

Final Survey - Cimarex Red Hills Unit #16H MWD Final (Surcon Corrected)

(Non-Dof Survey)

Report Date: May 15, 2018 - 03:31 PM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Red Hills Unit #16H / Cimarex Red Hills Unit #16H
 Well: Cimarex Red Hills Unit #16H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Red Hills Unit #16H MWD Final (Surcon Corrected)
 Survey Date: April 12, 2018
 Tort / AHD / DDI / ERD Ratio: 275.504 * / 9890.700 ft / 6.741 / 1.068
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Foot
 Location Lat / Long: N 32° 5' 34.48775", W 103° 35' 2.01217"
 Location Grid N/E Y/X: N 398345.120 NUS, E 773423.810 NUS
 CRS Grid Convergence Angle: 0.3982 *
 Grid Scale Factor: 0.99997078
 Version / Patch: 2.10.715.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.787 * (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3401.900 ft above MSL
 Seabed / Ground Elevation: 3377.900 ft above MSL
 Magnetic Declination: 6.786 *
 Total Gravity Field Strength: 998.4330mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47876.352 nT
 Magnetic Dip Angle: 59.756 *
 Declination Date: April 12, 2018
 Magnetic Declination Model: HDGM 2018
 North Reference: Grid North
 Grid Convergence Used: 0.3982 *
 Total Corr Mag North->Grid North: 6.3680 *
 Local Coord Referenced To: Well Head

HOBBS OCD

OCT 17 2018

RECEIVED

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*100m)	Northing (NUS)	Easting (EUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [506' FNL, 584' FVL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398345.12	773423.81	N 32 5 34.49	W 103 35 2.01
	200.00	0.27	118.36	200.00	0.21	-0.21	0.42	0.14	398344.91	773424.03	N 32 5 34.49	W 103 35 2.01
	298.00	0.71	74.90	298.00	0.16	-0.15	1.22	0.55	398344.97	773424.83	N 32 5 34.49	W 103 35 2.00
	390.00	1.12	63.62	389.88	-0.38	0.39	2.57	0.48	398345.51	773426.18	N 32 5 34.49	W 103 35 1.98
	481.00	1.15	77.90	480.97	-0.97	0.98	4.26	0.31	398346.10	773427.87	N 32 5 34.50	W 103 35 1.96
	573.00	1.02	81.53	572.95	-1.54	1.56	5.88	0.38	398346.88	773428.49	N 32 5 34.50	W 103 35 1.94
	662.00	1.05	77.30	661.94	-2.08	2.12	7.38	0.32	398347.24	773430.99	N 32 5 34.51	W 103 35 1.93
	753.00	0.63	55.05	752.93	-2.58	2.59	8.60	0.58	398347.71	773432.21	N 32 5 34.51	W 103 35 1.91
	843.00	0.60	71.32	842.92	-3.07	3.10	9.87	0.38	398348.22	773433.28	N 32 5 34.52	W 103 35 1.90
	938.00	0.97	82.18	937.91	-3.67	3.72	11.09	0.17	398348.84	773434.70	N 32 5 34.52	W 103 35 1.88
	959.00	0.94	53.44	958.90	-3.86	3.90	11.39	0.71	398349.02	773435.00	N 32 5 34.53	W 103 35 1.88
	1122.00	1.03	72.37	1121.89	-5.09	5.14	13.88	0.21	398350.26	773437.47	N 32 5 34.54	W 103 35 1.85
	1217.00	1.00	67.27	1216.88	-5.68	5.72	15.44	0.10	398350.84	773439.05	N 32 5 34.54	W 103 35 1.83
