

SURVEY PROGRAM

Date: 2007-02-26T00:00:00 Validated: Yes Version:

Depth From	Depth To	Survey/Plan	Tool
400.0	5020.0	MWD Survey (OH)	MWD

LEGEND

Unit 80N, OH, Plan #1 V2
 MWD Survey

Azimuths to Grid North

True North: -0.29°
 Magnetic North: 10.12°
 Magnetic Field
 Strength: 51305.0nT
 Dip Angle: 63.62°
 Date: 2005/11/17
 Model: BGGM2005

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
7" CSG PT.-80N	4720.0	924.8	1013.2	2049652.66	645612.16	36° 37' 54.970 N	107° 20' 13.456 W	Point	
PBHL-80N	8052.0	924.8	1013.2	2049652.66	645612.16	36° 37' 54.970 N	107° 20' 13.456 W	Point	

PROJECT DETAILS: Rio Arriba , NM

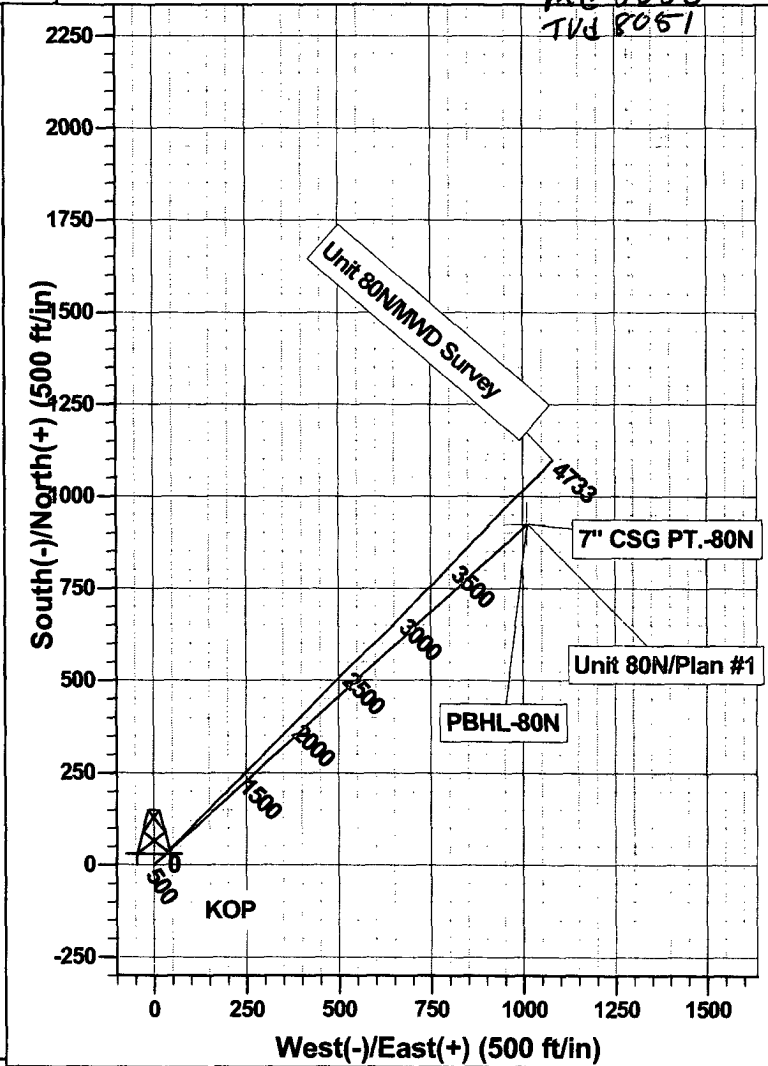
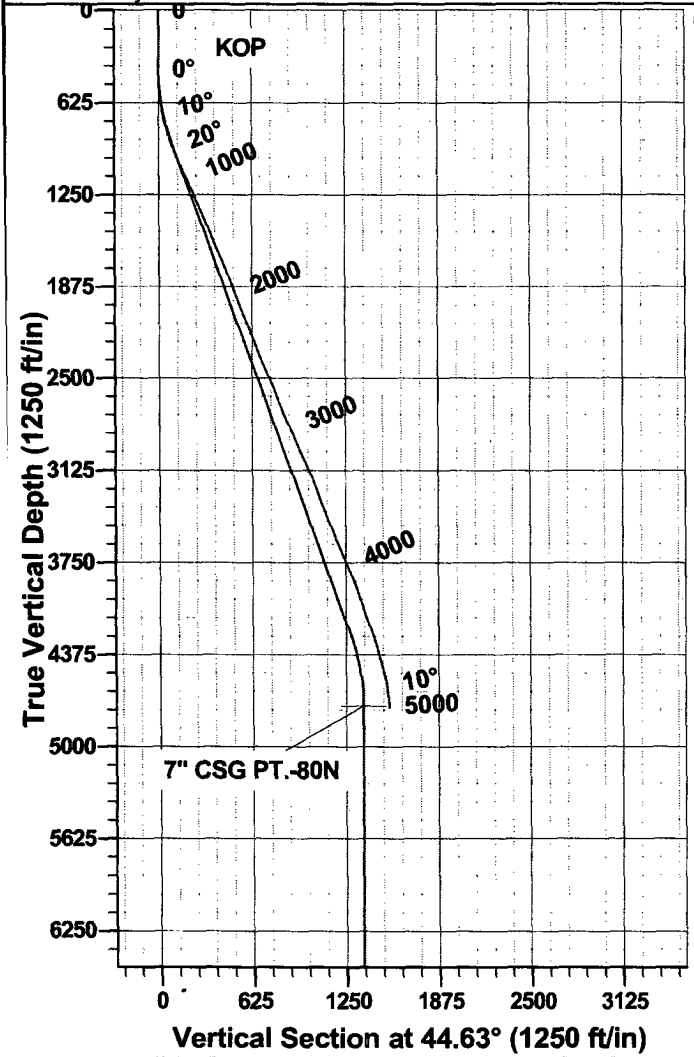
Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico West 3003

