



PHOENIX
TECHNOLOGY SERVICES

COG Operating LLC

Lea County, NM (NAD27 NME)

Lychee State Com

3H

ST01 / 64116

Design: Surveys (Ensign 155)

Standard Survey Report

11 February, 2019





Survey Report



Company: COG Operating LLC
 Project: Lea County, NM (NAD27 NME)
 Site: Lychee State Com
 Well: 3H
 Wellbore: ST01 / 64116
 Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
 TVD Reference: RKB @ 3733.30usft (Ensign 155)
 MD Reference: RKB @ 3733.30usft (Ensign 155)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: USA Compass

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	Lychee State Com				
Site Position:		Northing:	531,306.20 usft	Latitude:	32° 27' 27.50400 N
From:	Lat/Long	Easting:	769,560.34 usft	Longitude:	103° 27' 33.89400 W
Position Uncertainty:	1.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well	3H					
Well Position	+N/-S	0.00 usft	Northing:	531,306.40 usft	Latitude:	32° 27' 27.50597 N
	+E/-W	0.00 usft	Easting:	769,560.40 usft	Longitude:	103° 27' 33.89326 W
Position Uncertainty		1.00 usft	Wellhead Elevation:	usft	Ground Level:	3,709.30 usft

Wellbore	ST01 / 64116				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	2/1/2019	6.69	60.29	48,120.90516389

Design	Surveys (Ensign 155)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	8,000.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.51	

Survey Program	Date 2/11/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	8,000.00	Scientific Drilling Gyros (OH / 64116)	Scientific Gyro	Scientific Drilling Intl. Standard Wireline Keeper	
8,000.00	19,016.00	Phoenix MWD Surveys (ST01 / 64116)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.38	160.58	100.00	-0.31	0.11	-0.31	0.38	0.38	0.00
125.00	0.54	159.52	125.00	-0.50	0.18	-0.50	0.64	0.64	-4.24
150.00	0.41	157.74	150.00	-0.69	0.25	-0.70	0.52	-0.52	-7.12
175.00	0.47	156.53	175.00	-0.87	0.33	-0.87	0.24	0.24	-4.84
200.00	0.54	152.48	200.00	-1.07	0.42	-1.07	0.31	0.28	-16.20
225.00	0.54	146.63	224.99	-1.27	0.54	-1.28	0.22	0.00	-23.40
250.00	0.44	166.68	249.99	-1.46	0.63	-1.47	0.79	-0.40	80.20
275.00	0.38	157.94	274.99	-1.63	0.68	-1.64	0.35	-0.24	-34.96
300.00	0.41	142.96	299.99	-1.78	0.77	-1.79	0.43	0.12	-59.92



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
325.00	0.41	145.56	324.99	-1.93	0.87	-1.94	0.07	0.00	10.40
350.00	0.53	137.99	349.99	-2.09	1.00	-2.10	0.54	0.48	-30.28
375.00	0.49	131.90	374.99	-2.25	1.16	-2.25	0.27	-0.16	-24.36
400.00	0.42	132.03	399.99	-2.38	1.31	-2.39	0.28	-0.28	0.52
425.00	0.49	130.42	424.99	-2.51	1.46	-2.52	0.28	0.28	-6.44
450.00	0.32	143.03	449.99	-2.63	1.58	-2.65	0.76	-0.68	50.44
475.00	0.45	139.87	474.99	-2.76	1.68	-2.78	0.53	0.52	-12.64
500.00	0.42	145.40	499.99	-2.91	1.80	-2.93	0.21	-0.12	22.12
525.00	0.41	146.98	524.99	-3.07	1.90	-3.08	0.06	-0.04	6.32
550.00	0.50	139.98	549.99	-3.22	2.02	-3.24	0.42	0.36	-28.00
575.00	0.53	138.54	574.98	-3.39	2.17	-3.41	0.13	0.12	-5.76
600.00	0.49	135.13	599.98	-3.56	2.32	-3.58	0.20	-0.16	-13.64
625.00	0.43	128.65	624.98	-3.69	2.47	-3.71	0.32	-0.24	-25.92
650.00	0.40	134.72	649.98	-3.81	2.60	-3.83	0.21	-0.12	24.28
675.00	0.37	133.59	674.98	-3.93	2.72	-3.95	0.12	-0.12	-4.52
700.00	0.35	133.76	699.98	-4.04	2.84	-4.06	0.08	-0.08	0.68
725.00	0.40	138.25	724.98	-4.15	2.95	-4.18	0.23	0.20	17.96
750.00	0.39	152.51	749.98	-4.29	3.05	-4.32	0.39	-0.04	57.04
775.00	0.35	160.90	774.98	-4.44	3.11	-4.47	0.27	-0.16	33.56
800.00	0.44	160.28	799.98	-4.60	3.17	-4.63	0.36	0.36	-2.48
825.00	0.43	141.37	824.98	-4.77	3.26	-4.80	0.57	-0.04	-75.64
850.00	0.33	156.46	849.98	-4.91	3.35	-4.94	0.56	-0.40	60.36
875.00	0.29	157.00	874.98	-5.03	3.40	-5.06	0.16	-0.16	2.16
900.00	0.28	150.94	899.98	-5.14	3.45	-5.17	0.13	-0.04	-24.24
925.00	0.30	168.71	924.98	-5.26	3.50	-5.29	0.37	0.08	71.08
950.00	0.39	162.93	949.98	-5.41	3.53	-5.44	0.39	0.36	-23.12
975.00	0.35	165.21	974.98	-5.56	3.58	-5.59	0.17	-0.16	9.12
1,000.00	0.29	141.96	999.97	-5.69	3.64	-5.72	0.57	-0.24	-93.00
1,025.00	0.41	160.27	1,024.97	-5.82	3.71	-5.85	0.65	0.48	73.24
1,050.00	0.53	152.06	1,049.97	-6.01	3.79	-6.04	0.55	0.48	-32.84
1,075.00	0.38	153.95	1,074.97	-6.18	3.88	-6.22	0.60	-0.60	7.56
1,100.00	0.22	137.70	1,099.97	-6.29	3.95	-6.33	0.72	-0.64	-65.00
1,125.00	0.31	140.96	1,124.97	-6.38	4.02	-6.41	0.36	0.36	13.04
1,150.00	0.22	165.96	1,149.97	-6.48	4.08	-6.51	0.58	-0.36	100.00
1,175.00	0.17	174.00	1,174.97	-6.56	4.09	-6.60	0.23	-0.20	32.16
1,200.00	0.26	148.08	1,199.97	-6.65	4.13	-6.68	0.52	0.36	-103.68
1,225.00	0.16	161.51	1,224.97	-6.73	4.17	-6.76	0.44	-0.40	53.72
1,250.00	0.08	192.44	1,249.97	-6.78	4.18	-6.82	0.40	-0.32	123.72
1,275.00	0.01	263.95	1,274.97	-6.80	4.17	-6.83	0.31	-0.28	286.04
1,300.00	0.06	217.30	1,299.97	-6.81	4.16	-6.84	0.21	0.20	-186.60
1,325.00	0.10	236.71	1,324.97	-6.83	4.13	-6.87	0.19	0.16	77.64
1,350.00	0.15	125.53	1,349.97	-6.86	4.14	-6.90	0.83	0.20	-444.72
1,375.00	0.06	176.28	1,374.97	-6.89	4.17	-6.93	0.49	-0.36	203.00



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1,400.00	0.04	294.14	1,399.97	-6.90	4.16	-6.94	0.35	-0.08	471.44
1,425.00	0.02	185.91	1,424.97	-6.90	4.15	-6.94	0.20	-0.08	-432.92
1,450.00	0.16	187.69	1,449.97	-6.94	4.15	-6.98	0.56	0.56	7.12
1,475.00	0.06	269.65	1,474.97	-6.98	4.13	-7.01	0.65	-0.40	327.84
1,500.00	0.19	170.76	1,499.97	-7.02	4.13	-7.05	0.83	0.52	-395.56
1,525.00	0.18	150.69	1,524.97	-7.09	4.15	-7.13	0.26	-0.04	-80.28
1,550.00	0.19	150.86	1,549.97	-7.16	4.19	-7.20	0.04	0.04	0.68
1,575.00	0.26	125.37	1,574.97	-7.23	4.26	-7.27	0.48	0.28	-101.96
1,600.00	0.21	129.61	1,599.97	-7.29	4.34	-7.33	0.21	-0.20	16.96
1,625.00	0.22	140.39	1,624.97	-7.36	4.40	-7.40	0.17	0.04	43.12
1,650.00	0.10	169.27	1,649.97	-7.42	4.44	-7.46	0.56	-0.48	115.52
1,675.00	0.16	125.17	1,674.97	-7.46	4.47	-7.50	0.45	0.24	-176.40
1,700.00	0.22	161.28	1,699.97	-7.53	4.52	-7.56	0.52	0.24	144.44
1,725.00	0.19	147.90	1,724.97	-7.61	4.55	-7.65	0.23	-0.12	-53.52
1,750.00	0.21	141.75	1,749.97	-7.66	4.60	-7.72	0.12	0.08	-24.60
1,775.00	0.35	114.55	1,774.97	-7.75	4.70	-7.79	0.76	0.56	-108.80
1,800.00	0.38	91.83	1,799.97	-7.78	4.85	-7.82	0.59	0.12	-90.88
1,825.00	0.38	85.46	1,824.97	-7.78	5.02	-7.82	0.17	0.00	-25.48
1,850.00	0.51	82.38	1,849.97	-7.75	5.21	-7.80	0.53	0.52	-12.32
1,875.00	0.62	73.70	1,874.97	-7.70	5.45	-7.75	0.56	0.44	-34.72
1,900.00	1.04	66.84	1,899.96	-7.57	5.79	-7.62	1.72	1.68	-27.44
1,925.00	1.23	67.15	1,924.96	-7.38	6.25	-7.43	0.76	0.76	1.24
1,950.00	1.59	66.26	1,949.95	-7.14	6.81	-7.20	1.44	1.44	-3.56
1,975.00	1.66	63.89	1,974.94	-6.84	7.45	-6.90	0.39	0.28	-9.48
2,000.00	1.74	66.35	1,999.93	-6.53	8.13	-6.60	0.43	0.32	9.84
2,025.00	1.71	68.23	2,024.92	-6.24	8.82	-6.31	0.26	-0.12	7.52
2,050.00	1.72	67.12	2,049.91	-5.95	9.51	-6.03	0.14	0.04	-4.44
2,075.00	1.61	64.59	2,074.90	-5.66	10.18	-5.74	0.53	-0.44	-10.12
2,100.00	1.42	60.14	2,099.89	-5.35	10.76	-5.44	0.89	-0.76	-17.80
2,125.00	1.41	55.78	2,124.88	-5.02	11.28	-5.12	0.43	-0.04	-17.44
2,150.00	1.28	45.51	2,149.87	-4.65	11.74	-4.76	1.09	-0.52	-41.08
2,175.00	1.16	39.89	2,174.87	-4.27	12.10	-4.37	0.68	-0.48	-22.48
2,200.00	1.11	31.70	2,199.86	-3.86	12.39	-3.97	0.68	-0.20	-32.76
2,225.00	1.06	25.96	2,224.86	-3.45	12.62	-3.56	0.48	-0.20	-22.96
2,250.00	0.91	16.33	2,249.86	-3.05	12.77	-3.16	0.89	-0.60	-38.52
2,275.00	0.90	0.70	2,274.85	-2.67	12.83	-2.78	0.99	-0.04	-62.52
2,300.00	0.84	352.00	2,299.85	-2.29	12.81	-2.40	0.58	-0.24	-34.80
2,325.00	0.88	338.02	2,324.85	-1.93	12.71	-2.04	0.85	0.16	-55.92
2,350.00	0.97	331.02	2,349.84	-1.57	12.54	-1.67	0.58	0.36	-28.00
2,375.00	1.08	324.52	2,374.84	-1.19	12.30	-1.29	0.64	0.44	-26.00
2,400.00	1.04	326.16	2,399.83	-0.81	12.04	-0.91	0.20	-0.16	6.56
2,425.00	1.15	320.43	2,424.83	-0.43	11.75	-0.53	0.62	0.44	-22.92
2,450.00	1.41	318.34	2,449.82	0.00	11.39	-0.10	1.06	1.04	-8.36



