



PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC
WELL/LEASE: Spruce Goose Fed Com #3H
COUNTY: Lea Co., New Mexico
Sec. 7, T 19S, R 32E

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
430	1/2	5,094	1 1/2
883	1/2	5,471	1 1/2
1,143	3/4	6,037	1/2
1,475	1/2	6,415	1/2
2,073	2 3/4	6,981	1/4
2,575	1	7,358	3/4
3,052	3/4	7,736	1
3,585	3/4	8,113	1 1/4
3,962	1	8,491	1 1/4
4,528	1		

Patriot Drilling, LLC



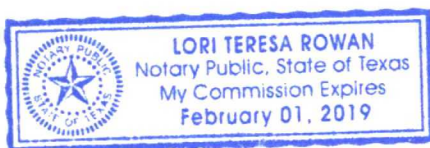
M. Leroy Peterson, Executive Vice-President

The foregoing instrument was acknowledged before me on this 15th day of August 2016 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2019



Lori T. Rowan
Notary Public for Ector Co., Texas





COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 7, T 19 S. , R 32 E

Spruce Goose Federal Com #3H

Wellbore #1

Design: Wellbore #1

HOBBS OCD

DEC 30 2016

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Survey Report - Geographic

08 August, 2016





Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Spruce Goose Federal Com #3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Site:	Sec. 7, T 19 S. , R 32 E	MD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Well:	Spruce Goose Federal Com #3H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Project	Lea County, NM (NAD27 NME)		
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	Sec. 7, T 19 S. , R 32 E				
Site Position:		Northing:	610,299.30 usft	Latitude:	32° 40' 36.243 N
From:	Map	Easting:	660,072.20 usft	Longitude:	103° 48' 47.191 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.28 °

Well	Spruce Goose Federal Com #3H				
Well Position	+N/-S	0.00 ft	Northing:	610,299.30 usft	Latitude: 32° 40' 36.243 N
	+E/-W	0.00 ft	Easting:	660,072.20 usft	Longitude: 103° 48' 47.191 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level: 3,623.70 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/18/2016	7.20	60.45	48,274

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	89.86	

Survey Program	Date 8/8/2016				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
1,998.00	14,000.00	IDS MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,789.00	1.30	88.00	1,788.90	-4.20	5.50	610,295.10	660,077.70	32° 40' 36.201 N	103° 48' 47.127 W	
1,998.00	2.70	61.90	1,997.77	-1.80	12.21	610,297.51	660,084.42	32° 40' 36.224 N	103° 48' 47.048 W	
First IDS MWD Survey										
2,010.00	2.90	62.60	2,009.76	-1.53	12.73	610,297.78	660,084.94	32° 40' 36.227 N	103° 48' 47.042 W	
2,073.00	2.40	57.60	2,072.69	-0.09	15.26	610,299.22	660,087.46	32° 40' 36.241 N	103° 48' 47.012 W	
2,198.00	1.50	353.60	2,197.63	2.94	17.29	610,302.25	660,089.49	32° 40' 36.271 N	103° 48' 46.988 W	
2,292.00	1.60	5.50	2,291.59	5.47	17.28	610,304.78	660,089.48	32° 40' 36.296 N	103° 48' 46.988 W	
2,386.00	1.80	10.90	2,385.55	8.23	17.68	610,307.53	660,089.89	32° 40' 36.323 N	103° 48' 46.983 W	
2,481.00	1.90	13.80	2,480.50	11.22	18.34	610,310.53	660,090.54	32° 40' 36.353 N	103° 48' 46.975 W	
2,575.00	0.90	350.60	2,574.48	13.46	18.59	610,312.77	660,090.79	32° 40' 36.375 N	103° 48' 46.972 W	
2,669.00	0.60	324.20	2,668.47	14.59	18.18	610,313.90	660,090.39	32° 40' 36.386 N	103° 48' 46.977 W	
2,764.00	0.60	318.20	2,763.46	15.37	17.56	610,314.67	660,089.76	32° 40' 36.394 N	103° 48' 46.984 W	



