



Cathedral Energy Services
Survey Report

30-025-44660
HOBBS OCD

OCT 17 2018



Company: Special Energy Corp.	Local Co-ordinate Reference: Well Coronado State
Project: Lea, NM (NAD 83)	TVD Reference: 18' KB @ 3915.00usft (Silver Oak #7)
Site: Sec 28-11S-38E	MD Reference: 18' KB @ 3915.00usft (Silver Oak #7)
Well: Coronado State #1H	North Reference: Grid
Wellbore: HZ [372137]	Survey Calculation Method: Minimum Curvature
Design: Final	Database: USA EDM 5000 Multi Users DB

Project: Lea, NM (NAD 83)	
Map System: US State Plane 1983	System Datum: Mean Sea Level
Geo Datum: North American Datum 1983	
Map Zone: New Mexico Eastern Zone	

Site: Sec 28-11S-38E, 0.9985g		
Site Position:	Northing: 852,301.83 usft	Latitude: 33° 20' 12.53 N
From: Map	Easting: 917,354.80 usft	Longitude: 103° 6' 7.81 W
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.68 °

Well: Coronado State #1H			
Well Position	+N-S 0.00 usft	Northing: 852,427.20 usft	Latitude: 33° 20' 14.03 N
	+E-W 0.00 usft	Easting: 915,116.20 usft	Longitude: 103° 6' 34.17 W
Position Uncertainty 0.00 usft	Wellhead Elevation: usft	Ground Level: 3,897.00 usft	

Wellbore: HZ [372137]					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	HDGM_FILE	6/4/2018	(°) 6.58	(°) 60.98	(nT) 48,469.00000000

Design: Final				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00		
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	0.89

Survey Program	Date 6/14/2018			
From	To	Survey (Wellbore)	Tool Name	Description
156.00	2,298.00	TrueShot Surveys (Corrected) (HZ [37213	MWD+HDGM	OWSG MWD + HDGM
2,411.00	9,600.00	CES MWD (HZ [372137])	MWD+HDGM	OWSG MWD + HDGM

Survey									
Measured	Inclination	Azimuth	Vertical	+N-S	+E-W	Vertical	Dogleg	Build	Formations /
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Comments
(usft)			(usft)			(usft)	(°/100usf	(°/100u	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
156.00	0.30	102.80	156.00	-0.09	0.40	-0.08	0.19	0.19	
238.00	0.30	120.30	238.00	-0.25	0.79	-0.23	0.11	0.00	
357.00	0.20	169.30	357.00	-0.61	1.10	-0.59	0.19	-0.08	
477.00	0.20	92.90	477.00	-0.82	1.35	-0.80	0.21	0.00	
667.00	0.10	206.20	667.00	-0.99	1.61	-0.96	0.14	-0.05	
853.00	0.20	299.30	853.00	-0.98	1.25	-0.96	0.12	0.05	
946.00	0.20	265.80	946.00	-0.91	0.95	-0.89	0.12	0.00	
1,041.00	0.60	245.30	1,040.99	-1.13	0.33	-1.12	0.44	0.42	
1,229.00	0.30	153.60	1,228.99	-1.98	-0.34	-1.99	0.36	-0.16	
1,417.00	1.00	276.70	1,416.98	-2.23	-1.75	-2.26	0.63	0.37	
1,507.00	0.90	266.80	1,506.97	-2.18	-3.24	-2.23	0.21	-0.11	



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Wellbore:	HZ [372137]	Survey Calculation Method:	Minimum Curvature
Design:	Final	Database:	USA EDM 5000 Multi Users DB

