

Cimarex State 25 #1H ST01 Rev4 RM 5July18 Proposal Geodetic Report

(Def Plan)

Report Date:	July 05, 2018 - 10:16 AM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex	Vertical Section Azimuth:	269.449 ° (Grid North)
Field:	NM Lea County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex State 25 #1H / Cimarex State 25 #1H	TVD Reference Datum:	RKB
Well:	Cimarex State 25 #1H	TVD Reference Elevation:	4174.200 ft above MSL
Borehole:	ST01	Seabed / Ground Elevation:	4148.200 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	6.654 °
Survey Name:	Cimarex State 25 #1H ST01 Rev4 RM 5July18	Total Gravity Field Strength:	998.5103mgn (9.80665 Based)
Survey Date:	July 05, 2018	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	91.900 ° / 4809.656 ft / 5.790 / 0.419	Total Magnetic Field Strength:	48241.927 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	60.822 °
Location Lat / Long:	N 32° 53' 31.16221", W 103° 36' 33.38046"	Declination Date:	July 05, 2018
Location Grid N/E Y/X:	N 689002.440 RUS, E 763590.140 RUS	Magnetic Declination Model:	HDGM 2018
CRS Grid Convergence Angle:	0.3932 °	North Reference:	Grid North
Grid Scale Factor:	0.99998566	Grid Convergence Used:	0.3932 °
Version / Patch:	2.10.715.0	Total Corr Mag North->Grid North:	6.2609 °
		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 [2320' FSL, 380' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	100.00	0.00	256.62	100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	200.00	0.00	256.62	200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	300.00	0.00	256.62	300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	400.00	0.00	256.62	400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	500.00	0.00	256.62	500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	600.00	0.00	256.62	600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	700.00	0.00	256.62	700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	800.00	0.00	256.62	800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	900.00	0.00	256.62	900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1000.00	0.00	256.62	1000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1100.00	0.00	256.62	1100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1200.00	0.00	256.62	1200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1300.00	0.00	256.62	1300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1400.00	0.00	256.62	1400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1500.00	0.00	256.62	1500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Rustler	1510.00	0.00	256.62	1510.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1600.00	0.00	256.62	1600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Salt	1630.00	0.00	256.62	1630.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1700.00	0.00	256.62	1700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1800.00	0.00	256.62	1800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	1900.00	0.00	256.62	1900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2000.00	0.00	256.62	2000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2100.00	0.00	256.62	2100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2200.00	0.00	256.62	2200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2300.00	0.00	256.62	2300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2400.00	0.00	256.62	2400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2500.00	0.00	256.62	2500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2600.00	0.00	256.62	2600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2700.00	0.00	256.62	2700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Yates	2790.00	0.00	256.62	2790.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2800.00	0.00	256.62	2800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	2900.00	0.00	256.62	2900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3000.00	0.00	256.62	3000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
7 Rivers	3057.00	0.00	256.62	3057.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3100.00	0.00	256.62	3100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3200.00	0.00	256.62	3200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3300.00	0.00	256.62	3300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3400.00	0.00	256.62	3400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3500.00	0.00	256.62	3500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3600.00	0.00	256.62	3600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Queen	3680.00	0.00	256.62	3680.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3700.00	0.00	256.62	3700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3800.00	0.00	256.62	3800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	3900.00	0.00	256.62	3900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4000.00	0.00	256.62	4000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4100.00	0.00	256.62	4100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4200.00	0.00	256.62	4200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4300.00	0.00	256.62	4300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4400.00	0.00	256.62	4400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4500.00	0.00	256.62	4500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
San Andres	4506.00	0.00	256.62	4506.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4600.00	0.00	256.62	4600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4700.00	0.00	256.62	4700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4800.00	0.00	256.62	4800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	4900.00	0.00	256.62	4900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5000.00	0.00	256.62	5000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5100.00	0.00	256.62	5100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5200.00	0.00	256.62	5200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5300.00	0.00	256.62	5300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5400.00	0.00	256.62	5400.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5500.00	0.00	256.62	5500.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5600.00	0.00	256.62	5600.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5700.00	0.00	256.62	5700.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5800.00	0.00	256.62	5800.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	5900.00	0.00	256.62	5900.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Glorieta	5950.00	0.00	256.62	5950.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	6000.00	0.00	256.62	6000.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	6100.00	0.00	256.62	6100.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	6200.00	0.00	256.62	6200.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	6300.00	0.00	256.62	6300.00	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
	6400.00											

[illegible]

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 ° ' ")
Cimarex State 25 #1H - PBHL [2260' FSL, 100' FWL]	16005.16	90.00	269.45	11475.00	4803.71	-109.17	-4802.88	0.00	688893.27	758787.43	N 32 53 30.40	W 103 37 29.71

