

DATE 7/28/57

THE OHIO OIL CO

FIELD Fulcher-Kuts

HISTORY OF OIL OR GAS WELL

WELL NO. 1 LEASE Government 020501

SEC. 26 TWP. 28N R. 11W

STATE New Mexico COUNTY San Juan

790' from North line
1850' from West line
SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$

Measurements Taken From KB Elev. 5579'
(Top of Oil String Grd) Elev. 5571'
(Top of Rotary Table) Elev. _____
(Grd. or Mat) Elev. _____

History Prepared By GEORGE SUSICH
Title _____

DATE Contractor: San Juan Drilling Co. Rig #12

7/28/57 MIRT

7/29/57 RURT. Rigged up to drill rat hole, drilled rat hole. Rigged up to drill surface hole.

7/30/57 TD 175'. Drilled 175' of 13 3/4" surface hole, circulated 1 hour, came out of hole to run surface casing.

Ran 5 Jts 10 3/4" - 32.75#, 8 Rd H-40 casing: 155.71 Net (Inc. shoe)
8.50 Mat to KB
1.50 Below Mat

Landed shoe @ 165.71 KB 165.71

Cemented with 150 sacks cement (75 sacks regular, 75 posmix).

Plug down @ 2:45 P.M. Good returns on cement. W.O.C.

Bit #1 HTC 13 3/4" OSC-3 from 0-175'.

7/1/57 TD 505'. W.O.C. Nipped up, pressured up casing with 500 psi for 1/2 hour (30 min.). Casing OK. Went in hole with drill pipe, touched top of cement in 10 3/4" casing at 109' from KB. Drilled out 56.17 feet of cement. Had 10 feet of cement below casing. Drilling ahead, ran Deviation survey at 500' (0°). Bit #2 Smith DT 7 7/8" Serial number 12249 from 175' to 1058'. Encountered water flow at 500'. Water flow, flowing 5" stream out of flow line. Encountered gas flow at 900' and 1300'.

7/2/57 TD 1247'. Drilling ahead with Bit #2, made trip for Bit #3 Smith DT 7 7/8" from 1058-1670'. Deviation Survey at 746' (1/4°). Used water as drilling fluid.

7/3/57 TD 1670'. Drilled to 1640'. Circulated 1 hour, ran Schlumberger ES-Induction Log from 165' to 1628', Micro-Caliper Log from 165-1624'.

Schlumberger Tops as follows:

Kirtland SS	526'	(+ 5053')
Farmington SS	936'	(+ 4643')
Fruitland SS	1310'	(+ 4269')
Pictured Cliff SS	1512'	(+ 4067')
Lewis Shale	1607'	(+ 3972')

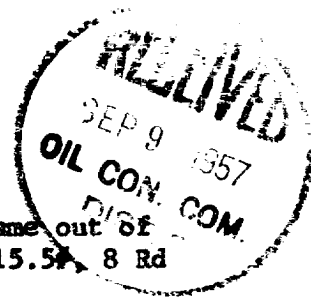
Went in hole with drill pipe, drilled to 1670', circulated 1 hour, came out of hole laying down same. Rigged up to run casing. Ran 50 Jts 5 1/2" OD 15.5#, 8 Rd J-55 casing: 1660.40 Net

1.40 Baker Guide Shoe

1.53 Baker Float Collar

1663.33 Total

Spotted centralizers @ 1633' and 1510'. Landed shoe @ 1660' KB with float collar @ 1624' KB. Cemented with 550 sacks regular cement (2% jel) by HOWCO. Displaced



