Schlumberger

CIMAREX

Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft (Surcon Corrected) Survey Geodetic Report

(Def Survey)

HOBBS OCD
SEP 05 2019
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Report Date:	April 30, 2019 - 01:14 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.670 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Dos Equis 13 Federal Com #9H / Cimarex Dos Equis 13 Federal Com #9H	**TVD Reference Datum:**	RKB
Well:	Cimarex Dos Equis 13 Federal Com #9H	**TVD Reference Elevation:**	3648.200 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3622.200 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.696 °
Survey Name:	Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft (Surcon Corrected)	**Total Gravity Field Strength:**	998.4331mgn (9.80665 Based)
Survey Date:	April 09, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	193.085 ° / 5608.960 ft / 6.189 / 0.507	**Total Magnetic Field Strength:**	47917.062 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.891 °
Location Lat / Long:	N 32° 13' 27.30138", W 103° 37' 56.99236"	**Declination Date:**	April 22, 2019
Location Grid N/E Y/X:	N 446022.910 ftUS, E 758060.050 ftUS	**Magnetic Declination Model:**	HDGM 2019
CRS Grid Convergence Angle:	0.3737 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996288	**Grid Convergence Used:**	0.3737 °
Version / Patch:	2.10.760.0	**Total Corr Mag North->Grid North:**	6.3221 °
		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 [240' FNL, 1350' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99	0.00	0.00
	204.00	0.13	128.36	204.00	0.14	-0.14	0.18	0.06	446022.77	758060.23	N 32 13 27.30	W 103 37 56.99	128.36	0.23
	300.00	0.22	152.99	300.00	0.38	-0.38	0.35	0.12	446022.53	758060.40	N 32 13 27.30	W 103 37 56.99	136.96	0.51
	391.00	0.24	132.87	391.00	0.66	-0.66	0.57	0.09	446022.25	758060.62	N 32 13 27.29	W 103 37 56.99	139.24	0.87
	481.00	0.35	131.17	481.00	0.98	-0.97	0.91	0.12	446021.94	758060.96	N 32 13 27.29	W 103 37 56.98	136.68	1.33
	572.00	0.22	139.74	572.00	1.29	-1.29	1.24	0.15	446021.62	758061.29	N 32 13 27.29	W 103 37 56.98	136.12	1.78
	663.00	0.25	140.09	663.00	1.58	-1.57	1.48	0.03	446021.34	758061.53	N 32 13 27.29	W 103 37 56.98	136.78	2.16
	753.00	0.26	75.25	752.99	1.68	-1.67	1.80	0.30	446021.24	758061.85	N 32 13 27.28	W 103 37 56.97	132.85	2.46
	844.00	0.17	155.36	843.99	1.75	-1.74	2.06	0.31	446021.17	758062.11	N 32 13 27.28	W 103 37 56.97	130.24	2.69
	938.00	0.15	46.65	937.99	1.80	-1.78	2.20	0.28	446021.13	758062.25	N 32 13 27.28	W 103 37 56.97	128.97	2.83
	1032.00	0.11	60.46	1031.99	1.67	-1.65	2.37	0.05	446021.26	758062.42	N 32 13 27.28	W 103 37 56.96	124.89	2.89
	1128.00	0.32	100.82	1127.99	1.67	-1.66	2.72	0.26	446021.25	758062.77	N 32 13 27.28	W 103 37 56.96	121.42	3.18
	1223.00	0.48	54.66	1222.99	1.50	-1.48	3.30	0.36	446021.43	758063.35	N 32 13 27.29	W 103 37 56.95	114.13	3.62
	1317.00	0.44	66.67	1316.99	1.13	-1.11	3.95	0.11	446021.80	758064.00	N 32 13 27.29	W 103 37 56.95	105.65	4.11
	1412.00	0.66	52.62	1411.98	0.66	-0.63	4.72	0.27	446022.28	758064.77	N 32 13 27.29	W 103 37 56.94	97.61	4.77
