



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

COG OPERATING, LLC
RECEIVED

Well Name and Num. Lizardpot State Com 3H
Location. Sec. 36, T19S, R31E
Operator: COG
Drilling Contractor. McVay Drilling Company

AUG 13 2012

ARTESIA WEST

30-015-38147

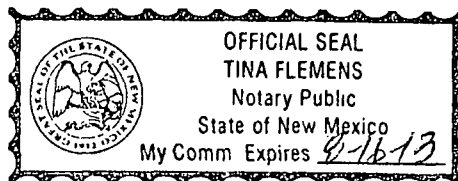
The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
1 00	386	4 75	2749				
3 80	670	5.19	2844				
8.56	822	4 40	2907				
2 11	473	4 576	3097				
2 55	499	3 61	3192				
2 37	528	3 70	3579				
1 85	558						
1.41	619						
1 85	766						
4.57	2219						
2 02	2408						
1 85	2440						
0.26	2882						
0 35	3263						
1 00	3725						
0.62	2559						
0 88	2654						

By Hunter Crum

Subscribed and sworn to before me this 10th day of August, 2012

Tina Flemens
Notary Public, Lea County, New Mexico



Company: COG Operating LLC (Concho)
Lease/Well: LIZARD POT FEDERAL COM/3H



Rig Name: MCVAY 7
State/County: New Mexico/Eddy
Latitude: 32.61



GRID North is 0.28 Degrees East of True North
VS-Azi: 0.00 Degrees

Depth Reference : 15 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: lizzard pot st com 3h_ed.ut

Minimum Curvature Method

Report Date/Time: 7/30/2012 / 14:56

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Nick Harding

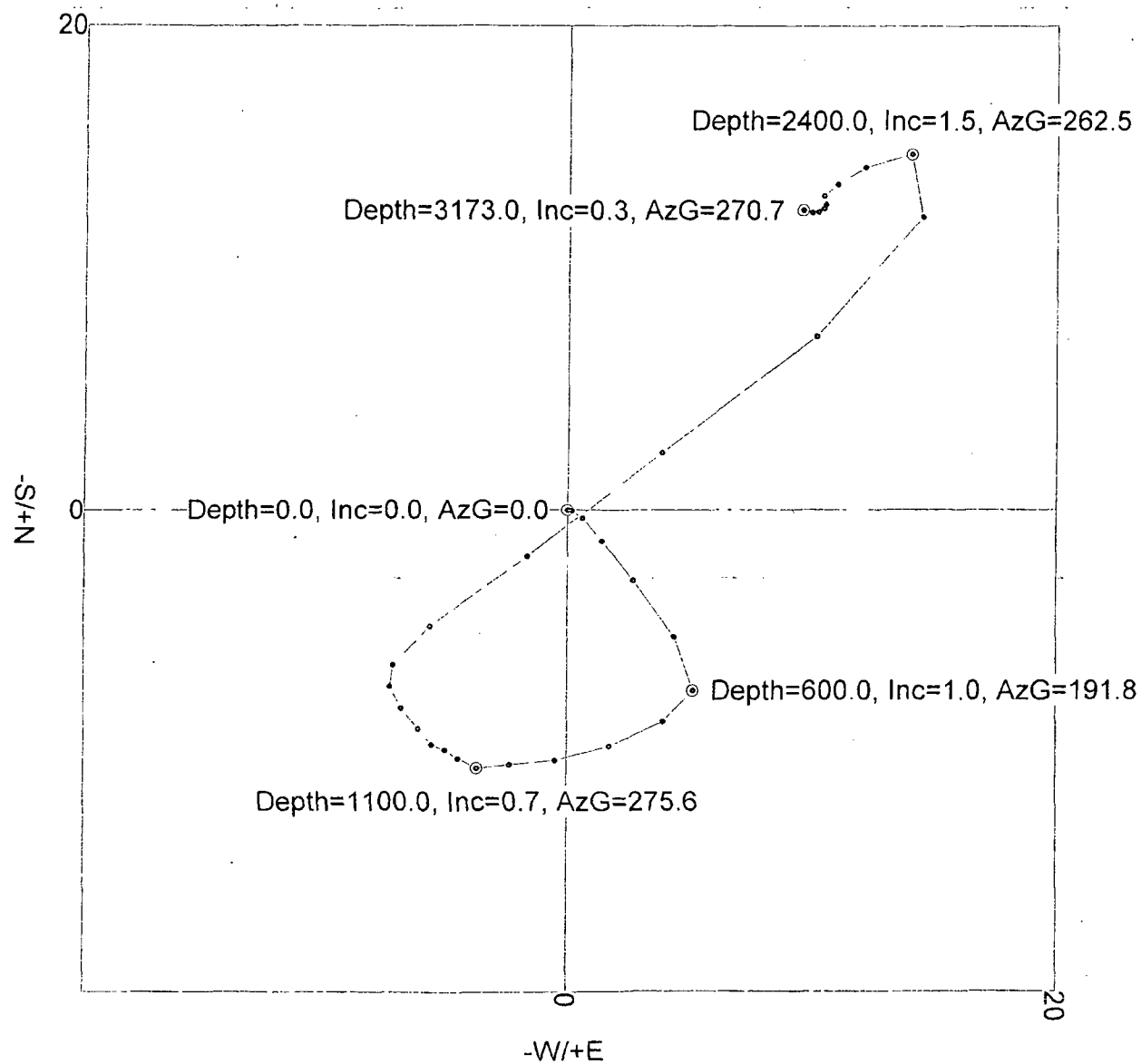
Lizard Pot Federal Com 3H / API 30-015-38147

