



W. B. MARTIN & ASSOCIATES, INC.

709 North Butler, Farmington, New Mexico 87401

Phone: (505) 326-4507

well file

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Geologic Well Report

Prepared For

W.B. Martin & Associates, Inc.

709 North Butler

Farmington, NM 87401

#61 Martin-Whittaker

990' FNL and 1850' FWL

Sec. 21 T23N R4W

Sandoval County, New Mexico

By Chip Harraden

August 10, 1985

Martin-Whittaker #61

WELL DATA

Well:	<u>#61 Martin-Whittaker</u>
Operator:	<u>W.B. Martin & Associates, Inc.</u>
Drilling Contractor:	<u>Young Drilling Company</u>
Location:	<u>990' FNL and 1850' FWL</u>
	<u>Sec. 21 T23N R4W</u>
County & State:	<u>Sandoval Co., New Mexico</u>
Elevation:	<u>G.L. 7042' KB 7055'</u>
Spud Date:	<u>July 24, 1985</u>
TD Date:	<u>August 7, 1985</u>
Hole Size:	<u>12½" surf - 248'</u>
	<u>8 3/4" 248'-2902'</u>
	<u>7 7/8" 2902'-6890' (TD)</u>
Casing:	<u>4½" K-55 11.6#/ft set @ 6904'</u>
Total Depth:	<u>Driller's Talley 6890' (6893'S.L.M.)</u>
	<u>Schlumberger 6833'</u>
	<u>Casing Talley 6904'</u>
Drilling Supervisors:	<u>Billy Martin & Drew Bates</u>
Mud Logging Company:	<u>Strickco Consulting</u>
Mud Loggers:	<u>Steve Smith & Bob Horndvedt</u>
Open Hole Logging Company:	<u>Schlumberger</u>
Engineers:	<u>Pete Howard</u>
Log Runs:	<u>DIL - SFL</u>
	<u>FDC - CNL</u>
	<u>FIL</u>

Hole Difficulties

- 1) 2992'; Encountered tight hole T.O.H. on bit trip.
- 2) 5635'; Lost circ approx. 430 BBLS; regained circ & drlg w/ 80% returns; slip shale shaker screen to keep L.C.M. in system.
- 3) 5635'-6890'; abnt cugs in samples; very poor gas readings probably due to cotton seed hulls (L.C.M.); tops & shows difficult to see.
- 4) 6736'; washed bridge @ 6100' during bit trip; washed & reamed 60' to bottom.
- 5) 6890'; T.O.H. for E-logs; encountered tight spots @ 4744', 4681', 4091' and 1739'; E-log tool hit bridge @ 1482'; T.I.H. to 3400' w/ D.P.; built up gel strength & Vis to 80-90; circ; E-logs reached 6833' on second attempt.

Hole Deviation

97' - $\frac{1}{4}^{\circ}$
225' - $\frac{1}{2}^{\circ}$
640' - $3/4^{\circ}$
1047' - 1°
1487' - $1\frac{1}{2}^{\circ}$
1735' - 1°
2080' - 1°
2527' - 1°
2992' - 1°
3400' - 1°
3839' - $3/4^{\circ}$
4279' - 1°
4713' - 1°
5118' - $\frac{1}{2}^{\circ}$
5308' - $1\frac{1}{4}^{\circ}$
5993' - $1\frac{1}{2}^{\circ}$
6432' - $1\ 3/4^{\circ}$
6720' - 2°
6890' - 2°



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Martin-Whittaker #61

Formation Data

G.L. 7042' KB 7055'

	<u>Sample Top</u>	<u>E-log Top</u>	<u>Datum</u>
Ojo Alamo	2135'	2130'	(+4925')
Pictured Cliffs	2535'	2557'	(+4498')
Huerfanito Bentonite	-	2869'	(+4186')
Chacra	3330'	3342'	(+3713')
Cliff House	4018'	4033'	(+3022')
Menefee	4077'	4112'	(+2943')
Point Lookout	4661'	4650'	(+2405')
Mancos	4850'	4896'	(+2159')
Tocito	5630'	5629'	(+1426')
Juana Lopez	6350'	6354'	(+701')
Semilla	6448'	6468'	(+587')
Greenhorn	6650'	6671'	(+384')
Graneros	6723'	6747'	(+308')
Dakota "A"	6767'	6784'	(+271')
Dakota "B"	6852'	-	-
T.D.	6890' (6893' S.L.M.)	6833'	(+122')