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2,475.00	1.49	319.40	2,474.82	0.47	10.97	0.38	0.34	0.32	4.24
2,500.00	1.61	316.60	2,499.81	0.98	10.52	0.89	0.57	0.48	-11.20
2,525.00	1.87	316.28	2,524.80	1.53	9.99	1.44	1.04	1.04	-1.28
2,550.00	1.93	316.40	2,549.78	2.13	9.42	2.04	0.24	0.24	0.48
2,575.00	2.00	316.36	2,574.77	2.75	8.83	2.67	0.28	0.28	-0.16
2,600.00	1.89	313.88	2,599.75	3.35	8.23	3.28	0.55	-0.44	-9.92
2,625.00	1.53	309.25	2,624.74	3.84	7.68	3.78	1.54	-1.44	-18.52
2,650.00	1.35	302.38	2,649.73	4.21	7.17	4.15	1.00	-0.72	-27.48
2,675.00	1.22	298.71	2,674.73	4.50	6.69	4.44	0.62	-0.52	-14.68
2,700.00	1.24	295.17	2,699.72	4.74	6.21	4.69	0.31	0.08	-14.16
2,725.00	1.12	294.69	2,724.72	4.96	5.74	4.91	0.48	-0.48	-1.92
2,750.00	1.12	299.17	2,749.71	5.18	5.31	5.13	0.35	0.00	17.92
2,775.00	1.09	300.83	2,774.71	5.42	4.89	5.38	0.18	-0.12	6.64
2,800.00	0.93	298.96	2,799.70	5.64	4.51	5.60	0.65	-0.64	-7.48
2,825.00	0.86	294.78	2,824.70	5.82	4.16	5.78	0.38	-0.28	-16.72
2,850.00	0.69	307.29	2,849.70	5.99	3.87	5.95	0.96	-0.68	50.04
2,875.00	0.59	328.01	2,874.70	6.19	3.68	6.16	1.00	-0.40	82.88
2,900.00	0.48	6.82	2,899.69	6.40	3.63	6.37	1.48	-0.44	155.24
2,925.00	0.50	32.17	2,924.69	6.60	3.70	6.57	0.86	0.08	101.40
2,950.00	0.79	49.39	2,949.69	6.80	3.88	6.77	1.38	1.16	68.88
2,975.00	1.09	48.31	2,974.69	7.07	4.19	7.04	1.20	1.20	-4.32
3,000.00	1.35	56.74	2,999.68	7.39	4.62	7.35	1.26	1.04	33.72
3,025.00	1.57	60.38	3,024.68	7.72	5.16	7.68	0.95	0.88	14.56
3,050.00	1.95	65.68	3,049.66	8.07	5.85	8.02	1.65	1.52	21.20
3,075.00	2.17	61.46	3,074.65	8.47	6.65	8.41	1.07	0.88	-16.88
3,100.00	2.25	60.68	3,099.63	8.93	7.49	8.87	0.34	0.32	-3.12
3,125.00	2.34	60.71	3,124.61	9.42	8.37	9.35	0.36	0.36	0.12
3,150.00	2.42	61.23	3,149.59	9.93	9.27	9.85	0.33	0.32	2.08
3,175.00	2.48	61.82	3,174.56	10.44	10.21	10.35	0.26	0.24	2.36
3,200.00	2.60	59.63	3,199.54	10.98	11.18	10.88	0.62	0.48	-8.76
3,225.00	2.70	59.40	3,224.51	11.57	12.18	11.46	0.40	0.40	-0.92
3,250.00	2.69	58.95	3,249.49	12.17	13.19	12.06	0.09	-0.04	-1.80
3,275.00	2.81	58.53	3,274.46	12.79	14.21	12.67	0.49	0.48	-1.68
3,300.00	3.03	55.51	3,299.42	13.49	15.28	13.35	1.07	0.88	-12.08
3,325.00	3.10	55.16	3,324.39	14.25	16.38	14.11	0.29	0.28	-1.40
3,350.00	3.09	57.86	3,349.35	14.99	17.50	14.84	0.58	-0.04	10.80
3,375.00	3.23	56.38	3,374.31	15.74	18.66	15.58	0.65	0.56	-5.92
3,400.00	3.12	52.11	3,399.28	16.55	19.78	16.38	1.04	-0.44	-17.08
3,425.00	3.06	52.14	3,424.24	17.37	20.85	17.20	0.24	-0.24	0.12
3,450.00	3.10	49.85	3,449.20	18.22	21.89	18.03	0.52	0.16	-9.16
3,475.00	2.91	45.79	3,474.17	19.10	22.86	18.90	1.14	-0.76	-16.24
3,500.00	2.89	44.47	3,499.14	19.99	23.76	19.79	0.28	-0.08	-5.28
3,525.00	2.93	43.41	3,524.10	20.90	24.64	20.69	0.27	0.16	-4.24
3,550.00	2.90	44.50	3,549.07	21.82	25.52	21.60	0.25	-0.12	4.36



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Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64116
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,575.00	2.90	44.75	3,574.04	22.72	26.41	22.49	0.05	0.00	1.00
3,600.00	2.71	46.78	3,599.01	23.57	27.29	23.34	0.86	-0.76	8.12
3,625.00	2.54	47.92	3,623.98	24.35	28.13	24.11	0.71	-0.68	4.56
3,650.00	2.42	49.82	3,648.96	25.06	28.94	24.81	0.58	-0.48	7.60
3,675.00	2.06	49.51	3,673.94	25.69	29.69	25.44	1.44	-1.44	-1.24
3,700.00	1.67	51.47	3,698.93	26.21	30.31	25.95	1.58	-1.56	7.84
3,725.00	0.45	26.85	3,723.92	26.53	30.64	26.26	5.10	-4.88	-98.48
3,750.00	0.28	305.50	3,748.92	26.65	30.64	26.39	1.97	-0.68	-325.40
3,775.00	0.29	282.32	3,773.92	26.70	30.53	26.44	0.46	0.04	-92.72
3,800.00	0.48	291.02	3,798.92	26.75	30.37	26.49	0.79	0.76	34.80
3,825.00	0.36	266.63	3,823.92	26.78	30.19	26.52	0.85	-0.48	-97.56
3,850.00	0.42	270.48	3,848.92	26.78	30.02	26.52	0.26	0.24	15.40
3,875.00	0.38	261.21	3,873.92	26.77	29.85	26.51	0.30	-0.16	-37.08
3,900.00	0.42	252.63	3,898.92	26.73	29.68	26.47	0.29	0.16	-34.32
3,925.00	0.48	252.52	3,923.92	26.67	29.49	26.41	0.24	0.24	-0.44
3,950.00	0.51	256.71	3,948.92	26.61	29.28	26.36	0.19	0.12	16.76
3,975.00	0.30	241.22	3,973.92	26.55	29.12	26.30	0.94	-0.84	-61.96
4,000.00	0.38	242.92	3,998.92	26.48	28.98	26.24	0.32	0.32	6.80
4,025.00	0.42	235.52	4,023.92	26.39	28.84	26.15	0.26	0.16	-29.60
4,050.00	0.48	239.05	4,048.92	26.29	28.67	26.04	0.26	0.24	14.12
4,075.00	0.40	230.43	4,073.91	26.18	28.51	25.93	0.41	-0.32	-34.48
4,100.00	0.35	232.18	4,098.91	26.08	28.39	25.83	0.21	-0.20	7.00
4,125.00	0.34	214.59	4,123.91	25.97	28.28	25.73	0.42	-0.04	-70.36
4,150.00	0.41	216.44	4,148.91	25.84	28.19	25.59	0.28	0.28	7.40
4,175.00	0.31	229.95	4,173.91	25.72	28.08	25.48	0.52	-0.40	54.04
4,200.00	0.33	222.83	4,198.91	25.62	27.98	25.38	0.18	0.08	-28.48
4,225.00	0.37	216.76	4,223.91	25.51	27.88	25.27	0.22	0.16	-24.28
4,250.00	0.38	218.07	4,248.91	25.38	27.79	25.14	0.05	0.04	5.24
4,275.00	0.21	175.53	4,273.91	25.27	27.74	25.03	1.07	-0.68	-170.16
4,300.00	0.22	152.49	4,298.91	25.18	27.76	24.94	0.35	0.04	-92.16
4,325.00	0.33	142.51	4,323.91	25.08	27.83	24.84	0.48	0.44	-39.92
4,350.00	0.51	113.51	4,348.91	24.98	27.98	24.74	1.09	0.72	-116.00
4,375.00	0.53	108.04	4,373.91	24.90	28.19	24.65	0.21	0.08	-21.88
4,400.00	0.56	98.05	4,398.91	24.84	28.42	24.60	0.40	0.12	-39.96
4,425.00	0.66	86.93	4,423.91	24.83	28.68	24.59	0.62	0.40	-44.48
4,450.00	0.60	74.25	4,448.90	24.88	28.95	24.63	0.61	-0.24	-50.72
4,475.00	0.75	81.22	4,473.90	24.94	29.24	24.69	0.68	0.60	27.88
4,500.00	0.93	90.85	4,498.90	24.96	29.61	24.71	0.91	0.72	38.52
4,525.00	0.83	76.10	4,523.90	25.00	29.98	24.74	0.99	-0.40	-59.00
4,550.00	1.02	73.42	4,548.89	25.11	30.37	24.85	0.78	0.76	-10.72
4,575.00	1.10	63.22	4,573.89	25.28	30.80	25.01	0.82	0.32	-40.80
4,600.00	0.75	47.46	4,598.89	25.50	31.14	25.23	1.72	-1.40	-63.04
4,625.00	0.85	26.03	4,623.88	25.78	31.34	25.51	1.25	0.40	-85.72