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
1,604.00	0.90	271.50	1,603.96	-2.20	-4.76	-2.27	0.08	0.00	
1,698.00	0.70	273.00	1,697.95	-2.15	-6.07	-2.25	0.21	-0.21	
1,791.00	0.70	315.30	1,790.94	-1.72	-7.04	-1.83	0.54	0.00	
1,885.00	1.00	328.10	1,884.93	-0.61	-7.88	-0.74	0.38	0.32	
1,978.00	0.60	311.70	1,977.92	0.40	-8.67	0.26	0.49	-0.43	
2,072.00	1.10	312.60	2,071.91	1.34	-9.70	1.19	0.53	0.53	
2,165.00	1.40	293.00	2,164.89	2.39	-11.41	2.21	0.56	0.32	
2,298.00	1.70	288.60	2,297.84	3.65	-14.77	3.42	0.24	0.23	Last Gyro Survey
2,411.00	2.20	296.60	2,410.77	5.16	-18.30	4.87	0.50	0.44	
2,506.00	0.70	320.30	2,505.74	6.42	-20.30	6.10	1.67	-1.58	
2,599.00	0.50	343.10	2,598.74	7.24	-20.78	6.92	0.33	-0.22	
2,693.00	0.80	342.40	2,692.73	8.26	-21.10	7.93	0.32	0.32	
2,787.00	0.70	334.30	2,786.72	9.40	-21.55	9.07	0.15	-0.11	
2,879.00	0.70	328.10	2,878.71	10.39	-22.09	10.04	0.08	0.00	
2,972.00	0.90	333.10	2,971.71	11.52	-22.72	11.17	0.23	0.22	
3,065.00	0.90	325.40	3,064.69	12.77	-23.46	12.41	0.13	0.00	
3,159.00	0.70	329.50	3,158.69	13.88	-24.17	13.50	0.22	-0.21	
3,252.00	1.00	294.40	3,251.68	14.70	-25.20	14.31	0.63	0.32	
3,345.00	1.20	290.00	3,344.66	15.37	-26.85	14.95	0.23	0.22	
3,438.00	0.40	114.60	3,437.65	15.57	-27.47	15.14	1.72	-0.86	
3,532.00	0.70	108.30	3,531.65	15.25	-26.63	14.84	0.33	0.32	
3,626.00	0.80	101.50	3,625.64	14.94	-25.44	14.54	0.14	0.11	
3,720.00	0.70	95.10	3,719.63	14.76	-24.23	14.38	0.14	-0.11	
3,813.00	0.80	108.00	3,812.62	14.51	-23.04	14.15	0.21	0.11	
3,905.00	1.00	106.30	3,904.61	14.08	-21.66	13.75	0.22	0.22	
3,998.00	0.80	114.50	3,997.60	13.59	-20.29	13.27	0.26	-0.22	
4,091.00	0.70	104.50	4,090.59	13.17	-19.15	12.88	0.18	-0.11	
4,185.00	0.70	111.60	4,184.59	12.82	-18.06	12.54	0.09	0.00	
4,278.00	0.80	123.40	4,277.58	12.25	-16.99	11.99	0.20	0.11	
4,308.00	0.80	132.10	4,307.58	12.00	-16.66	11.74	0.40	0.00	
4,339.00	1.30	117.10	4,338.57	11.69	-16.19	11.44	1.83	1.61	
4,370.00	1.10	79.20	4,369.56	11.59	-15.58	11.34	2.59	-0.65	
4,401.00	2.40	12.90	4,400.55	12.28	-15.15	12.04	7.10	4.19	
4,433.00	4.70	0.40	4,432.49	14.24	-14.99	14.01	7.54	7.19	
4,465.00	7.10	356.70	4,464.32	17.53	-15.09	17.29	7.59	7.50	
4,496.00	9.60	357.60	4,494.99	22.02	-15.31	21.78	8.08	8.06	
4,527.00	12.50	354.90	4,525.41	27.95	-15.72	27.70	9.50	9.35	
4,559.00	14.00	356.20	4,556.56	35.26	-16.28	35.00	4.78	4.69	
4,591.00	15.50	359.00	4,587.50	43.40	-16.61	43.13	5.19	4.69	
4,622.00	17.40	0.60	4,617.23	52.18	-16.64	51.91	6.30	6.13	
4,654.00	19.70	1.30	4,647.57	62.35	-16.46	62.09	7.22	7.19	
4,685.00	22.30	1.20	4,676.50	73.46	-16.22	73.20	8.39	8.39	
4,716.00	24.00	2.50	4,705.01	85.64	-15.82	85.38	5.73	5.48	
4,747.00	27.60	3.40	4,732.91	99.11	-15.12	98.86	11.68	11.61	
4,778.00	30.60	4.70	4,760.00	114.15	-14.05	113.91	9.89	9.68	
4,809.00	34.10	5.50	4,786.18	130.66	-12.57	130.45	11.37	11.29	
4,840.00	36.20	5.40	4,811.53	148.43	-10.88	148.24	6.78	6.77	
4,870.00	38.70	5.30	4,835.34	166.59	-9.18	166.43	8.34	8.33	
4,884.00	39.92	5.11	4,846.17	175.42	-8.37	175.27	8.75	8.71	S. Hard Line Crossing
4,901.00	41.40	4.90	4,859.07	186.46	-7.40	186.32	8.75	8.71	
4,932.00	44.40	4.90	4,881.78	207.48	-5.60	207.37	9.68	9.68	
4,963.00	47.10	5.00	4,903.41	229.60	-3.69	229.52	8.71	8.71	
4,994.00	49.50	5.00	4,924.03	252.66	-1.67	252.60	7.74	7.74	



