".
7446	7455	4	4'	Sand, grey as above but slightly softer and becoming a little more friable. Very few bubbles of gas in mud. No odor. Looks WET, cored softer toward bottom. Probably all sand. Fair reservoir.
7455	7460	9	9'	Sand, grey as above, fairly tight but would make fair reservoir. No gas. No odor, looks WET. Lower 2' is sandstone, firm as sand above but hard and lime cemented.
7460	7469	6	2'	Sandstone as above, partially lime cemented, rare gas bubbles.
			4'	Sand, grey, firm, medium but coarser than preceding core, massive, compact, micaceous. Fairly tight but would be a fair reservoir. Some glauconite. Similar to preceding sands but coarser. No gas, no cut, no odor.
7469	7476	9	9'	Sand, grey, firm but softer than preceding, compact, becoming almost coarse grained. Becomes shaley and splotched with 3/4" shale fragments and carbonaceous in bottom 8". Few bubbles of gas at bottom. No odor, fairly good reservoir.
7476	7485	4	1'	Sand, dark grey, firm, fine with abundant small streaks and splotches of dark shale and carbonaceous material, tight, few bubbles of gas.
			3'	Sand, grey, firm, medium, compact, similar to sand in preceding cores becoming hard and lime cemented in bottom 6". Bottom of core was sand as it drilled fast. Few bubbles of gas at bottom, looks WET, no odor.
7485	7492	9	9'	Sand, grey as above but a little coarser, softer and slightly more friable, fair reservoir, few bubbles gas, looks WET. Bottom 4" is shale, dark brownish black, silty, gritty, carbonaceous, forams and small siliceous fragments. Fair gas.

7492	7500	8	8'	Sand, grey, firm, compact, massive, slightly friable, micaceous, fairly tight, some glauconite, fairly well sorted, uniform, fair reservoir. No gas, no odor. Looks WET.
7500	7561			Drilled. Ditch sample:- 7500-7525 Sand, grey, fine with 40% chips dark brown shale. All drilled like sand, soft 7506-14'. 7525-50 Hard lime cemented shell 7535-38' soft sand 7538-41'. Hard fine calcareous grey sandstone 7541-53'. Sand, firm 7553-56', gradually becoming softer 7556-61' soft at bottom.
7561	7580	3	2½'	Sand, grey, hard, medium, slightly friable, massive, micaceous as preceding sands but harder. No gas or odor. Looks WET. Grades into 6" lime cemented sandstone.
			½'	Shale, hard, dense, dark brownish grey, very silty with fine, grey sand laminations at top.
7580	7590	5	5'	Sand, grey, fine, firm, with hard streak especially in lower 1', splotched and laminated with dark shale, cross bedded with dips up to 10°, slightly friable, fairly dense, tight. ½' shale with few fine grey sand streaks placed in cans. Sand is micaceous, slightly pyritic. No odor. Not a reservoir as it is too tight. Bottom 3" of core is hard light brown, silty, micaceous shale. Some gas bubbling from core.
7590	7598	4	1' 2½' 6"	Hard fine grey sandstone, no dip, massive, pepper and salt. Mixture mud and brown sand fragments, soft. Fine, friable brown sand, jammed in catcher. Faint gas show in all parts.
7598	7608	1	1'	Soft fine greyish brown sand. Few pieces shale above. No odor, no gas. Includes 2" hard brown shale.
7608	7613	3	3'	Firm, friable fine grey sand. No odor, no gas.
7613	7623	8	8'	Sand, grey, firm, fine and silty at top becoming medium and cleaner toward bottom, friable, massive. Poor to fair reservoir. No odor, no gas.
7623	7627	3	3'	Sand, grey, hard, difficulty friable becoming lime cemented in lower 1'. No odor, no gas. Permeability low.
7627	7628	½	½'	Sandstone, grey, medium, lime cemented, tight. No gas.
7628	7633	5	5'	Sand, grey, firm to hard, fine, silty, tight, friable streaks, massive. Poor dips 8-12° in shaley laminations at 7630'. No odor, no gas.
7633	7638	2½	2'	Shaley fine sand in top 6". Remainder sand, grey as above but somewhat coarser. Thin partings of shale.
			½'	Shale, dark greyish brown, hard with 1/8" streaks and laminations fine grey sand. No gas noted.

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7638	7643	3	3'	Sand, grey, firm to hard, fine to medium, massive, micaceous fairly friable, ill sorted, tight. Poor reservoir. No odor, no gas.
7643	7648	2½	2'	Sand, grey as above but becoming finer and laminated with shale at 7645'. Dip 4-5° (good), no odor, no gas.
		½	½'	Shale, hard, dark greyish brown, dense. Sandy streaks. No gas.
7648	7653	3	3'	Sand, grey, firm, medium, friable, massive, micaceous. Permeability probably moderately low. Fair reservoir. No odor, no gas. Sand looks WET. Shaly in top ½'.
7653	7658	3½	3½'	Sand, grey as above but firmer, finer and shalier with 1' shale at 7654', angular splotches shale in fine sand at 7655'. Note:- 5' of hole actually made but correct depth of hole is 7654'.
7658	7663	6'6"	6'6"	Medium hard, firmly friable grey sand. Medium to medium coarse carbonaceous fragments in top 6". Looks very porous and permeable. Looks wet. No gas, no odor.
7663	7668	4"	4"	Hard fine grey sandstone. Medium grained, no gas, no odor.
7668	7674	9½	3½'	Hard fine grained sandstone.
			6'	Medium grained, firm, friable grey sandstone. No cut, no odor, No gas.
7674	7681	7	5'	Well bedded? medium grained, firm, friable grey sand. No odor. No gas.
			1'	Poorly bedded, hard brown shale and sandy shale. Few gas bubbles.
			1'	Poorly bedded fine grained grey sand, firm to hard.
7681	7687	6'6"	6'6"	Medium grained, firm, friable grey sand. Shows dips on breakage planes of 25°. This may be due to core barrel as in hole above. No gas, no odor.
7687	7692	4	4'	Sand, grey, firm, medium, friable, massive, no gas, no odor. Few inches shale at 7690'. Sand looks wet. Breakage planes as in upper 1'.
7692	7697	3	3'	Sand, grey, firm, friable, medium, massive as above. No gas, no odor.
7697	7707	10	10'	Sand, similar to above but finer and with shaley streaks laminated with fine grey sand at 7703' and at 7705'. No gas, no cut. Dip in cross bedded sand at 77[illegible] up to 35°. Dip in laminated sand and shale at 7705' of 7-8°.

7707	7717	10	1½'	Shale, hard, dark greyish brown, sandy spots.
			3'	Sand, grey, firm to hard, fine, slightly friable, shale splotched near top and bottom.
			2'	Shale as above with sandy spots, fish scales.
			1'	Sand, grey, hard fine.
			1'	Shale, hard, dark brown as above with sandy laminations. Poor dip 24°.
			½'	Sand.
7717	7725	8	2'	Dark brown hard shale, occasional spots dark sand. Good gas show throughout.
			6'	Medium grained grey to brown, micaceous sand with occasional thin included streak dark shale. Has appearance of poorly sorted material, sand and shale fragments, dips flat. No odor.
7725	7732	7	3'	Hard brown, massive shale, abundant gas, occasional high angle fracture.
			1'	Medium grained firm, friable grey sand.
			1'	Shale as above.
			½'	Sand as above.
			1½'	Mottled shaley sand, hard or sandy shale, gassy. Shale above very tight as gas "cheesed" for ½ hr after removal.
7732	7741	9	3'	Sand, grey, fine with streaks shale, hard, brown.
			6'	Shale, hard, dark greyish brown, dense with common spots and streaks fine grey hard sand. Fair gas bubbling throughout core. Gas could be heard.
7741	7749	7	1'	Sand, grey, fine, no odor.
			2'	Shale, hard, dark brown, sandy, slickensides. Gas.
			1'	Sand, grey, fine, friable, shaley. No odor.
			1'	Shale as above. Gas.
			2'	Sand, grey, fine to medium, friable, massive, shaley spots. Fair gas in core, mostly from shale.
7749	7759	10	3'	Medium grained firm, friable grey sand. Gas.
			1'	Brittle dark grey shale, few forams.
			1'	Sand as above.
			1'	Shale, dark grey, forams.
			2'	Sand as above.
			2'	Shale, dark grey, platy, thin bedded, forams.
7759	7769	11	1'	Shale as above, gassy.
			10'	Firm, friable, fine grained grey sand, no cut, no odor, no gas.
7769	7779	10	10'	Fine grained grey, massive, well sorted, firm, friable, sand, slight gas shows top 1'. No cut, no odor. 6" lime cemented sandstone shell 7775-77½'/
7779	7789	10	3'	Sand as above.
			2'	Shaley, fine sand, cross bedded streaks thin shale, gassy.
			¼'	Fine grey, firm, friable sand, gassy.
			1'	Mottled fine sandy shale, gassy, no cut, no odor.

7789	7801	3	½'	Firm fine sandstone, faint gas shows, no cut no odor.
			½'	Hard brown shale, faint gas shows, no cut, no odor.
			½'	Shale fragments " " " " " " "
			½'	Sand as above, " " " " " " "
			½'	Hard brown shale, " " " " " " "
			½'	Hard sandstone as above, faint gas shows, no cut, no odor.
7801	7810	9	1'	Shale, hard, brown.
			1'	Sand, grey, medium, friable, no cut.
			2'	Shale, hard, dark brown, dense, becoming very sandy in bottom 1'.
			5'	Sand, grey, medium, firm, slightly friable, fairly tight, massive. No cut stains or odor. Faint gas in core. Sand looks WET.
7810	7820	10	1½'	Sand as above, somewhat softer and more friable.
			1'	Siltstone, brown, finely sandy, limy?
			7½'	Sand, grey, firm, fine to medium, massive, slightly friable, fairly tight. Some glauconite. Porosity may be fair but permeability is moderately low. No cut, stains or odor. No gas noted in core. mud ring around core is not frothy.
7820	7830	9	1'	Sand, hard, grey, medium, slightly friable.
			4'	Sandstone, hard, grey, fine, lime cemented, massive in upper 2', grading into hard grey biscuit parting sand in lower 2'.
			4'	Sand, grey, firm, friable, medium, massive becoming coarser and softer toward bottom. No cut, stains or odor. No gas. Sands look WET.
7830	7840	8	8'	Sand, grey, medium, firm, compact, slightly friable, massive as preceding core. Permeability probably moderately low. Looks WET. No odor, no gas.
7840	7849	7	4'	Sand, grey, hard, medium, massive at top, biscuit parting with indications of low dip 7841-44'.
			3'	Sand, grey, firm, medium, massive, slightly friable, fairly tight becoming softer and more friable in lower few inches. No odor, no gas. Sand looks WET.
7849	7855	0	0'	Cored like firm sand.
7855	7859	½	2"	Shale, hard, dark, greying brown.
			½"	Sand, grey, hard, medium with some coarse grains, micaceous.
7859	7869	8	8'	Sand, grey, hard, medium to coarse, ill sorted, slightly friable, massive. No cut, stains, odor or gas. Sand looks WET.
7869	7879	4	4'	Hard broken fine calcareous grey sandstone shell.
7879	7884	3	3'	Medium grained hard sandstone, grey, breaks up in 3/4" to 3" lengths. Very sharp gritty. No gas. Softer than above, no odor. 2" hard dark grey shale at top.

7884	7889	5	5'	As above but slightly softer and coarser breaks on bedding? with 3/4" to 1" lengths. No gas, no odor.
7889	7895	3	3'	As above.
7895	7900	3	3'	As above.
7900	7905	0	0'	No recovery.
7905	7910	5	2'	Sand as above but finer, slight gas shows.
			1'	Sandy, fine brown shale, poorly sorted, good gas shows.
			2'	Sand as above.
7910	7915	5	5'	Sand, grey, hard, medium, massive, biscuit parting into pieces about 1" long indicating nearly flat dips. Harder and lime cemented sandstone in lower 2'. No odor, no gas.
7915	7918	1½	1½'	Sandstone, hard, grey, lime cemented "shell" as bottom 2' of preceding core. No gas.
7918	7924	5	1'	Sandstone, hard, grey, lime cemented as above.
			4'	Sand, grey, hard at top becoming softer toward base, fine silty, massive, tight. No odor, no stains, no gas. Looks WET.
7924	7934	10	10'	Sand, grey, firm, fine at top becoming medium toward base, slightly friable, massive, micaceous, tight. No cut, stains, odor or gas. Permeability looks low, but sand looks WET. Becoming shaley and with thin shale streaks dipping at low angles in bottom 1'.
7934	7944	9	9'	Shale, hard, dark greyish brown, silty, with numerous streaks of sand up to 1" and common sand laminations dipping at low angles. Shale is micaceous, good gas throughout core. Some calcareous shale in extreme bottom. Foramas.
7944	7954	10	5'	Shale, hard, dark greyish brown, dense, micaceous, pyritic with fine grey sand laminations and ½' of sand at 7946'. Possibly some foramn. Some gas but not as apparent as in preceding core.
			5'	Sand, grey, firm, fine, micaceous, tight, silty, glauconitic, massive, slightly friable. No cut, stains, odor or gas in sand. Looks WET but tight. Small gas on ditch at noon 4-14-40 may have been from this sand.
7954	7964	7	1'	Sandstone, grey, hard, lime cemented.
			3'	Sand, grey, hard to firm, medium, slightly friable.
			3'	Sandstone, grey, hard, lime cemented. No gas in core. Cored hard 7961-64'.
7964	7974	3	1'	Sand, grey, soft to hard, medium to coarse, telescoped in coring and mushy in lower 6". No gas.
			2'	Shale, hard, dark greyish brown, micaceous, pyritic spots. Rare forams including Nodosaria, good gas. Bottom 5' of core drilled slowly.

7974	7980	½	½'	Shale with 3" streak hard grey sand, shale at bottom. No gas noted.
7980	7987	5	5'	Sand, grey, hard, medium, parts into pieces 1-3" long. No gas.
7987	7995	8	8'	Sand, grey, hard, fine, difficulty friable, tight with shaley laminations in lower foot. No cut, odor, stains or gas. Massive and silty.
7995	8005	10	10'	Sand, grey, hard as above but a little coarser. Thin shale streaks and splotches 8002-03'. 1" shale at extreme bottom. No gas.
8005	8015	5	3' 2'	Sand, grey, hard as above but siltier. Sandstone, grey, hard, as above but lime cemented. Bottom 1' drilled softer. No odor or gas
8015	8025	11	2' 9'	Sandstone, hard, grey, lime cemented as above. Sand, grey, hard, fine to medium, silty, small shale splotches, tight, difficulty friable, mostly massive with silty laminations. at 8022, micaceous. No gas.
~~8020~~	~~8025~~			~~Core #5~~
8025	8035	10	10'	Sand, grey, hard, not friable, fine similar to preceding with abundant small shale splotches and laminations 8029-33'. Fair gas in shaley sand 8029-33'. Laminations indicate low dip.
8035	8045	9	9'	Sand, hard, grey to dark grey, similar to above but much more shaley except in bottom 2'. Abundant laminations dark shale indicating low dip. ¼" shale at 8043'. Some gas bubbles.
8045	8055	8	7' 1'	Fine to medium firm friable sandstone. Slightly shaley in part. Massive to laminated. No gas. Sandy laminated dark shale. Not very tight.
8055	8059	¼	2' 2'	Shale, hard, dense, dark greyish brown, well bedded, micaceous, pyritic spots. Sandstone, hard, grey, fine to medium, lime cemented, very tight. No gas. 2" laminated shale at 8058'. Shows low dip.
8059	8064	2	1' 1'	Sandstone as above, parts in 1/4"-3/4" biscuits. Shale, silty laminations dipping 5-6° in upper 6", similar to preceding shale. No gas.
8064	8069	5	3⅔' 1' ⅓'	Shale as above but more micaceous with ½' sandstone at 8066'. Sandstone, grey, fine with thin shale streaks. Shale at bottom. No gas.
8069	8077	8	7' 1'	Shale as above with abundant laminations and thin streaks fine grey sandstone indicating low dip. Sandstone, grey, firm, silty and clayey, very micaceous, thinly bedded, good gas in core when fresh.

8077	8085	5	½' 4½'	Hard grey fine sandstone. Shale, dark grey, very silty and sandy with abundant lamination fine grey sandstone and ½' softer friable grey sand at 8090'. very micaceous shale, few possible forams. Good gas.
8085	8093	6	6'	Shale, hard, dark greyish brown, dense, well bedded with laminations fine grey sandstone, few possible forams. Good gas, few 60° slickensides.
8093	8099	5	5'	Shale, hard, dense, silty, dark greyish brown, almost porcellaneous, micaceous, few thin sandy spots and laminations. Several 45° slickensides, mud g rings shows gas bubbles. Includes 1" sand, hard, grey at top.
8099	8107	8	8'	Sandstone, with 2" shale as preceding at top. Firm, grey, fine calcareous, micaceous, glauconitic, tight, massive with few biscuit parting places and silty and shaley laminations at 8104', dipping 14°. No odor, stains, cut or gas. Sand looks WET, but very tight.
8107	8116	8	8'	Sandstone, firm but a little softer than preceding, difficulty friable, grey, fine, with silty and very shaley streak 8109-8110½'. Laminations dip 7-8°. Hard and lime cemented in bottom 2". Looks WET but tight. No gas except in shaley part which showed few bubbles.
8116	8126	10	3' 7'	Sandstone, grey, hard, fine, lime cemented. Sand, grey, firm, fairly friable, fine, very micaceous, glauconitic, silty, tight, massive, looks WET, but tight, no odor, stains, cut, no gas.
8126	8136	9	9'	Sand, grey, like preceding core in top ½' and lower 1½' but dark grey, very fine and silty, thin bedded with abundant laminations dark shale, cross bedded, softer, 8127-35'. Few bubbles of gas from shaley parts. No odor. Sand looks WET but tight.
8136	8146	10	10'	Sandstone, soft, grey to dark grey, fine, micaceous, glauconitic, difficulty friable, silty and shaley 8137-38'. No odor. Some gas 8136-37'. Breaks in 1-3" pieces. Looks WET but tight.
8146	8156	9	9'	Sandstone as above.
8156	8166	9	4' 5'	Sandstone as above, softer in lower few feet. No odor some gas. Shale, hard, dark greyish brown, silty, micaceous, gritty especially toward base where shale becomes very sandy. Fair gas, few possible forams, most of shale is very sandy, carbonaceous, pyritic spots.
8166	8176	8	8'	Shale, very sandy and gritty as above with numerous streaks hard grey sand especially 8166-67'. Fair gas in core. About 60% shale.

8176	8186	8	3'	Shale and sand streaks as in preceding core. Fair gas.
			5'	Sand, grey, firm to hard, fine, tight, with few streaks shale. Sand is slightly friable. Some gas from more shaley parts. No odor.
8186	8196	8	8'	Sandstone, hard, grey, fine, lime cemented, very micaceous, tight, fairly well bedded with shaley laminations throughout, some glauconite. 1" shale with nearly horizonsal slickensides at 8190'. Fair gas in parts of core. No odor.
8196	8203	6	6'	Sand, grey, firm, friable, fine silty, micaceous, tight with few thin streaks shale. Hard sand 8200-01'. Gas in shaley parts. No odor.
8203	8213	10	10'	Sand, grey, firm, friable, as above, silty and with one thin streak sandy shale. Gas in the shale at 8212. No odor.
8213	8222	8'	8'	Sandstone, hard, fine, shaley, micaceous, laminated, cemented with shale streaks constituting about 30% of core. Few calcareous forams 8220-23'. Good gas, no odor. Shale is silty and gritty.
8222	8226	4	4'	Sandstone as above with 20% gritty, silty shale in streaks. Fair gas in shale.
8226	8236	8	8'	Shale, hard, dark greyish brown, silty, sandy spots, micaceous as above with streaks tight shaley grey sandstone especially in lower 3'. Fair gas in shale. 75% shale. Few forams.
8236	8246	10	10'	Shale, hard, dark greyish brown, dense, slightly brittle, slightly porcellaneous, micaceous, thinly bedded, spalling, becoming sandy in lower 5' with few streaks up to 4" of firm friable fine grey sand. Dip 4°. Fish remains and few possible forams. Gas in the shale. Shale is denser and less silty and sandy than preceding.
8246	8256	10	10'	Shale as above, micro-micaceous, brittle, fish remains and spines noted but no forams seen with hand lens. Core was dry when pulled, and no gas was seen. It "sheeped" after being washed. This might be due to air rather than gas. Dip 4°. "poker chip" type, 3/4" thick.
8256	8266	10	10'	Shale, hard, dense, brittle, spalling as above. No gas noted but "sheeped" when washed. Due to air or gas.
8266	8275	5	5'	Shale, hard, dense, dark greyish brown, brittle as above but with few small silty and sandy spots. Fish remains. Carbonaceous woody spots rare. Core was nearly dry when pulled and no gas was noted. No gas noted after washing, very rare forams.

8275	8280	0	0'	Missed core because barrel broke 1/2' above shoe. Drilled like shale, softer at bottom.
8280	8289	2½	2½'	Shale, hard, dense, dark greyish brown, well bedded, micro-micaceous, brittle, semi-porcellaneous, bluish cast on exterior where polished in coring. Somewhat spalling, fish remains, spines. Few calcareous forams including Nodosaria. Plectofrondicularia? at 8280'. Core nearly dry when pulled. No gas noted. Dip 4°.
8289	8291	10	10'	Shale as above but more compact, denser, more brittle and more porcellaneous. Fish remains, possible forams at 8291'. Gas bubbles breaking through the mud. Dip 4°.
8291	8301	10	10'	Shale as above, fish remains, spins and scarce forams (Nodosaria) at 8297'. A little gas noted. Rare dried bituminous? spots.
8301	8311	10	10'	Shale as above, few pyritic clusters. Scarce fish remains, spines. Few possible forams. Fair gas in places.
8311	8319	8	8'	Shale as above but harder and denser. A very few bubbles of gas.
8319	8329	9	9'	Sand shale as core above. Dense brown shale, a very small amount of gas noted.
8329	8339	6"	6"	Same shale as above, recovery very poor. Driller figured about 5' of shale. The rest was thought to be very soft. Driller reports soft drilling probably sand 8334-36'. thinks 8336-39' was shale.
8339	8343	0	0'	Driller thinks probably shale.
8343	8345	0	0'	Driller thinks shale except bottom ½' which was softer and may be sand.
8345	8352	6½	6½'	Sand, grey, soft, fine, friable, very silty, with 3" streak shale at 8348' and 1' gritty very sandy shale 8340-41'. No odor, no cut, no stains. No gas noted but thick mud ring showed signs of gas breaking through it. Sand is silty but would make fair reservoir. Sand may possibly be WET but does not have extremely wet appearance of sands up the hole. Core stood 1 hr in hole while spooling line. Fair gas in mud at midnight may have been from this sand or next core which began at 11:05 P.M. Top of first sand showing gas 8344½'.
8352	8362	10	2' 3' 5'	Shale, dark greyish brown, sandy. Siltstone, grey, sandy. Sand, grey, soft, fine, friable, massive with 1' shale 8359-60', sand does not look WET. No gas noted but fair gas on ditch which must have been from sand 8345-62'. No odor.
8362	8373	7	1' 2'	Soft sand at top as above. Sandstone, cemented, grey.

8362	8373 (cont'd)		4'	Shale and thin streaks firm sand with 4" soft friable grey sand at 8366. Some gas noted. No odor in sand. Bottom 3" is firm, friable, grey sand. The shale is sandy.
8373	8383	7	7'	Sand, grey, compact but soft, fine at top becoming medium toward base, friable, massive, micaceous, some glauconite. Permeability and porosity look fair. Sand does not look WET. Slight fleeting odor in tight shaley sand streak at 8377. No gas, no cut. Core was in barrel two hours in hole because barrel stuck. Good gas and light oil show on ditch beginning at 5:30 a.m. 5-25, must have been from this sand. Entire core drilled like sand. Top of first sand showing oil 8369'.
8383	8387	5	3'	Sandstone, hard, grey, medium, cemented, common coarse grains. Gas, no cut.
			2'	Shale, soft, silty becoming very sandy at base, greyish brown, carbonaceous, no cut, good gas. Bottom 3" is a brownish grey, fine shaley sand. No cut, but it has a slight indefinite odor.
8387	8397	9	9'	Sand, grey, firm, compact, medium, massive, friable, uniform, No cut, stains odor or gas. Sand does not look wet. Fair reservoir though permeability probably moderately low. 3" shale at top with forams. 1/2" shale at bottom between sand indicates dip less than 10°.
8397	8407	7	5½' 1½'	Sand, grey, fairly firm. No odor, no gas, no cut. Dark brown shale, when mud washed off showed fairly good gas.
8407	8417	6	6'	Sand, firm with few soft streaks, grey, slightly friable, medium massive, silty, ill sorted, compact, no stains, odor or cut. No gas.
8417	8427	9	9'	Sand as above. No gas.
8427	8437	11	11'	Sand as above. No gas.
8437	8447	10	10'	Sand as above. No gas.
8447	8457	10	10'	Sand, as above with hard cemented streak 8450-52'. No gas.
8457	8466	1	1'	Sand, same as core above. No gas or odor.
8466	8470	2	2'	Firm to hard grey, medium grained sandstone. Breaks into ½-2" sections. No cut, no odor, no gas.
8470	8473	6"	6"	Brown and grey hard sandy shale, some gas.
8473	8480	2½	1½' 1'	Hard grey sand, very firm. Brown shale, some gas on shale but none on sand. No cut, no odor.
8480	8488	8	8'	Firm to medium, hard grey sand. Fine to medium grain. Slight gas showings. No odor, no cut.

