

Results of Directional Survey

API number:	30-025-40702		
OGRID:		Operator:	COG OPERATING LLC
		Property:	CABO BLANCO STATE # 1H

surface	ULSTR:	B	05	T	24S	R	33E
				330	FNL	2290	FEL

BH Loc	ULSTR:	O	05	T	24S	R	33E
15472	MD	11060.0	TVD	365	FSL	2194	FEL
				4915	FNL	2194	FEL

Top Perf/OH	ULSTR:	B	05	T	24S	R	33E
11215	MD	11033.4	TVD	663	FNL	2256	FEL

Bot Perf/OH	ULSTR:	O	05	T	24S	R	33E
15362	MD	11056.2	TVD	475	FSL	2197	FEL
				4805	FNL	2197	FEL

	MD	N/S	E/W	VD
	11183	-302.32	33.76	11024.66
TOP PERFS/OH	11215	-333.09	34.35	11033.42
	11215	-333.09	34.35	11033.42
	15357	-4470.04	93.25	11055.97
BOT PERFS/OH	15362	-4475.04	93.37	11056.15
	15426	-4538.98	94.94	11058.44

NEXT TO LAST	15426	-4538.98	94.94	11058.44
LAST READING	15472	-4584.94	96.14	11059.96
TD	15472	-4584.94	96.14	11059.96

Surface Location	330	FN	2290	FE
Projected BHL	4915	FN	2194	FE
Location of				
Top Perfs/OH	663	FN	2256	FE
Bottom Perfs/OH	4805	FN	2197	FE

SUMMARY of Subsurface Locations

Surface Location	B-05-24S-33E	330	FN	2290	FE	Vert. Depth
Top Perfs/OH	B-05-24S-33E	663	FN	2256	FE	11033.42
Bottom Perfs/OH	O-05-24S-33E	4805	FN	2197	FE	11056.15
Projected TD	O-05-24S-33E	4915	FN	2194	FE	11059.96

JUL 25 2013



A GYRO TECHNOLOGIES INC. COMPANY

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

HOBBS OCD

JUL 05 2013

April 4, 2013

RECEIVED

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

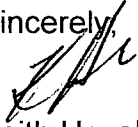
Attn: Kanicia Castillo

Re: **Cabo Blanco State No 001H**

Please find enclosed a copy of the survey from 0' to 10,401' ran on the above referenced well.

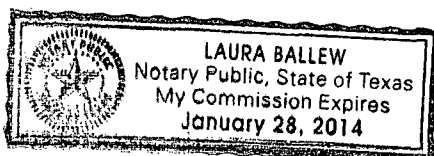
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

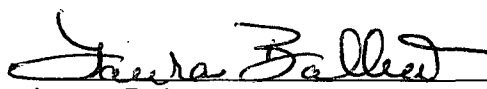
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 4th day of April, A.D., 2013, by Keith Havelka.





Laura Ballew
Notary Public, State of Texas

Company: COG Operating LLC (Concho)

Lease/Well: Cabo Blanco State/No 001H



Rig Name: Basic #46

State/County: New Mexico/Lea

Latitude: 32.25, Longitude: -103.59

GRID North is 0.39 Degrees East of True North

VS-Azi: 0.00 Degrees



30-025-40702

Depth Reference : RKB=22 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ... blanco st #1h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 4/4/2013 / 09:45

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Logan Henry

Cabo Blanco State No 001H / API 30-025-40702

RECEIVED
JUL 05 2013
HOBBS OCD

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	0.51	293.83	100.00	0.18	-0.40	0.18	0.44	293.83	0.51
200.00	0.35	295.36	200.00	0.49	-1.09	0.49	1.19	294.22	0.15
300.00	0.39	295.68	299.99	0.77	-1.68	0.77	1.84	294.68	0.04
400.00	0.52	288.78	399.99	1.06	-2.41	1.06	2.63	293.80	0.14
500.00	0.56	278.49	499.99	1.28	-3.32	1.28	3.55	291.10	0.10
600.00	0.39	253.92	599.98	1.26	-4.12	1.26	4.31	286.96	0.26
700.00	0.55	247.88	699.98	0.98	-4.89	0.98	4.99	281.36	0.17
800.00	0.78	251.54	799.97	0.59	-5.98	0.59	6.01	275.59	0.24
900.00	0.72	240.99	899.96	0.06	-7.18	0.06	7.18	270.52	0.15
1000.00	0.75	244.54	999.96	-0.52	-8.32	-0.52	8.34	266.42	0.05
1100.00	0.65	242.43	1099.95	-1.07	-9.42	-1.07	9.48	263.55	0.10
1200.00	0.70	274.52	1199.94	-1.28	-10.53	-1.28	10.61	263.07	0.38
1300.00	0.44	285.26	1299.94	-1.13	-11.52	-1.13	11.57	264.39	0.28
1400.00	0.48	296.59	1399.93	-0.84	-12.27	-0.84	12.30	266.08	0.10
1500.00	1.19	313.62	1499.92	0.06	-13.40	0.06	13.40	270.27	0.74
1600.00	1.25	320.38	1599.90	1.62	-14.84	1.62	14.93	276.22	0.16
1700.00	0.90	319.82	1699.88	3.06	-16.04	3.06	16.33	280.79	0.35
1800.00	1.05	339.87	1799.87	4.52	-16.87	4.52	17.46	285.00	0.37

