



Job Number: SVCO-120902
 Company: EOG Resources, Inc.
 Lease/Well: Black Bear 36 State 5
 Location: Lea County, NM
 Rig Name: Cactus #139
 RKB: 27'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.02°
 Grid: East To Grid North
 File name: F:\SURVEY\2012SU-1\EOG\CONROE\BLACKB-1\36STATE5.SVY
 Date/Time: 28-Jun-12 / 08:19
 Curve Name: Surface - 1008' M.D. (Rate Gyro)

30-025-40585
 H-36-25s-33e

HOBBS OCD

MAR 22 2013

RECEIVED

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.75	243.66	100.00	-.29	-.59	-.29	.65	243.66	.75
200.00	.83	102.22	199.99	-.73	-.47	-.73	.87	212.36	1.49
300.00	.82	306.96	299.99	-.46	-.33	-.46	.56	215.75	1.61
400.00	.65	125.73	399.99	-.36	-.44	-.36	.57	230.88	1.47
500.00	.89	222.63	499.98	-1.26	-.51	-1.26	1.36	201.86	1.16
600.00	1.04	40.06	599.98	-1.14	-.45	-1.14	1.22	201.49	1.93
700.00	1.00	175.90	699.97	-1.31	.20	-1.31	1.33	171.40	1.89
800.00	.94	100.55	799.96	-2.33	1.07	-2.33	2.57	155.42	1.19
900.00	1.25	51.33	899.94	-1.80	2.73	-1.80	3.27	123.48	.95

APR 04 2013

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	CLOSURE		Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
				N-S FT	E-W FT		Distance FT	Direction Deg	
1000.00	1.00	166.66	999.93	-1.97	3.78	-1.97	4.26	117.54	1.91
Last Survey Depth Recorded									
1008.00	.94	169.23	1007.93	-2.10	3.81	-2.10	4.35	118.91	.93



A Schlumberger Company

Job Number: 12MLD0260
 Company: EOG Resources
 Lease/Well: Black Bear 36 State #5 Monitor/ SWD
 Location: Lea County
 Rig Name: Cactus 139
 RKB: 25'
 G.L. or M.S.L.: GL

State/Country: New Mexico, USA
 Declination: 7.02 East to Grid
 Grid: Grid North
 File name: C:\WINSERVE\0260.SVY
 Date/Time: 06-Jul-12 / 17:18
 Curve Name: Work

HOBBS OCD

MAR 22 2013

RECEIVED

Pathfinder Energy Services

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
Multi-Shot Gyro Tie In									
1008.00	.94	169.23	1007.93	-2.10	3.81	-2.10	4.35	118.86	.00
Following are Pathfinder MWD Surveys									
1147.00	.88	119.31	1146.91	-3.74	4.95	-3.74	6.21	127.07	.55
1331.00	.44	129.77	1330.90	-4.89	6.73	-4.89	8.32	125.99	.25
1517.00	.44	123.71	1516.90	-5.74	7.87	-5.74	9.74	126.10	.03
1705.00	.70	117.73	1704.89	-6.67	9.49	-6.67	11.60	125.12	.14
1892.00	.79	114.57	1891.87	-7.74	11.67	-7.74	14.01	123.56	.05
2082.00	.62	75.98	2081.86	-8.04	13.86	-8.04	16.02	120.11	.26
2270.00	.97	82.40	2269.84	-7.58	16.43	-7.58	18.09	114.77	.19
2459.00	.97	12.97	2458.82	-5.81	18.37	-5.81	19.27	107.55	.58
2648.00	.26	48.21	2647.81	-3.97	19.05	-3.97	19.46	101.76	.41
2837.00	.62	34.76	2836.80	-2.84	19.95	-2.84	20.15	98.10	.20

