

ConocoPhillips

30.04S-35087

ConocoPhillips

SJB (NM West)

SEC 31-T31N-R9W

Riddle C LS #1C

Original Hole

Survey: Actual

Standard Survey Report

27 February, 2011



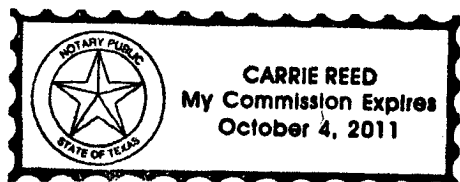
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 28th of February, 2011.

[Signature]

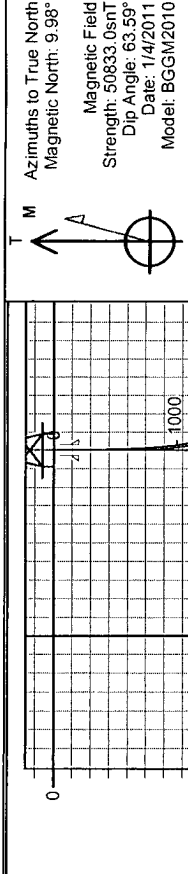
Notary Signature
County of Midland
State of Texas



Scientific Drilling
Directional Drilling Operations

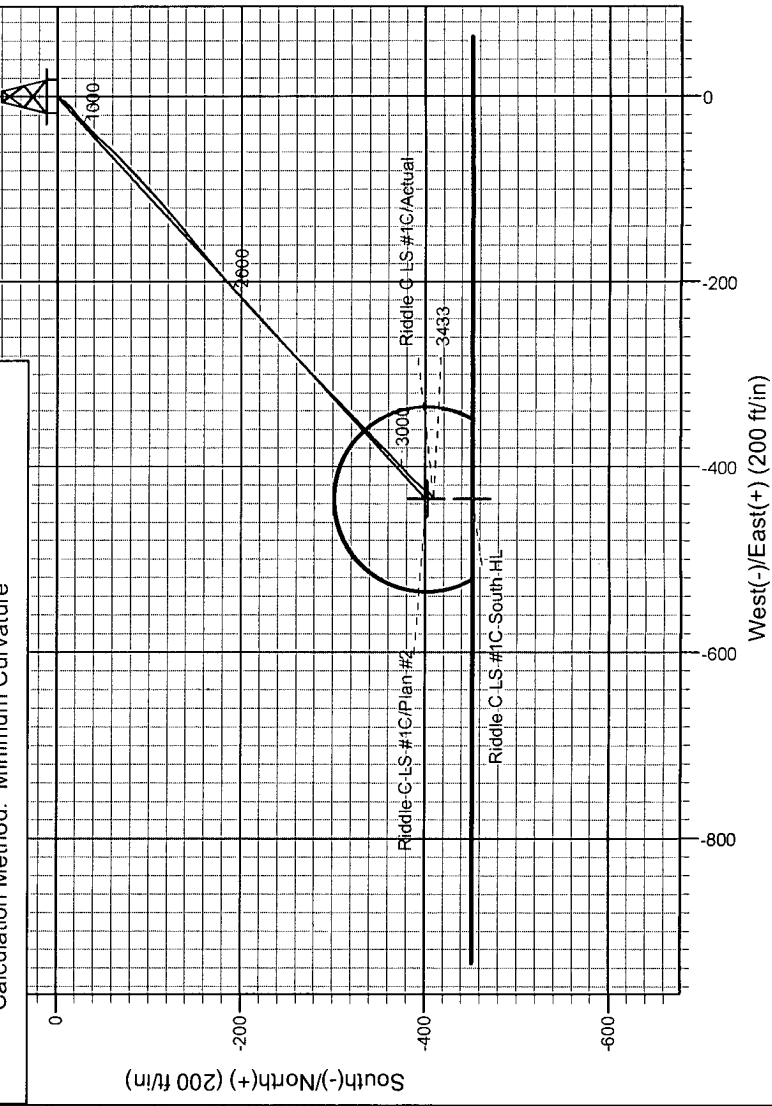


Project: SJB (NM West)
Site: SEC 31-T31N-R9W
Well: Riddle CLS #1C
Wellbore: Original Hole
Design: Plan #2



