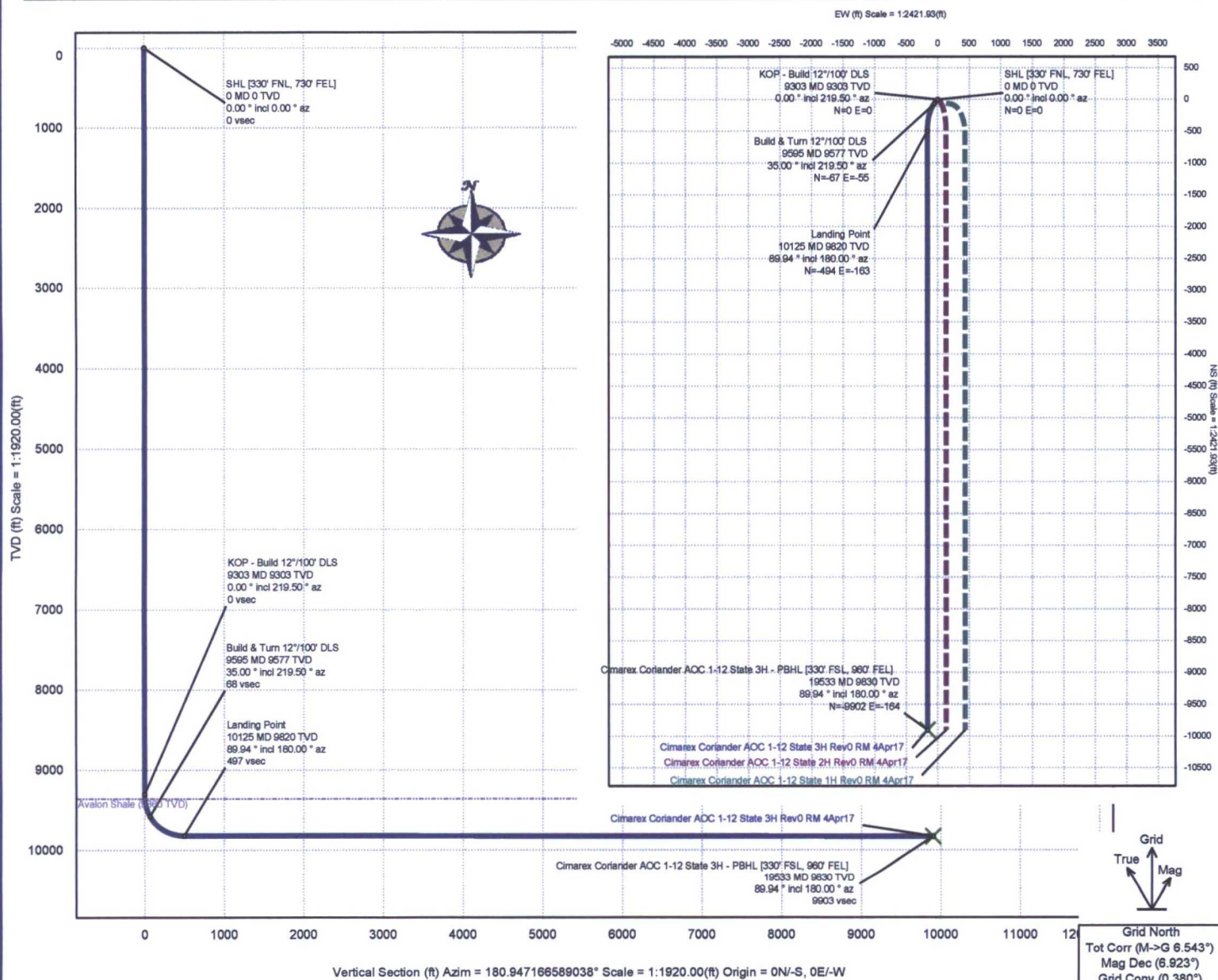


Borehole: Original Borehole		Well: Cimarex Coriander AOC 1-12 State 3H		Field: NM Lea County (NAD 83)		Structure: Cimarex Coriander AOC 1-12 State 3H	
Gravity & Magnetic Parameters Model: HDGM 2016 Dip: 60.189° Date: 04-Apr-2017 MagDec: 6.923° PB: 48254.1nT Gravity PB: 962.957mgn (3.80665 Based)				Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet Lat: N 32 20 24.56 Northing: 488209.4RU8 Grid Conv: 0.3885° Lon: W 103 37 19.76 Easting: 760884.1RU8 Scale Fact: 0.99996434		Miscellaneous Cimarex Spot: Coriander AOC TVD Ref: RKB(3776ft above MSL) Plan: 1-12 State 3H Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17	



