



HOBBS OCD

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Ascent Energy

Lea County, NM (NAD83)

NE SW Sec. 6 T21S R33E N.M.P.M.

Toque State Com #501H

ST01

Design: ST01

Standard Survey Report

22 October, 2019





Total Directional Services Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	NE SW Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.15 Single User Db

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	NE SW Sec. 6 T21S R33E N.M.P.M.		
Site Position:		Northing:	549,139.90 usft
From:	Map	Easting:	762,985.60 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 30' 27.328963 N
		Longitude:	103° 36' 51.590446 W
		Grid Convergence:	0.39 °

Well	Toque State Com #501H		
Well Position	+N/-S	0.00 usft	Northing: 549,139.90 usft
	+E/-W	0.00 usft	Easting: 763,045.50 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 30' 27.324965 N
		Longitude:	103° 36' 50.890980 W
		Ground Level:	3,794.00 usft

Wellbore	ST01		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	10/7/2019	6.74
			Dip Angle (°)
			60.28
			Field Strength (nT)
			47,861.07107177

Design	ST01		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	14,559.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			180.00

Survey Program	Date 10/22/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
151.00	14,559.00	Survey #1 - MWD (OH)	OWSG (Rev2) MWD
14,856.00	18,331.00	Survey #1 - MWD (ST01)	OWSG (Rev2) MWD
			Description
			OWSG MWD - Standard
			OWSG MWD - Standard

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Bulld Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151.00	0.44	247.70	151.00	-0.22	-0.54	0.22	0.29	0.29	0.00
241.00	0.44	253.41	241.00	-0.45	-1.19	0.45	0.05	0.00	6.34
329.00	0.44	226.52	328.99	-0.78	-1.76	0.78	0.23	0.00	-30.56
417.00	0.35	253.59	416.99	-1.09	-2.26	1.09	0.23	-0.10	30.76
506.00	0.22	246.56	505.99	-1.23	-2.68	1.23	0.15	-0.15	-7.90
594.00	0.22	8.72	593.99	-1.13	-2.81	1.13	0.44	0.00	138.82
690.00	0.31	29.29	689.99	-0.72	-2.65	0.72	0.14	0.09	21.43
783.00	0.22	51.53	782.99	-0.39	-2.39	0.39	0.15	-0.10	23.91
875.00	0.09	101.62	874.99	-0.30	-2.18	0.30	0.19	-0.14	54.45



Total Directional Services

Survey Report



Company: Ascent Energy
 Project: Lea County, NM (NAD83)
 Site: NE SW Sec. 6 T21S R33E N.M.P.M.
 Well: Toque State Com #501H
 Wellbore: ST01
 Design: ST01

Local Co-ordinate Reference: Well Toque State Com #501H
 TVD Reference: GE 3794' + KB 25' @ 3819.00usft (Precision 553)
 MD Reference: GE 3794' + KB 25' @ 3819.00usft (Precision 553)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.15 Single User Db

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)
968.00	0.09	140.12	967.99	-0.37	-2.06	0.37	0.06	0.00	41.40
1,062.00	0.22	162.09	1,061.99	-0.60	-1.96	0.60	0.15	0.14	23.37
1,154.00	0.18	177.74	1,153.99	-0.91	-1.90	0.91	0.07	-0.04	17.01
1,247.00	0.09	207.27	1,246.99	-1.12	-1.93	1.12	0.12	-0.10	31.75
1,340.00	0.09	247.08	1,339.99	-1.21	-2.03	1.21	0.07	0.00	42.81
1,433.00	0.26	190.92	1,432.99	-1.45	-2.13	1.45	0.24	0.18	-60.39
1,526.00	0.09	102.50	1,525.99	-1.67	-2.10	1.67	0.29	-0.18	-95.08
1,595.45	0.05	69.80	1,595.44	-1.67	-2.02	1.67	0.08	-0.06	-47.08
RSTLR									
1,619.00	0.04	45.46	1,618.99	-1.67	-2.01	1.67	0.08	-0.03	-103.36
1,663.00	0.18	135.55	1,662.99	-1.70	-1.95	1.70	0.42	0.32	204.75
1,804.00	0.26	181.96	1,803.98	-2.18	-1.80	2.18	0.13	0.06	32.91
1,896.00	0.18	160.51	1,895.98	-2.53	-1.76	2.53	0.12	-0.09	-23.32
1,928.17	0.22	172.34	1,928.15	-2.64	-1.74	2.64	0.18	0.12	36.77
SALDO									
1,990.00	0.31	185.56	1,989.98	-2.92	-1.74	2.92	0.18	0.15	21.39
2,084.00	0.44	199.45	2,083.98	-3.51	-1.88	3.51	0.17	0.14	14.78
2,176.00	0.48	185.30	2,175.98	-4.23	-2.04	4.23	0.13	0.04	-15.38
2,269.00	0.92	54.95	2,268.97	-4.19	-1.46	4.19	1.38	0.47	-140.16
2,362.00	2.29	43.97	2,361.94	-2.42	0.44	2.42	1.50	1.47	-11.81
2,422.38	3.75	45.96	2,422.23	-0.18	2.70	0.18	2.43	2.42	3.30
VACA_TRISTE_SAND									
2,456.00	4.57	46.52	2,455.76	1.51	4.46	-1.51	2.43	2.43	1.66
2,550.00	6.81	47.13	2,549.29	7.88	11.26	-7.88	2.38	2.38	0.65
2,643.00	8.22	59.17	2,641.50	15.04	21.02	-15.04	2.26	1.52	12.95
2,736.00	9.36	68.49	2,733.41	21.22	33.76	-21.22	1.96	1.23	10.02
2,828.00	10.95	75.96	2,823.97	26.08	49.20	-26.08	2.24	1.73	8.12
2,921.00	11.82	77.63	2,915.14	30.26	67.07	-30.26	1.00	0.94	1.80
3,013.00	11.74	75.87	3,005.20	34.57	85.35	-34.57	0.40	-0.09	-1.91
3,107.00	11.69	75.17	3,097.24	39.34	103.83	-39.34	0.16	-0.05	-0.74
3,201.00	11.74	74.47	3,189.28	44.34	122.25	-44.34	0.16	0.05	-0.74
3,295.00	11.74	75.43	3,281.32	49.30	140.72	-49.30	0.21	0.00	1.02
3,347.82	11.54	75.72	3,333.05	51.96	151.04	-51.96	0.40	-0.38	0.56
BASE_SALADO_SALTS									
3,389.00	11.38	75.96	3,373.41	53.96	158.97	-53.96	0.40	-0.38	0.57
3,440.25	10.90	76.10	3,423.70	56.35	168.58	-56.35	0.94	-0.94	0.27
TANSIL									
3,482.00	10.51	76.22	3,464.72	58.20	176.11	-58.20	0.94	-0.94	0.29
3,576.00	10.02	75.43	3,557.21	62.30	192.35	-62.30	0.54	-0.52	-0.84
3,609.27	9.83	75.65	3,589.98	63.74	197.91	-63.74	0.59	-0.58	0.65
YATES									
3,668.00	9.49	76.05	3,647.88	66.15	207.46	-66.15	0.59	-0.58	0.69
3,760.00	8.92	76.49	3,738.70	69.64	221.76	-69.64	0.62	-0.62	0.48
3,852.00	8.22	76.14	3,829.67	72.88	235.08	-72.88	0.76	-0.76	-0.38



