



30-015-42431

July 24, 2014

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 15 2014

RECEIVED

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: **Bragg 10 Fee No. 002H**

Please find enclosed a copy of the survey from 0.00' to 2700.00' ran on the above referenced well.

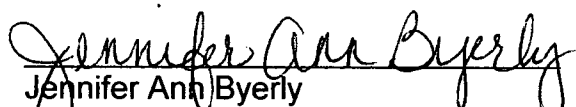
Sincerely,

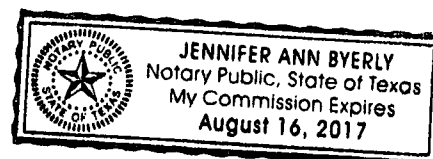

Keith Havelka
Operations

STATE OF TEXAS §

COUNTY OF NUECES §

This instrument was acknowledged before me on the 24 day of July, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



Company: COG Operating, LLC (Concho)

Lease/Well: Bragg 10 Fee/No. 002H



Rig Name: Silver Oak 3

State/County: New Mexico/Eddy

Latitude: 32.67, Longitude: -104.37

GRID North is 0.02 Degrees West of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB=17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 7/24/2014 / 10:50

VES Survey International

West Texas

(432) 563-5444

Surveyor: Adam Gathright

Bragg 10 Fee No. 002H / API 30-015-42431

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	0.73	56.50	100.00	0.35	0.53	0.35	0.64	56.50	0.73
200.00	0.59	45.08	199.99	1.07	1.44	1.07	1.79	53.22	0.19
300.00	0.85	61.02	299.98	1.80	2.46	1.80	3.04	53.74	0.33
400.00	0.97	79.57	399.97	2.32	3.94	2.32	4.57	59.58	0.32
500.00	0.75	122.53	499.96	2.12	5.33	2.12	5.73	68.30	0.66
600.00	0.10	175.13	599.96	1.68	5.88	1.68	6.12	74.05	0.69
700.00	0.09	227.55	699.96	1.54	5.83	1.54	6.03	75.23	0.09
800.00	0.56	304.30	799.95	1.76	5.37	1.76	5.65	71.88	0.54
900.00	0.99	342.38	899.95	2.85	4.70	2.85	5.50	58.79	0.65
1000.00	0.93	6.85	999.93	4.47	4.54	4.47	6.37	45.43	0.41
1100.00	0.93	31.00	1099.92	5.97	5.06	5.97	7.83	40.25	0.39
1200.00	0.40	47.38	1199.91	6.90	5.73	6.90	8.97	39.69	0.56
1300.00	0.77	37.21	1299.91	7.67	6.39	7.67	9.98	39.78	0.39
1400.00	0.93	11.06	1399.90	9.00	6.95	9.00	11.37	37.68	0.41
1500.00	0.59	356.29	1499.89	10.31	7.07	10.31	12.50	34.45	0.39
1600.00	0.64	332.60	1599.88	11.31	6.78	11.31	13.19	30.93	0.26
1700.00	0.70	330.21	1699.88	12.34	6.22	12.34	13.82	26.74	0.07
1800.00	0.75	340.65	1799.87	13.50	5.70	13.50	14.65	22.88	0.14

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	0.57	339.55	1899.86	14.58	5.30	14.58	15.52	19.98	0.18
2000.00	0.70	335.03	1999.85	15.61	4.87	15.61	16.35	17.33	0.14
2100.00	0.34	329.98	2099.85	16.42	4.46	16.42	17.02	15.20	0.36
2200.00	0.60	324.03	2199.85	17.10	4.01	17.10	17.57	13.19	0.26
2300.00	0.69	349.08	2299.84	18.12	3.59	18.12	18.47	11.19	0.30
2400.00	0.48	352.47	2399.84	19.13	3.42	19.13	19.43	10.12	0.22
2500.00	0.64	328.68	2499.83	20.02	3.07	20.02	20.25	8.72	0.28
2600.00	0.39	319.90	2599.83	20.76	2.56	20.76	20.91	7.04	0.26
2700.00	0.61	308.15	2699.82	21.35	1.92	21.35	21.43	5.15	0.24



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

July 21, 2014

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

RE: Bragg 10 Fee #2H
150' FSL & 1655' FWL
Sec. 10, T19S, R26E
Eddy County, New Mexico

Dear Sir,

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

Very truly yours,

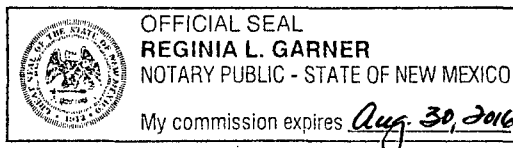
A handwritten signature in cursive script, appearing to read "Chris Graham".

