



Cimarex Red Tank 4 Federal Com #13H Rev0 RM 5June18 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: June 06, 2018 - 09:14 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Tank 4 Federal Com #13H / Cimarex Red Tank 4 Federal Com #13H
Well: Cimarex Red Tank 4 Federal Com #13H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Tank 4 Federal Com #13H Rev0 RM 5June18
Survey Date: June 05, 2018
Tort / AHD / DDI / ERD Ratio: 97.690 ° / 4770.165 ft / 5.833 / 0.501
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 19' 38.33922", W 103° 40' 22.27369"
Location Grid N/E Y/X: N 483438.710 ftUS, E 745349.540 ftUS
CRS Grid Convergence Angle: 0.3532 °
Grid Scale Factor: 0.99995676
Version / Patch: 2.10.715.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.622 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3717.600 ft above MSL
Seabed / Ground Elevation: 3691.600 ft above MSL
Magnetic Declination: 6.861 °
Total Gravity Field Strength: 998.4417mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48102.903 nT
Magnetic Dip Angle: 60.096 °
Declination Date: June 06, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3532 °
Total Corr Mag North->Grid North: 6.5075 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [330' FSL, 548' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	100.00	0.00	89.41	100.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	200.00	0.00	89.41	200.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	300.00	0.00	89.41	300.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	400.00	0.00	89.41	400.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	500.00	0.00	89.41	500.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	600.00	0.00	89.41	600.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	700.00	0.00	89.41	700.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	800.00	0.00	89.41	800.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	900.00	0.00	89.41	900.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
Rustler	980.00	0.00	89.41	980.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1000.00	0.00	89.41	1000.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1100.00	0.00	89.41	1100.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1200.00	0.00	89.41	1200.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1300.00	0.00	89.41	1300.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1400.00	0.00	89.41	1400.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1500.00	0.00	89.41	1500.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1600.00	0.00	89.41	1600.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1700.00	0.00	89.41	1700.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1800.00	0.00	89.41	1800.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	1900.00	0.00	89.41	1900.