

Results of Directional Survey

API number:	30-025-40107		
OGRID:		Operator:	CIMAREX ENERGY CO
		Property:	MERCHANT LIVESTOCK 22 33 19 STATE COM # 1H

surface	ULSTR:	D	19	T	22S	R	33E
				660	FNL	330	FWL

BH Loc	ULSTR:	A	19	T	22S	R	33E
15230	MD	10979.9	TVD	536	FNL	4835	FWL
						445	FEL

Top Perf/OH	ULSTR:	D	19	T	22S	R	33E
11492	MD	10949.2	TVD	612	FNL	1099	FWL

Bot Perf/OH	ULSTR:	A	19	T	22S	R	33E
15178	MD	10978.7	TVD	539	FNL	4783	FWL
						497	FEL

	MD	N/S	E/W	VD
	11462	45.74	739.48	10949.38
TOP PERFS/OH	11492	47.60	769.42	10949.19
	11494	47.72	771.42	10949.18
	15176	120.81	4451.14	10978.64
BOT PERFS/OH	15178	120.91	4453.14	10978.69
	15230	123.54	4505.06	10979.87

NEXT TO LAST	15176	120.81	4451.14	10978.64
LAST READING	15230	123.54	4505.06	10979.87
TD	15230	123.54	4505.06	10979.87

Surface Location	660	FN	330	FW
Projected BHL	536	FN	4835	FW
Location of				
Top Perfs/OH	612	FN	1099	FW
Bottom Perfs/OH	539	FN	4783	FW

SUMMARY of Subsurface Locations

Surface Location	D-19-22S-33E	660	FN	330	FW	Vert. Depth
Top Perfs/OH	D-19-22S-33E	612	FN	1099	FW	10949.19
Bottom Perfs/OH	A-19-22S-33E	539	FN	4783	FW	10978.69
Projected TD	A-19-22S-33E	536	FN	4835	FW	10979.87

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CIMAREX ENERGY

Red Tank

Lea County, NM

Merchant Livestock 22 33 19 State Com #1H

VH - Job #32K0611538

SUR: D-19-22s-33e, 660/N & 330/W
BHL: A-19-22s-33e, 536/N & 4835/W
API # 30-025-40107

Survey: Actual

SDI Standard Survey Report

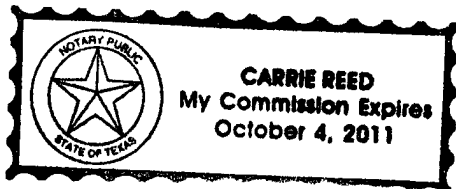
This survey is correct to the best of my knowledge and is supported by actual field data.

Richardson

Notarized this date 22nd of July, 2011.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling
Directional Drilling Operations

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Merchant Livestock 22 33 19 State Com #1H
Project:	Red Tank	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Merchant Livestock 22 33 19 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611538	Database:	EDM-Regulatory

Project		Red Tank	
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		Lea County, NM			
Site Position:		Northing:	503,668 39 usft	Latitude:	32° 22' 57 616 N
From:	Lat/Long	Easting:	720,749 24 usft	Longitude:	103° 37' 5 696 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0 38 °

Well	Merchant Livestock 22 33 19 State Com #1H, Directional (Baker Hughes)					
Well Position	+N/-S	0 0 usft	Northing:	503,668 39 usft	Latitude:	32° 22' 57 616 N
	+E/-W	0 0 usft	Easting:	720,749 24 usft	Longitude:	103° 37' 5 696 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore		VH - Job #32K0611538			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/10/2011	7 62	60 33	48,735

Design		VH - Job #32K0611538			
Audit Notes:					
Version:		1 0 "	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0 0	0 0	0 0	78 61

Survey Program		Date	7/20/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
116 4	10,577 0	Actual (VH - Job #32K0611538)	Keeper	Keeper Gyro	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0
116 4	0 70	23 00	116 4	0 7	0 3	23 00	0 7
177 9	0 69	20 47	177 9	1 3	0 6	22 36	1 5
239 5	0 69	14 71	239 5	2 1	0 8	20 75	2 2
298 8	0 72	14 34	298 8	2 8	1 0	19 20	2 9
358 2	0 82	0 93	358 2	3 5	1 1	16 65	3 7
419 4	0 92	359 48	419 4	4 5	1 1	13 36	4 6
480 6	1 11	355 46	480 6	5 6	1 0	10 32	5 6
540 0	1 18	353 81	539 9	6 7	0 9	7 61	6 8
603 7	1 26	352 09	603 6	8 1	0 7	5 18	8 1
667 5	1 44	335 63	667 4	9 5	0 3	1 84	9 5
731 3	1 83	347 01	731 2	11 2	-0 3	358 70	11 2

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SDI Standard Survey Report



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Project:	Red Tank	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Merchant Livestock 22 33 19 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611538	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
795 0	2 10	346 17	794 9	13 4	-0 8	356 74	13 4
858 8	2 04	345 87	858 6	15 6	-1 3	355 17	15 6
922 1	1 11	338 83	921 9	17 3	-1 8	354 00	17 4
1,049 6	0 87	344 37	1,049 4	19 3	-2 5	352 57	19 5
1,113 4	0 69	349 24	1,113 2	20 2	-2 7	352 31	20 4
1,177 1	0 52	348 10	1,176 9	20 8	-2 9	352 20	21 0
1,240 9	0 40	344 03	1,240 7	21 3	-3 0	352 06	21 5
1,304 6	0 32	335 35	1,304 4	21 7	-3 1	351 85	21 9
1,365 2	0 31	350 27	1,365 0	22 0	-3 2	351 71	22 3
1,428 9	0 30	359 74	1,428 7	22 4	-3 2	351 76	22 6
1,492 6	0 28	33 38	1,492 4	22 7	-3 2	352 08	22 9
1,556 3	0 23	29 30	1,556 1	22 9	-3 0	352 52	23 1
1,620 0	0 21	61 13	1,619 8	23 1	-2 8	352 98	23 3
1,683 7	0 23	49 47	1,683 5	23 2	-2 6	353 51	23 4
1,747 4	0 34	56 71	1,747 2	23 4	-2 4	354 18	23 5
1,811 1	0 37	26 71	1,810 9	23 7	-2 1	354 85	23 8
1,874 8	0 40	51 93	1,874 5	24 0	-1 9	355 55	24 1
1,938 5	0 46	27 15	1,938 2	24 4	-1 6	356 30	24 4
2,002 2	0 58	0 63	2,001 9	24 9	-1 5	356 65	25 0
2,065 9	0 71	27 04	2,065 6	25 6	-1 3	357 15	25 6
2,129 6	0 71	22 48	2,129 3	26 3	-0 9	357 95	26 3
2,193 3	0 87	16 17	2,193 0	27 1	-0 7	358 61	27 2
2,257 0	1 11	14 00	2,256 7	28 2	-0 4	359 24	28 2
2,320 7	1 12	13 87	2,320 4	29 4	-0 1	359 85	29 4
2,384 4	1 13	21 99	2,384 1	30 6	0 3	0 58	30 6
2,448 1	1 13	36 55	2,447 8	31 7	0 9	1 66	31 7
2,511 8	1 15	91 95	2,511 5	32 2	1 9	3 43	32 2
2,575 5	1 47	17 70	2,575 2	32 9	2 8	4 89	33 0
2,639 2	1 80	22 93	2,638 8	34 6	3 5	5 70	34 8
2,702 9	1 96	19 85	2,702 5	36 6	4 2	6 58	36 8
2,766 6	1 99	19 24	2,766 2	38 6	5 0	7 30	39 0
2,830 3	2 25	22 30	2,829 8	40 8	5 8	8 07	41 2
2,894 0	2 72	29 25	2,893 5	43 3	7 0	9 18	43 9
2,957 7	3 26	35 76	2,957 1	46 1	8 8	10 81	46 9
3,021 4	3 47	37 20	3,020 7	49 1	11 0	12 65	50 3
3,085 1	3 36	34 95	3,084 2	52 2	13 3	14 26	53 8
3,148 8	2 95	23 42	3,147 9	55 2	15 0	15 18	57 2
3,212 5	2 34	19 67	3,211 5	57 9	16 1	15 50	60 1
3,276 2	1 92	358 32	3,275 1	60 2	16 5	15 30	62 4
3,339 9	1 89	24 31	3,338 8	62 3	16 9	15 17	64 5
3,403 6	2 12	31 08	3,402 5	64 2	17 9	15 59	66 7
3,467 3	2 79	39 85	3,466 1	66 4	19 5	16 38	69 2
3,531 0	3 36	48 33	3,529 7	68 8	21 9	17 65	72 3
3,594 7	3 28	42 12	3,593 3	71 4	24 5	18 94	75 5

