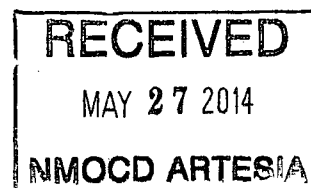


P.O. Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

15-39783

February 13, 2014

COG Operating LLC (Concho)
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701



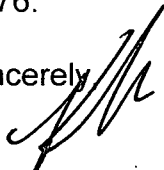
Attn: Kanicia Castillo

Re: Clydesdale 1 Fee No 002H

Please find enclosed a copy of the survey from 0' to 2,161' ran on the above referenced well.

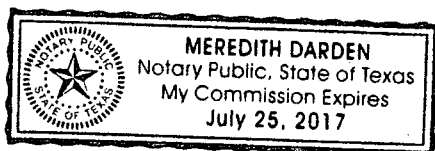
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

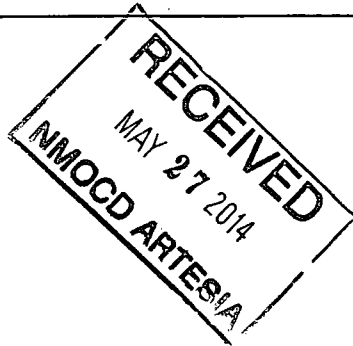
This instrument was acknowledged before me on the 13th day of February A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas



Company: COG Operating
Lease/Well: Clydesdale 1 Fee/No 002H
Location: Sec 1, T19S, R25E
Rig Name: Silver Oak 3
State/County: NM/Eddy
Latitude: 32.69, Longitude: -104.43
GRID North is 0.05 Degrees West of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...dale 1 fee #2h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 2/13/2014 / 10:33

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Chris Ellis

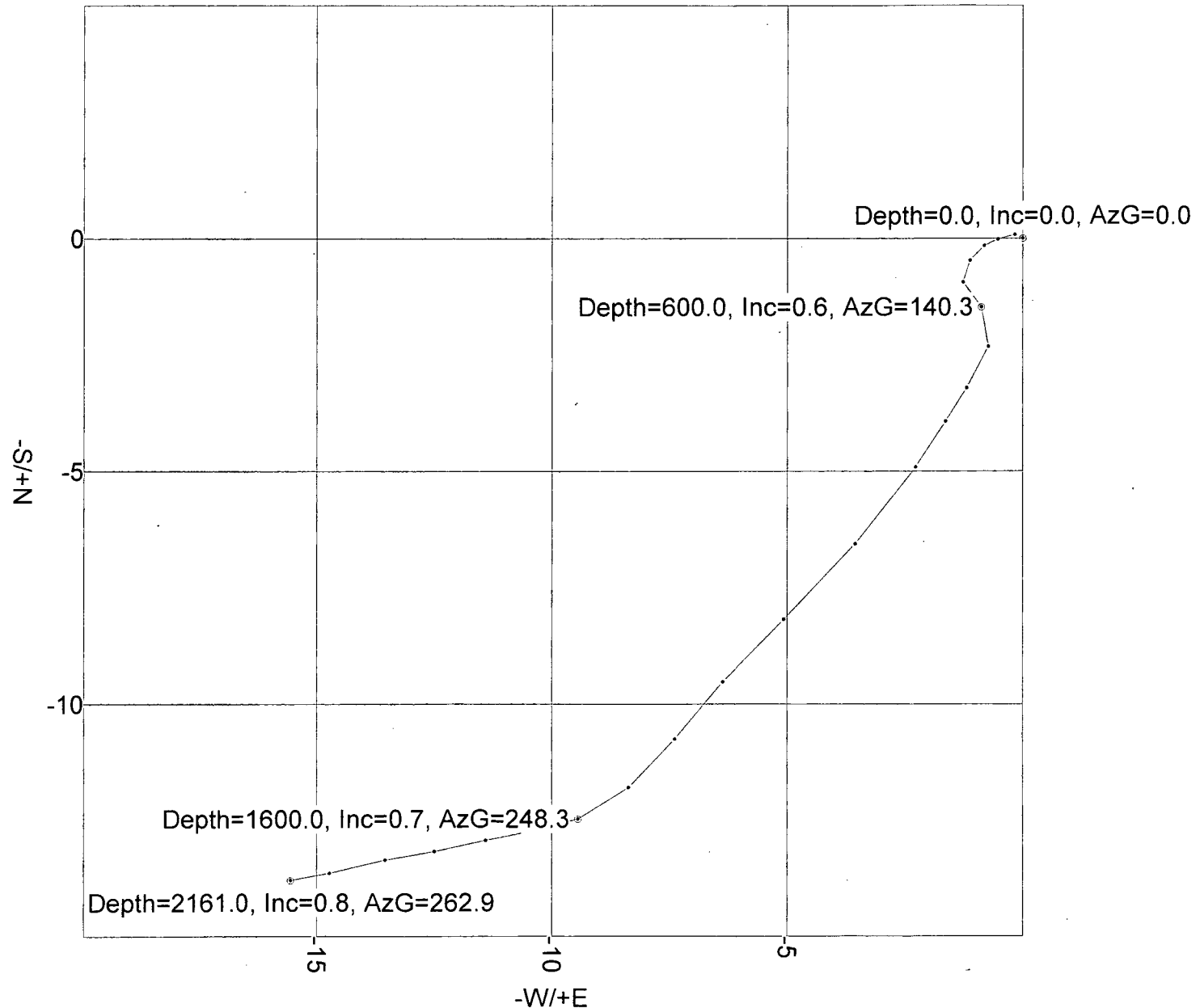
Clydesdale 1 Fee No 002H / API 30-015-39783

