

Intent ☒ As Drilled ☐

AUG 03 2018

Amended

API #
30-025-43738

RECEIVED

Operator Name: Cimarex Energy Co.	Property Name: Coriander AOC 1-12 State	Well Number #3H
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Kick Off Point (KOP)

UL A	Section 01	Township 23S	Range 32E	Lot 1	Feet 330	From N/S North	Feet 730	From E/W East	County Lea
Latitude 32.3401543					Longitude 103.6221382			NAD 83	

First Take Point (FTP)

UL A	Section 01	Township 23S	Range 32E	Lot 1	Feet 836	From N/S North	Feet 984	From E/W East	County Lea
Latitude 32.338767					Longitude 103.622972			NAD 83	

Last Take Point (LTP)

UL P	Section 12	Township 23S	Range 32E	Lot	Feet 100	From N/S South	Feet 990	From E/W East	County Lea
Latitude 32.3123089					Longitude 103.6229786			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit? ☐ No

Is this well an infill well? ☐ Yes

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API # 30-025-43736	Operator Name: Cimarex Energy Co. (215099)	Property Name: Coriander AOC 1-12 State	Well Number #1H
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KZ 06/29/2018

Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18 Proposal Geodetic Report

(Non-Def Plan)



Report Date: August 01, 2018 - 10:35 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 Rev4 01Aug18
Survey Date: April 04, 2017
Tort / AHD / DDI / ERD Ratio: 103.828 ° / 10352.115 ft / 6.338 / 1.078
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 20' 24.55555", W 103° 37' 19.89801"
Location Grid N/E Y/X: N 488209.400 rUS, E 780984.100 rUS
CRS Grid Convergence Angle: 0.3805 °
Grid Scale Factor: 0.99998434
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.630 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3778.000 ft above MSL
Seabed / Ground Elevation: 3752.000 ft above MSL
Magnetic Declination: 8.807 °
Total Gravity Field Strength: 998.4394mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48096.400 nT
Magnetic Dip Angle: 60.114 °
Declination Date: August 01, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3805 °
Total Corr Mag North->Grid North: 6.4268 °
Local Coord Referenced To: Structure Reference Point

HCC-1000

AUG 03 2018

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (rUS)	Easting (rUS)	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	780984.10	N 32 20 24.56	W 103 37 19.70
	100.00	0.00	261.00	100.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	200.00	0.00	261.00	200.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	300.00	0.00	261.00	300.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	400.00	0.00	261.00	400.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	500.00	0.00	261.00	500.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	600.00	0.00	261.00	600.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	700.00	0.00	261.00	700.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	800.00	0.00	261.00	800.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	900.00	0.00	261.00	900.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1000.00	0.00	261.00	1000.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1100.00	0.00	261.00	1100.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1200.00	0.00	261.00	1200.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
Rustler	1250.00	0.00	261.00	1250.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1300.00	0.00	261.00	1300.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1400.00	0.00	261.00	1400.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1500.00	0.00	261.00	1500.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1600.00	0.00	261.00	1600.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1700.00	0.00	261.00	1700.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1800.00	0.00	261.00	1800.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	1900.00	0.00	261.00	1900.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2000.00	0.00	261.00	2000.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2100.00	0.00	261.00	2100.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2200.00	0.00	261.00	2200.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2300.00	0.00	261.00	2300.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2400.00	0.00	261.00	2400.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
Nudge 2"/100' DLS	2500.00	0.00	261.00	2500.00	0.00	0.00	0.00	0.00	488209.40	780984.10	N 32 20 24.56	W 103 37 19.70
	2600.00	2.00	261.00	2599.98	0.26	-0.27	-1.72	2.00	488209.13	780982.38	N 32 20 24.55	W 103 37 19.72
	2700.00	4.00	261.00	2699.84	1.05	-1.09	-8.89	2.00	488208.31	780977.21	N 32 20 24.55	W 103 37 19.78
Hold Nudge	2797.50	5.95	261.00	2796.97	2.32	-2.41	-15.24	2.00	488206.99	780968.86	N 32 20 24.53	W 103 37 19.88
	2800.00	5.95	261.00	2799.45	2.35	-2.45	-15.50	0.00	488206.95	780968.60	N 32 20 24.53	W 103 37 19.88
	2900.00	5.95	261.00	2898.91	3.91	-4.08	-25.74	0.00	488205.32	780958.36	N 32 20 24.52	W 103 37 20.00
	3000.00	5.95	261.00	2998.37	5.47	-5.70	-35.98	0.00	488203.70	780948.13	N 32 20 24.50	W 103 37 20.12
	3100.00	5.95	261.00	3097.84	7.02	-7.32	-48.21	0.00	488202.08	780937.89	N 32 20 24.49	W 103 37 20.24
	3200.00	5.95	261.00	3197.30	8.58	-8.94	-58.45	0.00	488200.46	780927.65	N 32 20 24.47	W 103 37 20.36
	3300.00	5.95	261.00	3296.76	10.13	-10.58	-68.69	0.00	488198.84	780917.41	N 32 20 24.46	W 103 37 20.48
	3400.00	5.95	261.00	3396.22	11.69	-12.18	-78.93	0.00	488197.22	780907.17	N 32 20 24.44	W 103 37 20.60
	3500.00	5.95	261.00	3495.68	13.24	-13.81	-87.17	0.00	488195.59	780896.93	N 32 20 24.42	W 103 37 20.72
	3600.00	5.95	261.00	3595.14	14.80	-15.43	-97.41	0.00	488193.97	780886.70	N 32 20 24.41	W 103 37 20.83
Top of Salt	3660.18	5.95	261.00	3655.00	15.73	-16.40	-103.57	0.00	488193.00	780880.54	N 32 20 24.40	W 103 37 20.91
	3700.00	5.95	261.00	3694.60	16.35	-17.05	-107.65	0.00	488192.35	780876.46	N 32 20 24.39	W 103 37 20.95
	3800.00	5.95	261.00	3794.06	17.91	-18.67	-117.88	0.00	488190.73	780866.22	N 32 20 24.38	W 103 37 21.07
	3900.00	5.95	261.00	3893.53	19.46	-20.29	-128.12	0.00	488189.11	780855.98	N 32 20 24.36	W 103 37 21.19
	4000.00	5.95	261.00	3992.99	21.02	-21.91	-138.36	0.00	488187.49	780845.74	N 32 20 24.35	W 103 37 21.31
	4100.00	5.95	261.00	4092.45	22.58	-23.54	-148.60	0.00	488185.87	780835.51	N 32 20 24.33	W 103 37 21.43
	4200.00	5.95	261.00	4191.91	24.13	-25.16	-158.84	0.00	488184.24	780825.27	N 32 20 24.32	W 103 37 21.55
	4300.00	5.95	261.00	4291.37	25.69	-26.78	-169.08	0.00	488182.62	780815.03	N 32 20 24.30	W 103 37 21.67
	4400.00	5.95	261.00	4390.83	27.24	-28.40	-179.31	0.00	488181.00	780804.79	N 32 20 24.29	W 103 37 21.79
	4500.00	5.95	261.00	4490.29	28.80	-30.02	-189.55	0.00	488179.38	780794.55	N 32 20 24.27	W 103 37 21.91
	4600.00	5.95	261.00	4589.76	30.35	-31.64	-199.79	0.00	488177.76	780784.32	N 32 20 24.26	W 103 37 22.03
Base of Salt	4690.73	5.95	261.00	4680.00	31.78	-33.12	-209.08	0.00	488176.29	780775.03	N 32 20 24.24	W 103 37 22.14
	4700.00	5.95	261.00	4689.22	31.91	-33.27	-210.03	0.00	488176.14	780774.08	N 32 20 24.24	W 103 37 22.15
	4800.00	5.95	261.00	4788.68	33.46	-34.89	-220.27	0.00	488174.51	780763.84	N 32 20 24.22	W 103 37 22.27
	4900.00	5.95	261.00	4888.14	35.02	-36.51	-230.51	0.00	488172.89	780753.60	N 32 20 24.21	W 103 37 22.39
Lamar	4962.20	5.95	261.00	4950.00	35.99	-37.52	-236.87	0.00	488171.88	780747.23	N 32 20 24.20	W 103 37 22.46
	5000.00	5.95	261.00	4987.60	36.57	-38.13	-240.74	0.00	488171.27	780743.36	N 32 20 24.19	W 103 37 22.51
Bell Canyon Drop to Vertical 2"/100' DLS	5012.47	5.95	261.00	5000.00	36.77	-38.33	-242.02	0.00	488171.07	780742.09	N 32 20 24.19	W 103 37 22.52
	5100.00	4.20	261.00	5087.19	37.93	-39.54	-249.67	2.00	488169.86	780734.44	N 32 20 24.18	W 103 37 22.61
	5200.00	2.20	261.00	5187.03	38.77	-40.42	-255.18	2.00	488168.98	780728.93	N 32 20 24.17	W 103 37 22.68
	5300.00	0.20	261.00	5287.00	39.08	-40.74	-257.25	2.00	488168.66	780726.88	N 32 20 24.17	W 103 37 22.70
Hold Vertical	5309.97	0.00	261.00	5296.97	39.08	-40.75	-257.26	2.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5400.00	0.00	261.00	5387.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5500.00	0.00	261.00	5487.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5600.00	0.00	261.00	5587.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5700.00	0.00	261.00	5687.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5800.00	0.00	261.00	5787.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	5900.00	0.00	261.00	5887.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
Cherry Canyon	5903.00	0.00	261.00	5890.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	6000.00	0.00	261.00	5987.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	6100.00	0.00	261.00	6087.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	6200.00	0.00	261.00	6187.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	6300.00	0.00	261.00	6287.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70
	6400.00	0.00	261.00	6387.00	39.08	-40.75	-257.26	0.00	488168.65	780726.85	N 32 20 24.17	W 103 37 22.70

