

"Confidential" (8-5-71)

WELL REPORT
DAVIS OIL COMPANY
BONITA #1
MCKINLEY COUNTY, NEW MEXICO



WELL REPORT

DAVIS OIL COMPANY: BONITA #1

MCKINLEY COUNTY, NEW MEXICO

LOCATION

1980' from the south line and 660' from the east line of Section 25,
Township 20 North, Range 11 West, NMPM.

ELEVATION

6461' Ground: 6471' Kelley Bushing

CONTRACTOR

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

SPUD AND COMPLETION DATA

Well commenced: May 2, 1971

Well completed: May 7, 1971, plugged and abandoned

Total depth: 3641' Driller: 3639' Logger

Plugging Program:

Surface	5 sacks
500' - 550'	75 sacks
1430' - 1530'	75 sacks
2410' - 2560'	110 sacks
3255' - 3355'	65 sacks

CASING

Surface: 8 5/8" @ 74' with 40 sacks

ELECTRICAL SURVEYS

Dresser Atlas - Induction Electrolog from 74' to 3639'

Dresser Atlas - Densilog from 74' to 3638'

Dresser Atlas - Acoustilog from 750' to 1260': from 1440' to 1660':
from 2290' to 2760': from 3250' to 3638'

FORMATION TOPS

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
Menefee (Kmf)	Surface	+6471
Point Lookout (Kpl)	1472'	+4999
Upper Mancos (Kmu)	1634'	+4837
Gallup (Kg)	2310'	+4161
Hospah Gallup (Khg)	2454'	+4017
Massive Gallup (Kmg)	2505'	+3966
Lower Mancos (Kml)	2626'	+3845
Sanastee (Kms)	2866'	+3605
Greenhorn (Kgh)	3220'	+3251
Graneros (Kgr)	3268'	+3203

FORMATION TOP - CONTINUED

<u>Cretaceous</u>	<u>Depth</u>	<u>KB Datum</u>
Dakota "A" (Kda)	3306'	+3165
Dakota "B" (Kdb)	3412'	+3059
Dakota "D" (Kdd)	3506'	+2965
Dakota Burro Canyon (Kdbc)	3610'	+2861
<u>Jurassic</u>		
Morrison (Jm)	3633'	+2838
Total Depth	3641'	+2830

WELL CUTTINGS

30' samples from 80' to 2300'

10' samples from 2300' to 3641'

Samples described below from 2300' to 3641' (TD)

SAMPLE DESCRIPTION

2300-20 70% sh, dk gy, gy, carb, sl micac: 30% ss, lt gy, unconc,
v-f-g, SA-SR, N-S

2320-80 50% ss, as above: 50% sh, as above

2380-2420 80% ss, uncons, v-f-f-g, as above N-S: 20% sh, as above.

2420-60 100% sh, as above: Tr ss as above

TOP HOSPAH GALLUP 2454' LOGS

2460-2500 90% ss, wht-lt gy, uncons, v-f-f-g, SA-SR, sl arkosic
N-S: 10% sh, as above

TOP MASSIVE GALLUP 2505' LOGS

2500-2600 100% ss, wht, uncons, f-g, SA-SR, sl arkosic, N-S
Tr sh, as above

2600-20 80% ss, as above, bcm v-f-f-g, N-S

TOP LOWER MANCOS 2626' LOGS

2620-60 80% sh, as above: 20% ss, as above

2660-2700 90% sh, as above: 10% ss, as above

TOP SANASTEE 2866' LOGS

2700-3000 100% sh, dk gy, gy, gy-grn, carb & silty in part:
Tr ss as above

3000-30 100% sh, as above: Tr sltstn, gy calc

3030-50 90% sh, as above: 10% sltstn, gy-gy brn, calc

3050-70 100% sh, as above: Tr sltstn, as above

3070-80 90% sh, as above: 10% sltstn, as above
 3080-3160 100% sh, as above: Tr sltstn, as above
 3160-70 90% sh, as above: 10% sltstn, as above
 3170-80 50% ss, gy v-f-g, uncons, calc, silty: 50% sh, as above
 3180-3200 50% sltstn, gy, shy, calc: 50% sh as above
 3200-10 80% sh, as above: 20% sltstn, as above
 3210-20 50% sltstn, as above: 50% sh, as above