	1506.00	0.59	63.18	1505.98	0.12	-0.08	5.59	0.14	446022.83	758065.63	N 32 13 27.30	W 103 37 56.93	90.86	5.59
	1600.00	0.34	71.40	1599.97	-0.19	0.22	6.28	0.27	446023.13	758066.33	N 32 13 27.30	W 103 37 56.92	87.96	6.29
	1695.00	0.44	66.54	1694.97	-0.42	0.46	6.88	0.11	446023.37	758066.93	N 32 13 27.31	W 103 37 56.91	86.19	6.90
	1789.00	0.77	70.32	1788.97	-0.77	0.81	7.81	0.35	446023.72	758067.86	N 32 13 27.31	W 103 37 56.90	84.04	7.85
	1883.00	0.54	55.15	1882.96	-1.23	1.28	8.77	0.30	446024.19	758068.82	N 32 13 27.31	W 103 37 56.89	81.69	8.86
	1978.00	1.00	63.93	1977.95	-1.84	1.90	9.88	0.50	446024.81	758069.93	N 32 13 27.32	W 103 37 56.88	79.11	10.06
	2072.00	1.07	59.67	2071.94	-2.64	2.70	11.37	0.11	446025.61	758071.42	N 32 13 27.33	W 103 37 56.86	76.62	11.69
	2166.00	0.52	43.68	2165.93	-3.38	3.46	12.43	0.63	446026.37	758072.48	N 32 13 27.33	W 103 37 56.85	74.46	12.90
	2261.00	0.15	309.53	2260.93	-3.77	3.85	12.63	0.58	446026.76	758072.68	N 32 13 27.34	W 103 37 56.85	73.06	13.20
	2355.00	0.34	26.49	2354.93	-4.10	4.17	12.66	0.36	446027.08	758072.71	N 32 13 27.34	W 103 37 56.84	71.74	13.33
	2450.00	0.15	316.39	2449.92	-4.44	4.52	12.70	0.34	446027.43	758072.75	N 32 13 27.35	W 103 37 56.84	70.42	13.48
	2544.00	0.28	148.96	2543.92	-4.34	4.41	12.73	0.45	446027.32	758072.78	N 32 13 27.34	W 103 37 56.84	70.90	13.47
	2638.00	0.12	37.30	2637.92	-4.22	4.29	12.91	0.36	446027.20	758072.96	N 32 13 27.34	W 103 37 56.84	71.61	13.60
	2733.00	0.17	198.10	2732.92	-4.16	4.24	12.93	0.30	446027.15	758072.97	N 32 13 27.34	W 103 37 56.84	71.85	13.60

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)
	2827.00	0.38	182.24	2826.92	-3.72	3.79	12.87	0.24	446026.70	758072.92	N 32 13 27.34	W 103 37 56.84	73.58	13.42
	2921.00	0.56	160.95	2920.92	-2.97	3.05	13.01	0.26	446025.96	758073.06	N 32 13 27.33	W 103 37 56.84	76.82	13.36
	3016.00	0.74	151.56	3015.91	-1.99	2.07	13.45	0.22	446024.98	758073.50	N 32 13 27.32	W 103 37 56.84	81.26	13.61
	3110.00	0.41	158.46	3109.91	-1.14	1.22	13.86	0.36	446024.13	758073.91	N 32 13 27.31	W 103 37 56.83	84.96	13.92
	3204.00	0.90	154.57	3203.90	-0.16	0.24	14.30	0.52	446023.15	758074.35	N 32 13 27.30	W 103 37 56.83	89.03	14.31
	3299.00	0.90	172.78	3298.89	1.26	-1.17	14.72	0.30	446021.74	758074.77	N 32 13 27.29	W 103 37 56.82	94.55	14.76
	3393.00	1.05	184.93	3392.88	2.85	-2.76	14.74	0.27	446020.15	758074.79	N 32 13 27.27	W 103 37 56.82	100.62	14.99
	3487.00	1.49	198.23	3486.85	4.86	-4.78	14.28	0.56	446018.13	758074.33	N 32 13 27.25	W 103 37 56.83	108.51	15.06
	3582.00	1.12	188.91	3581.83	6.95	-6.87	13.75	0.45	446016.04	758073.80	N 32 13 27.23	W 103 37 56.83	116.55	15.37
	3676.00	0.94	221.35	3675.82	8.43	-8.36	13.10	0.64	446014.55	758073.15	N 32 13 27.22	W 103 37 56.84	122.54	15.54
	3770.00	0.91	211.15	3769.80	9.65	-9.58	12.20	0.18	446013.33	758072.25	N 32 13 27.21	W 103 37 56.85	128.12	15.51
	3864.00	1.00	194.19	3863.79	11.08	-11.01	11.62	0.31	446011.90	758071.67	N 32 13 27.19	W 103 37 56.86	133.46	16.00
	3958.00	0.81	193.29	3957.78	12.52	-12.45	11.26	0.20	446010.46	758071.31	N 32 13 27.18	W 103 37 56.86	137.87	16.79