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- ATE casing with 39.5 barrels water. Bumped plug with 1200 psi. Plug down @ midnight. Circulated 20 barrels cement to the surface. Shut off water flow and gas blow. PBTD 1624'.
- 1/4/57 PBTD 1624'. Landed casing and set slips at 1:00 A.M. Nipped up. W.O.C. Ran Temperature Survey, found top of cement in annulus at 35' KB. W.O.C.
- 1/5/57 PBTD 1624'. Nipping up rotating head and B.O.P.
- 1/6/57 PBTD 1624'. W.O.C. Pressured casing with 800 psi for 1/2 hour. Casing OK. Perforated casing opposite Pictured Cliff SS from 1512-30' (18'-4 per foot) 72-9/16" bullets by Schlumberger. Checked Ohio collars 1/2 foot high. Corrected measurements to Ohio collars and shot off same. PBTD 1618', very soft bottom. Sand-water frac from 1512-30' with 20,000# (20-40) sand and 20,370 gals water by HOWCO. Broke down formation with 1500 psi. Pumped 20 barrels water ahead of sand. Used 485 barrels water for sand mix. Pumped total of 570 barrels water and 22 barrels sand. (100# sand equivalent to 4.6 gals). Flushed sand with 65 barrels water. Treatment pressure 1200 psi. Final pressure 750 psi. Average injection rate 45.6 barrels per minute. Sand mix at .98#/gal. Rigged up to swab well. Ran 1510' - 2 3/8" tubing in well, started swabbing in well.
- 1/7/57 PBTD 1624'. Continued swabbing well, kicked off well @ 5:15 P.M. Casing pressure 265 psi. Blow lasted 10 minutes. Casing pressure dropped to 70 psi and gas blow died. Water level at 1400'. Continued swabbing.
- 1/8/57 PBTD 1450'. Continued swabbing well, kicked well off @ 4:00 A.M. Casing pressure 240 psi - Blow lasted 15 minutes - casing pressure dropped to 40 psi. Well died. Went in hole with Baker Model "K" Mag retainer set @ 1450'. Squeezed Pictured Cliff from 1512-30' with 100 sacks regular cement. Pumped in with 1200 psi, no breakdown, with injection rate of 4 barrels per minute. Pumped bridging ball down tubing after displacing with 5 1/2 bbls water. Final pumping pressure 1100 psi. Bumped ball with 2500 psi. Reversed out 2 barrels cement. Estimate 90 sacks cement below retainer and in formation. Perforated Fruitland from 1310-28' (18'-4 holes per foot, 72, 9/16" bullets) by Schlumberger. Checked Ohio collars OK and shot off same. Sand-water frac from 1310-28' with 20,000# (20-40) sand and 20,300 gallons water. Broke down formation with 2200 psi. Pumped 10 barrels water ahead of sand, mixed 482 bbls water with 22 barrels sand, flushed sand with 60 barrels water. Average injection rate 41 barrels per minute. Final pressure 1500 psi. Sand mix at .99#/gal. Went in hole with tubing. Well started to unload @ 10:00 P.M. Flowing well.
- 1/9/57 PBTD 1450'. Flowing well. Ran 43 Jts, 2 3/8" OD, 4.7#, EUE, 8 Rd, H-40 tubing:
1320.80 Net (including anchor joint)
7.50 KB to tubing head
1328.30 KB Landed
- Perforations of anchor joint from 1308-1328. Finished connecting up well head. Released rig @ 2:00 P.M. Shut-in well. Casing filled up with sand from 1330' to 1450' while blowing well.
- 1/10/57 PBTD 1450'. Well shut in 20 hours, casing buildup pressure 580 psi. Blew well for 1 1/2 hours. Casing pressure stabilized at 130 psi. Well was gauged through 1 1/2" side static nipple making 1,750 MCFD. Shut in well for 7 day AOF test.

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C O L L A R L O G

Joint No.	Length of Joint	Collar	Float Collar	Guide Shoe
1	33.00	29.67		
2	33.40	63.07		
3	33.22	96.29		
4	32.21	128.50		
5	33.65	162.15		
6	33.61	195.76		
7	33.60	229.36		
8	33.00	262.36		
9	33.62	295.98		
10	32.86	328.84		
11	33.68	362.52		
12	33.13	395.65		
13	33.58	429.23		
14	32.10	461.33		
15	33.16	494.49		
16	33.60	528.09		
17	33.48	561.57		
18	33.45	595.02		
19	32.89	627.91		
20	33.72	661.63		
21	32.71	694.34		
22	33.70	728.04		
23	33.03	761.07		
24	33.50	794.57		
25	31.82	826.39		
26	31.67	858.06		
27	33.32	891.38		
28	33.03	924.41		
29	33.73	958.14		
30	33.72	991.86		
31	33.75	1,025.61		
32	33.29	1,058.90		
33	33.60	1,092.50		
34	33.52	1,126.02		
35	33.58	1,159.60		
36	33.68	1,193.28		
37	33.68	1,226.96		
38	33.38	1,260.34		
39	33.75	1,294.09		
40	33.29	1,327.38		
41	33.41	1,360.79		
42	33.38	1,394.17		
43	31.60	1,425.77		
44	33.60	1,459.37		
45	31.99	1,491.36		
46	33.26	1,524.62		
47	33.46	1,558.08		
48	32.98	1,591.06		
49	33.54	1,624.60		
			1.53	
50		1,626.13		
51	32.47	1,658.60		
				1.40
52		1,660.00		

