

30-039 - 29850

CONOCOPHILLIPS

Rio Arriba , NM

SEC 11-T27N-R5W

SAN JUAN 27-5 #99M

Wellbore #1

Plan: PLAN 3

Standard Survey Report

29 March, 2007

Surface 305/N 1550/W
7" shoe BHL - 1631/N 1975/W

Scientific Drilling

Survey Report

Company:	CONOCOPHILLIPS	Local Co-ordinate Reference:	Well SAN JUAN 27-5 #99M
Project:	Rio Arriba , NM	TVD Reference:	WELL @ 6720.0ft (Original Well Elev)
Site:	SEC 11-T27N-R5W	MD Reference:	WELL @ 6720.0ft (Original Well Elev)
Well:	SAN JUAN 27-5 #99M	North Reference:	Gnd
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	PLAN 3	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 11-T27N-R5W		
Site Position:	Northing:	2,036,047.38 ft	Latitude: 36° 35' 40.333 N
From: Map	Easting:	647,501.38 ft	Longitude: 107° 19' 51.150 W
Position Uncertainty:	0.0 ft	Slot Radius: "	Grid Convergence: 0.30 °

Well:	SAN JUAN 27-5 #99M		
Well Position	+N/-S	0.0 ft	Latitude: 36° 35' 40.333 N
	+E/-W	0.0 ft	Longitude: 107° 19' 51.150 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
			Ground Level: 6,706.0 ft

Wellbore:	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	BGGM2006	2007/03/29	10 26	63 56	51,199

Design:	PLAN 3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	162.21

Survey Tool Program	Date 2007/03/29			
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
0.0	8,247.1	PLAN 3 (Wellbore #1)	MWD	MWD - Standard ISCWSA

Planned 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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
9 5/8"									
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 4.00									
500.0	4.00	162.21	499.9	-3.3	1.1	3.5	4.00	4.00	0.00
600.0	8.00	162.21	599.4	-13.3	4.3	13.9	4.00	4.00	0.00
700.0	12.00	162.21	697.8	-29.8	9.6	31.3	4.00	4.00	0.00
800.0	16.00	162.21	794.8	-52.8	17.0	55.5	4.00	4.00	0.00
900.0	20.00	162.21	889.9	-82.3	26.4	86.4	4.00	4.00	0.00

Scientific Drilling Survey Report

Company:	CONOCOPHILLIPS	Local Co-ordinate Reference:	Well SAN JUAN 27-5 #99M
Project:	Rio Arriba , NM	TVD Reference:	WELL @ 6720.0ft (Original Well Elev)
Site:	SEC 11-T27N-R5W	MD Reference:	WELL @ 6720.0ft (Original Well Elev)
Well:	SAN JUAN 27-5 #99M	North Reference:	Grd
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	PLAN 3	Database:	EDM 2004.16 Database