TOP GREENHORN 3220' LOGS

3220-30 60% sh, as above: 40% sltstn, as above
 3230-40 90% sh, as above: Tr olive gy sh: 10% sltstn, as above
 3240-50 80% sh, as above, bcm more calc: 10% sltstn, as above:
~~10% ls, gy brn, silty, ds~~
 3250-60 90% sh, as above: 10% sltstn, as above: Tr ss, v-f-g,
 lt gy, glauc, silty, calc, hd, tite, N-S

TOP GRANEROS 3268' LOGS

~~3260-80 80% sh, as above, Tr sh, gy brn, v/calc: 20% sltstn, as
 above: Tr ls, gy brn, ds, indist foss~~
~~3280-3300 100% sh, dk gy, gy brn, gy, silty & carb in part: Tr
 sltstn, gy, shy, v-sl-calc~~

TOP DAKOTA "A" 3306' LOGS

3300-10 100% sh, as above: Tr dk gy, platy, sh: Tr sltstn & ss, as above
 3315 Circ 30", 30% ss, wht-buff, cons-uncons, f-m-g, arkosic,
 abt glauc, well cmted, silic, Tr por: 30% oil stain, bright
~~blue gold fluor, No cut - excellent cut when crushed:~~
 70% sh, as above
~~3315 Circ 45", 50% ss, as above: 50% sh, as above~~
 3320 Circ 30", 80% ss, as above, domin uncons, conc, ss, bcm, por,
 friable, calc, cmt: 20% sh, as above
 3320 Circ 45", 80% ss, as above: 20% sh, as above
 3320-30 100% sh, dk gy, carb, silty & sdy in part: Tr ss, dk gy,
 f-g, -SA-SR, shy, N-S: Tr sltstn, as above, N-S
 3330-40 90% sh, as above: 10% sltstn, dk gy, gy, calc, sh lamin:
 Tr ss, wht, cons, v-f-g, intstl clay, N-S

3340-50 70% sh, as above: 30% sltstn, as above: Tr ss, as above
~~3350-70~~ 60% sltstn, as above: 40% sh, as above: Tr ss, gy, v-f-g, cons, shy, calc glauc, N-S
 3370-90 70% sh, as above: 30% sltstn, as above
 3390-3400 40% ss, gy, cons, v-f-g, SA-SR, Glauc, silty, shy in part, tite, N-S: 60% sh, as above
 3400-10 60% ss, gy-buff, v-f-g, SA-SR, as above: 40% sh, as above: Tr sltstn, as above

TOP DAKOTA "B" 3412' LOGS

3410-20 70% sh, as above: 20% ss, as above: 10% sltstn, as above
~~3421~~ Circ 30", 80% sh, as above: 20% ss, wht-lt gy, f-g, SA-SR, glauc, arkosic, intstl clay, Tr por N-S: Tr diss pyrite
 3421 Circ 45", 40% ss, wht-buff, cons, f-m-g, SA-SR, glauc, arkosic, por & friable, N-S: 60% sh, as above
 3420-50 40% ss, as above, cons-uncons, intstl clay, N-S: 60% sh, as above
 3450-60 70% ss, as above: 30% sh, as above
 3460-3510 70% ss, as above, domin uncons, occ c-g's, N-S: 30% sh, as above: Tr bentonite

TOP DAKOTA "D" 3506' LOGS

~~3510-30~~ 70% sh, as above: 30% ss, as above
 3530-40 50% ss, as above: 50% sh, as above
 3540-50 70% sh, as above: 30% ss, as above
~~3550-60~~ 50% ss, as above: 50% sh, as above
 3560-70 80% sh, as above: 20% ss, as above
~~3570-80~~ 100% sh, dk gy, gy, gy-brn, platy, Tr ss, as above
 3580-90 80% sh, as above: 20% ss, wht, buff, cons, v-f-g, sl arkosic, silty, tite, N-S