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Merchant Livestock 22 33 19 State Com #1H
Project:	Red Tank	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Merchant Livestock 22 33 19 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611538	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
3,658.4	2.92	28.75	3,656.9	74.2	26.5	19.67	78.8
3,722.1	2.85	23.96	3,720.5	77.1	27.9	19.93	82.0
3,785.8	3.13	44.23	3,784.2	79.8	29.8	20.49	85.2
3,849.5	3.98	72.20	3,847.7	81.7	33.1	22.07	88.2
3,913.2	5.18	71.23	3,911.2	83.3	38.0	24.49	91.5
3,976.9	5.95	181.25	3,974.8	80.9	40.6	26.65	90.5
4,040.6	9.07	81.40	4,038.1	78.4	45.5	30.15	90.6
4,104.3	9.07	81.56	4,101.0	79.9	55.4	34.78	97.2
4,168.0	10.01	80.87	4,163.8	81.5	65.9	38.96	104.8
4,231.7	10.59	81.55	4,226.5	83.2	77.1	42.83	113.5
4,295.4	10.64	82.25	4,289.1	84.9	88.8	46.28	122.8
4,359.1	10.97	83.14	4,351.7	86.4	100.6	49.35	132.6
4,422.8	11.23	82.08	4,414.2	88.0	112.8	52.04	143.0
4,486.5	11.25	90.87	4,476.7	88.7	125.1	54.66	153.4
4,550.2	10.61	84.30	4,539.2	89.2	137.2	56.96	163.6
4,613.9	9.27	82.52	4,602.0	90.5	148.1	58.58	173.5
4,677.6	7.65	83.40	4,665.0	91.6	157.4	59.80	182.1
4,741.3	6.36	83.08	4,728.2	92.5	165.1	60.73	189.3
4,805.0	5.03	83.57	4,791.6	93.3	171.4	61.45	195.1
4,932.4	3.62	80.53	4,918.6	94.5	180.9	62.41	204.1
4,996.1	3.06	92.77	4,982.2	94.8	184.6	62.82	207.5
5,123.5	2.63	77.30	5,109.5	95.3	190.8	63.47	213.3
5,187.2	2.45	81.46	5,173.1	95.8	193.6	63.67	216.0
5,250.9	2.02	89.17	5,236.7	96.0	196.1	63.91	218.3
5,314.6	1.18	129.40	5,300.4	95.6	197.7	64.19	219.6
5,378.3	1.39	127.22	5,364.1	94.7	198.8	64.52	220.2
5,442.0	1.48	172.21	5,427.8	93.4	199.5	64.91	220.3
5,505.7	1.26	112.00	5,491.5	92.4	200.3	65.24	220.6
5,569.4	1.20	152.46	5,555.2	91.5	201.3	65.55	221.1
5,633.1	1.01	122.24	5,618.8	90.6	202.0	65.84	221.4
5,696.8	0.62	179.76	5,682.5	90.0	202.5	66.04	221.6
5,760.5	0.62	179.72	5,746.2	89.3	202.5	66.21	221.3
5,824.2	0.44	235.23	5,809.9	88.8	202.3	66.30	221.0
5,893.0	0.43	196.96	5,878.7	88.4	202.0	66.37	220.5
5,956.8	0.32	211.89	5,942.5	88.0	201.9	66.44	220.2
6,020.6	0.49	255.67	6,006.3	87.8	201.5	66.45	219.8
6,084.5	0.64	246.49	6,070.2	87.6	200.9	66.44	219.2
6,148.3	0.57	290.99	6,134.0	87.6	200.3	66.38	218.6
6,212.1	0.53	294.77	6,197.8	87.8	199.7	66.27	218.2
6,275.9	0.53	297.29	6,261.6	88.1	199.2	66.15	217.8
6,339.8	0.51	293.53	6,325.5	88.3	198.7	66.03	217.4
6,403.6	0.46	282.57	6,389.3	88.5	198.2	65.94	217.0
6,467.4	0.43	275.27	6,453.1	88.6	197.7	65.87	216.6
6,531.3	0.44	281.53	6,517.0	88.6	197.2	65.80	216.2

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Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Merchant Livestock 22 33 19 State Com #1H
Project:	Red Tank	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Merchant Livestock 22 33 19 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611538	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
6,595 1	0 42	275 33	6,580 8	88 7	196 7	65 73	215 8	
6,658 9	0 41	269 85	6,644 6	88 7	196 3	65 67	215 4	
6,722 8	0 44	258 68	6,708 5	88 7	195 8	65 63	214 9	
6,786 6	0 64	269 27	6,772 3	88 6	195 2	65 58	214 4	
6,850 4	0 66	287 23	6,836 1	88 7	194 5	65 48	213 8	
6,914 3	0 67	276 05	6,900 0	88 9	193 8	65 36	213 2	
6,978 1	0 67	120 70	6,963 8	88 7	193 7	65 39	213 1	
7,041 9	0 68	277 97	7,027 6	88 6	193 7	65 42	213 0	
7,107 8	0 60	268 47	7,093 5	88 6	192 9	65 33	212 3	
7,171 4	0 52	255 46	7,157 1	88 6	192 3	65 28	211 7	
7,235 0	0 52	255 46	7,220 7	88 4	191 8	65 25	211 2	
7,298 5	0 54	193 36	7,284 2	88 0	191 4	65 30	210 7	
7,362 1	0 49	2 11	7,347 8	88 0	191 4	65 30	210 6	
7,425 7	0 54	284 34	7,411 4	88 4	191 1	65 18	210 5	
7,489 3	0 55	218 95	7,475 0	88 2	190 6	65 16	210 0	
7,552 8	0 54	214 43	7,538 5	87 7	190 2	65 24	209 5	
7,616 4	0 51	206 11	7,602 1	87 2	189 9	65 33	209 0	
7,680 0	0 57	190 18	7,665 7	86 7	189 8	65 46	208 6	
7,743 5	0 55	195 49	7,729 2	86 1	189 6	65 59	208 2	
7,807 1	0 56	199 17	7,792 8	85 5	189 4	65 72	207 8	
7,870 7	0 57	211 53	7,856 4	84 9	189 2	65 83	207 4	
7,934 2	0 69	218 58	7,919 8	84 3	188 8	65 93	206 8	
7,997 8	0 75	223 54	7,983 4	83 7	188 2	66 02	206 0	
8,061 4	0 75	230 47	8,047 0	83 2	187 6	66 10	205 2	
8,124 9	0 80	234 87	8,110 5	82 6	187 0	66 15	204 4	
8,188 5	1 00	235 87	8,174 1	82 1	186 1	66 20	203 4	
8,252 3	1 10	230 04	8,237 9	81 4	185 2	66 28	202 3	
8,315 9	1 11	219 61	8,301 5	80 5	184 3	66 41	201 2	
8,376 1	1 12	215 39	8,361 7	79 6	183 6	66 57	200 1	
8,443 5	1 17	204 25	8,429 1	78 4	183 0	66 80	199 1	
8,510 9	1 26	197 79	8,496 5	77 1	182 5	67 10	198 1	
8,574 4	1 35	195 33	8,559 9	75 7	182 0	67 42	197 2	
8,638 0	1 33	197 66	8,623 5	74 3	181 6	67 76	196 2	
8,701 6	1 24	202 03	8,687 1	72 9	181 1	68 07	195 3	
8,765 1	1 20	207 35	8,750 6	71 7	180 6	68 34	194 3	
8,828 7	1 45	222 26	8,814 2	70 5	179 7	68 58	193 1	
8,892 3	1 98	216 98	8,877 8	69 0	178 5	68 86	191 4	
8,955 9	2 15	211 75	8,941 3	67 1	177 2	69 25	189 5	
9,019 4	2 20	210 81	9,004 8	65 1	176 0	69 70	187 6	
9,083 0	2 09	215 04	9,068 3	63 1	174 7	70 14	185 7	
9,146 6	2 08	211 49	9,131 9	61 2	173 4	70 58	183 9	
9,210 1	2 32	211 70	9,195 3	59 1	172 1	71 06	182 0	
9,273 7	2 61	219 01	9,258 9	56 9	170 6	71 56	179 8	
9,337 3	2 44	231 19	9,322 4	54 9	168 6	71 97	177 3	
9,400 9	2 73	231 02	9,385 9	53 1	166 4	72 30	174 6	

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Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Merchant Livestock 22 33 19 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611538	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
9,464.4	3.15	238.38	9,449.4	51.2	163.7	72.63	171.5
9,528.0	3.49	245.93	9,512.9	49.5	160.4	72.85	167.9
9,591.6	3.86	253.03	9,576.3	48.1	156.6	72.93	163.8
9,655.1	3.85	253.27	9,639.7	46.9	152.5	72.92	159.6
9,718.7	3.77	253.37	9,703.1	45.6	148.5	72.91	155.4
9,782.3	3.96	250.30	9,766.6	44.3	144.4	72.94	151.1
9,845.8	4.23	254.53	9,829.9	42.9	140.1	72.96	146.5
9,909.4	4.12	253.57	9,893.4	41.7	135.7	72.92	141.9
9,973.0	4.03	248.40	9,956.8	40.2	131.4	72.98	137.4
10,036.5	3.93	246.55	10,020.2	38.5	127.3	73.17	133.0
10,100.1	3.66	245.52	10,083.6	36.8	123.5	73.40	128.8
10,163.7	3.55	243.03	10,147.1	35.1	119.9	73.69	124.9
10,227.3	3.63	241.30	10,210.6	33.2	116.3	74.07	121.0
10,290.8	3.78	239.62	10,273.9	31.2	112.8	74.54	117.0
10,354.4	3.69	237.64	10,337.4	29.0	109.2	75.11	113.0
10,418.0	3.85	231.33	10,400.9	26.6	105.8	75.89	109.1
10,481.5	3.81	228.02	10,464.2	23.9	102.6	76.91	105.3
10,545.1	3.31	224.12	10,527.7	21.1	99.8	78.04	102.0
10,577.0	2.88	220.48	10,559.5	19.9	98.6	78.61	100.6