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	0.52	327.06	1899.86	5.76	-17.43	5.76	18.36	288.29	0.56
2000.00	0.51	337.98	1999.85	6.56	-17.84	6.56	19.01	290.18	0.10
2100.00	0.35	48.95	2099.85	7.17	-17.78	7.17	19.17	291.97	0.52
2200.00	0.33	54.48	2199.85	7.54	-17.32	7.54	18.89	293.53	0.04
2300.00	0.34	55.49	2299.85	7.88	-16.83	7.88	18.59	295.08	0.01
2400.00	0.38	57.64	2399.85	8.23	-16.31	8.23	18.26	296.78	0.04
2500.00	0.32	43.40	2499.84	8.61	-15.83	8.61	18.02	298.53	0.10
2600.00	0.35	37.14	2599.84	9.05	-15.46	9.05	17.91	300.36	0.05
2700.00	0.38	38.54	2699.84	9.55	-15.07	9.55	17.84	302.37	0.03
2800.00	0.53	40.48	2799.84	10.16	-14.56	10.16	17.76	304.91	0.15
2900.00	0.77	29.44	2899.83	11.10	-13.93	11.10	17.81	308.55	0.27
3000.00	1.06	19.03	2999.82	12.56	-13.30	12.56	18.29	313.37	0.33
3100.00	1.14	24.53	3099.80	14.35	-12.58	14.35	19.08	318.74	0.14
3200.00	1.26	17.02	3199.78	16.31	-11.85	16.31	20.15	324.00	0.20
3300.00	1.69	8.36	3299.74	18.82	-11.31	18.82	21.95	328.99	0.48
3400.00	2.01	4.19	3399.69	22.03	-10.97	22.03	24.61	333.53	0.35
3500.00	2.17	3.74	3499.63	25.67	-10.71	25.67	27.82	337.35	0.16
3600.00	2.10	11.67	3599.56	29.36	-10.22	29.36	31.09	340.80	0.30
3700.00	1.58	1.50	3699.50	32.53	-9.81	32.53	33.98	343.21	0.61
3800.00	1.15	9.68	3799.48	34.89	-9.61	34.89	36.19	344.60	0.48
3900.00	0.78	261.48	3899.47	35.78	-10.11	35.78	37.18	344.22	1.57
4000.00	1.24	226.70	3999.45	34.93	-11.57	34.93	36.80	341.67	0.75
4100.00	1.00	225.04	4099.43	33.57	-12.98	33.57	36.00	338.87	0.25
4200.00	0.71	212.68	4199.42	32.44	-13.93	32.44	35.30	336.77	0.34
4300.00	0.60	191.08	4299.42	31.41	-14.36	31.41	34.54	335.43	0.27
4400.00	1.43	140.17	4399.40	29.94	-13.66	29.94	32.91	335.47	1.15
4500.00	2.50	135.96	4499.34	27.42	-11.35	27.42	29.67	337.51	1.08
4600.00	2.59	128.07	4599.24	24.46	-8.06	24.46	25.76	341.76	0.36
4700.00	3.19	124.94	4699.12	21.48	-4.00	21.48	21.84	349.45	0.63
4800.00	3.07	115.10	4798.97	18.74	0.71	18.74	18.76	2.17	0.55
4900.00	3.07	122.41	4898.82	16.17	5.40	16.17	17.05	18.46	0.39
5000.00	2.54	104.35	4998.71	14.18	9.81	14.18	17.25	34.67	1.03
5100.00	1.43	99.26	5098.64	13.43	13.19	13.43	18.83	44.48	1.12
5200.00	1.36	91.29	5198.61	13.21	15.61	13.21	20.44	49.77	0.21
5300.00	1.30	88.45	5298.59	13.21	17.93	13.21	22.27	53.62	0.09
5400.00	1.10	95.59	5398.57	13.15	20.02	13.15	23.95	56.70	0.25
5500.00	0.89	79.12	5498.55	13.20	21.73	13.20	25.43	58.72	0.35
5600.00	1.00	90.96	5598.54	13.33	23.37	13.33	26.90	60.30	0.23
5700.00	0.49	67.19	5698.53	13.48	24.64	13.48	28.09	61.31	0.59

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
5800.00	0.64	58.30	5798.52	13.94	25.51	13.94	29.07	61.34	0.17
5900.00	0.67	67.97	5898.52	14.46	26.53	14.46	30.21	61.41	0.11
6000.00	0.46	78.62	5998.51	14.76	27.46	14.76	31.18	61.75	0.24
6100.00	0.51	76.24	6098.51	14.94	28.29	14.94	31.99	62.16	0.06
6200.00	0.50	87.57	6198.50	15.06	29.15	15.06	32.81	62.67	0.10
6300.00	0.39	100.03	6298.50	15.02	29.92	15.02	33.48	63.34	0.14
6400.00	0.16	105.11	6398.50	14.93	30.39	14.93	33.85	63.84	0.23
6500.00	0.14	132.68	6498.50	14.81	30.61	14.81	34.00	64.18	0.07
6600.00	0.25	160.61	6598.50	14.52	30.77	14.52	34.02	64.74	0.15
6700.00	0.19	181.02	6698.50	14.14	30.84	14.14	33.93	65.37	0.10
6800.00	0.16	242.75	6798.50	13.91	30.71	13.91	33.72	65.63	0.18
6900.00	0.24	248.33	6898.50	13.77	30.39	13.77	33.37	65.63	0.08
7000.00	0.26	242.98	6998.50	13.59	30.00	13.59	32.93	65.63	0.03
7100.00	0.26	243.47	7098.50	13.39	29.60	13.39	32.48	65.66	0.01
7200.00	0.53	212.15	7198.49	12.89	29.14	12.89	31.87	66.14	0.34
7300.00	0.31	231.78	7298.49	12.33	28.69	12.33	31.22	66.74	0.27
7400.00	0.38	214.08	7398.49	11.89	28.29	11.89	30.68	67.21	0.13
7500.00	0.68	188.18	7498.48	11.02	28.01	11.02	30.11	68.52	0.37
7600.00	0.93	177.63	7598.47	9.62	27.96	9.62	29.57	71.01	0.29
7700.00	0.87	111.27	7698.46	8.53	28.70	8.53	29.95	73.44	0.99
7800.00	1.71	71.15	7798.44	8.74	30.82	8.74	32.04	74.17	1.19
7900.00	0.53	83.29	7898.42	9.28	32.69	9.28	33.98	74.16	1.20
8000.00	0.70	82.79	7998.41	9.41	33.76	9.41	35.04	74.43	0.17
8100.00	0.87	83.45	8098.40	9.57	35.12	9.57	36.40	74.75	0.17
8200.00	0.72	101.41	8198.39	9.53	36.50	9.53	37.72	75.36	0.29
8300.00	0.31	142.99	8298.39	9.19	37.28	9.19	38.40	76.15	0.53
8400.00	0.56	158.57	8398.39	8.52	37.62	8.52	38.57	77.24	0.28
8500.00	0.78	168.62	8498.38	7.40	37.94	7.40	38.65	78.97	0.25
8600.00	0.77	173.73	8598.37	6.06	38.14	6.06	38.62	80.97	0.07
8700.00	0.94	167.22	8698.36	4.59	38.40	4.59	38.67	83.19	0.20
8800.00	0.89	173.89	8798.35	3.01	38.66	3.01	38.78	85.55	0.12
8900.00	0.56	170.02	8898.34	1.76	38.83	1.76	38.87	87.40	0.34
9000.00	0.56	168.59	8998.33	0.80	39.01	0.80	39.02	88.82	0.01
9100.00	0.45	188.96	9098.33	-0.07	39.05	-0.07	39.05	90.10	0.21
9200.00	0.84	255.93	9198.33	-0.64	38.27	-0.64	38.28	90.95	0.78
9300.00	1.11	283.31	9298.31	-0.59	36.62	-0.59	36.63	90.93	0.53
9400.00	1.59	305.30	9398.28	0.43	34.55	0.43	34.55	89.28	0.70
9500.00	1.14	314.05	9498.26	1.93	32.70	1.93	32.76	86.63	0.50
9600.00	1.48	331.08	9598.23	3.74	31.37	3.74	31.59	83.20	0.51