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 ° ' ")
Brushy Canyon	6500.00	0.00	261.00	6487.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	6600.00	0.00	261.00	6587.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	6700.00	0.00	261.00	6687.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	6800.00	0.00	261.00	6787.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	6900.00	0.00	261.00	6887.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7000.00	0.00	261.00	6987.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7100.00	0.00	261.00	7087.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7200.00	0.00	261.00	7187.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7233.00	0.00	261.00	7220.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7300.00	0.00	261.00	7287.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7400.00	0.00	261.00	7387.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7500.00	0.00	261.00	7487.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7600.00	0.00	261.00	7587.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7700.00	0.00	261.00	7687.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7800.00	0.00	261.00	7787.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	7900.00	0.00	261.00	7887.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8000.00	0.00	261.00	7987.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8100.00	0.00	261.00	8087.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8200.00	0.00	261.00	8187.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8300.00	0.00	261.00	8287.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8400.00	0.00	261.00	8387.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
Bone Spring	8500.00	0.00	261.00	8487.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8600.00	0.00	261.00	8587.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8700.00	0.00	261.00	8687.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8800.00	0.00	261.00	8787.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8803.00	0.00	261.00	8790.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	8900.00	0.00	261.00	8887.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
	9000.00	0.00	261.00	8987.00	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
KOP - Build 12"/100" DLS	9075.67	0.00	261.00	9062.67	39.08	-40.75	-257.26	0.00	488168.65	760728.85	N 32 20 24.17	W 103 37 22.70
Avalon Shale	9100.00	2.92	179.63	9086.99	39.70	-41.37	-257.26	12.00	488168.04	760728.85	N 32 20 24.16	W 103 37 22.70
	9200.00	14.92	179.63	9185.60	55.18	-56.84	-257.16	12.00	488152.56	760728.95	N 32 20 24.01	W 103 37 22.70
	9300.00	26.92	179.63	9278.84	90.82	-92.48	-256.93	12.00	488116.92	760727.18	N 32 20 23.66	W 103 37 22.70
	9396.63	38.52	179.63	9360.00	142.96	-144.62	-256.60	12.00	488064.78	760727.51	N 32 20 23.14	W 103 37 22.70
	9400.00	38.92	179.63	9362.63	145.07	-146.73	-256.59	12.00	488062.68	760727.52	N 32 20 23.12	W 103 37 22.70
	9500.00	50.92	179.63	9433.31	215.55	-217.21	-256.14	12.00	487992.20	760727.97	N 32 20 22.42	W 103 37 22.70
	9600.00	62.92	179.63	9487.79	298.19	-300.84	-255.60	12.00	487908.57	760728.51	N 32 20 21.80	W 103 37 22.70
	9700.00	74.92	179.63	9523.69	392.32	-393.98	-255.01	12.00	487815.44	760729.10	N 32 20 20.67	W 103 37 22.70
	9800.00	86.92	179.63	9539.44	490.89	-492.54	-254.38	12.00	487716.88	760729.73	N 32 20 19.70	W 103 37 22.70
	Landing Point, Hold	9813.95	88.59	179.63	9539.99	504.83	-506.48	-254.29	12.00	487702.94	760729.82	N 32 20 19.56
2948' VS: Build 2" DLS	9900.00	88.59	179.63	9542.10	590.85	-592.50	-253.74	0.00	487616.82	760730.37	N 32 20 18.71	W 103 37 22.70
	10000.00	88.59	179.63	9544.56	690.82	-692.47	-253.10	0.00	487516.85	760731.01	N 32 20 17.72	W 103 37 22.70
	10100.00	88.59	179.63	9547.01	790.79	-792.44	-252.46	0.00	487416.99	760731.65	N 32 20 16.73	W 103 37 22.70
	10200.00	88.59	179.63	9549.47	890.76	-892.41	-251.82	0.00	487317.03	760732.29	N 32 20 15.74	W 103 37 22.70
	10300.00	88.59	179.63	9551.93	990.73	-992.38	-251.19	0.00	487217.06	760732.92	N 32 20 14.75	W 103 37 22.70
	10400.00	88.59	179.63	9554.38	1090.70	-1092.34	-250.55	0.00	487117.10	760733.56	N 32 20 13.76	W 103 37 22.70
	10500.00	88.59	179.63	9556.84	1190.67	-1192.31	-249.91	0.00	487017.13	760734.20	N 32 20 12.77	W 103 37 22.70
	10600.00	88.59	179.63	9559.29	1290.64	-1292.28	-249.27	0.00	486917.17	760734.84	N 32 20 11.79	W 103 37 22.70
	10700.00	88.59	179.63	9561.75	1390.61	-1392.25	-248.63	0.00	486817.21	760735.48	N 32 20 10.80	W 103 37 22.70
	10800.00	88.59	179.63	9564.20	1490.58	-1492.21	-247.99	0.00	486717.24	760736.12	N 32 20 9.81	W 103 37 22.70
	10900.00	88.59	179.63	9566.66	1590.55	-1592.18	-247.35	0.00	486617.28	760736.76	N 32 20 8.82	W 103 37 22.70
	11000.00	88.59	179.63	9569.11	1690.52	-1692.15	-246.72	0.00	486517.31	760737.39	N 32 20 7.83	W 103 37 22.70
	11100.00	88.59	179.63	9571.57	1790.49	-1792.12	-246.08	0.00	486417.35	760738.03	N 32 20 6.84	W 103 37 22.70
	11200.00	88.59	179.63	9574.02	1890.46	-1892.09	-245.44	0.00	486317.39	760738.67	N 32 20 5.85	W 103 37 22.70
	11300.00	88.59	179.63	9576.48	1990.43	-1992.05	-244.80	0.00	486217.42	760739.31	N 32 20 4.86	W 103 37 22.71
	11400.00	88.59	179.63	9578.94	2090.40	-2092.02	-244.16	0.00	486117.46	760739.95	N 32 20 3.87	W 103 37 22.71
	11500.00	88.59	179.63	9581.39	2190.37	-2191.99	-243.52	0.00	486017.49	760740.59	N 32 20 2.88	W 103 37 22.71
	11600.00	88.59	179.63	9583.85	2290.34	-2291.96	-242.88	0.00	485917.53	760741.23	N 32 20 1.89	W 103 37 22.71
	11700.00	88.59	179.63	9586.30	2390.31	-2391.92	-242.25	0.00	485817.57	760741.86	N 32 20 0.90	W 103 37 22.71
	11800.00	88.59	179.63	9588.76	2490.28	-2491.89	-241.61	0.00	485717.60	760742.50	N 32 19 59.91	W 103 37 22.71
	11900.00	88.59	179.63	9591.21	2590.25	-2591.86	-240.97	0.00	485617.64	760743.14	N 32 19 58.93	W 103 37 22.71
12000.00	88.59	179.63	9593.67	2690.22	-2691.83	-240.33	0.00	485517.67	760743.78	N 32 19 57.94	W 103 37 22.71	
12100.00	88.59	179.63	9596.12	2790.19	-2791.80	-239.69	0.00	485417.71	760744.42	N 32 19 56.95	W 103 37 22.71	
12200.00	88.59	179.63	9598.58	2890.16	-2891.76	-239.05	0.00	485317.75	760745.06	N 32 19 55.96	W 103 37 22.71	
12257.86	88.59	179.63	9600.00	2948.00	-2949.81	-238.68	0.00	485259.91	760745.43	N 32 19 55.39	W 103 37 22.71	
Hold</												