Scientific Drilling
Directional Drilling Operations

Project: Red Tank
Lea County, NM
Well: Merchant Livestock 22 33 19 State Com #1H
Core: VH - Job #32K0611538
Sign: VH - Job #32K0611538

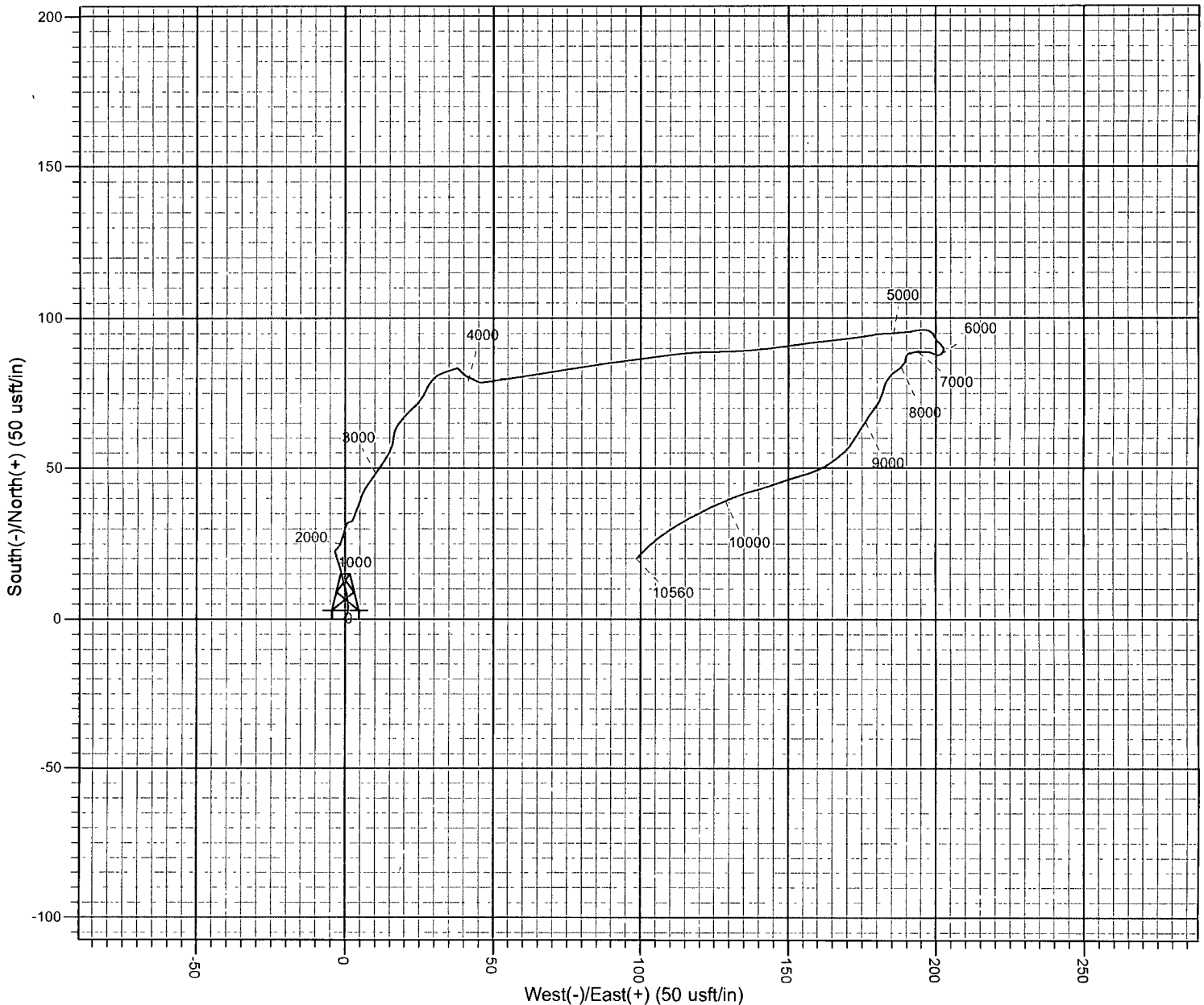


Azimuths to Grid North
True North -0 38°
Magnetic North 7 24°
Magnetic Field
Strength 48734 5snT
Dip Angle 60 33°
Date 6/10/2011
Model IGRF2010

WELL DETAILS: Merchant Livestock 22 33 19 State Com #1H
WELL @ 0.0usft (Original Well Elev)

Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	503668.39	720749.24	32° 22' 57.616 N	103° 37' 5.696 W	



PROJECT DETAILS: Red Tank
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Lea County, NM
Site Centre Latitude: 32° 22' 57.616 N
Longitude: 103° 37' 5.696 W
Positional Uncertainty: 0.0
Convergence: 0.38
Local North: Grid



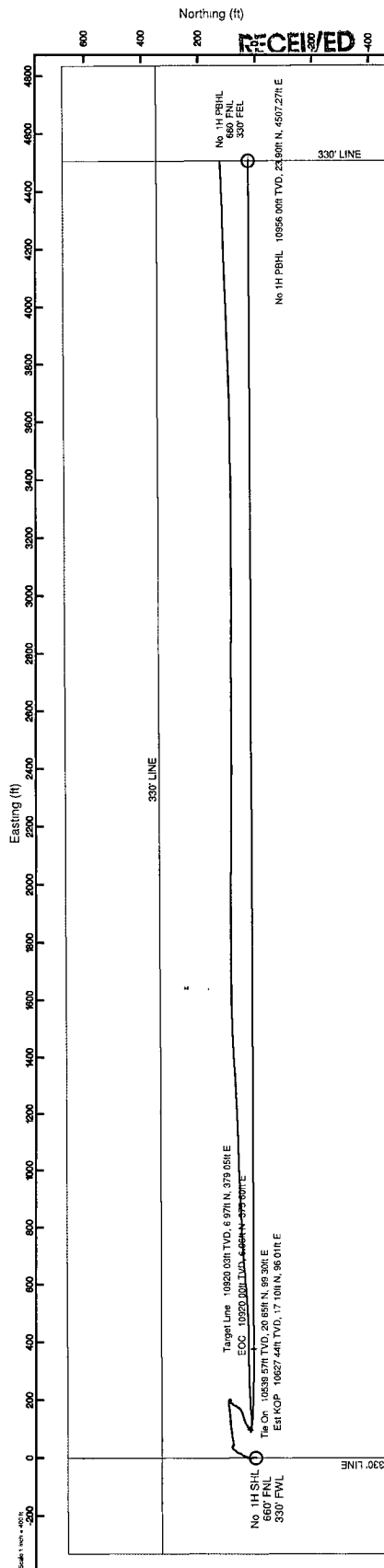
Cimarex Energy Co.

Location Lea County, NM
Field (Merchant Livestock) Sec 19, T22S, R33E
Facility Merchant Livestock State No. 1H

Slot No. 1H SHL
Well No. 1H
Wellbore No. 1HFWB

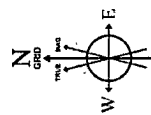


Well Profile Data									
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)	
Tie On	10557.00	3.148	222.878	10539.57	20.65	99.30	0.00	99.40	
Est KOP	10645.00	3.148	222.878	10627.44	17.10	96.01	0.00	96.10	
EOC	11096.42	89.500	89.696	10920.00	6.96	375.60	20.30	375.63	
Target Line	11099.87	89.501	89.765	10920.03	6.97	379.05	2.00	379.09	
No. 1H PBHL	15228.28	89.501	89.765	10956.00	23.90	4507.27	0.00	4507.33	