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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)
3,938.59	7.57	77.60	3,915.44	75.59	246.66	-75.59	0.79	-0.75	1.69
CAPITAN_REEF_TOP									
3,945.00	7.52	77.72	3,921.79	75.77	247.48	-75.77	0.79	-0.75	1.84
4,038.00	7.21	73.67	4,014.03	78.70	259.03	-78.70	0.65	-0.33	-4.35
4,132.00	6.24	68.49	4,107.38	82.24	269.44	-82.24	1.22	-1.03	-5.51
4,225.00	5.14	60.75	4,199.92	86.12	277.78	-86.12	1.44	-1.18	-8.32
4,318.00	2.86	68.31	4,292.69	89.02	283.57	-89.02	2.51	-2.45	8.13
4,412.00	0.84	193.38	4,386.65	89.21	285.59	-89.21	3.63	-2.15	133.05
4,502.00	1.76	222.30	4,476.63	87.55	284.51	-87.55	1.22	1.02	32.13
4,595.00	1.01	273.19	4,569.61	86.54	282.73	-86.54	1.47	-0.81	54.72
4,689.00	1.05	301.49	4,663.59	87.04	281.17	-87.04	0.54	0.04	30.11
4,782.00	1.10	296.65	4,756.57	87.88	279.64	-87.88	0.11	0.05	-5.20
4,876.00	0.84	301.93	4,850.56	88.65	278.25	-88.65	0.29	-0.28	5.62
4,970.00	0.79	276.26	4,944.55	89.09	277.02	-89.09	0.39	-0.05	-27.31
5,065.00	0.88	278.37	5,039.54	89.26	275.65	-89.26	0.10	0.09	2.22
5,158.00	0.75	266.86	5,132.53	89.33	274.33	-89.33	0.22	-0.14	-12.38
5,250.00	0.75	296.13	5,224.52	89.57	273.19	-89.57	0.41	0.00	31.82
5,343.00	0.53	283.38	5,317.52	89.93	272.23	-89.93	0.28	-0.24	-13.71
5,436.00	0.75	273.36	5,410.51	90.07	271.20	-90.07	0.26	0.24	-10.77
5,530.00	0.70	290.68	5,504.51	90.31	270.05	-90.31	0.24	-0.05	18.43
5,578.00	0.53	299.29	5,552.50	90.52	269.58	-90.52	0.40	-0.35	17.94
5,631.13	0.52	276.79	5,605.63	90.67	269.13	-90.67	0.39	-0.01	-42.36
TOP_DELAWARE_SAND									
5,714.00	0.66	248.14	5,688.50	90.54	268.31	-90.54	0.39	0.16	-34.57
5,807.00	0.70	242.42	5,781.49	90.07	267.31	-90.07	0.08	0.04	-6.15
5,898.00	0.66	233.99	5,872.48	89.51	266.39	-89.51	0.12	-0.04	-9.26
5,973.43	0.66	242.98	5,947.91	89.06	265.65	-89.06	0.14	0.00	11.91
CHERRY_CANYON									
5,991.00	0.66	245.06	5,965.48	88.97	265.47	-88.97	0.14	0.01	11.87
6,083.00	0.62	240.75	6,057.47	88.50	264.56	-88.50	0.07	-0.04	-4.68
6,176.00	0.62	243.57	6,150.47	88.03	263.67	-88.03	0.03	0.00	3.03
6,268.00	0.53	251.21	6,242.46	87.67	262.82	-87.67	0.13	-0.10	8.30
6,361.00	0.40	257.81	6,335.46	87.47	262.09	-87.47	0.15	-0.14	7.10
6,453.00	0.40	253.59	6,427.46	87.31	261.47	-87.31	0.03	0.00	-4.59
6,545.00	0.44	271.43	6,519.45	87.22	260.81	-87.22	0.15	0.04	19.39
6,638.00	0.40	267.12	6,612.45	87.22	260.13	-87.22	0.05	-0.04	-4.63
6,730.00	0.44	278.99	6,704.45	87.26	259.46	-87.26	0.10	0.04	12.90
6,823.00	0.31	276.70	6,797.45	87.34	258.86	-87.34	0.14	-0.14	-2.46
6,915.00	0.31	266.77	6,889.45	87.36	258.36	-87.36	0.06	0.00	-10.79
7,008.00	0.26	270.37	6,982.44	87.34	257.90	-87.34	0.06	-0.05	3.87
7,083.36	0.19	268.64	7,057.80	87.34	257.60	-87.34	0.09	-0.09	-2.29
BRUSHY_CANYON									
7,100.00	0.18	268.09	7,074.44	87.34	257.54	-87.34	0.09	-0.09	-3.31
7,193.00	0.18	277.67	7,167.44	87.35	257.25	-87.35	0.03	0.00	10.30



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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)
7,285.00	0.13	308.78	7,259.44	87.44	257.03	-87.44	0.10	-0.05	33.82
7,378.00	0.13	215.35	7,352.44	87.42	256.89	-87.42	0.20	0.00	-100.46
7,470.00	0.18	227.57	7,444.44	87.24	256.72	-87.24	0.06	0.05	13.28
7,563.00	0.31	215.44	7,537.44	86.93	256.47	-86.93	0.15	0.14	-13.04
7,655.00	0.40	217.73	7,629.44	86.48	256.12	-86.48	0.10	0.10	2.49
7,748.00	0.35	198.39	7,722.44	85.95	255.84	-85.95	0.15	-0.05	-20.80
7,840.00	0.35	178.53	7,814.44	85.40	255.75	-85.40	0.13	0.00	-21.59
7,933.00	0.26	161.30	7,907.43	84.92	255.83	-84.92	0.14	-0.10	-18.53
8,025.00	0.26	179.06	7,999.43	84.51	255.90	-84.51	0.09	0.00	19.30
8,117.00	0.26	180.99	8,091.43	84.10	255.90	-84.10	0.01	0.00	2.10
8,210.00	0.40	192.06	8,184.43	83.57	255.83	-83.57	0.16	0.15	11.90
8,303.00	0.44	187.58	8,277.43	82.90	255.71	-82.90	0.06	0.04	-4.82
8,395.00	0.48	184.86	8,369.43	82.16	255.63	-82.16	0.05	0.04	-2.96
8,488.00	0.53	177.74	8,462.42	81.34	255.62	-81.34	0.09	0.05	-7.66
8,580.00	0.57	171.50	8,554.42	80.47	255.70	-80.47	0.08	0.04	-6.78
8,672.00	0.66	170.35	8,646.41	79.49	255.86	-79.49	0.10	0.10	-1.25
8,764.00	0.09	348.51	8,738.41	79.04	255.93	-79.04	0.82	-0.62	193.65
8,816.17	0.36	12.83	8,790.58	79.24	255.96	-79.24	0.53	0.51	46.62
BSPG_LIME									
8,857.00	0.57	15.75	8,831.41	79.56	256.04	-79.56	0.53	0.53	7.15
8,949.00	0.44	65.24	8,923.41	80.14	256.49	-80.14	0.48	-0.14	53.79
8,979.35	0.55	98.71	8,953.76	80.17	256.74	-80.17	1.00	0.36	110.27
AVLN									
9,042.00	1.05	127.20	9,016.40	79.78	257.49	-79.78	1.00	0.80	45.48
9,136.00	1.63	145.83	9,110.37	78.15	258.93	-78.15	0.76	0.62	19.82
9,186.81	1.21	138.04	9,161.17	77.16	259.69	-77.16	0.91	-0.83	-15.34
LEONARD_B									
9,230.00	0.88	125.71	9,204.35	76.62	260.27	-76.62	0.91	-0.76	-28.54
9,323.00	0.57	102.41	9,297.34	76.11	261.30	-76.11	0.45	-0.33	-25.05
9,417.00	0.92	54.51	9,391.34	76.45	262.37	-76.45	0.73	0.37	-50.96
9,510.00	1.63	47.57	9,484.31	77.77	263.95	-77.77	0.78	0.76	-7.46
9,603.00	1.36	27.71	9,577.28	79.64	265.44	-79.64	0.62	-0.29	-21.35
9,696.00	1.89	44.58	9,670.24	81.71	267.03	-81.71	0.76	0.57	18.14
9,789.00	2.24	82.90	9,763.19	83.03	269.91	-83.03	1.50	0.38	41.20
9,819.53	1.87	91.76	9,793.70	83.09	271.00	-83.09	1.60	-1.22	29.01
1ST_BSPG_SND									
9,881.00	1.36	122.45	9,855.14	82.66	272.62	-82.66	1.60	-0.82	49.93
9,973.00	1.19	165.43	9,947.12	81.15	273.78	-81.15	1.03	-0.18	46.72
10,065.00	1.01	189.69	10,039.11	79.43	273.88	-79.43	0.54	-0.20	26.37
10,155.78	5.67	158.84	10,129.71	74.45	275.37	-74.45	5.33	5.14	-33.98
2ND_BSPG									
10,164.00	6.11	158.40	10,137.89	73.67	275.68	-73.67	5.33	5.30	-5.37
10,210.00	12.13	162.18	10,183.29	66.78	278.06	-66.78	13.14	13.09	8.22
10,257.00	18.07	163.41	10,228.64	55.09	281.66	-55.09	12.66	12.64	2.62



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Design:	ST01	Database:	EDM 5000.15 Single User Db