	4053.00	0.11	275.25	4052.78	13.16	-13.10	11.02	0.84	446009.81	758071.07	N 32 13 27.17	W 103 37 56.87	139.93	17.11
	4147.00	0.32	24.09	4146.77	12.91	-12.85	11.03	0.39	446010.06	758071.08	N 32 13 27.17	W 103 37 56.86	139.34	16.94
	4241.00	0.41	125.59	4240.77	12.87	-12.80	11.42	0.60	446010.11	758071.46	N 32 13 27.17	W 103 37 56.86	138.28	17.15
	4336.00	1.20	108.65	4335.76	13.39	-13.32	12.63	0.86	446009.59	758072.68	N 32 13 27.17	W 103 37 56.85	136.52	18.36
	4430.00	1.25	111.39	4429.74	14.09	-14.01	14.52	0.08	446008.90	758074.57	N 32 13 27.16	W 103 37 56.82	133.97	20.18
	4524.00	1.26	138.28	4523.72	15.25	-15.15	16.16	0.62	446007.76	758076.21	N 32 13 27.15	W 103 37 56.81	133.16	22.16
	4618.00	1.15	135.17	4617.70	16.70	-16.60	17.52	0.14	446006.32	758077.57	N 32 13 27.14	W 103 37 56.79	133.45	24.13
	4713.00	1.25	122.08	4712.68	17.93	-17.82	19.07	0.31	446005.09	758079.12	N 32 13 27.12	W 103 37 56.77	133.07	26.10
	4807.00	1.05	145.31	4806.66	19.19	-19.07	20.43	0.53	446003.84	758080.47	N 32 13 27.11	W 103 37 56.76	133.04	27.95
	4828.00	0.65	139.58	4827.66	19.44	-19.32	20.61	1.94	446003.59	758080.66	N 32 13 27.11	W 103 37 56.75	133.15	28.25
	4986.00	0.95	150.29	4985.64	21.27	-21.14	21.84	0.21	446001.77	758081.89	N 32 13 27.09	W 103 37 56.74	134.07	30.40
	5080.00	1.65	98.29	5079.62	22.15	-22.02	23.57	1.38	446000.90	758083.62	N 32 13 27.08	W 103 37 56.72	133.05	32.25
	5174.00	3.14	88.33	5173.54	22.29	-22.14	27.48	1.64	446000.78	758087.53	N 32 13 27.08	W 103 37 56.67	128.85	35.29
	5269.00	4.44	89.85	5268.33	22.24	-22.05	33.76	1.37	446000.86	758093.81	N 32 13 27.08	W 103 37 56.60	123.15	40.32
	5363.00	5.79	85.12	5361.95	21.88	-21.64	42.12	1.50	446001.27	758102.17	N 32 13 27.08	W 103 37 56.50	117.19	47.35
	5457.00	7.00	80.38	5455.36	20.58	-20.28	52.49	1.40	446002.63	758112.54	N 32 13 27.10	W 103 37 56.38	111.12	56.27
	5551.00	8.10	76.77	5548.55	18.18	-17.80	64.59	1.27	446005.11	758124.64	N 32 13 27.12	W 103 37 56.24	105.41	67.00
	5645.00	9.00	85.71	5641.51	16.19	-15.74	78.37	1.70	446007.17	758138.41	N 32 13 27.14	W 103 37 56.08	101.36	79.93
	5740.00	10.60	84.41	5735.12	14.87	-14.33	94.48	1.70	446008.58	758154.52	N 32 13 27.15	W 103 37 55.89	98.63	95.56
	5834.00	11.01	84.21	5827.45	13.23	-12.58	112.01	0.44	446010.33	758172.06	N 32 13 27.17	W 103 37 55.69	96.41	112.71
	5928.00	10.65	82.67	5919.78	11.32	-10.57	129.56	0.49	446012.34	758189.60	N 32 13 27.19	W 103 37 55.49	94.66	129.99
	6023.00	10.58	82.81	6013.15	9.20	-8.36	146.91	0.08	446014.55	758206.96	N 32 13 27.21	W 103 37 55.28	93.26	147.15
	6117.00	10.14	81.82	6105.62	7.04	-6.10	163.67	0.50	446016.81	758223.71	N 32 13 27.23	W 103 37 55.09	92.13	163.78
	6212.00	10.14	81.58	6199.13	4.72	-3.69	180.22	0.04	446019.22	758240.26	N 32 13 27.25	W 103 37 54.89	91.17	180.25
	6306.00	9.93	81.13	6291.70	2.36	-1.22	196.41	0.24	446021.69	758256.45	N 32 13 27.28	W 103 37 54.71	90.36	196.41
	6400.00	10.81	87.09	6384.16	0.76	0.47	213.22	1.47	446023.38	758273.26	N 32 13 27.29	W 103 37 54.51	89.87	213.22
	6495.00	10.65	88.30	6477.50	0.14	1.19	230.89	0.29	446024.10	758290.94	N 32 13 27.30	W 103 37 54.30	89.71	230.90
