

COG Production L L C

Lea County, NM (NAD27 NME)

Sec. 36, T 23 S. , R 32 E

Queso State #8H

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

30 June, 2016

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Integrity Directional Services, LLC

Survey Report - Geographic

Company:	COG Production L L C	Local Co-ordinate Reference:	Well Queso State #8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Site:	Sec. 36, T 23 S. , R 32 E	MD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Well:	Queso State #8H	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. 36, T 23 S. , R 32 E		
Site Position:		Northing:	457,189.60 usft
From:	Map	Easting:	719,347.20 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32° 15' 17.779 N
		Longitude:	103° 37' 25.634 W
		Grid Convergence:	0.38 °

Well	Queso State #8H		
Well Position	+N/-S	0.00 ft	Northing: 457,189.60 usft
	+E/-W	0.00 ft	Easting: 719,347.20 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Ground Level:	3,645.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/16/2016	7.09	60.10	48,053

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	0.26	

Survey Program	Date	6/30/2016			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	8,799.00	Gyros (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
8,921.00	13,837.00	IDS 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	
0.00	0.00	0.00	0.00	0.00	0.00	457,189.60	719,347.20	32° 15' 17.779 N	103° 37' 25.634 W	
100.00	0.88	64.22	100.00	0.33	0.69	457,189.93	719,347.89	32° 15' 17.782 N	103° 37' 25.626 W	
200.00	0.93	64.96	199.98	1.01	2.12	457,190.61	719,349.31	32° 15' 17.788 N	103° 37' 25.609 W	
300.00	0.89	51.87	299.97	1.83	3.46	457,191.43	719,350.66	32° 15' 17.797 N	103° 37' 25.594 W	
400.00	0.88	38.07	399.96	2.92	4.55	457,192.52	719,351.74	32° 15' 17.807 N	103° 37' 25.581 W	
500.00	0.86	26.13	499.95	4.20	5.35	457,193.80	719,352.55	32° 15' 17.820 N	103° 37' 25.571 W	
600.00	0.94	31.47	599.94	5.57	6.11	457,195.17	719,353.31	32° 15' 17.833 N	103° 37' 25.562 W	
700.00	0.88	28.82	699.92	6.94	6.91	457,196.54	719,354.11	32° 15' 17.847 N	103° 37' 25.553 W	
800.00	0.85	19.15	799.91	8.32	7.52	457,197.92	719,354.72	32° 15' 17.860 N	103° 37' 25.546 W	
900.00	1.05	9.21	899.90	9.92	7.91	457,199.52	719,355.11	32° 15' 17.876 N	103° 37' 25.541 W	
1,000.00	1.25	3.19	999.88	11.91	8.12	457,201.51	719,355.32	32° 15' 17.896 N	103° 37' 25.539 W	