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 21st day of July, 2014.

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

BRAGG 10 FEE # 2 H

Date	Depth	Deviation	Direction
7/9/2014	180	0.50	0.00
7/9/2014	450	0.10	0.00
7/9/2014	691	0.50	0.00
7/9/2014	938	0.60	0.00
7/9/2014	1183	0.30	0.00
7/11/2014	1422	0.90	0.00
7/11/2014	1734	0.20	0.00
7/11/2014	2202	0.90	0.00
7/12/2014	2514	0.80	0.00
7/12/2014	2738	0.70	312.90
7/12/2014	2769	0.60	314.50
7/12/2014	2800	0.90	344.30
7/12/2014	2831	3.50	355.10
7/12/2014	2862	6.70	355.90
7/13/2014	2955	15.30	357.90
7/13/2014	2987	18.60	358.10
7/13/2014	3018	21.90	358.50
7/13/2014	3049	25.00	358.20
7/13/2014	3080	28.10	359.10
7/13/2014	3111	31.30	360.00
7/13/2014	3142	34.30	0.60
7/13/2014	3174	37.50	0.70
7/13/2014	3206	41.00	0.80
7/13/2014	3237	44.20	1.30
7/13/2014	3268	47.60	1.50
7/13/2014	3299	50.90	1.80
7/13/2014	3330	53.60	1.90
7/13/2014	3361	56.50	1.90
7/13/2014	3392	59.90	1.40
7/13/2014	3486	66.20	359.70
7/13/2014	3517	69.70	359.30
7/13/2014	3548	72.20	359.10
7/13/2014	3579	74.40	358.40
7/13/2014	3611	78.50	358.90
7/13/2014	3642	81.80	359.10
7/14/2014	3723	90.90	359.10
7/14/2014	3754	92.40	359.00
7/14/2014	3785	92.80	359.40
7/14/2014	3817	92.50	358.80
7/14/2014	3911	92.20	358.90
7/14/2014	4005	92.10	385.90
7/14/2014	4098	92.10	359.00
7/14/2014	4193	91.10	358.10

Date	Depth	Deviation	Direction
7/14/2014	4286	90.90	357.60
7/14/2014	4379	90.70	357.70
7/14/2014	4473	91.00	358.40
7/14/2014	4567	90.70	0.30
7/15/2014	4661	90.60	359.80
7/15/2014	4754	90.60	359.80
7/15/2014	4848	90.70	0.20
7/15/2014	4941	90.70	258.90
7/15/2014	5034	90.80	358.90
7/15/2014	5127	90.60	357.20
7/15/2014	5222	90.60	357.30
7/15/2014	5316	90.60	357.30
7/15/2014	5409	90.80	357.80
7/15/2014	5503	91.90	358.40
7/15/2014	5596	92.00	358.40
7/16/2014	5690	91.90	359.40
7/16/2014	5784	92.20	359.60
7/16/2014	5877	91.10	359.50
7/16/2014	5971	91.00	359.50
7/16/2014	6158	91.30	359.30
7/16/2014	6252	91.40	359.10
7/16/2014	6347	91.30	358.50
7/16/2014	6439	91.30	357.90
7/16/2014	6533	91.50	358.30
7/16/2014	6721	90.10	358.20
7/17/2014	6813	90.00	357.80
7/17/2014	6907	90.30	357.60
7/17/2014	7001	90.50	358.10
7/17/2014	7094	91.00	358.10
7/17/2014	7188	91.20	358.60
7/17/2014	7281	91.40	358.30
7/18/2014	7376	91.40	357.70
7/18/2014	7469	90.60	358.80
7/19/2014	7563	90.60	359.20
7/19/2014	7656	90.70	358.50
7/19/2014	7749	91.00	359.00
7/19/2014	7843	91.20	359.50
7/19/2014	7876	91.30	359.20



