



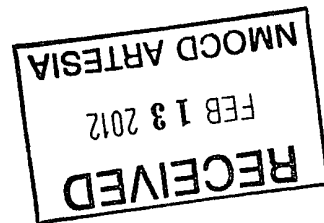
PHOENIX
TECHNOLOGY SERVICES

February 9, 2012

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

Dear District 2 - Artesia

Re: Concho Resources Inc.
Cottonmouth 13 Fed Com 1H
Eddy Co., NM
API #30-015-39734
Job No. 1210036



Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Will Harper	1H	7,488	12,586	01/19/12	02/05/12	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Gretchen Briggs
Operations Administrator

Certified mail receipt number: **7010 1670 0000 9227 7331**

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER	1210036	OPERATOR	COG (Cóncho)
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WELL NAME	Cottonmouth 13 Fed Com 1H	COUNTY & STATE	Eddy County, NM
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API WELL NUMBER	30-015-39734	PROPOSED DIRECTION	183.79
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TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
7,456 ft	7,025.82 ft	88.7 ft	196.4 ft	-610.34 ft	-315.53 ft	Scientific Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
19-Jan-12	7,488 ft	90.1	192.7

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
5-Feb-12	12,586 ft	87.4	176.4

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
5-Feb-12	12,586 ft	87.4	176.4

Will Harper

PRINT YOUR NAME ABOVE

Will Harper

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.6
DECLINATION OR GRID	DEC

2/5/2012

TODAY'S DATE

MWD SUPERVISOR 1

Brad Hill

DIRECTIONAL DRILLER 1

Mark Hale

MWD SUPERVISOR 2

Will Harper

DIRECTIONAL DRILLER 2

Gene Hooks



PHOENIX
TECHNOLOGY SERVICES

Concho

**Eddy County, New Mexico (Nad83)
Cottonmouth 13 Federal Com
Cottonmouth 13 Fed Com 1H
Wellbore #1**

Design: Wellbore #1

Concho

06 February, 2012



PHOENIX
TECHNOLOGY SERVICES



Phoenix Technology Services
Concho



Company:	Concho	Local Co-ordinate Reference:	Well Cottonmouth 13 Fed Com 1H
Project:	Eddy County, New Mexico (Nad83)	TVD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Project	Eddy County, New Mexico (Nad83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cottonmouth 13 Federal Com		
Site Position:		Northing:	377,532 35 usft
From:	Map	Easting:	631,960 93 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 2' 15 2849 N
		Longitude:	104° 2' 27 1307 W
		Grid Convergence:	0.16 °

Well	Cottonmouth 13 Fed Com 1H		
Well Position	+N/-S	0.00 usft	Northing: 377,532.35 usft
	+E/-W	0.00 usft	Easting: 631,960.93 usft
Position Uncertainty		0.00 usft	Wellhead Elevation: usft
			Latitude: 32° 2' 15.2849 N
			Longitude: 104° 2' 27.1307 W
			Ground Level: 2,919.99 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	09/14/11	7.76	59.93	48,430

