

Results of Directional Survey

API number:	30-025-40050		
OGRID:		Operator:	EOG RESOURCES INC
		Property:	CABALLO 23 FEDERAL # 1H

surface	ULSTR:	D	23	T	25S	R	33E
				50	FNL	440	FWL

BH Loc	ULSTR:	M	23	T	25S	R	33E
13985	MD	9430.5	TVD	4902	FNL	526	FWL
				378	FSL		

Top Perf/OH	ULSTR:	D	23	T	25S	R	33E
9718	MD	9417.6	TVD	543	FSL	460	FWL

Bot Perf/OH	ULSTR:	M	23	T	25S	R	33E
13864	MD	9434.0	TVD	4781	FNL	524	FWL
				499	FSL		

	MD	N/S	E/W	VD
	9682	-556.93	22.33	9417.89
TOP PERFS/OH	9718	-592.86	20.14	9417.61
	9753	-627.80	18.02	9417.34
	13859	-4725.90	83.46	9434.18
BOT PERFS/OH	13864	-4730.90	83.55	9434.03
	13925	-4791.86	84.62	9432.26

NEXT TO LAST	13859	-4725.90	83.46	9434.18
LAST READING	13925	-4791.86	84.62	9432.26
TD	13985	-4851.82	85.67	9430.51

Surface Location	50	FN	440	FW
Projected BHL	4902	FN	526	FW
Location of				
Top Perfs/OH	643	FN	460	FW
Bottom Perfs/OH	4781	FN	524	FW

SUMMARY of Subsurface Locations

Surface Location	D-23-25S-33E	50	FN	440	FW	Vert. Depth
Top Perfs/OH	D-23-25S-33E	643	FN	460	FW	9417.61
Bottom Perfs/OH	M-23-25S-33E	4781	FN	524	FW	9434.03
Projected TD	M-23-25S-33E	4902	FN	526	FW	9430.51

AUG 31 2011

PathFinder Energy Services, Inc.

Survey Report

EOG RESOURCES, INC.
CABALLO 23 FEDERAL #1H
RED HILLS; BONE SPRING

Rig: CACTUS 123

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: JESUS GARCIA

ALEX CASTILO

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.7229151 N LON: 103.32591753 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 742578.6000 Y: 409363.5000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.17° EAST TO GRID

Vertical Section Plane: 179.57

Survey Vert. Reference: 30.00' Rotary Table To Ground

Altitude: 3342.00' Ground To MSL

Survey Calculations by RX5 V6.03E using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	Course Length (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
TIE-IN TO SURFACE.											
0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00@	0.00	0.00	0.00
THE FOLLOWING SURVEYS ARE SINGLE SHOT RIG SURVEYS.											
193.00	0.30	77.78	193.00	-0.10	193.00	0.11 N	0.49 E	0.51@	77.78	0.16	0.00
363.00	0.10	199.78	363.00	-0.05	170.00	0.06 N	0.88 E	0.88@	85.99	0.21	0.00
547.00	0.20	99.68	547.00	0.15	184.00	0.14 S	1.14 E	1.15@	97.17	0.13	0.00
745.00	0.30	93.58	745.00	0.25	198.00	0.23 S	2.00 E	2.01@	96.68	0.05	0.00
940.00	0.50	92.88	939.99	0.33	195.00	0.31 S	3.36 E	3.37@	95.25	0.10	0.00
1097.00	0.20	128.98	1096.99	0.55	157.00	0.52 S	4.26 E	4.29@	96.91	0.23	0.00
THE FOLLOWING SURVEYS ARE PATHFINDER MWD SURVEYS											
1242.00	0.26	90.00	1241.99	0.71	145.00	0.67 S	4.78 E	4.83@	98.03	0.11	90.18
1427.00	0.97	80.60	1426.98	0.47	185.00	0.42 S	6.75 E	6.76@	93.55	0.39	93.80
1518.00	1.23	88.77	1517.96	0.34	91.00	0.27 S	8.48 E	8.49@	91.84	0.33	97.41
1609.00	1.41	89.83	1608.93	0.33	91.00	0.25 S	10.58 E	10.58@	91.34	0.20	101.02
1702.00	1.32	87.98	1701.91	0.30	93.00	0.21 S	12.79 E	12.79@	90.93	0.11	101.02
1889.00	1.58	84.55	1888.85	0.02	187.00	0.11 N	17.51 E	17.51@	89.63	0.15	104.64
1983.00	1.06	97.12	1982.82	0.02	94.00	0.13 N	19.66 E	19.67@	89.62	0.63	108.25
2172.00	1.49	87.72	2171.78	0.17	189.00	0.01 N	23.85 E	23.85@	89.97	0.25	108.25
2266.00	2.11	81.65	2265.73	-0.11	94.00	0.31 N	26.79 E	26.79@	89.34	0.69	111.87
2360.00	1.49	68.12	2359.68	-0.79	94.00	1.02 N	29.63 E	29.65@	88.03	0.79	111.87
2454.00	1.76	55.64	2453.65	-2.05	94.00	2.29 N	31.96 E	32.04@	85.91	0.47	108.25
2549.00	2.29	57.53	2548.59	-3.87	95.00	4.13 N	34.77 E	35.01@	83.23	0.56	111.87
2644.00	2.20	70.63	2643.51	-5.47	95.00	5.75 N	38.09 E	38.52@	81.41	0.55	111.87
2707.00	1.58	67.46	2706.48	-6.19	63.00	6.49 N	40.03 E	40.55@	80.79	1.00	115.48
2802.00	1.58	64.83	2801.44	-7.23	95.00	7.55 N	42.43 E	43.09@	79.91	0.08	111.87
2895.00	1.85	77.22	2894.40	-8.09	93.00	8.42 N	45.05 E	45.83@	79.41	0.49	119.09