Integrity Directional Services, LLC

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Site:	Sec. 36, T 23 S. , R 32 E	MD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Well:	Queso State #8H	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
1,100.00	1.83	2.62	1,099.84	14.60	8.25	457,204.20	719,355.45	32° 15' 17.923 N	103° 37' 25.537 W
1,200.00	2.03	9.79	1,199.78	17.94	8.63	457,207.54	719,355.82	32° 15' 17.956 N	103° 37' 25.532 W
1,300.00	1.51	18.89	1,299.74	20.93	9.36	457,210.53	719,356.55	32° 15' 17.985 N	103° 37' 25.523 W
1,400.00	0.64	36.33	1,399.72	22.63	10.11	457,212.23	719,357.31	32° 15' 18.002 N	103° 37' 25.514 W
1,500.00	0.65	58.25	1,499.71	23.38	10.93	457,212.98	719,358.12	32° 15' 18.009 N	103° 37' 25.505 W
1,600.00	0.53	34.77	1,599.71	24.05	11.67	457,213.65	719,358.87	32° 15' 18.016 N	103° 37' 25.496 W
1,700.00	0.69	56.04	1,699.70	24.77	12.44	457,214.37	719,359.63	32° 15' 18.023 N	103° 37' 25.487 W
1,800.00	0.46	51.05	1,799.70	25.36	13.25	457,214.96	719,360.44	32° 15' 18.029 N	103° 37' 25.478 W
1,900.00	0.45	44.39	1,899.69	25.89	13.83	457,215.49	719,361.03	32° 15' 18.034 N	103° 37' 25.471 W
2,000.00	0.53	49.38	1,999.69	26.47	14.46	457,216.07	719,361.66	32° 15' 18.040 N	103° 37' 25.464 W
2,100.00	0.63	49.43	2,099.68	27.13	15.23	457,216.73	719,362.43	32° 15' 18.046 N	103° 37' 25.455 W
2,200.00	0.70	50.78	2,199.68	27.88	16.12	457,217.48	719,363.32	32° 15' 18.053 N	103° 37' 25.444 W
2,300.00	0.81	57.23	2,299.67	28.65	17.19	457,218.25	719,364.38	32° 15' 18.061 N	103° 37' 25.432 W
2,400.00	0.78	54.79	2,399.66	29.42	18.34	457,219.02	719,365.53	32° 15' 18.069 N	103° 37' 25.418 W
2,500.00	0.88	53.37	2,499.65	30.27	19.51	457,219.87	719,366.71	32° 15' 18.077 N	103° 37' 25.404 W
2,600.00	0.81	52.38	2,599.64	31.16	20.69	457,220.76	719,367.88	32° 15' 18.086 N	103° 37' 25.391 W
2,700.00	1.00	49.09	2,699.63	32.16	21.91	457,221.76	719,369.10	32° 15' 18.095 N	103° 37' 25.376 W
2,800.00	1.08	45.63	2,799.61	33.39	23.24	457,222.99	719,370.44	32° 15' 18.108 N	103° 37' 25.361 W
2,900.00	1.21	46.39	2,899.59	34.78	24.68	457,224.38	719,371.87	32° 15' 18.121 N	103° 37' 25.344 W
3,000.00	1.23	36.93	2,999.57	36.37	26.09	457,225.97	719,373.28	32° 15' 18.137 N	103° 37' 25.327 W
3,100.00	1.36	35.08	3,099.54	38.20	27.41	457,227.80	719,374.61	32° 15' 18.155 N	103° 37' 25.312 W
3,200.00	1.33	43.38	3,199.51	40.01	28.89	457,229.61	719,376.09	32° 15' 18.173 N	103° 37' 25.294 W
3,300.00	1.44	36.04	3,299.48	41.87	30.43	457,231.47	719,377.63	32° 15' 18.191 N	103° 37' 25.276 W
3,400.00	1.45	30.90	3,399.45	43.97	31.82	457,233.57	719,379.01	32° 15' 18.212 N	103° 37' 25.260 W
3,500.00	1.68	27.19	3,499.42	46.36	33.14	457,235.96	719,380.33	32° 15' 18.235 N	103° 37' 25.245 W
3,600.00	1.74	32.45	3,599.37	48.95	34.62	457,238.55	719,381.82	32° 15' 18.261 N	103° 37' 25.227 W