PHOENIX
TECHNOLOGY SERVICES

COG Operating LLC

Eddy County, NM (NAD27 NME)

Bragg 10 Fee

#2H

WB1/Job #1411079

Survey: Phoenix MWD Survey

Standard Survey Report

20 July, 2014

Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD27:NME)	TVD Reference:	KB @ 3351.00usft (Silver Oak 3)
Site:	Bragg-10 Fee	MD Reference:	KB @ 3351.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1411079	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR/DB

Project:	Eddy County, NM (NAD27: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:	Bragg-10 Fee		
Site Position:		Northing:	606,787.30 usft
From:	Map	Easting:	486,726.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 5.34496 N
		Longitude:	104° 22' 35.28540 W
		Grid Convergence:	-0.02 °

Well:	#2H		
Well Position	+N/-S	0.00 usft	Northing: 606,781.60 usft
	+E/-W	0.00 usft	Easting: 488,051.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 40' 5.29362 N
		Longitude:	104° 22' 19.78106 W
		Ground Level:	3,333.00 usft

Wellbore:	WB1/Job #1411079		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	7/8/2014	7.61
			Dip Angle
			60.38
			Field Strength
			48,490

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
			(°)
			358.86

Survey Program	Date: 7/20/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	2,700.00	Gyro Surveys (WB1/Job #1411079)	NS-GYRO-MS
2,738.00	7,937.00	Phoenix MWD Survey (WB1/Job #141107)	PHX+MWD+IGRF
			Description
			North sensing gyrocompassing m/s
			PHX+MWD+IGRF v3: standard declination

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
2,700.00	0.61	308.15	2,699.82	21.35	1.92	21.31	0.00	0.00	0.00	
Tie In to Gyro Surveys										
2,738.00	0.70	312.90	2,737.82	21.63	1.59	21.60	0.28	0.24	12.50	
First Phoenix MWD Survey										
2,769.00	0.60	314.50	2,768.82	21.88	1.34	21.84	0.33	-0.32	5.16	
2,800.00	0.90	344.30	2,799.82	22.22	1.16	22.20	1.56	0.97	96.13	
2,831.00	3.50	355.10	2,830.79	23.40	1.01	23.38	8.46	8.39	34.84	
2,862.00	6.70	355.90	2,861.66	26.15	0.80	26.13	10.32	10.32	2.58	
2,893.00	9.60	356.50	2,892.35	30.53	0.51	30.52	9.36	9.35	1.94	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD27-NME)	TVD Reference:	KB @ 3351.00usft (Silver Oak 3)
Site:	Bragg 10 Fee	MD Reference:	KB @ 3351.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1411079	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000.GCR DB

