

Results of Directional Survey

API number:	30-025-40536		
OGRID:		Operator:	EOG RESOURCES INC
		Property:	VACA 24 FEDERAL COM # 5H

surface	ULSTR:	O	24	T	25S	R	33E
				50	FSL	2190	FEL

BH Loc	ULSTR:	J	13	T	25S	R	33E
16480	MD	9457.9	TVD	2003	FSL	2220	FEL
				7283	FSL		

Top Perf/OH	ULSTR:	O	24	T	25S	R	33E
9663	MD	9480.4	TVD	479	FSL	2181	FEL

Bot Perf/OH	ULSTR:	J	13	T	25S	R	33E
16428	MD	9457.4	TVD	1951	FSL	2217	FEL
				7231	FSL		

	MD	N/S	E/W	VD
	9638	405.39	10.16	9471.92
TOP PERFS/OH	9663	428.90	9.49	9480.40
	9670	435.48	9.30	9482.77
	16383	7136.01	-25.99	9456.84
BOT PERFS/OH	16428	7180.99	-27.35	9457.40
	16455	7207.97	-28.17	9457.73

NEXT TO LAST	16455	7207.97	-28.17	9457.73
LAST READING	16480	7232.93	-29.50	9457.94
TD	16480	7232.93	-29.50	9457.94

Surface Location	50	FS	2190	FE
Projected BHL	7283	FS	2220	FE
Location of				
Top Perfs/OH	479	FS	2181	FE
Bottom Perfs/OH	7231	FS	2217	FE

SUMMARY of Subsurface Locations

Surface Location	O-24-25S-33E	50	FS	2190	FE	Vert. Depth
Top Perfs/OH	O-24-25S-33E	479	FS	2181	FE	9480.40
Bottom Perfs/OH	J-13-25S-33E	7231	FS	2217	FE	9457.40
Projected TD	J-13-25S-33E	7283	FS	2220	FE	9457.94

APR 14 2014



HOBBS OCD

FEB 10 2014

Actual Wellpath Report

No.5H AWP

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RECEIVED

REFERENCE WELLPATH IDENTIFICATION

Operator	EOG Resources, Inc.	Slot	No. 5H SHL
Area	Lea County, NM	Well	No. 5H
Field	(Vaca) Sec 24, T25S, R33E	Wellbore	No.5H AWB
Facility	Vaca 24 Federal No. 5H		

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gentbry
Scale	0.999981	Report Generated	07/18/2013 at 2:36:28 PM
Convergence at slot	0.43° East	Database/Source file	WA Midland/No.5H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	750556.70	404236.10	32°06'31.593"N	103°31'26.857"W
Facility Reference Pt			750556.70	404236.10	32°06'31.593"N	103°31'26.857"W
Field Reference Pt			749649.70	404229.80	32°06'31.598"N	103°31'37.403"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 5H SHL (KB) to Facility Vertical Datum	27.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 5H SHL (KB) to Mean Sea Level	3355.70ft
Vertical Reference Pt	Rig on No. 5H SHL (KB)	Rig on No. 5H SHL (KB) to Mud Line at Slot (No. 5H SHL)	27.00ft
MD Reference Pt	Rig on No. 5H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.59°

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Area	Lea County, NM	Well	No. 5H
Field	(Vaca) Sec 24, T25S, R33E	Wellbore	No.5H AWB
Facility	Vaca 24 Federal No. 5H		