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)
10,304.00	21.58	164.03	10,272.85	39.79	286.12	-39.79	7.48	7.47	1.32
10,351.00	23.30	169.56	10,316.30	22.33	290.18	-22.33	5.79	3.66	11.77
10,385.97	24.34	174.17	10,348.29	8.36	292.17	-8.36	6.10	2.98	13.17
2ND_BSPG_SND									
10,397.00	24.70	175.54	10,358.32	3.80	292.58	-3.80	6.10	3.23	12.46
10,444.00	28.62	174.92	10,400.32	-17.21	294.34	17.21	8.36	8.34	-1.32
10,491.00	31.82	176.95	10,440.93	-40.80	295.99	40.80	7.15	6.81	4.32
10,538.00	33.85	178.00	10,480.42	-66.26	297.11	66.26	4.49	4.32	2.23
10,585.00	37.93	178.26	10,518.48	-93.79	298.01	93.79	8.69	8.68	0.55
10,630.00	40.88	182.57	10,553.26	-122.34	297.77	122.34	8.94	6.56	9.58
10,677.00	45.45	181.25	10,587.53	-154.47	296.71	154.47	9.91	9.72	-2.81
10,722.00	46.86	181.60	10,618.70	-186.91	295.90	186.91	3.18	3.13	0.78
10,769.00	49.23	184.50	10,650.13	-221.80	294.03	221.80	6.82	5.04	6.17
10,815.00	55.43	185.20	10,678.22	-258.07	290.94	258.07	13.53	13.48	1.52
10,862.00	60.84	182.66	10,703.03	-297.87	288.23	297.87	12.39	11.51	-5.40
10,908.00	64.84	181.08	10,724.02	-338.77	286.91	338.77	9.22	8.70	-3.43
10,955.00	67.60	180.29	10,742.97	-381.77	286.39	381.77	6.07	5.87	-1.68
11,001.00	71.12	179.67	10,759.19	-424.81	286.41	424.81	7.76	7.65	-1.35
11,048.00	73.80	179.41	10,773.35	-469.62	286.77	469.62	5.73	5.70	-0.55
11,095.00	77.32	180.02	10,785.07	-515.13	287.00	515.13	7.59	7.49	1.30
11,142.00	81.05	180.64	10,793.89	-561.28	286.73	561.28	8.04	7.94	1.32
11,187.00	84.26	181.43	10,799.64	-605.90	285.92	605.90	7.34	7.13	1.76
11,234.00	87.25	182.31	10,803.12	-652.74	284.39	652.74	6.63	6.36	1.87
11,281.00	87.82	182.04	10,805.14	-699.66	282.61	699.66	1.34	1.21	-0.57
11,373.00	88.40	181.25	10,808.17	-791.57	279.97	791.57	1.06	0.63	-0.86
11,466.00	88.00	180.20	10,811.09	-884.52	278.80	884.52	1.21	-0.43	-1.13
11,560.00	87.82	181.52	10,814.52	-978.44	277.39	978.44	1.42	-0.19	1.40
11,654.00	89.89	180.20	10,816.40	-1,072.41	275.98	1,072.41	2.61	2.20	-1.40
11,745.00	88.31	179.67	10,817.83	-1,163.39	276.08	1,163.39	1.83	-1.74	-0.58
11,840.00	91.30	179.50	10,818.15	-1,258.38	276.77	1,258.38	3.15	3.15	-0.18
11,932.00	91.16	179.14	10,816.18	-1,350.35	277.86	1,350.35	0.42	-0.15	-0.39
12,025.00	89.32	179.50	10,815.79	-1,443.34	278.96	1,443.34	2.02	-1.98	0.39
12,118.00	89.93	179.14	10,816.40	-1,536.33	280.07	1,536.33	0.76	0.66	-0.39
12,210.00	86.46	181.16	10,819.29	-1,628.26	279.83	1,628.26	4.36	-3.77	2.20
12,302.00	86.55	180.73	10,824.90	-1,720.08	278.31	1,720.08	0.48	0.10	-0.47
12,394.00	85.80	180.20	10,831.04	-1,811.87	277.57	1,811.87	1.00	-0.82	-0.58
12,487.00	87.74	180.90	10,836.28	-1,904.71	276.67	1,904.71	2.22	2.09	0.75
12,609.00	90.20	180.29	10,838.47	-2,026.68	275.41	2,026.68	2.08	2.02	-0.50
12,703.00	91.82	180.11	10,836.82	-2,120.66	275.08	2,120.66	1.73	1.72	-0.19
12,796.00	91.08	181.78	10,834.46	-2,213.61	273.55	2,213.61	1.96	-0.80	1.80
12,889.00	89.71	182.66	10,833.82	-2,306.54	269.94	2,306.54	1.75	-1.47	0.95
12,982.00	88.22	181.69	10,835.50	-2,399.45	266.42	2,399.45	1.91	-1.60	-1.04
13,075.00	89.23	181.34	10,837.57	-2,492.40	263.96	2,492.40	1.15	1.09	-0.38
13,167.00	90.37	181.87	10,837.89	-2,584.36	261.38	2,584.36	1.37	1.24	0.58



Total Directional Services Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	NE SW Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.15 Single User Db

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)
13,260.00	92.18	181.96	10,835.82	-2,677.28	258.27	2,677.28	1.95	1.95	0.10
13,354.00	90.51	181.16	10,833.62	-2,771.21	255.72	2,771.21	1.97	-1.78	-0.85
13,447.00	91.87	181.25	10,831.68	-2,864.17	253.76	2,864.17	1.47	1.46	0.10
13,540.00	91.82	180.46	10,828.69	-2,957.11	252.37	2,957.11	0.85	-0.05	-0.85
13,633.00	93.10	180.29	10,824.70	-3,050.02	251.77	3,050.02	1.39	1.38	-0.18
13,726.00	92.09	180.29	10,820.49	-3,142.92	251.30	3,142.92	1.09	-1.09	0.00
13,817.00	90.95	179.23	10,818.07	-3,233.89	251.68	3,233.89	1.71	-1.25	-1.16
13,911.00	92.75	179.23	10,815.04	-3,327.83	252.94	3,327.83	1.91	1.91	0.00
14,003.00	92.18	178.88	10,811.08	-3,419.73	254.46	3,419.73	0.73	-0.62	-0.38
14,096.00	91.56	179.67	10,808.05	-3,512.67	255.63	3,512.67	1.08	-0.67	0.85
14,189.00	93.23	179.85	10,804.16	-3,605.58	256.02	3,605.58	1.81	1.80	0.19
14,282.00	91.56	179.93	10,800.28	-3,698.50	256.20	3,698.50	1.80	-1.80	0.09
14,374.00	93.19	179.76	10,796.46	-3,790.42	256.45	3,790.42	1.78	1.77	-0.18
14,467.00	92.53	179.85	10,791.82	-3,883.30	256.76	3,883.30	0.72	-0.71	0.10
14,559.00	91.25	179.67	10,788.79	-3,975.25	257.15	3,975.25	1.40	-1.39	-0.20
Sidetrack Tie-In									
14,656.00	88.70	178.00	10,788.83	-4,072.22	259.12	4,072.22	3.14	-2.63	-1.72
14,687.00	88.75	176.95	10,789.52	-4,103.18	260.49	4,103.18	3.39	0.16	-3.39
14,719.00	88.92	176.68	10,790.17	-4,135.12	262.26	4,135.12	1.00	0.53	-0.84
14,751.00	89.23	176.59	10,790.69	-4,167.06	264.14	4,167.06	1.01	0.97	-0.28
14,798.00	89.93	176.33	10,791.03	-4,213.97	267.04	4,213.97	1.59	1.49	-0.55
14,845.00	90.73	176.33	10,790.76	-4,260.87	270.05	4,260.87	1.70	1.70	0.00
14,876.00	91.03	176.33	10,790.29	-4,291.81	272.04	4,291.81	0.97	0.97	0.00
14,906.00	90.33	176.16	10,789.93	-4,321.74	274.00	4,321.74	2.40	-2.33	-0.57
14,938.00	88.92	176.07	10,790.14	-4,353.67	276.17	4,353.67	4.42	-4.41	-0.28
14,969.00	87.08	176.24	10,791.22	-4,384.58	278.25	4,384.58	5.96	-5.94	0.55
14,999.00	86.29	176.68	10,792.96	-4,414.47	280.10	4,414.47	3.01	-2.63	1.47
15,030.00	86.99	177.03	10,794.77	-4,445.37	281.79	4,445.37	2.52	2.26	1.13
15,060.00	87.30	177.03	10,796.27	-4,475.29	283.35	4,475.29	1.03	1.03	0.00
15,092.00	87.96	176.59	10,797.59	-4,507.21	285.12	4,507.21	2.48	2.06	-1.38
15,123.00	88.97	176.77	10,798.42	-4,538.15	286.92	4,538.15	3.31	3.26	0.58
15,153.00	89.80	176.86	10,798.74	-4,568.10	288.59	4,568.10	2.78	2.77	0.30
15,185.00	90.24	177.12	10,798.73	-4,600.06	290.27	4,600.06	1.60	1.38	0.81
15,216.00	90.24	177.91	10,798.60	-4,631.03	291.61	4,631.03	2.55	0.00	2.55
15,246.00	89.76	178.88	10,798.60	-4,661.01	292.45	4,661.01	3.61	-1.60	3.23
15,278.00	89.80	179.32	10,798.72	-4,693.01	292.95	4,693.01	1.38	0.13	1.38
15,308.00	90.11	180.20	10,798.75	-4,723.01	293.08	4,723.01	3.11	1.03	2.93
15,354.00	91.16	181.87	10,798.24	-4,769.00	292.25	4,769.00	4.29	2.28	3.63
15,400.00	91.47	182.22	10,797.18	-4,814.96	290.61	4,814.96	1.02	0.67	0.76
15,446.00	91.78	182.57	10,795.88	-4,860.90	288.69	4,860.90	1.02	0.67	0.76
15,492.00	90.37	181.16	10,795.02	-4,906.86	287.19	4,906.86	4.33	-3.07	-3.07
15,538.00	90.11	179.67	10,794.82	-4,952.86	286.86	4,952.86	3.29	-0.57	-3.24
15,585.00	90.55	180.02	10,794.55	-4,999.86	286.98	4,999.86	1.20	0.94	0.74