SUR: D-23-25s-33e, 50/N & 440/W
BHL: M-23-25s-33e, 4902/N & 526/W
API # 30-025-40050

PathFinder Energy Services, Inc.

Survey Report

EOG RESOURCES, INC.
CABALLO 23 FEDERAL #1H
RED HILLS; BONE SPRING
RIG:CACTUS 123

Page 02/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	Course Length (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
2990.00	1.67	82.23	2989.36	-8.59	95.00	8.95 N	47.92 E	48.75@	79.42	0.25	122.71
3085.00	2.20	84.60	3084.30	-8.93	95.00	9.31 N	51.10 E	51.94@	79.68	0.56	122.71
3179.00	2.20	90.40	3178.23	-9.06	94.00	9.47 N	54.70 E	55.52@	80.18	0.24	122.71
3274.00	1.58	120.72	3273.18	-8.35	95.00	8.78 N	57.65 E	58.32@	81.34	1.22	122.71
3369.00	0.70	148.50	3368.16	-7.18	95.00	7.62 N	59.08 E	59.57@	82.65	1.07	122.71
3463.00	0.26	146.92	3462.16	-6.51	94.00	6.95 N	59.50 E	59.90@	83.34	0.47	122.71
3652.00	0.79	270.14	3651.15	-6.16	189.00	6.60 N	58.43 E	58.80@	83.56	0.51	129.94
3842.00	0.97	225.14	3841.13	-5.04	190.00	5.46 N	55.98 E	56.25@	84.42	0.36	129.94
4030.00	1.06	253.53	4029.11	-3.45	188.00	3.85 N	53.18 E	53.32@	85.86	0.27	133.55
4219.00	2.02	263.37	4218.04	-2.61	189.00	2.97 N	48.20 E	48.29@	86.48	0.53	133.55
4314.00	1.41	260.73	4312.99	-2.25	95.00	2.59 N	45.38 E	45.46@	86.74	0.65	133.55
4409.00	0.79	231.47	4407.98	-1.66	95.00	1.99 N	43.72 E	43.76@	87.39	0.86	133.55
4600.00	1.23	146.30	4598.95	0.86	191.00	0.53 S	43.82 E	43.83@	90.70	0.74	129.94
4789.00	3.96	145.16	4787.74	7.95	189.00	7.58 S	48.68 E	49.27@	98.85	1.44	126.32
4883.00	3.34	152.37	4881.55	13.06	94.00	12.67 S	51.80 E	53.33@	103.74	0.82	126.32
5041.00	2.64	156.06	5039.34	20.49	158.00	20.07 S	55.41 E	58.94@	109.91	0.46	108.25
5104.00	2.73	156.58	5102.27	23.20	63.00	22.78 S	56.60 E	61.01@	111.92	0.15	111.87
5292.00	0.44	307.05	5290.20	26.88	188.00	26.45 S	57.80 E	63.57@	114.59	1.66	115.48
5482.00	0.26	226.81	5480.20	26.73	190.00	26.31 S	56.91 E	62.69@	114.81	0.25	115.48
5671.00	0.53	268.03	5669.20	27.05	189.00	26.63 S	55.72 E	61.76@	115.54	0.20	119.09
5861.00	0.35	303.89	5859.19	26.74	190.00	26.34 S	54.36 E	60.40@	115.85	0.17	119.09
5955.00	0.44	271.28	5953.19	26.57	94.00	26.17 S	53.76 E	59.79@	115.95	0.25	122.71
6144.00	0.44	286.84	6142.18	26.33	189.00	25.94 S	52.34 E	58.42@	116.36	0.06	122.71
6334.00	0.44	225.67	6332.18	26.62	190.00	26.24 S	51.12 E	57.46@	117.17	0.24	122.71
6523.00	0.53	233.05	6521.17	27.65	189.00	27.27 S	49.90 E	56.87@	118.66	0.06	126.32
6712.00	0.70	245.79	6710.16	28.63	189.00	28.27 S	48.15 E	55.84@	120.42	0.12	126.32
6901.00	0.35	232.96	6899.15	29.44	189.00	29.09 S	46.64 E	54.97@	121.96	0.19	126.32
7091.00	0.26	223.38	7089.15	30.10	190.00	29.76 S	45.88 E	54.68@	122.97	0.05	126.32

