

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

HOBBS CDC

SUBMIT IN TRIPLICATE - Other Instructions on page 2.

DEC 16 2013

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM0038690	
2. Name of Operator COG Operating LLC		6. Indian, Allottee, or Tribe Name	
3a. Address 2208 W. Main Street Artesia, NM 88210		7. If Unit or CA. Agreement Name and/or No. Lusk Deep Unit - NMNM70982X	
3b. Phone No. (include area code) 575-748-6940		8. Well Name and No. Lusk Deep Unit A #28H	
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 430' FSL & 330' FWL Lot #4 (SWSW) Sec 18-19S-32E 380' FSL & 330' FEL Unit Letter P (SESE) Sec 18-19S-32E		9. API Well No. 30-025-41291	
Lat. Long.		10. Field and Pool, or Exploratory Area Lusk; Bone Spring	
		11. County or Parish, State Lea County NM	

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/ Resume)	☐ Water Shut-off
☐ Subsequent Report	☐ Altering Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☒ Change Plans	☐ Plug and abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths or pertinent markers and sands. Attach the Bond under which the work will performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully requests approval for the following MD change to the original approved APD.

From: 13,696

To: 13,510'

See attached directional plan.

Original CDAs still stand w/ changes on 10/22/2013

14. I hereby certify that the foregoing is true and correct.

Name (Printed/ Typed)

Mayte Reyes

Title: Regulatory Analyst

Signature: *Mayte Reyes*

Date: 11/18/13

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED

Approved by:

Title:

Date:

Conditions of approval, if any are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office:

Title 18 U.S.C. Section 1001 AND Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make any statement or representation as to any matter within its jurisdiction.

(Instructions on page 2)

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

DEC 17 2013



COG Lusk Deep A Unit 28H Gyro+MWD from 0ft to 13510ft MD Survey Geodetic Report (Non-Def Survey)



Report Date: November 18, 2013 - 10:24 AM
Client: COG Operating, LLC
Field: NM Lea County (NAD 27)
Structure / Slot: COG Lusk Deep A Unit 28H / COG Lusk Deep A Unit 28H
Well: COG Lusk Deep A Unit 28H
Borehole: Original Borehole
UWI / API#: Unknown / 30-025-41291
Survey Name: COG Lusk Deep A Unit 28H Gyro+MWD from 0ft to 13510ft MD
Survey Date: November 04, 2013
Tort / AHD / DDI / ERD Ratio: 190 292' / 4691, 199 ft / 6.114 / 0.506
Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 39' 15.5589", W 103° 48' 45.57365"
Location Grid NE Y/K: N 502146, 200 NUS, E 660250, 400 NUS
CRS Grid Convergence Angle: 0.2809°
Grid Scale Factor: 0.9999385