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Wellbore:	HZ [372137]	Survey Calculation Method:	Minimum Curvature
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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 (°/100u)	Formations / Comments
5,025.00	51.70	4.70	4,943.70	276.52	0.36	276.50	7.14	7.10	
5,057.00	54.40	4.10	4,962.94	302.02	2.31	302.02	8.57	8.44	
5,088.00	57.10	2.60	4,980.38	327.60	3.81	327.62	9.58	8.71	
5,119.00	59.10	1.80	4,996.76	353.89	4.81	353.93	6.81	6.45	
5,151.00	61.70	1.60	5,012.57	381.70	5.64	381.74	8.14	8.12	
5,182.00	64.10	1.70	5,026.69	409.29	6.43	409.34	7.75	7.74	
5,213.00	65.00	1.40	5,040.01	437.27	7.19	437.33	3.03	2.90	
5,243.00	65.00	1.40	5,052.69	464.45	7.86	464.51	0.00	0.00	
5,275.00	65.10	1.30	5,066.19	493.45	8.54	493.53	0.42	0.31	
5,306.00	65.10	1.00	5,079.24	521.57	9.10	521.65	0.88	0.00	
5,337.00	64.90	0.50	5,092.34	549.66	9.47	549.74	1.60	-0.65	
5,368.00	66.50	0.90	5,105.10	577.91	9.82	577.99	5.29	5.16	
5,399.00	69.80	0.90	5,116.63	606.68	10.27	606.76	10.65	10.65	
5,431.00	73.70	1.10	5,126.65	637.06	10.80	637.15	12.20	12.19	
5,462.00	77.20	0.70	5,134.44	667.05	11.27	667.15	11.36	11.29	
5,493.00	80.10	0.30	5,140.54	697.44	11.53	697.54	9.44	9.35	
5,524.00	82.80	0.40	5,145.15	728.09	11.72	728.19	8.72	8.71	
5,555.00	85.90	0.50	5,148.20	758.94	11.96	759.03	10.01	10.00	
5,586.00	88.40	0.50	5,149.74	789.90	12.23	789.99	8.06	8.06	
5,617.00	89.50	0.30	5,150.31	820.89	12.45	820.99	3.61	3.55	
5,648.00	91.30	0.00	5,150.09	851.89	12.53	851.98	5.89	5.81	
5,680.00	92.10	0.00	5,149.14	883.87	12.53	883.96	2.50	2.50	
5,711.00	92.00	0.00	5,148.03	914.85	12.53	914.94	0.32	-0.32	
5,742.00	92.10	359.80	5,146.92	945.83	12.48	945.91	0.72	0.32	
5,773.00	92.00	359.30	5,145.82	976.81	12.23	976.89	1.64	-0.32	
5,795.00	92.30	359.40	5,144.99	998.80	11.99	998.86	1.44	1.36	
5,827.00	92.40	359.40	5,143.68	1,030.77	11.65	1,030.82	0.31	0.31	
5,858.00	91.40	359.90	5,142.65	1,061.75	11.46	1,061.80	3.61	-3.23	
5,889.00	90.00	359.60	5,142.27	1,092.75	11.33	1,092.79	4.62	-4.52	
5,921.00	90.10	358.50	5,142.24	1,124.74	10.80	1,124.77	3.45	0.31	
5,953.00	90.00	357.60	5,142.22	1,156.72	9.71	1,156.73	2.83	-0.31	
5,984.00	90.20	357.00	5,142.16	1,187.69	8.25	1,187.67	2.04	0.65	
6,015.00	90.00	358.10	5,142.11	1,218.66	6.92	1,218.62	3.61	-0.65	
6,046.00	89.80	359.70	5,142.16	1,249.65	6.33	1,249.60	5.20	-0.65	
6,078.00	90.00	0.30	5,142.22	1,281.65	6.33	1,281.60	1.98	0.62	
6,109.00	90.60	0.20	5,142.06	1,312.65	6.46	1,312.59	1.96	1.94	
6,140.00	90.90	359.80	5,141.65	1,343.65	6.46	1,343.59	1.61	0.97	
6,171.00	91.40	359.60	5,141.03	1,374.64	6.30	1,374.57	1.74	1.61	
6,202.00	90.90	0.10	5,140.40	1,405.64	6.22	1,405.56	2.28	-1.61	
6,233.00	89.00	0.70	5,140.43	1,436.63	6.43	1,436.56	6.43	-6.13	
6,264.00	88.00	1.20	5,141.24	1,467.62	6.95	1,467.55	3.61	-3.23	
6,295.00	88.40	1.30	5,142.22	1,498.59	7.62	1,498.53	1.33	1.29	
6,327.00	89.30	1.70	5,142.86	1,530.58	8.46	1,530.52	3.08	2.81	
6,358.00	89.80	1.90	5,143.10	1,561.56	9.44	1,561.52	1.74	1.61	
6,389.00	90.10	2.00	5,143.13	1,592.54	10.49	1,592.51	1.02	0.97	
6,420.00	90.70	1.90	5,142.91	1,623.52	11.54	1,623.51	1.96	1.94	
6,451.00	90.70	1.80	5,142.53	1,654.51	12.55	1,654.50	0.32	0.00	
6,483.00	90.80	1.60	5,142.12	1,686.49	13.49	1,686.49	0.70	0.31	
6,514.00	91.00	1.60	5,141.63	1,717.47	14.36	1,717.49	0.65	0.65	
6,545.00	91.40	1.70	5,140.98	1,748.45	15.25	1,748.48	1.33	1.29	
6,576.00	91.40	1.60	5,140.22	1,779.43	16.15	1,779.47	0.32	0.00	
6,607.00	91.30	1.40	5,139.49	1,810.41	16.96	1,810.46	0.72	-0.32	
6,639.00	91.50	1.50	5,138.71	1,842.39	17.77	1,842.45	0.70	0.62	



