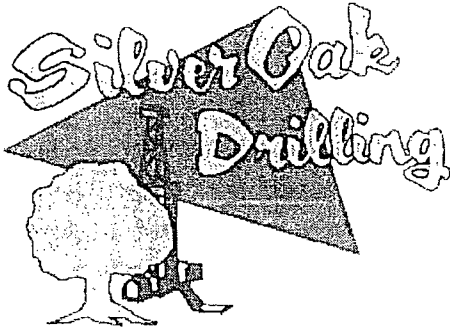


COPY



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

November 27, 2014

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

RE: 8115 JV-P Mesa B #4H
190' FSL & 188' FWL
Sec. 7, T26S, R33E
Lea County, New Mexico

Dear Sir,

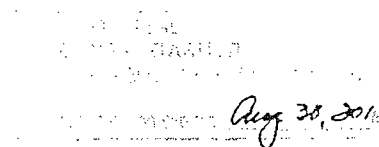
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 27th day of November, 2014.

Notary Public

MAR 02 2015

COPY

8115 JV-P Mesa B #4H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
10/22/2014	280	0.10	0.00	0.00	0.00
10/23/2014	619	0.20	0.00	0.00	0.00
10/25/2014	760	1.30	0.00	0.00	0.00
10/27/2014	889	1.40	0.00	0.00	0.00
10/27/2014	1174	0.20	0.00	0.00	0.00
10/28/2014	1459	0.20	157.60	0.00	0.00
10/28/2014	1743	0.50	0.00	0.00	0.00
10/28/2014	2028	0.50	305.30	0.00	0.00
10/28/2014	2313	1.10	281.70	0.00	0.00
10/28/2014	2598	0.90	263.10	0.00	0.00
10/28/2014	2882	0.90	253.60	0.00	0.00
10/29/2014	3167	0.90	251.10	0.00	0.00
10/30/2014	3415	0.20	251.90	0.00	0.00
10/30/2014	3699	1.10	35.70	0.00	0.00
10/30/2014	3984	0.70	344.00	0.00	0.00
10/31/2014	4268	0.50	102.50	0.00	0.00
10/31/2014	4553	1.80	142.20	0.00	0.00
10/31/2014	4736	1.60	0.00	0.00	0.00
11/2/2014	5071	0.80	0.00	0.00	0.00
11/2/2014	5134	1.70	0.00	0.00	0.00
11/2/2014	5325	1.60	0.00	0.00	0.00
11/2/2014	5578	0.50	0.00	0.00	0.00
11/2/2014	5799	0.40	0.00	0.00	0.00
11/3/2014	6084	1.00	0.00	0.00	0.00
11/3/2014	6337	0.80	0.00	0.00	0.00
11/3/2014	6622	0.30	0.00	0.00	0.00
11/3/2014	6875	0.20	0.00	0.00	0.00
11/3/2014	7160	0.60	0.00	0.00	0.00
11/4/2014	7464	0.40	0.00	0.00	0.00
11/4/2014	7717	0.80	0.00	0.00	0.00
11/4/2014	7970	0.80	0.00	0.00	0.00
11/4/2014	8223	1.00	0.00	0.00	0.00
11/5/2014	8476	0.90	0.00	0.00	0.00
11/5/2014	8729	0.80	0.00	0.00	0.00
11/5/2014	8982	0.50	0.00	0.00	0.00
11/5/2014	9203	2.60	0.00	0.00	0.00
11/5/2014	9267	1.50	0.00	0.00	0.00
11/6/2014	9520	0.70	0.00	0.00	0.00
11/6/2014	9773	1.20	0.00	0.00	0.00
11/6/2014	9994	0.90	0.00	0.00	0.00
11/7/2014	10246	2.70	0.00	0.00	0.00
11/7/2014	10468	1.60	0.00	0.00	0.00
11/8/2014	10689	1.50	0.00	0.00	0.00