8488	8498	10	10'	5' Firm to hard grey medium grey sand. 1' Brown shale, no gas. 4' Firm to medium hard grey, medium grey sand. No gas, no odor.
8498	8508	10	10'	Firm to hard, grey sand. Fine to medium grained. No gas, no odor. No cut.
8508	8518	10	10'	Hard grey, tight sand. Fine to medium grained. Bottom 3' not so firm, breaks up in smaller pieces, no gas, no odor, no cut.
8518	8528	7	4'	Hard, grey, medium grained sand.
			1'	Brown shale, easily broken into small pieces.
			2'	Fairly tight, fine to medium grey sand. No odor, no gas, no cut.
8528	8538	6	6'	Sand, grey, firm, compact, friable, medium silty, ill sorted with streaks shale as above. As thick as 6" in 8531-34'. Laminations indicate low dips.
			2'	Shale, brown, hard, micro-micaceous, much browner than above and not thinly bedded. Common calcareous forams. Few shell fragments including 1/2" of organitic material and one 1/4" Pecten like fragment. Few bubbles of gas in shale. Several slickensided fracture planes in shale at angles of 77-70°. Slickensides show nearly horizontal movement due to coring??
8538	8548	5	5'	Sand, grey, firm to soft, massive, friable, slightly silty, micaceous, rather ill sorted. No gas, sand looks WET. Harder sand 8538-46'.
8548	8557	1	½'	Sand as above in top ½'.
			½'	Shale, hard, greyish brown as preceding shales, streaked with grey sand in lower 2'. Some gas bubbles from shale.
8557	8563	5½	5½'	Sand, grey, soft, friable, poorly bedded, medium silty, ill sorted, micaceous, some glauconite. No odor, stains, cut or gas. Sand looks WET. Similar to preceding sands. Few streaks of shale as thick as 1".
8563	8574	10	6'	Sand as above with few streaks sandy shale as thick as 6".
			1'	Sandstone, hard, grey, lime cemented.
			3'	Shale, dark brown, very sandy, bottom ½" is grey sand. No oder, no gas, bottom 1' probably sand.
8574	8585	8	1'	Shale, dark greyish brown with numerous streaks grey sand.
			½'	Sand, grey, soft, loose, similar to preceding with streaks shale up to 4". Sand looks WET and tastes salty.
			1'	Sandstone, hard, grey, lime cemented.
			2'	Shale, hard as preceding but not sandy in upper 1', becoming sandy at base, no gas.
8585	8596	7½	7½'	Sand, grey, soft, compact, friable, massive as sands above with 4" hard dense brown shale at 8586. No gas in sand, few bubbles from shale.

8596	8607	7	1'	Sand, grey, soft as above.
			2'	Shale, dark greyish brown with abundant thin streaks grey sand.
			4'	Sand, grey, soft as above, no gas.
8607	8618	7	7'	Sand, grey, soft as above with 4" shale at 8611'. No gas.
8618	8629	5	1'	Sand, grey, soft as above.
			2'	Shale as above with common streaks grey sand.
			2'	Sand, grey, soft, friable, medium silty, ill sorted, fairly well bedded. Looks WET. No gas.
8629	8640	1½	1½'	Driller reports soft drilling except 8632-33'. Recovery probably from 8632-34'. Sand with streaks shale. Few bubbles of gas in shale. Balance of core is soft sand.
8640	8650	9	9'	Sand, grey, soft as above core. Easily broken into small pieces. Last 18" more hard and better bedded, no gas, no odor.
8650	8661	4	4'	All sand except small piece of shale. Sand similar to above core. Slight streaks of shale in spots. No gas, no odor.
8661	8672	8	8'	Sand, grey, soft, ill sorted, slight spots of shale running through it. Looks wet. Bottom foot more hard with little more shale spots. A very few gas bubbles when pulled from barrel, no odor.
8671	8683	9	9'	Sand, grey, soft, friable, compact as above with ½' sand streaked shale at 8672, ½' shale at 8675' and 1" at 8673', no gas, shale at 8675 is fairly dense, dark brownish grey, micaceous, carbonaceous with sand spotted pyritized woody fragments. Possible calcareous forams.
8683	8694	8	8'	Sand as above with limy sandstone 8684-85' and 8689-90' and 4" sand streaked shale 8688'. Few bubbles gas in shale at 8688'.
8694	8705	6	6'	Friable medium grained, grey sand, parts in ½-3" sections softer than above, no gas, no odor, no cut.
8705	8716	4	3'	Sand as above.
			1'	Hard brown shale, very gassy.
8716	8724	7	6"	(approximately) Shale, first core after reaming. Little gas on ditch.
			6'6"	Sand, medium grained, grey, fairly hard, no gas, no odor. Breaks into parts 1"-4", streaks of shale in bottom 2'.
8724	8734	9	1'	Shale, streaked with sand, a few gas bubbles. Dip 5°.
			5½'	Grey sand, fine to medium grained, friable, small streaks of shale running through in places.
			2½'	Hard sandstone, limy. A few gas bubbles on shale. No odor, no cut.

8734	8745	8	2'	Hard sandstone, limy.
			3'	Grey sand, fine to medium, firm grained with spots of shale.
			3'	Grey sand, fine to medium grained. Bottom 6" shale, fair gas on shale but none on the sand. No odor.
8745	8756	1	1'	Shale with about equal parts of sand. Driller reports soft digging so it was probably lost. Fairly good gas on shale core. No odor.
8756	8761	1"	1"	Soft grey sand, entire core probably sand.
8761	8771	1	1'	Shale, very silty and sandy, hard with streaks fine grey sandstone. No gas.
8771	8778	6	2'	Hard tight grey sandstone, small particles of shale.
			4'	Fine to medium grained, hard grey sand. Sand broken up in 1"-4" pieces, friable. No gas, no odor. Sands are very micaceous, some glauconite.
8778	8789	7	6½'	Fine to medium grained, fairly firm grey sand, friable, breaks into small pieces 1-3".
			6"	Shale, silty and sandy, streaked with fine grey sandstone, sand laminations, dip 4-8°, somewhat cross bedded, a very few gas bubbles noted, no odor.
8789	8800	8	8'	Fine to medium grained grey sand, friable, small particles of shale. Breaks into small pieces ½-2". No gas, no odor.
8800	8807	1	1'	Sand, same as core above. No gas, no odor.
		9	6'	Sand, grey, firm to hard, compact, micaceous, poorly sorted, massive to bedded in ½" biscuits, tight, some glauconite, difficulty friable, no gas, no odor.
			3'	Sandstone, grey, hard, lime cemented, as above but harder. No gas.
8817	8828	11	4'	Sandstone as above, well bedded 8816-19'.
			7'	Sand, hard, grey, fine, silty as in core above, becoming softer toward bottom, difficulty friable, with 2" hard dense shale at 8827'. Very few gas bubbles in shale.
8828	8838	6	2½'	Sand, hard, grey, fine silty as in core above. Has streaks of shale in top foot.
			1½'	Hard dense shale.
			2'	Sand, hard, grey, fine to medium, getting softer in bottom foot. Very few gas bubbles in shale, no odor.
8838	8842	3	3'	Sand, hard, grey, fine, streaks of shale, running through, a little harder than bottom of core 8817-28. Core stayed in barrel while coming out of hole. No gas.
8842	8853	11	11'	Sand, fairly hard, grey, fine to medium grained, no gas, no odor.

8853	8854			Core gap
8854	8866	11	11'	Sand, grey, firm, compact, fairly well bedded, fine, ill sorted, micaceous, similar to preceding sands with $\frac{1}{2}$' shale, hard brown, silty with sandy spots at 8859'. No odor, no gas in shale.
8866	8877	8	8'	Sand as above but softer and a little more friable with shaley laminations at 8866'. Dipping 11° and 1" shale at 8869'. Sand looks WET as do preceding sands. No odor, no gas.
8877	8886	9	9'	Sand, as above but softer and well bedded, splits into 1/4-3/4" biscuits with 4" shale streaked with sand at 8881, few bubbles of gas from shale, no odor. Coarse mica flakes at 8885'. A 1" lime shell at 8884½'.
8886	8890	4"	4"	Sand as above, bottom 1' of core drilled very slowly, possibly because bit was bad.
8890	8901	11	2½' ½' 4⅝' 3½'	Sand, grey, firm, fine, well bedded. Hard dense shale, calcareous forams rare, including Nodosaria. Very hard limy sandstone, very hard to drill. Sand in top part of core, a little finer grained and better bedded. No odor, no gas.
8901	8911	10	10'	Sand, grey, firm, fine to medium grained, slightly tighter and cleaner than last core. No gas, no odor.
8911	8916	½	½'	Hard, lime cemented sandstone, core drilled very slowly, possibly because bit was bad, no gas, no odor.
8916	8927	11	11'	Sand, grey, hard, fine, massive to poorly bedded, poorly sorted, micaceous (large flakes biotite of phologopite) with streaks firm sandstone. ½" shale at 8924' showed few bubbles of gas, no odor, no gas in sand.
8927	8938	8	8'	Sand as above with few streaks hard sand and few streaks soft sand, probably not recovered, no odor, no gas.
8938	8945	3	1'	Sand, hard, grey, shaley and shale streaked with streaks firm sandstone, poor dips 11°.
			2'	Shale, very hard and dense, clay, dark greyish brown, brittle, compact but slightly spalling, well bedded, rare fish remains one spine, few forams including one pyritized Nodosaria, good 4° dips, no gas noted. Top of shale 8941'.
8945	8954	3"	3"	Hard dense shale as above, entire sample placed together. Few bubbles of gas.
8954	8957	0	0'	Cored like shale, perhaps a little softer at bottom.
8957	8967	7	7'	Shale as above but badly fractured and few slickensides with 2" streaks hard grey sand at 8961' and 8963', few forams? no gas, top 2' drilled soft, either soft sand of fractured

8957	8967	(Cont'd)		Shale. Sand-shale contacts at 8961', dip 34°.
8967	8969	4	4'	Shale as above but unusually hard, dense, porcellaneous and not fractured. No gas noted, becoming sandy and limy in bottom 2".
8969	8978	9	5'2" 6" 1' 1'6" 4" 6"	Shale, very hard and dense as above, rare bubbles of gas. Sand, grey, fine streaked with shale, no odor. Shale, streaked with sand. Sandstone, grey, fine, firm, tight, limy, no odor. Shale as above. Sand, grey, hard at bottom of core.
8978	8986	8	8'	Shale as above, rare forams. Includes 6" hard sandstone at 8980 and 8983, no gas, no odor, no cut.
8986	8990	4	4'	Shale as above with few streaks hard grey fine sandstone, no gas, dips 5°±, sandstone in bottom 1/8" is a dike.
8990	8998	9	9'	Shale as above, exterior smooth and polished 8990-93' where it drilled very slowly, pitted 8993-96', core cracks while drying due to expansion, no gas, 4" hard fine grey sandstone at 8994. Dip 4-5°.
8998	9009	6	6'	Shale as above with 1" fine grey sandstone streaks at 8998 and 9000' and 1/8" streak at 9002'. A low angle calcite filled slickensided fracture at 9000', few fish remains, few possible forams at 9003', no gas, dip 4°.
9009	9019	12	12'	Shale as above, possibly calcite shell fragment at 9014', no gas, dip averages 4°. Few rare forams including Nodosaria? shale in streaks is more clayey than above, occasional fish remains, carbonaceous woody fragment at 9015'.
9019	9030	11	11'	Shale as above with 1/2" fine grey hard sand at 9029½'. Rare forams except 9025' where there are several in a silty streak, also sporbitic material, fish remains, no gas, carbonaceous spots.
9030	9040	2½	2½'	Shale as above, broken into small pieces in top ½', with 8" sandstone, grey, fine, hard, micaceous (large flake of biotite) at 9031'. No gas, entire core drilled like shale.
9040	9048	5½	5½'	Shale as above, no gas, fish remains, occasional forams, especially at 9041'.
9048	9058	9	9'	Shale as above, few silty and sandy spots near bottom, scattered pearly shell fragments 9052-57', fish remains, forams?, carbonaceous spots, numerous stems, perhaps of Bryzoa at 9053', very unusual highly colored (red and green) shell fragment? at 9056'. No gas.

9058	9065	2½	2½'	Shale, similar to above but silty and sandy spots and lamination, fine grey sand, shell fragments, rare bubbles of gas, few gritty spots, few forams, very odd looking beds, tubular shale, filled impressions at 9060' may be worm holes.
9065	9069	3	3'	Shale as above, silty and sandy spots and partings, tubular impression at 9067' as above, spines, fish remains, forams, few shell fragments. A spot of dark green mineral at 9066'. No gas, common forams at 9066', Nodosaria.
9069	9080	0	0'	Driller thought shale.
9080	9086	11	11'	Shale as above but uniformly silty, except in bottom 1' where it is clayey, with few small sand spots and few laminations fine grey sand, well bedded, few gas bubbles. Occasional calcareous foram.
9086	9096	4	4'	Shale, slightly silty as above, fairly common calcareous forams including Nodosaria at 9089', also very small pearly shell fragments. No gas, entire core drilled like shale. Few small sandy spots. ½" spot of gilsonite? at 9089'.
9096	9106	0	0'	Driller thought probably sandy or rotten shale.
9106	9109	0	0'	Drillers' log:- 9106-07' shale; 9107-08' sand; 9108-09' shale.
9109	9114	1½	1½'	Shale as above only slightly silty, no gas. Driller thought it might be sand 9110-14'.
9114	9117	0	0'	Cored like sand or rotten shale. A dozen 1/4" chips of brown shale in catcher but these were rounded and were probably cavings.
9117	9122	6"	4"	Shale as in core 9109-14'. Core is only 3/4" in diameter. Cored like hard shale.
			2"	Sandstone, hard, grey, fine.
9122	9127	0	0'	Cored like hard shale. One ½" rounded chip of hard shale in catcher. Sample from shaker taken at 9127. Shale as above with only 2-3% sand.
9127	9132	0	0'	Cored like shale. One 1/4" piece shale in core catcher as above. Sample taken from shaker at 9132 was shale as above with 1-2% grey sand.
9132	9134	0	0'	Proably shale as above. Two 1/8" chips crumbly shale behind catcher as above. 1' of slightly silty shale as above and 1" fine grey sandstone in drill collar pulled at 9134'.
9134	9139	3"	3"	Shale, similar to above, slightly silty, sand spotted and streaked with fine grey sand. No gas, all or some of shale is hard, part is flaky, crumbly and soft.

9139	9143	7	7'	Shale, hard, dense, slightly brittle, dark greyish brown, slightly silty, well bedded, compact, fractures some but not badly, similar to shales in cores 9089-96' and above but does not seem as dense or hard. No gas, common forams including Nodosaria. There was a 1/4" rounded pebble of dark volcanic rock at top of core. This together with presence of 3/4" rounded pebble of volcanic rock at top of core 9109-14 indicates we have drilled through something like a conglomerate between 9100-9137'.
9143	9150	9	4'	Shale as above but more silty and less well bedded, few forams, Some gas.
			5'	Siltstone, dark brown, firm, much as shale above but poorly bedded, with common streaks and splotches fine grey sandstone, becoming sandier toward base. Includes 1/2" sand, greyish brown, firm, very fine, very silty, shale-splotched. No cut, Bottom 1' of core has burned odor. Fairly good bubbles of gas. Fairly soft flaky sandy material at extreme bottom.
9150	9161	11	6'	Siltstone, dark brown with very common streaks fine grey sandstone. Gas.
			2'	Sandstone, grey, brown, fine, tight. Gas.
			3'	Siltstone as above with streaks sandstone. Gas. No odor or cut in sands but fair gas throughout core. Core is 30% sand.
9161	9173	1½	1½'	Siltstone as above with thin streaks of grey sand. 25% sand.
9173	9182	3"	3"	Siltstone with streaks of sand as above, few gas bubbles. Better bedded than above and might be termed a silty shale with streaks of sand. 10% sand.
9182	9192	2½	2½'	Shale and siltstone as above with few thin streaks of fine grey sand, grading into soft, mundy, very flaky dark shale in lower 1'. This is probably what has been lost in previous cores. Abundant fish remains, few forams and 2 large pearly shell fragments in upper 2'. Few bubbles of gas. Note:- Softer flaky shale did not core any different from balance of shale.
9192	9197	0	0'	Cored like soft shale or sand.
9197	9207	½	½'	Shale, hard, silty, dark brown, calcitic spots. No gas, Entire core placed together. Bottom 2' softer. Sample from shaker representing drilling at 9200± was flaky dark shale with chips (5%) fine grey sand. Shale chips are noticeably small.
9207	9212	0	0'	Cored like shale. Samples from shaker consist of flaky shale with very little sand.
9212	9217	4	4'	Siltstone and shale with common thin streaks and splotches of fine grey sand. shell fragments. No gas, 10% sand.

9217	9227	11	11'	Siltstone and shale 9216-20' becoming much better bedded, slightly silty shale 9220-27 with ½' hard grey fine sandstone at 9222' and 1' of similar sandstone at 9224'. Forams including Nodosaria. Abundant shell fragments, small to large, including one large fragment showing coils. This is crushed and contorted but is probably Inoceramus. No gas. Bottom 3' is a little harder? Dip 5-6°, best and average 4°.
9227	9237	10	10'	Shale, hard, dark greyish brown, slightly brittle, slightly silty, well bedded, fractures readily as shale above. Abundant pearly shell fragments with organitic structure. No gas. Dip 4-5°. 1' fine grey sand at 9234'. Forams.
9237	9247	10	10'	Shale as above, very little sand. Abundant pearly shell fragments. No gas, bottom 1' looks same.
9247	9257	9	9'	Shale as above with very thin streaks fine grey sand. Bottom ½' is cross bedded, fine grey sandstone. Few forams, shell fragments. No gas.
9257	9267	10	10'	Shale as above becoming more silty and not as well bedded 9265-67'. Bottom 3" typical shale. Forams, shell fragments, No gas, few very thin sand streaks.
9267	9277	8	8'	Shale as above but fractures more readily. Forams, shell fragments. No gas, few very thin streaks grey sand.
9277	9284	10	10'	(3' pick up) Shale as above becoming more clayey, soft and crumbly in lower 6' with 3" streak of fine grey shaley sandstone at 9282'. Forams, fish scales, few shell fragments. No gas, spines.
9284				TOTAL DEPTH

Redrill:-

7017	7027	2"	2"	Sand, grey, fairly soft, friable, fine but poorly sorted, massive, rather tight. Permeability looks low. No cut or staining. Slight sweetish and gasoline odor. No evidence of mud infiltration especially in best fairly compact piece 1" long.
7027	7033	0	0'	7027-32 cored like sand; 7032-33 driller thought shale;
7033	7180			Core gap
7180	7190	7	7'	Sand, grey, soft to compact, friable, fine, rather poorly sorted, massive, glauconitic. Permeability looks fairly low, but sand is fair reservoir. Sand does not look WET. No cut or stains, strong gasoline odor which persists. No evidence of infiltration of mud.
9284				TOTAL DEPTH

Not proof read - EJ

FORM 101.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator Jergins Oil Company Field Panoche Area

Well No. Cheney Ranch #1 Sec. 29, T. 14S, R. 13E, MD B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
0	291	291'	Cored		gravel, sand and clay
291	400	109'			clay
400	529	129'			clay and sand
					Set 13-3/8" at 529
529	534	5'			clay
534	561	27'			Core #1
561	835	274'			sandy shale
835	922	87'			tough shale
922	1085	163'			shale
1085	1105				Core #2
1105	1163	58'			sandy shale
1163	1179	16'			sharp sand
1179	1198	19'			sandy shale
1198	1240	42'			shale
1240	1267	27'			sand and shale
1267	1325	58'			sand and shale
1325	1345				Core #3
1345	1410	65'			sand
1410	1482	72'			sand and shale
1482	1615	133'			sand and clay
1615	1625	10'			tough shale
1625	1900	275'			sandy shale
1900	1982	82'			sandy shale, streaks hard shale
1982	2006				Core #5

FORM 101. ...
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator Jergins Oil Company Field Panoche Area

Well No. Cheney Ranch #1 Sec. 29, T. 14S, R. 13E, MD B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
2006	2118	24'	Cored		sandy shale, streaks hard shale
2118	2249	131'			sandy shale and clay
2249	2254	5'			hard shell
2254	2294	40'			sandy shale
2294	2314				Core #6
2314	2455	141'			sandy shale
2455	2534				Cored #7, 8, 9
2534	2616	82'			clay, streaks hard shale
2616	2642				Core #10
2642	2745	103'			sticky clay
2745	2773				Core #11
2773	2824	51'			sticky clay
2824	2919	95'			clay
2919	2945				Core #12
2945	2967	22'			shale
2967	2997	30'			shale
2997	3030	33'			sandy shale
3031					continuous cores to 3888
3888	3931	43'			shale
3931	3968	37'			shale and sand streaks
3968	4278	310'			shale
4278					continuous cores 4278-9284

FORM 109-D. 47172 7-37 15M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 5-2754

Coalinga, Calif. March 26, 1940

Mr. Warren W. O'Kane

Hotel Tranquillity, Tranquillity, Calif.

Agent for JERGINS OIL COMPANY

PROSPECT WELL

DEAR SIR:

Operations at your well No. "Cheney Ranch" 1 Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., xxxxx Field, in Fresno County, were witnessed by R. G. Frame, representative of the supervisor, on March 23, 1940. There was also present M. B. Smith, Engineer, and W. Goodcell, Driller.

Casing Record	Junk
13-3/8" cem. 529'; 8-5/8" cem. 6676', w. s. o.; T. D. 7580', bridged with cement 6682'-6695'.	

The operations were performed for the purpose of inspecting blow-out prevention equipment.

and the data and conclusions are as follows:

The well was standing subsequent to test of shut-off.

Thorough inspection showed the equipment installed on this date to be satisfactory.

RGF:my
cc - Company, LB

R. D. BUSH
State Oil and Gas Supervisor

By W. V. Woods Deputy

FORM 109-B. 78635 10-39 8750
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off

No. T 5-2753

Coalinga, Calif. March 26, 1940

Mr. Warren W. O'Kane
Hotel Tranquillity
Tranquillity, Calif.

Agent for JERGINS OIL COMPANY

PROSPECT WELL

DEAR SIR:

Your well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.,

xxxxx Field, in Fresno County, was tested for

shut-off of water on March 23 (Time and date), 1940. Mr. R. G. Frame,

designated by the supervisor, was present as prescribed in Sections 3222 and 3223, Chapter 93, Statutes 1939, and there were also present H. R. Campbell, Engineer, and W. Goodcell, Driller.

Location of water tested above 6676' and normal fluid level not determined

Depth and manner of water shut-off: 6676 ft. of 8-5/8 in. 36 & 38 lb.; ____ ft. of ____ in. ____ lb. casing was {cemented / ~~landed~~} in shale (Formation)

at 6676 ft. with 350 sacks Victor o. w., h. t. cement by 3/15/40 casing method.

Water string was landed in 12¼" rotary (Size, rotary or cable tool) hole.

Casing record of well 13-3/8" cem. 529'; 8-5/8" as above; Johnston tester on 4½" drill pipe, packer at 6659'; perf. tail and pressure bomb to 6678', filled with water to the trip valve at 5760'.

Reported total depth of hole 7580 ft. Hole bridged w/c from 6682 ft. to 6695 ft. Hole cleaned out to 6682 ft. for this test.

At time of test depth of hole measured see below ft. and bailer brought up sample of

At ~~see below~~ (Time and date) oil bailed to ____ ft., drilling fluid {bailed / swabbed} to ____ ft.

At " " (Time and date) top of oil found at ____ ft., top of fluid found at ____ ft.

THE ENGINEER ARRIVED AT THE WELL AT 12:40 P. M. AND MR. CAMPBELL REPORTED:

1. The 8-5/8" casing was tested by applying a pressure of 500 lb. to the inside for 5 minutes without loss.
2. Forty-three feet of set cement was drilled out of the 8-5/8" casing, equivalent to 12 sacks. No cement was drilled out before the casing test was made.
3. A Johnston tester was run as noted above.
4. The tester valve was opened at 9:29 a. m., March 23, 1940, and remained open for one hour. There was a light blow of air during the first 20 seconds of this interval and no blow thereafter.
5. Sixty stands of drill pipe had been pulled, and 15 stands, a 20' drill collar and the tester remained to be pulled.
6. The top of the fluid in the drill pipe was located at 5735', or 25' above the trip valve.
7. The drill pipe pulled prior to the arrival of the Engineer was all empty.

R. D. BUSH
State Oil and Gas Supervisor

(Continued on page 2)

115

By ____ Deputy

FORM 109-X 53947 1-38 4M.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
OR
Special Report on Operations Witnessed

No. T 5-2753
Page 2

JERGINS OIL COMPANY

Well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.,

THE ENGINEER NOTED:

1. The fluid in the remaining drill pipe and the tester was all clear fresh water, except for about 40' of medium mud fluid on bottom.
2. The pressure bomb chart failed to function properly.

The test was completed at 1:30 p. m.

THE SHUT-OFF IS APPROVED.

RGF:my
cc - Company, LB

R. D. BUSH
State Oil and Gas Supervisor

By _____ Deputy

FORM 136. 1461 3-33 2M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

MEMORANDUM OF TELEPHONE OR PERSONAL CONVERSATION

T5-2754

M. Mar. 23 1940
(Time) (Date)

Company Jergins Oil Co Well No. "Cheney Ranch" 1

Field Fresno County Sec. 29 T. 14S R. 13E, M.D. B. & M.

On this date a ~~telephone~~ personal conversation was held, concerning the above well, with Mr. M.B. Smith, Eng. W. Gordell, driller

of the above Company.

Details of operations were discussed as follows:

The blow-out prevention equipment indicated below was found to be satisfactorily installed at the well on this date:

✓ 1. Shaffer gate for complete shut-off.

✓ 2. Shaffer gate with drill pipe rams.

✓ 3. Extension shafts for remote control of gates.

(2 new Shaffer gates ready to install, ~~[illegible]~~)

no 4. Hosmer type head with drill insert and kelly insert. — will install one

✓ 5. High pressure gate on mud overflow line.

✓ 6. High pressure gate and fittings on fill-up line.

✓ 7. Stop cock on kelly ~~or swivel.~~

no ~~8. Stop cock in stand pipe.~~

✓ 9. Rotary hose. Hi pres lb. test ~~or [illegible]~~

O.K.

Casing: 13 3/8" cem 529'
8 5/8" cem 6676'. W.S.O
T.D. 7580'

The well was standing subsequent to test of shut-off. ~~being drilled ahead at the depth of~~ ______.

Signed R G Frame

Title Engineer

Coalinga, California
March 18, 1940

Jergins Oil Company
1000 Jergins Trust Building
Long Beach, California

Gentlemen:

Confirming my telephone conversation of March 13 with Mr. Perry Campbell, Geologist:

It is my understanding that you will cement 8-5/8" casing at 6690' at well No. "Cheney Ranch" 1, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Fresno County, and that you will place a substantial cement plug below the shoe of the casing at the time it is being cemented.

Please notify this Division to witness a test of the 8-5/8" shut-off.

Yours truly

H. V. Woodward

Deputy Supervisor

cc - Mr. Warren W. O'Kane

JERGINS OIL COMPANY

PRODUCERS OF PETROLEUM

JERGINS TRUST BUILDING

TELEPHONE 7-1231

LONG BEACH, CALIFORNIA

January 3, 1940

Mr. H. V. Dodd
Division of Oil and Gas
State of California
Coalinga, California

wr (2)

Dear Sir:

Drilling operations were suspended on Cheney Ranch #1 approximately in July, 1940. Cheney #1 was drilled to a total depth of 9284 feet and subsequently plugged back to 7215 feet with 8-5/8 inch casing set at 6676 feet. We have suspended operations on this well awaiting the outcome of Cheney #2. If Cheney #2 proves commercially productive, we will redrill Cheney #1.