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6,670.00	91.30	1.60	5,137.95	1,873.37	18.60	1,873.43	0.72	-0.65	
6,701.00	90.10	0.50	5,137.57	1,904.36	19.17	1,904.43	5.25	-3.87	
6,732.00	89.20	359.80	5,137.76	1,935.36	19.25	1,935.43	3.68	-2.90	
6,763.00	89.20	359.40	5,138.20	1,966.36	19.04	1,966.42	1.29	0.00	
6,795.00	89.50	359.20	5,138.56	1,998.35	18.65	1,998.40	1.13	0.94	
6,826.00	89.80	359.30	5,138.75	2,029.35	18.24	2,029.39	1.02	0.97	
6,857.00	90.30	359.30	5,138.72	2,060.35	17.86	2,060.38	1.61	1.61	
6,888.00	89.70	359.20	5,138.72	2,091.34	17.46	2,091.36	1.96	-1.94	
6,919.00	89.80	359.70	5,138.86	2,122.34	17.16	2,122.35	1.64	0.32	
6,951.00	89.50	0.30	5,139.05	2,154.34	17.16	2,154.35	2.10	-0.94	
6,981.00	89.80	0.50	5,139.24	2,184.34	17.37	2,184.35	1.20	1.00	
7,012.00	90.00	0.10	5,139.29	2,215.34	17.53	2,215.34	1.44	0.65	
7,043.00	90.10	359.60	5,139.26	2,246.34	17.45	2,246.34	1.64	0.32	
7,075.00	90.50	359.60	5,139.10	2,278.34	17.23	2,278.33	1.25	1.25	
7,106.00	90.90	359.40	5,138.72	2,309.33	16.95	2,309.32	1.44	1.29	
7,153.00	91.10	0.30	5,137.90	2,356.33	16.83	2,356.30	1.96	0.43	
7,200.00	90.40	1.40	5,137.28	2,403.32	17.53	2,403.30	2.77	-1.49	
7,231.00	90.70	1.50	5,136.98	2,434.31	18.31	2,434.30	1.02	0.97	
7,263.00	91.10	1.30	5,136.48	2,466.29	19.10	2,466.29	1.40	1.25	
7,281.00	90.17	1.42	5,136.28	2,484.29	19.52	2,484.29	5.20	-5.16	Section Line Crossing
7,294.00	89.50	1.50	5,136.32	2,497.28	19.85	2,497.29	5.20	-5.16	
7,325.00	88.70	1.70	5,136.81	2,528.26	20.72	2,528.28	2.66	-2.58	
7,356.00	88.80	1.70	5,137.48	2,559.24	21.64	2,559.27	0.32	0.32	
7,387.00	89.20	1.90	5,138.02	2,590.22	22.61	2,590.26	1.44	1.29	
7,418.00	89.70	2.00	5,138.32	2,621.20	23.67	2,621.26	1.64	1.61	
7,450.00	90.20	2.10	5,138.35	2,653.18	24.81	2,653.25	1.59	1.56	
7,481.00	90.10	2.30	5,138.27	2,684.16	26.00	2,684.24	0.72	-0.32	
7,512.00	89.50	2.20	5,138.38	2,715.14	27.22	2,715.23	1.96	-1.94	
7,543.00	89.60	2.40	5,138.62	2,746.11	28.46	2,746.22	0.72	0.32	
7,574.00	89.80	2.70	5,138.78	2,777.08	29.84	2,777.21	1.16	0.65	
7,605.00	90.20	2.80	5,138.78	2,808.04	31.33	2,808.19	1.33	1.29	
7,636.00	90.30	2.50	5,138.65	2,839.01	32.76	2,839.18	1.02	0.32	
7,668.00	89.60	1.80	5,138.67	2,870.99	33.96	2,871.17	3.09	-2.19	
7,699.00	88.90	1.30	5,139.08	2,901.97	34.80	2,902.16	2.77	-2.26	
7,730.00	89.10	0.90	5,139.62	2,932.96	35.40	2,933.16	1.44	0.65	
7,761.00	89.30	0.60	5,140.05	2,963.96	35.80	2,964.16	1.16	0.65	
7,792.00	89.50	359.80	5,140.38	2,994.95	35.91	2,995.15	2.66	0.65	
7,823.00	89.60	359.20	5,140.62	3,025.95	35.64	3,026.14	1.96	0.32	
7,854.00	89.80	359.10	5,140.78	3,056.95	35.18	3,057.13	0.72	0.65	
7,885.00	90.20	359.10	5,140.78	3,087.94	34.69	3,088.11	1.29	1.29	
7,916.00	90.50	359.20	5,140.59	3,118.94	34.23	3,119.10	1.02	0.97	
7,947.00	90.90	359.30	5,140.22	3,149.94	33.83	3,150.08	1.33	1.29	
7,978.00	90.50	359.80	5,139.84	3,180.93	33.58	3,181.07	2.07	-1.29	
8,009.00	89.70	0.50	5,139.78	3,211.93	33.66	3,212.07	3.43	-2.58	
8,041.00	89.70	0.60	5,139.95	3,243.93	33.97	3,244.07	0.31	0.00	
8,072.00	89.50	0.30	5,140.17	3,274.93	34.21	3,275.06	1.16	-0.65	
8,103.00	89.20	0.10	5,140.52	3,305.93	34.32	3,306.06	1.16	-0.97	
8,134.00	89.40	359.90	5,140.90	3,336.92	34.32	3,337.05	0.91	0.65	
8,166.00	90.00	0.10	5,141.06	3,368.92	34.32	3,369.05	1.98	1.87	
8,196.00	90.50	0.10	5,140.93	3,398.92	34.38	3,399.05	1.67	1.67	
8,227.00	89.30	0.80	5,140.99	3,429.92	34.62	3,430.04	4.48	-3.87	
8,258.00	89.20	1.00	5,141.39	3,460.91	35.11	3,461.04	0.72	-0.32	
8,289.00	89.40	0.90	5,141.77	3,491.91	35.62	3,492.04	0.72	0.65	