COPY

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/8/2014	10942	2.10	0.00	0.00	0.00
11/8/2014	11195	3.00	0.00	0.00	0.00
11/9/2014	11416	4.00	0.00	0.00	0.00
11/10/2014	11439	3.50	300.00	0.00	0.00
11/10/2014	11505	3.50	297.90	0.00	0.00
11/10/2014	11695	2.60	0.00	0.00	0.00
11/10/2014	11885	1.90	0.00	0.00	0.00
11/10/2014	12075	1.40	293.00	0.00	0.00
11/10/2014	12264	0.90	299.30	0.00	0.00
11/10/2014	12454	0.50	303.90	0.00	0.00
11/11/2014	12704	0.20	355.90	0.00	0.00
11/17/2014	8745	4.90	4.00	8744.05	0.00
11/17/2014	8777	9.60	2.00	8775.79	0.00
11/17/2014	8808	14.70	0.40	8806.09	0.00
11/18/2014	8840	20.30	0.80	8836.00	7.11
11/18/2014	8872	24.80	359.70	8866.00	5.14
11/18/2014	8903	27.60	359.70	8895.00	9.03
11/18/2014	8935	30.40	0.70	8921.00	34.27
11/18/2014	8967	33.20	1.60	0.00	0.00
11/18/2014	8998	36.40	2.40	0.00	0.00
11/18/2014	9030	38.90	3.70	0.00	0.00
11/18/2014	9062	41.20	3.30	0.00	0.00
11/18/2014	9093	44.20	1.40	0.00	0.00
11/18/2014	9125	47.00	0.60	0.00	0.00
11/18/2014	9157	49.40	0.20	0.00	0.00
11/18/2014	9189	52.00	0.80	0.00	0.00
11/18/2014	9220	54.50	1.00	0.00	0.00
11/18/2014	9252	57.50	1.10	0.00	0.00
11/18/2014	9284	60.20	2.10	0.00	0.00
11/19/2014	9347	66.90	3.50	9192.00	336.30
11/19/2014	9379	70.50	3.50	9203.00	366.12
11/19/2014	9410	73.40	4.00	9213.48	395.00
11/19/2014	9441	75.90	4.00	9221.69	425.49
11/19/2014	9473	77.90	4.20	9228.44	456.65
11/19/2014	9505	79.90	4.60	9235.10	488.05
11/19/2014	9536	82.20	4.70	9239.92	518.67
11/19/2014	9568	84.40	4.60	9243.66	550.44
11/19/2014	9600	86.80	4.60	9246.11	582.34
11/19/2014	9663	89.30	4.00	9247.72	645.31
11/19/2014	9758	90.90	3.90	247.56	740.31
11/20/2014	9948	91.80	8.00	9241.84	980.21
11/20/2014	10043	91.20	2.60	9239.00	1025.00
11/20/2014	10138	90.10	2.20	933.80	1120.00
11/20/2014	10233	90.30	2.20	9237.00	12.50
11/20/2014	10327	91.10	2.70	9236.79	0.00

COPY

Date	Depth	Deviation	Direction	TVD	Horiz Disp
11/21/2014	10517	90.70	4.10	9233.97	1499.40
11/21/2014	10612	89.90	4.00	9233.00	1594.00
11/21/2014	10707	90.30	4.10	9233.00	1689.00
11/21/2014	10896	88.50	6.10	0.00	0.00
11/21/2014	10990	89.00	5.40	0.00	0.00
11/21/2014	11085	89.40	5.30	0.00	0.00
11/21/2014	11146	90.80	3.80	0.00	0.00
11/21/2014	11370	91.10	4.90	0.00	0.00
11/21/2014	11560	92.00	4.10	0.00	0.00
11/22/2014	11845	88.80	3.40	9232.21	2826.62
11/22/2014	11939	89.10	2.80	9233.93	2914.73
11/22/2014	12034	87.10	3.80	9235.43	3015.58
11/22/2014	12224	91.00	4.70	0.00	0.00
11/22/2014	12319	92.40	4.40	0.00	0.00
11/22/2014	12413	92.40	4.60	0.00	0.00
11/22/2014	12698	90.00	4.10	0.00	0.00
11/22/2014	12793	90.80	3.90	0.00	0.00
11/22/2014	12888	91.70	4.30	0.00	0.00
11/23/2014	12983	89.70	3.60	0.00	0.00
11/24/2014	13080	89.80	3.90	0.00	0.00
11/24/2014	13175	89.80	4.59	0.00	0.00
11/24/2014	13270	90.60	4.70	0.00	0.00
11/24/2014	13365	90.00	5.00	0.00	0.00
11/24/2014	13460	90.20	4.60	0.00	0.00
11/24/2014	13555	91.00	5.20	0.00	0.00
11/24/2014	13650	90.40	4.10	0.00	0.00
11/24/2014	13705	90.60	4.30	0.00	0.00

COPY



November 18, 2014

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

Attn: Kanicia Castillo

RE: 8115 JV-P Mesa B Com 4H

Please find enclosed a copy of the survey from 0.00' to 12632.00' ran on the above referenced well.

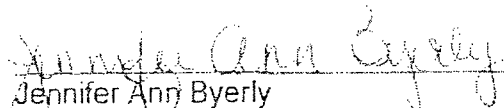
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

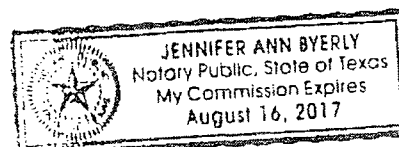
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 18 day of November A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG Operating
Lease/Well: 8115 JV-P Mesa B Com/4H

Rig Name: Silver Oak 12
State/County: New Mexico/Lea
Latitude: 32.05, Longitude: -103.61
GRID North is 0.38 Degrees East of True North
VS-Azi: 0.00 Degrees