WELLPATH DATA (156 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	71.420	0.00	0.00	0.00	0.00	750556.70	404236.10	32°06'31.593"N	103°31'26.857"W	0.00	
100.00	0.210	71.420	100.00	0.06	0.06	0.17	750556.87	404236.16	32°06'31.594"N	103°31'26.855"W	0.21	
200.00	1.300	142.390	199.99	-0.79	-0.78	1.04	750557.74	404235.32	32°06'31.585"N	103°31'26.845"W	1.25	
300.00	1.380	135.990	299.96	-2.56	-2.55	2.57	750559.27	404233.55	32°06'31.568"N	103°31'26.828"W	0.17	
400.00	1.420	138.420	399.93	-4.37	-4.34	4.23	750560.93	404231.76	32°06'31.550"N	103°31'26.809"W	0.07	
500.00	1.280	139.280	499.91	-6.15	-6.11	5.78	750562.48	404229.99	32°06'31.532"N	103°31'26.791"W	0.14	
600.00	1.200	139.820	599.88	-7.81	-7.76	7.18	750563.88	404228.34	32°06'31.516"N	103°31'26.775"W	0.08	
700.00	1.050	136.410	699.86	-9.28	-9.22	8.49	750565.19	404226.88	32°06'31.501"N	103°31'26.760"W	0.16	
800.00	0.990	133.350	799.85	-10.55	-10.48	9.75	750566.45	404225.62	32°06'31.489"N	103°31'26.745"W	0.08	
900.00	0.690	155.650	899.84	-11.70	-11.62	10.63	750567.33	404224.48	32°06'31.477"N	103°31'26.735"W	0.44	
1000.00	0.840	145.090	999.83	-12.85	-12.77	11.29	750567.99	404223.33	32°06'31.466"N	103°31'26.727"W	0.21	
1100.00	0.820	142.650	1099.82	-14.03	-13.94	12.15	750568.85	404222.16	32°06'31.454"N	103°31'26.717"W	0.04	
1115.00	0.560	134.650	1114.82	-14.16	-14.08	12.27	750568.96	404222.02	32°06'31.453"N	103°31'26.716"W	1.84	
1190.00	0.800	185.800	1189.81	-14.94	-14.86	12.47	750569.17	404221.24	32°06'31.445"N	103°31'26.714"W	0.83	
1375.00	0.700	183.300	1374.80	-17.36	-17.27	12.28	750568.98	404218.83	32°06'31.421"N	103°31'26.716"W	0.06	
1565.00	0.300	199.500	1564.79	-18.98	-18.90	12.04	750568.74	404217.20	32°06'31.405"N	103°31'26.719"W	0.22	
1756.00	0.500	187.800	1755.78	-20.28	-20.19	11.76	750568.46	404215.91	32°06'31.392"N	103°31'26.722"W	0.11	
1947.00	0.600	182.700	1946.77	-22.10	-22.02	11.60	750568.30	404214.08	32°06'31.374"N	103°31'26.724"W	0.06	
2138.00	0.500	179.400	2137.77	-23.93	-23.85	11.57	750568.27	404212.25	32°06'31.356"N	103°31'26.725"W	0.05	
2329.00	0.400	156.500	2328.76	-25.38	-25.30	11.84	750568.54	404210.80	32°06'31.342"N	103°31'26.722"W	0.11	
2519.00	2.000	40.300	2518.72	-23.48	-23.37	14.25	750570.95	404212.73	32°06'31.361"N	103°31'26.694"W	1.16	
2710.00	1.600	44.600	2709.63	-19.06	-18.93	18.28	750574.98	404217.17	32°06'31.404"N	103°31'26.647"W	0.22	
2901.00	1.500	47.500	2900.56	-15.50	-15.35	21.99	750578.69	404220.75	32°06'31.440"N	103°31'26.603"W	0.07	
3092.00	1.300	43.300	3091.50	-12.26	-12.08	25.32	750582.02	404224.02	32°06'31.472"N	103°31'26.564"W	0.12	
3283.00	1.500	57.400	3282.44	-9.36	-9.16	28.91	750585.61	404226.94	32°06'31.500"N	103°31'26.522"W	0.21	
3474.00	1.600	60.400	3473.38	-6.73	-6.49	33.34	750590.04	404229.61	32°06'31.526"N	103°31'26.470"W	0.07	
3665.00	1.800	342.900	3664.31	-2.56	-2.31	34.78	750591.47	404233.79	32°06'31.568"N	103°31'26.453"W	1.12	
3856.00	1.100	1.200	3855.25	2.15	2.39	33.93	750590.63	404238.49	32°06'31.614"N	103°31'26.463"W	0.43	
4047.00	1.300	10.000	4046.21	6.11	6.36	34.35	750591.05	404242.46	32°06'31.653"N	103°31'26.458"W	0.14	
4238.00	0.900	354.700	4237.17	9.74	9.99	34.58	750591.28	404246.09	32°06'31.689"N	103°31'26.455"W	0.26	
4429.00	0.700	6.600	4428.16	12.39	12.64	34.58	750591.28	404248.74	32°06'31.715"N	103°31'26.454"W	0.14	
4620.00	0.700	46.600	4619.14	14.35	14.60	35.56	750592.26	404250.70	32°06'31.735"N	103°31'26.443"W	0.25	
4811.00	0.700	82.600	4810.13	15.28	15.55	37.57	750594.27	404251.65	32°06'31.744"N	103°31'26.419"W	0.23	
5002.00	1.000	94.400	5001.11	15.29	15.57	40.38	750597.08	404251.67	32°06'31.744"N	103°31'26.387"W	0.18	
5138.00	0.200	257.400	5137.10	15.14	15.43	41.34	750598.04	404251.53	32°06'31.743"N	103°31'26.376"W	0.88	
5329.00	0.100	85.200	5328.10	15.08	15.37	41.18	750597.88	404251.47	32°06'31.742"N	103°31'26.377"W	0.16	
5519.00	0.100	345.400	5518.10	15.25	15.55	41.30	750598.00	404251.65	32°06'31.744"N	103°31'26.376"W	0.08	
5710.00	0.200	253.800	5709.10	15.32	15.61	40.94	750597.64	404251.71	32°06'31.744"N	103°31'26.380"W	0.12	
5901.00	0.200	8.100	5900.10	15.56	15.85	40.67	750597.36	404251.95	32°06'31.747"N	103°31'26.383"W	0.18	
6092.00	0.100	260.000	6091.10	15.86	16.15	40.55	750597.25	404252.25	32°06'31.750"N	103°31'26.385"W	0.13	
6283.00	0.100	283.500	6282.10	15.88	16.16	40.22	750596.92	404252.26	32°06'31.750"N	103°31'26.388"W	0.02	
6474.00	0.100	331.000	6473.10	16.06	16.35	39.98	750596.68	404252.45	32°06'31.752"N	103°31'26.391"W	0.04	
6665.00	0.100	26.200	6664.10	16.36	16.64	39.97	750596.67	404252.74	32°06'31.755"N	103°31'26.391"W	0.05	
6855.00	0.200	324.500	6854.10	16.78	17.06	39.85	750596.55	404253.16	32°06'31.759"N	103°31'26.393"W	0.09	
7046.00	0.200	252.000	7045.10	16.95	17.23	39.34	750596.04	404253.33	32°06'31.761"N	103°31'26.399"W	0.12	

Actual Wellpath Report

No.5H AWP

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Area	Lea County, NM	Well	No. 5H
Field	(Vaca) Sec 24, T25S, R33E	Wellbore	No.5H AWB
Facility	Vaca 24 Federal No. 5H		