Cathedral Energy Services
Survey Report



Company:	Special Energy Corp.	Local Co-ordinate Reference:	Well Coronado State #1H
Project:	Lea, NM (NAD 83)	TV D Reference:	18' KB @ 3915.00usft (Silver Oak #7)
Site:	Sec 28-11S-38E	MD Reference:	18' KB @ 3915.00usft (Silver Oak #7)
Well:	Coronado State #1H	North Reference:	Grid
Wellbore:	HZ [372137]	Survey Calculation Method:	Minimum Curvature
Design:	Final	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Formations / Comments
8,321.00	89.50	0.80	5,142.08	3,523.90	36.09	3,524.04	0.44	0.31	
8,351.00	89.80	0.70	5,142.26	3,553.90	36.49	3,554.04	1.05	1.00	
8,383.00	90.20	0.70	5,142.26	3,585.90	36.88	3,586.04	1.25	1.25	
8,414.00	90.50	0.70	5,142.07	3,616.89	37.26	3,617.04	0.97	0.97	
8,445.00	90.70	0.50	5,141.75	3,647.89	37.58	3,648.03	0.91	0.65	
8,476.00	90.20	1.10	5,141.51	3,678.89	38.01	3,679.03	2.52	-1.61	
8,507.00	89.50	1.90	5,141.59	3,709.87	38.83	3,710.03	3.43	-2.26	
8,538.00	89.70	2.10	5,141.80	3,740.86	39.91	3,741.02	0.91	0.65	
8,569.00	89.80	2.00	5,141.94	3,771.84	41.02	3,772.02	0.46	0.32	
8,601.00	90.20	2.00	5,141.94	3,803.82	42.13	3,804.01	1.25	1.25	
8,632.00	90.50	2.20	5,141.75	3,834.79	43.27	3,835.00	1.16	0.97	
8,663.00	90.90	2.20	5,141.37	3,865.77	44.46	3,865.99	1.29	1.29	
8,694.00	90.90	2.10	5,140.88	3,896.74	45.62	3,896.98	0.32	0.00	
8,725.00	90.10	1.90	5,140.61	3,927.72	46.70	3,927.97	2.66	-2.58	
8,756.00	90.20	1.70	5,140.53	3,958.71	47.68	3,958.97	0.72	0.32	
8,787.00	89.80	1.70	5,140.53	3,989.69	48.60	3,989.97	1.29	-1.29	
8,819.00	88.10	2.00	5,141.12	4,021.67	49.63	4,021.96	5.39	-5.31	
8,850.00	88.10	2.30	5,142.15	4,052.63	50.79	4,052.93	0.97	0.00	
8,881.00	88.50	2.30	5,143.07	4,083.59	52.04	4,083.91	1.29	1.29	
8,912.00	88.70	2.50	5,143.82	4,114.56	53.33	4,114.89	0.91	0.65	
8,943.00	89.10	2.50	5,144.42	4,145.52	54.69	4,145.87	1.29	1.29	
8,974.00	89.30	2.30	5,144.85	4,176.49	55.98	4,176.86	0.91	0.65	
9,005.00	89.70	2.30	5,145.12	4,207.46	57.23	4,207.85	1.29	1.29	
9,036.00	90.00	2.40	5,145.20	4,238.44	58.50	4,238.84	1.02	0.97	
9,067.00	90.30	2.50	5,145.12	4,269.41	59.82	4,269.82	1.02	0.97	
9,098.00	90.50	2.70	5,144.90	4,300.38	61.23	4,300.81	0.91	0.65	
9,129.00	90.70	2.70	5,144.58	4,331.34	62.69	4,331.79	0.65	0.65	
