



ConocoPhillips

SJB (NM Central)

SEC 20-T27N-R7W

San Juan 28-7 Unit #111N

OH

Design: OH

API # 3003930808

Standard Survey Report

22 December, 2011

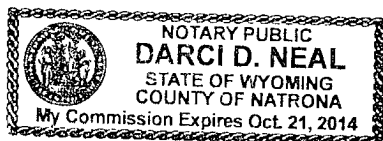
This survey is correct to the best of my knowledge and is supported by actual field data.

A handwritten signature of Darci D. Neal.

Notarized this date 22nd of December, 2011.

A handwritten signature of Darci D. Neal.

Notary Signature
County of Natrona
State of Wyoming



Scientific Drilling

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well San Juan 28-7 Unit #111N
Project:	SJB (NM Central)	TVD Reference:	GL 6540' & KB 15' @ 6555.0ft (AWS 673)
Site:	SEC 20-T27N-R7W	MD Reference:	GL 6540' & KB 15' @ 6555.0ft (AWS 673)
Well:	San Juan 28-7 Unit #111N	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.21 Single User Db

Project	SJB (NM Central), New Mexico, S-Type MV/DK Wells		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		Using Well Reference Point
Map Zone:	New Mexico Central 3002		Using geodetic scale factor

Site	SEC 20-T27N-R7W		
Site Position:		Northing:	2,024,097 15 ft
From:	Lat/Long	Easting:	105,972.09 ft
Position Uncertainty:	0.0 ft	Slot Radius:	6-1/8"
		Latitude:	36° 33' 19.128 N
		Longitude:	107° 35' 29.598 W
		Grid Convergence:	-0.80 °

Well	San Juan 28-7 Unit #111N, 1130' FNL 925' FWL		
Well Position	+N/-S	0.0 ft	Northing: 2,026,776.08 ft
	+E/-W	0.0 ft	Easting: 102,452.57 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36° 33' 45.126 N
		Longitude:	107° 36' 13.188 W
		Ground Level:	6,540.0 ft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2011	2011/11/29	9.75	63.33	50,582

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			125.68

Survey Program	Date: 2011/12/22		
From:	To:	Survey (Wellbore)	Tool Name
(ft)	(ft)		
358.0	4,883.0	Survey #1 (OH)	MWD SDI
			MWD - Standard ver 1.0.1

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
358.0	0.14	211.58	358.0	-0.4	-0.2	0.0	0.04	0.04	0.00
First SDI MWD Survey									
419.0	0.21	148.47	419.0	-0.5	-0.2	0.1	0.32	0.11	-103.46
481.0	0.28	131.36	481.0	-0.7	0.0	0.4	0.16	0.11	-27.60
541.0	0.30	140.98	541.0	-0.9	0.2	0.7	0.09	0.03	16.03
603.0	0.54	137.34	603.0	-1.3	0.5	1.1	0.39	0.39	-5.87
665.0	0.77	134.78	665.0	-1.8	1.0	1.8	0.37	0.37	-4.13
727.0	1.18	117.02	727.0	-2.4	1.8	2.9	0.81	0.66	-28.65
788.0	1.27	114.38	788.0	-2.9	3.0	4.2	0.17	0.15	-4.33
819.0	1.31	119.36	819.0	-3.3	3.6	4.8	0.38	0.13	16.06
881.0	1.85	129.13	880.9	-4.2	5.0	6.6	0.97	0.87	15.76
943.0	2.95	131.68	942.9	-5.9	7.0	9.1	1.78	1.77	4.11
1,008.0	4.26	132.96	1,007.8	-8.7	10.0	13.2	2.02	2.02	1.97

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well San Juan 28-7 Unit #111N
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Site:	SEC 20-T27N-R7W	MD Reference:	GL 6540' & KB 15' @ 6555.0ft (AWS 673)
Well:	San Juan 28-7 Unit #111N	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 2003.21 Single User Db