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64116
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,650.00	0.78	16.59	4,648.88	26.10	31.47	25.83	0.60	-0.28	-37.76
4,675.00	1.10	9.56	4,673.88	26.50	31.56	26.23	1.36	1.28	-28.12
4,700.00	1.08	11.40	4,698.87	26.97	31.64	26.70	0.16	-0.08	7.36
4,725.00	1.11	10.43	4,723.87	27.44	31.73	27.17	0.14	0.12	-3.88
4,750.00	1.22	9.95	4,748.86	27.94	31.82	27.67	0.44	0.44	-1.92
4,775.00	1.12	12.35	4,773.86	28.44	31.92	28.17	0.45	-0.40	9.60
4,800.00	1.16	13.18	4,798.85	28.93	32.03	28.65	0.17	0.16	3.32
4,825.00	1.16	25.49	4,823.85	29.40	32.20	29.13	0.99	0.00	49.24
4,850.00	1.25	12.27	4,848.84	29.90	32.36	29.62	1.17	0.36	-52.88
4,875.00	1.05	14.31	4,873.84	30.39	32.48	30.11	0.82	-0.80	8.16
4,900.00	1.15	15.92	4,898.83	30.85	32.60	30.57	0.42	0.40	6.44
4,925.00	1.07	18.56	4,923.83	31.31	32.75	31.03	0.38	-0.32	10.56
4,950.00	1.11	18.59	4,948.82	31.76	32.90	31.48	0.16	0.16	0.12
4,975.00	1.11	9.23	4,973.82	32.23	33.01	31.95	0.72	0.00	-37.44
5,000.00	1.25	18.61	4,998.81	32.73	33.14	32.44	0.95	0.56	37.52
5,025.00	1.20	15.39	5,023.81	33.24	33.30	32.95	0.34	-0.20	-12.88
5,050.00	1.51	16.21	5,048.80	33.81	33.46	33.52	1.24	1.24	3.28
5,075.00	1.47	8.81	5,073.79	34.44	33.60	34.15	0.79	-0.16	-29.60
5,100.00	1.44	4.98	5,098.79	35.07	33.68	34.78	0.41	-0.12	-15.32
5,125.00	1.39	359.03	5,123.78	35.69	33.70	35.40	0.62	-0.20	-23.80
5,150.00	1.34	357.75	5,148.77	36.28	33.68	35.99	0.23	-0.20	-5.12
5,175.00	1.39	349.49	5,173.76	36.87	33.61	36.58	0.81	0.20	-33.04
5,200.00	1.40	341.01	5,198.76	37.46	33.46	37.17	0.83	0.04	-33.92
5,225.00	1.49	347.50	5,223.75	38.07	33.29	37.78	0.75	0.36	25.96
5,250.00	1.50	348.99	5,248.74	38.70	33.16	38.42	0.16	0.04	5.96
5,275.00	1.44	349.32	5,273.73	39.33	33.04	39.05	0.24	-0.24	1.32
5,300.00	1.72	351.03	5,298.72	40.01	32.92	39.73	1.14	1.12	6.84
5,325.00	1.64	348.13	5,323.71	40.73	32.79	40.45	0.47	-0.32	-11.60
5,350.00	1.66	343.06	5,348.70	41.43	32.61	41.15	0.59	0.08	-20.28
5,375.00	1.69	345.02	5,373.69	42.13	32.41	41.85	0.26	0.12	7.84
5,400.00	1.80	345.28	5,398.68	42.87	32.21	42.59	0.44	0.44	1.04
5,425.00	1.82	347.50	5,423.67	43.64	32.03	43.36	0.29	0.08	8.88
5,450.00	1.78	346.89	5,448.65	44.40	31.85	44.13	0.18	-0.16	-2.44
5,475.00	1.65	346.56	5,473.64	45.13	31.68	44.88	0.52	-0.52	-1.32
5,500.00	1.87	340.43	5,498.63	45.86	31.46	45.59	1.16	0.88	-24.52
5,525.00	1.94	341.26	5,523.62	46.65	31.19	46.38	0.30	0.28	3.32
5,550.00	2.13	344.16	5,548.60	47.50	30.93	47.23	0.86	0.76	11.60
5,575.00	1.81	339.53	5,573.59	48.31	30.66	48.05	1.43	-1.28	-18.52
5,600.00	2.02	342.56	5,598.57	49.10	30.39	48.84	0.93	0.84	12.12
5,625.00	1.98	346.74	5,623.56	49.94	30.16	49.68	0.60	-0.16	16.72
5,650.00	1.95	344.57	5,648.54	50.78	29.95	50.52	0.32	-0.12	-8.68
5,675.00	1.87	334.97	5,673.53	51.55	29.66	51.30	1.32	-0.32	-38.40
5,700.00	1.92	339.42	5,698.52	52.32	29.34	52.06	0.62	0.20	17.80



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64116
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
5,725.00	1.99	314.89	5,723.50	53.01	28.89	52.77	3.33	0.28	-98.12
5,750.00	2.29	293.74	5,748.48	53.52	28.12	53.28	3.36	1.20	-84.60
5,775.00	2.46	284.60	5,773.46	53.86	27.15	53.62	1.66	0.68	-36.56
5,800.00	2.50	276.66	5,798.44	54.06	26.09	53.83	1.38	0.16	-31.76
5,825.00	2.92	262.74	5,823.41	54.04	24.91	53.82	3.11	1.68	-55.68
5,850.00	3.44	250.43	5,848.37	53.71	23.57	53.50	3.42	2.08	-49.24
5,875.00	3.53	243.82	5,873.33	53.12	22.18	52.93	1.65	0.36	-26.44
5,900.00	3.73	241.00	5,898.28	52.38	20.77	52.20	1.07	0.80	-11.28
5,925.00	3.79	242.33	5,923.22	51.61	19.33	51.44	0.42	0.24	5.32
5,950.00	3.64	244.00	5,948.17	50.87	17.89	50.72	0.74	-0.60	6.68
5,975.00	3.82	240.05	5,973.12	50.11	16.45	49.97	1.25	0.72	-15.80
6,000.00	3.72	241.67	5,998.06	49.31	15.02	49.18	0.58	-0.40	6.48
6,025.00	3.84	240.85	6,023.01	48.52	13.57	48.40	0.53	0.48	-3.28
6,050.00	3.93	239.60	6,047.95	47.68	12.10	47.57	0.49	0.36	-5.00
6,075.00	3.92	242.51	6,072.89	46.85	10.60	46.76	0.80	-0.04	11.64
6,100.00	4.19	241.42	6,097.83	46.02	9.04	45.94	1.12	1.08	-4.36
6,125.00	4.19	242.14	6,122.76	45.15	7.43	45.09	0.21	0.00	2.88
6,150.00	4.17	239.97	6,147.70	44.27	5.84	44.22	0.64	-0.08	-8.68
6,175.00	4.33	239.64	6,172.63	43.34	4.24	43.30	0.65	0.64	-1.32
6,200.00	4.49	237.73	6,197.55	42.34	2.60	42.32	0.87	0.64	-7.64
6,225.00	4.95	234.74	6,222.47	41.19	0.89	41.19	2.09	1.84	-11.96
6,250.00	5.32	231.63	6,247.37	39.85	-0.90	39.86	1.85	1.48	-12.44
6,275.00	5.25	231.29	6,272.26	38.42	-2.70	38.44	0.31	-0.28	-1.36
6,300.00	4.34	222.77	6,297.18	37.01	-4.24	37.04	4.61	-3.64	-34.08
6,325.00	3.73	215.85	6,322.11	35.65	-5.36	35.70	3.12	-2.44	-27.68
6,350.00	3.46	211.08	6,347.06	34.35	-6.22	34.40	1.61	-1.08	-19.08
6,375.00	3.32	208.25	6,372.02	33.07	-6.95	33.12	0.87	-0.56	-11.32
6,400.00	3.32	209.01	6,396.98	31.79	-7.65	31.86	0.18	0.00	3.04
6,425.00	3.24	204.74	6,421.94	30.52	-8.29	30.59	1.03	-0.32	-17.08
6,450.00	3.45	203.83	6,446.90	29.19	-8.89	29.27	0.87	0.84	-3.64
6,475.00	3.44	208.60	6,471.85	27.84	-9.56	27.92	1.15	-0.04	19.08
6,500.00	3.38	206.95	6,496.81	26.53	-10.25	26.61	0.46	-0.24	-6.60
6,525.00	3.26	205.90	6,521.76	25.23	-10.89	25.32	0.54	-0.48	-4.20
6,550.00	3.18	203.41	6,546.72	23.96	-11.48	24.05	0.64	-0.32	-9.96
6,575.00	2.79	196.55	6,571.69	22.74	-11.93	22.84	2.11	-1.56	-27.44
6,600.00	2.22	185.15	6,596.67	21.67	-12.15	21.77	3.02	-2.28	-45.60
6,625.00	2.11	179.11	6,621.65	20.73	-12.18	20.83	1.01	-0.44	-24.16
6,650.00	2.21	177.91	6,646.63	19.79	-12.16	19.89	0.44	0.40	-4.80
6,675.00	2.11	177.97	6,671.61	18.84	-12.12	18.95	0.40	-0.40	0.24
6,700.00	2.02	175.73	6,696.60	17.95	-12.07	18.05	0.48	-0.36	-8.96
6,725.00	2.02	174.44	6,721.58	17.07	-12.00	17.17	0.18	0.00	-5.16
6,750.00	2.17	171.23	6,746.56	16.16	-11.88	16.26	0.76	0.60	-12.84
6,775.00	2.02	158.03	6,771.55	15.29	-11.65	15.38	2.02	-0.60	-52.80
6,800.00	2.23	145.81	6,796.53	14.47	-11.21	14.57	1.99	0.84	-48.88



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64118
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,825.00	2.40	139.84	6,821.51	13.67	-10.60	13.76	1.18	0.68	-23.88
6,850.00	2.47	137.55	6,846.49	12.87	-9.90	12.96	0.48	0.28	-9.16
6,875.00	2.64	136.38	6,871.46	12.06	-9.14	12.14	0.71	0.68	-4.68
6,900.00	2.71	134.87	6,896.44	11.23	-8.32	11.30	0.40	0.28	-6.04
6,925.00	2.77	135.86	6,921.41	10.38	-7.48	10.44	0.31	0.24	3.96
6,950.00	2.80	134.28	6,946.38	9.52	-6.62	9.57	0.33	0.12	-6.32
6,975.00	2.83	134.32	6,971.35	8.66	-5.74	8.71	0.12	0.12	0.16
7,000.00	2.79	132.32	6,996.32	7.82	-4.85	7.86	0.42	-0.16	-8.00
7,025.00	2.78	133.84	7,021.29	6.99	-3.96	7.02	0.30	-0.04	6.08
7,050.00	2.78	130.59	7,046.26	6.17	-3.07	6.20	0.63	0.00	-13.00
7,075.00	2.70	130.39	7,071.23	5.40	-2.16	5.42	0.32	-0.32	-0.80
7,100.00	2.72	128.80	7,096.20	4.64	-1.25	4.65	0.31	0.08	-6.36
7,125.00	2.72	129.46	7,121.17	3.90	-0.33	3.90	0.13	0.00	2.64
7,150.00	2.28	140.68	7,146.15	3.13	0.45	3.13	2.62	-1.76	44.88
7,175.00	2.17	149.05	7,171.13	2.34	1.00	2.33	1.37	-0.44	33.48
7,200.00	2.07	150.18	7,196.11	1.55	1.47	1.53	0.43	-0.40	4.52
7,225.00	1.95	154.57	7,221.10	0.77	1.88	0.75	0.78	-0.48	17.56
7,250.00	1.25	163.80	7,246.09	0.12	2.14	0.11	2.97	-2.80	36.92
7,275.00	0.85	186.21	7,271.09	-0.32	2.19	-0.34	2.26	-1.60	89.64
7,300.00	0.78	192.36	7,296.08	-0.67	2.14	-0.69	0.45	-0.28	24.60
7,325.00	0.84	192.80	7,321.08	-1.02	2.06	-1.04	0.24	0.24	1.76
7,350.00	0.82	194.74	7,346.08	-1.37	1.97	-1.39	0.14	-0.08	7.76
7,375.00	0.89	201.39	7,371.07	-1.72	1.86	-1.74	0.49	0.28	26.60
7,400.00	1.01	199.51	7,396.07	-2.11	1.71	-2.13	0.50	0.48	-7.52
7,425.00	1.09	194.21	7,421.07	-2.55	1.58	-2.56	0.50	0.32	-21.20
7,450.00	1.12	185.71	7,446.06	-3.02	1.50	-3.04	0.67	0.12	-34.00
7,475.00	1.19	179.06	7,471.06	-3.53	1.48	-3.54	0.60	0.28	-26.60
7,500.00	0.96	183.25	7,496.05	-4.00	1.47	-4.01	0.97	-0.92	16.76
7,525.00	0.41	155.25	7,521.05	-4.29	1.50	-4.30	2.51	-2.20	-112.00
7,550.00	0.37	68.65	7,546.05	-4.34	1.61	-4.35	2.14	-0.16	-346.40
7,575.00	0.52	65.14	7,571.05	-4.26	1.79	-4.28	0.61	0.60	-14.04
7,600.00	0.65	58.70	7,596.05	-4.14	2.01	-4.16	0.58	0.52	-25.76
7,625.00	0.55	48.65	7,621.05	-3.99	2.22	-4.00	0.58	-0.40	-40.20
7,650.00	0.48	55.92	7,646.05	-3.85	2.40	-3.87	0.38	-0.28	29.08
7,675.00	0.58	68.90	7,671.05	-3.74	2.60	-3.77	0.62	0.40	51.92
7,700.00	0.64	71.20	7,696.04	-3.65	2.86	-3.68	0.26	0.24	9.20
7,725.00	0.64	69.62	7,721.04	-3.56	3.12	-3.59	0.07	0.00	-6.32
7,750.00	0.78	80.00	7,746.04	-3.48	3.42	-3.51	0.76	0.56	41.52
7,775.00	0.83	77.16	7,771.04	-3.41	3.76	-3.44	0.26	0.20	-11.36
7,800.00	0.75	83.82	7,796.04	-3.35	4.10	-3.39	0.49	-0.32	26.64
7,825.00	0.87	79.97	7,821.03	-3.30	4.45	-3.34	0.53	0.48	-15.40
7,850.00	0.92	91.28	7,846.03	-3.27	4.84	-3.32	0.73	0.20	45.24
7,875.00	0.91	89.40	7,871.03	-3.28	5.24	-3.32	0.13	-0.04	-7.52



