



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

HOBBS OCD

JUL 01 2015

RECEIVED

January 30, 2015

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

RE: Eata Fajita State 5H
185' FSL & 1315' FEL
Sec. 8, T24S, R33E
Lea County, New Mexico

Dear Sir,

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

Very truly yours,

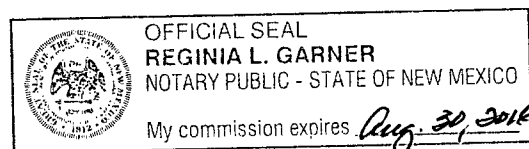
A handwritten signature in black ink, appearing to read "Eddie C. LaRue".

Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 30th day of January, 2015.

A handwritten signature in black ink, appearing to read "Regina L. Garner".

Notary Public

JUL 16 2015

Eata Fajita St #5H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
1/7/2015	250	0.10	0.00	0.00	0.00
1/7/2015	550	0.30	0.00	0.00	0.00
1/7/2015	856	0.50	0.00	0.00	0.00
1/8/2015	1171	0.40	0.00	0.00	0.00
1/8/2015	1261	0.70	0.00	0.00	0.00
1/10/2015	1367	0.50	0.00	0.00	0.00
1/10/2015	1652	0.20	0.00	0.00	0.00
1/10/2015	1924	0.40	0.00	0.00	0.00
1/10/2015	2221	0.40	0.00	0.00	0.00
1/10/2015	2506	0.20	0.00	0.00	0.00
1/10/2015	2791	0.20	0.00	0.00	0.00
1/10/2015	3075	0.00	0.00	0.00	0.00
1/10/2015	3359	0.00	0.00	0.00	0.00
1/10/2015	3644	0.00	0.00	0.00	0.00
1/11/2015	3929	0.90	0.00	0.00	0.00
1/11/2015	4213	1.20	0.00	0.00	0.00
1/11/2015	4498	0.90	0.00	0.00	0.00
1/11/2015	4782	1.80	0.00	0.00	0.00
1/11/2015	5067	1.20	0.00	0.00	0.00
1/11/2015	5128	0.70	0.00	0.00	0.00
1/13/2015	5368	0.60	0.00	0.00	0.00
1/13/2015	5589	0.20	0.00	0.00	0.00
1/13/2015	5842	0.30	0.00	0.00	0.00
1/13/2015	6075	1.30	0.00	0.00	0.00
1/13/2015	6349	1.00	0.00	0.00	0.00
1/13/2015	6601	0.30	0.00	0.00	0.00
1/14/2015	6807	0.20	0.00	0.00	0.00
1/14/2015	7109	0.30	0.00	0.00	0.00
1/14/2015	7362	0.20	0.00	0.00	0.00
1/14/2015	7615	0.40	0.00	0.00	0.00
1/14/2015	7900	1.30	0.00	0.00	0.00
1/14/2015	8171	1.60	0.00	0.00	0.00
1/15/2015	8323	1.00	0.00	0.00	0.00
1/17/2015	8658	1.30	0.00	0.00	0.00
1/17/2015	8911	1.30	0.00	0.00	0.00
1/18/2015	9164	0.30	0.00	0.00	0.00
1/18/2015	9417	0.80	0.00	0.00	0.00
1/18/2015	9669	0.30	0.00	0.00	0.00
1/18/2015	9891	0.90	0.00	0.00	0.00
1/19/2015	10144	1.20	0.00	0.00	0.00
1/19/2015	10311	1.10	209.60	0.00	0.00
1/19/2015	10342	1.70	1.00	0.00	0.00

