

Results of Directional Survey

API number:	30-025-41572		
OGRID:		Operator:	COG OPERATING LLC
		Property:	PRICKLY PEAR 6 FEDERAL # 2H

surface	ULSTR:	B	06	T 20S	R 35E
				190 FNL	1790 FEL

BH Loc	ULSTR:	O	06	T 20S	R 35E
15740 MD		11147.8	TVD	295 FSL	1931 FEL
				4985 FNL	

Top Perf/OH	ULSTR:	B	06	T 20S	R 35E
11284 MD		11081.6	TVD	538 FNL	1761 FEL

Bot Perf/OH	ULSTR:	O	06	T 20S	R 35E
15694 MD		11148.2	TVD	341 FSL	1930 FEL
				4939 FNL	

	MD	N/S	E/W	VD
	11253	-318.00	32.10	11073.7
TOP PERFS/OH	11284	-347.80	28.90	11081.60
	11284	-347.80	28.90	11081.60
	15571	-4626.00	-135.10	11146.50
BOT PERFS/OH	15694	-4748.90	-139.60	11148.20
	15694	-4748.90	-139.60	11148.20

NEXT TO LAST	15694	-4748.90	-139.60	11148.20
LAST READING	15740	-4794.90	-141.30	11147.80
TD	15740	-4794.90	-141.30	11147.80

Surface Location	190	FN	1790	FE
Projected BHL	4985	FN	1931	FE
Location of				
Top Perfs/OH	538	FN	1761	FE
Bottom Perfs/OH	4939	FN	1930	FE

SUMMARY of Subsurface Locations

Surface Location	B-06-20S-35E	190	FN	1790	FE	Vert. Depth
Top Perfs/OH	B-06-20S-35E	538	FN	1761	FE	11081.60
Bottom Perfs/OH	O-06-20S-35E	4939	FN	1930	FE	11148.20
Projected TD	O-06-20S-35E	4985	FN	1931	FE	11147.80

MAY 27 2014

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

HOBBS OCD**MAY 19 2014**

Well Name and Num: Prickly Pear 6 Fed #2H
Location: Sec 6, T20S, R35E
Operator: COG
Drilling Contractor: McVay Drilling Company

RECEIVED

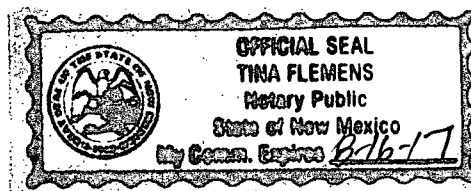
The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

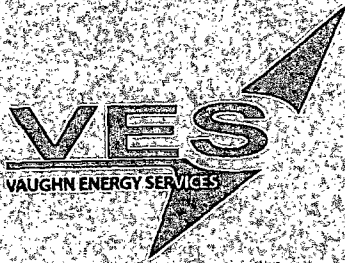
<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
1.50	302	0.50	7719	5.90	11182
0.50	698	0.40	8004	70.50	11222
0.30	1171	2.60	8576	87.10	11470
0.60	1647	0.80	8991	89.00	11668
0.50	1815	1.30	9278	90.10	12063
0.10	2288	1.20	9850	87.90	12582
0.40	2755	1.90	10137	89.70	13006
0.08	3193	1.50	10424	60.10	13480
0.04	3574	1.70	10709	86.80	13965
1.30	3864	1.40	11170	90.30	14335
3.10	4305	1.40	11352	91.70	14716
2.80	4715	4.40	9865	87.10	15381
0.70	5059	3.50	10248	90.50	15694
0.40	5435	1.70	10535		
0.20	6053	12.50	10691		
1.50	6577	19.00	10755		
0.70	7433	48.60	11007		

By: H. H. Crowl

Subscribed and sworn to before me this 23rd day of February, 2014

Tina Flemens
Notary Public, Lea County, New Mexico





A GYRO TECHNOLOGIES INC. COMPANY

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

February 27, 2014

HOBBS OCD

MAY 19 2014

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

RECEIVED

Attn: Kanicia Castillo

Re: **Prickly Pear 6 Federal No 002H**

Please find enclosed a copy of the survey from 0' to 11,300' ran on the above referenced well.

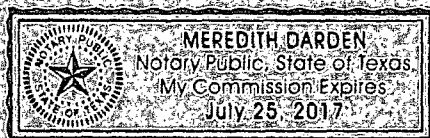
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 27th day of February
A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas



Company: COG Operating-Concho
Lease/Well: Prickly Pear 6 Federal/No 002H
Location: 12 Miles From Monument
Rig Name: McVay #7
State/County: New Mexico/Lea
Latitude: 32.60, Longitude: -103.49
GRID North is 0.45 Degrees East of True North
VS-Azi: 0.00 Degrees



RKB : 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 2/27/2014 / 12:09

Vaughn Energy Services

Fort Worth, Tx

817- 741-3610

Surveyor: Jason Wilson

Prickly Pear 6 Federal No 002H / API 30-025-41572

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MAY 19 2014

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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	0.37	315.30	100.00	0.23	-0.23	0.23	0.32	315.30	0.37
200.00	0.48	307.67	200.00	0.72	-0.79	0.72	1.07	312.29	0.13
300.00	1.14	311.13	299.99	1.63	-1.87	1.63	2.48	311.04	0.66
400.00	0.50	332.48	399.98	2.67	-2.82	2.67	3.89	313.43	0.69
500.00	0.52	324.85	499.97	3.43	-3.28	3.43	4.75	316.24	0.07
600.00	0.49	337.53	599.97	4.19	-3.71	4.19	5.59	318.51	0.11
700.00	0.46	344.11	699.96	4.97	-3.98	4.97	6.37	321.33	0.06
800.00	0.27	348.35	799.96	5.59	-4.14	5.59	6.96	323.51	0.19
900.00	0.19	335.79	899.96	5.98	-4.25	5.98	7.34	324.57	0.10
1000.00	0.14	315.67	999.96	6.22	-4.41	6.22	7.62	324.67	0.07
1100.00	0.12	265.26	1099.96	6.30	-4.60	6.30	7.80	323.88	0.11
1200.00	0.25	248.14	1199.96	6.21	-4.90	6.21	7.91	321.71	0.15
1300.00	0.17	223.03	1299.96	6.02	-5.21	6.02	7.96	319.14	0.12
1400.00	0.17	230.91	1399.96	5.82	-5.42	5.82	7.95	317.00	0.02
1500.00	0.20	247.35	1499.96	5.66	-5.70	5.66	8.03	314.78	0.06
1600.00	0.23	221.65	1599.96	5.44	-5.99	5.44	8.09	312.25	0.10
1700.00	0.33	229.90	1699.96	5.11	-6.34	5.11	8.14	308.83	0.11
1800.00	0.30	238.60	1799.96	4.79	-6.79	4.79	8.31	305.18	0.06