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 ° ' ")
	16100.00	89.89	179.83	9551.65	8789.78	-8791.31	-214.12	0.00	481418.35	760769.99	N 32 19 17.37	W 103 37 22.72
	16200.00	89.89	179.83	9552.20	8889.78	-8891.30	-213.46	0.00	481318.36	760770.64	N 32 19 16.38	W 103 37 22.72
	16300.00	89.89	179.83	9552.75	8989.78	-8991.30	-212.81	0.00	481218.36	760771.30	N 32 19 15.39	W 103 37 22.72
	16400.00	89.89	179.83	9553.30	9089.78	-9091.29	-212.16	0.00	481118.37	760771.95	N 32 19 14.40	W 103 37 22.72
	16500.00	89.89	179.83	9553.85	9189.78	-9191.29	-211.51	0.00	481018.38	760772.60	N 32 19 13.41	W 103 37 22.72
	16600.00	89.89	179.83	9554.40	9289.77	-9291.29	-210.85	0.00	480918.39	760773.26	N 32 19 12.42	W 103 37 22.72
	16700.00	89.89	179.83	9554.95	9389.77	-9391.28	-210.20	0.00	480818.39	760773.91	N 32 19 11.43	W 103 37 22.72
	16800.00	89.89	179.83	9555.50	9489.77	-9491.28	-209.55	0.00	480718.40	760774.56	N 32 19 10.44	W 103 37 22.72
	16900.00	89.89	179.83	9556.05	9589.77	-9591.28	-208.89	0.00	480618.41	760775.21	N 32 19 9.46	W 103 37 22.72
	17000.00	89.89	179.83	9556.59	9689.77	-9691.27	-208.24	0.00	480518.42	760775.87	N 32 19 8.47	W 103 37 22.72
	17100.00	89.89	179.83	9557.14	9789.77	-9791.27	-207.59	0.00	480418.42	760776.52	N 32 19 7.48	W 103 37 22.72
	17200.00	89.89	179.83	9557.69	9889.76	-9891.27	-206.94	0.00	480318.43	760777.17	N 32 19 6.49	W 103 37 22.72
	17300.00	89.89	179.83	9558.24	9989.76	-9991.26	-206.28	0.00	480218.44	760777.82	N 32 19 5.50	W 103 37 22.72
	17400.00	89.89	179.83	9558.79	10089.76	-10091.26	-205.63	0.00	480118.45	760778.48	N 32 19 4.51	W 103 37 22.72
	17500.00	89.89	179.83	9559.34	10189.76	-10191.25	-204.98	0.00	480018.45	760779.13	N 32 19 3.52	W 103 37 22.72
	17600.00	89.89	179.83	9559.89	10289.76	-10291.25	-204.32	0.00	479918.46	760779.78	N 32 19 2.53	W 103 37 22.72
	17700.00	89.89	179.83	9560.44	10389.76	-10391.25	-203.67	0.00	479818.47	760780.44	N 32 19 1.54	W 103 37 22.72
	17800.00	89.89	179.83	9560.99	10489.76	-10491.24	-203.02	0.00	479718.48	760781.09	N 32 19 0.55	W 103 37 22.72
	17900.00	89.89	179.83	9561.54	10589.75	-10591.24	-202.37	0.00	479618.48	760781.74	N 32 18 59.56	W 103 37 22.72
	18000.00	89.89	179.83	9562.09	10689.75	-10691.24	-201.71	0.00	479518.49	760782.39	N 32 18 58.57	W 103 37 22.72
	18100.00	89.89	179.83	9562.64	10789.75	-10791.23	-201.06	0.00	479418.50	760783.05	N 32 18 57.58	W 103 37 22.72
	18200.00	89.89	179.83	9563.18	10889.75	-10891.23	-200.41	0.00	479318.51	760783.70	N 32 18 56.59	W 103 37 22.72
	18300.00	89.89	179.83	9563.73	10989.75	-10991.23	-199.76	0.00	479218.51	760784.35	N 32 18 55.60	W 103 37 22.72
	18400.00	89.89	179.83	9564.28	11089.75	-11091.22	-199.10	0.00	479118.52	760785.00	N 32 18 54.61	W 103 37 22.72
	18500.00	89.89	179.83	9564.83	11189.75	-11191.22	-198.45	0.00	479018.53	760785.66	N 32 18 53.62	W 103 37 22.72
	18600.00	89.89	179.83	9565.38	11289.74	-11291.21	-197.80	0.00	478918.54	760786.31	N 32 18 52.63	W 103 37 22.72
	18700.00	89.89	179.83	9565.93	11389.74	-11391.21	-197.14	0.00	478818.54	760786.96	N 32 18 51.64	W 103 37 22.72
	18800.00	89.89	179.83	9566.48	11489.74	-11491.21	-196.49	0.00	478718.55	760787.62	N 32 18 50.66	W 103 37 22.72
	18900.00	89.89	179.83	9567.03	11589.74	-11591.20	-195.84	0.00	478618.56	760788.27	N 32 18 49.67	W 103 37 22.72
	19000.00	89.89	179.83	9567.58	11689.74	-11691.20	-195.19	0.00	478518.56	760788.92	N 32 18 48.68	W 103 37 22.72
	19100.00	89.89	179.83	9568.13	11789.74	-11791.20	-194.53	0.00	478418.57	760789.57	N 32 18 47.69	W 103 37 22.72
	19200.00	89.89	179.83	9568.68	11889.73	-11891.19	-193.88	0.00	478318.58	760790.23	N 32 18 46.70	W 103 37 22.72
	19300.00	89.89	179.83	9569.23	11989.73	-11991.19	-193.23	0.00	478218.59	760790.88	N 32 18 45.71	W 103 37 22.72
	19400.00	89.89	179.83	9569.77	12089.73	-12091.19	-192.57	0.00	478118.59	760791.53	N 32 18 44.72	W 103 37 22.72

Cimarex
Coriander AOC
1-12 State 3H -
PBHL [100' FSL,
990' FWL]

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 Coriander AOC 1-12 State 3H Rev4 01Aug18
	1	26.000	19440.997	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Coriander AOC 1-12 State 3H

Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18 Proposal Geodetic Report

(Non-Def Plan)



Report Date: August 01, 2018 - 10:35 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 Rev4 01Aug18
Survey Date: April 04, 2017
Tort / AHD / DDI / ERD Ratio: 103.828 ° / 10352.115 ft / 6.338 / 1.078
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 20' 24.55555", W 103° 37' 19.89801"
Location Grid N/E Y/X: N 488209.400 ftUS, E 760984.100 ftUS
CRS Grid Convergence Angle: 0.3805 °
Grid Scale Factor: 0.99998434
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.630 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3778.000 ft above MSL
Seabed / Ground Elevation: 3752.000 ft above MSL
Magnetic Declination: 6.807 °
Total Gravity Field Strength: 998.4394mgN (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48096.400 nT
Magnetic Dip Angle: 60.114 °
Declination Date: August 01, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3805 °
Total Corr Mag North->Grid North: 6.4268 °
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
Nudge 2"/100' DLS	2500.00	0.00	261.00	2500.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
Hold Nudge	2797.50	5.95	261.00	2796.97	2.32	-2.41	-15.24	2.00	488206.99	760968.86	N 32 20 24.53	W 103 37 19.88
Drop to Vertical	5012.47	5.95	261.00	5000.00	36.77	-38.33	-242.02	0.00	488171.07	760742.09	N 32 20 24.19	W 103 37 22.52
Hold Vertical	5309.97	0.00	261.00	5296.97	39.08	-40.75	-257.26	2.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
KOP - Build 12"/100' DLS	9075.67	0.00	261.00	9062.67	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
Landing Point, Hold	9813.95	88.59	179.63	9539.99	504.83	-506.48	-254.29	12.00	487702.94	760729.82	N 32 20 19.56	W 103 37 22.70
2948' VS: Build 2" DLS	12257.86	88.59	179.63	9600.00	2948.00	-2949.61	-238.68	0.00	485259.91	760745.43	N 32 19 55.39	W 103 37 22.71
Hold	12368.54	90.81	179.63	9600.58	3058.67	-3060.27	-237.98	2.00	485149.25	760746.13	N 32 19 54.29	W 103 37 22.71
6578' VS: Drop 2" DLS	15888.21	90.81	179.63	9551.04	6578.00	-6579.52	-215.49	0.00	481830.12	760768.61	N 32 19 19.47	W 103 37 22.72
Hold to TD Cimarex	15944.27	89.69	179.63	9550.80	6634.05	-6635.58	-215.13	2.00	481574.07	760768.98	N 32 19 18.91	W 103 37 22.72
Coriander AOC 1-12 State 3H - PBHL [100' FSL, 990' FWL]	19441.00	89.69	179.63	9570.00	10130.73	-10132.18	-192.31	0.00	478077.60	760791.80	N 32 18 44.31	W 103 37 22.72

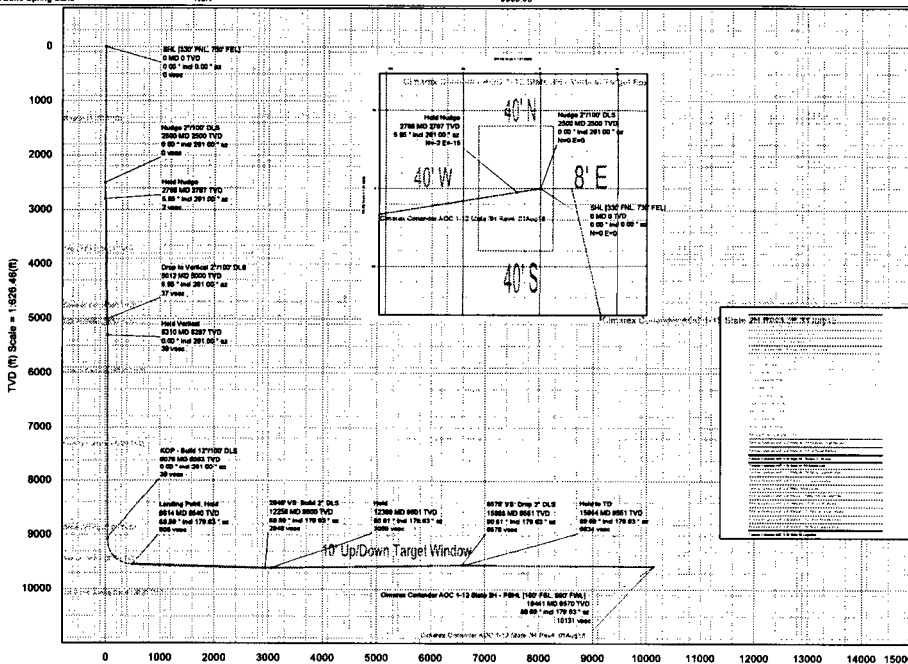
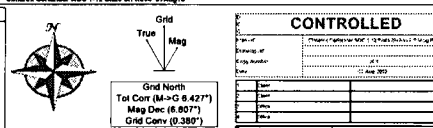
Survey Type: Non-Def Plan