VES SURVEY

Depth Reference : RKB = 18 foot

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/18/2014 / 13:46

VES Survey International

Midland, Texas

432-563-5444

Surveyor: Adam Askew

8115 JV-P Mesa B Com 4H / API 30-025-42127

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	0.31	72.02	100.00	0.08	0.26	0.08	0.27	72.02	0.31
200.00	0.69	55.37	200.00	0.51	1.01	0.51	1.13	63.31	0.40
300.00	0.33	173.66	299.99	0.56	1.53	0.56	1.64	69.80	0.89
400.00	0.34	157.70	399.99	0.01	1.68	0.01	1.68	89.65	0.09
500.00	0.09	12.57	499.99	-0.19	1.80	-0.19	1.81	95.94	0.41
600.00	0.36	266.87	599.99	-0.13	1.51	-0.13	1.51	95.00	0.39
700.00	0.90	271.29	699.98	-0.13	0.41	-0.13	0.43	107.61	0.54
800.00	1.15	262.48	799.97	-0.25	-1.36	-0.25	1.39	259.80	0.30
900.00	1.20	225.72	899.95	-1.11	-3.11	-1.11	3.30	250.40	0.74
1000.00	0.55	175.05	999.94	-2.32	-3.82	-2.32	4.47	238.73	0.95
1100.00	0.23	275.37	1099.94	-2.78	-3.98	-2.78	4.85	235.03	0.64
1200.00	0.23	217.80	1199.94	-2.92	-4.30	-2.92	5.20	235.80	0.22
1300.00	0.23	194.12	1299.93	-3.28	-4.47	-3.28	5.55	233.78	0.09
1400.00	0.06	213.60	1399.93	-3.51	-4.55	-3.51	5.75	232.33	0.17
1500.00	0.14	196.93	1499.93	-3.68	-4.62	-3.68	5.91	231.45	0.09
1600.00	0.09	196.44	1599.93	-3.87	-4.68	-3.87	6.07	230.37	0.06
1700.00	0.09	16.84	1699.93	-3.88	-4.68	-3.88	6.07	230.35	0.17
1800.00	0.43	271.90	1799.93	-3.79	-5.03	-3.79	6.30	233.01	0.46

COPY

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	0.45	279.03	1899.93	-3.72	-5.80	-3.72	5.89	237.32	0.06
2000.00	0.82	280.66	1999.92	-3.52	-6.89	-3.52	7.73	242.89	0.38
2100.00	0.60	294.41	2099.92	-3.18	-8.06	-3.18	8.67	248.50	0.28
2200.00	0.94	282.65	2199.91	-2.78	-9.34	-2.78	9.74	253.40	0.38
2300.00	0.63	294.66	2299.90	-2.37	-10.63	-2.37	10.89	257.41	0.35
2400.00	0.75	290.35	2399.89	-1.92	-11.74	-1.92	11.90	260.72	0.13
2500.00	1.09	275.55	2499.88	-1.60	-13.30	-1.60	13.40	263.14	0.42
2600.00	1.09	278.76	2599.86	-1.36	-15.19	-1.36	15.25	264.87	0.06
2700.00	1.19	271.17	2699.84	-1.20	-17.17	-1.20	17.21	266.01	0.18
2800.00	0.79	288.27	2799.82	-0.96	-18.85	-0.96	18.88	267.08	0.49
2900.00	0.73	244.14	2899.82	-1.02	-20.08	-1.02	20.10	267.08	0.57
3000.00	0.93	252.76	2999.81	-1.54	-21.42	-1.54	21.48	265.88	0.23
3100.00	0.74	264.24	3099.80	-1.85	-22.84	-1.85	22.92	265.38	0.25
3200.00	0.75	254.93	3199.79	-2.08	-24.11	-2.08	24.20	265.06	0.12
3300.00	0.79	248.53	3299.78	-2.50	-25.39	-2.50	25.51	264.37	0.09
3400.00	0.77	264.59	3399.77	-2.82	-26.69	-2.82	26.84	263.97	0.22
3500.00	0.30	301.60	3499.76	-2.74	-27.59	-2.74	27.72	264.32	0.56
3600.00	0.50	24.00	3599.76	-2.20	-27.63	-2.20	27.72	265.44	0.55
3700.00	0.65	17.35	3699.76	-1.27	-27.29	-1.27	27.32	267.34	0.16
3800.00	0.61	30.00	3799.75	-0.27	-26.86	-0.27	26.86	269.42	0.14
3900.00	0.55	4.08	3899.75	0.66	-26.56	0.66	26.57	271.43	0.27
4000.00	0.88	342.25	3999.74	1.87	-26.76	1.87	26.82	274.01	0.43
4100.00	0.54	315.35	4099.73	2.94	-27.33	2.94	27.48	276.15	0.47
4200.00	0.25	104.41	4199.73	3.23	-27.45	3.23	27.64	276.71	0.77
4300.00	0.32	110.98	4299.73	3.07	-26.98	3.07	27.15	276.50	0.08
4400.00	1.28	133.90	4399.72	2.20	-25.92	2.20	26.01	274.86	0.99
4500.00	1.81	144.72	4499.68	0.14	-24.20	0.14	24.21	270.34	0.60
4600.00	2.00	131.24	4599.63	-2.29	-21.98	-2.29	22.10	264.05	0.48
4700.00	1.91	157.38	4699.57	-4.97	-20.04	-4.97	20.64	256.06	0.89
4800.00	1.61	147.06	4799.52	-7.69	-18.63	-7.69	20.16	247.58	0.43
4900.00	1.41	136.47	4899.49	-9.75	-17.02	-9.75	19.62	240.19	0.34
5000.00	1.06	136.65	4999.47	-11.32	-15.54	-11.32	19.23	233.93	0.34
5100.00	1.13	135.04	5099.45	-12.69	-14.21	-12.69	19.05	228.22	0.08
5200.00	1.20	119.12	5199.43	-13.90	-12.59	-13.90	18.76	222.17	0.33
5300.00	1.76	113.67	5299.39	-15.03	-10.27	-15.03	18.20	214.34	0.57
5400.00	1.23	106.74	5399.36	-15.95	-7.84	-15.95	17.78	206.16	0.56
5500.00	0.95	116.62	5499.34	-16.64	-6.07	-16.64	17.71	200.05	0.33
5600.00	0.45	129.12	5599.33	-17.26	-5.02	-17.26	17.97	196.21	0.52
5700.00	0.11	7.35	5699.33	-17.41	-4.70	-17.41	18.03	195.10	0.52