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6/28/57

Kutz Canyon

1 Government

Sec 26 Twp 28N R. 11W

New Mexico San Juan County

George Susich
Engineer

KB 5579'
GR. 5571'

One point back pressure test Gov't 26-1, Sec 26-T28N-R11W, San Juan County, New Mexico

Initial casing 640 psig
Initial tubing 640 psig
Choke pressure 100 psig
Casing flowing pressure 110 psig
Barometric psi 12#/in²
Duration of test - 3 hrs.
Gas gravity .68 assumed
Slope N = .85
Flowing Temp 60° F
Q = Cx P_t x F_t x f_g x F_{pv}

$$Q = 14.1605 \times 112 \times 1.000 \times .9393 \times 1.01$$

$$Q = 1,500 \text{ MCFD}$$

$$AOF = Q \left(\frac{PC^2}{PC^2 - PW^2} \right)^N$$

$$AOF = 1500 \left(\frac{652^2}{652^2 - 122^2} \right)^{.85}$$

$$AOF = 1500 \left(\frac{425}{425 - 14.9} \right)^{.85}$$

$$AOF = 1500 \left(\frac{425}{410.1} \right)^{.85}$$

$$AOF = 1500 \left(1.035 \right) = 1500 (1.0297) = 1542 \text{ MCFD}$$

Slide Rule Calc

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THE OHIO OIL CO.
LOG AND CORE RECORD

FIELD Kutz Canyon

WELL NO. 26-1 LEASE Government BLOCK SEC. 26 T 28N R 11W
STATE New Mexico COUNTY San Juan

MEASUREMENTS TAKEN FROM: TOP OF OIL STRING ELEV. _____ CORE DESCRIBED BY M. J. Davis
TOP OF ROTARY TABLE ELEV. _____ TITLE Associate Geologist
GRD. OR MAT ELEV. _____

D L P T H		T H I C K N E S S	D R I L L E D O R C O R E D	R E C O V E R Y	D E S C R I P T I O N
TOP	BOTTOM				
180	190				ss, v crs, sub-angular to sub-rdd, wh w/occ yell - grn & rose red gs, ch & sh, blk w/biotite
190	200				sh, brn to dk brn, w/s mica
200	210				sh, gry to dk gry, soft
210	220				sh, as above
220	230				ss, v crs, aa, w/sh dk gry & occ selenite incls, unconsolidated
230	240				ss, v crs g, aa, w/s dk gry mica shs; suspect considerable surface ss
240	250				ss, m to v crs g, w/selen & vari-colored ch, tr pyrite
250	260				ss, aa, sub-ang to sub-rdd, w/occ sh, gry, unconsolidated
260	270				ss, aa, unconsolidated, w/tr pyrite, s gry sh
270	280				ss, aa, w/gry sh
280	290				sh, gry to dk gry, slty
290	300				sh, gry to dk grn, sli bentic
300	310				sh, lt gry-gry, sli slty
310	320				sh, gry to dk gry, soft
320	330				sh, gry - lt gry (much caving)
330	340				sh, dk gry w/ss, f g w/non calc cement
340	350				sh, dk gry, slty w/s v crs, sub-rdd ss
350	360				ss, wh, w/s red & yell-grn ch, v crs g, sub-rdd
360	370				ss, aa, w/sh, gry - dk gry
370	380				ss, aa & sh aa
380	390				ss, aa, crs to v crs, s mica & sh dk gry
390	400				ss, crs to v crs; purp, ornge, rose, white, sub-rdd w/sh, dk gry
400	410				sh, gry - dk gry, w/f g ss
410	420				sh, dk gry & ss, f to v crs g from (417-20)
420	430				sh, aa & ss v crs g, sub-rdd. Probably wr sd 420 thru 530
430	440				ss, f g to slty, ss v crs g, vari-colored qtzitic, tr pyte.