Cheney #2 was standing cemented on December 31 with 7 inch pipe set at approximately 7200 feet and the hole plugged back to 7280 feet from 7355 feet. We expect to make a test on this well within the next ten days.

I regret that our Mr. Campbell is not in this office at the present, and has with him all the available data on these wells, and I, therefore, cannot give you all the information you require. If we are successful in Cheney #2, we will make available to you all the information on both wells immediately.

Very truly yours,

Allen Jergins /ch

ALLEN JERGINS
Jergins Oil Company

AAJ:CH

W. B. 1/9/41 RWJr

DIVISION OF OIL AND GAS
RECEIVED
JAN 6 - 1941
COALINGA, CALIFORNIA

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 5-5209

Coalinga, Calif. November 6, 1939

MR. A. A. Jergins

1000 Jergins Trust Bldg., Long Beach, Calif.

Agent for JERGINS OIL COMPANY

PROSPECT WELL

DEAR SIR:

Your proposal to drill Well No. "Cheney Ranch" 1,

Section 29, T. 14 S., R. 13 E., M.D.B. & M., xxxxx Field, Fresno County,

dated Oct. 31, 1939, received Nov. 2, 1939, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The well is 330 feet S. and 330 feet E. from NW Cor. SW¼
The elevation of the ground above sea level is 390 feet.
We estimate that the first productive oil or gas sand should be encountered at a depth of about 6500 ± * feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Cemented
13 3/8	54	D	500	CMT

* This is a prospect hole and will be thoroughly cored. Setting points of other pipe strings will be determined by coring and electrical logging.
Well is to be drilled with rotary tools.
It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION:

This Division has no information as to the depth at which oil or gas bearing formations should be encountered at this location.

YOUR PROPOSAL IS APPROVED PROVIDED THAT:

1. The well shall not be located within 100' of any property line.
2. The 13-3/8" casing shall be cemented with sufficient cement to fill back of it from the shoe to the surface of the ground.
3. Water suitable for irrigation shall be protected from contamination.
4. Adequate blow-out prevention equipment shall be provided and ready for operation at all times.
5. Mud fluid of not less than 70 lb. per cubic foot shall be used in the drilling of the well, and the column of mud fluid shall be maintained to the surface at all times, particularly while pulling the drill pipe.
6. THIS DIVISION SHALL BE NOTIFIED:
   (a) When a showing of oil or gas is encountered.
   (b) Before landing or cementing any casing below the surface casing.
   (c) To witness a test of each water shut-off.

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Reeds Deputy

HVD:my
cc - Mr. Jergins

FORM 105. 45230 6-37 10M.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

019 00190

Long Beach, Calif. October 31, 1939

DIVISION OF OIL AND GAS H. V. DODD

P 5-3209

Coalinga, Calif.

In compliance with Section 17, Chapter 718, Statutes of 1915, as amended, notice is hereby given that it is our intention to commence the work of drilling well No. Cheney Ranch No. 1, Sec. 29, T. 14S, R. 13E, M. D. B. & M., Panoche Area ~~Field~~, Fresno County.

Lease consists of 960 Acres, more or less, from Berry Oil Co. and Jergins Corporation

The well is 330 feet ~~N~~. or S., and 330 feet E. or ~~W~~. from NW Cor. SW¼
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the ~~derrick floor~~ ground above sea level is 390 feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 6500 ± * feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	~~Landed~~ or Cemented
13 3/8	54	D	500	CMT
* This is a prospect hole and will be thoroughly cored. Setting points of other pipe strings will be determined by coring and electrical logging.				

Well is to be drilled with rotary ~~cable~~ tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address 1000 Jergins Trust Building
Long Beach, California

Telephone number Long Beach 712-31

Jergins Oil Company
(Name of Operator)

By A. A. Jergins
A. A. Jergins

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

Reference to file of data

Maps	Model	Cross Section	Cards	Forms 114	Forms 121
W.C.	W.C. Bork			✓	

DIVISION OF OIL AND GAS
RECEIVED
NOV - 2 1939
COALINGA, CALIFORNIA

My letter 11/4/39 HCH

Well Records for Artificial Penetration #2

Cheney Ranch #2

(API No. 1900191)

FORM 159

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

4

REPORT OF WELL ABANDONMENT

Coalinga California

November 24 1964

Mr. C F Best
Route 5 Box 475
Bakersfield California
Agent for HUMBLE OIL & REFINING COMPANY

DEAR SIR:

Your report of abandonment of Well No. "Cheney Ranch" 2, Sec. 29, T. 14S, R. 13E, M D B. & M., Cheney Ranch field, Fresno County, dated November 13, 1964, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have been fulfilled.

Blanket Bond
FLH:fd
cc: Company L A
Conservation Committee

E. R. MURRAY-AARON
State Oil and Gas Supervisor

By C. H. Corwin
Deputy Supervisor

On Map
L.24.
(121)

79185 1-63 6M SPO

MAP & BOOK

S T A T U S

Completed Producing _____
Recompleted Producing _____
Completed Abandoned ✓
Uncompleted Abandoned _____
Idle _____

R E C O R D S

Received		Needed
_____	Well Summary	_____
✓	History	_____
_____	Log & Core	_____
___Lge___Sm	Elec. Log(s)	___Lge___Sm
_____	Direct. Survey	_____
_____	Other	_____

Location _____
Elevation _____
Release Bond _____
Hold Bond ✓ Reason Abandoned
✓ Final letter ✓ dated 11-24-64
150b _____
170 _____
✓ 121 _____
card _____

OK
11-17-64
L.R.

MSB
11-17-64
L.R.

Form 19

FORM 100. 54621 2-38 20M
CALIFORNIA STATE PRINTING OFFICE

SUBMIT LOG IN DUPLICATE

FILL THE BLANK IN WITH TYPEWRITER. WRITE ON ONE SIDE OF PAPER ONLY

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG OF OIL OR GAS WELL

Operator JERGINS OIL COMPANY Field PANOCHE CREEK

Well No. CHENEY RANCH #2 Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.
(see letter dated 7-31-51)

Location 330 N. 990 E. SW/4 corner Sec. Elevation of ~~derrick floor~~ ground above sea level 392 feet.

In compliance with the provisions of Chapter 718, Statutes of 1915, as amended, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date September 20, 1941 Signed H. A. Campbell

H. A. Campbell (Engineer or Geologist) T. McCarty (Superintendent) Title Agent (President, Secretary or Agent)

Commenced drilling Nov. 23, 1940 Completed drilling Jan. 19, 1941 Drilling tools ~~Cable~~ Rotary

Total depth 7354 Plugged depth 7280

Junk None

GEOLOGICAL MARKERS	DEPTH
Top Moreno Sh.	5890
Top Krayenhagen	3541
Top Domengine	4536
Top Lodo	4636

Commenced producing Jan. 19, 1941 (date) Flowing/~~gaslift/pumping~~ (cross out unnecessary words)

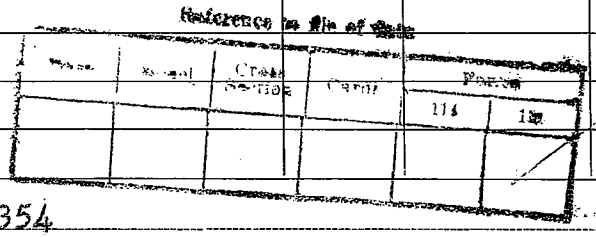
	Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Initial production	13	54	None	900 mcf Est.	300	800
Production after 30 days	7	53	"	400 mcf	300	800

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforations
11-3/4	538	Surface	54	new	Smls.	D	15 1/2	315	
7"	7200	"	26 E 28	"	"		10-5/8	300	
5" O.D.	7273	7162	20#	inserted liner.					

PERFORATIONS

Size of Casing	From	To	Size of Perforations	Number of Rows	Distance Between Centers	Method of Perforations
5" O.D.	7192 ft.	7273 ft.	80 mesh	16	6	2 1/2"-shop
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				



Electrical Log Depths 538 - 7354 (Attach Copy of Log)

FORM 103. 68276 6-29 10M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

FIELD PANOCHE CREEK COMPANY JERGINS OIL COMPANY

Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Well No. CHENEY RANCH #2

Signed H A Campbell

Date September 20, 1941 Title Agent

President, Secretary or Agent

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reason for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "sidetracked" or left in the well, give its size and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

11/23/40	Spud 8:30 p.m.
11/24	6:30 a.m. - Total depth 538'. Noon--completed cementing surface pipe. Set 538', 11-3/4" 54# Smls. with 315 sax Victor Pacific system. Survey at 530' was 0° 38'.
11/25	Drilled out 6:00 p.m. Survey 825' was 0° 45'.
11/25 to 12/1	Drilling ahead.
12/1 to 12/3	Coring 4440' to 4660'. Survey 4660' 2° 30'.
12/3	Started drilling ahead.
12/14	Total depth 6675'. Started coring 7-5/8" bbl.
12/14 to 12/17	Coring--total depth 6825'. Reamed 10-5/8" to 6770' to run tester on zone 6770' to 6825'. Opened tester 1:40 p.m.--no blow. Closed tester 2:20 p.m. No results although valve opened. No.gas, no oil, no water. Sand barren. Cleaned out and started coring from 6825'. Survey 6856' 3° 10'.
12/17 to 12/20	Coring. Total depth 7014'. Ran Schlumberger 538' to 7014.
12/21	Opened hole to 6910'. Started coring ahead.

HISTORY:
Cheney Ranch #2

12/23	Total depth 7150'.
12/24	Started in with tester. Stopped at 3300'. Pulled out. Ran in with hole opener--reamed tight 3300'-3350'. Pulled hole opener and started in with tester. Set tester at 6912'. Seat failed and after dropping packer 16' decided to pull. Test N.G. Decided to core ahead as no other suitable seats available in cored interval.
12/25	Coring 7050' on.
12/26	Total depth 7280'. Opened hole 6912' to 7125'.
12/27	Opened hole 7125 to 7161'. Started in to test with Haliburton Tester. Valve open 4:00 p.m. Gas up in 2 minutes. Maximum blow in 5 minutes. Estimated 2 million feet. Spray of oil. 3/8" bottom bean. 16' tail piece. Flow pressure at bottom 800#. Shut in pressure 10 minutes to 3000#. Recovered some Kerosene like clear oil dripping from DRILL Pipe and in top of tool. All rat hole mud plastered on walls of drill pipe. Bottom hole temperature 163°. Open 1 hour and 10 minutes. Went on to clean out. Found hole bridged 7164' to 7280'.
12/28	2½ hours reaming out 7-5/8" core hole. Started coring from 7280'. Hard shell at 7300'. Cored to 7334'.
12/29	Opened hole to 7297'. Ran Haliburton Tester to 7300'. Open one hour. Slight gas blow steady. Pulled tester. Found 1450' salt water on drill pipe. Some oil. Some gas. Flow pressure 700-750. Shut in 10 minutes--2650#.
12/30	Cored to 7354. Pulled out. Ran Schlumberger 7014' to 7354'. Ran in with open end drill pipe to place cement plug 7280' to bottom. Plugged with 50 sax high temperature oil well cement. Pacific. Completed 9:30 p.m.
12/31	Went in hole 7:00 a.m. to find plug. Top of plug 7225'. Soft to 7240'. 7240' to 7280' cement hard. Took 14 points weight. Conditioned mud. Pulled out drill pipe and broke in doubles preparatory to running casing.
1/1/41	Ran 179 joints 7", 26# and 28# pipe to 7200'. Cemented 300 sacks high temperature Victor Pacific. Completed 11:30 a.m. Cleaned up cellar.
1/2/41	Layed down drill pipe. Standing cemented.

HISTORY:
Cheney Ranch #2

1/3 Rigging up to pull tubing Cheney #1. Landing 7" on Cheney #2.

1/4 Pulled tubing Cheney #1.
Unloading 3½" drill pipe. Hauling 2⅛" tubing Cheney #1 to Cheney #2.

1/5 Hauling tubing Cheney #1 to Cheney #2. Started making up tubing in hole. Cheney #2.
Measured and stood in derrick. 64 stands.

1/6 Made up 3½" Doheney Stone drill pipe 121-30' singles.
Went in hole to 7050'--circulating.

1/7 Hit cement 7095'. Float valve at 7157'. Shoe at 7200'.
Drilled out to 7203'. Ran WSO with Halliburton tester.
Tail pipe 7195'. Packer 7178'. Open 1 hour. Pulled--
no results. Valve not open.
Started to rerun tester--same depth. Open 5:20 p.m.
Closed 6:25 p.m. Pulled.
3 stands and drill collar of very thick mud--some gas.
No water. Ran in with 10-5/8" wall scraper.

1/8 Ran scraper to 7280'. Conditioned mud--pulled out. Found 16' cement below 7203'.

Made up 111', 5" O.D. 20# liner (inserted), including 81' 80 mesh perforated. Bull nosed bottom (16 rows--6" centers, 2½" slots.)
Hung at 7279' to 7168'--Landed 11:30 a.m.
Started laying down drill pipe.

1/9 Took off blow out preventer and gate, preparatory to running tubing.
Ran in 7157.59', 2⅛" tubing. Landed 8' below floor. Bottom of tubing 7165.59' below floor.
Hooked up Xmas tree. Displaced mud with 29° grav. coalinga crude. Completed 11:25 a.m. Well flowing 2:30 p.m. Flowed oil till 6:30 p.m. Then started flowing water in heads--water and gas. Flowing at 9:30 p.m. started to kill with mud, to pull tubing.

1/10 Mixing mud--killing well. Killed 6:30 a.m. Pulled tubing--removed swab catcher bottom joint. Put on bell nipple and reran to 7075' for water witch. Put on xmias tree. Started swabbing.

1/11 Swabbing. Flowing through tubing 2:30 a.m.; reversed and made well flow through casing 7:30 a.m. Ran water witch 10:00 a.m. to 1:00 p.m. Water entry at bottom 7280' to 7270' through gas. Locating water by Ennis of Lo-Kate-It.
Started killing well 3:00 p.m.
Took off xmas tree.
Started pulling tubing, preparatory to pulling liner.

HISTORY:
Cheney Ranch #2

1/12 Made up drill pipe.
Put on down swabs and went in hole to wash 5" liner. Washing liner with mud.

1/13 Found one tight place in liner. Freed up. Started out to lay down washer.
8:30 a.m.--making up drill collars and spear to go after liner.
2:00 p.m.--jarred liner loose one jar.
4:30 p.m.--liner pulled--laying down drill collars, preparatory to run 10-5/8" wall scraper to open hole to 10-5/8" from 7300' to 7318' to replug.

1/14 Opened hole to 10-5/8 from 7300' to 7318'. Pulled scraper found badly worn. Ran in again with new blades and reopened. Hard through shell 7300' to 7303'. Bottom of hole--10-5/8" to 7318'. 6" to 7321'.
Ran in with drill pipe to plug. Drill pipe with 3" bull plug 5' long on bottom. One bottom hole ½". 5' side holes ½". Above bull plug ran Halliburton plug tool. With drill pipe hanging near bottom pumped in 40 cu. ft. water then 37 sax Victor high temperature cement, then placed 15 cu. ft. of water through rubber plug. Pumped out water while pipe was being pulled from bottom to 7280'. Cement out from bottom to 7280'. Plug bumped. Pulled up to 7270' sheared plug pins with 1800# pressure then circulated for few minutes. Closed preventer and put away 15 cu. ft. at 400#. Pulled up into casing and circulated to condition mud.

1/15 Circulated to condition mud. Found cement hard at 7277' at 7:45 a.m. Took 10 pts. weight. Pulled out (4 hours). Shut down.

1/16 Shut down.

1/17 Shut down.

1/18 Ran in with scraper. Cleaned out to 7277'. Soft cement 7270' to 7276'. Hard 7276' to 7277'. Took ten points weight. Conditioned mud. Pulled scraper.
Made up liner and hung at 7162' (top). Bottom at 7273'. Pulled drill pipe and layed down. Changed cellar assembly. Started in with tubing. Tubing catcher at 6749'.

1/19 Tubing landed at 7139'.
Finished xmas tree and displaced mud with oil. Installed Otis Bottom hole choke at 6435'. Set to open at 900# to 3/8 choke. Ran swab 3 times to 600 feet. Well started flowing at 2:45 p.m. 7:30 p.m.--flowing water with distallate and gas. Flowed to sump.

HISTORY:
Cheney Ranch #2

1/20 Flowing to sump. Flowing water till 1:30 a.m.
Mud and gas and distillate 1:30 a.m. to 2:30 a.m.
Mud and distillate 2:30 a.m. to 8:00 a.m.
First meter reading 1.395 mcf.
January 1 to 22--to sump.

1/22 Installed trap and tank.
Prod. 13 bbls. distillate and 923 mcf.

1/28 Pulled tubing after plugging bottom with Otil plug and blowing well down. Ran Baash Ross Perforator as follows:
20 holes ($\frac{1}{2}$x2") 7232 to 7268 and one hole at 7212'.
Reran tubing to 6749'.
Total prod. to tank for January 57.7 in 8 days.
Average gravity 50.5

PRODUCTION:

February:
Total prod. 186.88 bbls. Average gravity 53°.
Average C.P. 500#.
Average T.P. 300#. Gas estimate from charts 270 mcf to 400 mcf daily.
Well on 28 days. Through low pressure trap.

March:
Suspended March 1 to 11, March 18 to 24, and March 28 to 31. To install high pressure trap and heaters and to determine shut in pressure.
Shut in pressure after 5 days 2200#.
Produced to tank 18 days. Total 75.32 bbls.
Average gravity 51.5°B.

April:
Produced 24 days. Total 222.46 bbls. average gravity 54°B.
Tests were run to determine best operating pressure on high pressure trap. Final determination--600# back pressure on high pressure trap and 100# on low pressure trap.

May:
Produced 16 days. Total 245.41 bbls. Average gravity 55.5°B.
Changed trap hook up. Pulled 2$\frac{1}{2}$" tubing and ran new 1$\frac{1}{2}$" tubing to 7250'.

June:
Produced 30 days. Total 340.48 bbls. Average gravity 60.1°B.
Estimated gas total 6450 mcf.

July:
Produced 31 days total 308.15 bbls. Average gravity 60.2°B.

HISTORY:
CHeney Ranch #2

July 7:
Installed pressure storage tank.

July 11:
Turned gas into P. G. & E. line.

August:
Produced 30 days. Total 314.55 bbls.
Average gravity 59.9°B.
Estimate 7200 mcf to P. G. & E.

FORM 101.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG AND CORE RECORD OF OIL OR GAS WELL

Operator JERGINS OIL COMPANY Field PANOCHE CREEK

Well No. CHENEY RANCH #2 Sec. 29, T. 14 S., R. 13 E., M.D. B. & M.

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
0	230	230	D		Clay, gravel, and boulders.
230	500	270	"		Clay, sand, and gravel.
500	538	38	"		Shale
					Cemented 54# 113/4 at 538'.
538	968	430	"		Shale and sand.
968	1025	57	"		Sand, shale, streaks of hard sand.
1025	1035	10	"		Hard sand.
1035	1276	241	"		Sand and shale, stks. hard sand.
1276	1560	284	"		Sand and gravel.
1560	1626	66	"		Shale, stks. hard sand.
1626	1656	30	"		Hard sand.
1656	1900	244	"		Sand, shale -- hard streaks.
1900	2159	259	"		Clay - hard streaks.
2159	2190	31	"		Hard shale.
2190	2489	299	"		Hard shale and sandy shale.
2489	3541	1052	"		Sand and shale.
3541	3657	116	"		Black shale(driller-top Krayenhagen 3545')
3657	3881	224	"		Shale and hard shale.
3881	3952	71	"		Shale.
3952	3976	24	"		Shale and hard shale.
3976	4324	348	"		Shale.
4324	4401	77	"		Hard shale.
4401	4440	39	"		Shale.
4440	4660	220			Drilled ahead - cored
4440	4447		C	9'	1' Shale, brown, earthy, crumbly, slickensided. Contains two 1/8" bentonite partings in upper 6".
					2" Sand, gray, clean, well sorted, fine grained, friable. Has salt and pepper appearance.
					1" Bentonitic shale, gray, crumbly.
					7" Shale, brown, earthy, crumbly.
					2" Sand, gray, clean, well sorted, fine grained, friable. Has salt and pepper appearance.
					6" Shale, brown, earthy but firm, fish remains and few Radiolaria.
					6" Sand, gray, clean, well sorted, fine grained, friable. Has salt and pepper appearance.
					7" Shale, brown as above with abundant Radiolaria.
					1" Siltstone, gray-brown with slight

				green cast, sandy and glauconitic. 16" Shale, brown as above with scattered glauconite grains in lower 4", slickensided and crumbly. 16" Claystone, steel gray, bentonitic, slickensided, somewhat soapy. 4" Shale, brown as above. 4" Claystone, as above. 1" Sand, gray as above. 5" Claystone, as above. 8" Shale, brown as above. 4" Claystone, as above. 4" Shale, as above.
4447	4457	C	7'	1' Shale, brown, slickensided, hard to crumbly, abundant Radiolaria. 1' Claystone, steel gray, slickensided, soapy. 4" Shale, as above, abundant Radiolaria. 4" Claystone, as above. 2'2" Shale, brown, crumbly to firm, Abundant Radiolaria, fish remains, some pyritized, questionable Forams. 2" Glauconitic sand, green, very glauconitic. 2' Shale, brown, as above but with fewer Radiolaria.
4457	4467	"	3'	Shale, brown as above.
4467	4477	"	6'	Shale, probably as above but badly "chewed up".
4477	4487	"	2'	Shale, brown, crumbly, Radiolaria, and abundant fish remains.
4487	4497	"	4'	Shale, brown, as above.
4497	4502	"	5'	1' Shale, brown as above. 6" Shale, as above but with scattered glauconite grains. 6" Shale, brown as above. 6" Glauconitic sand, green, fine grained, well sorted. This sand at 4499' may correlate with green sand at 4440' in Cheney Ranch #1. 2½' Shale, brown, as above.
4502	4512	"	4'	Shale, brown, as above, with two 1" thick glauconitic sand partings, 1' and 2' from base of core.

#3, Cheney Ranch #2, Log

4512	4520	C	6'	Shale, brown as above with 1" sandstone shell at base, has greenish ca cast at base and contains Radiolaria and Forams.
4520	4530	"	9'	Sand, gray, medium fine grained, clea well sorted, friable, with 6"/shell at top. Has salt and pepper appearance. s.s.
4530	4540	"	7'	1' Sand as above. 2' Glauconitic sand, green, medium fine, clean, well sorted, very glauconitic. 4' Siltstone, gray siltstone, pyrite common, massive. BASE KREYENHAGEN GREEN SAND AND TOP DOMENGINE SILTSTONE 4536'.
4540	4550	"	7½'	3½' Siltstone, steel gray, massive, abundant large Forams. 2½' Sand, light gray, fine grained, silty, ashy? 1' Siltstone, gray, clayey, slickensided.
4550	4560	"	10'	1' Siltstone, as above, rare glauconite grains. 4' Siltstone, gray with greenish cast, sandy, scattered glauconite, becomes increasingly more sandy toward base. 2' Sand, light gray, fine grained, soft, well sorted, clean to white Kaolinitic matrix, sugary texture soft. 3' Sand, greenish gray, fine grained, soft, silty.
4560	4570	"	2'	1' Sand, light gray, clean, well sorted, medium fine grained, soft. 1' Siltstone, greay, firm, large pyritized Nodosaria, minute rare pelecypod casts.
4570	4580	"	7½'	Siltstone, steel gray with greenish cast, as above.
4580	4590	"	10'	Siltstone, as above, with rare fossil fragments and pyritized Trochocyathus? at 4581'.
4590	4600	[illegible]	8'	Siltstone, green-gray, rare glauconitic partings Exputen sp. at 4590'.
4600	4610	"	8'	Siltstone, as above with Bryozoa and large Forams at 4601'.

#4, Cheney Ranch #[illegible], Log

4610	4620		C	10'	1' Claystone, green-gray, soapy, slickensided. 1' Siltstone, green-gray, scattered glauconite, abundant Foram, DIScocyclina. 1' Glauconitic sand, green, very fine grained and silty. 5½' Siltstone, steel gray, abundant Forams with 2' flood of Exputen sp. at 4615-4616'. 6" Sand, gray, very fine grained to silty, soft. 1' Siltstone, as above, with Discocyclina.
4620	4630		"	11'	6' Siltstone, greenish-gray, abundant Discocyclina in upper 1' and abundant Forams throughout, scattered small pelecypods. 5' Sand, green-gray, very glauconitic fine grained with silty matrix 1' gray fine grained sugar textured sand 2' from base.
4630	4640		"	10'	1' Sandstone, green-gray, glauconitic hard, scattered smooth pebbles up to ½" in diameter, fossil fragments, Ostrea?, Turritella. 5' Sand, greenish-gray, glauconitic, fine grained to silty. Scattered coarse sand grains and gray shale pebbles in lower 6". This is base of Domengine at 4636'. 4636' Base Domengine Top Lodo 4' Siltstone, gray, firm, slickensided at top at Domengine contact, white spots that may be arenaceous Forams, pyritized reeds, scattered minute pelecypod fragments, calcareous Forams.
4640	4650		"	10'	Siltstone, as above.
4650	4660		"	1'	Siltstone, as above.
					All cores described while wet or partially wet.
4660	4687	27	D		Shale.
4687	4715	28	"		Shale and sand.
4715	4891	176	"		Sand and shale-stks. hard shale.