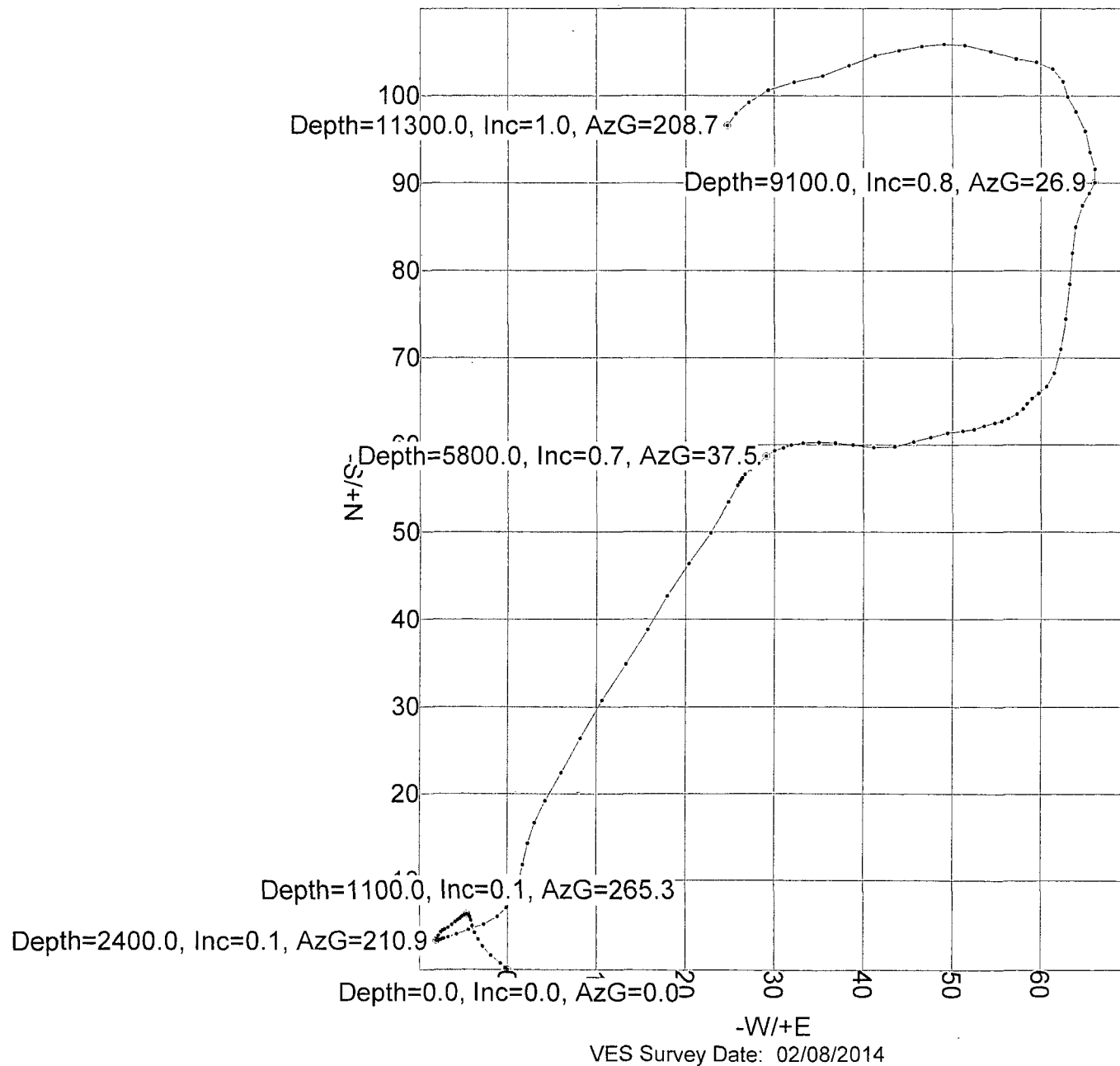
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.21	243.96	1899.95	4.57	-7.18	4.57	8.51	302.48	0.09
2000.00	0.08	254.41	1999.95	4.47	-7.41	4.47	8.65	301.10	0.14
2100.00	0.26	218.55	2099.95	4.27	-7.61	4.27	8.73	299.29	0.21
2200.00	0.31	204.64	2199.95	3.85	-7.87	3.85	8.76	296.05	0.08
2300.00	0.16	202.08	2299.95	3.47	-8.04	3.47	8.75	293.35	0.15
2400.00	0.07	210.86	2399.95	3.28	-8.12	3.28	8.76	292.02	0.09
2500.00	0.24	75.08	2499.95	3.29	-7.95	3.29	8.60	292.46	0.30
2600.00	0.14	63.29	2599.95	3.39	-7.63	3.39	8.35	293.97	0.11
2700.00	0.08	55.05	2699.95	3.49	-7.47	3.49	8.25	295.02	0.06
2800.00	0.17	79.52	2799.95	3.55	-7.27	3.55	8.10	296.03	0.10
2900.00	0.42	71.63	2899.95	3.69	-6.79	3.69	7.73	298.56	0.25
3000.00	0.74	70.36	2999.94	4.02	-5.83	4.02	7.09	304.61	0.32
3100.00	0.99	71.46	3099.93	4.52	-4.41	4.52	6.31	315.71	0.25
3200.00	1.11	68.51	3199.91	5.14	-2.69	5.14	5.81	332.40	0.13
3300.00	0.96	51.90	3299.90	6.01	-1.14	6.01	6.12	349.30	0.33
3400.00	0.72	38.97	3399.89	7.01	-0.09	7.01	7.01	359.29	0.30
3500.00	0.50	34.54	3499.88	7.86	0.55	7.86	7.88	4.03	0.22
3600.00	0.50	19.65	3599.88	8.63	0.95	8.63	8.68	6.27	0.13
3700.00	0.89	15.38	3699.87	9.79	1.30	9.79	9.87	7.57	0.40
3800.00	1.48	11.04	3799.85	11.80	1.75	11.80	11.93	8.45	0.59
3900.00	1.41	14.52	3899.82	14.25	2.31	14.25	14.44	9.19	0.11
4000.00	1.44	20.99	3999.79	16.61	3.06	16.61	16.89	10.45	0.16
4100.00	1.83	28.24	4099.75	19.19	4.27	19.19	19.66	12.54	0.44
4200.00	2.41	29.34	4199.68	22.43	6.05	22.43	23.23	15.10	0.59
4300.00	2.78	27.56	4299.58	26.41	8.21	26.41	27.66	17.26	0.38
4400.00	2.88	30.96	4399.45	30.72	10.62	30.72	32.50	19.07	0.20
4500.00	2.78	34.67	4499.33	34.87	13.29	34.87	37.32	20.87	0.21
4600.00	2.52	28.83	4599.22	38.79	15.74	38.79	41.86	22.08	0.38
4700.00	2.51	30.15	4699.13	42.62	17.90	42.62	46.22	22.78	0.06
4800.00	2.58	36.56	4799.03	46.32	20.34	46.32	50.59	23.71	0.29
4900.00	2.38	32.62	4898.94	49.88	22.80	49.88	54.84	24.57	0.27
5000.00	2.31	28.07	4998.85	53.40	24.87	53.40	58.91	24.97	0.20
5100.00	0.17	28.85	5098.82	55.31	25.89	55.31	61.07	25.08	2.14
5200.00	0.33	35.19	5198.82	55.67	26.13	55.67	61.50	25.14	0.16
5300.00	0.10	31.35	5298.82	55.99	26.34	55.99	61.87	25.19	0.23
5400.00	0.13	26.88	5398.82	56.17	26.44	56.17	62.08	25.21	0.03
5500.00	0.45	39.06	5498.82	56.57	26.73	56.57	62.57	25.29	0.32
5600.00	0.56	53.40	5598.82	57.16	27.37	57.16	63.38	25.59	0.17
5700.00	0.72	52.85	5698.81	57.83	28.26	57.83	64.37	26.04	0.16

