

WELL REPORT
DAVIS OIL COMPANY-ANDERSON OIL COMPANY
EL NORTE #1
SAN JUAN COUNTY, NEW MEXICO



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EL NORTE #1
SAN JUAN COUNTY, NEW MEXICO

LOCATION

1980' from the south line and 1980' from the west line of Section 17,
Township 21 North, Range 8 West, NMPM.

ELEVATION

6583 Ground: 6595' Kelley Bushing

CONTRACTOR

Young Drilling Company, Inc., Rig #1, Ideco Rambler, Rotary Tools.

SPUD AND COMPLETION DATA

Well commenced: August 13, 1971
Date drilling completed: August 21, 1971
Total Depth Driller - 4805'
Total Depth Logger - 4788'

Initial Production: Testing

CASING

Surface: 8 5/8" @ 70' with 40 sacks
Production: 5 1/2" @ 4805' with 100 sacks

ELECTRICAL SURVEYS

Dresser Atlas - Induction Electrolog from 76' to 4784'
Dresser Atlas - Densilog from 76' to 4786'
Dresser Atlas - Acoustilog from 76' to 2620': 4420-4780'

FORMATION TOPS

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
	Spud	+6595
Fruitland (Kf)	220'	+6375
Pictured Cliffs (Kpc)	291'	+6304
Lewis (Kl)	722'	+5873
Cliff House (Kch)	930'	+5665
Menefee (Kmf)	2488'	+4107
Point Lookout (Kpl)	2591'	+4004
Upper Mancos (Kmu)	3553'	+3042
Gallup (Kg)	3602'	+2993
Gallup Sand (Kgs)	3755'	+2840
Lower Mancos (Kml)		

FORMATION TOPS - CONTINUED

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
Sanastee (Kms)	4044'	+2551
Greenhorn (Kgh)	4372'	+2223
Graneros (Kgr)	4422'	+2173
Dakota "A" (Kda)	4442'	+2153
Dakota "B" (Kdb)	4562'	+2033
Dakota "D" (Kdd)	4651'	+1944
Dakota Burro Canyon (Kdbc)	4713'	+1882
<u>Jurassic</u>		
Morrison (Jm)	4785'	+1810
Total Depth (Logger)	4788'	+1807
Total Depth (Driller)	4805'	

WELL CUTTINGS

30' samples from 3800' to 4300'
10' samples from 4300' to 4805' (Driller TD)
Samples described below from 3800' to 4805' (Driller TD).

SAMPLE DESCRIPTION

3800-60	100% sh, dk gy, gy brn, carb: Tr sltstn, gy, hd, calc, sdy in part: Tr ss, gy, v-f-g, SR, sl/arkosic, tite, <u>N-S</u>
3860-3950	100% sh, as above: Tr sltstn, as above
<u>TOP SANASTEE 4044' LOGS</u>	
3950-4100	100% sh, as above
4100-4290	100% sh, as above: Tr ss, gy, v-f-g, SR, arkosic, v/shy, silty, tite, <u>N-S</u>
4290-4300	100% sh, dk gy, carb: Tr ls, tan, v-f-xln: Tr sltstn, gy, hd, calc
4300-30	No sample
4330-50	80% sh, as above: 20% sltstn, gy, hd, calc, sdy in part
<u>TOP GREENHORN 4372' LOGS</u>	
4350-4400	90% sh, as above: 10% sltstn, as above: Tr ss, wht, f-g, SA-SR, arkosic, soft, abt intstl clay
<u>TOP GRANEROS 4422' LOGS</u>	
4400-40	90% sh, as above, bcm calc in part: 10% ls, tan-gy brn, v-f-xln in part, shy ds in part: Tr sltstn, as above

TOP DAKOTA "A" 4442' LOGS

440-50 100% sh (50% dk gy, platy: 50% sh, as above) Tr ls,
as above

450-60 100% sh, as above: Tr ls, as above: Tr ss, gy, v-f-g,
SR, arkosic, shy, tite