Integrity Directional Services, LLC
Survey Report - Geographic



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Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Site:	Sec. 7, T 19 S., R 32 E	MD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Well:	Spruce Goose Federal Com #3H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,859.00	0.40	300.00	2,858.46	15.90	16.94	610,315.21	660,089.14	32° 40' 36.399 N	103° 48' 46.992 W
2,953.00	0.40	269.90	2,952.46	16.07	16.33	610,315.37	660,088.53	32° 40' 36.401 N	103° 48' 46.999 W
3,052.00	0.60	257.80	3,051.45	15.96	15.48	610,315.26	660,087.68	32° 40' 36.400 N	103° 48' 47.009 W
3,207.00	0.40	269.30	3,206.45	15.78	14.14	610,315.08	660,086.35	32° 40' 36.398 N	103° 48' 47.024 W
3,396.00	0.60	240.60	3,395.44	15.28	12.62	610,314.59	660,084.82	32° 40' 36.393 N	103° 48' 47.042 W
3,585.00	0.60	250.00	3,584.43	14.46	10.83	610,313.76	660,083.03	32° 40' 36.385 N	103° 48' 47.063 W
3,773.00	0.90	260.10	3,772.41	13.87	8.45	610,313.17	660,080.65	32° 40' 36.380 N	103° 48' 47.091 W
3,962.00	0.90	257.10	3,961.39	13.28	5.54	610,312.59	660,077.74	32° 40' 36.374 N	103° 48' 47.125 W
4,151.00	0.80	265.80	4,150.37	12.85	2.78	610,312.16	660,074.98	32° 40' 36.370 N	103° 48' 47.157 W
4,340.00	0.90	265.80	4,339.35	12.65	-0.02	610,311.95	660,072.18	32° 40' 36.368 N	103° 48' 47.190 W
4,528.00	1.00	267.40	4,527.32	12.47	-3.13	610,311.77	660,069.07	32° 40' 36.366 N	103° 48' 47.227 W
4,717.00	1.10	278.20	4,716.29	12.65	-6.57	610,311.95	660,065.63	32° 40' 36.368 N	103° 48' 47.267 W
4,906.00	1.30	280.60	4,905.25	13.30	-10.48	610,312.61	660,061.73	32° 40' 36.375 N	103° 48' 47.312 W
5,094.00	1.30	284.40	5,093.20	14.23	-14.64	610,313.53	660,057.57	32° 40' 36.384 N	103° 48' 47.361 W
5,283.00	1.30	296.60	5,282.15	15.72	-18.63	610,315.02	660,053.57	32° 40' 36.399 N	103° 48' 47.408 W
5,471.00	1.50	313.10	5,470.10	18.36	-22.34	610,317.66	660,049.87	32° 40' 36.425 N	103° 48' 47.451 W
5,660.00	1.80	315.70	5,659.02	22.17	-26.22	610,321.47	660,045.99	32° 40' 36.463 N	103° 48' 47.496 W
5,849.00	1.70	274.50	5,847.94	24.51	-31.08	610,323.82	660,041.12	32° 40' 36.487 N	103° 48' 47.553 W
6,037.00	0.50	186.80	6,035.91	23.92	-33.96	610,323.22	660,038.24	32° 40' 36.481 N	103° 48' 47.587 W
6,226.00	0.40	200.20	6,224.90	22.48	-34.29	610,321.78	660,037.92	32° 40' 36.467 N	103° 48' 47.590 W
6,415.00	0.40	224.10	6,413.90	21.39	-34.97	610,320.69	660,037.23	32° 40' 36.456 N	103° 48' 47.599 W
6,603.00	0.40	232.40	6,601.89	20.52	-35.95	610,319.82	660,036.25	32° 40' 36.447 N	103° 48' 47.610 W
6,792.00	0.30	300.20	6,790.89	20.36	-36.90	610,319.67	660,035.30	32° 40' 36.446 N	103° 48' 47.621 W
6,981.00	0.10	24.40	6,979.89	20.76	-37.26	610,320.07	660,034.94	32° 40' 36.450 N	103° 48' 47.625 W
7,169.00	0.20	143.90	7,167.89	20.65	-37.00	610,319.95	660,035.21	32° 40' 36.449 N	103° 48' 47.622 W
7,358.00	0.60	179.90	7,356.88	19.39	-36.80	610,318.69	660,035.40	32° 40' 36.436 N	103° 48' 47.620 W