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,924.00	12.60	356.60	2,922.76	36.49	0.15	36.48	9.68	9.68	0.32
2,955.00	15.30	357.90	2,952.85	43.95	-0.20	43.95	8.77	8.71	4.19
2,987.00	18.60	358.10	2,983.45	53.28	-0.52	53.28	10.31	10.31	0.63
3,018.00	21.90	358.50	3,012.53	64.00	-0.84	64.00	10.65	10.65	1.29
3,049.00	25.00	358.20	3,040.97	76.33	-1.19	76.34	10.01	10.00	-0.97
3,080.00	28.10	359.10	3,068.70	90.18	-1.51	90.19	10.08	10.00	2.90
3,111.00	31.30	0.00	3,095.62	105.54	-1.63	105.55	10.42	10.32	2.90
3,142.00	34.30	0.60	3,121.68	122.33	-1.54	122.33	9.73	9.68	1.94
3,174.00	37.50	0.70	3,147.59	141.09	-1.32	141.09	10.00	10.00	0.31
3,205.00	41.00	0.80	3,171.60	160.70	-1.07	160.69	11.29	11.29	0.32
3,236.00	44.20	1.30	3,194.41	181.67	-0.68	181.65	10.38	10.32	1.61
3,267.00	47.60	1.50	3,215.98	203.92	-0.13	203.89	10.98	10.97	0.65
3,298.00	50.90	1.80	3,236.21	227.40	0.54	227.34	10.67	10.65	0.97
3,330.00	53.60	1.90	3,255.80	252.68	1.36	252.61	8.44	8.44	0.31
3,361.00	56.50	1.90	3,273.56	278.08	2.20	277.98	9.35	9.35	0.00
3,392.00	59.90	1.40	3,289.89	304.41	2.96	304.29	11.05	10.97	-1.61
3,423.00	62.40	1.00	3,304.85	331.55	3.53	331.42	8.14	8.06	-1.29
3,455.00	64.00	0.20	3,319.28	360.11	3.82	359.96	5.48	5.00	-2.50
3,486.00	66.20	359.70	3,332.33	388.23	3.80	388.08	7.25	7.10	-1.61
3,517.00	69.70	359.30	3,343.97	416.95	3.55	416.80	11.35	11.29	-1.29
3,548.00	72.20	359.00	3,354.08	446.25	3.11	446.10	8.12	8.06	-0.97
3,579.00	74.40	358.90	3,362.99	475.94	2.57	475.79	7.10	7.10	-0.32
3,610.00	78.50	358.90	3,370.25	506.06	1.99	505.92	13.23	13.23	0.00
3,642.00	81.80	359.10	3,375.73	537.58	1.44	537.45	10.33	10.31	0.63
3,673.00	85.30	359.00	3,379.21	568.38	0.93	568.25	11.29	11.29	-0.32
3,704.00	89.10	359.10	3,380.72	599.33	0.42	599.20	12.26	12.26	0.32
3,723.00	90.90	359.10	3,380.72	618.33	0.12	618.20	9.47	9.47	0.00
3,754.00	92.40	359.00	3,379.83	649.31	-0.40	649.19	4.85	4.84	-0.32
3,786.00	92.80	359.40	3,378.38	681.27	-0.84	681.15	1.77	1.25	1.25
3,817.00	92.50	358.80	3,376.94	712.23	-1.33	712.12	2.16	-0.97	-1.94
3,912.00	92.20	358.90	3,373.05	807.14	-3.23	807.04	0.33	-0.32	0.11
4,006.00	92.10	358.90	3,369.52	901.05	-5.04	900.97	0.11	-0.11	0.00
4,099.00	92.10	359.00	3,366.12	993.97	-6.74	993.91	0.11	0.00	0.11
4,193.00	91.10	358.10	3,363.49	1,087.91	-9.12	1,087.87	1.43	-1.06	-0.96
4,286.00	90.90	357.60	3,361.87	1,180.83	-12.61	1,180.84	0.58	-0.22	-0.54
4,379.00	90.70	357.70	3,360.57	1,273.74	-16.42	1,273.81	0.24	-0.22	0.11
4,473.00	91.00	358.40	3,359.17	1,367.67	-19.62	1,367.79	0.81	0.32	0.74
4,567.00	90.70	0.30	3,357.78	1,461.65	-20.68	1,461.77	2.05	-0.32	2.02
4,661.00	90.60	359.80	3,356.71	1,555.65	-20.60	1,555.75	0.54	-0.11	-0.53
4,754.00	90.60	359.80	3,355.74	1,648.64	-20.93	1,648.73	0.00	0.00	0.00
4,848.00	90.70	0.20	3,354.67	1,742.63	-20.93	1,742.70	0.44	0.11	0.43
4,941.00	90.70	358.90	3,353.54	1,835.62	-21.66	1,835.69	1.40	0.00	-1.40
5,034.00	90.80	358.90	3,352.32	1,928.60	-23.44	1,928.68	0.11	0.11	0.00

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD27-NME)	TVD Reference:	KB @ 3351.00usft (Silver Oak 3)
Site:	Bragg 10.Fee	MD Reference:	KB @ 3351.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1411079	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR DB

