



January 9, 2015

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

30-025-41810

HOBBS OCD

AUG 1 2 2015

RECEIVED

Attn: Kanicia Castillo

RE: Osprey 20 State Com 2H

Please find enclosed a copy of the survey from 0.00' to 10,596.00' ran on the above referenced well.

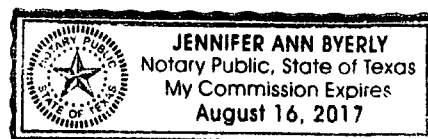
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 9 day of January,
A.D., 2015, by Keith Havelka.

Jennifer Ann Byerly
Jennifer Ann Byerly
Notary Public, State of Texas



AUG 1 3 2015

Am



Company: CONCHO
Lease/Well: OSPREY 20 STATE COM/2H

Rig Name: ENSIGN 772
State/County: NEW MEXICO/LEA
Latitude: 32.47, Longitude: -103.49
GRID North is 0.45 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB:31 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 1/9/2015 / 11:11

VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Osprey 20 State Com 2H / API 30-025-41810

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	0.48	193.52	100.00	-0.41	-0.10	-0.41	0.42	193.52	0.48
200.00	0.61	211.19	199.99	-1.28	-0.47	-1.28	1.36	200.34	0.21
300.00	0.44	163.56	299.99	-2.11	-0.64	-2.11	2.20	196.92	0.45
400.00	0.62	232.86	399.99	-2.80	-0.96	-2.80	2.97	198.96	0.62
500.00	0.62	203.09	499.98	-3.63	-1.61	-3.63	3.97	203.89	0.32
600.00	0.63	222.79	599.98	-4.54	-2.20	-4.54	5.04	205.84	0.22
700.00	0.65	236.38	699.97	-5.26	-3.05	-5.26	6.08	210.08	0.15
800.00	0.41	146.50	799.97	-5.87	-3.32	-5.87	6.75	209.48	0.77
900.00	0.57	246.26	899.96	-6.37	-3.58	-6.37	7.31	209.32	0.76
1000.00	0.36	269.81	999.96	-6.58	-4.36	-6.58	7.89	213.51	0.28
1100.00	0.54	312.33	1099.96	-6.26	-5.02	-6.26	8.03	218.71	0.37
1200.00	0.47	308.34	1199.95	-5.69	-5.69	-5.69	8.05	225.00	0.07
1300.00	0.35	160.93	1299.95	-5.72	-5.91	-5.72	8.23	225.95	0.79
1400.00	0.41	7.17	1399.95	-5.66	-5.77	-5.66	8.08	225.58	0.74
1500.00	0.58	23.12	1499.95	-4.84	-5.53	-4.84	7.35	228.81	0.22
1600.00	0.30	115.74	1599.95	-4.49	-5.09	-4.49	6.79	228.62	0.67
1700.00	0.35	184.81	1699.94	-4.91	-4.88	-4.91	6.92	224.85	0.37
1800.00	0.36	199.81	1799.94	-5.51	-5.01	-5.51	7.45	222.30	0.09

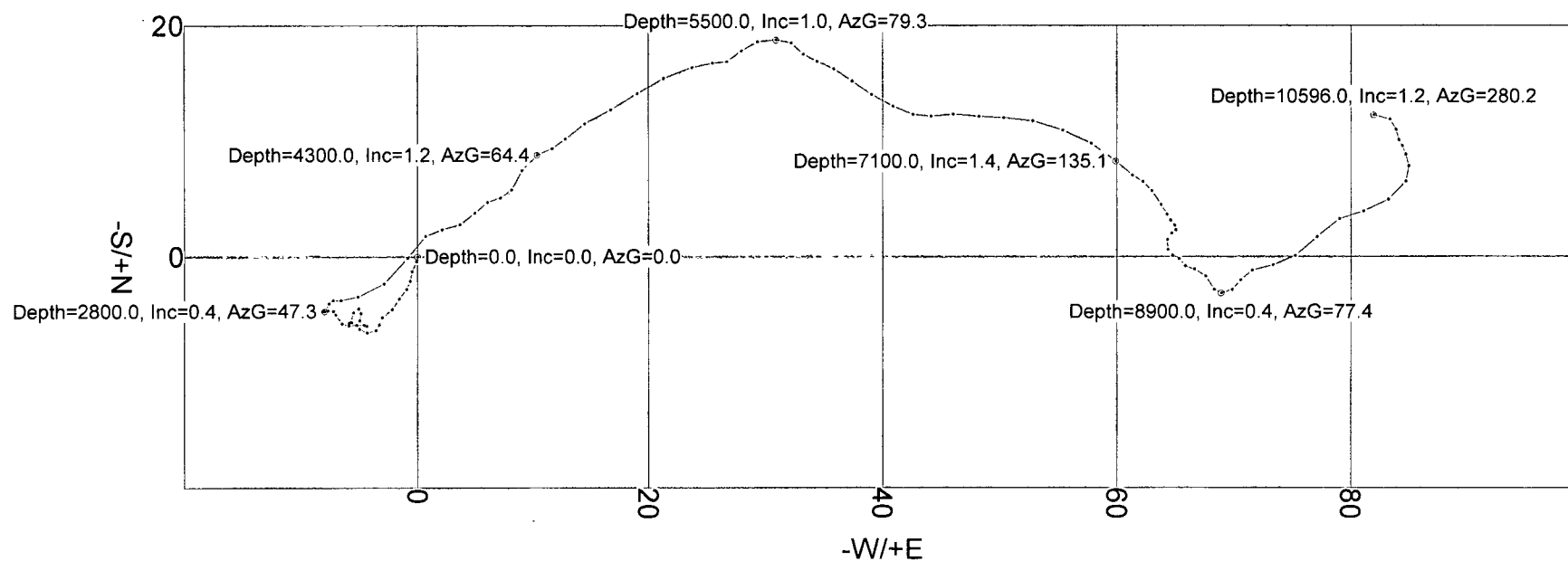
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.60	100.09	1899.94	-5.90	-4.60	-5.90	7.48	217.96	0.75
2000.00	0.36	271.05	1999.94	-5.98	-4.39	-5.98	7.42	216.28	0.96
2100.00	0.65	277.50	2099.94	-5.91	-5.26	-5.91	7.91	221.71	0.29
2200.00	0.18	220.09	2199.93	-5.95	-5.92	-5.95	8.40	224.86	0.57
2300.00	0.64	299.97	2299.93	-5.80	-6.51	-5.80	8.72	228.31	0.63
2400.00	0.58	352.17	2399.93	-5.02	-7.06	-5.02	8.66	234.59	0.54
2500.00	0.26	220.45	2499.92	-4.69	-7.28	-4.69	8.66	237.18	0.77
2600.00	0.42	301.90	2599.92	-4.67	-7.73	-4.67	9.03	238.90	0.46
2700.00	0.29	202.56	2699.92	-4.70	-8.14	-4.70	9.40	240.00	0.55
2800.00	0.36	47.32	2799.92	-4.72	-8.01	-4.72	9.30	239.48	0.63
2900.00	0.55	17.48	2899.92	-4.06	-7.64	-4.06	8.65	242.03	0.30
3000.00	0.32	126.47	2999.92	-3.77	-7.28	-3.77	8.19	242.63	0.71
3100.00	0.56	72.38	3099.91	-3.78	-6.59	-3.78	7.60	240.14	0.45
3200.00	1.14	79.92	3199.90	-3.46	-5.15	-3.46	6.20	236.08	0.59
3300.00	1.82	53.11	3299.87	-2.33	-2.90	-2.33	3.72	231.17	0.96
3400.00	1.68	30.92	3399.82	-0.12	-0.87	-0.12	0.88	261.99	0.69
3500.00	1.19	51.55	3499.79	1.78	0.69	1.78	1.91	21.19	0.70
3600.00	0.72	96.92	3599.78	2.34	2.12	2.34	3.16	42.18	0.85
3700.00	1.20	61.30	3699.77	2.77	3.67	2.77	4.60	52.92	0.74
3800.00	0.72	36.75	3799.75	3.78	4.96	3.78	6.23	52.71	0.62
3900.00	0.96	59.06	3899.74	4.71	6.05	4.71	7.66	52.11	0.40
4000.00	0.47	96.51	3999.73	5.09	7.17	5.09	8.80	54.65	0.65
4100.00	1.06	36.87	4099.73	5.78	8.14	5.78	9.98	54.60	0.92
4200.00	1.14	22.09	4199.71	7.45	9.07	7.45	11.74	50.60	0.30
4300.00	1.19	64.36	4299.69	8.82	10.38	8.82	13.62	49.64	0.84
4400.00	0.50	78.39	4399.68	9.36	11.74	9.36	15.01	51.44	0.71
4500.00	1.16	42.90	4499.67	10.19	12.86	10.19	16.41	51.60	0.81
4600.00	1.29	59.36	4599.64	11.50	14.51	11.50	18.52	51.60	0.37
4700.00	1.63	63.47	4699.61	12.71	16.75	12.71	21.03	52.81	0.36
4800.00	1.47	52.77	4799.58	14.12	19.04	14.12	23.70	53.44	0.33
4900.00	1.52	66.49	4899.54	15.42	21.28	15.42	26.28	54.06	0.36
5000.00	1.47	70.98	4999.51	16.37	23.71	16.37	28.81	55.37	0.13
5100.00	0.61	94.48	5099.49	16.75	25.45	16.75	30.47	56.65	0.94
5200.00	0.81	75.81	5199.48	16.88	26.67	16.88	31.56	57.67	0.30
5300.00	1.09	36.96	5299.47	17.82	27.93	17.82	33.12	57.46	0.69
5400.00	0.90	89.15	5399.46	18.59	29.29	18.59	34.69	57.59	0.89
5500.00	0.96	79.32	5499.44	18.75	30.89	18.75	36.14	58.74	0.17
5600.00	0.70	132.56	5599.44	18.49	32.16	18.49	37.10	60.10	0.78
5700.00	0.91	134.27	5699.43	17.52	33.19	17.52	37.53	62.17	0.21