7,548.00	0.70	183.80	7,546.87	17.24	-36.88	610,316.54	660,035.33	32° 40' 36.415 N	103° 48' 47.621 W
7,736.00	0.80	187.40	7,734.86	14.79	-37.12	610,314.09	660,035.08	32° 40' 36.391 N	103° 48' 47.624 W
7,925.00	1.20	186.00	7,923.83	11.51	-37.50	610,310.82	660,034.70	32° 40' 36.358 N	103° 48' 47.629 W
8,113.00	1.20	165.30	8,111.79	7.65	-37.21	610,306.95	660,035.00	32° 40' 36.320 N	103° 48' 47.625 W
8,302.00	1.10	173.60	8,300.75	3.93	-36.50	610,303.24	660,035.70	32° 40' 36.283 N	103° 48' 47.617 W
8,491.00	1.20	183.70	8,489.71	0.16	-36.43	610,299.46	660,035.78	32° 40' 36.246 N	103° 48' 47.617 W
8,585.00	1.30	176.20	8,583.69	-1.89	-36.42	610,297.41	660,035.78	32° 40' 36.226 N	103° 48' 47.617 W
8,609.00	1.40	174.00	8,607.68	-2.45	-36.37	610,296.85	660,035.83	32° 40' 36.220 N	103° 48' 47.616 W
8,641.00	1.70	146.80	8,639.67	-3.24	-36.07	610,296.06	660,036.13	32° 40' 36.212 N	103° 48' 47.613 W
8,672.00	4.00	103.20	8,670.63	-3.87	-34.77	610,295.43	660,037.44	32° 40' 36.206 N	103° 48' 47.598 W
8,704.00	7.50	96.10	8,702.47	-4.35	-31.60	610,294.96	660,040.60	32° 40' 36.201 N	103° 48' 47.561 W
8,736.00	11.50	91.70	8,734.02	-4.66	-26.33	610,294.64	660,045.87	32° 40' 36.198 N	103° 48' 47.499 W
8,767.00	15.50	90.00	8,764.16	-4.76	-19.10	610,294.55	660,053.10	32° 40' 36.197 N	103° 48' 47.414 W
8,798.00	19.30	88.10	8,793.74	-4.59	-9.83	610,294.72	660,062.37	32° 40' 36.198 N	103° 48' 47.306 W
8,830.00	23.30	88.60	8,823.54	-4.26	1.78	610,295.05	660,073.99	32° 40' 36.200 N	103° 48' 47.170 W
8,861.00	27.20	89.40	8,851.58	-4.03	15.00	610,295.27	660,087.21	32° 40' 36.202 N	103° 48' 47.015 W
8,892.00	30.90	91.30	8,878.67	-4.14	30.05	610,295.17	660,102.25	32° 40' 36.200 N	103° 48' 46.839 W
8,924.00	34.80	92.60	8,905.55	-4.74	47.39	610,294.56	660,119.60	32° 40' 36.193 N	103° 48' 46.636 W
8,955.00	38.20	93.10	8,930.47	-5.66	65.81	610,293.64	660,138.01	32° 40' 36.183 N	103° 48' 46.421 W
8,986.00	41.50	92.40	8,954.26	-6.61	85.64	610,292.70	660,157.85	32° 40' 36.173 N	103° 48' 46.189 W
9,018.00	44.90	91.00	8,977.59	-7.25	107.54	610,292.05	660,179.74	32° 40' 36.166 N	103° 48' 45.933 W
9,049.00	47.70	91.10	8,999.00	-7.66	129.94	610,291.64	660,202.15	32° 40' 36.161 N	103° 48' 45.671 W
9,080.00	51.50	90.90	9,019.09	-8.07	153.54	610,291.23	660,225.75	32° 40' 36.155 N	103° 48' 45.395 W
9,112.00	54.80	90.70	9,038.28	-8.43	179.14	610,290.88	660,251.35	32° 40' 36.151 N	103° 48' 45.095 W
9,143.00	58.50	90.50	9,055.32	-8.70	205.03	610,290.61	660,277.24	32° 40' 36.147 N	103° 48' 44.792 W
9,175.00	62.30	90.50	9,071.12	-8.94	232.85	610,290.36	660,305.05	32° 40' 36.143 N	103° 48' 44.467 W
9,206.00	65.80	90.60	9,084.68	-9.21	260.72	610,290.10	660,332.92	32° 40' 36.139 N	103° 48' 44.141 W
9,237.00	68.40	90.20	9,096.75	-9.41	289.27	610,289.90	660,361.48	32° 40' 36.136 N	103° 48' 43.807 W
9,269.00	71.40	89.40	9,107.74	-9.30	319.32	610,290.00	660,391.52	32° 40' 36.135 N	103° 48' 43.455 W



