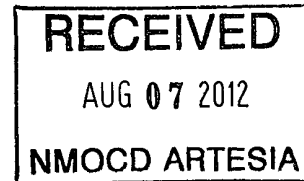




PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288



30-015-39887

April 30, 2012

COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: Blackhawk 11 Fed Com #2H
1800' FSL & 1590' FWL
Sec. 11, T16S, R28E
Eddy County, New Mexico

Dear Sir,

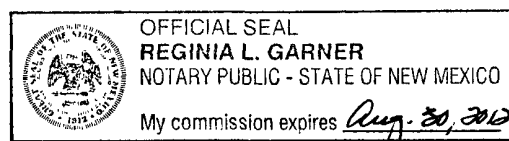
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 30th day of April, 2012.

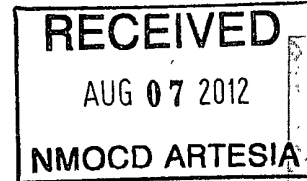


Blackhawk 11 Federal Com #2H

Date	Depth	Deviation	Dir/Inc
4/8/2012	116	1.00	
4/8/2012	305	0.90	
4/9/2012	599	0.40	
4/10/2012	1007	0.40	
4/10/2012	1422	0.50	
4/10/2012	1833	1.00	
4/11/2012	2240	0.90	
4/11/2012	2718	0.60	
4/12/2012	3194	0.80	
4/12/2012	3669	0.60	
4/13/2012	4143	0.40	
4/14/2012	4586	0.80	
4/14/2012	4902	0.40	
4/15/2012	5310	0.10	
4/15/2012	5596	0.80	
4/19/2012	5992	0.50	73.90
4/19/2012	6028	1.00	70.90
4/20/2012	6156	5.80	76.80
4/20/2012	6187	7.90	72.00
4/20/2012	6219	11.30	71.90
4/20/2012	6285	19.50	75.80
4/20/2012	6317	22.30	76.50
4/20/2012	6349	25.50	78.60
4/20/2012	6380	28.50	82.70
4/21/2012	6410	31.80	86.00
4/21/2012	6442	36.10	87.80
4/21/2012	6474	40.30	89.10
4/21/2012	6537	47.70	89.16
4/21/2012	6569	52.00	90.00
4/21/2012	6601	56.50	91.80
4/21/2012	6698	64.40	92.30
4/21/2012	6730	68.80	91.60
4/22/2012	6761	73.10	91.70
4/22/2012	6793	76.30	91.60
4/22/2012	6825	78.40	90.90
4/22/2012	6856	80.10	90.90
4/22/2012	6888	81.90	91.80
4/22/2012	6920	82.50	92.00
4/22/2012	6952	83.70	92.00
4/22/2012	7079	92.90	91.00
4/24/2012	7172	92.70	89.70
4/24/2012	7267	92.00	91.00
4/24/2012	7362	91.90	91.90

Date	Depth	Deviation	Dir/Inc
4/24/2012	7458	92.70	93.80
4/24/2012	7553	94.90	95.10
4/24/2012	7648	94.30	94.60
4/25/2012	7839	91.90	93.30
4/25/2012	7934	92.00	93.90
4/25/2012	8030	91.60	93.70
4/25/2012	8175	92.40	93.90
4/25/2012	8221	92.30	93.70
4/26/2012	8411	92.40	92.80
4/26/2012	8508	93.40	92.30
4/26/2012	8603	93.80	91.60
4/26/2012	8698	93.60	91.30
4/26/2012	8794	93.10	91.00
4/26/2012	8858	92.40	91.10
4/26/2012	8890	91.80	90.70
4/26/2012	9081	89.30	90.60
4/27/2012	9272	88.40	90.60
4/27/2012	9368	87.70	91.90
4/27/2012	9463	87.30	92.90

30-015-39887



COG Operating, LLC

Eddy County, NM

Blackhawk 11 Federal Com #2H

Blackhawk 11 Federal Com #2H

Lateral #1

Survey: MWD Survey #1

Standard Survey Report

01 May, 2012





Black Viper Energy Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Site Blackhawk 11 Federal Com #2H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3576 00ft (Original Well Elev)
Site:	Blackhawk 11 Federal Com #2H	MD Reference:	WELL @ 3576 00ft (Original Well Elev)
Well:	Blackhawk 11 Federal Com #2H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