Survey Report



Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64116
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,900.00	0.99	86.13	7,896.02	-3.26	5.65	-3.31	0.39	0.32	-13.08
7,925.00	0.98	89.58	7,921.02	-3.24	6.08	-3.30	0.24	-0.04	13.80
7,950.00	1.04	88.55	7,946.02	-3.24	6.52	-3.29	0.25	0.24	-4.12
7,975.00	1.09	89.76	7,971.01	-3.23	6.98	-3.29	0.22	0.20	4.84
8,000.00	1.14	87.34	7,996.01	-3.22	7.47	-3.28	0.27	0.20	-9.68
Tie In - ST01									
8,052.00	5.68	14.77	8,047.91	-0.70	8.64	-0.78	10.48	8.73	-139.56
First Phoenix MWD Survey - ST01									
8,084.00	9.63	13.78	8,079.62	3.43	9.69	3.35	12.35	12.34	-3.09
8,115.00	13.35	18.47	8,110.00	9.34	11.44	9.25	12.36	12.00	15.13
8,146.00	14.87	22.31	8,140.08	16.42	14.08	16.30	5.76	4.90	12.39
8,177.00	14.55	23.35	8,170.04	23.67	17.14	23.53	1.34	-1.03	3.35
8,209.00	13.10	16.14	8,201.12	30.85	19.74	30.68	7.03	-4.53	-22.53
8,240.00	12.58	11.53	8,231.34	37.53	21.39	37.35	3.70	-1.68	-14.87
8,271.00	12.20	9.82	8,261.62	44.07	22.62	43.87	1.70	-1.23	-5.52
8,302.00	11.97	4.84	8,291.94	50.50	23.45	50.30	3.44	-0.74	-16.06
8,334.00	11.81	3.08	8,323.25	57.07	23.91	56.87	1.24	-0.50	-5.50
8,365.00	11.61	1.98	8,353.60	63.36	24.19	63.15	0.97	-0.65	-3.55
8,397.00	11.42	1.85	8,384.96	69.74	24.40	69.53	0.60	-0.59	-0.41
8,428.00	10.74	2.93	8,415.38	75.70	24.65	75.48	2.29	-2.19	3.48
8,460.00	10.10	2.96	8,446.85	81.48	24.94	81.26	2.00	-2.00	0.09
8,491.00	10.85	3.97	8,477.34	87.10	25.29	86.88	2.49	2.42	3.26
8,523.00	12.81	5.78	8,508.66	93.64	25.85	93.41	6.23	6.13	5.66
8,554.00	14.60	5.93	8,538.77	100.94	26.60	100.71	5.78	5.77	0.48
8,585.00	16.46	5.71	8,568.64	109.20	27.44	108.96	6.00	6.00	-0.71
8,617.00	18.27	7.44	8,599.18	118.68	28.54	118.44	5.88	5.66	5.41
8,648.00	19.83	9.25	8,628.48	128.69	30.02	128.43	5.38	5.03	5.84
8,680.00	22.10	8.47	8,658.36	140.01	31.78	139.73	7.15	7.09	-2.44
8,711.00	24.22	6.93	8,686.86	152.09	33.40	151.80	7.11	6.84	-4.97
8,742.00	26.81	6.42	8,714.84	165.35	34.95	165.04	8.38	8.35	-1.65
8,774.00	30.36	6.90	8,742.93	180.55	36.73	180.23	11.12	11.09	1.50
8,805.00	31.47	7.10	8,769.53	196.36	38.67	196.02	3.60	3.58	0.65
8,836.00	32.19	5.89	8,795.86	212.61	40.52	212.25	3.10	2.32	-3.90
8,868.00	34.71	3.30	8,822.56	230.18	41.92	229.82	9.05	7.88	-8.09
8,899.00	37.78	2.58	8,847.56	248.49	42.86	248.11	10.00	9.90	-2.32
8,931.00	40.97	2.70	8,872.30	268.76	43.79	268.38	9.97	9.97	0.38
8,962.00	44.70	3.09	8,895.02	289.81	44.86	289.41	12.06	12.03	1.26
8,994.00	48.52	2.85	8,917.00	313.03	46.06	312.62	11.95	11.94	-0.75
9,025.00	52.26	3.24	8,936.76	336.87	47.33	336.45	12.10	12.06	1.26
9,057.00	56.54	3.81	8,955.39	362.83	48.93	362.40	13.45	13.38	1.78
9,088.00	60.58	4.22	8,971.55	389.21	50.79	388.76	13.08	13.03	1.32
9,119.00	64.73	5.04	8,985.79	416.65	53.01	416.18	13.59	13.39	2.65
9,150.00	69.33	5.31	8,997.89	445.07	55.59	444.58	14.86	14.84	0.87
9,182.00	74.08	4.89	9,007.93	475.32	58.31	474.81	14.87	14.84	-1.00



Survey Report



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Site: Lychee State Corn
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Wellbore: ST01 / 64116
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Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Builld Rate (°/100usft)	Turn Rate (°/100usft)
9,213.00	78.01	4.70	9,015.40	505.29	60.85	504.75	12.71	12.68	-0.94
9,243.00	83.18	3.15	9,020.30	534.81	62.88	534.25	17.97	17.23	-5.17
9,306.00	88.35	359.67	9,024.96	597.59	64.42	597.01	9.88	8.21	-5.52
9,370.00	88.99	359.52	9,026.44	661.57	63.96	661.00	1.03	1.00	-0.23
9,464.00	90.62	0.04	9,026.76	755.56	63.60	754.99	1.82	1.73	0.55
9,527.00	91.85	0.13	9,025.40	818.55	63.70	817.97	1.96	1.95	0.14
9,559.00	90.06	359.26	9,024.87	850.54	63.53	849.97	6.22	-5.59	-2.72
9,590.00	89.38	358.81	9,025.02	881.54	63.00	880.97	2.63	-2.19	-1.45
9,621.00	88.12	358.52	9,025.70	912.52	62.28	911.95	4.17	-4.06	-0.94
9,653.00	88.15	358.25	9,026.74	944.49	61.38	943.93	0.85	0.09	-0.84
9,747.00	86.58	357.89	9,031.06	1,038.33	58.22	1,037.80	1.71	-1.67	-0.38
9,842.00	86.95	357.44	9,036.42	1,133.10	54.35	1,132.60	0.61	0.39	-0.47
9,936.00	87.87	357.95	9,040.67	1,226.93	50.58	1,226.45	1.12	0.98	0.54
10,031.00	89.97	358.01	9,042.46	1,321.85	47.23	1,321.40	2.21	2.21	0.06
10,125.00	88.07	358.44	9,044.07	1,415.79	44.32	1,415.36	2.07	-2.02	0.46
10,219.00	86.02	359.81	9,048.91	1,509.64	42.88	1,509.22	2.62	-2.18	1.46
10,313.00	86.92	359.99	9,054.70	1,603.46	42.72	1,603.04	0.98	0.96	0.19
10,407.00	86.08	359.36	9,060.44	1,697.28	42.19	1,696.86	1.12	-0.89	-0.67
10,501.00	86.02	359.20	9,066.91	1,791.05	41.01	1,790.64	0.18	-0.06	-0.17
10,595.00	86.66	359.16	9,072.91	1,884.85	39.67	1,884.44	0.68	0.68	-0.04
10,689.00	87.42	358.98	9,077.77	1,978.71	38.14	1,978.32	0.83	0.81	-0.19
10,783.00	85.71	358.97	9,083.40	2,072.53	36.46	2,072.14	1.82	-1.82	-0.01
10,877.00	86.05	359.37	9,090.15	2,166.27	35.11	2,165.89	0.56	0.36	0.43
10,966.00	86.38	358.90	9,096.03	2,255.07	33.77	2,254.70	0.64	0.37	-0.53
11,056.00	87.65	358.90	9,100.72	2,344.93	32.04	2,344.57	1.41	1.41	0.00
11,147.00	85.32	358.76	9,106.29	2,435.73	30.19	2,435.38	2.57	-2.56	-0.15
11,239.00	84.78	359.08	9,114.23	2,527.37	28.46	2,527.04	0.68	-0.59	0.35
11,333.00	85.88	359.10	9,121.89	2,621.05	26.97	2,620.72	1.17	1.17	0.02
11,424.00	86.61	358.95	9,127.85	2,711.84	25.43	2,711.52	0.82	0.80	-0.16
11,516.00	87.00	359.03	9,132.97	2,803.68	23.81	2,803.37	0.43	0.42	0.09
11,607.00	86.83	359.38	9,137.87	2,894.54	22.55	2,894.24	0.43	-0.19	0.38
11,699.00	88.66	359.27	9,141.49	2,986.46	21.46	2,986.17	1.99	1.99	-0.12
11,790.00	89.22	359.50	9,143.17	3,077.44	20.49	3,077.15	0.67	0.62	0.25
11,884.00	90.42	359.34	9,143.47	3,171.43	19.53	3,171.15	1.29	1.28	-0.17
11,978.00	92.60	359.70	9,140.99	3,265.39	18.75	3,265.11	2.35	2.32	0.38
12,072.00	92.05	0.25	9,137.18	3,359.31	18.71	3,359.03	0.83	-0.59	0.59
12,166.00	90.39	1.07	9,135.18	3,453.28	19.79	3,452.98	1.97	-1.77	0.87
12,260.00	91.26	1.53	9,133.82	3,547.24	21.92	3,546.93	1.05	0.93	0.49
12,354.00	90.00	0.45	9,132.79	3,641.22	23.54	3,640.89	1.77	-1.34	-1.15
12,448.00	90.90	0.33	9,132.05	3,735.21	24.18	3,734.87	0.97	0.96	-0.13
12,542.00	89.80	359.97	9,131.48	3,829.21	24.43	3,828.86	1.23	-1.17	-0.38
12,637.00	89.66	359.66	9,131.93	3,924.21	24.12	3,923.86	0.36	-0.15	-0.33
12,731.00	90.84	359.23	9,131.52	4,018.20	23.21	4,017.86	1.34	1.26	-0.46