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	183.97



Phoenix Technology Services
Concho



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Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey Program		Date	02/06/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	6,400.00	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard	
6,470.00	10,381.00	Phoenix MWD Surveys (Wellbore #1)	MWD	MWD - Standard	
10,502.00	12,586.00	Phoenix ST MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	-2,937.99	0.00	0.00	0.00	0.00	0.00	377,532.35	631,960.93	
100.00	0.35	17.33	-2,837.99	100.00	0.29	0.09	-0.30	0.35	377,532.65	631,961.02	
200.00	0.75	16.23	-2,738.00	199.99	1.21	0.36	-1.23	0.40	377,533.57	631,961.30	
300.00	0.92	21.58	-2,638.01	299.98	2.59	0.84	-2.64	0.19	377,534.94	631,961.78	
400.00	1.10	32.50	-2,538.03	399.97	4.14	1.65	-4.25	0.26	377,536.50	631,962.59	
500.00	1.21	30.91	-2,438.05	499.95	5.86	2.71	-6.03	0.11	377,538.21	631,963.65	
600.00	1.27	40.83	-2,338.07	599.92	7.60	3.98	-7.86	0.22	377,539.96	631,964.91	
700.00	1.31	60.16	-2,238.09	699.90	9.01	5.70	-9.38	0.43	377,541.36	631,966.63	
800.00	1.16	70.20	-2,138.12	799.88	9.92	7.64	-10.43	0.26	377,542.28	631,968.57	
900.00	0.86	77.57	-2,038.13	899.86	10.43	9.32	-11.05	0.33	377,542.78	631,970.26	
1,000.00	0.69	75.86	-1,938.14	999.85	10.73	10.64	-11.45	0.17	377,543.09	631,971.57	
1,100.00	0.73	87.22	-1,838.15	1,099.84	10.91	11.86	-11.71	0.15	377,543.27	631,972.79	
1,200.00	0.70	106.31	-1,738.16	1,199.84	10.77	13.08	-11.65	0.24	377,543.13	631,974.02	
1,300.00	0.64	115.91	-1,638.16	1,299.83	10.36	14.17	-11.31	0.13	377,542.71	631,975.11	
1,400.00	0.32	181.10	-1,538.17	1,399.83	9.83	14.67	-10.82	0.58	377,542.19	631,975.60	
1,500.00	0.42	185.02	-1,438.17	1,499.82	9.19	14.63	-10.18	0.10	377,541.54	631,975.57	
1,600.00	0.81	114.98	-1,338.17	1,599.82	8.53	15.24	-9.56	0.77	377,540.88	631,976.17	
1,700.00	1.36	107.42	-1,238.19	1,699.80	7.87	17.01	-9.03	0.57	377,540.23	631,977.95	
1,800.00	1.43	113.21	-1,138.22	1,799.77	7.02	19.29	-8.34	0.16	377,539.38	631,980.23	
1,900.00	0.90	116.42	-1,038.24	1,899.75	6.18	21.14	-7.63	0.53	377,538.54	631,982.08	



Phoenix Technology Services
Concho



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Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,000.00	2.96	93.34	-938.30	1,999.69	5.68	24.42	-7.36	2.16	377,538.04	631,985.36	
2,100.00	4.01	95.06	-838.49	2,099.50	5.22	30.48	-7.32	1.06	377,537.58	631,991.42	
2,200.00	4.57	93.18	-738.77	2,199.22	4.69	37.95	-7.31	0.58	377,537.05	631,998.88	
2,300.00	6.59	95.80	-639.25	2,298.74	3.89	47.63	-7.18	2.04	377,536.25	632,008.57	
2,400.00	6.48	95.66	-539.90	2,398.09	2.76	58.96	-6.83	0.11	377,535.11	632,019.89	
2,500.00	5.01	97.12	-440.40	2,497.59	1.66	68.91	-6.43	1.48	377,534.01	632,029.84	
2,600.00	2.59	93.93	-340.63	2,597.36	0.96	75.49	-6.19	2.43	377,533.32	632,036.43	
2,700.00	1.80	91.51	-240.71	2,697.29	0.77	79.32	-6.26	0.80	377,533.12	632,040.25	
2,800.00	1.68	91.06	-140.75	2,797.24	0.70	82.35	-6.40	0.12	377,533.05	632,043.29	
2,900.00	1.39	90.45	-40.79	2,897.21	0.66	85.03	-6.55	0.29	377,533.02	632,045.97	
3,000.00	1.36	90.10	59.18	2,997.18	0.65	87.43	-6.70	0.03	377,533.01	632,048.36	
3,100.00	1.22	91.21	159.16	3,097.15	0.63	89.68	-6.83	0.14	377,532.98	632,050.62	
3,200.00	1.11	95.77	259.14	3,197.13	0.51	91.71	-6.85	0.14	377,532.86	632,052.64	
3,300.00	0.99	101.10	359.12	3,297.11	0.24	93.52	-6.72	0.15	377,532.60	632,054.46	
3,400.00	0.85	100.85	459.11	3,397.10	-0.06	95.10	-6.52	0.14	377,532.29	632,056.03	
3,500.00	0.57	108.22	559.10	3,497.09	-0.36	96.30	-6.31	0.29	377,532.00	632,057.23	
3,600.00	0.36	108.56	659.10	3,597.09	-0.61	97.07	-6.11	0.21	377,531.74	632,058.00	
3,700.00	0.26	105.84	759.10	3,697.09	-0.78	97.59	-5.98	0.10	377,531.58	632,058.52	
3,800.00	0.16	87.60	859.09	3,797.09	-0.83	97.94	-5.95	0.12	377,531.52	632,058.88	
3,900.00	0.10	71.00	959.09	3,897.09	-0.80	98.17	-6.00	0.07	377,531.56	632,059.10	
4,000.00	0.09	51.40	1,059.09	3,997.09	-0.72	98.31	-6.09	0.03	377,531.63	632,059.24	
4,100.00	0.15	234.74	1,159.09	4,097.09	-0.75	98.26	-6.06	0.24	377,531.61	632,059.20	
4,200.00	0.17	254.74	1,259.09	4,197.09	-0.86	98.01	-5.93	0.06	377,531.49	632,058.95	
4,300.00	0.37	230.69	1,359.09	4,297.09	-1.11	97.62	-5.66	0.23	377,531.25	632,058.55	
4,400.00	0.41	222.04	1,459.09	4,397.08	-1.58	97.13	-5.15	0.07	377,530.78	632,058.06	
4,500.00	0.42	231.28	1,559.09	4,497.08	-2.07	96.61	-4.62	0.07	377,530.28	632,057.54	
4,600.00	0.57	206.47	1,659.08	4,597.08	-2.75	96.10	-3.91	0.26	377,529.61	632,057.03	