WELL DETAILS: Riddle CLS #1C
AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Ground Level: 6528.0
Easting 503251.09
Northing 2129081.63
Latitude 36° 51' 4.154 N
Longitude 107° 49' 19.998 W
Slot

REFERENCE INFORMATION
Co-ordinate (N/E) Reference: Well Riddle CLS #1C, True North
Vertical (TVS) Reference: AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Calculation Method: Minimum Curvature



COMPANY DETAILS: ConocoPhillips
Calculation Method: Minimum Curvature
Error System: ISCWSA
Scan Method: Closest Approach 3D
Error Surface: Combined Covariances
Warning Method: Risk Ratio

PROJECT DETAILS: SJB (NM West)
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

SITE DETAILS: SEC 31-T31N-R9W
San Juan County NM
Site Centre Latitude: 36° 51' 4.154 N
Longitude: 107° 49' 19.998 W
Positional Uncertainty: 7.5
Convergence: 0.01
Local North: True

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Riddle C LS #1C
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Site:	SEC 31-T31N-R9W	MD Reference:	AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Well:	Riddle C LS #1C	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	edmCOP

Project	SJB (NM West), 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 West 3003		Using geodetic scale factor

Site	SEC 31-T31N-R9W		
Site Position:		Northing:	2,129,081.63 ft
From:	Lat/Long	Easting:	503,251.09 ft
Position Uncertainty:	15.0 ft	Slot Radius:	6-1/8"
		Latitude:	36° 51' 4.154 N
		Longitude:	107° 49' 19.998 W
		Grid Convergence:	0.01 °

Well	Riddle C LS #1C, S-Type MV/DK Well		
Well Position	+N/-S	0.0 ft	Northing: 2,129,081.63 ft
	+E/-W	0.0 ft	Easting: 503,251.09 ft
Position Uncertainty	3.5 ft	Wellhead Elevation:	ft
		Latitude:	36° 51' 4.154 N
		Longitude:	107° 49' 19.998 W
		Ground Level:	6,528.0 ft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination (°)
	BGGM2010	1/4/2011	9.98
			Dip Angle (°)
			63.59
			Field Strength (nT)
			50,833

Design	Original Hole		
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
			Direction (°)
			226.62

Survey Program	Date	2/27/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
266.0	3,502.0	Actual (Original Hole)	MWD SDI	MWD - Standard ver 1.0.1

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
266.0	1.09	213.23	266.0	-2.1	-1.4	2.5	0.41	0.41	0.00	
328.0	1.08	207.73	328.0	-3.1	-2.0	3.6	0.17	-0.02	-8.87	
390.0	1.07	215.17	390.0	-4.1	-2.6	4.7	0.23	-0.02	12.00	
452.0	1.18	208.57	452.0	-5.2	-3.2	5.9	0.27	0.18	-10.65	
512.0	1.25	210.13	511.9	-6.3	-3.8	7.1	0.13	0.12	2.60	
573.0	1.22	216.60	572.9	-7.4	-4.6	8.4	0.23	-0.05	10.61	
604.0	1.31	221.79	603.9	-7.9	-5.0	9.1	0.47	0.29	16.74	
635.0	1.72	221.80	634.9	-8.5	-5.5	9.9	1.32	1.32	0.03	
665.0	2.39	224.20	664.9	-9.3	-6.3	10.9	2.25	2.23	8.00	
696.0	2.65	223.37	695.9	-10.3	-7.2	12.3	0.85	0.84	-2.68	
727.0	3.06	225.15	726.8	-11.4	-8.3	13.8	1.35	1.32	5.74	
758.0	3.38	222.89	757.8	-12.6	-9.5	15.6	1.11	1.03	-7.29	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Riddle C LS #1C
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Site:	SEC 31-T31N-R9W	MD Reference:	AWS 730 @ 6543.0ft (15' KB + 6528' DF)
Well:	Riddle C LS #1C	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	edmCOP