	1311.00	0.50	207.50	1310.88	-5.81	5.87	16.00	1.51	398350.79	773439.81	N 32 5 34.54	W 103 35 1.83
	1404.00	0.51	193.80	1403.88	-4.85	4.91	15.72	0.13	398350.03	773439.33	N 32 5 34.54	W 103 35 1.83
	1499.00	0.25	198.96	1498.85	-4.24	4.30	15.58	0.27	398349.42	773439.17	N 32 5 34.53	W 103 35 1.83
	1593.00	0.42	184.44	1592.85	-3.70	3.76	15.47	0.20	398348.88	773439.08	N 32 5 34.52	W 103 35 1.83
	1687.00	0.72	223.80	1686.85	-2.84	2.89	15.04	0.51	398348.11	773438.65	N 32 5 34.52	W 103 35 1.84
	1781.00	0.76	191.58	1780.84	-1.80	1.95	14.51	0.44	398347.07	773438.12	N 32 5 34.51	W 103 35 1.84
	1876.00	1.19	200.23	1875.83	-0.38	0.41	14.04	0.48	398345.53	773437.65	N 32 5 34.49	W 103 35 1.85
	1971.00	1.38	201.26	1970.80	1.62	-1.57	13.29	0.18	398343.55	773436.90	N 32 5 34.47	W 103 35 1.86
	2065.00	1.30	219.05	2064.78	3.48	-3.43	12.21	0.44	398341.69	773435.82	N 32 5 34.45	W 103 35 1.87
	2160.00	1.30	196.75	2159.75	5.34	-5.30	11.22	0.53	398339.82	773434.83	N 32 5 34.43	W 103 35 1.88
	2255.00	1.23	220.43	2254.73	7.15	-7.11	10.25	0.55	398338.01	773433.86	N 32 5 34.42	W 103 35 1.89
	2349.00	0.98	204.94	2348.71	8.63	-8.59	9.28	0.42	398336.53	773432.87	N 32 5 34.40	W 103 35 1.91
	2443.00	1.47	197.77	2442.69	10.49	-10.46	8.56	0.57	398334.67	773432.17	N 32 5 34.38	W 103 35 1.91
	2538.00	1.23	184.61	2537.67	12.68	-12.63	8.11	0.41	398332.49	773431.72	N 32 5 34.36	W 103 35 1.92
	2632.00	1.00	203.32	2631.65	14.42	-14.39	7.70	0.45	398330.73	773431.31	N 32 5 34.34	W 103 35 1.92
	2726.00	1.32	211.12	2725.63	16.10	-16.07	6.82	0.38	398329.05	773430.43	N 32 5 34.33	W 103 35 1.93
	2820.00	0.88	215.70	2819.61	17.67	-17.65	5.79	0.37	398327.47	773429.40	N 32 5 34.31	W 103 35 1.95
	2914.00	0.77	72.34	2913.81	18.13	-18.11	5.92	1.77	398327.01	773429.53	N 32 5 34.31	W 103 35 1.94
	3008.00	1.38	46.84	3007.59	17.17	-17.15	7.35	0.81	398327.97	773429.96	N 32 5 34.32	W 103 35 1.93
	3103.00	1.57	60.05	3102.58	15.75	-15.71	9.31	0.41	398329.41	773432.92	N 32 5 34.33	W 103 35 1.91
	3198.00	2.22	57.64	3197.51	14.12	-14.08	12.00	0.69	398331.04	773435.61	N 32 5 34.35	W 103 35 1.87
	3293.00	1.82	40.20	3292.45	12.00	-11.94	14.52	0.77	398333.18	773438.13	N 32 5 34.37	W 103 35 1.84
	3387.00	1.70	24.18	3386.40	9.59	-9.53	16.06	0.54	398335.59	773439.67	N 32 5 34.39	W 103 35 1.83
	3481.00	1.50	1.54	3480.37	7.09	-7.03	16.68	0.70	398338.09	773440.27	N 32 5 34.42	W 103 35 1.82
	3575.00	0.94	341.94	3574.35	5.13	-5.07	16.46	0.73	398340.06	773440.07	N 32 5 34.44	W 103 35 1.82
	3669.00	0.93	351.11	3668.33	3.64	-3.58	16.10	0.16	398341.54	773439.71	N 32 5 34.45	W 103 35 1.83
	3763.00	1.20	326.75	3762.32	2.08	-2.00	15.44	0.55	398343.12	773439.05	N 32 5 34.47	W 103 35 1.83
	3857.00	1.15	24.00	3856.30	0.37	-0.32	15.29	1.20	398344.80	773438.80	N 32 5 34.48	W 103 35 1.83
	3952.00	1.50	38.84	3951.28	-1.46	1.52	16.45	0.51	398346.64	773440.08	N 32 5 34.50	W 103 35 1.82