Total Directional Services Survey Report



Company: Ascent Energy
Project: Lea County, NM (NAD83)
Site: NE SW Sec. 6 T21S R33E N.M.P.M.
Well: Toque State Com #501H
Wellbore: ST01
Design: ST01

Local Co-ordinate Reference: Well Toque State Com #501H
TVD Reference: GE 3794' + KB 25' @ 3819.00usft (Precision 553)
MD Reference: GE 3794' + KB 25' @ 3819.00usft (Precision 553)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.15 Single User Db

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)
15,632.00	91.03	180.90	10,793.90	-5,046.85	286.61	5,046.85	2.13	1.02	1.87
15,679.00	91.47	181.16	10,792.88	-5,093.83	285.76	5,093.83	1.09	0.94	0.55
15,725.00	91.87	181.52	10,791.54	-5,139.80	284.69	5,139.80	1.17	0.87	0.78
15,771.00	90.51	181.52	10,790.58	-5,185.77	283.47	5,185.77	2.96	-2.96	0.00
15,817.00	89.85	181.43	10,790.44	-5,231.76	282.28	5,231.76	1.45	-1.43	-0.20
15,863.00	90.68	181.78	10,790.23	-5,277.74	280.99	5,277.74	1.96	1.80	0.76
15,957.00	89.45	181.08	10,790.12	-5,371.71	278.65	5,371.71	1.51	-1.31	-0.74
16,051.00	89.98	181.08	10,790.59	-5,465.69	276.88	5,465.69	0.56	0.56	0.00
16,145.00	90.95	181.16	10,789.82	-5,559.67	275.04	5,559.67	1.04	1.03	0.09
16,239.00	90.42	181.87	10,788.70	-5,653.63	272.55	5,653.63	0.94	-0.56	0.76
16,331.00	89.89	180.90	10,788.45	-5,745.60	270.33	5,745.60	1.20	-0.58	-1.05
16,422.00	89.27	180.90	10,789.12	-5,836.58	268.90	5,836.58	0.68	-0.68	0.00
16,517.00	89.54	181.16	10,790.10	-5,931.56	267.19	5,931.56	0.39	0.28	0.27
16,610.00	89.27	181.25	10,791.07	-6,024.54	265.24	6,024.54	0.31	-0.29	0.10
16,703.00	88.31	180.29	10,793.03	-6,117.51	263.99	6,117.51	1.46	-1.03	-1.03
16,797.00	89.01	180.11	10,795.23	-6,211.48	263.66	6,211.48	0.77	0.74	-0.19
16,890.00	88.35	180.02	10,797.37	-6,304.45	263.55	6,304.45	0.72	-0.71	-0.10
16,982.00	88.57	179.23	10,799.85	-6,396.42	264.16	6,396.42	0.89	0.24	-0.86
17,075.00	89.36	179.14	10,801.53	-6,489.39	265.48	6,489.39	0.85	0.85	-0.10
17,167.00	90.37	178.79	10,801.74	-6,581.38	267.14	6,581.38	1.16	1.10	-0.38
17,260.00	91.16	178.53	10,800.50	-6,674.34	269.32	6,674.34	0.89	0.85	-0.28
17,353.00	91.52	178.44	10,798.33	-6,767.28	271.77	6,767.28	0.40	0.39	-0.10
17,446.00	91.08	178.62	10,796.22	-6,860.23	274.16	6,860.23	0.51	-0.47	0.19
17,540.00	91.21	178.97	10,794.34	-6,954.19	276.13	6,954.19	0.40	0.14	0.37
17,633.00	91.08	179.14	10,792.48	-7,047.16	277.67	7,047.16	0.23	-0.14	0.18
17,726.00	90.42	178.44	10,791.26	-7,140.13	279.63	7,140.13	1.03	-0.71	-0.75
17,818.00	89.27	178.97	10,791.51	-7,232.10	281.71	7,232.10	1.38	-1.25	0.58
17,911.00	90.15	179.06	10,791.98	-7,325.09	283.31	7,325.09	0.95	0.95	0.10
18,005.00	89.63	178.79	10,792.16	-7,419.07	285.07	7,419.07	0.62	-0.55	-0.29
18,098.00	89.19	178.88	10,793.12	-7,512.04	286.96	7,512.04	0.48	-0.47	0.10
18,192.00	89.49	178.26	10,794.20	-7,606.01	289.31	7,606.01	0.73	0.32	-0.66
18,276.00	89.27	177.39	10,795.11	-7,689.94	292.50	7,689.94	1.07	-0.26	-1.04
Last Survey									
18,281.29	89.27	177.39	10,795.18	-7,695.23	292.74	7,695.23	0.00	0.00	0.00
100' FSL Setback Crossing									
18,331.00	89.27	177.39	10,795.81	-7,744.88	295.00	7,744.88	0.00	0.00	0.00
Projection to TD									



Total Directional Services Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	NE SW Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.15 Single User Db

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,730.00	1,729.98	13 3/8"	13-3/8	17-1/2
5,645.00	5,619.50	9 5/8"	9-5/8	12-1/4

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
1,595.45	1,595.44	RSTLR		0.00	180.00
1,928.17	1,928.15	SALDO		0.00	180.00
2,422.38	2,422.23	VACA_TRISTE_SAND		0.00	180.00
3,347.82	3,333.05	BASE_SALADO_SALTS		0.00	180.00
3,440.25	3,423.70	TANSIL		0.00	180.00
3,609.27	3,589.98	YATES		0.00	180.00
3,938.59	3,915.44	CAPITAN_REEF_TOP		0.00	180.00
5,631.13	5,605.63	TOP_DELAWARE_SAND		0.00	180.00
5,973.43	5,947.91	CHERRY_CANYON		0.00	180.00
7,083.36	7,057.80	BRUSHY_CANYON		0.00	180.00
8,816.17	8,790.58	BSPG_LIME		0.00	180.00
8,979.35	8,953.76	AVLN		0.00	180.00
9,186.81	9,161.17	LEONARD_B		0.00	180.00
9,819.53	9,793.70	1ST_BSPG_SND		0.00	180.00
10,155.78	10,129.71	2ND_BSPG		0.00	180.00
10,385.97	10,348.29	2ND_BSPG_SND		0.00	180.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
14,559.00	10,788.79	-3,975.25	257.15	Sidetrack Tie-In
18,276.00	10,795.11	-7,689.94	292.50	Last Survey
18,281.29	10,795.18	-7,695.23	292.74	100' FSL Setback Crossing
18,331.00	10,795.81	-7,744.88	295.00	Projection to TD

Checked By: _____ Approved By: _____ Date: _____



Total Directional
Services, LLC

USA Operations

MWD Survey Certification

Lea County, NM

Client: Ascent Energy

Well Name: Toque State Com 501H

Total Job No: 2019-442-553

API No: 30-025-44148

Start Depth: 0' feet MD

End Depth: 18331' feet MD

Start Date: September 6, 2019

End Date: October 21, 2019

HOBBS OCD
FEB 14 2020
RECEIVED

I, Tyson Rellergert, certify that; I am employed by Total Directional Services, LLC. On 9/6/2019 through 10/21/2019, we conducted or supervised the taking of the MWD surveys from a measured depth of 0 feet to a measured depth of 18331 feet. The data is true, correct, complete and within the limitations of the tool as set forth by Total Directional Services, LLC. I am authorized and qualified to make this report and this/these survey(s) was/were conducted at the request of Ascent Energy for the well Toque State Com 501H, API No: 30-025-44148 in Lea County, NM. I have reviewed this report and find that it conforms to the principals and procedures as set forth by Total Directional Services, LLC.

Tyson Rellergert 10/21/2019



Project: Lea County, NM (NAD83)
Site: Sec. 6 T21S R33E N.M.P.M.
Well: Toque State Com #501H
Wellbore: ST01
Design: Surveys



Azimuths to True North
Magnetic North: 6.74°
Magnetic Field
Strength: 47881.1nT
Dip Angle: 60.38°
Date: 10/7/2019
Model: IGRF2015

ACTUAL ANNOTATIONS (OH)