#5, Cheney Ranch #2, Log

4891	4952	61	D		Shale
4952	4970	18	"		Hard shale
4970	5061	91	"		Shale-hard stks.
5061	5153	92	"		Shale
5153	5207	54	"		Hard shale and shale.
5207	5506	299	"		Shale stks. hard shale and sand.
5506	5650	144	"		Hard shale.
5650	5660	10	"		Hard sand.
5660	5727	67	"		Shale and hard shale
					Lost cone.
5727	5729	2'	"		On iron (recovered junk)
5729	5740	11'	"		Hard sand.
5740	5751	11'	"		Shale.
5751	5770	29'	"		Hard sand
5770	5871	101'	"		Hard sand and shale.
5871	5888	17'	"		Hard sand.
5888	5934	46	"		Hard shale.
5934	5958	24	"		Hard shale stks hard sand.
5958	5962	4'	"		Hard shell.
5962	6061	99'	"		Hard shale.
6061	6067	6'	"		Shale and shells.
6067	6090	23'	"		Hard shale.
6090	6670	580'	"		Hard shale occasional shell (Moreno shale).
6670	6675	5'	"		Sand.
6675	7354	679'	C		Cored.
6675	6685		"	4'	Shale, dark brown, semi-platy and crumbly, dip appears nearly flat.
6685	6695		"	6'	Shale, dark brown, more massive and less crumbly than preceding core.
6695	6700		"	None	
6700	6710		"	4"	Shale, as above.
6710	6715		"	15'	10' pick up from preceding core. 15' Shale, dark brown, semi-platy, Forams. 2" Gray siltstone parting 4' from top and 4' from base.
6715	6720		"	3'	Shale, as above.
6720	6728		"	8'	6½' Shale, brown, platy, dip 3°. 5" Sand, white, very fine, floury, soft. 3" Shale, as above. 4" Sand, as above. 6" Shale, as above.
6728	6738		"	7'	5½' Shale as above but soft and crumbly. 1½' Sand, medium gray, fine to very fine grained, firm but friable, contains 2" shale parting.

#6, Cheney Ranch #2, Log

6738	6748	C	9'	Shale, brown, with several thin fine grained sandstone dikes up to 1½" in thickness.
6748	6756	"	3'	Shale, as above with sandstone dikes.
6756	6762	"	6'	Shale, as above with sandstone dikes.
6762	6771	"	8'	Shale, as above with sandstone dikes totaling 3' in thickness, sand is gray, fine grained, firm, friable.
6771	6780	"	9'	Shale, brown, very crumbly with 3" sandstone dike at base.
6780	6789	"	9'	Shale, as above.
6789	6794	"	3'	Shale, as above.
6794	6803	"	1'	Shale, brown, platy, and soft, crumbly with 2" fine grained, friable gray sand in middle; no odor, fish scales.
6803	6808	"	5'	Sand, light gray, massive, fine to very fine grained, firm but easily friable; no cuts and no gasoline odor, flashed in core barrel.
6808	6817	"	10'	Sand, as above; no odor, with 1' brown shale 1½' from top; contains a large brown micaceous mineral.
6817	6825	"	6'	6" Shale, brown, crumbly, Dentalina (long), large Plectofrondicularia or Frondicularia. 1½' Sand, medium gray, fine to very fine grained, slightly silty, friable to soft, no odor. 2' Shale, brown, chewed up. 2' Sandstone, medium gray, very fine grained and silty, micaceous, firm, thinly bedded with dips varying from 5° to 12°.
6825	6835	"	6'	
6836	6843	"	8'	4' Sand, firm, massive to thin x bedded, fine, dark gray, considerable basic ferros, very carbonaceous, abundant forams. No oil or gas. 1' Siltstone, dark gray-brown, friabl massive, carbonaceous. Forams abundant. No oil or gas. 1' Sand, firm, massive, very fine-silty, dark gray, forams common. No oil or gas. 2' Shale, as above, forams abundant.
6843	6846	"	0'	
6846	6856	"	6'	Shale, firm, massive, semi-spalling, dark brown, with 1-2"/firm massive, dark gray silty sand. Forams abundant in sand and shale, no showing oil or gas.
6856	6865	"	1'6"	Clayey Sand, soft, very fine, white.
6865	6869	"	4'6"	Shale, soft, punky, flakey, dark brown, abundant forams, badly chewed up in coring.

#7, Cheney Ranch #2, Log

6869	6877	C	8'	3'6" Shale, fairly soft, massive, flakey, dark brown, with 1-2"/ friable, fine gray sand. Forams abundant. 1' Sandstone, hard, massive, fine, gray. 4'6" Sand, friable, compact, massive and x bedded, fine, gray. Few gas bubbles in mud, no cut or odor.
6877	6885	"	6'	2'6" Shale, as above. 2' Sand, friable, massive, fine, gray carbonaceous, with 1-1"/brown shale, as above. No cut or odor. 1'6" Sandstone, hard, massive, fine, gray.
6885	6894	"	4'6"	Sand, friable, massive, well sorted fine, brown-gray, show of gas in core bbl., "sweet odor in sand.
6894	6902	"	0'6"	Sand, as above, no evidence oil or gas.
6902	6912	"	0'	
6912	6917	"	1'8"	Shale, massive, flakey, dark brown, carbonaceous, with 1-5"/fine, massive friable gray sand. No cut or odor in core, show gas in core bbl.
6917	6922	"	1'6"	Shale, as above, few forams. Show gas in core bbl.
6922	6932	"	10'	8'6" Shale as above, with 1-8"/ friable, massive, fine gray sand. Forams scarce. 1'6" Sand, firm, compact, massive, fine, gray. Slight pet. odor at bottom. Show gas in core bbl.
6932	6942	"	10'	4'6" Sand, friable, massive, fine gray, becomes silty towards bottom. No cut or odor. 5'4" Shale, soft, massive, dark brown with 1-8"/hard fine shaly gray sand-stone. Forams rare. 2" Sand, firm, massive, fine, gray, slight pet. odor. Show gas in core bbl.
6942	6952	"	10'	5'9" Sand, firm, massive, compact, fine, gray, with 1-8"/brown shale, as above. Slight pet. odor. 2'9" Shale, as above, forams rare. 1'3" Sand, as above, slight pet.odor. 0'3" Shale, as above. Show gas in core bbl.
6952	6962	"	0'	
6962	6972	"	0'	
6972	6977	"	0'	
6999	7014	"	0'	
7014	7022	"	2'6"	Sand, firm, massive, fine, fairly well sorted, gray, no cut, odor or gas.

#8, Cheney Ranch #2, Log

7022	7027	C	4'6"	Sand, as above with 1-8"/hard, massive, dark brown-gray shale. Forams, fish remains, Dip 11°, no cut, odor or gas.
7027	7031	"	4'	2'9" sand, as above, slight gas show. 1'3" shale, slightly bedded, hard, dark brown-gray, irregular inclusions hard fine gray sandstone. Forams.
7031	7036	"	1'6"	Shale, massive, hard, dark-brown-gray. Forams.
7036	7045	"	6'	Sand, firm, massive, compact, fine, gray, 1-2"/shale, as above. Faint "sweet" odor.
7045	7055	"	8'	Sand, friable to hard, massive, compact, fine to very fine, gray. Slight "sweet" odor.
7055	7064	"	7'6"	1'6" Sand, as above, except hard. Few angular inclusions of shale, as above. No cut, odor or gas. 6' shale, as above, with 1-2", 1-4" s/hard fine gray sandstone.
7064	7066	"	2'	Shale, as above. Forams.

Wall samples:
5761' Rec. 1½" shale & fine gray sand, no cut or odor.
6952' Rec. 1" fine gray sand, no cut or odor.
6957' Rec. 1½" Ditto
6961' Rec. 1" Ditto
6972' Rec. 1¼" Ditto
6975' Rec. 1½" Ditto

7066	7071	"	1'	Shale, hard, thin bedded, simi-spalling, dark gray brown. Forams & fish.
7071	7073	"	0'	
7073	7083	"	7'6"	Shale, as above.
7083	7091	"	7'6"	Shale, as above, dip 8°.
7091	7095	"	4'	Shale, as above, with 1-2" & 1-6" s/hard massive, fine gray-dark gray sandstone. Dip 11°.
7095	7105	"	2'	Sand, firm, friable, massive, fine, dark gray-light gray. No cut or odor, faint gas.
7105	7115	"	6'	Sand, firm, compact, massive, fine, gray. Faint "sweet"odor, no cut.
7115	7125	"	6'	Sand, fairly hard, massive, fine, gray numerous angular inclusions shale. No cut or odor.
7125	7133	"	8'	5'3" Sand as above, with 1-2"/shale, as above. 9" shale, as above, forams. 8' sand, firm, thin bedded, fine light & dark gray, carbonaceous. Dip 10°. Very faint odor.

#9, Cheney Ranch #2, Log

7133	7141	C	8'	Shale, as above, with 1-12"/hard, compact, massive, dark gray, carbonaceous siltstone. No cut or odor. Dip 7°. Numerous carbonaceous fragments in shale.
7141	7150	"	8'6"	1' Sand, friable, compact, massive, fine, gray, "sweet odor also faint pet. odor. Slight gas show in core bbl 4'6" Shale, as above, forams & fish remains, no carbonaceous material. 2' Sand, firm friable, massive, fine, gray, few fragments carbonaceous material & shale, faint "sweet" odor 1' Shale, as above, with 1/2" sandston dike Dip 8°.
7150	7155	"	4'6"	Shale, as above, with 1-6"/soft, massive, fine gray sand. Faint pet. odor.
7155	7164	"	3'	Shale, as above.
7164	7174	"	10'	2' Sandstone, hard, massive, fine, gray. 1'6", Sand, soft, massive, fine, gray. Fair pet. odor, no cut. 9" Shale, as above. 5'9" Sand, firm friable to fairly hard massive, compact, fine, carbonaceous, dark gray, numerous angular & rounded fragments shale, as above, and 1-3", 1-6" s/shale, as above. "Sweet" odor and fair pet. odor. No cut. Core showed gas in barrel.
7174	7183	"	9'	Sand, friable, massive, compact, unigrained fine, gray, slight pet. odor, show of gas in core bbl.
7183	7193	"	3'6"	6" Sand, fairly hard, thin bedded, fine, gray. 3' Shale, as above, forams.
7193	7198	"	5'	2'6" Sand, firm, friable, compact, fine to very fine, gray, "sweet" odor, very faint pet. odor. 1'6" Shale, as above. 1' Sand, firm, massive, fine, gray. "Sweet" odor.
7198	7208	"	10'	5'6" Shale, as above, forams,& fish remains. 4'6" Sand, friable, massive, compact, fine, gray, "sweet" odor, very faint pet. odor.
7208	7218	"	10'	2' Sand, as above, faint to fair pet. odor. 1'9" Sandstone, hard, massive, fine, gray. 3" Sand, friable, massive, fine-medium, gray. 2'6" Shale, as above, with laminations fine gray silt. Dip 11°. 6" Sandstone, hard, massive, fine, carbonaceous, gray.

#10, Cheney Ranch #2, Log

7208	7218	Cont'd.	C	10'	2'9" Sand, firm, friable, massive, fine-medium, gray, faint pet. odor, slight show of gas.
7218	7228		"	3'6"	1' Sand, soft, massive, fine, gray, faint pet. odor. 1'6" Shale, as above. 6" Sand, as above. 6" Sandstone, hard, massive, fine, shaly, gray.
7228	7238		"	1'3"	Sandstone, hard, compact, very fine, dark gray, faint pet. odor, slight show gas.
7238	7243		"	1'3"	5" Sandstone, hard, massive, fine, shaly, gray. 10" Shale, as above.
7243	7250		"		No recovery.
7250	7260		"	9'6"	Sand, firm, friable, massive, fine, gray, fair pet. odor, faint gas.
7260	7270		"	9'	Sand, as above, faint pet. odor.
7270	7280		"	6'6"	3' Sand, as above, faint pet. odor. 1'6" Sandstone, hard, fine, massive, gray. 2' Sand, as above, very faint pet. odor.
7280	7290		"	7'	3' Shale, dark gray brown, clayey to silty, laminated, dip 10°, forams. 4' Sand, medium gray to gray, fine grained, somewhat silty with rare shaly partings mostly firm with few easily friable partings. Fair petrol odor at top, "sweet at bottom".
7290	7300		"	7½'	1½' Sand as above. 3' Sand, gray, fine grained to very fine grained, easily friable, very faint petrol odor. 3' Sandstone, shell.
7300	7310		"	7'	Sand, gray, fine grained to very fine grained, friable to loose with 4" dark gray brown shale with forams and fish scales and scattered mica flakes 1' from top core. Very faint petrol odor.
7310	7319		"	10'	Sand, as above, faint to no petrol odor.
7319	7329		"	7½'	Sand as above. No odor.
7329	7334		"	6'	Sand as above but all soft.
7334	7344		"	3'	6" Shale, gray brown. 1' Sand, as above. 6" Shale, gray brown, badly chewed up. 9" Sand, as above, badly chewed up.
7344	7354		"	5'	Sand, light gray, fine to very fine matrix, soft, feels ashy with 2" shale parting in upper 1'.

Total depth 7354'.

S. J. VALLEY OILS — Jan. 19, 1

PANOCHE CREEK

CRETACEOUS

FLOW

JERGINS OIL COMPANY

CHENEY RANCH — 29-14-13 — 2

7,354' — 2½"
7,277 — 7142'
7" @ 7200
111' of 5" — ——— Otis choke at 6454'
incl. 61' of 80m perf.
liner landed 7279' — 1/19 1

60 B/D (distillate)
55.0°
6.0%
1,320

Field and well classification has not been established as yet. Sending in this report for record purposes.

On Jan. 29, 1941 pulled Otis Choke, found it all cut out. Liner was open to bottom. Operator reperforated perforated intervals with a knife 2"x5/8" slots 2' centers 7252-7280 and one hole at 7211'. However this did not increase production.

250
500

32/64

Distillate

1/20	25	54.0	10.0	115/450	32/64	1300
21	20	53.0	"	110/375	"	1000
22	12	52.4	"	160/280	"	900
30 day ave. 8 B/D		52.1	"	150/175	"	500
P.P	17	52.2	"	175/300	16/64	500

5/8"
900" back pressure

899'
330' N and 900' E from SW corner
Section 29-14-13

CLARK

7,277'

Various

February 18, 1941

HUMBLE OIL & REFINING COMPANY
SOUTHWEST REGION

4

WELL HISTORY

WELL NO. Cheney Ranch #2 FIELD (Panoche) Cheney Ranch COUNTY Fresno STATE California SEC. 29 T. 14S R. 13E MD B&M

DATE	DEPTHS FROM	DEPTHS TO	FORMATION	REMARKS
9-1-64 through 9-2-64				Moved in and rigged up.
9-3-64				Pumped 325 barrels water through annulus. Pulled 1¼" tubing to 7082'. Displaced 50 sx cement through tubing. Witness by D.O.G. representative.
9-4-64				Working tubing.
9-5-64 through 9-7-64				Standing.
9-8-64				Shot off tubing, backed off 1¼" tubing to 6600'.
9-9-64				Pumped 8 sx cement through tubing at 5680'.
9-10-64				Pulled 299 Jts (7057') 1¼" tubing. Checked fluid at 3100'. Dumped 25 sx cement from surface.
9-11-64				Filled hole with earth and water to 2000'. Dumped 10 sx cement from surface. Cut off 7" casing at surface.
9-12-64 and 9-13-64				Standing
9-14-64				Checked top of cement at 457'.
9-15-64				Welded on pulling joint to pull casing.
9-16-64				Shot off 7" casing at 457' and pulled 422' of casing. Dumped 20 sx cement at 459'. Witnessed by D.O.G. representative.
9-17-64				Moved out rig.
9-18-64				Filled hole with earth to 27'. Dumped 12 sx cement from surface. Top of cement at 7'. Witnessed by D. O. G. representative. Well abandoned.

DIVISION OF OIL AND GAS
RECEIVED
NOV 16 1964
COALINGA, CALIFORNIA

HUMBLE OIL & REFINING COMPANY

By _____ Agent
C. F. Best, Dist. Supt.

Date November 13, 1964

Coalinga, California
January 23, 1941

JERGINS OIL COMPANY

Well No. "Cheney Ranch" 2
Sec. 29, T. 14 S., R. 13 E.
M. D. B. & M.
Fresno County

MEMORANDUM

There was a report in the local newspaper last night stating that this well had been completed as a commercial producer and giving the following information: The well was completed capable of producing 125 bbl. of 55 degree gravity oil per day cutting 8% water, and 1,125,000 cu. ft. of gas. The oil was reported to be entirely in a gaseous form until it reaches the surface and is condensed in the trap. The total depth is 7,355 feet, plugged back to 7,277 feet.

The well is a considerable distance from Coalinga and, in view of the bad weather and poor road conditions, it was not considered advisable to send a representative to investigate, particularly in view of the fact that Mr. H. O. Woodruff, engineer of The Texas Company which has interests in the area, has informed me that he believes that the report is much exaggerated. The information available to this company indicates that the well is probably just another "dud" similar to well No. "Cheney Ranch" 1 drilled by the same company which is capable of producing a minor amount of gas accompanied by a small amount of high gravity oil.

H. V. Woodruff
Deputy Supervisor

FORM 109-D

CALIFORNIA RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 564-251
Page 1 of 2

Mr. C F Best
Route 5 Box 475
Bakersfield California

Agent for HUMBLE OIL & REFINING COMPANY

Coalinga Calif.
September 23 1964

DEAR SIR:

Operations at well No. "Cheney Ranch" 2, Sec. 29, T. 14S, R. 13E, M D B & M. Cheney Ranch Field, in Fresno County, were witnessed on September 22, 1964. Mr. F. L. Hill, representative of the supervisor was present from 3:00 p.m. to 3:10 p.m. There were also present P. D. Elliston, Contractor

Present condition of well: 11-3/4" cem. 538'; 7" cem. 7200', shot and recovered from 457'; 5" ld. 7162'-7273', perf. 7192'-7273'. T.D. 7354'. Plugged with cement 7354'-7280', 7082'-6802'±, 5680'-5635'±, 3100'±-2960'±, 2000'-1944'±, 457'-421'± and 27'-7' (junk in hole) 1½" tubing 6732'-6600'.

The operations were performed for the purpose of plugging the hole in the process of abandonment.

Mr. -- reported:

Inspector Hill was present at the well from 10:00 a.m. to 6:00 p.m. on September 3, 1964.

Mr. Elliston reported:

1. 1½" tubing was hanging at 7250'.

The Inspector noted:

1. The formation took 325 bbls of water before any returns at the surface were observed.
2. The 1½" tubing was stuck at 7250', however, continued circulation of water partially freed the tubing.
3. The 1½" tubing was pulled to 7082'.
4. On September 3, 1964, 50 sacks of cement was pumped into the hole through 1½" tubing hanging at 7082', calculated to fill to 6802'.

Inspector Hill was again present at the well from 11:30 a.m. to 2:00 p.m. on September 16, 1964.

Mr. Elliston reported:

1. The 1½" tubing was plugged with cement to 6600'.
2. Backed off 1½" tubing at 6600' and pulled to 5680'.
3. On September 9, 1964, 8 sacks of cement was pumped into the hole through 1½" tubing hanging at 5680', calculated to fill to 5635'.
4. On September 10, 1964, the fluid level was located at 3100'±, and 25 sacks of cement was dumped from the surface, calculated to fill from 3100'± to 2960'±.
5. The 7" casing was filled with dirt from 2960'± to 2000'.
6. On September 11, 1964, 10 sacks of cement was dumped from the surface, calculated to fill from 2000' to 1944'±.

E. R. MURRAY-AARON
State Oil and Gas Supervisor

By (Continued on Page 2) Deputy

86313 4-63 15M ② SPO

FORM 109-X
49124 9-61 1M SPO

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
or
Special Report on Operations Witnessed

No. T564-251

HUMBLE OIL & REFINING COMPANY

Well No. "Cheney Ranch" 2, Sec. 29, T. 14S, R. 13E, M D B. & M.

Mr. Elliston reported: (Continued)

7. The 7" casing was shot at 457' and was pulled from that depth.
8. The 11-3/4" casing was bridged at 457'.

The Inspector noted:

1. The fluid level was located at 435'.
2. On September 16, 1964, 20 sacks of cement was dumped from the surface, calculated to fill from 457' to 421'±.

Inspector Hill was again present at the well from 3:00 p.m. to 3:10 p.m. on September 22, 1964.

Mr. Elliston reported:

1. The 11-3/4" casing was filled with dirt to 27'.
2. A total of 12 sacks of cement was mixed and dumped on the bridge at 27', filling to 7'.

The Inspector noted that the 11-3/4" casing was filled with set cement at 7'.

THE CEMENTING OPERATIONS ARE APPROVED.

FLH:fd
cc: Company L A
P D Elliston

E. R. MURRAY-AARON,
E. H. MUSSER
State Oil and Gas Supervisor

By C. H. Colwell Deputy

FORM 111

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 564-299

Mr. C F Best
Route 5 Box 475
Bakersfield California

Coalinga Calif.
August 19 1964

Agent for HUMBLE OIL & REFINING COMPANY

DEAR SIR:

Your proposal to abandon Well No. "Cheney Ranch" 2, Section 29, T. 14S, R. 13E, M D B. & M., Cheney Ranch Field, Fresno County, dated Aug. 18, 1964, received Aug. 19, 1964, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

RECORDS IN ADDITION TO OR AT VARIANCE WITH THOSE SHOWN IN THE NOTICE:

5" ld. 7162'-7273', perf. 7192'-7273'.

THE NOTICE STATES:

"THE PRESENT CONDITION OF THE WELL IS:

1. Total Depth: 7354' Plugged Depth 7280'
2. Complete casing record, including plugs:
   11-3/4" 54# casing cemented at 538'
   7", 26# and 28# casing cemented at 7200'
   5", 20# slotted liner from 7168-7279'
3. Last Produced 10-23-51 1
   (Date) (Oil, B/D) (Water, B/D)"

PROPOSAL:

"THE PROPOSED WORK IS

The well is to be abandoned by Elliston Oil Well Servicing Co., 201 W. Stanislaus St, Avenal, Calif., as per letter attached."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The 5" liner and 7" casing shall be plugged with cement from 7273' to 7142'.
2. a. In the event the 7" casing is recovered below a depth of 1420', a 100-foot cement plug shall be placed from 1420' to 1320'.
   b. In the event the 7" casing is recovered above a depth of 1420', a 50-foot cement plug shall be placed on the 7" casing stub.
3. A cement plug shall be placed from 558' to 518'.
4. A 10-foot cement plug shall be placed in the 11-3/4" casing at the surface.
5. This Division shall be notified to witness:
   a. The clean out depth of 7273'.
   b. The location and hardness of the plug at 7142' or above.
   c. The placing of the cement plug from 1420' to 1320' or the placing of the 50' cement plug on the 7" casing stub.
   d. The placing of the cement plug at 558'.
   e. The location and hardness of the cement plug at 518'.
   f. The placing of the 10-foot cement surface plug.

NOTE: All unplugged portions of the hole shall be filled with heavy drilling fluid.

Blanket Bond
JCS:fd
cc: Company L A
P D Elliston

E. R. MURRAY-AARON, State Oil and Gas Supervisor

By C. H. Corwin, Deputy

79186 1-63 50M SPO

FORM 108. 20248 5-60 15M ④ SPO

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

P564-299

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin; one copy only

Bakersfield, Calif. August 18, 1964

DIVISION OF OIL AND GAS

In compliance with Division 3, Public Resources Code, notice is hereby given that it is our intention to abandon

Well No. "Cheney Ranch "2, Sec. 29, T. 14S,

R. 13E, M. D. B. & M., Panoche Creek (Cheney Ranch) Field, Fresno County,

commencing work on See letter attached. 19____.

THE PRESENT CONDITION OF THE WELL IS:

1. Total Depth: 7354' Plugged Depth 7280'

2. Complete casing record, including plugs:

11-3/4" 54# casing cemented at 538'.
7", 26# and 28# casing cemented at 7200'
5", 20# slotted liner from 7168-7279'

3. Last Produced 10-23-51 (Date) 1 (Oil, B/D) ____ (Water, B/D)

ADDITIONAL DATA FOR DRY HOLE

4. Oil or Gas showings and results of tests:

5. Stratigraphic markers and depths:

6. Formation at bottom:

7. Base of fresh water sands:

THE PROPOSED WORK IS

The well is to be abandoned by Ellison Oil Well Servicing Co., 201 W. Stanislaus St, Avenal, Calif., as per letter attached.

RECEIVED
AUG 19 1964
OIL & GAS DIVISION

Reference to file of data

Map			
	✓	✓	✓

HUMBLE OIL & REFINING COMPANY

P. O. Box 612
(Address)
Bakersfield, Calif. FA 5-0741
(Telephone No.)

(Name of Operator)
By [signature]

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

ELLISTON OIL WELL SERVICING CO.
201 WEST STANISLAUS STREET
P. O. BOX ~~536~~ 698
AVENAL, CALIFORNIA

August 15, 1964

Humble Oil & Refining Co.
P.O.Box 612
Bakersfield, California

Attention: Mr. C.F.Best

Dear Mr. Best:

This will confirm my verbal offer to abandon your Cheney Ranch Well #2, Sec. 29, T.14S, Rg. 13E. I will furnish rig, crew, and cement, clean out and place all plugs to the satisfaction of the Division of Oil & Gas. I will receive all salvage as payment for my work.

I will instruct my insurance carriers to send you Certificates of Insurance.

Very truly yours,

Elliston Oil Well Servicing Co.

by P. D. Elliston
P. D. Elliston

Form 136A

MEMORANDUM OF TELEPHONE OR PERSONAL CONVERSATION
(Proposed Well Operations)

Operator Humble Oil & Refin. Co. Well No. "Cheney Ranch" 1

Field Cheney Ranch Sec. 29 T. 14S R. 13E M.D. B&M

~~personal~~

A telephone conversation was held, concerning above well, with Mr. Kessler

Engineer for above operator May 28 1964, at 4:00 P M.

Details of the conversation were as follows:

Total depth 7354 Plugs

Casing record 11 3/4" cem. 538 ; 7" cem. 7200 ; 5½" ld. 7162'-7273'

perf. 7192'-7273

Oil or gas showings Producer

Results of tests

Stratigraphic markers

Geologic age at bottom Base of fresh water 1450'

Operator proposes the following work:

1. Plug off interval 7273'—7100' D.O.G. to witness Load hard.
2. Recover. Max. amount of 7" casing. Place plug from 1450-1350 or 50' stub plug depending on amount recovered. D.O.G. to witness placing
3. Plug shoe w/ 20' in & 20' out (558-518) D.O.G to check Loc. & hard.

Additional requirements outlined: 4. 10' cem. surf plug

Test of W.S.O. to be witnessed by D.O.G. at — By operator at —

Plugs to be located by D.O.G. at see above By operator at —

Notice to be filed immediately (X) Yes ( ) Not necessary

Other data

(Signed) John C Sullivan

Title

FORM 156

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

District 5

SAN FRANCISCO, CALIFORNIA

Date June 25 1952

REPORT OF PROPERTY AND WELL TRANSFER

Former Owner: Jergins Oil Company

Description and list of wells: Well No. "Cheney Ranch" 2

Sec. 29 , T. 14 S., R. 13 E. , M. D. B. & M., Fresno County. ~~Field,~~

New Owner: Monterey Oil Company ; date acquired: June 2 1952
Address: 1000 Jergins Trust Building
Long Beach 2 California

Request for designation of agent for not necessary
Name:
Address:

County should be sent to:

Reported by: Letter dated June 19, 1952, signed by W. O. Davidson, Sec. for Jergins Oil Company, and by Martin N. Erck, Asst-Sec. for Monterey Oil Company.
Confirmed by:

Type of organization: Corporation.
(Individual, partnership, corporation, etc.)