	4046.00	1.21	338.58	4045.25	-3.34	3.41	16.86	1.47	398348.53	773440.47	N 32 5 34.52	W 103 35 1.82
	4141.00	0.87	319.54	4140.24	-4.83	4.89	16.03	0.51	398350.01	773439.84	N 32 5 34.54	W 103 35 1.83
	4235.00	0.64	328.59	4234.23	-5.82	5.88	15.29	0.27	398351.00	773438.90	N 32 5 34.54	W 103 35 1.83
	4329.00	0.95	58.94	4328.22	-8.67	8.73	15.69	1.22	398351.85	773439.30	N 32 5 34.55	W 103 35 1.83
	4424.00	0.38	57.35	4423.22	-7.24	7.31	16.83	0.60	398352.42	773440.24	N 32 5 34.56	W 103 35 1.82
	4518.00	1.41	212.19	4517.21	-6.43	6.49	16.27	1.87	398351.81	773439.88	N 32 5 34.55	W 103 35 1.82
	4613.00	1.53	185.81	4612.18	-4.19	4.24	15.53	0.72	398349.36	773439.13	N 32 5 34.53	W 103 35 1.83
	4707.00	1.67	168.43	4706.14	-1.59	1.65	15.68	0.53	398346.77	773439.29	N 32 5 34.50	W 103 35 1.83
	4795.00	2.50	162.88	4794.08	1.50	-1.44	16.50	0.97	398343.66	773440.11	N 32 5 34.47	W 103 35 1.82
	4886.00	2.03	154.93	4884.94	8.55	-8.48	19.16	0.30	398336.64	773442.77	N 32 5 34.40	W 103 35 1.79
	5080.00	1.71	164.52	5078.89	11.42	-11.34	20.24	0.48	398333.78	773443.85	N 32 5 34.37	W 103 35 1.78
	5175.00	1.17	194.08	5173.88	13.73	-13.65	20.38	0.95	398331.47	773443.99	N 32 5 34.35	W 103 35 1.78
	5269.00	0.90	235.29	5267.84	15.07	-15.00	19.54	0.82	398330.12	773443.15	N 32 5 34.34	W 103 35 1.79
	5364.00	1.20	234.45	5362.83	16.07	-16.00	18.12	0.32	398328.12	773441.73	N 32 5 34.33	W 103 35 1.80
	5458.00	1.02	241.70	5456.81	17.03	-16.97	16.58	0.24	398328.15	773440.19	N 32 5 34.32	W 103 35 1.82
	5552.00	0.97	215.79	5550.79	18.07	-18.02	15.38	0.48	398327.11	773438.99	N 32 5 34.31	W 103 35 1.83
	5647.00	0.89	252.49	5645.78	18.94	-18.89	14.21	0.62	398326.23	773437.81	N 32 5 34.30	W 103 35 1.85
	5741.00	1.05	284.96	5739.77	18.93	-18.89	12.68	0.60	398326.23	773436.29	N 32 5 34.30	W 103 35 1.87
	5835.00	0.99	268.41	5833.76	18.73	-18.69	11.03	0.32	398326.43	773434.84	N 32 5 34.30	W 103 35 1.89
	5930.00	0.91	283.50	5928.74	18.57	-18.53	9.48	0.28	398326.59	773433.09	N 32 5 34.30	W 103 35 1.90
	6025.00	1.03	285.10	6023.73	18.16	-18.14	7.92	0.13	398326.99	773431.53	N 32 5 34.31	W 103 35 1.92
	6119.00	1.10	281.92	6117.71	17.75	-17.73	6.22	0.10	398327.39	773429.83	N 32 5 34.31	W 103 35 1.94
	6213.00	1.12	272.50	6211.70	17.52	-17.50	4.42	0.20	398327.62	773428.03	N 32 5 34.31	W 103 35 1.96
	6308.00	1.22	274.92	6306.88	17.38	-17.36	2.49	0.12	398327.75	773426.10	N 32 5 34.32	W 103 35 1.98
	6402.00	1.12	268.62	6400.66	17.31	-17.31	0.57	0.17	398327.81	773424.18	N 32 5 34.32	W 103 35 2.01
	6497.00	1.26	277.77	6495.64	17.19	-17.19	-1.39	0.25	398327.93	773422.22	N 32 5 34.32	W 103 35 2.03
	6591.00	1.29	279.93	6589.61	16.86	-16.87	-3.48	0.08	398328.25	773420.15	N 32 5 34.32	W 103 35 2.05

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DL3 (ft/100ft)	Northing (NUS)	Easting (EUS)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)