Survey Type: 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	ST01 / Cimarex State 25 #1H ST01 Rev4 RM 5July18
	1	26.000	16005.162	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	ST01 / Cimarex State 25 #1H ST01 Rev4 RM 5July18

Cimarex State 25 #1H ST01 Rev4 RM 5July18 Proposal Geodetic Report

(Def Plan)

Report Date: July 05, 2018 - 10:16 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex State 25 #1H / Cimarex State 25 #1H
Well: Cimarex State 25 #1H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Cimarex State 25 #1H ST01 Rev4 RM 5July18
Survey Date: July 05, 2018
Tort / AHD / DDI / ERD Ratio: 91.900 ° / 4809.656 ft / 5.790 / 0.419
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 53' 31.16221", W 103° 36' 33.38046"
Location Grid N/E Y/X: N 689002.440 ftUS, E 763590.140 ftUS
CRS Grid Convergence Angle: 0.3932 °
Grid Scale Factor: 0.99996566
Version / Patch: 2.10.715.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 269.449 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 4174.200 ft above MSL
Seabed / Ground Elevation: 4148.200 ft above MSL
Magnetic Declination: 6.654 °
Total Gravity Field Strength: 998.5103mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48241.927 nT
Magnetic Dip Angle: 60.822 °
Declination Date: July 05, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3932 °
Total Corr Mag North->Grid North: 6.2609 °
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 [2320' FSL, 380' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
KOP - Build 10'/100' DLS	10862.88	0.00	256.62	10862.88	0.00	0.00	0.00	0.00	689002.44	763590.14	N 32 53 31.16	W 103 36 33.38
Build & Turn 10'/100' DLS	11312.88	45.00	256.62	11268.02	163.62	-38.84	-163.26	10.00	688963.60	763426.89	N 32 53 30.79	W 103 36 35.30
Build 4'/100' DLS	11631.88	75.00	269.45	11426.19	434.70	-67.16	-434.07	10.00	688935.28	763156.08	N 32 53 30.53	W 103 36 38.48
Landing Point Cimarex State 25 #1H - PBHL [2260' FSL, 100' FWL]	12006.88	90.00	269.45	11475.00	805.43	-70.73	-804.79	4.00	688931.72	762785.38	N 32 53 30.52	W 103 36 42.82
	16005.16	90.00	269.45	11475.00	4803.71	-109.17	-4802.88	0.00	688893.27	758787.43	N 32 53 30.40	W 103 37 29.71

Survey Type: 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	ST01 / Cimarex State 25 #1H ST01 Rev4 RM 5July18
	1	26.000	16005.162	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	ST01 / Cimarex State 25 #1H ST01 Rev4 RM 5July18

Borehole:	ST01	Well:	Cimarex State 25 #1H	Field:	NM Lea County (NAD 83)	Structure:	Cimarex State 25 #1H
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Gravity & Magnetic Parameters				Surface Location		NAD83 New Mexico State Plane, Easton Zone, US Feet		Miscellaneous	
Model:	HDGN 2018	Dip:	60.822°	Date:	05-Jul-2018	Lat:	N 32 53 31.16	Nothing:	089002.44NUS
MagDec:	6.654°	F8:	48241.827N	Gravity F8:	986.61mon (9.80665 Based)	Lon:	W 103 33 33.38	Eastlon:	763580.14NUS
								Grid Conv:	0.3332°
								Scale Fact:	0.99996568
								Slct:	Cimarras State 25 #1H TVD Ref: RKB(4174.2ft above MSL)
								Plan:	Cimarras State 25 #1H ST01 Rev'd RM 64u/v1/8

