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GEOLOGICAL WELL REPORT
NATIONAL COOPERATIVE REFINERY ASSOCIATION
MADDERN #2
SW SE Section 22-3S-58W. *JK*
Adams County, Colorado

By Chris P. Gough
Wellsite Geologist (NCRA)
Denver, Colorado
June 25, 1984

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WELL HISTORY

OPERATOR: NATIONAL COOPERATIVE REFINERY ASSOCIATION

WELL NAME: Maddern #2

LOCATION: SW SE Section 22-3S-58W
Adams County, Colorado

ELEVATIONS: GL 4937', KB 4947'

CONTRACTOR: Exeter Drilling Company, Rig #13
Jim Kerthline, Toolpusher

SPUD: 9 PM June 11, 1984

CASING: 7 joints 8-5/8" surf, set @ 304' w/250 sxs cem.

CEASED DRILLING: June 15, 1984--TD at 12:00 noon.
Rig Release 12:01 AM June 19, 1984.

TOTAL DEPTH: RTD 5787', LTD 5786'

MUD: Exeter Drilling handled mud program.

TESTING: One test taken in J₁ Sand, by Halliburton.

LOGGING: Gearhart--Mark Etherton, Engineer
Dual Induction Laterolog 300-5786'
Compensated Density 4800-5786'

GEOLOGIST: Chris P. Gough (NCRA, Denver, Colorado)

STATUS: D & A

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CHRONOLOGICAL DATA

- 06-11-84 Spud 9 PM.
- 06-12-84 Ran 7 jts 8-5/8" surf csg, set @ 304' KB. Cem w/250 sxs Reg 3%.
Bit #1 made 304' in 2 hrs. Dev 1 1/4' @ 304'.
- 06-13-84 Drlg @ 4016' w/wtr. Bit #2 made 3712' in 19 hrs. No surveys.
- 06-14-84 Drlg @ 5351', made 1335' in 15-3/4 hrs. MW 9.4, Vis 32, WL 9.6.
Dev 1-3/4' @ 4016'. Geologist on location at 4 PM. Examining samples
from 5600'. Bit #3 made 390' in 14 hrs. Dev 2' @ 5351'. Bit trip
at 5741' for Bit #4. Cut the D Sd, no shows of oil. Cut the J₁
Sd, good sand sample recovery, good visible porosity, good fluor, to
drill ahead.
- 06-15-84 Trpg for Bit #4 @ 5741'. Back on btm w/Bit #4 @ 10:00. Cut J₂ Sd,
good sd sample recovery, semi dirty sd, partially clay filled, fair
vis porosity, sli fluor. Drill to TD and circ for 1 hr. Reached TD
of 5787' at 12:00 noon. Made short trip and called in loggers. MW
9.8, Vis 55. Bit #4 made 46' in 2-1/4 hrs. Dev 2' @ 5741'. Gearhart
ran DIL/GR and CDL/GR from 6:30 to 11:30 PM. Log indicates 20' of
structure to Maddern #1, yet low resistivity in J₁ Sd. No cln upper
sand-bench development. Call in log results to operator. Elect to
run a test in the J₁ Sd.
- 06-16-84 Call in Halliburton to straddle test J₁ Sd. Ran DST #1 from 5693-
5712'. On bottom w/testing tool @ 7:00 AM. Good blow on both openings.
Lost test tool in the hole due to stripped pipe threads just above
test tools. Call in Dotco to fish for tools in hole. Fisherman on
location at 5:30 PM. Very slow going in hole with overshot tools.
- 06-17-84 Fishing for test tools lost in hole. Fished out tools at 3:00 AM.
Sample chamber contained 1700 cc MW, 500 cc 41° gravity oil. Pressures
on test were legible on one chart. (See test results). Go back in
hole w/Bit #5 to clean and condition hole. WOO.
- 06-18-84 TD 5787'. WOO. MW 9.8, Vis 70. Bit #5 in hole.
- 06-19-84 Set 20 sx cem plg on btm, 10 sxs on top. RR 12:01 AM. P & A.