	6589.00	10.20	86.76	6569.95	-0.49	1.91	247.89	0.56	446024.82	758307.93	N 32 13 27.30	W 103 37 54.11	89.56	247.89
	6683.00	9.83	87.63	6662.52	-1.19	2.72	264.21	0.43	446025.63	758324.25	N 32 13 27.31	W 103 37 53.92	89.41	264.23
	6777.00	9.63	87.43	6755.17	-1.79	3.40	280.09	0.22	446026.31	758340.12	N 32 13 27.32	W 103 37 53.73	89.30	280.11
	6872.00	9.38	87.78	6848.86	-2.35	4.06	295.74	0.29	446026.97	758355.78	N 32 13 27.32	W 103 37 53.55	89.21	295.77
Hardline Crossing [240' FNL, 1650' FWL]	*6901.95*	*9.38*	*88.11*	*6878.41*	*-2.50*	*4.23*	*300.61*	*0.19*	*446027.14*	*758360.65*	*N 32 13 27.32*	*W 103 37 53.49*	*89.19*	*300.64*
	6966.00	9.41	88.82	6941.61	-2.72	4.51	311.06	0.19	446027.42	758371.10	N 32 13 27.33	W 103 37 53.37	89.17	311.10
	7060.00	9.45	89.14	7034.34	-2.90	4.78	326.46	0.07	446027.69	758386.50	N 32 13 27.33	W 103 37 53.19	89.16	326.50
	7154.00	9.52	89.89	7127.05	-2.95	4.91	341.95	0.15	446027.82	758401.99	N 32 13 27.33	W 103 37 53.01	89.18	341.99
	7249.00	9.57	90.32	7220.74	-2.83	4.89	357.70	0.09	446027.80	758417.74	N 32 13 27.33	W 103 37 52.83	89.22	357.74
	7343.00	9.42	91.08	7313.45	-2.55	4.70	373.21	0.21	446027.61	758433.25	N 32 13 27.32	W 103 37 52.65	89.28	373.24
	7437.00	9.42	91.22	7406.18	-2.15	4.39	388.59	0.02	446027.30	758448.63	N 32 13 27.32	W 103 37 52.47	89.35	388.62
	7531.00	9.21	91.47	7498.94	-1.71	4.03	403.80	0.23	446026.94	758463.84	N 32 13 27.32	W 103 37 52.29	89.43	403.82
	7625.00	9.18	91.50	7591.73	-1.23	3.64	418.82	0.03	446026.55	758478.85	N 32 13 27.31	W 103 37 52.12	89.50	418.83
	7719.00	8.71	91.98	7684.59	-0.70	3.20	433.43	0.51	446026.11	758493.46	N 32 13 27.31	W 103 37 51.95	89.58	433.44
	7814.00	8.30	92.20	7778.54	-0.11	2.69	447.47	0.43	446025.60	758507.50	N 32 13 27.30	W 103 37 51.78	89.66	447.48
	7908.00	8.93	91.03	7871.48	0.36	2.30	461.54	0.70	446025.21	758521.57	N 32 13 27.29	W 103 37 51.62	89.71	461.55
	8002.00	8.77	91.95	7964.36	0.82	1.92	476.00	0.23	446024.83	758536.03	N 32 13 27.29	W 103 37 51.45	89.77	476.00
	8096.00	8.77	90.06	8057.27	1.15	1.67	490.33	0.31	446024.58	758550.36	N 32 13 27.29	W 103 37 51.28	89.80	490.33
	8191.00	8.24	90.71	8151.22	1.33	1.58	504.38	0.57	446024.49	758564.41	N 32 13 27.28	W 103 37 51.12	89.82	504.38

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)
	8285.00	8.10	90.29	8244.27	1.52	1.46	517.73	0.16	446024.37	758577.76	N 32 13 27.28	W 103 37 50.97	89.84	517.74
	8379.00	6.94	92.06	8337.46	1.83	1.22	530.03	1.26	446024.13	758590.06	N 32 13 27.28	W 103 37 50.82	89.87	530.03
	8473.00	6.67	94.97	8430.79	2.57	0.55	541.15	0.47	446023.46	758601.17	N 32 13 27.27	W 103 37 50.69	89.94	541.15
	8567.00	6.26	89.36	8524.20	3.05	0.13	551.71	0.80	446023.04	758611.74	N 32 13 27.27	W 103 37 50.57	89.99	551.71
	8661.00	5.59	90.65	8617.69	3.10	0.14	561.41	0.73	446023.05	758621.44	N 32 13 27.27	W 103 37 50.46	89.99	561.41
	8755.00	5.77	80.87	8711.24	2.45	0.83	570.66	1.05	446023.74	758630.68	N 32 13 27.27	W 103 37 50.35	89.92	570.66
	8850.00	4.86	79.93	8805.83	1.04	2.30	579.33	0.96	446025.21	758639.36	N 32 13 27.29	W 103 37 50.25	89.77	579.34
