



Final Surveys - Cimarex Vaca Draw 20-17 Federal #8H MWD 0ft-22328ft
(Surcon Corrected) Survey Geodetic Report
(Def Survey)



Report Date: March 11, 2019 - 09:31 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Vaca Draw 20-17 Federal #8H / Cimarex Vaca Draw 20-17 Federal #8H
Well: Cimarex Vaca Draw 20-17 Federal #8H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Final Surveys - Cimarex Vaca Draw 20-17 Federal #8H MWD 0ft-22328ft (Surcon Corrected)
Survey Date: January 09, 2019
Tort / AHD / DDI / ERD Ratio: 363.747' / 10809.921 ft / 6.850' / 0.872
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 6' 35.06070", W 103° 36' 1.99689"
Location Grid N/E Y/X: N 404430.870 RUS, E 768221.880 RUS
CRS Grid Convergence Angle: 0.3895°
Grid Scale Factor: 0.99996805
Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.630° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3445.900 ft above MSL
Seabed / Ground Elevation: 3422.900 ft above MSL
Magnetic Declination: 6.675°
Total Gravity Field Strength: 998.4295mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47805.222 nT
Magnetic Dip Angle: 59.732°
Declination Date: February 25, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3895°
Total Corr Mag North→Grid North: 6.2854°
Local Coord Referenced To: Structure Reference Point

HOBBS OCD
SEP 05 2019
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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100R)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure Azimuth (°)	Closure (ft)
SHL [330' FSL, 710' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	404430.67	768221.88	N 32 6 35.06	W 103 36 2.00	0.00	0.00
	197.00	0.22	268.11	197.00	-0.01	-0.01	-0.38	0.11	404430.66	768221.50	N 32 6 35.06	W 103 36 2.00	268.11	0.38
	299.00	0.09	14.98	299.00	0.06	0.06	-0.55	0.26	404430.73	768221.33	N 32 6 35.06	W 103 36 2.00	276.03	0.56
	390.00	0.31	340.07	390.00	0.36	0.36	-0.62	0.27	404431.03	768221.26	N 32 6 35.06	W 103 36 2.00	300.13	0.72
	481.00	0.31	306.08	481.00	0.75	0.74	-0.90	0.19	404431.41	768220.98	N 32 6 35.07	W 103 36 2.01	309.63	1.16
	572.00	0.31	300.41	572.00	1.03	1.02	-1.30	0.05	404431.69	768220.58	N 32 6 35.07	W 103 36 2.01	308.03	1.65
	664.00	0.49	290.18	663.99	1.29	1.28	-1.89	0.21	404431.95	768219.99	N 32 6 35.07	W 103 36 2.02	304.17	2.28
	754.00	0.62	294.68	753.99	1.63	1.62	-2.69	0.15	404432.29	768219.19	N 32 6 35.08	W 103 36 2.03	301.00	3.14
	846.00	0.49	129.29	845.99	1.59	1.58	-2.84	1.20	404432.25	768219.04	N 32 6 35.08	W 103 36 2.03	299.03	3.25
	937.00	0.71	132.38	936.98	0.96	0.95	-2.12	0.24	404431.82	768219.78	N 32 6 35.07	W 103 36 2.02	294.11	2.32
	1033.00	0.60	117.44	1032.98	0.32	0.32	-1.23	0.21	404430.99	768220.65	N 32 6 35.06	W 103 36 2.01	284.36	1.27
	1127.00	0.69	116.34	1126.97	-0.16	-0.16	-0.29	0.10	404430.51	768221.59	N 32 6 35.06	W 103 36 2.00	240.88	0.33
	1222.00	0.69	97.02	1221.96	-0.49	-0.49	0.79	0.24	404430.18	768222.67	N 32 6 35.06	W 103 36 1.99	121.58	0.93
	1317.00	0.80	79.12	1316.96	-0.47	-0.46	1.85	0.23	404430.21	768223.73	N 32 6 35.06	W 103 36 1.98	104.04	1.90
	1411.00	0.61	78.44	1410.95	-0.29	-0.27	2.82	0.01	404430.40	768224.70	N 32 6 35.06	W 103 36 1.96	95.44	2.83
	1506.00	0.57	40.20	1505.95	0.17	0.19	3.62	0.41	404430.88	768225.50	N 32 6 35.06	W 103 36 1.95	86.93	3.63
	1694.00	1.21	313.93	1693.93	2.27	2.29	2.79	0.69	404432.98	768224.67	N 32 6 35.08	W 103 36 1.96	50.72	3.61
	1789.00	2.02	311.08	1788.89	4.08	4.08	0.81	0.86	404434.75	768222.69	N 32 6 35.10	W 103 36 1.99	11.22	4.16
	1884.00	0.44	298.26	1883.87	5.36	5.35	-0.77	1.68	404436.02	768221.11	N 32 6 35.11	W 103 36 2.01	351.78	5.41
	1978.00	2.06	105.38	1977.85	5.07	5.08	0.54	2.65	404435.75	768222.42	N 32 6 35.11	W 103 36 1.99	6.04	5.11
	2073.00	4.53	101.42	2072.69	3.84	3.88	5.86	2.61	404434.55	768227.74	N 32 6 35.10	W 103 36 1.93	58.49	7.03
	2167.00	5.71	96.86	2166.31	2.50	2.59	14.14	1.33	404433.26	768236.02	N 32 6 35.09	W 103 36 1.83	79.83	14.38
	2262.00	6.51	95.97	2260.77	1.31	1.46	24.19	0.85	404432.13	768246.07	N 32 6 35.07	W 103 36 1.72	86.54	24.24
	2355.00	5.88	95.56	2353.23	0.23	0.45	34.18	0.68	404431.12	768256.06	N 32 6 35.06	W 103 36 1.60	89.24	34.18
	2449.00	5.12	95.00	2448.79	-0.66	-0.38	43.15	0.81	404430.29	768265.03	N 32 6 35.05	W 103 36 1.50	90.50	43.15
	2544.00	5.59	92.32	2541.38	-1.27	-0.94	51.99	0.56	404429.73	768273.87	N 32 6 35.05	W 103 36 1.39	91.03	52.00
	2638.00	5.02	86.40	2634.98	-1.25	-0.86	60.67	0.84	404429.81	768282.55	N 32 6 35.05	W 103 36 1.29	90.81	60.68
	2733.00	3.85	76.30	2729.69	-0.28	0.15	67.92	1.48	404430.82	768289.80	N 32 6 35.06	W 103 36 1.21	89.87	67.92
	2828.00	3.86	74.37	2824.48	1.29	1.77	74.10	0.14	404432.44	768295.98	N 32 6 35.07	W 103 36 1.14	88.63	74.12

