

*"Confidential"*  
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WELL REPORT  
DAVIS OIL COMPANY  
RED MOUNTAIN #1  
MCKINLEY COUNTY, NEW MEXICO



## WELL REPORT

DAVIS OIL COMPANY: RED MOUNTAIN #1

MCKINLEY COUNTY, NEW MEXICO

### LOCATION

660' from the north line and 660' from the west line of Section 31, Township 20 North, Range 9 West, NMPM.

### ELEVATION

6390' ground: 6400 Kelley bushing

### CONTRACTOR

Lewmont Drilling Associates, Rig #8, Unit 15, Rotary tools.

### SPUD AND COMPLETION DATA

Well commenced: April 25, 1971

Well completed: April 30, 1971, plugged and abandoned

Total Depth: 3720'

Plugging Program:

Surface	5 sacks
600' - 650'	16 sacks
1250' - 1350'	32 sacks
2470' - 2620'	48 sacks
3340' - 3440'	32 sacks

### CASING

Surface: 8 5/8" @ 75' with 50 sacks.

### ELECTRICAL SURVEYS

Dresser Atlas - Induction Electrolog from 72' to 3719'

Dresser Atlas - Densilog from 72' to 3721'

Dresser Atlas - Acoustilog from 110' to 3719'

### FORMATION TOPS

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
Menefee (Kmf)	Surface	+6400
Point Lookout (Kpl)	1304'	+5096
Upper Mancos (Kmu)	1518'	+4882
Gallup (Kg)	2394'	+4006
Hospah Gallup (Khg)	2501'	+3899
Massive Gallup (Kmg)	2588'	+3812
Lower Mancos (Kml)	2706'	+3694
Sanastee (Kms)	2968'	+3432
Greenhorn (Kgh)	3310'	+3090

## FORMATION TOPS - CONTINUED

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
Graneros (Kgr)	3356'	+3044
Dakota "A" (Kda)	3390'	+3010
Dakota "B" (Kdb)	3498'	+2902
Dakota "D" (Kdd)	3578'	+2822
Dakota Burro Canyon (Kdbc)	3646'	+2754
<u>Jurassic</u>		
Morrison (Jm)	3707'	+2693
Total Depth	3720'	+2680

## WELL CUTTINGS

30' samples from 80' to 2500'

10' samples from 2500' to 3720'

Samples described below from 2500' to 3720' (TD)

### SAMPLE DESCRIPTION:

#### TOP HOSPAH GALLUP 2501' LOGS

2500-30	90% sh, dk gy, gy, gy grn, carb & silty in part: 10% ss, sht, v-f-f-g, uncons, SA-SR, <u>N-S</u>
2530-60	100% sh, as above: Tr ss, as above
2560-70	70% sh, as above: 30% ss, as above, domin f-g

#### TOP MASSIVE GALLUP 2588' LOGS

2570-90	50% ss, as above: 50% sh, as above
2590-2600	80% ss, as above: 20% sh, as above
2600-50	90% ss, as above: 10% sh, as above
2650-60	70% ss, as above: 30% sh, as above
2660-2700	100% ss, wht, uncons, f-g, SA-SR, sl arkosic, <u>N-S</u>

#### TOP LOWER MANCOS 2706' LOGS

2700-80	90% ss, wht-lt gy, as above: 10% sh, as above
2780-2820	90% sh, as above: 10% ss, as above
2820-70	60% sh, as above: 40% ss, gy, uncons, v-f-f-g, SA-SR, sl/arkosic, <u>N-S</u>
2870-80	80% sh, as above: 20% ss, as above, bcm v-f-g
2880-2910	90% sh, as above: 10% ss, as above
2910-30	80% sh, as above: 20% ss, as above

2930-50 90% sh, as above: 10% ss, as above  
2950-60 50% ss, as above: N-S: 50% sh, as above

TOP SANASTEE 2968' LOGS

2960-3000 80% sh, as above: 20% ss, as above N-S  
3000-50 90% sh, as above: 10% ss, as above, N-S  
3050-80 100% sh, as above: Tr ss, as above  
3080-3100 100% sh, as above: Tr ls, mott brn, ds N-S

TOP GREENHORN 3310' LOGS

3100-3350 100% sh, dk gy, gy, gy grn, carb & silty in part: Tr ss,  
as above

TOP GRANEROS 3356' LOGS

3350-3400 100% dk gy, gy, platy, & Tr gy brn carb sh: Tr shstn,  
gy, shy, calc: Tr bentonite