	8944.00	5.88	80.22	8899.41	-0.42	3.81	588.00	1.09	446026.72	758648.03	N 32 13 27.30	W 103 37 50.15	89.63	588.01
	9038.00	5.34	81.99	8992.96	-1.80	5.24	597.07	0.60	446028.15	758657.10	N 32 13 27.31	W 103 37 50.04	89.50	597.10
	9133.00	4.31	72.57	9087.63	-3.44	6.92	604.86	1.36	446029.83	758664.88	N 32 13 27.33	W 103 37 49.95	89.34	604.90
	9227.00	3.73	80.92	9181.39	-4.94	8.46	611.25	0.88	446031.37	758671.27	N 32 13 27.35	W 103 37 49.88	89.21	611.31
	9322.00	2.88	80.03	9276.24	-5.81	9.36	616.65	0.90	446032.27	758676.68	N 32 13 27.35	W 103 37 49.81	89.13	616.72
	9416.00	1.80	88.90	9370.16	-6.23	9.80	620.45	1.21	446032.71	758680.48	N 32 13 27.36	W 103 37 49.77	89.09	620.53
	9510.00	1.61	72.97	9464.11	-6.63	10.22	623.19	0.54	446033.13	758683.22	N 32 13 27.36	W 103 37 49.74	89.06	623.27
	9604.00	1.38	55.24	9558.08	-7.65	11.25	625.38	0.55	446034.16	758685.41	N 32 13 27.37	W 103 37 49.71	88.97	625.48
	9699.00	0.73	52.41	9653.07	-8.66	12.27	626.80	0.69	446035.18	758686.83	N 32 13 27.38	W 103 37 49.70	88.88	626.92
	9793.00	0.20	35.91	9747.06	-9.15	12.77	627.37	0.58	446035.68	758687.40	N 32 13 27.39	W 103 37 49.69	88.83	627.50
	9887.00	1.39	116.71	9841.05	-8.77	12.39	628.49	1.46	446035.30	758688.51	N 32 13 27.38	W 103 37 49.68	88.87	628.61
	9981.00	2.04	112.18	9935.01	-7.61	11.24	631.06	0.71	446034.15	758691.08	N 32 13 27.37	W 103 37 49.65	88.98	631.16
	10076.00	1.59	116.90	10029.96	-6.36	10.01	633.80	0.50	446032.92	758693.82	N 32 13 27.36	W 103 37 49.61	89.10	633.88
	10170.00	1.35	128.25	10123.93	-5.07	8.73	635.83	0.40	446031.64	758695.85	N 32 13 27.35	W 103 37 49.59	89.21	635.89
	10264.00	1.14	142.46	10217.91	-3.84	7.31	637.27	0.40	446030.22	758697.29	N 32 13 27.33	W 103 37 49.57	89.34	637.31
	10358.00	1.22	149.49	10311.89	-2.03	5.70	638.35	0.18	446028.61	758698.37	N 32 13 27.32	W 103 37 49.56	89.49	638.37
	10452.00	1.30	160.80	10405.87	-0.15	3.83	639.21	0.28	446026.74	758699.23	N 32 13 27.30	W 103 37 49.55	89.66	639.22
	10534.00	1.17	156.52	10487.85	1.50	2.19	639.84	0.19	446025.10	758699.87	N 32 13 27.28	W 103 37 49.54	89.80	639.85
	10582.00	1.09	171.75	10535.84	2.40	1.29	640.11	0.65	446024.20	758700.13	N 32 13 27.27	W 103 37 49.54	89.88	640.11
KOP	*10604.00*	*2.19*	*187.52*	*10557.83*	*3.02*	*0.66*	*640.08*	*5.36*	*446023.57*	*758700.11*	*N 32 13 27.27*	*W 103 37 49.54*	*89.94*	*640.08*
	10613.00	2.66	190.13	10566.82	3.40	0.29	640.02	5.36	446023.20	758700.05	N 32 13 27.26	W 103 37 49.54	89.97	640.02
	10645.00	7.38	190.85	10598.69	6.15	-2.46	639.50	14.75	446020.45	758699.53	N 32 13 27.24	W 103 37 49.55	90.22	639.51
	10676.00	11.02	197.63	10629.29	10.92	-7.25	638.23	12.23	446015.67	758698.26	N 32 13 27.19	W 103 37 49.56	90.65	638.27
	10723.00	15.09	197.37	10675.06	21.03	-17.37	635.04	8.66	446005.54	758695.07	N 32 13 27.09	W 103 37 49.60	91.57	635.28
	10770.00	21.67	191.14	10719.65	35.38	-31.74	631.54	14.59	445991.17	758691.56	N 32 13 26.95	W 103 37 49.64	92.88	632.33
	10817.00	26.66	181.36	10762.53	54.44	-50.81	629.61	13.58	445972.10	758689.63	N 32 13 26.76	W 103 37 49.67	94.61	631.65