Planned 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)
911.2	20.45	162.21	900.4	-85.9	27.6	90.3	4.00	4.00	0.00
924.0	20.45	162.21	912.4	-90.2	28.9	94.7	0.00	0.00	0.00
Start 3453.7 hold at 924.0 MD									
1,000.0	20.45	162.21	983.6	-115.5	37.1	121.3	0.00	0.00	0.00
1,100.0	20.45	162.21	1,077.3	-148.7	47.7	156.2	0.00	0.00	0.00
1,200.0	20.45	162.21	1,171.0	-182.0	58.4	191.2	0.00	0.00	0.00
1,300.0	20.45	162.21	1,264.7	-215.3	69.1	226.1	0.00	0.00	0.00
1,400.0	20.45	162.21	1,358.4	-248.5	79.8	261.0	0.00	0.00	0.00
1,500.0	20.45	162.21	1,452.1	-281.8	90.4	296.0	0.00	0.00	0.00
1,600.0	20.45	162.21	1,545.8	-315.1	101.1	330.9	0.00	0.00	0.00
1,700.0	20.45	162.21	1,639.5	-348.3	111.8	365.8	0.00	0.00	0.00
1,800.0	20.45	162.21	1,733.2	-381.6	122.5	400.8	0.00	0.00	0.00
1,900.0	20.45	162.21	1,826.9	-414.9	133.1	435.7	0.00	0.00	0.00
2,000.0	20.45	162.21	1,920.6	-448.1	143.8	470.7	0.00	0.00	0.00
2,100.0	20.45	162.21	2,014.3	-481.4	154.5	505.6	0.00	0.00	0.00
2,200.0	20.45	162.21	2,108.0	-514.7	165.1	540.5	0.00	0.00	0.00
2,300.0	20.45	162.21	2,201.7	-547.9	175.8	575.5	0.00	0.00	0.00
2,400.0	20.45	162.21	2,295.4	-581.2	186.5	610.4	0.00	0.00	0.00
2,500.0	20.45	162.21	2,389.1	-614.5	197.2	645.3	0.00	0.00	0.00
2,600.0	20.45	162.21	2,482.8	-647.8	207.8	680.3	0.00	0.00	0.00
2,700.0	20.45	162.21	2,576.5	-681.0	218.5	715.2	0.00	0.00	0.00
2,800.0	20.45	162.21	2,670.2	-714.3	229.2	750.2	0.00	0.00	0.00
2,900.0	20.45	162.21	2,763.9	-747.6	239.9	785.1	0.00	0.00	0.00
3,000.0	20.45	162.21	2,857.6	-780.8	250.5	820.0	0.00	0.00	0.00
3,066.6	20.45	162.21	2,920.0	-803.0	257.7	843.3	0.00	0.00	0.00
Ojo Alamo									
3,100.0	20.45	162.21	2,951.3	-814.1	261.2	855.0	0.00	0.00	0.00
3,200.0	20.45	162.21	3,045.0	-847.4	271.9	889.9	0.00	0.00	0.00
3,244.8	20.45	162.21	3,087.0	-862.3	276.7	905.6	0.00	0.00	0.00
Kirtland									
3,300.0	20.45	162.21	3,138.7	-880.6	282.6	924.8	0.00	0.00	0.00
3,400.0	20.45	162.21	3,232.4	-913.9	293.2	959.8	0.00	0.00	0.00
3,479.6	20.45	162.21	3,307.0	-940.4	301.7	987.6	0.00	0.00	0.00
Fruitland									
3,500.0	20.45	162.21	3,326.1	-947.2	303.9	994.7	0.00	0.00	0.00
3,600.0	20.45	162.21	3,419.8	-980.4	314.6	1,029.7	0.00	0.00	0.00
3,700.0	20.45	162.21	3,513.5	-1,013.7	325.3	1,064.6	0.00	0.00	0.00
3,748.6	20.45	162.21	3,559.0	-1,029.8	330.5	1,081.6	0.00	0.00	0.00
Pictured Cliffs									
3,800.0	20.45	162.21	3,607.2	-1,047.0	335.9	1,099.5	0.00	0.00	0.00
3,900.0	20.45	162.21	3,700.9	-1,080.2	346.6	1,134.5	0.00	0.00	0.00
3,952.4	20.45	162.21	3,750.0	-1,097.7	352.2	1,152.8	0.00	0.00	0.00
Lewis									
4,000.0	20.45	162.21	3,794.6	-1,113.5	357.3	1,169.4	0.00	0.00	0.00
4,100.0	20.45	162.21	3,888.3	-1,146.8	368.0	1,204.3	0.00	0.00	0.00
4,200.0	20.45	162.21	3,982.0	-1,180.0	378.6	1,239.3	0.00	0.00	0.00
4,300.0	20.45	162.21	4,075.7	-1,213.3	389.3	1,274.2	0.00	0.00	0.00
4,310.0	20.45	162.21	4,085.0	-1,216.6	390.4	1,277.7	0.00	0.00	0.00
Hurfanito Bentonite									
4,377.7	20.45	162.21	4,148.5	-1,239.2	397.6	1,301.4	0.00	0.00	0.00
Start Drop -4.00									
4,378.9	20.45	162.21	4,149.6	-1,239.5	397.7	1,301.8	0.00	0.00	0.00
4,400.0	19.60	162.21	4,169.4	-1,246.4	399.9	1,309.0	4.00	-4.00	0.00
4,500.0	15.60	162.21	4,264.7	-1,275.2	409.2	1,339.2	4.00	-4.00	0.00

Scientific Drilling

Survey Report

Company: CONOCOPHILLIPS
Project: Rio Arriba , NM
Site: SEC 11-T27N-R5W
Well: SAN JUAN 27-5 #99M
Wellbore: Wellbore #1
Design: PLAN 3

Local Co-ordinate Reference: Well SAN JUAN 27-5 #99M
TVD Reference: WELL @ 6720.0ft (Original Well Elev)
MD Reference: WELL @ 6720.0ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2004.16 Database