Date	Depth	Deviation	Direction	TVD	Horiz Disp
1/19/2015	10374	5.70	11.70	0.00	0.00
1/20/2015	10404	9.30	5.90	0.00	0.00
1/20/2015	10437	11.80	359.10	0.00	0.00
1/20/2015	10469	15.20	358.10	0.00	0.00
1/20/2015	10500	18.50	359.00	0.00	0.00
1/20/2015	10532	20.30	359.00	0.00	0.00
1/20/2015	10595	28.00	0.80	0.00	0.00
1/20/2015	10625	31.60	1.00	0.00	0.00
1/20/2015	10658	35.60	1.00	0.00	0.00
1/20/2015	10690	40.10	0.50	0.00	0.00
1/20/2015	10722	44.40	0.10	0.00	0.00
1/20/2015	10753	48.00	0.30	0.00	0.00
1/20/2015	10785	51.90	0.20	0.00	0.00
1/20/2015	10816	55.20	0.50	0.00	0.00
1/20/2015	10848	58.00	0.20	0.00	0.00
1/20/2015	10880	59.30	359.90	0.00	0.00
1/20/2015	10911	60.70	359.30	0.00	0.00
1/20/2015	10943	62.90	358.90	0.00	0.00
1/21/2015	11069	72.10	359.50	10859.46	403.50
1/21/2015	11101	74.20	359.70	10868.23	434.00
1/21/2015	11132	76.70	0.10	10876.52	469.13
1/21/2015	11164	79.20	0.10	10883.20	495.42
1/21/2015	11196	81.10	0.30	10888.67	526.98
1/21/2015	11227	83.10	0.60	10892.00	557.60
1/22/2015	11288	86.40	0.00	0.00	0.00
1/22/2015	11320	88.60	359.90	0.00	0.00
1/22/2015	11351	89.50	359.90	0.00	0.00
1/22/2015	11383	89.50	354.80	0.00	0.00
1/22/2015	11478	90.00	359.40	0.00	0.00
1/22/2015	11573	89.10	359.20	0.00	0.00
1/22/2015	11672	88.60	358.20	0.00	0.00
1/22/2015	11858	91.00	359.00	0.00	0.00
1/22/2015	11952	90.10	359.30	0.00	0.00
1/22/2015	12047	90.90	359.10	0.00	0.00
1/22/2015	12142	90.20	359.30	0.00	0.00
1/22/2015	12237	90.70	359.70	0.00	0.00
1/23/2015	12427	89.90	0.10	10899.10	1757.25
1/23/2015	12522	90.20	359.60	10899.05	1852.70
1/23/2015	12617	90.00	0.10	10898.50	1947.20
1/23/2015	12712	89.60	0.10	10899.20	2042.20
1/23/2015	12807	90.00	359.60	0.00	0.00
1/23/2015	12902	89.70	359.00	0.00	0.00
1/24/2015	12997	88.70	359.30	0.00	0.00
1/24/2015	13091	88.90	358.90	0.00	0.00
1/24/2015	13186	89.10	359.90	0.00	0.00

Date	Depth	Deviation	Direction	TVD	Horiz Disp
1/24/2015	13376	89.00	358.40	0.00	0.00
1/24/2015	13471	89.70	357.40	0.00	0.00
1/24/2015	13566	89.60	359.60	0.00	0.00
1/24/2015	13661	89.70	358.40	0.00	0.00
1/24/2015	13756	91.10	358.40	0.00	0.00
1/24/2015	13850	91.10	359.30	0.00	0.00
1/24/2015	13945	89.50	358.60	0.00	0.00
1/24/2015	14040	88.50	359.00	0.00	0.00
1/25/2015	14135	88.60	359.30	0.00	0.00
1/26/2015	14325	89.50	358.90	0.00	0.00
1/26/2015	14420	89.50	359.40	0.00	0.00
1/26/2015	14515	90.70	0.80	0.00	0.00
1/26/2015	14610	91.20	0.10	0.00	0.00
1/26/2015	14705	91.60	359.60	0.00	0.00
1/26/2015	14800	92.20	359.30	0.00	0.00
1/27/2015	14895	91.80	359.30	0.00	0.00
1/27/2015	14990	90.90	358.30	0.00	0.00
1/27/2015	15085	89.80	357.40	0.00	0.00
1/27/2015	15180	89.60	357.20	0.00	0.00
1/27/2015	15275	89.70	357.20	0.00	0.00
1/27/2015	15320	89.50	356.05	0.00	0.00
1/27/2015	15383	89.50	356.10	0.00	0.00



January 23, 2015

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

Attn: Kanicia Castillo

RE: **Eata Fajita State 5H**

Please find enclosed a copy of the survey from 0' to 10,264' ran on the above referenced well.

Sincerely,


Keith Havelka
Operations

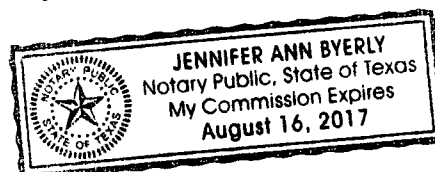
STATE OF TEXAS §

§

COUNTY OF NUECES §

This instrument was acknowledged before me on the 23 day of Jan,
A.D., 2015, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG
Lease/Well: Eata Fajita State/5H

Location: S8 T24S R33E

Rig Name: Silveroak 12

State/County: New Mexico/Lea

Latitude: 32.23, Longitude: -103.59

GRID North is 0.40 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 1/23/2015 / 10:52