COPY

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	0.13	41.48	5799.33	-17.23	-4.61	-17.23	17.83	194.98	0.07
5900.00	0.09	333.56	5899.33	-17.07	-4.57	-17.07	17.67	194.98	0.13
6000.00	0.22	329.30	5999.33	-16.84	-4.70	-16.84	17.48	195.59	0.13
6100.00	0.25	295.69	6099.33	-16.58	-4.99	-16.58	17.32	196.75	0.14
6200.00	0.57	330.19	6199.33	-16.06	-5.43	-16.06	16.95	198.69	0.39
6300.00	0.19	293.57	6299.33	-15.56	-5.83	-15.56	16.62	200.53	0.43
6400.00	0.58	337.12	6399.32	-15.03	-6.18	-15.03	16.25	202.34	0.46
6500.00	0.67	341.75	6499.32	-14.01	-6.56	-14.01	15.47	205.09	0.10
6600.00	0.56	328.38	6599.31	-13.03	-7.00	-13.03	14.79	208.24	0.18
6700.00	0.33	329.55	6699.31	-12.36	-7.41	-12.36	14.41	210.93	0.23
6800.00	0.10	170.80	6799.31	-12.20	-7.54	-12.20	14.34	211.72	0.43
6900.00	0.08	310.22	6899.31	-12.24	-7.58	-12.24	14.40	211.75	0.17
7000.00	0.17	144.65	6999.31	-12.32	-7.54	-12.32	14.44	211.47	0.24
7100.00	0.12	27.02	7099.31	-12.36	-7.41	-12.35	14.40	210.97	0.25
7200.00	0.14	97.93	7199.31	-12.27	-7.24	-12.27	14.25	210.55	0.15
7300.00	0.09	21.10	7299.31	-12.22	-7.09	-12.22	14.13	210.14	0.15
7400.00	0.27	32.88	7399.31	-11.95	-6.94	-11.95	13.82	210.15	0.18
7500.00	0.19	258.84	7499.31	-11.79	-6.97	-11.79	13.69	210.61	0.42
7600.00	0.31	256.11	7599.31	-11.88	-7.40	-11.88	14.00	211.90	0.13
7700.00	0.26	171.15	7699.31	-12.17	-7.63	-12.17	14.37	212.07	0.39
7800.00	0.67	191.38	7799.30	-12.97	-7.71	-12.97	15.09	210.73	0.43
7900.00	0.44	158.30	7899.30	-13.89	-7.68	-13.89	15.88	208.94	0.38
8000.00	0.86	155.14	7999.29	-14.92	-7.23	-14.92	16.58	205.86	0.41
8100.00	0.98	174.10	8099.28	-16.44	-6.83	-16.44	17.80	202.58	0.33
8200.00	1.07	174.94	8199.26	-18.22	-6.66	-18.22	19.40	200.09	0.09
8300.00	1.25	151.28	8299.24	-20.11	-6.06	-20.11	21.00	196.76	0.51
8400.00	1.20	150.37	8399.22	-21.98	-5.01	-21.98	22.54	192.85	0.05
8500.00	1.27	169.79	8499.20	-23.98	-4.30	-23.98	24.36	190.16	0.42
8600.00	1.39	185.87	8599.17	-26.27	-4.23	-26.27	26.61	189.14	0.39
8700.00	1.15	188.99	8699.15	-28.47	-4.51	-28.47	28.82	189.00	0.25
8800.00	0.94	198.63	8799.13	-30.24	-4.93	-30.24	30.63	189.25	0.28
8900.00	0.90	180.55	8899.12	-31.80	-5.20	-31.80	32.22	189.28	0.29
9000.00	1.05	206.49	8999.10	-33.40	-5.61	-33.40	33.87	189.54	0.46
9100.00	1.34	230.55	9099.08	-34.96	-6.92	-34.96	35.64	191.20	0.57
9200.00	2.26	241.52	9199.03	-36.65	-9.56	-36.65	37.87	194.62	0.98
9300.00	2.24	250.70	9298.95	-38.23	-13.13	-38.23	40.43	198.96	0.36
9400.00	1.35	236.52	9398.91	-39.53	-15.96	-39.53	42.63	201.99	0.98
9500.00	0.46	207.09	9498.89	-40.53	-17.13	-40.53	44.00	202.91	0.98
9600.00	1.32	169.97	9598.88	-42.02	-17.11	-42.02	45.37	202.15	0.99