E-log Depth Interval	Formation	Total Gas (Units)			Gas Breakdown (ppm)					Oil Cut	(2.65 matrix) Comments
		B	D	U	C ₁	C ₂	C ₃	C ₄	C ₅		
4897' - 4975'	U. Mancos	200u	480u	120u	29,000	6,100	4,500	600	-	5%-40% bright yellow-yellow green flor, slow-moderate yellow green string cut.	Upper Mancos sands w/ good gas increases and assoc. flor & cut; up to 3 mv SP deflection in sandy intervals; up to 15 ohms resistivity; poor porosity data over majority of zone; good behind pipe reserve zone. Zone partially included in SHOW REPORT #1.
5403' - 5446'	Mancos	150u	550u	360u	32,000	10,000	8,000	1,800	-	2%-5% dull-bright yellow flor, slow string yellow green cut.	Cleaning up of GR w/ assoc. gas incr & oil show 2 to 3 mv SP deflection 13; to 31 ohms resistivity; 5% density porosity in cleaner sands; indicated fracture on OMRL from 5407'-10'. SHOW REPORT #2; perfed corr zone on #33 M.W.
5555' - 5589'	Mancos	105u	240u	185u	13,000	5,000	2,000	600	-	None.	General cleaning up of GR curve w/ assoc. gas incr; up to 5 mv SP deflection; 15 to 20 ohms resistivity; up to 4½% density porosity over interval w/ sm bad porosity data in part; corr zone on #52 M.W. became oil wet while air drlg OMRL shows fracturing in interval.
5635' - 5669'	Tocito	155u	195u	190u	15,000	4,500	3,000	500	-	None.	Lost approx. 430 BBLS mud @ 5635; OMRL indicates fracturing over most of zone; up to 3 mv SP deflection; 17 to 28 ohms resistivity; 2% to 4% density porosity w/ sm washout.
5688' - 5710'	Tocito	160u	320u	145u	22,000	6,000	2,100	800	-	None.	Indicated fracturing on OMRL w/ assoc gas incr. ML shows drlg w/ 80% returns over intervals. generally silty section; 18 to 23 ohms resistivity; up to 5½% density porosity.
5732' - 5764'	Tocito	145u	480u	420u	30,000	9,000	4,500	900	-	None.	Indicated fracturing on OMRL w/ assoc gas incr. clean GR @ top of interval w/ 2 to 3 mv SP deflection; up to 53 ohms resistivity; 2½-5% density porosity; shot corr zone on #33 M.W.
5836' - 5851'	Tocito	170u	200u	200u	10,500	4,100	1,000	370	-	None.	Zone picked from Martin Comp.; very slight gas incr & no fracturing on OMRL; no SP development slight incr in resistivity; 5% to 7% density porosity in interval; interval corr to resistiv zone @ 4849' and oil show on #33 M.W.
5870' - 5900'	Tocito	175u	205u	180u	11,500	4,500	1,100	300	-	5% bright-dull yellow flor, mod-slow string yellow cut.	High resistivity (up to 60 ohms) w/ assoc. gas & oil show; up to 7% density porosity in cleaner intervals; some fracturing indicated on OMRL; perfed corr zone on #33 M.W.

E-log Depth

Interval	Formation	Total Gas (Units)			Gas Breakdown (ppm)				Oil Cut	(2.65 matrix) Comments
		B	D	U	C ₁	C ₂	C ₃	C ₄		
5972' - 5986'	Tocito	150u	260u	200u	15,500	5,700	3,400	600	None.	Good SP response (6 to 7 mv deflection) w/ assoc. gas incr; 12 to 14 ohms resistivity; up to 5% density porosity; some fracturing indicated on ONRL; interval corr to perfed zone on #33 M.W.
6354' - 6366'	Juana Lopez	100u	100u	150u	8,400	2,000	1,000	400	5% very dull yellow flor, very slow string yellow cut, light brown oil stn.	Cleaning GR curve w/ up to 9 mv SP deflection assoc. oil show & gas incr; up to 21 ohms resistivity; indication of fracturing on ONRL; interval has less sand development than #62 M.W.
6468' - 6477'	Semilla	140u	280u	140u	20,500	7,000	4,100	450	5% very dull yellow flor, no cut, faint yellow ring residue in dish.	Reservoir rock; very clean GR w/ 4 mv SP deflection; 24 ohms resistivity; gas incr w/ very minor oil show; up to 7% density porosity; some fracturing indicated on ONRL.

IS: 1) The mud log depths were adjusted down 14' to correlate to the E-logs.

2) Below 5635', the gas shows and samples on the mud log appear to be affected by cotton seed hulls in the L.C.M. and the slipping of the shale shaker screen.