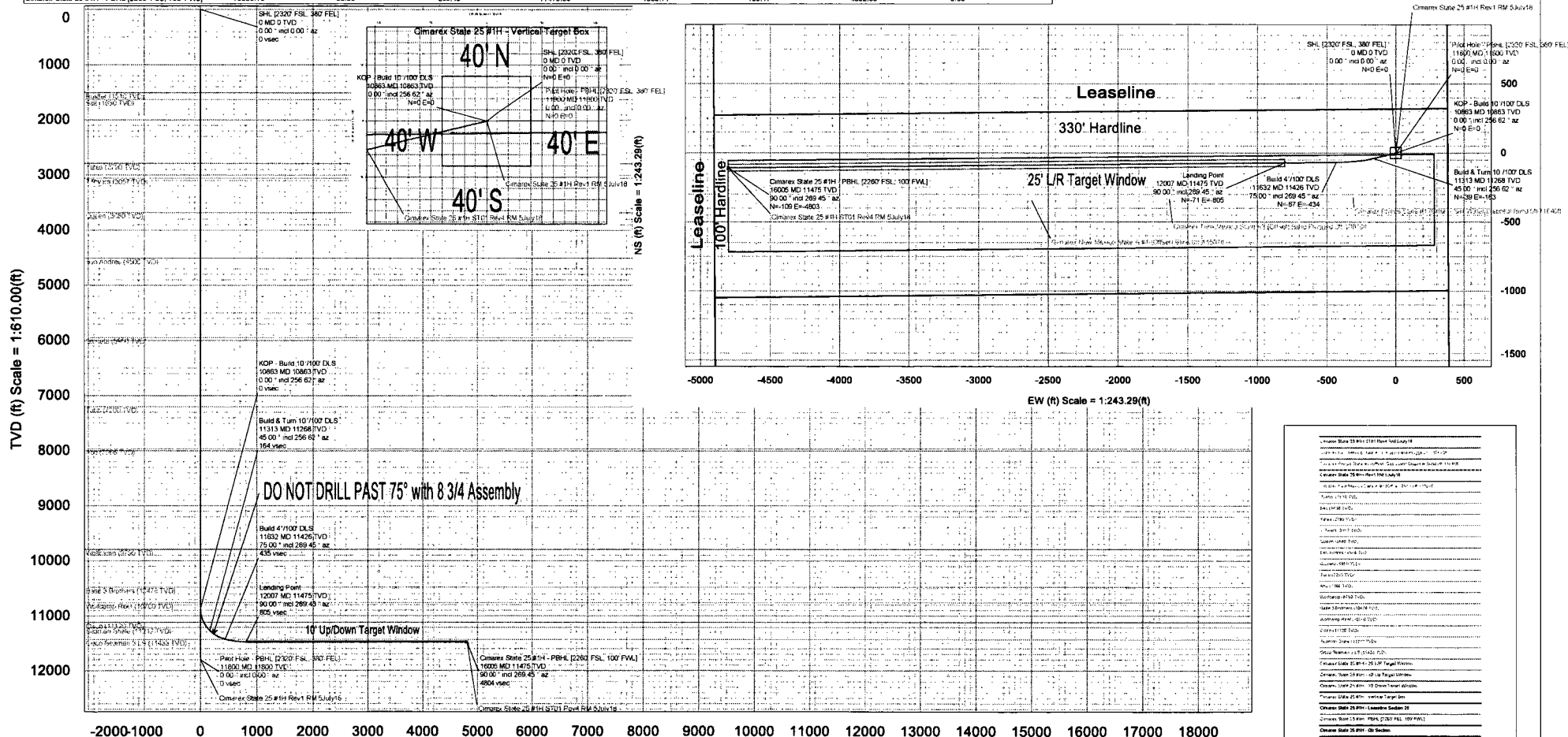
Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(-)S(-)	E(-)W(-)	DLS
SHL (2320 FSL 380 FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rudler	1510.00	0.00	256.62	1510.00	0.00	0.00	0.00	0.00
Salt	1630.00	0.00	256.62	1630.00	0.00	0.00	0.00	0.00
Yates	2790.00	0.00	256.62	2790.00	0.00	0.00	0.00	0.00
7 Rivers	3057.00	0.00	256.62	3057.00	0.00	0.00	0.00	0.00
Queen	3680.00	0.00	256.62	3680.00	0.00	0.00	0.00	0.00
San Andres	4508.00	0.00	256.62	4508.00	0.00	0.00	0.00	0.00
Glineta	5950.00	0.00	256.62	5950.00	0.00	0.00	0.00	0.00
Tubb	7200.00	0.00	256.62	7200.00	0.00	0.00	0.00	0.00
Abo	7966.00	0.00	256.62	7966.00	0.00	0.00	0.00	0.00
Wolcamp	9790.00	0.00	256.62	9790.00	0.00	0.00	0.00	0.00
Base 3 Brothers	10478.00	0.00	256.62	10478.00	0.00	0.00	0.00	0.00
Wolcamp Reef	10760.00	0.00	256.62	10760.00	0.00	0.00	0.00	0.00
KOP - Build 10°/100' DLS	10862.88	0.00	256.62	10862.88	58.41	-14.10	-59.38	10.00
Cano	11129.52	26.88	256.62	11120.00				0.00
Seaman Shale	11238.29	37.54	256.62	11212.00		-115.43		10.00
Build & Turn 10°/100' DLS	11312.88	45.00	256.62	11268.02	163.62	-38.84	-163.26	10.00
Build 4°/100' DLS	11631.88	75.00	289.45	11426.19	434.70	-47.16	-434.07	10.00
Cano Seaman 3 LS	11669.15	80.09	289.45	11433.00	461.11	-67.42	-460.48	
Landing Point	12006.88	90.03	289.45	11475.00	895.37	-101.73	-894.79	
Crabtree Stage 2 #1H - PBHL (2260 FSL 1007 FWL)	15006.18	90.00	289.45	11475.00	4933.71	-109.37	-4902.88	8.00