System Datum: Mean Sea Level

WELL DETAILS: Unit 80N

Northing	Easting	Latitude	Longitude
0.0 2048727.85	644599.01	36° 37' 45.876 N	107° 20' 25.944 W

IN P.A.
 surface 1600/5 1030/E Sec 27
 Unit 80N 2580/N 53/W Sec 26
 MD 8338
 TVD 8061



CONOCOPHILLIPS

Rio Arriba , NM

Sec 26 T28N R5W (SanJuan 28-5)

Unit 80N

OH

Survey: MWD Survey

Standard Survey Report

26 February, 2007

Scientific Drilling

Survey Report

Company: CONOCOPHILLIPS
Project: Rio Arriba , NM
Site: Sec 26 T28N R5W (SanJuan 28-5)
Well: Unit 80N
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Unit 80N
TVD Reference: 80N @ 6730.0ft (80N)
MD Reference: 80N @ 6730.0ft (80N)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2004.16 Database

Project	Rio Arriba , NM, United States of America		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site		Sec 26 T28N R5W (SanJuan 28-5)			
Site Position:		Northing:	2,047,724.53 ft	Latitude:	36° 37' 35.850 N
From:	Lat/Long	Easting:	646,641.17 ft	Longitude:	107° 20' 0.954 W
Position Uncertainty:	0.0 ft	Slot Radius:	0"	Grid Convergence:	0.30 °

Well	Unit 80N					
Well Position	+N/-S	0.0 ft	Northing:	2,048,727.85 ft	Latitude:	36° 37' 45.876 N
	+E/-W	0.0 ft	Easting:	644,599.01 ft	Longitude:	107° 20' 25.944 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	0.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	bggm2005	2005/11/17	10.41	63.62	51,305

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	44.63	

Survey Program	Date	2007/02/26		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
400.0	5,020.0	MWD Survey (OH)	MWD	MWD - Standard ISCWSA

Survey	Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
	431.0	0.40	179.95	431.0	-0.1	0.0	-0.1	1.29	1.29	0.00
	462.0	1.04	68.83	462.0	-0.1	0.3	0.1	4.00	2.06	-358.45
	493.0	2.65	59.05	493.0	0.4	1.1	1.1	5.27	5.19	-31.55
	524.0	4.25	52.93	523.9	1.4	2.7	2.9	5.29	5.16	-19.74
	555.0	5.56	50.06	554.8	3.1	4.7	5.5	4.30	4.23	-9.26
	586.0	7.08	48.74	585.6	5.3	7.3	8.9	4.93	4.90	-4.26
	615.0	8.22	48.52	614.4	7.8	10.2	12.8	3.93	3.93	-0.76
	646.0	9.23	50.08	645.0	10.9	13.8	17.5	3.35	3.26	5.03
	677.0	10.85	47.10	675.5	14.5	17.8	22.8	5.49	5.23	-9.61
	708.0	11.93	47.14	705.9	18.7	22.3	29.0	3.48	3.48	0.13
	739.0	13.01	46.97	736.2	23.2	27.2	35.6	3.49	3.48	-0.55