Project	Eddy County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Blackhawk 11 Federal Com #2H		
Site Position:		Northing:	704,177 30 ft
From:	Map	Easting:	556,384.80 ft
Position Uncertainty:	0 00 ft	Slot Radius:	13 200 in
		Latitude:	32° 56' 8 590 N
		Longitude:	104° 8' 58 404 W
		Grid Convergence:	0 10 °

Well: Blackhawk 11 Federal Com #2H					
Well Position	+N/-S	0 00 ft	Northing:	704,177 30 ft	Latitude: 32° 56' 8 590 N
	+E/-W	0.00 ft	Easting:	556,384 80 ft	Longitude: 104° 8' 58 044 W
Position Uncertainty		0 00 ft	Wellhead Elevation:	ft	Ground Level: 3,576 00 ft

Wellbore	Lateral #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	4/3/2012	7 81	60 72	48,899

Design	Lateral #1				
Audit Notes:					
Version:	1 0	Phase:	ACTUAL	Tie On Depth:	5,853 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0 00	0 00	0 00	300 14	

Survey Program		Date 5/1/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100 00	5,853 00	Gyro Survey #1 (OH)	Gyro	
5,935 00	9,704 00	MWD Survey #1 (Lateral #1)	MWD	

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
5,853 00	0 60	81 95	5,852 55	19 02	-47 41	50.55	0 00	0 00	0 00
5,935 00	0 50	82 70	5,934 54	19 12	-46 63	49.93	0 12	-0 12	0.91
6,028 00	1 00	70 90	6,027.53	19.44	-45 46	49.08	0 56	0 54	-12 69
6,060 00	1 20	80 90	6,059 53	19.59	-44 87	48 64	0.86	0 63	31 25
6,092 00	1 40	73 60	6,091 52	19 75	-44 16	48 11	0 81	0 63	-22 81
6,123 00	4 00	76 40	6,122 48	20 11	-42 75	47.07	8 40	8 39	9 03
6,155 00	5 80	76 80	6,154 36	20 74	-40 09	45 08	5 63	5 63	1.25
6,187 00	7 90	72 00	6,186 13	21 79	-36 42	42 44	6 80	6 56	-15.00
6,219 00	11 30	71 90	6,217.68	23 45	-31.35	38.88	10 63	10 63	-0 31
6,251 00	15 30	74 30	6,248 82	25 56	-24 30	33 85	12 62	12 50	7 50



Black Viper Energy
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Site Blackhawk 11 Federal Com #2H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3576.00ft (Original Well Elev)
Site:	Blackhawk 11 Federal Com #2H	MD Reference:	WELL @ 3576.00ft (Original Well Elev)
Well:	Blackhawk 11 Federal Com #2H	North Reference:	Gnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

