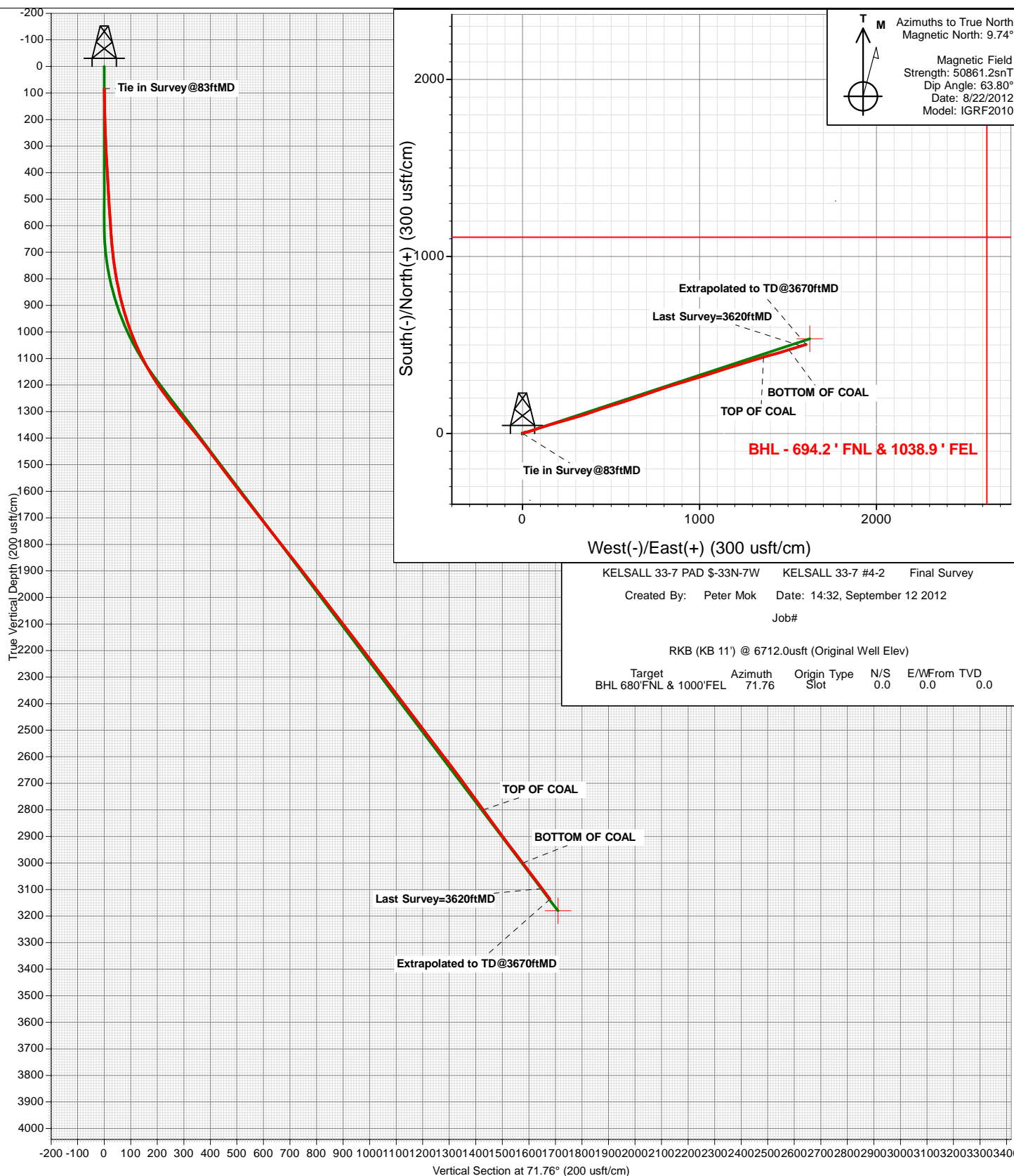


GOSNEY & SONS, INC

Project: SEC.4-T33N-R7W
 Site: KELSALL 33-7 PAD \$-33N-7W
 Well: KELSALL 33-7 #4-2
 Wellbore: Wellbore #1
 Final Survey



KELSALL 33-7 PAD \$-33N-7W KELSALL 33-7 #4-2 Final Survey
 Created By: Peter Mok Date: 14:32, September 12 2012
 Job#
 RKB (KB 11') @ 6712.0usft (Original Well Elev)
 Target Azimuth Origin Type N/S E/W From TVD
 BHL 680'FNL & 1000'FEL 71.76 Slot 0.0 0.0 0.0