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

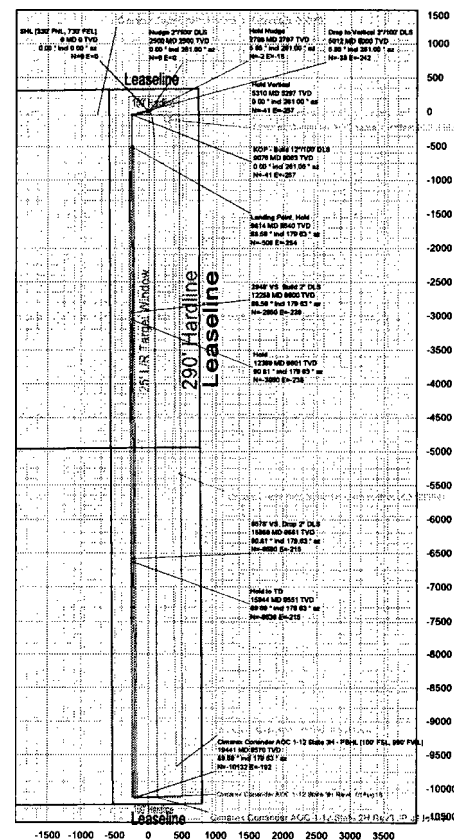
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18
	1	26.000	19440.997	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Coriander AOC 1-12 State 3H

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Coriander AOC 1-12 State 3H	NM Lea County (NAD 83)	Cimarex Coriander AOC 1-12 State 3H
Survey & Magnetic Formations			
Model: 100000 300	Dip: 86.114°	Date: 01-Aug-2018	01-Aug-2018
MagDec: 6.807°	FB: 100000.00	Gravity FB: 980.43 (9.80665 m/s²)	01-Aug-2018
		Surface Location	01-Aug-2018
		Lat: N 32 30 34.94	01-Aug-2018
		Long: W 103 37 15.76	01-Aug-2018
		Easting: 709864.1808	01-Aug-2018
		Grid Conv: 6.3885°	01-Aug-2018
		Scale Fact: 0.99996434	01-Aug-2018
		Well Name: Cimarex Coriander AOC 1-12 State 3H	01-Aug-2018
		Well ID: 1-12 State 3H	01-Aug-2018
		Well Plan: Cimarex Coriander AOC 1-12 State 3H Revd. 01-Aug-18	01-Aug-2018

Critical Points							
	MD	INCL	AZIM	TVD	VSRC	N(+)/S(-)	E(+)/W(-)
SHL (330° FNL, 730° FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reader	1230.00	0.00	281.00	1230.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2500.00	0.00	281.00	2500.00	0.00	0.00	0.00
Hold Nudge	2797.50	5.95	281.00	2798.97	2.32	-2.41	-15.24
Top of Salt	3680.18	5.95	281.00	3655.00	15.73	-16.40	-103.57
Base of Salt	4690.73	5.95	281.00	4580.00	31.76	-33.12	-209.08
Lamar	4982.20	5.95	281.00	4950.00	35.99	-37.52	-236.87
Drop to Vertical 2°/100' DLS	5812.47	5.95	281.00	5000.00	36.77	-38.33	-242.02
Ball Canyon	5012.47	5.95	281.00	5000.00	36.77	-38.33	-242.02
Hold Vertical	5309.97	0.00	281.00	5296.97	39.08	-40.75	-257.26
Cherry Canyon	5903.00	0.00	281.00	5890.00	39.08	-40.75	-257.26
Brushy Canyon	7233.00	0.00	281.00	7220.00	39.08	-40.75	-257.26
Bone Spring	8803.00	0.00	281.00	8790.00	39.08	-40.75	-257.26
KOP - Build 12°/100' DLS	9075.87	0.00	281.00	9062.87	39.08	-40.75	-257.26
Aviation Shale	9396.83	38.52	179.83	9380.00	142.96	-144.82	-256.00
Landing Point, Hold	9613.95	88.59	179.83	9539.99	504.83	-506.48	-254.29
2948° VS: Build 2° DLS	12257.88	88.59	179.83	9600.00	2948.00	-2949.81	-234.68
Hold	12388.54	90.81	179.83	9600.58	3058.87	-3060.27	-237.98
5878° VS: Drop 2° DLS	15688.21	90.81	179.83	9551.04	6578.00	-6579.52	-215.40
Hold to TD	15944.27	89.89	179.83	9550.80	6634.05	-6635.58	-215.13
Cimarex Coriander AOC 1-12 State 3H - PBHL (100° FSL, 900° FNL)	19441.00	89.89	179.83	9570.00	10130.73	-10132.18	-192.31
Net Bone Spring Sand	N/A			9990.00			



NS (ft) Scale = 1:504.17(ft)



EW (ft) Scale = 1:504.17(ft)

Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18 Anti-Collision Summary Report

Analysis Date-24hr Time: August 01, 2018 - 10:35

Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure: Cimarex Coriander AOC 1-12 State 3H
 Slot: Cimarex Coriander AOC 1-12 State 3H
 Well: Cimarex Coriander AOC 1-12 State 3H
 Borehole: Original Borehole
 Scan MD Range: 0.00ft - 19441.00ft

Analysis Method: 3D Least Distance
 Reference Trajectory: Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18 (Non-Def Plan)
 Depth Interval: Every 10.00 Measured Depth (ft)
 Rule Set: NAL Procedure: D&M Anti-Collision Standard S002
 Min Pts: All local minima indicated.
 Version / Patch: 2.10.740.0
 Database \ Project: US1153APP452.dlr.slb.com\drilling-NM Lea County 2.10

Trajectory Error Model: ISCSWA0 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			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 Coriander AOC 1-12 State 2H Rev2 RM 18July18 (Def Plan)												
20.03	16.50	17.53	3.53	N/A	MAS = 5.03 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	Fail Minor
20.00	16.50	17.50	3.50	N/A	MAS = 5.03 (m)	26.00	26.00				WRP	
20.00	20.09	5.77	-0.09	1.49	OSF1.50	1930.00	1930.00	OSF<1.50			Enter Minor	
20.00	25.47	2.19	-5.46	1.14	OSF1.50	2500.00	2500.00				MinPt-CtCt	
20.02	25.50	2.16	-5.51	1.14	OSF1.50	2510.00	2510.00				MinPt	
20.07	25.60	2.17	-5.53	1.14	OSF1.50	2520.00	2520.00				MinPt-O-ADP	
20.25	26.53	7.73	-0.25	1.42	OSF1.50	2690.00	2690.00	OSF>1.50			Exit Minor	
94.62	30.14	73.70	64.48	5.00	OSF1.50	3370.00	3368.38	OSF>5.00			Exit Alert	
280.32	75.68	229.03	204.63	5.89	OSF1.50	9090.00	9077.00				MinPt	
280.37	75.74	229.05	204.64	5.89	OSF1.50	9100.00	9066.99				MinPt-O-SF	
359.21	105.27	285.20	250.94	5.16	OSF1.50	12320.00	9600.85	OSF<5.00			MinPt-CtCt	
359.95	109.04	283.42	247.91	4.99	OSF1.50	12470.00	9599.15				Enter Alert	
374.11	317.76	161.44	56.35	1.77	OSF1.50	19441.00	9570.00				MinPt	

Cimarex Coriander AOC State 1 (Offset 025-33931) (Def Survey)												
390.86	32.81	388.36	358.05	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Fail Minor
389.83	32.81	387.00	356.82	3085.26	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
389.46	32.81	386.87	356.85	4149.62	MAS = 10.00 (m)	26.00	26.00				WRP	
371.88	113.55	295.44	258.43	4.99	OSF1.50	2010.00	2010.00	OSF<5.00			Enter Alert	
365.74	145.48	267.82	220.26	3.81	OSF1.50	2530.00	2530.00				MinPt-CtCt	
367.78	151.92	265.66	215.86	3.67	OSF1.50	2640.00	2639.94				MINPT-O-EQU	
370.64	155.35	266.24	215.29	3.61	OSF1.50	2700.00	2699.84				MinPt-O-ADP	
531.48	531.85	176.02	-0.39	1.50	OSF1.50	6500.00	6487.00	OSF<1.50			Enter Minor	
534.45	569.50	143.93	-45.07	1.35	OSF1.50	9170.00	9156.30				MinPt	
524.34	509.19	144.05	-44.85	1.36	OSF1.50	9180.00	9165.17				MinPt-CtCt	
542.41	544.48	176.59	-2.07	1.49	OSF1.50	9350.00	9305.14	OSF>1.50			Exit Minor	
1835.76	552.72	1466.45	1283.04	5.00	OSF1.50	11130.00	9572.31	OSF>5.00			Exit Alert	
10042.17	569.01	9602.00	9473.16	26.58	OSF1.50	19441.00	9570.00				TD	