Grid
True Mag

Grid North
Tot Corr (M→G 6.261°
Mag Dec (6.654°)
Grid Conv (0.393°)

Q R C CONTROLLED	
Plan ref	Crimex State 25 P1H STD Revd R10 Jan1918
Drawing ref	
Copy number	of 3
Date	05-Jul-2018



Vertical Section (ft) Azim = 269.45° Scale = 1:610.00(ft) Origin = 0N/-S, 0E/-W

Cimarex State 25 #1H ST01 Rev4 RM 5July18 Anti-Collision Detailed Report

Analysis Method: 3D Least Distance
Depth Interval: Every 10.00 (ft) Measured Depth
Step-down Trajectory: Reference Trajectory
Analysis Date-24hr Time: July 05, 2018 - 10:17
Analysis Machine: SLB-1BCHK12
Database \ Project: US1153APP452 dir.slb.com\drilling-NM Lea County 2.10

Distance Unit: ft
Azimuth Unit: deg
TC Azimuth Reference: North
North Reference: Grid
Client: Cimarex
Version / Patch: 2.10.715.0

NOTE: Measured Depth is referenced to individual borehole elevation.
 TVD, NS, EW are referenced to the reference trajectory's wellhead location and borehole elevation.
 A minimum of 0.300 m is always included for borehole diameters.

All local minima indicated.

Results highlighted: AC Sep-Factor <= Fw

Anti-Collision Rules Used

Rule Set Name

NAL Procedure: D&M AntiCollision Standard S002

Rule Name

SLB Alert Zone Threshold OSF=5.0 S002 v5.1/5.2
 SLB Minor Risk Threshold OSF=1.5 S002 v5.1/5.2
 SLB Major Risk Threshold OSF=1.0 S002 v5.1/5.2
 SLB Surface Rule S002 v5.1/5.2
 SLB Alert Zone Threshold Ctc<=15m S002 v5.1/5.2

Risk Level

Alert
 Minor
 Major
 Alert

Exemption Risk Level:

Minor

Rule Type

Ratio
 Ratio
 Ratio
 CT_CT
 CT_CT

Rule Label

OSF = 5.00
 OSF = 1.50
 OSF = 1.00
 MAS = 32.81(ft)
 MAS = 49.21(ft)

NoGo Rule

X

Field: NM Lee County (NAD 83)		Reference Trajectory Summary		Well: Cimarex State 25 #1H	
Structure: Cimarex State 25 #1H		Borehole: ST01		Trajectory: Cimarex State 25 #1H ST01 Rev4 RM 5July18	
Slot: Cimarex		Type: Def Plan			
Coordinate System: NAD83 New Mexico State Plane, Eastern Zone, US Feet		Grid Convergence Angle: 0.39322140°		Grid Scale Factor: 0.999965656	
North Reference: Grid				Magnetic Model: HDGM 2018	
Magnetic Declination: 6.654°		Magnetic Declination Date: July 05, 2018			
Reference Point:					
Northings	Easting	Elevation	Structure Unc.	Slot Unc.	
689002.440 (ftUS)	763590.140 (ftUS)	4174.200 (ft) MSL	0.000 (ft) (3 sigma)	0.000 (ft) (3 sigma)	

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma

Surveying Prog: While Drilling

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Hole Size (in)	Casing Diameter (in)	Borehole / Survey
	1	0.000	26.000	1/100.000	NAL_MWD_IFR1+MS-Depth Only	30.000	30.000	Cimarex State 25 #1H ST01 Rev4 RM 5July18
	1	26.000	16005.162	1/100.000	NAL_MWD_IFR1+MS	30.000	30.000	Cimarex State 25 #1H ST01 Rev4 RM 5July18

Offset Trajectory Summary

Offset Selection Criteria:

Offset Selection Criteria: 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 Selection Summary

Wells Selected:3

Boreholes Selected:1

Definitive Surveys Selected:3

Non-Def Surveys Selected:0

Definitive Plans Selected:0

Non-Def Plans Selected:0

Total Trajectories:3

OSF filter in detailed report: None

* Excluded: The trajectory was analyzed and fully passed all criteria so the detailed results have been excluded from this report for clarity.

Trajectory

Cimarex New Mexico State A #1 (Offset) Blind Off-11587ft
Cimarex Philips State #1 (Offset) Salt Water Disposal Blind Off-11640ft
Cimarex New Mexico State A3 (Offset) Blind Plugged Off-10870ft

Borehole

Original Borehole
Original Borehole
Original Borehole

Well

Cimarex New Mexico State A #1 (Offset)
Cimarex Philips State #1 (Offset)
Cimarex New Mexico State A3 (Offset)

Type

Def Survey
Def Survey
Def Survey

Passing Excluded *