Scientific Drilling

Survey Report

Company: CONOCOPHILLIPS
 Project: Rio Arriba, NM
 Site: Sec 26 T28N R5W (SanJuan 28-5)
 Well: Unit 80N
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Unit 80N
 TVD Reference: 80N @ 6730.0ft (80N)
 MD Reference: 80N @ 6730.0ft (80N)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 2004.16 Database

Survey	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
	770.0	14.39	44.44	766.3	28.4	32.5	43.0	4.85	4.45	-8.16
	802.0	15.51	41.34	797.2	34.4	38.1	51.2	4.30	3.50	-9.69
	833.0	16.51	40.43	827.0	40.9	43.7	59.8	3.33	3.23	-2.94
	894.0	18.79	43.03	885.1	54.7	56.0	78.2	3.95	3.74	4.26
	928.0	20.23	44.67	917.2	62.8	63.9	89.6	4.53	4.24	4.82
	959.0	21.66	44.57	946.1	70.7	71.7	100.7	4.61	4.61	-0.32
	991.0	23.19	43.96	975.7	79.5	80.2	112.9	4.84	4.78	-1.91
	1,022.0	24.12	43.97	1,004.1	88.4	88.8	125.3	3.00	3.00	0.03
	1,116.0	24.70	44.56	1,089.7	116.2	115.9	164.2	0.67	0.62	0.63
	1,209.0	24.15	44.12	1,174.4	143.7	142.8	202.6	0.62	-0.59	-0.47
	1,303.0	23.15	44.40	1,260.5	170.7	169.1	240.3	1.07	-1.06	0.30
	1,398.0	22.69	45.13	1,348.0	197.0	195.2	277.3	0.57	-0.48	0.77
	1,491.0	23.00	44.61	1,433.7	222.6	220.6	313.4	0.40	0.33	-0.56
	1,555.0	22.77	45.20	1,492.7	240.2	238.2	338.3	0.51	-0.36	0.92
	1,648.0	22.92	44.88	1,578.4	265.7	263.8	374.4	0.21	0.16	-0.34
	1,742.0	22.90	45.20	1,664.9	291.6	289.6	411.0	0.13	-0.02	0.34
	1,835.0	21.60	44.30	1,751.0	316.6	314.4	446.2	1.45	-1.40	-0.97
	1,929.0	21.59	44.41	1,838.4	341.3	338.6	480.8	0.04	-0.01	0.12
	2,023.0	21.41	44.90	1,925.9	365.8	362.8	515.3	0.27	-0.19	0.52
	2,118.0	20.97	45.01	2,014.5	390.1	387.1	549.6	0.47	-0.46	0.12
	2,211.0	20.75	45.06	2,101.4	413.5	410.5	582.7	0.24	-0.24	0.05
	2,307.0	21.65	43.39	2,190.9	438.4	434.7	617.4	1.13	0.94	-1.74
	2,401.0	21.22	42.80	2,278.4	463.5	458.2	651.8	0.51	-0.46	-0.63
	2,497.0	21.87	45.87	2,367.7	488.7	482.8	687.0	1.36	0.68	3.20
	2,560.0	22.70	42.32	2,426.0	505.9	499.5	710.9	2.51	1.32	-5.63
	2,654.0	22.47	46.30	2,512.8	531.7	524.7	747.0	1.64	-0.24	4.23
	2,715.0	22.09	46.18	2,569.2	547.7	541.4	770.1	0.63	-0.62	-0.20
	2,810.0	21.69	46.68	2,657.4	572.1	567.0	805.5	0.46	-0.42	0.53
	2,903.0	22.86	45.88	2,743.4	596.5	592.5	840.7	1.30	1.26	-0.86
	2,996.0	22.61	46.17	2,829.2	621.4	618.4	876.7	0.29	-0.27	0.31
	3,091.0	24.05	44.29	2,916.4	647.9	645.1	914.3	1.71	1.52	-1.98
	3,184.0	24.28	44.18	3,001.3	675.2	671.6	952.3	0.25	0.25	-0.12
	3,275.0	23.81	43.87	3,084.4	701.9	697.4	989.4	0.53	-0.52	-0.34
	3,342.0	23.58	43.95	3,145.7	721.3	716.1	1,016.3	0.35	-0.34	0.12
	3,374.0	22.36	44.62	3,175.2	730.2	724.8	1,028.8	3.90	-3.81	2.09
	3,438.0	20.73	44.21	3,234.7	747.0	741.2	1,052.3	2.56	-2.55	-0.64
	3,501.0	20.23	44.31	3,293.7	762.8	756.6	1,074.4	0.80	-0.79	0.16
	3,564.0	19.92	44.57	3,352.9	778.2	771.7	1,096.0	0.51	-0.49	0.41
	3,626.0	20.78	44.29	3,411.0	793.6	786.8	1,117.6	1.40	1.39	-0.45
	3,688.0	21.14	44.12	3,468.9	809.5	802.3	1,139.7	0.59	0.58	-0.27
	3,751.0	21.80	43.03	3,527.6	826.2	818.2	1,162.8	1.22	1.05	-1.73
	3,813.0	22.63	42.85	3,585.0	843.4	834.2	1,186.2	1.34	1.34	-0.29
	3,876.0	23.47	42.85	3,642.9	861.5	850.9	1,210.9	1.33	1.33	0.00
	3,940.0	23.37	43.14	3,701.6	880.1	868.3	1,236.3	0.24	-0.16	0.45
	4,001.0	23.73	43.81	3,757.6	897.8	885.1	1,260.7	0.74	0.59	1.10
	4,064.0	21.00	43.07	3,815.8	915.2	901.5	1,284.6	4.36	-4.33	-1.17
	4,125.0	19.88	43.58	3,873.0	930.7	916.2	1,305.9	1.86	-1.84	0.84
	4,188.0	19.07	44.35	3,932.4	945.8	930.7	1,326.9	1.35	-1.29	1.22
	4,251.0	18.78	44.17	3,992.0	960.4	945.0	1,347.4	0.47	-0.46	-0.29
	4,315.0	19.00	44.45	4,052.5	975.2	959.5	1,368.1	0.37	0.34	0.44
	4,378.0	19.99	45.44	4,111.9	990.1	974.3	1,389.1	1.66	1.57	1.57
	4,441.0	19.36	46.46	4,171.2	1,004.9	989.6	1,410.3	1.14	-1.00	1.62
	4,504.0	19.31	46.31	4,230.7	1,019.2	1,004.7	1,431.2	0.11	-0.08	-0.24
	4,567.0	17.23	45.65	4,290.5	1,033.0	1,018.9	1,450.9	3.32	-3.30	-1.05