3590-3600 50% ss, as above, abt uncons, ss, m-c-g, N-S: 50% sh, as above

TOP DAKOTA BURRO CANYON 3610' LOGS

3600-20 80% sh, as above: 20% ss, wht, uncons, f-c-g, SA-SR, N-S
 3620-30 50% ss, as above: 50% sh, as above

TOP MORRISON 3633' LOGS

3630-40 60% ss, wht, uncons, m-c-g, SA-SR, congl, abt cht, N-S:
 40% sh, as above: Tr lt grn, wxy sh

3641 Circ 15", 90% sh, as above: Tr sh, lt-med grn, wxy: 10%
 ss, as above

DRILLING TIME

Five foot drilling time from 2300' to 3641' (TD) is listed below.

2300-2400	4-4-5-5-5-4-6-7-6-5-6-6-6-6-7-8-6-6-6-6
2400-2500	6-7-6-4-6-4-6-3-3-3-3-3-4-3-4-3-6-5-5
2500-2600	5-2-2-1-2-1-2-1-2-1-1-5-5-5-5-5-3-4-5-5
2600-2700	5-5-6-6-6-6-5-5-6-6-5-5-7-7-7-7-7-7-7-7
2700-2800	---9-9-9-10-10-10-10-9-11-12-12-12-14-12-12-13-10-10
2800-2900	5-5-5-5-5-5-5-5-5-5-5-5-4-4-4-3-4-4-4-4
2900-3000	3-3-4-4-3-3-4-4-4-4-4-4-4-4-4-4-4-2-2-2
3000-3100	2-2-2-4-4-5-7-6-6-5-5-5-5-5-5-5-5-5-5-5
3100-3200	5-5-5-5-5-5-5-5-5-5-6-7-6-6-7-6-6-6-8-8
3200-3300	8-9-10-7-7-8-9-8-7-8-8-8-8-10-10-12-12-12-12
3300-3400	12-9-5-6-5-6-7-6-8-10-9-10-10-8-8-6-7-10-10-11
3400-3500	13-12-13-5-5-5-5-8-6-5-4-5-5-5-5-8-9-18-19-20
3500-3600	25-22-7-8-7-28-8-20-13-20-22-28-15-14-9-13-14-10-20-12
3600-	13-8-31-18-4-6-33-40

CHRONOLOGICAL LOG

5-2-71 RURT

5-3-71 TD 1733, Trip bit #2, 8 5/8" - 74' w/40 sacks

Spud: 1:30 p.m. 5-2-71

Rigging up (6 1/2 hrs) Drilling (14 hrs)

Trip (2 hrs) Misc. (1 1/2 hrs)

Dev. 3/4" @ 573'

1/2" @ 1733'

5-4-71 TD 2800'

Trip bit #3

Drilling (18 3/4 hrs) Trip 2 3/4 hrs) Misc. (2 1/2 hrs)

Dev. 1" @ 2300'

1 1/4" @ 2800'

5-5-71 TD 3320 DST #1

Drilling (10 3/4 hrs) Trip (1 hr) Circ samples (1 1/4 hrs)

Cond hole for DST (2 1/2 hrs) Testing (6 1/2 hrs) Misc. (2 hrs)

Dev. 1 1/2" @ 3320

5-6-71 TD 3641, Prep. to log

Drilling (14 1/2 hrs) DST (3 hrs) WOO (1/2 hr)

Circ. samples (3/4 hr) Trips (4 1/2 hrs) Misc. (3/4 hr)

5-7-71 TD 3641, Waiting on orders

Circ. for logs (2 1/2 hrs) Logging (10 hrs)

Waiting on orders (3 hrs) Testing (7 hrs)