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section 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	0.00	****
100.00	0.22	294.70	100.00	0.08	-0.17	0.08	0.19	294.70	0.22
200.00	0.29	227.00	200.00	-0.01	-0.53	-0.01	0.53	268.42	0.29
300.00	0.12	285.90	300.00	-0.16	-0.82	-0.16	0.83	259.07	0.25
400.00	0.46	210.69	400.00	-0.47	-1.12	-0.47	1.22	247.31	0.44
500.00	0.16	156.46	500.00	-0.94	-1.27	-0.94	1.58	233.58	0.38
600.00	0.60	140.34	599.99	-1.47	-0.88	-1.47	1.71	210.88	0.45
700.00	0.55	203.11	699.99	-2.32	-0.73	-2.32	2.43	197.51	0.60
800.00	0.60	211.48	799.98	-3.21	-1.19	-3.21	3.42	200.42	0.10
900.00	0.36	214.17	899.98	-3.92	-1.65	-3.92	4.25	202.80	0.24
1000.00	0.98	212.45	999.97	-4.91	-2.29	-4.91	5.41	204.98	0.62
1100.00	1.41	221.51	1099.95	-6.55	-3.56	-6.55	7.46	208.53	0.46
1200.00	1.13	224.95	1199.93	-8.17	-5.07	-8.17	9.62	211.84	0.29
1300.00	1.00	222.23	1299.91	-9.52	-6.36	-9.52	11.44	213.75	0.14
1400.00	0.84	217.18	1399.90	-10.74	-7.38	-10.74	13.03	214.51	0.18
1500.00	0.82	229.28	1499.89	-11.79	-8.37	-11.79	14.46	215.36	0.18
1600.00	0.65	248.33	1599.88	-12.47	-9.44	-12.47	15.64	217.13	0.29
1700.00	0.52	264.03	1699.87	-12.72	-10.43	-12.72	16.45	219.33	0.21
1800.00	0.63	252.98	1799.87	-12.93	-11.41	-12.93	17.25	221.41	0.15