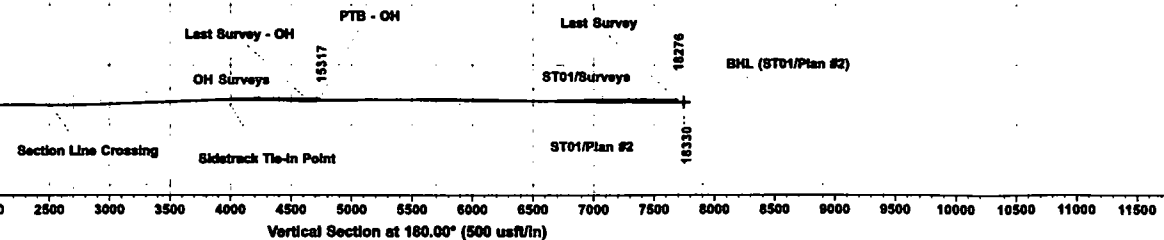
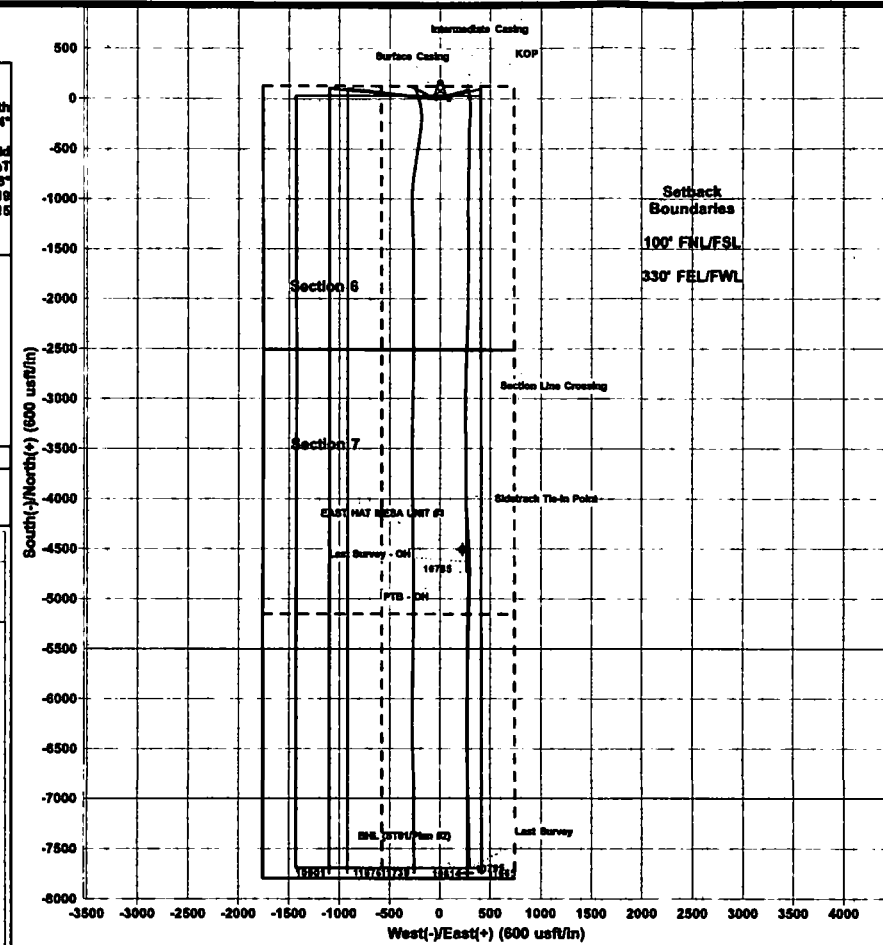
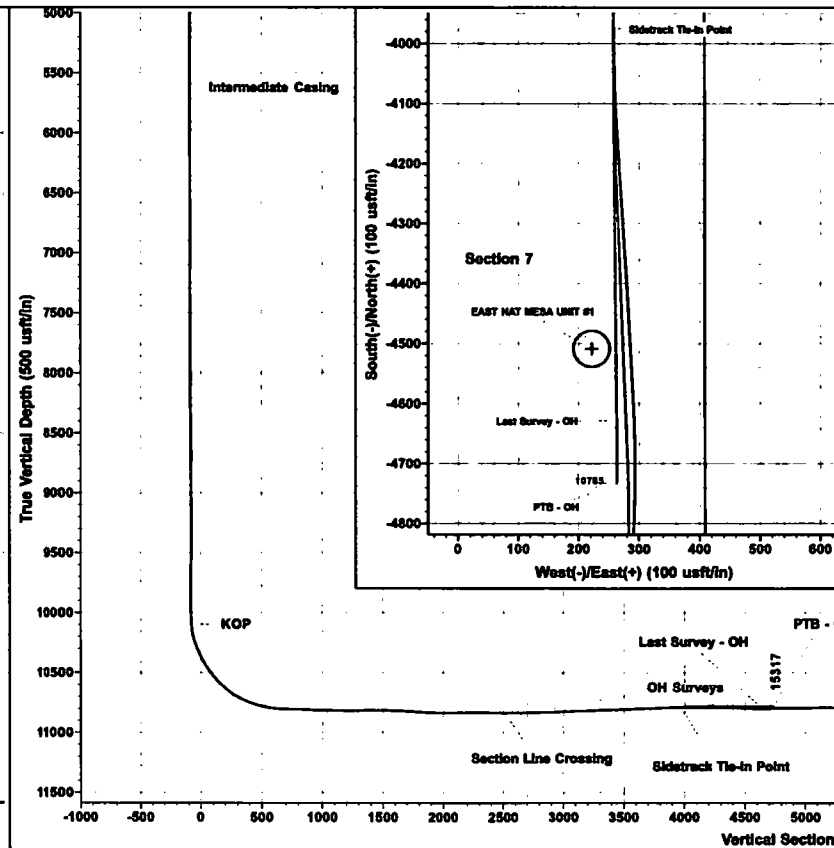
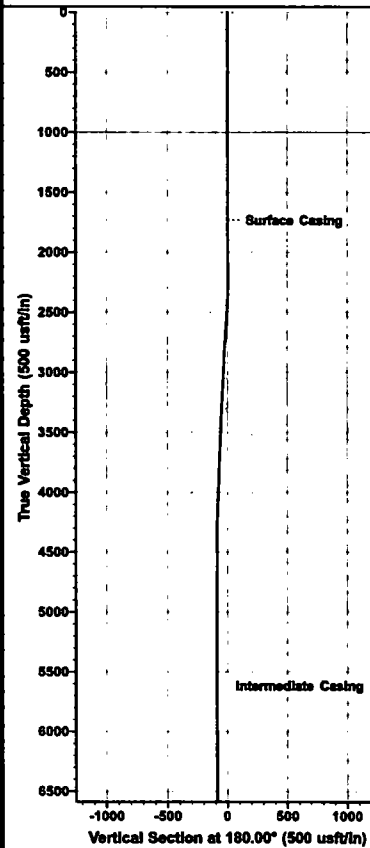
MD	Inc	Azi	TVD	+N/-S	+E/-W	V8ect	Dep	Annotation
1730.00	0.20	162.03	1729.98	-1.89	-1.84	1.89	6.56	Surface Casing
5843.00	0.54	271.12	5619.50	90.68	269.00	-90.68	335.38	Intermediate Casing
10125.00	4.05	161.33	10099.04	76.90	274.47	-76.90	387.50	KOP
13097.68	89.51	181.47	10837.82	-2818.03	263.40	2818.03	2991.80	Section Line Crossing
16212.00	89.85	179.85	10784.52	-4628.03	282.31	4628.03	5095.00	Last Survey
16317.00	89.85	179.85	10784.80	-4733.03	282.58	4733.03	6200.00	PTB

ACTUAL ANNOTATIONS (ST01)

MD	Inc	Azi	TVD	+N/-S	+E/-W	V8ect	Dep	Annotation
14559.00	91.25	179.67	10788.79	-3978.25	257.15	3978.25	4442.19	Sidetrack Tie-In Point
16276.00	89.27	177.39	10795.11	-7689.94	292.50	7689.94	8158.58	Last Survey

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL (TOQUE STATE COM #501H)	10814.00	-7745.72	270.49	541396.45	763368.23	32° 28' 10.683107 N	103° 35' 47.732940 W





Ascent Energy

**Lea County, NM (NAD83)
Sec. 6 T21S R33E N.M.P.M.
Toque State Com #501H**

ST01

Design: Surveys

Standard Survey Report

21 October, 2019





Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Sec. 6 T21S R33E N.M.P.M.				
Site Position:		Northing:	549,139.90 usft	Latitude:	32° 30' 27.328963 N
From:	Map	Easting:	762,985.60 usft	Longitude:	103° 36' 51.590446 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.39 °

Well	Toque State Com #501H					
Well Position	+N/-S	0.00 usft	Northing:	549,139.90 usft	Latitude:	32° 30' 27.324965 N
	+E/-W	0.00 usft	Easting:	763,045.50 usft	Longitude:	103° 36' 50.890980 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,794.00 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/7/2019	6.74	60.28	47,861.07107177

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	14,559.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	180.00	

Survey Program	Date 10/21/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
151.00	14,559.00	Survey #1 - Total MWD Surveys (OH)	OWSG (Rev2) MWD	OWSG MWD - Standard
14,656.00	18,276.00	Survey #1 - Total MWD Surveys (ST01)	OWSG (Rev2) MWD	OWSG MWD - Standard