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	0.67	37.52	5798.80	58.67	29.12	58.67	65.50	26.39	0.19
5900.00	0.70	75.11	5898.80	59.29	30.06	59.29	66.48	26.88	0.44
6000.00	0.50	65.75	5998.79	59.63	31.04	59.63	67.23	27.50	0.22
6100.00	0.61	72.90	6098.78	59.96	31.95	59.96	67.94	28.05	0.14
6200.00	0.92	85.20	6198.78	60.19	33.26	60.19	68.77	28.93	0.35
6300.00	1.12	88.98	6298.76	60.27	35.04	60.27	69.72	30.17	0.21
6400.00	0.99	95.72	6398.74	60.20	36.88	60.20	70.60	31.49	0.18
6500.00	1.28	96.73	6498.72	59.99	38.85	59.99	71.47	32.93	0.29
6600.00	1.40	99.19	6598.70	59.66	41.16	59.66	72.48	34.60	0.13
6700.00	1.36	75.25	6698.67	59.77	43.52	59.77	73.94	36.06	0.57
6800.00	1.15	73.72	6798.64	60.35	45.64	60.35	75.67	37.10	0.21
6900.00	1.12	75.90	6898.62	60.87	47.55	60.87	77.25	38.00	0.05
7000.00	1.14	75.49	6998.60	61.36	49.47	61.36	78.82	38.88	0.02
7100.00	0.87	91.81	7098.59	61.59	51.19	61.59	80.09	39.73	0.39
7200.00	0.59	69.75	7198.58	61.74	52.44	61.74	81.01	40.34	0.39
7300.00	0.82	70.40	7298.57	62.16	53.60	62.16	82.08	40.77	0.23
7400.00	0.60	79.58	7398.57	62.50	54.79	62.50	83.12	41.24	0.24
7500.00	0.34	65.90	7498.56	62.71	55.58	62.71	83.80	41.55	0.29
7600.00	0.57	71.16	7598.56	63.00	56.33	63.00	84.51	41.80	0.23
7700.00	0.71	53.47	7698.55	63.52	57.29	63.52	85.54	42.05	0.24
7800.00	0.36	43.34	7798.55	64.12	58.00	64.12	86.46	42.13	0.36
7900.00	0.50	33.02	7898.55	64.72	58.46	64.72	87.21	42.09	0.16
8000.00	0.44	53.91	7998.54	65.31	59.01	65.31	88.02	42.10	0.18
8100.00	0.61	50.18	8098.54	65.88	59.73	65.88	88.93	42.20	0.18
8200.00	0.78	47.80	8198.53	66.68	60.64	66.68	90.13	42.29	0.17
8300.00	1.33	18.26	8298.51	68.24	61.51	68.24	91.87	42.03	0.76
8400.00	1.96	12.51	8398.47	71.01	62.24	71.01	94.43	41.24	0.65
8500.00	2.08	7.49	8498.41	74.47	62.85	74.47	97.45	40.16	0.21
8600.00	2.53	5.61	8598.33	78.46	63.30	78.46	100.81	38.90	0.46
8700.00	1.57	3.59	8698.26	82.02	63.60	82.02	103.79	37.79	0.97
8800.00	1.86	9.12	8798.22	84.99	63.94	84.99	106.36	36.96	0.34
8900.00	1.12	30.75	8898.19	87.44	64.70	87.44	108.78	36.50	0.92
9000.00	0.73	25.44	8998.17	88.86	65.48	88.86	110.38	36.39	0.40
9100.00	0.85	26.94	9098.16	90.10	66.09	90.10	111.74	36.26	0.11
9200.00	1.02	341.10	9198.15	91.60	66.14	91.60	112.98	35.83	0.75
9300.00	1.31	344.68	9298.13	93.55	65.54	93.55	114.22	35.02	0.30
9400.00	1.48	352.61	9398.10	95.93	65.08	95.93	115.92	34.15	0.26
9500.00	1.48	316.41	9498.07	98.14	64.02	98.14	117.18	33.12	0.92
9600.00	0.93	355.60	9598.05	99.89	63.06	99.89	118.13	32.27	0.96