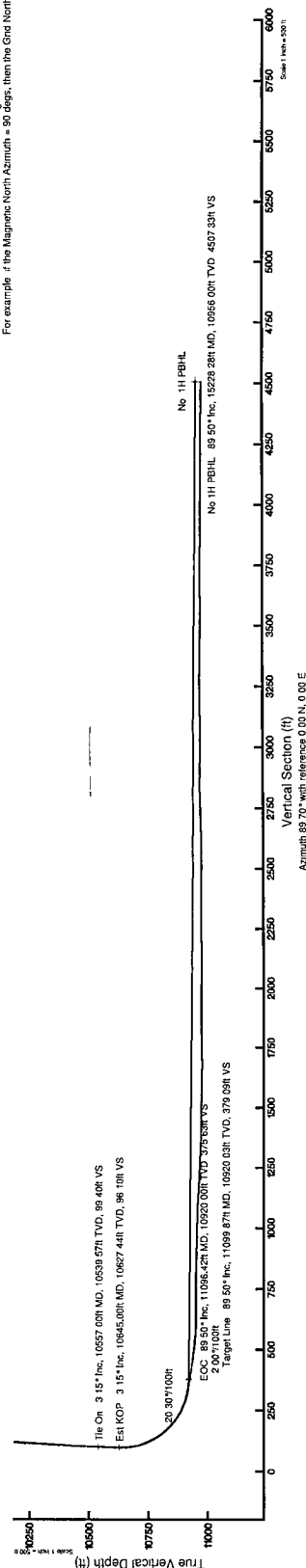


Plot reference wellpath is Plan #1	Grid System NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
True vertical depths are referenced to Rig on No. 1H SHL (RT)	North Reference Grid north
Measured depths are referenced to Rig on No. 1H SHL (RT)	Scale True distance
Rig on No. 1H SHL (RT) to Mean Sea Level 3704 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot No. 1H SHL) -3704 feet	Created by gentby on 6/11/2011
Coordinates are in feet referenced to Slot	

SUR: D-19-22s-33e, 660/N & 330/W
BHL: A-19-22s-33e, 536/N & 4835/W
API # 30-025-40107



BCGM (1945.0 to 2012.0) Dip 60.34° Field 48751.6 nT
Magnetic North is 7.88 degrees East of True North (at 5/2/2011)
To correct azimuth from True to Grid subtract 7.88 degrees
To correct azimuth from Magnetic to Grid add 7.30 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.30 = 97.30





Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWB
Facility	Merchant Livestock State No. 1H		

REPORT SETUP INFORMATION			
Projection System	NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Calhphik
Scale	0.999965	Report Generated	6/29/2011 at 8:33:47 AM
Convergence at slot	0.38° East	Database/Source file	WA Midland/No.1H_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	720749.30	503668.30	32°22'57.615"N	103°37'05.696"W
Facility Reference Pt			720749.30	503668.30	32°22'57.615"N	103°37'05.696"W
Field Reference Pt			720749.30	503668.30	32°22'57.615"N	103°37'05.696"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 1H SHL (KB) to GL	20.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (KB) to Mean Sea Level	3724.00ft
Vertical Reference Pt	Rig on No. 1H SHL (KB)	Rig on No. 1H SHL (KB) to Mud Line at Slot (No. 1H SHL)	20.00ft
MD Reference Pt	Rig on No. 1H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	88.43°



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH-DATA (255 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	23.000	0.00	0.00	0.00	0.00	720749.30	503668.30	32°22'57.615"N	103°37'05.696"W	0.00	
20.00	0.000	23.000	20.00	0.00	0.00	0.00	720749.30	503668.30	32°22'57.615"N	103°37'05.696"W	0.00	
116.40	0.700	23.000	116.40	0.24	0.54	0.23	720749.53	503668.84	32°22'57.620"N	103°37'05.693"W	0.73	
177.90	0.690	20.470	177.89	0.54	1.23	0.51	720749.81	503669.53	32°22'57.627"N	103°37'05.690"W	0.05	
239.50	0.690	14.710	239.49	0.78	1.94	0.73	720750.03	503670.24	32°22'57.634"N	103°37'05.687"W	0.11	
298.80	0.720	14.340	298.78	0.99	2.65	0.91	720750.21	503670.95	32°22'57.641"N	103°37'05.685"W	0.05	
358.20	0.820	0.930	358.18	1.11	3.43	1.01	720750.31	503671.73	32°22'57.649"N	103°37'05.684"W	0.35	
419.40	0.920	359.480	419.37	1.13	4.36	1.02	720750.32	503672.66	32°22'57.658"N	103°37'05.684"W	0.17	
480.60	1.110	355.460	480.56	1.11	5.45	0.96	720750.26	503673.75	32°22'57.669"N	103°37'05.684"W	0.33	
540.00	1.180	353.810	539.95	1.03	6.63	0.85	720750.15	503674.93	32°22'57.680"N	103°37'05.685"W	0.13	
603.70	1.260	352.090	603.64	0.90	7.97	0.69	720749.99	503676.27	32°22'57.694"N	103°37'05.687"W	0.14	
667.50	1.440	335.630	667.42	0.52	9.40	0.26	720749.56	503677.70	32°22'57.708"N	103°37'05.692"W	0.67	
731.30	1.830	347.010	731.19	0.00	11.12	-0.30	720749.00	503679.42	32°22'57.725"N	103°37'05.698"W	0.79	
795.00	2.100	346.170	794.85	-0.45	13.24	-0.81	720748.49	503681.54	32°22'57.746"N	103°37'05.704"W	0.43	
858.80	2.040	345.870	858.61	-0.94	15.48	-1.37	720747.93	503683.78	32°22'57.768"N	103°37'05.710"W	0.10	
922.10	1.110	338.830	921.89	-1.39	17.15	-1.86	720747.44	503685.44	32°22'57.785"N	103°37'05.716"W	1.50	
1049.60	0.870	344.370	1049.37	-2.04	19.23	-2.57	720746.73	503687.53	32°22'57.805"N	103°37'05.724"W	0.20	
1113.40	0.690	349.240	1113.16	-2.22	20.07	-2.77	720746.53	503688.37	32°22'57.814"N	103°37'05.726"W	0.30	
1177.10	0.520	348.100	1176.86	-2.33	20.73	-2.90	720746.40	503689.03	32°22'57.820"N	103°37'05.728"W	0.27	
1240.90	0.400	344.030	1240.66	-2.44	21.23	-3.02	720746.28	503689.53	32°22'57.825"N	103°37'05.729"W	0.19	
1304.60	0.320	335.350	1304.36	-2.57	21.61	-3.16	720746.14	503689.90	32°22'57.829"N	103°37'05.731"W	0.15	
1365.20	0.310	350.270	1364.96	-2.66	21.92	-3.26	720746.04	503690.22	32°22'57.832"N	103°37'05.732"W	0.14	
1428.90	0.300	359.740	1428.65	-2.68	22.26	-3.29	720746.01	503690.56	32°22'57.835"N	103°37'05.732"W	0.08	
1492.60	0.280	33.380	1492.35	-2.58	22.55	-3.20	720746.10	503690.85	32°22'57.838"N	103°37'05.731"W	0.27	
1556.30	0.230	29.300	1556.05	-2.43	22.80	-3.05	720746.25	503691.10	32°22'57.841"N	103°37'05.730"W	0.08	
1620.00	0.210	61.130	1619.75	-2.26	22.96	-2.89	720746.41	503691.26	32°22'57.842"N	103°37'05.728"W	0.19	
1683.70	0.230	49.470	1683.45	-2.06	23.10	-2.69	720746.61	503691.40	32°22'57.844"N	103°37'05.725"W	0.08	
1747.40	0.340	56.710	1747.15	-1.80	23.29	-2.43	720746.87	503691.59	32°22'57.845"N	103°37'05.722"W	0.18	
1811.10	0.370	26.710	1810.85	-1.54	23.58	-2.18	720747.12	503691.88	32°22'57.848"N	103°37'05.719"W	0.29	
1874.80	0.400	51.930	1874.55	-1.26	23.90	-1.92	720747.38	503692.20	32°22'57.851"N	103°37'05.716"W	0.27	
1938.50	0.460	27.150	1938.25	-0.96	24.26	-1.63	720747.67	503692.56	32°22'57.855"N	103°37'05.713"W	0.30	
2002.20	0.580	0.630	2001.94	-0.82	24.81	-1.50	720747.80	503693.11	32°22'57.860"N	103°37'05.711"W	0.42	
2065.90	0.710	27.040	2065.64	-0.62	25.49	-1.32	720747.98	503693.79	32°22'57.867"N	103°37'05.709"W	0.50	
2129.60	0.710	22.480	2129.34	-0.27	26.20	-0.99	720748.31	503694.50	32°22'57.874"N	103°37'05.705"W	0.09	
2193.30	0.870	16.170	2193.03	0.04	27.03	-0.71	720748.59	503695.33	32°22'57.882"N	103°37'05.702"W	0.29	
2257.00	1.110	14.000	2256.72	0.35	28.10	-0.42	720748.88	503696.39	32°22'57.893"N	103°37'05.698"W	0.38	
2320.70	1.120	13.870	2320.41	0.68	29.30	-0.12	720749.18	503697.60	32°22'57.905"N	103°37'05.695"W	0.02	
2384.40	1.130	21.990	2384.10	1.10	30.49	0.26	720749.56	503698.78	32°22'57.916"N	103°37'05.690"W	0.25	
2448.10	1.130	36.550	2447.78	1.74	31.57	0.87	720750.17	503699.87	32°22'57.927"N	103°37'05.683"W	0.45	
2511.80	1.150	91.950	2511.47	2.76	32.06	1.88	720751.18	503700.35	32°22'57.932"N	103°37'05.671"W	1.66	
2575.50	1.470	17.700	2575.16	3.67	32.81	2.77	720752.07	503701.11	32°22'57.939"N	103°37'05.661"W	2.51	
2639.20	1.800	22.930	2638.83	4.35	34.51	3.41	720752.71	503702.81	32°22'57.956"N	103°37'05.653"W	0.57	
2702.90	1.960	19.850	2702.50	5.17	36.46	4.17	720753.47	503704.76	32°22'57.975"N	103°37'05.644"W	0.30	
2766.60	1.990	19.240	2766.16	5.96	38.53	4.90	720754.20	503706.82	32°22'57.996"N	103°37'05.636"W	0.06	
2830.30	2.250	22.300	2829.82	6.86	40.73	5.74	720755.04	503709.03	32°22'58.017"N	103°37'05.626"W	0.45	