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [330' FNL, 730' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 12°/100' DLS	9302.97	0.00	219.50	9302.97	0.00	0.00	0.00	0.00
Avalon Shale	9360.14	6.86	219.50	9360.00	2.67	-2.64	-2.17	12.00
Build & Turn 12°/100' DLS	9594.64	35.00	219.50	9576.83	67.53	-66.63	-54.92	12.00
Landing Point	10125.25	89.94	180.00	9820.00	496.94	-494.31	-163.11	12.00
Cimarex Coriander AOC 1-12 State 3H - PBHL [330' FSL, 960' FEL]	19532.92	89.94	180.00	9830.00	9903.33	-9901.97	-163.71	0.00

Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17 Proposal Geodetic Report

(Non-Def Plan)



Report Date: April 04, 2017 - 09:54 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Coriander AOC 1-12 State 3H / Cimarex Coriander AOC 1-12 State 3H
Well: Cimarex Coriander AOC 1-12 State 3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17
Survey Date: April 04, 2017
Tort / AHD / DDI / ERD Ratio: 98.674° / 9942.372 ft / 6.290 / 1.011
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 20' 24.5555", W 103° 37' 19.68801"
Location Grid N/E Y/X: N 488209.400 ftUS, E 760984.100 ftUS
CRS Grid Convergence Angle: 0.3805°
Grid Scale Factor: 0.99996434
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 180.947° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3776.000 ft above MSL
Seabed / Ground Elevation: 3752.000 ft above MSL
Magnetic Declination: 6.923°
Total Gravity Field Strength: 962.9574mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48254.100 nT
Magnetic Dip Angle: 60.188°
Declination Date: April 04, 2017
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.3805°
Total Corr Mag North->Grid North: 6.5430°
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' FNL, 730' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	100.00	0.00	219.50	100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	200.00	0.00	219.50	200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	300.00	0.00	219.50	300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	400.00	0.00	219.50	400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	500.00	0.00	219.50	500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	600.00	0.00	219.50	600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	700.00	0.00	219.50	700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	800.00	0.00	219.50	800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	900.00	0.00	219.50	900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1000.00	0.00	219.50	1000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1100.00	0.00	219.50	1100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1200.00	0.00	219.50	1200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1300.00	0.00	219.50	1300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1400.00	0.00	219.50	1400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1500.00	0.00	219.50	1500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1600.00	0.00	219.50	1600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1700.00	0.00	219.50	1700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1800.00	0.00	219.50	1800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	1900.00	0.00	219.50	1900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2000.00	0.00	219.50	2000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2100.00	0.00	219.50	2100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2200.00	0.00	219.50	2200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2300.00	0.00	219.50	2300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2400.00	0.00	219.50	2400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2500.00	0.00	219.50	2500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2600.00	0.00	219.50	2600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2700.00	0.00	219.50	2700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2800.00	0.00	219.50	2800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	2900.00	0.00	219.50	2900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3000.00	0.00	219.50	3000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3100.00	0.00	219.50	3100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3200.00	0.00	219.50	3200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3300.00	0.00	219.50	3300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3400.00	0.00	219.50	3400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3500.00	0.00	219.50	3500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3600.00	0.00	219.50	3600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3700.00	0.00	219.50	3700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3800.00	0.00	219.50	3800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	3900.00	0.00	219.50	3900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4000.00	0.00	219.50	4000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4100.00	0.00	219.50	4100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4200.00	0.00	219.50	4200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4300.00	0.00	219.50	4300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4400.00	0.00	219.50	4400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4500.00	0.00	219.50	4500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4600.00	0.00	219.50	4600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4700.00	0.00	219.50	4700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4800.00	0.00	219.50	4800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	4900.00	0.00	219.50	4900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5000.00	0.00	219.50	5000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5100.00	0.00	219.50	5100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5200.00	0.00	219.50	5200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5300.00	0.00	219.50	5300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5400.00	0.00	219.50	5400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5500.00	0.00	219.50	5500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5600.00	0.00	219.50	5600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5700.00	0.00	219.50	5700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5800.00	0.00	219.50	5800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	5900.00	0.00	219.50	5900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6000.00	0.00	219.50	6000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6100.00	0.00	219.50	6100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6200.00	0.00	219.50	6200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6300.00	0.00	219.50	6300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6400.00	0.00	219.50	6400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6500.00	0.00	219.50	6500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6600.00	0.00	219.50	6600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6700.00	0.00	219.50	6700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6800.00	0.00	219.50	6800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	6900.00	0.00	219.50	6900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7000.00	0.00	219.50	7000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7100.00	0.00	219.50	7100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7200.00	0.00	219.50	7200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7300.00	0.00	219.50	7300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7400.00	0.00	219.50	7400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7500.00											