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2000.00	0.00	89.41	2000.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2100.00	0.00	89.41	2100.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2200.00	0.00	89.41	2200.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2300.00	0.00	89.41	2300.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2400.00	0.00	89.41	2400.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Nudge 2°/100' DLS	2500.00	0.00	89.41	2500.00	0.00	0.00	0.00	0.00	483438.71	745349.54	N 32 19 38.34	W 103 40 22.27
	2600.00	2.00	89.41	2599.98	0.01	0.02	1.75	2.00	483438.73	745351.28	N 32 19 38.34	W 103 40 22.25
Hold Nudge	2692.26	3.85	89.41	2692.12	0.02	0.07	6.45	2.00	483438.78	745355.99	N 32 19 38.34	W 103 40 22.20
	2700.00	3.85	89.41	2699.84	0.03	0.07	6.97	0.00	483438.78	745356.51	N 32 19 38.34	W 103 40 22.19
	2800.00	3.85	89.41	2799.61	0.05	0.14	13.67	0.00	483438.85	745363.21	N 32 19 38.34	W 103 40 22.11
	2900.00	3.85	89.41	2899.39	0.08	0.21	20.38	0.00	483438.92	745369.92	N 32 19 38.34	W 103 40 22.04
	3000.00	3.85	89.41	2999.16	0.10	0.28	27.08	0.00	483438.99	745376.62	N 32 19 38.34	W 103 40 21.96
	3100.00	3.85	89.41	3098.94	0.13	0.35	33.79	0.00	483439.06	745383.33	N 32 19 38.34	W 103 40 21.88
	3200.00	3.85	89.41	3198.71	0.15	0.42	40.50	0.00	483439.13	745390.03	N 32 19 38.34	W 103 40 21.80
	3300.00	3.85	89.41	3298.49	0.17	0.49	47.20	0.00	483439.20	745396.74	N 32 19 38.34	W 103 40 21.72
	3400.00	3.85	89.41	3398.26	0.20	0.56	53.91	0.00	483439.27	745403.45	N 32 19 38.34	W 103 40 21.65
Castille	3421.79	3.85	89.41	3420.00	0.20	0.57	55.37	0.00	483439.28	745404.91	N 32 19 38.34	W 103 40 21.63
	3500.00	3.85	89.41	3498.04	0.22	0.62	60.61	0.00	483439.33	745410.15	N 32 19 38.34	W 103 40 21.57
	3600.00	3.85	89.41	3597.81	0.25	0.69	67.32	0.00	483439.40	745416.86	N 32 19 38.34	W 103 40 21.49
	3700.00	3.85	89.41	3697.59	0.27	0.76	74.03	0.00	483439.47	745423.56	N 32 19 38.34	W 103 40 21.41
	3800.00	3.85	89.41	3797.36	0.30	0.83	80.73	0.00	483439.54	745430.27	N 32 19 38.34	W 103 40 21.33
	3900.00	3.85	89.41	3897.14	0.32	0.90	87.44	0.00	483439.61	745436.97	N 32 19 38.34	W 103 40 21.25
	4000.00	3.85	89.41	3996.91	0.35	0.97	94.14	0.00	483439.68	745443.68	N 32 19 38.34	W 103 40 21.18
	4100.00	3.85	89.41	4096.69	0.37	1.04	100.85	0.00	483439.75	745450.38	N 32 19 38.34	W 103 40 21.10
	4200.00	3.85	89.41	4196.46	0.40	1.11	107.55	0.00	483439.82	745457.09	N 32 19 38.34	W 103 40 21.02
	4300.00	3.85	89.41	4296.24	0.42	1.18	114.26	0.00	483439.89	745463.79	N 32 19 38.34	W 103 40 20.94
	4400.00	3.85	89.41	4396.01	0.45	1.25	120.97	0.00	483439.96	745470.50	N 32 19 38.34	W 103 40 20.86
	4500.00	3.85	89.41	4495.79	0.47	1.31	127.67	0.00	483440.02	745477.21	N 32 19 38.34	W 103 40 20.79
	4600.00	3.85	89.41	4595.56	0.50	1.38	134.38	0.00	483440.09	745483.91	N 32 19 38.34	W 103 40 20.71