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	1.15	331.97	9698.03	101.58	62.53	101.58	119.28	31.62	0.48
9800.00	1.05	311.37	9798.01	103.07	61.37	103.07	119.96	30.77	0.40
9900.00	1.35	279.55	9897.99	103.87	59.52	103.87	119.72	29.81	0.72
10000.00	1.32	279.66	9997.97	104.26	57.22	104.26	118.93	28.76	0.04
10100.00	2.12	291.14	10097.92	105.12	54.36	105.12	118.35	27.35	0.87
10200.00	1.38	270.87	10197.87	105.81	51.43	105.81	117.65	25.92	0.95
10300.00	1.33	274.36	10297.85	105.91	49.07	105.91	116.73	24.86	0.10
10400.00	1.60	256.70	10397.81	105.68	46.56	105.68	115.48	23.78	0.52
10500.00	1.39	262.16	10497.78	105.20	44.01	105.20	114.03	22.70	0.25
10600.00	1.77	254.61	10597.74	104.62	41.32	104.62	112.48	21.55	0.44
10700.00	1.82	242.60	10697.69	103.48	38.41	103.48	110.38	20.36	0.38
10800.00	1.87	252.25	10797.64	102.25	35.44	102.25	108.22	19.12	0.31
10900.00	1.89	261.42	10897.59	101.51	32.26	101.51	106.51	17.63	0.30
11000.00	1.63	242.87	10997.54	100.61	29.37	100.61	104.81	16.27	0.62
11100.00	1.35	230.82	11097.51	99.22	27.19	99.22	102.88	15.33	0.42
11200.00	0.91	224.50	11197.49	97.91	25.73	97.91	101.23	14.72	0.45
11300.00	1.01	208.67	11297.47	96.57	24.74	96.57	99.69	14.37	0.28



Vaughn Energy Services
Fort Worth, Tx
817-741-3610
Surveyor: Jason Wilson
Prickly Pear 6 Federal No 002H / API 30-025-41572



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MAY 19 2014

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COG Production LLC

Lea County, NM (NAD27 NME)

Prickly Pear 6 Fed

2H

OH

Design: OH

Standard Survey Report

24 February, 2014

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Nexus Directional Solutions, LP

Survey Report

Company:	COG Production LLC	Local Co-ordinate Reference:	Well 2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3714.4usft (Original Well Elev)
Site:	Prickly Pear 6 Fed	MD Reference:	WELL @ 3714.4usft (Original Well Elev)
Well:	2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project:	Lea 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:	Prickly Pear 6 Fed				
Site Position:		Northing:	586,248.00 usft	Latitude:	32° 36' 32.124 N
From:	Map	Easting:	757,174.90 usft	Longitude:	103° 29' 53.407 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	2H					
Well Position	+N/-S	0.0 usft	Northing:	586,261.60 usft	Latitude:	32° 36' 32.144 N
	+E/-W	0.0 usft	Easting:	758,644.30 usft	Longitude:	103° 29' 36.229 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,697.4 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	1/20/2014	(°) 7.26	(°) 60.49	(nT) 48,594

Design:	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	181.74	

Survey Program	Date 2/24/2014				
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.0	9,800.0	GYRO (OH)	MWD	MWD - Standard	
9,828.0	15,740.0	Nexus MWD (OH)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.37	315.30	100.0	0.2	-0.2	-0.2	0.37	0.37	0.00	
200.0	0.48	307.67	200.0	0.7	-0.8	-0.7	0.12	0.11	-7.63	
300.0	1.14	311.13	300.0	1.6	-1.9	-1.6	0.66	0.66	3.46	
400.0	0.50	332.48	400.0	2.7	-2.8	-2.6	0.70	-0.64	21.35	
500.0	0.52	324.85	500.0	3.4	-3.3	-3.3	0.07	0.02	-7.63	
600.0	0.49	337.53	600.0	4.2	-3.7	-4.1	0.12	-0.03	12.68	
700.0	0.46	344.11	700.0	5.0	-4.0	-4.8	0.06	-0.03	6.58	
800.0	0.27	348.35	800.0	5.6	-4.1	-5.5	0.19	-0.19	4.24	
900.0	0.19	335.79	900.0	6.0	-4.3	-5.8	0.09	-0.08	-12.56	

Nexus Directional Solutions, LP

Survey Report

Company: COG Production LLC
Project: Lea County, NM (NAD27 NME)
Site: Prickly Pear 6 Fed
Well: 2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 2H
TVD Reference: WELL @ 3714.4usft (Original Well Elev)
MD Reference: WELL @ 3714.4usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