	6698.00	1.32	285.70	6698.50	18.37	-18.39	-5.56	0.14	398328.73	773418.05	N 32 5 34.33	W 103 35 2.08
	6779.00	1.18	279.06	6777.57	15.82	-15.85	-7.54	0.22	398329.17	773418.07	N 32 5 34.33	W 103 35 2.10
	6874.00	1.50	273.68	6872.54	15.87	-15.71	-9.75	0.36	398329.41	773413.88	N 32 5 34.33	W 103 35 2.13
	6968.00	1.30	274.18	6966.51	15.50	-15.55	-12.04	0.21	398329.67	773411.57	N 32 5 34.33	W 103 35 2.15
	7063.00	1.24	268.12	7061.49	15.45	-15.50	-14.14	0.15	398329.82	773409.47	N 32 5 34.34	W 103 35 2.18
	7157.00	1.31	257.86	7155.47	15.70	-15.76	-16.21	0.26	398329.38	773407.40	N 32 5 34.33	W 103 35 2.20
	7251.00	1.35	258.18	7249.44	18.19	-18.28	-18.33	0.06	398328.86	773405.28	N 32 5 34.33	W 103 35 2.23
	7346.00	1.59	254.94	7344.41	18.79	-18.67	-20.69	0.25	398328.25	773402.92	N 32 5 34.32	W 103 35 2.25
	7473.00	1.63	242.58	7471.38	18.07	-18.18	-24.00	0.28	398328.86	773399.81	N 32 5 34.31	W 103 35 2.29
	7536.00	1.68	244.87	7534.33	18.87	-18.96	-25.63	0.13	398328.16	773397.88	N 32 5 34.30	W 103 35 2.31
	7630.00	1.88	247.48	7628.29	20.03	-20.14	-28.30	0.23	398324.88	773395.31	N 32 5 34.29	W 103 35 2.34
	7725.00	1.43	277.26	7723.25	20.47	-20.58	-30.91	1.01	398324.53	773392.70	N 32 5 34.28	W 103 35 2.37
	7850.00	1.15	281.07	7848.22	20.02	-20.15	-33.69	0.23	398324.97	773389.92	N 32 5 34.28	W 103 35 2.41
	7944.00	1.18	268.71	7942.20	19.88	-19.99	-35.59	0.27	398325.13	773388.03	N 32 5 34.28	W 103 35 2.43
	8038.00	1.19	285.07	8036.18	19.98	-20.10	-37.53	0.08	398325.02	773386.09	N 32 5 34.28	W 103 35 2.45
	8132.00	1.25	260.80	8130.18	20.20	-20.34	-39.51	0.12	398324.78	773384.10	N 32 5 34.28	W 103 35 2.47
	8227.00	1.41	260.98	8225.13	20.54	-20.69	-41.69	0.17	398324.43	773381.92	N 32 5 34.28	W 103 35 2.50
	8321.00	1.38	253.55	8319.10	21.03	-21.19	-43.82	0.19	398323.93	773379.70	N 32 5 34.28	W 103 35 2.52
	8415.00	1.33	252.49	8413.08	21.87	-21.84	-46.04	0.06	398323.28	773377.57	N 32 5 34.27	W 103 35 2.55
	8510.00	1.38	247.26	8508.05	22.44	-22.62	-48.15	0.14	398322.50	773375.48	N 32 5 34.27	W 103 35 2.57
	8604.00	1.37	249.27	8602.02	23.27	-23.45	-50.24	0.05	398321.87	773373.37	N 32 5 34.28	W 103 35 2.60
	8697.00	1.61	239.18	8694.89	24.32	-24.52	-52.40	0.38	398320.80	773371.21	N 32 5 34.25	W 103 35 2.62
	8729.00	3.67	214.09	8728.95	25.44	-25.64	-53.40	7.83	398319.48	773370.22	N 32 5 34.24	W 103 35 2.63
	8790.00	7.98	212.59	8757.78	28.11	-28.32	-55.14	13.20	398316.80	773368.47	N 32 5 34.21	W 103 35 2.66
	8792.00	11.05	216.52	8789.34	32.43	-32.85	-58.16	9.86	398312.47	773365.45	N 32 5 34.17	W 103 35 2.69
	8823.00	14.48	221.64	8819.57	37.70	-37.94	-62.50	11.84	398307.19	773361.11	N 32 5 34.12	W 103 35 2.74
	8854.00	18.75	224.87	8849.27	44.11	-44.37	-68.80	14.09	398300.78	773355.02	N 32 5 34.05	W 103 35 2.81