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Spruce Goose Federal Com #3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3643.70ft (Patriot 2)
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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,300.00	74.40	89.00	9,116.86	-8.89	348.94	610,290.42	660,421.15	32° 40' 36.138 N	103° 48' 43.109 W
9,331.00	78.20	88.70	9,124.20	-8.28	379.05	610,291.02	660,451.25	32° 40' 36.142 N	103° 48' 42.756 W
9,363.00	81.60	88.60	9,129.81	-7.54	410.54	610,291.77	660,482.74	32° 40' 36.148 N	103° 48' 42.388 W
9,385.00	83.50	88.50	9,132.66	-6.99	432.35	610,292.32	660,504.55	32° 40' 36.153 N	103° 48' 42.133 W
9,416.00	85.90	89.20	9,135.52	-6.37	463.20	610,292.94	660,535.41	32° 40' 36.157 N	103° 48' 41.772 W
9,448.00	86.60	89.50	9,137.62	-6.00	495.13	610,293.30	660,567.34	32° 40' 36.159 N	103° 48' 41.398 W
9,479.00	86.90	89.60	9,139.37	-5.76	526.08	610,293.54	660,598.29	32° 40' 36.160 N	103° 48' 41.036 W
9,574.00	88.70	90.30	9,143.02	-5.68	621.01	610,293.62	660,693.21	32° 40' 36.156 N	103° 48' 39.926 W
9,668.00	89.70	90.90	9,144.33	-6.66	714.99	610,292.64	660,787.20	32° 40' 36.142 N	103° 48' 38.826 W
9,762.00	88.80	91.10	9,145.56	-8.30	808.97	610,291.00	660,881.17	32° 40' 36.121 N	103° 48' 37.727 W
9,856.00	87.90	90.40	9,148.27	-9.53	902.92	610,289.77	660,975.12	32° 40' 36.104 N	103° 48' 36.628 W
9,950.00	88.50	90.90	9,151.22	-10.60	996.87	610,288.70	661,069.07	32° 40' 36.089 N	103° 48' 35.529 W
10,045.00	87.90	90.50	9,154.21	-11.76	1,091.81	610,287.54	661,164.02	32° 40' 36.073 N	103° 48' 34.418 W
10,139.00	87.90	88.70	9,157.65	-11.10	1,185.74	610,288.20	661,257.95	32° 40' 36.075 N	103° 48' 33.319 W
10,233.00	88.80	88.70	9,160.36	-8.97	1,279.68	610,290.33	661,351.88	32° 40' 36.092 N	103° 48' 32.220 W
10,327.00	88.00	89.40	9,162.98	-7.41	1,373.63	610,291.89	661,445.83	32° 40' 36.102 N	103° 48' 31.120 W
10,422.00	88.90	89.50	9,165.55	-6.50	1,468.59	610,292.80	661,540.79	32° 40' 36.107 N	103° 48' 30.009 W
10,516.00	87.80	89.40	9,168.26	-5.60	1,562.54	610,293.70	661,634.75	32° 40' 36.111 N	103° 48' 28.910 W
10,610.00	88.70	89.30	9,171.13	-4.54	1,656.49	610,294.77	661,728.69	32° 40' 36.117 N	103° 48' 27.811 W
10,704.00	87.40	88.70	9,174.33	-2.90	1,750.42	610,296.41	661,822.62	32° 40' 36.129 N	103° 48' 26.712 W
10,799.00	88.00	88.30	9,178.14	-0.41	1,845.31	610,298.89	661,917.51	32° 40' 36.149 N	103° 48' 25.602 W
10,893.00	86.80	88.70	9,182.40	2.05	1,939.18	610,301.35	662,011.38	32° 40' 36.168 N	103° 48' 24.503 W
10,987.00	87.90	88.60	9,186.75	4.26	2,033.05	610,303.56	662,105.25	32° 40' 36.186 N	103° 48' 23.405 W
11,082.00	87.20	88.80	9,190.81	6.41	2,127.94	610,305.72	662,200.14	32° 40' 36.202 N	103° 48' 22.295 W
11,176.00	88.50	88.70	9,194.34	8.46	2,221.85	610,307.77	662,294.05	32° 40' 36.218 N	103° 48' 21.196 W
11,271.00	87.50	90.20	9,197.65	9.37	2,316.78	610,308.68	662,388.98	32° 40' 36.222 N	103° 48' 20.085 W
11,366.00	88.20	90.70	9,201.22	8.63	2,411.71	610,307.93	662,483.91	32° 40' 36.210 N	103° 48' 18.975 W
11,460.00	87.30	90.60	9,204.91	7.56	2,505.63	610,306.87	662,577.83	32° 40' 36.195 N	103° 48' 17.876 W
11,555.00	88.00	91.40	9,208.80	5.91	2,600.54	610,305.21	662,672.74	32° 40' 36.174 N	103° 48' 16.766 W
