GEOLOGICAL WELL REPORT
NATIONAL COOPERATIVE REFINERY ASSOCIATION
GILLETTE #1
SW NW Section 23-3S-58W
Adams County, Colorado

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WELL HISTORY

OPERATOR:	National Cooperative Refinery Association
WELL NAME:	Gillette #1
LOCATION:	SW NW Section 23-3S-58W Adams County, Colorado
ELEVATIONS:	GL 4898' KB 4909'
CONTRACTOR:	Exeter Drilling Company, Rig #13 Jim Keithline, Toolpusher (Turn-key)
SPUD:	1:45 PM 11-25-84
CASING:	7 jts 8-5/8" surface, set @ 303' w/250 sxs cement.
CEASED DRILLING:	6:00 PM 11-28-84
RELEASED RIG:	8:00 PM 11-29-84
TOTAL DEPTH:	RTD 5765' LTD 5762'
MUD:	Exeter Drilling handled mud program.
TESTING:	No DST's were taken.
LOGGING:	Gearhart--Mark Etherton, Engineer. Ran Dual Induction-Laterolog 300'-5762' Compensated Density 4700'-5762'
GEOLOGIST:	Chris P. Gough (NCRA, Denver, Colorado)
STATUS:	D & A

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CHRONOLOGICAL DATA

11-25-84 Spud 1:45 PM. Ran 7 jts 8-5/8" 24# surf csg, set @ 303' w/250 sxs. PD 5:15 PM.

11-26-84 Drilling @ 1005', @ 8:00 AM. Made 1005' in 6 hrs. Bit #1-A in @ 0', out @ 304'. Made 304' in 2-1/4 hrs. Bit #1 in hole. Dev 1/4° @ 304'.

11-27-84 Tripping @ 4174'. Made 3169' in 18-1/2 hrs. Drilling with water. Bit #1 in @ 304', out @ 4174'. Made 3870' in 21-3/4 hrs. Bit #2 in @ 4174' w/dev 1°.

11-28-84 Drilling @ 5450'. Made 1276' in 17-1/4 hrs. MW 9.8, Vis 37, WL 9.6, ph 9.0, sd 8.5%. Bit #2 in @ 4174', out @ 5299'. Drilled 112.5' in 13-1/4 hrs. Bit #3 in hole. Dev 1° @ 5299'. Geologist on location @ 8 AM. Start plotting drill time and running samples at 5580'. Cut the "D" at 12:00 noon. Circ samples for 2 hrs @ 5620'. Good sand rec'y in 45 mins & 60 min sample. Poor reservoir quality rock, clay filled sandstone. No shows for oil. Drill ahead to "J_1" sand and circ @ 5670' for 1 hr. Good sand rec'y, fair reservoir quality, partially clay-filled, fair vis por. Good fluor. Drill to "J_2" sand and circ @ 5700' for 1 hr. Poor sand rec'y. No shows of oil. Drill to "J_3" sand @ 5690'. Good sand return in samples. Excellent reservoir quality sand, fair unconsolidated, well rounded. Good vis porosity. No shows of oil. Drill ahead to TD and circ for 1 hr @ 5765'. Short trip to Niobrara and prepare to log well.

11-29-84 Gearhart on location at 2:00 AM, ready to run logs. Logging completed at 10:00 AM. Log indicated the "J_1" sand to have an average porosity of 15% with resistivity of about 7 ohms. The "J_2" sand was only 5' thick with average porosity of 15% with resistivity of 6 ohms. Both these sand zones indicated about 50 units gamma-ray response. The "J_3" sand was 12' thick, indicated about 30 gamma-ray units, 15% porosity and 20 ohms resistivity. Called in log results to operator. Operator elected not to test this well and called in plugging orders. Plugged well with 20 sxs at bottom of surf csg and 10 sxs at top. Plug was down at 7 PM 11-29-84. Released rig 8 PM 11-29-84. P & A.

BIT RECORD

No.	Size	Type	In	Out	Footage	Hours
1A	12-1/4	J-11	0	303	303	2-1/4
1	7-7/8	DSJ	303	4174	3870	21-3/4
2	7-7/8	R-1	4174	5299	1125	13-1/4
3	7-7/8	DTJ	5299	5615	316	15-1/4

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MUD PROGRAM

Mud Program was under supervision of Exeter Drilling Company, using Magcobar mud. Native mud was used to approximately 4500'. Gel mix was used from 4500' to Total Depth. Had good sample quality.