Cimarex Thymine APV Federal 1 (Offset 025-33370) (Def Survey)												
931.84	32.81	929.34	898.04	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Fail Minor
931.82	32.81	929.09	898.81	30983.56	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
931.50	32.81	928.96	898.69	41300.83	MAS = 10.00 (m)	20.00	20.00				MINPT-O-EQU	
931.48	32.81	928.98	898.67	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
745.30	226.33	583.53	518.97	4.98	OSF1.50	3990.00	3983.04	OSF<5.00			Enter Alert	
538.51	538.75	176.37	-0.24	1.50	OSF1.50	5930.00	5917.00	OSF<1.50			Enter Minor	
533.70	558.03	150.70	-24.32	1.43	OSF1.50	9240.00	9223.77				MinPt-CtCt	
534.95	562.55	158.84	-27.80	1.43	OSF1.50	9520.00	9296.47				MINPT-O-EQU	
535.83	563.62	150.10	-27.70	1.43	OSF1.50	9540.00	9313.70				MinPt	
570.07	572.76	187.32	-2.69	1.49	OSF1.50	9550.00	9462.74	OSF>1.50			Exit Minor	
1820.51	579.94	1533.05	1340.57	4.98	OSF1.50	11200.00	9574.02	OSF>5.00			Exit Alert	
10100.82	580.77	9712.81	9520.05	26.19	OSF1.50	19441.00	9570.00				TD	

Cimarex Coriander AOC 1-12 State 1H final survey (Def Survey)												
152.11	32.81	149.61	118.30	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Warning Alert
152.01	32.81	149.51	119.21	21542.60	MAS = 10.00 (m)	26.00	26.00				WRP	
129.21	32.81	115.78	96.40	11.60	MAS = 10.00 (m)	2510.00	2510.00				MinPt	
129.22	32.81	115.79	96.41	11.58	MAS = 10.00 (m)	2520.00	2520.00				MINPT-O-EQU	
130.07	32.81	116.48	97.26	11.51	MAS = 10.00 (m)	2590.00	2589.99				MinPt-O-SF	
403.62	43.62	373.70	360.00	14.63	OSF1.50	8950.00	8937.00				MinPt-CtCt	
403.64	43.68	373.69	359.96	14.61	OSF1.50	8960.00	8947.00				MINPT-O-EQU	
403.70	43.74	373.70	359.96	14.59	OSF1.50	8970.00	8957.00				MinPt-O-ADP	
404.62	44.01	374.44	360.60	14.53	OSF1.50	9020.00	9007.00				MinPt-O-SF	
607.62	50.38	573.20	557.24	18.96	OSF1.50	10040.00	9545.54				MinPt-CtCt	
610.10	55.60	572.20	554.50	17.16	OSF1.50	10240.00	9550.45				MINPT-O-EQU	
615.59	73.89	565.50	541.70	12.88	OSF1.50	10780.00	9563.71				MINPT-O-EQU	
607.04	114.95	529.57	492.09	8.06	OSF1.50	11780.00	9568.27				MinPt-CtCt	
611.15	125.05	526.95	486.10	7.45	OSF1.50	12030.00	9594.40				MINPT-O-EQU	
614.52	130.19	526.93	484.34	7.19	OSF1.50	12150.00	9597.35				MINPT-O-EQU	
612.98	166.82	500.83	446.16	5.57	OSF1.50	12980.00	9591.97				MinPt-CtCt	
621.19	188.43	494.74	432.76	4.99	OSF1.50	13470.00	9585.08	OSF<5.00			Enter Alert	
587.66	221.23	439.54	366.63	4.01	OSF1.50	14210.00	9574.66				MinPt-CtCt	
589.94	227.32	437.58	362.62	3.92	OSF1.50	14360.00	9572.55				MINPT-O-EQU	
576.98	265.89	398.86	311.06	3.27	OSF1.50	15210.00	9560.58				MinPt-CtCt	
581.14	277.46	395.34	303.66	3.16	OSF1.50	15480.00	9556.78				MINPT-O-EQU	
586.14	298.18	386.54	287.99	2.96	OSF1.50	15830.00	9550.75				MinPt-CtCt	
586.09	307.42	380.32	278.68	2.87	OSF1.50	16140.00	9551.67				MinPt-CtCt	
584.28	320.41	369.84	263.87	2.75	OSF1.50	16430.00	9553.46				MinPt-CtCt	
594.91	352.48	359.09	242.43	2.54	OSF1.50	17140.00	9557.36				MinPt-CtCt	
595.52	367.42	349.74	228.10	2.44	OSF1.50	17470.00	9559.18				MinPt-CtCt	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Cl-Cl (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
598.09	374.48	347.81		223.63	2.40	OSF1.50	17940.00	9560.11				MINPT-O-EOU	
602.70	388.18	343.08		214.52	2.33	OSF1.50	17930.00	9561.70				MinPt-CICt	
612.21	435.65	320.94		176.56	2.11	OSF1.50	18980.00	9567.47				MinPt-CICt	
612.27	435.77	320.92		176.50	2.11	OSF1.50	18990.00	9567.52				MinPta	
765.52	355.81	527.48		408.71	3.24	OSF1.50	19441.00	9570.00				TD	

Cimarex April APZ State 1H
Gyro (Offset 025-33354) (Def
Survey)

Pass												
5311.47	32.81	5309.99	5278.68	N/A		MAS = 10.00 (m)	0.00	0.00				Surface
5311.30	32.81	5309.80	5278.49	270097.61		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF
5311.25	32.81	5309.71	5278.44	99478.75		MAS = 10.00 (m)	50.00	50.00				MinPta
5311.33	32.81	5303.45	5278.52	829.34		MAS = 10.00 (m)	1500.00	1500.00				MinPta
5314.81	32.81	5301.97	5281.81	475.75		MAS = 10.00 (m)	2500.00	2500.00				MINPT-O-EOU
5314.80	32.81	5301.91	5281.99	485.07		MAS = 10.00 (m)	2600.00	2599.98				MinPta
5307.00	32.81	5293.19	5274.19	430.19		MAS = 10.00 (m)	3920.00	3913.42				MinPta
5307.03	32.81	5293.18	5274.22	428.79		MAS = 10.00 (m)	3940.00	3933.31				MINPT-O-EOU
5308.87	32.81	5294.28	5276.17	401.75		MAS = 10.00 (m)	4220.00	4211.80				MINPT-O-EOU
5315.20	32.81	5298.06	5282.39	339.34		MAS = 10.00 (m)	5100.00	5087.19				MinPt-O-SF
5315.23	32.81	5298.25	5282.42	342.73		MAS = 10.00 (m)	5180.00	5147.07				MinPta
5314.87	32.81	5298.21	5282.06	350.33		MAS = 10.00 (m)	5360.00	5347.00				MinPt-O-SF
5303.33	32.81	5282.28	5270.52	271.05		MAS = 10.00 (m)	6870.00	6857.00				MinPta
5303.36	32.81	5282.00	5270.55	268.78		MAS = 10.00 (m)	6950.00	6937.00				MinPta
5303.98	35.37	5279.89	5298.58	234.73		OSF1.50	7630.00	7617.00				MinPt-CICt
5303.99	38.49	5279.17	5267.50	227.24		OSF1.50	7820.00	7807.00				MinPt-CICt
5304.80	39.30	5277.90	5266.30	210.34		OSF1.50	8290.00	8277.00				MinPt-CICt
5304.72	40.19	5277.43	5264.53	205.50		OSF1.50	8440.00	8427.00				MinPt-CICt
5304.77	41.08	5276.89	5263.69	200.90		OSF1.50	8590.00	8577.00				MinPt-CICt
5304.78	41.58	5276.55	5263.18	198.42		OSF1.50	8670.00	8657.00				MinPt-CICt
5305.20	42.98	5276.07	5262.24	191.77		OSF1.50	8900.00	8887.00				MINPT-O-EOU
5305.48	43.33	5276.10	5262.15	190.12		OSF1.50	8960.00	8947.00				MinPt-O-ADP
5306.49	44.05	5276.64	5262.45	186.84		OSF1.50	9100.00	9086.99				MinPt-O-SF
692.78	118.19	613.50	574.60	8.89		OSF1.50	14620.00	9568.88				MinPt-CICt
692.79	118.28	613.45	574.51	8.88		OSF1.50	14630.00	9568.75				MinPta
692.94	118.35	613.55	574.60	8.87		OSF1.50	14940.00	9568.61				MinPt-O-SF
4865.28	49.80	4831.58	4815.48	150.98		OSF1.50	19441.00	9570.00				TD