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	0.70	97.86	5799.42	16.88	34.36	16.88	38.28	63.84	0.54
5900.00	1.13	123.89	5899.40	16.25	35.78	16.25	39.30	65.58	0.59
6000.00	1.05	124.29	5999.39	15.18	37.35	15.18	40.32	67.88	0.08
6100.00	1.28	124.76	6099.36	14.03	39.03	14.03	41.48	70.23	0.24
6200.00	1.14	111.77	6199.34	13.02	40.87	13.02	42.90	72.33	0.31
6300.00	1.01	112.06	6299.32	12.32	42.61	12.32	44.36	73.87	0.13
6400.00	0.86	76.48	6399.31	12.17	44.16	12.17	45.80	74.60	0.59
6500.00	1.34	90.02	6499.29	12.34	46.06	12.34	47.68	75.00	0.55
6600.00	1.18	101.33	6599.27	12.14	48.24	12.14	49.74	75.87	0.30
6700.00	1.30	86.12	6699.25	12.01	50.38	12.01	51.79	76.59	0.35
6800.00	1.59	104.00	6799.21	11.75	52.86	11.75	54.16	77.46	0.53
6900.00	1.48	111.52	6899.18	10.94	55.42	10.94	56.49	78.83	0.23
7000.00	1.60	118.87	6999.14	9.79	57.84	9.79	58.67	80.39	0.23
7100.00	1.38	135.12	7099.11	8.27	59.92	8.27	60.48	82.14	0.47
7200.00	0.76	124.13	7199.09	7.04	61.32	7.04	61.72	83.45	0.65
7300.00	0.45	115.30	7299.09	6.50	62.22	6.50	62.56	84.04	0.33
7400.00	0.87	148.48	7399.08	5.68	62.97	5.68	63.23	84.84	0.56
7500.00	0.75	143.08	7499.07	4.51	63.76	4.51	63.92	85.95	0.14
7600.00	0.40	159.31	7599.06	3.66	64.28	3.66	64.38	86.74	0.38
7700.00	0.30	135.93	7699.06	3.15	64.58	3.15	64.66	87.21	0.17
7800.00	0.35	143.41	7799.06	2.71	64.95	2.71	65.00	87.61	0.07
7900.00	0.22	210.89	7899.06	2.30	65.03	2.30	65.07	87.97	0.34
8000.00	0.32	247.07	7999.06	2.03	64.68	2.03	64.71	88.20	0.19
8100.00	0.54	192.16	8099.06	1.46	64.32	1.46	64.33	88.70	0.44
8200.00	0.46	161.30	8199.05	0.61	64.35	0.61	64.35	89.46	0.28
8300.00	0.36	114.24	8299.05	0.10	64.76	0.10	64.76	89.91	0.34
8400.00	0.36	123.23	8399.05	-0.20	65.31	-0.20	65.31	90.18	0.06
8500.00	0.58	148.30	8499.04	-0.80	65.83	-0.80	65.84	90.70	0.30
8600.00	0.62	76.60	8599.04	-1.10	66.62	-1.10	66.63	90.95	0.70
8700.00	0.97	147.83	8699.03	-1.70	67.60	-1.70	67.62	91.44	0.97
8800.00	0.56	145.78	8799.02	-2.82	68.33	-2.82	68.39	92.37	0.41
8900.00	0.40	77.36	8899.02	-3.15	68.94	-3.15	69.01	92.62	0.56
9000.00	0.72	68.63	8999.02	-2.85	69.86	-2.85	69.92	92.33	0.33
9100.00	0.70	13.73	9099.01	-2.03	70.59	-2.03	70.62	91.65	0.65
9200.00	1.00	72.74	9199.00	-1.18	71.57	-1.18	71.58	90.95	0.88
9300.00	1.09	78.28	9298.98	-0.73	73.33	-0.73	73.34	90.57	0.13
9400.00	1.36	58.69	9398.96	0.08	75.28	0.08	75.28	89.94	0.49
9500.00	1.52	39.48	9498.93	1.71	77.13	1.71	77.15	88.73	0.50
9600.00	1.37	63.92	9598.90	3.26	79.04	3.26	79.11	87.64	0.63