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 GRD. OR MAT ELEV. _____

DEPTH		THICKNESS	DRILLED OF CORED	RECOVERY	DESCRIPTION
TOP	BOTTOM				
440	450				ss, v crs g, qtzitic, & sh dk gry - blk, soft
450	460				ss, aa, chty, tr pyrite & appears to be v unconsolidated; probably wtr ss
460	470				ss, v crs g, lg cht chips, w/s m g ss, qtzitic & chty
470	480				ss, aa, w/considerable cave & pyrite
480	490				ss, v crs g, sh, w/s sub-rdd vari-colored gs
490	500				ss, aa, w/s sh, dk gry
500	510				ss, aa, crs to v crs g
510	520				ss, aa, crs to v crs g
520	530				ss, aa, w/v f g ss & gry sh
530	540				ss & gry sh (Sample Top Kirkland 530)
540	550				sh, gry - dk gry & coal
550	560				sh, gry & slty, much cave
560	570				sh, aa
570	580				sh, gry - dk gry
580	590				sh, gry
590	600				sh, gry & dk gry
600	610				sh, aa
610	620				sh, aa
620	630				sh, dk gry & sli slty
630	640				sh, dk gry, siltst & s f g ss
640	650				sh, gry - dk gry
650	660				sh, dk gry
660	670				sh, dk gry
670	680				sh, gry - dk gry, slty
680	690				sh, aa w/s cave
690	700				sh, dk gry
700	710				sh, dk gry, w/s silt
710	720				sh, aa
720	730				sh, dk gry w/s crs qtz ss

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MEASUREMENTS TAKEN FROM: TOP OF OIL STRING ELEV. _____ CORE DESCRIBED BY M. J. Davis
TOP OF ROTARY TABLE ELEV. _____ TITLE Associate Geologist
GRD. OR MAT ELEV. _____

DEPTH	T O	THICKNESS	DRILLED OR CORED	RECOVERY	DESCRIPTION
TOP	BOTTOM				
730	740				sh, gry - dk gry & s v f g ss & siltst
740	750				siltstone, dk gry & sh, gry
750	760				siltstone, non calc & gry sh w/s f g ss
760	770				siltstone, gry w/tr coal, v soft
770	780				sh, gry, silty
780	790				sh, gry - dk gry w/blk tarry residue
790	800				sh, gry & dk grn
800	810				sh, gry, silty w/s f g ss (Sample Top 1st Farmington 810)
810	820				ss, m to v crs g, calc cement
820	830				ss, f to m g, wh, w/vari-colored gs, tr glauc & pyrite, blk, dead oil stn & residue
830	840				ss, f g, gry & siltst, gry, w/tr coal
840	850				sh, gry to dk gry - grn, silty
850	860				sh, dk gry, slty w/ss f g, gry
860	870				siltst, gry mottled & sh, gry
870	880				ss, f g, s & p, tite, & some sh (Sample Top 2nd Farmington 870)
880	890				ss, f to m g, s & p, aa
890	900				sh, gry to dk gry, slty
900	910				sh, dk gry, mica silty w/tr tarry residue
910	920				sh, aa, w/ss, f g, gry-grn color, calc
920	930				sh, aa, w/ss, f g, gry-grn color, silty
930	940				ss, m g, s&p, tr pyt & mica, qtzitic, v calc (Sample Top 3rd Farmington 930 - Sweet gas odor noticed while drilling)
940	950				ss, aa, s&p, to vari-colored
950	960				ss, aa, glauc, w/sh, gry
960	970				sh, gry - dk gry, w/ss, f g, silty
970	980				sh, gry - dk gry, silty
980	990				sh, dk gry
990	1000				sh, aa, w/siltst
1000	1010				sh, gry - dk gry, silty

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THE OHIO OIL CO.
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FIELD Kutz Canyon

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WELL NO. 26-1 LEASE Government BLOCK SEC. 26 T 28N R 11W
STATE New Mexico COUNTY San Juan

MEASUREMENTS TAKEN FROM
 TOP OF OIL STRING _____ ELEV. _____
 TOP OF ROTARY TABLE _____ ELEV. _____
 GRD. OR MAT _____ ELEV. _____
 CORE DESCRIBED BY M. J. Davis
 TITLE Associate Geologist