Comments	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7600.00	0.00	219.50	7600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7700.00	0.00	219.50	7700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7800.00	0.00	219.50	7800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	7900.00	0.00	219.50	7900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8000.00	0.00	219.50	8000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8100.00	0.00	219.50	8100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8200.00	0.00	219.50	8200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8300.00	0.00	219.50	8300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8400.00	0.00	219.50	8400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8500.00	0.00	219.50	8500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8600.00	0.00	219.50	8600.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8700.00	0.00	219.50	8700.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8800.00	0.00	219.50	8800.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	8900.00	0.00	219.50	8900.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	9000.00	0.00	219.50	9000.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	9100.00	0.00	219.50	9100.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	9200.00	0.00	219.50	9200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
	9300.00	0.00	219.50	9300.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
KOP - Build 12"/100' DLS	9302.97	0.00	219.50	9302.97	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
Avalon Shale	9360.14	6.66	219.50	9360.00	2.67	-2.64	-2.17	12.00	488206.76	760981.93	N 32 20 24.53	W 103 37 19.72
	9400.00	11.64	219.50	9399.33	7.68	-7.58	-8.25	12.00	488201.82	760977.85	N 32 20 24.48	W 103 37 19.77
	9500.00	23.64	219.50	9494.46	31.34	-30.93	-25.49	12.00	488178.47	760958.61	N 32 20 24.25	W 103 37 20.00
Build & Turn 12"/100' DLS	9594.64	35.00	219.50	9576.83	67.53	-66.63	-54.92	12.00	488142.77	760929.18	N 32 20 23.90	W 103 37 20.34
	9600.00	35.46	218.71	9581.21	69.96	-69.03	-56.88	12.00	488140.37	760927.23	N 32 20 23.88	W 103 37 20.37
	9700.00	44.70	206.74	9657.76	124.75	-123.27	-90.96	12.00	488096.14	760893.14	N 32 20 23.34	W 103 37 20.77
	9800.00	54.83	198.28	9722.34	195.69	-193.74	-119.71	12.00	488015.67	760864.39	N 32 20 22.65	W 103 37 21.11
	9900.00	65.41	191.74	9772.13	279.68	-277.37	-141.86	12.00	487932.04	760842.24	N 32 20 21.82	W 103 37 21.37
	10000.00	76.24	186.24	9804.95	373.04	-370.50	-156.45	12.00	487838.91	760827.66	N 32 20 20.90	W 103 37 21.55
	10100.00	87.17	181.24	9819.36	471.70	-469.07	-162.83	12.00	487740.35	760821.27	N 32 20 19.92	W 103 37 21.63
Landing Point	10125.25	89.94	180.00	9820.00	496.94	-494.31	-163.11	12.00	487715.11	760821.00	N 32 20 19.68	W 103 37 21.64
	10200.00	89.94	180.00	9820.08	571.67	-569.06	-163.11	0.00	487640.37	760821.00	N 32 20 18.94	W 103 37 21.64
	10300.00	89.94	180.00	9820.19	671.66	-669.06	-163.12	0.00	487540.37	760820.99	N 32 20 17.95	W 103 37 21.65
	10400.00	89.94	180.00	9820.29	771.65	-769.06	-163.12	0.00	487440.37	760820.98	N 32 20 16.96	W 103 37 21.66
	10500.00	89.94	180.00	9820.40	871.63	-869.06	-163.13	0.00	487340.38	760820.98	N 32 20 15.97	W 103 37 21.67
	10600.00	89.94	180.00	9820.50	971.62	-969.06	-163.14	0.00	487240.38	760820.97	N 32 20 14.98	W 103 37 21.67
	10700.00	89.94	180.00	9820.61	1071.61	-1069.05	-163.14	0.00	487140.39	760820.96	N 32 20 13.99	W 103 37 21.68
	10800.00	89.94	180.00	9820.72	1171.59	-1169.05	-163.15	0.00	487040.39	760820.96	N 32 20 13.00	W 103 37 21.69
	10900.00	89.94	180.00	9820.82	1271.58	-1269.05	-163.16	0.00	486940.39	760820.95	N 32 20 12.01	W 103 37 21.70
	11000.00	89.94	180.00	9820.93	1371.56	-1369.05	-163.16	0.00	486840.40	760820.94	N 32 20 11.02	W 103 37 21.71
	11100.00	89.94	180.00	9821.04	1471.55	-1469.05	-163.17	0.00	486740.40	760820.94	N 32 20 10.03	W 103 37 21.71