3,700.00	1.55	38.55	3,699.33	51.29	36.28	457,240.89	719,383.48	32° 15' 18.284 N	103° 37' 25.208 W
3,800.00	1.61	50.69	3,799.29	53.23	38.21	457,242.83	719,385.41	32° 15' 18.303 N	103° 37' 25.185 W
3,900.00	1.38	50.63	3,899.26	54.89	40.23	457,244.49	719,387.42	32° 15' 18.319 N	103° 37' 25.161 W
4,000.00	1.46	53.68	3,999.23	56.41	42.18	457,246.01	719,389.38	32° 15' 18.334 N	103° 37' 25.138 W
4,100.00	1.68	56.21	4,099.19	57.98	44.43	457,247.58	719,391.63	32° 15' 18.349 N	103° 37' 25.112 W
4,200.00	1.66	64.60	4,199.15	59.41	46.96	457,249.01	719,394.15	32° 15' 18.363 N	103° 37' 25.083 W
4,300.00	1.94	79.81	4,299.10	60.33	49.93	457,249.93	719,397.13	32° 15' 18.372 N	103° 37' 25.048 W
4,400.00	2.05	88.60	4,399.04	60.68	53.38	457,250.28	719,400.58	32° 15' 18.376 N	103° 37' 25.008 W
4,500.00	1.82	93.64	4,498.98	60.62	56.76	457,250.22	719,403.95	32° 15' 18.375 N	103° 37' 24.968 W
4,600.00	1.58	106.53	4,598.94	60.13	59.66	457,249.73	719,406.86	32° 15' 18.370 N	103° 37' 24.935 W
4,700.00	1.63	118.88	4,698.90	59.05	62.23	457,248.65	719,409.43	32° 15' 18.359 N	103° 37' 24.905 W
4,800.00	1.38	115.41	4,798.86	57.84	64.56	457,247.44	719,411.76	32° 15' 18.347 N	103° 37' 24.878 W
4,900.00	1.39	115.65	4,898.83	56.80	66.74	457,246.40	719,413.94	32° 15' 18.336 N	103° 37' 24.852 W
5,000.00	1.09	100.03	4,998.81	56.11	68.77	457,245.71	719,415.97	32° 15' 18.329 N	103° 37' 24.829 W
5,100.00	1.02	94.50	5,098.79	55.88	70.60	457,245.48	719,417.79	32° 15' 18.327 N	103° 37' 24.808 W
5,200.00	1.22	97.39	5,198.78	55.67	72.54	457,245.27	719,419.74	32° 15' 18.325 N	103° 37' 24.785 W
5,300.00	1.28	98.04	5,298.75	55.38	74.70	457,244.98	719,421.90	32° 15' 18.322 N	103° 37' 24.760 W
5,400.00	1.28	98.92	5,398.73	55.05	76.91	457,244.65	719,424.11	32° 15' 18.318 N	103° 37' 24.734 W
5,500.00	0.98	111.47	5,498.71	54.56	78.81	457,244.16	719,426.01	32° 15' 18.313 N	103° 37' 24.712 W
5,600.00	0.97	105.70	5,598.69	54.02	80.42	457,243.62	719,427.62	32° 15' 18.308 N	103° 37' 24.693 W
5,700.00	0.96	109.63	5,698.68	53.51	82.03	457,243.11	719,429.22	32° 15' 18.303 N	103° 37' 24.675 W
5,800.00	0.79	110.31	5,798.67	52.99	83.46	457,242.59	719,430.66	32° 15' 18.297 N	103° 37' 24.658 W
5,900.00	0.82	100.21	5,898.66	52.62	84.81	457,242.22	719,432.01	32° 15' 18.294 N	103° 37' 24.642 W
6,000.00	0.67	113.11	5,998.65	52.26	86.05	457,241.86	719,433.25	32° 15' 18.290 N	103° 37' 24.628 W
6,100.00	0.75	77.44	6,098.64	52.18	87.23	457,241.78	719,434.43	32° 15' 18.289 N	103° 37' 24.614 W
6,200.00	0.53	93.22	6,198.63	52.29	88.33	457,241.89	719,435.53	32° 15' 18.290 N	103° 37' 24.601 W
6,300.00	0.60	88.76	6,298.63	52.28	89.32	457,241.88	719,436.51	32° 15' 18.290 N	103° 37' 24.590 W
6,400.00	0.75	79.73	6,398.62	52.41	90.48	457,242.01	719,437.68	32° 15' 18.291 N	103° 37' 24.576 W
6,500.00	0.45	79.52	6,498.62	52.59	91.51	457,242.20	719,438.71	32° 15' 18.293 N	103° 37' 24.564 W