JUL 05 2013

HOES CO

REINFORCED

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
9700.00	1.68	341.43	9698.19	6.26	30.28	6.26	30.92	78.32	0.35
9800.00	2.22	320.40	9798.14	9.14	28.57	9.14	30.00	72.25	0.89
9900.00	2.25	319.00	9898.06	12.12	26.05	12.12	28.73	65.05	0.06
10000.00	2.73	314.84	9997.96	15.28	23.08	15.28	27.68	56.49	0.51
10100.00	3.41	314.07	10097.82	19.02	19.25	19.02	27.07	45.34	0.68
10200.00	2.26	304.64	10197.70	22.21	15.50	22.21	27.08	34.90	1.24
10300.00	1.41	302.89	10297.64	24.00	12.84	24.00	27.22	28.15	0.85
10400.00	0.68	314.17	10397.63	25.08	11.38	25.08	27.55	24.41	0.75
10401.00	0.76	316.98	10398.63	25.09	11.37	25.09	27.55	24.38	8.71

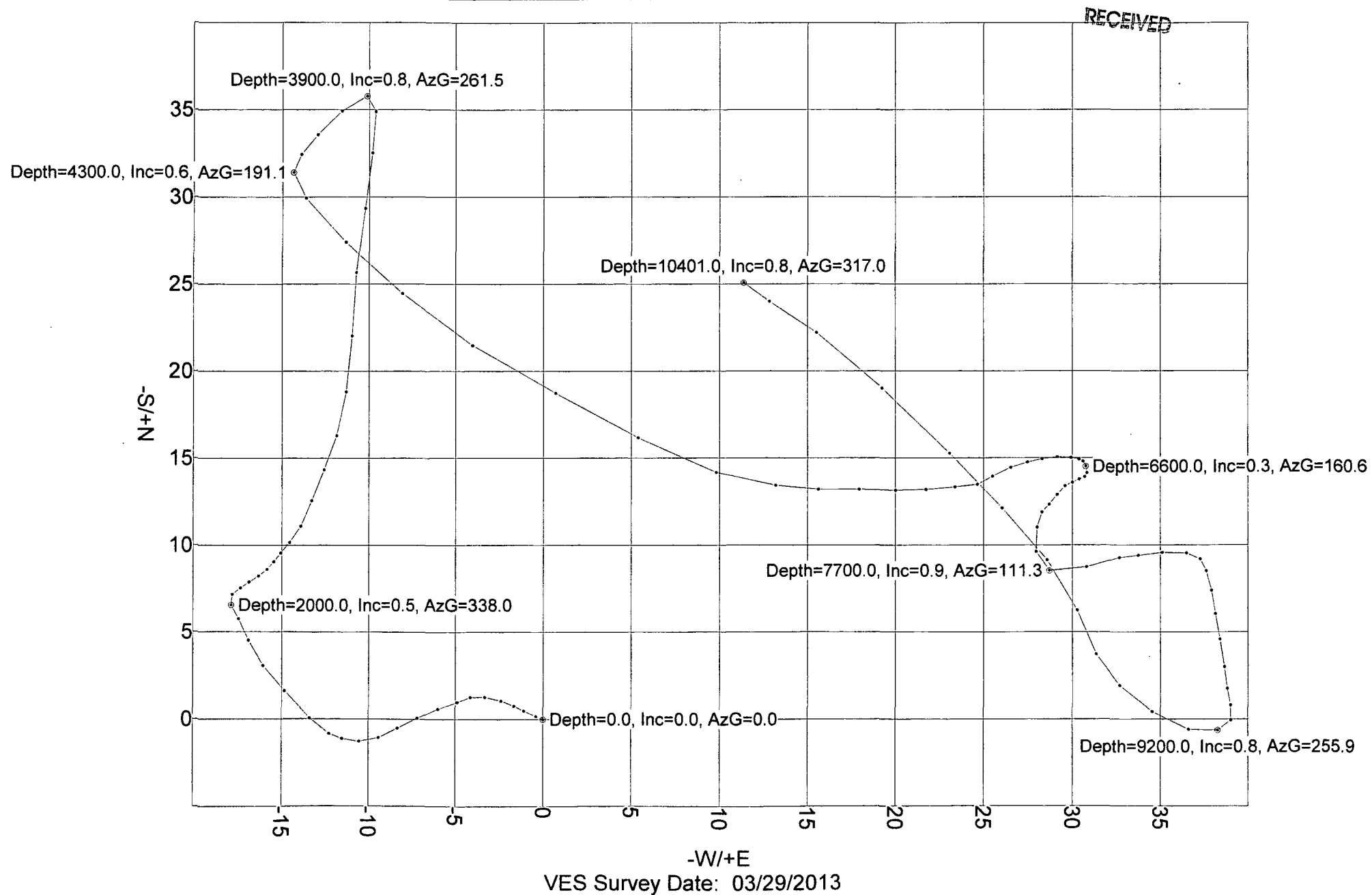
HOBS OCD
JUL 05 2013
RECEIVED



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Logan Henry
Cabo Blanco State No 001H / API 30-025-40702

HOBBS OGD

JUL 05 2013





HOESS 000

JUL 05 2013

RECEIVED

Concho COG Operating LLC

Lea County, New Mexico

Cabo Blanco State

Cabo Blanco State 1H

30-025-40702

Original Hole

Design: Surveys Original Hole

Survey Report - Geographic

14 April, 2013



Company:	Concho COG Operating LLC	Local Co-ordinate Reference:	Well Cabo Blanco State 1H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3664+22 @ 3686.00usft (Basic 46)
Site:	Cabo Blanco State	MD Reference:	RKB=3664+22 @ 3686.00usft (Basic 46)
Well:	Cabo Blanco State 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Single User Db

HOBS OCD

Project	Lea County, New Mexico		
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		

JUL 05 2013

RECEIVED

Site	Cabo Blanco State		
Site Position:		Northing:	728,954.60 usft
From:	Map	Easting:	456,515.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	33° 0' 13.976837 N
		Longitude:	104° 28' 30.634750 W
		Grid Convergence:	-0.08 °

Well	Cabo Blanco State 1H		
Well Position	+N/-S	0.00 usft	Northing: 728,954.60 usft
	+E/-W	0.00 usft	Easting: 456,515.20 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	33° 0' 13.976837 N
		Longitude:	104° 28' 30.634750 W
		Ground Level:	3,664.00 usft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	4/14/2013	(°)
			7.84
			Dip Angle
			(°)
			60.70
			Field Strength
			(nT)
			48,799

Design	Surveys Original Hole		
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	
		(°)	179.090

Survey Program	Date 4/14/2013		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	10,401.00	Gyro (Original Hole)	NS-GYRO-MS
10,463.00	15,472.00	MWD (Original Hole)	MWD
			Description
			North sensing gyrocompassing m/s
			MWD - Standard