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.65	262.55	1899.86	-13.17	-12.49	-13.17	18.15	223.50	0.11
2000.00	0.57	256.99	1999.86	-13.35	-13.54	-13.35	19.02	225.40	0.10
2100.00	0.82	256.60	2099.85	-13.63	-14.72	-13.63	20.07	227.21	0.25
2161.00	0.78	262.85	2160.84	-13.78	-15.56	-13.78	20.79	228.46	0.16



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Chris Ellis
Clydesdale 1 Fee No 002H / API 30-015-39783



VES Survey Date: 01/25/2014

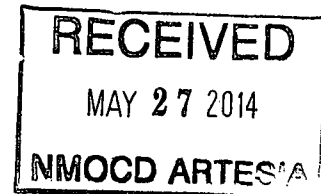


PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

LOG OPER, LLC
RECEIVED

FEB 24 2014

ARTESIA WEST



February 3, 2014

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Clydesdale 1 Fee #2H
1040' FNL & 150' FEL
Sec. 5, T19S, R26E
Eddy County, New Mexico

Dear Sir,

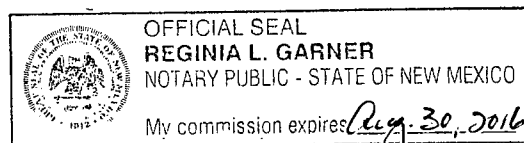
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 3^d day of February, 2014.



CLYDESDALE 1 FEE #2 H

Date	Depth	Deviation	Direction
1/21/2014	203	0.50	0.00
1/21/2014	475	0.10	0.00
1/22/2014	908	0.00	0.00
1/25/2014	1354	0.70	0.00
1/26/2014	1790	0.10	0.00
1/27/2014	2198	0.80	263.40
1/27/2014	2229	0.50	270.70
1/27/2014	2260	0.80	260.60
1/27/2014	2291	4.60	264.20
1/27/2014	2322	9.70	271.90
1/27/2014	2353	14.90	275.90
1/27/2014	2384	18.60	281.00
1/27/2014	2415	21.40	282.70
1/27/2014	2444	25.10	284.10
1/27/2014	2478	28.00	287.60
1/27/2014	2509	31.40	289.70
1/27/2014	2540	34.30	290.40
1/27/2014	2571	37.10	289.80
1/27/2014	2603	40.70	289.00
1/27/2014	2634	44.30	287.80
1/27/2014	2665	47.70	286.10
1/27/2014	2696	50.60	283.30
1/27/2014	2727	53.50	281.80
1/27/2014	2758	56.30	282.40
1/28/2014	2914	65.20	275.70
1/28/2014	2946	66.90	274.20
1/28/2014	2977	69.50	272.70
1/28/2014	3008	71.50	271.30
1/28/2014	3039	74.10	269.60
1/28/2014	3071	76.40	269.20
1/28/2014	3102	78.60	270.40
1/28/2014	3134	82.00	271.80
1/28/2014	3165	85.50	273.60
1/28/2014	3197	88.20	274.40
1/28/2014	3227	91.30	274.50
1/28/2014	3258	92.00	274.40
1/28/2014	3352	94.30	274.40
1/28/2014	3445	91.40	274.40
1/29/2014	3559	91.00	272.30
1/29/2014	3653	90.70	271.70
1/29/2014	3752	91.10	271.00
1/29/2014	3840	91.50	270.10
1/29/2014	3938	92.20	269.50