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Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
4,700.00	0.61	196.40	1,759.08	4,697.07	-3.70	95.73	-2.94	0.11	377,528.65	632,056.66	
4,800.00	0.67	196.18	1,859.07	4,797.07	-4.77	95.41	-1.84	0.06	377,527.58	632,056.35	
4,900.00	0.73	200.87	1,959.06	4,897.06	-5.93	95.02	-0.66	0.08	377,526.42	632,055.96	
5,000.00	0.90	197.12	2,059.05	4,997.05	-7.28	94.57	0.71	0.18	377,525.08	632,055.50	
5,100.00	0.98	198.11	2,159.04	5,097.04	-8.84	94.07	2.31	0.08	377,523.52	632,055.00	
5,200.00	1.02	197.92	2,259.03	5,197.02	-10.50	93.53	4.00	0.04	377,521.86	632,054.46	
5,300.00	1.14	202.54	2,359.01	5,297.00	-12.26	92.87	5.81	0.15	377,520.09	632,053.81	
5,400.00	1.18	204.83	2,458.99	5,396.98	-14.12	92.06	7.71	0.06	377,518.24	632,052.99	
5,500.00	1.23	202.96	2,558.97	5,496.96	-16.04	91.21	9.69	0.06	377,516.31	632,052.14	
5,600.00	1.20	198.65	2,658.94	5,596.94	-18.02	90.45	11.72	0.10	377,514.33	632,051.39	
5,700.00	1.21	196.40	2,758.92	5,696.92	-20.03	89.82	13.76	0.05	377,512.33	632,050.75	
5,800.00	1.24	194.15	2,858.90	5,796.89	-22.09	89.26	15.86	0.06	377,510.27	632,050.19	
5,900.00	1.42	192.05	2,958.87	5,896.87	-24.35	88.74	18.15	0.19	377,508.01	632,049.67	
6,000.00	1.40	193.36	3,058.84	5,996.84	-26.75	88.20	20.58	0.04	377,505.61	632,049.13	
6,100.00	1.45	191.18	3,158.81	6,096.80	-29.18	87.67	23.04	0.07	377,503.18	632,048.60	
6,200.00	1.49	195.29	3,258.78	6,196.77	-31.67	87.08	25.57	0.11	377,500.68	632,048.01	
6,300.00	1.05	182.49	3,358.75	6,296.75	-33.84	86.70	27.76	0.52	377,498.51	632,047.63	
6,400.00	0.51	199.31	3,458.74	6,396.74	-35.18	86.51	29.11	0.58	377,497.18	632,047.44	
6,470.00	7.30	197.80	3,528.54	6,466.53	-39.71	85.05	33.73	9.70	377,492.64	632,045.98	
6,502.00	12.40	210.00	3,560.06	6,498.05	-44.63	82.70	38.79	17.13	377,487.73	632,043.64	
6,533.00	15.80	207.80	3,590.12	6,528.12	-51.25	79.07	45.65	11.10	377,481.11	632,040.00	
6,565.00	19.60	216.20	3,620.61	6,558.60	-59.43	73.87	54.18	14.28	377,472.92	632,034.80	
6,597.00	23.30	215.70	3,650.39	6,588.38	-68.91	67.00	64.10	11.58	377,463.45	632,027.93	
6,629.00	26.60	216.30	3,679.40	6,617.39	-79.82	59.06	75.54	10.34	377,452.53	632,020.00	
6,661.00	27.90	217.60	3,707.84	6,645.84	-91.53	50.25	87.83	4.47	377,440.82	632,011.19	
6,693.00	30.10	219.10	3,735.83	6,673.82	-103.69	40.62	100.63	7.24	377,428.66	632,001.56	