GOSNEY & SONS, INC

SEC.4-T33N-R7W

KELSALL 33-7 PAD S-33N-7W

KELSALL 33-7 #4-2

Wellbore #1

Survey: Final Survey

Standard Survey Report

22 August, 2012



Survey Report



Company:	GOSNEY & SONS, INC	Local Co-ordinate Reference:	Well KELSALL 33-7 #4-2
Project:	SEC.4-T33N-R7W	TVD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Site:	KELSALL 33-7 PAD \$-33N-7W	MD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Well:	KELSALL 33-7 #4-2	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDMDB

Project	SEC.4-T33N-R7W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site	KELSALL 33-7 PAD \$-33N-7W		
Site Position:		Northing:	1,178,281.19 usft
From:	Map	Easting:	2,383,704.45 usft
Position Uncertainty:	0.0 usft	Slot Radius:	0 "
		Latitude:	37° 8' 13.668 N
		Longitude:	107° 36' 51.516 W
		Grid Convergence:	-1.30 °

Well	KELSALL 33-7 #4-2		
Well Position	+N-S	0.0 usft	Northing: 1,178,281.19 usft
	+E-W	0.0 usft	Easting: 2,383,704.45 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	37° 8' 13.668 N
		Longitude:	107° 36' 51.516 W
		Ground Level:	6,701.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/22/2012	9.74	63.80	50,861

Design	Final Survey				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	72.51	

Survey Program	Date	8/22/2012			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
113.0	3,670.0	Final Survey (Wellbore #1)	MWD		

Survey												
Measured Depth (usft)	Incl. (°)	Az. (°)	Vertical Depth (usft)	Subsea (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Closure Distance (usft)	Dogleg Rate (°/100us)	Build Rate (°/100us)	Turn Rate (°/100us)	Comments/Formations
83.0	0.70	72.50	83.0	6,629.0	0.1	0.5	0.5	0.5	0.00	0.00	0.00	Tie in Survey@83ftMD
113.0	0.60	63.78	113.0	6,599.0	0.3	0.8	0.8	0.8	0.47	-0.33	-29.07	
142.0	0.80	63.78	142.0	6,570.0	0.4	1.1	1.2	1.2	0.69	0.69	0.00	
173.0	1.10	61.71	173.0	6,539.0	0.7	1.6	1.7	1.7	0.97	0.97	-6.68	
203.0	1.70	60.35	203.0	6,509.0	1.0	2.2	2.4	2.4	2.00	2.00	-4.53	
233.0	2.00	59.35	233.0	6,479.0	1.5	3.0	3.4	3.4	1.01	1.00	-3.33	
263.0	2.50	58.60	262.9	6,449.1	2.1	4.1	4.5	4.6	1.67	1.67	-2.50	
293.0	2.70	58.00	292.9	6,419.1	2.8	5.2	5.8	5.9	0.67	0.67	-2.00	
324.0	3.00	60.50	323.9	6,388.1	3.6	6.5	7.3	7.5	1.05	0.97	8.06	
354.0	3.20	59.90	353.8	6,358.2	4.4	7.9	8.9	9.1	0.68	0.67	-2.00	
385.0	3.20	62.50	384.8	6,327.2	5.3	9.5	10.6	10.8	0.47	0.00	8.39	

Survey Report



Company:	GOSNEY & SONS, INC	Local Co-ordinate Reference:	Well KELSALL 33-7 #4-2
Project:	SEC.4-T33N-R7W	TVD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Site:	KELSALL 33-7 PAD S-33N-7W	MD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Well:	KELSALL 33-7 #4-2	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDMDB

Survey

Measured Depth (usft)	Incl. (°)	Az. (°)	Vertical Depth (usft)	Subsea (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Closure Distance (usft)	Dogleg Rate (°/100us)	Build Rate (°/100us)	Turn Rate (°/100us)	Comments/Formations
416.0	3.30	68.30	415.7	6,296.3	6.0	11.1	12.3	12.6	1.11	0.32	18.71	
448.0	3.40	73.20	447.7	6,264.3	6.6	12.8	14.2	14.4	0.95	0.31	15.31	
476.0	3.60	75.80	475.6	6,236.4	7.1	14.5	15.9	16.1	0.91	0.71	9.29	
532.0	3.60	80.40	531.5	6,180.5	7.8	17.9	19.4	19.5	0.52	0.00	8.21	
562.0	3.80	82.80	561.5	6,150.5	8.1	19.8	21.3	21.4	0.84	0.67	8.00	
592.0	3.70	81.50	591.4	6,120.6	8.3	21.8	23.3	23.3	0.44	-0.33	-4.33	
622.0	3.90	84.50	621.3	6,090.7	8.6	23.7	25.2	25.2	0.94	0.67	10.00	
653.0	4.60	81.00	652.2	6,059.8	8.9	26.0	27.5	27.5	2.41	2.26	-11.29	
683.0	5.50	76.30	682.1	6,029.9	9.4	28.6	30.1	30.1	3.30	3.00	-15.67	
714.0	6.60	74.80	712.9	5,999.1	10.2	31.8	33.4	33.4	3.58	3.55	-4.84	
746.0	8.00	75.50	744.7	5,967.3	11.3	35.7	37.4	37.4	4.38	4.38	2.19	
778.0	9.50	75.70	776.3	5,935.7	12.5	40.4	42.3	42.3	4.69	4.69	0.63	
809.0	10.80	73.80	806.8	5,905.2	13.9	45.7	47.7	47.7	4.33	4.19	-6.13	
841.0	11.90	70.70	838.2	5,873.8	15.8	51.7	54.0	54.0	3.93	3.44	-9.69	
873.0	13.40	70.50	869.4	5,842.6	18.2	58.3	61.0	61.0	4.69	4.69	-0.63	
904.0	15.00	70.40	899.5	5,812.5	20.7	65.4	68.6	68.6	5.16	5.16	-0.32	
936.0	16.60	70.80	930.3	5,781.7	23.6	73.7	77.4	77.4	5.01	5.00	1.25	
968.0	18.20	71.50	960.8	5,751.2	26.7	82.7	86.9	86.9	5.04	5.00	2.19	
999.0	19.80	71.90	990.1	5,721.9	29.9	92.3	97.0	97.0	5.18	5.16	1.29	
1,031.0	21.70	72.10	1,020.0	5,692.0	33.4	103.1	108.3	108.4	5.94	5.94	0.63	
1,063.0	23.60	71.50	1,049.6	5,662.4	37.2	114.8	120.7	120.7	5.98	5.94	-1.88	
1,095.0	25.60	71.80	1,078.7	5,633.3	41.4	127.4	134.0	134.0	6.26	6.25	0.94	
1,126.0	27.30	72.80	1,106.4	5,605.6	45.6	140.6	147.8	147.8	5.67	5.48	3.23	
1,158.0	29.10	73.80	1,134.6	5,577.4	49.9	155.1	162.9	162.9	5.82	5.63	3.13	
1,190.0	31.10	74.40	1,162.3	5,549.7	54.3	170.5	179.0	179.0	6.32	6.25	1.88	