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude	
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting			
(usft)			(usft)			(usft)	(usft)			
0.00	0.00	0.000	0.00	0.00	0.00	728,954.60	456,515.20	33° 0' 13.976837 N	104° 28' 30.634750 W	
100.00	0.51	293.830	100.00	0.18	-0.41	728,954.78	456,514.79	33° 0' 13.978611 N	104° 28' 30.639534 W	
Gyro										
200.00	0.35	295.360	200.00	0.49	-1.09	728,955.09	456,514.11	33° 0' 13.981676 N	104° 28' 30.647560 W	
300.00	0.39	295.680	299.99	0.77	-1.67	728,955.37	456,513.53	33° 0' 13.984422 N	104° 28' 30.654407 W	
400.00	0.52	288.780	399.99	1.06	-2.41	728,955.66	456,512.79	33° 0' 13.987317 N	104° 28' 30.663059 W	
500.00	0.56	278.490	499.99	1.28	-3.32	728,955.88	456,511.88	33° 0' 13.989464 N	104° 28' 30.673783 W	
600.00	0.39	253.920	599.98	1.26	-4.13	728,955.85	456,511.07	33° 0' 13.989234 N	104° 28' 30.683298 W	
700.00	0.55	247.880	699.98	0.98	-4.90	728,955.58	456,510.30	33° 0' 13.986503 N	104° 28' 30.692355 W	
800.00	0.78	251.540	799.97	0.59	-5.99	728,955.18	456,509.21	33° 0' 13.982568 N	104° 28' 30.705152 W	
900.00	0.72	240.990	899.96	0.07	-7.19	728,954.66	456,508.01	33° 0' 13.977404 N	104° 28' 30.719178 W	



Survey Report - Geographic



Company: Concho COG Operating LLC
Project: Lea County, New Mexico
Site: Cabo Blanco State
Well: Cabo Blanco State 1H
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Cabo Blanco State 1H
TVD Reference: RKB=3664+22 @ 3686.00usft (Basic 46)
MD Reference: RKB=3664+22 @ 3686.00usft (Basic 46)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

HOBBS OCD

Survey

JUL 05 2013

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,000.00	0.75	244.540	999.96	-0.52	-8.33	728,954.08	456,506.87	33° 0' 13.971590 N	104° 28' 30.732560 W
1,100.00	0.65	242.430	1,099.95	-1.06	-9.42	728,953.53	456,505.78	33° 0' 13.966193 N	104° 28' 30.745394 W
1,200.00	0.70	274.520	1,199.94	-1.28	-10.54	728,953.32	456,504.66	33° 0' 13.964057 N	104° 28' 30.758446 W
1,300.00	0.44	285.260	1,299.94	-1.13	-11.51	728,953.47	456,503.69	33° 0' 13.965520 N	104° 28' 30.769949 W
1,400.00	0.48	296.590	1,399.93	-0.84	-12.26	728,953.76	456,502.94	33° 0' 13.968366 N	104° 28' 30.778702 W
1,500.00	1.19	313.620	1,499.92	0.06	-13.39	728,954.66	456,501.81	33° 0' 13.977294 N	104° 28' 30.791943 W
1,600.00	1.25	320.380	1,599.90	1.62	-14.83	728,956.22	456,500.37	33° 0' 13.992677 N	104° 28' 30.808963 W
1,700.00	0.90	319.820	1,699.88	3.06	-16.04	728,957.66	456,499.16	33° 0' 14.006913 N	104° 28' 30.823104 W
1,800.00	1.05	339.870	1,799.87	4.52	-16.86	728,959.12	456,498.34	33° 0' 14.021352 N	104° 28' 30.832780 W
1,900.00	0.52	327.060	1,899.86	5.76	-17.42	728,960.36	456,497.78	33° 0' 14.033625 N	104° 28' 30.839400 W
2,000.00	0.51	337.980	1,999.85	6.56	-17.83	728,961.15	456,497.37	33° 0' 14.041471 N	104° 28' 30.844269 W
2,100.00	0.35	48.950	2,099.85	7.17	-17.77	728,961.77	456,497.43	33° 0' 14.047539 N	104° 28' 30.843534 W
2,200.00	0.33	54.480	2,199.85	7.54	-17.31	728,962.13	456,497.89	33° 0' 14.051185 N	104° 28' 30.838082 W
2,300.00	0.34	55.490	2,299.85	7.87	-16.83	728,962.47	456,498.37	33° 0' 14.054511 N	104° 28' 30.832464 W
2,400.00	0.38	57.640	2,399.85	8.22	-16.30	728,962.81	456,498.90	33° 0' 14.057937 N	104° 28' 30.826309 W
2,500.00	0.32	43.400	2,499.84	8.60	-15.83	728,963.19	456,499.37	33° 0' 14.061708 N	104° 28' 30.820773 W
2,600.00	0.35	37.140	2,599.84	9.04	-15.45	728,963.64	456,499.75	33° 0' 14.066130 N	104° 28' 30.816361 W
2,700.00	0.38	38.540	2,699.84	9.55	-15.06	728,964.14	456,500.14	33° 0' 14.071111 N	104° 28' 30.811778 W
2,800.00	0.53	40.480	2,799.84	10.16	-14.56	728,964.76	456,500.64	33° 0' 14.077165 N	104° 28' 30.805835 W
2,900.00	0.77	29.440	2,899.83	11.10	-13.93	728,965.69	456,501.28	33° 0' 14.086445 N	104° 28' 30.798446 W