Survey / DLS Computation:
Vertical Section Azimuth: 90.529° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVL Reference Datum: RGS
TVL Reference Elevation: 3597.000 ft above
Sealed / Ground Elevation: 3579.000 ft above
Magnetic Declination: 7.548°
Total Gravity Field Strength: 998.5058mg (9.80665 Based)
Total Magnetic Field Strength: 48567.622 nT
Magnetic Dip Angle: 60.441°
Declination Date: November 04, 2013
Magnetic Declination Model: BGM2012
North Reference: Grid North
Grid Convergence Used: 0.2809°
Total Corr Mag North-Grid North: 7.2671°
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVL (ft)	TVLSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')	TF (ft)
SHL	0.00	0.00	0.00	0.00	-3597.00	0.00	0.00	0.00	0.00	0.00	N/A	602146.20	660250.40	N 32 39 15.56 W 103 48 45.57		351.31M
	100.00	0.15	351.31	100.00	-3497.00	-0.02	0.13	-0.02	0.13	351.31	0.15	602146.33	660250.38	N 32 39 15.56 W 103 48 45.57		348.62M
	200.00	0.19	348.62	200.00	-3397.00	-0.08	0.42	-0.07	0.43	350.27	0.04	602146.62	660250.33	N 32 39 15.56 W 103 48 45.57		311.36M
	300.00	0.30	311.38	300.00	-3297.00	-0.31	0.78	-0.30	0.81	338.29	0.19	602146.96	660250.10	N 32 39 15.56 W 103 48 45.58		274.14M
	400.00	0.41	274.14	400.00	-3197.00	-0.86	0.96	-0.85	1.28	318.20	0.25	602147.16	660249.95	N 32 39 15.57 W 103 48 45.58		288.99M
	500.00	0.25	288.99	500.00	-3097.00	-1.43	1.05	-1.42	1.77	306.59	0.18	602147.25	660248.98	N 32 39 15.57 W 103 48 45.59		303.83M
	600.00	0.08	303.83	599.99	-2997.01	-1.69	1.16	-1.68	2.04	304.65	0.17	602147.36	660248.72	N 32 39 15.57 W 103 48 45.59		292.51M
	700.00	0.21	292.51	699.99	-2897.01	-1.92	1.27	-1.91	2.29	303.66	0.13	602147.47	660248.49	N 32 39 15.57 W 103 48 45.60		281.2M
	800.00	0.34	281.20	799.99	-2797.01	-2.38	1.40	-2.37	2.75	300.56	0.14	602147.60	660248.03	N 32 39 15.57 W 103 48 45.60		48.45M
	900.00	0.61	48.45	899.99	-2697.01	-2.28	1.81	-2.26	2.90	306.66	0.66	602148.01	660248.14	N 32 39 15.57 W 103 48 45.60		95.7M
	1000.00	0.88	95.70	999.98	-2597.02	-1.12	2.09	-1.10	2.36	332.21	0.65	602148.29	660249.30	N 32 39 15.58 W 103 48 45.59		113.19M
	1100.00	1.24	113.19	1099.97	-2497.03	0.64	1.58	0.66	1.72	22.58	0.48	602147.78	660251.06	N 32 39 15.57 W 103 48 45.57		130.67M
	1200.00	1.61	130.67	1199.94	-2397.06	2.72	0.24	2.72	2.73	84.89	0.57	602148.44	660253.12	N 32 39 15.56 W 103 48 45.54		128.47M
	1300.00	1.60	128.47	1299.90	-2297.10	4.89	-1.54	4.88	5.12	107.54	0.06	602144.68	660255.28	N 32 39 15.54 W 103 48 45.52		126.27M
	1400.00	1.62	126.27	1399.86	-2197.14	7.14	-3.25	7.11	7.82	114.54	0.06	602142.95	660257.51	N 32 39 15.52 W 103 48 45.49		113.09M
	1500.00	1.77	113.09	1499.81	-2097.19	9.71	-4.69	9.67	10.75	115.86	0.42	602141.51	660260.07	N 32 39 15.51 W 103 48 45.46		99.91M
	1600.00	1.93	99.91	1599.76	-1997.24	12.80	-5.58	12.75	13.92	113.65	0.45	602140.62	660263.15	N 32 39 15.50 W 103 48 45.42		95.78M
	1700.00	2.27	95.78	1699.68	-1897.31	16.43	-6.07	16.38	17.47	110.34	0.37	602140.13	660266.78	N 32 39 15.50 W 103 48 45.38		91.64M
	1800.00	2.62	91.64	1799.60	-1797.40	20.69	-6.34	20.63	21.59	107.07	0.39	602139.86	660271.03	N 32 39 15.49 W 103 48 45.33		84.94M
	1900.00	2.46	84.90	1899.51	-1697.49	25.11	-6.21	25.06	25.81	103.92	0.34	602139.99	660275.45	N 32 39 15.49 W 103 48 45.28		78.15M
	2000.00	2.29	78.15	1999.42	-1597.58	29.20	-5.61	29.15	29.68	100.90	0.33	602140.59	660279.55	N 32 39 15.50 W 103 48 45.23		74.62M
	2100.00	2.65	74.62	2099.33	-1497.67	33.37	-4.59	33.33	33.65	97.84	0.39	602141.61	660283.73	N 32 39 15.51 W 103 48 45.18		71.1M
	2200.00	3.01	71.10	2199.20	-1397.80	37.07	-3.12	38.05	38.17	94.69	0.40	602143.08	660288.44	N 32 39 15.52 W 103 48 45.14		74.95M
	2300.00	3.52	74.95	2299.04	-1297.96	43.51	-1.48	43.49	43.52	81.94	0.55	602144.72	660293.89	N 32 39 15.54 W 103 48 45.07		78.84M
	2400.00	4.02	78.80	2398.83	-1198.17	49.90	0.00	49.90	49.90	90.00	0.56	602146.20	660300.29	N 32 39 15.55 W 103 48 45.03		81.16M