9,160.00	91.10	2.70	5,144.09	4,362.30	64.15	4,362.77	1.29	1.29	
9,191.00	91.40	2.80	5,143.42	4,393.26	65.64	4,393.75	1.02	0.97	
9,222.00	91.70	2.80	5,142.58	4,424.21	67.15	4,424.72	0.97	0.97	
9,253.00	90.20	2.50	5,142.06	4,455.17	68.58	4,455.70	4.93	-4.84	
9,284.00	90.20	2.50	5,141.96	4,486.14	69.94	4,486.69	0.00	0.00	
9,315.00	90.50	2.70	5,141.77	4,517.11	71.34	4,517.67	1.16	0.97	
9,346.00	90.70	2.70	5,141.44	4,548.07	72.80	4,548.66	0.65	0.65	
9,378.00	90.30	2.40	5,141.16	4,580.04	74.23	4,580.64	1.56	-1.25	
9,409.00	89.70	1.70	5,141.16	4,611.02	75.34	4,611.64	2.97	-1.94	
9,440.00	89.80	1.80	5,141.30	4,642.01	76.28	4,642.63	0.46	0.32	
9,538.00	91.00	2.00	5,140.61	4,739.95	79.53	4,740.61	1.24	1.22	Last CES Survey
9,594.00	91.00	2.00	5,139.64	4,789.91	81.48	4,796.59	0.00	0.00	
9,600.00	91.00	2.00	5,139.53	4,794.90	81.69	4,802.59	0.00	0.00	Actual BHL



Cathedral Energy Services
Survey Report



Company: Special Energy Corp.	Local Co-ordinate Reference: Well Coronado State #1H
Project: Lea, NM (NAD 83)	TVD Reference: 18' KB @ 3915.00usft (Silver Oak #7)
Site: Sec 28-11S-38E	MD Reference: 18' KB @ 3915.00usft (Silver Oak #7)
Well: Coronado State #1H	North Reference: Grid
Wellbore: HZ [372137]	Survey Calculation Method: Minimum Curvature
Design: Final	Database: USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
T2 - Coronado St #1H - actual wellpath misses target center by 12.43usft at 6622.05usft MD (5139.14 TVD, 1825.45 N, 17.33 E) - Point	0.00	0.00	5,145.00	1,825.32	28.29	854,252.52	915,144.49	33° 20' 32.08 N	103° 6' 33.58 W
T3 - Coronado St #1H - actual wellpath misses target center by 10.70usft at 7782.80usft MD (5140.29 TVD, 2985.75 N, 35.92 E) - Point	0.00	0.00	5,143.00	2,985.69	46.27	855,412.89	915,162.47	33° 20' 43.56 N	103° 6' 33.21 W
T1 - Coronado St #1H - actual wellpath misses target center by 2.67usft at 5511.15usft MD (5143.41 TVD, 715.37 N, 11.64 E) - Point	0.00	0.00	5,146.00	714.98	11.08	853,142.18	915,127.28	33° 20' 21.10 N	103° 6' 33.94 W
T4 - Coronado St #1H - actual wellpath misses target center by 6.50usft at 9559.09usft MD (5140.25 TVD, 4761.02 N, 80.27 E) - Point	0.00	0.00	5,140.00	4,761.24	73.78	857,188.44	915,189.98	33° 21' 1.12 N	103° 6' 32.64 W