	10865.00	33.39	173.37	10804.08	78.37	-74.74	630.88	16.28	445948.18	758690.90	N 32 13 26.52	W 103 37 49.65	96.76	635.29
	10912.00	42.24	175.40	10841.18	107.04	-103.39	633.64	19.01	445919.53	758693.67	N 32 13 26.24	W 103 37 49.62	99.27	642.02
	10959.00	48.77	179.21	10874.10	140.51	-136.85	635.16	15.04	445886.07	758695.18	N 32 13 25.91	W 103 37 49.61	102.16	649.73
	11006.00	53.11	180.94	10903.71	176.99	-173.33	635.09	9.67	445849.58	758695.12	N 32 13 25.55	W 103 37 49.61	105.27	658.32
	11053.00	58.34	180.81	10930.17	215.80	-212.15	634.50	11.13	445810.77	758694.53	N 32 13 25.16	W 103 37 49.62	108.49	669.03
	11100.00	63.92	179.01	10952.86	256.94	-253.29	634.58	12.34	445769.63	758694.61	N 32 13 24.75	W 103 37 49.62	111.76	683.27
	11148.00	68.50	179.07	10972.22	300.85	-297.20	635.32	9.54	445725.72	758695.34	N 32 13 24.32	W 103 37 49.62	115.07	701.39
	11195.00	72.91	179.02	10987.74	345.20	-341.54	636.06	9.38	445681.38	758696.08	N 32 13 23.88	W 103 37 49.61	118.23	721.95
	11242.00	76.70	178.66	11000.06	390.54	-386.88	636.98	8.10	445636.05	758697.00	N 32 13 23.43	W 103 37 49.61	121.27	745.26
	11289.00	78.99	179.11	11009.96	436.48	-432.81	637.87	4.96	445590.11	758697.89	N 32 13 22.98	W 103 37 49.60	124.16	770.85
	11309.00	79.69	179.07	11013.66	456.13	-452.47	638.18	3.51	445570.46	758698.21	N 32 13 22.78	W 103 37 49.60	125.34	782.30
	11356.00	81.68	181.14	11021.26	502.51	-498.84	638.09	6.07	445524.09	758698.12	N 32 13 22.32	W 103 37 49.60	128.02	809.94
	11404.00	85.46	180.97	11026.64	550.18	-546.52	637.22	7.88	445476.41	758697.24	N 32 13 21.85	W 103 37 49.62	130.62	839.48
	11451.00	87.87	180.19	11029.37	597.09	-593.44	636.74	5.39	445429.50	758696.77	N 32 13 21.39	W 103 37 49.63	132.98	870.41
	11498.00	88.43	180.07	11030.89	644.07	-640.41	636.64	1.22	445382.52	758696.66	N 32 13 20.92	W 103 37 49.63	135.17	903.01
	11592.00	88.71	180.48	11033.23	738.03	-734.38	636.18	0.53	445288.56	758696.21	N 32 13 19.99	W 103 37 49.64	139.10	971.62
	11687.00	89.61	180.37	11034.63	833.01	-829.37	635.48	0.95	445193.58	758695.50	N 32 13 19.05	W 103 37 49.66	142.54	1044.84
	11781.00	90.73	179.36	11034.35	927.01	-923.36	635.70	1.60	445099.58	758695.73	N 32 13 18.12	W 103 37 49.66	145.45	1121.03
	11875.00	91.23	179.12	11032.74	1020.99	-1017.34	636.95	0.59	445005.61	758696.97	N 32 13 17.19	W 103 37 49.66	147.95	1200.29
	11969.00	91.34	178.57	11030.63	1114.96	-1111.30	638.84	0.60	444911.66	758698.87	N 32 13 16.26	W 103 37 49.64	150.11	1281.84
	12063.00	87.93	179.30	11031.23	1208.93	-1205.27	640.59	3.71	444817.69	758700.61	N 32 13 15.33	W 103 37 49.63	152.01	1364.92
	12158.00	89.05	178.87	11033.73	1303.90	-1300.22	642.11	1.26	444722.74	758702.13	N 32 13 14.39	W 103 37 49.62	153.72	1450.13
	12252.00	90.39	179.28	11034.19	1397.89	-1394.20	643.62	1.49	444628.76	758703.65	N 32 13 13.46	W 103 37 49.61	155.22	1535.59
	12346.00	89.10	178.83	11034.61	1491.88	-1488.19	645.17	1.45	444534.78	758705.20	N 32 13 12.53	W 103 37 49.60	156.56	1622.02
	12440.00	89.89	178.94	11035.44	1585.86	-1582.16	647.00	0.85	444440.81	758707.03	N 32 13 11.60	W 103 37 49.58	157.76	1709.34