	2500.00	4.36	81.16	2498.58	-1098.44	57.08	1.27	57.09	57.11	88.73	0.38	602147.47	660307.49	N 32 39 15.57 W 103 48 44.91		83.53M
	2600.00	4.69	83.53	2598.25	-998.75	64.89	2.31	64.91	64.95	87.96	0.38	602148.51	660315.31	N 32 39 15.58 W 103 48 44.81		80.15M
	2700.00	4.67	80.15	2697.91	-899.09	73.02	2.76	73.04	73.10	87.83	0.54	602149.96	660323.44	N 32 39 15.58 W 103 48 44.72		96.77M
	2800.00	4.86	96.77	2797.58	-799.42	81.12	2.27	81.15	81.18	88.40	0.54	602148.47	660331.54	N 32 39 15.58 W 103 48 44.62		88.32M
	2900.00	4.95	88.32	2897.23	-699.77	89.47	1.92	89.49	89.52	88.77	0.76	602148.12	660339.89	N 32 39 15.57 W 103 48 44.53		79.88M
	3000.00	5.25	79.88	2996.94	-600.16	98.28	2.85	98.31	98.35	88.34	0.81	602149.05	660348.71	N 32 39 15.58 W 103 48 44.42		81.8M
	3100.00	4.64	81.80	3096.47	-500.53	106.78	4.23	106.82	106.90	87.73	0.63	602150.43	660357.21	N 32 39 15.59 W 103 48 44.32		91.69M
	3200.00	1.94	91.69	3196.20	-400.71	112.47	4.76	112.52	112.62	87.58	2.75	602150.96	660362.91	N 32 39 15.60 W 103 48 44.26		98.18M
	3300.00	0.97	98.18	3296.26	-300.74	115.00	4.59	115.05	115.14	87.72	0.98	602150.79	660365.44	N 32 39 15.60 W 103 48 44.23		85.58M
	3400.00	1.22	85.58	3396.24	-200.76	116.90	4.55	116.94	117.03	87.77	0.35	602150.75	660367.34	N 32 39 15.60 W 103 48 44.21		71.94M
	3500.00	0.64	71.94	3496.23	-100.77	118.49	4.80	118.54	118.63	87.68	0.62	602151.00	660368.93	N 32 39 15.60 W 103 48 44.19		37.8M
	3600.00	0.81	37.80	3596.22	-0.78	119.44	5.44	119.50	119.63	87.35	0.46	602151.74	660369.89	N 32 39 15.61 W 103 48 44.15		47.21M
	3700.00	1.12	47.21	3696.21	99.21	120.58	6.76	120.65	120.84	86.79	0.35	602152.96	660371.04	N 32 39 15.62 W 103 48 44.16		51.72M
	3800.00	2.09	51.73	3796.17	199.17	122.72	8.55	122.80	123.10	86.02	0.98	602154.75	660373.19	N 32 39 15.64 W 103 48 44.14		33.44M
	3900.00	2.12	33.44	3896.10	299.10	125.14	11.22	125.25	125.75	84.88	0.67	602157.42	660375.64	N 32 39 15.66 W 103 48 44.11		31.6M
	4000.00	1.94	31.60	3996.04	399.04	127.02	14.21	127.18	127.95	83.62	0.19	602160.41	660377.55	N 32 39 15.69 W 103 48 44.09		27.35M
	4100.00	1.39	27.35	4095.99	498.99	128.44	16.73	128.60	129.68	82.59	0.56	602162.93	660378.99	N 32 39 15.72 W 103 48 44.07		45.7M
	4200.00	1.17	45.70	4195.97	598.97	129.71	18.52	129.89	131.20	81.89	0.48	602164.72	660380.28	N 32 39 15.73 W 103 48 44.05		46.13M
	4300.00	1.24	46.13	4295.95	698.95	131.21	19.98	131.40	132.91	81.35	0.07	602166.18	660381.79	N 32 39 15.75 W 103 48 44.04		35.74M
	4400.00	1.62	35.74	4395.92	798.92	132.80	21.88	133.01	134.79	80.66	0.46	602168.08	660383.40	N 32 39 15.77 W 103 48 44.02		30.4M
	4500.00	1.63	30.40	4495.88	898.88	134.32	24.25	134.55	136.72	79.78	0.15	602170.45	660384.94	N 32 39 15.79 W 103 48 44.00		21.09M
	4600.00	1.31	21.09	4595.84	998.84	135.43	26.55	135.88	138.25	78.93	0.42	602172.74	660386.07	N 32 39 15.81 W 103 48 43.99		3.02M
	4700.00	1.23	3.02	4695.82	1098.82	135.88	28.68	136.15	139.14	78.10	0.41	602174.88	660396.54	N 32 39 15.83 W 103 48 43.98		339.38M
	4800.00	0.39	339.38	4795.81	1198.81	135.80	30.08	136.09	139.37	77.54	0.89	602176.27	660396.48	N 32 39 15.85 W 103 48 43.98		233.83M
	4900.00	0.26	233.83	4895.81	1298.81	135.50	30.26	135.78	139.11	77.44	0.52	602176.45	660396.18	N 32 39 15.85 W 103 48 43.98		261.15M
	5000.00	0.28	261.15	4995.81	1398.81	135.08	30.09	135.36	138.66	77.47	0.13	602176.29	660395.75	N 32 39 15.85 W 103 48 43.99		194.75M
	5100.00	0.26	194.75	5095.81	1498.81	134.78	29.83	135.06	138.32	77.54	0.30	602176.03	660395.45	N 32 39 15.85 W 103 48 43.99		208.46M
	5200.00	0.31	208.46	5195.80	1598.80	134.60	29.37	134.87	138.03	77.71	0.08	602175.57	660395.26	N 32 39 15.84 W 103 48 43.99		127.19M
	5300.00	0.78	127.19	5295.80	1698.80	135.02	28.72	135.29	138.30	78.01	0.79	602174.92	660395.68	N 32 39 15.83 W 103 48 43.99		118.75M
	5400.00	1.00	118.75	5395.79	1798.79	136.33	27.89	136.59	139.41	78.46	0.26					