Scientific Drilling

Survey Report

Company: CONOCOPHILLIPS
Project: Rio Arriba , NM
Site: Sec 26 T28N R5W (SanJuan 28-5)
Well: Unit 80N
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Unit 80N
TVD Reference: 80N @ 6730.0ft (80N)
MD Reference: 80N @ 6730.0ft (80N)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2004.16 Database

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,628.0	16.07	45.70	4,348.9	1,045.2	1,031.4	1,468.4	1.90	-1.90	0.08
4,690.0	15.89	45.38	4,408.5	1,057.1	1,043.6	1,485.4	0.32	-0.29	-0.52
4,722.0	15.56	44.67	4,439.3	1,063.3	1,049.7	1,494.1	1.19	-1.03	-2.22
4,752.0	14.45	42.71	4,468.3	1,068.9	1,055.1	1,501.9	4.07	-3.70	-6.53
4,816.0	11.09	42.19	4,530.7	1,079.3	1,064.6	1,516.0	5.25	-5.25	-0.81
4,879.0	9.24	42.34	4,592.7	1,087.5	1,072.1	1,527.1	2.94	-2.94	0.24
4,911.0	8.31	43.55	4,624.4	1,091.1	1,075.4	1,532.0	2.96	-2.91	3.78
4,942.0	7.33	41.94	4,655.1	1,094.2	1,078.3	1,536.2	3.24	-3.16	-5.19
4,972.0	5.61	40.89	4,684.9	1,096.7	1,080.5	1,539.6	5.75	-5.73	-3.50
4,978.0	5.39	40.69	4,690.9	1,097.2	1,080.9	1,540.2	3.68	-3.67	-3.33
7" CSG PT.-80N									
5,020.0	3.00	40.69	4,732.7	1,099.5	1,082.9	1,543.2	5.69	-5.69	0.00
PBHL-80N									

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
7" CSG PT.-80N - survey misses by 187.5ft at 4978.0ft MD (4690.9 TVD, 1097.2 N, 1080.9 E) - Point	0.00	0.00	4,720.0	924.8	1,013.2	2,049,652.66	645,612.16	36° 37' 54.970 N	107° 20' 13.456 W
PBHL-80N - survey misses by 3324.6ft at 5020.0ft MD (4732.7 TVD, 1099.5 N, 1082.9 E) - Point	0.00	0.00	8,052.0	924.8	1,013.2	2,049,652.66	645,612.16	36° 37' 54.970 N	107° 20' 13.456 W

Checked By: _____ Approved By: _____ Date: _____