Lamar	4634.52	3.85	89.41	4630.00	0.51	1.41	136.69	0.00	483440.12	745486.23	N 32 19 38.34	W 103 40 20.68
Bell Canyon	4674.61	3.85	89.41	4670.00	0.52	1.44	139.38	0.00	483440.15	745488.91	N 32 19 38.34	W 103 40 20.65
	4700.00	3.85	89.41	4695.34	0.52	1.45	141.08	0.00	483440.16	745490.62	N 32 19 38.34	W 103 40 20.63
	4800.00	3.85	89.41	4795.11	0.55	1.52	147.79	0.00	483440.23	745497.32	N 32 19 38.35	W 103 40 20.55
	4900.00	3.85	89.41	4894.89	0.57	1.59	154.49	0.00	483440.30	745504.03	N 32 19 38.35	W 103 40 20.47
	5000.00	3.85	89.41	4994.66	0.60	1.66	161.20	0.00	483440.37	745510.73	N 32 19 38.35	W 103 40 20.40
Drop to Vertical 2°/100' DLS	5005.35	3.85	89.41	5000.00	0.60	1.66	161.56	0.00	483440.37	745511.09	N 32 19 38.35	W 103 40 20.39
	5100.00	1.95	89.41	5094.52	0.62	1.71	166.34	2.00	483440.42	745515.88	N 32 19 38.35	W 103 40 20.34
Hold Vertical	5197.61	0.00	89.41	5192.12	0.62	1.73	168.01	2.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5200.00	0.00	89.41	5194.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5300.00	0.00	89.41	5294.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5400.00	0.00	89.41	5394.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5500.00	0.00	89.41	5494.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5600.00	0.00	89.41	5594.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
Cherry Canyon	5665.50	0.00	89.41	5660.00	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5700.00	0.00	89.41	5694.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5800.00	0.00	89.41	5794.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	5900.00	0.00	89.41	5894.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6000.00	0.00	89.41	5994.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6100.00	0.00	89.41	6094.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6200.00	0.00	89.41	6194.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6300.00	0.00	89.41	6294.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6400.00	0.00	89.41	6394.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6500.00	0.00	89.41	6494.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6600.00	0.00	89.41	6594.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6700.00	0.00	89.41	6694.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6800.00	0.00	89.41	6794.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
Brushy Canyon	6840.50	0.00	89.41	6835.00	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	6900.00	0.00	89.41	6894.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7000.00	0.00	89.41	6994.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7100.00	0.00	89.41	7094.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7200.00	0.00	89.41	7194.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7300.00	0.00	89.41	7294.