Actual Wellpath Report

No.1H AWP

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**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH DATA (255 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
2894.00	2.720	29.250	2893.46	8.14	43.20	6.95	720756.25	503711.50	32°22'58.042"N	103°37'05.611"W	0.88	
2957.70	3.260	35.760	2957.07	10.01	45.99	8.75	720758.05	503714.29	32°22'58.069"N	103°37'05.590"W	1.00	
3021.40	3.470	37.200	3020.66	12.31	49.00	10.98	720760.28	503717.30	32°22'58.099"N	103°37'05.564"W	0.36	
3085.10	3.360	34.950	3084.25	14.63	52.06	13.21	720762.51	503720.36	32°22'58.129"N	103°37'05.538"W	0.27	
3148.80	2.950	23.420	3147.85	16.44	55.10	14.93	720764.23	503723.39	32°22'58.159"N	103°37'05.517"W	1.18	
3212.50	2.340	19.670	3211.48	17.60	57.83	16.02	720765.32	503726.12	32°22'58.186"N	103°37'05.504"W	0.99	
3276.20	1.920	358.320	3275.14	18.07	60.12	16.43	720765.73	503728.41	32°22'58.209"N	103°37'05.499"W	1.40	
3339.90	1.890	24.310	3338.81	18.53	62.14	16.83	720766.13	503730.44	32°22'58.229"N	103°37'05.495"W	1.35	
3403.60	2.120	31.080	3402.47	19.62	64.11	17.87	720767.17	503732.40	32°22'58.248"N	103°37'05.482"W	0.52	
3467.30	2.790	39.850	3466.11	21.28	66.31	19.47	720768.77	503734.60	32°22'58.270"N	103°37'05.463"W	1.20	
3531.00	3.360	48.330	3529.72	23.73	68.74	21.86	720771.16	503737.03	32°22'58.293"N	103°37'05.435"W	1.14	
3594.70	3.280	42.120	3593.31	26.42	71.33	24.47	720773.77	503739.63	32°22'58.319"N	103°37'05.405"W	0.58	
3658.40	2.920	28.750	3656.92	28.50	74.10	26.48	720775.78	503742.40	32°22'58.346"N	103°37'05.381"W	1.26	
3722.10	2.850	23.960	3720.54	30.00	76.97	27.90	720777.20	503745.27	32°22'58.375"N	103°37'05.364"W	0.39	
3785.80	3.130	44.230	3784.15	31.93	79.67	29.76	720779.06	503747.96	32°22'58.401"N	103°37'05.343"W	1.71	
3849.50	3.980	72.200	3847.74	35.30	81.59	33.08	720782.37	503749.89	32°22'58.420"N	103°37'05.304"W	2.99	
3913.20	5.180	71.230	3911.23	40.17	83.19	37.90	720787.20	503751.49	32°22'58.435"N	103°37'05.247"W	1.89	
3976.90	5.950	181.250	3974.76	42.76	80.81	40.56	720789.86	503749.11	32°22'58.412"N	103°37'05.216"W	14.32	
4040.60	9.070	81.400	4038.11	47.60	78.25	45.47	720794.77	503746.55	32°22'58.386"N	103°37'05.159"W	18.30	
4104.30	9.070	81.560	4101.02	57.56	79.74	55.40	720804.70	503748.04	32°22'58.400"N	103°37'05.043"W	0.04	
4168.00	10.010	80.870	4163.83	68.04	81.35	65.83	720815.13	503749.65	32°22'58.415"N	103°37'04.922"W	1.49	
4231.70	10.590	81.550	4226.51	79.34	83.09	77.09	720826.39	503751.39	32°22'58.432"N	103°37'04.790"W	0.93	
4295.40	10.640	82.250	4289.12	90.99	84.75	88.71	720838.00	503753.04	32°22'58.447"N	103°37'04.655"W	0.22	
4359.10	10.970	83.140	4351.69	102.88	86.26	100.55	720849.85	503754.56	32°22'58.462"N	103°37'04.517"W	0.58	
4422.80	11.230	82.080	4414.20	115.08	87.84	112.71	720862.01	503756.14	32°22'58.476"N	103°37'04.375"W	0.52	
4486.50	11.250	90.870	4476.68	127.45	88.60	125.07	720874.36	503756.90	32°22'58.483"N	103°37'04.230"W	2.69	
4550.20	10.610	84.300	4539.23	139.51	89.09	137.12	720886.41	503757.39	32°22'58.487"N	103°37'04.090"W	2.20	
4613.90	9.270	82.520	4601.97	150.46	90.34	148.04	720897.33	503758.64	32°22'58.499"N	103°37'03.962"W	2.16	
4677.60	7.650	83.400	4664.97	159.79	91.50	157.34	720906.63	503759.79	32°22'58.510"N	103°37'03.854"W	2.55	
4741.30	6.360	83.080	4728.20	167.52	92.41	165.05	720914.35	503760.70	32°22'58.518"N	103°37'03.764"W	2.03	
4805.00	5.030	83.570	4791.58	173.82	93.15	171.33	720920.63	503761.44	32°22'58.525"N	103°37'03.691"W	2.09	
4932.40	3.620	80.530	4918.61	183.37	94.43	180.85	720930.14	503762.73	32°22'58.537"N	103°37'03.580"W	1.12	
4996.10	3.060	92.770	4982.21	187.06	94.68	184.53	720933.82	503762.98	32°22'58.539"N	103°37'03.537"W	1.42	
5123.50	2.630	77.300	5109.45	193.32	95.16	190.78	720940.07	503763.46	32°22'58.544"N	103°37'03.464"W	0.69	
5187.20	2.450	81.460	5173.09	196.10	95.68	193.55	720942.84	503763.98	32°22'58.549"N	103°37'03.431"W	0.40	
5250.90	2.020	89.170	5236.74	198.58	95.90	196.02	720945.31	503764.20	32°22'58.551"N	103°37'03.403"W	0.82	
5314.60	1.180	129.400	5300.42	200.19	95.50	197.65	720946.94	503763.80	32°22'58.547"N	103°37'03.384"W	2.13	
5378.30	1.390	127.220	5364.10	201.29	94.62	198.77	720948.06	503762.92	32°22'58.538"N	103°37'03.371"W	0.34	
5442.00	1.480	172.210	5427.78	201.98	93.34	199.50	720948.79	503761.63	32°22'58.525"N	103°37'03.362"W	1.73	
5505.70	1.260	112.000	5491.47	202.71	92.26	200.26	720949.55	503760.56	32°22'58.514"N	103°37'03.353"W	2.18	
5569.40	1.200	152.460	5555.15	203.65	91.41	201.22	720950.51	503759.70	32°22'58.506"N	103°37'03.342"W	1.34	
5633.10	1.010	122.240	5618.84	204.41	90.51	202.00	720951.29	503758.81	32°22'58.497"N	103°37'03.333"W	0.95	
5696.80	0.620	179.760	5682.54	204.86	89.87	202.48	720951.77	503758.17	32°22'58.491"N	103°37'03.328"W	1.34	
5760.50	0.620	179.720	5746.23	204.85	89.18	202.48	720951.77	503757.48	32°22'58.484"N	103°37'03.328"W	0.00	
5824.20	0.440	235.230	5809.93	204.64	88.70	202.28	720951.57	503756.99	32°22'58.479"N	103°37'03.330"W	0.81	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH DATA (255 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
5893.00	0.430	196.960	5878.73	204.33	88.30	201.99	720951.28	503756.60	32°22'58.475"N	103°37'03.334"W	0.41	
5956.80	0.320	211.890	5942.53	204.16	87.92	201.82	720951.12	503756.22	32°22'58.471"N	103°37'03.335"W	0.23	
6020.60	0.490	255.670	6006.33	203.79	87.70	201.47	720950.76	503756.00	32°22'58.469"N	103°37'03.340"W	0.53	
6084.50	0.640	246.490	6070.22	203.20	87.49	200.87	720950.17	503755.79	32°22'58.467"N	103°37'03.347"W	0.27	
6148.30	0.570	290.990	6134.02	202.57	87.46	200.25	720949.54	503755.76	32°22'58.467"N	103°37'03.354"W	0.73	
6212.10	0.530	294.770	6197.82	202.02	87.70	199.69	720948.98	503756.00	32°22'58.469"N	103°37'03.360"W	0.08	
6275.90	0.530	297.290	6261.61	201.49	87.96	199.16	720948.45	503756.25	32°22'58.472"N	103°37'03.367"W	0.04	
6339.80	0.510	293.530	6325.51	200.98	88.21	198.63	720947.93	503756.50	32°22'58.474"N	103°37'03.373"W	0.06	
6403.60	0.460	282.570	6389.31	200.47	88.38	198.12	720947.42	503756.67	32°22'58.476"N	103°37'03.379"W	0.16	
6467.40	0.430	275.270	6453.11	199.98	88.45	197.63	720946.93	503756.75	32°22'58.477"N	103°37'03.384"W	0.10	
6531.30	0.440	281.530	6517.01	199.51	88.52	197.16	720946.45	503756.82	32°22'58.478"N	103°37'03.390"W	0.08	
6595.10	0.420	275.330	6580.80	199.04	88.60	196.68	720945.98	503756.89	32°22'58.478"N	103°37'03.395"W	0.08	
6658.90	0.410	269.850	6644.60	198.58	88.62	196.22	720945.51	503756.91	32°22'58.479"N	103°37'03.401"W	0.06	
6722.80	0.440	258.680	6708.50	198.11	88.57	195.75	720945.04	503756.86	32°22'58.478"N	103°37'03.406"W	0.14	
6786.60	0.640	269.270	6772.30	197.51	88.52	195.16	720944.45	503756.81	32°22'58.478"N	103°37'03.413"W	0.35	
6850.40	0.660	287.230	6836.09	196.80	88.62	194.45	720943.74	503756.92	32°22'58.479"N	103°37'03.421"W	0.32	
6914.30	0.670	276.050	6899.99	196.09	88.77	193.73	720943.02	503757.06	32°22'58.480"N	103°37'03.430"W	0.20	
6978.10	0.670	120.700	6963.79	196.03	88.62	193.68	720942.97	503756.91	32°22'58.479"N	103°37'03.430"W	2.05	
7041.90	0.680	277.970	7027.59	195.97	88.48	193.62	720942.91	503756.78	32°22'58.477"N	103°37'03.431"W	2.07	
7107.80	0.600	268.470	7093.48	195.24	88.52	192.89	720942.18	503756.82	32°22'58.478"N	103°37'03.440"W	0.20	
7171.40	0.520	255.460	7157.08	194.63	88.44	192.28	720941.57	503756.74	32°22'58.477"N	103°37'03.447"W	0.24	
7235.00	0.520	255.460	7220.68	194.07	88.30	191.72	720941.01	503756.59	32°22'58.476"N	103°37'03.453"W	0.00	
7298.50	0.540	193.360	7284.17	193.71	87.93	191.37	720940.66	503756.23	32°22'58.472"N	103°37'03.457"W	0.86	
7362.10	0.490	2.110	7347.77	193.65	87.91	191.31	720940.60	503756.21	32°22'58.472"N	103°37'03.458"W	1.61	
7425.70	0.540	284.340	7411.37	193.38	88.26	191.03	720940.32	503756.56	32°22'58.475"N	103°37'03.461"W	1.02	
7489.30	0.550	218.950	7474.97	192.89	88.10	190.55	720939.84	503756.39	32°22'58.474"N	103°37'03.467"W	0.93	
7552.80	0.540	214.430	7538.47	192.52	87.61	190.19	720939.48	503755.91	32°22'58.469"N	103°37'03.471"W	0.07	
7616.40	0.510	206.110	7602.06	192.21	87.11	189.89	720939.19	503755.41	32°22'58.464"N	103°37'03.475"W	0.13	
7680.00	0.570	190.180	7665.66	192.01	86.55	189.71	720939.01	503754.84	32°22'58.459"N	103°37'03.477"W	0.25	
7743.50	0.550	195.490	7729.16	191.86	85.94	189.58	720938.87	503754.24	32°22'58.453"N	103°37'03.478"W	0.09	
7807.10	0.560	199.170	7792.75	191.66	85.35	189.39	720938.68	503753.65	32°22'58.447"N	103°37'03.481"W	0.06	
7870.70	0.570	211.530	7856.35	191.38	84.79	189.12	720938.42	503753.09	32°22'58.441"N	103°37'03.484"W	0.19	
7934.20	0.690	218.580	7919.85	190.96	84.22	188.72	720938.01	503752.52	32°22'58.436"N	103°37'03.489"W	0.22	
7997.80	0.750	223.540	7983.44	190.42	83.62	188.20	720937.49	503751.92	32°22'58.430"N	103°37'03.495"W	0.14	
8061.40	0.750	230.470	8047.04	189.79	83.05	187.59	720936.88	503751.35	32°22'58.424"N	103°37'03.502"W	0.14	
8124.90	0.800	234.870	8110.53	189.10	82.54	186.90	720936.20	503750.83	32°22'58.419"N	103°37'03.510"W	0.12	
8188.50	1.000	235.870	8174.12	188.26	81.97	186.08	720935.37	503750.27	32°22'58.414"N	103°37'03.520"W	0.32	
8252.30	1.100	230.040	8237.91	187.31	81.26	185.15	720934.44	503749.56	32°22'58.407"N	103°37'03.530"W	0.23	
8315.90	1.110	219.610	8301.50	186.43	80.40	184.29	720933.58	503748.69	32°22'58.398"N	103°37'03.541"W	0.32	
8376.10	1.120	215.390	8361.69	185.69	79.47	183.58	720932.87	503747.76	32°22'58.389"N	103°37'03.549"W	0.14	
8443.50	1.170	204.250	8429.08	184.99	78.30	182.91	720932.21	503746.60	32°22'58.377"N	103°37'03.557"W	0.34	
8510.90	1.260	197.790	8496.46	184.45	76.97	182.41	720931.70	503745.27	32°22'58.364"N	103°37'03.563"W	0.24	
8574.40	1.350	195.330	8559.94	184.00	75.58	181.99	720931.29	503743.88	32°22'58.351"N	103°37'03.568"W	0.17	
8638.00	1.330	197.660	8623.53	183.54	74.16	181.57	720930.87	503742.45	32°22'58.337"N	103°37'03.573"W	0.09	
8701.60	1.240	202.030	8687.11	183.02	72.82	181.09	720930.38	503741.11	32°22'58.323"N	103°37'03.578"W	0.21	