	8886.00	22.41	223.85	8879.22	52.13	-52.41	-78.45	11.49	398292.71	773347.18	N 32 5 33.67	W 103 35 2.91
	8917.00	24.79	219.95	8907.63	61.34	-61.68	-84.72	9.18	398283.46	773338.89	N 32 5 33.88	W 103 35 3.00
	8949.00	26.89	212.70	8936.44	72.55	-72.89	-92.84	11.85	398272.23	773330.67	N 32 5 33.77	W 103 35 3.10
	8980.00	29.75	207.05	8963.73	85.28	-85.65	-100.23	12.84	398259.47	773323.38	N 32 5 33.85	W 103 35 3.18
	9012.00	32.57	204.48	8991.14	100.12	-100.52	-107.39	9.17	398244.60	773318.22	N 32 5 33.50	W 103 35 3.27
	9043.00	35.42	202.82	9018.87	115.94	-116.37	-114.29	10.39	398228.76	773309.33	N 32 5 33.34	W 103 35 3.35
	9075.00	39.12	200.08	9042.33	133.88	-134.42	-121.32	12.52	398210.71	773302.29	N 32 5 33.17	W 103 35 3.43
	9106.00	42.95	197.17	9065.71	153.23	-153.70	-127.80	13.80	398191.42	773295.81	N 32 5 32.88	W 103 35 3.51
	9137.00	46.73	193.21	9087.89	174.29	-174.79	-133.50	15.16	398170.33	773290.11	N 32 5 32.77	W 103 35 3.58
	9169.00	49.64	191.28	9109.03	197.58	-198.10	-138.55	10.14	398147.03	773285.07	N 32 5 32.54	W 103 35 3.64
	9201.00	52.69	190.77	9129.03	222.08	-222.61	-143.32	10.54	398122.52	773280.29	N 32 5 32.29	W 103 35 3.70
	9232.00	55.32	190.69	9147.18	246.75	-247.30	-148.00	7.52	398097.83	773275.81	N 32 5 32.05	W 103 35 3.75
	9264.00	57.67	190.06	9164.84	272.87	-273.54	-152.80	7.52	398071.59	773270.81	N 32 5 31.79	W 103 35 3.81
	9296.00	60.99	187.38	9181.15	300.18	-300.74	-158.96	12.63	398044.39	773266.65	N 32 5 31.52	W 103 35 3.88
	9328.00	64.43	183.98	9195.84	328.44	-329.03	-159.78	14.34	398016.10	773263.88	N 32 5 31.24	W 103 35 3.90
	9359.00	67.48	181.66	9208.47	356.70	-357.30	-161.14	11.95	397987.83	773262.47	N 32 5 30.98	W 103 35 3.91
	9390.00	70.98	180.89	9219.48	385.67	-386.28	-161.78	11.53	397958.88	773261.83	N 32 5 30.68	W 103 35 3.92
	9421.00	73.90	180.58	9228.81	415.22	-415.83	-162.16	9.47	397929.31	773261.45	N 32 5 30.38	W 103 35 3.93
	9453.00	76.85	180.25	9238.89	446.18	-446.78	-162.39	9.27	397898.35	773261.23	N 32 5 30.08	W 103 35 3.94
	9485.00	80.29	180.03	9248.23	477.54	-478.15	-162.46	10.77	397868.99	773261.15	N 32 5 29.77	W 103 35 3.94
	9503.00	81.96	180.00	9248.01	493.32	-493.93	-162.47	9.28	397849.21	773261.15	N 32 5 29.56	W 103 35 3.94
	9516.00	83.04	179.79	9247.70	508.21	-508.82	-162.44	8.48	397836.32	773261.17	N 32 5 29.46	W 103 35 3.94
	9510.00	80.03	180.02	9253.38	801.98	-802.59	-162.29	7.44	397742.55	773261.33	N 32 5 28.54	W 103 35 3.95
	9704.00	91.55	181.28	9252.09	895.98	-896.57	-163.35	2.10	397848.57	773260.28	N 32 5 27.81	W 103 35 3.97
	9799.00	91.72	183.06	9249.38	790.83	-791.46	-166.97	1.91	397553.69	773256.84	N 32 5 26.87	W 103 35 4.02
	9893.00	90.31	183.77	9247.71	884.82	-885.27	-172.80	1.67	397458.88	773251.02	N 32 5 25.74	W 103 35 4.09