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N S ° ' '')	Longitude (E W ° ' '')	TF (°)
	8738.00	2.02	118.17	8732.65	5135.65	201.14	39.77	201.52	205.40	78.84	4.13	602185.97	660451.90	N 32 39 15.94	W 103 48 43.21	104.37M
	8769.00	4.40	104.37	5166.80	202.78	202.78	39.22	203.15	206.90	79.07	8.02	602185.41	660453.54	N 32 39 15.94	W 103 48 43.20	104.89M
	8801.00	5.54	104.89	8795.47	5198.47	205.47	38.51	205.83	208.40	79.40	3.57	602184.71	660456.22	N 32 39 15.93	W 103 48 43.16	102.9M
	8833.00	6.50	102.90	8627.29	5230.29	208.76	37.71	209.12	212.49	79.78	3.36	602183.90	660459.50	N 32 39 15.92	W 103 48 43.13	101.74M
	8864.00	7.12	101.74	8658.07	5261.07	212.39	36.92	212.74	215.91	80.15	1.74	602183.12	660463.12	N 32 39 15.91	W 103 48 43.08	90.92M
	8886.00	10.11	90.92	8889.71	5292.71	217.14	36.47	217.49	220.52	80.48	10.59	602182.67	660467.87	N 32 39 15.91	W 103 48 43.03	24.38L
	8928.00	13.98	83.84	8921.00	5324.00	223.79	36.84	224.14	227.15	80.67	12.92	602183.04	660474.53	N 32 39 15.91	W 103 48 42.95	13.33L
	8959.00	18.20	80.66	8950.78	5353.78	232.28	38.03	232.64	235.73	80.72	13.90	602184.22	660483.03	N 32 39 15.92	W 103 48 42.85	4.52L
	8991.00	22.34	79.80	8980.79	5385.79	243.19	39.92	243.57	246.82	80.69	12.97	602186.11	660493.95	N 32 39 15.94	W 103 48 42.72	12.23L
	9023.00	26.47	77.80	9009.93	5412.93	256.12	42.50	256.53	260.02	80.59	13.16	602188.70	660506.91	N 32 39 15.96	W 103 48 42.57	2.57R
	9054.00	30.42	78.15	9037.18	5440.18	270.54	45.57	270.97	274.77	80.45	12.75	602191.77	660521.35	N 32 39 15.99	W 103 48 42.40	1.8R
	9085.00	34.38	78.37	9064.19	5467.19	287.29	49.06	287.75	291.90	80.32	12.38	602195.26	660538.13	N 32 39 16.03	W 103 48 42.21	4.31R
	9116.00	38.43	78.86	9089.94	5492.94	305.87	52.80	306.37	310.88	80.22	12.69	602199.00	660556.75	N 32 39 16.06	W 103 48 41.99	11.74R
	9149.00	42.47	80.10	9113.53	5516.53	325.60	56.47	326.14	330.99	80.18	13.29	602202.66	660576.52	N 32 39 16.10	W 103 48 41.76	7.48R
	9181.00	46.69	80.86	9136.32	5539.32	347.71	60.18	348.29	353.45	80.20	13.29	602206.37	660598.66	N 32 39 16.14	W 103 48 41.50	6.49R
	9213.00	51.44	81.55	9157.28	5560.28	371.56	63.87	372.17	377.61	80.26	14.93	602210.06	660622.55	N 32 39 16.17	W 103 48 41.22	4.89R
	9244.00	56.41	82.06	9175.53	5576.53	386.32	67.43	386.96	402.65	80.36	16.09	602213.63	660647.34	N 32 39 16.20	W 103 48 40.93	11.81R
	9276.00	61.20	83.20	9192.10	5595.10	423.43	70.94	424.10	429.99	80.50	15.28	602217.13	660674.47	N 32 39 16.24	W 103 48 40.61	5.32R
	9308.00	64.90	83.58	9206.60	5609.60	451.73	74.22	452.43	458.48	80.68	11.61	602220.41	660702.80	N 32 39 16.27	W 103 48 40.29	2.08R
	9339.00	68.76	83.73	9218.79	5621.79	480.02	77.37	480.75	486.94	80.86	12.46	602223.56	660731.12	N 32 39 16.30	W 103 48 39.95	26.41R