460-4500 100% sh, as above: Tr ss, wht, f-g, SA-SR, arkosic,
calc & tite in part, por in part

500-20 40% ss, lt gy, v-f-f-g, SR, arkosic, por & friable in
part, calc & tite in part: N-S: 60% sh, as above

520-30 80% sh, as above: 20% ss, as above, bcm shy in part, N-S

530-50 90% sh, as above: 10% ss, as above

TOP DAKOTA "B" 4562' LOGS

550-80 100% sh, as above; bcm sdy in part, Tr ss, as above

580-4600 100% sh, as above; Tr ss, wht-lt gy, v-f-f-g, SA-SR,
arkosic, por & friable, intstl clay, N-S

600-20 50% ss, wht, as above, N-S: 10% ss, tan, v-f-f-g,
SA-SR, calc, tite, N-S: 40% sh, as above

620-30 90% sh, dk gy, platy: 10% ss, as above, bcm calc &
tite, N-S

TOP DAKOTA "D" 4651' LOGS

4630-60 100% sh, as above: Tr ss, as above

Core #1: 4661-4707

TOP DAKOTA BURRO CANYON 4713' LOGS

4710-30 100% sh, dk gy, carb: Tr sltstn, gy, hd, calc

4730-40 90% sh, as above: 10% ss, wht-lt gy, SA-SR, arkosic,
por & friable, N-S: Tr sltstn, as above

4740-80 100% sh, as above: Tr ss, uncons, f-c-g, congl, chty, N-S

TOP MORRISON 4785' LOGS

4780-90 60% sh, as above: 40% ss, as above, N-S

4790-4800 60% sh, as above: Tr sh, med grn, wxy: 40% ss, as above

4800-05 60% sh, as above: Tr sh, pale grn, wxy: 40% ss, as above, N-S

4805 TD Driller

DRILLING TIME

Five foot drilling time from 3800' to 4805' (Driller TD) is listed below.

3800-3900	10-15-15-16-13-16-13-15-13-12-12-12-15-14-14-14-13-13-13-14
3900-4000	15-15-14-13-14-17-17-15-20-19-18-16-15-14-13-10-10-8-14-11
4000-4100	12-11-11-11-7-10-7-8-8-8-8-7-6-6-8-6-7-7-6-5
4100-4200	5-8-7-8-10-8-10-9-9-5-6-8-14-21-7-6-6-6-6-6
4200-4300	8-10-17-15-11-10-10-10-12-17-8-13-12-8-10-13-10-10-13-13
4300-4400	12-13-15-23-23-26-19-13-15-15-25-24-22-15-15-18-19-23-21-18
4400-4500	18-18-16-15-16-17-11-15-15-15-26-11-28-27-23-35-6-8-13-16
4500-4600	15-25-16-16-15-29-18-33-33-20-26-34-53-37-22-9-6-15-12-11
4600-4700	7-22-25-26-28-24-29-25-27-32-29-37-Core #1 & 2
4700-4800	33-35-35-25-5-15-15-10-6-5-5-6-5-30-15-6-9-9-12
4800-	8 TD 4805'

BIT RECORD

No.	Make	Size	Type	From	To	Footage	Hours Run
1	Hughes	7 7/8	OSC-3	76'	1541'	1465'	8 1/2
2	Hughes	7 7/8	OSCIG	1541'	2592'	1051'	12 3/4
3	Security	7 7/8	S4T	2592'	3234'	642'	12 3/4
4	Security	7 7/8	S4T	3234'	3704'	570'	13 3/4
5	Reed	7 7/8	3J5	3704'	4453'	749'	33 1/2
6	Security	7 7/8	5-88	4453'	4661'	208'	16 1/4
7	Core #1			4661'	4707'		5 3/4
8	Security	7 7/8	5-88	4707'	4805'	98'	4 3/4