VES Survey International

Midland, TX

432-563-5444

Surveyor: Andrew Askew

Eata Fajita State 5H / API 30-025-41997

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	0.17	354.00	100.00	0.15	-0.02	0.15	0.15	354.00	0.17
200.00	0.11	40.63	200.00	0.37	0.03	0.37	0.37	5.14	0.12
300.00	0.17	322.12	300.00	0.57	0.01	0.57	0.57	0.61	0.19
400.00	0.15	222.58	400.00	0.59	-0.18	0.59	0.61	343.37	0.25
500.00	0.31	234.76	500.00	0.34	-0.49	0.34	0.59	304.66	0.16
600.00	0.44	212.76	600.00	-0.14	-0.91	-0.14	0.93	261.04	0.19
700.00	0.38	248.94	699.99	-0.59	-1.43	-0.59	1.55	247.70	0.26
800.00	0.50	254.07	799.99	-0.83	-2.17	-0.83	2.32	249.07	0.12
900.00	0.49	251.36	899.99	-1.09	-2.99	-1.09	3.18	250.06	0.02
1000.00	0.81	254.72	999.98	-1.41	-4.08	-1.41	4.32	250.95	0.32
1100.00	0.66	260.00	1099.97	-1.70	-5.33	-1.70	5.59	252.36	0.17
1200.00	0.64	251.12	1199.97	-1.98	-6.43	-1.98	6.72	252.90	0.10
1300.00	0.68	239.30	1299.96	-2.46	-7.47	-2.46	7.86	251.77	0.14
1400.00	0.44	269.64	1399.95	-2.76	-8.35	-2.76	8.80	251.70	0.37
1500.00	0.37	275.62	1499.95	-2.73	-9.06	-2.73	9.46	253.21	0.08
1600.00	0.44	268.85	1599.95	-2.71	-9.76	-2.71	10.13	254.49	0.08
1700.00	0.21	262.75	1699.95	-2.74	-10.33	-2.74	10.68	255.14	0.23
1800.00	0.34	301.25	1799.95	-2.61	-10.76	-2.61	11.07	256.36	0.22