	9371.00	72.46	85.65	9229.41	5632.41	510.04	80.15	510.80	517.05	81.08	12.87	602226.35	660761.17	N 32 39 16.33	W 103 48 39.59	11.97R
	9403.00	76.50	86.53	9237.97	5643.97	540.77	82.25	541.55	547.77	81.36	12.90	602228.45	660791.92	N 32 39 16.34	W 103 48 39.24	22.86R
	9435.00	79.40	87.78	9244.65	5647.65	572.01	83.81	572.81	578.91	81.68	9.81	602230.00	660823.17	N 32 39 16.35	W 103 48 38.87	22.85R
	9466.00	82.48	89.07	9249.54	5652.54	602.60	84.65	603.40	609.31	82.01	10.78	602230.95	660853.77	N 32 39 16.37	W 103 48 38.51	20.19R
	9498.00	85.82	90.30	9252.80	5655.80	634.42	84.83	635.23	640.87	82.39	11.12	602231.02	660885.59	N 32 39 16.37	W 103 48 38.14	29.6R
	9530.00	89.08	92.15	9254.22	5657.22	666.98	84.14	667.19	672.47	82.81	11.71	602230.34	660917.54	N 32 39 16.36	W 103 48 37.77	45.47R
	9561.00	93.69	92.77	9254.55	5657.55	697.90	82.81	698.16	703.05	83.24	2.81	602229.01	660948.51	N 32 39 16.34	W 103 48 37.40	45L
	9593.00	90.92	91.54	9254.05	5657.05	732.32	79.24	793.08	797.03	84.29	1.83	602225.44	661043.43	N 32 39 16.26	W 103 48 36.99	46.74L
	9751.00	92.33	90.04	9251.35	5654.35	887.27	77.93	888.03	891.44	84.98	2.17	602224.13	661138.38	N 32 39 16.28	W 103 48 35.18	30.55L
	9846.00	92.77	89.78	9247.13	5650.13	982.17	78.08	982.94	986.03	85.46	0.54	602224.28	661233.27	N 32 39 16.28	W 103 48 34.07	172.97R
	9941.00	90.86	90.04	9244.28	5647.28	1077.12	78.23	1077.89	1080.72	85.85	2.24	602224.43	661328.22	N 32 39 16.28	W 103 48 32.96	127.13R
	10036.00	90.13	90.74	9243.63	5646.63	1172.12	77.58	1172.89	1175.45	86.22	0.92	602223.78	661423.21	N 32 39 16.27	W 103 48 31.85	68.08L
	10131.00	90.48	89.87	9243.12	5646.12	1267.11	77.08	1267.88	1270.22	86.52	0.99	602223.27	661518.20	N 32 39 16.26	W 103 48 30.74	LS
	10226.00	89.80	89.87	9243.06	5646.06	1362.11	77.29	1362.88	1365.07	86.75	0.93	602223.49	661613.19	N 32 39 16.26	W 103 48 29.63	178.04L
	10321.00	86.97	89.78	9245.90	5648.90	1457.05	77.58	1457.83	1459.89	86.95	2.77	602223.78	661708.14	N 32 39 16.25	W 103 48 28.52	LS
	10416.00	86.53	89.78	9251.29	5654.29	1551.89	77.95	1552.67	1554.83	87.13	0.46	602224.14	661802.88	N 32 39 16.25	W 103 48 27.41	2.02R
	10511.00	89.08	89.87	9254.92	5657.92	1646.80	78.24	1647.60	1649.45	87.28	2.69	602224.43	661897.89	N 32 39 16.25	W 103 48 26.30	5.94L
	10606.00	89.96	89.78	9255.72	5658.72	1741.79	78.53	1742.59	1744.36	87.42	0.93	602224.72	661992.88	N 32 39 16.25	W 103 48 25.19	32.15L
	10701.00	90.66	89.34	9255.21	5658.21	1836.78	79.26	1837.59	1839.29	87.53	0.87	602225.45	662087.87	N 32 39 16.25	W 103 48 24.08	118.78R
	10796.00	90.13	90.39	9254.55	5657.55	1931.77	79.48	1932.58	1934.22	87.64	1.24	602225.68	662182.86	N 32 39 16.25	W 103 48 22.97	123.76R