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Survey Report

EOG RESOURCES, INC.
CABALLO 23 FEDERAL #1H
RED HILLS; BONE SPRING
RIG:CACTUS 123

Page 03/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	Course Length (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
7281.00	0.44	241.31	7279.15	30.76	190.00	30.42 S	44.94 E	54.27@	124.09	0.11	129.94
7470.00	0.44	233.49	7468.14	31.53	189.00	31.20 S	43.72 E	53.71@	125.51	0.03	119.09
7660.00	1.06	218.28	7658.12	33.33	190.00	33.01 S	42.05 E	53.46@	128.14	0.34	126.32
7848.00	0.97	244.30	7846.10	35.36	188.00	35.07 S	39.54 E	52.85@	131.57	0.25	126.32
8039.00	1.14	239.99	8037.06	36.99	191.00	36.72 S	36.43 E	51.73@	135.22	0.10	129.94
8228.00	0.97	208.09	8226.03	39.33	189.00	39.07 S	34.05 E	51.83@	138.93	0.32	126.32
8407.00	1.14	209.58	8405.00	42.20	179.00	41.96 S	32.46 E	53.05@	142.27	0.10	119.09
8597.00	1.14	216.88	8594.96	45.34	190.00	45.11 S	30.39 E	54.40@	146.03	0.08	122.71
8785.00	1.14	212.04	8782.93	48.40	188.00	48.19 S	28.28 E	55.88@	149.60	0.05	122.71
8896.00	7.12	180.05	8893.60	56.22	111.00	56.02 S	27.69 E	62.48@	153.70	5.57	122.71
8927.00	11.96	179.79	8924.16	61.36	31.00	61.15 S	27.70 E	67.13@	155.63	15.61	122.71
8959.00	16.44	180.58	8955.17	69.21	32.00	69.00 S	27.66 E	74.34@	158.15	14.01	126.32
8991.00	18.55	181.11	8985.69	78.82	32.00	78.62 S	27.52 E	83.30@	160.71	6.61	126.32
9021.00	18.55	180.05	9014.13	88.36	30.00	88.16 S	27.42 E	92.33@	162.72	1.12	129.94
9053.00	18.03	180.67	9044.52	98.41	32.00	98.20 S	27.36 E	101.94@	164.43	1.73	126.32
9084.00	19.70	180.67	9073.85	108.43	31.00	108.23 S	27.24 E	111.60@	165.87	5.39	126.32
9115.00	24.01	181.90	9102.61	119.96	31.00	119.76 S	26.97 E	122.76@	167.31	13.98	126.32
9146.00	27.70	182.60	9130.51	133.46	31.00	133.27 S	26.44 E	135.86@	168.78	11.94	129.94
9178.00	30.60	181.72	9158.45	149.03	32.00	148.84 S	25.85 E	151.07@	170.15	9.16	129.94
9209.00	34.03	181.19	9184.65	165.59	31.00	165.40 S	25.44 E	167.35@	171.26	11.10	126.32
9241.00	37.46	181.81	9210.61	184.27	32.00	184.09 S	24.94 E	185.77@	172.28	10.78	129.94
9273.00	40.36	181.46	9235.51	204.35	32.00	204.18 S	24.37 E	205.63@	173.19	9.09	126.32
9304.00	43.70	179.88	9258.54	225.10	31.00	224.93 S	24.14 E	226.22@	173.87	11.30	126.32
9335.00	47.04	178.56	9280.31	247.16	31.00	246.98 S	24.45 E	248.19@	174.35	11.19	129.94
9367.00	49.95	177.77	9301.52	271.11	32.00	270.93 S	25.22 E	272.10@	174.68	9.28	129.94
9398.00	53.46	177.15	9320.72	295.42	31.00	295.23 S	26.30 E	296.40@	174.91	11.43	126.32
9429.00	56.45	178.47	9338.52	320.79	31.00	320.59 S	27.26 E	321.75@	175.14	10.25	126.32
9461.00	59.09	179.44	9355.59	347.85	32.00	347.65 S	27.75 E	348.76@	175.44	8.64	126.32