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	81.01	9698.88	3.94	81.11	3.94	81.21	87.22	0.43
9800.00	1.60	53.48	9798.85	4.93	83.23	4.93	83.37	86.61	0.79
9900.00	0.95	24.94	9898.82	6.52	84.70	6.52	84.95	85.60	0.89
10000.00	0.66	348.16	9998.81	7.84	84.93	7.84	85.29	84.73	0.58
10100.00	0.54	343.26	10098.81	8.85	84.68	8.85	85.14	84.03	0.13
10200.00	0.37	329.51	10198.80	9.59	84.38	9.59	84.92	83.52	0.20
10300.00	0.31	331.25	10298.80	10.10	84.08	10.10	84.69	83.15	0.07
10400.00	0.77	351.05	10398.80	11.01	83.85	11.01	84.57	82.52	0.49
10500.00	0.52	298.47	10498.79	11.89	83.34	11.89	84.19	81.88	0.61
10596.00	1.18	280.15	10594.78	12.27	81.99	12.27	82.90	81.49	0.74



VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Osprey 20 State Com 2H / API 30-025-41810





COG Operating LLC

Lea County, NM
Osprey 20 State Com
#2H

OH

Design: OH

Survey Report - Geographic

07 January, 2015

HOBBS OCD

AUG 12 2015

RECEIVED





TDS
Survey Report - Geographic



Company: COG Operating LLC
Project: Lea County, NM
Site: Osprey 20 State Com
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB @ 3783.5usft (Ensign 772)
MD Reference: KB @ 3783.5usft (Ensign 772)
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)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001
System Datum: Mean Sea Level

Site: Osprey 20 State Com
Site Position: Northing: 536,090.70 usft Latitude: 32° 28' 15.482 N
From: Map Easting: 761,598.00 usft Longitude: 103° 29' 6.372 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.46 °

Well: #2H
Well Position: +N/-S 0.0 usft Northing: 536,076.30 usft Latitude: 32° 28' 15.443 N
+E/-W 0.0 usft Easting: 760,278.50 usft Longitude: 103° 29' 21.774 W
Position Uncertainty: 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 3,752.1 usft

Wellbore: OH
Magnetics: Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT)
IGRF2010 11/20/2014 7.14 60.34 48,427

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 0.0 179.51

Survey Program Date: 1/7/2015
From (usft) To (usft) Survey (Wellbore) Tool Name Description
100.0 10,596.0 GYRO #1 (OH) MWD MWD - Standard
10,690.0 21,609.0 MWD #1 (OH) MWD MWD - Standard

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	536,076.30	760,278.50	32° 28' 15.443 N	103° 29' 21.774 W
100.0	0.48	193.52	100.0	-0.4	-0.1	536,075.89	760,278.40	32° 28' 15.439 N	103° 29' 21.775 W
200.0	0.61	211.19	200.0	-1.3	-0.5	536,075.03	760,278.03	32° 28' 15.430 N	103° 29' 21.780 W
300.0	0.44	163.56	300.0	-2.1	-0.6	536,074.21	760,277.86	32° 28' 15.422 N	103° 29' 21.782 W
400.0	0.62	232.86	400.0	-2.8	-1.0	536,073.51	760,277.54	32° 28' 15.415 N	103° 29' 21.786 W
500.0	0.62	203.09	500.0	-3.6	-1.6	536,072.69	760,276.89	32° 28' 15.407 N	103° 29' 21.793 W
600.0	0.63	222.79	600.0	-4.5	-2.2	536,071.79	760,276.31	32° 28' 15.398 N	103° 29' 21.800 W
700.0	0.65	236.38	700.0	-5.2	-3.0	536,071.07	760,275.46	32° 28' 15.391 N	103° 29' 21.810 W
800.0	0.41	146.50	800.0	-5.8	-3.3	536,070.46	760,275.19	32° 28' 15.385 N	103° 29' 21.813 W
900.0	0.57	246.26	900.0	-6.3	-3.6	536,069.96	760,274.93	32° 28' 15.380 N	103° 29' 21.816 W
1,000.0	0.36	269.81	1,000.0	-6.5	-4.3	536,069.76	760,274.16	32° 28' 15.378 N	103° 29' 21.825 W