1,221.0	33.30	75.00	1,188.5	5,523.5	58.7	186.4	195.5	195.5	7.17	7.10	1.94	
1,253.0	36.00	74.20	1,214.8	5,497.2	63.5	204.0	213.6	213.6	8.56	8.44	-2.50	
1,285.0	37.00	73.40	1,240.6	5,471.4	68.8	222.3	232.7	232.7	3.46	3.13	-2.50	
1,316.0	36.80	73.70	1,265.4	5,446.6	74.1	240.1	251.3	251.3	0.87	-0.65	0.97	
1,348.0	38.00	74.40	1,290.8	5,421.2	79.4	258.8	270.7	270.7	3.98	3.75	2.19	
1,380.0	39.10	74.20	1,315.8	5,396.2	84.8	278.0	290.6	290.7	3.46	3.44	-0.63	
1,410.0	39.30	74.00	1,339.1	5,372.9	90.0	296.2	309.6	309.6	0.79	0.67	-0.67	
1,442.0	38.80	72.70	1,363.9	5,348.1	95.8	315.5	329.8	329.8	3.00	-1.56	-4.06	
1,474.0	38.90	72.90	1,388.8	5,323.2	101.8	334.7	349.8	349.8	0.50	0.31	0.63	
1,506.0	38.00	71.20	1,413.9	5,298.1	107.9	353.6	369.7	369.7	4.34	-2.81	-5.31	
1,537.0	36.60	70.40	1,438.6	5,273.4	114.1	371.4	388.5	388.5	4.78	-4.52	-2.58	
1,568.0	36.40	70.90	1,463.5	5,248.5	120.2	388.8	406.9	406.9	1.16	-0.65	1.61	
1,600.0	37.50	71.40	1,489.0	5,223.0	126.4	407.0	426.2	426.2	3.56	3.44	1.56	
1,631.0	37.50	71.30	1,513.6	5,198.4	132.4	424.9	445.0	445.0	0.20	0.00	-0.32	
1,663.0	37.30	70.80	1,539.1	5,172.9	138.7	443.3	464.5	464.5	1.14	-0.63	-1.56	
1,695.0	36.90	70.70	1,564.6	5,147.4	145.1	461.5	483.7	483.7	1.26	-1.25	-0.31	
1,725.0	37.30	72.80	1,588.5	5,123.5	150.8	478.7	501.8	501.8	4.43	1.33	7.00	
1,757.0	37.50	73.00	1,613.9	5,098.1	156.5	497.2	521.3	521.3	0.73	0.63	0.63	
1,789.0	37.50	73.30	1,639.3	5,072.7	162.1	515.9	540.8	540.8	0.57	0.00	0.94	
1,852.0	38.30	72.80	1,689.0	5,023.0	173.4	552.9	579.5	579.5	1.36	1.27	-0.79	
1,916.0	38.30	72.10	1,739.3	4,972.7	185.4	590.7	619.1	619.1	0.68	0.00	-1.09	
1,979.0	38.30	71.20	1,788.7	4,923.3	197.7	627.8	658.2	658.2	0.89	0.00	-1.43	
2,043.0	38.30	71.30	1,838.9	4,873.1	210.4	665.3	697.8	697.8	0.10	0.00	0.16	
2,107.0	38.10	70.40	1,889.2	4,822.8	223.4	702.7	737.4	737.4	0.92	-0.31	-1.41	
2,169.0	37.60	70.20	1,938.2	4,773.8	236.2	738.5	775.4	775.4	0.83	-0.81	-0.32	
2,232.0	37.30	71.90	1,988.2	4,723.8	248.6	774.8	813.7	813.7	1.71	-0.48	2.70	