PathFinder Energy Services, Inc.

Survey Report

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CABALLO 23 FEDERAL #1H
RED HILLS; BONE SPRING
RIG:CACTUS 123

Page 04/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	Course Length (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)	TEMP (F)
(ft)	(deg)	(deg)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(deg)		
9492.00	63.40	179.96	9370.50	375.02	31.00	374.82 S	27.89 E	375.86@	175.74	13.98	126.32
9524.00	67.01	180.40	9383.92	404.06	32.00	403.87 S	27.80 E	404.82@	176.06	11.35	126.32
9556.00	70.17	181.11	9395.60	433.85	32.00	433.65 S	27.40 E	434.52@	176.38	10.09	126.32
9587.00	74.74	181.90	9404.94	463.38	31.00	463.19 S	26.63 E	463.96@	176.71	14.94	126.32
9619.00	79.67	182.25	9412.02	494.54	32.00	494.37 S	25.50 E	495.02@	177.05	15.44	126.32
9650.00	84.50	182.86	9416.29	525.20	31.00	525.03 S	24.13 E	525.59@	177.37	15.70	129.94
9682.00	89.78	183.57	9417.89	557.08	32.00	556.93 S	22.33 E	557.38@	177.70	16.65	129.94
9753.00	91.10	183.39	9417.34	627.91	71.00	627.80 S	18.02 E	628.05@	178.36	1.88	126.32
9848.00	88.37	180.93	9417.78	722.80	95.00	722.71 S	14.44 E	722.86@	178.85	3.87	129.94
9943.00	88.81	180.75	9420.12	817.75	95.00	817.67 S	13.05 E	817.78@	179.09	0.50	129.94
10038.00	90.75	178.82	9420.48	912.74	95.00	912.66 S	13.41 E	912.76@	179.16	2.88	129.94
10133.00	91.71	178.12	9418.44	1007.69	95.00	1007.60 S	15.94 E	1007.73@	179.09	1.25	133.55
10228.00	91.45	177.24	9415.82	1102.61	95.00	1102.49 S	19.79 E	1102.67@	178.97	0.97	133.55
10322.00	90.92	176.80	9413.88	1196.49	94.00	1196.34 S	24.67 E	1196.60@	178.82	0.73	133.55
10416.00	92.95	176.01	9410.71	1290.29	94.00	1290.10 S	30.56 E	1290.46@	178.64	2.32	133.55
10511.00	89.34	174.16	9408.81	1384.96	95.00	1384.71 S	38.70 E	1385.25@	178.40	4.27	133.55
10702.00	87.93	172.93	9413.36	1574.84	191.00	1574.44 S	60.17 E	1575.58@	177.81	0.98	137.17
10894.00	90.84	172.58	9415.42	1765.45	192.00	1764.87 S	84.38 E	1766.89@	177.26	1.53	137.17
10989.00	89.43	174.34	9415.20	1859.91	95.00	1859.25 S	95.20 E	1861.68@	177.07	2.37	133.55
11085.00	89.87	176.01	9415.78	1955.62	96.00	1954.90 S	103.27 E	1957.63@	176.98	1.80	137.17
11181.00	92.24	177.50	9414.01	2051.48	96.00	2050.72 S	108.70 E	2053.60@	176.97	2.92	140.78
11276.00	93.12	177.94	9409.57	2146.32	95.00	2145.54 S	112.48 E	2148.49@	177.00	1.04	137.17
11371.00	91.28	179.17	9405.93	2241.23	95.00	2240.44 S	114.87 E	2243.38@	177.06	2.33	137.17
11467.00	87.05	179.35	9407.32	2337.20	96.00	2336.39 S	116.11 E	2339.28@	177.15	4.41	137.17
11563.00	86.79	180.40	9412.48	2433.06	96.00	2432.25 S	116.32 E	2435.03@	177.26	1.12	140.78
11659.00	86.53	180.58	9418.07	2528.88	96.00	2528.09 S	115.50 E	2530.72@	177.38	0.33	144.39
11754.00	87.23	181.98	9423.25	2623.70	95.00	2622.92 S	113.38 E	2625.37@	177.52	1.65	140.78
11850.00	87.32	181.63	9427.81	2719.52	96.00	2718.76 S	110.36 E	2721.00@	177.68	0.38	140.78