TDS
Survey Report - Geographic



Company: COG Operating LLC
Project: Lea County, NM
Site: Osprey 20 State Com
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB @ 3783.5usft (Ensign 772)
MD Reference: KB @ 3783.5usft (Ensign 772)
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
1,100.0	0.54	312.33	1,100.0	-6.2	-5.0	536,070.07	760,273.50	32° 28' 15.381 N	103° 29' 21.833 W
1,200.0	0.47	308.34	1,200.0	-5.7	-5.7	536,070.65	760,272.83	32° 28' 15.387 N	103° 29' 21.841 W
1,300.0	0.35	160.93	1,300.0	-5.7	-5.9	536,070.61	760,272.60	32° 28' 15.387 N	103° 29' 21.843 W
1,400.0	0.41	7.17	1,400.0	-5.6	-5.7	536,070.68	760,272.75	32° 28' 15.387 N	103° 29' 21.842 W
1,500.0	0.58	23.12	1,499.9	-4.8	-5.5	536,071.50	760,272.99	32° 28' 15.396 N	103° 29' 21.839 W
1,600.0	0.30	115.74	1,599.9	-4.5	-5.1	536,071.85	760,273.43	32° 28' 15.399 N	103° 29' 21.834 W
1,700.0	0.35	184.81	1,699.9	-4.9	-4.9	536,071.43	760,273.64	32° 28' 15.395 N	103° 29' 21.831 W
1,800.0	0.36	199.81	1,799.9	-5.5	-5.0	536,070.83	760,273.50	32° 28' 15.389 N	103° 29' 21.833 W
1,900.0	0.60	100.09	1,899.9	-5.9	-4.6	536,070.45	760,273.91	32° 28' 15.385 N	103° 29' 21.828 W
2,000.0	0.36	271.05	1,999.9	-5.9	-4.4	536,070.36	760,274.12	32° 28' 15.384 N	103° 29' 21.826 W
2,100.0	0.65	277.50	2,099.9	-5.9	-5.3	536,070.44	760,273.24	32° 28' 15.385 N	103° 29' 21.836 W
2,200.0	0.18	220.09	2,199.9	-5.9	-5.9	536,070.39	760,272.58	32° 28' 15.385 N	103° 29' 21.844 W
2,300.0	0.64	299.97	2,299.9	-5.8	-6.5	536,070.55	760,271.99	32° 28' 15.386 N	103° 29' 21.851 W
2,400.0	0.58	352.17	2,399.9	-5.0	-7.1	536,071.33	760,271.44	32° 28' 15.394 N	103° 29' 21.857 W
2,500.0	0.26	220.45	2,499.9	-4.6	-7.3	536,071.66	760,271.22	32° 28' 15.397 N	103° 29' 21.860 W
2,600.0	0.42	301.90	2,599.9	-4.6	-7.7	536,071.68	760,270.76	32° 28' 15.398 N	103° 29' 21.865 W
2,700.0	0.29	202.56	2,699.9	-4.7	-8.1	536,071.64	760,270.35	32° 28' 15.397 N	103° 29' 21.870 W
2,800.0	0.36	47.32	2,799.9	-4.7	-8.0	536,071.62	760,270.49	32° 28' 15.397 N	103° 29' 21.868 W
2,900.0	0.55	17.48	2,899.9	-4.0	-7.6	536,072.29	760,270.86	32° 28' 15.404 N	103° 29' 21.864 W
3,000.0	0.32	126.47	2,999.9	-3.7	-7.3	536,072.58	760,271.23	32° 28' 15.406 N	103° 29' 21.859 W
3,100.0	0.56	72.38	3,099.9	-3.7	-6.6	536,072.57	760,271.92	32° 28' 15.406 N	103° 29' 21.851 W
3,200.0	1.14	79.92	3,199.9	-3.4	-5.1	536,072.89	760,273.37	32° 28' 15.409 N	103° 29' 21.834 W
3,300.0	1.82	53.11	3,299.9	-2.3	-2.9	536,074.02	760,275.62	32° 28' 15.420 N	103° 29' 21.808 W
3,400.0	1.68	30.92	3,399.8	-0.1	-0.9	536,076.23	760,277.64	32° 28' 15.442 N	103° 29' 21.784 W
3,500.0	1.19	51.55	3,499.8	1.8	0.7	536,078.13	760,279.21	32° 28' 15.461 N	103° 29' 21.766 W
3,600.0	0.72	96.92	3,599.8	2.4	2.1	536,078.70	760,280.64	32° 28' 15.466 N	103° 29' 21.749 W
3,700.0	1.20	61.30	3,699.8	2.8	3.7	536,079.13	760,282.19	32° 28' 15.470 N	103° 29' 21.731 W
3,800.0	0.72	36.75	3,799.8	3.8	5.0	536,080.13	760,283.48	32° 28' 15.480 N	103° 29' 21.716 W
3,900.0	0.96	59.06	3,899.7	4.8	6.1	536,081.07	760,284.58	32° 28' 15.489 N	103° 29' 21.703 W
4,000.0	0.47	96.51	3,999.7	5.1	7.2	536,081.45	760,285.70	32° 28' 15.493 N	103° 29' 21.690 W
4,100.0	1.06	36.87	4,099.7	5.8	8.2	536,082.14	760,286.66	32° 28' 15.500 N	103° 29' 21.678 W
4,200.0	1.14	22.09	4,199.7	7.5	9.1	536,083.81	760,287.59	32° 28' 15.516 N	103° 29' 21.667 W
4,300.0	1.19	64.36	4,299.7	8.9	10.4	536,085.18	760,288.90	32° 28' 15.530 N	103° 29' 21.652 W
4,400.0	0.50	78.39	4,399.7	9.4	11.8	536,085.71	760,290.27	32° 28' 15.535 N	103° 29' 21.636 W
4,500.0	1.16	42.90	4,499.7	10.2	12.9	536,086.54	760,291.38	32° 28' 15.543 N	103° 29' 21.623 W
4,600.0	1.29	59.36	4,599.6	11.6	14.5	536,087.86	760,293.04	32° 28' 15.556 N	103° 29' 21.603 W
4,700.0	1.63	63.47	4,699.6	12.8	16.8	536,089.07	760,295.28	32° 28' 15.568 N	103° 29' 21.577 W
4,800.0	1.47	52.77	4,799.6	14.2	19.1	536,090.48	760,297.58	32° 28' 15.581 N	103° 29' 21.550 W
4,900.0	1.52	66.49	4,899.5	15.5	21.3	536,091.78	760,299.81	32° 28' 15.594 N	103° 29' 21.524 W
5,000.0	1.47	70.98	4,999.5	16.4	23.7	536,092.73	760,302.24	32° 28' 15.603 N	103° 29' 21.496 W
5,100.0	0.61	94.48	5,099.5	16.8	25.5	536,093.11	760,303.99	32° 28' 15.607 N	103° 29' 21.475 W
5,200.0	0.81	75.81	5,199.5	16.9	26.7	536,093.24	760,305.20	32° 28' 15.608 N	103° 29' 21.461 W
5,300.0	1.09	36.96	5,299.5	17.9	28.0	536,094.17	760,306.46	32° 28' 15.617 N	103° 29' 21.446 W
5,400.0	0.90	89.15	5,399.5	18.6	29.3	536,094.94	760,307.82	32° 28' 15.625 N	103° 29' 21.430 W
5,500.0	0.96	79.32	5,499.4	18.8	30.9	536,095.11	760,309.42	32° 28' 15.626 N	103° 29' 21.411 W
5,600.0	0.70	132.56	5,599.4	18.6	32.2	536,094.85	760,310.70	32° 28' 15.624 N	103° 29' 21.397 W
5,700.0	0.91	134.27	5,699.4	17.6	33.2	536,093.89	760,311.72	32° 28' 15.614 N	103° 29' 21.385 W
5,800.0	0.70	97.86	5,799.4	16.9	34.4	536,093.25	760,312.89	32° 28' 15.608 N	103° 29' 21.371 W
5,900.0	1.13	123.89	5,899.4	16.3	35.8	536,092.61	760,314.31	32° 28' 15.601 N	103° 29' 21.355 W
6,000.0	1.05	124.29	5,999.4	15.2	37.4	536,091.55	760,315.89	32° 28' 15.591 N	103° 29' 21.336 W
6,100.0	1.28	124.76	6,099.4	14.1	39.1	536,090.40	760,317.56	32° 28' 15.579 N	103° 29' 21.317 W
6,200.0	1.14	111.77	6,199.3	13.1	40.9	536,089.39	760,319.40	32° 28' 15.569 N	103° 29' 21.296 W
6,300.0	1.01	112.06	6,299.3	12.4	42.6	536,088.69	760,321.15	32° 28' 15.562 N	103° 29' 21.275 W
6,400.0	0.86	76.48	6,399.3	12.2	44.2	536,088.53	760,322.69	32° 28' 15.560 N	103° 29' 21.257 W
6,500.0	1.34	90.02	6,499.3	12.4	46.1	536,088.71	760,324.59	32° 28' 15.562 N	103° 29' 21.235 W