Our records are being changed accordingly.

Remarks: On June 2, 1952, Jergins Oil Company assigned its interest in the above well to Monterey Oil Company (70%) and Wilmington Associates, Inc. (30%). On June 2, 1952, Monterey Oil Company took over and assumed all of the operations.

Deputy Supervisor

cc: Conservation Committee

	INITIALS	DATE
Form 121		
New Well Cards		
Well Records		
Logs		
Production Reports		
M.E.R.		

50673 9-51 5M ② SPO

JERGINS OIL COMPANY

PRODUCERS OF PETROLEUM

JERGINS TRUST BUILDING

TELEPHONE 7-1231

LONG BEACH 2, CALIFORNIA

July 31, 1951

W. O. DAVIDSON
SECRETARY

State of California
Division of Oil and Gas
Coalinga, California

Attention: Mr. G. G. Peirce

Gentlemen:

In response to your letter of July 19, we wish to advise you that the correct location of our well No. "Cheney Ranch" 2, is 330' north and 990' east from the southwest corner of Section 29, T. 14 S., R. 13 E., M. D. B. & M.

Very truly yours,

JERGINS OIL COMPANY

W. O. Davidson

W. O. Davidson

WOD/rb

Coalinga California

July 19, 1951

Jergins Oil Company
1000 Jergins Trust Building
Long Beach 2 California

Dear Sir

In reviewing the records of your well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M.D. B. & M., I find that the location of the well as given on your notice to drill is 330' north and 990' east from the southwest corner of Section 29, whereas, the location as given in the final records is 330' north and 990' east from the west one-quarter corner of the section.

Please inform me which of the above locations is correct.

Yours truly

G. G. Peirce

G G PEIRCE
Deputy Supervisor
GGP/gh

FORM 109-B.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off

No. T 5-3012

Coalinga, Calif. January 14, 19 41

Mr. Harry A. Campbell
Motel El Rancho, Fresno, Calif.
Agent for JERGINS OIL COMPANY

PROSPECT WELL

DEAR SIR:

Your well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.,
XXXXX Field, in Fresno County, was tested for
shut-off of water on January 7 (Time and date), 19 41 Mr H. A. Campbell*,
designated by the supervisor, was present as prescribed in Section 19, Chapter 718, Statutes 1915, as amended, and there were also present T. McCarty, Superintendent for Jergins Oil Co.; E. R. Norris, Superintendent for Rowan & Richards, Contractor.

Location of water tested above 7200' and normal fluid level not reported

Depth and manner of water shut-off: 7200 ft. of 7 in. 26 & 28 lb. / ____ ft. of ____ in. ____ lb. } casing was { cemented / landed } 1/1/41 in shale (Formation)

at 7200 ft. with 300 sacks Victor h.t., o.w. cement by casing method.

Water string was landed in 10-5/8" rotary hole. (Size, rotary or cable tool)

Casing record of well 11-3/4" cem. 538'; 7" as above; Halliburton tester on 3½" drill pipe, packer at 7178', perf. tail and pressure bomb to 7195'. Drill pipe all empty.

Reported total depth of hole 7354 ft. Hole bridged w/c from 7203 ft. to 7210 ft. / Hole cleaned out to 7203 ft. for this test. and 7280'-7354'.

At time of test depth of hole measured see below ft. and bailer brought up sample of

At see below (Time and date) oil bailed to ____ ft., drilling fluid { bailed / swabbed } to ____ ft.

At " " (Time and date) top of oil found at ____ ft., top of fluid found at ____ ft

MR. CAMPBELL REPORTED:

1. The 7" casing was not tested.
2. 105' of set cement was drilled out of the 7" casing, equivalent to 19 sacks
3. A Halliburton tester was run as noted above.
4. The tester valve was opened at 5:15 p. m. and remained open for 65 minutes There was a fair blow of air for 1½ minutes. There was a fair blow of air for 1½ minutes, then dead for 48 minutes and slight pulsations for the remainder of the test.
5. The 3½" drill pipe contained a rise of 267' of fluid consisting of 167' o rotary mud fluid with some gas and 100' of very thick, slightly gassy mud on bottom.
6. The pressure bomb chart indicated that the tester valve was open during entire test.

THE SHUT-OFF IS APPROVED.

(Continued on page 2)

R. D. BUSH
State Oil and Gas Supervisor

By ____

FORM 109-X. 91197 9-40 8M
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
OR
Special Report on Operations Witnessed

No. T 5-3012
Page 2

JERGINS OIL COMPANY

Well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M.,

*This test was not witnessed by a member of this Division because no Inspector was available but was witnessed as noted above and the information furnished by Mr. H. A. Campbell, Engineer and Agent for Jergins Oil Company.

RGF:my
cc - Company, Long Beach

R. D. BUSH
State Oil and Gas Supervisor

By _____ Deputy

HIGHWAY 99 AT ROEDING PARK "CALIFORNIA'S FINEST MOTOR INN" FRESNO, CALIFORNIA

Jan 12 1941

Mr Wadd-

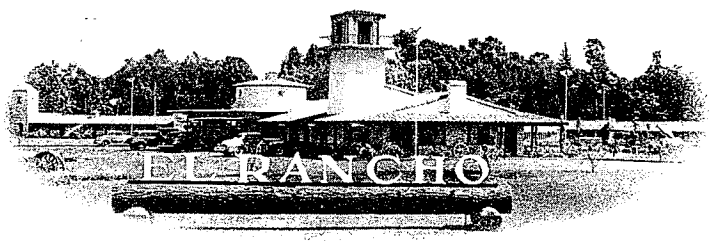
Dear Sir.

Since the WSO on 7" we drilled out to top of plug at 7280, finding 15' of cement below the test point at 7203.

We set 111' of 5" O.D. 20# liner including 81' of 80 Mesh perfs on bottom.

Circulated mud out thru tubing with Coalinga 29 g. crude. Well started flowing without swabbing but after 12 hour started making water and gas.

Analysis of water made proved to be same as water made in test below plugged point. Ran Lo Kate at which well was flowing thru casing which also showed water entry at 7280- Are now preparing to



HIGHWAY 99 AT ROEDING PARK "CALIFORNIA'S FINEST MOTOR INN" FRESNO, CALIFORNIA

pull liner, drill out old plug and re plug wont somewhat different method.

Am enclosing Schlumberga for your study. Another will be sent with history and log.

We have a good gas pressure and our concern now is to eliminate the water and prove a commercial well

Sincerely

Harry A Campbell

CULBERT L. OLSON
GOVERNOR

R. D. BUSH
STATE OIL AND GAS SUPERVISOR

H. V. DODD, DEPUTY

RICHARD SACHSE
DIRECTOR OF NATURAL RESOURCES

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

Coalinga, California
January 10, 1941

Mr. Harry Campbell, Agent
Jergins Oil Company
Motel El Rancho
Fresno, California

Dear Sir:

I have your letter of January 8, 1941, giving information relative to test of shut-off recently made at well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Fresno County. We shall need the following additional information in order to write our usual report on the test:

(1) Size and depth of the surface casing, stating whether it was cemented.

(2) Date of cementing the 7" casing.

(3) Amount of water cushion placed in the drill pipe for the test, if any.

(4) Description of the test made on the 7" casing before drilling out the cement. This will usually be a pressure test in which case we should like to know the amount of pressure applied to the inside, the time that it was held, and whether there was any loss.

Yours truly

H. V. Dodd

Deputy Supervisor

538' 11 3/4" 54# 315 Set Nov 24-40 Hole ½° off at 530'

7" Cmtd Jan 1 1941

None

3/8" bean at bottom

This was new seamless so no test was made. Pipe ran free and hole was never more than ½° off.

Harry A Campbell
Jan. 12 1941
Motel El Rancho
Fresno.

Notts El Rancho
Fresno Cal,
Jan 8 1941

Mr H V. Dodd
Deputy Supervisor
Division of Oil & Gas
Coalinga. Cal Re W.S.O. Fergus Oil Co. Cheney #2
Dear Mr Dodd

As per your letter of Jan 2, 1941 I have the following report to submit regarding the W.S.O Test on our well Cheney #2, Sec 29, Township 14 S. Range 13 E. M. D. B & M. Fresno Co. Cal.

The test was made Jan 7 1941 between 5:15 PM and 6:20 PM. The test was completed at 9:45 PM.

We set 7" at 7200' with the bottom 500' and the top 500' 28# while the balance of the string was 26#. It was cemented in shale with 300 Sax Victor Hetemp by Pacific. The hole was 10 5/8" Rotary.

The Halliburton Tester was run on 3½" Doheny-Stone Hydrill pipe with the packer at 7178 with 17' of Tail piece below including perforated pipe and pressure Bomb.

The Total drilled depth of the hole is 7354 with a Cement plug 7354 to 7280.

The 7" was landed at 7200' with a ten foot

bridge pumped out with the pipe at 7210. For this test the cement was drilled out to 7203', or 3' below the shoe.

105' of set cement was drilled out of the 7" casing equivalent to 19 sacks.

The valve was opened at 5:15 PM. and remained open for 1 hour and 5 minutes. There was a fair blow for the 1st 1½ minutes with no other blow until 6:05 when began slight pulsations of few seconds duration. These continues until the end of the test at 6:20 PM

There was fluid 267' above the valve which was fluid rotary mud with some gas. 100' above the valve, there was no fluid the mud being very thick and plastered on the interior walls of the pipe. 30' above the valve the mud was putty-like with some gas.

There was no other fluid in the pipe. It was evident that a small amount of gas was entering the hole, probably from the shale at the shoe or possibly from the sands below the plug.

The pressure bomb indicates that the pressure when the valve opened was 1900# but that this pressure gradually diminished until at the end of the test it was down to 600#. The fluid pressure before the

value opened was 3500#.

Those present beside the undersigned, were, Mr E R Norris Supt. for Rowan & Richards Mr T. McCarty Supt for Jergins Oil Co.

The test indicated to our satisfaction that the WSO on the 7" was good.

Yours Truly

Harry A Campbell, Engineer

Agent - Jergins Oil Co.

Coalinga, California
January 2, 1941

Mr. Harry Campbell, Agent
Jergins Oil Company
Motel El Rancho
Fresno, California

Dear Sir:

Confirming our telephone conversation of this morning:

It is my understanding that well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Fresno County, has been drilled to a total depth 7354' and plugged back to 7280' and that 7-5/8" casing is standing cemented on a bridge at 7200'. It is also my understanding that the 7-5/8" casing is cemented over a sand in the Cretaceous that appears to have possibilities for furnishing commercial production.

In view of the fact that this well is in wildcat territory a considerable distance from this office, you are hereby authorized to witness the test of shut-off as the representative of this Division. For the purpose of this test, the cement should be cleaned out to not more than 5 feet below the 7-5/8" casing shoe and the test made in the usual manner.

After the test has been completed, please supply me with complete details as to the result thereof. In order that you may know the type of information that we wish, I am enclosing two skeleton forms that we ordinarily use for gathering data in the field, marked "A" and "B". "A" is for use when the well flows during the test of shut-off and "B" is the type that we use for tests when there is no flow. Please do not attempt to use the forms as they are being sent to you merely for the purpose of showing the information needed. The actual information should be sent to this office in the form of a letter.

Also, please note that we wish the names, title, and company affiliation of two other persons that were also present at the test.

Yours truly

H. V. Meade

Deputy Supervisor

THIS SHEET IS TO BE PLACED IN THE FILE IN LIEU OF THE CORRESPONDENCE TO WHICH IT REFERS.

Well No. "Heney Ranch" 2

Sec., Twp., & Range 29-14N-13E

Company Jergens Rel Co

Correspondence file No.

Company

The following correspondence has been placed in

Correspondence File No. WK-"Heney Ranch" 1

Letter dated 1-3-41 et seq.

From-to Allen Jergens - N.V.N.

Subject Well standing cemented 12/31/40.

NOTE TO FILE CLERK: The left-hand heading, "Well No.", etc., should be used in the following cases, where the original letter is in the correspondence files or in the well records:

1. When correspondence refers to two or more wells. The original letter is placed in the first well file and this sheet in the other.

2. When it relates to drilling or other general policies, but contains information in regard to particular wells.

3. When it contains information not already in the well records, or which was not taken from the well records.

The right-hand heading should be used in such cases as the following:

1. When the correspondence covers two or more subjects, or where the classification is doubtful. File the original under the main subject, and use this sheet for the other subject reference.

CULBERT L. OLSON
GOVERNOR

R. D. BUSH
STATE OIL AND GAS SUPERVISOR

RICHARD SACHSE
DIRECTOR OF NATURAL RESOURCES

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS
FERRY BUILDING, SAN FRANCISCO

November 20, 1940.

Jergins Oil Company,
1000 Jergins Trust Bldg.,
Long Beach, Calif.

Gentlemen:

Pursuant to your request, your well No. "Cheney Ranch" 2, Sec. 29, T. 14 S., R. 13 E., M. D. B. & M., Fresno County, is hereby designated as a pr... well, as provided by Section 3218, Chapter 93, Statutes of 1939.

Yours truly,

R. D. Bush

State Oil and Gas Supervisor.

CC - Mr. H. V. Dodd

FORM 111.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Proposed Operations

No. P 5-5481

Coalinga, Calif. November 12, 1940

MR. Allen Jergins
1000 Jergins Trust Bldg.
Long Beach, Calif.

Vice President ~~Agent~~ for JERGINS OIL COMPANY

DEAR SIR:

Your proposal to drill Well No. "Cheney Ranch" 2,

Section 29, T. 14 S, R. 13 E., M.D. B. & M., xxxx Field, Fresno County,

dated Nov. 7, 1940, received Nov. 9, 1940, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The well is 330 feet N. and 990 feet E. from SW Corner Section 29
The elevation of the ground above sea level is 390 ± feet.
We estimate that the first productive oil or gas sand should be encountered at a depth of about 6700 ± feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
11 3/4	54	C	500'	Cemented *

* This is a prospect well and casing points and completion depth will depend on cores and electric log.
Well is to be drilled with rotary tools.
It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION:

This Division has no information as to the depth at which oil or gas bearing formations should be encountered at this location.

YOUR PROPOSAL IS APPROVED PROVIDED THAT:

1. The well shall not be located within 100' of any property line.
2. The 11-3/4" casing shall be cemented with sufficient cement to fill back of it from the shoe to the surface of the ground.
3. Water suitable for irrigation shall be protected from contamination.
4. Adequate blow-out prevention equipment shall be provided and ready for operation at all times.
5. Mud fluid of not less than 70 lb. per cubic foot shall be used in the drilling of the well, and the column of mud fluid shall be maintained to the surface at all times, particularly while pulling the drill pipe.
6. THIS DIVISION SHALL BE NOTIFIED:
   (a) When a showing of oil or gas is encountered.
   (b) Before landing or cementing any casing below the surface casing.
   (c) To witness a test of each water shut-off.

HVD:my
cc - Mr. Warren O'Kane

R. D. BUSH
State Oil and Gas Supervisor

By H. V. Dudd Deputy

1150
121

FORM 105. 70717 4-39 10M.
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

019 00191

Long Beach Calif. November 7 1940

DIVISION OF OIL AND GAS

Coalinga Calif.

PS-5481

In compliance with Section 17, Chapter 718, Statutes of 1915, as amended, notice is hereby given that it is our intention to commence the work of drilling well No. Cheney Ranch #2, Sec. 29, T. 14, R. 13, M.D. B. & M., Panoche Creek area Field, Fresno County.

Lease consists of 160

The well is 330 feet N. of ~~S.~~, and 990 feet E. of ~~W.~~ from SW Corner Section 29
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the ground above sea level is 390 ± feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 6700 ± feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
11 3/4	54	C	500'	Cemented
				*

* This is a prospect well and casing points and completion depth will depend on cores and electric log.

Well is to be drilled with rotary tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address 1000 Jergins Trust Building
Long Beach, California

Telephone number Long Beach 71231

JERGINS OIL COMPANY
(Name of Operator)

By A. Jergins
Vice-President

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

Name	Model	Cross Section	Cards	Forms 114	Forms 121
W M W B K & J				✓	✓

11/9/40

DIVISION OF OIL AND GAS
RECEIVED
NOV 9 - 1940
COALINGA, CALIFORNIA

Well Records for Artificial Penetration #4

England #1-31

(API No. 1900193)

FORM 159 (9-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Coalinga, California

September 29, 1964

Mr. P D Elliston
P O Box 536
Avenal California
Agent for ELLISTON OIL WELL SERVICING CO.

DEAR SIR:

L. M. LOCKHART
Your report of abandonment of Well No. "England" 1-31, Sec. 31, T. 14 S, R. 13E, M D B. & M., Cheney Ranch field, Fresno County, dated September 24, 1964, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have been fulfilled.

No Bond Required
FLH:fd
cc: Conservation Committee

E. R. MURRAY-AARON
Earl J. Musser
State Oil and Gas Supervisor

By C. H. Corwin
Deputy Supervisor

37864 3-61 5M SPO

MAP & BOOK

STATUS

Completed Producing _____
Recompleted Producing _____
Completed Abandoned _____
Uncompleted Abandoned ✓
Idle _____

RECORDS

Received Needed ✓

_____ Well Summary _____
✓ History _____
_____ Log & Core _____
___Lge___Sm Elec. Log(s)___Lge___Sm
_____ Direct. Survey _____
_____ Other _____

Location _____
Elevation _____
Release Bond No Bond Required
Hold Bond ____ Reason _____
Final letter ✓ 9/28/64
150b _____
170 _____
✓ 121 _____
card _____

OK
9-25-64
Z.M.

On Map

Form 19

FORM 103

SUBMIT IN DUPLICATE

STATE OF CALIFORNIA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

History of Oil or Gas Well

OPERATOR L. M. LOCKHART FIELD Cheney Ranch

Well No. "England" 1-31, Sec. 31, T. 14 S., R. 13 E., M. D. B. & M.

Date September 24, 1964 Signed P. D. Eccleston

Title Contractor

(Address) (Telephone Number) (President, Secretary or Agent)

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting and initial production data.

Date	
1964	
Sept. 22	The 5½" casing was cleaned out to 1045', where the bailer encountered heavy mud.
Sept. 22	6 sacks of cement was dumped into the hole beginning at 1045', calculated to fill to 987'±.
	The 5½" casing was shot at 792' and pulled to 782'.
	26 sacks of cement was dumped into the hole beginning at 794', calculated to fill to 744'±.
	The 5½" casing was pulled from the hole.
Sept. 23	33 sacks of cement was dumped into the hole beginning at 629', filling to 552'.
	The 14" casing was filled with dirt from 552' to 15'.
	A total of 14 sacks of cement was mixed and dumped on the bridge at 15', filling to 5'.

DIVISION OF OIL AND GAS
RECEIVED
SEP 25 1964
COALINGA, CALIFORNIA

FORM 109-D

CALIFORNIA RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Special Report on Operations Witnessed

No. T 564-256

Mr. P D Elliston
P O Box 536
Avenal, California

Coalinga Calif.
September 25 1964

Agent for ELLISTON OIL WELL SERVICING CO.

DEAR SIR: L. M. Lockhart

Operations at well No. "England" 1-31, Sec. 31, T. 14 S., R. 13 E., M.D. B & M. Cheney Ranch Field, in Fresno County, were witnessed on September 24, 1964. Mr. F. L. Hill, representative of the supervisor was present from 9:30 a.m. to 10:30 a.m. There were also present P. D. Elliston, Contractor

Present condition of well: 14" cem. 609'; 5½" cem. 10,038', four holes 10,017' W.S.O.; shot and recovered from 792'. T.D. 10,357'. Plugged with cement 10,286'-9880'±, 1045'-987'±, 794'-744'±, 689'-552', and 15'-5'.

The operations were performed for the purpose of plugging the hole in the process of abandonment.

Mr. ——— reported:

Inspector Hill was present at the well from 11:00 a.m. to 2:00 p.m., on September 23, 1964, and Mr. Elliston reported:

1. The 5½" casing was cleaned out to 1045' where very heavy mud was encountered.
2. On September 21, 1964, 6 sacks of cement was dumped into the hole beginning at 1045', calculated to fill to 987'.
3. The 5½" casing was shot at 792', and was pulled up to 782'.
4. A wooden plug was driven to 794'.

The Inspector noted that 26 sacks of cement was dumped into the hole beginning at 794', calculated to fill to 744'.

Inspector Hill was again present at the well from 9:30 a.m. to 10:30 a.m., on September 24, 1964, and Mr. Elliston reported that on September 24, 1964, 33 sacks of cement was dumped into the hole beginning at 629', filling to 552'.

The Inspector noted:

1. The bailer was spudded on a plug at 552' and brought up a sample of set cement.
2. The 14" casing was filled with dirt from 552' to 15'.
3. A total of 14 sacks of cement was mixed and dumped on the bridge at 15', filling to 5'.

THE CEMENTING OPERATIONS ARE APPROVED.

FLH:ef

E. R. MURRAY-AARON
State Oil and Gas Supervisor

By C. H. Conners Deputy

115

86313 4-63 15M ② SPO

FORM 111

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 564-310

Mr. P D Elliston
P O Box 536
Avenal California 93204
~~Agent~~ for ELLISTON OIL WELL SERVICING CO.

Coalinga Calif.
August 28 1964

DEAR SIR:

Your ~~supplementary~~ proposal to ~~abandon~~ / L. M. Lockhart Well No. "England" 1-31, Section 31, T. 14S., R. 13E., M.D.B. & M., Cheney Ranch Field, Fresno County, dated Aug. 28, 1964, received Aug. 28, 1964, has been examined in conjunction with records filed in this office. Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:
"The present condition of the well is as follows:
Total depth 10,357', plugged with cement 10,357'-9,880', and 10'-surface.
Complete casing record including plugs.
14" cem. 609'.
5½" cem. 10,038', four 3/8" holes 10,017' W.S.O. "

PROPOSAL:
"We now propose
Pull 5½" casing from as deep as possible.
If recovered from below 1400', place cement plug 1400'-1300'.
" " " above 1400', place 100' cement plug on the stub.
Cap 14" casing at the surface with 10' of cement."

DECISION:
THE PROPOSAL IS APPROVED.

9/21/64 Elliston/Cowin
C.O. 10415', encountered very heavy mud
Stuck bailer, but finally worked loose.
Will dump bail before shooting off 5½" csg.

No Bond Required
CHG:ef
2 cc: P D Elliston

E. R. MURRAY-AARON, State Oil and Gas Supervisor

By C. H. Cowin, Deputy

79186 1-63 50M SPO

FORM 123

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

Coalinga Calif. August 28 1964

DIVISION OF OIL AND GAS

Coalinga Calif.

A notice to you dated August 9, 1992, stating the intention to abandon / L. M. Lockhart well No. "England" 1-31
(Drill, deepen, redrill, abandon)

Sec. 31, T. 14 S., R. 13 E., M. D. B & M Cheney Ranch Field,

Fresno County, should be amended because of changed conditions.

The present condition of the well is as follows:

Total depth 10,357', plugged with cement 10,357'-9,880', and 10'-surface.

Complete casing record including plugs.

14" cem. 609'.
5½" cem. 10,038', four 3/8" holes 10,017' W.S.O.

We now propose

Pull 5½" casing from as deep as possible.
If recovered from below 1400', place cement plug 1400'-1300'.
" " " above 1400', place 100' cement plug on the stub.
Cap 14" casing at the surface with 10' of cement.

Reference to file of data

Map		Forms 114	Forms 121
		✓	

orig & 2cc to Elliston

(Address)

(Telephone No.)

Elliston Oil Well Servicing Co.
(Name of Operator)

By P. D. Elliston

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

96786 4-59 4M SPO

FORM 165

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

REPORT OF CORRECTION OR CANCELLATION

Coalinga California

May 22 1957

MR. P D Elliston
P O Box 536
Avenal California

For ELLISTON OIL WELL SERVICING CO.

Dear Sir

In accordance with your letter dated May 20, 1957,

the following change pertaining to ~~your well No.~~ L. M. Lockhart well No. "England" 1-31, Sec. 31, T. 14 S., R. 13 E., M. D. B. & M., ——— field, Fresno County, District No. 5, is being made in our records:

☐ The corrected location is

☐ The corrected elevation is

☐ Report No. , dated , has been corrected as follows:

☒ Your supplementary notice to abandon (Drill, abandon, etc.) dated May 6, 1953, and our report No. P 553-128, issued in answer thereto, are hereby cancelled inasmuch as the work will not be done. If you have a drilling bond on file covering this notice it will be returned. No request for such return is necessary.

☐ Other:

1952 Wildcat Visit

108 ✓
111 ✓
121 ✓

E. H. MUSSER
State Oil and Gas Supervisor

By C. H. Corwin
Deputy Supervisor

cc: Mrs J O England
Dept of Water Resources

52631 3-57 6250 SPO

TELEPHONE 509

P. O. BOX 536

ELLISTON OIL WELL SERVICING CO.

201 WEST STANISLAUS

AVENAL, CALIFORNIA

May 20, 1957

Division of Oil & Gas
California Department of Natural Resources
Coalinga, California

Gentlemen:

In answer to your letter of May 16, 1957 regarding my notice dated May 6, 1953 to pull casing from abandoned L.M. Lockhart well No. "England" 1-31, Sec. 31, T 14S., R 13 E., M.D.B.& M, Fresno County, I would like to cancel this request temporarily, as I am planning to submit a request to do some exploratory work in that well prior to pulling the casing, provided I can get a lease.

I will contact your office prior to my doing any work on the well.

Very truly yours,

Elliston Oil Well Servicing Co.

by P. D. Elliston

P. D. Elliston

Coalinga California

May 16 1957

Mr P D Elliston
Elliston Oil Well Servicing Co
P O Box 536
Avenal California

Dear Sir

Please refer to your notice dated May 6, 1953, to pull casing from abandoned L. M. Lockhart well No. "England" 1-31, Sec. 31, T. 14 S., R. 13 E., M. D. B. & M., Fresno County.

In the event that this work has not been started, and you do not plan to commence the work immediately, please furnish this office with a letter requesting cancellation of the notice.

Yours truly

C. H. Corwin

C H CORWIN
Deputy Supervisor

5/17/57 Elliston phoned. Plan to go into well soon. Estate problems. Will send in letter requesting cancellation. cf

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 553-128

Coalinga Calif. May 15 1953

Mr. P D Elliston

P O Box 536 Avenal Calif.