3,000.00	1.06	19.030	2,999.82	12.56	-13.29	728,967.15	456,501.91	33° 0' 14.100896 N	104° 28' 30.791050 W
3,100.00	1.14	24.530	3,099.80	14.33	-12.58	728,968.93	456,502.62	33° 0' 14.118513 N	104° 28' 30.782686 W
3,200.00	1.26	17.020	3,199.78	16.29	-11.84	728,970.89	456,503.36	33° 0' 14.137881 N	104° 28' 30.774088 W
3,300.00	1.69	8.360	3,299.74	18.80	-11.31	728,973.40	456,503.89	33° 0' 14.162727 N	104° 28' 30.767832 W
3,400.00	2.01	4.190	3,399.69	22.01	-10.97	728,976.61	456,504.24	33° 0' 14.194474 N	104° 28' 30.763860 W
3,500.00	2.17	3.740	3,499.63	25.65	-10.71	728,980.24	456,504.49	33° 0' 14.230478 N	104° 28' 30.760963 W
3,600.00	2.10	11.670	3,599.56	29.33	-10.22	728,983.93	456,504.98	33° 0' 14.266934 N	104° 28' 30.755219 W
3,700.00	1.58	1.500	3,699.51	32.50	-9.81	728,987.10	456,505.39	33° 0' 14.298331 N	104° 28' 30.750494 W
3,800.00	1.15	9.680	3,799.48	34.87	-9.61	728,989.47	456,505.59	33° 0' 14.321760 N	104° 28' 30.748126 W
3,900.00	0.78	261.480	3,899.47	35.76	-10.11	728,990.36	456,505.09	33° 0' 14.330544 N	104° 28' 30.754064 W
4,000.00	1.24	226.700	3,999.45	34.92	-11.57	728,989.51	456,503.63	33° 0' 14.322184 N	104° 28' 30.771202 W
4,100.00	1.00	225.040	4,099.43	33.56	-12.98	728,988.15	456,502.22	33° 0' 14.308721 N	104° 28' 30.787679 W
4,200.00	0.71	212.680	4,199.42	32.42	-13.93	728,987.02	456,501.27	33° 0' 14.297446 N	104° 28' 30.798840 W
4,300.00	0.60	191.080	4,299.42	31.38	-14.37	728,985.98	456,500.84	33° 0' 14.287196 N	104° 28' 30.803933 W
4,400.00	1.43	140.170	4,399.40	29.91	-13.67	728,984.51	456,501.53	33° 0' 14.272638 N	104° 28' 30.795706 W
4,500.00	2.50	135.960	4,499.34	27.39	-11.35	728,981.98	456,503.85	33° 0' 14.247673 N	104° 28' 30.768477 W
4,600.00	2.59	128.070	4,599.24	24.42	-8.06	728,979.02	456,507.14	33° 0' 14.218417 N	104° 28' 30.729739 W
4,700.00	3.19	124.940	4,699.12	21.44	-4.00	728,976.03	456,511.20	33° 0' 14.188917 N	104° 28' 30.682020 W
4,800.00	3.07	115.100	4,798.97	18.71	0.71	728,973.31	456,515.91	33° 0' 14.161972 N	104° 28' 30.626717 W
4,900.00	3.07	122.410	4,898.82	16.14	5.39	728,970.73	456,520.60	33° 0' 14.136593 N	104° 28' 30.571654 W
5,000.00	2.54	104.350	4,998.71	14.15	9.80	728,968.75	456,525.00	33° 0' 14.117015 N	104° 28' 30.519866 W
5,100.00	1.43	99.260	5,098.64	13.40	13.18	728,968.00	456,528.38	33° 0' 14.109639 N	104° 28' 30.480183 W
5,200.00	1.36	91.290	5,198.61	13.18	15.60	728,967.77	456,530.80	33° 0' 14.107420 N	104° 28' 30.451786 W
5,300.00	1.30	88.450	5,298.59	13.18	17.92	728,967.78	456,533.12	33° 0' 14.107490 N	104° 28' 30.424538 W
5,400.00	1.10	95.590	5,398.57	13.12	20.01	728,967.71	456,535.21	33° 0' 14.106896 N	104° 28' 30.400003 W
5,500.00	0.89	79.120	5,498.55	13.17	21.73	728,967.77	456,536.93	33° 0' 14.107444 N	104° 28' 30.379830 W
5,600.00	1.00	90.960	5,598.54	13.30	23.36	728,967.90	456,538.56	33° 0' 14.108772 N	104° 28' 30.360631 W
5,700.00	0.49	67.190	5,698.53	13.45	24.63	728,968.05	456,539.83	33° 0' 14.110285 N	104° 28' 30.345759 W
5,800.00	0.64	58.300	5,798.52	13.91	25.50	728,968.51	456,540.70	33° 0' 14.114841 N	104° 28' 30.335558 W
5,900.00	0.67	67.970	5,898.52	14.43	26.51	728,969.02	456,541.71	33° 0' 14.119928 N	104° 28' 30.323622 W
6,000.00	0.46	78.620	5,998.51	14.72	27.45	728,969.32	456,542.65	33° 0' 14.122894 N	104° 28' 30.312641 W
6,100.00	0.51	76.240	6,098.51	14.91	28.28	728,969.50	456,543.48	33° 0' 14.124737 N	104° 28' 30.302946 W
6,200.00	0.50	87.570	6,198.51	15.03	29.14	728,969.63	456,544.34	33° 0' 14.125979 N	104° 28' 30.292753 W
6,300.00	0.39	100.030	6,298.50	14.99	29.92	728,969.59	456,545.12	33° 0' 14.125586 N	104° 28' 30.283698 W
6,400.00	0.16	105.110	6,398.50	14.90	30.39	728,969.49	456,545.59	33° 0' 14.124645 N	104° 28' 30.278178 W