Survey Report



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Project: Lea County, NM (NAD27 NME)
Site: Lychee State Com
Well: 3H
Wellbore: ST01 / 64116
Design: Surveys (Ensign 155)

Local Co-ordinate Reference: Well 3H
TVD Reference: RKB @ 3733.30usft (Ensign 155)
MD Reference: RKB @ 3733.30usft (Ensign 155)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,825.00	89.78	358.87	9,131.01	4,112.18	21.49	4,111.85	1.28	-1.13	-0.60
12,919.00	90.42	357.80	9,130.84	4,206.14	18.60	4,205.82	1.15	0.68	-0.93
13,014.00	88.91	358.08	9,131.40	4,301.07	15.18	4,300.78	1.62	-1.59	0.29
13,108.00	88.66	357.79	9,133.39	4,394.99	11.79	4,394.73	0.41	-0.27	-0.31
13,202.00	89.69	357.77	9,134.74	4,488.91	8.15	4,488.67	1.10	1.10	-0.02
13,296.00	89.78	355.61	9,135.18	4,582.74	2.73	4,582.55	2.30	0.10	-2.30
13,390.00	90.53	355.07	9,134.93	4,676.43	-4.91	4,676.30	0.98	0.80	-0.57
13,485.00	89.44	354.71	9,134.95	4,771.05	-13.37	4,770.99	1.21	-1.15	-0.38
13,578.00	90.53	354.73	9,134.97	4,863.66	-21.93	4,863.67	1.17	1.17	0.02
13,673.00	89.30	355.18	9,135.12	4,958.29	-30.28	4,958.36	1.38	-1.29	0.47
13,767.00	89.50	355.38	9,136.10	5,051.96	-38.02	5,052.10	0.30	0.21	0.21
13,861.00	90.03	355.55	9,136.49	5,145.67	-45.45	5,145.87	0.59	0.56	0.18
13,955.00	90.14	355.78	9,136.35	5,239.40	-52.56	5,239.66	0.27	0.12	0.24
14,049.00	90.14	355.82	9,136.12	5,333.14	-59.44	5,333.46	0.04	0.00	0.04
14,143.00	89.86	355.81	9,136.12	5,426.89	-66.30	5,427.26	0.30	-0.30	-0.01
14,237.00	89.66	355.75	9,136.51	5,520.64	-73.22	5,521.06	0.22	-0.21	-0.06
14,331.00	89.92	355.85	9,136.85	5,614.38	-80.10	5,614.86	0.30	0.28	0.11
14,425.00	89.83	357.72	9,137.06	5,708.23	-85.37	5,708.75	1.99	-0.10	1.99
14,519.00	90.11	359.52	9,137.11	5,802.20	-87.64	5,802.74	1.94	0.30	1.91
14,612.00	91.12	0.08	9,136.11	5,895.19	-87.96	5,895.73	1.24	1.09	0.60
14,706.00	89.83	0.09	9,135.33	5,989.19	-87.82	5,989.72	1.37	-1.37	0.01
14,800.00	90.03	0.24	9,135.45	6,083.19	-87.55	6,083.71	0.27	0.21	0.16
14,895.00	90.39	0.60	9,135.10	6,178.18	-86.85	6,178.70	0.54	0.38	0.38
14,988.00	90.50	0.60	9,134.38	6,271.18	-85.88	6,271.68	0.12	0.12	0.00
15,082.00	91.18	0.62	9,133.00	6,365.16	-84.88	6,365.65	0.72	0.72	0.02
15,176.00	91.65	0.59	9,130.68	6,459.13	-83.89	6,459.61	0.50	0.50	-0.03
15,270.00	90.00	0.02	9,129.32	6,553.11	-83.39	6,553.59	1.86	-1.76	-0.61
15,365.00	90.42	0.26	9,128.97	6,648.11	-83.16	6,648.58	0.51	0.44	0.25
15,458.00	90.76	0.47	9,128.02	6,741.10	-82.56	6,741.56	0.43	0.37	0.23
15,553.00	91.54	0.73	9,126.11	6,836.08	-81.57	6,836.53	0.87	0.82	0.27
15,646.00	89.66	359.37	9,125.14	6,929.07	-81.49	6,929.51	2.49	-2.02	-1.46
15,739.00	89.50	359.16	9,125.82	7,022.06	-82.68	7,022.51	0.28	-0.17	-0.23
15,834.00	90.17	359.19	9,126.09	7,117.05	-84.05	7,117.50	0.71	0.71	0.03
15,927.00	91.06	359.44	9,125.09	7,210.03	-85.16	7,210.50	0.99	0.96	0.27
16,021.00	89.52	359.24	9,124.62	7,304.02	-86.24	7,304.49	1.65	-1.64	-0.21
16,115.00	90.25	359.06	9,124.81	7,398.01	-87.64	7,398.49	0.80	0.78	-0.19
16,209.00	90.92	359.16	9,123.85	7,491.99	-89.10	7,492.48	0.72	0.71	0.11
16,304.00	90.11	359.74	9,122.99	7,586.99	-90.01	7,587.48	1.05	-0.85	0.61
16,398.00	90.28	0.07	9,122.67	7,680.98	-90.16	7,681.47	0.39	0.18	0.35
16,493.00	89.30	0.27	9,123.02	7,775.98	-89.88	7,776.47	1.05	-1.03	0.21
16,587.00	88.82	0.75	9,124.56	7,869.97	-89.05	7,870.44	0.72	-0.51	0.51
16,681.00	89.13	1.38	9,126.24	7,963.93	-87.30	7,964.39	0.75	0.33	0.67
16,772.00	89.92	1.46	9,127.00	8,054.90	-85.04	8,055.33	0.87	0.87	0.09



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,866.00	87.67	0.99	9,128.98	8,148.85	-83.04	8,149.26	2.45	-2.39	-0.50
16,960.00	88.01	0.88	9,132.52	8,242.77	-81.50	8,243.17	0.38	0.36	-0.12
17,054.00	89.52	1.85	9,134.54	8,336.72	-79.26	8,337.09	1.91	1.61	1.03
17,148.00	89.38	0.66	9,135.45	8,430.69	-77.20	8,431.04	1.27	-0.15	-1.27
17,242.00	90.45	0.48	9,135.59	8,524.69	-76.27	8,525.03	1.15	1.14	-0.19
17,336.00	91.76	1.25	9,133.77	8,618.66	-74.85	8,618.98	1.62	1.39	0.82
17,430.00	91.62	0.87	9,131.00	8,712.60	-73.11	8,712.90	0.43	-0.15	-0.40
17,524.00	91.15	359.48	9,128.73	8,806.57	-72.83	8,806.87	1.56	-0.50	-1.48
17,618.00	90.03	358.87	9,127.76	8,900.55	-74.18	8,900.86	1.36	-1.19	-0.65
17,715.00	89.52	357.91	9,128.14	8,997.51	-76.90	8,997.84	1.12	-0.53	-0.99
17,809.00	89.75	357.92	9,128.74	9,091.45	-80.32	9,091.80	0.24	0.24	0.01
17,903.00	91.48	358.26	9,127.73	9,185.39	-83.46	9,185.76	1.88	1.84	0.36
17,997.00	92.75	358.57	9,124.26	9,279.28	-86.06	9,279.68	1.39	1.35	0.33
18,091.00	93.33	358.48	9,119.28	9,373.12	-88.47	9,373.53	0.62	0.62	-0.10
18,185.00	94.04	358.46	9,113.24	9,466.89	-90.98	9,467.32	0.76	0.76	-0.02
18,278.00	92.35	358.31	9,108.05	9,559.71	-93.59	9,560.16	1.82	-1.82	-0.16
18,373.00	88.68	357.46	9,107.20	9,654.62	-97.10	9,655.10	3.97	-3.86	-0.89
18,467.00	88.32	356.94	9,109.66	9,748.48	-101.69	9,748.99	0.67	-0.38	-0.55
18,561.00	88.35	356.82	9,112.39	9,842.30	-106.80	9,842.85	0.13	0.03	-0.13
18,655.00	90.14	358.45	9,113.83	9,936.20	-110.68	9,936.78	2.58	1.90	1.73
18,749.00	90.92	359.63	9,112.76	10,030.18	-112.26	10,030.77	1.50	0.83	1.26
18,844.00	91.62	359.53	9,110.66	10,125.16	-112.95	10,125.75	0.74	0.74	-0.11
18,938.00	92.49	359.51	9,107.28	10,219.09	-113.74	10,219.69	0.93	0.93	-0.02
18,950.00	92.55	359.62	9,106.76	10,231.08	-113.83	10,231.68	1.04	0.50	0.92
Final Phoenix MWD Survey - ST01									
18,966.08	92.55	359.62	9,106.04	10,247.14	-113.94	10,247.74	0.00	0.00	0.00
LTP: 18966.08' MD									
19,016.00	92.55	358.62	9,103.82	10,297.01	-114.27	10,297.61	0.00	0.00	0.00
Projection to TD - ST01									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,000.00	7,996.01	-3.22	7.47	Tie In - ST01
8,052.00	8,047.91	-0.70	8.64	First Phoenix MWD Survey - ST01
18,950.00	9,106.76	10,231.08	-113.83	Final Phoenix MWD Survey - ST01
18,966.08	9,106.04	10,247.14	-113.94	LTP: 18966.08' MD
19,016.00	9,103.82	10,297.01	-114.27	Projection to TD - ST01

COG

LYCHEE STATE COM #3H

ENSIGN #155

1/15/2019

This survey is correct to the best of my knowledge and is supported by actual field data.

JAKE ELGER

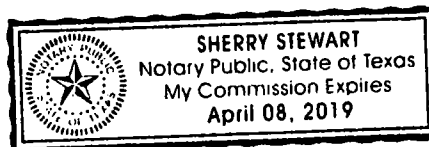
Notarized this date 04 of FEBUARY, 2019.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



Scientific Drilling

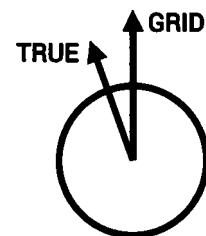
The

In Wellbore Placement

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

CUSTOMER
PROJECT
FIELDCOG
Lychee State Com #3H
Lychee State Com #3HSDI JOB NO.
SDI DISTRICT
SDI KIT/UNITOP:015847
Midland**SITE INFORMATION**Site Name Lychee State Com #3H
Lat/Long 32.45764° N, 103.45942° W
Northing 531,306.4 ft
Easting 769,560.4 ftSection
Township
Range**MAP INFORMATION**North Reference Grid North
Grid Correction -0.47 deg
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone New Mexico East: 3001**WELL INFORMATION**Lat/Long 32.45764° N, 103.45942° W
Northing 531,306.4 ft
Easting 769,560.4 ft
UWI 30-025-45256**DEPTH AND ELEVATION REFERENCE**Ground Level 3709.3 ft above Mean Sea
Level
Reference Datum RKB
Reference Height 24 ft above G.L.
Reference Elevation 3733.3 ft**VERTICAL SECTION REFERENCE**+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 359.51°
Calculation Method Minimum Curvature**LOCAL GRAVITY REFERENCE INFORMATION**Local Gravity 998.491 mG [computed]
True to Grid subtract 0.47°**WELL NOTES****OPERATORS**

Nathan Yerby

SDI Operator Name (Printed)