	11200.00	89.94	180.00	9821.14	1571.54	-1569.05	-163.17	0.00	486640.40	760820.93	N 32 20 9.04	W 103 37 21.72
	11300.00	89.94	180.00	9821.25	1671.52	-1669.05	-163.18	0.00	486540.41	760820.92	N 32 20 8.05	W 103 37 21.73
	11400.00	89.94	180.00	9821.35	1771.51	-1769.05	-163.19	0.00	486440.41	760820.92	N 32 20 7.06	W 103 37 21.74
	11500.00	89.94	180.00	9821.46	1871.50	-1869.05	-163.19	0.00	486340.42	760820.91	N 32 20 6.07	W 103 37 21.74
	11600.00	89.94	180.00	9821.57	1971.48	-1969.05	-163.20	0.00	486240.42	760820.91	N 32 20 5.08	W 103 37 21.75
	11700.00	89.94	180.00	9821.67	2071.47	-2069.05	-163.21	0.00	486140.42	760820.90	N 32 20 4.09	W 103 37 21.76
	11800.00	89.94	180.00	9821.78	2171.46	-2169.05	-163.21	0.00	486040.43	760820.89	N 32 20 3.10	W 103 37 21.77
	11900.00	89.94	180.00	9821.89	2271.44	-2269.05	-163.22	0.00	485940.43	760820.89	N 32 20 2.11	W 103 37 21.78
	12000.00	89.94	180.00	9821.99	2371.43	-2369.05	-163.23	0.00	485840.43	760820.88	N 32 20 1.13	W 103 37 21.78
	12100.00	89.94	180.00	9822.10	2471.42	-2469.05	-163.23	0.00	485740.44	760820.87	N 32 20 0.14	W 103 37 21.79
	12200.00	89.94	180.00	9822.20	2571.40	-2569.05	-163.24	0.00	485640.44	760820.87	N 32 19 59.15	W 103 37 21.80
	12300.00	89.94	180.00	9822.31	2671.39	-2669.05	-163.24	0.00	485540.45	760820.86	N 32 19 58.16	W 103 37 21.81
	12400.00	89.94	180.00	9822.42	2771.37	-2769.05	-163.25	0.00	485440.45	760820.85	N 32 19 57.17	W 103 37 21.81
	12500.00	89.94	180.00	9822.52	2871.36	-2869.05	-163.26	0.00	485340.45	760820.85	N 32 19 56.18	W 103 37 21.82
	12600.00	89.94	180.00	9822.63	2971.35	-2969.05	-163.26	0.00	485240.46	760820.84	N 32 19 55.19	W 103 37 21.83
	12700.00	89.94	180.00	9822.74	3071.33	-3069.05	-163.27	0.00	485140.46	760820.84	N 32 19 54.20	W 103 37 21.84
	12800.00	89.94	180.00	9822.84	3171.32	-3169.05	-163.28	0.00	485040.47	760820.83	N 32 19 53.21	W 103 37 21.85
	12900.00	89.94	180.00	9822.95	3271.31	-3269.05	-163.28	0.00	484940.47	760820.82	N 32 19 52.22	W 103 37 21.85
	13000.00	89.94	180.00	9823.06	3371.29	-3369.05	-163.29	0.00	484840.47	760820.82	N 32 19 51.23	W 103 37 21.86
	13100.00	89.94	180.00	9823.16	3471.28	-3469.05	-163.30	0.00	484740.48	760820.81	N 32 19 50.24	W 103 37 21.87
	13200.00	89.94	180.00	9823.27	3571.27	-3569.05	-163.30	0.00	484640.48	760820.80	N 32 19 49.25	W 103 37 21.88
	13300.00	89.94	180.00	9823.37	3671.25	-3669.05	-163.31	0.00	484540.48	760820.80	N 32 19 48.26	W 103 37 21.89
	13400.00	89.94	180.00	9823.48	3771.24	-3769.05	-163.32	0.00	484440.49	760820.79	N 32 19 47.27	W 103 37 21.89
	13500.00	89.94	180.00	9823.59	3871.22	-3869.05	-163.32	0.00	484340.49	760820.78	N 32 19 46.28	W 103 37 21.90
	13600.00	89.94	180.00	9823.69	3971.21	-3969.05	-163.33	0.00	484240.50	760820.78	N 32 19 45.29	W 103 37 21.91
	13700.00	89.94	180.00	9823.80	4071.20	-4069.05	-163.33	0.00	484140.50	760820.77	N 32 19 44.30	W 103 37 21.92
	13800.00	89.94	180.00	9823.91	4171.18	-4169.05	-163.34	0.00	484040.50	760820.77	N 32 19 43.31	W 103 37 21.92
	13900.00	89.94	180.00	9824.01	4271.17	-4269.05	-163.35	0.00	483940.51	760820.76	N 32 19 42.33	W 103 37 21.93
	14000.00	89.94	180.00	9824.12	4371.16	-4369.05	-163.35	0.00	483840.51	760820.75	N 32 19 41.34	W 103 37 21.94
	14100.00	89.94	180.00	9824.22	4471.14	-4469.05	-163.36	0.00	483740.52	760820.75	N 32 19 40.35	W 103 37 21.95
	14200.00	89.94	180.00	9824.33	4571.13	-4569.05	-163.37	0.00	483640.52	760820.74	N 32 19 39.36	W 103 37 21.96
	14300.00	89.94	180.00	9824.44	4671.12	-4669.05	-163.37	0.00	483540.52	760820.73	N 32 19 38.37	W 103 37 21.96
	14400.00	89.94	180.00	9824.54	4771.10	-4769.05	-163.38	0.00	483440.53	760820.73	N 32 19 37.38	W 103 37 21.97
	14500.00	89.94	180.00	9824.65	4871.09	-4869.05	-163.39	0.00	483340.53	760820.72	N 32 19 36.39	W 103 37 21.98
	14600.00	89.94	180.00	9824.76	4971.07	-4969.05	-163.39	0.00	483240.53	760820.71	N 32 19 35.40	W 103 37 21.99
	14700.00	89.94	180.00	9824.86	5071.06	-5069.05	-163.40	0.00	483140.54	760820.71	N 32 19 34.41	W 103 37 21.99
	14800.00	89.94	1									