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W 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	****
100.00	0.20	98.87	100.00	-0.03	0.17	0.18	98.87	0.20
200.00	0.46	138.64	200.00	-0.35	0.61	0.71	120.09	0.33
300.00	0.99	140.63	299.99	-1.33	1.43	1.95	132.89	0.54
400.00	1.37	143.49	399.97	-2.95	2.69	3.99	137.72	0.38
500.00	1.93	144.71	499.93	-5.29	4.37	6.86	140.43	0.57
600.00	0.99	191.79	599.90	-7.51	5.17	9.11	145.47	1.45
700.00	1.31	248.01	699.88	-8.78	3.93	9.62	155.91	1.12
800.00	1.45	241.78	799.85	-9.81	1.75	9.96	169.90	0.20
900.00	1.26	270.67	899.82	-10.39	-0.47	10.41	182.57	0.70
1000.00	0.89	255.21	999.81	-10.58	-2.32	10.83	192.35	0.47
1100.00	0.65	275.64	1099.80	-10.72	-3.63	11.32	198.72	0.36
1200.00	0.45	328.69	1199.79	-10.33	-4.40	11.23	203.09	0.52
1300.00	0.38	272.33	1299.79	-9.98	-4.94	11.13	206.32	0.40
1400.00	0.35	313.65	1399.79	-9.76	-5.49	11.19	209.35	0.26
1500.00	0.63	322.16	1499.78	-9.11	-6.05	10.93	213.57	0.29
1600.00	0.65	319.85	1599.78	-8.24	-6.75	10.65	219.31	0.03
1700.00	0.54	346.83	1699.77	-7.35	-7.22	10.30	224.48	0.30
1800.00	0.56	27.59	1799.77	-6.46	-7.10	9.60	227.70	0.38

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	2.01	48.48	1899.74	-4.87	-5.56	7.39	228.81	1.50
2000.00	3.60	56.49	1999.62	-1.97	-1.63	2.56	219.60	1.63
2100.00	4.43	47.30	2099.37	2.38	3.82	4.50	58.10	1.05
2200.00	4.71	58.48	2199.06	7.14	10.16	12.42	54.89	0.93
2300.00	3.33	16.26	2298.83	12.08	14.47	18.85	50.15	3.17
2400.00	1.48	262.50	2398.77	14.70	14.01	20.31	43.62	4.15
2500.00	0.83	238.51	2498.75	14.15	12.12	18.63	40.57	0.79
2600.00	0.70	237.22	2598.74	13.45	10.99	17.37	39.26	0.13
2700.00	0.19	196.72	2698.74	12.96	10.43	16.64	38.82	0.57
2800.00	0.27	146.64	2798.74	12.61	10.52	16.42	39.82	0.21
2900.00	0.24	276.21	2898.74	12.43	10.44	16.24	40.01	0.46
3000.00	0.18	183.29	2998.74	12.30	10.22	15.99	39.73	0.31
3100.00	0.32	297.55	3098.74	12.27	9.96	15.81	39.08	0.43
3173.00	0.29	270.67	3171.74	12.37	9.60	15.66	37.82	0.20



Vaughn Energy Services
Gardendale, Texas
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VES Survey Date: 07/20/2012