	12535.00	88.82	178.79	11036.51	1680.85	-1677.14	648.88	1.14	444345.84	758708.91	N 32 13 10.66	W 103 37 49.57	158.85	1798.29
	12629.00	89.94	179.12	11037.53	1774.83	-1771.12	650.60	1.24	444251.86	758710.62	N 32 13 9.73	W 103 37 49.55	159.83	1886.83
	12723.00	89.72	178.62	11037.81	1868.82	-1865.10	652.45	0.58	444157.89	758712.48	N 32 13 8.80	W 103 37 49.54	160.72	1975.92
	12817.00	88.04	178.24	11039.64	1962.78	-1959.04	655.03	1.83	444063.95	758715.05	N 32 13 7.87	W 103 37 49.52	161.51	2065.65

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)
	12911.00	86.92	178.09	11043.78	2056.66	-2052.90	658.03	1.20	443970.09	758718.06	N 32 13 6.95	W 103 37 49.49	162.23	2155.78
	13005.00	87.53	179.29	11048.33	2150.53	-2146.76	660.18	1.43	443876.23	758720.20	N 32 13 6.02	W 103 37 49.47	162.91	2245.98
	13099.00	87.70	180.48	11052.24	2244.45	-2240.68	660.37	1.28	443782.32	758720.39	N 32 13 5.09	W 103 37 49.48	163.58	2335.96
	13194.00	89.16	181.62	11054.84	2339.38	-2335.62	658.63	1.95	443687.38	758718.65	N 32 13 4.15	W 103 37 49.50	164.25	2426.71
	13288.00	88.88	182.29	11056.45	2433.29	-2429.55	655.42	0.77	443593.45	758715.45	N 32 13 3.22	W 103 37 49.55	164.90	2516.41
	13382.00	89.66	183.34	11057.65	2527.14	-2523.43	650.81	1.39	443499.58	758710.83	N 32 13 2.29	W 103 37 49.61	165.54	2606.00
	13476.00	90.90	183.53	11057.19	2620.93	-2617.26	645.17	1.33	443405.75	758705.20	N 32 13 1.36	W 103 37 49.68	166.15	2695.61
	13571.00	91.01	184.09	11055.61	2715.67	-2712.04	638.86	0.60	443310.98	758698.89	N 32 13 0.42	W 103 37 49.76	166.74	2786.27
	13665.00	91.01	182.30	11053.95	2809.47	-2805.87	633.62	1.90	443217.15	758693.65	N 32 12 59.50	W 103 37 49.83	167.27	2876.52
	13760.00	90.45	180.81	11052.74	2904.41	-2900.83	631.05	1.68	443122.20	758691.07	N 32 12 58.56	W 103 37 49.87	167.73	2968.67
	13854.00	88.04	178.06	11053.98	2998.39	-2994.80	631.97	3.89	443028.23	758692.00	N 32 12 57.63	W 103 37 49.86	168.08	3060.75
	13948.00	88.38	177.46	11056.91	3092.29	-3088.68	635.64	0.73	442934.35	758695.67	N 32 12 56.70	W 103 37 49.83	168.37	3153.41
	14043.00	88.94	177.08	11059.13	3187.18	-3183.54	640.17	0.71	442839.49	758700.19	N 32 12 55.76	W 103 37 49.78	168.63	3247.27
	14137.00	88.88	176.60	11060.92	3281.05	-3277.38	645.35	0.51	442745.65	758705.37	N 32 12 54.83	W 103 37 49.73	168.86	3340.32
	14231.00	88.68	176.06	11062.76	3374.87	-3371.17	651.36	0.57	442651.87	758711.39	N 32 12 53.90	W 103 37 49.67	169.06	3433.52
	14326.00	88.88	177.27	11064.62	3469.72	-3465.99	656.89	1.27	442557.05	758716.91	N 32 12 52.96	W 103 37 49.61	169.27	3527.69
	14420.00	89.27	178.57	11066.13	3563.66	-3559.92	660.30	1.44	442463.13	758720.33	N 32 12 52.03	W 103 37 49.58	169.49	3620.64
	14515.00	89.22	178.80	11067.39	3658.64	-3654.88	662.48	0.25	442368.17	758722.51	N 32 12 51.09	W 103 37 49.56	169.73	3714.44
	14609.00	90.06	180.57	11067.98	3752.63	-3748.87	663.00	2.08	442274.18	758723.02	N 32 12 50.16	W 103 37 49.56	169.97	3807.05
	14703.00	90.39	180.84	11067.61	3846.61	-3842.87	661.84	0.45	442180.19	758721.87	N 32 12 49.23	W 103 37 49.58	170.23	3899.44