TDS
Survey Report - Geographic



Company: COG Operating LLC
Project: Lea County, NM
Site: Osprey 20 State Com
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB @ 3783.5usft (Ensign 772)
MD Reference: KB @ 3783.5usft (Ensign 772)
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
6,600.0	1.18	101.33	6,599.3	12.2	48.3	536,088.51	760,326.77	32° 28' 15.560 N	103° 29' 21.210 W
6,700.0	1.30	86.12	6,699.2	12.1	50.4	536,088.38	760,328.91	32° 28' 15.558 N	103° 29' 21.185 W
6,800.0	1.59	104.00	6,799.2	11.8	52.9	536,088.12	760,331.39	32° 28' 15.556 N	103° 29' 21.156 W
6,900.0	1.48	111.52	6,899.2	11.0	55.4	536,087.31	760,333.94	32° 28' 15.547 N	103° 29' 21.126 W
7,000.0	1.60	118.87	6,999.1	9.9	57.9	536,086.17	760,336.36	32° 28' 15.536 N	103° 29' 21.098 W
7,100.0	1.38	135.12	7,099.1	8.3	59.9	536,084.64	760,338.43	32° 28' 15.520 N	103° 29' 21.074 W
7,200.0	0.76	124.13	7,199.1	7.1	61.3	536,083.41	760,339.83	32° 28' 15.508 N	103° 29' 21.058 W
7,300.0	0.45	115.30	7,299.1	6.6	62.2	536,082.87	760,340.74	32° 28' 15.503 N	103° 29' 21.047 W
7,400.0	0.87	148.48	7,399.1	5.8	63.0	536,082.06	760,341.49	32° 28' 15.495 N	103° 29' 21.038 W
7,500.0	0.75	143.08	7,499.1	4.6	63.8	536,080.89	760,342.28	32° 28' 15.483 N	103° 29' 21.029 W
7,600.0	0.40	159.31	7,599.1	3.7	64.3	536,080.04	760,342.79	32° 28' 15.475 N	103° 29' 21.023 W
7,700.0	0.30	135.93	7,699.1	3.2	64.6	536,079.52	760,343.10	32° 28' 15.470 N	103° 29' 21.020 W
7,800.0	0.35	143.41	7,799.1	2.8	65.0	536,079.09	760,343.46	32° 28' 15.465 N	103° 29' 21.016 W
7,900.0	0.22	210.89	7,899.1	2.4	65.0	536,078.68	760,343.55	32° 28' 15.461 N	103° 29' 21.015 W
8,000.0	0.32	247.07	7,999.1	2.1	64.7	536,078.41	760,343.19	32° 28' 15.458 N	103° 29' 21.019 W
8,100.0	0.54	192.16	8,099.1	1.5	64.3	536,077.84	760,342.83	32° 28' 15.453 N	103° 29' 21.023 W
8,200.0	0.46	161.30	8,199.1	0.7	64.4	536,077.00	760,342.86	32° 28' 15.445 N	103° 29' 21.023 W
8,300.0	0.36	114.24	8,299.1	0.2	64.8	536,076.49	760,343.28	32° 28' 15.439 N	103° 29' 21.018 W
8,400.0	0.36	123.23	8,399.0	-0.1	65.3	536,076.19	760,343.83	32° 28' 15.436 N	103° 29' 21.012 W
8,500.0	0.58	148.30	8,499.0	-0.7	65.9	536,075.58	760,344.36	32° 28' 15.430 N	103° 29' 21.006 W
8,600.0	0.62	76.60	8,599.0	-1.0	66.7	536,075.28	760,345.15	32° 28' 15.427 N	103° 29' 20.996 W
8,700.0	0.97	147.83	8,699.0	-1.6	67.6	536,074.69	760,346.13	32° 28' 15.421 N	103° 29' 20.985 W
8,800.0	0.56	145.78	8,799.0	-2.7	68.4	536,073.57	760,346.85	32° 28' 15.410 N	103° 29' 20.977 W
8,900.0	0.40	77.36	8,899.0	-3.1	69.0	536,073.24	760,347.47	32° 28' 15.407 N	103° 29' 20.969 W
9,000.0	0.72	68.63	8,999.0	-2.8	69.9	536,073.54	760,348.39	32° 28' 15.410 N	103° 29' 20.959 W
9,100.0	0.70	13.73	9,099.0	-1.9	70.6	536,074.37	760,349.12	32° 28' 15.418 N	103° 29' 20.950 W
9,200.0	1.00	72.74	9,199.0	-1.1	71.6	536,075.22	760,350.10	32° 28' 15.426 N	103° 29' 20.939 W
9,300.0	1.09	78.28	9,299.0	-0.6	73.4	536,075.67	760,351.87	32° 28' 15.431 N	103° 29' 20.918 W
9,400.0	1.36	58.69	9,399.0	0.2	75.3	536,076.48	760,353.81	32° 28' 15.439 N	103° 29' 20.895 W
9,500.0	1.52	39.48	9,498.9	1.8	77.2	536,078.12	760,355.67	32° 28' 15.455 N	103° 29' 20.873 W
9,600.0	1.37	63.92	9,598.9	3.4	79.1	536,079.67	760,357.59	32° 28' 15.470 N	103° 29' 20.851 W
9,700.0	1.15	81.01	9,698.9	4.0	81.2	536,080.35	760,359.65	32° 28' 15.476 N	103° 29' 20.827 W
9,800.0	1.60	53.48	9,798.8	5.0	83.3	536,081.34	760,361.76	32° 28' 15.486 N	103° 29' 20.802 W
9,900.0	0.95	24.94	9,898.8	6.6	84.7	536,082.92	760,363.24	32° 28' 15.502 N	103° 29' 20.785 W
10,000.0	0.66	348.16	9,998.8	7.9	85.0	536,084.24	760,363.47	32° 28' 15.515 N	103° 29' 20.782 W
10,100.0	0.54	343.26	10,098.8	9.0	84.7	536,085.25	760,363.21	32° 28' 15.525 N	103° 29' 20.785 W
10,200.0	0.37	329.51	10,198.8	9.7	84.4	536,085.98	760,362.91	32° 28' 15.532 N	103° 29' 20.788 W
10,300.0	0.31	331.25	10,298.8	10.2	84.1	536,086.50	760,362.62	32° 28' 15.537 N	103° 29' 20.791 W
10,400.0	0.77	351.05	10,398.8	11.1	83.9	536,087.40	760,362.38	32° 28' 15.546 N	103° 29' 20.794 W
10,500.0	0.52	298.47	10,498.8	12.0	83.4	536,088.28	760,361.88	32° 28' 15.555 N	103° 29' 20.800 W
10,596.0	1.18	280.15	10,594.8	12.4	82.0	536,088.66	760,360.53	32° 28' 15.559 N	103° 29' 20.816 W
10,690.0	1.40	266.50	10,688.8	12.5	79.9	536,088.76	760,358.43	32° 28' 15.560 N	103° 29' 20.840 W
10,785.0	1.50	271.60	10,783.7	12.4	77.5	536,088.72	760,356.02	32° 28' 15.560 N	103° 29' 20.868 W
10,879.0	1.50	269.10	10,877.7	12.4	75.1	536,088.74	760,353.56	32° 28' 15.560 N	103° 29' 20.897 W
10,974.0	1.50	269.10	10,972.7	12.4	72.6	536,088.70	760,351.08	32° 28' 15.560 N	103° 29' 20.926 W
11,067.0	1.50	273.10	11,065.6	12.4	70.1	536,088.75	760,348.65	32° 28' 15.560 N	103° 29' 20.954 W
11,161.0	1.30	290.70	11,159.6	12.9	67.9	536,089.19	760,346.42	32° 28' 15.565 N	103° 29' 20.980 W
11,256.0	1.00	265.70	11,254.6	13.2	66.1	536,089.51	760,344.59	32° 28' 15.568 N	103° 29' 21.002 W
11,287.0	3.20	175.90	11,285.6	12.3	65.9	536,088.63	760,344.38	32° 28' 15.559 N	103° 29' 21.004 W
11,318.0	6.50	171.30	11,316.5	9.7	66.2	536,088.03	760,344.70	32° 28' 15.534 N	103° 29' 21.001 W
11,350.0	9.70	170.50	11,348.1	5.3	66.9	536,081.58	760,345.42	32° 28' 15.490 N	103° 29' 20.993 W
11,381.0	13.50	170.80	11,378.5	-0.9	67.9	536,075.43	760,346.43	32° 28' 15.429 N	103° 29' 20.981 W
11,412.0	16.40	172.40	11,408.4	-8.8	69.1	536,067.52	760,347.59	32° 28' 15.350 N	103° 29' 20.969 W
11,444.0	18.40	175.30	11,439.0	-18.3	70.1	536,058.00	760,348.60	32° 28' 15.256 N	103° 29' 20.958 W
11,475.0	21.50	178.70	11,468.1	-28.9	70.6	536,047.45	760,349.13	32° 28' 15.152 N	103° 29' 20.952 W