SIGNATURE

DATE

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.38	160.58	100.00	-0.31	-0.31	0.11	0.38	0.33	160.58
125.00	0.54	159.52	125.00	-0.50	-0.50	0.18	0.65	0.53	160.34
150.00	0.41	157.74	150.00	-0.70	-0.69	0.25	0.52	0.74	159.89
175.00	0.47	156.53	175.00	-0.88	-0.87	0.33	0.25	0.93	159.31
200.00	0.54	152.48	200.00	-1.07	-1.07	0.42	0.28	1.15	158.37
225.00	0.54	146.63	224.99	-1.28	-1.27	0.54	0.22	1.38	156.88
250.00	0.44	166.68	249.99	-1.47	-1.47	0.63	0.80	1.60	156.71
275.00	0.38	157.94	274.99	-1.64	-1.64	0.68	0.34	1.77	157.31
300.00	0.41	142.96	299.99	-1.79	-1.79	0.77	0.43	1.95	156.68
325.00	0.41	145.56	324.99	-1.94	-1.93	0.87	0.07	2.12	155.64
350.00	0.53	137.99	349.99	-2.10	-2.09	1.00	0.56	2.32	154.38
375.00	0.49	131.90	374.99	-2.26	-2.25	1.16	0.28	2.53	152.72
400.00	0.42	132.03	399.99	-2.39	-2.38	1.31	0.30	2.72	151.24
425.00	0.49	130.42	424.99	-2.52	-2.51	1.46	0.29	2.90	149.90
450.00	0.32	143.03	449.99	-2.65	-2.64	1.58	0.74	3.07	149.08
475.00	0.45	139.87	474.99	-2.78	-2.77	1.68	0.50	3.24	148.68
500.00	0.42	145.40	499.99	-2.93	-2.92	1.80	0.19	3.43	148.34
525.00	0.41	146.98	524.99	-3.09	-3.07	1.90	0.06	3.61	148.23
550.00	0.50	139.98	549.99	-3.25	-3.23	2.02	0.41	3.81	147.96
575.00	0.53	138.54	574.98	-3.42	-3.40	2.17	0.15	4.03	147.48
600.00	0.49	135.13	599.98	-3.58	-3.56	2.32	0.20	4.25	146.92
625.00	0.43	128.65	624.98	-3.72	-3.70	2.47	0.33	4.45	146.26
650.00	0.40	134.72	649.98	-3.84	-3.82	2.60	0.22	4.62	145.70
675.00	0.37	133.59	674.98	-3.96	-3.93	2.72	0.10	4.79	145.30
700.00	0.35	133.76	699.98	-4.07	-4.04	2.84	0.10	4.94	144.93
725.00	0.40	138.25	724.98	-4.18	-4.16	2.95	0.24	5.10	144.65
750.00	0.39	152.51	749.98	-4.33	-4.30	3.05	0.39	5.27	144.67
775.00	0.35	160.90	774.98	-4.48	-4.45	3.11	0.27	5.43	145.02
800.00	0.44	160.28	799.98	-4.64	-4.61	3.17	0.37	5.60	145.50
825.00	0.43	141.37	824.98	-4.80	-4.78	3.26	0.58	5.78	145.68
850.00	0.33	156.46	849.98	-4.94	-4.91	3.35	0.55	5.95	145.74

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
875.00	0.29	157.00	874.98	-5.07	-5.04	3.40	0.15	6.08	145.98
900.00	0.28	150.94	899.98	-5.18	-5.15	3.46	0.12	6.20	146.14
925.00	0.30	168.71	924.98	-5.30	-5.27	3.50	0.36	6.32	146.42
950.00	0.39	162.93	949.98	-5.44	-5.41	3.54	0.39	6.47	146.84
975.00	0.35	165.21	974.98	-5.60	-5.57	3.58	0.14	6.62	147.26
1000.00	0.29	141.96	999.97	-5.72	-5.69	3.64	0.57	6.76	147.41
1025.00	0.41	160.27	1024.97	-5.86	-5.83	3.71	0.64	6.91	147.52
1050.00	0.53	152.06	1049.97	-6.05	-6.01	3.79	0.56	7.11	147.76
1075.00	0.38	153.95	1074.97	-6.22	-6.19	3.88	0.63	7.31	147.89
1100.00	0.22	137.70	1099.97	-6.34	-6.30	3.95	0.69	7.44	147.89
1125.00	0.31	140.96	1124.97	-6.42	-6.39	4.03	0.34	7.55	147.77
1150.00	0.22	165.96	1149.97	-6.52	-6.49	4.08	0.57	7.67	147.82
1175.00	0.17	174.00	1174.97	-6.61	-6.57	4.10	0.25	7.75	148.05
1200.00	0.26	148.08	1199.97	-6.69	-6.66	4.13	0.52	7.84	148.17
1225.00	0.16	161.51	1224.97	-6.77	-6.74	4.17	0.43	7.93	148.23
1250.00	0.08	192.44	1249.97	-6.82	-6.79	4.18	0.41	7.97	148.37
1275.00	0.01	263.95	1274.97	-6.84	-6.81	4.17	0.30	7.98	148.48
1300.00	0.06	217.30	1299.97	-6.85	-6.82	4.16	0.20	7.99	148.58
1325.00	0.10	236.71	1324.97	-6.87	-6.84	4.14	0.18	7.99	148.82
1350.00	0.15	125.53	1349.97	-6.90	-6.87	4.15	0.84	8.02	148.87
1375.00	0.06	176.28	1374.97	-6.94	-6.90	4.18	0.50	8.07	148.82
1400.00	0.04	294.14	1399.97	-6.95	-6.91	4.17	0.32	8.07	148.89
1425.00	0.02	185.91	1424.97	-6.94	-6.91	4.16	0.18	8.07	148.94
1450.00	0.16	187.69	1449.97	-6.98	-6.95	4.16	0.58	8.10	149.11
1475.00	0.06	269.65	1474.97	-7.02	-6.98	4.14	0.65	8.12	149.34
1500.00	0.19	170.76	1499.97	-7.06	-7.02	4.13	0.84	8.15	149.53
1525.00	0.18	150.69	1524.97	-7.14	-7.10	4.16	0.27	8.23	149.64
1550.00	0.19	150.86	1549.97	-7.21	-7.17	4.20	0.04	8.31	149.65
1575.00	0.26	125.37	1574.97	-7.27	-7.24	4.26	0.47	8.40	149.50
1600.00	0.21	129.61	1599.97	-7.34	-7.30	4.34	0.19	8.49	149.24
1625.00	0.22	140.39	1624.97	-7.40	-7.37	4.41	0.17	8.59	149.09
1650.00	0.10	169.27	1649.97	-7.46	-7.43	4.45	0.58	8.66	149.09

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
1675.00	0.16	125.17	1674.97	-7.51	-7.47	4.48	0.43	8.71	149.05
1700.00	0.22	161.28	1699.97	-7.57	-7.53	4.52	0.52	8.78	149.02
1725.00	0.19	147.90	1724.97	-7.65	-7.61	4.56	0.22	8.87	149.08
1750.00	0.21	141.75	1749.97	-7.72	-7.68	4.61	0.12	8.96	149.04
1775.00	0.35	114.55	1774.97	-7.79	-7.75	4.71	0.75	9.07	148.73
1800.00	0.38	91.83	1799.97	-7.82	-7.78	4.86	0.59	9.18	148.03
1825.00	0.38	85.46	1824.97	-7.82	-7.78	5.02	0.17	9.26	147.15
1850.00	0.51	82.38	1849.97	-7.80	-7.76	5.22	0.51	9.35	146.08
1875.00	0.62	73.70	1874.97	-7.75	-7.71	5.46	0.55	9.44	144.70
1900.00	1.04	66.84	1899.96	-7.63	-7.58	5.79	1.75	9.54	142.60
1925.00	1.23	67.15	1924.96	-7.44	-7.38	6.25	0.76	9.68	139.75
1950.00	1.59	66.26	1949.95	-7.20	-7.14	6.82	1.42	9.87	136.34
1975.00	1.66	63.89	1974.94	-6.91	-6.84	7.46	0.41	10.12	132.53
2000.00	1.74	66.35	1999.93	-6.60	-6.53	8.13	0.41	10.43	128.77
2025.00	1.71	68.23	2024.92	-6.32	-6.24	8.82	0.25	10.81	125.27
2050.00	1.72	67.12	2049.91	-6.04	-5.96	9.52	0.14	11.23	122.04
2075.00	1.61	64.59	2074.90	-5.75	-5.66	10.18	0.55	11.65	119.07
2100.00	1.42	60.14	2099.89	-5.45	-5.36	10.76	0.90	12.02	116.45
2125.00	1.41	55.78	2124.88	-5.12	-5.03	11.29	0.43	12.36	114.01
2150.00	1.28	45.51	2149.87	-4.76	-4.66	11.74	1.09	12.63	111.64
2175.00	1.16	39.89	2174.87	-4.37	-4.27	12.10	0.68	12.83	109.42
2200.00	1.11	31.70	2199.86	-3.97	-3.87	12.39	0.68	12.98	107.33
2225.00	1.06	25.96	2224.86	-3.56	-3.45	12.62	0.48	13.09	105.29
2250.00	0.91	16.33	2249.85	-3.16	-3.05	12.78	0.91	13.14	103.43
2275.00	0.90	0.70	2274.85	-2.78	-2.67	12.84	0.98	13.11	101.73
2300.00	0.84	352.00	2299.85	-2.40	-2.29	12.82	0.58	13.02	100.13
2325.00	0.88	338.02	2324.85	-2.04	-1.93	12.72	0.86	12.86	98.63
2350.00	0.97	331.02	2349.84	-1.67	-1.57	12.54	0.57	12.64	97.12
2375.00	1.08	324.52	2374.84	-1.29	-1.19	12.30	0.64	12.36	95.52
2400.00	1.04	326.16	2399.83	-0.91	-0.81	12.04	0.22	12.07	93.85
2425.00	1.15	320.43	2424.83	-0.53	-0.43	11.76	0.62	11.76	92.09
2450.00	1.41	318.34	2449.82	-0.10	-0.01	11.39	1.07	11.39	90.03