Agent for ELLISTON OIL WELL SERVICING CO.

Dear Sir:

Your supplementary proposal to abandon / L. M. Lockhart Well No. "England" 1-31,

Section 31, T. 14S., R. 13E., M. D.B. & M., ------ Field, Fresno County,

dated May 6, 1953, received May 14, 1953, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The present condition of the well is as follows:

1. Total depth. 10,357', plugged with cement 10,357'-9,880', and 10'- surface.
2. Complete casing record.
   14" cem. 609'
   5½" cem. 10,038', four 3/8" holes 10,017' W.S.O."

PROPOSAL:

"The proposed work is as follows:
Pull 5½" casing from as deep as possible.
If recovered from below 1400', place cement plug 1400'-1300'.
" " " above 1400', place 100' cement plug on the stub.
Cap 14" casing at the surface and turn well over to landowner for use as a water well."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT this Division shall be notified to witness the placing and location and hardness of the cement plug.

Location: 660 feet South and 660 feet East from center of Section 31.
The landowner, Mrs. John O. England, 649-45th Avenue, San Francisco 21, California, to whom the well has been quitclaimed, has requested in writing that the well be left in condition to convert to water.

No Bond Required
GGP:ef
cc: Mrs J O England
Division of Water Resources

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Terra Deputy

work not yet done 6-29-54
still plan to do it.

FORM 108. 57613 2-52 20M SPO

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Abandon Well

Supp. to

This notice must be given at least five days before work is to begin; one copy only

Coalinga Calif. May 6 1953

DIVISION OF OIL AND GAS

Coalinga Calif.

In compliance with Secs. 3228, 3229, 3230, 3231 and 3232, Ch. 93, Stat. 1939, notice is hereby given that it is our intention to abandon well No. L. M. Lockhart "England" 1-31

Sec. 31, T. 14 S., R. 13 E., M. D. B. & M. ----- Field,

Fresno County, commencing work on the ______ day of ______ 19__.

The present condition of the well is as follows:

1. Total depth. 10,357', plugged with cement 10,357'-9,880', and 10'- surface.

2. Complete casing record.

   14" cem. 609'.
   5½" cem. 10,038', four 3/8" holes 10,017' W.S.O.

3. Last produced. ______ Date ______ Net oil ______ Gravity ______ Cut

Cancelled 5/22/53

5-22-53 Dated 5-13-53

The proposed work is as follows:

Pull 5½" casing from as deep as possible.
If recovered from below 1400', place cement plug 1400'-1300'.
" " " above 1400', place 100' cement plug on the stub.
Cap 14" casing at the surface w/ 10' of cement and turn well over to landowner for use as a water well.

DIVISION OF OIL AND GAS
RECEIVED
MAY 14 1953
COALINGA, CALIFORNIA

Reference to file of data		
Map		
	✓	✓

Elliston Oil Well Servicing Co.
(Name of Operator)

By P. D. [signature]

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

May 4, 1953.

Division of Oil and Gas -- Attention Mr. Peirce:-
Elm Street
Coalinga, California

Dear Sir:-

We are owner of $Sec¼) of Sec 31- Township 14, South- Range 13 East. Mr. Lockhart has quick claimed the property back to us- "England No.#1."

We are selling the salvage- casing in the hole to Mr. Elliston's Company, the Oil Well Servicing Co. We want the well left in such condition so we can use it as a water well.

We appreciate Mr. Ellistons interest and thank you for any consideration in this matter.

Yours very truly,

Orlean England

Mrs. John O. England
649-45th Avenue
San Francisco, 21
California.

FORM 159 (9-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Coalinga, California, October 27, 1952

Mr M H Fuller Agent
L. M. Lockhart
Box 165
Burrel California

Dear Sir

Your report of abandonment of Well No. "England" 1-31,
Sec. 31, T. 14 S., R. 13 E., M. D. B. & M., ------ oil field,
Fresno County, dated October 11, 1952, has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division, which are based on all information filed with it, have been fulfilled.

Reference to file of data

Map		Cards	
10-29-52 GH		114	121
			✓

GMH:ef
Orig: Company, L.A.
cc: Mr M H Fuller

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Terrell
Deputy Supervisor

57615 2-52 12M SPO

AM 100. 54924 12-40 25M
(CALIFORNIA STATE PRINTING OFFICE)

SUBMIT LOG IN DUPLICATE

FILL THIS F[illegible]K IN WITH TYPEWRITER. WRITE ON ONE SIDE OF PAPER O[illegible]

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

LOG OF OIL OR GAS WELL

Operator L. M. LOCKHART Field ~~PANOCHE CREEK AREA~~, FRESNO COUNTY

Well No. "ENGLAND" 1-31 Sec. 31, T. 14 S., R. 13 E., M. D. B. & M.

Location 660' S. AND 660' E. FROM CENTER OF SECTION 31 - 14/13. Elevation of ~~derrick floor~~ ground above sea level 406.6 feet. K.B. 419.1'

In compliance with the provisions of Chapter 93, Statutes of 1939, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Date October 11, 1952 Signed [signature] Title Auditor.

Glenn M. Earl (Engineer or Geologist) M. H. FULLER (Superintendent) (President, Secretary or Agent)

Commenced drilling NOV. 27 - 1950 Completed drilling MARCH 19 - 1951 Drilling tools ~~Cable~~ Rotary

Total depth 10,357 Plugged depth SURFACE

Junk

GEOLOGICAL MARKERS — DEPTH

Commenced producing NO PRODUCTION (date) Flowing/gas lift/pumping (cross out unnecessary words)

NOTE: WELL SUSPENDED @ 4-12-51. (SEE SUPPLEMENTARY NOTICE TO D.O.G. DATED 4-10-51).

	Clean Oil bbl. per day	Gravity Clean Oil	Per Cent Water including emulsion	Gas Mcf. per day	Tubing Pressure	Casing Pressure
Initial production						
Production after 30 days						

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Casing landed in	Number of Sacks of Cement	Depth of Cementing if through perforations
14"	609'	SURFACE	47.54#	NEW	SMLS.	SJ	20"	700	
5-1/2"	10,038'	"	20# &	"	"	N-80 &	7-5/8"	300	
			17#			J-55			

PERFORATIONS

Size of Casing	~~From~~ AT	To	Size of Perforations	Number of Rows	Distance Between Centers	~~Method of Perforations~~
5-1/2"	10,017 ft.	ft.	4-3/8" holes gun perforated for W.S.O.			Cmtd. Off.
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				
	ft.	ft.				

Electrical Log Depths RECORDED FROM 10,359' - 609'. (Attach Copy of Log)

loam 103

DIVISION OF OIL & GAS

HISTORY OF OIL OR GAS WELL

Operator : L.M. Lockhart — Panoche Creek Area - Fresno County

Well: "England" 1-31 — Sec. 31 - T14S - R13E - MDB&M.

Date : October 11, 1952 — Signed : Glenn M. Earl.

Title : ENGINEER

Location: 660' S. and 660' E. from center of Section 31 - 14/13.

NOTE: All depth measurements from Kelly Bushings.
Elevations: Ground 406.6' (Surveyed). K.B. 419.1'

Glenn M. Earl, Engr. - M. H. Fuller, Lockhart Supt.
Fowler Drilling Co., Contractor - O.D. Chase, Supt. - Waldrip Mast.

Casing & Hole Record:

14" 47.54# New Smls. SJ Csg. cmtd. w/700 sax cmt. at 609' in 20" hole.
10-5/8" hole 609' - 7425'. (Changed from 4-1/2" to 3-1/2" drill-pipe at 7425!)
9-7/8" hole 7425' - 10,033'.
7-5/8" hole 10,033' - 10,357' (Total Depth)
5-1/2" 20# N-80 & 17# J-55 New Smls. Csg. cmtd. w/300 sax cmt. at 10,038'.

DATE	REMARKS
1950	
11-11	Surveyed Location - Andersen Surveyors, Fresno.
11-16	Grading out sump; digging cellar; building road.
11-17	Pouring concrete for cellar. Laying concrete matte for sub-base and Waldrip Mast. Lee Boyd, Contractor. 22" conductor pipe. 80 yards concrete.
11-20	Installed water line. Sump completed.
11-22	Moving Fowler Drilling Co. equipment from Burrel to location "England" 1-31.
11-23	Finished moving equipment from well "Burrel" 1-28. Rigging up.
11-24	Rigging up. Installed water pump.
11-25	Rigging up. Hauled 661' of 14" 47.54# surface csg. (16 joints). 14" Bradenhead.
11-26	Rigging up.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1950

11-27 Drilled rat-hole in sticky clay. Spudded in at 2:00 P.M, Nov. 27, 1950.
Drilled 20" hole to 255' with Smith Reamer Bit.
EASTMAN Single Shot Survey at 100' @ 1/4°.
" " " " " 200' @ 1/4°.

11-28 Drilled 20" hole 255' to 609'.
Survey at 300' @ 1° 00'
" " 400' @ 0° 50'
" " 500' @ 1° 00'
" " 600' @ 1° 30'

Started to run 14" surface csg. but pipe would not go after 2 joints run. Pulled the 2 joints of casing - balled up with mud at shoe. Ran in hole with 20" Smith Reamer, reamed hole to bottom, and conditioned mud.

11-29 Ran 15 joints of 14" 47.54# new seamless slip-joint casing equipped with Halliburton Float Shoe. Total pipe 613'. Casing landed at 609' and cemented with 700 sax Permanente Type-C Construction Cement treated with 2 sax Flocele. Mixing time 23 minutes. Displaced cement with 585 cu. ft. drilling fluid. Displacement time 38 minutes. Recovered approximately 120 sax cement to surface. Rotated casing thruout cementing operations. Halliburton Power Equipment and bulk cement. Job completed 2:45 A.M.

Standing cmtd. Landed 14" surface csg. and installed Shaffer B.O.P. equipment. Tested Double Control Shaffer Gate w/1000# for 5 minutes. OK.

11-30 Ran in hole with 10-5/8" bit on 4-1/2" drill-pipe and found top of cement in 14" csg. at 597'. Drilled out cmt. plug, and shoe at 609'. Tested B.O.P. with 1000# for 15 minutes. Test OK. Changed mud.

Drilled 10-5/8" hole 609' - 1218'.
Survey at 750' @ 1° 30'
" " 850' @ 1° 00'
" " 980' @ 1° 30'
" " 1090' @ 0° 45'

12-1 Drilled 10-5/8" hole 1218' - 1511'.
Survey at 1280' @ 0° 10'.
" " 1380' @ 0° 30'.

Jumped a pin at 1511' and left a sub and two 6-3/4" drill-collars in hole. Ran Baash-Ross Socket and recovered fish on 3rd run.

Started taking Shaker Screen Samples at 1500' - every 30 feet.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1950

12-2 Drilled 10-5/8" hole 1511' - 2084'.

Survey at 1480' @ 1° 00'
" " 1580' @ 0° 50'
" " 1680' @ 0° 50'
" " 1780' @ 1° 00'
" " 1900' @ 0° 30'
" " 2025' @ 0° 35'

Pulled out of hole at 2084' to run 12-1/4" Hole Opener and open hole from 10-5/8" to 12-1/4" so that 8-5/8" casing could be run. Security 12-1/4" Hole Opener would not go thru nipple above B.O.P. Tried 12-1/4" Security rock bit and it would not go thru.

Ran in with 10-5/8" bit and drilled 2084'-2088'.

12-3 Drilled 10-5/8" hole 2088' - 2835'. (Taking drift shots inside drill-pipe with Eastman Single Shot Survey Instrument approximately every 100'.)

Survey at 2125' @ 0° 35'
" " 2230' @ 0° 45'
" " 2335' @ 0° 45'
" " 2445' @ 0° 30'
" " 2595' @ 0° 45'
" " 2744' @ 0° 30'

Used four 10-5/8" rock bits from 609' to 2775'.
NOTE: Began making Time Log at 2730': minutes per 10' of hole drilled.

12-4 Drilled 10-5/8" hole 2835' - 3224'.

Survey at 2835' @ 0° 45'
" " 2963' @ 0° 45'
" " 3063' @ 0° 50'
" " 3180' @ 1° 20'

12-5 Drilled 10-5/8" hole 3224' - 3470'.

Survey at 3296' @ 1° 00'.
" " 3400' @ 1° 15'.

Used seven 10-5/8" rock bits from 609' to 3470'; from shoe of surface casing to approximate Top Kreyenhagen Shale.

12-6 Drilled 10-5/8" hole 3470' - 3597'. Survey at 3500' @ 1° 05'.

Took CORE No. 1 from 3597' - 3615'; Dunlap Conventional Core Barrel; 8-1/2" Drag Head. Reamed out 8-1/2" rat-hole to 10-5/8" from 3597' to 3615'.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1950

12-7 Drilled 10-5/8" hole 3615' - 4020'.
Survey at 3620' @ 1° 00'
" " 3734' @ 1° 00'
" " 3836' @ 0° 50'
" " 3940' @ 0° 55'

Taking Shaker Screen Samples every 30 feet.

12-8 Drilled 10-5/8" hole 4020' - 4350'.
Mud weight 75 - 77 #
Viscosity 43 - 45
Survey at 4075' @ 1° 00'
" " 4185' @ 1° 15'
" " 4300' @ 0° 55'

12-9 Drilled 10-5/8" hole 4350' - 4630'.
Mud weight 75 - 78 #
Viscosity 43 - 48
Sand Content 2 to 3%
Survey at 4405' @ 1° 00'
" " 4510' @ 0° 35'
" " 4608' @ 0° 55'

12-10 Drilled 10-5/8" hole 4630' - 4754'.
Survey at 4710' @ 0° 35'.
Cored 8-1/2" hole 4754' - 4774' with Dunlop Conventional Bbl. @ 4-way drag head.

Drilling with two 6-3/4" and two 7-3/4" drill-collars; total length 164.74'.
Weight on bit 3 to 4 tons; 175 - 200 r.p.m.; 800-900 psi pump pressure.
4-1/2" full-hole drill-pipe. Hughes OSC-3 and Smith 2-cone bits.

12-11 Cored 8-1/2" hole 4774' - 4787' with same tools as above.
Opened up 8-1/2" rat-hole 4754'-4787' to 10-5/8".
Drilled 10-5/8" hole 4787' - 4950'.
Survey at 4820' @ 1° 00'.

12-12 Drilled 10-5/8" hole 4950' - 5150'.
Measured out of hole. Corrected Measurements 5143'. Ran in hole with new 10-5/8" rock bit; found tight hole at 4970'; reamed to bottom @ 5143'.
Survey at 4950' @ 1° 00'.
" " 5073' @ 0° 50'.

12-13 Drilled 10-5/8" hole 5143' - 5387' (244').
Survey at 5182' @ 0° 45'.
" " 5300' @ 1° 30'.

12-14 Drilled 10-5/8" hole 5387' - 5451.55'.
Survey at 5413' @ 0° 30'.

Ran Schlumberger Electrical Log and checked bottom @ 5451', and recorded from 5450' - 609'. Ran Schlumberger Sidewall Sampler; recovered 16 samples from interval 5350' - 2695'.

Drilled 10-5/8" hole 5451' - 5480'.

L. M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1950

12-15 Drilled 10-5/8" hole 5486 - 5636' (156'). Survey at 5514' @ 1° - 30'.
" " 5630' @ 0° - 40'

12-16 Drilled 10-5/8" hole 5636' - 5895' (259'). Survey at 5713' @ 0° 00' (?).
" " 5844' @ 1° 00'.

12-17 Drilled 10-5/8" hole 5895' - 6110' (215') Survey at 5953' @ 0° 35'.
" " 6085' @ 0° 00'.

12-18 Drilled 10-5/8" hole 6110' - 6140'. Cored 8-1/2" hole from 6140' - 6172'. Coring with Dunlap Wire-line core barrel, 8-1/2" four-way drag head.

12-19 Cored 8-1/2" hole 6172' - 6202'. Opened up 8-1/2" rat-hole 6140' to 6202' to 10-5/8". Drilled 10-5/8" hole 6202' - 6263'. Survey at 6263' @ 2° 00'.

12-20 Drilled 10-5/8" hole 6263' - 6410' (147'). Survey at 6380' @ 2° 10'. Ran in hole with Hughes Two-Cone bit at 6387' in endeavor to straighten hole after above coring.

12-21 Drilled 10-5/8" hole 6410' - 6556' (146'). Survey at 6500' @ 2° 30'.

12-22 Drilled 10-5/8" hole 6556' - 6647' (91'). Survey at 6598' @ 1° 30'. Using Hughes LW3 Two-Cone bit.

12-23 Drilled 10-5/8" hole 6647' - 6704' (57'). Survey at 6686' @ 1° 30'.

Installed Model-B Automatic Well Gas Detector in flow line. (Mfg. by Petroleum Instrument Co., 2200 W. Alabama, Houston, Texas.) Welded Detector to flow line.

Macco mud tests at 6686': Weight 74-1/2#; Viscosity 55; Filtrate @ 30 minutes @ 7.2 c.c. water loss; Filter cake 2/32"; Sheer - Initial 0, Shear - 10 minute 7; Sand Content @ % X Volume 1.5. Mud has good test properties.

12-24 Drilled 10-5/8" hole 6704' - 6730'. Shut down rig at 8:00 A.M. @ X-MAS.

12-25 Depth 6730'. Rig shut down. Watchman mixed mud and kept hole full.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1950

12-26 Started operating rig at 8:00 A.M. Went in hole with Smith K2-P rock bit; circulated and conditioned mud; reamed tight spots; reamed 300' of tight hole at bottom with the Smith cross-section bit; circulated and conditioned mud from bottom at 6730'.

Drilled 10-5/8" hole 6730' - 6733' in 2-1/2 hours before midnight.

Adjusted Gas Detector and started it operating.

12-27 Drilled 10-5/8" hole 6733' - 6791' (58').

Replaced Emsco Tail Clutch.

12-28 Drilled 10-5/8" hole 6791' - 6938' (147'). Survey at 6800' @ 1° 05'.
" " 6920' @ 1° 00'.

12-29 Drilled 10-5/8" hole 6938' - 7070' (132'). Survey at 7030' @ 0° 55'.

Macco mud tests at 6979': Weight 75#; Filtrate @ 30 minutes @ 8.5 c.c. water loss; Filter cake 2/32"; Shear - Initial 0, Shear 10 minutes 6; Sand Content 1.7%. Sulphates in drilling water 50 g/g, Salt 20 g/g.

12-30 Drilled 10-5/8" hole 7070' - 7090'. Circulated and checked intensity reading on Gas Detector. Measured out of hole: Corrected Measurement 7091.68'.

Ran 2nd Run Schlumberger Electrical Log and could not get below 6976'. Recorded from 6975' to 5450'.

Ran in hole with Dunlap wire-line core barrel equipped with Hughes 8-1/2" rock head. Cored 8-1/2" hole 7091' - 7111'.

12-31 Cored 8-1/2" hole 7111' to 7124'. Pulled out to make Open Hole Formation Test of interval 7112' - 7124' in 8-1/2" rat-hole. Depth of well @ 7124'.

(7112'-7124') FORMATION TEST NO. 1. Ran Johnston Formation Tester on 4-1/2" full-hole drill-pipe. Tester equipped with 4-1/2" Sufliff Hydraulic Jars and Homco 4-1/2" Safety Joint. Used 2 - 8" x 2 7/8" x 30" straight wall packers. Set packers at 7103' and 7112' with 12' of 5-1/2" anchor. No water cushion used. Tester valve with 1/2" bean opened at 12:01 p.m. & remained open for 40 minutes. 1/4" bean at top. Packers held OK with only 1-1/2' loss of fluid during test. There was a medium steady blow of air after 1 minute, which continued with gas to surface in 14 minutes, which continued during the remaining 25 min. of test with no increase in blow. Recovered a fluid rise of 15', consisting of slightly gas-cut medium drilling fluid. No salt water. The 2 pressure bomb charts indicated tool operated properly, the tester valve being open during the entire test. Pulled tester and ran back with Dunlop 8-1/2" wire-line core-bbl. with new Hughes rock head.

Cored 8-1/2" hole 7124' - 7126'.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

1-1 Cored 8-½" hole 7126' - 7150'. Pulled out of hole to make Open Hole Formation Test of interval 7104'-7150' in 8-½" rat-hole. Depth of well @ 7150'.

(7104'-7150') **FORMATION TEST NO. 2.** Ran Johnston Formation Tester on 4-½" full-hole drill-pipe. Used Sutliff Hydraulic Jars & 4-½" Homco Safety Joint. Two 8" x 2-7/8" x 30" straight wall packers were set at 7095' & 7104' with 46' of 5-½" anchor. No water cushion used. Tester valve with ¾" bean was opened at 4:00 p.m. Flow period @ 1 hour. Shut-in period @ 15 minutes. Packers set 1 hour & 15 min. & held OK. There was a medium, steady blow for 1 hour. Gas to surface in 22 minutes and continued for remainder of the hour. Recovered 2000 feet of fluid of which the top 180' was slightly gas-cut medium drilling fluid, and the remaining 1820' consisting of salt water. The 2 pressure bomb charts indicated the tool operated properly. The charts showed a flow pressure of 1000# at the end of the 1 hour flow period. During the 15 min. shut-in period, the pressure rose abruptly to 3100# and had fairly well leveled off at 3300# at the end. Pulled & broke down Tester Tools. Ran in hole w/8-½" Dunlap w/L Core Bbl. Reamed and cleaned out from 7140' - 7150'.

1-2 Cored 8-½" hole 7150' - 7240'.

1-3 Ran in hole with 10-5/8" rock bit and opened up 8-½" core-hole to 10-5/8" from 7091' to 7240'.

Survey at 7240' @ 1° 00'.

Drilled 8-½" hole with Hughes OSC-3 rock bit 7240' - 7299'.

1-4 Drilled 8-½" hole 7299' - 7344'.

Ran 3rd Run Schlumberger Electrical Log and found bottom at 7339'. Recorded from 7338' to 6975'. Ran Schlumberger Sidewall Sampler and recovered 10 samples from interval 7303' - 5488'.

Installed heavy duty Rotary Table, and put in new floor around table.

Ran in hole with Hughes 10-5/8" OSC-3 bit and opened up 8-½" hole from 7240' to 7262'.

1-5 Finished opening up 8-½" hole @ 7262' - 7344'. Drilled 10-5/8" hole @ 7344' - 7425'.

Survey at 7384' @ 1° 05'.

Started laying down 4-½" drill-pipe.

1-6 Finished laying down 4-½" drill-pipe. Made up string of 3-½" Reed & Hydrill drill-pipe and ran in hole with 9-7/8" Hughes OSC-3 bit.

Drilled 9-7/8" hole 7425' - 7435'. Hole reduced from 10-5/8" to 9-7/8" at 7425'.

1-7 Drilled 9-7/8" hole 7435' - 7500'. Pulled out. Changed drill-pipe rams from 4-½" to 3-½" on B.O.P. Picked up 8-½" Dunlap wire-line core bbl. and started measuring in hole.

Form 103

L. M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

1-8 Finished measuring in hole. Corrected measurement @ 7499'. Could not break circulation to core. Pulled pipe and found inner barrel stuck in the 3-½" Hydrill drill-pipe. Layed down W/L core 661.

Ran in hole with 8-½" Dunlap Conventional Core Barrel with rock head. Cored 8-½" hole @ 7499' - 7519. Core No. 33. Pulled pipe. Depth of well 7519.

1-9 (7480'-7519') FORMATION TEST NO. 3 (MIS-RUN)

Ran in hole with Johnston Formation Tester on 3-½" Reed drill-pipe to make Open Hole Formation Test of interval 7480'-7519'. The 9" packer stopped 50' off bottom at 7469'. Pulled J.F.T. Ran in 9-⅞" bit and reamed tight hole 7450'-7499'. Opened up 8-½" core-hole 7499'-7519' to 9-⅞". Circulated hole clean and conditioned mud. Pulled pipe and made up J.F.T. to test interval 7480'-7519'. Depth of well 7519'.

1-10 FORMATION TEST NO. 3-A (7480'-7519')

Ran Johnston Formation Tester on Reed 3-½" I.F. drill-pipe. Sutliff Hydraulic Jars & Homco Safety Joint. Two 9" x 2-⅞" x 30" straight wall packers. Set packer at 7480' w/39' of 5-½" drill-collar anchor to 7519'. No water cushion used. Tester valve with ¾" bean was opened at 2:15 AM. Packers set 2 hours, 30 minutes. Flow period 2 hrs., 15 min. Shut-in period 15 min. There was a light blow of air to surface in 1 minute, which continued in a light steady blow from 2:16 AM to 2:45 AM. At 2:45 AM, gas to surface in a light blow; gas burned with a 2-foot flame; continuous light blow of gas with weak heads from 2:45 AM to 3:45 AM. At 3:45 AM, fluid to surface, consisting of medium drilling-mud fluid flowing in regular heads. Well flowed fluid in regular heads at estimated 125 bbl/d rate from 3:45 AM to 4:30 AM. At 4:30 AM, fluid had thinned down to watery drilling fluid and muddy water, and was beginning to taste salty (estimated @ 400 g/g). Made shut-in pressure test from 4:30 AM to 4:45 AM.

Pulled tester. The 2 pressure bomb charts indicated tool operated properly.

Ran in hole w/Hughes OSC bit, reamed to bottom, and drilled 9-⅞" hole @ 7519'-7586'.

1-11 Drilled 9-⅞" hole @ 7586'-7685' (99').

1-12 Drilled 9-⅞" hole @ 7685'-7775' (90').

1-13 Drilled 9-⅞" hole @ 7775'-7843' (68'). Survey at 7813' @ 1°00'.

1-14 Drilled 9-⅞" hole @ 7843'-7896' (53'). Survey at 7896' @ 1°00'.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

1-15 Drilled 9-7/8" hole 7896' - 7899' (3').
Rotary table broke down; bearing race retainer broken. Pulled out of hole at 7:30 A.M. Dismantled and repaired rotary table. Started in hole at 10:00 P.M. with Smith 2-Cone bit.

1-16 Drilled 9-7/8" hole 7899' - 7955' (56'). Smith 2-cone bit drilled from 7896' - 7930' (34') and was pulled dull. Ran in at 7930' with Reed LT Type rock bit.

1-17 Drilled 9-7/8" hole 7955' - 8107' (152'). Survey at 8107' @ 1° 00'.

1-18 Drilled 9-7/8" hole 8107' - 8274' (167').

1-19 Drilled 9-7/8" hole 8274' - 8377' (103'). Survey at 8277' @ 0° 35'.

