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1675 Broadway Suite 1500
Denver, Colorado 80202
(303) 534-3223 Fax (303) 534-1822

REC'D / SAN JUAN

JAN 07 1999

Report of Sub-Surface Directional Survey

Cross Timbers

Company

Florence #70

Well Name

San Juan County, New Mexico

Location

RECEIVED
JAN 26 1999
OIL CON. DIV.
DET. 3

Job Number

102320

Type of Survey

MWD

Date

November 17, 1998

Surveyed By

Lari Scarborough

Office

Denver



1675 Broadway Suite 1500
Denver, Colorado 80202
(303) 534-3223 Fax (303) 534-1822

Survey Certification Sheet

Cross Timbers

Company

102320

Job Number

November 17, 1998

Date

Sec.20-T27N-R8W

Lease

Florence #70

Well Name

San Juan County, New Mexico

County and State

Surveyed from a depth of 670 feet to 3,355 feet MD

Type of Survey MWD

Directional Supervisor/Surveyor Lari Scarborough

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Baker Hughes INTEQ. This report represents a true and correct Directional Survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Mike Grupa
Well Planner

This document has been subscribed and affirmed, or sworn to before me in the county of Denver, state of Colorado, this 25th day of November, 19 98.

My commission expires August 4, 2000

Certification Number: 1202

Certification Date November 25, 1998

Azimuth 128.56 with reference 0.00 N, 0.00 E from SLOT #1

CROSS TIMBERS
SEC.20-T27N-R8W

FLORENCE #70
SLOT #1
SAN JUAN COUNTY
NEW MEXICO.

S U R V E Y L I S T I N G

by
Baker Hughes INTEQ

Your ref : MWD Survey
Our ref : svy4734
License :

Date printed : 25-Nov-98
Date created : 25-Nov-98
Last revised : 25-Nov-98

Field is centred on n36 30 0.000,w107 40 0
Structure is centred on n36 30 0.000,w107 40 0

Slot location is n36 30 20.024,w107 40 24.925
Slot Grid coordinates are N 2003310.986, E 546947.691
Slot local coordinates are 2025.00 N 2035.00 W

Projection type: mercator - New Mexico West (3003), Spheroid: Clarke - 1866

Reference North is True North

CROSS TIMBERS
SEC.20-T27N-R8W,FLORENCE #70
SAN JUAN COUNTY,NEW MEXICO.

SURVEY LISTING Page 1
Your ref : MWD Survey
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Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	R E C T A N G U L A R C O O R D I N A T E S	Dogleg Deg/100ft	Vert Sect
625.00	0.00	0.00	625.00	0.00 E	0.00	0.00
670.00	2.30	199.40	669.99	0.30 W	5.11	0.30
760.00	4.10	142.80	759.86	1.05 E	3.80	4.01
853.00	7.50	139.00	852.37	12.35 S	3.68	13.20
944.00	11.50	131.90	942.11	22.90 S	4.57	28.11
1039.00	16.30	128.80	1034.30	37.58 S	5.11	50.90
1131.00	21.10	126.30	1121.42	55.49 S	5.29	80.38
1225.00	26.20	126.70	1207.50	77.92 S	5.43	118.05
1319.00	29.70	128.10	1290.52	104.70 S	3.79	162.09
1413.00	33.00	128.40	1370.79	134.97 S	3.51	210.99
1508.00	35.90	127.70	1449.12	168.08 S	3.08	264.72
1601.00	35.90	127.70	1524.45	201.43 S	0.00	319.25
1695.00	36.20	127.00	1600.45	234.99 S	0.54	374.55
1788.00	36.00	126.00	1675.60	267.58 S	0.67	429.31
1880.00	35.60	126.00	1750.21	299.22 S	0.43	483.07
1978.00	35.50	126.00	1829.95	332.71 S	0.10	539.99
2069.00	35.80	125.60	1903.89	363.73 S	0.42	592.97
2163.00	35.30	127.70	1980.38	396.35 S	1.40	647.59
2254.00	35.80	127.70	2054.41	428.70 S	0.55	700.49
2348.00	34.80	130.20	2131.13	462.83 S	1.87	754.79
2441.00	35.20	129.10	2207.32	496.86 S	0.80	808.13
2536.00	35.00	131.20	2285.04	532.08 S	1.29	862.72
2631.00	34.70	131.60	2363.00	567.98 S	0.40	916.94
2725.00	33.90	132.30	2440.66	603.39 S	0.95	969.82
2818.00	34.10	132.30	2517.76	638.39 S	0.22	1021.71

All data is in feet unless otherwise stated.

Coordinates from SLOT #1 and TVD from rotary table.

Bottom hole distance is 1324.10 on azimuth 129.16 degrees from wellhead.

Vertical section is from wellhead on azimuth 128.56 degrees.

Calculation uses the minimum curvature method.

Presented by Baker Hughes INTEQ

CROSS TIMBERS
SEC. 20-T27N-R8W, FLORENCE #70
SAN JUAN COUNTY, NEW MEXICO.

SURVEY LISTING Page 2
Your ref : MWD Survey
Last revised : 25-Nov-98

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Depth	R E C T A N G U L A R C O O R D I N A T E S	Dogleg Deg/100ft	Vert Sect
2911.00	32.50	133.00	2595.49	672.97 S 835.28 E	1.77	1072.64
3004.00	31.90	131.60	2674.18	706.33 S 871.93 E	1.03	1122.09
3099.00	30.70	131.20	2755.35	738.97 S 908.95 E	1.28	1171.38
3193.00	32.50	129.40	2835.42	770.81 S 946.52 E	2.16	1220.61
3285.00	33.00	129.40	2912.79	802.40 S 984.98 E	0.54	1270.37
3355.00	32.20	128.70	2971.76	826.16 S 1014.27 E	1.26	1308.08
3385.00	32.00	128.40	2997.18	836.09 S 1026.73 E	0.85	1324.02

Projection to T.D.

All data is in feet unless otherwise stated.
Coordinates from SLOTT #1 and TVD from rotary table.
Bottom hole distance is 1324.10 on azimuth 129.16 degrees from wellhead.
Vertical section is from wellhead on azimuth 128.56 degrees.
Calculation uses the minimum curvature method.
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SAN JUAN COUNTY, NEW MEXICO.

SURVEY LISTING Page 3
Your ref : MWD Survey
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Comments in wellpath
=====

Comment

Rectangular Coords.

TVD

MD

3385.00 2997.18 836.09 S 1026.73 E Projection to T.D.

Targets associated with this wellpath
=====

Target name Geographic Location

T.V.D.

Rectangular Coordinates

Revised

PBHL/TD

2950.00

825.00S

1035.00E

4-Nov-98