Company: Concho COG Operating LLC
Project: Lea County, New Mexico
Site: Cabo Blanco State
Well: Cabo Blanco State 1H
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Cabo Blanco State 1H
TVD Reference: RKB=3664+22 @ 3686.00usft (Basic 46)
MD Reference: RKB=3664+22 @ 3686.00usft (Basic 46) CCD
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db
JUL 05 2013

Survey

RECEIVED

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,500.00	0.14	132.680	6,498.50	14.78	30.61	728,969.37	456,545.81	33° 0' 14.123468 N	104° 28' 30.275539 W
6,600.00	0.25	160.610	6,598.50	14.49	30.77	728,969.08	456,545.97	33° 0' 14.120615 N	104° 28' 30.273629 W
6,700.00	0.19	181.020	6,698.50	14.12	30.84	728,968.71	456,546.04	33° 0' 14.116939 N	104° 28' 30.272807 W
6,800.00	0.16	242.750	6,798.50	13.89	30.71	728,968.48	456,545.91	33° 0' 14.114664 N	104° 28' 30.274296 W
6,900.00	0.24	248.330	6,898.50	13.75	30.40	728,968.34	456,545.60	33° 0' 14.113262 N	104° 28' 30.278037 W
7,000.00	0.26	242.980	6,998.50	13.57	30.00	728,968.16	456,545.20	33° 0' 14.111472 N	104° 28' 30.282693 W
7,100.00	0.26	243.470	7,098.50	13.36	29.59	728,967.96	456,544.79	33° 0' 14.109443 N	104° 28' 30.287447 W
7,200.00	0.53	212.150	7,198.49	12.87	29.14	728,967.46	456,544.34	33° 0' 14.104560 N	104° 28' 30.292713 W
7,300.00	0.31	231.780	7,298.49	12.31	28.69	728,966.91	456,543.89	33° 0' 14.099023 N	104° 28' 30.298090 W
7,400.00	0.38	214.080	7,398.49	11.87	28.29	728,966.46	456,543.49	33° 0' 14.094644 N	104° 28' 30.302761 W
7,500.00	0.68	188.180	7,498.49	11.01	28.02	728,965.60	456,543.22	33° 0' 14.086110 N	104° 28' 30.305921 W
7,600.00	0.93	177.630	7,598.48	9.61	27.97	728,964.20	456,543.17	33° 0' 14.072274 N	104° 28' 30.306496 W
7,700.00	0.87	111.270	7,698.47	8.52	28.71	728,963.12	456,543.91	33° 0' 14.061535 N	104° 28' 30.297777 W
7,800.00	1.71	71.150	7,798.44	8.73	30.83	728,963.32	456,546.03	33° 0' 14.063608 N	104° 28' 30.272890 W
7,900.00	0.53	83.290	7,898.42	9.26	32.70	728,963.86	456,547.90	33° 0' 14.068938 N	104° 28' 30.250923 W
8,000.00	0.70	82.790	7,998.41	9.39	33.76	728,963.99	456,548.96	33° 0' 14.070246 N	104° 28' 30.238415 W
8,100.00	0.87	83.450	8,098.41	9.56	35.12	728,964.15	456,550.32	33° 0' 14.071880 N	104° 28' 30.222444 W
8,200.00	0.72	101.410	8,198.40	9.52	36.49	728,964.12	456,551.69	33° 0' 14.071525 N	104° 28' 30.206355 W
8,300.00	0.31	142.990	8,298.39	9.18	37.27	728,963.78	456,552.47	33° 0' 14.068168 N	104° 28' 30.197205 W
8,400.00	0.56	158.570	8,398.39	8.51	37.61	728,963.10	456,552.81	33° 0' 14.061533 N	104° 28' 30.193185 W
8,500.00	0.78	168.620	8,498.38	7.39	37.93	728,961.98	456,553.13	33° 0' 14.050433 N	104° 28' 30.189494 W
8,600.00	0.77	173.730	8,598.37	6.05	38.14	728,960.65	456,553.34	33° 0' 14.037224 N	104° 28' 30.187034 W
8,700.00	0.94	167.220	8,698.36	4.58	38.39	728,959.18	456,553.59	33° 0' 14.022703 N	104° 28' 30.184018 W
8,800.00	0.89	173.890	8,798.35	3.01	38.65	728,957.61	456,553.85	33° 0' 14.007150 N	104° 28' 30.180892 W
8,900.00	0.56	170.020	8,898.34	1.76	38.82	728,956.35	456,554.02	33° 0' 13.994748 N	104° 28' 30.178907 W
9,000.00	0.56	168.590	8,998.34	0.80	39.00	728,955.39	456,554.20	33° 0' 13.985248 N	104° 28' 30.176762 W
9,100.00	0.45	188.960	9,098.33	-0.07	39.04	728,954.53	456,554.24	33° 0' 13.976670 N	104° 28' 30.176331 W
9,200.00	0.84	255.930	9,198.33	-0.64	38.27	728,953.96	456,553.47	33° 0' 13.971058 N	104° 28' 30.185390 W
9,300.00	1.11	283.310	9,298.31	-0.59	36.61	728,954.01	456,551.81	33° 0' 13.971480 N	104° 28' 30.204809 W
9,400.00	1.59	305.300	9,398.29	0.43	34.54	728,955.03	456,549.74	33° 0' 13.981591 N	104° 28' 30.229190 W
9,500.00	1.14	314.050	9,498.26	1.93	32.69	728,956.52	456,547.89	33° 0' 13.996344 N	104° 28' 30.250905 W
9,600.00	1.48	331.080	9,598.23	3.75	31.35	728,958.35	456,546.55	33° 0' 14.014355 N	104° 28' 30.266664 W
9,700.00	1.68	341.430	9,698.19	6.27	30.26	728,960.87	456,545.46	33° 0' 14.039275 N	104° 28' 30.279519 W
9,800.00	2.22	320.400	9,798.14	9.15	28.56	728,963.75	456,543.76	33° 0' 14.067770 N	104° 28' 30.299544 W
9,900.00	2.25	319.000	9,898.06	12.12	26.04	728,966.72	456,541.24	33° 0' 14.097163 N	104° 28' 30.329211 W
10,000.00	2.73	314.840	9,997.97	15.29	23.06	728,969.88	456,538.26	33° 0' 14.128399 N	104° 28' 30.364214 W
10,100.00	3.41	314.070	10,097.82	19.03	19.23	728,973.63	456,534.43	33° 0' 14.165433 N	104° 28' 30.409195 W
10,200.00	2.26	304.640	10,197.70	22.22	15.47	728,976.82	456,530.67	33° 0' 14.196943 N	104° 28' 30.453389 W
10,300.00	1.41	302.890	10,297.65	24.01	12.82	728,978.61	456,528.02	33° 0' 14.214609 N	104° 28' 30.484599 W
10,400.00	0.68	314.170	10,397.63	25.09	11.36	728,979.69	456,526.56	33° 0' 14.225292 N	104° 28' 30.501746 W
10,401.00	0.76	316.980	10,398.63	25.10	11.35	728,979.70	456,526.55	33° 0' 14.225380 N	104° 28' 30.501850 W
10,463.00	0.90	24.200	10,460.62	25.85	11.27	728,980.44	456,526.47	33° 0' 14.232749 N	104° 28' 30.502812 W
MWD surveys									
10,494.00	0.60	34.700	10,491.62	26.20	11.46	728,980.80	456,526.66	33° 0' 14.236269 N	104° 28' 30.500560 W
10,525.00	0.70	24.100	10,522.62	26.51	11.63	728,981.11	456,526.83	33° 0' 14.239303 N	104° 28' 30.498572 W
10,557.00	0.80	125.400	10,554.62	26.56	11.89	728,981.15	456,527.09	33° 0' 14.239791 N	104° 28' 30.495497 W
10,588.00	2.90	150.600	10,585.60	25.75	12.46	728,980.35	456,527.66	33° 0' 14.231797 N	104° 28' 30.488892 W
10,619.00	5.60	157.300	10,616.51	23.67	13.42	728,978.27	456,528.62	33° 0' 14.211238 N	104° 28' 30.477482 W
10,650.00	8.60	160.900	10,647.27	20.08	14.77	728,974.68	456,529.97	33° 0' 14.175768 N	104° 28' 30.461661 W
10,680.00	11.40	165.800	10,676.81	15.09	16.23	728,969.69	456,531.43	33° 0' 14.126363 N	104° 28' 30.444419 W
10,712.00	14.20	171.500	10,708.02	8.14	17.58	728,962.74	456,532.79	33° 0' 14.057616 N	104° 28' 30.428383 W
10,743.00	16.70	175.000	10,737.89	-0.06	18.54	728,954.54	456,533.74	33° 0' 13.976498 N	104° 28' 30.417093 W
10,773.00	19.30	175.000	10,766.42	-9.29	19.34	728,945.30	456,534.54	33° 0' 13.885133 N	104° 28' 30.407460 W
10,810.00	22.50	174.000	10,800.98	-22.43	20.62	728,932.17	456,535.82	33° 0' 13.755172 N	104° 28' 30.392300 W
10,841.00	26.60	173.000	10,829.18	-35.22	22.08	728,919.37	456,537.28	33° 0' 13.628602 N	104° 28' 30.374877 W



Survey Report - Geographic



Company: Concho COG Operating LLC
Project: Lea County, New Mexico
Site: Cabo Blanco State
Well: Cabo Blanco State 1H
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Cabo Blanco State 1H
TVD Reference: RKB=3664+22 @ 3686.00usft (Basic 46)
MD Reference: RKB=3664+22 @ 3686.00usft (Basic 46)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