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7400.00	0.00	89.41	7394.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7500.00	0.00	89.41	7494.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7600.00	0.00	89.41	7594.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7700.00	0.00	89.41	7694.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7800.00	0.00	89.41	7794.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	7900.00	0.00	89.41	7894.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8000.00	0.00	89.41	7994.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8100.00	0.00	89.41	8094.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8200.00	0.00	89.41	8194.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8300.00	0.00	89.41	8294.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8400.00	0.00	89.41	8394.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8500.00	0.00	89.41	8494.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
BSGL	8570.50	0.00	89.41	8565.00	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8600.00	0.00	89.41	8594.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
Leonard Shale	8665.50	0.00	89.41	8660.00	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8700.00	0.00	89.41	8694.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8800.00	0.00	89.41	8794.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	8900.00	0.00	89.41	8894.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
	9000.00	0.00	89.41	8994.50	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
KOP - Build 12°/100' DLS	9053.03	0.00	89.41	9047.54	0.62	1.73	168.01	0.00	483440.44	745517.54	N 32 19 38.35	W 103 40 20.32
Avalon	9055.50	0.30	359.62	9050.00	0.63	1.74	168.01	12.00	483440.45	745517.54	N 32 19 38.35	W 103 40 20.32
	9100.00	5.64	359.62	9094.43	2.93	4.04	167.99	12.00	483442.75	745517.52	N 32 19 38.37	W 103 40 20.32
	9200.00	17.64	359.62	9192.19	23.06	24.17	167.86	12.00	483462.88	745517.39	N 32 19 38.57	W 103 40 20.32
	9300.00	29.64	359.62	9283.64	63.08	64.19	167.60	12.00	483502.90	745517.13	N 32 19 38.96	W 103 40 20.32
	9400.00	41.64	359.62	9364.76	121.24	122.35	167.21	12.00	483561.05	745516.74	N 32 19 39.54	W 103 40 20.32
	9500.00	53.64	359.62	9432.02	194.99	196.10	166.73	12.00	483634.80	745516.26	N 32 19 40.27	W 103 40 20.32
	9600.00	65.64	359.62	9482.48	281.12	282.22	166.16	12.00	483720.92	745515.69	N 32 19 41.12	W 103 40 20.32
	9700.00	77.64	359.62	9513.93	375.85	376.95	165.53	12.00	483815.65	745515.06	N 32 19 42.06	W 103 40 20.32
	9800.00	89.64	359.62	9524.99	475.06	476.15	164.88	12.00	483914.84	745514.41	N 32 19 43.04	W 103 40 20.32
Landing Point	9803.03	90.00	359.62	9525.00	478.09	479.18	164.86	12.00	483917.87	745514.39	N 32 19 43.07	W 103 40 20.32
	9900.00	90.00	359.62	9525.00	575.06	576.15	164.22	0.00	484014.84	745513.75	N 32 19 44.03	W 103 40 20.32