ELECTRIC LOG TOPS

FORMATION	DEPTH	DATUM
Niobrara	4749'	+160
Greenhorn	5286'	-377
"X" Bentonite	5508'	-599
"D" Sand	5606'	-697
"J_1" Sand	5655'	-746
"J_2" Sand	5688'	-779
"J_3" Sand	5706'	-797
Total Depth	5762'	-853

DRILL STEM TEST

No drill stem tests were taken.

SAMPLE DESCRIPTIONS

5570-5790	Sh, gry, soft, bentonitic
5580-5590	Sh A/A, sli pyritic, small amt iron-stained sdst
5590-5600	Sh, gry, sli pyritic
5600-5610	Sh, gry, soft, A/A, sml amt chalk, white
5620	Circ 2 hrs
	15 mins - Sh, gry, soft, bentonitic
	30 mins - sh, gry, soft, bentonitic
	45 mins - sh, wht, gry, fn grn, clay specks, fr vis por, NSFO, no fluor, "D" Sd
	60 mins - Sdst, wht w/gry & blk clay specks, v fn grn, dense, fair por, NSFO
	75 mins - A/A
	90 mins - A/A
	105 mins - poor recovery
	115 mins - poor recovery
5630	Sh, gry-blk, harder, pyrite, very abn, sm amt "D" Sd.
5630-5640	Sh, gry-blk, pyrite, sdst, cleaner, fn grn, dense, no shows
5640-5650	Sh, gry-blk, soft, bentonitic
5650-5660	Sh, gry, Chert-orange
5660-5670	A/A, Sh, blk-gry

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SAMPLE DESCRIPTIONS (Cont.)

5670	Circ 1 hr. 15 mins - Sh, gry, blk, foss, pyritic, chert - orange, chalk - wht, soft 30 mins - Sh, gry, blk, sm amt sdst, fn-med grn, dense, hvy matrix, f vis por 45 mins - Sdst, med grn, ang-sub rnd'd, dense clusters, fr-good vis por, no vis stain. Good fluor on brk; 25% sdst in tray--1/2 w/fluor 60 mins - Sdst, good rec'y, 40% in tray, sub-rnd'd, dense clusters, fr-good vis por, no vis stn. Gas bubbles on break. Fair flour, 1/2 of sdst w/flour
5670-5680	Sdst, larger grn, cleaner, sub-rnd'd, less dense, exc streaming fluor fair, vis por.
5680-5690	Sdst, A/A, less abn, 20% sdst in tray, 1/2 w/fluor, gas bubbles on break
5690-5700	Sh, gry-blk, sdst, less abn, sub-rnd'd, fr por, sli fluor Circ 1 hr for "J_2" Sand 15 mins - Sh, gry, blk, Sdst, A/A 30 mins - Sh, gry, Blk, sl foss, pyritic 45 mins - Poor sample rec'y, all sh 60 mins - Sh, gry, sm amt sdst, med grn. Good vis por, sub-rnd'd, no fluor
5710	Sh, gry-blk, sdst, not abn, cln, med grn, sub rnd'd, no stn, no fluor
5710-5720	A/A
5720-5730	Sdst, "J_3", med grn, cln, nearly unconsolidated, very good vis por, well-rnd'd, no stn, no fluor
5730-5740	A/A
5740-5750	A/A, sdst, Good reservoir quality rock, NSFO, A/A
5760-5765	Sh, gry-blk, Sdst, not abn, rounded, good vis por, no fluor, no stn

DISCUSSION

Although this well was only 1 foot low to the Maddern #1 producer and had good sample shows in the "J" sand, the log calculations indicated high water saturation. The porosity dropped from 22-15% and resistivity dropped from 30-7 ohms. There was no development of a clean upper sand bench, which seems to be needed for production in this area. The "J_3" sand was the best looking reservoir-quality rock in this well, yet it had no shows of oil in the drilling samples. The "J_3" sand calculated about 65-70% water saturation using .3 Rw. On this basis, the operator elected to plug and abandon this test.

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