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 ° ' ")
	17900.00	89.94	180.00	9828.26	8270.63	-8269.05	-163.60	0.00	479840.66	760820.50	N 32 19 2.75	W 103 37 22.24
	18000.00	89.94	180.00	9828.37	8370.61	-8369.05	-163.61	0.00	479840.66	760820.50	N 32 19 1.76	W 103 37 22.25
	18100.00	89.94	180.00	9828.48	8470.60	-8469.05	-163.61	0.00	479740.67	760820.49	N 32 19 0.77	W 103 37 22.26
	18200.00	89.94	180.00	9828.58	8570.58	-8569.05	-163.62	0.00	479640.67	760820.48	N 32 18 59.78	W 103 37 22.27
	18300.00	89.94	180.00	9828.69	8670.57	-8669.05	-163.63	0.00	479540.68	760820.48	N 32 18 58.79	W 103 37 22.28
	18400.00	89.94	180.00	9828.80	8770.56	-8769.05	-163.63	0.00	479440.68	760820.47	N 32 18 57.80	W 103 37 22.28
	18500.00	89.94	180.00	9828.90	8870.54	-8869.05	-163.64	0.00	479340.68	760820.47	N 32 18 56.81	W 103 37 22.29
	18600.00	89.94	180.00	9829.01	8970.53	-8969.05	-163.65	0.00	479240.69	760820.46	N 32 18 55.82	W 103 37 22.30
	18700.00	89.94	180.00	9829.11	9070.52	-9069.05	-163.65	0.00	479140.69	760820.45	N 32 18 54.83	W 103 37 22.31
	18800.00	89.94	180.00	9829.22	9170.50	-9169.05	-163.66	0.00	479040.69	760820.45	N 32 18 53.84	W 103 37 22.31
	18900.00	89.94	180.00	9829.33	9270.49	-9269.05	-163.67	0.00	478940.70	760820.44	N 32 18 52.85	W 103 37 22.32
	19000.00	89.94	180.00	9829.43	9370.48	-9369.05	-163.67	0.00	478840.70	760820.43	N 32 18 51.86	W 103 37 22.33
	19100.00	89.94	180.00	9829.54	9470.46	-9469.05	-163.68	0.00	478740.71	760820.43	N 32 18 50.87	W 103 37 22.34
	19200.00	89.94	180.00	9829.65	9570.45	-9569.05	-163.68	0.00	478640.71	760820.42	N 32 18 49.88	W 103 37 22.35
	19300.00	89.94	180.00	9829.75	9670.43	-9669.05	-163.69	0.00	478540.71	760820.41	N 32 18 48.89	W 103 37 22.35
	19400.00	89.94	180.00	9829.86	9770.42	-9769.05	-163.70	0.00	478440.72	760820.41	N 32 18 47.90	W 103 37 22.36
	19500.00	89.94	180.00	9829.97	9870.41	-9869.05	-163.70	0.00	478340.72	760820.40	N 32 18 46.91	W 103 37 22.37
Cimarex Coriander AOC 1-12 State 3H - PBHL [330' FSL, 960' FEL]	19532.92	89.94	180.00	9830.00	9903.33	-9901.97	-163.71	0.00	478307.80	760820.40	N 32 18 46.59	W 103 37 22.37