Company: COG Operating LLC
Project: Lea County, NM
Site: Osprey 20 State Com
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB @ 3783.5usft (Ensign 772)
MD Reference: KB @ 3783.5usft (Ensign 772)
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
11,507.0	25.00	181.00	11,497.5	-41.5	70.7	536,034.82	760,349.15	32° 28' 15.027 N	103° 29' 20.953 W
11,538.0	27.90	181.40	11,525.3	-55.3	70.4	536,021.01	760,348.86	32° 28' 14.890 N	103° 29' 20.958 W
11,569.0	31.10	181.20	11,552.2	-70.5	70.0	536,005.76	760,348.51	32° 28' 14.739 N	103° 29' 20.963 W
11,601.0	34.20	179.90	11,579.2	-87.8	69.9	535,988.49	760,348.35	32° 28' 14.568 N	103° 29' 20.967 W
11,632.0	36.50	178.70	11,604.5	-105.7	70.1	535,970.56	760,348.58	32° 28' 14.391 N	103° 29' 20.966 W
11,663.0	39.10	179.40	11,629.0	-124.7	70.4	535,951.57	760,348.89	32° 28' 14.203 N	103° 29' 20.964 W
11,695.0	42.60	180.40	11,653.2	-145.7	70.4	535,930.64	760,348.92	32° 28' 13.996 N	103° 29' 20.966 W
11,726.0	45.30	180.30	11,675.5	-167.2	70.3	535,909.13	760,348.79	32° 28' 13.783 N	103° 29' 20.969 W
11,757.0	49.30	179.30	11,696.5	-190.0	70.4	535,886.35	760,348.87	32° 28' 13.558 N	103° 29' 20.970 W
11,788.0	53.00	179.40	11,715.9	-214.1	70.7	535,862.21	760,349.15	32° 28' 13.319 N	103° 29' 20.969 W
11,820.0	56.00	180.40	11,734.5	-240.1	70.7	535,836.17	760,349.19	32° 28' 13.061 N	103° 29' 20.971 W
11,851.0	59.30	181.30	11,751.1	-266.3	70.3	535,809.98	760,348.80	32° 28' 12.802 N	103° 29' 20.978 W
11,883.0	62.30	182.20	11,766.7	-294.2	69.4	535,782.07	760,347.94	32° 28' 12.526 N	103° 29' 20.991 W
11,914.0	64.70	182.30	11,780.5	-322.0	68.4	535,754.35	760,346.85	32° 28' 12.252 N	103° 29' 21.006 W
11,945.0	68.00	181.70	11,793.0	-350.3	67.4	535,725.97	760,345.86	32° 28' 11.971 N	103° 29' 21.020 W
11,977.0	71.40	181.10	11,804.1	-380.3	66.6	535,695.97	760,345.13	32° 28' 11.674 N	103° 29' 21.032 W
12,008.0	74.30	181.50	11,813.2	-409.9	66.0	535,666.36	760,344.46	32° 28' 11.381 N	103° 29' 21.042 W
12,040.0	77.80	182.50	11,820.9	-441.0	64.9	535,635.33	760,343.37	32° 28' 11.074 N	103° 29' 21.058 W
12,072.0	80.70	182.90	11,826.9	-472.4	63.4	535,603.93	760,341.89	32° 28' 10.764 N	103° 29' 21.078 W
12,103.0	83.10	182.60	11,831.3	-503.0	61.9	535,573.28	760,340.42	32° 28' 10.460 N	103° 29' 21.098 W
12,137.0	86.90	181.80	11,834.2	-536.9	60.6	535,539.44	760,339.12	32° 28' 10.126 N	103° 29' 21.116 W
12,199.0	90.20	180.50	11,835.8	-598.8	59.4	535,477.48	760,337.88	32° 28' 9.513 N	103° 29' 21.136 W
12,294.0	91.30	179.30	11,834.6	-693.8	59.5	535,382.49	760,338.04	32° 28' 8.573 N	103° 29' 21.143 W
12,387.0	91.30	179.80	11,832.4	-786.8	60.3	535,289.52	760,338.77	32° 28' 7.653 N	103° 29' 21.143 W
12,481.0	89.80	181.20	11,831.5	-880.8	59.5	535,195.53	760,337.95	32° 28' 6.723 N	103° 29' 21.162 W
12,576.0	89.70	181.20	11,832.0	-975.7	57.5	535,100.55	760,335.96	32° 28' 5.783 N	103° 29' 21.194 W
12,671.0	90.40	181.10	11,831.9	-1,070.7	55.6	535,005.57	760,334.06	32° 28' 4.844 N	103° 29' 21.225 W
12,765.0	89.10	179.90	11,832.3	-1,164.7	54.7	534,911.58	760,333.24	32° 28' 3.914 N	103° 29' 21.243 W
12,859.0	90.00	179.50	11,833.0	-1,258.7	55.2	534,817.59	760,333.73	32° 28' 2.983 N	103° 29' 21.246 W
12,954.0	88.00	179.70	11,834.7	-1,353.7	55.9	534,722.61	760,334.39	32° 28' 2.044 N	103° 29' 21.247 W
13,051.0	88.40	179.10	11,837.7	-1,450.6	56.9	534,625.66	760,335.41	32° 28' 1.084 N	103° 29' 21.244 W
13,145.0	90.10	178.60	11,839.0	-1,544.6	58.8	534,531.69	760,337.29	32° 28' 0.154 N	103° 29' 21.231 W
13,239.0	87.90	178.70	11,840.6	-1,638.6	61.0	534,437.74	760,339.51	32° 27' 59.224 N	103° 29' 21.213 W
13,333.0	87.80	178.40	11,844.1	-1,732.5	63.4	534,343.84	760,341.88	32° 27' 58.295 N	103° 29' 21.194 W
13,428.0	88.30	177.70	11,847.4	-1,827.4	66.6	534,248.95	760,345.11	32° 27' 57.356 N	103° 29' 21.165 W
13,523.0	88.90	177.40	11,849.7	-1,922.2	70.7	534,154.06	760,349.17	32° 27' 56.417 N	103° 29' 21.127 W
13,617.0	87.20	178.80	11,852.9	-2,016.1	73.8	534,060.17	760,352.29	32° 27' 55.488 N	103° 29' 21.099 W
13,711.0	88.40	180.40	11,856.5	-2,110.1	74.4	533,966.25	760,352.94	32° 27' 54.558 N	103° 29' 21.100 W
13,805.0	91.50	181.40	11,856.6	-2,204.0	73.0	533,872.28	760,351.47	32° 27' 53.628 N	103° 29' 21.126 W
13,900.0	92.60	180.90	11,853.2	-2,298.9	71.1	533,777.36	760,349.56	32° 27' 52.689 N	103° 29' 21.157 W
13,995.0	90.20	180.70	11,850.8	-2,393.9	69.7	533,682.40	760,348.24	32° 27' 51.750 N	103° 29' 21.181 W
14,089.0	90.70	180.30	11,850.1	-2,487.9	68.9	533,588.41	760,347.42	32° 27' 50.820 N	103° 29' 21.199 W
14,183.0	89.60	180.60	11,849.9	-2,581.9	68.2	533,494.41	760,346.68	32° 27' 49.890 N	103° 29' 21.217 W
14,278.0	90.10	180.80	11,850.1	-2,676.9	67.0	533,399.42	760,345.52	32° 27' 48.950 N	103° 29' 21.239 W
14,372.0	90.10	181.00	11,849.9	-2,770.9	65.5	533,305.43	760,344.04	32° 27' 48.020 N	103° 29' 21.265 W
14,466.0	90.50	180.40	11,849.5	-2,864.9	64.4	533,211.44	760,342.89	32° 27' 47.090 N	103° 29' 21.287 W
14,560.0	89.80	179.70	11,849.2	-2,958.9	64.3	533,117.44	760,342.81	32° 27' 46.160 N	103° 29' 21.297 W
14,655.0	90.60	179.50	11,848.9	-3,053.9	65.0	533,022.45	760,343.47	32° 27' 45.220 N	103° 29' 21.298 W
14,748.0	89.60	179.30	11,848.7	-3,146.8	66.0	532,929.45	760,344.45	32° 27' 44.300 N	103° 29' 21.295 W
14,844.0	91.10	179.00	11,848.1	-3,242.8	67.4	532,833.47	760,345.87	32° 27' 43.350 N	103° 29' 21.287 W
14,939.0	89.80	179.20	11,847.4	-3,337.8	68.9	532,738.49	760,347.36	32° 27' 42.410 N	103° 29' 21.278 W
15,034.0	91.60	179.00	11,846.2	-3,432.8	70.4	532,643.51	760,348.86	32° 27' 41.470 N	103° 29' 21.270 W
15,128.0	90.20	179.40	11,844.7	-3,526.8	71.7	532,549.53	760,350.17	32° 27' 40.540 N	103° 29' 21.263 W
15,223.0	88.40	179.70	11,845.9	-3,621.8	72.4	532,454.55	760,350.91	32° 27' 39.600 N	103° 29' 21.263 W
15,318.0	88.50	179.40	11,848.5	-3,716.7	73.2	532,359.58	760,351.66	32° 27' 38.660 N	103° 29' 21.263 W



