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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	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex	Vertical Section Azimuth:	179.645 ° (Grid North)
Field:	NM Lea County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Dos Equis 11-14 Federal Com 4H / Cimarex Dos Equis 11-14 Federal Com 4H	TVD Reference Datum:	RKB
Well:	Cimarex Dos Equis 11-14 Federal Com 4H	TVD Reference Elevation:	3657.600 ft above MSL
Borehole:	ST01	Seabed / Ground Elevation:	3631.600 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	6.728 °
Survey Name:	Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0ft-21967	Total Gravity Field Strength:	998.4343mgn (9.80665 Based)
Survey Date:	January 18, 2019	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	239.653 ° / 10054.432 ft / 8.631 / 0.813	Total Magnetic Field Strength:	47948.343 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.920 °
Location Lat / Long:	N 32° 14' 16.59613", W 103° 39' 9.83101"	Declination Date:	February 21, 2019
Location Grid N/E Y/X:	N 450984.240 ftUS, E 751763.040 ftUS	Magnetic Declination Model:	HDGM 2019
CRS Grid Convergence Angle:	0.3631 °	North Reference:	Grid North
Grid Scale Factor:	0.9999598	Grid Convergence Used:	0.3631 °
Version / Patch:	2.10.753.0	Total Corr Mag North->Grid North:	6.3647 °
		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 ° ' ")	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	450984.24	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	450984.36	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	450984.10	751760.74	N 32 14 16.60	W 103 39 9.98	266.58	2.30
	483.00	0.49	245.09	482.99	0.48	-0.48	-3.00	0.02	450983.76	751760.04	N 32 14 16.59	W 103 39 9.97	260.93	3.03
	573.00	0.81	252.53	572.98	0.78	-0.78	-3.80	0.15	450983.46	751759.24	N 32 14 16.59	W 103 39 9.98	258.35	3.88
	663.00	0.74	243.20	662.98	1.16	-1.19	-4.78	0.19	450983.05	751758.26	N 32 14 16.59	W 103 39 9.99	256.01	4.92
	753.00	0.83	245.60	752.97	1.68	-1.72	-5.89	0.11	450982.52	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	450981.88	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	450981.17	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	450980.34	751753.72	N 32 14 16.58	W 103 39 10.04	247.29	10.11
	1142.00	1.02	231.54	1141.92	5.08	-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	6.95	-7.03	-13.06	0.09	450957.21	751749.98	N 32 14 16.53	W 103 39 10.08	241.71	14.83
	1402.00	0.91	226.90	1401.88	8.01	-8.08	-14.14	0.06	450956.15	751748.90	N 32 14 16.52	W 103 39 10.10	240.21	16.30
	1497.00	1.11	230.98	1496.87	9.08	-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	238.93	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	238.64	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	238.48	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	238.26	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	238.25	30.53
	2253.00	0.15	276.89	2252.74	17.19	-17.35	-26.17	0.86	450946.89	751736.87	N 32 14 16.43	W 103 39 10.24	238.48	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	238.61	31.37
	2442.00	0.20	79.48	2441.74	17.00	-17.16	-25.93	0.10	450947.08	751737.11	N 32 14 16.43	W 103 39 10.23	238.51	31.09
	2536.00	0.40	89.01	2535.74	16.98	-17.12	-25.44	0.22	450947.12	751737.60	N 32 14 16.43	W 103 39 10.23	238.06	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	90.28	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
	3198.00	1.26	93.86	3197.68	17.57	-17.67	-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	-17.98	-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	17.92	-17.98	-9.91	0.64	450946.28	751753.13	N 32 14 16.42	W 103 39 10.05	208.87	20.53
	3576.00	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	0.53	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	-6.38	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	-4.61	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	21.69
	4428.00	1.59	156.28	4427.43	24.11	-24.09	2.90	0.78	450940.15	751765.94	N 32 14 16.36	W 103 39 9.90	173.13	24.27
	4522.00	2.38	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	158.61	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	187.58	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	170.65	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	5467.18	42.27	-42.28	-1.60	0.18	450921.96	751761.44	N 32 14 16.18	W 103 39 9.95	182.18	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	240.18	5845.10	45.93	-45.97	-7.11	0.02	450918.27	751755.93	N 32 14 16.14	W 103 39 10.02	188.78	46.52
	6036.00	0.97	236.07	6035.08	47.64	-47.71	-9.89	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	450914.66	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	242.68	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	53.85
	6509.00	0.99	242.28	6508.00	51.97	-52.08	-17.31	0.13	450912.18	751745.73	N 32 14 16.08	W 103 39 10.14	198.39	54.89
	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	56.05
	6698.00	0.97	237.45	6696.97	53.53	-53.65	-20.08	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	62.28
	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	220.65	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	203.68	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	203.68	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	308.97	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	-26.98	0.14	450908.77	751736.06	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	-29.00	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	0.58	299.13	8493.88	53.10	-53.29	-31.18	0.25	450910.95	751731.89	N 32 14 16.07	W 103 39 10.30	210.31	61.73
	8589.00	0.62	298.43	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	51.98	-52.17	-34.35	0.17	450912.07	751728.69	N 32 14 16.08	W 103 39 10.33	213.36	62.47

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (NAD * ' ")	Longitude (EAW * ' ")	Closure Azimuth (°)	Closure (ft)
	8873 00	0 97	280 26	8871 84	51 71	-51 94	-35 82	0 13	450917 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 38	-51 59	-37 53	0 17	450912 85	751725 51	N 32 14 16 09	W 103 39 10 37	218 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 08	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 13	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
	9629 00	1 84	194 03	9627 62	58 69	-58 99	-48 55	0 48	450905 26	751714 49	N 32 14 16 02	W 103 39 10 50	219 48	76 40
	9724 00	0 58	212 59	9722 60	60 55	-60 85	-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 85	-60 98	-48 93	0 62	450903 28	751714 14	N 32 14 16 00	W 103 39 10 50	218 74	78 15
	10006 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	48 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
	10196 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 88	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 98	74 74
	10576 00	0 68	32 51	10574 58	57 40	-57 68	-45 09	0 21	450906 58	751717 95	N 32 14 16 03	W 103 39 10 46	218 01	73 22
	10765 00	0 42	35 83	10763 57	56 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	218 31	11141 55	56 60	-56 88	-46 36	0 26	450907 36	751716 68	N 32 14 16 04	W 103 39 10 47	219 18	73 39
	11238 00	0 60	218 92	11236 55	57 43	-57 72	-47 01	0 08	450906 52	751716 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 65	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
	11616 00	2 00	213 69	11614 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 18	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 89	11823 25	69 96	-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 84	101 18
	11951 00	18 93	170 85	11948 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	450861 33	751707 97	N 32 14 15 58	W 103 39 10 58	208 15	116 73
	12014 00	28 38	176 61	12004 50	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 56	8 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	196 94	175 18
	12155 00	42 15	175 47	12119 69	197 24	-197 55	-48 98	10 37	450766 70	751714 06	N 32 14 14 65	W 103 39 10 52	193 92	203 53
	12203 00	46 86	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 88
	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 68	345 43
	12392 00	61 10	179 36	12262 97	384 34	-384 59	-39 41	5 41	450579 67	751723 63	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 58	-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 58	872 93
	12988 00	90 10	181 27	12355 82	965 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 18	-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	-58 75	1 49	449713 17	751708 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 08	-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 08	12353 86	1534 58	-1534 89	-45 78	1 74	449429 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	89 32	173 70	12356 98	1724 13	-1724 37	-33 78	4 58	449239 94	751729 26	N 32 13 59 54	W 103 39 10 45	181 12	1724 70
	13842 00	91 10	178 01	12351 10	1818 85	-1819 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	12350 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	12351 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 68
	14127 00	90 89	180 67	12351 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	12348 89	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
	14318 00	91 17	181 59	12346 01	2292 27	-2292 43	-18 45	1 21	448671 91	751744 50	N 32 13 53 92	W 103 39 10 31	180 46	2292 50
	14411 00	93 30	180 76	12342 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	12338 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 98	12345 68	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 18	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 78	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 36	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 68	183 51	12342 91	3144 64	-3144 87	-26 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
	15360 00	91 10	178 80	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	178 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 83	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 08	-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 67	12345 47	3999 04	-3999 16	-6 37	2 23	446965 25	751756 67	N 32 13 37 03	W 103 39 10 30	180 09	3999 16
	16119 00	90 34	180 20	12345 78	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 16	4189 03	-4189 15	-6 65	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 29	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 98	-4379 11	-10 57	1 23	446585 31	751752 47	N 32 13 33 27	W 103 39 10 38	180 14	4379 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 98	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	446205 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 08*	*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 63	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 69	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 56	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 88	0 74	445351 68	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 78	-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	176 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 78	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 64	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 42	-6087 50	5 65	1 24	444877 00	751768 69	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 89	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 78	12345 25	6562 21	-6562 32	3 77	1 19	444402 20	751768 81	N 32 13 11 68	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 78	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	751768 36	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 61	0 99	443737.36	751768 65	N 32 13 5 09	W 103 39 10 40	179 95	7227 18

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)
	19343 00	89 42	177 48	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 28	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 74	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 78	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 48	0 34	443078 58	751775 50	N 32 12 58 57	W 103 39 10 37	179 91	7886 00
	20007 00	89 89	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 66	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 81	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 66	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
	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
	21148 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 85	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 65	15 88	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 56	-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 56	-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	21924 00	89 69	179 38	12367 20	9897 56	-9897 66	16 86	2 98	441067 00	751779 90	N 32 12 38 68	W 103 39 10 46	179 90	9897 68
TD, PTB [101' FBL 328' FWL]	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 0ft-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 0ft-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