DEPTH TOP	T O BOTTOM	THICKNESS	DRILLED OR CORED	RECOVERY	DESCRIPTION
1010	1020				siltstone, w/sh, gry & v f g ss
1020	1030				ss, f to v f g , w/sh dk gry -grn, micous
1030	1040				ss, aa, shly
1040	1050				sh, dk gry
1050	1060				sh, aa, slty
1060	1070				sh, dk grn-gry
1070	1080				sh, dk gry
1080	1090				sh, dk gry
1090	1100				sh, aa
1100	1110				sh, dk gry, & ss, f g , glauc, vari-colored friable
1110	1120				sh, aa & ss, f to slty
1120	1130				sh, gry - dk gry, silty
1130	1140				sh, gry - dk gry, silty
1140	1150				sh, dk gry w/v f g ss
1150	1160				sh, dk gry-grn
1160	1170				sh, dk gry, w/s gry-grn sh
1170	1180				sh, dk gry - gry, w/ss v f g
1180	1190				sh, dk gry to blk
1190	1200				sh, aa, w/gry - grn siltstone
1200	1210				sh, dk gry w/s coal
1210	1220				sh, dk gry, silty
1220	1230				sh, dk gry, silty
1230	1240				sh, dk gry
1240	1250				sh, dk gry to blk, silty
1250	1260				sh, dk gry, slty w/coal
1260	1270				sh, dk gry - blk, w/coal
1270	1280				sh, dk gry
1280	1290				sh, dk gry to blk
1290	1300				sh, aa, possibly s coal, samples mostly cave
1300	1310				sh, gry, slty, coal

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FIELD Kutz Canyon

WELL NO. 26-1 LEASE Government BLOCK 26 T 28N R 11W

STATE New Mexico COUNTY San Juan

MEASUREMENTS TAKEN FROM: TOP OF OIL STRING ELEV. _____ CORE DESCRIBED BY M. J. Davis
TOP OF ROTARY TABLE ELEV. _____ TITLE Associate Geologist
GRD. OR MAT ELEV. _____

DEPTH	TO	THICKNESS	DRILLED OR CORED	RECOVERY	DESCRIPTION
TOP	BOTTOM				
1310	1320				sh, aa, w/ss f g, fair to strong blo of sweet gas - 1310 (Sample Top Fruitland 1310)
1320	1330				ss, v f to silty, calc, s & p, w/gas
1330	1340				ss, aa, w/coal
1340	1350				sh, blk, carb & coal, dk brn
1350	1360				sh, dk gry, silty, much cave
1360	1370				sh, dk gry, silty & s coal
1370	1380				siltstone, dk gry - brn & f ss
1380	1390				ss, f g, s & p
1390	1400				coal
1400	1410				sh, dk gry
1410	1420				sh, dk gry, mostly cave
1420	1430				sh, dk gry & s coal
1430	1440				sh, dk gry
1440	1450				sh, dk gry
1450	1460				coal & sh, dk gry
1460	1470				sh, dk gry - blk
1470	1480				sh, dk gry w/tr coal & v f g ss
1480	1490				sh, dk brn, silty
1490	1500				ss, f g, silty & sh, gry w/coal
1500	1510				sh, dk gry, coal & ss, m to crs g, sli calc (Sample Top Pictured Cliffs 1515) (?)
1510	1520				sh, aa & s lg qtz & cht gs
1520	1530				sh, dk gry, coal & occ rose qtz frags
1530	1540				coal, dk brn & sh, dk gry
1540	1550				ss, crs to v crs, s&p, non-calc
1550	1560				ss, crs to v crs, s&p, non-calc
1560	1570				sh, dk gry & silty
1570	1580				sh, aa
1580	1590				sh, aa, w/s ss & coal
1590	1600				sh, dk gry, silty

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 TOP OF ROTARY TABLE _____ ELEV. _____ TITLE Associate Geologist
 GRD. OR MAT _____ ELEV. _____

D P T H	T O		THICKNESS	DRILLED OR CORED	RECOVERY	D E S C R I P T I O N
	TOP	BOTTOM				
1600	1610					coal & sh, dk gry
1610	1620					sh, dk gry
1620	1630					sh, dk gry
1630	1640					sh, dk gry & s coal & cht
After running logs, hole was drilled to T.D. 1670 in Lewis shale.						

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