	10891.00	88.72	92.50	9255.50	5658.50	2026.74	77.09	2027.54	2029.00	87.82	2.87	602223.28	662277.81	N 32 39 16.22	W 103 48 21.86	151.12R
	10986.00	87.76	93.03	9258.42	5661.42	2121.62	72.51	2122.38	2123.62	88.04	1.15	602218.70	662372.65	N 32 39 16.17	W 103 48 20.75	99.66R
	11081.00	87.67	93.56	9262.21	5665.21	2216.44	67.05	2217.15	2218.16	88.27	0.57	602213.25	662467.41	N 32 39 16.11	W 103 48 19.64	60.55L
	11176.00	88.02	92.94	9265.78	5668.78	2311.26	61.67	2311.93	2312.75	88.47	0.75	602207.86	662562.18	N 32 39 16.05	W 103 48 18.44	8.47L
	11271.00	89.52	92.77	9267.82	5670.82	2406.16	56.94	2406.79	2407.46	88.64	1.59	602203.13	662657.03	N 32 39 16.00	W 103 48 17.42	19.68L
	11366.00	90.75	92.33	9267.60	5670.60	2501.10	52.71	2501.69	2502.25	88.79	1.38	602198.91	662751.93	N 32 39 15.96	W 103 48 16.31	21.09L
	11461.00	91.45	92.06	9265.77	5668.77	2596.04	49.07	2596.60	2597.07	88.92	0.79	602195.27	662846.84	N 32 39 15.92	W 103 48 15.20	LS
	11555.00	91.01	92.06	9263.76	5666.76	2689.98	45.69	2690.52	2690.91	89.03	0.47	602191.89	662940.75	N 32 39 15.88	W 103 48 14.10	149.43L
	11650.00	89.52	91.18	9263.32	5666.32	2784.96	43.01	2785.48	2785.91	89.12	1.82	602189.21	663035.70	N 32 39 15.85	W 103 48 12.99	153.88L
	11745.00	88.46	90.66	9264.99	5667.99	2879.94	41.48	2880.45	2880.75	89.17	1.24	602187.68	663130.67	N 32 39 15.83	W 103 48 11.88	97.98R
	11840.00	89.69	91.62	9266.52	5669.52	2974.92	39.59	2975.41	2975.68	89.24	1.64	602185.79	663225.63	N 32 39 15.80	W 103 48 10.77	31.54R
	11935.00	90.13	91.89	9266.67	5669.67	3069.90	36.68	3070.37	3070.59	89.32	0.54	602182.88	663320.57	N 32 39 15.77	W 103 48 9.66	5.25R
	12030.00	91.98	92.06	9264.92	5667.92	3164.85	33.41	3165.29	3165.47	89.40	1.96	602179.61	663415.49	N 32 39 15.73	W 103 48 8.55	26.52L
	12125.00	93.74	91.18	9260.18	5663.18	3259.71	30.73	3260.13	3260.28	89.46	2.07	602176.93	663510.32	N 32 39 15.69	W 103 48 7.44	162.55L
	12222.00	91.80	90.57	9254.05	5657.05	3388.55	28.79	3389.96	3387.08	89.51	1.60	602174.99	663637.15	N 32 39 15.68	W 103 48 5.96	90R
	12347.00	91.80	91.01	9251.06	5654.06	3481.50	27.48	3481.91	3482.01	89.55	0.46	602173.68	663732.08	N 32 39 15.66	W 103 48 4.85	132.82R
	12474.00	90.66	92.24	9248.34	5651.34	3508.45	23.88	3508.82	3509.90	89.62	1.32	602170.08	663858.98	N 32 39 15.62	W 103 48 3.36	143.63R
	12569.00	88.99	93.47	9248.63	5651.63	3703.38	19.15	3703.70	3703.75	89.70	2.18	602165.35	663953.86	N 32 39 15.56	W 103 48 2.36	45R
	12663.00	89.08	93.56	9250.21	5653.21	3797.22	13.39	3797.51	3797.53	89.80	0.14	602159.59	664047.87	N 32 39 15.50	W 103 48 1.16	30.9L
	12759.00	90.40	92.77	9250.84	5653.84	3892.12	8.14	3892.36	3892.37	89.88	1.62	602154.34	6			