6,724.00	33.60	221.40	3,762.16	6,700.15	-116.16	30.05	113.80	11.95	377,416.19	631,990.98	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
6,756.00	36.10	224.20	3,788.42	6,726.41	-129.57	17.62	128.04	9.27	377,402.79	631,978.55
6,788.00	37.90	223.80	3,813.97	6,751.97	-143.42	4.24	142.78	5.68	377,388.94	631,965.17
6,820.00	36.80	223.10	3,839.41	6,777.41	-157.51	-9.11	157.76	3.68	377,374.84	631,951.82
6,851.00	38.90	225.10	3,863.89	6,801.88	-171.16	-22.35	172.30	7.85	377,361.19	631,938.58
6,883.00	42.70	227.50	3,888.11	6,826.11	-185.59	-37.48	187.74	12.84	377,346.76	631,923.46
6,915.00	46.00	229.90	3,910.99	6,848.99	-200.34	-54.29	203.62	11.57	377,332.01	631,906.65
6,947.00	48.70	231.50	3,932.67	6,870.67	-215.24	-72.50	219.74	9.20	377,317.11	631,888.43
6,979.00	53.10	231.60	3,952.85	6,890.84	-230.68	-91.95	236.49	13.75	377,301.68	631,868.99
7,010.00	58.10	231.50	3,970.36	6,908.35	-246.58	-111.97	253.74	16.13	377,285.77	631,848.96
7,042.00	60.70	227.50	3,986.65	6,924.64	-264.47	-132.90	273.04	13.48	377,267.88	631,828.03
7,074.00	61.00	222.10	4,002.25	6,940.24	-284.29	-152.58	294.17	14.77	377,248.06	631,808.35
7,105.00	61.30	216.20	4,017.21	6,955.21	-305.34	-169.71	316.35	16.70	377,227.02	631,791.22
7,137.00	61.80	210.20	4,032.47	6,970.46	-328.87	-185.10	340.89	16.56	377,203.49	631,775.83
7,169.00	66.00	206.70	4,046.55	6,984.54	-354.13	-198.77	367.04	16.39	377,178.23	631,762.16
7,201.00	70.70	204.60	4,058.35	6,996.35	-380.93	-211.63	394.67	15.90	377,151.42	631,749.30
7,235.00	75.70	203.90	4,068.18	7,006.17	-410.60	-225.00	425.19	14.84	377,121.75	631,735.94
7,267.00	79.70	205.70	4,074.99	7,012.99	-438.98	-238.11	454.41	13.65	377,093.38	631,722.82
7,298.00	83.00	206.70	4,079.65	7,017.65	-466.47	-251.64	482.77	11.11	377,065.88	631,709.29
7,329.00	86.10	207.60	4,082.60	7,020.59	-493.93	-265.72	511.14	10.41	377,038.43	631,695.21
7,361.00	86.90	206.90	4,084.55	7,022.55	-522.32	-280.34	540.48	3.32	377,010.03	631,680.59
7,393.00	87.60	203.90	4,086.09	7,024.08	-551.19	-294.05	570.23	9.62	376,981.16	631,666.88
7,425.00	88.70	199.70	4,087.12	7,025.11	-580.88	-305.93	600.67	13.56	376,951.47	631,655.01
Tie On From Gyro Survey										
7,456.00	88.70	196.40	4,087.82	7,025.82	-610.34	-315.53	630.72	10.64	376,922.01	631,645.40
First Phoenix MWD Survey										
7,488.00	90.10	192.70	4,088.16	7,026.15	-641.31	-323.57	662.17	12.36	376,891.05	631,637.37
7,520.00	91.10	189.40	4,087.82	7,025.82	-672.71	-329.70	693.92	10.77	376,859.65	631,631.23