Actual Wellpath Report

No.1H AWP

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**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH DATA (255 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8765.10	1.200	207.350	8750.60	182.42	71.59	180.53	720929.82	503739.89	32°22'58.311"N	103°37'03.585"W	0.19	
8828.70	1.450	222.260	8814.18	181.54	70.40	179.68	720928.97	503738.70	32°22'58.299"N	103°37'03.595"W	0.67	
8892.30	1.980	216.980	8877.75	180.30	68.93	178.48	720927.77	503737.23	32°22'58.285"N	103°37'03.609"W	0.87	
8955.90	2.150	211.750	8941.31	178.96	67.04	177.19	720926.48	503735.33	32°22'58.266"N	103°37'03.624"W	0.40	
9019.40	2.200	210.810	9004.76	177.65	64.98	175.94	720925.23	503733.27	32°22'58.246"N	103°37'03.639"W	0.10	
9083.00	2.090	215.040	9068.32	176.31	62.98	174.65	720923.94	503731.28	32°22'58.226"N	103°37'03.654"W	0.30	
9146.60	2.080	211.490	9131.88	174.99	61.04	173.38	720922.67	503729.34	32°22'58.207"N	103°37'03.669"W	0.20	
9210.10	2.320	211.700	9195.33	173.65	58.97	172.10	720921.39	503727.27	32°22'58.187"N	103°37'03.684"W	0.38	
9273.70	2.610	219.010	9258.87	172.00	56.75	170.51	720919.81	503725.05	32°22'58.165"N	103°37'03.703"W	0.67	
9337.30	2.440	231.190	9322.41	169.98	54.77	168.55	720917.84	503723.07	32°22'58.146"N	103°37'03.726"W	0.88	
9400.90	2.730	231.020	9385.95	167.70	52.97	166.31	720915.61	503721.27	32°22'58.128"N	103°37'03.752"W	0.46	
9464.40	3.150	238.380	9449.36	164.99	51.11	163.65	720912.95	503719.41	32°22'58.110"N	103°37'03.783"W	0.89	
9528.00	3.490	245.930	9512.86	161.69	49.40	160.40	720909.69	503717.70	32°22'58.093"N	103°37'03.822"W	0.87	
9591.60	3.860	253.030	9576.33	157.84	47.99	156.58	720905.88	503716.29	32°22'58.079"N	103°37'03.866"W	0.92	
9655.10	3.850	253.270	9639.68	153.72	46.75	152.50	720901.79	503715.05	32°22'58.067"N	103°37'03.914"W	0.03	
9718.70	3.770	253.370	9703.14	149.64	45.54	148.45	720897.74	503713.84	32°22'58.056"N	103°37'03.961"W	0.13	
9782.30	3.960	250.300	9766.60	145.53	44.20	144.38	720893.67	503712.50	32°22'58.043"N	103°37'04.009"W	0.44	
9845.80	4.230	254.530	9829.93	141.18	42.83	140.06	720889.35	503711.13	32°22'58.029"N	103°37'04.059"W	0.64	
9909.40	4.120	253.570	9893.37	136.69	41.56	135.60	720884.90	503709.86	32°22'58.017"N	103°37'04.111"W	0.20	
9973.00	4.030	248.400	9956.81	132.38	40.09	131.33	720880.63	503708.39	32°22'58.003"N	103°37'04.161"W	0.59	
10036.50	3.930	246.550	10020.15	128.27	38.41	127.26	720876.56	503706.70	32°22'57.986"N	103°37'04.209"W	0.26	
10100.10	3.660	245.520	10083.61	124.38	36.70	123.42	720872.71	503705.00	32°22'57.970"N	103°37'04.254"W	0.44	
10163.70	3.550	243.030	10147.09	120.73	34.96	119.81	720869.11	503703.26	32°22'57.953"N	103°37'04.296"W	0.30	
10227.30	3.630	241.300	10210.56	117.16	33.10	116.29	720865.59	503701.40	32°22'57.935"N	103°37'04.337"W	0.21	
10290.80	3.780	239.620	10273.93	113.53	31.08	112.72	720862.02	503699.38	32°22'57.915"N	103°37'04.379"W	0.29	
10354.40	3.690	237.640	10337.39	109.94	28.92	109.19	720858.48	503697.22	32°22'57.894"N	103°37'04.420"W	0.25	
10418.00	3.850	231.330	10400.86	106.48	26.49	105.79	720855.09	503694.79	32°22'57.870"N	103°37'04.460"W	0.70	
10481.50	3.810	228.020	10464.22	103.17	23.75	102.56	720851.85	503692.05	32°22'57.843"N	103°37'04.498"W	0.35	
10545.10	3.310	224.120	10527.69	100.25	21.02	99.71	720849.01	503689.32	32°22'57.816"N	103°37'04.531"W	0.87	
10577.00	2.880	220.480	10559.55	99.05	19.75	98.55	720847.84	503688.05	32°22'57.804"N	103°37'04.545"W	1.48	
10606.00	2.900	223.200	10588.51	98.05	18.66	97.57	720846.87	503686.96	32°22'57.793"N	103°37'04.557"W	0.48	
10638.00	2.400	210.100	10620.47	97.13	17.49	96.68	720845.98	503685.79	32°22'57.781"N	103°37'04.567"W	2.44	
10670.00	3.700	113.300	10652.44	97.71	16.50	97.29	720846.59	503684.80	32°22'57.772"N	103°37'04.560"W	14.51	
10702.00	9.200	95.200	10684.23	101.19	15.86	100.79	720850.09	503684.16	32°22'57.765"N	103°37'04.519"W	18.12	
10733.00	15.900	92.300	10714.48	107.90	15.47	107.51	720856.81	503683.76	32°22'57.761"N	103°37'04.441"W	21.70	
10765.00	22.100	90.300	10744.72	118.30	15.26	117.92	720867.22	503683.56	32°22'57.758"N	103°37'04.319"W	19.48	
10797.00	28.600	88.900	10773.62	131.99	15.37	131.61	720880.91	503683.67	32°22'57.758"N	103°37'04.160"W	20.40	
10828.00	35.100	86.500	10799.94	148.33	16.06	147.95	720897.24	503684.36	32°22'57.764"N	103°37'03.969"W	21.36	
10860.00	41.700	86.200	10825.00	168.18	17.33	167.77	720917.07	503685.63	32°22'57.775"N	103°37'03.738"W	20.63	
10892.00	47.700	86.800	10847.74	190.67	18.70	190.23	720939.52	503687.00	32°22'57.787"N	103°37'03.476"W	18.80	
10923.00	54.800	86.800	10867.13	214.82	20.05	214.35	720963.64	503688.34	32°22'57.799"N	103°37'03.195"W	22.90	
10955.00	60.700	87.200	10884.20	241.86	21.46	241.37	720990.66	503689.76	32°22'57.811"N	103°37'02.880"W	18.47	
10987.00	68.100	88.100	10898.02	270.70	22.63	270.18	721019.47	503690.93	32°22'57.821"N	103°37'02.544"W	23.26	
11019.00	75.800	88.600	10907.92	301.10	23.51	300.57	721049.86	503691.80	32°22'57.827"N	103°37'02.189"W	24.11	
11050.00	78.600	88.800	10914.79	331.33	24.19	330.79	721080.08	503692.49	32°22'57.832"N	103°37'01.837"W	9.05	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH DATA (255 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