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)
1,000.0	0.14	315.67	1,000.0	6.2	-4.4	-6.1	0.08	-0.05	-20.12
1,100.0	0.12	265.26	1,100.0	6.3	-4.6	-6.1	0.11	-0.02	-50.41
1,200.0	0.25	248.14	1,200.0	6.2	-4.9	-6.0	0.14	0.13	-17.12
1,300.0	0.17	223.03	1,300.0	6.0	-5.2	-5.8	0.12	-0.08	-25.11
1,400.0	0.17	230.91	1,400.0	5.8	-5.4	-5.6	0.02	0.00	7.88
1,500.0	0.20	247.35	1,500.0	5.6	-5.7	-5.5	0.06	0.03	16.44
1,600.0	0.23	221.65	1,600.0	5.4	-6.0	-5.2	0.10	0.03	-25.70
1,700.0	0.33	229.90	1,700.0	5.1	-6.3	-4.9	0.11	0.10	8.25
1,800.0	0.30	238.60	1,800.0	4.8	-6.8	-4.6	0.06	-0.03	8.70
1,900.0	0.21	243.96	1,900.0	4.6	-7.2	-4.3	0.09	-0.09	5.36
2,000.0	0.08	254.41	2,000.0	4.5	-7.4	-4.2	0.13	-0.13	10.45
2,100.0	0.26	218.55	2,100.0	4.3	-7.6	-4.0	0.20	0.18	-35.86
2,200.0	0.31	204.64	2,200.0	3.8	-7.9	-3.6	0.09	0.05	-13.91
2,300.0	0.16	202.08	2,300.0	3.5	-8.0	-3.2	0.15	-0.15	-2.56
2,400.0	0.07	210.86	2,400.0	3.3	-8.1	-3.0	0.09	-0.09	8.78
2,500.0	0.24	75.08	2,500.0	3.3	-8.0	-3.0	0.29	0.17	-135.78
2,600.0	0.14	63.29	2,600.0	3.4	-7.6	-3.2	0.11	-0.10	-11.79
2,700.0	0.08	55.05	2,699.9	3.5	-7.5	-3.3	0.06	-0.06	-8.24
2,800.0	0.17	79.52	2,799.9	3.6	-7.3	-3.3	0.10	0.09	24.47
2,900.0	0.42	71.63	2,899.9	3.7	-6.8	-3.5	0.25	0.25	-7.89
3,000.0	0.74	70.36	2,999.9	4.0	-5.8	-3.8	0.32	0.32	-1.27
3,100.0	0.99	71.46	3,099.9	4.5	-4.4	-4.4	0.25	0.25	1.10
3,200.0	1.11	68.51	3,199.9	5.1	-2.7	-5.1	0.13	0.12	-2.95
3,300.0	0.96	51.90	3,299.9	6.0	-1.1	-6.0	0.33	-0.15	-16.61
3,400.0	0.72	38.97	3,399.9	7.0	-0.1	-7.0	0.30	-0.24	-12.93
3,500.0	0.50	34.54	3,499.9	7.9	0.6	-7.9	0.22	-0.22	-4.43
3,600.0	0.50	19.65	3,599.9	8.6	1.0	-8.7	0.13	0.00	-14.89
3,700.0	0.89	15.38	3,699.9	9.8	1.3	-9.8	0.39	0.39	-4.27
3,800.0	1.48	11.04	3,799.8	11.8	1.8	-11.9	0.60	0.59	-4.34
3,900.0	1.41	14.52	3,899.8	14.3	2.3	-14.3	0.11	-0.07	3.48
4,000.0	1.44	20.99	3,999.8	16.6	3.1	-16.7	0.16	0.03	6.47
4,100.0	1.83	28.24	4,099.7	19.2	4.3	-19.3	0.44	0.39	7.25
4,200.0	2.41	29.34	4,199.7	22.5	6.1	-22.6	0.58	0.58	1.10
4,300.0	2.78	27.56	4,299.6	26.4	8.2	-26.7	0.38	0.37	-1.78
4,400.0	2.88	30.96	4,399.5	30.7	10.7	-31.1	0.20	0.10	3.40
4,500.0	2.78	34.67	4,499.3	34.9	13.3	-35.3	0.21	-0.10	3.71
4,600.0	2.52	28.83	4,599.2	38.8	15.8	-39.3	0.37	-0.26	-5.84
4,700.0	2.51	30.15	4,699.1	42.6	17.9	-43.2	0.06	-0.01	1.32
4,800.0	2.58	36.56	4,799.0	46.3	20.4	-46.9	0.29	0.07	6.41
4,900.0	2.38	32.62	4,898.9	49.9	22.8	-50.6	0.26	-0.20	-3.94
5,000.0	2.31	28.07	4,998.9	53.4	24.9	-54.2	0.20	-0.07	-4.55
5,100.0	0.17	28.85	5,098.8	55.3	25.9	-56.1	2.14	-2.14	0.78
5,200.0	0.33	35.19	5,198.8	55.7	26.2	-56.5	0.16	0.16	6.34

Nexus Directional Solutions, LP

Survey Report

Company: COG Production LLC
 Project: Lea County, NM (NAD27 NME)
 Site: Prickly Pear 6 Fed
 Well: 2H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 2H
 TVD Reference: WELL @ 3714.4usft (Original Well Elev)
 MD Reference: WELL @ 3714.4usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User 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)
5,300.0	0.10	31.35	5,298.8	56.0	26.4	-56.8	0.23	-0.23	-3.84
5,400.0	0.13	26.88	5,398.8	56.2	26.5	-57.0	0.03	0.03	-4.47
5,500.0	0.45	39.06	5,498.8	56.6	26.8	-57.4	0.32	0.32	12.18
5,600.0	0.56	53.40	5,598.8	57.2	27.4	-58.0	0.17	0.11	14.34
5,700.0	0.72	52.85	5,698.8	57.9	28.3	-58.7	0.16	0.16	-0.55
5,800.0	0.67	37.52	5,798.8	58.7	29.2	-59.6	0.19	-0.05	-15.33
5,900.0	0.70	75.11	5,898.8	59.3	30.1	-60.2	0.44	0.03	37.59
6,000.0	0.50	65.75	5,998.8	59.7	31.1	-60.6	0.22	-0.20	-9.36
6,100.0	0.61	72.90	6,098.8	60.0	32.0	-60.9	0.13	0.11	7.15
6,200.0	0.92	85.20	6,198.8	60.2	33.3	-61.2	0.35	0.31	12.30
6,300.0	1.12	88.98	6,298.8	60.3	35.1	-61.3	0.21	0.20	3.78
6,400.0	0.99	95.72	6,398.7	60.2	36.9	-61.3	0.18	-0.13	6.74
6,500.0	1.28	96.73	6,498.7	60.0	38.9	-61.2	0.29	0.29	1.01
6,600.0	1.40	99.19	6,598.7	59.7	41.2	-60.9	0.13	0.12	2.46
6,700.0	1.36	75.25	6,698.7	59.8	43.6	-61.1	0.57	-0.04	-23.94
6,800.0	1.15	73.72	6,798.6	60.4	45.7	-61.7	0.21	-0.21	-1.53
6,900.0	1.12	75.90	6,898.6	60.9	47.6	-62.3	0.05	-0.03	2.18
7,000.0	1.14	75.49	6,998.6	61.4	49.5	-62.9	0.02	0.02	-0.41
7,100.0	0.87	91.81	7,098.6	61.6	51.2	-63.1	0.39	-0.27	16.32
7,200.0	0.59	69.75	7,198.6	61.8	52.4	-63.3	0.39	-0.28	-22.06
7,300.0	0.82	70.40	7,298.6	62.2	53.6	-63.8	0.23	0.23	0.65
7,400.0	0.60	79.58	7,398.6	62.5	54.8	-64.2	0.25	-0.22	9.18
7,500.0	0.34	65.90	7,498.6	62.7	55.6	-64.4	0.28	-0.26	-13.68
7,600.0	0.57	71.16	7,598.6	63.0	56.3	-64.7	0.23	0.23	5.26
7,700.0	0.71	53.47	7,698.6	63.5	57.3	-65.3	0.24	0.14	-17.69
7,800.0	0.36	43.34	7,798.5	64.1	58.0	-65.9	0.36	-0.35	-10.13
7,900.0	0.50	33.02	7,898.5	64.7	58.5	-66.5	0.16	0.14	-10.32
8,000.0	0.44	53.91	7,998.5	65.3	59.0	-67.1	0.18	-0.06	20.89
8,100.0	0.61	50.18	8,098.5	65.9	59.7	-67.7	0.17	0.17	-3.73
8,200.0	0.78	47.80	8,198.5	66.7	60.6	-68.5	0.17	0.17	-2.38
8,300.0	1.33	18.26	8,298.5	68.3	61.5	-70.1	0.76	0.55	-29.54
8,400.0	1.96	12.51	8,398.5	71.0	62.2	-72.9	0.65	0.63	-5.75
8,500.0	2.08	7.49	8,498.4	74.5	62.8	-76.4	0.21	0.12	-5.02
8,600.0	2.53	5.61	8,598.3	78.5	63.3	-80.4	0.46	0.45	-1.88
8,700.0	1.57	3.59	8,698.3	82.1	63.6	-83.9	0.96	-0.96	-2.02
8,800.0	1.86	9.12	8,798.2	85.0	63.9	-86.9	0.33	0.29	5.53
8,900.0	1.12	30.75	8,898.2	87.5	64.7	-89.4	0.92	-0.74	21.63
9,000.0	0.73	25.44	8,998.2	88.9	65.5	-90.8	0.40	-0.39	-5.31
9,100.0	0.85	26.94	9,098.2	90.1	66.1	-92.1	0.12	0.12	1.50
9,200.0	1.02	341.10	9,198.2	91.6	66.1	-93.6	0.74	0.17	-45.84
9,300.0	1.31	344.68	9,298.1	93.6	65.5	-95.5	0.30	0.29	3.58
9,400.0	1.48	352.61	9,398.1	95.9	65.1	-97.9	0.26	0.17	7.93
9,500.0	1.48	316.41	9,498.1	98.2	64.0	-100.1	0.92	0.00	-36.20