	9988.00	89.28	181.52	9248.05	979.50	-980.16	-178.98	2.60	397364.99	773248.83	N 32 5 24.80	W 103 35 4.15
	10082.00	88.76	179.80	9249.88	1073.47	-1074.14	-178.06	1.91	397271.02	773245.55	N 32 5 23.87	W 103 35 4.17
	10175.00	89.97	179.49	9250.89	1168.46	-1169.13	-177.49	1.34	397178.03	773248.13	N 32 5 22.96	W 103 35 4.17
	10270.00	89.80	180.37	9250.80	1261.46	-1262.13	-177.37	0.93	397083.03	773248.24	N 32 5 22.01	W 103 35 4.18
	10364.00	88.58	179.63	9252.06	1355.45	-1356.12	-177.37	1.63	396989.05	773248.24	N 32 5 21.08	W 103 35 4.18
	10458.00	90.14	179.95	9253.13	1449.44	-1450.11	-177.03	1.71	396895.06	773248.59	N 32 5 20.15	W 103 35 4.19
	10553.00	90.79	179.73	9252.38	1544.43	-1545.10	-178.78	0.72	396800.07	773248.85	N 32 5 19.21	W 103 35 4.19
	10647.00	88.87	177.89	9252.55	1638.41	-1639.07	-174.81	2.75	396706.10	773248.81	N 32 5 18.28	W 103 35 4.18
	10742.00	90.28	178.21	9253.17	1733.36	-1734.01	-171.58	1.42	396611.16	773252.04	N 32 5 17.34	W 103 35 4.15
	10836.00	89.55	178.56	9253.31	1827.34	-1827.98	-168.83	0.86	396517.20	773254.89	N 32 5 16.41	W 103 35 4.12
	10930.00	90.17	178.82	9253.54	1921.31	-1921.95	-166.82	0.86	396423.23	773257.00	N 32 5 15.48	W 103 35 4.10
	11025.00	89.59	178.57	9253.74	2016.29	-2016.92	-164.29	0.81	396328.27	773259.33	N 32 5 14.54	W 103 35 4.08
	11120.00	90.31	178.88	9253.82	2111.28	-2111.89	-162.17	0.83	396233.29	773261.44	N 32 5 13.60	W 103 35 4.07
	11214.00	89.52	178.73	9253.88	2205.26	-2205.87	-160.21	0.88	396139.32	773263.40	N 32 5 12.67	W 103 35 4.05
	11308.00	90.21	179.09	9254.19	2299.25	-2299.85	-158.42	0.83	396045.34	773265.19	N 32 5 11.74	W 103 35 4.04
	11403.00	89.04	179.87	9254.81	2394.24	-2394.84	-157.40	1.37	395950.35	773268.22	N 32 5 10.80	W 103 35 4.03
	11498.00	89.68	179.72	9255.89	2489.24	-2489.84	-156.89	0.65	395855.36	773268.73	N 32 5 9.86	W 103 35 4.04
	11592.00	90.48	179.86	9255.77	2583.24	-2583.84	-156.55	0.88	395761.37	773267.07	N 32 5 8.83	W 103 35 4.04
	11686.00	89.72	179.51	9255.81	2677.23	-2677.83	-156.03	0.89	395667.37	773267.59	N 32 5 8.00	W 103 35 4.04
	11781.00	90.31	179.81	9255.58	2772.23	-2772.83	-155.30	0.83	395572.38	773268.32	N 32 5 7.08	W 103 35 4.04
	11876.00	90.49	179.78	9254.95	2867.23	-2867.83	-154.79	0.23	395477.38	773268.82	N 32 5 6.12	W 103 35 4.04
	11971.00	88.07	179.89	9256.18	2962.22	-2962.81	-154.52	2.51	395382.40	773269.10	N 32 5 5.18	W 103 35 4.05
	12065.00	88.52	179.19	9258.98	3058.17	-3058.77	-153.77	0.89	395288.45	773269.85	N 32 5 4.25	W 103 35 4.05
	12159.00	88.59	180.07	9261.35	3150.14	-3150.73	-153.18	0.94	395194.49	773270.46	N 32 5 3.32	W 103 35 4.05
	12254.00	90.65	181.18	9261.98	3245.12	-3245.72	-154					

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	14330.00	90.79	178.62	9255.18	5320.88	-5321.31	-160.22	0.37	393023.88	773263.39	N 32 4 41.84	W 103 35 4.30