TDS
Survey Report - Geographic



Company: COG Operating LLC
Project: Lea County, NM
Site: Osprey 20 State Com
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB @ 3783.5usft (Ensign 772)
MD Reference: KB @ 3783.5usft (Ensign 772)
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
15,412.0	88.60	179.30	11,850.9	-3,810.7	74.2	532,265.62	760,352.73	32° 27' 37.730 N	103° 29' 21.260 W
15,506.0	89.10	180.00	11,852.7	-3,904.7	74.8	532,171.64	760,353.30	32° 27' 36.801 N	103° 29' 21.262 W
15,600.0	90.00	179.70	11,853.5	-3,998.7	75.0	532,077.65	760,353.55	32° 27' 35.870 N	103° 29' 21.267 W
15,694.0	88.20	180.40	11,855.0	-4,092.6	75.0	531,983.66	760,353.46	32° 27' 34.940 N	103° 29' 21.277 W
15,789.0	88.20	180.40	11,857.9	-4,187.6	74.3	531,888.71	760,352.80	32° 27' 34.001 N	103° 29' 21.293 W
15,883.0	88.50	180.30	11,860.6	-4,281.6	73.7	531,794.75	760,352.23	32° 27' 33.071 N	103° 29' 21.309 W
15,977.0	89.10	179.40	11,862.6	-4,375.5	74.0	531,700.77	760,352.47	32° 27' 32.141 N	103° 29' 21.315 W
16,070.0	89.80	178.80	11,863.5	-4,468.5	75.4	531,607.79	760,353.93	32° 27' 31.221 N	103° 29' 21.306 W
16,164.0	87.90	180.00	11,865.4	-4,562.5	76.4	531,513.82	760,354.92	32° 27' 30.291 N	103° 29' 21.303 W
16,258.0	87.60	181.30	11,869.1	-4,656.4	75.4	531,419.90	760,353.85	32° 27' 29.362 N	103° 29' 21.324 W
16,353.0	88.30	181.90	11,872.5	-4,751.3	72.7	531,325.00	760,351.20	32° 27' 28.423 N	103° 29' 21.364 W
16,447.0	88.60	181.80	11,875.0	-4,845.2	69.7	531,231.08	760,348.17	32° 27' 27.494 N	103° 29' 21.408 W
16,542.0	91.50	181.90	11,874.9	-4,940.2	66.6	531,136.14	760,345.10	32° 27' 26.555 N	103° 29' 21.453 W
16,636.0	92.40	181.70	11,871.7	-5,034.1	63.7	531,042.25	760,342.15	32° 27' 25.626 N	103° 29' 21.496 W
16,731.0	91.40	180.60	11,868.6	-5,129.0	61.7	530,947.32	760,340.25	32° 27' 24.687 N	103° 29' 21.527 W
16,825.0	89.50	179.70	11,867.9	-5,223.0	61.5	530,853.33	760,340.00	32° 27' 23.757 N	103° 29' 21.538 W
16,919.0	90.40	178.90	11,867.9	-5,317.0	62.7	530,759.34	760,341.15	32° 27' 22.827 N	103° 29' 21.534 W
17,013.0	91.80	178.50	11,866.1	-5,410.9	64.8	530,665.38	760,343.28	32° 27' 21.897 N	103° 29' 21.517 W
17,107.0	89.50	178.30	11,865.1	-5,504.9	67.4	530,571.43	760,345.91	32° 27' 20.967 N	103° 29' 21.495 W
17,201.0	90.70	177.90	11,864.9	-5,598.8	70.5	530,477.48	760,349.02	32° 27' 20.037 N	103° 29' 21.468 W
17,295.0	91.80	179.00	11,862.9	-5,692.8	73.1	530,383.54	760,351.56	32° 27' 19.108 N	103° 29' 21.447 W
17,389.0	92.00	179.30	11,859.7	-5,786.7	74.5	530,289.60	760,352.96	32° 27' 18.178 N	103° 29' 21.439 W
17,484.0	90.50	179.60	11,857.7	-5,881.7	75.4	530,194.63	760,353.87	32° 27' 17.238 N	103° 29' 21.437 W
17,576.0	89.50	179.70	11,857.7	-5,973.7	75.9	530,102.64	760,354.43	32° 27' 16.328 N	103° 29' 21.439 W
17,671.0	88.30	180.00	11,859.5	-6,068.6	76.2	530,007.66	760,354.68	32° 27' 15.388 N	103° 29' 21.445 W
17,766.0	88.90	179.10	11,861.8	-6,163.6	76.9	529,912.69	760,355.43	32° 27' 14.448 N	103° 29' 21.445 W
17,859.0	87.20	179.70	11,865.0	-6,256.5	77.9	529,819.75	760,356.40	32° 27' 13.528 N	103° 29' 21.442 W
17,953.0	87.40	179.60	11,869.4	-6,350.4	78.5	529,725.86	760,356.97	32° 27' 12.599 N	103° 29' 21.444 W
18,047.0	88.80	179.30	11,872.5	-6,444.4	79.4	529,631.92	760,357.87	32° 27' 11.670 N	103° 29' 21.442 W
18,141.0	89.10	180.20	11,874.2	-6,538.4	79.8	529,537.94	760,358.28	32° 27' 10.740 N	103° 29' 21.446 W
18,235.0	89.90	179.80	11,875.1	-6,632.4	79.8	529,443.94	760,358.28	32° 27' 9.810 N	103° 29' 21.455 W
18,329.0	90.70	179.70	11,874.6	-6,726.4	80.2	529,349.94	760,358.70	32° 27' 8.880 N	103° 29' 21.459 W
18,424.0	89.70	181.00	11,874.2	-6,821.4	79.6	529,254.95	760,358.11	32° 27' 7.940 N	103° 29' 21.474 W
18,519.0	88.70	181.50	11,875.6	-6,916.3	77.5	529,159.98	760,356.04	32° 27' 7.000 N	103° 29' 21.507 W