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Company:	COG Production L L C	Local Co-ordinate Reference:	Well Queso State #8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Site:	Sec. 36, T 23 S. , R 32 E	MD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Well:	Queso State #8H	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
6,600.00	0.58	65.20	6,598.61	52.88	92.36	457,242.48	719,439.56	32° 15' 18.296 N	103° 37' 24.554 W
6,700.00	0.44	90.53	6,698.61	53.09	93.20	457,242.69	719,440.40	32° 15' 18.298 N	103° 37' 24.545 W
6,800.00	0.12	155.22	6,798.61	52.99	93.63	457,242.59	719,440.83	32° 15' 18.297 N	103° 37' 24.540 W
6,900.00	0.30	206.93	6,898.61	52.66	93.56	457,242.26	719,440.75	32° 15' 18.294 N	103° 37' 24.541 W
7,100.00	0.47	222.77	7,098.60	51.59	92.76	457,241.19	719,439.96	32° 15' 18.283 N	103° 37' 24.550 W
7,200.00	0.50	223.81	7,198.60	50.98	92.18	457,240.58	719,439.38	32° 15' 18.277 N	103° 37' 24.557 W
7,300.00	0.27	201.20	7,298.60	50.44	91.80	457,240.04	719,438.99	32° 15' 18.272 N	103° 37' 24.561 W
7,400.00	0.24	205.58	7,398.60	50.03	91.62	457,239.63	719,438.82	32° 15' 18.268 N	103° 37' 24.563 W
7,500.00	0.51	169.07	7,498.59	49.41	91.61	457,239.01	719,438.81	32° 15' 18.262 N	103° 37' 24.563 W
7,600.00	0.57	175.95	7,598.59	48.47	91.73	457,238.07	719,438.93	32° 15' 18.252 N	103° 37' 24.562 W
7,700.00	0.64	165.48	7,698.58	47.44	91.91	457,237.04	719,439.10	32° 15' 18.242 N	103° 37' 24.560 W
7,800.00	0.64	160.77	7,798.58	46.37	92.23	457,235.97	719,439.43	32° 15' 18.231 N	103° 37' 24.556 W
7,900.00	0.55	163.13	7,898.57	45.38	92.56	457,234.98	719,439.75	32° 15' 18.222 N	103° 37' 24.553 W
8,000.00	0.70	157.37	7,998.57	44.36	92.93	457,233.96	719,440.13	32° 15' 18.211 N	103° 37' 24.548 W
8,100.00	0.75	162.42	8,098.56	43.17	93.36	457,232.77	719,440.56	32° 15' 18.200 N	103° 37' 24.544 W
8,200.00	0.65	151.30	8,198.55	42.05	93.83	457,231.65	719,441.03	32° 15' 18.189 N	103° 37' 24.538 W
8,300.00	0.51	162.67	8,298.55	41.13	94.24	457,230.73	719,441.43	32° 15' 18.179 N	103° 37' 24.533 W
8,400.00	0.55	147.27	8,398.54	40.30	94.63	457,229.90	719,441.83	32° 15' 18.171 N	103° 37' 24.529 W
8,500.00	0.42	147.63	8,498.54	39.59	95.09	457,229.19	719,442.28	32° 15' 18.164 N	103° 37' 24.524 W
8,600.00	0.21	150.73	8,598.54	39.12	95.37	457,228.72	719,442.57	32° 15' 18.159 N	103° 37' 24.520 W
8,700.00	0.08	167.92	8,698.54	38.89	95.48	457,228.49	719,442.67	32° 15' 18.157 N	103° 37' 24.519 W
8,799.00	0.16	312.15	8,797.54	38.91	95.39	457,228.51	719,442.58	32° 15' 18.157 N	103° 37' 24.520 W
8,921.00	0.40	271.30	8,919.53	39.04	94.84	457,228.64	719,442.03	32° 15' 18.159 N	103° 37' 24.527 W
First IDS MWD Survey									
8,953.00	0.80	328.00	8,951.53	39.23	94.61	457,228.83	719,441.80	32° 15' 18.161 N	103° 37' 24.529 W
8,984.00	3.30	2.00	8,982.51	40.30	94.52	457,229.90	719,441.72	32° 15' 18.171 N	103° 37' 24.530 W