	14425.00	89.83	178.37	9254.87	5415.86	-5416.29	-158.56	1.68	392928.00	773265.06	N 32 4 40.80	W 103 35 4.26
	14518.00	90.45	178.48	9254.44	5508.84	-5509.25	-156.00	0.88	392838.04	773267.82	N 32 4 39.98	W 103 35 4.27
	14613.00	90.58	178.38	9253.58	5603.82	-5604.23	-154.21	0.84	392741.06	773269.41	N 32 4 38.04	W 103 35 4.26
	14707.00	90.17	178.47	9252.97	5697.82	-5698.23	-153.25	0.45	392647.07	773270.37	N 32 4 38.11	W 103 35 4.25
	14801.00	90.58	180.55	9252.38	5791.81	-5792.22	-153.27	1.23	392553.08	773270.35	N 32 4 37.18	W 103 35 4.26
	14896.00	90.62	181.18	9251.38	5886.89	-5887.21	-154.70	0.88	392458.10	773268.92	N 32 4 36.24	W 103 35 4.29
	14991.00	90.14	180.39	9250.73	5981.57	-5982.16	-156.00	0.97	392363.11	773267.81	N 32 4 35.30	W 103 35 4.31
	15085.00	89.82	178.52	9250.93	6075.57	-6076.16	-155.11	2.06	392269.12	773268.51	N 32 4 34.37	W 103 35 4.31
	15180.00	91.00	178.24	9250.42	6170.53	-6171.14	-152.42	1.48	392174.17	773271.19	N 32 4 33.43	W 103 35 4.28
	15275.00	88.97	178.88	9250.44	6265.50	-6266.10	-149.87	2.19	392079.21	773273.75	N 32 4 32.49	W 103 35 4.26
	15369.00	90.41	179.04	9250.65	6358.49	-6359.08	-148.00	1.58	391985.24	773275.82	N 32 4 31.56	W 103 35 4.25
	15463.00	89.31	178.20	9251.18	6453.46	-6454.05	-145.73	1.47	391891.27	773277.88	N 32 4 30.63	W 103 35 4.23
	15557.00	89.48	178.69	9252.17	6547.43	-6548.01	-143.18	0.55	391797.31	773280.43	N 32 4 29.70	W 103 35 4.20
	15652.00	92.51	180.83	9250.52	6642.40	-6642.98	-142.79	3.90	391702.35	773280.83	N 32 4 28.76	W 103 35 4.21
	15748.00	91.48	180.80	9247.25	6738.33	-6738.91	-143.86	1.12	391608.42	773279.88	N 32 4 27.84	W 103 35 4.23
	15841.00	88.83	180.58	9248.99	6831.31	-6831.90	-144.94	2.79	391513.43	773276.88	N 32 4 26.90	W 103 35 4.25
	15935.00	89.38	180.84	9248.46	6925.29	-6925.88	-145.94	0.59	391419.45	773277.88	N 32 4 25.97	W 103 35 4.27
	16029.00	92.10	181.88	9247.25	7019.24	-7019.84	-147.89	3.17	391325.50	773275.83	N 32 4 25.04	W 103 35 4.30
	16123.00	91.41	180.51	9244.37	7113.17	-7113.77	-148.93	1.81	391231.57	773273.89	N 32 4 24.11	W 103 35 4.33
	16218.00	90.85	180.85	9242.86	7208.14	-7208.73	-151.06	0.88	391138.59	773272.58	N 32 4 23.17	W 103 35 4.35
	16312.00	91.85	182.45	9240.77	7302.07	-7302.69	-153.76	2.01	391042.86	773269.85	N 32 4 22.24	W 103 35 4.39
	16406.00	91.82	181.88	9237.93	7395.94	-7396.56	-157.30	0.85	390948.77	773266.32	N 32 4 21.31	W 103 35 4.44
	16501.00	91.27	181.18	9235.37	7490.87	-7491.51	-159.81	0.92	390853.84	773263.80	N 32 4 20.37	W 103 35 4.47
	16595.00	89.52	180.42	9234.72	7584.84	-7585.50	-161.13	2.03	390759.86	773262.49	N 32 4 19.44	W 103 35 4.50
	16689.00	89.29	178.27	9235.70	7678.83	-7679.48	-160.05	2.30	390665.88	773263.58	N 32 4 18.51	W 103 35 4.48
	16783.00	88.73	177.31	9237.34	7772.76	-7773.39	-158.43	1.18	390571.87	773267.18	N 32 4 17.58	W 103 35 4.46