11,649.00	87.20	90.80	9,212.74	4.10	2,694.44	610,303.41	662,766.64	32° 40' 36.151 N	103° 48' 15.667 W
11,744.00	88.70	90.70	9,216.14	2.86	2,789.37	610,302.16	662,861.57	32° 40' 36.134 N	103° 48' 14.557 W
11,838.00	89.80	91.30	9,217.37	1.22	2,883.34	610,300.52	662,955.54	32° 40' 36.114 N	103° 48' 13.457 W
11,933.00	90.90	90.80	9,216.79	-0.52	2,978.32	610,298.78	663,050.52	32° 40' 36.092 N	103° 48' 12.346 W
12,027.00	91.20	89.50	9,215.07	-0.77	3,072.30	610,298.54	663,144.50	32° 40' 36.085 N	103° 48' 11.247 W
12,119.00	88.70	88.90	9,215.15	0.52	3,164.29	610,299.82	663,236.49	32° 40' 36.093 N	103° 48' 10.171 W
12,213.00	89.00	90.30	9,217.03	1.17	3,258.26	610,300.48	663,330.46	32° 40' 36.095 N	103° 48' 9.071 W
12,308.00	87.70	90.20	9,219.77	0.76	3,353.22	610,300.06	663,425.42	32° 40' 36.086 N	103° 48' 7.960 W
12,402.00	87.90	89.20	9,223.38	1.25	3,447.15	610,300.55	663,519.35	32° 40' 36.086 N	103° 48' 6.861 W
12,496.00	88.50	91.40	9,226.33	0.76	3,541.10	610,300.06	663,613.29	32° 40' 36.077 N	103° 48' 5.762 W
12,591.00	87.50	91.20	9,229.64	-1.40	3,636.01	610,297.91	663,708.21	32° 40' 36.050 N	103° 48' 4.652 W
12,685.00	88.40	91.20	9,233.01	-3.36	3,729.93	610,295.94	663,802.13	32° 40' 36.026 N	103° 48' 3.553 W
12,780.00	88.70	90.70	9,235.41	-4.94	3,824.89	610,294.37	663,897.08	32° 40' 36.006 N	103° 48' 2.442 W
12,875.00	87.70	89.60	9,238.40	-5.19	3,919.84	610,294.12	663,992.03	32° 40' 35.999 N	103° 48' 1.331 W
12,970.00	88.40	89.40	9,241.63	-4.36	4,014.78	610,294.95	664,086.97	32° 40' 36.002 N	103° 48' 0.221 W
13,064.00	87.50	89.80	9,244.99	-3.70	4,108.71	610,295.60	664,180.91	32° 40' 36.004 N	103° 47' 59.122 W
13,159.00	88.10	90.00	9,248.64	-3.54	4,203.64	610,295.77	664,275.84	32° 40' 36.001 N	103° 47' 58.011 W
13,254.00	89.10	90.30	9,250.96	-3.78	4,298.61	610,295.52	664,370.81	32° 40' 35.994 N	103° 47' 56.900 W
13,349.00	90.00	90.80	9,251.70	-4.70	4,393.60	610,294.61	664,465.80	32° 40' 35.980 N	103° 47' 55.789 W
13,443.00	88.80	91.00	9,252.69	-6.17	4,487.59	610,293.13	664,559.78	32° 40' 35.961 N	103° 47' 54.689 W
13,538.00	89.30	91.10	9,254.26	-7.91	4,582.56	610,291.39	664,654.75	32° 40' 35.939 N	103° 47' 53.578 W
13,633.00	89.90	91.60	9,254.93	-10.15	4,677.53	610,289.15	664,749.72	32° 40' 35.912 N	103° 47' 52.467 W
13,728.00	90.90	92.10	9,254.26	-13.22	4,772.47	610,286.08	664,844.67	32° 40' 35.877 N	103° 47' 51.357 W
13,822.00	91.80	92.30	9,252.05	-16.83	4,866.38	610,282.48	664,938.57	32° 40' 35.837 N	103° 47' 50.258 W
13,919.00	92.90	92.70	9,248.07	-21.05	4,963.20	610,278.25	665,035.40	32° 40' 35.790 N	103° 47' 49.126 W

Final IDS MWD Survey



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Spruce Goose Federal Com #3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Site:	Sec. 7, T 19 S. , R 32 E	MD Reference:	KB=20' @ 3643.70ft (Patriot 2)
Well:	Spruce Goose Federal Com #3H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,000.00	92.90	92.70	9,243.97	-24.86	5,044.01	610,274.44	665,116.20	32° 40' 35.748 N	103° 47' 48.181 W
Projection to TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,998.00	1,997.77	-1.80	12.21	First IDS MWD Survey
13,919.00	9,248.07	-21.05	4,963.20	Final IDS MWD Survey
14,000.00	9,243.97	-24.86	5,044.01	Projection to TD

Checked By: _____ Approved By: _____ Date: _____