9,016.00	7.20	358.10	9,014.37	43.23	94.49	457,232.83	719,441.68	32° 15' 18.200 N	103° 37' 24.530 W
9,048.00	11.60	359.00	9,045.93	48.45	94.36	457,238.05	719,441.56	32° 15' 18.252 N	103° 37' 24.531 W
9,079.00	16.00	0.00	9,076.03	55.85	94.31	457,245.45	719,441.51	32° 15' 18.325 N	103° 37' 24.531 W
9,111.00	20.00	359.30	9,106.46	65.73	94.24	457,255.33	719,441.44	32° 15' 18.423 N	103° 37' 24.532 W
9,142.00	22.90	354.90	9,135.31	77.04	93.64	457,266.64	719,440.84	32° 15' 18.535 N	103° 37' 24.538 W
9,174.00	26.50	354.30	9,164.38	90.35	92.38	457,279.95	719,439.58	32° 15' 18.667 N	103° 37' 24.551 W
9,206.00	30.00	356.90	9,192.56	105.45	91.24	457,295.05	719,438.43	32° 15' 18.816 N	103° 37' 24.563 W
9,237.00	33.20	357.20	9,218.96	121.67	90.40	457,311.27	719,437.60	32° 15' 18.977 N	103° 37' 24.572 W
9,269.00	36.30	356.80	9,245.25	139.88	89.45	457,329.48	719,436.64	32° 15' 19.157 N	103° 37' 24.582 W
9,301.00	38.50	356.30	9,270.67	159.28	88.27	457,348.88	719,435.47	32° 15' 19.349 N	103° 37' 24.594 W
9,332.00	42.50	354.50	9,294.24	179.34	86.65	457,368.94	719,433.84	32° 15' 19.548 N	103° 37' 24.611 W
9,364.00	47.10	353.80	9,316.94	201.77	84.34	457,391.37	719,431.54	32° 15' 19.770 N	103° 37' 24.636 W
9,396.00	52.00	353.90	9,337.70	225.97	81.74	457,415.57	719,428.93	32° 15' 20.009 N	103° 37' 24.665 W
9,427.00	55.50	353.40	9,356.02	250.81	78.97	457,440.41	719,426.17	32° 15' 20.255 N	103° 37' 24.695 W
9,459.00	58.40	352.80	9,373.47	277.44	75.75	457,467.04	719,422.94	32° 15' 20.519 N	103° 37' 24.731 W
9,490.00	61.10	352.60	9,389.09	304.00	72.34	457,493.60	719,419.54	32° 15' 20.782 N	103° 37' 24.768 W
9,522.00	63.60	352.70	9,403.94	332.11	68.72	457,521.71	719,415.91	32° 15' 21.060 N	103° 37' 24.808 W
9,554.00	66.50	353.40	9,417.44	360.91	65.21	457,550.50	719,412.40	32° 15' 21.346 N	103° 37' 24.847 W
9,585.00	69.70	354.10	9,429.00	389.49	62.08	457,579.09	719,409.28	32° 15' 21.629 N	103° 37' 24.881 W
9,617.00	71.90	354.20	9,439.52	419.55	59.00	457,609.15	719,406.20	32° 15' 21.926 N	103° 37' 24.915 W
9,648.00	72.40	354.10	9,449.02	448.91	55.99	457,638.51	719,403.19	32° 15' 22.217 N	103° 37' 24.947 W
9,680.00	74.20	354.00	9,458.22	479.39	52.82	457,668.99	719,400.01	32° 15' 22.519 N	103° 37' 24.982 W
9,712.00	75.70	353.40	9,466.53	510.11	49.42	457,699.71	719,396.62	32° 15' 22.823 N	103° 37' 25.019 W
9,743.00	78.70	353.20	9,473.39	540.13	45.90	457,729.73	719,393.09	32° 15' 23.120 N	103° 37' 25.058 W
9,775.00	83.00	352.50	9,478.48	571.47	41.96	457,761.06	719,389.16	32° 15' 23.431 N	103° 37' 25.101 W
9,806.00	87.30	352.70	9,481.10	602.09	37.99	457,791.69	719,385.18	32° 15' 23.734 N	103° 37' 25.145 W
9,835.00	89.70	354.80	9,481.86	630.90	34.83	457,820.50	719,382.03	32° 15' 24.019 N	103° 37' 25.180 W
9,867.00	90.70	357.10	9,481.75	662.82	32.57	457,852.42	719,379.77	32° 15' 24.335 N	103° 37' 25.204 W
9,962.00	91.10	358.70	9,480.26	757.74	29.09	457,947.34	719,376.29	32° 15' 25.275 N	103° 37' 25.237 W