	10000.00	90.00	359.62	9525.00	675.06	676.15	163.56	0.00	484114.83	745513.09	N 32 19 45.02	W 103 40 20.32
	10100.00	90.00	359.62	9525.00	775.06	776.15	162.90	0.00	484214.82	745512.43	N 32 19 46.01	W 103 40 20.32
	10200.00	90.00	359.62	9525.00	875.06	876.15	162.24	0.00	484314.82	745511.77	N 32 19 47.00	W 103 40 20.32
	10300.00	90.00	359.62	9525.00	975.06	976.14	161.58	0.00	484414.81	745511.11	N 32 19 47.99	W 103 40 20.32
	10400.00	90.00	359.62	9525.00	1075.06	1076.14	160.92	0.00	484514.80	745510.45	N 32 19 48.98	W 103 40 20.32
	10500.00	90.00	359.62	9525.00	1175.06	1176.14	160.26	0.00	484614.80	745509.79	N 32 19 49.97	W 103 40 20.32
	10600.00	90.00	359.62	9525.00	1275.06	1276.14	159.60	0.00	484714.79	745509.13	N 32 19 50.96	W 103 40 20.32
	10700.00	90.00	359.62	9525.00	1375.06	1376.13	158.94	0.00	484814.78	745508.47	N 32 19 51.95	W 103 40 20.32
	10800.00	90.00	359.62	9525.00	1475.06	1476.13	158.28	0.00	484914.78	745507.81	N 32 19 52.94	W 103 40 20.32
	10900.00	90.00	359.62	9525.00	1575.06	1576.13	157.62	0.00	485014.77	745507.15	N 32 19 53.93	W 103 40 20.32
	11000.00	90.00	359.62	9525.00	1675.06	1676.13	156.96	0.00	485114.76	745506.49	N 32 19 54.91	W 103 40 20.32
	11100.00	90.00	359.62	9525.00	1775.06	1776.13	156.30	0.00	485214.76	745505.83	N 32 19 55.90	W 103 40 20.32
	11200.00	90.00	359.62	9525.00	1875.06	1876.12	155.64	0.00	485314.75	745505.17	N 32 19 56.89	W 103 40 20.32
	11300.00	90.00	359.62	9525.00	1975.06	1976.12	154.98	0.00	485414.74	745504.51	N 32 19 57.88	W 103 40 20.33
	11400.00	90.00	359.62	9525.00	2075.06	2076.12	154.32	0.00	485514.74	745503.86	N 32 19 58.87	W 103 40 20.33
	11500.00	90.00	359.62	9525.00	2175.06	2176.12	153.66	0.00	485614.73	745503.20	N 32 19 59.86	W 103 40 20.33
	11600.00	90.00	359.62	9525.00	2275.06	2276.11	153.00	0.00	485714.72	745502.54	N 32 20 0.85	W 103 40 20.33
	11700.00	90.00	359.62	9525.00	2375.06	2376.11	152.34	0.00	485814.71	745501.88	N 32 20 1.84	W 103 40 20.33
	11800.00	90.00	359.62	9525.00	2475.06	2476.11	151.68	0.00	485914.71	745501.22	N 32 20 2.83	W 103 40 20.33
	11900.00	90.00	359.62	9525.00	2575.06	2576.11	151.02	0.00	486014.70	745500.56	N 32 20 3.82	W 103 40 20.33
	12000.00	90.00	359.62	9525.00	2675.06	2676.11	150.36	0.00	486114.69	745499.90	N 32 20 4.81	W 103 40 20.33
	12100.00	90.00	359.62	9525.00	2775.06	2776.10	149.70	0.00	486214.69	745499.24	N 32 20 5.80	W 103 40 20.33
	12200.00	90.00	359.62	9525.00	2875.06	2876.10	149.04	0.00	486314.68	745498.58	N 32 20 6.79	W 103 40 20.33
	12300.00	90.00	359.62	9525.00	2975.06	2976.10	148.38	0.00	486414.67	745497.92	N 32 20 7.78	W 103 40 20.33
	12400.00	90.00	359.62	9525.00	3075.06	3076.10	147.72	0.00	486514.67	745497.26	N 32 20 8.77	W 103 40 20.33
	12500.00	90.00	359.62	9525.00	3175.06	3176.10	147.07	0.00	486614.66	745496.60	N 32 20 9.76	W 103 40 20.33