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)
6,283.00	19.50	75.80	6,279.35	28.02	-15.06	27.09	13.20	13.13	4.69
6,315.00	22.30	76.50	6,309.24	30.74	-3.97	18.87	8.78	8.75	2.19
6,346.00	25.50	78.60	6,337.58	33.44	8.29	9.62	10.68	10.32	6.77
6,378.00	28.50	82.70	6,366.09	35.77	22.62	-1.60	11.03	9.38	12.81
6,410.00	31.80	86.00	6,393.76	37.33	38.61	-14.65	11.54	10.31	10.31
6,442.00	36.10	87.80	6,420.30	38.28	56.45	-29.60	13.80	13.44	5.63
6,474.00	40.30	89.10	6,445.44	38.80	76.22	-46.44	13.36	13.13	4.06
6,505.00	43.30	89.10	6,468.54	39.13	96.88	-64.14	9.68	9.68	0.00
6,537.00	47.70	89.60	6,490.97	39.38	119.70	-83.75	13.80	13.75	1.56
6,569.00	52.10	90.00	6,511.58	39.47	144.17	-104.87	13.78	13.75	1.25
6,601.00	56.30	91.80	6,530.29	39.05	170.11	-127.52	13.89	13.13	5.63
6,632.00	59.30	92.60	6,546.81	38.04	196.32	-150.69	9.92	9.68	2.58
6,664.00	61.60	92.60	6,562.59	36.77	224.13	-175.37	7.19	7.19	0.00
6,696.00	64.40	92.30	6,577.11	35.56	252.61	-200.62	8.79	8.75	-0.94
6,728.00	68.80	91.60	6,589.82	34.56	281.96	-226.50	13.90	13.75	-2.19
6,759.00	73.10	91.70	6,599.94	33.72	311.24	-252.24	13.87	13.87	0.32
6,791.00	76.30	91.60	6,608.38	32.83	342.09	-279.37	10.00	10.00	-0.31
6,823.00	78.40	90.90	6,615.39	32.15	373.30	-306.71	6.90	6.56	-2.19
6,854.00	80.10	90.90	6,621.17	31.67	403.75	-333.28	5.48	5.48	0.00
6,886.00	81.80	91.80	6,626.20	30.92	435.34	-360.98	5.99	5.31	2.81
6,918.00	82.50	92.00	6,630.57	29.87	467.03	-388.91	2.27	2.19	0.63
6,950.00	83.70	92.00	6,634.42	28.76	498.78	-416.92	3.75	3.75	0.00
6,981.00	87.70	91.90	6,636.74	27.71	529.66	-444.16	12.91	12.90	-0.32
7,013.00	91.70	91.40	6,636.91	26.79	561.64	-472.28	12.60	12.50	-1.56
7,045.00	92.80	91.30	6,635.65	26.04	593.61	-500.30	3.45	3.44	-0.31
7,077.00	92.90	90.90	6,634.06	25.43	625.56	-528.25	1.29	0.31	-1.25
7,172.00	92.70	89.70	6,629.42	24.93	720.45	-610.56	1.28	-0.21	-1.26
7,267.00	92.00	90.90	6,625.52	24.43	815.36	-692.89	1.46	-0.74	1.26
7,362.00	91.90	91.90	6,622.29	22.11	910.28	-776.14	1.06	-0.11	1.05
7,457.00	92.70	93.80	6,618.48	17.39	1,005.08	-860.50	2.17	0.84	2.00
7,552.00	94.90	95.10	6,612.18	10.04	1,099.58	-945.92	2.69	2.32	1.37
7,648.00	94.30	94.60	6,604.48	1.95	1,194.92	-1,032.44	0.81	-0.63	-0.52
7,743.00	93.60	94.00	6,597.94	-5.16	1,289.43	-1,117.74	0.97	-0.74	-0.63
7,839.00	91.90	93.30	6,593.33	-11.26	1,385.12	-1,203.56	1.91	-1.77	-0.73
7,934.00	92.00	93.90	6,590.10	-17.22	1,479.88	-1,288.50	0.64	0.11	0.63
8,030.00	91.60	93.70	6,587.09	-23.58	1,575.62	-1,374.50	0.47	-0.42	-0.21
8,125.00	92.40	93.80	6,583.77	-29.79	1,670.36	-1,459.55	0.85	0.84	0.11
8,219.00	92.30	93.70	6,579.92	-35.93	1,764.08	-1,543.68	0.15	-0.11	-0.11
8,317.00	91.30	92.10	6,576.84	-40.89	1,861.90	-1,630.77	1.92	-1.02	-1.63
8,412.00	92.40	92.80	6,573.77	-44.95	1,956.76	-1,714.85	1.37	1.16	0.74
8,508.00	93.40	92.30	6,568.91	-49.21	2,052.54	-1,799.82	1.16	1.04	-0.52
8,603.00	93.80	91.60	6,562.95	-52.44	2,147.30	-1,883.40	0.85	0.42	-0.74
8,698.00	93.60	91.30	6,556.82	-54.84	2,242.07	-1,966.56	0.38	-0.21	-0.32



Black Viper Energy
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Site Blackhawk 11 Federal Com #2H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3576.00ft (Original Well Elev)
Site:	Blackhawk 11 Federal Com #2H	MD Reference:	WELL @ 3576.00ft (Original Well Elev)
Well:	Blackhawk 11 Federal Com #2H	North Reference:	Gnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