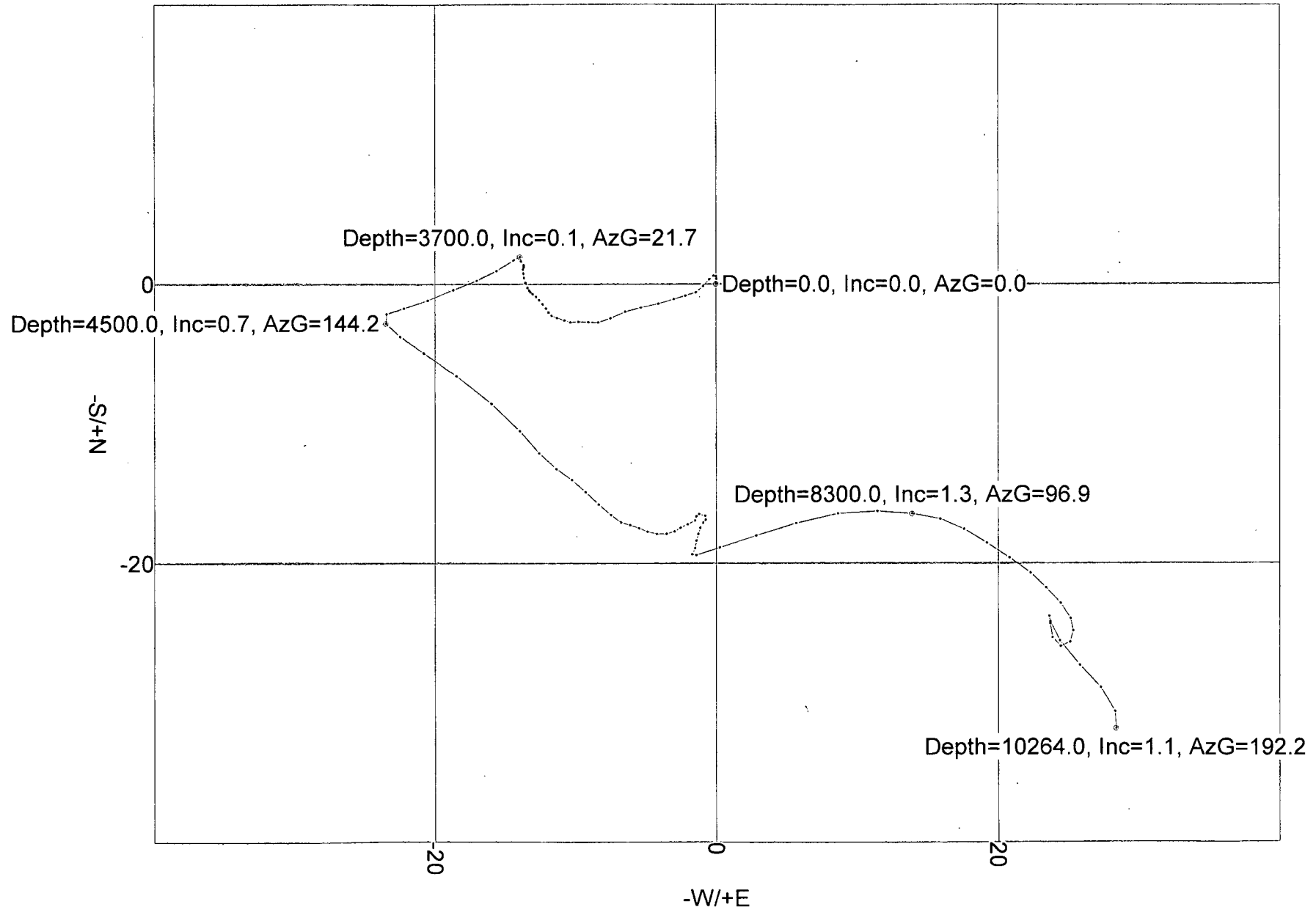
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.33	275.66	1899.95	-2.43	-11.29	-2.43	11.55	257.85	0.15
2000.00	0.20	320.28	1999.94	-2.27	-11.69	-2.27	11.91	259.03	0.23
2100.00	0.17	315.52	2099.94	-2.03	-11.91	-2.03	12.08	260.33	0.04
2200.00	0.23	335.69	2199.94	-1.75	-12.09	-1.75	12.21	261.78	0.09
2300.00	0.23	310.64	2299.94	-1.43	-12.32	-1.43	12.41	263.37	0.10
2400.00	0.19	323.37	2399.94	-1.17	-12.58	-1.17	12.63	264.70	0.06
2500.00	0.20	314.01	2499.94	-0.91	-12.80	-0.91	12.84	265.93	0.03
2600.00	0.15	307.01	2599.94	-0.71	-13.03	-0.71	13.05	266.87	0.06
2700.00	0.09	317.04	2699.94	-0.58	-13.19	-0.58	13.20	267.50	0.06
2800.00	0.08	326.86	2799.94	-0.46	-13.28	-0.46	13.29	268.02	0.02
2900.00	0.18	329.06	2899.94	-0.27	-13.40	-0.27	13.40	268.86	0.10
3000.00	0.26	342.78	2999.94	0.08	-13.55	0.08	13.55	270.36	0.09
3100.00	0.17	342.22	3099.94	0.44	-13.66	0.44	13.67	271.86	0.09
3200.00	0.20	2.81	3199.94	0.76	-13.70	0.76	13.72	273.18	0.07
3300.00	0.14	345.97	3299.94	1.06	-13.72	1.06	13.76	274.40	0.08
3400.00	0.10	59.72	3399.94	1.22	-13.67	1.22	13.73	275.10	0.15
3500.00	0.13	322.18	3499.94	1.36	-13.66	1.36	13.73	275.67	0.18
3600.00	0.27	325.98	3599.94	1.64	-13.86	1.64	13.96	276.74	0.13
3700.00	0.14	21.67	3699.94	1.94	-13.95	1.94	14.08	277.93	0.22
3800.00	0.68	234.59	3799.93	1.71	-14.39	1.71	14.49	276.80	0.80
3900.00	0.97	240.32	3899.92	0.95	-15.60	0.95	15.63	273.49	0.30
4000.00	0.85	247.18	3999.91	0.25	-17.02	0.25	17.02	270.83	0.16
4100.00	1.19	248.79	4099.90	-0.42	-18.67	-0.42	18.68	268.72	0.34
4200.00	1.10	246.49	4199.88	-1.18	-20.52	-1.18	20.56	266.72	0.10
4300.00	0.99	257.29	4299.86	-1.75	-22.24	-1.75	22.31	265.51	0.23
4400.00	0.50	240.81	4399.85	-2.15	-23.46	-2.15	23.56	264.77	0.53
4500.00	0.66	144.23	4499.85	-2.83	-23.50	-2.83	23.67	263.14	0.87
4600.00	0.94	125.81	4599.84	-3.78	-22.50	-3.78	22.81	260.47	0.38
4700.00	1.43	124.20	4699.82	-4.96	-20.80	-4.96	21.38	256.59	0.49
4800.00	1.83	125.44	4799.77	-6.59	-18.47	-6.59	19.61	250.37	0.40
4900.00	1.84	131.56	4899.72	-8.57	-15.97	-8.57	18.12	241.77	0.20
5000.00	1.39	138.25	4999.68	-10.54	-13.96	-10.54	17.49	232.95	0.48
5100.00	1.02	139.03	5099.66	-12.12	-12.57	-12.12	17.46	226.05	0.37
5200.00	0.89	124.99	5199.65	-13.24	-11.35	-13.24	17.44	220.61	0.27
5300.00	0.70	126.72	5299.64	-14.05	-10.22	-14.05	17.37	216.04	0.20
5400.00	0.78	136.40	5399.63	-14.90	-9.27	-14.90	17.55	211.88	0.15
5500.00	0.71	130.45	5499.62	-15.79	-8.33	-15.79	17.86	207.81	0.10
5600.00	0.62	131.35	5599.61	-16.55	-7.45	-16.55	18.15	204.23	0.08
5700.00	0.39	119.48	5699.61	-17.08	-6.75	-17.08	18.36	201.56	0.26