11082.00	79.400	89.300	10920.90	362.74	24.71	362.20	721111.48	503693.01	32°22'57.835"N	103°37'01.470"W	2.93	
11115.00	80.400	90.000	10926.68	395.22	24.91	394.68	721143.97	503693.21	32°22'57.835"N	103°37'01.092"W	3.68	
11146.00	80.900	89.000	10931.72	425.80	25.18	425.27	721174.55	503693.48	32°22'57.836"N	103°37'00.735"W	3.57	
11178.00	81.700	89.000	10936.56	457.43	25.73	456.90	721206.18	503694.03	32°22'57.839"N	103°37'00.366"W	2.50	
11210.00	82.700	86.600	10940.90	489.13	26.95	488.57	721237.86	503695.25	32°22'57.849"N	103°37'00.000"W	8.06	
11241.00	84.200	86.100	10944.44	519.91	28.91	519.31	721268.59	503697.21	32°22'57.866"N	103°36'59.638"W	5.10	
11271.00	85.900	86.300	10947.03	549.77	30.89	549.13	721298.41	503699.19	32°22'57.884"N	103°36'59.290"W	5.71	
11303.00	87.600	84.800	10948.84	581.68	33.37	580.98	721330.26	503701.67	32°22'57.906"N	103°36'58.919"W	7.08	
11334.00	89.600	85.000	10949.60	612.61	36.12	611.85	721361.12	503704.42	32°22'57.932"N	103°36'58.558"W	6.48	
11365.00	90.300	85.400	10949.63	643.56	38.72	642.74	721392.01	503707.01	32°22'57.955"N	103°36'58.198"W	2.60	
11397.00	90.000	85.600	10949.54	675.52	41.23	674.64	721423.91	503709.53	32°22'57.978"N	103°36'57.826"W	1.13	
11430.00	89.900	86.000	10949.57	708.48	43.64	707.55	721456.82	503711.94	32°22'58.000"N	103°36'57.442"W	1.25	
11462.00	90.800	86.500	10949.38	740.46	45.74	739.48	721488.75	503714.03	32°22'58.018"N	103°36'57.069"W	3.22	
11494.00	89.900	86.400	10949.18	772.44	47.72	771.42	721520.69	503716.02	32°22'58.036"N	103°36'56.697"W	2.83	
11527.00	89.000	87.600	10949.50	805.42	49.44	804.37	721553.64	503717.74	32°22'58.051"N	103°36'56.313"W	4.55	
11560.00	88.100	86.800	10950.33	838.40	51.06	837.32	721586.59	503719.35	32°22'58.064"N	103°36'55.928"W	3.65	
11593.00	87.600	87.500	10951.57	871.37	52.70	870.26	721619.52	503720.99	32°22'58.079"N	103°36'55.544"W	2.61	
11625.00	88.200	87.500	10952.74	903.35	54.09	902.20	721651.47	503722.39	32°22'58.090"N	103°36'55.171"W	1.87	
11656.00	88.500	87.600	10953.64	934.33	55.42	933.16	721682.43	503723.71	32°22'58.101"N	103°36'54.810"W	1.02	
11717.00	88.800	87.200	10955.07	995.30	58.18	994.08	721743.35	503726.48	32°22'58.125"N	103°36'54.100"W	0.82	
11781.00	87.800	87.900	10956.97	1059.27	60.92	1057.99	721807.26	503729.21	32°22'58.147"N	103°36'53.354"W	1.91	
11845.00	86.900	88.000	10959.93	1123.20	63.20	1121.88	721871.14	503731.50	32°22'58.166"N	103°36'52.609"W	1.41	
11909.00	87.100	87.800	10963.28	1187.10	65.55	1185.75	721935.01	503733.84	32°22'58.185"N	103°36'51.864"W	0.44	
11973.00	87.100	87.200	10966.52	1251.01	68.33	1249.61	721998.86	503736.63	32°22'58.208"N	103°36'51.119"W	0.94	
12036.00	87.600	86.700	10969.43	1313.93	71.68	1312.45	722061.70	503739.98	32°22'58.237"N	103°36'50.386"W	1.12	
12099.00	89.000	86.200	10971.30	1376.86	75.58	1375.30	722124.55	503743.88	32°22'58.271"N	103°36'49.653"W	2.36	
12163.00	89.200	86.900	10972.31	1440.82	79.43	1439.18	722188.43	503747.73	32°22'58.305"N	103°36'48.908"W	1.14	
12227.00	89.600	87.600	10972.98	1504.80	82.50	1503.10	722252.35	503750.80	32°22'58.331"N	103°36'48.162"W	1.26	
12290.00	88.500	89.100	10974.02	1567.79	84.32	1566.06	722315.31	503752.61	32°22'58.345"N	103°36'47.428"W	2.95	
12354.00	89.200	88.700	10975.31	1631.77	85.54	1630.04	722379.28	503753.84	32°22'58.353"N	103°36'46.682"W	1.26	
12419.00	90.300	89.100	10975.59	1696.77	86.79	1695.02	722444.26	503755.09	32°22'58.361"N	103°36'45.924"W	1.80	
12513.00	90.800	90.200	10974.69	1790.74	87.37	1789.02	722538.25	503755.66	32°22'58.360"N	103°36'44.828"W	1.29	
12577.00	91.100	89.800	10973.63	1854.71	87.37	1853.01	722602.24	503755.66	32°22'58.356"N	103°36'44.082"W	0.78	
12640.00	89.300	90.300	10973.41	1917.68	87.31	1916.00	722665.23	503755.61	32°22'58.351"N	103°36'43.347"W	2.97	
12703.00	88.900	90.200	10974.40	1980.64	87.04	1979.00	722728.22	503755.33	32°22'58.344"N	103°36'42.613"W	0.65	
12766.00	90.100	90.300	10974.95	2043.60	86.76	2041.99	722791.22	503755.06	32°22'58.338"N	103°36'41.878"W	1.91	
12830.00	90.000	90.100	10974.89	2107.57	86.54	2105.99	722855.21	503754.84	32°22'58.331"N	103°36'41.132"W	0.35	
12894.00	90.100	90.300	10974.83	2171.54	86.32	2169.99	722919.21	503754.61	32°22'58.325"N	103°36'40.386"W	0.35	
12957.00	90.400	90.900	10974.56	2234.50	85.66	2232.99	722982.20	503753.95	32°22'58.314"N	103°36'39.651"W	1.06	
13024.00	90.700	90.200	10973.92	2301.45	85.01	2299.98	723049.19	503753.31	32°22'58.303"N	103°36'38.870"W	1.14	
13087.00	90.100	90.200	10973.48	2364.41	84.79	2362.98	723112.19	503753.09	32°22'58.297"N	103°36'38.136"W	0.95	
13151.00	89.400	89.800	10973.75	2428.39	84.79	2426.98	723176.19	503753.09	32°22'58.292"N	103°36'37.389"W	1.26	
13214.00	88.700	89.300	10974.80	2491.37	85.29	2489.97	723239.17	503753.58	32°22'58.293"N	103°36'36.655"W	1.37	
13277.00	90.700	89.900	10975.13	2554.35	85.73	2552.96	723302.16	503754.02	32°22'58.293"N	103°36'35.920"W	3.31	
13341.00	91.300	90.600	10974.01	2618.31	85.45	2616.95	723366.15	503753.74	32°22'58.286"N	103°36'35.174"W	1.44	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWP
Facility	Merchant Livestock State No. 1H		