WELLPATH DATA (156 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7237.00	0.300	103.200	7236.10	16.73	17.01	39.51	750596.21	404253.11	32°06'31.758"N	103°31'26.397"W	0.25	
7428.00	0.200	240.600	7427.10	16.45	16.73	39.71	750596.41	404252.83	32°06'31.756"N	103°31'26.394"W	0.24	
7619.00	0.300	12.000	7618.10	16.78	17.06	39.52	750596.22	404253.16	32°06'31.759"N	103°31'26.397"W	0.24	
7809.00	0.600	211.000	7808.09	16.41	16.69	39.11	750595.81	404252.79	32°06'31.755"N	103°31'26.401"W	0.47	
7952.00	0.100	251.100	7951.09	15.74	16.01	38.61	750595.31	404252.11	32°06'31.749"N	103°31'26.407"W	0.37	
8143.00	0.600	248.900	8142.09	15.33	15.60	37.52	750594.22	404251.70	32°06'31.745"N	103°31'26.420"W	0.26	
8334.00	0.600	224.000	8333.08	14.26	14.52	35.89	750592.59	404250.62	32°06'31.734"N	103°31'26.439"W	0.14	
8525.00	1.100	208.300	8524.05	11.94	12.18	34.33	750591.03	404248.28	32°06'31.711"N	103°31'26.457"W	0.29	
8716.00	0.200	151.200	8715.04	10.04	10.28	33.62	750590.32	404246.38	32°06'31.692"N	103°31'26.466"W	0.53	
8875.00	0.700	3.000	8874.04	10.76	11.00	33.80	750590.50	404247.10	32°06'31.699"N	103°31'26.464"W	0.55	
8907.00	2.210	2.270	8906.03	11.58	11.82	33.84	750590.54	404247.92	32°06'31.707"N	103°31'26.463"W	4.72	
8939.00	4.270	352.190	8937.97	13.37	13.61	33.70	750590.40	404249.71	32°06'31.725"N	103°31'26.464"W	6.65	
8970.00	6.010	351.800	8968.85	16.13	16.36	33.31	750590.01	404252.46	32°06'31.752"N	103°31'26.469"W	5.61	
9002.00	7.720	349.440	9000.62	19.90	20.13	32.68	750589.38	404256.23	32°06'31.790"N	103°31'26.476"W	5.41	
9034.00	10.400	348.460	9032.22	24.85	25.08	31.71	750588.41	404261.18	32°06'31.839"N	103°31'26.487"W	8.39	
9065.00	13.930	351.770	9062.51	31.30	31.51	30.61	750587.31	404267.61	32°06'31.903"N	103°31'26.499"W	11.60	
9097.00	17.790	355.780	9093.29	39.99	40.21	29.70	750586.40	404276.30	32°06'31.989"N	103°31'26.509"W	12.53	
9129.00	22.420	357.360	9123.33	50.97	51.18	29.06	750585.76	404287.28	32°06'32.097"N	103°31'26.515"W	14.57	
9161.00	26.010	356.420	9152.51	64.08	64.29	28.34	750585.04	404300.38	32°06'32.227"N	103°31'26.522"W	11.28	
9192.00	28.550	355.840	9180.06	78.26	78.46	27.38	750584.08	404314.56	32°06'32.367"N	103°31'26.532"W	8.24	
9224.00	31.410	356.530	9207.78	94.22	94.41	26.32	750583.02	404330.51	32°06'32.525"N	103°31'26.543"W	9.00	
9256.00	35.100	356.800	9234.53	111.75	111.93	25.30	750582.00	404348.03	32°06'32.699"N	103°31'26.554"W	11.54	
9288.00	38.400	356.700	9260.17	130.87	131.04	24.21	750580.91	404367.14	32°06'32.888"N	103°31'26.565"W	10.31	
9320.00	42.170	357.140	9284.58	151.53	151.70	23.11	750579.81	404387.80	32°06'33.092"N	103°31'26.576"W	11.81	
9352.00	45.090	356.800	9307.74	173.58	173.75	21.94	750578.64	404409.84	32°06'33.311"N	103°31'26.587"W	9.15	
9383.00	47.720	355.990	9329.11	196.00	196.15	20.52	750577.22	404432.25	32°06'33.532"N	103°31'26.602"W	8.69	
9415.00	48.860	355.810	9350.40	219.84	219.98	18.81	750575.51	404456.07	32°06'33.768"N	103°31'26.620"W	3.59	
9447.00	50.340	357.580	9371.14	244.17	244.30	17.41	750574.11	404480.40	32°06'34.009"N	103°31'26.634"W	6.26	
9479.00	51.960	358.270	9391.22	269.08	269.21	16.51	750573.21	404505.30	32°06'34.256"N	103°31'26.642"W	5.33	
9511.00	54.280	357.860	9410.42	294.67	294.79	15.65	750572.35	404530.88	32°06'34.509"N	103°31'26.650"W	7.32	
9542.00	57.080	357.410	9427.89	320.25	320.37	14.59	750571.29	404556.46	32°06'34.762"N	103°31'26.660"W	9.11	
9574.00	60.890	356.840	9444.38	347.65	347.75	13.21	750569.91	404583.84	32°06'35.033"N	103°31'26.674"W	12.00	
9606.00	64.480	356.650	9459.06	376.04	376.13	11.60	750568.30	404612.22	32°06'35.314"N	103°31'26.690"W	11.23	
9638.00	68.120	357.710	9471.92	405.31	405.39	10.16	750566.86	404641.48	32°06'35.604"N	103°31'26.704"W	11.77	
9670.00	72.240	359.000	9482.77	435.40	435.48	9.30	750566.00	404671.57	32°06'35.902"N	103°31'26.711"W	13.42	
9702.00	75.890	359.140	9491.55	466.16	466.24	8.80	750565.50	404702.33	32°06'36.206"N	103°31'26.714"W	11.41	
9733.00	81.070	359.630	9497.74	496.53	496.60	8.48	750565.18	404732.69	32°06'36.506"N	103°31'26.716"W	16.78	
9796.00	90.830	0.730	9502.19	559.29	559.37	8.68	750565.38	404795.46	32°06'37.128"N	103°31'26.708"W	15.59	
9828.00	91.140	0.710	9501.64	591.28	591.36	9.08	750565.78	404827.45	32°06'37.444"N	103°31'26.700"W	0.97	
9860.00	91.080	0.790	9501.02	623.27	623.35	9.50	750566.20	404859.44	32°06'37.761"N	103°31'26.693"W	0.31	
9892.00	91.200	0.010	9500.38	655.26	655.34	9.72	750566.42	404891.43	32°06'38.077"N	103°31'26.687"W	2.47	
9987.00	91.230	359.290	9498.37	750.24	750.32	9.14	750565.84	404986.40	32°06'39.017"N	103°31'26.686"W	0.76	
10082.00	91.200	359.680	9496.35	845.21	845.29	8.29	750564.99	405081.38	32°06'39.957"N	103°31'26.687"W	0.41	
10178.00	91.050	359.220	9494.47	941.20	941.27	7.37	750564.06	405177.35	32°06'40.907"N	103°31'26.690"W	0.50	
10273.00	91.910	359.710	9492.01	1036.16	1036.23	6.48	750563.18	405272.31	32°06'41.846"N	103°31'26.692"W	1.04	