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2475.00	1.49	319.40	2474.82	0.38	0.47	10.98	0.34	10.99	87.55
2500.00	1.61	316.60	2499.81	0.88	0.97	10.52	0.58	10.57	84.72
2525.00	1.87	316.28	2524.80	1.44	1.52	10.00	1.00	10.12	81.34
2550.00	1.93	316.40	2549.78	2.04	2.12	9.43	0.26	9.66	77.32
2575.00	2.00	316.36	2574.77	2.67	2.74	8.84	0.28	9.25	72.76
2600.00	1.89	313.88	2599.75	3.27	3.34	8.24	0.55	8.89	67.92
2625.00	1.53	309.25	2624.74	3.77	3.84	7.68	1.53	8.59	63.44
2650.00	1.35	302.38	2649.73	4.15	4.21	7.18	1.02	8.32	59.61
2675.00	1.22	298.71	2674.73	4.44	4.49	6.69	0.60	8.06	56.13
2700.00	1.24	295.17	2699.72	4.68	4.74	6.22	0.31	7.82	52.69
2725.00	1.12	294.69	2724.72	4.90	4.95	5.75	0.48	7.59	49.26
2750.00	1.12	299.17	2749.71	5.13	5.18	5.31	0.35	7.42	45.76
2775.00	1.09	300.83	2774.71	5.38	5.42	4.90	0.18	7.30	42.10
2800.00	0.93	298.96	2799.70	5.60	5.64	4.51	0.66	7.22	38.67
2825.00	0.86	294.78	2824.70	5.78	5.82	4.17	0.40	7.15	35.61
2850.00	0.69	307.29	2849.70	5.95	5.98	3.88	0.94	7.13	32.93
2875.00	0.59	328.01	2874.70	6.15	6.19	3.69	1.00	7.20	30.80
2900.00	0.48	6.82	2899.69	6.37	6.40	3.63	1.49	7.36	29.57
2925.00	0.50	32.17	2924.69	6.56	6.60	3.70	0.86	7.56	29.30
2950.00	0.79	49.39	2949.69	6.77	6.80	3.89	1.41	7.83	29.77
2975.00	1.09	48.31	2974.69	7.04	7.07	4.20	1.19	8.22	30.70
3000.00	1.35	56.74	2999.68	7.35	7.39	4.62	1.27	8.72	32.03
3025.00	1.57	60.38	3024.68	7.68	7.72	5.17	0.92	9.29	33.79
3050.00	1.95	65.68	3049.66	8.02	8.07	5.85	1.65	9.97	35.96
3075.00	2.17	61.46	3074.65	8.41	8.47	6.65	1.09	10.77	38.16
3100.00	2.25	60.68	3099.63	8.87	8.93	7.50	0.32	11.66	40.01
3125.00	2.34	60.71	3124.61	9.35	9.42	8.37	0.38	12.60	41.61
3150.00	2.42	61.23	3149.59	9.85	9.93	9.28	0.34	13.59	43.07
3175.00	2.48	61.82	3174.56	10.35	10.44	10.22	0.26	14.61	44.39
3200.00	2.60	59.63	3199.54	10.88	10.98	11.18	0.61	15.67	45.53
3225.00	2.70	59.40	3224.51	11.46	11.57	12.18	0.42	16.80	46.48
3250.00	2.69	58.95	3249.49	12.06	12.17	13.19	0.11	17.95	47.31

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3275.00	2.81	58.53	3274.46	12.67	12.79	14.22	0.49	19.12	48.02
3300.00	3.03	55.51	3299.42	13.35	13.48	15.28	1.07	20.38	48.58
3325.00	3.10	55.16	3324.39	14.10	14.24	16.38	0.30	21.71	48.99
3350.00	3.09	57.86	3349.35	14.84	14.99	17.51	0.59	23.05	49.43
3375.00	3.23	56.38	3374.31	15.58	15.74	18.66	0.64	24.41	49.86
3400.00	3.12	52.11	3399.28	16.37	16.54	19.79	1.04	25.79	50.10
3425.00	3.06	52.14	3424.24	17.19	17.37	20.85	0.25	27.14	50.20
3450.00	3.10	49.85	3449.20	18.03	18.22	21.89	0.52	28.48	50.24
3475.00	2.91	45.79	3474.17	18.90	19.10	22.87	1.14	29.79	50.13
3500.00	2.89	44.47	3499.14	19.79	19.99	23.76	0.28	31.05	49.93
3525.00	2.93	43.41	3524.10	20.69	20.90	24.64	0.27	32.32	49.69
3550.00	2.90	44.50	3549.07	21.60	21.82	25.53	0.26	33.58	49.48
3575.00	2.90	44.75	3574.04	22.49	22.72	26.41	0.05	34.84	49.30
3600.00	2.71	46.78	3599.01	23.34	23.57	27.29	0.87	36.06	49.18
3625.00	2.54	47.92	3623.98	24.11	24.35	28.13	0.69	37.20	49.12
3650.00	2.42	49.82	3648.96	24.81	25.06	28.95	0.59	38.29	49.12
3675.00	2.06	49.51	3673.94	25.44	25.69	29.69	1.44	39.26	49.13
3700.00	1.67	51.47	3698.93	25.95	26.21	30.32	1.59	40.08	49.16
3725.00	0.45	26.85	3723.92	26.26	26.53	30.65	5.09	40.53	49.12
3750.00	0.28	305.50	3748.92	26.39	26.65	30.64	1.98	40.61	48.99
3775.00	0.29	282.32	3773.92	26.44	26.70	30.53	0.45	40.56	48.83
3800.00	0.48	291.02	3798.92	26.49	26.75	30.37	0.81	40.47	48.63
3825.00	0.36	266.63	3823.92	26.52	26.78	30.20	0.85	40.36	48.43
3850.00	0.42	270.48	3848.92	26.52	26.78	30.02	0.26	40.23	48.27
3875.00	0.38	261.21	3873.92	26.51	26.77	29.85	0.31	40.09	48.12
3900.00	0.42	252.63	3898.92	26.47	26.73	29.68	0.29	39.94	48.00
3925.00	0.48	252.52	3923.92	26.41	26.67	29.50	0.26	39.76	47.88
3950.00	0.51	256.71	3948.92	26.36	26.61	29.29	0.18	39.57	47.74
3975.00	0.30	241.22	3973.92	26.30	26.55	29.12	0.95	39.41	47.64
4000.00	0.38	242.92	3998.92	26.24	26.48	28.99	0.33	39.27	47.59
4025.00	0.42	235.52	4023.92	26.15	26.39	28.84	0.26	39.10	47.54
4050.00	0.48	239.05	4048.92	26.04	26.29	28.68	0.26	38.90	47.49

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4075.00	0.40	230.43	4073.91	25.93	26.18	28.52	0.40	38.71	47.45
4100.00	0.35	232.18	4098.91	25.83	26.08	28.39	0.21	38.55	47.43
4125.00	0.34	214.59	4123.91	25.73	25.97	28.29	0.42	38.40	47.45
4150.00	0.41	216.44	4148.91	25.59	25.84	28.19	0.31	38.24	47.50
4175.00	0.31	229.95	4173.91	25.48	25.72	28.09	0.54	38.08	47.52
4200.00	0.33	222.83	4198.91	25.38	25.62	27.99	0.18	37.95	47.52
4225.00	0.37	216.76	4223.91	25.27	25.51	27.89	0.22	37.80	47.56
4250.00	0.38	218.07	4248.91	25.14	25.38	27.79	0.06	37.63	47.60
4275.00	0.21	175.53	4273.91	25.03	25.27	27.74	1.08	37.52	47.68
4300.00	0.22	152.49	4298.91	24.94	25.18	27.77	0.35	37.48	47.80
4325.00	0.33	142.51	4323.91	24.84	25.08	27.83	0.45	37.47	47.98
4350.00	0.51	113.51	4348.91	24.74	24.98	27.98	1.09	37.51	48.25
4375.00	0.53	108.04	4373.91	24.65	24.90	28.19	0.22	37.61	48.55
4400.00	0.56	98.05	4398.91	24.60	24.84	28.42	0.40	37.75	48.85
4425.00	0.66	86.93	4423.91	24.59	24.83	28.69	0.61	37.94	49.12
4450.00	0.60	74.25	4448.90	24.63	24.88	28.96	0.61	38.18	49.34
4475.00	0.75	81.22	4473.90	24.69	24.94	29.25	0.69	38.43	49.55
4500.00	0.93	90.85	4498.90	24.71	24.96	29.61	0.91	38.73	49.87
4525.00	0.83	76.10	4523.90	24.74	25.00	29.99	0.99	39.04	50.18
4550.00	1.02	73.42	4548.89	24.85	25.11	30.38	0.77	39.41	50.43
4575.00	1.10	63.22	4573.89	25.01	25.28	30.81	0.82	39.85	50.63
4600.00	0.75	47.46	4598.89	25.23	25.50	31.14	1.72	40.25	50.69
4625.00	0.85	26.03	4623.88	25.51	25.77	31.34	1.26	40.58	50.57
4650.00	0.78	16.59	4648.88	25.84	26.11	31.47	0.61	40.89	50.33
4675.00	1.10	9.56	4673.88	26.24	26.51	31.56	1.37	41.22	49.98
4700.00	1.08	11.40	4698.87	26.70	26.98	31.65	0.16	41.59	49.56
4725.00	1.11	10.43	4723.87	27.17	27.44	31.74	0.12	41.96	49.15
4750.00	1.22	9.95	4748.86	27.67	27.95	31.83	0.46	42.36	48.72
4775.00	1.12	12.35	4773.86	28.17	28.45	31.93	0.44	42.76	48.30
4800.00	1.16	13.18	4798.85	28.66	28.93	32.04	0.16	43.17	47.92
4825.00	1.16	25.49	4823.85	29.13	29.41	32.20	0.99	43.61	47.60
4850.00	1.25	12.27	4848.84	29.62	29.90	32.37	1.16	44.07	47.27

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4875.00	1.05	14.31	4873.84	30.11	30.39	32.48	0.80	44.48	46.91
4900.00	1.15	15.92	4898.83	30.57	30.85	32.61	0.43	44.89	46.59
4925.00	1.07	18.56	4923.83	31.03	31.31	32.75	0.37	45.31	46.29
4950.00	1.11	18.59	4948.82	31.48	31.77	32.91	0.16	45.74	46.01
4975.00	1.11	9.23	4973.82	31.95	32.24	33.02	0.73	46.15	45.69
5000.00	1.25	18.61	4998.81	32.45	32.73	33.15	0.95	46.59	45.36
5025.00	1.20	15.39	5023.81	32.96	33.24	33.30	0.34	47.06	45.05
5050.00	1.51	16.21	5048.80	33.52	33.81	33.47	1.24	47.57	44.70
5075.00	1.47	8.81	5073.79	34.16	34.44	33.61	0.79	48.12	44.29
5100.00	1.44	4.98	5098.79	34.79	35.07	33.68	0.40	48.63	43.84
5125.00	1.39	359.03	5123.78	35.40	35.69	33.70	0.62	49.09	43.36
5150.00	1.34	357.75	5148.77	36.00	36.29	33.69	0.24	49.51	42.87
5175.00	1.39	349.49	5173.76	36.59	36.88	33.62	0.82	49.90	42.35
5200.00	1.40	341.01	5198.76	37.18	37.47	33.47	0.83	50.24	41.77
5225.00	1.49	347.50	5223.75	37.78	38.07	33.30	0.74	50.58	41.17
5250.00	1.50	348.99	5248.74	38.42	38.71	33.16	0.16	50.97	40.59
5275.00	1.44	349.32	5273.73	39.05	39.34	33.04	0.24	51.37	40.03
5300.00	1.72	351.03	5298.72	39.73	40.02	32.93	1.13	51.82	39.45
5325.00	1.64	348.13	5323.71	40.45	40.74	32.79	0.46	52.30	38.84
5350.00	1.66	343.06	5348.70	41.15	41.43	32.62	0.59	52.73	38.21
5375.00	1.69	345.02	5373.69	41.86	42.13	32.42	0.25	53.16	37.57
5400.00	1.80	345.28	5398.68	42.59	42.87	32.22	0.46	53.63	36.93
5425.00	1.82	347.50	5423.67	43.36	43.64	32.03	0.30	54.13	36.28
5450.00	1.78	346.89	5448.65	44.13	44.40	31.86	0.20	54.65	35.66
5475.00	1.65	346.56	5473.64	44.86	45.13	31.69	0.50	55.15	35.07
5500.00	1.87	340.43	5498.63	45.60	45.87	31.47	1.14	55.63	34.45
5525.00	1.94	341.26	5523.62	46.38	46.65	31.20	0.30	56.12	33.77
5550.00	2.13	344.16	5548.60	47.23	47.50	30.93	0.87	56.68	33.07
5575.00	1.81	339.53	5573.59	48.05	48.32	30.67	1.41	57.23	32.41
5600.00	2.02	342.56	5598.57	48.84	49.11	30.40	0.92	57.75	31.76
5625.00	1.98	346.74	5623.56	49.69	49.95	30.17	0.60	58.35	31.13
5650.00	1.95	344.57	5648.54	50.52	50.78	29.96	0.33	58.95	30.54