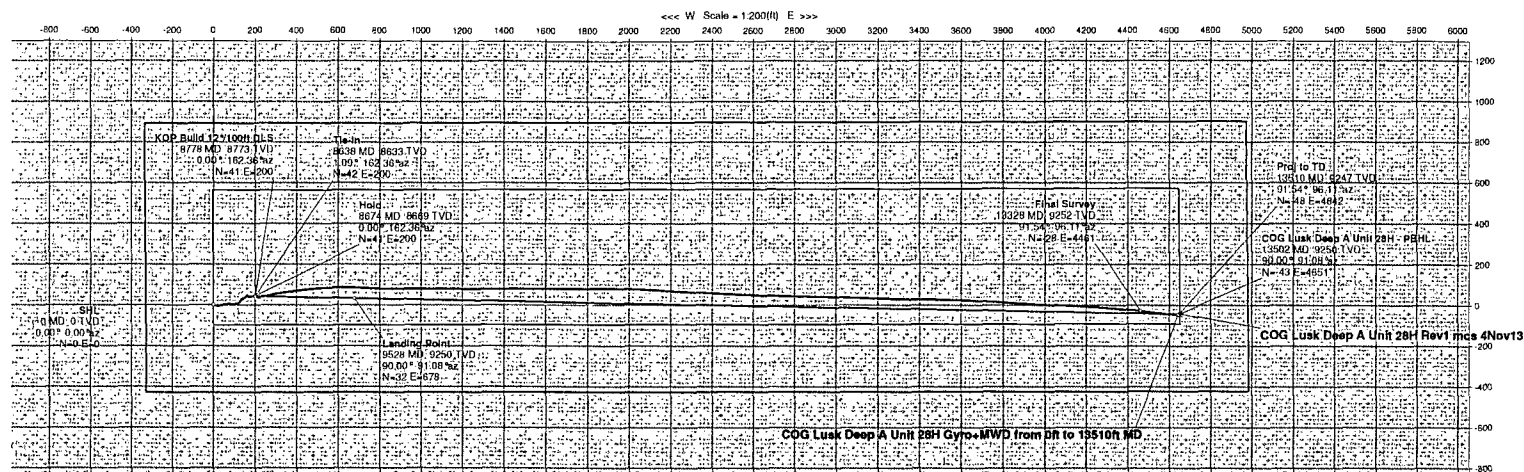
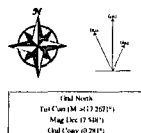
COG Operating, LLC