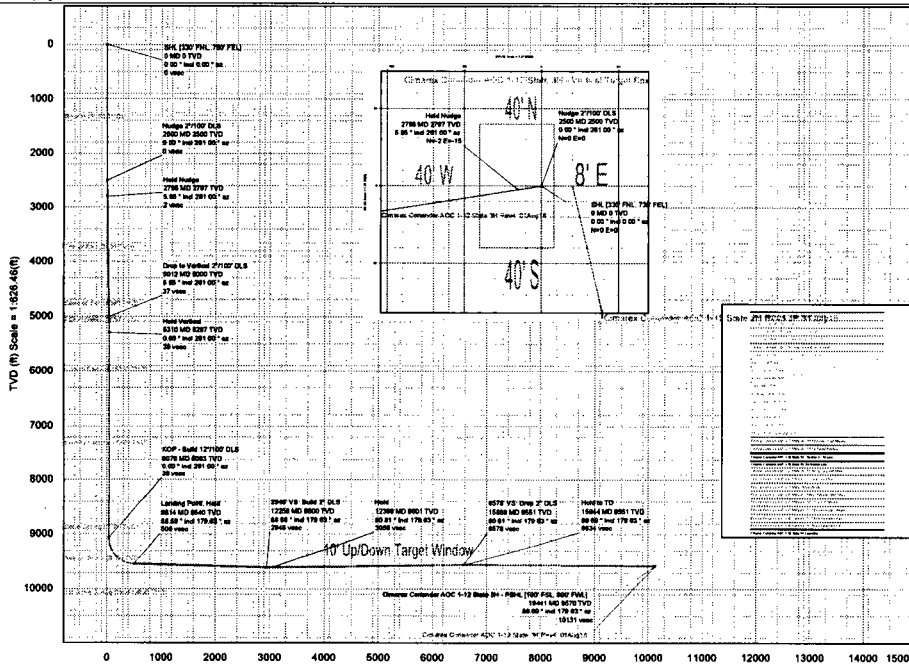
Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Corlander AOC 1-12 State 3H	NM Lea County (NAD 83)	Cimarex Corlander AOC 1-12 State 3H
Well ID: 681147 Depth: 6.807'	Date: 01-Aug-2018 Gravity ID: 886.43m/s (2.0000 Secs)	Surface Location: Lat: N 32 36 34.54 Lon: W 103 37 19.78 Easting: 78884.1808 Grid Conv: 8.33803 Scale Feet: 0.9999634	Well Plan: Cimarex Corlander AOC 1-12 State 3H Cimarex Corlander AOC 1-12 State 3H Revd 01-Aug-18 RKM177788 above BBL

Critical Point	MD	INCL	AZIM	TVD	VBEC	NE(YM-)	EW(YM-)	DLS
SHL (330' FNL, 730' FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	1250.00	0.00	261.00	1250.00	0.00	0.00	0.00	0.00
Nudge 2'1100' DLS	2500.00	0.00	261.00	2500.00	0.00	0.00	0.00	0.00
Hold Nudge	2790.50	5.95	261.00	2796.97	2.32	-2.41	-15.24	2.00
Top of Salt	3860.18	5.95	261.00	3655.00	15.73	-16.40	-103.57	0.00
Base of Salt	4680.73	5.95	261.00	4680.00	31.76	-33.12	-209.08	0.00
Lamer	4982.20	5.95	261.00	4950.00	35.99	-37.52	-236.87	0.00
Drop to Vertical 2'1100' DLS	5012.47	5.95	261.00	5000.00	36.77	-38.33	-242.02	0.00
Salt Canyon	5012.47	5.95	261.00	5000.00	36.77	-38.33	-242.02	0.00
Hold Vertical	6306.97	0.00	261.00	6306.97	39.08	-40.75	-257.26	2.00
Cherry Canyon	5903.00	0.00	261.00	5890.00	39.08	-40.75	-257.26	0.00
Brushy Canyon	7233.00	0.00	261.00	7220.00	39.08	-40.75	-257.26	0.00
Bone Spring	8803.00	0.00	261.00	8790.00	39.08	-40.75	-257.26	0.00
KOP - Build 12'1100' DLS	9076.67	0.00	261.00	9062.67	39.08	-40.75	-257.26	0.00
Aviation Shale	9386.53	38.52	179.63	9360.00	142.96	-144.82	-356.60	12.00
Landing Point, Hold	9813.95	88.59	179.63	9539.99	504.83	-506.48	-254.29	12.00
2948' VS: Build 2' DLS	12257.86	88.59	179.63	9600.00	2948.00	-2949.61	-234.68	0.00
Hold	12268.54	90.81	179.63	9600.58	3038.87	-3060.27	-237.98	2.00
0578' VS: Drop 2' DLS	15886.21	90.81	179.63	9551.04	6578.52	-6579.52	-215.49	0.00
Hold to TD	15944.27	89.69	179.63	9550.89	6634.05	-6635.58	-215.13	2.00
Cimarex Corlander AOC 1-12 State 3H - PBHL	15944.00	89.69	179.63	9550.00	10130.73	-10132.18	-192.31	0.00
(100' FSL, 900' FNL)								
1st Bone Spring Sand				9990.00				



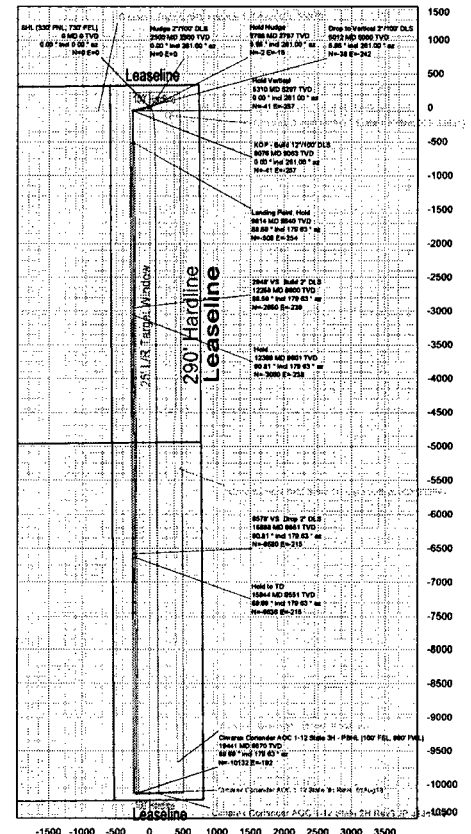
Grid North
Total Corr (8.427")
Mag Dec (8.807")
Grid Conv (0.380")

CONTROLLED	
Drawn By	Project Engineer
Checked By	Geophysicist
Date	12 Aug 2018



Vertical Section (ft) Azim = 179.63° Scale = 1:626.46(ft) Origin = ONI-S, OEI-W

NS (ft) Scale = 1:504.17(ft)



EW (ft) Scale = 1:504.17(ft)

Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18 Proposal Geodetic Report

(Non-Def Plan)