Date	Depth	Deviation	Direction
1/29/2014	4027	92.30	269.80
1/29/2014	4121	92.70	269.30
1/29/2014	4219	93.10	269.40
1/29/2014	4308	93.10	268.60
1/29/2014	4401	93.70	269.00
1/29/2014	4495	93.60	267.80
1/29/2014	4588	93.50	267.00
1/29/2014	4682	93.20	267.50
1/29/2014	4776	93.40	167.70
1/30/2014	4870	93.40	267.90
1/30/2014	4963	93.00	268.20
1/30/2014	5057	92.70	269.40
1/30/2014	5150	92.90	269.10
1/30/2014	5244	92.10	270.10
1/30/2014	5337	91.80	270.10
1/30/2014	5430	92.40	270.10
1/30/2014	5523	92.30	269.80
1/30/2014	5618	92.60	269.90
1/30/2014	5711	92.50	269.40
1/30/2014	5806	92.60	268.70
1/30/2014	5900	92.90	268.50
1/30/2014	5994	93.10	269.70
1/31/2014	6088	92.70	269.40
1/31/2014	6275	92.30	269.90
1/31/2014	6369	92.10	269.40
1/31/2014	6462	91.80	269.10
1/31/2014	6556	92.40	269.40
1/31/2014	6649	91.40	270.90
1/31/2014	6743	91.40	270.70
1/31/2014	6836	91.40	270.40
1/31/2014	6930	91.60	269.80
1/31/2014	7023	91.40	270.30
2/1/2014	7116	90.90	270.80
2/1/2014	7210	90.90	270.10
2/1/2014	7304	92.00	269.40

EOF



COG Operating LLC

Eddy County, NM (NAD 27 NME)

Clydesdale 1 Fee

#2H

WB1/Job #1410025

Survey: Phoenix MWD Survey

Phoenix Final Survey Report

03 February, 2014





Phoenix Technology Services

Phoenix Final Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #2H:
Project:	Eddy County, NM (NAD 27-NME)	TVD Reference:	KB @ 3448'00usft (Silver Oak 3)
Site:	Clydesdale 1 Fee	MD Reference:	KB @ 3448'00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1410025	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	GCR/DB

Project	Eddy County, NM (NAD 27-NME)		
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	Clydesdale 1 Fee		
Site Position:		Northing:	616,840.10 usft
From:	Map	Easting:	470,401.70 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 41' 44.71785 N
		Longitude:	104° 25' 46.36892 W
		Grid Convergence:	-0.05 °

Well	#2H		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 41' 38.18769 N
		Longitude:	104° 25' 46.41692 W
		Ground Level:	3,430.00 usft

Wellbore	WB1/Job #1410025		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	01/02/14	7.70
			Dip Angle
			60.41
			Field Strength
			48,549

Design	Surveys (Silver Oak 3)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0'00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			270.86

Survey Program	Date 02/03/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	2,161.00	VES Gyro (WB1/Job #1410025)	MWD
2,198.00	7,409.00	Phoenix MWD Survey (WB1/Job #141002)	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey	MD	Inc	Azi (azimuth)	TVD	N/S	E/W	V-Sec	DLeg
	(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(%/100usft)
	2,161.00	0.78	262.85	2,160.84	-13.78	-15.56	15.35	0.00
Tie-on to VES Gyro								
	2,198.00	0.80	263.40	2,197.84	-13.84	-16.07	15.86	0.06
First Phoenix MWD Survey								
	2,229.00	0.50	270.70	2,228.84	-13.86	-16.42	16.21	1.00
	2,260.00	0.80	260.60	2,259.83	-13.89	-16.77	16.56	1.03
	2,291.00	4.60	264.20	2,290.79	-14.06	-18.22	18.00	12.26
	2,322.00	9.70	271.90	2,321.54	-14.09	-22.07	21.85	16.70
	2,353.00	14.90	275.90	2,351.82	-13.60	-28.64	28.44	16.99
	2,384.00	18.60	281.00	2,381.50	-12.24	-37.47	37.28	12.83
	2,415.00	21.40	282.70	2,410.63	-10.06	-47.84	47.68	9.22



Phoenix Technology Services

Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County NM (NAD 27 NME)	TVD Reference:	KB @ 3448.00usft (Silver Oak 3)
Site:	Clydesdale 1 Fee	MD Reference:	KB @ 3448.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1410025	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	GCR DB