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)
1,071.0	5.88	132.11	1,070.5	-12.4	14.1	18.7	2.57	2.57	-1.35
1,135.0	7.26	131.41	1,134.1	-17.3	19.6	26.0	2.16	2.16	-1.09
1,198.0	8.40	133.64	1,196.5	-23.1	25.9	34.5	1.87	1.81	3.54
1,262.0	9.89	135.38	1,259.7	-30.3	33.1	44.6	2.37	2.33	2.72
1,325.0	10.39	135.71	1,321.7	-38.2	40.9	55.5	0.80	0.79	0.52
1,389.0	10.47	134.88	1,384.6	-46.4	49.1	66.9	0.27	0.13	-1.30
1,452.0	10.17	134.77	1,446.6	-54.4	57.1	78.1	0.48	-0.48	-0.17
1,516.0	10.42	132.70	1,509.6	-62.3	65.3	89.4	0.70	0.39	-3.23
1,579.0	11.07	135.14	1,571.5	-70.4	73.8	101.0	1.26	1.03	3.87
1,643.0	12.27	136.79	1,634.2	-79.7	82.8	113.7	1.95	1.88	2.58
1,707.0	13.26	136.45	1,696.6	-90.0	92.5	127.6	1.55	1.55	-0.53
1,770.0	15.11	135.58	1,757.7	-101.1	103.2	142.8	2.96	2.94	-1.38
1,834.0	16.46	134.08	1,819.2	-113.4	115.6	160.0	2.20	2.11	-2.34
1,897.0	17.15	131.19	1,879.5	-125.7	129.0	178.1	1.72	1.10	-4.59
1,961.0	18.37	127.58	1,940.5	-138.1	144.1	197.6	2.57	1.91	-5.64
2,024.0	19.56	124.56	2,000.1	-150.1	160.6	218.0	2.45	1.89	-4.79
2,088.0	20.96	124.76	2,060.1	-162.7	178.8	240.2	2.19	2.19	0.31
2,151.0	22.53	124.73	2,118.6	-176.0	198.0	263.5	2.49	2.49	-0.05
2,215.0	24.04	125.37	2,177.4	-190.6	218.7	288.8	2.39	2.36	1.00
2,278.0	24.51	125.51	2,234.8	-205.6	239.8	314.7	0.75	0.75	0.22
2,342.0	24.99	124.53	2,293.0	-220.9	261.8	341.5	0.99	0.75	-1.53
2,406.0	25.31	124.06	2,350.9	-236.3	284.2	368.7	0.59	0.50	-0.73
2,469.0	25.71	123.41	2,407.8	-251.3	306.8	395.8	0.77	0.63	-1.03
2,533.0	25.96	123.06	2,465.4	-266.6	330.1	423.7	0.46	0.39	-0.55
2,596.0	26.11	122.71	2,522.0	-281.6	353.4	451.3	0.34	0.24	-0.56
2,660.0	26.12	122.33	2,579.4	-296.8	377.1	479.4	0.26	0.02	-0.59
2,723.0	25.83	121.66	2,636.1	-311.4	400.5	507.0	0.65	-0.46	-1.06
2,787.0	26.02	121.96	2,693.6	-326.2	424.3	534.9	0.36	0.30	0.47
2,850.0	25.91	122.18	2,750.3	-340.8	447.7	562.4	0.23	-0.17	0.35
2,914.0	25.47	122.03	2,807.9	-355.5	471.2	590.1	0.69	-0.69	-0.23
2,978.0	24.54	122.51	2,865.9	-370.0	494.0	617.1	1.49	-1.45	0.75
3,041.0	24.84	122.90	2,923.2	-384.2	516.2	643.4	0.54	0.48	0.62
3,104.0	25.45	123.12	2,980.2	-398.8	538.6	670.1	0.98	0.97	0.35
3,168.0	25.14	123.27	3,038.1	-413.8	561.5	697.4	0.49	-0.48	0.23
3,232.0	24.15	124.63	3,096.3	-428.7	583.6	724.1	1.78	-1.55	2.13
3,295.0	22.48	124.72	3,154.1	-442.8	604.2	749.0	2.65	-2.65	0.14
3,359.0	21.41	123.48	3,213.5	-456.3	624.0	772.9	1.82	-1.67	-1.94
3,423.0	19.77	122.09	3,273.4	-468.5	642.9	795.4	2.67	-2.56	-2.17
3,486.0	17.84	121.36	3,333.0	-479.1	660.1	815.7	3.09	-3.06	-1.16
3,550.0	16.59	121.69	3,394.1	-489.0	676.3	834.6	1.96	-1.95	0.52
3,613.0	15.03	123.34	3,454.8	-498.3	690.8	851.7	2.58	-2.48	2.62
3,677.0	14.39	125.91	3,516.7	-507.5	704.1	868.0	1.43	-1.00	4.02
3,740.0	13.71	126.74	3,577.8	-516.5	716.5	883.2	1.13	-1.08	1.32
3,804.0	12.75	125.53	3,640.1	-525.2	728.3	897.9	1.56	-1.50	-1.89
3,867.0	12.25	124.15	3,701.6	-533.0	739.5	911.5	0.92	-0.79	-2.19
3,931.0	11.69	124.01	3,764.2	-540.4	750.5	924.8	0.88	-0.88	-0.22
3,994.0	9.92	123.53	3,826.1	-547.0	760.3	936.6	2.81	-2.81	-0.76
4,058.0	8.79	121.35	3,889.2	-552.6	769.1	947.0	1.85	-1.77	-3.41
4,121.0	7.92	122.43	3,951.6	-557.4	776.8	956.1	1.40	-1.38	1.71
4,185.0	5.68	121.71	4,015.1	-561.4	783.2	963.7	3.50	-3.50	-1.13
4,248.0	4.24	122.32	4,077.9	-564.3	787.9	969.1	2.29	-2.29	0.97
4,312.0	4.09	124.39	4,141.7	-566.9	791.8	973.8	0.33	-0.23	3.23
4,375.0	3.28	129.47	4,204.6	-569.3	795.0	977.8	1.39	-1.29	8.06
4,439.0	2.90	124.80	4,268.5	-571.4	797.7	981.2	0.71	-0.59	-7.30
4,502.0	3.14	127.36	4,331.4	-573.3	800.4	984.6	0.44	0.38	4.06

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4,566.0	2.99	129.70	4,395.3	-575.5	803.1	988.0	0.31	-0.23	3.66
4,629.0	2.44	132.17	4,458.2	-577.4	805.4	991.0	0.89	-0.87	3.92
4,693.0	2.68	125.21	4,522.2	-579.2	807.6	993.8	0.61	0.38	-10.88
4,756.0	2.64	125.79	4,585.1	-580.9	810.0	996.7	0.08	-0.06	0.92
4,820.0	2.35	136.76	4,649.0	-582.7	812.1	999.5	0.87	-0.45	17.14
4,883.0	2.16	131.33	4,712.0	-584.4	813.8	1,001.9	0.45	-0.30	-8.62
Last SDI MWD Survey									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
358.0	358.0	-0.4	-0.2	First SDI MWD Survey
4,883.0	4,712.0	-584.4	813.8	Last SDI MWD Survey

Checked By: _____	Approved By: _____	Date: _____
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