BIT RECORD

<u>NO.</u>	<u>SIZE</u>	<u>TYPE</u>	<u>IN</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HRS.</u>
1A	12-1/4	DS-J	0	304'	304'	2
1	7-7/8	DS	304'	4016'	3712'	19
2	7-7/8	DS	4016'	5351'	1335'	15-3/4
3 (retip)	7-7/8	FDS	5351'	5741'	390'	14
4 (retip)	7-7/8	J33	5741'	5787'	46'	2-1/4
5	7-7/8	DT	Washed & reamed			

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MUD PROGRAM

Mud program under supervision of Exeter Drilling Company, using Magcobar mud. Native mud was used to approximately 4600'. Used gel mix from 4600' to Total Depth. Had good sample quality.

ELECTRIC LOG TOPS

<u>FORMATION</u>	<u>DEPTH</u>	<u>DATUM</u>
Niobrara	4839'	+108'
Greenhorn	5351'	-404'
"X" Bentonite	5548'	-601'
D Sand	5643'	-696'
J ₁ Sand	5692'	-745'
J ₂ Sand	5728'	-781'
J ₃ Sand	5751'	-804'

DRILL STEM TEST

DST #1 from 5693-5712' (straddle test), J₁ Sand.

Initially open 15 minutes
Second opening 60 minutes

Initial Shut-in 30 minutes
Second Shut-in 120 minutes

Initial blow, weak--increasing to 7" in bucket in 15 minutes. Final blow, strong--on bottom of bucket to end of 60 minutes.

IFP 43-45#
FFP 48-87#

ISIP 1175#
FSIP 1388#

IHP 2864#
FHP 2494#

Sample chamber recovery: 500 cc 41^o gravity oil, 1700 cc MW. GOR 15.0 cf/bbl, mud wtr 500 ppm chlorides; 1900 ppm sample wtr.

Fluid in pipe was not recovered due to pipe threads pulling apart just above test tool. The tool was dropped in the hole at about 1800' on the way out of hole. Once the test tool was fished out with an overshot tool, sample chamber recovery and one chart were of valid information. Recovered 2000' gas in pipe. Fluid in pipe was lost on the way out of hole.

SAMPLE DESCIRPTIONS

5600-5610'	Sh, Blk, soft bentonitic
5610-5620'	Sh, blk-gry soft bentonitic
5620-5630'	Sh, blk-gry, sli fossiliferous
5630-5640'	Sh, blk-gry, sli foss, sm amt pyrite
5640-5650'	Sh, blk-gry
5650-5660'	Sh, blk-gry, sm amt sdst, gry, vf grn, dirty

SAMPLE DESCRIPTIONS (Continued)

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5660-5670' Sdst, gry, clay filled, fn grn, dirty
5670-5680' Sdst, a/a, sml amt wht, fn grn, hvy cem
5680-5690' Sh, blk-gry, sml amt dirty sdst
5690-5700' Sh, blk, sdst, wht, tite, not abund
5700-5710' Sh, blk, sdst a/a
5710-5720' Sdst, wht-med grn, subrnd, hvy cem, no vis stn, good fluor
5720-5730' Sdst, wht-opaque, med grn, sub-rded, sli tite, no vis stn, excellent fluor, good cut, 50% sdst in tray
5730-5740' sdst, wht-opaque, med grn, sli tite, good fluor, gas bubbles on brk, less abund.
5741' Bit trip, circ for samples
15 mins - sdst, a/a
30 mins - sdst, a/a, less abund, sli dirty, sli fluor
5740-5750' sdst, wht, med grn, tite, sub-rd, no vis stn, sli fluor--15%
5750-5760' Sh, blk-gry, sdst, varied wht-gry, med-fn grn, tite clay filled, very sli fluor
5760-5770' Sh, gry; sdst, sparse, gry-wht streaked, clay filled, fn grn, no vis stn, no fluor.
5770-5780' Sh, blk-gry; sdst, cleaner, yet less abund, med grn, NSFO, no fluor
Circ: 15 mins - sdst, abund, dirty gry speckled, fn grn, NSFO, no fluor
30 mins - a/a, less abund
45 mins - sdst, gry dirty, med-fn grn, speckled, clay filled, no fluor
60 mins - Sh, gry-blk, sdst, less abund, dirty, NSFO

DISCUSSION

Although this well ran 20' high to the Maddern #1 and had good sample shows, it developed a permeability problem. The porosity dropped from 22-18% and resistivity dropped from 30-8 ohms. There was no development of a clean upper sand bench which is needed for production in this area. Operator elected to plug and abandon this test.

Chris P. Gough
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