18,613.0	89.20	181.10	11,877.3	-7,010.3	75.4	529,066.02	760,353.91	32° 27' 6.071 N	103° 29' 21.541 W
18,707.0	90.00	180.40	11,877.9	-7,104.3	74.2	528,972.03	760,352.68	32° 27' 5.141 N	103° 29' 21.564 W
18,801.0	91.50	179.90	11,876.7	-7,198.3	73.9	528,878.05	760,352.43	32° 27' 4.211 N	103° 29' 21.576 W
18,895.0	90.60	180.20	11,875.0	-7,292.2	73.9	528,784.06	760,352.35	32° 27' 3.281 N	103° 29' 21.585 W
18,990.0	91.10	179.20	11,873.6	-7,387.2	74.4	528,689.08	760,352.85	32° 27' 2.341 N	103° 29' 21.588 W
19,083.0	89.20	179.70	11,873.3	-7,480.2	75.2	528,596.08	760,353.74	32° 27' 1.421 N	103° 29' 21.586 W
19,178.0	90.20	180.20	11,873.8	-7,575.2	75.3	528,501.09	760,353.82	32° 27' 0.481 N	103° 29' 21.594 W
19,271.0	90.30	179.90	11,873.4	-7,668.2	75.2	528,408.09	760,353.74	32° 26' 59.560 N	103° 29' 21.604 W
19,365.0	90.10	179.90	11,873.1	-7,762.2	75.4	528,314.09	760,353.91	32° 26' 58.630 N	103° 29' 21.610 W
19,460.0	90.30	178.30	11,872.8	-7,857.2	76.9	528,219.10	760,355.40	32° 26' 57.690 N	103° 29' 21.602 W
19,554.0	89.70	176.80	11,872.8	-7,951.1	80.9	528,125.19	760,359.42	32° 26' 56.761 N	103° 29' 21.563 W
19,649.0	87.90	177.50	11,874.8	-8,046.0	85.6	528,030.34	760,364.14	32° 26' 55.822 N	103° 29' 21.517 W
19,744.0	87.50	178.80	11,878.6	-8,140.8	88.7	527,935.46	760,367.20	32° 26' 54.883 N	103° 29' 21.490 W
19,839.0	88.80	180.10	11,881.6	-8,235.8	89.6	527,840.52	760,368.12	32° 26' 53.943 N	103° 29' 21.488 W
19,934.0	90.30	179.80	11,882.4	-8,330.8	89.7	527,745.53	760,368.20	32° 26' 53.003 N	103° 29' 21.496 W
20,029.0	89.80	180.10	11,882.3	-8,425.8	89.8	527,650.53	760,368.28	32° 26' 52.063 N	103° 29' 21.504 W
20,124.0	89.90	180.00	11,882.5	-8,520.8	89.7	527,555.53	760,368.20	32° 26' 51.123 N	103° 29' 21.514 W
20,218.0	90.70	179.70	11,882.1	-8,614.8	89.9	527,461.53	760,368.44	32° 26' 50.193 N	103° 29' 21.519 W
20,313.0	88.90	180.00	11,882.4	-8,709.8	90.2	527,366.54	760,368.69	32° 26' 49.253 N	103° 29' 21.525 W
20,407.0	90.30	180.40	11,883.0	-8,803.8	89.9	527,272.54	760,368.37	32° 26' 48.323 N	103° 29' 21.538 W
20,502.0	89.80	179.80	11,883.0	-8,898.8	89.7	527,177.54	760,368.20	32° 26' 47.383 N	103° 29' 21.548 W



TDS
Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	KB @ 3783.5usft (Ensign 772)
Site:	Osprey 20 State Corn	MD Reference:	KB @ 3783.5usft (Ensign 772)
Well:	#2H	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
20,596.0	89.10	179.90	11,883.9	-8,992.8	89.9	527,083.55	760,368.45	32° 26' 46.453 N	103° 29' 21.554 W
20,691.0	88.70	179.90	11,885.7	-9,087.7	90.1	526,988.57	760,368.61	32° 26' 45.513 N	103° 29' 21.561 W
20,785.0	89.10	179.30	11,887.5	-9,181.7	90.8	526,894.59	760,369.27	32° 26' 44.583 N	103° 29' 21.562 W
20,880.0	88.80	179.50	11,889.2	-9,276.7	91.8	526,799.61	760,370.26	32° 26' 43.643 N	103° 29' 21.559 W
20,975.0	88.10	178.90	11,891.8	-9,371.6	93.1	526,704.65	760,371.59	32° 26' 42.704 N	103° 29' 21.552 W
21,069.0	89.50	179.60	11,893.8	-9,465.6	94.3	526,610.68	760,372.82	32° 26' 41.774 N	103° 29' 21.547 W
21,164.0	89.90	179.50	11,894.3	-9,560.6	95.1	526,515.69	760,373.56	32° 26' 40.834 N	103° 29' 21.547 W
21,258.0	90.90	179.90	11,893.6	-9,654.6	95.6	526,421.69	760,374.06	32° 26' 39.903 N	103° 29' 21.550 W
21,353.0	91.10	179.00	11,892.0	-9,749.6	96.5	526,326.71	760,374.97	32° 26' 38.964 N	103° 29' 21.548 W
21,446.0	91.80	178.10	11,889.6	-9,842.5	98.8	526,233.77	760,377.32	32° 26' 38.044 N	103° 29' 21.529 W
21,541.0	92.30	176.60	11,886.2	-9,937.4	103.2	526,138.94	760,381.71	32° 26' 37.105 N	103° 29' 21.487 W
Final MWD Survey									
21,609.0	92.30	176.60	11,883.5	-10,005.2	107.2	526,071.11	760,385.74	32° 26' 36.434 N	103° 29' 21.446 W
Projection to Bit/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
21,541.0	11,886.2	-9,937.4	103.2	Final MWD Survey
21,609.0	11,883.5	-10,005.2	107.2	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____