Report Date:	August 01, 2018 - 10:35 AM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex	Vertical Section Azimuth:	179.630 ° (Grid North)
Field:	NM Lea County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Coriander AOC 1-12 State 3H / Cimarex Coriander AOC 1-12 State 3H	TVD Reference Datum:	RKB
Well:	Cimarex Coriander AOC 1-12 State 3H	TVD Reference Elevation:	3778.000 ft above MSL
Borehole:	Original Borehole	Seabed / Ground Elevation:	3752.000 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	8.807 °
Survey Name:	Cimarex Coriander AOC 1-12 State 3H Rev4 01Aug18	Total Gravity Field Strength:	998.4394mgn (9.80665 Based)
Survey Date:	April 04, 2017	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	103.828 ° / 10352.115 ft / 6.338 / 1.078	Total Magnetic Field Strength:	48096.400 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	80.114 °
Location Lat / Long:	N 32° 20' 24.55555", W 103° 37' 19.69801"	Declination Date:	August 01, 2018
Location Grid N/E Y/X:	N 488209.400 ftUS, E 760984.100 ftUS	Magnetic Declination Model:	HDGM 2018
CRS Grid Convergence Angle:	0.3805 °	North Reference:	Grid North
Grid Scale Factor:	0.99996434	Grid Convergence Used:	0.3805 °
Version / Patch:	2.10.740.0	Total Corr Mag North->Grid North:	6.4268 °
		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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	1200.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
Rustler	1250.00	0.00	261.00	1250.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	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	261.00	2400.00	0.00	0.00	0.00	0.00	488209.40	760984.10	N 32 20 24.56	W 103 37 19.70
Nudge 2"/100' DLS	2500.00	0.00	261.00	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	2.00	261.00	2599.98	0.26	-0.27	-1.72	2.00	488209.13	760982.38	N 32 20 24.55	W 103 37 19.72
	2700.00	4.00	261.00	2699.84	1.05	-1.09	-8.89	2.00	488208.31	760977.21	N 32 20 24.55	W 103 37 19.78
Hold Nudge	2797.50	5.95	261.00	2796.97	2.32	-2.41	-15.24	2.00	488208.99	760968.86	N 32 20 24.53	W 103 37 19.88
	2800.00	5.95	261.00	2799.45	2.35	-2.45	-15.50	0.00	488208.95	760968.60	N 32 20 24.53	W 103 37 19.88
	2900.00	5.95	261.00	2898.91	3.91	-4.08	-25.74	0.00	488205.32	760958.36	N 32 20 24.52	W 103 37 20.00
	3000.00	5.95	261.00	2998.37	5.47	-5.70	-35.98	0.00	488203.70	760948.13	N 32 20 24.50	W 103 37 20.12
	3100.00	5.95	261.00	3097.84	7.02	-7.32	-46.21	0.00	488202.08	760937.89	N 32 20 24.49	W 103 37 20.24
	3200.00	5.95	261.00	3197.30	8.58	-8.94	-56.45	0.00	488200.46	760927.65	N 32 20 24.47	W 103 37 20.36
	3300.00	5.95	261.00	3296.76	10.13	-10.56	-66.69	0.00	488198.84	760917.41	N 32 20 24.46	W 103 37 20.48
	3400.00	5.95	261.00	3396.22	11.69	-12.18	-76.93	0.00	488197.22	760907.17	N 32 20 24.44	W 103 37 20.60
	3500.00	5.95	261.00	3495.68	13.24	-13.81	-87.17	0.00	488195.59	760896.93	N 32 20 24.42	W 103 37 20.72
	3600.00	5.95	261.00	3595.14	14.80	-15.43	-97.41	0.00	488193.97	760886.70	N 32 20 24.41	W 103 37 20.83
Top of Salt	3680.18	5.95	261.00	3655.00	15.73	-16.40	-103.57	0.00	488193.00	760880.54	N 32 20 24.40	W 103 37 20.91
	3700.00	5.95	261.00	3694.00	16.35	-17.05	-107.65	0.00	488192.35	760876.46	N 32 20 24.39	W 103 37 20.95
	3800.00	5.95	261.00	3794.06	17.91	-18.67	-117.88	0.00	488190.73	760866.22	N 32 20 24.38	W 103 37 21.07
	3900.00	5.95	261.00	3893.53	19.46	-20.29	-128.12	0.00	488189.11	760855.98	N 32 20 24.36	W 103 37 21.19
	4000.00	5.95	261.00	3992.99	21.02	-21.91	-138.36	0.00	488187.49	760845.74	N 32 20 24.35	W 103 37 21.31
	4100.00	5.95	261.00	4092.45	22.58	-23.54	-148.60	0.00	488185.87	760835.51	N 32 20 24.33	W 103 37 21.43
	4200.00	5.95	261.00	4191.91	24.13	-25.16	-158.84	0.00	488184.24	760825.27	N 32 20 24.32	W 103 37 21.55
	4300.00	5.95	261.00	4291.37	25.69	-26.78	-169.08	0.00	488182.62	760815.03	N 32 20 24.30	W 103 37 21.67
	4400.00	5.95	261.00	4390.83	27.24	-28.40	-179.31	0.00	488181.00	760804.79	N 32 20 24.29	W 103 37 21.79
	4500.00	5.95	261.00	4490.29	28.80	-30.02	-189.55	0.00	488179.38	760794.55	N 32 20 24.27	W 103 37 21.91
Base of Salt	4600.00	5.95	261.00	4589.76	30.35	-31.64	-199.79	0.00	488177.76	760784.32	N 32 20 24.26	W 103 37 22.03
	4690.73	5.95	261.00	4680.00	31.76	-33.12	-209.08	0.00	488176.29	760775.03	N 32 20 24.24	W 103 37 22.14
	4700.00	5.95	261.00	4689.22	31.91	-33.27	-210.03	0.00	488176.14	760774.08	N 32 20 24.24	W 103 37 22.15
	4800.00	5.95	261.00	4788.68	33.46	-34.89	-220.27	0.00	488174.51	760763.84	N 32 20 24.22	W 103 37 22.27
	4900.00	5.95	261.00	4888.14	35.02	-36.51	-230.51	0.00	488172.89	760753.60	N 32 20 24.21	W 103 37 22.39
Lamar	4962.20	5.95	261.00	4950.00	35.99	-37.52	-236.87	0.00	488171.88	760747.23	N 32 20 24.20	W 103 37 22.46
	5000.00	5.95	261.00	4987.60	36.57	-38.13	-240.74	0.00	488171.27	760743.36	N 32 20 24.19	W 103 37 22.51
Bell Canyon Drop to Vertical 2"/100' DLS	5012.47	5.95	261.00	5000.00	36.77	-38.33	-242.02	0.00	488171.07	760742.09	N 32 20 24.19	W 103 37 22.52
	5100.00	4.20	261.00	5087.19	37.93	-39.54	-249.67	2.00	488169.86	760734.44	N 32 20 24.18	W 103 37 22.61
	5200.00	2.20	261.00	5187.03	38.77	-40.42	-255.18	2.00	488168.98	760728.93	N 32 20 24.17	W 103 37 22.68
Hold Vertical	5300.00	0.20	261.00	5287.00	39.08	-40.74	-257.25	2.00	488168.66	760726.86	N 32 20 24.17	W 103 37 22.70
	5309.87	0.00	261.00	5296.97	39.08	-40.75	-257.26	2.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5400.00	0.00	261.00	5387.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5500.00	0.00	261.00	5487.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5600.00	0.00	261.00	5587.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5700.00	0.00	261.00	5687.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5800.00	0.00	261.00	5787.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	5900.00	0.00	261.00	5887.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
Cherry Canyon	5903.00	0.00	261.00	5890.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	6000.00	0.00	261.00	5987.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	6100.00	0.00	261.00	6087.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	6200.00	0.00	261.00	6187.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	6300.00	0.00	261.00	6287.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70
	6400.00	0.00	261.00	6387.00	39.08	-40.75	-257.26	0.00	488168.65	760726.85	N 32 20 24.17	W 103 37 22.70

Comments	MD	Incl	Azim	Grid	TVD	VSEC	NS	EW	DLS	Northing	Eastng	Latitude	Longitude
	(m)	(°)	(°)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(N/S - °)	(E/W - °)
Brushy Canyon	7233.00	0.00	7220.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	7200.00	0.00	7187.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	7100.00	0.00	7087.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	7000.00	0.00	7067.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6900.00	0.00	7047.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6800.00	0.00	7027.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6700.00	0.00	7007.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6600.00	0.00	6987.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6500.00	0.00	6967.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	6400.00	0.00	6947.00	261.00	39.08	40.75	-257.26	-47.75	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
KOP - Build	8100.00	2.82	8088.98	39.70	41.37	-257.26	-47.75	-257.26	12.00	488168.04	760728.85	N 32 20 24.16	W 103 37 22.70
	8200.00	14.82	8185.60	55.16	-257.16	-256.84	-257.16	-256.84	12.00	488152.86	760728.85	N 32 20 24.01	W 103 37 22.70
	8300.00	26.82	8278.84	80.82	-256.48	-256.60	-256.48	-256.60	12.00	488116.92	760727.51	N 32 20 23.66	W 103 37 22.70
	8400.00	38.82	8360.63	142.62	-256.73	-256.59	-256.73	-256.59	12.00	488064.78	760727.52	N 32 20 23.14	W 103 37 22.70
	8500.00	50.82	8433.31	215.55	-256.14	-256.14	-256.14	-256.14	12.00	487992.20	760727.97	N 32 20 22.42	W 103 37 22.70
	8600.00	62.82	8487.79	289.19	-250.84	-255.01	-250.84	-255.01	12.00	487908.57	760728.51	N 32 20 21.60	W 103 37 22.70
	8700.00	74.82	8523.89	382.32	-249.88	-254.38	-249.88	-254.38	12.00	487815.44	760728.10	N 32 20 20.87	W 103 37 22.70
	8800.00	86.82	8559.44	480.85	-254.54	-254.38	-254.54	-254.38	12.00	487728.73	760728.73	N 32 20 19.70	W 103 37 22.70
	8900.00	88.59	8593.99	504.85	-250.46	-253.74	-250.46	-253.74	0.00	487702.94	760728.82	N 32 20 19.56	W 103 37 22.70
	9000.00	88.59	8542.10	500.85	-252.50	-253.74	-252.50	-253.74	0.00	487616.92	760730.37	N 32 20 18.71	W 103 37 22.70
Avdon Shale	9100.00	88.59	9542.10	500.85	-252.50	-253.74	-252.50	-253.74	0.00	487616.92	760730.37	N 32 20 18.71	W 103 37 22.70
	9200.00	88.59	9544.56	504.85	-253.10	-253.10	-253.10	-253.10	0.00	487516.85	760731.01	N 32 20 17.72	W 103 37 22.70
	9300.00	88.59	9547.01	509.79	-252.44	-252.44	-252.44	-252.44	0.00	487416.88	760731.65	N 32 20 16.73	W 103 37 22.70
	9400.00	88.59	9549.47	509.79	-251.82	-251.82	-251.82	-251.82	0.00	487317.03	760733.29	N 32 20 15.74	W 103 37 22.70
	9500.00	88.59	9551.93	509.79	-251.19	-251.19	-251.19	-251.19	0.00	487217.06	760733.92	N 32 20 14.75	W 103 37 22.70
	9600.00	88.59	9554.38	509.79	-250.55	-250.55	-250.55	-250.55	0.00	487117.10	760733.96	N 32 20 13.76	W 103 37 22.70
	9700.00	88.59	9556.84	509.79	-249.91	-249.91	-249.91	-249.91	0.00	487017.13	760734.20	N 32 20 12.77	W 103 37 22.70
	9800.00	88.59	9559.29	509.79	-249.27	-249.27	-249.27	-249.27	0.00	486917.17	760734.84	N 32 20 11.79	W 103 37 22.70
	9900.00	88.59	9561.75	509.79	-248.63	-248.63	-248.63	-248.63	0.00	486817.21	760735.48	N 32 20 10.80	W 103 37 22.70
	10000.00	88.59	9564.20	509.79	-247.99	-247.99	-247.99	-247.99	0.00	486717.24	760736.12	N 32 20 9.81	W 103 37 22.70
Landing Point	9813.95	88.59	9539.99	504.83	-254.29	-254.48	-506.48	-254.29	12.00	487702.94	760729.82	N 32 20 19.56	W 103 37 22.70
	9800.00	86.82	9539.44	499.89	-254.54	-254.38	-506.48	-254.54	12.00	487718.88	760729.73	N 32 20 19.70	W 103 37 22.70
	9700.00	74.82	9523.89	382.32	-255.01	-255.01	-506.48	-255.01	12.00	487815.44	760729.10	N 32 20 20.87	W 103 37 22.70
	9600.00	62.82	9487.79	289.19	-250.84	-255.01	-506.48	-250.84	12.00	487908.57	760728.51	N 32 20 21.60	W 103 37 22.70
	9500.00	50.82	9433.31	215.55	-256.14	-256.14	-506.48	-256.14	12.00	487992.20	760727.97	N 32 20 22.42	W 103 37 22.70
	9400.00	38.82	9362.63	145.07	-256.73	-256.59	-506.48	-256.73	12.00	488064.78	760727.51	N 32 20 23.14	W 103 37 22.70
	9300.00	26.82	9360.63	142.62	-256.60	-256.60	-506.48	-256.60	12.00	488064.78	760727.52	N 32 20 23.14	W 103 37 22.70
	9200.00	14.82	9278.84	80.82	-256.48	-256.48	-506.48	-256.48	12.00	488116.92	760727.51	N 32 20 23.14	W 103 37 22.70
	9100.00	2.82	9185.60	55.16	-257.16	-256.84	-506.48	-257.16	12.00	488152.86	760728.85	N 32 20 24.01	W 103 37 22.70
	9000.00	0.00	9088.98	39.70	41.37	-257.26	-47.75	-257.26	12.00	488168.04	760728.85	N 32 20 24.16	W 103 37 22.70
KOP - Build	8100.00	2.82	8088.98	39.70	41.37	-257.26	-47.75	-257.26	0.00	488168.04	760728.85	N 32 20 24.16	W 103 37 22.70
	8200.00	14.82	8185.60	55.16	-257.16	-256.84	-257.16	-256.84	0.00	488152.86	760728.85	N 32 20 24.01	W 103 37 22.70
	8300.00	26.82	8278.84	80.82	-256.48	-256.60	-256.48	-256.60	0.00	488116.92	760727.51	N 32 20 23.66	W 103 37 22.70
	8400.00	38.82	8360.63	142.62	-256.73	-256.59	-256.73	-256.59	0.00	488064.78	760727.52	N 32 20 23.14	W 103 37 22.70
	8500.00	50.82	8433.31	215.55	-256.14	-256.14	-256.14	-256.14	0.00	487992.20	760727.97	N 32 20 22.42	W 103 37 22.70
	8600.00	62.82	8487.79	289.19	-250.84	-255.01	-250.84	-255.01	0.00	487908.57	760728.51	N 32 20 21.60	W 103 37 22.70
	8700.00	74.82	8523.89	382.32	-249.88	-254.38	-249.88	-254.38	0.00	487815.44	760728.10	N 32 20 20.87	W 103 37 22.70
	8800.00	86.82	8559.44	480.85	-254.54	-254.38	-254.54	-254.38	0.00	487728.73	760728.73	N 32 20 19.70	W 103 37 22.70
	8900.00	88.59	8593.99	504.85	-250.46	-253.74	-250.46	-253.74	0.00	487702.94	760728.82	N 32 20 19.56	W 103 37 22.70
	9000.00	88.59	8542.10	500.85	-252.50	-253.74	-252.50	-253.74	0.00	487616.92	760730.37	N 32 20 18.71	W 103 37 22.70
Bone Spring	8800.00	0.00	8887.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8700.00	0.00	8867.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8600.00	0.00	8847.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8500.00	0.00	8827.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8400.00	0.00	8807.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8300.00	0.00	8787.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8200.00	0.00	8767.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8100.00	0.00	8747.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	8000.00	0.00	8727.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
	7900.00	0.00	8707.00	39.08	40.75	-257.26	-47.75	-257.26	0.00	488168.85	760728.85	N 32 20 24.17	W 103 37 22.70
2">													