COPY

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	1.55	135.59	9698.85	-44.12	-15.96	-44.12	46.92	199.89	0.88
9800.00	0.92	112.26	9798.83	-45.39	-14.27	-45.39	47.58	197.45	0.80
9900.00	0.65	36.79	9898.82	-45.24	-13.18	-45.24	47.12	196.25	0.99
10000.00	0.84	2.11	9998.81	-44.05	-12.82	-44.05	45.88	196.22	0.48
10100.00	0.88	5.94	10098.80	-42.55	-12.71	-42.55	44.41	196.63	0.07
10200.00	1.55	33.68	10198.78	-40.66	-11.88	-40.66	42.36	196.29	0.87
10300.00	2.94	28.84	10298.70	-37.29	-9.90	-37.29	38.58	194.86	1.40
10400.00	2.82	32.46	10398.57	-32.97	-7.34	-32.97	33.78	192.55	0.22
10500.00	1.52	6.35	10498.50	-29.59	-5.88	-29.59	30.16	191.24	1.60
10600.00	0.50	359.17	10598.48	-27.83	-5.74	-27.83	28.42	191.65	1.02
10700.00	0.31	184.46	10698.48	-27.66	-5.77	-27.66	28.26	191.77	0.81
10800.00	1.80	167.88	10798.46	-29.47	-5.46	-29.47	29.97	190.49	1.51
10900.00	2.81	180.88	10898.39	-33.28	-5.16	-33.28	33.68	188.82	0.95
11000.00	2.36	203.14	10998.30	-37.45	-6.01	-37.45	37.93	189.11	0.99
11100.00	1.49	217.87	11098.24	-40.37	-7.62	-40.37	41.08	190.68	0.99
11200.00	1.99	246.60	11198.20	-42.09	-10.01	-42.09	43.26	193.38	0.99
11300.00	3.02	273.56	11298.10	-42.62	-14.23	-42.62	44.93	198.47	1.54
11400.00	3.74	284.40	11397.93	-41.64	-20.02	-41.64	46.21	205.68	0.96
11500.00	3.26	297.88	11497.74	-39.50	-25.69	-39.50	47.12	213.04	0.95
11600.00	3.22	296.91	11597.58	-36.90	-30.71	-36.90	48.01	219.76	0.06
11700.00	2.42	308.76	11697.46	-34.31	-34.86	-34.31	48.91	225.46	0.99
11800.00	2.71	295.74	11797.36	-31.96	-38.64	-31.96	50.14	230.40	0.65
11900.00	2.13	302.37	11897.27	-29.94	-42.34	-29.94	51.85	234.73	0.65
12000.00	1.68	292.17	11997.22	-28.39	-45.26	-28.39	53.43	237.90	0.56
12100.00	1.22	284.26	12097.19	-27.58	-47.65	-27.58	55.06	239.94	0.50
12200.00	1.23	285.56	12197.16	-27.03	-49.72	-27.03	56.59	241.47	0.03
12300.00	0.82	298.46	12297.15	-26.40	-51.38	-26.40	57.77	242.81	0.47
12400.00	0.77	274.77	12397.14	-26.00	-52.68	-26.00	58.75	243.73	0.33
12500.00	0.69	292.62	12497.13	-25.71	-53.91	-25.71	59.73	244.50	0.24
12632.00	0.35	334.66	12629.13	-25.05	-54.81	-25.05	60.26	245.44	0.37

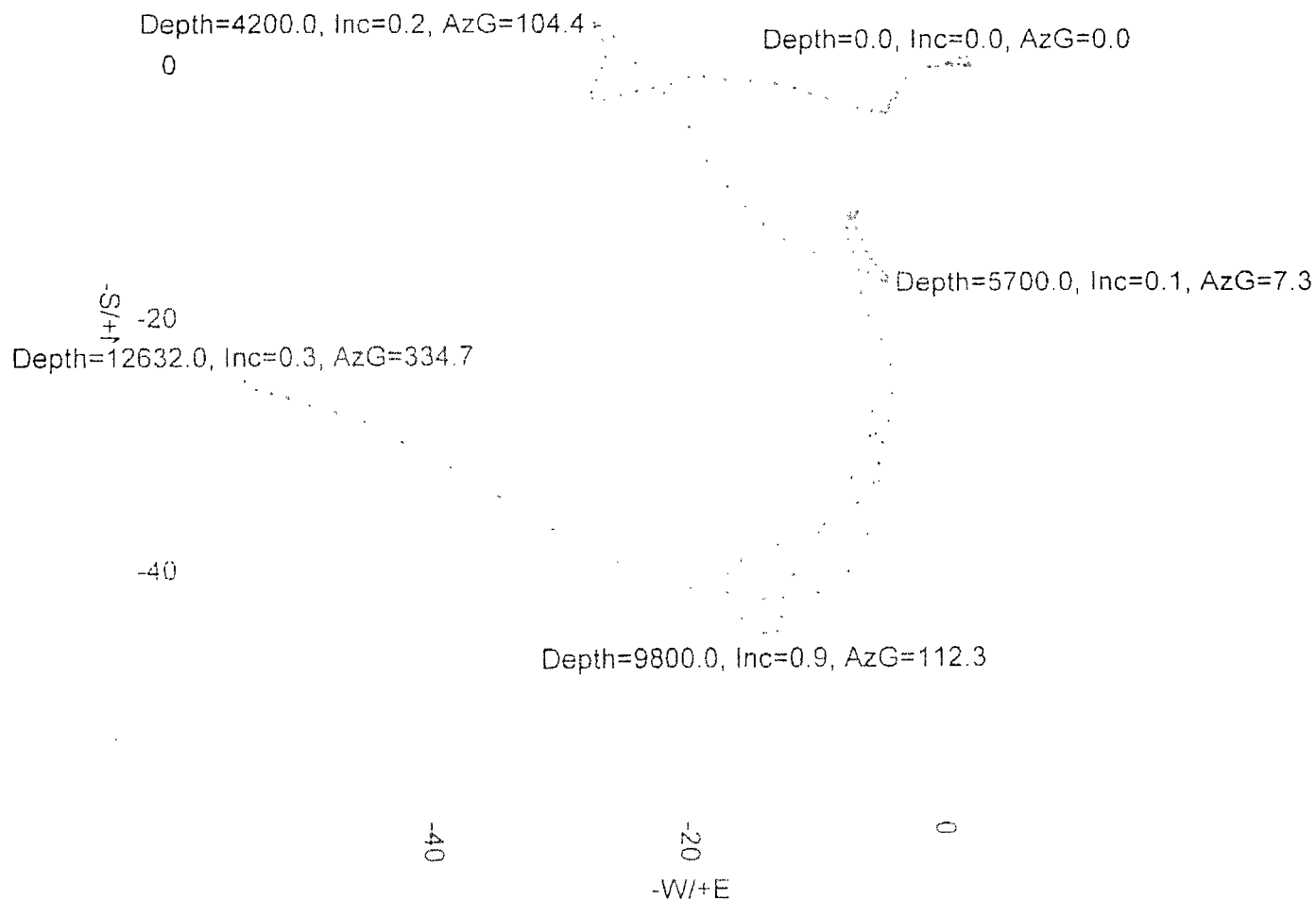
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VES Survey International
Midland, Texas
432-563-5444