Survey Report



Company:	GOSNEY & SONS, INC	Local Co-ordinate Reference:	Well KELSALL 33-7 #4-2
Project:	SEC.4-T33N-R7W	TVD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Site:	KELSALL 33-7 PAD S-33N-7W	MD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Well:	KELSALL 33-7 #4-2	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDMDB

Survey

Measured Depth (usft)	Incl. (°)	Az. (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Closure Distance (usft)	Dogleg Rate (°/100us)	Build Rate (°/100us)	Turn Rate (°/100us)	Comments/Formations
2,294.0	37.50	71.00	2,037.4	4,674.6	260.6	810.5	851.3	851.3	0.94	0.32	-1.45	
2,358.0	37.40	72.60	2,088.3	4,623.7	272.8	847.4	890.2	890.3	1.53	-0.16	2.50	
2,421.0	37.70	74.20	2,138.2	4,573.8	283.8	884.2	928.6	928.6	1.62	0.48	2.54	
2,484.0	37.40	73.00	2,188.2	4,523.8	294.6	921.1	967.0	967.0	1.25	-0.48	-1.90	
2,547.0	37.50	73.40	2,238.2	4,473.8	305.7	957.7	1,005.3	1,005.3	0.42	0.16	0.63	
2,610.0	37.50	73.10	2,288.1	4,423.9	316.7	994.5	1,043.7	1,043.7	0.29	0.00	-0.48	
2,673.0	37.10	72.80	2,338.3	4,373.7	327.9	1,031.0	1,081.8	1,081.9	0.70	-0.63	-0.48	
2,736.0	36.50	71.20	2,388.7	4,323.3	339.6	1,066.8	1,119.6	1,119.6	1.79	-0.95	-2.54	
2,800.0	37.20	71.60	2,439.9	4,272.1	351.8	1,103.2	1,158.0	1,158.0	1.16	1.09	0.63	
2,863.0	37.00	72.50	2,490.2	4,221.8	363.5	1,139.4	1,196.0	1,196.0	0.92	-0.32	1.43	
2,927.0	37.40	72.80	2,541.1	4,170.9	375.1	1,176.3	1,234.6	1,234.7	0.69	0.63	0.47	
2,990.0	37.90	73.30	2,591.0	4,121.0	386.3	1,213.1	1,273.1	1,273.1	0.93	0.79	0.79	
3,054.0	36.90	72.70	2,641.9	4,070.1	397.6	1,250.3	1,312.0	1,312.0	1.66	-1.56	-0.94	
3,117.0	36.60	73.30	2,692.4	4,019.6	408.7	1,286.3	1,349.7	1,349.7	0.74	-0.48	0.95	
3,180.0	36.00	73.40	2,743.1	3,968.9	419.3	1,322.1	1,387.0	1,387.0	0.96	-0.95	0.16	
3,211.0	35.40	72.90	2,768.3	3,943.7	424.6	1,339.4	1,405.1	1,405.1	2.15	-1.94	-1.61	
3,242.0	35.60	73.10	2,793.5	3,918.5	429.9	1,356.6	1,423.1	1,423.1	0.75	0.65	0.65	
3,250.0	35.75	73.13	2,800.0	3,912.0	431.2	1,361.0	1,427.7	1,427.7	1.88	1.87	0.32	TOP OF COAL
3,274.0	36.20	73.20	2,819.5	3,892.5	435.3	1,374.6	1,441.8	1,441.8	1.88	1.88	0.31	
3,305.0	36.30	74.00	2,844.5	3,867.5	440.5	1,392.1	1,460.2	1,460.2	1.56	0.32	2.58	
3,337.0	36.10	75.50	2,870.3	3,841.7	445.4	1,410.4	1,479.0	1,479.0	2.84	-0.63	4.69	
3,369.0	36.60	75.60	2,896.1	3,815.9	450.2	1,428.7	1,498.0	1,498.0	1.57	1.56	0.31	
3,400.0	37.30	73.60	2,920.8	3,791.2	455.1	1,446.7	1,516.6	1,516.6	4.49	2.26	-6.45	
3,432.0	37.80	72.70	2,946.2	3,765.8	460.8	1,465.4	1,536.1	1,536.1	2.32	1.56	-2.81	
3,464.0	37.10	72.90	2,971.6	3,740.4	466.5	1,484.0	1,555.6	1,555.6	2.22	-2.19	0.63	
3,495.0	37.00	73.30	2,996.3	3,715.7	472.0	1,501.8	1,574.2	1,574.2	0.84	-0.32	1.29	
3,499.6	37.00	73.29	3,000.0	3,712.0	472.8	1,504.5	1,577.0	1,577.0	0.19	0.00	-0.31	BOTTOM OF COAL
3,591.0	37.00	73.00	3,073.0	3,639.0	488.7	1,557.1	1,632.0	1,632.0	0.19	0.00	-0.31	
3,620.0	36.80	72.40	3,096.2	3,615.8	493.9	1,573.7	1,649.4	1,649.4	1.42	-0.69	-2.07	Last Survey=3620ftMD
3,670.0	36.80	72.40	3,136.2	3,575.8	502.9	1,602.3	1,679.4	1,679.4	0.00	0.00	0.00	Extrapolated to TD@3670

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 680'FNL & 1000'	0.00	0.00	3,180.0	517.1	1,641.2	1,178,761.01	2,385,356.94	37° 8' 18.780 N	107° 36' 31.248 W
- survey misses target center by 60.2usft at 3670.0usft MD (3136.2 TVD, 502.9 N, 1602.3 E)									
- Point									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
83.0	83.0	0.1	0.5	Tie in Survey@83ftMD
3,250.0	2,800.0	431.2	1,361.0	TOP OF COAL
3,499.6	3,000.0	472.8	1,504.5	BOTTOM OF COAL
3,620.0	3,096.2	493.9	1,573.7	Last Survey=3620ftMD
3,670.0	3,136.2	502.9	1,602.3	Extrapolated to TD@3670ftMD

Survey Report



Company:	GOSNEY & SONS, INC	Local Co-ordinate Reference:	Well KELSALL 33-7 #4-2
Project:	SEC.4-T33N-R7W	TVD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Site:	KELSALL 33-7 PAD S-33N-7W	MD Reference:	RKB (KB 11') @ 6712.0usft (Original Well Elev)
Well:	KELSALL 33-7 #4-2	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDMDB

Checked By: _____ Approved By: _____ Date: _____