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,298.00	2,297.84	3.65	-14.77	Last Gyro Survey	
4,884.00	4,846.17	175.42	-8.37	S. Hard Line Crossing	
7,281.00	5,136.28	2,484.29	19.52	Section Line Crossing	
9,538.00	5,140.61	4,739.95	79.53	Last CES Survey	
9,594.00	5,139.64	4,795.91	81.48	N. Hard Line Crossing	
9,600.00	5,139.53	4,794.90	81.69	Actual BHL	

Checked By: _____ Approved By: _____ Date: _____



Project: Lea, NM (NAD 83)
 Site: Sec 28-11S-38E
 Well: Coronado State #1H
 Wellbore: HZ [372137]
 Design: Final
 Gravity: 0.9985g



Total Azimuth to Grid North
 + 5.91°
 Gravity = 0.9985°

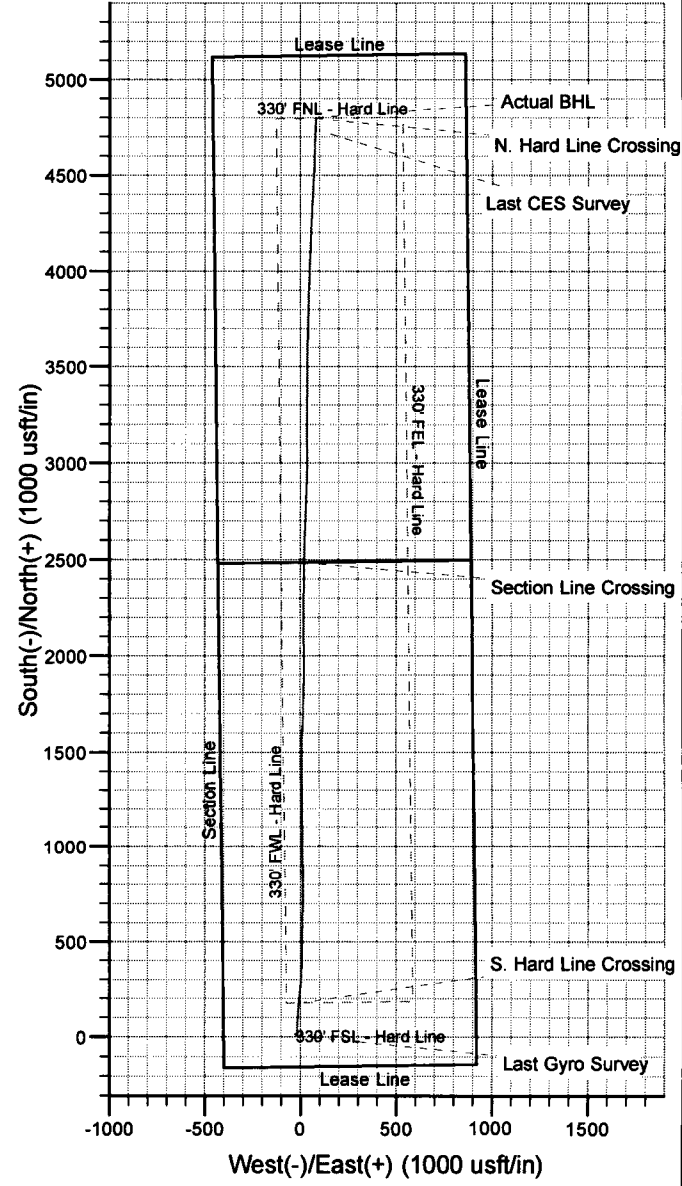
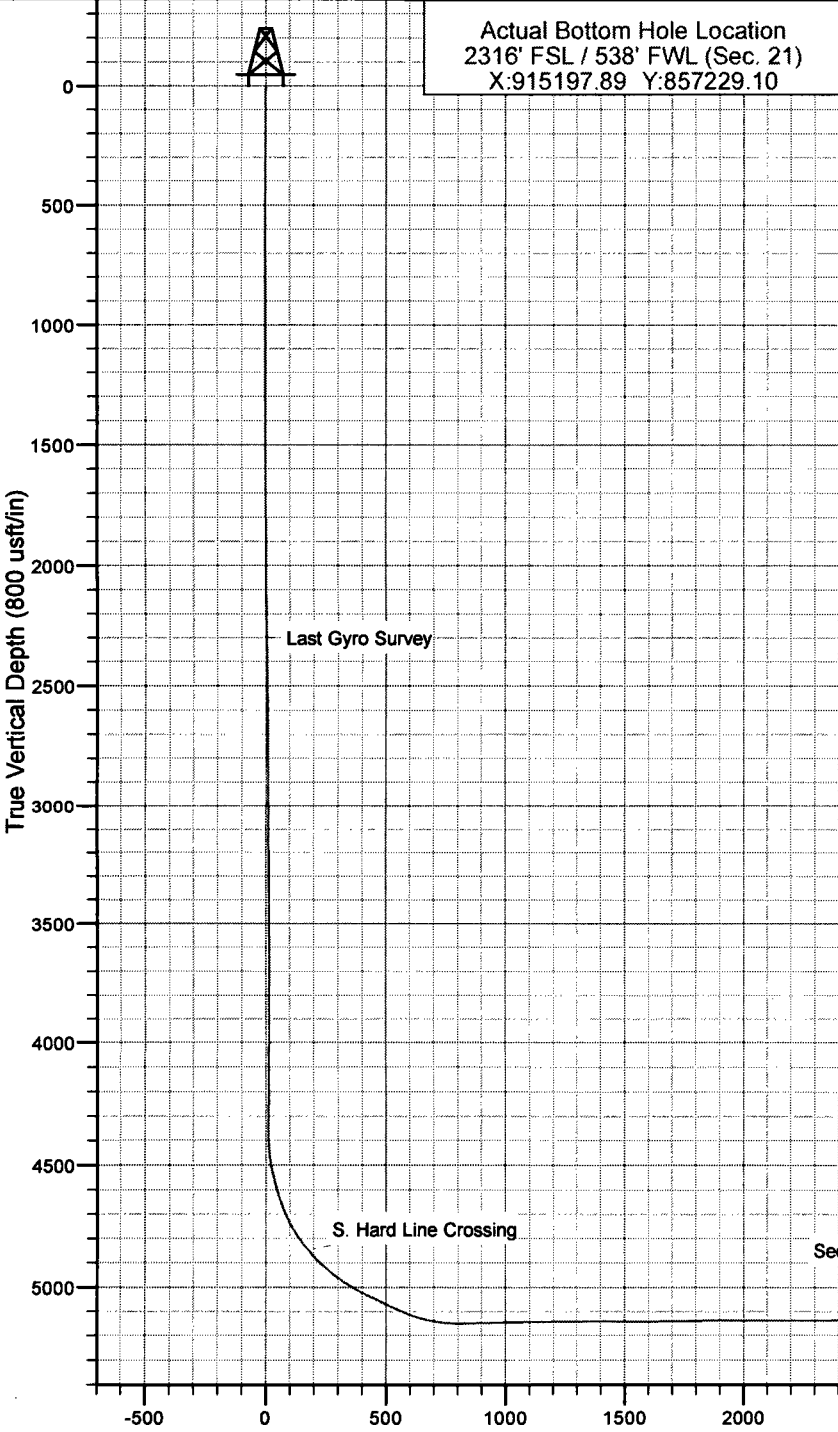
Magnetic Field
 Strength: 48469.0nT
 Dip Angle: 60.98°
 Date: 6/4/2018
 Model: HDGM_FILE

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	852427.20	915116.20	33° 20' 14.03 N	103° 6' 34.17 W

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Annotation
2298.00	1.70	288.60	2297.84	3.65	-14.77	3.42	Last Gyro Survey
4884.00	39.92	5.11	4846.17	175.42	-8.37	175.27	S. Hard Line Crossing
7281.00	90.17	1.42	5136.28	2484.29	19.52	2484.29	Section Line Crossing
9538.00	91.00	2.00	5140.61	4739.95	79.53	4740.61	Last CES Survey
9594.00	91.00	2.00	5139.64	4789.91	81.48	4796.59	N. Hard Line Crossing
9600.00	91.00	2.00	5139.53	4794.90	81.69	4802.59	Actual BHL

TARGET LINE
 90.04° INC @ 5143.32' TVD @ 0' VS
 3' Up / Down - 30' Left / Right
 Err High Rather than Low



Vertical Section at 0.89° (800 usft/in)