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	24.000	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17
	1	24.000	19532.923	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex Coriander AOC 1-12 State 3H

Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17 Proposal Geodetic Report

(Non-Def Plan)



Report Date: April 04, 2017 - 09:55 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Coriander AOC 1-12 State 3H / Cimarex Coriander AOC 1-12 State 3H
Well: Cimarex Coriander AOC 1-12 State 3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17
Survey Date: April 04, 2017
Tort / AHD / DDI / ERD Ratio: 98.674 ° / 9942.372 ft / 6.290 / 1.011
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 20' 24.5555", W 103° 37' 19.69801"
Location Grid N/E Y/X: N 488209.400 ftUS, E 760984.100 ftUS
CRS Grid Convergence Angle: 0.3805 °
Grid Scale Factor: 0.99996434
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 180.947 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3776.000 ft above MSL
Seabed / Ground Elevation: 3752.000 ft above MSL
Magnetic Declination: 6.923 °
Total Gravity Field Strength: 962.9574mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48254.100 nT
Magnetic Dip Angle: 60.188 °
Declination Date: April 04, 2017
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.3805 °
Total Corr Mag North->Grid North: 6.5430 °
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' FNL, 730' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
KOP - Build 12"/100' DLS	9302.97	0.00	219.50	9302.97	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
Avalon Shale	9360.14	6.86	219.50	9360.00	2.67	-2.64	-2.17	12.00	488206.76	760981.93	N 32 20 24.53	W 103 37 19.72
Build & Turn 12"/100' DLS	9594.64	35.00	219.50	9576.83	67.53	-66.63	-54.92	12.00	488142.77	760929.18	N 32 20 23.90	W 103 37 20.34
Landing Point Cimarex	10125.25	89.94	180.00	9820.00	496.94	-494.31	-163.11	12.00	487715.11	760821.00	N 32 20 19.68	W 103 37 21.64
Coriander AOC 1-12 State 3H - PBHL [330' FSL, 960' FEL]	19532.92	89.94	180.00	9830.00	9903.33	-9901.97	-163.71	0.00	478307.80	760820.40	N 32 18 46.59	W 103 37 22.37

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	24.000	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Coriander AOC 1-12 State 3H Rev0 RM 4Apr17
	1	24.000	19532.923	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex Coriander AOC 1-12 State 3H