Surveyor: Adam Askew
8115 JV-P Mesa B Com 4H / API 30-025-42127

VES SURVEY



VES Survey Date: 11/10/2014

COPY

COPY

BTA Oil Producers LLC.

Lea County, NM
8115 JV-P Mesa B
#4H

OH

Survey: MWD #1

Survey Report - Geographic

02 December, 2014

Wellplanning

Survey Report - Geographic

Company: BTA Oil Producers LLC
 Project: Lea County, NM
 Site: 8115 JV-P Mesa B
 Well: #4H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #4H
 TVD Reference: WELL @ 3248 4usft (Original Well Elev)
 MD Reference: WELL @ 3248 4usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

Project	Lea County, NM		
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: 8115 JV-P Mesa B

Site Position: Northing: 383 090.50 usft Latitude: 32° 3' 4.271 N
 From: Map Easting: 723 052.50 usft Longitude: 103° 36' 48.258 W
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.38"

Well: #4H

Well Position: +N-S 0.0 usft Northing: 383 090.50 usft Latitude: 32° 3' 4.271 N
 +E-W 0.0 usft Easting: 723 052.50 usft Longitude: 103° 36' 48.258 W
 Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 3,230.4 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/11/2014	7.19	59.94	48,185

Design: OH

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.0	0.0	0.0	372

Survey Program Date: 12/2/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8 703.0	GYRO (OH)	NS-GYRO-SS	NS Gyro single shots
8 745.0	13 755.0	MWD #1 (OH)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,700.0	1.15	188.99	8,699.1	-28.5	-4.5	383,082.03	723,047.99	32° 3' 3.990 N	103° 36' 48.312 W
8,745.0	4.90	4.00	8,744.1	-27.0	-4.4	383,083.51	723,048.05	32° 3' 3.4004 N	103° 36' 48.311 W
8,777.0	9.60	2.00	8,775.8	-23.0	-4.3	383,087.54	723,048.24	32° 3' 3.4044 N	103° 36' 48.309 W
8,808.0	14.70	0.40	8,808.1	-16.4	-4.1	383,074.06	723,048.36	32° 3' 3.4109 N	103° 36' 48.307 W
8,840.0	20.30	0.20	8,838.6	-8.8	-4.1	383,083.68	723,048.41	32° 3' 3.4204 N	103° 36' 48.306 W
8,872.0	24.80	359.70	8,866.2	5.4	-4.1	383,085.95	723,048.39	32° 3' 3.4325 N	103° 36' 48.305 W
8,903.0	27.60	359.70	8,894.0	19.1	-4.2	383,109.63	723,048.32	32° 3' 3.4481 N	103° 36' 48.305 W
8,935.0	30.40	0.70	8,922.0	34.6	-4.1	383,125.14	723,048.38	32° 3' 3.4614 N	103° 36' 48.303 W
8,967.0	33.20	1.60	8,949.2	51.5	-3.8	383,142.00	723,048.73	32° 3' 3.4781 N	103° 36' 48.297 W
8,988.0	36.40	2.40	8,974.6	69.2	-3.1	383,159.68	723,049.35	32° 3' 3.4956 N	103° 36' 48.289 W
9,030.0	38.90	3.70	9,000.0	88.7	-2.1	383,179.20	723,050.39	32° 3' 3.5149 N	103° 36' 48.275 W