TOP DAKOTA "A" 3390' LOGS

3400-10 100% sh, as above: Tr ls, tan, dense  
3410-20 100% sh, as above: Tr ls, gy, dense  
3420-30 90% sh, as above: 10% ss, wht, cons, f-g, SA-SR, sl  
arkosic, porous & friable in part, calc cmt, N-S  
3430-40 30% ss, as above: 70% sh, dk gy, gy, gy grn, gy brn,  
carb in part  
3440-50 100% sh, as above: Tr ss, as above, bcm v-f-g, silty,  
shy, tite: N-S  
3450-60 50% ss, wht-buff, v-f-g, cons, SA-SR, well cmtd, calc,  
glauc, N-S : 50% sh, as above  
3460-80 30% ss, lt gy, v-f-g, cons, SA-SR, as above, N-S:  
70% sh, as above, ss lamin: Tr diss. pyrite

TOP DAKOTA "B" 3498' LOGS

3480-3500 100% sh, as above: Tr ss, as above  
3500-10 90% sh, as above: 10% ss, wht, uncons, f-g, arkosic, SA-SR,  
N-S  
3510-20 70% ss, as above, cons-uncons, sl calc, N-S: 30% sh, as  
above: Tr bentonite  
3520-30 40% ss, as above: 60% sh, as above: Tr bentonite

3530-40 80% sh, as above: 20% ss, as above, bcm v-f-g, silty, shy, tite, N-S

3540-50 90% sh, as above: 10% ss, as above

TOP DAKOTA "D" 3578' LOGS

3550-90 100% sh, as above: Tr ss, as above

3590-3600 Tr ss, buff, cons, v-f-f-g, SA-SR, arkosic, por, friable, N-S: 100% sh, as above: Tr bentonite

3600-10 50% ss, as above, bcm domin, v-f-g, w less por, Tr gold fluor, sl/cut: 50% sh, as above

3610-30 70% ss, buff, cons, v-f-f-g, SA-SR, arkosic, por, friable, 10% gold fluor, good cut, 30% sh, as above

3640- Circ "15" ss, as above: Tr - 10% fluor; as above  
circ 30" aa, circ 60" - 100% sh, as above

TOP DAKOTA (BURRO CANYON) 3646' LOGS

3640-50 100% sh, as above: Tr ss, as above: N-S

3650-60 100% sh, as above: Tr ss, as above, occ m-c-g's

3660-70 70% ss, wht-buff, cons, f-g, SA-SR, arkosic, well cmt, silic, N-S, occ m-c-g's, Tr sht: 30% sh, as above

3670-80 30% ss, as above, bcm por & friable in part: N-S: 70% sh, ~~as above, f-g, uncons, N-S~~

3690-3700 100% sh, as above: Tr ss, as above, occ m-c-g: Tr cht

TOP MORRISON 3707' LOGS

3700-10 30% ss, uncons, f-c-g, SA-SR, abt cht, N-S: 70% sh, as above: Tr sh, pale grn, wxy

3710-20 80% sh, dk gy, platy: 10% sh, pale grn, wxy & silic in part: 10% ss, as above, N-S  
TD 3720'.

DRILLING TIME

Five foot drilling time from 2400' to 3720' (TD) is listed below:

2400-2500	3-5-6-6-7-7-6-5-6-5-6-5-6-6-6-5-5-5-4-4
2500-2600	2-3-2-3-2-3-2-3-2-2-2-2-2-2-2-2-2-2-2
2600-2700	1-2-1-2-1-1-2-2-2-2-2-2-2-3-3-3-3-3-3
2700-2800	4-5-5-5-5-4-5-5-5-5-6-7-6-6-6-6-6-6-7-9
2800-2900	6-7-8-5-5-5-5-5-5-4-5-5-5-5-5-5-5-5-5
2900-3000	5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-4-4-5-5-5
3000-3100	5-5-5-5-5-5-6-5-5-5-5-5-5-7-5-6-5-8-5-4
3100-3200	7-6-6-5-8-11-9-12-16-8-6-6-9-8-8-9-9-9-9-10

## DRILLING TIME - CONTINUED

3200-3300 10-10-10-12-11-11-10-11-12-13-16-13-13-13-13-12-15-17-11-12  
3300-3400 11-12-11-12-12-13-11-11-11-20-15-15-13-17-12-14-16-12-8-5  
3400-3500 6-6-8-8-10-13-17-15-10-11-14-14-20-23-24-31-24-36-36-36  
3500-3600 20-7-19-17-17-18-31-26-32-25-28-30-35-39-19-9-6-6-12-8  
3600-3700 12-8-9-6-15-20-22-25-8-15-10-7-7-9-10-30-24-32-20-5  
3700-3800 20-36-40-40