5-8-71 TD 3641, P & A

Waiting on orders (5 hrs) Plugging (8 hrs)

BIT RECORD

<u>No.</u>	<u>Make</u>	<u>Size</u>	<u>Type</u>	<u>From</u>	<u>To</u>	<u>Footage</u>	<u>Hours Run=</u>
1	STC	7 7/8	DSS	60	1733	1673	14
2	STC	7 7/8	DTJ	1733	2800	967	18 3/4
3	STC	7 7/8	DGT	2800	3320	520	10 3/4
4	STC	7 7/8	DGT	3320	3559	239	9
5	STC	7 7/8	DGT	3559	3641	82	5 1/2

TOTAL ROTATING HOURS - 58

DEVIATION RECORD

<u>No.</u>	<u>Degree</u>	<u>Depth</u>	<u>Date</u>
1	3/4 °	573	5-3-71
2	1/2 °	1733	5-3-71
3	1 °	2300	5-4-71
4	1 1/4 °	2800	5-4-71
5	1 1/2 °	3320	5-5-71

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)	3629	8%	10%	5.0	100%	.20
Dakota (Burro Canyon)	3618-24	15%	28%	5.0	100%	.46
Dakota (Burro Canyon)	3614-16	12%	23%	5.0	100%	.57
Dakota "D"	3520	13%	17%	3.35	100%	.23
Dakota "B"	3462-72	15%	16%	2.3	100%	.06
Dakota "B"	3444-50	17%	19%	2.3	100%	.11
Dakota "B"	3416-28	15%	21%	2.3	100%	.35
Dakota "A"	3316	12%	15%	1.37	100%	.20
Dakota "A"	3314	13%	15%	1.37	100%	.13
Dakota "A"	3312	12%	12%	1.37	100%	0
Dakota "A"	3310	12%	13%	1.37	100%	.08
Dakota "A"	3308	10%	13%	1.37	100%	.23
Dakota "A"	3306	11%	16%	1.37	100%	.31

Rw taken from DST data.

Water saturations from Epilog Formula.

DRILLSTEM TEST RECORD

DST #1: 3305-20 (Dakota "A") (3303-18 Logs)

Open 15 minutes, weak to fair blow: Initial shut in 45 minutes:
open 60 minutes, weak to good blow: Final shut in 90 minutes.

Recovered 1445' fluid: 120' drilling mud, 790' slightly oil cut mud,
535' water cut mud with a trace of oil.

Bottom hole sampler: 1600 cc of fluid
200 cc of oil
1400 cc of water

Rw 1.75 @ 70°F.

Chlorides - 3200 ppm

Initial hydrostatic pressure	1720 psi
Final hydrostatic pressure	1720 psi
Initial flow pressure (1)	602 psi
Final flow pressure (1)	671 psi
Initial flow pressure (2)	671 psi
Final flow pressure (2)	722 psi
Initial shut in pressure	1545 psi
Final shut in pressure	1484 psi

Tool opened @2900' while going in hole.

SP DST #2: 3305-14 (Dakota "A") (3303-12 Logs)
Packers failed.

SUMMATION

This well was spudded May 2, 1971, and plugged and abandoned May 7, 1971. The well was drilled to a total depth of 3641' in the Morrison formation of Jurassic age. A total of 58 rotating hours were required for the drilling of this test.

All formations from 2300' to 3641' (TD) were evaluated by (1) careful examination of rotary cuttings from 2300' 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 "A" zone 3308-20 and subsequently drillstem tested. The tool opened prematurely at 2900' and the results were inconclusive. The bottom hole sampler contained 1600 cc of fluid being 200 cc of oil and 1400 cc of water. A straddle test of the same zone was attempted but the packers failed. The other prospective zones in the well calculated water from the electrical surveys.

The well ran structurally 72' higher than the Tenneco Oil Company: Santa Fe Pacific "B" #1, located in Section 29, Township 20 North, Range 10 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 fluid sample of from the Dakota "A" 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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