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%100usft)
2,446.00	25.10	284.10	2,439.11	-7.21	-59.74	59.62	12.07
2,478.00	28.00	287.60	2,467.73	-3.28	-73.48	73.43	10.29
2,509.00	31.40	289.70	2,494.66	1.64	-88.03	88.04	11.47
2,540.00	34.30	290.40	2,520.70	7.41	-103.82	103.92	9.43
2,571.00	37.10	289.80	2,545.87	13.62	-120.81	121.00	9.10
2,603.00	40.70	289.00	2,570.77	20.29	-139.76	140.05	11.36
2,634.00	44.30	287.80	2,593.62	26.89	-159.63	160.02	11.90
2,665.00	47.70	286.10	2,615.15	33.38	-180.96	181.44	11.65
2,696.00	50.60	283.30	2,635.43	39.32	-203.64	204.21	11.58
2,727.00	53.50	281.80	2,654.49	44.62	-227.50	228.14	10.10
2,758.00	56.30	282.40	2,672.32	49.94	-252.29	253.01	9.17
2,789.00	58.00	282.00	2,689.13	55.44	-277.75	278.55	5.59
2,821.00	60.10	280.10	2,705.59	60.70	-304.68	305.56	8.31
2,852.00	61.80	278.80	2,720.64	65.14	-331.41	332.35	6.60
2,883.00	64.00	277.60	2,734.76	69.08	-358.72	359.72	7.89
2,914.00	65.20	275.70	2,748.06	72.32	-386.54	387.58	6.76
2,946.00	66.90	274.20	2,761.05	74.84	-415.67	416.75	6.82
2,977.00	69.50	272.70	2,772.56	76.57	-444.40	445.50	9.51
3,008.00	71.50	271.30	2,782.91	77.58	-473.60	474.71	7.73
3,039.00	74.10	269.60	2,792.08	77.81	-503.21	504.32	9.89
3,071.00	76.40	269.20	2,800.23	77.49	-534.15	535.25	7.29
3,102.00	78.60	270.40	2,806.94	77.39	-564.41	565.51	8.04
3,134.00	82.00	271.80	2,812.33	77.99	-595.94	597.05	11.47
3,165.00	85.50	273.60	2,815.70	79.45	-626.72	627.84	12.68
3,196.00	88.20	274.40	2,817.40	81.60	-657.59	658.74	9.08
3,227.00	91.30	274.50	2,817.54	84.01	-688.50	689.68	10.01
3,258.00	92.00	274.40	2,816.65	86.41	-719.39	720.60	2.28
3,289.00	94.10	274.50	2,815.00	88.82	-750.25	751.50	6.78
3,352.00	94.30	274.40	2,810.38	93.69	-812.89	814.21	0.35
3,445.00	91.40	274.40	2,805.76	100.82	-905.49	906.90	3.12
3,559.00	91.00	272.30	2,803.37	107.48	-1,019.27	1,020.76	1.87
3,653.00	90.70	271.70	2,801.98	110.76	-1,113.20	1,114.73	0.71
3,747.00	91.10	271.00	2,800.50	112.97	-1,207.16	1,208.72	0.86
3,840.00	91.50	270.10	2,798.39	113.86	-1,300.13	1,301.69	1.06
3,934.00	92.20	269.50	2,795.36	113.53	-1,394.08	1,395.63	0.98
4,027.00	92.30	269.80	2,791.71	112.97	-1,487.01	1,488.53	0.34
4,121.00	92.70	269.30	2,787.61	112.23	-1,580.91	1,582.42	0.68
4,214.00	93.10	269.40	2,782.90	111.18	-1,673.79	1,675.27	0.44
4,308.00	93.10	268.60	2,777.82	109.54	-1,767.64	1,769.08	0.85
4,401.00	93.70	269.00	2,772.30	107.59	-1,860.45	1,861.86	0.77
4,495.00	93.60	267.80	2,766.32	104.97	-1,954.22	1,955.58	1.28
4,588.00	93.50	267.00	2,760.56	100.76	-2,046.95	2,048.23	0.87
4,682.00	93.20	267.50	2,755.07	96.26	-2,140.68	2,141.88	0.62
4,776.00	93.40	267.70	2,749.65	92.33	-2,234.44	2,235.57	0.30