FINAL PvA

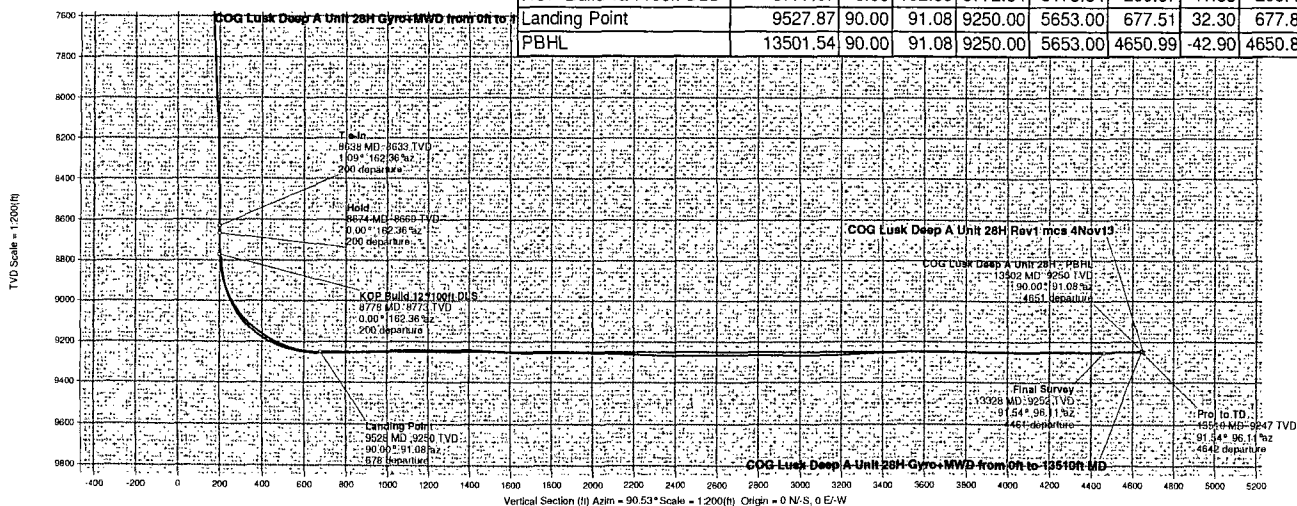
PATHFINDER

A Schlumberger Company

WELL				FIELD				STRUCTURE							
Lusk Deep A Unit 28H				Lea County, NM (NAD 27)				Patriot 6							
Magnetic Parameters				Surface Location				Miscellaneous							
Model	ICGM 2012	Dip	60.441°	Date	November 04, 2013	Lat	N 32 10 15.557	Northings	602146.20 ILLS	Grid Cont.	0.281°	Sht	Lusk Deep A Unit 28H	TVD Ref.	RK151970 above s
		Mag Dec	7.518°	IS	48567 GaT	Lon	W 101 48 45.574	Eastings	666250.40 ILLS	Scale Fact.	0.99993950	Plan	Rev1 max 4 Nov 13	Srv Date	November 04, 2013



Critical Points															
Comments	Survey MD	Inc	Azim	TVD	SSTVD	VS	NS	EW	Longitude	Latitude	Easting	Northing	DLS	Tool Face	
SHL	0.00	0.00	0.00	0.00	-3597.00	0.00	0.00	0.00	W 103 48 45.574	N 32 39 15.557	660250.40	602146.20		351.31	
Tie-in	8638.00	1.09	162.36	8632.67	5035.67	199.96	41.66	200.35	W 103 48 43.228	N 32 39 15.959	660450.74	602187.86	1.86	162.36	
Hold	8674.33	0.00	162.36	8669.00	5072.00	200.07	41.33	200.46	W 103 48 43.227	N 32 39 15.956	660450.85	602187.53	3.00	162.36	
KOP Build 12"/100ft DLS	8777.87	0.00	162.36	8772.54	5175.54	200.07	41.33	200.46	W 103 48 43.227	N 32 39 15.956	660450.85	602187.53	0.00	91.08	
Landing Point	9527.87	90.00	91.08	9250.00	5653.00	677.51	32.30	677.84	W 103 48 37.644	N 32 39 15.844	660928.20	602178.50	12.00	80.27	
PBHL	13501.54	90.00	91.08	9250.00	5653.00	4650.99	-42.90	4650.80	W 103 47 51.182	N 32 39 14.903	664900.90	602103.30	0.00		



Legend

CONFIDENTIAL - LAW ENFORCEMENT

COG Lusk Deep A Unit 28H Rev1 mcs 4Nov13
COG Lusk Deep A Unit 28H Gyro+MWD from Off to Update
COG Lusk Deep A Unit 28H Gyro+MWD from Off to 13510ft MD

Drawn By: MShaffer
Date Created: November 04, 2013 08:10:09 AM
Checked By: _____
Checked Date: _____
Approved By: _____
Approved Date: _____