	16877.00	89.28	177.71	9238.97	7866.67	-7867.29	-152.34	0.72	390478.08	773271.27	N 32 4 16.65	W 103 35 4.42
	16972.00	91.55	178.13	9238.28	7961.63	-7962.24	-149.73	2.82	390383.13	773273.89	N 32 4 15.71	W 103 35 4.39
	17063.00	91.69	177.99	9238.27	8053.58	-8053.19	-147.94	1.62	390312.18	773275.87	N 32 4 15.01	W 103 35 4.38
	17157.00	89.48	178.31	9235.31	8128.55	-8127.15	-145.73	2.74	390218.22	773277.89	N 32 4 14.08	W 103 35 4.36
	17251.00	89.52	182.13	9238.13	8220.53	-8221.13	-148.91	3.00	390124.25	773278.71	N 32 4 13.15	W 103 35 4.38
	17326.00	89.48	184.35	9236.98	8315.35	-8315.97	-152.28	2.34	390029.41	773271.34	N 32 4 12.21	W 103 35 4.45
	17422.00	89.82	180.23	9237.72	8411.23	-8411.87	-158.11	4.26	389933.51	773267.50	N 32 4 11.28	W 103 35 4.51
	17518.00	89.69	174.85	9238.28	8505.11	-8505.74	-151.92	5.94	389839.65	773271.70	N 32 4 10.33	W 103 35 4.46
	17610.00	89.14	171.88	9239.24	8598.49	-8599.07	-140.88	3.03	389746.32	773282.74	N 32 4 9.41	W 103 35 4.34
	17705.00	89.82	171.73	9240.27	8692.58	-8693.09	-127.32	0.52	389652.30	773298.29	N 32 4 8.48	W 103 35 4.19
	17799.00	89.52	172.43	9240.98	8785.71	-8786.19	-114.37	0.75	389559.20	773309.25	N 32 4 7.56	W 103 35 4.05
	17894.00	88.11	174.87	9242.94	8880.12	-8880.56	-103.70	2.79	389464.83	773319.91	N 32 4 6.62	W 103 35 3.93
	17988.00	88.28	178.81	9247.54	8973.88	-8974.31	-99.18	5.80	389371.09	773324.44	N 32 4 5.69	W 103 35 3.89
	18082.00	85.04	183.47	9254.86	9067.54	-9067.98	-101.86	4.10	389277.42	773321.78	N 32 4 4.77	W 103 35 3.93
	18178.00	88.82	183.33	9259.86	9161.19	-9161.68	-107.42	3.81	389183.75	773316.19	N 32 4 3.84	W 103 35 4.00
	18271.00	90.83	182.95	9260.23	9258.02	-9258.51	-112.62	2.48	389088.90	773310.98	N 32 4 2.90	W 103 35 4.07
	18365.00	91.17	180.80	9258.51	9349.94	-9350.43	-115.70	2.30	388994.88	773307.91	N 32 4 1.97	W 103 35 4.11
	18459.00	91.24	183.34	9256.53	9443.84	-9444.34	-119.09	2.70	388901.07	773304.52	N 32 4 1.04	W 103 35 4.16
	18554.00	91.10	183.57	9254.59	9538.82	-9539.15	-124.82	0.28	388806.27	773298.80	N 32 4 0.11	W 103 35 4.23
	18634.00	91.07	182.98	9253.08	9618.46	-9618.01	-129.39	0.74	388726.41	773294.23	N 32 3 59.32	W 103 35 4.29
TD, Projection to Bull	18723.00	91.07	182.98	9251.41	9707.31	-9707.87	-134.01	0.00	388637.55	773289.60	N 32 3 58.44	W 103 35 4.35

Survey Type: Non-Def Survey

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)	Survey Tool Type	Borehole / Survey
	1	0.000	24.000	1/98.425	30.000	30.000	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Red Hills Unit #16H MWD Final (Surcon Corrected)
	1	24.000	24.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Red Hills Unit #16H MWD Final (Surcon Corrected)
	1	24.000	18723.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Cimarex Red Hills Unit #16H MWD Final