TOTAL ROTATING HOURS - 108

DEVIATION RECORD

No.	Degree	Depth	Date
1	1/2°	500'	8-14-71
2	1°	1000'	8-14-71
3	2°	1541'	8-14-71
4	2°	2010'	8-15-71
5	1-3/4°	2592'	8-15-71
6	3/4°	3234'	8-16-71
7	1°	3704'	8-16-71
8	3/4°	4453'	8-18-71

ELECTRICAL SURVEY CALCULATIONS

<u>Formation</u>	<u>Depth</u>	<u>Porosity</u>		<u>Rw</u>	<u>Water Saturation</u>	<u>Q</u>
		<u>Density</u>	<u>Acoustilog</u>			
Dakota "D"	4652'	18%	18%	.75	60%	---
Dakota "D"	4654'	19%	19%	.75	53%	---
Dakota "D"	4656'	17%	19%	.75	54%*	.1
Dakota "D"	4658'	18%	17%	.75	63%	---
Dakota "D"	4660'	18%	15%	.75	60%	---
Dakota "D"	4662'	Shale	Shale	---	---	---
Dakota "D"	4664'	Shale	Shale	---	---	---
Dakota "D"	4666'	15%	17%	.75	63%*	.12
Dakota "D"	4668'	16%	18%	.75	73%*	.11
Dakota "D"	4670'	16%	19%	.75	74%*	.16

* Epilog Formula
Rw calculated

CORE RECORD

Core #1: 4661-67 Recovered 6' (Core barrel plugged)
4651-57 (Adjusted to logs)

<u>Feet</u>	<u>Depth</u>	<u>Description</u>
6	4661-67	ss, wht, f-g, arkosic, SA-SR, por, milk wht fluor, good stain, good cut, good odor, hairline v/frac

6

Core #2: 4667-4707 Recovered 40'
4657-4697 (Adjusted to logs)

<u>Feet</u>	<u>Depth</u>	<u>Description</u>
1	4667-68	ss, gy, f-g, SA-SR, arkosic, por, milk wht fluor, good stain, good cut, good odor, hairline v/frac
2	4668-70	ss, gy, f-g, arkosic, SA-SR, por, <u>N-S</u>
3	4670-73	ss, as above, hairline carb sh lamin, <u>N-S</u>
1	4673-74	sh, dk gy, carb
3	4674-77	ss, dk brn, f-g, arkosic, SA-SR, calc, Tr porosity, N-S, occ hairline carb sh lamin

CORE RECORD - CONTINUED

<u>Feet</u>	<u>Depth</u>	<u>Description</u>
1	4677-78	ss, tan, f-g, SA-SR, por, occ hairline carb sh lamin, <u>N-S</u>
5	4678-83	ss, tan, f-g, SA-SR, sl arkosic, porous, <u>N-S</u>
1	4683-84	ss, lt gy, f-g, arkosic, SA-SR, intstl clay, Tr porosity, abt hairline carb sh lamin
1	4684-85	ss, lt gy, f-g, SA-SR, arkosic, porous, <u>N-S</u>
1	4685-86	ss, lt gy-tan, f-m-g, SA-SR, arkosic, porous, fair stain, fair odor, good blue green fluor, fair cut
1	4686-87	ss, lt gy, f-g, SA-SR, arkosic, porous, <u>N-S</u>
1	4687-88	ss, lt gy, f-g, as above, hairline sh lamin, <u>N-S</u>
2	4688-90	ss, lt gy, f-g, SA-SR, arkosic, porous, <u>N-S</u>
6	4690-96	ss, lt gy, f-m-g, as above, <u>N-S</u>
3	4696-99	ss, dk gy, f-m-g, SA-SR, arkosic, porous, <u>N-S</u>
1	4699-4700	ss, gy, f-m-g, as above, calc, tite, hairline sh lamin, <u>N-S</u>
<u>7</u>	4700-07	ss, gy, f-g, SA-SR, arkosic, porous, <u>N-S</u>