	14797.00	90.73	180.82	11066.69	3940.59	-3936.85	660.48	0.36	442086.21	758720.50	N 32 12 48.30	W 103 37 49.60	170.48	3991.87
	14892.00	90.84	180.66	11065.39	4035.57	-4031.84	659.25	0.20	441991.23	758719.28	N 32 12 47.36	W 103 37 49.63	170.71	4085.38
	14988.00	91.29	180.89	11063.64	4129.53	-4125.81	657.98	0.54	441897.26	758718.01	N 32 12 46.43	W 103 37 49.65	170.94	4177.95
	15080.00	91.74	181.29	11061.16	4223.47	-4219.76	656.19	0.64	441803.32	758716.22	N 32 12 45.50	W 103 37 49.68	171.16	4270.48
	15174.00	92.46	181.23	11057.71	4317.37	-4313.67	654.13	0.77	441709.41	758714.15	N 32 12 44.58	W 103 37 49.71	171.38	4362.99
	15268.00	92.19	181.10	11053.90	4411.26	-4407.58	652.22	0.32	441615.51	758712.24	N 32 12 43.65	W 103 37 49.74	171.58	4455.57
	15362.00	90.17	180.38	11051.96	4505.22	-4501.54	651.01	2.28	441521.54	758711.03	N 32 12 42.72	W 103 37 49.76	171.77	4548.37
	15457.00	90.56	180.71	11051.36	4600.20	-4596.54	650.10	0.54	441426.55	758710.13	N 32 12 41.78	W 103 37 49.77	171.95	4642.28
	15551.00	90.28	180.94	11050.67	4694.18	-4690.52	648.75	0.39	441332.57	758708.77	N 32 12 40.85	W 103 37 49.80	172.13	4735.18
	15645.00	89.22	180.72	11051.08	4788.16	-4784.51	647.39	1.15	441238.59	758707.41	N 32 12 39.92	W 103 37 49.82	172.29	4828.11
Last Survey	15737.00	89.10	180.91	11052.43	4880.13	-4876.49	646.08	0.24	441146.61	758706.10	N 32 12 39.01	W 103 37 49.84	172.45	4919.11
TD, PTB [101' FSL, 1956' FWL]	15788.00	89.10	180.91	11053.23	4931.11	-4927.48	645.27	0.00	441095.62	758705.29	N 32 12 38.50	W 103 37 49.86	172.54	4969.55

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	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft
	1	26.000	26.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft
	1	26.000	1217.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Dos Equis 13 Federal
	1	1217.000	4919.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Dos Equis 13 Federal
	1	4919.000	15788.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Dos Equis 13 Federal

Schlumberger **Cimarex** Final PvA CIMAREX

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Dos Equis 13 Federal Com #9H	NM Lea County (NAD 83)	Cimarex Dos Equis 13 Federal Com #9H

Gravity & Magnetic Parameters						Surface Location						Miscellaneous			
Model:	HDGM 2019	Dip:	59.891°	Date:	23-Apr-2019	Lat:	N 32 13 27.30	Northing:	446022.91[US]	Grid Conv:	0.3737°	Slot:	Cimarex Dos Equis 13 Federal Com #9H	TVD Ref:	RKB(3648.2ft above MSL)
MagDec:	6.696°	FS:	47917.062nT	Gravity FS:	998.433mgn (9.80665 Based)	Lon:	W 103 37 58.99	Easting:	753080.05[US]	Scale Fact:	0.99992259	Plan:	Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft (Surcon Corrected)		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [240' FNL, 1350' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hardline Crossing [240' FNL, 1650' FWL]	6901.95	9.38	88.11	6878.41	-2.50	4.23	300.61	0.19
KOP	10604.00	2.19	187.52	10557.83	3.02	0.58	640.08	5.36
Last Survey	15737.00	89.10	180.91	11052.43	4580.13	-4876.49	646.08	0.24
TD, PTB [101' FSL, 1656' FWL]	15788.00	89.10	180.91	11053.23	4631.11	-4927.48	645.27	0.00

CONTROLLED