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	0.41	93.55	5799.61	-17.27	-6.10	-17.27	18.31	199.45	0.18
5900.00	0.38	126.10	5899.61	-17.49	-5.47	-17.49	18.32	197.38	0.22
6000.00	0.38	102.64	5999.60	-17.75	-4.88	-17.75	18.41	195.36	0.16
6100.00	0.40	100.01	6099.60	-17.89	-4.21	-17.89	18.38	193.23	0.02
6200.00	0.41	80.63	6199.60	-17.89	-3.51	-17.89	18.23	191.11	0.14
6300.00	0.27	60.39	6299.60	-17.72	-2.96	-17.72	17.96	189.47	0.18
6400.00	0.30	56.54	6399.60	-17.45	-2.53	-17.45	17.64	188.25	0.04
6500.00	0.35	73.49	6499.59	-17.22	-2.02	-17.22	17.34	186.69	0.11
6600.00	0.35	51.40	6599.59	-16.95	-1.49	-16.95	17.01	185.03	0.13
6700.00	0.22	302.78	6699.59	-16.66	-1.42	-16.66	16.72	184.86	0.46
6800.00	0.41	79.19	6799.59	-16.49	-1.22	-16.49	16.53	184.25	0.59
6900.00	0.23	153.85	6899.59	-16.60	-0.78	-16.60	16.62	182.71	0.41
7000.00	0.15	212.55	6999.59	-16.89	-0.77	-16.89	16.91	182.60	0.20
7100.00	0.16	221.07	7099.59	-17.11	-0.93	-17.11	17.13	183.11	0.03
7200.00	0.31	206.74	7199.59	-17.46	-1.14	-17.46	17.49	183.75	0.15
7300.00	0.25	183.63	7299.59	-17.91	-1.28	-17.91	17.96	184.08	0.13
7400.00	0.31	203.28	7399.59	-18.38	-1.40	-18.38	18.43	184.36	0.12
7500.00	0.33	178.78	7499.58	-18.92	-1.50	-18.92	18.98	184.54	0.14
7600.00	0.30	235.26	7599.58	-19.35	-1.71	-19.35	19.43	185.06	0.30
7700.00	0.59	80.31	7699.58	-19.42	-1.42	-19.42	19.47	184.19	0.87
7800.00	1.44	68.90	7799.57	-18.88	0.26	-18.88	18.88	179.22	0.87
7900.00	1.65	73.98	7899.53	-18.03	2.82	-18.03	18.25	171.12	0.25
8000.00	1.77	71.67	7999.48	-17.14	5.67	-17.14	18.06	161.68	0.14
8100.00	1.74	82.50	8099.44	-16.46	8.65	-16.46	18.59	152.27	0.33
8200.00	1.49	91.20	8199.40	-16.29	11.46	-16.29	19.91	144.87	0.35
8300.00	1.34	96.86	8299.37	-16.45	13.93	-16.45	21.56	139.75	0.21
8400.00	0.99	106.83	8399.35	-16.84	15.92	-16.84	23.18	136.61	0.41
8500.00	1.12	118.70	8499.33	-17.56	17.61	-17.56	24.87	134.93	0.25
8600.00	1.04	125.08	8599.31	-18.56	19.21	-18.56	26.71	134.01	0.14
8700.00	1.13	121.92	8699.29	-19.60	20.80	-19.60	28.58	133.31	0.10
8800.00	1.00	131.81	8799.28	-20.71	22.28	-20.71	30.42	132.90	0.23
8900.00	0.76	136.15	8899.26	-21.77	23.39	-21.77	31.95	132.94	0.25
9000.00	0.97	138.21	8999.25	-22.87	24.42	-22.87	33.46	133.13	0.21
9100.00	0.58	160.97	9099.24	-23.99	25.15	-23.99	34.75	133.65	0.49
9200.00	0.46	179.71	9199.24	-24.87	25.32	-24.87	35.49	134.50	0.21
9300.00	0.51	207.12	9299.24	-25.67	25.11	-25.67	35.91	135.63	0.24
9400.00	0.56	279.44	9399.23	-25.99	24.43	-25.99	35.67	136.77	0.63
9500.00	0.65	348.65	9499.23	-25.36	23.84	-25.36	34.81	136.76	0.69
9600.00	0.53	353.31	9599.22	-24.35	23.68	-24.35	33.96	135.80	0.13

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	0.10	351.50	9699.22	-23.81	23.61	-23.81	33.53	135.23	0.43
9800.00	0.54	170.11	9799.22	-24.19	23.68	-24.19	33.85	135.61	0.64
9900.00	1.26	146.38	9899.21	-25.57	24.37	-25.57	35.33	136.38	0.79
10000.00	1.34	135.98	9999.18	-27.33	25.79	-27.33	37.58	136.66	0.25
10100.00	1.18	139.05	10099.16	-28.95	27.28	-28.95	39.77	136.70	0.17
10200.00	1.15	160.90	10199.14	-30.67	28.28	-30.67	41.72	137.32	0.44
10264.00	1.08	192.20	10263.13	-31.87	28.36	-31.87	42.66	138.33	0.95



VES Survey International
Midland, TX
432-563-5444
Surveyor: Andrew Askew
Eata Fajita State 5H / API 30-025-41997