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)	
789.0	4.09	227.59	788.7	-14.0	-11.0	17.6	2.49	2.29	15.16	
820.0	4.65	229.07	819.6	-15.6	-12.7	20.0	1.84	1.81	4.77	
853.0	5.33	228.62	852.5	-17.5	-14.9	22.8	2.06	2.06	-1.36	
884.0	5.75	228.90	883.3	-19.5	-17.1	25.8	1.36	1.35	0.90	
916.0	6.44	228.71	915.2	-21.7	-19.7	29.2	2.16	2.16	-0.59	
948.0	6.84	227.84	946.9	-24.2	-22.4	32.9	1.29	1.25	-2.72	
979.0	7.44	228.72	977.7	-26.7	-25.3	36.8	1.97	1.94	2.84	
1,011.0	8.02	228.33	1,009.4	-29.6	-28.5	41.1	1.82	1.81	-1.22	
1,042.0	8.54	227.12	1,040.1	-32.6	-31.9	45.5	1.77	1.68	-3.90	
1,074.0	9.08	226.57	1,071.7	-35.9	-35.4	50.4	1.71	1.69	-1.72	
1,106.0	9.62	226.19	1,103.3	-39.5	-39.2	55.6	1.70	1.69	-1.19	
1,137.0	10.35	223.67	1,133.8	-43.3	-43.0	61.0	2.74	2.35	-8.13	
1,169.0	10.94	222.38	1,165.3	-47.7	-47.0	66.9	1.99	1.84	-4.03	
1,200.0	11.71	222.23	1,195.7	-52.2	-51.1	73.0	2.49	2.48	-0.48	
1,232.0	12.23	223.00	1,227.0	-57.0	-55.6	79.6	1.70	1.63	2.41	
1,263.0	12.85	225.28	1,257.2	-61.9	-60.3	86.3	2.56	2.00	7.35	
1,295.0	13.79	225.75	1,288.4	-67.0	-65.6	93.7	2.96	2.94	1.47	
1,327.0	14.46	225.83	1,319.4	-72.5	-71.2	101.5	2.09	2.09	0.25	
1,389.0	14.32	225.45	1,379.5	-83.3	-82.2	116.9	0.27	-0.23	-0.61	
1,453.0	14.49	227.47	1,441.4	-94.2	-93.7	132.8	0.83	0.27	3.16	
1,515.0	14.46	227.83	1,501.5	-104.7	-105.2	148.3	0.15	-0.05	0.58	
1,579.0	15.06	229.38	1,563.4	-115.4	-117.4	164.6	1.12	0.94	2.42	
1,642.0	15.34	230.13	1,624.2	-126.1	-130.0	181.1	0.54	0.44	1.19	
1,705.0	15.21	230.49	1,684.9	-136.7	-142.8	197.7	0.26	-0.21	0.57	
1,768.0	15.21	230.33	1,745.7	-147.2	-155.5	214.2	0.07	0.00	-0.25	
1,831.0	15.00	230.83	1,806.5	-157.7	-168.2	230.5	0.39	-0.33	0.79	
1,894.0	14.86	229.17	1,867.4	-168.1	-180.6	246.7	0.71	-0.22	-2.63	
1,957.0	14.75	229.31	1,928.3	-178.6	-192.8	262.8	0.18	-0.17	0.22	
2,020.0	14.81	228.97	1,989.2	-189.1	-205.0	278.9	0.17	0.10	-0.54	
2,083.0	15.10	229.34	2,050.1	-199.8	-217.3	295.1	0.48	0.46	0.59	
2,146.0	15.21	226.98	2,110.9	-210.7	-229.5	311.6	0.99	0.17	-3.75	
2,209.0	14.93	225.91	2,171.8	-222.0	-241.4	328.0	0.63	-0.44	-1.70	
2,272.0	15.20	226.22	2,232.6	-233.4	-253.2	344.3	0.45	0.43	0.49	
