



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

30-015-38507

January 7, 2014

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

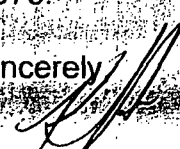
Attn: Kanicia Castillo

Re: **Cottonmouth 24 Federal Com No 001H**

Please find enclosed a copy of the survey from 0' to 808' ran on the above referenced well

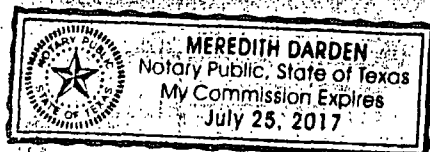
If I can be of any further service, please do not hesitate to call me at 800-606-4976

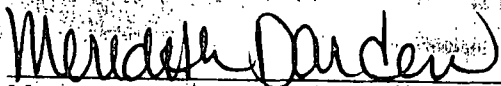
Sincerely


Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7th day of January, A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas



Company: CONCHO
Lease/Well: COTTONMOUTH 24 FEDERAL COM/No 001H
Location: SEC24-TS26S-R28E
Rig Name: SILVER OAK 7
State/County: NEW MEXICO/EDDY
Latitude: 32.02, Longitude: -104.05
GRID North is 0.15 Degrees East of True North
VS-Azi: 0.00 Degrees

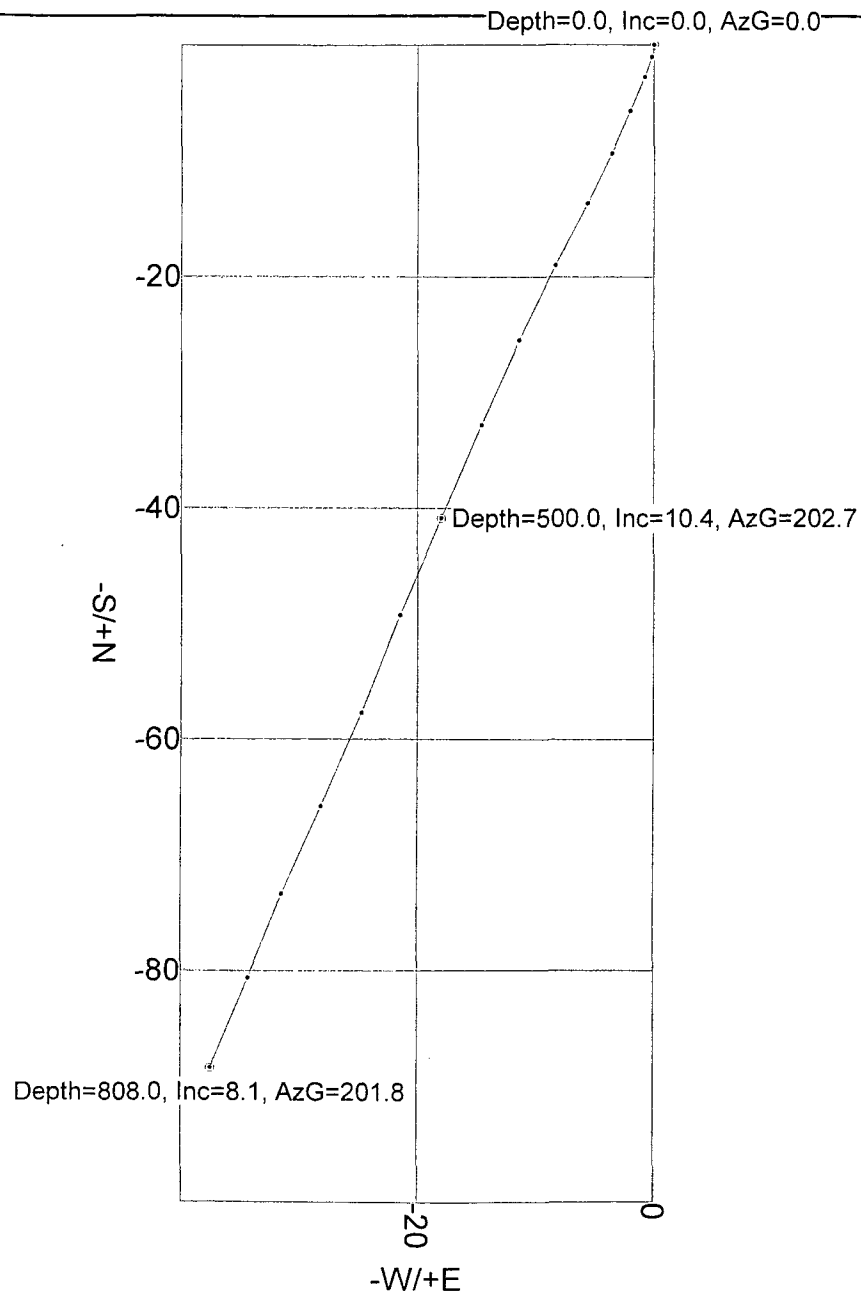


DRILLOG HA GYRO SURVEY CALCULATIONS
Filename: COTTONMOUTH24FEDCOM1H.ut
Minimum Curvature Method
Report Date/Time: 1/7/2014 / 10:17
Vaughn Energy Services
800-606-4976
Corpus Christi, Texas
Survey Engineer: Jeremy Rounsavall
Cottonmouth 24 Federal Com No 001H / API 30-015-38507

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	1.21	190.70	99.99	-1.04	-0.20	-1.04	1.05	190.70	1.21
150.00	3.01	202.46	149.96	-2.77	-0.80	-2.77	2.88	196.03	3.69
200.00	4.24	202.77	199.86	-5.69	-2.01	-5.69	6.03	199.49	2.46
250.00	4.95	204.08	249.69	-9.36	-3.61	-9.36	10.04	201.08	1.44
300.00	6.07	206.77	299.46	-13.69	-5.68	-13.69	14.83	202.53	2.29
350.00	7.56	206.80	349.11	-18.99	-8.35	-18.99	20.75	203.74	2.98
400.00	8.84	203.63	398.60	-25.45	-11.38	-25.45	27.87	204.09	2.73
450.00	9.64	203.18	447.95	-32.82	-14.56	-32.82	35.90	203.93	1.61
500.00	10.43	202.71	497.18	-40.84	-17.96	-40.84	44.62	203.74	1.58
550.00	10.57	202.42	546.34	-49.26	-21.46	-49.26	53.73	203.54	0.31
600.00	10.30	199.65	595.52	-57.71	-24.71	-57.71	62.77	203.18	1.14
650.00	9.86	206.34	644.75	-65.75	-28.11	-65.75	71.51	203.15	2.50
700.00	9.26	200.99	694.05	-73.34	-31.45	-73.34	79.80	203.21	2.14
750.00	8.72	202.17	743.44	-80.61	-34.32	-80.61	87.61	203.06	1.14
808.00	8.05	201.83	800.82	-88.45	-37.49	-88.45	96.07	202.97	1.15



Vaughn Energy Services
800-606-4976
Corpus Christi, Texas
Survey Engineer: Jeremy Rounsavall
Cottonmouth 24 Federal Com No 001H / API 30-015-38507



VES Survey Date: 12/15/2013