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
5675.00	1.87	334.97	5673.53	51.30	51.55	29.67	1.31	59.48	29.92
5700.00	1.92	339.42	5698.52	52.06	52.32	29.35	0.62	59.99	29.29
5725.00	1.99	314.89	5723.50	52.77	53.01	28.90	3.33	60.38	28.59
5750.00	2.29	293.74	5748.48	53.28	53.52	28.13	3.35	60.46	27.73
5775.00	2.46	284.60	5773.46	53.62	53.86	27.16	1.66	60.32	26.76
5800.00	2.50	276.66	5798.44	53.83	54.06	26.10	1.38	60.03	25.77
5825.00	2.92	262.74	5823.41	53.82	54.04	24.93	3.12	59.51	24.76
5850.00	3.44	250.43	5848.37	53.50	53.71	23.59	3.44	58.66	23.71
5875.00	3.53	243.82	5873.33	52.92	53.11	22.19	1.65	57.56	22.67
5900.00	3.73	241.00	5898.28	52.20	52.38	20.79	1.07	56.35	21.64
5925.00	3.79	242.33	5923.22	51.43	51.60	19.34	0.42	55.11	20.55
5950.00	3.64	244.00	5948.17	50.72	50.87	17.90	0.73	53.93	19.38
5975.00	3.82	240.05	5973.12	49.96	50.11	16.46	1.24	52.74	18.19
6000.00	3.72	241.67	5998.06	49.18	49.31	15.03	0.58	51.54	16.95
6025.00	3.84	240.85	6023.01	48.40	48.51	13.58	0.53	50.38	15.64
6050.00	3.93	239.60	6047.95	47.57	47.67	12.11	0.49	49.19	14.25
6075.00	3.92	242.51	6072.89	46.75	46.84	10.61	0.80	48.03	12.77
6100.00	4.19	241.42	6097.83	45.93	46.01	9.05	1.11	46.90	11.13
6125.00	4.19	242.14	6122.76	45.08	45.15	7.45	0.21	45.76	9.36
6150.00	4.17	239.97	6147.70	44.22	44.27	5.85	0.64	44.65	7.53
6175.00	4.33	239.64	6172.63	43.30	43.34	4.25	0.63	43.54	5.60
6200.00	4.49	237.73	6197.55	42.31	42.34	2.61	0.86	42.42	3.52
6225.00	4.95	234.74	6222.47	41.18	41.19	0.90	2.09	41.20	1.25
6250.00	5.32	231.63	6247.37	39.85	39.85	-0.89	1.86	39.86	358.72
6275.00	5.25	231.29	6272.26	38.43	38.41	-2.69	0.32	38.51	355.99
6300.00	4.34	222.77	6297.18	37.04	37.00	-4.23	4.62	37.24	353.48
6325.00	3.73	215.85	6322.11	35.69	35.65	-5.35	3.10	36.05	351.47
6350.00	3.46	211.08	6347.06	34.40	34.34	-6.21	1.63	34.90	349.75
6375.00	3.32	208.25	6372.02	33.12	33.06	-6.94	0.87	33.78	348.14
6400.00	3.32	209.01	6396.98	31.86	31.79	-7.64	0.18	32.70	346.49
6425.00	3.24	204.74	6421.94	30.59	30.52	-8.28	1.03	31.62	344.81
6450.00	3.45	203.83	6446.90	29.26	29.19	-8.88	0.87	30.51	343.07

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
6475.00	3.44	208.60	6471.85	27.92	27.84	-9.55	1.15	29.43	341.07
6500.00	3.38	206.95	6496.81	26.61	26.52	-10.24	0.47	28.43	338.89
6525.00	3.26	205.90	6521.76	25.32	25.23	-10.88	0.55	27.48	336.67
6550.00	3.18	203.41	6546.72	24.05	23.96	-11.47	0.64	26.56	334.42
6575.00	2.79	196.55	6571.69	22.84	22.74	-11.92	2.11	25.67	332.34
6600.00	2.22	185.15	6596.67	21.78	21.67	-12.13	3.01	24.84	330.76
6625.00	2.11	179.11	6621.65	20.84	20.73	-12.17	1.01	24.04	329.59
6650.00	2.21	177.91	6646.63	19.89	19.79	-12.14	0.44	23.22	328.47
6675.00	2.11	177.97	6671.61	18.95	18.85	-12.11	0.41	22.41	327.28
6700.00	2.02	175.73	6696.60	18.05	17.95	-12.06	0.46	21.63	326.10
6725.00	2.02	174.44	6721.58	17.18	17.07	-11.99	0.18	20.86	324.93
6750.00	2.17	171.23	6746.57	16.27	16.17	-11.87	0.75	20.06	323.71
6775.00	2.02	158.03	6771.55	15.39	15.29	-11.63	2.01	19.22	322.74
6800.00	2.23	145.81	6796.53	14.58	14.48	-11.20	1.98	18.31	322.29
6825.00	2.40	139.84	6821.51	13.77	13.68	-10.59	1.18	17.30	322.27
6850.00	2.47	137.55	6846.49	12.97	12.88	-9.89	0.48	16.24	322.50
6875.00	2.64	136.38	6871.46	12.15	12.07	-9.13	0.71	15.13	322.91
6900.00	2.71	134.87	6896.44	11.31	11.24	-8.31	0.41	13.98	323.52
6925.00	2.77	135.86	6921.41	10.45	10.39	-7.47	0.31	12.79	324.27
6950.00	2.80	134.28	6946.38	9.58	9.53	-6.61	0.33	11.60	325.24
6975.00	2.83	134.32	6971.35	8.72	8.67	-5.73	0.11	10.39	326.52
7000.00	2.79	132.32	6996.32	7.87	7.83	-4.84	0.42	9.20	328.26
7025.00	2.78	133.84	7021.29	7.03	7.00	-3.95	0.30	8.04	330.53
7050.00	2.78	130.59	7046.26	6.21	6.18	-3.06	0.63	6.90	333.70
7075.00	2.70	130.39	7071.23	5.42	5.41	-2.15	0.32	5.82	338.35
7100.00	2.72	128.80	7096.20	4.66	4.65	-1.23	0.31	4.81	345.14
7125.00	2.72	129.46	7121.17	3.90	3.90	-0.31	0.13	3.91	355.42
7150.00	2.28	140.68	7146.15	3.14	3.14	0.46	2.64	3.17	8.35
7175.00	2.17	149.05	7171.13	2.34	2.35	1.02	1.37	2.56	23.46
7200.00	2.07	150.18	7196.11	1.54	1.55	1.49	0.43	2.15	43.81
7225.00	1.95	154.57	7221.10	0.76	0.77	1.90	0.78	2.05	67.79
7250.00	1.25	163.80	7246.09	0.11	0.13	2.15	3.00	2.16	86.59

SURVEY REPORT

LYCHEE STATE COM #3H

COMPUTED KEEPER GYRO WIRELINE SURVEY

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
7275.00	0.85	186.21	7271.09	-0.34	-0.32	2.21	2.24	2.23	98.18
7300.00	0.78	192.36	7296.08	-0.69	-0.67	2.15	0.46	2.25	107.28
7325.00	0.84	192.80	7321.08	-1.03	-1.01	2.08	0.23	2.31	116.03
7350.00	0.82	194.74	7346.08	-1.38	-1.37	1.99	0.12	2.41	124.47
7375.00	0.89	201.39	7371.07	-1.74	-1.72	1.87	0.47	2.54	132.56
7400.00	1.01	199.51	7396.07	-2.12	-2.11	1.73	0.52	2.73	140.64
7425.00	1.09	194.21	7421.07	-2.56	-2.55	1.60	0.50	3.01	147.91
7450.00	1.12	185.71	7446.06	-3.03	-3.02	1.51	0.66	3.38	153.37
7475.00	1.19	179.06	7471.06	-3.53	-3.52	1.49	0.60	3.83	157.00
7500.00	0.96	183.25	7496.05	-4.00	-3.99	1.49	0.98	4.26	159.55
7525.00	0.41	155.25	7521.05	-4.29	-4.28	1.51	2.51	4.54	160.53
7550.00	0.37	68.65	7546.05	-4.34	-4.33	1.63	2.14	4.62	159.41
7575.00	0.52	65.14	7571.05	-4.27	-4.25	1.80	0.58	4.62	157.00
7600.00	0.65	58.70	7596.05	-4.15	-4.13	2.03	0.61	4.60	153.84
7625.00	0.55	48.65	7621.05	-3.99	-3.98	2.24	0.58	4.56	150.59
7650.00	0.48	55.92	7646.05	-3.86	-3.84	2.42	0.39	4.54	147.79
7675.00	0.58	68.90	7671.05	-3.76	-3.73	2.62	0.62	4.56	144.92
7700.00	0.64	71.20	7696.04	-3.67	-3.64	2.87	0.25	4.64	141.75
7725.00	0.64	69.62	7721.04	-3.58	-3.55	3.13	0.07	4.74	138.56
7750.00	0.78	80.00	7746.04	-3.50	-3.47	3.43	0.74	4.88	135.32
7775.00	0.83	77.16	7771.04	-3.43	-3.40	3.78	0.26	5.08	132.02
7800.00	0.75	83.82	7796.04	-3.38	-3.34	4.12	0.48	5.30	129.10
7825.00	0.87	79.97	7821.03	-3.33	-3.29	4.47	0.53	5.55	126.40
7850.00	0.92	91.28	7846.03	-3.31	-3.26	4.85	0.73	5.85	123.92
7875.00	0.91	89.40	7871.03	-3.31	-3.27	5.25	0.12	6.19	121.87
7900.00	0.99	86.13	7896.02	-3.30	-3.25	5.67	0.36	6.53	119.83
7925.00	0.98	89.58	7921.02	-3.29	-3.23	6.10	0.24	6.90	117.94
7950.00	1.04	88.55	7946.02	-3.28	-3.23	6.54	0.25	7.29	116.27
7975.00	1.09	89.76	7971.01	-3.28	-3.22	7.00	0.22	7.71	114.69
8000.00	1.14	87.34	7996.01	-3.27	-3.21	7.49	0.26	8.15	113.19
8025.00	1.20	87.78	8021.00	-3.25	-3.19	8.00	0.25	8.61	111.72
8050.00	1.23	86.67	8046.00	-3.23	-3.16	8.53	0.16	9.09	110.34

SURVEY REPORT**LYCHEE STATE COM #3H****COMPUTED KEEPER GYRO WIRELINE SURVEY**

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8075.00	1.30	88.11	8070.99	-3.21	-3.14	9.08	0.30	9.60	109.05
8100.00	1.39	85.67	8095.98	-3.19	-3.10	9.66	0.44	10.15	107.80
8125.00	1.48	93.56	8120.98	-3.19	-3.10	10.29	0.86	10.75	106.77
8150.00	1.49	97.31	8145.97	-3.25	-3.16	10.93	0.39	11.38	106.13
8175.00	1.27	114.22	8170.96	-3.41	-3.32	11.51	1.83	11.98	106.08
8200.00	0.58	114.38	8195.96	-3.58	-3.48	11.88	2.76	12.38	106.34
8225.00	0.46	153.29	8220.96	-3.73	-3.63	12.04	1.47	12.57	106.76
8250.00	0.55	159.84	8245.95	-3.93	-3.83	12.13	0.42	12.72	107.53
8275.00	0.68	179.45	8270.95	-4.19	-4.09	12.17	0.97	12.84	108.58
8300.00	0.90	176.44	8295.95	-4.54	-4.43	12.18	0.90	12.96	110.00
8305.00	0.70	175.96	8300.95	-4.61	-4.50	12.19	4.05	12.99	110.28