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)
8,794.00	93.10	91.00	6,551.21	-56.76	2,337.89	-2,050.39	0.61	-0.52	-0.31
8,890.00	91.80	90.70	6,547.10	-58.18	2,433.79	-2,134.05	1.39	-1.35	-0.31
8,985.00	90.20	90.60	6,545.45	-59.26	2,528.77	-2,216.73	1.69	-1.68	-0.11
9,081.00	89.30	90.60	6,545.87	-60.27	2,624.76	-2,300.25	0.94	-0.94	0.00
9,176.00	89.10	90.70	6,547.19	-61.34	2,719.74	-2,382.94	0.24	-0.21	0.11
9,272.00	88.40	90.60	6,549.29	-62.43	2,815.71	-2,466.48	0.74	-0.73	-0.10
9,368.00	87.70	91.90	6,552.55	-64.53	2,911.63	-2,550.49	1.54	-0.73	1.35
9,463.00	87.30	92.90	6,556.70	-68.50	3,006.46	-2,634.49	1.13	-0.42	1.05
9,559.00	87.80	93.70	6,560.80	-74.02	3,102.21	-2,720.07	0.98	0.52	0.83
9,654.00	88.30	93.60	6,564.03	-80.07	3,196.96	-2,805.05	0.54	0.53	-0.11
9,704.00	88.30	93.60	6,565.52	-83.20	3,246.84	-2,849.77	0.00	0.00	0.00

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		
		+N/-S (ft)	+E/-W (ft)	Comment
5,935.00	5,934.54	19.12	-46.63	First MWD Survey
9,654.00	6,564.03	-80.07	3,196.96	Last MWD Survey
9,704.00	6,565.52	-83.20	3,246.84	Proj to Bit

Checked By: _____ Approved By: _____ Date: _____



Company: COG Operating (Concho)
Lease/Well: Black Hawk 11 Federal Com/No. 002H
Location: 2.5 miles N from Loco Hills
Rig Name: Silver Oak 12
State/County: New Mexico/Eddy
Latitude: 32.94
GRID North is 0.64 Degrees East of True North
VS-Azi: 0.00 Degrees



RKB : 18 feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: blackhawk11fedcom#2h_ed.ut

Minimum Curvature Method

Report Date/Time: 4/20/2012 / 10:48

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Ray Seago

Black Hawk 11 Federal Com No. 002H / API# 30-015-39887

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.57	340.24	100.00	0.47	-0.17	0.50	340.24	0.57
200.00	0.68	358.69	199.99	1.54	-0.35	1.58	347.10	0.23
300.00	0.42	15.56	299.99	2.49	-0.27	2.50	353.86	0.31
400.00	0.37	348.76	399.99	3.16	-0.23	3.17	355.79	0.19
500.00	0.52	341.27	499.98	3.91	-0.44	3.93	353.55	0.16
600.00	0.41	318.76	599.98	4.61	-0.83	4.69	349.84	0.21
700.00	0.43	284.59	699.98	4.98	-1.43	5.18	343.97	0.25
800.00	0.41	346.41	799.97	5.42	-1.88	5.74	340.88	0.44
900.00	0.44	349.92	899.97	6.16	-2.03	6.48	341.72	0.04
1000.00	0.37	333.47	999.97	6.82	-2.24	7.18	341.79	0.14
1100.00	0.50	333.41	1099.97	7.50	-2.58	7.93	341.00	0.13
1200.00	0.53	333.01	1199.96	8.30	-2.98	8.82	340.21	0.03
1300.00	0.60	324.78	1299.96	9.13	-3.49	9.78	339.06	0.10
1400.00	0.54	320.71	1399.95	9.93	-4.09	10.74	337.58	0.07
1500.00	0.54	316.05	1499.95	10.63	-4.72	11.63	336.05	0.04
1600.00	1.00	297.90	1599.94	11.38	-5.82	12.78	332.92	0.51
1700.00	1.16	295.36	1699.92	12.22	-7.50	14.34	328.45	0.17
1800.00	1.20	285.74	1799.90	12.94	-9.43	16.01	323.92	0.20