Nexus Directional Solutions, LP

Survey Report

Company: COG Production LLC
 Project: Lea County, NM (NAD27 NME)
 Site: Prickly Pear 6 Fed
 Well: 2H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 2H
 TVD Reference: WELL @ 3714.4usft (Original Well Elev)
 MD Reference: WELL @ 3714.4usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

Survey

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)
9,600.0	0.93	355.60	9,598.0	99.9	63.1	-101.8	0.96	-0.55	39.19
9,700.0	1.15	331.97	9,698.0	101.6	62.5	-103.5	0.48	0.22	-23.63
9,800.0	1.05	311.37	9,798.0	103.1	61.4	-104.9	0.41	-0.10	-20.60
9,828.0	1.10	295.50	9,826.0	103.4	60.9	-105.2	1.07	0.18	-56.68
9,865.0	4.40	175.90	9,863.0	102.1	60.7	-103.9	13.61	8.92	-323.24
9,961.0	6.40	182.30	9,958.5	93.1	60.8	-94.9	2.17	2.08	6.67
9,993.0	6.10	182.60	9,990.4	89.6	60.6	-91.4	0.94	-0.94	0.94
10,057.0	5.90	182.90	10,054.0	82.9	60.3	-84.7	0.32	-0.31	0.47
10,152.0	3.90	192.10	10,148.7	74.9	59.4	-76.7	2.26	-2.11	9.68
10,248.0	3.50	190.20	10,244.5	68.8	58.2	-70.6	0.44	-0.42	-1.98
10,343.0	2.10	192.10	10,339.3	64.3	57.3	-66.0	1.48	-1.47	2.00
10,439.0	1.80	194.60	10,435.3	61.1	56.5	-62.8	0.32	-0.31	2.60
10,535.0	1.70	203.10	10,531.2	58.3	55.6	-60.0	0.29	-0.10	8.85
10,596.0	1.70	203.50	10,592.2	56.7	54.9	-58.3	0.02	0.00	0.66
10,628.0	1.60	194.20	10,624.2	55.8	54.6	-57.4	0.89	-0.31	-29.06
10,659.0	5.90	178.70	10,655.1	53.8	54.5	-55.4	14.13	13.87	-50.00
10,691.0	12.50	176.40	10,686.7	48.7	54.8	-50.3	20.65	20.63	-7.19
10,723.0	16.60	176.10	10,717.7	40.6	55.3	-42.3	12.81	12.81	-0.94
10,755.0	19.00	176.80	10,748.1	30.9	55.9	-32.6	7.53	7.50	2.19
10,787.0	21.10	179.10	10,778.2	19.9	56.3	-21.6	7.01	6.56	7.19
10,818.0	24.30	180.80	10,806.8	8.0	56.3	-9.7	10.54	10.32	5.48
10,850.0	29.40	180.50	10,835.3	-6.5	56.1	4.8	15.94	15.94	-0.94
10,881.0	34.30	182.00	10,861.6	-22.8	55.8	21.1	16.01	15.81	4.84
10,913.0	37.00	183.10	10,887.6	-41.5	54.9	39.8	8.67	8.44	3.44
10,944.0	40.40	183.00	10,911.8	-60.8	53.9	59.2	10.97	10.97	-0.32
10,976.0	44.80	184.00	10,935.4	-82.4	52.6	80.8	13.91	13.75	3.13
11,007.0	48.60	184.80	10,956.6	-104.9	50.8	103.3	12.40	12.26	2.58
11,038.0	51.00	183.80	10,976.7	-128.5	49.0	127.0	8.12	7.74	-3.23
11,070.0	54.10	184.30	10,996.1	-153.9	47.3	152.4	9.77	9.69	1.56
11,102.0	59.00	184.90	11,013.7	-180.5	45.1	179.0	15.39	15.31	1.88
11,128.0	62.20	184.50	11,026.5	-203.0	43.3	201.6	12.38	12.31	-1.54
11,159.0	65.10	184.90	11,040.3	-230.7	41.0	229.4	9.43	9.35	1.29
11,190.0	67.60	185.70	11,052.7	-259.0	38.4	257.7	8.40	8.06	2.58
11,222.0	70.50	186.10	11,064.1	-288.7	35.3	287.5	9.14	9.06	1.25
11,253.0	73.70	186.20	11,073.7	-318.0	32.1	316.9	10.33	10.32	0.32
11,284.0	76.50	186.00	11,081.6	-347.8	28.9	346.8	9.05	9.03	-0.65
11,314.0	78.00	184.90	11,088.3	-377.0	26.2	376.0	6.15	5.00	-3.67
11,346.0	78.30	183.90	11,094.8	-408.2	23.8	407.3	3.20	0.94	-3.13
11,376.0	79.40	182.30	11,100.6	-437.6	22.2	436.7	6.39	3.67	-5.33
11,408.0	82.30	180.60	11,105.7	-469.2	21.4	468.3	10.47	9.06	-5.31
11,439.0	85.30	179.70	11,109.1	-500.0	21.3	499.1	10.10	9.68	-2.90
11,470.0	87.10	178.70	11,111.1	-530.9	21.7	530.0	6.64	5.81	-3.23
11,502.0	87.20	178.80	11,112.7	-562.8	22.4	561.9	0.44	0.31	0.31
11,564.0	88.40	178.60	11,115.1	-624.8	23.8	623.8	1.96	1.94	-0.32