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Field	(Vaca) Sec 24, T25S, R33E	Wellbore	No.5H AWB
Facility	Vaca 24 Federal No. 5H		

WELLPATH DATA (156 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10368.00	91.510	0.830	9489.18	1131.11	1131.19	6.93	750563.63	405367.27	32°06'42.786"N	103°31'26.678"W	1.25	
10464.00	92.370	0.280	9485.93	1227.04	1227.13	7.86	750564.56	405463.20	32°06'43.735"N	103°31'26.659"W	1.06	
10559.00	91.910	359.130	9482.38	1321.97	1322.06	7.37	750564.07	405558.13	32°06'44.675"N	103°31'26.656"W	1.30	
10655.00	91.790	356.930	9479.28	1417.88	1417.95	4.07	750560.77	405654.02	32°06'45.624"N	103°31'26.686"W	2.29	
10750.00	91.450	355.360	9476.60	1512.67	1512.69	-2.32	750554.38	405748.76	32°06'46.562"N	103°31'26.752"W	1.69	
10846.00	90.950	356.220	9474.59	1608.44	1608.41	-9.36	750547.34	405844.48	32°06'47.510"N	103°31'26.826"W	1.04	
10941.00	92.250	359.680	9471.93	1703.34	1703.30	-12.76	750543.94	405939.36	32°06'48.449"N	103°31'26.857"W	3.89	
11037.00	92.960	2.190	9467.57	1799.21	1799.17	-11.20	750545.50	406035.24	32°06'49.397"N	103°31'26.831"W	2.71	
11132.00	93.050	3.440	9462.59	1893.93	1893.93	-6.54	750550.16	406129.99	32°06'50.335"N	103°31'26.768"W	1.32	
11227.00	93.600	2.650	9457.08	1988.59	1988.63	-1.50	750555.20	406224.69	32°06'51.271"N	103°31'26.701"W	1.01	
11323.00	91.940	1.900	9452.44	2084.37	2084.44	2.31	750559.01	406320.50	32°06'52.219"N	103°31'26.649"W	1.90	
11418.00	91.790	1.400	9449.35	2179.26	2179.35	5.04	750561.74	406415.41	32°06'53.158"N	103°31'26.609"W	0.55	
11514.00	92.100	0.440	9446.09	2275.18	2275.28	6.58	750563.28	406511.33	32°06'54.107"N	103°31'26.582"W	1.05	
11609.00	90.830	359.200	9443.66	2370.14	2370.25	6.28	750562.98	406606.30	32°06'55.047"N	103°31'26.578"W	1.87	
11705.00	93.110	358.750	9440.36	2466.07	2466.17	4.57	750561.27	406702.22	32°06'55.996"N	103°31'26.589"W	2.42	
11800.00	91.570	358.840	9436.48	2560.98	2561.07	2.57	750559.27	406797.11	32°06'56.935"N	103°31'26.604"W	1.62	
11896.00	91.790	0.320	9433.67	2656.94	2657.02	1.87	750558.57	406893.06	32°06'57.885"N	103°31'26.604"W	1.56	
11991.00	91.170	359.980	9431.21	2751.90	2751.99	2.12	750558.82	406988.03	32°06'58.825"N	103°31'26.593"W	0.74	
12087.00	91.360	3.750	9429.09	2847.78	2847.89	5.24	750561.94	407083.93	32°06'59.774"N	103°31'26.548"W	3.93	
12182.00	90.180	3.510	9427.82	2942.54	2942.69	11.25	750567.95	407178.73	32°07'00.711"N	103°31'26.470"W	1.27	
12278.00	89.820	2.450	9427.82	3038.37	3038.56	16.24	750572.94	407274.60	32°07'01.659"N	103°31'26.403"W	1.17	
12373.00	90.950	359.260	9427.18	3133.33	3133.54	17.66	750574.36	407369.57	32°07'02.599"N	103°31'26.379"W	3.56	
12469.00	89.450	357.370	9426.84	3229.30	3229.49	14.84	750571.54	407465.52	32°07'03.549"N	103°31'26.403"W	2.51	