Phoenix Technology Services
Concho



Company:	Concho	Local Co-ordinate Reference:	Well Cottonmouth 13 Fed Com 1H
Project:	Eddy County, New Mexico (Nad83)	TVD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
7,615.00	93.00	178.50	4,084.42	7,022.41	-767.27	-336.23	788.71	11.64	376,765.08	631,624.70	
7,711.00	91.60	177.30	4,080.56	7,018.56	-863.13	-332.72	884.09	1.92	376,669.23	631,628.22	
7,806.00	91.10	177.80	4,078.32	7,016.32	-958.01	-328.66	978.47	0.74	376,574.34	631,632.27	
7,902.00	88.10	176.40	4,078.99	7,016.99	-1,053.88	-323.80	1,073.77	3.45	376,478.48	631,637.13	
7,997.00	87.80	180.10	4,082.39	7,020.39	-1,148.75	-320.90	1,168.22	3.91	376,383.60	631,640.03	
8,092.00	89.30	181.40	4,084.80	7,022.79	-1,243.71	-322.15	1,263.03	2.09	376,288.64	631,638.79	
8,187.00	89.20	180.70	4,086.04	7,024.04	-1,338.69	-323.89	1,357.90	0.74	376,193.67	631,637.05	
8,282.00	91.60	181.70	4,085.38	7,023.37	-1,433.66	-325.88	1,452.78	2.74	376,098.70	631,635.06	
8,378.00	90.30	180.60	4,083.79	7,021.78	-1,529.62	-327.80	1,548.64	1.77	376,002.74	631,633.13	
8,473.00	91.10	182.10	4,082.63	7,020.62	-1,624.58	-330.04	1,643.53	1.79	375,907.77	631,630.89	
8,568.00	90.60	182.00	4,081.22	7,019.21	-1,719.51	-333.44	1,738.47	0.54	375,812.84	631,627.49	
8,664.00	90.20	180.60	4,080.55	7,018.54	-1,815.48	-335.62	1,834.36	1.52	375,716.87	631,625.32	
8,759.00	91.10	181.40	4,079.47	7,017.46	-1,910.46	-337.27	1,929.23	1.27	375,621.90	631,623.66	
8,854.00	88.30	180.40	4,079.97	7,017.96	-2,005.43	-338.77	2,024.08	3.13	375,526.92	631,622.17	
8,950.00	88.30	180.00	4,082.81	7,020.81	-2,101.39	-339.10	2,119.83	0.42	375,430.96	631,621.83	
9,045.00	87.30	179.60	4,086.46	7,024.46	-2,196.32	-338.77	2,214.50	1.13	375,336.03	631,622.16	
9,140.00	89.00	181.50	4,089.53	7,027.52	-2,291.26	-339.68	2,309.28	2.68	375,241.10	631,621.25	
9,236.00	88.70	181.80	4,091.45	7,029.45	-2,387.20	-342.45	2,405.18	0.44	375,145.16	631,618.49	
9,332.00	90.20	183.60	4,092.38	7,030.37	-2,483.08	-346.97	2,501.14	2.44	375,049.27	631,613.97	
9,427.00	89.60	181.20	4,092.54	7,030.54	-2,577.99	-350.95	2,596.10	2.60	374,954.36	631,609.99	
9,522.00	90.70	183.10	4,092.29	7,030.29	-2,672.92	-354.51	2,691.05	2.31	374,859.44	631,606.42	
9,618.00	91.60	183.00	4,090.37	7,028.36	-2,768.76	-359.62	2,787.01	0.94	374,763.59	631,601.32	
9,713.00	92.00	180.30	4,087.38	7,025.38	-2,863.67	-362.35	2,881.88	2.87	374,668.69	631,598.58	
9,809.00	93.00	181.50	4,083.19	7,021.19	-2,959.56	-363.86	2,977.65	1.63	374,572.80	631,597.08	
9,904.00	92.70	181.10	4,078.47	7,016.47	-3,054.42	-366.01	3,072.43	0.53	374,477.94	631,594.92	
10,000.00	91.60	181.50	4,074.87	7,012.86	-3,150.32	-368.19	3,168.26	1.22	374,382.03	631,592.75	
10,096.00	90.80	181.70	4,072.86	7,010.85	-3,246.26	-370.87	3,264.15	0.86	374,286.09	631,590.07	