HOEBS OCD

JUL-05-2013

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,872.00	31.70	174.900	10,856.24	-50.23	23.65	728,904.36	456,538.85	33° 0' 13.480084 N	104° 28' 30.356193 W
10,903.00	37.40	176.700	10,881.76	-67.76	24.92	728,886.84	456,540.12	33° 0' 13.306677 N	104° 28' 30.341037 W
10,934.00	43.40	179.400	10,905.36	-87.83	25.57	728,866.77	456,540.78	33° 0' 13.108112 N	104° 28' 30.333038 W
10,964.00	47.80	178.800	10,926.35	-109.25	25.92	728,845.34	456,541.12	33° 0' 12.896104 N	104° 28' 30.328697 W
10,996.00	52.20	178.800	10,946.91	-133.76	26.43	728,820.84	456,541.63	33° 0' 12.653660 N	104° 28' 30.322283 W
11,028.00	57.00	178.000	10,965.44	-159.82	27.16	728,794.77	456,542.36	33° 0' 12.395746 N	104° 28' 30.313257 W
11,058.00	62.20	177.400	10,980.62	-185.67	28.20	728,768.93	456,543.40	33° 0' 12.140017 N	104° 28' 30.300616 W
11,089.00	67.30	176.200	10,993.84	-213.65	29.77	728,740.95	456,544.98	33° 0' 11.863133 N	104° 28' 30.281728 W
11,120.00	70.50	177.100	11,005.00	-242.52	31.46	728,712.08	456,546.66	33° 0' 11.577501 N	104° 28' 30.261457 W
11,152.00	71.90	177.800	11,015.31	-272.78	32.81	728,681.82	456,548.01	33° 0' 11.278075 N	104° 28' 30.245162 W
11,183.00	73.00	178.500	11,024.66	-302.32	33.76	728,652.27	456,548.96	33° 0' 10.985776 N	104° 28' 30.233496 W
11,215.00	75.20	179.300	11,033.42	-333.09	34.35	728,621.51	456,549.55	33° 0' 10.681332 N	104° 28' 30.226086 W
11,245.00	77.70	180.000	11,040.45	-362.25	34.53	728,592.34	456,549.73	33° 0' 10.392774 N	104° 28' 30.223544 W
11,277.00	80.70	180.700	11,046.45	-393.68	34.34	728,560.92	456,549.54	33° 0' 10.081780 N	104° 28' 30.225312 W
11,308.00	84.20	181.000	11,050.52	-424.40	33.88	728,530.19	456,549.08	33° 0' 9.777766 N	104° 28' 30.230182 W
11,340.00	87.40	180.100	11,052.86	-456.31	33.57	728,498.28	456,548.77	33° 0' 9.462028 N	104° 28' 30.233268 W
11,372.00	88.90	180.400	11,053.90	-488.29	33.44	728,466.30	456,548.64	33° 0' 9.145560 N	104° 28' 30.234401 W
11,434.00	88.40	180.100	11,055.36	-550.28	33.16	728,404.32	456,548.36	33° 0' 8.532238 N	104° 28' 30.236597 W
11,528.00	89.30	179.700	11,057.24	-644.26	33.33	728,310.34	456,548.53	33° 0' 7.602300 N	104° 28' 30.233183 W
11,622.00	90.50	179.200	11,057.41	-738.25	34.23	728,216.35	456,549.43	33° 0' 6.672236 N	104° 28' 30.221101 W
11,715.00	92.10	179.000	11,055.30	-831.21	35.69	728,123.39	456,550.89	33° 0' 5.752391 N	104° 28' 30.202482 W
11,807.00	89.90	177.800	11,053.69	-923.15	38.26	728,031.44	456,553.46	33° 0' 4.842641 N	104° 28' 30.170867 W
11,899.00	91.30	177.300	11,052.73	-1,015.06	42.19	727,939.53	456,557.39	33° 0' 3.933250 N	104° 28' 30.123237 W
11,992.00	91.70	176.800	11,050.29	-1,107.91	46.98	727,846.69	456,562.18	33° 0' 3.014607 N	104° 28' 30.065587 W
12,086.00	90.00	177.300	11,048.90	-1,201.77	51.81	727,752.83	456,567.01	33° 0' 2.085903 N	104° 28' 30.007307 W
12,180.00	91.10	176.800	11,048.00	-1,295.64	56.65	727,658.96	456,571.85	33° 0' 1.157119 N	104° 28' 29.949021 W
12,275.00	87.20	177.000	11,049.41	-1,390.47	61.79	727,564.13	456,576.99	33° 0' 0.218812 N	104° 28' 29.887213 W
12,368.00	87.60	177.400	11,053.63	-1,483.26	66.33	727,471.33	456,581.53	32° 59' 59.300676 N	104° 28' 29.832457 W
12,462.00	87.10	176.400	11,057.97	-1,577.02	71.40	727,377.57	456,586.60	32° 59' 58.372972 N	104° 28' 29.771351 W
12,555.00	86.90	176.800	11,062.84	-1,669.73	76.91	727,284.86	456,592.11	32° 59' 57.455680 N	104° 28' 29.705210 W
12,649.00	88.70	179.000	11,066.45	-1,763.59	80.35	727,191.01	456,595.55	32° 59' 56.526990 N	104° 28' 29.663328 W
12,742.00	90.40	180.000	11,067.18	-1,856.58	81.16	727,098.02	456,596.36	32° 59' 55.606864 N	104° 28' 29.652331 W
12,836.00	92.60	179.400	11,064.72	-1,950.54	81.65	727,004.06	456,596.85	32° 59' 54.677122 N	104° 28' 29.645072 W
12,931.00	90.00	179.900	11,062.56	-2,045.50	82.23	726,909.09	456,597.43	32° 59' 53.737437 N	104° 28' 29.636762 W
13,026.00	90.30	178.700	11,062.31	-2,140.50	83.40	726,814.10	456,598.60	32° 59' 52.797508 N	104° 28' 29.621634 W
13,120.00	88.70	179.400	11,063.13	-2,234.47	84.95	726,720.12	456,600.15	32° 59' 51.867586 N	104° 28' 29.601849 W
13,213.00	88.30	179.200	11,065.57	-2,327.44	86.09	726,627.16	456,601.29	32° 59' 50.947742 N	104° 28' 29.587045 W
13,306.00	88.10	180.500	11,068.49	-2,420.39	86.33	726,534.21	456,601.53	32° 59' 50.027976 N	104° 28' 29.582718 W
13,399.00	89.50	180.400	11,070.44	-2,513.36	85.60	726,441.23	456,600.80	32° 59' 49.107974 N	104° 28' 29.589823 W
13,490.00	90.30	180.400	11,070.60	-2,604.36	84.97	726,350.24	456,600.17	32° 59' 48.207540 N	104° 28' 29.595845 W
13,583.00	91.90	180.700	11,068.81	-2,697.33	84.07	726,257.26	456,599.27	32° 59' 47.287525 N	104° 28' 29.604855 W
13,676.00	90.20	180.900	11,067.11	-2,790.31	82.78	726,164.29	456,597.98	32° 59' 46.367540 N	104° 28' 29.618631 W
13,770.00	89.60	180.700	11,067.27	-2,884.30	81.46	726,070.30	456,596.66	32° 59' 45.437478 N	104° 28' 29.632556 W
13,862.00	89.20	180.700	11,068.23	-2,976.28	80.34	725,978.31	456,595.54	32° 59' 44.527231 N	104° 28' 29.644299 W
13,955.00	88.80	180.200	11,069.86	-3,069.27	79.61	725,885.33	456,594.81	32° 59' 43.607148 N	104° 28' 29.651405 W
14,048.00	91.50	181.900	11,069.61	-3,162.24	77.91	725,792.36	456,593.11	32° 59' 42.687156 N	104° 28' 29.669943 W
14,141.00	91.20	181.700	11,067.42	-3,255.17	74.99	725,699.43	456,590.19	32° 59' 41.767581 N	104° 28' 29.702765 W
14,233.00	91.20	181.500	11,065.50	-3,347.11	72.42	725,607.49	456,587.62	32° 59' 40.857751 N	104° 28' 29.731467 W
14,327.00	92.50	179.500	11,062.46	-3,441.05	71.60	725,513.54	456,586.80	32° 59' 39.928186 N	104° 28' 29.739616 W
14,421.00	91.60	179.100	11,059.10	-3,534.98	72.74	725,419.61	456,587.94	32° 59' 38.998735 N	104° 28' 29.724655 W
14,515.00	92.00	178.200	11,056.15	-3,628.91	74.96	725,325.69	456,590.16	32° 59' 38.069352 N	104° 28' 29.697182 W
14,610.00	92.00	177.500	11,052.83	-3,723.78	78.52	725,230.81	456,593.72	32° 59' 37.130602 N	104° 28' 29.653863 W
14,703.00	92.20	177.000	11,049.42	-3,816.61	82.98	725,137.98	456,598.18	32° 59' 36.212095 N	104° 28' 29.600042 W
14,795.00	92.20	178.100	11,045.89	-3,908.46	86.91	725,046.13	456,602.11	32° 59' 35.303312 N	104° 28' 29.552450 W
14,890.00	91.40	179.500	11,042.91	-4,003.39	88.90	724,951.21	456,604.10	32° 59' 34.364003 N	104° 28' 29.527606 W