Phoenix Technology Services

Phoenix Final Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD 27-NME)	TVD Reference:	KB @ 3448.00usft (Silver Oak 3)
Site:	Clydesdale 1 Fee	MD Reference:	KB @ 3448.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB#1/Job #1410025	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	GCR-DB

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
4,870.00	93.40	267.90	2,744.08	88.73	-2,328.20	2,329.27	0.21	
4,963.00	93.00	268.20	2,738.89	85.57	-2,421.01	2,422.02	0.54	
5,057.00	92.70	269.40	2,734.21	83.60	-2,514.87	2,515.84	1.31	
5,150.00	92.90	269.10	2,729.67	82.39	-2,607.75	2,608.69	0.39	
5,244.00	92.10	270.10	2,725.57	81.73	-2,701.65	2,702.58	1.36	
5,337.00	91.80	270.10	2,722.41	81.89	-2,794.60	2,795.51	0.32	
5,431.00	92.40	270.10	2,718.96	82.06	-2,888.54	2,889.44	0.64	
5,525.00	92.30	269.80	2,715.11	81.98	-2,982.46	2,983.35	0.34	
5,618.00	92.60	269.90	2,711.13	81.73	-3,075.37	3,076.25	0.34	
5,711.00	92.50	269.40	2,706.99	81.17	-3,168.28	3,169.14	0.55	
5,806.00	92.60	268.70	2,702.77	79.59	-3,263.17	3,264.00	0.74	
5,900.00	92.90	268.50	2,698.26	77.30	-3,357.03	3,357.82	0.38	
5,994.00	93.10	269.70	2,693.34	75.82	-3,450.89	3,451.64	1.29	
6,088.00	92.70	269.40	2,688.58	75.09	-3,544.77	3,545.50	0.53	
6,182.00	93.20	269.70	2,683.74	74.35	-3,638.64	3,639.35	0.62	
6,275.00	92.30	269.90	2,679.28	74.03	-3,731.53	3,732.22	0.99	
6,369.00	92.10	269.40	2,675.67	73.45	-3,825.46	3,826.13	0.57	
6,462.00	91.80	269.10	2,672.51	72.23	-3,918.40	3,919.04	0.46	
6,556.00	92.40	269.40	2,669.06	71.01	-4,012.33	4,012.94	0.71	
6,649.00	91.40	270.90	2,665.98	71.25	-4,105.27	4,105.88	1.94	
6,743.00	91.40	270.70	2,663.68	72.56	-4,199.23	4,199.85	0.21	
6,836.00	91.40	270.40	2,661.41	73.45	-4,292.20	4,292.82	0.32	
6,930.00	91.60	269.80	2,658.95	73.62	-4,386.17	4,386.78	0.67	
7,023.00	91.40	270.30	2,656.52	73.70	-4,479.14	4,479.74	0.58	
7,116.00	90.90	270.80	2,654.65	74.59	-4,572.11	4,572.72	0.76	
7,210.00	90.90	270.10	2,653.17	75.33	-4,666.10	4,666.70	0.74	
7,304.00	92.00	269.40	2,650.80	74.92	-4,760.06	4,760.65	1.39	
7,335.00	92.20	269.40	2,649.66	74.59	-4,791.04	4,791.62	0.65	
Last Phoenix MWD Survey								
7,409.00	92.20	269.40	2,646.82	73.82	-4,864.98	4,865.54	0.00	
Projection to TD								

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		N/S (usft)	E/W (usft)	
2,161.00	2,160.84	-13.78	-15.56	Tie-on to VES Gyro
2,198.00	2,197.84	-13.84	-16.07	First Phoenix MWD Survey
7,335.00	2,649.66	74.59	-4,791.04	Last Phoenix MWD Survey
7,409.00	2,646.82	73.82	-4,864.98	Projection to TD

Checked By: _____ Approved By: _____ Date: _____