	12600.00	90.00	359.62	9525.00	3275.06	3276.09	146.41	0.00	486714.65	745495.94	N 32 20 10.75	W 103 40 20.33

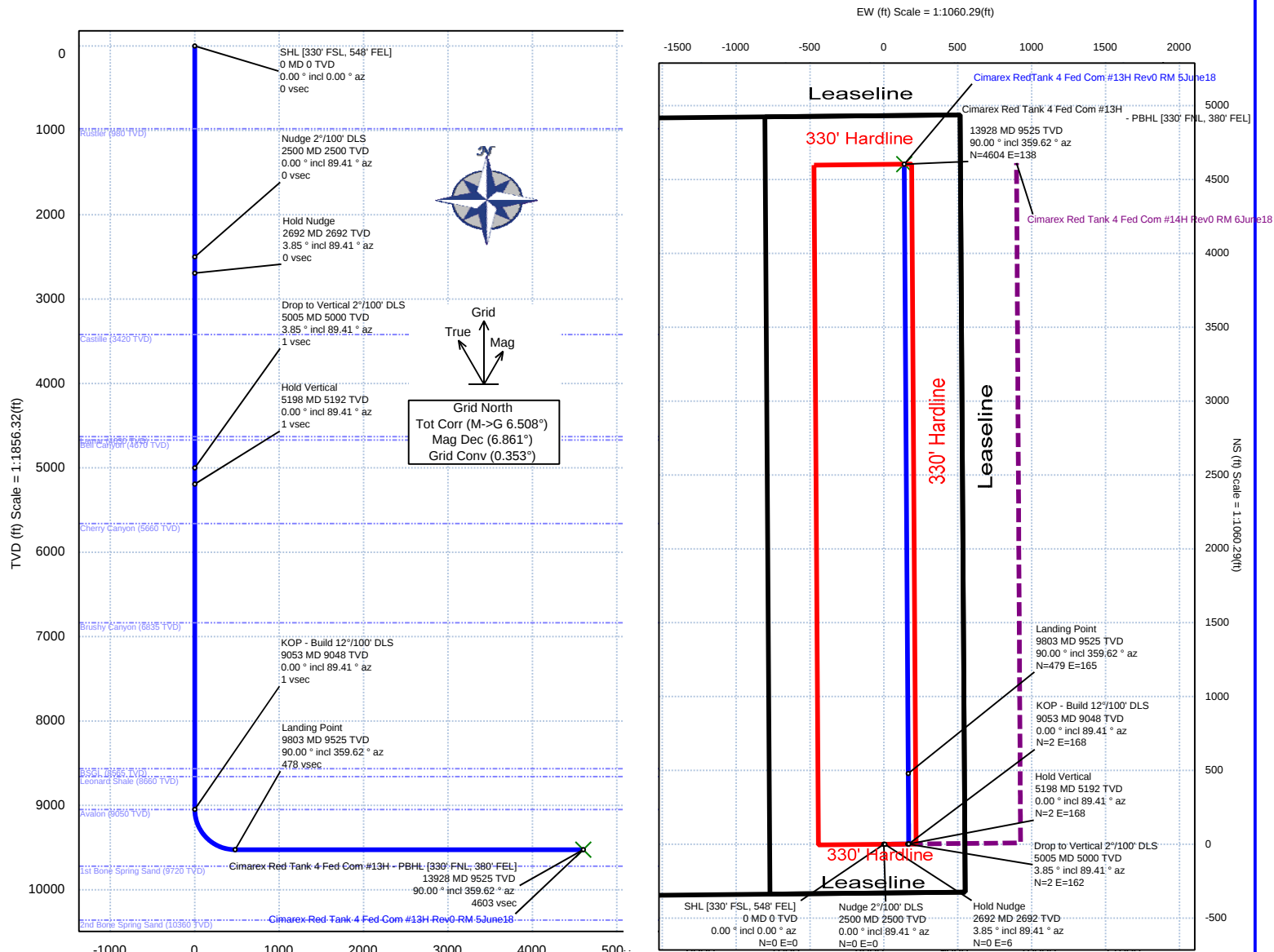
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	12700.00	90.00	359.62	9525.00	3375.06	3376.09	145.75	0.00	486814.65	745495.28	N 32 20 11.74 W 103 40 20.33	
	12800.00	90.00	359.62	9525.00	3475.06	3476.09	145.09	0.00	486914.64	745494.62	N 32 20 12.73 W 103 40 20.33	
	12900.00	90.00	359.62	9525.00	3575.06	3576.09	144.43	0.00	487014.63	745493.96	N 32 20 13.72 W 103 40 20.33	
	13000.00	90.00	359.62	9525.00	3675.06	3676.08	143.77	0.00	487114.63	745493.30	N 32 20 14.70 W 103 40 20.33	
	13100.00	90.00	359.62	9525.00	3775.06	3776.08	143.11	0.00	487214.62	745492.64	N 32 20 15.69 W 103 40 20.33	
	13200.00	90.00	359.62	9525.00	3875.06	3876.08	142.45	0.00	487314.61	745491.98	N 32 20 16.68 W 103 40 20.33	
	13300.00	90.00	359.62	9525.00	3975.06	3976.08	141.79	0.00	487414.61	745491.32	N 32 20 17.67 W 103 40 20.34	
	13400.00	90.00	359.62	9525.00	4075.06	4076.08	141.13	0.00	487514.60	745490.66	N 32 20 18.66 W 103 40 20.34	
	13500.00	90.00	359.62	9525.00	4175.06	4176.07	140.47	0.00	487614.59	745490.00	N 32 20 19.65 W 103 40 20.34	
	13600.00	90.00	359.62	9525.00	4275.06	4276.07	139.81	0.00	487714.59	745489.34	N 32 20 20.64 W 103 40 20.34	
	13700.00	90.00	359.62	9525.00	4375.06	4376.07	139.15	0.00	487814.58	745488.68	N 32 20 21.63 W 103 40 20.34	
	13800.00	90.00	359.62	9525.00	4475.06	4476.07	138.49	0.00	487914.57	745488.02	N 32 20 22.62 W 103 40 20.34	
	13900.00	90.00	359.62	9525.00	4575.06	4576.06	137.83	0.00	488014.57	745487.36	N 32 20 23.61 W 103 40 20.34	
Cimarex Red Tank 4 Federal Com #13H - PBHL [330' FNL, 380' FEL]	13927.71	90.00	359.62	9525.00	4602.77	4603.78	137.65	0.00	488042.28	745487.18	N 32 20 23.88 W 103 40 20.34	

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Red Tank 4 Federal Com #13H Rev0 RM 5June18
	1	26.000	13927.714	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Red Tank 4 Federal Com #13H Rev0

Borehole: Original Borehole		Well: Cimarex Red Tank 4 Fed Com #13H		Field: NM Lea County (NAD 83)		Structure: Cimarex Red Tank 4 Fed Com #13H	
Gravity & Magnetic Parameters Model: HDGM 2018 Dip: 60.096° Date: 06-Jun-2018 MagDec: 6.861° FS: 48102.903nT Gravity FS: 998.442mgn (8.80665 Based)				Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet Lat: N 32 19 38.34 Northing: 483438.71ftUS Grid Conv: 0.3532° Lon: W 103 40 22.27 Easting: 745349.54ftUS Scale Fact: 0.99995676		Miscellaneous Cimarex Red Slot: Tank 4 Fed Com TVD Ref: RKB(3717.6ft above MSL) #13H Plan: Cimarex Red Tank 4 Fed Com #13H Rev0 RM 5June18	



Vertical Section (ft) Azim = 359.66° Scale = 1:1856.32(ft) Origin = 0N/-S, 0E/-W

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [330° FSL, 548° FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	980.00	0.00	89.41	980.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2500.00	0.00	89.41	2500.00	0.00	0.00	0.00	0.00