Macco mud analysis by Clem Thompson:

Depth: 8280' (Reaming to bottom at time of test).
Weight: 80-1/2 lbs/cu.ft.
Viscosity: 1500/Qt. @ 130 (Mud had not been conditioned).
Filtrate: 30 min. @ 10.5 c.c. water loss.
Filter cake 3/32"
Shear: Initial 0
" : 10 min. 6.5
Sand Content: 4.5%
Salt: 150 gr./gal.
NOTE: Sand content is up. Salt content is up from 20 gr./gallon @ Jan. 5, 1951 to 150 gr./gal. today.

1-20 Drilled 9-7/8" hole 8377' - 8442' (65'). Measured out of hole @ 8406'; used corrected measurement @ 8411'. Re-lined brakes.

1-21 Drilled 9-7/8" hole 8442' - 8513'. Made Run No. 4 @ Schlumberger Electrical Log to 8503', & recorded 8502' - 7338'. No sidewall samples taken.
Drilled 9-7/8" hole 8513' - 8518'.

1-22 Drilled 9-7/8" hole 8518' - 8593'. Made trip & changed bits.

1-23 Drilled 9-7/8" hole 8593' - 8637'. Survey at 8637' @ 1° 00'.

1-24 Drilled 9-7/8" hole 8637' - 8704'.

1-25 Drilled 9-7/8" hole 8704' - 8760'.

L. M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

1-26	Drilled 9-7/8" hole 8760' - 8795'.	Survey at 8781' @ 1°30'.
1-27	Drilled 9-7/8" hole 8795' - 8833'.	
1-28	Drilled 9-7/8" hole 8833' - 8857'.	
1-29	Drilled 9-7/8" hole 8857' - 8909'.	
1-30	Drilled 9-7/8" hole 8909' - 8954'.	Survey at 8921' @ 1°45'
1-31	Drilled 9-7/8" hole 8954 - 8985'.	Took wire-line cores in interval 8985' - 8995'.
2-1	Cored 7-5/8" hole 8995' - 9007'. Reamed core-hole (8985' - 9007') to 9-7/8" & drilled 9-7/8" hole 9007' - 9022'.	
2-2	Drilled 9-7/8" hole 9022' - 9068'.	
2-3	Drilled 9-7/8" hole 9068' - 9125'.	
2-4	Drilled 9-7/8" hole 9125' - 9165'.	Survey at 9165' @ 1°45'.
2-5	Drilled 9-7/8" hole 9165' - 9209'.	
2-6	Drilled 9-7/8" hole 9209' - 9261'.	
2-7	Drilled 9-7/8" hole 9261' - 9305'.	Survey at 9305' @ 1°00'.
2-8	Drilled 9-7/8" hole 9305' - 9351'.	
2-9	Drilled 9-7/8" hole 9351' - 9413'.	Flow-line mud temperature @ 138°.
2-10	Drilled 9-7/8" hole 9413' - 9474'.	Eastman D.P.S.S. Survey @ 9426' @ 0°30'.
2-11	Drilled 9-7/8" hole 9474' - 9511'. Measured out of hole: Corrected Measurement 9504'. Ran Run No. 5 @ Schlumberger Electrical Log & found bottom at 9504'. Recorded from 9503' up to 8502'.	
2-12	Drilled 9-7/8" hole 9504' - 9558'.	
2-13	Drilled 9-7/8" hole 9558' - 9590'.	Survey at 9570' @ 1°00'.
2-14	Drilled 9-7/8" hole 9590' - 9635'.	
2-15	Drilled 9-7/8" hole 9635' - 9674'.	
2-16	Drilled 9-7/8" hole 9674' - 9707'.	
2-17	Drilled 9-7/8" hole 9707' - 9738'.	Survey at 9711 @ 1°00'.
2-18	Drilled 9-7/8" hole 9738' - 9784'.	

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Well History (Cont'd.)

1951

2-19 Cored 7-5/8" hole 9784' - 9807'. Dunlap wire-line; Hunt Bbl; 7-5/8" Hughes rock head.

2-20 " " " 9807' - 9827'. " " " " " " "

2-21 " " " 9827' - 9836'. " " " " " " "

Ran in hole w/Hughes 7-5/8" rock bit & drilled @ 9836' - 9849'.

2-22 Drilled 7-5/8" hole 9849' - 9903'.

2-23 Cored 7-5/8" hole 9903' - 9938'. Dunlop W/L; Hunt Bbl.; Hughes rock head.

2-24 " " " 9938' - 10,002'. " " " " " " "

2-25 " " " 10,002' - 10,011' As above. Pulled out of hole to run Schlumberger and found 7-5/8" rock core head badly worn and all 4 cutters missing.

Ran Run No. 6 Schlumberger Electrical Log & found bottom @ 10,008'. Recorded 10,007' - 9503'. Ran McCullough Magnetic Fishing Tool to recover rollers from core head. Stuck tool coming out of hole at 6594'. Pulled wire-line loose and came out of hole; leaving body of Magnet, approximately 3' in length, in hole.

2-26 Installed new drilling line and measured in hole w/McCullough overshot. Tool would not go below 3000'; hole too tight. Pulled out & ran Security 9-7/8" Hole Opener to 6592' where top of fish located. Tried to knock magnet loose, where apparently key-seated where hole has greatest deviation of 2-1/2°. Hole rough. Pulled pipe. Made up Baker Expansion Scraper with 12-1/2" blades.

2-27 Ran in hole w/scraper and was unable to open same. Pulled out and made up new scraper. Ran in and scraped above fish and below fish to 6599'. Pulled out & made up Security Hole Opener. Ran hole opener to 6600', cleaned out bridge 6600' to 6620', and reamed 9-7/8" hole to 7704'.

2-28 Reamed 9-7/8" hole 7704' - 9784'. Opened up 7-5/8" rat-hole 9784'-9835' to 9-7/8" w/Security Hole Opener. Fish apparently dropped to bottom.

3-1 Opened 7-5/8" hole to 9-7/8" from 9835' to 9857'. Pulled out and ran back with 9-7/8" Hughes OSC-2 bit.

3-2 Opened 7-5/8" hole to 9-7/8" from 9857' to 9995'. 9-7/8" X 7-5/8" shoulder at 9995'.

3-3 Pulled out of hole and ran back with McCullough Socket. Fishing for McCullough Magnet at 10,006'. Pulled out of hole. Recovered Magnet. Broke down McCullough Tools. Made up 7-1/4" Globe Basket and ran in hole to fish for cutters from Core Bbl. head.

3-4 Reamed down to 10,007' with Basket & tried to pick up cones. Pulled out. No recovery. Ran in w/Hughes 7-5/8" bit & reamed tight hole 10,000' - 10,007'. Conditioned mud & pulled out. Made up 7-1/4" Globe Junk Basket & ran in hole. Drilled 10,007' - 10,008' w/Basket. Pulled out. No recovery cones or core.

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WELL HISTORY (Cont'd.)

1951

3-5 Serviced Basket & ran back in hole. Drilled 10,008' - 10,009.50' with Basket. Recovered 2-½ cones. Ran in w/ Hughes OSC 7-⅝" bit and hit junk at 10,010'.

Found 2 pieces of junk above bit cones.

3-6 Drilled & worked junk w/ 7-⅝" bit 10,010' - 10,013' and pulled out. Ran in hole w/ 7-¼" Globe Junk Basket, and cored 10,013' - 10,015' with Basket. Pulled Basket & recovered 1.5' hard gray sandstone. (See Core No. 69-A). Made up 7-⅝" Dunlop Wire-Line Core Bbl. and ran in hole. Conditioned mud.

3-7 Cored 7-⅝" hole 10,015' - 10,025'. Cored on junk first 5' (10,015'-10,020'). Pulled core-bbl & ran 7-⅝" Hughes OSC bit. Drilled 7-⅝" hole 10,025-10,036'.

3-8 Drilled 7-⅝" hole 10,036' - 10,085'.

3-9 Drilled 7-⅝" hole 10,085' - 10,125'. Ran Dunlop 7-⅝" Core Barrel and cored from 10,125' - 10,145'. (Wire-line, rock head).

3-10 Cored 7-⅝" hole 10,145' - 10,165'. Made trip.

3-11 Cored 7-⅝" hole 10,165' - 10,202'. Circulated & conditioned hole for Electrical Log. Ran Schlumberger & checked Drillers' bottom @ 10,202'. Recorded from 10,201' up to 10,007' @ SCHLUMBERGER RUN NO. 7. Ran Schlumberger Microlog and recorded from 10,200' up to 9730'. Device did not register properly. Results N.G. Did not re-run Microlog.

3-12 Ran to bottom w/ 7-⅝" bit. Struck bridge at 10,147' and cleaned out to bottom @ 10,202'. Circulated & conditioned mud. Pulled out. Ran Homco Sidewall Sampler and took sidewall samples in interval 10,119' - 10,088'.

3-13 Took Homco side-wall samples in intervals 10,082' - 10,045' & 10,177' - 10,124'.

Ran in hole w/ 7-⅝" Dunlop Core Bbl. Circulated and cleaned out 10,164' - 10,202' (bottom). Circulated, added new mud, and conditioned hole for formation test. Pulled pipe. Depth of well @ 10,202'. To make open hole formation test in 7-⅝" rat-hole of interval @ 10,142' - 10,202'.

3-14 ## FORMATION TEST NO. 4 (10,142' - 10,202')

Ran Johnston Formation Tester on Reed 3-½" I.F. drill-pipe. 4-½" Sutliff Hydraulic Jars & 4-½" Homco Safety Joint. Two 7" x 2-⅞" x 30" straight wall packers set at 10,133' & 10,142' with 60' of 4-¼" drill collar anchor to 10,202'. Used 1200' of fresh water cushion. Tester valve with ½" bean was opened at 11:14 AM and remained open 1 hour. There was an immediate weak steady blow decreasing to dead in 9 minutes @ 11:23 AM. Dead for 5 minutes. At 11:28 AM, a weak steady blow of air again, increasing to a fair steady blow at 11:35 AM. From 11:35 AM to 12:14 PM, a fair blow with long heads. No gas to surface. Recovered 240' net rise of medium, gassy drilling fluid; no free water. The 2 pressure bomb aberts indicated tool operated properly.

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WELL HISTORY (Cont'd.)

1951

3-15 Ran in w/Dunlap 7-5/8" wire-line core-bbl. and cored interval 10,202' - 10,253'.

3-16 Cored 7-5/8" hole @ 10,253' - 10,297'. Conditioned mud & hole for formation test of interval 10,202' - 10,297'. Pulled pipe.

3-17 ### FORMATION TEST No. 5 (10,202' - 10,297')

Ran Johnston Formation Tester on 3-1/2" full-hole D.P., 4-1/2" Sutliff Hydraulic jars & 4-1/2" Homco Safety Joint. 1300' of fresh-water cushion. Set two 7" x 2-7/8" x 30" straight wall packers at 10,193' & 10,202' with 95' of anchor to bottom @ 10,297'. Tester valve with 1/2" bean on bottom was opened at 7:42 AM. There was a medium, steady blow for 5 minutes; then fluid began dropping in annulus as packer started to leak. Attempted to re-set packer during which time (7:47 AM to 7:50 AM) fluid went away at an increased rate; may have opened equalizing valve in this operation. At 7:50 AM closed shut-in valve to take B.H. closed-in pressure. Let stand 5 minutes. At 7:55 AM opened equalizing valve; and then pulled packers loose, requiring a 160 ton pull. Charts indicated a 5 minute flow period with a pressure rise to 950# during that interval. (700# p.s.i. water cushion indicated on charts.) Packers may have been set in fractured rock and fluid leaked around packers thru fractures.

Recovered a net rise of 660' of very gas-cut fluffy oily mud. Gas bubbled and fumed at top of fluid and blew mud fluid out of drill-pipe, cleaning out 1-1/2 to 2 stands at a time. No free or salt water in net rise in drill-pipe or in tool.

Ran in hole with 7-5/8" Dunlap wireline core-bbl. Conditioned mud.

3-18 Cored 7-5/8" hole @ 10,297' - 10,342'.

3-19 Cored 7-5/8" hole @ 10,342' - 10,357'. TOTAL DEPTH OF WELL @ 10,357'. Conditioned mud and hole. Pulled out. Tested B.O.P. - OK. To make open-hole formation test of interval 10,297' - 10,357' in 7-5/8" rat-hole.

FORMATION TEST No. 6 (10,297' - 10,357')

" Ran Johnston Formation Tester on 3-1/2" F.H. drill-pipe, equipped as above. 1500' fresh-water cushion. Set double straight hole packer at 10,297' & 10,288', with 60' of 4-1/4" drill-collar anchor to bottom at 10,357'. Tester valve with 1/2" bean was opened at 6:05 PM & remained open 1 hour. There was a medium steady blow for 13 minutes, then dead for 5 min., then a light steady blow for remainder of test. Closed valve at 7:05 PM and took SHUT-IN pressure for 10 minutes. Packers set 1 hour, 10 min. Recovered 4-1/2 stands (405') net rise of gas-cut drilling fluid. Medium salty taste; tested 750 grains per gallon. Pressure bomb charts indicated tool operated properly and did not plug.

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WELL HISTORY (Cont'd.)

1951

3-20 Ran to bottom w/7-5/8" bit. Circulated and conditioned mud for Electrical Log. Salinity of mud @ 50 grains per gallon.

Made SCHLUMBERGER ELECTRICAL LOG RUN NO. 8. Recorded from 10,359' to 9,960' (See Field Print).
TOTAL DEPTH OF WELL @ Schlumberger 10,360'.
" " " " @ Driller 10,357'.

Started back in hole w/open-end drill-pipe to place cement plug in bottom.

3-21 Ran open-end drill-pipe to 10,297'. Circulated & conditioned mud for plug job. With open-end drill-pipe hanging at 10,286' - mixed and pumped in 50 sax Permanente Hi-Temp. Cement, using 50 cu. ft. water ahead and 10 cu. ft. water behind. Displaced cement with 420 cu. ft. of drilling fluid. Halliburton Power Equipment. Job completed at 10:00 AM. Pulled out of hole. Ran in hole w/drill-collar and Hughes 7-5/8" OSC rock bit. After 12 hours felt for plug with bit at 10:00 PM. Found cement stringers at 10,123'; took 2 to 3 tons weight. Found set cement at 10,135'; took 6 tons weight.

3-22 FORMATION TEST NO. 7 (10,034'-10,135') MIS-RUN

Circulated & conditioned mud from 10' above plug for open-hole formation test in 7-5/8" rat-hole from 10,034' to top of cement plug at 10,135'. Ran Johnston Tester on 3-1/2" F.H. drill-pipe. 1200' fresh-water cushion. Used double straight hole packer with bottom of packer at 10,034'. 101' of anchor to 10,135'. Tried to set packer at 10,034'. Dropped bar to open valve and cement plug gave way when valve opened. Packer slid down hole & would not hold. Pulled tester.

3-23 Ran in hole w/drill-pipe & 7-5/8" bit & cleaned out cement from 10,129' to 10,203'. Circulated and conditioned mud & hole for another plug job. Pulled pipe.

With open-end drill-pipe hanging at 10,203', pumped in and displaced 25 sax modified cement with Halliburton Power Equipment. Cement in place 3:00 P.M. Standing cemented.

3-24 Ran in hole with two 5-3/4" drill-collars & 7-5/8" Hughes OSC rock bit. At 3:00 AM felt for plug. Found cement at 10,140' which pumped away. Cleaned out to 10,150'. At 7:00 P.M. set weight on cement plug at 10,150'. Held 25,000#.

L.M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

3-28 In hole w/9-7/8" bit. Reamed tight hole 7450' - 7709'. Reamed 9-7/8" hole to 8372'.

3-29 Reamed tight 9-7/8" hole 8372'--8491'. Opened up 7-5/8" hole from 9995' to 10,033'. Circulated & conditioned mud to run 5-1/2" casing.

" Ran 231 Joints 5-1/2" Casing as follows:

1966' of 20# N-80 8TR on Bottom.
8076' of 17# J-55 8TR including 1 Jt. 20# N-80 on top.
10,042' = Total Pipe on Hook with shoe at 10,038'.
Float Collar at 9993'

3-30 Cemented with 300 sax Permanente Modified Cement. Mixing Time 16 minutes. Used 2 Top Rubber plugs. Displaced with 1293 cubic feet drilling fluid. Displaced 93 cubic feet over normal computed displacement. Displacement time 39 minutes. Final Pressure 500#. Job completed 1:45 AM, 3-30-51. Halliburton Power Equipment and Bulk Cement. Casing Centralizing Guides were set at 10,029.50', 10,008.80', and 9992.00'.

3-31 Standing Cmt'd. Landed 5-1/2" csg. Installed B.O.P.

4-1 Laying down 3-1/2" drill-pipe. Making up 2-3/8" tubing.

4-2 Ran in hole with 4-1/2" Hughes Tricone Bit on 2-3/8" tbg. Broke circ. at 3900', 6400', & 7400'. Found rubber plugs at 9992'. Drilled out plugs and F.C. to 9994'. Drilled out cement to 10,030'. Tested casing & B.O.P. with 800# for 15 minutes. OK.

4-3 Shot 4-3/8" holes at 10,017' in 5-1/2" csg. w/McCullough 3-1/2" Mech. Gun perforator for W.S.O. Test.

W.S.O. TEST: Ran Johnston Formation Tester on 2-3/8" tubing with 1395' of fresh-water cushion. Packer was set at 9947' w/tailpiece to 9964. Tester valve with 1/2" bean was opened at 7:29 AM and remained open 1 hour. There was a light steady blow for 16 minutes, and then light heads for the remainder of test. Recovered a net rise of 3099' of gassy drilling fluid. Fluid was very gassy and would occasionally unload, blowing 60 to 70 feet into the air. The pressure bomb charts indicated the tester valve was open during the entire test. Water shut-off test was witnessed and approved by Mr. G.W. Hunter of the Division of Oil & Gas, Coalinga.

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WELL HISTORY (Cont'd.)

1951

4-3 (Cont'd.) Ran in hole w/4-½" Hughes Tricone rock bit on 2-⅜" tbg. Found top cmt. at 10,029'. Drilled out cmt. to shoe found at 10,038'. 2' of cmt. below shoe. Cleaned out to top of cement plug (new bottom) which was located at 10,169.' Circulated & conditioned mud.

4-4 Circ. & conditioned mud midnight to 8:00 A.M. Ran 2-⅜" tbg. & landed shoe at 10,020'. Removed B.O.P. and installed X-mas tree. Changed mud to fresh water. Circulated well with fresh water.

4-5 Swabbed well beginning at 10:00 A.M. At 5:00 P.M. swabbing from 5960'; fluid level 4760'; no fluid rise.

Removed X-mas tree; flanged up B.O.P.; checked open hole to bottom w/tubing - OK. Removed B.O.P. and installed X-mas tree. Swabbing.

4-6 Swabbed from midnight to 9:30 A.M. when fluid level 4474' & swabbing from 5474'. Removed X-mas tree & flanged up B.O.P. Changed water to mud.

Hung open-end tbg. at 10,167'. Mixed and pumped in 50 sax modified cement. Displaced with 214 cu. ft. drilling fluid. Top of plug approx. 9880'. Job completed 7:30 P.M. by Halliburton Cementers.

4-7 Left 5-½" casing in place as cemented with Braden-head level with top of cellar.

Hole filled w/heavy drilling fluid from 9880' to surface.

4-12-51 Bolted steel plate over top of casing at surface. Suspended well in above condition.

2-21-52 Plugged top 10' of casing with cement.

Welded steel plate over top of casing.

10-11-52 Well is abondoned.

Form 103

L. M. Lockhart "England" 1-31

WELL HISTORY (Cont'd.)

1951

3-25 **FORMATION TEST No. 8 (10,049' - 10,150') MIS-RUN**

Ran Johnston Formation Tester on 3-½" F.H. drill-pipe to make open hole test in 7-⅝" rat-hole. 1200' fresh-water cushion. 2 side-wall packers at 10,040' & 10,049' with 101' of D.C. anchor to top of cmt. plug at 10,150'. Packers failed to hold.

" **FORMATION TEST No. 9 (10,041' - 10,150') MIS-RUN**

Ran J.F.T. as above. 1200' fresh water cushion. 2 side-wall packers at 10,032' & 10,041' with 109' of D.C. anchor to top of cement plug at 10,150'. Plug slid down to 10,166'; then packers failed to hold.

3-26 Ran in hole w/7-⅝" bit to 10,166'. Conditioned mud & hole:—
Mud Weight 85-88#. Viscosity 60-75 seconds.
Sand Content 2%. Water Loss 8 c.c. Cake Thickness 2/32.

" **FORMATION TEST No. 10 (10,013' - 10,166') MIS-RUN**

Ran J.F.T. on 3-½" D.P. 1200' fresh-water cushion. 2 side-wall packers at 10,004' & 10,013' with 153' of D.C. anchor to top of cmt. plug at 10,166'. Packers failed to hold. Pulled tester.

3-27 Ran in hole w/7-⅝" bit & conditioned mud to 85# & 50 Vis. Measured in and found top of cement plug at 10,163' Corr. Meas.

" **FORMATION TEST No. 11 (10,002' - 10,163') MIS-RUN**

Ran J.F.T. on 3-½" D.P. ½" bean. 1200' fresh water cushion. 2 side-wall packers at 9993' & 10,002' with 161' of D.C. anchor to top of cement plug at 10,163' (Corrected Measurement). Fluid dropped in annulus. Packers would not hold.

L.M. LOCKHART "England" #1-31 Section 31-14S/13E (MDBM)
Panoche Creek-Cheney Ranch Area

Location: 660' S. and 660' E. of center of Section Elevation: 419 (K.B.)

CORE DESCRIPTION

Core #1
3597-3615
19'

Rec. 19'
Siltstone, medium brown, hard, weathers to crumbly, medium gray poker-chip shale, rough hackly fracture, massive, rare light brown inclusions, indicating ±6° dips, common forams, Dentalina, et al, scattered fish scales, rare echinoid spines, no petroleum shows.

Core #2
3615-4774

Missing.

Core #3
4774-4787
6"

Rec. 2'
Sandstone, medium gray, fine grained, massive, very hard, cemented, very common micas, tight, no petroleum shows.

1'6"

Silt, light-medium gray, very coarse, massive, very soft, friable, micro-micaceous, scattered larger crenulated biotite, very poor porosity and permeability, no petroleum shows.

4787-6140

Core gap - drilled.

Core #4
6140-6150
2'

Rec. 5'
Sand, very light grey, fine grained, very silty, kaolinitic, massive, firm-friable, fairly poor porosity and permeability, no petroleum shows.

3'

Shale, medium to dark brownish grey, soft, very brittle and easily fragmented into wafer thin fragments, very silty, rare pyrite, forams.

Core #5
6150-6160
6"

Rec. 10'
Sand, as in last core but mixed with drilling mud.

9'6"

Shale, as in base last core, rare well preserved plant remains, local numerous large forams, Siphogenerinoides, scattered small forams, one possible ostracod valve.

Core #6
6160-6170
10'

Rec. 10'
Shale, same, with rare 3"-4" Sand (same) streak with rare 57° dipping calcite veins. Sand is friable, very light to light grey with brownish cast, no petroleum shows, poor porosity and permeability.

Core #7
6170-6180
10'

Rec. 10'
Shale, same.

Core #8
6180-6190
9'

Rec. 9'
Shale, same.

Core #9
6190-6200
10'
Rec. 10'
Shale, similar to above, medium-dark brown to brownish grey, platy to locally wafer parting, floods of large forams (?), local common Dentalina to nearly 1/2" long, scattered large fish scales and remains, rare sandy streaks showing 4° dips.

Core #10
6200-6202
1'
Rec. 1'
Shale, same.

6202-7091 Drilled interval, core gap.

Core #11
7091-7096
Rec. Frags.
Fragments Sand, light grey, scattered medium, friable, very silty, scattered biotite, poor porosity and permeability, no petroleum shows.

Core #12
7096-7106
9'
Rec. 9'
Sand, medium to light grey, firmly friable to hard, fine grained, fair sorting, local scattered medium and rare coarse grains, silty, massive, fairly poor sorting, sub-angular grains, quartzose, scattered credulated biotite, rare pyrite, fairly low porosity and permeability, no petroleum shows.

Core #13
7106-7116
9'
Rec. 9'
Sand, medium grey, fine with scattered medium grained, very silty, difficultly friable to firm-friable, massive with local interbeds of siltstone, dark grey, biscuit parting, to 5° poor dips, common forams, hard, poor porosity and permeability, no odor, stain or cut.

Core #14
7116-7124
8'
Rec. 8'
Sand, as above.

Core #15
7124-7129
5'
Rec. 5'
Sand, same.

Core #16
7129-7134
5'
Rec. 5'
Sand, same, becoming friable, kaolinitic, very poor porosity and permeability.

Core #17
7134-7139
6'
Rec. 6'
Sand, same.

Core #18
7139-7144
6'
Rec. 6'
Sand, same, friable to hard, local very carbonaceous streaks with fairly good 10° dips, no shows.

Core #19
7144-7150
6'
Rec. 6'
Sand, same, with local interbeds to 1' of siltstone, as above, fair 5° dips, no shows.

Core #20
7150-7155 — Missing.

Core #21
7155-7160
5' — Rec. 5'
Sand, same, no siltstone, no shows.

Core #22
7160-7165
3' — Rec. 3'
Ditto.

Core #23
7165-7170
3' — Rec. 3'
Ditto.

Core #24
7170-7175
5' — Rec. 5'
Ditto.

Core #25
7175-7180
2½' — Rec. 2½'
Ditto, becoming slightly coarser grained and cleaner, fairly poor porosity and permeability.

Core #26
7180-7185
5' — Rec. 5'
Sand, same as cores above - Core #26 (7180-7185)

Core #27
7185-7195
10' — Rec. 10'
Sand, same, with rare interbeds of very hard carbonaceous siltstone, dirty dark brown to black, fracture surfaces show 80% of surface = carbonaceous fragments to 3/8" rounded and to 1⅛" elongate fragments with matrix of sandy silt, cemented, massive, scattered to locally abundant micro-micaceous, Sand = very low porosity and permeability, no shows.

Core #28
7195-7205
10' — Rec. 10'
Sand, as in above cores, rare streaks of siltstone, dark grey, massive, dipping 6-8°; becoming very kaolinitic and altered biotite, very poor porosity and permeability, no shows.

Core #29
7205-7215
7' — Rec. 7'
Sand, same, local biscuit parting.

Core #30
7215-7220
1½' — Rec. 6'
4½' — Sandstone Shell.
Sand, same.