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
151.00	0.44	247.70	151.00	-0.22	-0.54	0.22	0.29	0.29	0.00
241.00	0.44	253.41	241.00	-0.45	-1.19	0.45	0.05	0.00	6.34
329.00	0.44	226.52	328.99	-0.78	-1.76	0.78	0.23	0.00	-30.56
417.00	0.35	253.59	416.99	-1.09	-2.26	1.09	0.23	-0.10	30.76
508.00	0.22	246.56	505.99	-1.23	-2.68	1.23	0.15	-0.15	-7.90
594.00	0.22	8.72	593.99	-1.13	-2.81	1.13	0.44	0.00	138.82
690.00	0.31	29.29	689.99	-0.72	-2.65	0.72	0.14	0.09	21.43
783.00	0.22	51.53	782.99	-0.39	-2.39	0.39	0.15	-0.10	23.91
875.00	0.09	101.62	874.99	-0.30	-2.18	0.30	0.19	-0.14	54.45



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
968.00	0.09	140.12	967.99	-0.37	-2.06	0.37	0.06	0.00	41.40
1,062.00	0.22	162.09	1,061.99	-0.60	-1.96	0.60	0.15	0.14	23.37
1,154.00	0.18	177.74	1,153.99	-0.91	-1.90	0.91	0.07	-0.04	17.01
1,247.00	0.09	207.27	1,246.99	-1.12	-1.93	1.12	0.12	-0.10	31.75
1,340.00	0.09	247.08	1,339.99	-1.21	-2.03	1.21	0.07	0.00	42.81
1,433.00	0.26	190.92	1,432.99	-1.45	-2.13	1.45	0.24	0.18	-60.39
1,526.00	0.09	102.50	1,525.99	-1.67	-2.10	1.67	0.29	-0.18	-95.08
1,619.00	0.04	45.48	1,618.99	-1.67	-2.01	1.67	0.08	-0.05	-61.33
1,663.00	0.18	135.55	1,662.99	-1.70	-1.95	1.70	0.42	0.32	204.75
1,804.00	0.26	181.96	1,803.98	-2.18	-1.80	2.18	0.13	0.06	32.91
1,896.00	0.18	160.51	1,895.98	-2.53	-1.76	2.53	0.12	-0.09	-23.32
1,990.00	0.31	185.56	1,989.98	-2.92	-1.74	2.92	0.18	0.14	26.65
2,084.00	0.44	199.45	2,083.98	-3.51	-1.88	3.51	0.17	0.14	14.78
2,176.00	0.48	185.30	2,175.98	-4.23	-2.04	4.23	0.13	0.04	-15.38
2,269.00	0.92	54.95	2,268.97	-4.19	-1.46	4.19	1.38	0.47	-140.16
2,362.00	2.29	43.97	2,361.94	-2.42	0.44	2.42	1.50	1.47	-11.81
2,456.00	4.57	46.52	2,455.76	1.51	4.46	-1.51	2.43	2.43	2.71
2,550.00	6.81	47.13	2,549.29	7.88	11.26	-7.88	2.38	2.38	0.65
2,643.00	8.22	59.17	2,641.50	15.04	21.02	-15.04	2.26	1.52	12.95
2,736.00	9.36	68.49	2,733.41	21.22	33.76	-21.22	1.96	1.23	10.02
2,828.00	10.95	75.96	2,823.97	26.08	49.20	-26.08	2.24	1.73	8.12
2,921.00	11.82	77.63	2,915.14	30.26	67.07	-30.26	1.00	0.94	1.80
3,013.00	11.74	75.87	3,005.20	34.57	85.35	-34.57	0.40	-0.09	-1.91
3,107.00	11.69	75.17	3,097.24	39.34	103.83	-39.34	0.16	-0.05	-0.74
3,201.00	11.74	74.47	3,189.28	44.34	122.25	-44.34	0.16	0.05	-0.74
3,295.00	11.74	75.43	3,281.32	49.30	140.72	-49.30	0.21	0.00	1.02
3,389.00	11.38	75.96	3,373.41	53.96	158.97	-53.96	0.40	-0.38	0.56
3,482.00	10.51	76.22	3,464.72	58.20	176.11	-58.20	0.94	-0.94	0.28
3,576.00	10.02	75.43	3,557.21	62.30	192.35	-62.30	0.54	-0.52	-0.84
3,668.00	9.49	76.05	3,647.88	66.15	207.46	-66.15	0.59	-0.58	0.67
3,760.00	8.92	76.49	3,738.70	69.64	221.76	-69.64	0.62	-0.62	0.48
3,852.00	8.22	76.14	3,829.67	72.88	235.08	-72.88	0.76	-0.76	-0.38
3,945.00	7.52	77.72	3,921.79	75.77	247.48	-75.77	0.79	-0.75	1.70
4,038.00	7.21	73.67	4,014.03	78.70	259.03	-78.70	0.65	-0.33	-4.35
4,132.00	6.24	68.49	4,107.38	82.24	269.44	-82.24	1.22	-1.03	-5.51
4,225.00	5.14	60.75	4,199.92	86.12	277.78	-86.12	1.44	-1.18	-8.32
4,318.00	2.86	68.31	4,292.69	89.02	283.57	-89.02	2.51	-2.45	8.13
4,412.00	0.84	193.38	4,386.65	89.21	285.59	-89.21	3.63	-2.15	133.05
4,502.00	1.76	222.30	4,476.63	87.55	284.51	-87.55	1.22	1.02	32.13
4,595.00	1.01	273.19	4,569.61	86.54	282.73	-86.54	1.47	-0.81	54.72
4,689.00	1.05	301.49	4,663.59	87.04	281.17	-87.04	0.54	0.04	30.11
4,782.00	1.10	296.65	4,756.57	87.88	279.64	-87.88	0.11	0.05	-5.20
4,876.00	0.84	301.93	4,850.56	88.65	278.25	-88.65	0.29	-0.28	5.62



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
4,970.00	0.79	276.26	4,944.55	89.09	277.02	-89.09	0.39	-0.05	-27.31
5,065.00	0.88	278.37	5,039.54	89.26	275.65	-89.26	0.10	0.09	2.22
5,158.00	0.75	266.86	5,132.53	89.33	274.33	-89.33	0.22	-0.14	-12.38
5,250.00	0.75	296.13	5,224.52	89.57	273.19	-89.57	0.41	0.00	31.82
5,343.00	0.53	283.38	5,317.52	89.93	272.23	-89.93	0.28	-0.24	-13.71
5,436.00	0.75	273.36	5,410.51	90.07	271.20	-90.07	0.26	0.24	-10.77
5,530.00	0.70	290.68	5,504.51	90.31	270.05	-90.31	0.24	-0.05	18.43
5,578.00	0.53	299.29	5,552.50	90.52	269.58	-90.52	0.40	-0.35	17.94
5,714.00	0.66	248.14	5,688.50	90.54	268.31	-90.54	0.39	0.10	-37.61
5,807.00	0.70	242.42	5,781.49	90.07	267.31	-90.07	0.08	0.04	-6.15
5,898.00	0.66	233.99	5,872.48	89.51	266.39	-89.51	0.12	-0.04	-9.26
5,991.00	0.66	245.06	5,965.48	88.97	265.47	-88.97	0.14	0.00	11.90
6,083.00	0.62	240.75	6,057.47	88.50	264.56	-88.50	0.07	-0.04	-4.68
6,176.00	0.62	243.57	6,150.47	88.03	263.67	-88.03	0.03	0.00	3.03
6,268.00	0.53	251.21	6,242.46	87.67	262.82	-87.67	0.13	-0.10	8.30
6,361.00	0.40	257.81	6,335.46	87.47	262.09	-87.47	0.15	-0.14	7.10
6,453.00	0.40	253.59	6,427.46	87.31	261.47	-87.31	0.03	0.00	-4.59
6,545.00	0.44	271.43	6,519.45	87.22	260.81	-87.22	0.15	0.04	19.39
6,638.00	0.40	267.12	6,612.45	87.22	260.13	-87.22	0.05	-0.04	-4.63
6,730.00	0.44	278.99	6,704.45	87.26	259.46	-87.26	0.10	0.04	12.90
6,823.00	0.31	276.70	6,797.45	87.34	258.86	-87.34	0.14	-0.14	-2.46
6,915.00	0.31	266.77	6,889.45	87.36	258.36	-87.36	0.06	0.00	-10.79
7,008.00	0.26	270.37	6,982.44	87.34	257.90	-87.34	0.06	-0.05	3.87
7,100.00	0.18	268.09	7,074.44	87.34	257.54	-87.34	0.09	-0.09	-2.48
7,193.00	0.18	277.67	7,167.44	87.35	257.25	-87.35	0.03	0.00	10.30
7,285.00	0.13	308.78	7,259.44	87.44	257.03	-87.44	0.10	-0.05	33.82
7,378.00	0.13	215.35	7,352.44	87.42	256.89	-87.42	0.20	0.00	-100.46
7,470.00	0.18	227.57	7,444.44	87.24	256.72	-87.24	0.06	0.05	13.28
7,563.00	0.31	215.44	7,537.44	86.93	256.47	-86.93	0.15	0.14	-13.04
7,655.00	0.40	217.73	7,629.44	86.48	256.12	-86.48	0.10	0.10	2.49
7,748.00	0.35	198.39	7,722.44	85.95	255.84	-85.95	0.15	-0.05	-20.80
7,840.00	0.35	178.53	7,814.44	85.40	255.75	-85.40	0.13	0.00	-21.59
7,933.00	0.26	161.30	7,907.43	84.92	255.83	-84.92	0.14	-0.10	-18.53
8,025.00	0.26	179.06	7,999.43	84.51	255.90	-84.51	0.09	0.00	19.30
8,117.00	0.26	180.99	8,091.43	84.10	255.90	-84.10	0.01	0.00	2.10
8,210.00	0.40	192.06	8,184.43	83.57	255.83	-83.57	0.16	0.15	11.90
8,303.00	0.44	187.58	8,277.43	82.90	255.71	-82.90	0.06	0.04	-4.82
8,395.00	0.48	184.86	8,369.43	82.16	255.63	-82.16	0.05	0.04	-2.96
8,488.00	0.53	177.74	8,462.42	81.34	255.62	-81.34	0.09	0.05	-7.66
8,580.00	0.57	171.50	8,554.42	80.47	255.70	-80.47	0.08	0.04	-6.78
8,672.00	0.66	170.35	8,646.41	79.49	255.86	-79.49	0.10	0.10	-1.25
8,764.00	0.09	348.51	8,738.41	79.04	255.93	-79.04	0.82	-0.62	193.65
8,857.00	0.57	15.75	8,831.41	79.56	256.04	-79.56	0.53	0.52	29.29