## CHRONOLOGICAL LOG

4-24-71 MIRT  
4-25-71 ø 275'  
Rigging up (21 hrs) Drilling (3 hrs)  
Spud: 4:00 a.m. 4-25-71  
4-26-71 ø 2197'  
Drilling (19 1/2 hrs) Trip (2 hrs) Misc. (2 1/2 hrs)  
Dev. 1/4" @ 600'  
3/4" @ 1100'  
1/2" @ 1678'  
3/4" @ 2167'  
4-27-71 ø 3250'  
Drilling (19 3/4 hrs) Trip 2 3/4 hrs) Misc. (1 1/2 hrs)  
Dev. 1" @ 2818'  
4-28-71 ø 3573'  
Drilling (18 1/4 hrs) Trips (4 1/2 hrs) Misc. (1 1/4 hrs)  
Dev. 2" @ 3350'  
4-29-71 ø 3690'  
Drilling (5 1/2 hrs) Testing (10 hrs) Trips (3 1/4 hrs)  
Misc. (3/4 hr)  
4-30-71 TD 3720'  
Drilling (3 hrs) Circulating (1 hr) Logging (12 3/4 hrs)  
Waiting on orders (7 hrs) Rig Service (1/4 hr)  
5-01-71 TD 3720 P&A  
Waiting on orders (6 hrs) Plugging (5 1/2 hrs)

## BIT RECORD

<u>No.</u>	<u>Size</u>	<u>Make</u>	<u>Type</u>	<u>From</u>	<u>To</u>	<u>Footage</u>	<u>Hours</u>
1	7 7/8	STC	DSJ	70	1678	1608	16
2	7 7/8	STC	DT	1678	2818	1210	15 1/2
3	7 7/8	STC	DGT	2818	3350	532	14 1/4
4	7 7/8	STC	DGT	3350	3573	223	14 1/2
5	7 7/8	STC	DG	3573	3640	67	2 3/4
6	7 7/8	SEC	S4TG	3640	3720	80	6

TOTAL ROTATING HOURS - 69

### DEVIATION RECORD

<u>No.</u>	<u>Degree</u>	<u>Depth</u>	<u>Date</u>
1	1/4°	600	4-26-71
2	3/4°	1100	4-26-71
3	1/2°	1678	4-26-71
4	3/4°	2167	4-26-71
5	1°	2818	4-27-71
6	2°	3350	4-28-71

### ELECTRICAL SURVEY CALCULATIONS

<u>Formation</u>	<u>Depth</u>	<u>Porosity</u> <u>Density</u>	<u>Acoustilog</u>	<u>Rw</u>	<u>Water</u> <u>Saturation</u>	<u>Q</u>
Dakota(Burro Canyon)	3658-70	16%	19%	1.0	100%	.16
Dakota(Burro Canyon)	3652-54	14%	14%	1.0	95%	--
Dakota "D"	3600-26	15%	16%	3.35	100%	.06
Dakota "D"	3588-94	16%	17%	3.35	100%	.06
Dakota "B"	3504-14	15%	21%	1.0	100%	.285
Dakota "A"	3441-46	12%	14%	1.0	100%	.14
Dakota "A"	3392	11%	14%	1.0	100%	.21

### DRILLSTEM TEST RECORD

DST #1: 3570 - 3640 (Dakota "D")

Open 15" strong blow: Initial shut in 45 minutes: open 45 minutes, strong blow air, water to surface 40 minutes, estimated rate 1 1/2 barrels/hour: Rw 3.0 @ 80°F, chlorides - 1550 ppm: Final shut in 60 minutes.

Recovered full string of water.

Initial hydrostatic pressure	1782 psi
Final hydrostatic pressure	1773 psi
Initial flow pressure (1)	818 psi
Final flow pressure (1)	1173 psi
Initial flow pressure (2)	1210 psi
Final flow pressure (2)	1605 psi
Initial shut in pressure	1671 psi
Final shut in pressure	1671 psi
Bottom hole temp. 110°F	

## SUMMATION

This well was spudded April 25, 1971, and plugged and abandoned April 30, 1971. The well was drilled to a total depth of 3720' in the Morrison formation of Jurassic age. A total of 69 rotating hours were required for the drilling of this test.

All formations from 2500' to 3720' (TD) were evaluated by (1) careful examination of rotary cuttings from 2500' to TD by a geologist in the field; (2) the entire stratigraphic section was evaluated by qualitative and quantitative analysis of the electrical surveys. A show of oil was recorded in the Dakota "D" zone 3578'-3628' and subsequently drill stem tested. This interval flowed fresh water in 40 minutes at an estimated rate of 1 1/2 barrels per hour. The other prospective zones in the well calculated water from the electrical surveys.

The well ran structurally 127' higher than the Chaco Oil Company: Santa Fe Pacific #20-1, located in Section 20, Township 20 North, Range 9 West, McKinley County, New Mexico, on top of the Dakota "A" zone.

Rotary samples were saved from 80' to total depth and shipped to the Four Corners Sample Cut in Farmington, New Mexico. A water sample from the Dakota "D" zone was sent to Core Laboratories in Farmington, New Mexico, for complete analysis. An Induction Electrolog, Densilog, and Acoustilog were run from surface casing to total depth.



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