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CORE ANALYSIS RESULTS

by ANDERSON OIL COMPANY Formation DAKOTA File RP-3-2482
EL NORTE NO. 1 Core Type DIAMOND 4" Date Report 8-20-71
UNDESIGNATED Drilling Fluid WATER BASE MUD Analysts RG
SAN JUAN State NEW MEX. Elev. 6595' KB Location NE SW SEC 17-T21N-R6W

Lithological Abbreviations

DOLOMITE-DOL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SAY SHALY-SHY LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL	BROWN-BRN GRAY-GY VUGGY-VGY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHTLY-SL/ VERT-V/ WITH-W/	SL
DEPTH FEET	PERMEABILITY MILLIDARCY (K _A)	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS			
			OIL	TOTAL WATER				

(CONVENTIONAL ANALYSIS)

661-62	36	17.1	1.2	52.0	Sd Lt Gy Fn Grn Frac
62-63	28	14.5	0.0	61.3	Sd Lt Gy Fn Grn Frac
63-64	37	16.2	6.8	44.4	Sd Lt Gy Fn Grn Frac
64-65	80	19.6	5.6	52.0	Sd Lt Gy Fn Grn Frac
65-66	99	18.5	8.1	50.8	Sd Lt Gy Fn Grn Frac
66-67	91	17.4	2.9	43.7	Sd Lt Gy Fn Grn Frac
67-68	44	16.5	4.8	63.6	Sd Lt Gy Fn Grn Carb Frac
68-69	64	16.0	0.0	71.9	Sd Lt Gy Fn Grn Frac
69-70	79	14.9	0.7	68.8	Sd Lt Gy Fn Grn
70-71	69	15.2	0.0	71.8	Sd Lt Gy Fn Grn Frac
71-72	56	14.9	0.0	75.2	Sd Lt Gy Fn Grn Clay
72-73	41	14.2	0.0	84.5	Sd Lt Gy Fn Grn Carb Clay
674-75	<0.1	9.9	7.1	28.1	Sd Drk Gy Fn Grn Silty
75-76	17	12.9	0.8	32.5	Sd Gy-Tn Fn Grn Frac
76-77	21	13.2	0.0	56.0	Sd Gy-Tn Fn Grn Frac
77-78	0.6	10.8	0.9	78.6	Sd Gy-Tn Fn Grn Carb Clay
78-79	77	19.4	0.0	64.9	Sd Lt Gy Med Grn Clay
79-80	65	18.7	0.0	59.3	Sd Lt Gy Fn-Med Grn Clay
80-81	73	18.1	0.0	65.1	Sd Lt Gy Fn-Med Grn Clay
81-82	84	19.8	0.0	62.7	Sd Lt Gy Fn-Med Grn Clay
82-83	57	19.7	0.0	60.9	Sd Lt Gy Fn-Med Grn Clay
83-84	<0.1	13.3	0.0	63.8	Sd Gy Fn Grn Carb Clay
84-85	23	17.6	0.6	70.4	Sd Gy Fn Grn
85-86	79	18.2	0.0	62.0	Sd Gy Fn-Med Grn Clay
86-87	38	18.2	0.0	65.4	Sd Gy Fn-Med Grn Clay
87-88	0.3	13.0	0.0	57.6	Sd Lt Gy Fn Grn Clay
88-89	50	19.3	0.0	59.1	Sd Lt Gy Fn Grn Clay
89-90	30	19.6	0.0	60.2	Sd Lt Gy Fn Grn Clay
90-91	44	23.7	0.0	64.6	Sd Gy Fn-Med Grn Clay
91-92	62	19.1	0.0	65.9	Sd Gy Fn-Med Grn
92-93	109	18.3	0.6	57.0	Sd Gy Fn-Med Grn
93-94	83	19.6	0.0	57.6	Sd Gy Fn-Med Grn Clay
94-95	300	19.7	0.0	71.1	Sd Gy Med Grn Clay
95-96	63	19.7	0.5	73.6	Sd Gy Med Grn Clay
96-97	78	15.3	0.0	56.8	Sd Gy Med Grn Clay