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
8,949.00	0.44	65.24	8,923.41	80.14	256.49	-80.14	0.48	-0.14	53.79
9,042.00	1.05	127.20	9,016.40	79.78	257.49	-79.78	1.00	0.66	66.62
9,136.00	1.63	145.83	9,110.37	78.15	258.93	-78.15	0.76	0.62	19.82
9,230.00	0.88	125.71	9,204.35	76.62	260.27	-76.62	0.91	-0.80	-21.40
9,323.00	0.57	102.41	9,297.34	76.11	261.30	-76.11	0.45	-0.33	-25.05
9,417.00	0.92	54.51	9,391.34	76.45	262.37	-76.45	0.73	0.37	-50.96
9,510.00	1.63	47.57	9,484.31	77.77	263.95	-77.77	0.78	0.76	-7.46
9,603.00	1.36	27.71	9,577.28	79.64	265.44	-79.64	0.62	-0.29	-21.35
9,696.00	1.89	44.58	9,670.24	81.71	267.03	-81.71	0.76	0.57	18.14
9,789.00	2.24	82.90	9,763.19	83.03	269.91	-83.03	1.50	0.38	41.20
9,881.00	1.36	122.45	9,855.14	82.66	272.62	-82.66	1.60	-0.96	42.99
9,973.00	1.19	165.43	9,947.12	81.15	273.78	-81.15	1.03	-0.18	46.72
10,065.00	1.01	189.69	10,039.11	79.43	273.88	-79.43	0.54	-0.20	26.37
10,164.00	6.11	158.40	10,137.89	73.67	275.68	-73.67	5.33	5.15	-31.61
10,210.00	12.13	162.18	10,183.29	68.78	278.06	-68.78	13.14	13.09	8.22
10,257.00	18.07	163.41	10,228.64	55.09	281.66	-55.09	12.66	12.64	2.62
10,304.00	21.58	164.03	10,272.85	39.79	286.12	-39.79	7.48	7.47	1.32
10,351.00	23.30	169.56	10,316.30	22.33	290.18	-22.33	5.79	3.66	11.77
10,397.00	24.70	175.54	10,358.32	3.80	292.58	-3.80	6.10	3.04	13.00
10,444.00	28.62	174.92	10,400.32	-17.21	294.34	17.21	8.36	8.34	-1.32
10,491.00	31.82	176.95	10,440.93	-40.80	295.99	40.80	7.15	6.81	4.32
10,538.00	33.85	178.00	10,480.42	-66.26	297.11	66.26	4.49	4.32	2.23
10,585.00	37.93	178.26	10,518.48	-93.79	298.01	93.79	8.69	8.68	0.55
10,630.00	40.88	182.57	10,553.26	-122.34	297.77	122.34	8.94	6.56	9.58
10,677.00	45.45	181.25	10,587.53	-154.47	296.71	154.47	9.91	9.72	-2.81
10,722.00	46.86	181.60	10,618.70	-186.91	295.90	186.91	3.18	3.13	0.78
10,769.00	49.23	184.50	10,650.13	-221.80	294.03	221.80	6.82	5.04	6.17
10,815.00	55.43	185.20	10,678.22	-258.07	290.94	258.07	13.53	13.48	1.52
10,862.00	60.84	182.66	10,703.03	-297.87	288.23	297.87	12.39	11.51	-5.40
10,908.00	64.84	181.08	10,724.02	-338.77	286.91	338.77	9.22	8.70	-3.43
10,955.00	67.60	180.29	10,742.97	-381.77	286.39	381.77	6.07	5.87	-1.68
11,001.00	71.12	179.67	10,759.19	-424.81	286.41	424.81	7.76	7.65	-1.35
11,048.00	73.80	179.41	10,773.35	-469.62	286.77	469.62	5.73	5.70	-0.55
11,095.00	77.32	180.02	10,785.07	-515.13	287.00	515.13	7.59	7.49	1.30
11,142.00	81.05	180.64	10,793.89	-561.28	286.73	561.28	8.04	7.94	1.32
11,187.00	84.26	181.43	10,799.64	-605.90	285.92	605.90	7.34	7.13	1.76
11,234.00	87.25	182.31	10,803.12	-652.74	284.39	652.74	6.63	6.36	1.87
11,281.00	87.82	182.04	10,805.14	-699.66	282.61	699.66	1.34	1.21	-0.57
11,373.00	88.40	181.25	10,808.17	-791.57	279.97	791.57	1.06	0.63	-0.86
11,466.00	88.00	180.20	10,811.09	-884.52	278.80	884.52	1.21	-0.43	-1.13
11,560.00	87.82	181.52	10,814.52	-978.44	277.39	978.44	1.42	-0.19	1.40
11,654.00	89.89	180.20	10,816.40	-1,072.41	275.98	1,072.41	2.61	2.20	-1.40
11,745.00	88.31	179.67	10,817.83	-1,163.39	276.08	1,163.39	1.83	-1.74	-0.58
11,840.00	91.30	179.50	10,818.15	-1,258.38	276.77	1,258.38	3.15	3.15	-0.18