COPY

Wellplanning

Survey Report - Geographic

Company: BTA Oil Producers LLC.
 Project: Lea County, NM
 Site: 8115 JV-P Mesa B
 Well: #4H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #4H
 TVD Reference: WELL @ 3248.4usft (Original Well Elev)
 MD Reference: WELL @ 3248.4usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,082.0	41.20	3.30	9,024.5	109.2	-0.8	383,198.75	723,051.65	32° 3' 5.352 N	103° 36' 48.259 W
9,093.0	44.20	1.40	9,047.2	130.2	0.0	383,220.75	723,052.50	32° 3' 5.560 N	103° 36' 48.248 W
9,125.0	47.00	0.60	9,069.6	153.1	0.4	383,243.60	723,052.90	32° 3' 5.766 N	103° 36' 48.241 W
9,157.0	49.40	0.20	9,091.0	177.0	0.6	383,267.46	723,053.06	32° 3' 6.022 N	103° 36' 48.237 W
9,189.0	52.00	0.80	9,111.2	201.7	0.8	383,292.22	723,053.28	32° 3' 6.287 N	103° 36' 48.233 W
9,220.0	54.50	1.00	9,129.8	228.8	1.2	383,317.05	723,053.67	32° 3' 6.513 N	103° 36' 48.228 W
9,252.0	57.50	1.10	9,147.7	253.1	1.7	383,343.57	723,054.18	32° 3' 6.775 N	103° 36' 48.219 W
9,284.0	60.20	2.10	9,164.2	280.4	2.4	383,370.94	723,054.92	32° 3' 7.048 N	103° 36' 48.208 W
9,315.0	63.40	2.40	9,178.9	307.7	3.5	383,398.24	723,058.00	32° 3' 7.316 N	103° 36' 48.193 W
9,347.0	66.90	3.50	9,192.3	338.7	5.0	383,427.23	723,057.50	32° 3' 7.603 N	103° 36' 48.173 W
9,379.0	70.50	3.50	9,203.9	368.5	5.8	383,455.99	723,059.32	32° 3' 7.897 N	103° 36' 48.150 W
9,410.0	73.40	4.00	9,213.5	395.6	8.7	383,486.40	723,061.24	32° 3' 8.188 N	103° 36' 48.125 W
9,441.0	75.90	4.00	9,221.7	425.7	10.8	383,516.21	723,063.33	32° 3' 8.483 N	103° 36' 48.099 W
9,473.0	77.90	4.20	9,229.0	456.6	13.1	383,547.30	723,065.58	32° 3' 8.791 N	103° 36' 48.070 W
9,505.0	79.90	4.60	9,235.1	488.1	15.5	383,578.61	723,067.97	32° 3' 9.100 N	103° 36' 48.040 W
9,538.0	82.20	4.70	9,240.0	518.6	18.0	383,608.13	723,070.45	32° 3' 9.402 N	103° 36' 48.009 W
9,568.0	84.40	4.60	9,243.7	550.3	20.5	383,640.80	723,073.03	32° 3' 9.715 N	103° 36' 47.978 W
9,600.0	86.80	4.60	9,245.2	582.1	23.1	383,672.60	723,075.58	32° 3' 10.030 N	103° 36' 47.944 W
9,631.0	89.00	4.10	9,247.3	613.0	25.4	383,703.49	723,077.93	32° 3' 10.335 N	103° 36' 47.915 W
9,663.0	89.30	4.00	9,247.8	644.9	27.7	383,735.41	723,080.19	32° 3' 10.651 N	103° 36' 47.886 W
9,758.0	90.90	3.90	9,247.6	739.7	34.2	383,830.18	723,086.74	32° 3' 11.589 N	103° 36' 47.802 W
9,853.0	92.10	3.50	9,245.1	834.4	40.4	383,924.95	723,092.67	32° 3' 12.526 N	103° 36' 47.724 W
9,948.0	91.80	3.00	9,241.9	929.2	45.8	384,019.74	723,098.25	32° 3' 13.464 N	103° 36' 47.654 W
10,043.0	91.20	2.60	9,239.4	1,024.1	50.4	384,114.59	723,102.89	32° 3' 14.402 N	103° 36' 47.593 W
10,138.0	90.10	2.20	9,238.3	1,119.0	54.4	384,209.50	723,106.87	32° 3' 15.341 N	103° 36' 47.539 W
10,233.0	90.30	2.20	9,238.0	1,213.9	58.0	384,304.43	723,110.51	32° 3' 16.280 N	103° 36' 47.489 W
10,327.0	91.10	2.70	9,236.6	1,307.8	62.0	384,398.33	723,114.53	32° 3' 17.209 N	103° 36' 47.436 W
10,422.0	90.80	3.80	9,235.3	1,402.7	67.4	384,493.17	723,119.92	32° 3' 18.147 N	103° 36' 47.386 W
10,517.0	90.70	4.10	9,234.0	1,497.4	74.0	384,587.93	723,126.46	32° 3' 19.085 N	103° 36' 47.382 W
10,612.0	89.90	4.00	9,233.5	1,592.2	80.7	384,682.69	723,133.17	32° 3' 20.022 N	103° 36' 47.197 W
10,707.0	90.30	4.10	9,233.4	1,687.0	87.4	384,777.46	723,139.68	32° 3' 20.959 N	103° 36' 47.112 W
10,801.0	88.50	5.70	9,234.3	1,780.6	95.4	384,871.10	723,147.31	32° 3' 21.885 N	103° 36' 47.011 W
10,896.0	88.50	6.10	9,236.6	1,875.1	105.2	384,965.67	723,157.67	32° 3' 22.818 N	103° 36' 46.890 W
10,990.0	89.00	5.40	9,238.9	1,968.6	114.6	385,059.07	723,167.08	32° 3' 23.744 N	103° 36' 46.774 W
11,085.0	89.40	5.30	9,240.2	2,063.1	123.4	385,153.85	723,175.94	32° 3' 24.679 N	103° 36' 46.663 W
11,180.0	91.00	4.60	9,239.9	2,157.8	131.8	385,248.29	723,184.14	32° 3' 25.616 N	103° 36' 46.561 W
11,275.0	90.20	4.90	9,238.9	2,252.5	139.5	385,342.96	723,192.00	32° 3' 26.552 N	103° 36' 46.462 W
11,370.0	91.10	4.80	9,237.8	2,347.1	147.5	385,437.60	723,200.12	32° 3' 27.488 N	103° 36' 46.360 W
11,465.0	90.80	3.90	9,236.2	2,441.8	154.9	385,532.31	723,207.40	32° 3' 28.425 N	103° 36' 46.268 W
11,560.0	92.00	4.10	9,233.9	2,536.5	161.5	385,627.05	723,214.03	32° 3' 29.362 N	103° 36' 46.184 W
11,655.0	90.00	3.90	9,232.2	2,631.3	168.2	385,721.79	723,220.65	32° 3' 30.299 N	103° 36' 46.100 W
11,749.0	90.60	3.50	9,231.8	2,725.1	174.2	385,815.60	723,226.72	32° 3' 31.227 N	103° 36' 46.022 W
11,845.0	89.80	3.40	9,232.3	2,820.9	180.0	385,911.42	723,232.50	32° 3' 32.175 N	103° 36' 45.948 W
11,939.0	89.10	2.90	9,234.0	2,914.8	185.1	386,005.26	723,237.58	32° 3' 33.103 N	103° 36' 45.881 W
12,034.0	89.10	3.80	9,235.5	3,009.6	190.6	386,100.09	723,243.05	32° 3' 34.041 N	103° 36' 45.810 W
12,129.0	89.40	4.40	9,236.7	3,104.3	197.3	386,194.84	723,249.84	32° 3' 34.978 N	103° 36' 45.724 W
12,224.0	91.00	4.70	9,238.4	3,199.0	204.9	386,289.54	723,257.38	32° 3' 35.915 N	103° 36' 45.629 W
12,319.0	92.40	4.40	9,233.6	3,293.7	212.4	386,384.19	723,264.91	32° 3' 36.851 N	103° 36' 45.534 W
12,375.9	92.40	4.52	9,231.2	3,350.4	218.8	386,440.86	723,269.33	32° 3' 37.411 N	103° 36' 45.478 W
BTA MESA B1 Vert									
12,413.0	92.40	4.60	9,229.6	3,387.3	219.5	386,477.62	723,272.28	32° 3' 37.777 N	103° 36' 45.441 W
12,508.0	92.00	4.10	9,226.0	3,482.0	227.0	386,572.48	723,279.48	32° 3' 38.713 N	103° 36' 45.350 W
12,603.0	90.90	4.20	9,223.6	3,576.7	233.9	386,667.20	723,286.35	32° 3' 39.650 N	103° 36' 45.283 W
12,698.0	90.00	4.10	9,222.8	3,671.4	240.7	386,761.94	723,293.22	32° 3' 40.587 N	103° 36' 45.175 W
12,793.0	90.80	3.90	9,222.2	3,766.2	247.4	386,856.71	723,299.85	32° 3' 41.525 N	103° 36' 45.092 W