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	1.22	284.78	1899.88	13.49	-11.47	17.71	319.63	0.03
2000.00	1.20	287.42	1999.86	14.08	-13.50	19.51	316.20	0.06
2100.00	1.14	281.82	2099.83	14.60	-15.47	21.27	313.33	0.13
2200.00	1.08	287.89	2199.82	15.09	-17.34	22.99	311.03	0.13
2300.00	0.99	286.21	2299.80	15.62	-19.06	24.64	309.33	0.09
2400.00	1.03	293.20	2399.78	16.21	-20.72	26.31	308.05	0.13
2500.00	0.92	299.12	2499.77	16.96	-22.25	27.98	307.32	0.15
2600.00	0.64	319.90	2599.76	17.78	-23.31	29.32	307.33	0.40
2700.00	0.76	311.59	2699.75	18.64	-24.17	30.52	307.65	0.16
2800.00	0.63	320.93	2799.75	19.51	-25.01	31.72	307.96	0.17
2900.00	0.68	316.26	2899.74	20.37	-25.77	32.85	308.33	0.07
3000.00	0.61	311.14	2999.73	21.15	-26.58	33.97	308.51	0.10
3100.00	0.71	294.49	3099.73	21.76	-27.54	35.10	308.31	0.21
3200.00	0.86	285.07	3199.72	22.21	-28.83	36.39	307.61	0.20
3300.00	0.61	284.70	3299.71	22.54	-30.07	37.58	306.85	0.25
3400.00	0.89	282.19	3399.70	22.84	-31.35	38.79	306.07	0.29
3500.00	0.82	287.23	3499.69	23.22	-32.80	40.18	305.29	0.10
3600.00	0.75	272.10	3599.68	23.45	-34.14	41.42	304.49	0.22
3700.00	0.86	266.26	3699.67	23.43	-35.53	42.56	303.40	0.14
3800.00	0.86	263.49	3799.66	23.29	-37.02	43.74	302.18	0.04
3900.00	1.01	258.16	3899.64	23.03	-38.62	44.97	300.81	0.17
4000.00	0.72	264.65	3999.63	22.79	-40.11	46.13	299.61	0.30
4100.00	0.57	276.21	4099.63	22.79	-41.23	47.11	298.93	0.20
4200.00	0.51	260.40	4199.62	22.76	-42.16	47.91	298.37	0.16
4300.00	0.65	271.50	4299.62	22.71	-43.16	48.77	297.75	0.18
4400.00	0.66	266.28	4399.61	22.68	-44.30	49.77	297.11	0.06
4500.00	0.47	261.29	4499.61	22.58	-45.29	50.61	296.50	0.20
4600.00	0.58	261.05	4599.60	22.44	-46.19	51.36	295.91	0.10
4700.00	0.70	261.14	4699.60	22.27	-47.29	52.27	295.22	0.12
4800.00	0.63	264.60	4799.59	22.12	-48.44	53.26	294.55	0.08
4900.00	0.60	241.05	4899.58	21.82	-49.45	54.05	293.81	0.25
5000.00	0.41	250.66	4999.58	21.44	-50.25	54.63	293.11	0.21
5100.00	0.54	263.53	5099.58	21.27	-51.05	55.31	292.62	0.17
5200.00	0.41	262.09	5199.57	21.17	-51.87	56.02	292.20	0.13
5300.00	0.19	158.70	5299.57	20.97	-52.16	56.22	291.90	0.49
5400.00	0.47	115.65	5399.57	20.64	-51.73	55.70	291.75	0.36
5500.00	0.66	109.84	5499.57	20.27	-50.82	54.71	291.74	0.20
5600.00	0.60	124.58	5599.56	19.78	-49.85	53.63	291.64	0.17
5700.00	0.55	112.58	5699.55	19.30	-48.98	52.64	291.50	0.13

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.64	96.36	5799.55	19.05	-47.98	51.62	291.66	0.19
5853.00	0.60	81.95	5852.55	19.06	-47.41	51.10	291.90	0.30