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 ° ' ")
	16100.00	89.69	179.63	9551.85	6789.78	-8791.31	-214.12	0.00	481418.35	760789.99	N 32 19 17.37	W 103 37 22.72
	16200.00	89.69	179.63	9552.20	6889.78	-8891.30	-213.48	0.00	481318.36	760770.84	N 32 19 16.38	W 103 37 22.72
	16300.00	89.69	179.63	9552.75	6989.78	-8991.30	-212.81	0.00	481218.36	760771.30	N 32 19 15.39	W 103 37 22.72
	16400.00	89.69	179.63	9553.30	7089.78	-7081.29	-212.16	0.00	481118.37	760771.95	N 32 19 14.40	W 103 37 22.72
	16500.00	89.69	179.63	9553.85	7189.78	-7181.29	-211.51	0.00	481018.38	760772.80	N 32 19 13.41	W 103 37 22.72
	16600.00	89.69	179.63	9554.40	7289.77	-7281.29	-210.85	0.00	480918.39	760773.26	N 32 19 12.42	W 103 37 22.72
	16700.00	89.69	179.63	9554.95	7389.77	-7381.28	-210.20	0.00	480818.39	760773.91	N 32 19 11.43	W 103 37 22.72
	16800.00	89.69	179.63	9555.50	7489.77	-7481.28	-209.55	0.00	480718.40	760774.56	N 32 19 10.44	W 103 37 22.72
	16900.00	89.69	179.63	9556.05	7589.77	-7581.28	-208.89	0.00	480618.41	760775.21	N 32 19 9.46	W 103 37 22.72
	17000.00	89.69	179.63	9556.59	7689.77	-7681.27	-208.24	0.00	480518.42	760775.87	N 32 19 8.47	W 103 37 22.72
	17100.00	89.69	179.63	9557.14	7789.77	-7781.27	-207.59	0.00	480418.42	760776.52	N 32 19 7.48	W 103 37 22.72
	17200.00	89.69	179.63	9557.69	7889.76	-7881.27	-206.94	0.00	480318.43	760777.17	N 32 19 6.49	W 103 37 22.72
	17300.00	89.69	179.63	9558.24	7989.76	-7981.26	-206.28	0.00	480218.44	760777.82	N 32 19 5.50	W 103 37 22.72
	17400.00	89.69	179.63	9558.79	8089.76	-8081.26	-205.63	0.00	480118.45	760778.48	N 32 19 4.51	W 103 37 22.72
	17500.00	89.69	179.63	9559.34	8189.76	-8181.25	-204.98	0.00	480018.45	760779.13	N 32 19 3.52	W 103 37 22.72
	17600.00	89.69	179.63	9559.89	8289.76	-8281.25	-204.32	0.00	479918.46	760779.78	N 32 19 2.53	W 103 37 22.72
	17700.00	89.69	179.63	9560.44	8389.76	-8381.25	-203.67	0.00	479818.47	760780.44	N 32 19 1.54	W 103 37 22.72
	17800.00	89.69	179.63	9560.99	8489.76	-8481.24	-203.02	0.00	479718.48	760781.09	N 32 19 0.55	W 103 37 22.72
	17900.00	89.69	179.63	9561.54	8589.75	-8581.24	-202.37	0.00	479618.48	760781.74	N 32 18 59.56	W 103 37 22.72
	18000.00	89.69	179.63	9562.09	8689.75	-8681.24	-201.71	0.00	479518.49	760782.39	N 32 18 58.57	W 103 37 22.72
	18100.00	89.69	179.63	9562.64	8789.75	-8781.23	-201.06	0.00	479418.50	760783.05	N 32 18 57.58	W 103 37 22.72
	18200.00	89.69	179.63	9563.18	8889.75	-8881.23	-200.41	0.00	479318.51	760783.70	N 32 18 56.59	W 103 37 22.72
	18300.00	89.69	179.63	9563.73	8989.75	-8981.23	-199.76	0.00	479218.51	760784.35	N 32 18 55.60	W 103 37 22.72
	18400.00	89.69	179.63	9564.28	9089.75	-9081.22	-199.10	0.00	479118.52	760785.00	N 32 18 54.61	W 103 37 22.72
	18500.00	89.69	179.63	9564.83	9189.75	-9181.22	-198.45	0.00	479018.53	760785.66	N 32 18 53.62	W 103 37 22.72
	18600.00	89.69	179.63	9565.38	9289.74	-9281.21	-197.80	0.00	478918.54	760786.31	N 32 18 52.63	W 103 37 22.72
	18700.00	89.69	179.63	9565.93	9389.74	-9381.21	-197.14	0.00	478818.54	760786.96	N 32 18 51.64	W 103 37 22.72
	18800.00	89.69	179.63	9566.48	9489.74	-9481.21	-196.49	0.00	478718.55	760787.62	N 32 18 50.66	W 103 37 22.72
	18900.00	89.69	179.63	9567.03	9589.74	-9581.20	-195.84	0.00	478618.56	760788.27	N 32 18 49.67	W 103 37 22.72
	19000.00	89.69	179.63	9567.58	9689.74	-9681.20	-195.19	0.00	478518.56	760788.92	N 32 18 48.68	W 103 37 22.72
	19100.00	89.69	179.63	9568.13	9789.74	-9781.20	-194.53	0.00	478418.57	760789.57	N 32 18 47.69	W 103 37 22.72
	19200.00	89.69	179.63	9568.68	9889.73	-9881.19	-193.88	0.00	478318.58	760790.23	N 32 18 46.70	W 103 37 22.72
	19300.00	89.69	179.63	9569.23	9989.73	-9981.19	-193.23	0.00	478218.59	760790.88	N 32 18 45.71	W 103 37 22.72
	19400.00	89.69	179.63	9569.77	10089.73	-10081.19	-192.57	0.00	478118.59	760791.53	N 32 18 44.72	W 103 37 22.72

Cimarex
Coriander AOC
1-12 State 3H -
PBHL [100' FSL,
990' FWL]

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 Coriander AOC 1-12 State 3H Rev4 01Aug18
	1	26.000	19440.997	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Coriander AOC 1-12 State 3H