COPY

Wellplanning Survey Report - Geographic

Company: BTA Oil Producers LLC
Project: Lea County, NM
Site: 8115 JV-P Mesa B
Well: #4H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #4H
TVD Reference: WELL @ 3248.4usft (Original Well Elev)
MD Reference: WELL @ 3248.4usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,888.0	91.70	4.30	9,220.1	3,880.9	254.1	386,951.44	723,308.84	32° 3' 42.462 N	103° 36' 45.005 W
12,983.0	89.70	3.80	9,218.9	3,955.7	280.7	387,046.21	723,313.18	32° 3' 43.389 N	103° 36' 44.922 W
13,080.0	89.80	3.90	9,219.4	4,052.5	287.0	387,143.00	723,319.53	32° 3' 44.358 N	103° 36' 44.841 W
13,175.0	89.80	4.50	9,219.7	4,147.2	274.0	387,237.74	723,326.49	32° 3' 45.293 N	103° 36' 44.752 W
13,270.0	90.60	4.70	9,219.4	4,241.9	281.6	387,332.43	723,334.11	32° 3' 46.230 N	103° 36' 44.657 W
13,365.0	90.00	5.00	9,218.9	4,336.6	289.6	387,427.09	723,342.14	32° 3' 47.166 N	103° 36' 44.558 W
13,460.0	90.20	4.60	9,218.7	4,431.3	297.6	387,521.76	723,350.09	32° 3' 48.102 N	103° 36' 44.458 W
13,555.0	91.00	5.20	9,217.7	4,525.9	305.7	387,616.40	723,358.20	32° 3' 49.039 N	103° 36' 44.355 W
13,650.0	90.40	4.10	9,216.5	4,620.6	313.4	387,711.08	723,365.90	32° 3' 49.975 N	103° 36' 44.258 W
13,705.0	90.60	4.30	9,216.1	4,675.4	317.4	387,765.93	723,369.93	32° 3' 50.517 N	103° 36' 44.207 W
13,755.0	90.60	4.30	9,215.5	4,725.3	321.2	387,815.79	723,373.68	32° 3' 51.011 N	103° 36' 44.159 W

PBHL(JVP#4)

Checked By: _____ Approved By: _____ Date: _____