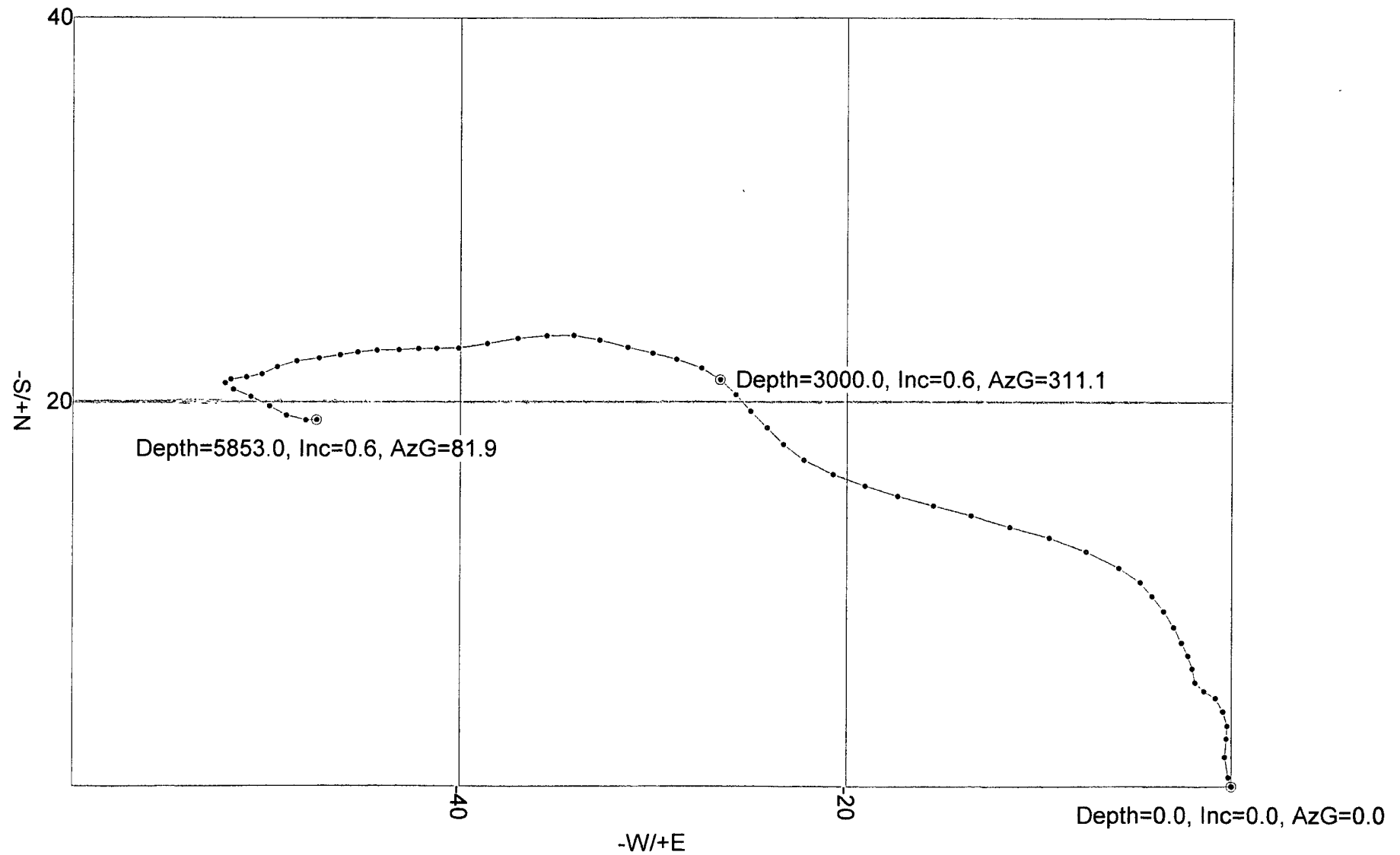
Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Ray Seago

Black Hawk 11 Federal Com No. 002H / API# 30-015-39887



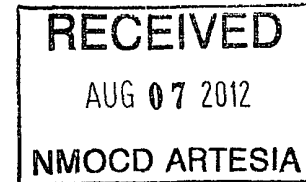
VES Survey Date: 04/15/2012



A GYRO TECHNOLOGIES INC. COMPANY

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Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

April 20, 2012



COG Operating (Concho)
550 W. Texas Ave, Ste 100
Midland, Texas 79701

Attn: Kanica Castillo

RE: **Black Hawk 11 Federal Com No. 002H**

Please find enclosed a copy of the survey from 0' to 5853' ran on the above referenced well.

If I can be of any further service please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations