



Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0ft-
21967 Survey Geodetic Report
(Def Survey)



Report Date: March 05, 2019 - 04:58 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Dos Equis 11-14 Federal Com 4H / Cimarex Dos Equis 11-14 Federal Com 4H
Well: Cimarex Dos Equis 11-14 Federal Com 4H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0ft-21967
Survey Date: January 18, 2019
Tort / AHD / DDI / ERD Ratio: 239.663 * / 10054.432 ft / 6.631 / 0.813
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 14' 16.59813", W 103° 39' 9.93101"
Location Grid N/E Y/X: N 450964.240 RUS, E 751763.040 RUS
CRS Grid Convergence Angle: 0.3631 *
Grid Scale Factor: 0.9999598
Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.645 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3657.600 ft above MSL
Seabed / Ground Elevation: 3631.600 ft above MSL
Magnetic Declination: 6.728 *
Total Gravity Field Strength: 998.4343mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47948.343 nT
Magnetic Dip Angle: 59.920 *
Declination Date: February 21, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3631 *
Total Corr Mag North->Grid North: 6.3647 *
Local Coord Referenced To: Structure Reference Point

HOBBS O&D
SEP 05 2019
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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 °'")	Closure Azimuth (°)	Closure (ft)
SHL [530' FNL, 370' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	450964.24	751763.04	N 32 14 16.60	W 103 39 9.93	0.00	0.00
	201.00	0.47	278.05	201.00	-0.12	0.12	-0.82	0.23	450964.38	751762.22	N 32 14 16.60	W 103 39 9.94	278.05	0.82
	391.00	0.48	242.95	390.99	0.12	-0.14	-2.30	0.15	450964.10	751760.74	N 32 14 16.60	W 103 39 9.96	266.58	2.30
	483.00	0.49	245.09	482.99	0.48	-0.48	-3.00	0.02	450963.76	751760.04	N 32 14 16.59	W 103 39 9.97	260.93	3.03
	573.00	0.61	252.53	572.98	0.78	-0.78	-3.80	0.15	450963.48	751759.24	N 32 14 16.59	W 103 39 9.98	258.35	3.88
	663.00	0.74	243.20	662.98	1.18	-1.19	-4.78	0.19	450963.05	751758.26	N 32 14 16.59	W 103 39 9.99	256.01	4.92
	753.00	0.83	245.80	752.97	1.68	-1.72	-5.89	0.11	450962.52	751757.15	N 32 14 16.58	W 103 39 10.00	253.73	6.14
	843.00	0.81	234.04	842.96	2.32	-2.36	-7.00	0.19	450961.88	751756.04	N 32 14 16.58	W 103 39 10.01	251.37	7.39
	933.00	0.82	238.61	932.95	3.02	-3.07	-8.07	0.07	450961.17	751754.97	N 32 14 16.57	W 103 39 10.03	249.17	8.63
	1027.00	1.02	234.72	1026.94	3.84	-3.90	-9.32	0.22	450960.34	751753.72	N 32 14 16.56	W 103 39 10.04	247.29	10.11
	1142.00	1.02	231.54	1141.92	5.06	-5.13	-10.96	0.05	450959.11	751752.08	N 32 14 16.55	W 103 39 10.06	244.92	12.10
	1308.00	0.94	223.95	1307.90	6.85	-7.03	-13.06	0.09	450957.21	751749.88	N 32 14 16.53	W 103 39 10.08	241.71	14.83
	1402.00	0.91	226.90	1401.88	8.01	-8.09	-14.14	0.06	450956.15	751748.80	N 32 14 16.52	W 103 39 10.10	240.21	16.30
	1497.00	1.11	230.96	1496.87	9.09	-9.19	-15.41	0.22	450955.05	751747.63	N 32 14 16.51	W 103 39 10.11	239.19	17.94
	1591.00	1.11	228.10	1590.85	10.27	-10.37	-16.79	0.06	450953.87	751746.25	N 32 14 16.50	W 103 39 10.13	238.30	19.74
	1780.00	1.14	231.13	1779.82	12.65	-12.77	-19.62	0.04	450951.47	751743.42	N 32 14 16.47	W 103 39 10.16	236.93	23.41
	1874.00	1.08	234.80	1873.80	13.74	-13.87	-21.07	0.10	450950.37	751741.97	N 32 14 16.46	W 103 39 10.18	236.64	25.23
	1969.00	1.13	233.01	1968.78	14.81	-14.95	-22.55	0.06	450949.29	751740.49	N 32 14 16.45	W 103 39 10.19	236.46	27.06
	2064.00	1.08	233.73	2063.76	15.90	-16.04	-24.02	0.05	450948.20	751739.02	N 32 14 16.44	W 103 39 10.21	236.26	28.89
	2158.00	0.93	238.72	2157.75	16.81	-16.96	-25.39	0.18	450947.28	751737.65	N 32 14 16.43	W 103 39 10.23	236.25	30.53
	2253.00	0.15	278.89	2252.74	17.19	-17.35	-26.17	0.86	450946.89	751736.87	N 32 14 16.43	W 103 39 10.24	236.46	31.40
	2347.00	0.15	53.48	2346.74	17.10	-17.26	-26.19	0.30	450946.98	751736.85	N 32 14 16.43	W 103 39 10.24	236.61	31.37
	2442.00	0.20	79.48	2441.74	17.00	-17.18	-25.93	0.10	450947.08	751737.11	N 32 14 16.43	W 103 39 10.23	236.51	31.09
	2536.00	0.40	89.01	2535.74	16.96	-17.12	-25.44	0.22	450947.12	751737.60	N 32 14 16.43	W 103 39 10.23	236.06	30.67
	2725.00	0.54	95.33	2724.74	17.05	-17.19	-23.89	0.08	450947.05	751739.15	N 32 14 16.43	W 103 39 10.21	234.26	29.44
	2820.00	0.66	90.26	2819.73	17.10	-17.24	-22.90	0.14	450947.00	751740.14	N 32 14 16.43	W 103 39 10.20	233.03	28.66
	2914.00	0.72	95.24	2913.72	17.16	-17.29	-21.77	0.09	450946.95	751741.27	N 32 14 16.43	W 103 39 10.19	231.54	27.80
	3009.00	0.93	94.46	3008.71	17.28	-17.41	-20.41	0.22	450946.83	751742.63	N 32 14 16.43	W 103 39 10.17	229.54	26.82
	3103.00	1.16	94.08	3102.70	17.42	-17.54	-18.70	0.24	450946.71	751744.34	N 32 14 16.43	W 103 39 10.15	226.84	25.63

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
	3198.00	1.26	93.86	3197.68	17.57	-17.87	-16.70	0.11	450946.57	751746.34	N 32 14 16.42	W 103 39 10.13	223.37	24.31
	3293.00	1.30	93.24	3292.65	17.71	-17.81	-14.58	0.04	450946.44	751748.46	N 32 14 16.42	W 103 39 10.10	219.31	23.01
	3387.00	1.65	94.13	3386.62	17.89	-17.96	-12.17	0.37	450946.28	751750.88	N 32 14 16.42	W 103 39 10.07	214.11	21.69
	3482.00	1.08	84.60	3481.59	17.82	-17.98	-9.91	0.84	450946.26	751753.13	N 32 14 16.42	W 103 39 10.05	208.87	20.53
	3578.00	0.72	74.29	3575.58	17.68	-17.73	-8.46	0.42	450946.51	751754.58	N 32 14 16.42	W 103 39 10.03	205.50	19.65
	3671.00	0.63	74.40	3670.58	17.39	-17.43	-7.38	0.09	450946.81	751755.66	N 32 14 16.43	W 103 39 10.02	202.95	18.93
	3766.00	0.62	87.78	3765.57	17.23	-17.27	-6.36	0.15	450946.97	751756.68	N 32 14 16.43	W 103 39 10.01	200.23	18.41
	3861.00	0.51	98.20	3860.57	17.28	-17.31	-5.43	0.16	450946.93	751757.61	N 32 14 16.43	W 103 39 10.00	197.42	18.14
	3955.00	0.52	107.10	3954.56	17.47	-17.50	-4.81	0.09	450946.74	751758.43	N 32 14 16.43	W 103 39 9.99	194.76	18.09
	4050.00	0.56	119.79	4049.56	17.83	-17.85	-3.80	0.13	450946.39	751759.24	N 32 14 16.42	W 103 39 9.98	192.00	18.25
	4144.00	0.99	124.04	4143.55	18.52	-18.54	-2.72	0.46	450945.70	751760.32	N 32 14 16.41	W 103 39 9.96	188.36	18.74
	4239.00	1.74	129.98	4238.52	19.92	-19.92	-0.94	0.80	450944.32	751762.10	N 32 14 16.40	W 103 39 9.94	182.70	19.95
	4333.00	1.83	132.65	4332.48	21.86	-21.86	1.28	0.13	450942.38	751764.30	N 32 14 16.38	W 103 39 9.92	176.71	21.89
	4428.00	1.59	156.28	4427.43	24.11	-24.09	2.80	0.78	450940.15	751765.94	N 32 14 16.38	W 103 39 9.90	173.13	24.27
	4522.00	2.36	151.74	4521.38	27.02	-26.99	4.35	0.84	450937.25	751767.38	N 32 14 16.33	W 103 39 9.88	170.85	27.34
	4616.00	2.11	158.81	4615.31	30.34	-30.31	5.89	0.40	450933.93	751768.93	N 32 14 16.30	W 103 39 9.86	169.01	30.87
	4711.00	1.27	187.56	4710.27	33.02	-32.98	6.38	1.23	450931.26	751769.42	N 32 14 16.27	W 103 39 9.86	169.05	33.59
	4806.00	1.01	219.40	4805.25	34.71	-34.67	5.71	0.71	450929.57	751768.75	N 32 14 16.25	W 103 39 9.87	170.85	35.14
	4900.00	0.92	226.84	4899.23	35.86	-35.83	4.63	0.16	450928.41	751767.67	N 32 14 16.24	W 103 39 9.88	172.63	36.13
	4995.00	0.91	226.90	4994.22	36.89	-36.87	3.53	0.01	450927.37	751766.57	N 32 14 16.23	W 103 39 9.89	174.54	37.04
	5184.00	0.89	217.02	5183.20	39.07	-39.06	1.55	0.08	450925.18	751764.59	N 32 14 16.21	W 103 39 9.92	177.73	39.10
	5279.00	0.88	219.37	5278.19	40.22	-40.22	0.64	0.04	450924.02	751763.68	N 32 14 16.20	W 103 39 9.93	179.09	40.22
	5373.00	0.93	226.40	5372.18	41.30	-41.30	-0.37	0.13	450922.94	751762.67	N 32 14 16.19	W 103 39 9.94	180.51	41.30
	5468.00	0.97	236.20	5467.16	42.27	-42.28	-1.60	0.18	450921.96	751761.44	N 32 14 16.18	W 103 39 9.95	182.16	42.31
	5563.00	1.03	233.15	5562.15	43.22	-43.24	-2.95	0.08	450921.00	751760.09	N 32 14 16.17	W 103 39 9.97	183.90	43.34
	5657.00	1.02	233.09	5656.13	44.22	-44.25	-4.29	0.01	450919.99	751758.75	N 32 14 16.16	W 103 39 9.98	185.54	44.46
	5752.00	0.99	240.44	5751.12	45.13	-45.16	-5.68	0.14	450919.08	751757.36	N 32 14 16.15	W 103 39 10.00	187.17	45.52
	5846.00	1.01	240.16	5845.10	45.93	-45.97	-7.11	0.02	450918.27	751755.93	N 32 14 16.14	W 103 39 10.02	188.79	46.52
	6036.00	0.97	236.07	6035.08	47.64	-47.71	-8.89	0.04	450916.54	751753.15	N 32 14 16.13	W 103 39 10.05	191.72	48.72
	6225.00	1.06	235.90	6224.05	49.50	-49.58	-12.67	0.05	450914.68	751750.37	N 32 14 16.11	W 103 39 10.08	194.34	51.17
	6320.00	1.06	243.02	6319.03	50.38	-50.47	-14.18	0.14	450913.77	751748.86	N 32 14 16.10	W 103 39 10.10	195.69	52.42
	6414.00	1.11	242.88	6413.01	51.18	-51.28	-15.77	0.05	450912.96	751747.27	N 32 14 16.09	W 103 39 10.12	197.09	53.65
	6509.00	0.99	242.28	6508.00	51.97	-52.08	-17.31	0.13	450912.16	751745.73	N 32 14 16.08	W 103 39 10.14	198.39	54.88
	6604.00	0.94	240.47	6602.98	52.73	-52.85	-18.72	0.06	450911.40	751744.33	N 32 14 16.08	W 103 39 10.15	199.50	56.06
	6698.00	0.97	237.45	6696.97	53.53	-53.65	-20.06	0.06	450910.59	751742.98	N 32 14 16.07	W 103 39 10.17	200.50	57.28
	6793.00	0.90	228.32	6791.96	54.45	-54.58	-21.29	0.17	450909.66	751741.75	N 32 14 16.06	W 103 39 10.18	201.31	58.59
	6887.00	0.81	234.53	6885.95	55.32	-55.46	-22.38	0.14	450908.78	751740.66	N 32 14 16.05	W 103 39 10.20	201.98	59.81
	6982.00	0.84	229.54	6980.94	56.15	-56.30	-23.46	0.08	450907.94	751739.58	N 32 14 16.04	W 103 39 10.21	202.62	60.99
	7076.00	0.84	222.43	7074.93	57.10	-57.26	-24.45	0.11	450906.99	751738.59	N 32 14 16.03	W 103 39 10.22	203.12	62.26
	7171.00	0.38	224.78	7169.92	57.84	-57.99	-25.14	0.48	450906.25	751737.90	N 32 14 16.03	W 103 39 10.23	203.44	63.21
	7265.00	0.23	220.85	7263.92	58.20	-58.36	-25.48	0.16	450905.88	751737.56	N 32 14 16.02	W 103 39 10.23	203.59	63.68
	7360.00	0.20	210.04	7358.92	58.49	-58.65	-25.69	0.05	450905.60	751737.35	N 32 14 16.02	W 103 39 10.23	203.66	64.03
	7454.00	0.20	29.24	7452.92	58.49	-58.65	-25.69	0.43	450905.60	751737.35	N 32 14 16.02	W 103 39 10.23	203.66	64.03
	7644.00	0.27	26.22	7642.92	57.80	-57.96	-25.33	0.04	450906.29	751737.71	N 32 14 16.03	W 103 39 10.23	203.61	63.25
	7739.00	0.32	0.39	7737.92	57.33	-57.49	-25.23	0.15	450906.75	751737.81	N 32 14 16.03	W 103 39 10.23	203.70	62.78
	7833.00	0.29	338.99	7831.92	56.85	-57.00	-25.32	0.12	450907.24	751737.72	N 32 14 16.04	W 103 39 10.23	203.95	62.37
	8022.00	0.53	308.87	8020.91	55.85	-56.01	-26.17	0.17	450908.23	751736.87	N 32 14 16.05	W 103 39 10.24	205.04	61.82
	8117.00	0.63	299.60	8115.91	55.31	-55.47	-26.96	0.14	450908.77	751736.08	N 32 14 16.05	W 103 39 10.25	205.92	61.68
	8211.00	0.70	291.48	8209.90	54.83	-55.01	-27.95	0.12	450909.23	751735.09	N 32 14 16.06	W 103 39 10.26	206.93	61.70
	8305.00	0.73	299.92	8303.89	54.32	-54.50	-28.00	0.12	450909.74	751734.04	N 32 14 16.06	W 103 39 10.27	208.02	61.74
	8400.00	0.83	299.04	8398.88	53.68	-53.86	-30.13	0.11	450910.38	751732.91	N 32 14 16.07	W 103 39 10.29	209.22	61.72
	8495.00	0.59	299.13	8493.88	53.10	-53.29	-31.16	0.25	450910.95	751731.89	N 32 14 16.07	W 103 39 10.30	210.31	61.73
	8589.00	0.82	296.43	8587.87	52.63	-52.83	-32.03	0.04	450911.41	751731.01	N 32 14 16.08	W 103 39 10.31	211.23	61.78
	8779.00	0.85	278.04	8777.86	51.96	-52.17	-34.35	0.17	450912.07	751728.69	N 32 14 16.08	W 103 39 10.33	213.36	62.47
	8873.00	0.97	280.26	8871.84	51.71	-51.94	-35.82	0.13	450912.31	751727.22	N 32 14 16.09	W 103 39 10.35	214.60	63.09
	8968.00	1.13	282.24	8966.83	51.36	-51.59	-37.53	0.17	450912.65	751725.51	N 32 14 16.09	W 103 39 10.37	216.03	63.80
	9062.00	1.24	284.04	9060.81	50.91	-51.15	-39.42	0.12	450913.09	751723.62	N 32 14 16.09	W 103 39 10.39	217.62	64.58
	9157.00	1.10	274.85	9155.79	50.57	-50.82	-41.33	0.25	450913.42	751721.71	N 32 14 16.10	W 103 39 10.42	219.12	65.51
	9251.00	1.06	259.89	9249.77	50.63	-50.90	-43.08	0.30	450913.34	751719.96	N 32 14 16.10	W 103 39 10.44	220.25	66.69
	9346.00	1.15	237.23	9344.75	51.29	-51.57	-44.75	0.47	450912.67	751718.29	N 32 14 16.09	W 103 39 10.46	220.95	68.28
	9440.00	1.49	213.40	9438.73	52.81	-53.10	-46.22	0.68	450911.14	751716.83	N 32 14 16.08	W 103 39 10.47	221.03	70.40
	9535.00	2.20	200.83	9533.68	55.54	-55.84	-47.54	0.86	450908.41	751715.50	N 32 14 16.05	W 103 39 10.49	220.41	73.34

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 °'")	Closure Azimuth (°)	Closure (ft)
	9629.00	1.84	194.03	9627.62	58.69	-58.99	-48.55	0.46	450905.26	751714.49	N 32 14 16.02	W 103 39 10.50	219.46	76.40
	9724.00	0.56	212.59	9722.60	60.55	-49.86	-49.17	1.39	450903.38	751713.87	N 32 14 16.00	W 103 39 10.51	218.94	78.24
	9913.00	0.62	48.49	9911.60	60.65	-60.96	-48.90	0.62	450903.28	751714.14	N 32 14 16.00	W 103 39 10.50	218.74	78.15
	10008.00	0.40	53.38	10006.59	60.12	-60.42	-48.25	0.24	450903.82	751714.79	N 32 14 16.00	W 103 39 10.50	218.61	77.32
	10102.00	0.41	46.24	10100.59	59.70	-59.99	-47.75	0.05	450904.25	751715.30	N 32 14 16.01	W 103 39 10.49	218.52	76.67
	10198.00	0.39	60.84	10196.59	59.30	-59.60	-47.21	0.11	450904.65	751715.83	N 32 14 16.01	W 103 39 10.49	218.39	76.03
	10292.00	0.53	66.66	10290.58	58.98	-59.27	-46.53	0.16	450904.98	751716.51	N 32 14 16.01	W 103 39 10.48	218.14	75.35
	10387.00	0.27	42.82	10385.58	58.64	-58.93	-45.98	0.32	450905.31	751717.06	N 32 14 16.02	W 103 39 10.47	217.96	74.74
	10576.00	0.66	32.51	10574.58	57.40	-57.68	-45.09	0.21	450906.56	751717.95	N 32 14 16.03	W 103 39 10.46	218.01	73.22
	10765.00	0.42	35.83	10763.57	55.93	-56.20	-44.10	0.13	450908.04	751718.94	N 32 14 16.04	W 103 39 10.45	218.12	71.44
	10954.00	0.62	260.12	10952.56	55.54	-55.82	-44.70	0.51	450908.42	751718.34	N 32 14 16.05	W 103 39 10.46	218.69	71.51
	11143.00	0.67	216.31	11141.55	56.60	-56.88	-46.38	0.26	450907.36	751718.68	N 32 14 16.04	W 103 39 10.47	218.18	73.39
	11238.00	0.60	218.92	11236.55	57.43	-57.72	-47.01	0.08	450906.52	751718.04	N 32 14 16.03	W 103 39 10.48	219.16	74.44
	11332.00	1.55	250.41	11330.53	58.23	-58.53	-48.51	1.15	450905.71	751714.53	N 32 14 16.02	W 103 39 10.50	219.85	76.02
	11427.00	2.25	239.30	11425.48	59.59	-59.91	-51.33	0.83	450904.33	751711.72	N 32 14 16.01	W 103 39 10.53	220.59	78.89
	11816.00	2.00	213.69	11814.35	64.20	-64.55	-56.35	0.51	450899.69	751706.70	N 32 14 15.96	W 103 39 10.59	221.12	85.68
	11710.00	1.64	209.49	11708.30	66.72	-67.09	-57.92	0.41	450897.16	751705.12	N 32 14 15.94	W 103 39 10.61	220.81	88.63
	11804.00	1.88	205.40	11802.26	69.28	-69.65	-59.24	0.29	450894.59	751703.80	N 32 14 15.91	W 103 39 10.63	220.38	91.44
	11825.00	2.00	185.88	11823.25	69.95	-70.32	-59.43	3.18	450893.92	751703.62	N 32 14 15.91	W 103 39 10.63	220.20	92.07
	11919.00	13.62	171.44	11916.22	82.58	-82.94	-57.94	12.44	450881.30	751705.10	N 32 14 15.78	W 103 39 10.61	214.94	101.18
	11951.00	18.93	170.85	11946.93	91.45	-91.80	-56.56	16.60	450872.44	751706.49	N 32 14 15.69	W 103 39 10.60	211.64	107.82
	11982.00	23.51	173.66	11975.82	102.57	-102.92	-55.07	15.13	450881.33	751707.97	N 32 14 15.58	W 103 39 10.58	208.15	116.73
	12014.00	28.38	176.61	12004.59	116.52	-116.86	-53.92	15.74	450847.38	751709.13	N 32 14 15.45	W 103 39 10.57	204.77	128.70
	12061.00	32.64	176.85	12045.07	140.35	-140.68	-52.58	9.07	450823.57	751710.48	N 32 14 15.21	W 103 39 10.55	200.49	150.18
	12108.00	37.34	176.68	12083.56	167.26	-167.58	-51.04	10.00	450796.67	751712.01	N 32 14 14.94	W 103 39 10.54	198.94	175.18
	12155.00	42.15	175.47	12119.69	197.24	-197.55	-48.96	10.37	450766.70	751714.08	N 32 14 14.65	W 103 39 10.52	193.92	203.53
	12203.00	46.88	175.49	12153.91	230.79	-231.08	-46.31	9.81	450733.17	751716.73	N 32 14 14.31	W 103 39 10.49	191.33	235.68
	12250.00	50.67	175.46	12184.89	266.03	-266.31	-43.53	8.11	450697.94	751719.52	N 32 14 13.97	W 103 39 10.46	189.28	269.84
	12297.00	55.27	177.66	12213.19	303.49	-303.75	-41.30	10.48	450660.50	751721.75	N 32 14 13.60	W 103 39 10.43	187.74	306.54
	12344.00	58.55	178.78	12238.85	342.85	-343.10	-40.08	7.26	450621.15	751722.96	N 32 14 13.21	W 103 39 10.42	186.66	345.43
	12392.00	61.10	179.36	12262.97	384.34	-384.59	-39.41	5.41	450579.67	751723.83	N 32 14 12.80	W 103 39 10.42	185.85	386.60
	12439.00	66.09	179.33	12283.87	426.42	-426.67	-38.93	10.62	450537.59	751724.11	N 32 14 12.38	W 103 39 10.42	185.21	428.44
	12451.00	67.63	179.35	12288.58	437.45	-437.70	-38.80	12.83	450526.56	751724.24	N 32 14 12.27	W 103 39 10.42	185.07	439.42
	12609.00	79.56	181.74	12333.13	588.71	-588.98	-40.34	7.69	450375.29	751722.70	N 32 14 10.77	W 103 39 10.44	183.92	590.36
	12703.00	83.45	182.95	12347.01	681.56	-681.85	-44.15	4.33	450282.42	751718.90	N 32 14 9.85	W 103 39 10.50	183.70	683.27
	12798.00	87.63	183.22	12354.40	776.08	-776.40	-49.24	4.41	450187.87	751713.80	N 32 14 8.92	W 103 39 10.56	183.63	777.96
	12893.00	90.28	182.82	12356.13	870.89	-871.24	-54.25	2.82	450093.03	751708.80	N 32 14 7.98	W 103 39 10.63	183.56	872.93
	12988.00	90.10	181.27	12355.82	960.80	-966.18	-57.64	1.64	449998.10	751705.41	N 32 14 7.04	W 103 39 10.67	183.41	967.90
	13083.00	90.03	180.89	12355.71	1060.77	-1061.16	-59.43	0.41	449903.12	751703.62	N 32 14 6.10	W 103 39 10.70	183.21	1062.83
	13178.00	89.83	179.00	12355.82	1155.77	-1156.16	-59.34	2.00	449808.13	751703.71	N 32 14 5.16	W 103 39 10.71	182.94	1157.68
	13273.00	90.69	177.88	12355.39	1250.74	-1251.12	-56.75	1.49	449713.17	751706.29	N 32 14 4.22	W 103 39 10.68	182.60	1252.41
	13368.00	90.72	178.19	12354.22	1345.70	-1346.06	-53.49	0.33	449618.24	751709.55	N 32 14 3.28	W 103 39 10.65	182.28	1347.12
	13462.00	90.38	177.20	12353.32	1439.64	-1439.98	-49.71	1.11	449524.33	751713.33	N 32 14 2.35	W 103 39 10.62	181.98	1440.83
	13557.00	88.97	178.06	12353.86	1534.58	-1534.89	-45.78	1.74	449428.42	751717.26	N 32 14 1.41	W 103 39 10.58	181.71	1535.57
	13652.00	89.28	176.87	12355.31	1629.49	-1629.78	-41.58	1.29	449334.53	751721.46	N 32 14 0.47	W 103 39 10.54	181.46	1630.31
	13747.00	86.32	173.70	12358.96	1724.13	-1724.37	-33.78	4.56	449239.94	751729.28	N 32 13 59.54	W 103 39 10.45	181.12	1724.70
	13842.00	91.10	178.01	12361.10	1818.85	-1818.05	-26.93	6.77	449145.27	751736.12	N 32 13 58.60	W 103 39 10.38	180.85	1819.25
	13937.00	89.17	175.18	12360.87	1913.70	-1913.87	-21.28	3.61	449050.46	751741.76	N 32 13 57.66	W 103 39 10.32	180.64	1913.98
	14032.00	89.83	176.93	12361.70	2008.50	-2008.63	-14.75	1.97	448955.69	751748.29	N 32 13 56.72	W 103 39 10.25	180.42	2008.69
	14127.00	90.89	180.87	12361.11	2103.47	-2103.59	-12.76	4.09	448860.74	751750.28	N 32 13 55.78	W 103 39 10.23	180.35	2103.63
	14221.00	92.06	182.32	12358.69	2197.39	-2197.52	-15.21	2.15	448766.81	751747.83	N 32 13 54.85	W 103 39 10.27	180.40	2197.58
	14316.00	91.17	181.59	12356.01	2292.27	-2292.43	-18.45	1.21	448671.91	751744.59	N 32 13 53.92	W 103 39 10.31	180.46	2292.50
	14411.00	93.30	180.76	12352.30	2387.16	-2387.33	-20.40	2.41	448577.01	751742.64	N 32 13 52.98	W 103 39 10.34	180.49	2387.42
	14506.00	91.48	178.48	12348.34	2482.07	-2482.24	-19.77	3.07	448482.11	751743.28	N 32 13 52.04	W 103 39 10.34	180.46	2482.31
	14600.00	91.79	179.96	12345.66	2576.02	-2576.19	-18.49	1.61	448388.16	751744.55	N 32 13 51.11	W 103 39 10.34	180.41	2576.25
	14695.00	91.65	179.48	12342.81	2670.98	-2671.14	-18.02	0.53	448293.21	751745.02	N 32 13 50.17	W 103 39 10.34	180.39	2671.20
	14790.00	90.34	179.97	12341.16	2765.96	-2766.12	-17.57	1.47	448198.23	751745.47	N 32 13 49.23	W 103 39 10.34	180.36	2766.18
	14885.00	89.76	180.59	12341.08	2860.95	-2861.12	-18.03	0.89	448103.24	751745.01	N 32 13 48.29	W 103 39 10.35	180.36	2861.18
	14980.00	89.11	181.04	12342.01	2955.93	-2956.11	-19.38	0.83	448008.26	751743.66	N 32 13 47.35	W 103 39 10.37	180.38	2956.17
	15075.00	90.07	183.16	12342.69	3050.83	-3051.03	-22.86	2.45	447913.33	751740.18	N 32 13 46.41	W 103 39 10.42	180.43	3051.12
	15169.00	89.66	183.51	12342.91	3144.64	-3144.87	-28.33	0.57	447819.50	751734.71	N 32 13 45.48	W 103 39 10.49	180.52	3145.00
	15265.00	90.45	181.45	12342.82	3240.51	-3240.78	-32.49	2.30	447723.60	751730.56	N 32 13 44.53	W 103 39 10.55	180.57	3240.94

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
	15360.00	91.10	178.60	12341.54	3335.49	-3335.76	-32.53	3.08	447628.62	751730.51	N 32 13 43.59	W 103 39 10.56	180.56	3335.92
	15455.00	90.10	177.51	12340.54	3430.45	-3430.70	-29.30	1.56	447533.69	751733.74	N 32 13 42.65	W 103 39 10.53	180.49	3430.82
	15550.00	89.07	176.73	12341.23	3525.35	-3525.57	-24.53	1.36	447438.82	751738.51	N 32 13 41.71	W 103 39 10.48	180.40	3525.66
	15645.00	89.14	178.34	12342.71	3620.27	-3620.47	-20.44	1.70	447343.92	751742.60	N 32 13 40.78	W 103 39 10.44	180.32	3620.53
	15740.00	88.63	177.40	12344.56	3715.21	-3715.38	-16.91	1.13	447249.01	751746.13	N 32 13 39.84	W 103 39 10.40	180.26	3715.42
	15835.00	90.55	177.42	12345.24	3810.13	-3810.28	-12.62	2.02	447154.12	751750.42	N 32 13 38.90	W 103 39 10.36	180.19	3810.30
	15930.00	89.93	177.67	12344.85	3905.06	-3905.19	-8.55	0.70	447059.21	751754.49	N 32 13 37.96	W 103 39 10.32	180.13	3905.20
	16024.00	89.31	179.87	12345.47	3999.04	-3999.16	-6.37	2.23	446965.25	751758.67	N 32 13 37.03	W 103 39 10.30	180.09	3999.16
	16119.00	90.34	180.20	12345.76	4094.04	-4094.16	-6.26	1.22	446870.26	751756.78	N 32 13 36.09	W 103 39 10.31	180.09	4094.16
	16214.00	90.38	180.51	12345.18	4189.03	-4189.15	-6.85	0.33	446775.26	751756.19	N 32 13 35.15	W 103 39 10.32	180.09	4189.16
	16309.00	89.90	181.59	12344.93	4284.00	-4284.14	-8.59	1.24	446680.28	751754.45	N 32 13 34.21	W 103 39 10.35	180.11	4284.14
	16404.00	90.76	180.80	12344.38	4378.96	-4379.11	-10.57	1.23	446585.31	751752.47	N 32 13 33.27	W 103 39 10.38	180.14	4378.12
	16499.00	90.38	180.54	12343.44	4473.94	-4474.10	-11.68	0.48	446490.33	751751.36	N 32 13 32.33	W 103 39 10.40	180.15	4474.12
	16594.00	89.76	180.63	12343.32	4568.93	-4569.09	-12.65	0.66	446395.34	751750.39	N 32 13 31.39	W 103 39 10.42	180.16	4569.11
	16689.00	90.34	181.96	12343.24	4663.89	-4664.07	-14.80	1.53	446300.37	751748.24	N 32 13 30.45	W 103 39 10.45	180.18	4664.09
	16783.00	91.07	182.06	12342.08	4757.80	-4758.00	-18.10	0.78	446206.44	751744.94	N 32 13 29.52	W 103 39 10.49	180.22	4758.04
Section Line Crossing [321' FWL]	16787.00	91.06	182.00	12342.01	4761.79	-4762.00	-18.24	1.53	446202.44	751744.80	N 32 13 29.48	W 103 39 10.49	180.22	4762.03
	16879.00	90.72	180.63	12340.58	4853.74	-4853.96	-20.35	1.53	446110.48	751742.69	N 32 13 28.57	W 103 39 10.53	180.24	4854.00
	16974.00	90.52	178.71	12339.55	4948.73	-4948.95	-19.80	2.03	446015.50	751743.24	N 32 13 27.63	W 103 39 10.53	180.23	4948.99
	17068.00	90.38	179.49	12338.82	5042.72	-5042.93	-18.33	0.84	445921.52	751744.71	N 32 13 26.70	W 103 39 10.52	180.21	5042.97
	17164.00	90.24	179.92	12338.30	5138.72	-5138.93	-17.83	0.47	445825.53	751745.21	N 32 13 25.75	W 103 39 10.52	180.20	5138.96
	17258.00	90.58	179.56	12337.62	5232.72	-5232.93	-17.41	0.53	445731.53	751745.63	N 32 13 24.82	W 103 39 10.52	180.19	5232.96
	17353.00	90.24	180.08	12336.94	5327.72	-5327.92	-17.11	0.65	445636.54	751745.93	N 32 13 23.88	W 103 39 10.52	180.18	5327.95
	17448.00	90.69	179.37	12336.17	5422.71	-5422.92	-16.65	0.88	445541.55	751746.39	N 32 13 22.94	W 103 39 10.52	180.18	5422.95
	17543.00	90.24	177.62	12335.40	5517.69	-5517.88	-14.16	1.90	445446.59	751748.88	N 32 13 22.00	W 103 39 10.50	180.15	5517.90
	17638.00	90.65	178.19	12334.66	5612.64	-5612.81	-10.68	0.74	445351.66	751752.36	N 32 13 21.06	W 103 39 10.47	180.11	5612.82
	17733.00	89.55	178.14	12334.50	5707.61	-5707.76	-7.64	1.16	445256.72	751755.40	N 32 13 20.12	W 103 39 10.44	180.08	5707.77
	17829.00	90.45	178.54	12334.50	5803.58	-5803.72	-4.86	1.03	445160.76	751758.18	N 32 13 19.17	W 103 39 10.42	180.05	5803.72
	17923.00	89.90	177.68	12334.21	5897.54	-5897.67	-1.76	1.09	445066.82	751761.28	N 32 13 18.24	W 103 39 10.39	180.02	5897.67
	18018.00	89.38	177.37	12334.81	5992.48	-5992.58	2.34	0.84	444971.92	751765.38	N 32 13 17.30	W 103 39 10.35	179.98	5992.58
	18113.00	88.80	178.39	12336.32	6087.50	-6087.50	5.85	1.24	444877.00	751768.89	N 32 13 16.36	W 103 39 10.31	179.94	6087.50
	18208.00	89.17	179.88	12338.00	6182.40	-6182.47	7.29	1.62	444782.03	751770.33	N 32 13 15.42	W 103 39 10.30	179.93	6182.47
	18303.00	88.07	179.35	12340.29	6277.37	-6277.44	7.93	1.29	444687.07	751770.97	N 32 13 14.48	W 103 39 10.30	179.93	6277.44
	18398.00	88.04	180.88	12343.51	6372.31	-6372.38	7.74	1.61	444592.13	751770.78	N 32 13 13.54	W 103 39 10.31	179.93	6372.39
	18493.00	89.69	181.57	12345.39	6467.25	-6467.34	5.71	1.88	444497.18	751768.74	N 32 13 12.60	W 103 39 10.34	179.95	6467.34
	18588.00	90.48	180.76	12345.25	6562.21	-6562.32	3.77	1.19	444402.20	751768.81	N 32 13 11.66	W 103 39 10.37	179.97	6562.32
	18683.00	90.31	181.11	12344.60	6657.19	-6657.30	2.22	0.41	444307.22	751765.26	N 32 13 10.72	W 103 39 10.40	179.98	6657.30
	18778.00	90.83	181.10	12343.65	6752.15	-6752.28	0.39	0.55	444212.25	751763.43	N 32 13 9.78	W 103 39 10.42	180.00	6752.28
	18873.00	91.10	180.19	12342.05	6847.12	-6847.26	-0.68	1.00	444117.27	751762.36	N 32 13 8.84	W 103 39 10.44	180.01	6847.26
	18968.00	89.86	179.09	12341.26	6942.11	-6942.25	-0.08	1.74	444022.28	751762.96	N 32 13 7.91	W 103 39 10.44	180.00	6942.25
	19063.00	89.17	178.87	12342.06	7037.10	-7037.23	1.61	0.76	443927.31	751764.65	N 32 13 6.97	W 103 39 10.43	179.99	7037.23
	19158.00	90.21	179.07	12342.58	7132.09	-7132.21	3.32	1.11	443832.33	751766.38	N 32 13 6.03	W 103 39 10.42	179.97	7132.21
	19253.00	89.93	178.17	12342.46	7227.08	-7227.18	5.81	0.99	443737.36	751768.65	N 32 13 5.09	W 103 39 10.40	179.96	7227.18
	19343.00	89.42	177.46	12342.97	7317.03	-7317.11	9.04	0.97	443647.43	751772.08	N 32 13 4.20	W 103 39 10.37	179.93	7317.12
	19438.00	89.24	179.66	12344.08	7412.00	-7412.07	11.42	2.32	443552.48	751774.46	N 32 13 3.26	W 103 39 10.34	179.91	7412.08
	19533.00	88.90	179.34	12345.62	7506.99	-7507.06	12.25	0.49	443457.50	751775.29	N 32 13 2.32	W 103 39 10.34	179.91	7507.07
	19627.00	89.11	179.27	12347.26	7600.97	-7601.03	13.39	0.24	443363.53	751776.43	N 32 13 1.39	W 103 39 10.34	179.90	7601.05
	19722.00	89.07	179.63	12348.76	7695.96	-7696.02	14.30	0.38	443268.55	751777.34	N 32 13 0.45	W 103 39 10.33	179.89	7696.03
	19817.00	89.35	180.76	12350.07	7790.94	-7791.01	13.98	1.23	443173.56	751777.02	N 32 12 59.51	W 103 39 10.34	179.90	7791.02
	19912.00	89.35	181.08	12351.15	7885.91	-7885.99	12.46	0.34	443078.58	751775.50	N 32 12 58.57	W 103 39 10.37	179.91	7886.00
	20007.00	89.69	181.23	12351.95	7980.88	-7980.97	10.54	0.39	442983.61	751773.58	N 32 12 57.63	W 103 39 10.40	179.92	7980.97
	20102.00	89.93	181.66	12352.26	8075.83	-8075.93	8.15	0.52	442888.65	751771.19	N 32 12 56.69	W 103 39 10.43	179.94	8075.94
	20197.00	89.35	179.49	12352.86	8170.81	-8170.92	7.19	2.36	442793.68	751770.23	N 32 12 55.75	W 103 39 10.45	179.95	8170.93
	20292.00	89.04	180.00	12354.19	8265.80	-8265.91	7.62	0.63	442698.68	751770.65	N 32 12 54.81	W 103 39 10.45	179.95	8265.91
	20387.00	89.48	179.28	12355.42	8360.79	-8360.90	8.21	0.89	442603.69	751771.25	N 32 12 53.87	W 103 39 10.45	179.94	8360.90
	20482.00	89.59	178.72	12356.19	8455.78	-8455.88	9.87	0.60	442508.71	751772.91	N 32 12 52.93	W 103 39 10.44	179.93	8455.89
	20577.00	89.55	179.23	12356.91	8550.77	-8550.86	11.57	0.54	442413.74	751774.61	N 32 12 51.99	W 103 39 10.43	179.92	8550.87
	20672.00	89.52	178.89	12357.68	8645.76	-8645.85	13.13	0.36	442318.76	751776.17	N 32 12 51.05	W 103 39 10.42	179.91	8645.86
	20767.00	89.42	178.89	12358.55	8740.75	-8740.83	14.97	0.11	442223.78	751778.01	N 32 12 50.11	W 103 39 10.40	179.90	8740.84
	20862.00	89.62	179.34	12359.35	8835.74	-8835.81	16.44	0.52	442128.80	751779.47	N 32 12 49.17	W 103 39 10.39	179.89	8835.83

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
	20957.00	89.24	179.05	12360.30	8930.74	-8930.80	17.77	0.50	442033.82	751780.81	N 32 12 48.23	W 103 39 10.38	179.89	8930.81
	21052.00	89.69	180.19	12361.18	9025.73	-9025.79	18.40	1.29	441938.83	751781.44	N 32 12 47.29	W 103 39 10.38	179.88	9025.81
	21146.00	89.83	178.61	12361.58	9119.73	-9119.78	19.38	1.69	441844.84	751782.42	N 32 12 46.36	W 103 39 10.38	179.88	9119.80
	21241.00	89.42	180.29	12362.20	9214.72	-9214.77	20.30	1.82	441749.86	751783.34	N 32 12 45.42	W 103 39 10.37	179.87	9214.79
	21336.00	89.79	179.01	12362.85	9309.71	-9309.76	20.88	1.40	441654.87	751783.92	N 32 12 44.48	W 103 39 10.37	179.87	9309.79
	21431.00	89.59	179.94	12363.37	9404.71	-9404.76	21.75	1.00	441559.88	751784.79	N 32 12 43.54	W 103 39 10.37	179.87	9404.78
	21526.00	89.42	181.63	12364.19	9499.69	-9499.74	20.45	1.79	441464.90	751783.48	N 32 12 42.60	W 103 39 10.39	179.88	9499.76
	21621.00	89.55	181.51	12365.04	9594.63	-9594.70	17.84	0.19	441369.94	751780.88	N 32 12 41.68	W 103 39 10.43	179.89	9594.72
	21716.00	89.76	180.88	12365.61	9689.59	-9689.68	15.86	0.70	441274.97	751778.90	N 32 12 40.72	W 103 39 10.46	179.91	9689.69
	21811.00	89.68	179.53	12366.10	9784.58	-9784.68	15.52	1.42	441179.98	751778.56	N 32 12 39.78	W 103 39 10.47	179.91	9784.69
	21906.00	89.21	179.14	12367.03	9879.58	-9879.66	16.62	0.63	441084.99	751779.66	N 32 12 38.84	W 103 39 10.47	179.90	9879.68
Last Survey TD, PTB [101' FSL, 328' FWL]	21924.00	89.69	179.38	12367.20	9897.58	-9897.66	16.88	2.98	441067.00	751779.90	N 32 12 38.66	W 103 39 10.46	179.90	9897.68
	21967.00	89.65	179.00	12367.45	9940.57	-9940.66	17.46	0.89	441024.00	751780.50	N 32 12 38.23	W 103 39 10.46	179.90	9940.67

Survey Type: Def Survey

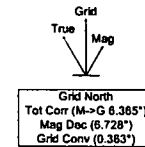
Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

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	26.000	1/98.425	14.750	10.750	NAL_MWD_IFR1+MS-Depth Only	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0R-21967
	1	26.000	26.000	Act Stns	14.750	10.750	NAL_MWD_IFR1+MS-Depth Only	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0R-21967
	1	26.000	1224.000	Act Stns	14.750	10.750	NAL_MWD_IFR1+MS	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01
	1	1224.000	11847.000	Act Stns	9.875	7.625	NAL_MWD_IFR1+MS	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01
	1	11847.000	13118.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01
	1	13118.000	21967.000	Act Stns	6.000	4.500	NAL_MWD_IFR1+MS	ST01 / Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01

Borehole:	ST01	Well:	Cimarex Dos Equis 11-14 Federal Com 4H	Field:	NM Lea County (NAD 83)	Structure:	Cimarex Dos Equis 11-14 Federal Com 4H
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Gravity & Magnetic Parameters	Model: HDGM 2019	Dip: 69.82°	Date: 21-Feb-2019	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Grid Conv:	0.3831°	Intelligence	Cimarex Dos Equis 11-14 Federal Com 4H	TVD Ref:	RKB(2687.81 above MSL)
MagDec:	8.72°	FB: 47963.343mT	Gravity FB: 986.634m/s² (9.80665 m/s²)	Lat: N 33 14 16.80	Northings: 450864.347US	Scale Fact:	0.888888	Plan:	Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H	ST01 MWD 05-21867	

Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VBEC	N(+)/S(-)	E(+)/W(-)
SHE (330° FNL, 370° FNL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Section Line Crossing (321° FNL)	16787.00	91.06	182.00	12342.01	4761.79	-4762.00	-18.24
Last Survey	21924.00	89.89	179.38	12387.20	8897.58	-8897.86	16.86
T0, P1B (101° FSL, 328° FNL)	21987.00	89.85	179.00	12387.45	8940.57	-8940.86	17.46



CONTROLLED	
Drawn by	_____
Checked by	_____
Approved by	_____
Date	_____