V.E.S. Survey Date: 1/19/2015



COG Operating LLC

Lea County, NM
Eata Fajita State
#5H

OH

Survey: MWD #1

Survey Report - Geographic

28 January, 2015

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Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM	TVD Reference:	WELL @ 3617.8usft (Original Well Elev)
Site:	Eata Fajita State	MD Reference:	WELL @ 3617.8usft (Original Well Elev)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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	Eata Fajita State				
Site Position:		Northing:	446,468.40 usft	Latitude:	32° 13' 31.198 N
From:	Map	Easting:	726,689.60 usft	Longitude:	103° 36' 0.988 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.39 °

Well	#5H					
Well Position	+N/-S	0.0 usft	Northing:	446,481.60 usft	Latitude:	32° 13' 31.104 N
	+E/-W	0.0 usft	Easting:	730,002.10 usft	Longitude:	103° 35' 22.427 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,599.8 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/8/2014	7.17	60.10	48,265

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	359.58	

Survey Program	Date 1/28/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	10,264.0	GYRO (OH)	NS-GYRO-SS	NS Gyro single shots	
10,311.0	15,428.0	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	
10,264.0	1.08	192.20	10,263.1	-31.8	28.3	446,449.76	730,030.39	32° 13' 30.787 N	103° 35' 22.100 W	
10,311.0	1.10	209.60	10,310.1	-32.7	28.0	446,448.94	730,030.07	32° 13' 30.778 N	103° 35' 22.104 W	
10,342.0	1.70	1.00	10,341.1	-32.5	27.8	446,449.14	730,029.93	32° 13' 30.780 N	103° 35' 22.105 W	
10,374.0	5.70	11.70	10,373.0	-30.4	28.2	446,451.17	730,030.26	32° 13' 30.800 N	103° 35' 22.101 W	
10,405.0	9.30	5.90	10,403.8	-26.4	28.7	446,455.17	730,030.83	32° 13' 30.840 N	103° 35' 22.094 W	
10,437.0	11.80	359.10	10,435.2	-20.6	29.0	446,461.01	730,031.05	32° 13' 30.898 N	103° 35' 22.091 W	
10,469.0	15.20	358.10	10,466.3	-13.1	28.8	446,468.48	730,030.86	32° 13' 30.972 N	103° 35' 22.093 W	
10,500.0	18.50	359.00	10,496.0	-4.1	28.5	446,477.46	730,030.64	32° 13' 31.061 N	103° 35' 22.095 W	
10,532.0	20.30	359.00	10,526.2	6.5	28.4	446,488.09	730,030.45	32° 13' 31.166 N	103° 35' 22.096 W	
10,564.0	24.30	359.10	10,555.8	18.6	28.2	446,500.23	730,030.25	32° 13' 31.286 N	103° 35' 22.097 W	
10,595.0	28.00	0.80	10,583.6	32.3	28.2	446,513.89	730,030.25	32° 13' 31.421 N	103° 35' 22.096 W	