12564.00	89.880	356.590	9427.40	3324.20	3324.35	9.83	750566.53	407560.38	32°07'04.488"N	103°31'26.453"W	0.94	
12659.00	90.120	357.040	9427.40	3419.09	3419.20	4.56	750561.26	407655.23	32°07'05.427"N	103°31'26.506"W	0.54	
12755.00	89.850	359.500	9427.42	3515.05	3515.15	1.66	750558.36	407751.18	32°07'06.377"N	103°31'26.531"W	2.58	
12851.00	90.430	1.890	9427.19	3611.03	3611.14	2.82	750559.52	407847.16	32°07'07.326"N	103°31'26.509"W	2.56	
12946.00	89.080	1.320	9427.59	3705.97	3706.10	5.48	750562.18	407942.12	32°07'08.266"N	103°31'26.470"W	1.54	
13042.00	89.630	3.490	9428.68	3801.84	3802.00	9.51	750566.21	408038.02	32°07'09.214"N	103°31'26.415"W	2.33	
13137.00	89.450	2.120	9429.44	3896.68	3896.88	14.16	750570.86	408132.90	32°07'10.153"N	103°31'26.353"W	1.45	
13232.00	89.410	2.220	9430.38	3991.58	3991.81	17.76	750574.46	408227.83	32°07'11.092"N	103°31'26.303"W	0.11	
13328.00	89.380	1.070	9431.40	4087.51	4087.76	20.51	750577.21	408323.78	32°07'12.041"N	103°31'26.262"W	1.20	
13423.00	89.410	356.670	9432.40	4182.48	4182.72	18.64	750575.34	408418.73	32°07'12.981"N	103°31'26.276"W	4.63	
13519.00	89.320	351.690	9433.47	4278.01	4278.19	8.91	750565.61	408514.20	32°07'13.927"N	103°31'26.380"W	5.19	
13614.00	89.690	352.820	9434.29	4372.23	4372.31	3.89	750552.81	408608.32	32°07'14.859"N	103°31'26.521"W	1.25	
13709.00	89.570	352.460	9434.90	4466.53	4466.53	-16.06	750540.64	408702.53	32°07'15.792"N	103°31'26.654"W	0.40	
13805.00	89.450	354.310	9435.72	4561.96	4561.88	-27.12	750529.58	408797.89	32°07'16.736"N	103°31'26.775"W	1.93	
13900.00	89.570	356.340	9436.53	4656.69	4656.56	-34.86	750521.84	408892.56	32°07'17.674"N	103°31'26.856"W	2.14	
13996.00	88.980	357.670	9437.75	4752.58	4752.42	-39.88	750516.82	408988.42	32°07'18.623"N	103°31'26.906"W	1.52	
14091.00	88.240	357.960	9440.05	4847.50	4847.32	-43.50	750513.20	409083.32	32°07'19.562"N	103°31'26.940"W	0.84	
14187.00	88.740	355.530	9442.58	4943.35	4943.12	-48.95	750507.75	409179.12	32°07'20.511"N	103°31'26.995"W	2.58	
14283.00	88.980	355.040	9444.49	5039.06	5038.78	-56.84	750499.86	409274.77	32°07'21.458"N	103°31'27.078"W	0.57	
14378.00	88.680	354.230	9446.43	5133.68	5133.34	-65.72	750490.98	409369.33	32°07'22.394"N	103°31'27.173"W	0.91	
14474.00	89.010	355.400	9448.37	5229.32	5228.93	-74.39	750482.31	409464.92	32°07'23.341"N	103°31'27.266"W	1.27	
14569.00	88.980	356.720	9450.03	5324.13	5323.69	-80.92	750475.73	409559.67	32°07'24.279"N	103°31'27.334"W	1.39	

Actual Wellpath Report

No.5H AWP

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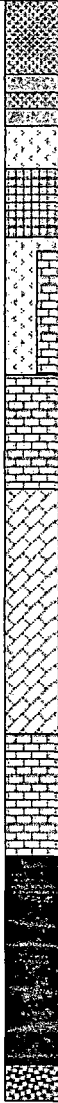
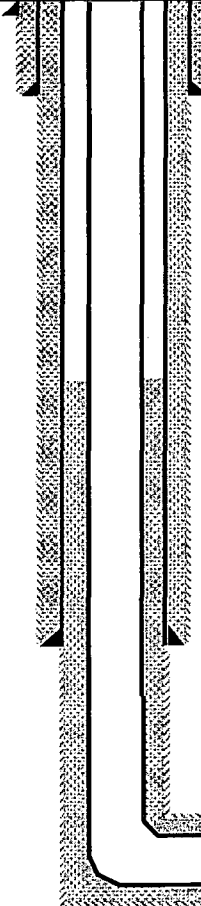
REFERENCE WELLPATH IDENTIFICATION			
Operator	EOG Resources, Inc.	Slot	No. 5H SHL
Area	Lea County, NM	Well	No. 5H
Field	(Vaca) Sec 24, T25S, R33E	Wellbore	No.5H AWB
Facility	Vaca 24 Federal No. 5H		