Phoenix Technology Services
Concho



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Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
12,533.00	87.40	176.40	4,093.91	7,031.90	-5,678.38	-379.05	5,691.00	1.72	371,853.97	631,581.89
Last Phoenix ST MWD Survey										
12,586.00	87.40	176.40	4,096.31	7,034.30	-5,731.22	-375.72	5,743.48	0.00	371,801.13	631,585.21
Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,425.00	7,025.11	-580.88	-305.93	Tie On From Gyro Survey	
7,456.00	7,025.82	-610.34	-315.53	First Phoenix MWD Survey	
10,502.00	7,023.24	-3,651.79	-371.56	First Phoenix ST MWD Survey	
12,533.00	7,031.90	-5,678.38	-379.05	Last Phoenix ST MWD Survey	
12,586.00	7,034.30	-5,731.22	-375.72	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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Company:	Concho	Local Co-ordinate Reference:	Well Cottonmouth 13 Fed Com 1H
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Site:	Cottonmouth 13 Federal Com	MD Reference:	WELL @ 2937.99usft (Original Well Elev + 18' KB)
Well:	Cottonmouth 13 Fed Com 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,191.00	89.80	180.50	4,072.36	7,010.36	-3,341.24	-372.69	3,359.03	1.64	374,191.11	631,588.24
10,286.00	88.40	180.00	4,073.85	7,011.85	-3,436.23	-373.10	3,453.81	1.56	374,096.13	631,587.83
10,381.00	88.30	177.90	4,076.59	7,014.58	-3,531.17	-371.36	3,548.40	2.21	374,001.19	631,589.57
10,502.00	83.50	182.30	4,085.24	7,023.24	-3,651.79	-371.56	3,668.75	5.37	373,880.56	631,589.37
First Phoenix ST MWD Survey										
10,596.00	85.50	187.70	4,094.26	7,032.25	-3,744.96	-379.72	3,762.27	6.10	373,787.39	631,581.21
10,692.00	86.00	186.50	4,101.37	7,039.37	-3,839.96	-391.55	3,857.86	1.35	373,692.39	631,569.38
10,787.00	87.90	186.60	4,106.43	7,044.42	-3,934.20	-402.37	3,952.62	2.00	373,598.15	631,558.56
10,882.00	89.40	183.70	4,108.67	7,046.66	-4,028.78	-410.90	4,047.56	3.44	373,503.57	631,550.04
10,978.00	90.30	177.80	4,108.92	7,046.91	-4,124.73	-412.15	4,143.37	6.22	373,407.63	631,548.78
11,073.00	90.90	177.60	4,107.92	7,045.92	-4,219.65	-408.34	4,237.79	0.67	373,312.71	631,552.59
11,168.00	91.70	177.10	4,105.77	7,043.76	-4,314.52	-403.95	4,332.13	0.99	373,217.83	631,556.99
11,264.00	92.20	178.10	4,102.50	7,040.49	-4,410.38	-399.93	4,427.48	1.16	373,121.98	631,561.00
11,359.00	91.20	177.10	4,099.68	7,037.68	-4,505.25	-395.95	4,521.85	1.49	373,027.10	631,564.98
11,455.00	90.40	176.70	4,098.34	7,036.34	-4,601.10	-390.76	4,617.11	0.93	372,931.25	631,570.17
11,550.00	90.30	177.10	4,097.76	7,035.76	-4,695.96	-385.63	4,711.39	0.43	372,836.40	631,575.31
11,645.00	91.60	178.40	4,096.19	7,034.18	-4,790.87	-381.90	4,805.81	1.94	372,741.49	631,579.04
11,741.00	91.40	180.50	4,093.67	7,031.67	-4,886.83	-380.97	4,901.48	2.20	372,645.53	631,579.96
11,836.00	91.30	181.40	4,091.43	7,029.43	-4,981.79	-382.55	4,996.32	0.95	372,550.57	631,578.38
11,932.00	91.10	181.30	4,089.42	7,027.42	-5,077.74	-384.81	5,092.20	0.23	372,454.62	631,576.12
12,027.00	90.60	180.80	4,088.02	7,026.01	-5,172.71	-386.55	5,187.06	0.74	372,359.64	631,574.38
12,122.00	90.10	180.50	4,087.43	7,025.43	-5,267.70	-387.63	5,281.90	0.61	372,264.65	631,573.30
12,218.00	89.90	180.10	4,087.43	7,025.43	-5,363.70	-388.13	5,377.70	0.47	372,168.65	631,572.80
12,313.00	89.70	179.90	4,087.77	7,025.76	-5,458.70	-388.13	5,472.47	0.30	372,073.65	631,572.80
12,408.00	88.30	177.30	4,089.42	7,027.42	-5,553.65	-385.81	5,567.03	3.11	371,978.71	631,575.12
12,504.00	87.80	176.70	4,092.69	7,030.69	-5,649.46	-380.79	5,662.27	0.81	371,882.90	631,580.14