Planned 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)
4,600.0	11.60	162.21	4,361.9	-1,297.6	416.4	1,362.8	4.00	-4.00	0.00
4,700.0	7.60	162.21	4,460.5	-1,313.5	421.5	1,379.4	4.00	-4.00	0.00
4,739.8	6.01	162.21	4,500.0	-1,318.0	422.9	1,384.2	4.00	-4.00	0.00
Chacra									
4,800.0	3.60	162.21	4,560.0	-1,322.8	424.4	1,389.2	4.00	-4.00	0.00
4,890.1	0.00	0.00	4,650.0	-1,325.5	425.3	1,392.0	4.00	-4.00	0.00
7" - EOD 99M									
4,900.0	0.00	0.00	4,659.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
4,901.8	0.00	0.00	4,661.7	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Start 3357.0 hold at 4901.8 MD									
5,000.0	0.00	0.00	4,759.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,100.0	0.00	0.00	4,859.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,200.0	0.00	0.00	4,959.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,059.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,159.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,259.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,567.1	0.00	0.00	5,327.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Massive Cliff House									
5,600.0	0.00	0.00	5,359.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,605.1	0.00	0.00	5,365.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Menefee									
5,700.0	0.00	0.00	5,459.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,559.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,659.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
5,942.1	0.00	0.00	5,702.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Point Lookout									
6,000.0	0.00	0.00	5,759.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,100.0	0.00	0.00	5,859.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,200.0	0.00	0.00	5,959.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,059.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,159.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,465.1	0.00	0.00	6,225.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Mancos									
6,500.0	0.00	0.00	6,259.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,359.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,459.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,559.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,659.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,759.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,859.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,128.1	0.00	0.00	6,888.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Gallup									
7,200.0	0.00	0.00	6,959.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,059.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,159.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,259.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,359.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,459.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,559.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,895.1	0.00	0.00	7,655.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
Greenhorn									
7,900.0	0.00	0.00	7,659.9	-1,325.5	425.3	1,392.0	0.00	0.00	0.00
7,955.1	0.00	0.00	7,715.0	-1,325.5	425.3	1,392.0	0.00	0.00	0.00

30-039-29850



Scientific Drilling

Project: Rio Arriba , NM
 Site: SEC 11-T27N-R5W
 Well: SAN JUAN 27-5 #99M

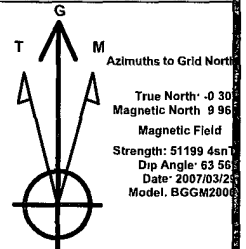
Wellbore: Wellbore #1

Plan: PLAN 3 (SAN JUAN 27-5 #99M/Wellbore #1)

ConocoPhillips

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	911.2	20.45	162.21	900.4	-85.9	27.6	4.00	162.21	90.3	
4	4378.9	20.45	162.21	4149.6	-1239.5	397.7	0.00	0.00	1301.8	
5	4890.1	0.00	0.00	4650.0	-1325.5	425.3	4.00	180.00	1392.0	EOD 99M
6	8247.1	0.00	0.00	8007.0	-1325.5	425.3	0.00	0.00	1392.0	PBHL 99M



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
EOD 99M	4650.0	-1325.5	425.3	2034721.91	647926.69	36° 35' 27.204 N	107° 19' 46.020 W	Point
PBHL 99M	8007.0	-1325.5	425.3	2034721.91	647926.69	36° 35' 27.204 N	107° 19' 46.020 W	Circle (Radius: 100.0)