Hold Nudge	2692.26	3.85	89.41	2692.12	0.02	0.07	6.45	2.00
Castille	3421.79	3.85	89.41	3420.00	0.20	0.57	55.37	0.00
Lamar	4634.52	3.85	89.41	4630.00	0.51	1.41	136.69	0.00
Bell Canyon	4674.61	3.85	89.41	4670.00	0.52	1.44	139.38	0.00
Drop to Vertical 2°/100' DLS	5005.35	3.85	89.41	5000.00	0.60	1.66	161.56	0.00
Hold Vertical	5197.61	0.00	89.41	5192.12	0.62	1.73	168.01	2.00
Cherry Canyon	5665.50	0.00	89.41	5660.00	0.62	1.73	168.01	0.00
Brushy Canyon	6840.50	0.00	89.41	6835.00	0.62	1.73	168.01	0.00
BSGL	8570.50	0.00	89.41	8565.00	0.62	1.73	168.01	0.00
Leonard Shale	8665.50	0.00	89.41	8660.00	0.62	1.73	168.01	0.00
KOP - Build 12°/100' DLS	9053.03	0.00	89.41	9047.54	0.62	1.73	168.01	0.00
Avalon	9055.50	0.30	359.62	9050.00	0.63	1.74	168.01	12.00
Landing Point	9803.03	90.00	359.62	9525.00	478.09	479.18	164.86	12.00
Cimarex Red Tank 4 Fed Com #13H - PBHL [330° FNL, 380° FEL]	13927.71	90.00	359.62	9525.00	4602.77	4603.78	137.65	0.00
2nd Bone Spring Sand	NaN			10360.00				
Wolfcamp	NaN			11900.00				
3rd Bone Spring Sand	NaN			11530.00				
1st Bone Spring Sand	NaN			9720.00				

Cimarex Red Tank 4 Federal Com #13H Rev0 RM 5June18 Anti-Collision Summary Report

Analysis Date-24hr Time: June 06, 2018 - 09:14
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure: Cimarex Red Tank 4 Federal Com #13H
Slot: Cimarex Red Tank 4 Federal Com #13H
Well: Cimarex Red Tank 4 Federal Com #13H
Borehole: Original Borehole
Scan MD Range: 0.00ft ~ 13927.71ft

Analysis Method: 3D Least Distance
Reference Trajectory: Cimarex Red Tank 4 Federal Com #13H Rev0 RM 5June18 (Non-Def Plan)
Depth Interval: Every 10.00 Measured Depth (ft)
Rule Set: NAL Procedure: D&M AntiCollision Standard S002
Min Pts: All local minima indicated.
Version / Patch: 2.10.715.0
Database \ Project: US1153APP452.dir.slb.com\drilling-NM Lea County 2.10

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!
 Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
 - All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Red Tank 4 Federal
 Com #13H Rev0 RM 6June18
 (Non-Def Plan)

Warning Alert

40.05	32.52	37.55	7.53	N/A	MAS = 9.91 (m)	0.00	0.00	CtCt<=15m<15.00	Enter Alert
40.02	32.52	37.52	7.50	N/A	MAS = 9.91 (m)	26.00	26.00		WRP
40.02	32.52	28.50	7.50	4.16	MAS = 9.91 (m)	1500.00	1500.00		MinPts
40.08	32.52	28.46	7.56	4.12	MAS = 9.91 (m)	1520.00	1520.00		MINPT-O-EOU
40.61	32.52	28.80	8.10	4.09	MAS = 9.91 (m)	1560.00	1560.00		MinPt-O-SF
52.42	32.52	39.83	19.90	4.95	MAS = 9.91 (m)	1770.00	1770.00	OSF>5.00	Exit Alert
359.61	38.25	333.28	321.36	14.98	OSF1.50	5005.35	5000.00		MinPt-O-SF
756.67	66.47	711.53	690.20	17.68	OSF1.50	9060.00	9054.50		MinPt-CtCt
759.88	173.10	643.65	586.78	6.66	OSF1.50	13927.71	9525.00		MinPts