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,128.00	90.60	357.20	3,351.17	2,022.53	-26.64	2,022.66	1.82	-0.21	-1.81
5,222.00	90.60	357.30	3,350.19	2,116.42	-31.15	2,116.62	0.11	0.00	0.11
5,316.00	90.60	357.30	3,349.20	2,210.31	-35.58	2,210.58	0.00	0.00	0.00
5,409.00	90.80	357.80	3,348.07	2,303.22	-39.55	2,303.55	0.58	0.22	0.54
5,503.00	91.90	358.40	3,345.85	2,397.14	-42.67	2,397.51	1.33	1.17	0.64
5,596.00	92.00	358.40	3,342.69	2,490.05	-45.26	2,490.45	0.11	0.11	0.00
5,690.00	91.90	359.40	3,339.49	2,583.97	-47.07	2,584.40	1.07	-0.11	1.06
5,784.00	92.20	359.60	3,336.13	2,677.91	-47.89	2,678.33	0.38	0.32	0.21
5,877.00	91.10	359.50	3,333.45	2,770.87	-48.62	2,771.29	1.19	-1.18	-0.11
5,971.00	91.00	359.50	3,331.73	2,864.85	-49.44	2,865.26	0.11	-0.11	0.00
6,064.00	91.10	359.20	3,330.02	2,957.83	-50.49	2,958.24	0.34	0.11	-0.32
6,158.00	91.30	359.30	3,328.05	3,051.80	-51.72	3,052.22	0.24	0.21	0.11
6,253.00	91.40	359.10	3,325.81	3,146.76	-53.05	3,147.19	0.24	0.11	-0.21
6,347.00	91.30	358.50	3,323.60	3,240.71	-55.02	3,241.17	0.65	-0.11	-0.64
6,439.00	91.30	357.90	3,321.51	3,332.64	-57.91	3,333.14	0.65	0.00	-0.65
6,533.00	91.50	358.30	3,319.22	3,426.56	-61.02	3,427.10	0.48	0.21	0.43
6,627.00	90.70	357.90	3,317.41	3,520.49	-64.14	3,521.07	0.95	-0.85	-0.43
6,721.00	90.10	358.20	3,316.76	3,614.44	-67.34	3,615.06	0.71	-0.64	0.32
6,813.00	90.00	357.80	3,316.67	3,706.38	-70.55	3,707.05	0.45	-0.11	-0.43
6,907.00	90.30	357.60	3,316.43	3,800.31	-74.32	3,801.03	0.38	0.32	-0.21
7,001.00	90.50	358.10	3,315.77	3,894.24	-77.85	3,895.01	0.57	0.21	0.53
7,094.00	91.00	358.10	3,314.56	3,987.18	-80.93	3,988.00	0.54	0.54	0.00
7,188.00	91.20	358.60	3,312.75	4,081.12	-83.64	4,081.98	0.57	0.21	0.53
7,281.00	91.40	358.30	3,310.64	4,174.06	-86.15	4,174.95	0.39	0.22	-0.32
7,376.00	91.40	357.70	3,308.32	4,268.98	-89.46	4,269.91	0.63	0.00	-0.63
7,469.00	90.60	358.80	3,306.70	4,361.92	-92.30	4,362.89	1.46	-0.86	1.18
7,563.00	90.60	359.20	3,305.71	4,455.90	-93.94	4,456.88	0.43	0.00	0.43
7,623.00	90.60	359.20	3,305.08	4,515.89	-94.78	4,516.88	0.00	0.00	0.00
7,656.00	90.70	358.50	3,304.71	4,548.88	-95.44	4,549.88	2.14	0.30	-2.12
7,750.00	91.00	359.00	3,303.32	4,642.84	-97.49	4,643.87	0.62	0.32	0.53
7,843.00	91.20	359.50	3,301.53	4,735.82	-98.71	4,736.85	0.58	0.22	0.54
7,876.00	91.30	359.20	3,300.81	4,768.81	-99.09	4,769.84	0.96	0.30	-0.91
Last Phoenix MWD Survey									
7,937.00	91.30	359.20	3,299.43	4,829.79	-99.94	4,830.82	0.00	0.00	0.00
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,700.00	2,699.82	21.35	1.92	Tie In to Gyro Surveys
2,738.00	2,737.82	21.63	1.59	First Phoenix MWD Survey
7,876.00	3,300.81	4,768.81	-99.09	Last Phoenix MWD Survey
7,937.00	3,299.43	4,829.79	-99.94	Projection to TD



Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3351.00usft (Silver Oak 3)
Site:	Bragg 10 Fee	MD Reference:	KB @ 3351.00usft (Silver Oak 3)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1/Job #1411079	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR DB

Checked By: _____ Approved By: _____ Date: _____