WELLPATH DATA (156 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
14665.00	88.950	359.100	9451.77	5420.06	5419.60	-84.42	750472.28	409655.59	32°07'25.228"N	103°31'27.366"W	2.48	
14760.00	89.010	1.270	9453.46	5515.04	5514.58	-84.11	750472.59	409750.56	32°07'26.168"N	103°31'27.354"W	2.28	
14856.00	89.010	0.630	9455.12	5611.00	5610.55	-82.52	750474.18	409846.53	32°07'27.118"N	103°31'27.327"W	0.67	
14951.00	89.260	3.160	9456.55	5705.90	5705.48	-79.38	750477.32	409941.46	32°07'28.057"N	103°31'27.282"W	2.68	
15046.00	89.110	2.170	9457.90	5800.75	5800.37	-74.96	750481.74	410036.34	32°07'28.995"N	103°31'27.223"W	1.05	
15142.00	88.920	2.690	9459.55	5896.62	5896.27	-70.89	750485.81	410132.24	32°07'29.944"N	103°31'27.167"W	0.58	
15237.00	91.230	1.660	9459.43	5991.52	5991.19	-67.29	750489.41	410227.16	32°07'30.883"N	103°31'27.117"W	2.66	
15332.00	90.060	1.120	9458.36	6086.46	6086.15	-64.98	750491.72	410322.13	32°07'31.822"N	103°31'27.082"W	1.36	
15428.00	88.890	2.300	9459.24	6182.39	6182.10	-62.12	750494.58	410418.07	32°07'32.772"N	103°31'27.040"W	1.73	
15523.00	89.140	3.650	9460.87	6277.21	6276.96	-57.19	750499.51	410512.93	32°07'33.710"N	103°31'26.974"W	1.45	
15619.00	89.140	3.680	9462.31	6372.95	6372.75	-51.05	750505.65	410608.72	32°07'34.657"N	103°31'26.895"W	0.03	
15715.00	90.800	3.410	9462.36	6468.72	6468.56	-45.12	750511.58	410704.53	32°07'35.605"N	103°31'26.817"W	1.75	
15810.00	92.190	1.310	9459.89	6563.57	6563.44	-41.21	750515.49	410799.41	32°07'36.544"N	103°31'26.764"W	2.65	
15906.00	92.460	1.580	9455.99	6659.44	6659.33	-38.79	750517.91	410895.29	32°07'37.492"N	103°31'26.727"W	0.40	
16001.00	88.150	1.100	9455.49	6754.37	6754.28	-36.57	750520.13	410990.24	32°07'38.432"N	103°31'26.693"W	4.56	
16097.00	88.310	1.310	9458.45	6850.29	6850.22	-34.55	750522.15	411086.17	32°07'39.381"N	103°31'26.661"W	0.27	
16192.00	92.000	2.850	9458.19	6945.18	6945.13	-31.10	750525.60	411181.09	32°07'40.320"N	103°31'26.613"W	4.21	
16287.00	90.280	1.870	9456.30	7040.05	7040.03	-27.19	750529.51	411275.98	32°07'41.259"N	103°31'26.559"W	2.08	
16383.00	89.080	359.560	9456.84	7136.02	7136.01	-25.99	750530.71	411371.96	32°07'42.208"N	103°31'26.537"W	2.71	
16455.00	89.510	356.970	9457.73	7207.99	7207.97	-28.17	750528.53	411443.92	32°07'42.920"N	103°31'26.556"W	3.65	
16480.00	89.510	356.970	9457.94	7232.96	7232.93	-29.50	750527.21	411468.88	32°07'43.168"N	103°31'26.569"W	0.00	Proj to Bit

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Test PBHL		9420.00	7539.61	-178.14	750378.57	411775.55	32°07'46.213"N	103°31'28.270"W	point
No. 5H PBHL		9430.00	7539.76	-53.70	750503.00	411775.70	32°07'46.206"N	103°31'26.824"W	point

WELLPATH COMPOSITION - Ref Wellbore: No.5H AWB					Ref Wellpath: No.5H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment			Wellbore	
0.00	1115.00	Generic gyro - northseeking (Standard)			MS Gyro <100-1115>			No.5H AWB	
1115.00	16455.00	NaviTrak (Standard)			BHI MWD NaviTrak <1190-XXXX>			No.5H AWB	
16455.00	16480.00	Blind Drilling (std)			Projection to bit			No.5H AWB	