PROJECT DETAILS: Rio Arriba , NM

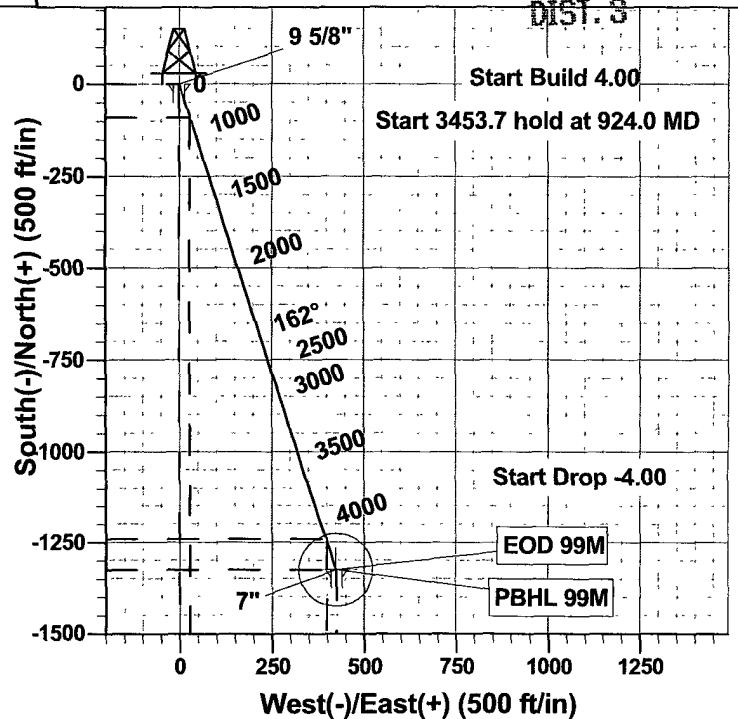
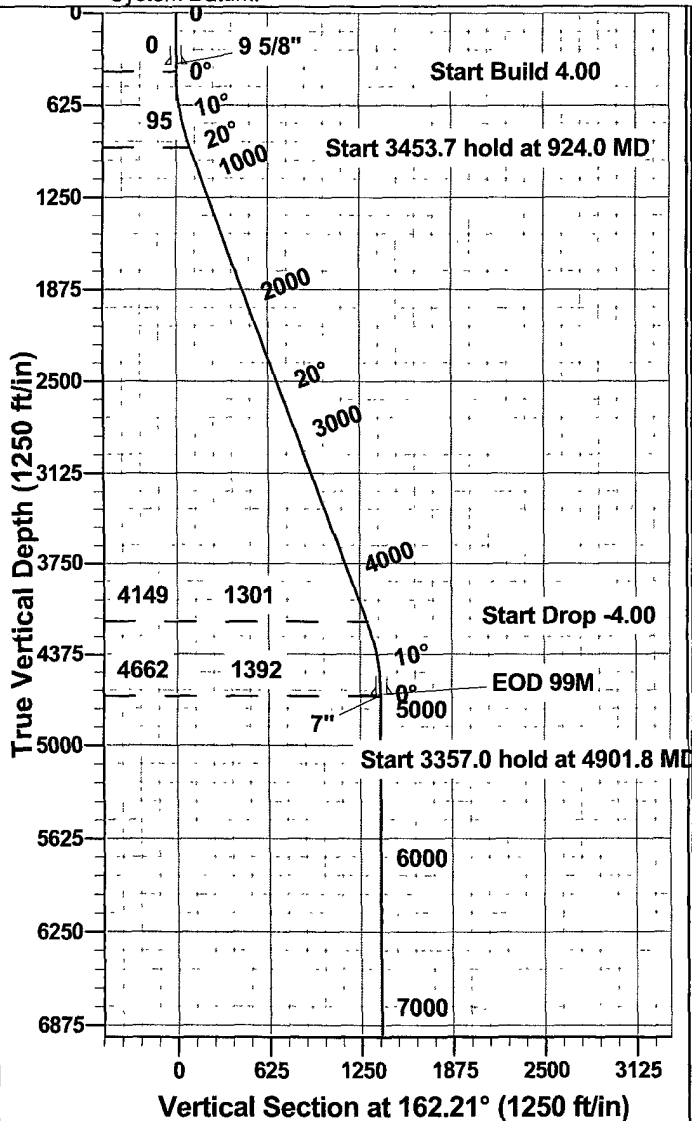
Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico West 3003

System Datum: Mean Sea Level

WELL DETAILS: SAN JUAN 27-5 #99M

Ground Level: 6706.0
 Northing: 2036047.38 Easting: 647501.3836° 35' 40.333 N Latitude: 107° 19' 51.150 W Longitude

RCVD AUG 23 '07
 OIL CONS. DIV.
 DIST. 3



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2920.0	3066.6	Ojo Alamo
3087.0	3244.8	Kirtland
3307.0	3479.6	Fruitland
3559.0	3748.6	Pictured Cliffs
3750.0	3952.4	Lewis
4085.0	4310.0	Hurfanito Bentonite
4500.0	4739.8	Chacra
5327.0	5567.1	Massive Cliff House
5365.0	5605.1	Menefee
5702.0	5942.1	Point Lookout
6225.0	6465.1	Mancos
6888.0	7128.1	Gallup