WELLPATH DATA (255 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13405.00	91.400	89.300	10972.50	2682.27	85.50	2680.93	723430.13	503753.80	32°22'58.282"N	103°36'34.428"W	2.04	
13469.00	91.200	89.200	10971.05	2746.24	86.34	2744.91	723494.11	503754.64	32°22'58.286"N	103°36'33.682"W	0.35	
13533.00	91.000	90.800	10969.82	2810.20	86.34	2808.89	723558.09	503754.64	32°22'58.282"N	103°36'32.936"W	2.52	
13596.00	89.100	90.900	10969.77	2873.15	85.41	2871.88	723621.08	503753.70	32°22'58.269"N	103°36'32.202"W	3.02	
13660.00	89.200	90.400	10970.72	2937.09	84.68	2935.87	723685.06	503752.98	32°22'58.257"N	103°36'31.455"W	0.80	
13724.00	89.000	89.600	10971.72	3001.06	84.68	2999.86	723749.05	503752.98	32°22'58.253"N	103°36'30.709"W	1.29	
13788.00	88.900	89.000	10972.90	3065.04	85.46	3063.85	723813.03	503753.76	32°22'58.256"N	103°36'29.963"W	0.95	
13851.00	91.900	89.600	10972.46	3128.02	86.23	3126.83	723876.02	503754.53	32°22'58.260"N	103°36'29.229"W	4.86	
13915.00	91.800	89.800	10970.39	3191.97	86.57	3190.80	723939.98	503754.86	32°22'58.259"N	103°36'28.483"W	0.35	
13978.00	89.100	90.200	10969.90	3254.94	86.57	3253.79	724002.97	503754.86	32°22'58.255"N	103°36'27.748"W	4.93	
14042.00	88.800	89.800	10971.07	3318.91	86.57	3317.78	724066.96	503754.86	32°22'58.250"N	103°36'27.002"W	0.78	
14105.00	89.100	89.000	10972.22	3381.89	87.23	3380.77	724129.94	503755.52	32°22'58.253"N	103°36'26.268"W	1.36	
14170.00	89.200	88.900	10973.19	3446.88	88.42	3445.75	724194.92	503756.71	32°22'58.260"N	103°36'25.510"W	0.22	
14232.00	90.400	89.400	10973.40	3508.87	89.34	3507.74	724256.91	503757.63	32°22'58.265"N	103°36'24.787"W	2.10	
14296.00	90.100	88.900	10973.12	3572.86	90.29	3571.73	724320.90	503758.58	32°22'58.270"N	103°36'24.041"W	0.91	
14360.00	90.100	88.900	10973.01	3636.86	91.52	3635.72	724384.89	503759.81	32°22'58.278"N	103°36'23.294"W	0.00	
14423.00	90.200	88.200	10972.85	3699.86	93.11	3698.70	724447.86	503761.41	32°22'58.289"N	103°36'22.560"W	1.12	
14487.00	90.000	87.800	10972.74	3763.86	95.34	3762.66	724511.82	503763.64	32°22'58.307"N	103°36'21.814"W	0.70	
14547.00	89.400	87.900	10973.05	3823.86	97.59	3822.62	724571.77	503765.89	32°22'58.325"N	103°36'21.115"W	1.01	
14610.00	89.300	87.700	10973.76	3886.85	100.01	3885.57	724634.72	503768.31	32°22'58.345"N	103°36'20.380"W	0.35	
14673.00	89.800	88.200	10974.26	3949.84	102.27	3948.52	724697.68	503770.56	32°22'58.363"N	103°36'19.646"W	1.12	
14737.00	89.400	87.400	10974.71	4013.84	104.72	4012.47	724761.63	503773.02	32°22'58.383"N	103°36'18.900"W	1.40	
14801.00	89.800	87.600	10975.15	4077.83	107.51	4076.41	724825.56	503775.81	32°22'58.406"N	103°36'18.154"W	0.70	
14865.00	89.600	87.700	10975.49	4141.82	110.14	4140.36	724889.50	503778.43	32°22'58.428"N	103°36'17.409"W	0.35	
14927.00	89.500	88.100	10975.98	4203.82	112.41	4202.31	724951.46	503780.71	32°22'58.446"N	103°36'16.686"W	0.66	
14991.00	89.900	88.800	10976.31	4267.81	114.14	4266.29	725015.43	503782.44	32°22'58.459"N	103°36'15.940"W	1.26	
15055.00	89.300	88.200	10976.76	4331.81	115.82	4330.26	725079.40	503784.11	32°22'58.472"N	103°36'15.194"W	1.33	
15118.00	89.200	87.600	10977.58	4394.80	118.12	4393.22	725142.35	503786.42	32°22'58.490"N	103°36'14.460"W	0.97	
15176.00	88.700	87.100	10978.64	4452.78	120.81	4451.14	725200.28	503789.10	32°22'58.513"N	103°36'13.784"W	1.22	
15230.00	88.700	87.100	10979.87	4506.75	123.54	4505.06	725254.19	503791.83	32°22'58.536"N	103°36'13.155"W	0.00	Project to Bit



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Lea County, NM	Well	No. 1H
Field	(Merchant Livestock) Sec 19, T22S, R33E	Wellbore	No.1H AWB
Facility	Merchant Livestock State No. 1H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No. 1H PBHL		10956.00	23.90	4507.27	725256.40	503692.20	32°22'57.550"N	103°36'13.137"W	point

WELLPATH COMPOSITION - Ref.Wellbore: No.1H AWB Ref.Wellpath: No.1H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
20.00	10577.00	Generic gyro - northseeking (Standard)	Gyro	No.1H AWB
10577.00	15230.00	NaviTrak (Standard)	MWD	No.1H AWB