CURRENT WELL SKETCH

DEPTH (ft)	MARKERS (KB)	LITHOLOGY	OGRID: API: 30-025-40536 AFE: 104815 SPUD: 6/22/13 @ 21:30 hrs FRR: 7/22/13 @ 20:00 hrs RIG: Patterson #452	Vaca 24 Fed Com #5H Red Hills Field Lea County, New Mexico	SURF: 50' FSL & 2190' FEL LOC: Sec. 24 SURVEY: T-25-S, R-33-E GL: 3328.7' KB: 3355.7' ZERO: 27.0' AGL	HOLE SIZE	MW (ppg)	MUD	BHST (°F)	LOT (ppg)	EVALUATION
2,000'	Rustler - 1060'			20" Conductor @ 145' Surface Casing @ 1,185' 13-3/8" 54.5# J-55 STC Cement w/ 575 sx Class C + 2.0% CaCl2 + 4.0% Bentonite + 0.25 pps Celloflake (13.5 ppg, 1.73 yd), followed by 325 sx Class C + 1.5% CaCl2 (14.8 ppg, 6.34 yd). Bump plug and circ 256 sx to surface TOC @ ~4,600' Intermediate Casing @ 5,065' 9-5/8", 40#, J-55, LT&C (0' - 3,863') 9-5/8", 40#, HCK-55, LT&C (3,863' - 5,065') Cement w/ 1050 sx Class C + 2.0% SMS + 10% Salt + 1.0% R-3 + 0.25 pps Celloflake + 0.005 pps Static Free + 0.005 gps FP-6L (12.7 ppg, 2.22 yd), followed by 200 sx Class C + 0.60% FL-62 + 0.35% CD-32 + 2.0% Salt + 0.10% R-3 + 0.005 pps Static Free + 0.005 gps FP-6L (14.8 ppg, 1.35 yd). Bump plug w/ 2000 psi and circ 329 sx to surface Perforations MD 16428; 16393; 16358; 16323; 16288; 16253; 16218; 16183; 16148; 16113; 16078; 16043; 16008; 15973; 15938; 15903; 15868; 15833; 15798; 15763; 15728; 15693; 15654; 15623; 15588; 15553; 15518; 15483; 15448; 15413; 15374; 15343; 15308; 15273; 15238; 15203; 15168; 15133; 15094; 15066; 15033; 15018; 15003; 14978; 14963; 14948; 14923; 14906; 14883; 14853; 14843; 14826; 14803; 14786; 14763; 14746; 14723; 14706; 14673; 14659; 14643; 14627; 14603; 14587; 14563; 14540; 14523; 14493; 14483; 14460; 14443; 14420; 14403; 14380; 14363; 14340; 14323; 14300; 14283; 14260; 14243; 14220; 14203; 14180; 14163; 14140; 14123; 14100; 14083; 14060; 14043; 14020; 14003; 13983; 13963; 13943; 13923; 13903; 13883; 13863; 13843; 13823; 13803; 13783; 13763; 13740; 13723; 13703; 13683; 13660; 13643; 13620; 13603; 13580; 13563; 13540; 13523; 13500; 13483; 13460; 13443; 13420; 13403; 13380; 13363; 13345; 13323; 13305; 13283; 13265; 13243; 13223; 13203; 13183; 13163; 13143; 13123; 13103; 13083; 13063; 13043; 13023; 13003; 12983; 12963; 12943; 12923; 12903; 12890; 12863; 12850; 12823; 12803; 12783; 12763; 12743; 12723; 12703; 12683; 12663; 12643; 12623; 12603; 12583; 12563; 12543; 12523; 12503; 12483; 12463; 12443; 12423; 12403; 12383; 12363; 12345; 12323; 12303; 12283; 12263; 12243; 12223; 12203; 12183; 12153; 12143; 12123; 12103; 12083; 12063; 12043; 12023; 12003; 11977; 11963; 11943; 11923; 11903; 11883; 11863; 11843; 11823; 11791; 11783; 11763; 11743; 11723; 11703; 11683; 11663; 11643; 11613; 11600; 11583; 11563; 11545; 11523; 11503; 11483; 11463; 11443; 11423; 11403; 11383; 11363; 11343; 11323; 11303; 11283; 11263; 11243; 11223; 11203; 11183; 11163; 11143; 11123; 11103; 11076; 11063; 11043; 11023; 11003; 10983; 10963; 10943; 10923; 10903; 10883; 10863; 10843; 10823; 10803; 10783; 10763; 10743; 10723; 10703; 10683; 10663; 10643; 10623; 10603; 10583; 10563; 10543; 10523; 10503; 10483; 10463; 10443; 10423; 10403; 10383; 10363; 10343; 10323; 10303; 10283; 10263; 10243; 10223; 10203; 10183; 10163; 10143; 10123; 10103; 10083; 10063; 10043; 10023; 10003; 9983; 9963; 9943; 9923; 9903; 9883; 9863; 9843; 9823; 9803; 9783; 9763; 9743; 9723; 9703; 9683; 9663 KOP @ 8,875'	17-1/2"	8.6 9.0	FW	86	N/A		
3,000'	T/ Salado - 1440'				12-1/4"	10.0	Brine				
5,000'	B / Salado - 4912'										
6,000'	Lamar - 5160'										
7,000'	Bell Canyon - 5190'										
8,000'	Cherry Canyon - 6200'										
9,000'	Brushy Canyon - 7780'										
10,000'	Bone Spring Lime - 9270'										
11,000'	PTD - -9,485'										
Production Casing @ 16,464' MD, 9,457' TVD 5-1/2" 20# HCP-110 NSCC (MJ @ 8436') Cement w/ 350 sx Class C + 15.0 pps BA-90 + 4.0% MPA-5 + 3.0% SMS + 5.0% A-10 + 1.0% BA-10 + 0.80% ASA-301 + 1.0% EC-1 + 2.55% R-21 + 8.0 pps LCM-1 + 0.005% Static Free + 0.005 gps FP-6L (10.8 ppg, 3.71 yd), followed by 400 sx Class H + 0.2% FL-52 + 0.75% CD-32 + 1.0% EC-1 + 0.15% ASA-301 + 2.5% SMS + 5.0% Salt + 0.85% R-21 + 5.0 pps LCM-1 + 0.005 pps Static Free + 0.005 gps FP-6L (11.9 ppg, 2.378 yd), followed by 1900 sx Class H + 0.65% FL-52 + 0.5% CD-32 + 1.0% EC-1 + 0.35% SMS + 2.0% Salt + 0.15% R-3 + 0.005% Stsic Free + 0.005 gps FP-6L (14.2 ppg, 1.297 yd). Bump plug, rupture disc and over-displace w/ 5 bbls						8-3/4" from ICP to TD	8.4			N/A	
							9.3	WBM			
										156	