Nexus Directional Solutions, LP

Survey Report

Company: COG Production LLC
Project: Lea County, NM (NAD27 NME)
Site: Prickly Pear 6 Fed
Well: 2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 2H
TVD Reference: WELL @ 3714.4usft (Original Well Elev)
MD Reference: WELL @ 3714.4usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

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)
11,596.0	89.30	178.80	11,115.7	-656.8	24.5	655.7	2.88	2.81	0.63
11,658.0	89.00	180.00	11,116.7	-718.8	25.2	717.7	1.99	-0.48	1.94
11,719.0	90.50	180.60	11,116.9	-779.8	24.9	778.6	2.65	2.46	0.98
11,783.0	90.70	181.30	11,116.2	-843.7	23.8	842.6	1.14	0.31	1.09
11,876.0	90.20	181.90	11,115.5	-936.7	21.2	935.6	0.84	-0.54	0.65
11,970.0	90.10	182.80	11,115.3	-1,030.6	17.4	1,029.6	0.96	-0.11	0.96
12,063.0	90.10	183.70	11,115.1	-1,123.5	12.1	1,122.6	0.97	0.00	0.97
12,159.0	90.40	184.80	11,114.7	-1,219.2	5.0	1,218.5	1.19	0.31	1.15
12,254.0	88.40	184.70	11,115.7	-1,313.9	-2.9	1,313.3	2.11	-2.11	-0.11
12,348.0	90.10	183.10	11,116.9	-1,407.6	-9.3	1,407.3	2.48	1.81	-1.70
12,442.0	88.60	182.80	11,118.0	-1,501.5	-14.1	1,501.2	1.63	-1.60	-0.32
12,536.0	87.90	180.10	11,120.9	-1,595.4	-16.5	1,595.2	2.97	-0.74	-2.87
12,629.0	87.60	180.20	11,124.5	-1,688.3	-16.7	1,688.1	0.34	-0.32	0.11
12,724.0	87.60	181.00	11,128.5	-1,783.3	-17.7	1,783.0	0.84	0.00	0.84
12,818.0	90.10	181.30	11,130.4	-1,877.2	-19.6	1,876.9	2.68	2.66	0.32
12,913.0	90.10	180.30	11,130.2	-1,972.2	-20.9	1,971.9	1.05	0.00	-1.05
13,006.0	89.70	180.50	11,130.4	-2,065.2	-21.6	2,064.9	0.48	-0.43	0.22
13,100.0	92.20	180.50	11,128.8	-2,159.2	-22.4	2,158.9	2.66	2.66	0.00
13,195.0	92.00	180.20	11,125.3	-2,254.1	-23.0	2,253.8	0.38	-0.21	-0.32
13,290.0	92.00	179.90	11,122.0	-2,349.1	-23.1	2,348.7	0.32	0.00	-0.32
13,385.0	90.70	182.20	11,119.8	-2,444.0	-24.8	2,443.6	2.78	-1.37	2.42
13,480.0	90.10	181.60	11,119.1	-2,538.9	-28.0	2,538.6	0.89	-0.63	-0.63
13,575.0	87.90	181.90	11,120.8	-2,633.9	-30.9	2,633.6	2.34	-2.32	0.32
13,670.0	87.30	181.50	11,124.7	-2,728.8	-33.7	2,728.5	0.76	-0.63	-0.42
13,765.0	87.70	183.30	11,128.9	-2,823.6	-37.7	2,823.4	1.94	0.42	1.89
13,860.0	87.40	183.00	11,133.0	-2,918.3	-42.9	2,918.3	0.45	-0.32	-0.32
13,955.0	86.80	182.70	11,137.8	-3,013.1	-47.6	3,013.2	0.71	-0.63	-0.32
14,050.0	89.00	184.50	11,141.2	-3,107.8	-53.6	3,108.0	2.99	2.32	1.89
14,145.0	91.00	184.40	11,141.2	-3,202.6	-60.9	3,202.9	2.11	2.11	-0.11
14,240.0	90.90	184.00	11,139.7	-3,297.3	-67.9	3,297.8	0.43	-0.11	-0.42
14,335.0	90.30	183.70	11,138.7	-3,392.1	-74.3	3,392.8	0.71	-0.63	-0.32
14,431.0	89.80	183.40	11,138.6	-3,487.9	-80.2	3,488.7	0.61	-0.52	-0.31
14,526.0	89.20	183.00	11,139.4	-3,582.7	-85.5	3,583.7	0.76	-0.63	-0.42
14,621.0	90.60	182.30	11,139.6	-3,677.6	-89.9	3,678.7	1.65	1.47	-0.74
14,716.0	91.70	183.10	11,137.7	-3,772.5	-94.4	3,773.6	1.43	1.16	0.84
14,811.0	91.20	182.50	11,135.3	-3,867.4	-99.0	3,868.6	0.82	-0.53	-0.63
14,906.0	90.70	182.20	11,133.7	-3,962.3	-102.9	3,963.6	0.61	-0.53	-0.32
15,001.0	90.40	181.90	11,132.8	-4,057.2	-106.3	4,058.6	0.45	-0.32	-0.32
15,095.0	90.30	181.20	11,132.2	-4,151.2	-108.8	4,152.5	0.75	-0.11	-0.74
15,191.0	90.30	182.60	11,131.7	-4,247.1	-112.0	4,248.5	1.46	0.00	1.46
15,286.0	87.70	183.40	11,133.4	-4,341.9	-117.0	4,343.5	2.86	-2.74	0.84
15,381.0	87.10	184.70	11,137.7	-4,436.6	-123.7	4,438.3	1.51	-0.63	1.37
15,476.0	87.20	183.50	11,142.4	-4,531.2	-130.5	4,533.1	1.27	0.11	-1.26