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM	TVD Reference:	WELL @ 3617.8usft (Original Well Elev)
Site:	Eata Fajita State	MD Reference:	WELL @ 3617.8usft (Original Well Elev)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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		
10,627.0	31.60	1.00	10,611.4	48.2	28.4	446,529.78	730,030.50	32° 13' 31.578 N	103° 35' 22.092 W	
10,658.0	35.60	1.00	10,637.2	65.3	28.7	446,546.93	730,030.80	32° 13' 31.748 N	103° 35' 22.087 W	
10,690.0	40.10	0.50	10,662.5	85.0	29.0	446,566.56	730,031.05	32° 13' 31.942 N	103° 35' 22.083 W	
10,722.0	44.40	0.10	10,686.1	106.5	29.1	446,588.07	730,031.16	32° 13' 32.155 N	103° 35' 22.080 W	
10,753.0	48.00	0.30	10,707.6	128.8	29.1	446,610.44	730,031.24	32° 13' 32.377 N	103° 35' 22.077 W	
10,785.0	51.90	0.20	10,728.2	153.3	29.3	446,634.93	730,031.35	32° 13' 32.619 N	103° 35' 22.074 W	
10,816.0	55.20	0.50	10,746.6	178.3	29.4	446,659.86	730,031.50	32° 13' 32.866 N	103° 35' 22.070 W	
10,848.0	58.00	0.20	10,764.2	205.0	29.6	446,686.58	730,031.67	32° 13' 33.130 N	103° 35' 22.066 W	
10,880.0	59.30	359.90	10,780.8	232.3	29.6	446,713.90	730,031.69	32° 13' 33.400 N	103° 35' 22.063 W	
10,911.0	60.70	359.30	10,796.3	259.1	29.4	446,740.75	730,031.50	32° 13' 33.666 N	103° 35' 22.064 W	
10,943.0	62.90	358.90	10,811.5	287.3	29.0	446,768.95	730,031.06	32° 13' 33.945 N	103° 35' 22.066 W	
10,974.0	65.30	358.30	10,825.0	315.2	28.3	446,796.82	730,030.37	32° 13' 34.221 N	103° 35' 22.072 W	
11,006.0	67.60	358.60	10,837.8	344.5	27.5	446,826.14	730,029.58	32° 13' 34.511 N	103° 35' 22.079 W	
11,038.0	69.90	359.10	10,849.4	374.4	26.9	446,855.96	730,028.98	32° 13' 34.806 N	103° 35' 22.084 W	
11,069.0	72.10	359.50	10,859.5	403.7	26.5	446,885.27	730,028.63	32° 13' 35.096 N	103° 35' 22.085 W	
11,101.0	74.20	359.70	10,868.8	434.3	26.3	446,915.89	730,028.41	32° 13' 35.399 N	103° 35' 22.085 W	
11,132.0	76.70	0.10	10,876.5	464.3	26.3	446,945.89	730,028.36	32° 13' 35.696 N	103° 35' 22.084 W	
11,164.0	79.20	0.10	10,883.2	495.6	26.3	446,977.19	730,028.42	32° 13' 36.006 N	103° 35' 22.080 W	
11,196.0	81.10	0.30	10,888.7	527.1	26.4	447,008.71	730,028.53	32° 13' 36.318 N	103° 35' 22.077 W	
11,227.0	83.10	0.60	10,893.0	557.8	26.7	447,039.42	730,028.77	32° 13' 36.622 N	103° 35' 22.071 W	
11,259.0	85.00	0.60	10,896.3	589.6	27.0	447,071.24	730,029.10	32° 13' 36.937 N	103° 35' 22.065 W	
11,288.0	86.40	0.00	10,898.5	618.6	27.2	447,100.16	730,029.25	32° 13' 37.223 N	103° 35' 22.061 W	
11,320.0	88.60	359.90	10,899.8	650.5	27.1	447,132.12	730,029.22	32° 13' 37.539 N	103° 35' 22.058 W	
11,351.0	89.50	359.90	10,900.4	681.5	27.1	447,163.12	730,029.17	32° 13' 37.846 N	103° 35' 22.057 W	
11,383.0	89.50	359.80	10,900.6	713.5	27.0	447,195.12	730,029.09	32° 13' 38.162 N	103° 35' 22.055 W	
11,478.0	90.00	359.40	10,901.1	808.5	26.3	447,290.11	730,028.42	32° 13' 39.102 N	103° 35' 22.055 W	
11,573.0	89.10	359.20	10,901.8	903.5	25.2	447,385.10	730,027.26	32° 13' 40.042 N	103° 35' 22.061 W	
11,668.0	88.60	358.50	10,903.7	998.5	23.3	447,480.06	730,025.36	32° 13' 40.982 N	103° 35' 22.075 W	
11,763.0	89.90	358.50	10,905.0	1,093.4	20.8	447,575.02	730,022.87	32° 13' 41.922 N	103° 35' 22.097 W	
11,858.0	91.00	359.00	10,904.2	1,188.4	18.7	447,669.99	730,020.80	32° 13' 42.862 N	103° 35' 22.113 W	
11,952.0	90.10	359.30	10,903.3	1,282.4	17.3	447,763.98	730,019.40	32° 13' 43.792 N	103° 35' 22.122 W	
12,047.0	90.90	359.10	10,902.5	1,377.4	16.0	447,858.97	730,018.08	32° 13' 44.732 N	103° 35' 22.130 W	
12,142.0	90.20	359.30	10,901.6	1,472.4	14.7	447,953.95	730,016.75	32° 13' 45.672 N	103° 35' 22.137 W	
12,237.0	90.70	359.70	10,900.8	1,567.3	13.8	448,048.94	730,015.92	32° 13' 46.612 N	103° 35' 22.139 W	
12,332.0	90.70	0.00	10,899.7	1,662.3	13.6	448,143.94	730,015.67	32° 13' 47.552 N	103° 35' 22.135 W	
12,427.0	89.90	0.10	10,899.2	1,757.3	13.7	448,238.93	730,015.76	32° 13' 48.492 N	103° 35' 22.126 W	
12,522.0	90.20	359.60	10,899.1	1,852.3	13.4	448,333.93	730,015.51	32° 13' 49.432 N	103° 35' 22.121 W	
12,617.0	90.00	0.10	10,898.9	1,947.3	13.2	448,428.93	730,015.26	32° 13' 50.373 N	103° 35' 22.117 W	
12,712.0	89.60	0.10	10,899.2	2,042.3	13.3	448,523.93	730,015.42	32° 13' 51.313 N	103° 35' 22.107 W	
12,807.0	90.00	359.60	10,899.6	2,137.3	13.1	448,618.93	730,015.17	32° 13' 52.253 N	103° 35' 22.102 W	
12,902.0	89.70	359.00	10,899.8	2,232.3	11.9	448,713.92	730,014.01	32° 13' 53.193 N	103° 35' 22.108 W	
12,997.0	88.70	359.30	10,901.1	2,327.3	10.5	448,808.90	730,012.61	32° 13' 54.133 N	103° 35' 22.117 W	
13,091.0	88.90	358.90	10,903.1	2,421.3	9.0	448,902.87	730,011.13	32° 13' 55.063 N	103° 35' 22.126 W	
13,186.0	89.10	358.90	10,904.8	2,516.2	7.2	448,997.84	730,009.31	32° 13' 56.003 N	103° 35' 22.140 W	
13,281.0	88.90	358.40	10,906.4	2,611.2	5.0	449,092.80	730,007.07	32° 13' 56.942 N	103° 35' 22.158 W	
13,376.0	89.00	358.10	10,908.2	2,706.1	2.1	449,187.74	730,004.17	32° 13' 57.882 N	103° 35' 22.184 W	
13,471.0	89.70	357.40	10,909.3	2,801.1	-1.7	449,282.65	730,000.44	32° 13' 58.822 N	103° 35' 22.220 W	
13,566.0	89.60	357.60	10,909.8	2,896.0	-5.8	449,377.56	729,996.29	32° 13' 59.761 N	103° 35' 22.261 W	
13,661.0	89.70	358.20	10,910.4	2,990.9	-9.3	449,472.50	729,992.81	32° 14' 0.701 N	103° 35' 22.294 W	
13,756.0	91.00	0.10	10,909.8	3,085.9	-10.7	449,567.48	729,991.40	32° 14' 1.641 N	103° 35' 22.302 W	
13,850.0	91.10	359.30	10,908.1	3,179.9	-11.2	449,661.46	729,990.91	32° 14' 2.571 N	103° 35' 22.301 W	
13,945.0	89.50	358.60	10,907.6	3,274.8	-12.9	449,756.44	729,989.17	32° 14' 3.511 N	103° 35' 22.313 W	
14,040.0	88.50	359.00	10,909.3	3,369.8	-14.9	449,851.40	729,987.18	32° 14' 4.451 N	103° 35' 22.329 W	
14,135.0	88.60	359.30	10,911.7	3,464.8	-16.3	449,946.36	729,985.77	32° 14' 5.390 N	103° 35' 22.337 W	
14,230.0	88.10	357.90	10,914.4	3,559.7	-18.6	450,041.29	729,983.45	32° 14' 6.330 N	103° 35' 22.357 W	