Integrity Directional Services, LLC

Survey Report - Geographic

Company:	COG Production L L C	Local Co-ordinate Reference:	Well Queso State #8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Site:	Sec. 36, T 23 S. , R 32 E	MD Reference:	KB=20' @ 3665.00ft (Patriot 2)
Well:	Queso State #8H	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	
10,056.00	91.20	358.40	9,478.37	851.69	26.71	458,041.29	719,373.91	32° 15' 26.205 N	103° 37' 25.257 W	
10,151.00	92.00	357.70	9,475.72	946.60	23.48	458,136.20	719,370.68	32° 15' 27.144 N	103° 37' 25.288 W	
10,245.00	92.60	357.60	9,471.95	1,040.45	19.63	458,230.04	719,366.83	32° 15' 28.073 N	103° 37' 25.325 W	
10,340.00	91.50	358.70	9,468.55	1,135.33	16.57	458,324.93	719,363.76	32° 15' 29.012 N	103° 37' 25.354 W	
10,434.00	90.70	358.70	9,466.74	1,229.29	14.43	458,418.89	719,361.63	32° 15' 29.942 N	103° 37' 25.371 W	
10,528.00	91.00	358.70	9,465.35	1,323.26	12.30	458,512.85	719,359.50	32° 15' 30.872 N	103° 37' 25.389 W	
10,622.00	90.40	358.70	9,464.20	1,417.22	10.17	458,606.82	719,357.37	32° 15' 31.802 N	103° 37' 25.406 W	
10,716.00	90.50	358.70	9,463.46	1,511.20	8.04	458,700.79	719,355.23	32° 15' 32.732 N	103° 37' 25.424 W	
10,810.00	90.40	0.00	9,462.72	1,605.19	6.97	458,794.78	719,354.17	32° 15' 33.662 N	103° 37' 25.429 W	
10,904.00	91.00	359.90	9,461.58	1,699.18	6.89	458,888.77	719,354.08	32° 15' 34.592 N	103° 37' 25.423 W	
10,999.00	91.50	359.60	9,459.50	1,794.15	6.47	458,983.75	719,353.67	32° 15' 35.532 N	103° 37' 25.420 W	
11,093.00	92.40	359.60	9,456.30	1,888.10	5.82	459,077.69	719,353.01	32° 15' 36.462 N	103° 37' 25.421 W	
11,187.00	91.50	359.90	9,453.11	1,982.04	5.41	459,171.64	719,352.60	32° 15' 37.392 N	103° 37' 25.418 W	
11,281.00	88.70	359.90	9,452.94	2,076.03	5.24	459,265.63	719,352.44	32° 15' 38.322 N	103° 37' 25.413 W	
11,375.00	89.40	0.70	9,454.50	2,170.01	5.74	459,359.61	719,352.93	32° 15' 39.252 N	103° 37' 25.400 W	
11,469.00	89.60	359.90	9,455.32	2,264.01	6.23	459,453.60	719,353.42	32° 15' 40.182 N	103° 37' 25.387 W	
11,563.00	92.60	1.70	9,453.52	2,357.97	7.54	459,547.56	719,354.74	32° 15' 41.111 N	103° 37' 25.365 W	
11,658.00	93.40	0.10	9,448.54	2,452.82	9.03	459,642.42	719,356.23	32° 15' 42.050 N	103° 37' 25.340 W	
11,752.00	92.80	359.20	9,443.46	2,546.68	8.46	459,736.28	719,355.65	32° 15' 42.979 N	103° 37' 25.339 W	
11,846.00	92.30	359.00	9,439.28	2,640.58	6.98	459,830.17	719,354.18	32° 15' 43.908 N	103° 37' 25.349 W	