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CORE ANALYSIS RESULTS

Company ANDERSON OIL COMPANY Formation DAKOTA File RP-3-2182
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CHERT-CN	CONGLOMERATE-CONG	SHALY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERT-V/
GYPSEUM-GYP	FOSSILIFEROUS-FOSS	LMY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W/
DEPTH FEET	PERMEABILITY MILLIDARCYS (K _A)	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS		
			OIL	TOTAL WATER			

4697-98	68	19.8	0.0	69.2	Sd Gy Med Grn Clay
98-99	71	20.6	0.0	61.2	Sd Gy Med Grn Clay
4699-00	<0.1	4.3	0.0	49.7	Sd Gy Fn Grn Qtz
4700-01	30	16.7	0.0	76.7	Sd Gy Fn Grn
01-02	58	14.9	0.0	77.3	Sd Gy Fn-Med Grn
02-03	33	12.9	0.0	64.3	Sd Gy Fn Grn
03-04	66	15.9	0.0	76.1	Sd Gy Fn Grn
04-05	11	14.0	0.0	80.7	Sd Gy Fn Grn
05-06	94	16.2	0.0	72.1	Sd Gy Fn Grn Frac
06-07	68	16.6	0.0	68.1	Sd Gy Fn-Med Grn

DRILLSTEM TEST RECORD

SP DST #1: 4658-4667 Dakota "D"
(4648-57 Adjusted to logs)

Open 15 minutes: Strong blow air immed, Gas to surface
7 minutes, ggd 75 MCF

Shut in 30 minutes:

Open 60 minutes: Gas @ rate 75 MCF dec to 20 MCF @
end of test

Shut in 60 minutes:

Recovered: 50' heavily oil and gas cut mud,
410' slight gas cut water
Rw 1.94 @ 70°F: Chlorides 3000 ppm

Initial hydrostatic pressure	2278 psi
Final hydrostatic pressure	2268 psi
Initial flow pressure (1)	27 psi
Final flow pressure (1)	74 psi
Initial flow pressure (2)	74 psi
Final flow pressure (2)	167 psi
Initial shut in pressure	1959 psi
Final shut in pressure	1959 psi

Bottom Hole Temperature - 122°F

Bottom Hole Sampler: 85 psi; 122°F
100 cc oil; 3 CFG
1800 cc water; no mud

SUMMATION

This well was spudded August 13, 1971, and 5 1/2" casing was set to total depth August 22, 1971. The well was drilled to a total depth of 4788' Logger: 4805' Driller, in the Morrison formation of Jurassic age. A total of 108 rotating hours were required for the drilling of this test.

All formations from 3800' to 4805' (Driller TD) were evaluated by (1) careful examination of rotary cuttings by a geologist in the field; (2) the entire stratigraphic section was evaluated by qualitative and quantitative analysis of the electrical surveys. A core was cut in the Dakota "D" zone (4651-4707 adjusted to electrical surveys). Examination of the core revealed an oil saturated section in the top of the Dakota "D" zone (4651-57 adjusted to electrical surveys). A drillstem test was run 4648-57 (adjusted to electrical surveys). Gas guaged 75 MCF, recovery was 50' heavily oil and gas cut mud, 410' slightly gas cut water. The pressures and detailed drillstem test data are recorded in the text of the report. The other prospective zones in the well calculated water or high clay content from the electrical surveys.

The well ran structurally 10' lower than the Anderson Oil Company: Schram-Hanson #1, located in SW SE, Section 17, Township 21 North, Range 8 West, San Juan County, New Mexico, on top of the Dakota "D" zone.

Rotary samples from 3800' to total depth were saved by Anderson Oil Company. Core analysis was conducted by Core Lab of Farmington, New Mexico, and a copy of the analysis is included in the text of the report. An Induction Electrolog was run from surface to total depth. A Densilog and Acoustilog were run over selected intervals.

Dave M. Thomas, Jr.

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CPG 914