Wellplanning
Survey Report - Geographic

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM	TVD Reference:	WELL @ 3617.8usft (Original Well Elev)
Site:	Eata Fajita State	MD Reference:	WELL @ 3617.8usft (Original Well Elev)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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
14,325.0	89.20	358.90	10,916.6	3,654.6	-21.3	450,136.23	729,980.80	32° 14' 7.269 N	103° 35' 22.380 W
14,420.0	89.50	359.50	10,917.7	3,749.6	-22.6	450,231.21	729,979.47	32° 14' 8.210 N	103° 35' 22.388 W
14,515.0	90.70	0.80	10,917.6	3,844.6	-22.4	450,326.20	729,979.72	32° 14' 9.150 N	103° 35' 22.377 W
14,610.0	91.20	0.10	10,916.0	3,939.6	-21.6	450,421.19	729,980.47	32° 14' 10.089 N	103° 35' 22.361 W
14,705.0	91.60	359.50	10,913.7	4,034.6	-22.0	450,516.16	729,980.14	32° 14' 11.029 N	103° 35' 22.357 W
14,800.0	92.20	359.30	10,910.5	4,129.5	-23.0	450,611.10	729,979.14	32° 14' 11.969 N	103° 35' 22.361 W
14,895.0	91.80	359.30	10,907.2	4,224.4	-24.1	450,706.04	729,977.98	32° 14' 12.908 N	103° 35' 22.367 W
14,990.0	90.90	358.30	10,905.0	4,319.4	-26.1	450,800.99	729,975.99	32° 14' 13.848 N	103° 35' 22.382 W
15,085.0	89.80	357.40	10,904.4	4,414.3	-29.7	450,895.91	729,972.43	32° 14' 14.788 N	103° 35' 22.416 W
15,180.0	89.60	357.20	10,904.9	4,509.2	-34.1	450,990.81	729,967.96	32° 14' 15.727 N	103° 35' 22.461 W
15,275.0	89.70	357.20	10,905.5	4,604.1	-38.8	451,085.69	729,963.32	32° 14' 16.666 N	103° 35' 22.507 W
15,370.0	89.50	356.30	10,906.1	4,698.9	-44.2	451,180.54	729,957.93	32° 14' 17.605 N	103° 35' 22.562 W
15,383.0	89.50	356.10	10,906.2	4,711.9	-45.0	451,193.51	729,957.07	32° 14' 17.733 N	103° 35' 22.571 W
15,428.0	89.50	356.10	10,906.6	4,756.8	-48.1	451,238.40	729,954.01	32° 14' 18.178 N	103° 35' 22.603 W
PBHL(EFS#5)									

Checked By: _____ Approved By: _____ Date: _____