RECEIVED

Company:	Concho COG Operating LLC	Local Co-ordinate Reference:	Well Cabo Blanco State 1H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3664+22 @ 3686.00usft (Basic 46)
Site:	Cabo Blanco State	MD Reference:	RKB=3664+22 @ 3686.00usft (Basic 46)
Well:	Cabo Blanco State 1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,983.00	89.20	180.900	11,042.42	-4,096.38	88.57	724,858.22	456,603.77	32° 59' 33.443849 N	104° 28' 29.529950 W
15,077.00	87.70	180.400	11,044.96	-4,190.34	87.51	724,764.26	456,602.71	32° 59' 32.514123 N	104° 28' 29.540983 W
15,172.00	87.30	178.700	11,049.11	-4,285.24	88.25	724,669.36	456,603.45	32° 59' 31.575056 N	104° 28' 29.530735 W
15,265.00	88.20	178.200	11,052.76	-4,378.13	90.76	724,576.46	456,605.97	32° 59' 30.655901 N	104° 28' 29.499754 W
15,357.00	87.80	178.700	11,055.97	-4,470.04	93.25	724,484.55	456,608.45	32° 59' 29.746474 N	104° 28' 29.469101 W
15,426.00	88.10	178.500	11,058.44	-4,538.98	94.94	724,415.62	456,610.14	32° 59' 29.064374 N	104° 28' 29.448232 W
15,472.00	88.10	178.500	11,059.96	-4,584.94	96.14	724,369.66	456,611.34	32° 59' 28.609621 N	104° 28' 29.433376 W
Survey projected									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.18	-0.41	Gyro
10,463.00	10,460.62	25.85	11.27	MWD surveys
15,472.00	11,059.96	-4,584.94	96.14	Survey projected

Checked By: _____ Approved By: _____ Date: _____

HOBBBS OCD

JUL 05 2013

RECEIVED



Cabo Blanco State 1H

Lea County, New Mexico

WELL PROFILE DATA rev2							
MD	Inc.	Azi.	TVD	N-S	E-W	DLS	Comment
14141	91.20	181.70	11067	-3255	75	0.00	Survey @ 14141 MD
14201	91.20	181.70	11066	-3315	73	0.00	Proj. Begin 2°/100' drop/turn
14293	90.70	179.93	11065	-3407	72	2.00	Begin 90.7° Lateral Section
15500	90.70	179.93	11050	-4614	73	0.00	PBHL/TD

WELL PROFILE DATA svys							
MD	Inc.	Azi.	TVD	N-S	E-W	DLS	Comment
15472	88.10	178.50	11060	-4585	96	0.00	Survey Proj. to 15472 MD

Surface Location	NAD27 NM East
Lat: N 32.252906°	Long: W 103.59726°
x: 456515.2	y: 728954.6
Model IGRF2011	Date: 19-Mar-2013
Declination (MN to TN): 7.38° East	
Dip: 60.16	
Field Strength: 48453.1	
Total Corr. (MN to GN): 6.98° East	

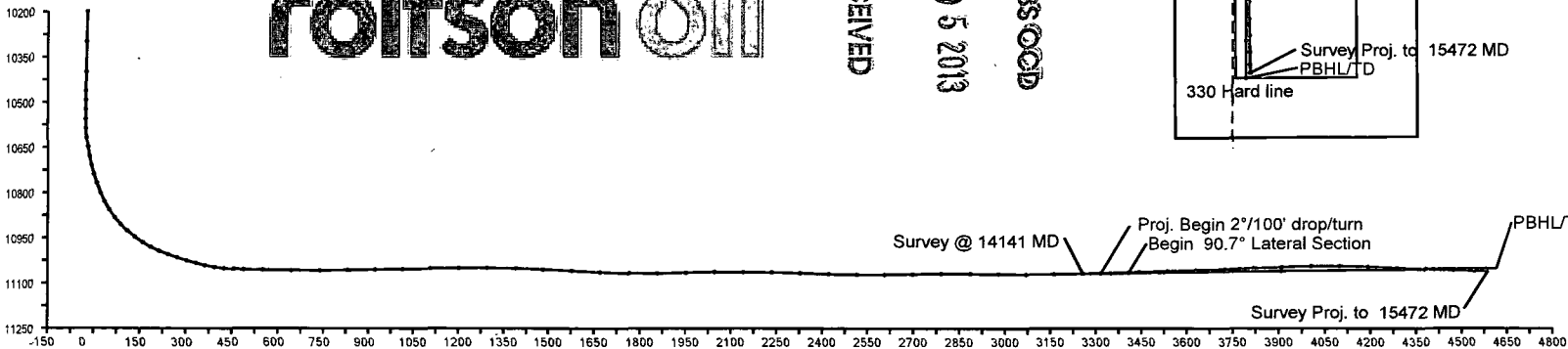
rolfson

RECEIVED

JUL 05 2013

HOBBS OGD

True Vertical Depth 1 inch = 600 ft



Vertical Section on 179.09 deg azimuth with reference 0.00 N, 0.00 E