11,941.00	90.50	358.70	9,436.96	2,735.53	5.08	459,925.12	719,352.27	32° 15' 44.848 N	103° 37' 25.364 W	
12,035.00	88.70	357.70	9,437.61	2,829.47	2.12	460,019.07	719,349.32	32° 15' 45.778 N	103° 37' 25.391 W	
12,130.00	87.50	358.00	9,440.76	2,924.35	-1.44	460,113.94	719,345.76	32° 15' 46.717 N	103° 37' 25.426 W	
12,224.00	86.70	0.30	9,445.52	3,018.21	-2.83	460,207.81	719,344.36	32° 15' 47.646 N	103° 37' 25.435 W	
12,319.00	89.50	1.20	9,448.67	3,113.14	-1.59	460,302.74	719,345.61	32° 15' 48.585 N	103° 37' 25.413 W	
12,413.00	90.50	2.60	9,448.67	3,207.09	1.53	460,396.68	719,348.72	32° 15' 49.514 N	103° 37' 25.369 W	
12,508.00	92.90	3.20	9,445.85	3,301.92	6.33	460,491.51	719,353.53	32° 15' 50.452 N	103° 37' 25.306 W	
12,602.00	91.30	2.70	9,442.41	3,395.72	11.17	460,585.32	719,358.36	32° 15' 51.380 N	103° 37' 25.243 W	
12,697.00	89.50	1.90	9,441.74	3,490.64	14.98	460,680.23	719,362.17	32° 15' 52.319 N	103° 37' 25.191 W	
12,791.00	89.50	1.20	9,442.56	3,584.60	17.52	460,774.20	719,364.72	32° 15' 53.249 N	103° 37' 25.154 W	
12,886.00	90.30	1.70	9,442.73	3,679.57	19.92	460,869.16	719,367.12	32° 15' 54.189 N	103° 37' 25.119 W	
12,981.00	89.70	1.40	9,442.73	3,774.54	22.49	460,964.13	719,369.69	32° 15' 55.128 N	103° 37' 25.081 W	
13,075.00	88.20	0.60	9,444.45	3,868.50	24.13	461,058.09	719,371.33	32° 15' 56.058 N	103° 37' 25.055 W	
13,170.00	88.40	0.90	9,447.27	3,963.45	25.38	461,153.04	719,372.57	32° 15' 56.997 N	103° 37' 25.033 W	
13,264.00	90.00	0.20	9,448.58	4,057.44	26.28	461,247.03	719,373.48	32° 15' 57.927 N	103° 37' 25.016 W	
13,358.00	91.30	359.50	9,447.52	4,151.43	26.03	461,341.02	719,373.23	32° 15' 58.858 N	103° 37' 25.011 W	
13,453.00	91.40	358.60	9,445.28	4,246.39	24.46	461,435.98	719,371.65	32° 15' 59.797 N	103° 37' 25.022 W	
13,547.00	90.50	357.90	9,443.72	4,340.33	21.59	461,529.92	719,368.78	32° 16' 0.727 N	103° 37' 25.048 W	
13,641.00	88.90	357.10	9,444.21	4,434.23	17.49	461,623.82	719,364.68	32° 16' 1.657 N	103° 37' 25.089 W	
13,783.00	90.40	357.00	9,445.08	4,576.04	10.18	461,765.63	719,357.38	32° 16' 3.060 N	103° 37' 25.163 W	
Final IDS MWD Survey										
13,837.00	90.40	357.00	9,444.70	4,629.96	7.35	461,819.55	719,354.55	32° 16' 3.594 N	103° 37' 25.192 W	
Projection to TD										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
8,921.00	8,919.53	39.04	94.84	First IDS MWD Survey	
13,783.00	9,445.08	4,576.04	10.18	Final IDS MWD Survey	
13,837.00	9,444.70	4,629.96	7.35	Projection to TD	