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RED HILLS; BONE SPRING
RIG:CACTUS 123

Page 05/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Vertical Section (ft)	Course Length (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
11946.00	89.60	182.60	9430.39	2815.38	96.00	2814.66 S	106.82 E	2816.68@	177.83	2.58	137.17
12041.00	88.55	180.67	9431.92	2910.30	95.00	2909.60 S	104.11 E	2911.46@	177.95	2.31	140.78
12137.00	89.52	179.52	9433.54	3006.28	96.00	3005.58 S	103.95 E	3007.38@	178.02	1.57	137.17
12233.00	92.33	179.44	9431.99	3102.26	96.00	3101.56 S	104.82 E	3103.33@	178.06	2.93	140.78
12329.00	94.26	179.52	9426.47	3198.09	96.00	3197.39 S	105.69 E	3199.14@	178.11	2.01	144.39
12392.00	94.44	179.96	9421.69	3260.91	63.00	3260.21 S	105.98 E	3261.93@	178.14	0.75	137.17
12456.00	93.03	180.93	9417.53	3324.77	64.00	3324.07 S	105.48 E	3325.74@	178.18	2.67	137.17
12520.00	91.45	182.16	9415.02	3388.67	64.00	3387.99 S	103.76 E	3389.58@	178.25	3.13	137.17
12584.00	88.20	182.78	9415.22	3452.58	64.00	3451.92 S	101.00 E	3453.40@	178.32	5.17	137.17
12647.00	87.76	183.30	9417.44	3515.43	63.00	3514.80 S	97.66 E	3516.15@	178.41	1.08	140.78
12711.00	88.20	182.95	9419.70	3579.27	64.00	3578.66 S	94.17 E	3579.90@	178.49	0.88	140.78
12775.00	89.43	183.39	9421.02	3643.12	64.00	3642.55 S	90.63 E	3643.67@	178.57	2.04	140.78
12838.00	89.96	182.60	9421.35	3706.01	63.00	3705.46 S	87.34 E	3706.49@	178.65	1.51	140.78
12902.00	87.32	181.72	9422.87	3769.92	64.00	3769.39 S	84.93 E	3770.35@	178.71	4.35	140.78
12999.00	86.70	182.16	9427.93	3866.71	97.00	3866.20 S	81.65 E	3867.06@	178.79	0.78	144.39
13095.00	86.70	180.05	9433.46	3962.51	96.00	3962.02 S	79.80 E	3962.82@	178.85	2.19	137.17
13190.00	89.96	180.75	9436.23	4057.44	95.00	4056.96 S	79.14 E	4057.73@	178.88	3.51	140.78
13286.00	89.96	180.14	9436.30	4153.43	96.00	4152.96 S	78.39 E	4153.70@	178.92	0.64	144.39
13381.00	90.66	179.96	9435.78	4248.43	95.00	4247.96 S	78.31 E	4248.68@	178.94	0.76	144.39
13477.00	89.25	179.70	9435.86	4344.42	96.00	4343.95 S	78.60 E	4344.67@	178.96	1.49	144.39
13572.00	90.92	179.08	9435.72	4439.42	95.00	4438.95 S	79.61 E	4439.66@	178.97	1.88	144.39
13668.00	89.43	179.17	9435.42	4535.41	96.00	4534.93 S	81.07 E	4535.66@	178.98	1.55	144.39
13764.00	90.22	179.44	9435.72	4631.41	96.00	4630.92 S	82.24 E	4631.65@	178.98	0.87	144.39
13859.00	91.63	179.08	9434.18	4726.39	95.00	4725.90 S	83.46 E	4726.64@	178.99	1.53	144.39
13925.00	91.71	178.91	9432.26	4792.36	66.00	4791.86 S	84.62 E	4792.61@	178.99	0.28	144.39
STRAIGHT LINE PROJECTION TO BIT @ 13985' MD.											
13985.00	91.71	178.91	9430.47	4852.33	60.00	4851.82 S	85.76 E	4852.58@	178.99	0.00	144.39