Nexus Directional Solutions, LP

Survey Report

Company: COG Production LLC
Project: Lea County, NM (NAD27 NME)
Site: Prickly Pear 6 Fed
Well: 2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 2H
TVD Reference: WELL @ 3714.4usft (Original Well Elev)
MD Reference: WELL @ 3714.4usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User 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)
15,571.0	87.90	182.10	11,146.5	-4,626.0	-135.1	4,628.0	1.65	0.74	-1.47
15,694.0	90.50	182.10	11,148.2	-4,748.9	-139.6	4,751.0	2.11	2.11	0.00
15,740.0	90.50	182.10	11,147.8	-4,794.9	-141.3	4,797.0	0.00	0.00	0.00

PBHL Prickly Pear #2H

Checked By: _____ Approved By: _____ Date: _____



NEXUS

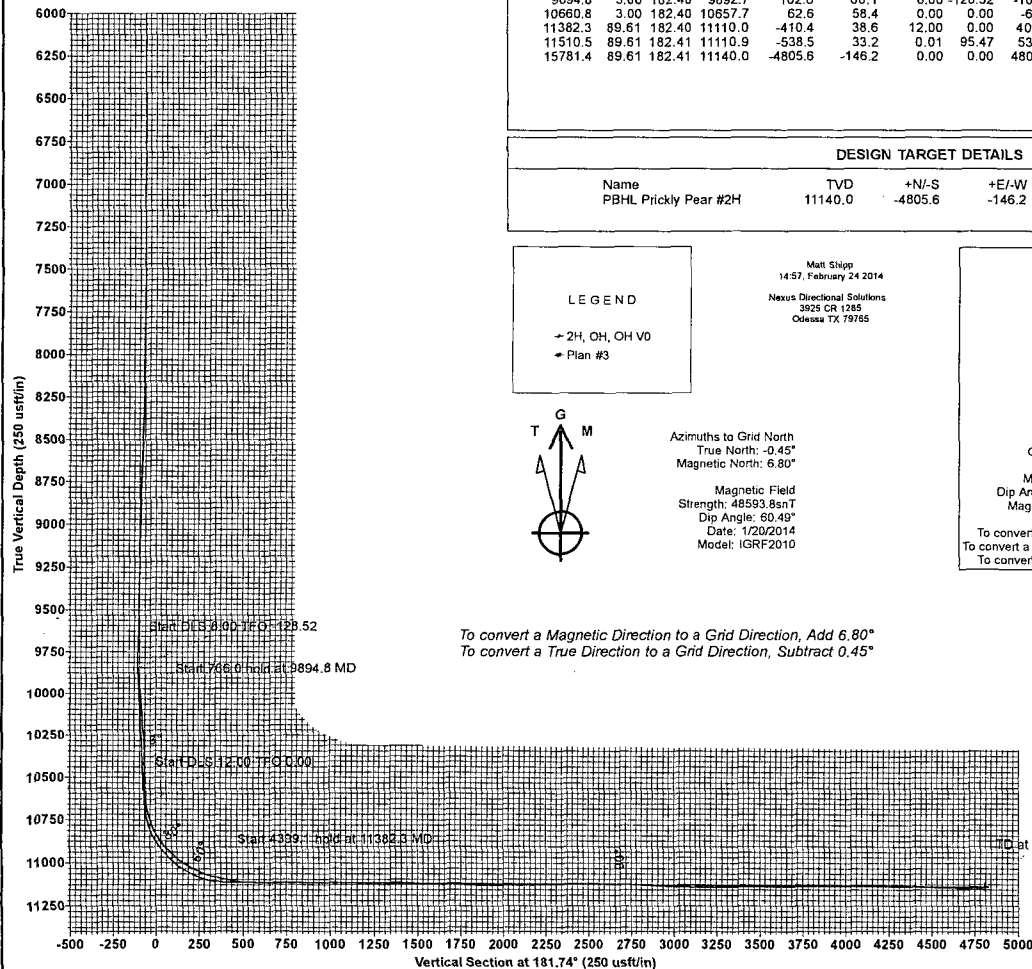
DIRECTIONAL SOLUTIONS, L.P.

Prickly Pear 6 Fed 2H
Lea County, NM (NAD27 NME)
Northing: (Y) 586261.60
Easting: (X) 758644.30
Plan #3

HOBBS OCD

MAY 19 2014

RECEIVED



WELL DETAILS:									
WELL @ 3714.4usft (Original Well Elev)									
+N/-S		+E/-W		Northing	Easting	Latitude	Longitude		
0.0		0.0		586261.60	758644.30	32° 36' 32.144 N	103° 29' 36.229 W		
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
9850.0	1.15	293.42	9848.0	103.6	60.6	0.00	0.00	-105.4	
9894.8	3.00	182.40	9892.7	102.6	60.1	8.00	-128.52	-104.4	
10660.8	3.00	182.40	10657.7	62.6	58.4	0.00	0.00	-64.3	
11382.3	89.61	182.40	11110.0	-410.4	38.6	12.00	0.00	409.1	
11510.5	89.61	182.41	11110.9	-538.5	33.2	0.01	95.47	537.3	
15781.4	89.61	182.41	11140.0	-4805.6	-146.2	0.00	0.00	4807.8	PBHL Prickly Pear #2H
DESIGN TARGET DETAILS									
Name		TVD	+N/-S	+E/-W	Northing	Easting			
PBHL Prickly Pear #2H		11140.0	-4805.6	-146.2	581456.00	758498.10			

LEGEND

→ 2H, OH, OH VO

→ Plan #3

T

G

M

Azimuths to Grid North

True North: -0.45°

Magnetic North: 6.80°

Magnetic Field Strength: 48593.8nT

Dip Angle: 60.49°

Date: 1/20/2014

Model: IGRF2010

Map System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: Clarke 1866

Zone Name: New Mexico East 3001

Local Origin: Well 2H, Grid North

Latitude: 32° 36' 32.144 N

Longitude: 103° 29' 36.229 W

Grid East: 758644.30

Grid North: 586261.60

Scale Factor: 1.000

Geomagnetic Model: IGRF2010

Sample Date: 20-Jan-14

Magnetic Declination: 7.26°

Dip Angle from Horizontal: 60.49°

Magnetic Field Strength: 48594

To convert a Magnetic Direction to a Grid Direction, Add 6.80°

To convert a Magnetic Direction to a True Direction, Add 7.26° East

To convert a True Direction to a Grid Direction, Subtract 0.45°

Matt Shipps

14:57, February 24 2014

Nexus Directional Solutions

3925 CR 1285

Odessa TX 79765