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3026.00	.00	253.00	3025.80	-2.00	20.53	-2.00	20.63	95.56	.33
3215.00	1.14	9.01	3214.78	-.14	20.83	-.14	20.83	90.39	.60
3405.00	.44	357.15	3404.77	2.45	21.09	2.45	21.23	83.37	.38
3592.00	.88	22.37	3591.75	4.50	21.60	4.50	22.06	78.24	.28
3782.00	.70	.75	3781.74	7.01	22.17	7.01	23.25	72.46	.18
3969.00	1.76	14.99	3968.69	10.92	22.93	10.92	25.40	64.52	.59
4157.00	1.14	293.60	4156.64	14.46	21.96	14.46	26.29	56.63	1.04
4344.00	1.32	288.86	4343.60	15.90	18.22	15.90	24.18	48.88	.11
4532.00	1.23	113.60	4531.59	15.80	18.02	15.80	23.96	48.76	1.36
4721.00	1.49	139.88	4720.53	13.10	21.46	13.10	25.14	58.59	.35
4910.00	3.34	153.06	4909.36	6.32	25.54	6.32	26.31	76.11	1.02
4983.00	3.25	161.06	4982.24	2.46	27.17	2.46	27.28	84.82	.64
5094.00	2.64	157.99	5093.09	-2.88	29.15	-2.88	29.29	95.65	.57
5284.00	.88	198.59	5283.00	-8.32	30.33	-8.32	31.45	105.35	1.08
5473.00	.70	171.26	5471.98	-10.84	30.04	-10.84	31.94	109.84	.22
5662.00	.53	186.90	5660.97	-12.85	30.11	-12.85	32.74	113.11	.13
5851.00	.88	169.06	5849.96	-15.14	30.28	-15.14	33.86	116.57	.22
6041.00	1.67	246.76	6039.92	-17.67	28.01	-17.67	33.12	122.24	.90
6230.00	1.32	288.15	6228.86	-18.08	23.41	-18.08	29.58	127.67	.59
6419.00	1.49	297.91	6417.80	-16.25	19.17	-16.25	25.13	130.28	.16
6609.00	1.67	299.31	6607.73	-13.74	14.58	-13.74	20.03	133.30	.10
6798.00	.53	148.14	6796.71	-13.13	12.64	-13.13	18.22	136.10	1.14
6988.00	.97	306.96	6986.70	-12.91	11.82	-12.91	17.50	137.53	.78
7177.00	1.14	300.46	7175.67	-10.99	8.92	-10.99	14.16	140.96	.11
7367.00	1.23	307.93	7365.63	-8.78	5.68	-8.78	10.46	147.11	.09
7557.00	.79	335.35	7555.60	-6.34	3.52	-6.34	7.25	150.92	.34
7747.00	.53	301.95	7745.59	-4.68	2.23	-4.68	5.19	154.51	.24
7936.00	.09	316.10	7934.59	-4.11	1.39	-4.11	4.34	161.36	.23
8125.00	.35	165.11	8123.59	-4.56	1.43	-4.56	4.78	162.57	.23
8312.00	.44	195.34	8310.58	-5.81	1.39	-5.81	5.97	166.54	.12
8500.00	.62	211.16	8498.57	-7.38	.67	-7.38	7.41	174.79	.12
8689.00	.70	201.14	8687.56	-9.33	-.27	-9.33	9.33	181.67	.07
8879.00	.79	265.04	8877.55	-10.52	-2.00	-10.52	10.71	190.74	.42
9069.00	.53	351.52	9067.54	-9.77	-3.43	-9.77	10.35	199.35	.49

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
9259.00	.62	325.86	9257.53	-8.05	-4.14	-8.05	9.05	207.21	.14
9449.00	1.32	316.10	9447.50	-5.62	-6.23	-5.62	8.39	227.96	.38
9639.00	1.41	333.50	9637.45	-1.95	-8.79	-1.95	9.01	257.49	.22
9829.00	1.06	54.45	9827.42	1.16	-8.41	1.16	8.49	277.88	.86
10019.00	.79	287.62	10017.40	2.58	-8.22	2.58	8.62	287.43	.87
10208.00	.97	279.27	10206.38	3.23	-11.04	3.23	11.51	286.32	.12
10399.00	2.46	270.66	10397.29	3.54	-16.74	3.54	17.11	281.95	.79
Straight Line Projection to Bit @ TD									
10465.00	2.46	270.66	10463.23	3.57	-19.57	3.57	19.90	280.35	.00