Core #31
7220-30
11' — Rec. 11'
Sand, same with local interbeds and laminations of siltstone, dark gray, micro-micaceous, dips very wavy, nearly flat, no shows.

Core #32
7230-7240 — Sand and Silt interbeds, same, Siltstone locally shows common fish scales and arenaceous forams.

7240-7499 Core gap - drilled.

Core #33
7499-7519 Rec. 6'
6' Sand, light grey, medium and fine grained, difficultly friable to local hard, massive, broken, silty, fairly poor sorting, sub-angular grains, scattered biotite and green grains, rare small clot dark brown petroleum residue, fairly tight, no odor, stain or cut.

Cores #34 & #35 - Missing.

Core #36
8995-8997 Rec. Frags.
Fragments Sand, light grey, very fine, very firm, silty, well sorted, fairly tight and siltstone, medium grey.

Core #37
8997-9002 Rec. 3'
1' Sand, as last core.
2' Siltstone, as last core, medium grey, hard, fragmented, rare forams?

Core #38
9002-9007 Rec. Frags.
Fragments Siltstone, same.

Core #39
9007-9787 Missing.

Core #40
9787-9793 Rec. Fragments
Fragments Siltstone, dark grey, very hard, locally very fine sandy, wavy laminations.

Cores #41 thru #44 - Missing.

Core #45
9810-9813 Rec. 3'
3' Laminated Sand, stone light grey, very fine grained, nearly silt, finely laminated with nearly black carbonaceous material, wavy dips give 0° to 5° dips, very hard, very tight, no shows.

Core #46
9813-9816 Rec. 3'
3' Laminated Sandstone, same, dips nearly flat to locally nearly 20°, tight.

Core #47
9816-9821 Missing.

Core #48
9821-9827 Rec. 3'
3' Siltstone, dark gray, massive with local wavy laminations ±4°, very hard to locally crumbly.

Core #49
9827-9830 Rec. 2'
2' Siltstone, same, laminations are very fine sand, light grey, as in Cores #45 & #46.

Core #50
9830-9836 Rec. 5'
5' Ditto.

Cores #51 & #52 Missing

Core #53
9912-9915 Rec. 1'
1' Sand, light to medium grey, fine with scattered medium, silty, massive, local thin beds siltstone as above, tight.

Core #54 Missing.

Core #55
9920-9925 Rec. 1'
1' Sand, medium grey, fine and scattered medium, massive, difficultly friable to hard, very common biotite crenulated, rare white muscovite, fairly poor sorting, sub-angular grains, silty, tight, no shows.

Core #56
9925-9930 Rec. 2'
2' Sand, same.

Core #57 Missing.

Core #58
9935-9938 Rec. 2'
2' Sand, same.

Core #59
9938-9940 Rec. 1'
1' Sand, same but friable.

Core #60
9940-9946 Rec. 6'
6' Sand, same, but very fine grained and fine, firm-friable to hard, locally very common crenulated biotite, rare streaks dark brown siltstone, tight.

Core #61
9946-9956 Rec. 4'
4' Siltstone, dark grey, hard, brittle, massive, scattered brown biotite, rare streaks light grey sand as above, dips nearly flat.

Core #62
9956-61 Rec. 3'
3' Sand, as above cores with rare streaks siltstone.

Core #63 Missing.

Core #64
9966-9971 Rec. 5'
5' Sand, same.

Core #65 Missing.

Core #66
9978-9988 Rec. 5'
5' Sand, similar to above, medium grey, fine with medium grains, difficultly friable to hard, massive with rare wavy nondiagnostic dip, very biotite, tight, locally somewhat cemented, no shows.

Core #67
9988-9998 Rec. 1'
1' Sand, same, one silty streak gives poor 4-8° dip.

Core #68
9998-10,008 Rec. 4'
4' Siltstone, dark grey, very hard, locally sandy, very gilsonitic locally, rare amber material, locally very wavy streaks of light grey coarse siltstone, dips very poor ±8-10° - locally interbedded with sand, medium grey, fine with scattered medium, very firm to hard, somewhat silty, massive, very common biotite, very low porosity and permeability, no petroleum shows.

Core #69
10008-10011 Rec. frags.
Sand and Siltstone, as above.

Core #70 Missing.

Core #71
10020-10025 Rec. 1'
1' Siltstone, medium grey, hard, dense, with rare fragments sand, same as Core #68.

10025-10125 Core gap - drilled.

Core #72
10125-10130 Rec. 3'
3' Sand, as above but hard, nearly tight.

Core #73
10130-10135 Rec. 5'
5' Sand, same.

Core #74
10135-10145 Rec. 3'
3' Sand, same but locally difficultly friable, interbedded locally with silt, same.

Core #75
10145-10150 Rec. 3'
3' Sandstone, as above but very hard, cemented, tight, core flashed for 3 seconds, one foot flash.

Core #76
10150-10155 Rec. 3'
3' Sand, same.

Core #77
10155-10165 Rec. 8'
8' Sand, same but not cemented, very poor porosity and permeability with local interbeds of siltstone, dark grey - (see above). 10" flash 4 sec. burn.

Core #78
10165-10175 Rec. 2'
2' Laminated Sand and Silt, same, but tight.

Core #79
10175-10182 Rec. 1'
1' Ditto, tight, 25 sec. 2' flash, poor 5° dips.

Core #80
10182-10187 Rec. 3'
3' Sand, medium gray, fine grained with scattered medium, fairly poor sorting, sub-angular grains, massive, hard, very common crenulated biotite, rare beds siltstone, dark gray, hard, massive, very fine abundant micro-micaceous, no petroleum shows except good flash.

Core #81
10187-10197 Rec. 3'
3' Sand, same, with local siltstone streaks, same, good dips = 5°, rare clots siltstone, same, good 15 sec. flash, no other shows.

Core #82
10197-10202 Rec. 3'
3' Sand and Silt, same, no flash, one yellow stain at bottom of core.

Cores #83, 84 - Missing.

Core #85
10217-10218 Rec. 1'
1' Siltstone, dark grey, very hard, massive, very micro-micaceous, local sand grains, good 15 second flash.

Core #86
10218-10223 Rec. 4½'
4½' Siltstone, same, no flash.

Core #87
10223-10232 Rec. 8'
1' Sand, light grey to medium brown where very biotitic, silty, very fine grained, locally approaching silt, hard, massive but locally very wavy, dips average about 10°, hard, difficultly friable, kaolinitic, very poor porosity and permeability.
4' Siltstone, as above cores, local 10° partings.
1' Siltstone, light grey, coarse, approaches very fine sand, kaolinitic, hard to difficultly friable, very biotitic, local scattered pink and green grains, tight, no odor, stain or cut.
2' Siltstone, same as 4' above, no flash.

Core #88
10232-10242 Rec. 8'
8' Interbedded dark grey siltstone and light grey coarse siltstone to very silty sand, very kaolinitic, local dips appear fair, to 8°, locally core is very carbonaceous, locally clotted light and dark gray silt. Bottles containing very fine silty sand, same, at 10234, 10236 and 10240, no odors, 15 sec. flash, no petroleum odor or stain.

Core #89
10242-10252 Rec. 5'
5' Ditto, as above, one bottle of fine silty sand from 10251, no odor, 25 sec. flash, no petroleum odors or stain.

Core #90
10252-10253 Rec. 2' (Pickup ?)
2' Sandstone, light-medium gray, fine grained, cemented, massive, very hard, 10 sec. flash.

Core #91
10253-10258 Rec. 1'
1' Siltstone, dark gray, local carbonaceous, micro-micaceous, hard, massive, no flash.

Core #92
10258-10264 Rec. 2'
2' Sand, with local beds siltstone, same as Core #88 (10232-42), no flash.

Core #93
10264-10274 Rec. 4'
4' Sand, same, flashed.

Core #94
10274-10279 Rec. 1'
1' Sand, same.

Core #95
10279-10289 Rec. 5'
5' Ditto.

Core #96
10289-10297 Rec. 1'
1' Ditto.

Core #97
10297-10302 Rec. frags.
Sand, same.

Core #98 Missing.

Core #99
10307-10309 Rec. frags.
Ditto.

Core #100
10309-10317 Rec. 3'
3' Ditto.

Core #101
10317-10327 Rec. 6"
6" Ditto.

Core #102
10327-10332 Rec. 1"
1" Nubbins, ditto.

Core #103
10332-10342 Rec. 3'
3' Ditto, with rare beds siltstone, same.

Core #104
10342-10352 Rec. 6'
6' Sand, ditto, with interbeds of Siltstone, same, light 10 sec. flash.

Core #105
10352-10357 Rec. 2'
2' Siltstone, with rare beds light greyish silt, 20 sec. flash, bottled streak sand at bottom Core #105 in bottle (10357), no odor.

HOMCO SIDEWALL SAMPLES

(No petroleum shows unless otherwise indicated)

#11	10,045	R. 3" fine gray silty sand, no odor.
#10	10,059	Rec. 3" Ditto
#9	10,064	Rec. 5" fine, silty, medium grey sand, good kerosene odor, no apparent stain.
#8	10,070	Rec. 3" fine silty medium grey sand, no odor.
#7	10,075	Rec. 2½" Ditto.
#6	10,082	Rec. 3" Ditto.
#5	10,088	Rec. 3" Ditto, sand, hard, very tight.
#4	10,096	Rec. 3" Ditto, as above.
#3	10,100	Rec. 2½" Sand, fine medium grey, name, no odor.
#2	10,115	Rec. 3" Sand, same.
#1	10,119	Rec. 3" Sand, same.
A-3	10,124	Rec. 5" Sand, same, fair Kerosene odor.
A-2	10,143	Rec. 3" Ditto, faint kerosene to light petroleum odor.
A-1	10,177	Rec. 5" Sand, same, faint to doubtful odor.

L.M. LOCKHART "England" #1-31 Section 31-14S/13E (MDBM)

SCHLUMBERGER SIDEWALL SAMPLES

2695 Rec. ½" silty clayey Sand, medium green, no petroleum odor.

2732 Silty Sand, very fine grained, light-medium green, well sorted, pebbly, firm, very low porosity and permeability, no shows.

2737 Ditto, last above.

2778 Silty Sand, greenish, mixed with limonitic brown silt.

3200 Siltstone, medium grey, firm-friable.

3225 Siltstone, medium brown.

4304 Sand, light grey, fine grained, scattered rounded coarse, very friable, fair porosity and permeability, silty, no odor.

4330 Siltstone, light greenish grey, massive.

4508 Medium-dark green glauconite Siltstone, very fine grained.

4735 Medium-dark green glauconite Sand, fine-grained.

4831 Medium gray Siltstone, friable, very abundant altered biotite.

4832 Ditto, as above, but slightly coarser grained.

4896 Siltstone, medium grey, friable.

5140 Siltstone, light grey, otherwise as above.

5165 Ditto - very common biotite.

5350 Sand, light grey, silty, fine grained, low porosity and permeability, firm-friable.

- -

5486 Rec. 2" Silty Sand, light grey, very fine grained, no odor.

7050 Rec. 1" Silty Sand, same, no odor.

7059 Rec. 1" Ditto.

7245 Rec. 1" Ditto.

7255 Sample gone

7269 Rec. 1½" Ditto.

7285 Rec. 1" Sand, light grey, very kaolinitic, no odor.

7296 Rec. 1" Sand, as last above.

7299 Rec. 1½" Ditto.

7303 Rec. ½" Ditto.

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 552-308

Coalinga Calif. October 14 19 52

MR. M. H. Fuller

Box 165, Burrel, Calif.

Agent for L. M. LOCKHART

DEAR SIR:

Your proposal to abandon Well No. "England" 1-31,

Section 31, T. 14S., R. 13E., M.D. B. & M., ----- Field, Fresno County,

dated August 9, 19 52, received October 9, 19 52, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

RECORDS IN ADDITION TO OR AT VARIANCE WITH THOSE SHOWN IN THE NOTICE:
5-1/2" cem. 10,038', four 3/8" holes 10,017', W.S.O.

THE NOTICE STATES:
"The present condition of the well is as follows:
1. Complete casing record.
14" 47.54# New Smls. SJ Casing cmtd. to surface w/700 sax at 609'.
5-1/2" 20# N-80 & 17# J-55 New Smls. Csg. cmtd. w/200 sax at 10,038'.
Total Depth 10,357'.
2. Last produced. No Production
3. Condition of hole:
Hole is plugged with cement from bottom @ 10,357' up to 10,169'.
Hole is plugged with cement from 10,169' up to approximately 9880', which cements off all of the zone tested and the W.S.O. holes in the 5-1/2" casing at 10,017'.
The 5-1/2" casing is in place as cemented, with the bradenhead about level with the top of the cellar.
The top of the casing is plugged with 10' of cement, and a steel plate welded over top of same.
All unplugged portions of hole are filled with heavy drilling fluid."

PROPOSAL:
"The proposed work is as follows:
We propose to abandon well in above condition."

DECISION:
THE PROPOSAL IS APPROVED.

Bond No. 965734
GGP:ef
Orig: Company, L.A.
cc: Mr M H Fuller

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Gerke Deputy

11 5

53076 11-51 25,500 SPO

FORM 108. 99470 11-48 14,250
② SPO

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

DIVISION OF OIL AND GAS
RECEIVED
OCT 31 1952
COALINGA, CALIFORNIA

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin; one copy only

LOS ANGELES Calif. AUGUST 9 19 52

DIVISION OF OIL AND GAS

COALINGA Calif.

In compliance with Secs. 3228, 3229, 3230, 3231 and 3232, Ch. 93, Stat. 1939, notice is hereby given that it is our intention to abandon well No. "ENGLAND" 1-31

Sec. 31, T. 14 S., R. 13 E., M.D. B. & M. PANOCHE CREEK AREA ~~Field,~~ FRESNO County, commencing work on the 10TH day of APRIL 19 51.

The present condition of the well is as follows:

1. Complete casing record.

14" 47.54# NEW SMLS. SJ CASING CMTD. TO SURFACE W/700 SAX AT 609'.

5-1/2" 20# N-80 & 17# J-55 NEW SMLS. CSG. CMTD. W/200 SAX AT 10,038'.

TOTAL DEPTH 10,357'.

2. Last produced. ____ (Date) NO PRODUCTION (Net oil) ____ (Gravity) ____ (Cut)

~~The proposed work is as follows:~~

3. Condition of hole:

HOLE IS PLUGGED WITH CEMENT FROM BOTTOM @ 10,357' UP TO 10,169'.

HOLE IS PLUGGED WITH CEMENT FROM 10,169' UP TO APPROXIMATELY 9880', WHICH CEMENTS OFF ALL OF THE ZONE TESTED AND THE W.S.O. HOLES IN THE 5-1/2" CASING AT 10,017'.

THE 5-1/2" CASING IS IN PLACE AS CEMENTED, WITH THE BRADENHEAD ABOUT LEVEL WITH THE TOP OF THE CELLAR.

THE TOP OF THE CASING IS PLUGGED WITH 10' OF CEMENT, AND A STEEL PLATE WELDED OVER TOP OF SAME.

ALL UNPLUGGED PORTIONS OF HOLE ARE FILLED WITH HEAVY DRILLING FLUID.

4. WE PROPOSE TO ABANDON WELL IN ABOVE CONDITION.

L.M. LOCKHART
(Name of Operator)

By _____

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 5-9122

Coalinga, Calif. April 12, 19 51

MR. M. H. Fuller

Box 165, Burrel, Calif.

Agent for L. M. LOCKHART

DEAR SIR:

Your supplementary proposal to drill Well No. "England" 1-31, Section 31, T. 14S., R. 13E., M.D.B. & M., ------ Field, Fresno County, dated April 10, 19 51, received April 12, 19 51, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The new conditions are as follows:
Hole plugged from bottom @ 10,357' up to 10,169'.
5-1/2" casing cemented at 10,038' with 300 sax cement.
W.S.O. test made through 4 - 3/8" holes shot at 10,017' - OK.
Oil and gas shows between 10,038' and 10,169' were tested by displacing the drilling fluid and circulating with fresh water, and by swabbing. Results inconclusive."

PROPOSAL:

"We now propose
To plug with cement from 10,169' up to 10,000', which will cement off all of zone tested and cover the W.S.O. holes in the 5-1/2" casing at 10,017'.
To leave the 5-1/2" casing in place as cemented, with the Bradenhead about 2' below top of cellar and with a steel plate bolted over top of same.
To leave hole full of drilling mud from 10,000' to surface.
To suspend well in above condition."

DECISION:

THE PROPOSAL IS APPROVED.

Bond No. 965734
GGP:ef
Orig: Company, L.A.
cc: Mr. M. H. Fuller

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Reed Deputy

115

28489 6-50 19M SPO

FORM 123 (9-48)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

Los Angeles Calif. April 10 1951

DIVISION OF OIL AND GAS

Coalinga, Calif.

Our notice to you dated March 28, 1951, stating our intention to Cement 5-1/2" casing in (Drill, deepen, redrill, abandon) well No. "England" 1-31, Sec. 31, T. 14S, R. 13E, M. D. B. & M. Panoche Area ~~Field~~, Fresno County, must be amended on account of changed or recently discovered conditions.

The new conditions are as follows:

Hole plugged from bottom @ 10,357' up to 10,169'.
5-1/2" casing cemented at 10,038' with 300 sax cement.
W.S.O. test made through 4 - 3/8" holes shot at 10,017' - OK.
Oil and gas shows between 10,038' and 10,169' were tested by displacing the drilling fluid and circulating with fresh water, and by swabbing. Results inconclusive.

We now propose

To plug with cement from 10,169' up to 10,000', which will cement off all of zone tested and cover the W.S.O. holes in the 5-1/2" casing at 10,017'.

To leave the 5-1/2" casing in place as cemented, with the Bradenhead about 2' below top of cellar and with a steel plate bolted over top of same.

To leave hole full of drilling mud from 10,000' to surface.

To suspend well in above condition.

RECEIVED
APR 1? 195?

L. M. LOCKHART
(Name of Operator)
By Glenn M. Earl
Engineer

97666 9-48 8M SPO

FORM 109-A (10-48)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Report on Test of Water Shut-off
(FORMATION TESTER)

No. T 5-5435

Coalinga, Calif. April 9, 1951

Mr. M. H. Fuller
Box 165, Burrel, Calif.
Agent for L. M. LOCKHART

DEAR SIR:

Your well No. "England" 1-31, Sec. 31, T. 14 S., R. 13 E., M. D. B & M. ---, Field, in Fresno County, was tested for water shut-off on April 3, 1951. Mr. G. W. Hunter, designated by the supervisor, was present as prescribed in Secs. 3222 and 3223, Ch. 93, Stat. 1939; there were also present M. H. Fuller, Supt. and Glenn M. Earl, Engineer.

Shut-off data: 5-1/2 in. 12 & 20 lb. casing was cemented at 10,038 ft. on March 30, 1951 in 9-7/8 in. hole with 300 sacks of cement of which 5 sacks was left in casing.

Casing record of well: 14" cem. 609'; 5-1/2" cem. 10,038', four 3/8" holes 10,017' W.S.O.

Present depth 10,357 ft. Bridged with cement from (10,038 (10,357 ft. to (10,030 10,163 ft. Cleaned out to 10,030 ft. for test. A pressure of 1000 lb. was applied to the inside of casing for 15 min. without loss after cleaning out to 10,030 ft. A Johnston tester was run into the hole on 2-3/8 in. ~~drill~~ pipe-tubing, with 1395 ft. of water-~~mud~~ cushion, and packer set at 9947 ft. with tailpiece to 9964 ft. Tester valve, with 1/2 in. bean, was opened at 7:29 a.m. and remained open for 1 hr. and -- min. During this interval there was a light steady blow for 16 minutes and then a light heading blow for the remainder of the test.

THE INSPECTOR WAS PRESENT AT THE WELL FROM 11:00 a.m. TO 12:15 p.m. AND MR. EARL REPORTED:

1. The 5-1/2" casing was shot-perforated at 10,017' for the test of shut-off.

2. All except 1620' of the tubing was removed and 1395' of water cushion and 1479' of gas cut drilling fluid was recovered.

THE INSPECTOR NOTED:

1. When the remainder of the tubing was removed, 1620' of very gassy drilling fluid was found above the tester valve. The gassy drilling fluid would occasionally unload, blowing 60 or 70 feet into the air.

2. The pressure recorder charts indicated that the tester valve was open during the entire test.

THE SHUT-OFF AT 10,017' IS APPROVED.

GWH:ef
Orig: Company, L.A.
cc: Mr. M. H. Fuller

R. D. BUSH, State Oil and Gas Supervisor

By G. G. Reid, Deputy

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 5-9110

Coalinga, Calif. March 30, 19 51

MR. M. H. Fuller

Box 165, Burrel, Calif.

Agent for L. M. LOCKHART

DEAR SIR:

Your supplementary proposal to drill Well No. "England" 1-31, Section 31, T. 14S., R. 13E., M.D. B. & M., ----- Field, Fresno County, dated March 28, 19 51, received March 28, 19 51, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"The new conditions are as follows:
14" cem. 609'. T.D. 10,357', plugged with cement 10,357' to 10,163'.
9-7/8" hole to 10,033'.
7-5/8" " to 10,357'.
Encountered oil and gas shows below 10,000'."

PROPOSAL:

"We now propose
1. Cement 5-1/2" casing at 10,033' to test showings between 10,033' and 10,163'.
2. Notify Division to Witness shut-off test through holes at 10,015'.
3. Test for production."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT this Division shall be notified to witness a test of the 5-1/2" water shut-off through four shot perforations immediately above the cementing point, prior to drilling out the cement below that depth.

Bond No. 965734
CHC:ef
Orig: Company, L.A.
cc: Mr. M. H. Fuller

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Peirce Deputy

28489 6-50 19M SPO

FORM 123 (9-48)

RECEIVED
MAR 2 [illegible]
COALINGA, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Supplementary Notice

Coalinga, Calif. March 28, 1951

DIVISION OF OIL AND GAS

Coalinga, Calif.

Our notice to you dated November 22, 1950, stating our intention to

Drill (Drill, deepen, redrill, abandon) well No. "England" 1-31,

Sec. 31, T. 14 S., R. 13 E., M. D. B. & M. ----- Field,

Fresno County, must be amended on account of changed or recently discovered conditions.

The new conditions are as follows:

14" cem. ~~612~~ 609'. T.D. 10,357', plugged with cement 10,357' to 10,163'.

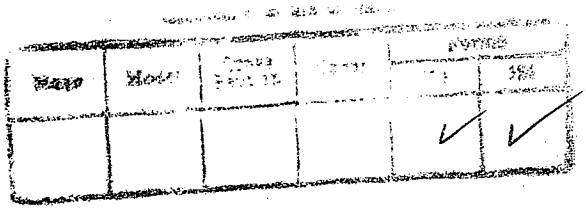
9-7/8" hole to 10,033'.

7-5/8" " to 10,357'.

Encountered oil and gas shows below 10,000'.

We now propose

1. Cement 5-1/2" casing at 10,033' to test showings between 10,033' and 10,163'.
2. Notify Division to witness shut-off test through holes at 10,015'.
3. Test for production.



L. M. LOCKHART
(Name of operator)

By Glenn M. Earl.
Engineer

17988 11-49 8750 SPO

FORM 111 (1-49)

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS

No. P 5-9002

Coalinga, Calif. November 24, 1950

MR. M. H. Fuller
Box 165, Burrel, Calif.
Agent for L. M. LOCKHART

DEAR SIR:

Your proposal to drill Well No. "England" 1-31, Section 31, T. 14S., R. 13E., M.D. B. & M., ----- Field, Fresno County, dated Nov. 22, 1950, received Nov. 24, 1950, has been examined in conjunction with records filed in this office.

Present conditions as shown by the records and the proposal are as follows:

THE NOTICE STATES:

"Legal description of lease S. E. one-quarter of Section 31-14/13
The well is 660 feet S., and 660 feet E. from center of Sec. 31-14/13
Elevation of ground above sea level 406.6 feet.
All depth measurements taken from top of Kelly Bushing, which is 12.5 feet above ground.
We estimate that the first productive oil or gas sand should be encountered at a depth of about 7000 feet."

PROPOSAL:

"We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
14	47.54	Smls. -SJ	600'	Cemented
8-5/8	32	Smls.-T&C-J55	7000'	Cemented

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing."

DECISION:

THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Water suitable for irrigation shall be protected from contamination.
2. Mud fluid of sufficient weight and proper consistency to prevent blow-outs shall be used in drilling, and the column of mud fluid shall be maintained to the surface at all times, particularly while pulling the drill pipe.
3. Adequate blow-out prevention equipment shall be provided and kept ready for operation at all times.
4. The 14" casing shall be cemented with sufficient cement to fill back of this casing from the shoe to the ground surface.
5. THIS DIVISION SHALL BE NOTIFIED:
   (a) Before landing or cementing any casing below the surface casing.
   (b) To witness a test of each possible water shut-off.

Bond No. 965734
CHC:ef
Orig: Company, L.A.
cc: Mr. M. H. Fuller

R. D. BUSH
State Oil and Gas Supervisor

By G. G. Reid Deputy

28489 6-50 19M SPO

FORM 105 (2-49)
CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

RECEIVED
NOV 24 1950
COALINGA, CALIFORNIA

019 00193

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins

Los Angeles Calif. November 22 19 50

DIVISION OF OIL AND GAS

Coalinga Calif.

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. "England" 1-31, Sec. 31, T. 14S., R. 13E., M.D. B. & M., Panoche Creek Area Field, Fresno County.

Legal description of lease S. E. one-quarter of Section 31-14/13

The well is 660 feet ~~N~~ S., and 660 feet E. ~~of W~~ from center of Sec. 31-14/13
(Give location in distance from section corners or other corners of legal subdivision)

Elevation of ground above sea level 406.6 feet.

All depth measurements taken from top of Kelly Bushing, which is 12.5 feet above ground.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 7000 feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
14	47.54	Smls. -SJ	600'	Cemented
8-5/8	32	Smls. - T&C - J55	7000'	Cemented

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address 824 Wilshire Boulevard
Los Angeles 17, California
Telephone number TRinity 1588

L. M. LOCKHART
(Name of Operator)
By L M Lockhart

ADDRESS ONE COPY OF NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

Maps	Mailed	Cross Section	Cards	Forms 14	Forms 13
11/28/50				✓	✓

E

Recent To Pliocene		
Miocene?		
Eocene	Kreyenhagen	
	Domengine	
Eocene and Paleocene	Lodo	
Paleocene	Martinez	
Cretaceous	Moreno	
	Panoche	Brown Mt Sd.
		Ragged Valley Silt
		Joaquin Ridge S.S.

7142
419
-6723

7227
409
-6825

6380
432
-5948