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
11,932.00	91.16	179.14	10,816.18	-1,350.35	277.86	1,350.35	0.42	-0.15	-0.39
12,025.00	89.32	179.50	10,815.79	-1,443.34	278.96	1,443.34	2.02	-1.98	0.39
12,118.00	89.93	179.14	10,816.40	-1,536.33	280.07	1,536.33	0.76	0.66	-0.39
12,210.00	86.46	181.16	10,819.29	-1,628.26	279.83	1,628.26	4.36	-3.77	2.20
12,302.00	86.55	180.73	10,824.90	-1,720.08	278.31	1,720.08	0.48	0.10	-0.47
12,394.00	85.80	180.20	10,831.04	-1,811.87	277.57	1,811.87	1.00	-0.82	-0.58
12,487.00	87.74	180.90	10,836.28	-1,904.71	276.67	1,904.71	2.22	2.09	0.75
12,609.00	90.20	180.29	10,838.47	-2,026.68	275.41	2,026.68	2.08	2.02	-0.50
12,703.00	91.82	180.11	10,836.82	-2,120.66	275.08	2,120.66	1.73	1.72	-0.19
12,796.00	91.08	181.78	10,834.46	-2,213.61	273.55	2,213.61	1.96	-0.80	1.80
12,889.00	89.71	182.66	10,833.82	-2,306.54	269.94	2,306.54	1.75	-1.47	0.95
12,982.00	88.22	181.69	10,835.50	-2,399.45	266.42	2,399.45	1.91	-1.60	-1.04
13,075.00	89.23	181.34	10,837.57	-2,492.40	263.96	2,492.40	1.15	1.09	-0.38
13,167.00	90.37	181.87	10,837.89	-2,584.36	261.38	2,584.36	1.37	1.24	0.58
13,260.00	92.18	181.96	10,835.82	-2,677.28	258.27	2,677.28	1.95	1.95	0.10
13,354.00	90.51	181.16	10,833.62	-2,771.21	255.72	2,771.21	1.97	-1.78	-0.85
13,447.00	91.87	181.25	10,831.68	-2,864.17	253.76	2,864.17	1.47	1.46	0.10
13,540.00	91.82	180.46	10,828.69	-2,957.11	252.37	2,957.11	0.85	-0.05	-0.85
13,633.00	93.10	180.29	10,824.70	-3,050.02	251.77	3,050.02	1.39	1.38	-0.18
13,726.00	92.09	180.29	10,820.49	-3,142.92	251.30	3,142.92	1.09	-1.09	0.00
13,817.00	90.95	179.23	10,818.07	-3,233.89	251.68	3,233.89	1.71	-1.25	-1.16
13,911.00	92.75	179.23	10,815.04	-3,327.83	252.94	3,327.83	1.91	1.91	0.00
14,003.00	92.18	178.88	10,811.08	-3,419.73	254.46	3,419.73	0.73	-0.62	-0.38
14,096.00	91.56	179.67	10,808.05	-3,512.67	255.63	3,512.67	1.08	-0.67	0.85
14,189.00	93.23	179.85	10,804.16	-3,605.58	256.02	3,605.58	1.81	1.80	0.19
14,282.00	91.56	179.93	10,800.28	-3,698.50	256.20	3,698.50	1.80	-1.80	0.09
14,374.00	93.19	179.76	10,796.46	-3,790.42	256.45	3,790.42	1.78	1.77	-0.18
14,467.00	92.53	179.85	10,791.82	-3,883.30	256.76	3,883.30	0.72	-0.71	0.10
14,559.00	91.25	179.67	10,788.79	-3,975.25	257.15	3,975.25	1.40	-1.39	-0.20
Sidetrack Tie-In Point									
14,656.00	88.70	178.00	10,788.83	-4,072.22	259.12	4,072.22	3.14	-2.63	-1.72
14,687.00	88.75	176.95	10,789.52	-4,103.18	260.49	4,103.18	3.39	0.16	-3.39
14,719.00	88.92	176.68	10,790.17	-4,135.12	262.26	4,135.12	1.00	0.53	-0.84
14,751.00	89.23	176.59	10,790.69	-4,167.06	264.14	4,167.06	1.01	0.97	-0.28
14,798.00	89.93	176.33	10,791.03	-4,213.97	267.04	4,213.97	1.59	1.49	-0.55
14,845.00	90.73	176.33	10,790.76	-4,260.87	270.05	4,260.87	1.70	1.70	0.00
14,876.00	91.03	176.33	10,790.29	-4,291.81	272.04	4,291.81	0.97	0.97	0.00
14,906.00	90.33	176.16	10,789.93	-4,321.74	274.00	4,321.74	2.40	-2.33	-0.57
14,938.00	88.92	176.07	10,790.14	-4,353.67	276.17	4,353.67	4.42	-4.41	-0.28
14,969.00	87.08	176.24	10,791.22	-4,384.58	278.25	4,384.58	5.96	-5.94	0.55
14,999.00	86.29	176.68	10,792.96	-4,414.47	280.10	4,414.47	3.01	-2.63	1.47
15,030.00	86.99	177.03	10,794.77	-4,445.37	281.79	4,445.37	2.52	2.26	1.13
15,060.00	87.30	177.03	10,796.27	-4,475.29	283.35	4,475.29	1.03	1.03	0.00



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
15,092.00	87.96	176.59	10,797.59	-4,507.21	285.12	4,507.21	2.48	2.06	-1.38
15,123.00	88.97	176.77	10,798.42	-4,538.15	286.92	4,538.15	3.31	3.26	0.58
15,153.00	89.80	176.86	10,798.74	-4,568.10	288.59	4,568.10	2.78	2.77	0.30
15,185.00	90.24	177.12	10,798.73	-4,600.06	290.27	4,600.06	1.60	1.38	0.81
15,216.00	90.24	177.91	10,798.60	-4,631.03	291.61	4,631.03	2.55	0.00	2.55
15,246.00	89.76	178.88	10,798.60	-4,661.01	292.45	4,661.01	3.61	-1.60	3.23
15,278.00	89.80	179.32	10,798.72	-4,693.01	292.95	4,693.01	1.38	0.13	1.38
15,308.00	90.11	180.20	10,798.75	-4,723.01	293.08	4,723.01	3.11	1.03	2.93
15,354.00	91.16	181.87	10,798.24	-4,769.00	292.25	4,769.00	4.29	2.28	3.63
15,400.00	91.47	182.22	10,797.18	-4,814.96	290.61	4,814.96	1.02	0.67	0.76
15,446.00	91.78	182.57	10,795.88	-4,860.90	288.69	4,860.90	1.02	0.67	0.76
15,492.00	90.37	181.16	10,795.02	-4,906.86	287.19	4,906.86	4.33	-3.07	-3.07
15,538.00	90.11	179.67	10,794.82	-4,952.86	286.86	4,952.86	3.29	-0.57	-3.24
15,585.00	90.55	180.02	10,794.55	-4,999.86	286.98	4,999.86	1.20	0.94	0.74
15,632.00	91.03	180.90	10,793.90	-5,046.85	286.61	5,046.85	2.13	1.02	1.87
15,679.00	91.47	181.16	10,792.88	-5,093.83	285.76	5,093.83	1.09	0.94	0.55
15,725.00	91.87	181.52	10,791.54	-5,139.80	284.69	5,139.80	1.17	0.87	0.78
15,771.00	90.51	181.52	10,790.58	-5,185.77	283.47	5,185.77	2.96	-2.96	0.00
15,817.00	89.85	181.43	10,790.44	-5,231.76	282.28	5,231.76	1.45	-1.43	-0.20
15,863.00	90.68	181.78	10,790.23	-5,277.74	280.99	5,277.74	1.96	1.80	0.76
15,957.00	89.45	181.08	10,790.12	-5,371.71	278.65	5,371.71	1.51	-1.31	-0.74
16,051.00	89.98	181.08	10,790.59	-5,465.69	276.88	5,465.69	0.56	0.56	0.00
16,145.00	90.95	181.16	10,789.82	-5,559.67	275.04	5,559.67	1.04	1.03	0.09
16,239.00	90.42	181.87	10,788.70	-5,653.63	272.55	5,653.63	0.94	-0.56	0.76
16,331.00	89.89	180.90	10,788.45	-5,745.60	270.33	5,745.60	1.20	-0.58	-1.05
16,422.00	89.27	180.90	10,789.12	-5,836.58	268.90	5,836.58	0.68	-0.68	0.00
16,517.00	89.54	181.16	10,790.10	-5,931.56	267.19	5,931.56	0.39	0.28	0.27
16,610.00	89.27	181.25	10,791.07	-6,024.54	265.24	6,024.54	0.31	-0.29	0.10
16,703.00	88.31	180.29	10,793.03	-6,117.51	263.99	6,117.51	1.46	-1.03	-1.03
16,797.00	89.01	180.11	10,795.23	-6,211.48	263.66	6,211.48	0.77	0.74	-0.19
16,890.00	88.35	180.02	10,797.37	-6,304.45	263.55	6,304.45	0.72	-0.71	-0.10
16,982.00	88.57	179.23	10,799.85	-6,396.42	264.16	6,396.42	0.89	0.24	-0.86
17,075.00	89.36	179.14	10,801.53	-6,489.39	265.48	6,489.39	0.85	0.85	-0.10
17,167.00	90.37	178.79	10,801.74	-6,581.38	267.14	6,581.38	1.16	1.10	-0.38
17,260.00	91.16	178.53	10,800.50	-6,674.34	269.32	6,674.34	0.89	0.85	-0.28
17,353.00	91.52	178.44	10,798.33	-6,767.28	271.77	6,767.28	0.40	0.39	-0.10
17,446.00	91.08	178.62	10,796.22	-6,860.23	274.16	6,860.23	0.51	-0.47	0.19
17,540.00	91.21	178.97	10,794.34	-6,954.19	276.13	6,954.19	0.40	0.14	0.37
17,633.00	91.08	179.14	10,792.48	-7,047.16	277.67	7,047.16	0.23	-0.14	0.18
17,726.00	90.42	178.44	10,791.26	-7,140.13	279.63	7,140.13	1.03	-0.71	-0.75
17,818.00	89.27	178.97	10,791.51	-7,232.10	281.71	7,232.10	1.38	-1.25	0.58
17,911.00	90.15	179.06	10,791.98	-7,325.09	283.31	7,325.09	0.95	0.95	0.10
18,005.00	89.63	178.79	10,792.16	-7,418.07	285.07	7,418.07	0.62	-0.55	-0.29



Total Directional Services
Survey Report



Company:	Ascent Energy	Local Co-ordinate Reference:	Well Toque State Com #501H
Project:	Lea County, NM (NAD83)	TVD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Site:	Sec. 6 T21S R33E N.M.P.M.	MD Reference:	GE 3794' + KB 25' @ 3819.00usft (Precision 553)
Well:	Toque State Com #501H	North Reference:	True
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.15 Single User Db

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)
18,098.00	89.19	178.88	10,793.12	-7,512.04	286.96	7,512.04	0.48	-0.47	0.10
18,192.00	89.49	178.26	10,794.20	-7,606.01	289.31	7,606.01	0.73	0.32	-0.66
18,276.00	89.27	177.39	10,795.11	-7,689.94	292.50	7,689.94	1.07	-0.26	-1.04
Last Survey									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
14,559.00	10,788.79	-3,975.25	257.15	Sidetrack Tie-In Point	
18,276.00	10,795.11	-7,689.94	292.50	Last Survey	

Checked By:	_____	Approved By:	_____	Date:	_____
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