2,335.0	15.27	227.13	2,293.4	-244.7	-265.2	360.9	0.40	0.11	1.44	
2,399.0	15.89	226.55	2,355.0	-256.5	-277.8	378.1	1.00	0.97	-0.91	
2,462.0	16.22	226.58	2,415.6	-268.5	-290.4	395.5	0.52	0.52	0.05	
2,525.0	16.06	226.37	2,476.1	-280.5	-303.1	413.0	0.27	-0.25	-0.33	
2,588.0	16.16	225.82	2,536.6	-292.7	-315.7	430.5	0.29	0.16	-0.87	
2,652.0	16.26	226.30	2,598.1	-305.1	-328.6	448.4	0.26	0.16	0.75	
2,714.0	15.97	226.91	2,657.6	-316.9	-341.1	465.6	0.54	-0.47	0.98	
2,777.0	16.05	225.98	2,718.2	-328.9	-353.7	482.9	0.43	0.13	-1.48	
2,809.0	15.78	225.55	2,749.0	-335.0	-360.0	491.7	0.92	-0.84	-1.34	
2,841.0	15.11	225.97	2,779.8	-340.9	-366.1	500.2	2.12	-2.09	1.31	
2,872.0	14.30	225.14	2,809.8	-346.4	-371.7	508.1	2.70	-2.61	-2.68	
2,904.0	13.32	224.92	2,840.9	-351.8	-377.1	515.7	3.07	-3.06	-0.69	
2,935.0	12.67	226.02	2,871.1	-356.7	-382.1	522.7	2.24	-2.10	3.55	
2,966.0	11.99	226.06	2,901.4	-361.3	-386.8	529.3	2.19	-2.19	0.13	
2,997.0	11.16	225.71	2,931.7	-365.6	-391.3	535.5	2.69	-2.68	-1.13	
3,029.0	10.22	226.18	2,963.2	-369.8	-395.6	541.5	2.95	-2.94	1.47	
3,060.0	9.69	225.85	2,993.7	-373.5	-399.4	546.8	1.72	-1.71	-1.06	
3,092.0	9.43	226.62	3,025.3	-377.2	-403.3	552.2	0.91	-0.81	2.41	
3,124.0	8.78	227.02	3,056.9	-380.6	-407.0	557.2	2.04	-2.03	1.25	
3,156.0	7.78	225.96	3,088.5	-383.8	-410.3	561.8	3.16	-3.13	-3.31	
3,187.0	7.25	223.58	3,119.3	-386.7	-413.2	565.9	1.98	-1.71	-7.68	

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Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	edmCOP

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)	
3,219.0	6.94	223.54	3,151.0	-389.5	-415.9	569.8	0.97	-0.97	-0.13	
3,250.0	6.40	220.60	3,181.8	-392.2	-418.3	573.4	2.06	-1.74	-9.48	
3,282.0	6.03	221.07	3,213.6	-394.8	-420.6	576.9	1.17	-1.16	1.47	
3,314.0	5.57	220.15	3,245.4	-397.3	-422.7	580.1	1.47	-1.44	-2.88	
3,345.0	5.19	220.74	3,276.3	-399.5	-424.6	583.0	1.24	-1.23	1.90	
3,376.0	5.04	219.15	3,307.2	-401.6	-426.3	585.7	0.67	-0.48	-5.13	
3,439.0	4.55	222.55	3,370.0	-405.6	-429.8	590.9	0.90	-0.78	5.40	
3,502.0	4.42	221.29	3,432.8	-409.3	-433.1	595.9	0.26	-0.21	-2.00	