Comp Eng: D. Owusu

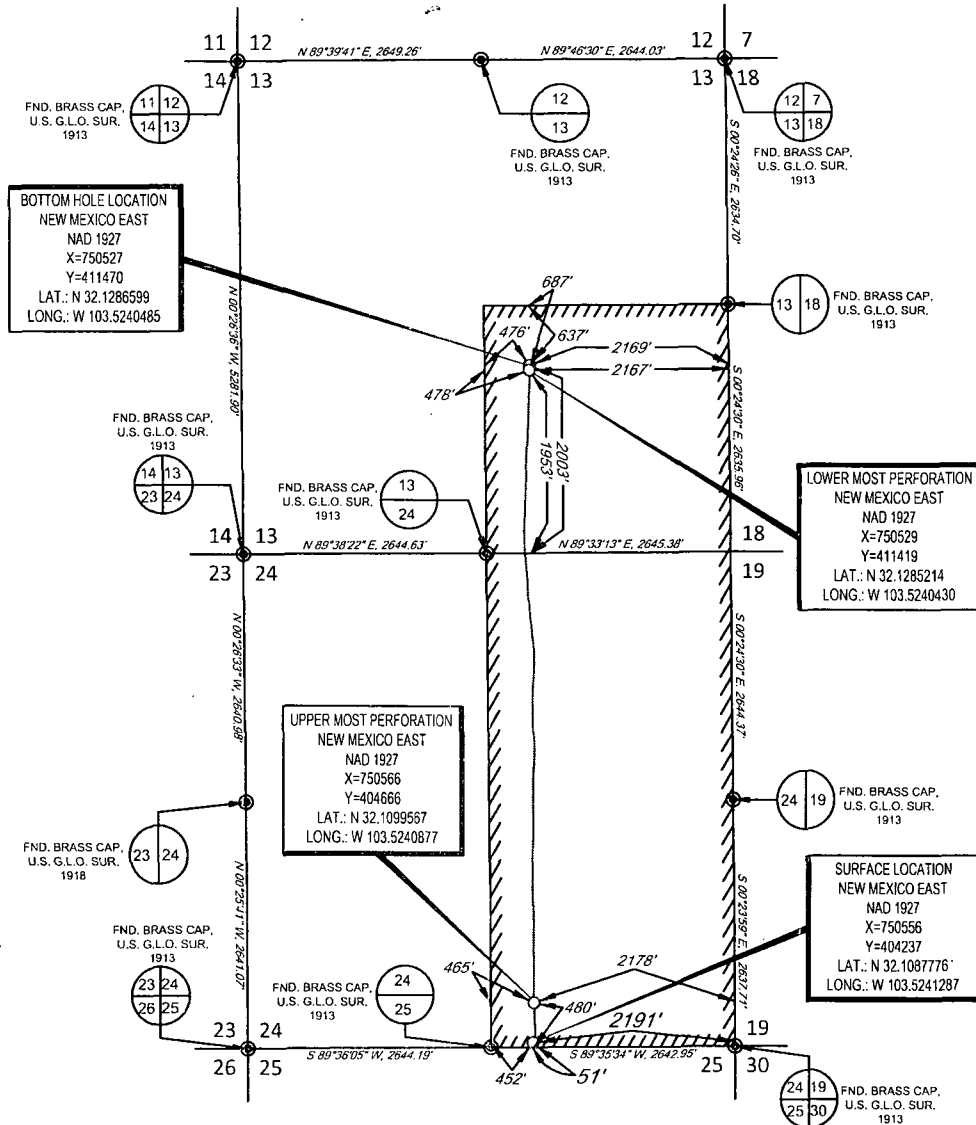
Date: 11/5/2013

Comp Eng: D. Owusu
 Date: 11/5/2013

SCALE: 1" = 2000'

0' 1000' 2000'

SECTION 24, TOWNSHIP 25 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, NEW MEXICO

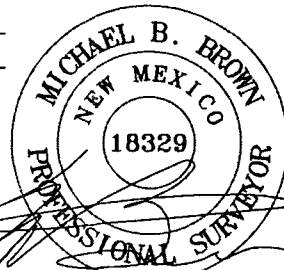


LEASE NAME & WELL NO.: VACA 24 FED COM #5H
SECTION 24 TWP 25-S RGE 33-E SURVEY N.M.P.M.
COUNTY LEA STATE NM ELEVATION 3329'
DESCRIPTION 51' FSL & 2191' FEL



TOPOGRAPHIC
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1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
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TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
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Michael Blake Brown, P.S. No. 18329
NOVEMBER 14, 2013

eoog resources, inc.

VACA 24 FED COM #5H AS-COMPLETED	REVISION:	
	INT	DATE
DATE: 11/14/13		
FILE:AD_VACA24FEDCOM_5H		
DRAWN BY: S.V.		
SHEET: 1 OF 1		

NOTES:

1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 19 27.
3. THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY EOG RESOURCES, INC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.