Comments	MD (ft)	Incl (°)	Azlm 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)
	2923.00	3.97	80.68	2919.25	2.85	3.17	80.42	0.47	404433.84	768302.30	N 32 6 35.09	W 103 36 1.06	87.75	80.48
	3018.00	4.48	97.92	3014.00	2.82	3.19	87.34	1.44	404433.86	768309.22	N 32 6 35.09	W 103 36 0.98	87.91	87.40
	3112.00	5.04	94.37	3107.68	1.75	2.37	95.10	0.87	404433.04	768316.97	N 32 6 35.08	W 103 36 0.89	88.57	95.13
	3206.00	4.55	91.05	3201.35	1.32	1.88	102.94	0.60	404432.65	768324.82	N 32 6 35.07	W 103 36 0.80	88.90	102.96
	3300.00	3.70	82.83	3285.10	1.58	2.29	109.68	1.10	404432.66	768331.56	N 32 6 35.08	W 103 36 0.72	88.80	109.70
	3394.00	3.53	92.58	3388.92	1.79	2.53	115.58	0.87	404433.20	768337.46	N 32 6 35.08	W 103 36 0.65	88.74	115.61
	3488.00	3.67	116.82	3482.74	0.26	1.05	121.16	1.61	404431.72	768343.03	N 32 6 35.06	W 103 36 0.59	89.51	121.16
	3583.00	3.66	113.37	3577.54	-2.35	-1.53	126.65	0.23	404429.14	768348.53	N 32 6 35.04	W 103 36 0.52	90.69	126.66
	3677.00	3.57	117.89	3671.36	-4.94	-4.09	131.99	0.32	404426.58	768353.87	N 32 6 35.01	W 103 36 0.46	91.77	132.06
	3771.00	3.47	111.08	3765.18	-7.37	-6.48	137.23	0.46	404424.19	768359.11	N 32 6 34.99	W 103 36 0.40	92.70	137.39
	3859.00	3.34	101.33	3852.85	-10.56	-9.60	147.91	0.32	404421.07	768369.79	N 32 6 34.96	W 103 36 0.28	93.71	148.22
	4054.00	3.39	96.60	4047.68	-11.46	-10.47	153.42	0.30	404420.20	768375.29	N 32 6 34.95	W 103 36 0.21	93.90	153.77
	4148.00	3.22	94.46	4141.53	-12.02	-10.99	158.81	0.22	404419.68	768380.68	N 32 6 34.94	W 103 36 0.15	93.96	159.19
	4243.00	4.06	98.25	4236.34	-12.75	-11.68	164.80	0.92	404418.99	768386.67	N 32 6 34.93	W 103 36 0.08	94.06	165.21
	4337.00	5.48	97.79	4330.01	-13.88	-12.77	172.54	1.51	404417.90	768394.41	N 32 6 34.92	W 103 35 59.99	94.23	173.01
	4431.00	5.89	98.92	4423.55	-15.30	-14.13	181.75	0.45	404416.54	768403.62	N 32 6 34.91	W 103 35 59.88	94.44	182.30
	4526.00	6.18	100.75	4518.02	-17.07	-15.84	191.59	0.37	404414.83	768413.46	N 32 6 34.89	W 103 35 59.77	94.73	192.24
	4553.00	5.59	98.35	4544.88	-17.55	-16.30	194.32	2.37	404414.37	768416.19	N 32 6 34.89	W 103 35 59.74	94.79	195.00
	4620.00	5.73	101.10	4611.55	-18.71	-17.42	200.83	0.46	404413.25	768422.70	N 32 6 34.87	W 103 35 59.66	94.96	201.58
	4714.00	5.15	100.66	4705.13	-20.45	-19.10	209.58	0.62	404411.57	768431.45	N 32 6 34.86	W 103 35 59.56	95.21	210.45
	4808.00	3.20	96.17	4798.87	-21.56	-20.16	216.34	2.10	404410.51	768438.21	N 32 6 34.85	W 103 35 59.48	95.32	217.27
	4903.00	3.48	78.69	4893.71	-21.22	-19.78	221.78	1.22	404410.89	768443.65	N 32 6 34.85	W 103 35 59.42	95.10	222.66
	4998.00	3.25	79.32	4988.55	-20.09	-18.62	227.23	0.29	404412.05	768449.10	N 32 6 34.88	W 103 35 59.38	94.68	227.89
	5092.00	3.33	79.34	5082.40	-19.12	-17.62	232.53	0.09	404413.05	768454.40	N 32 6 34.87	W 103 35 59.29	94.33	233.20
	5187.00	3.24	78.44	5177.24	-18.11	-16.57	237.87	0.11	404414.10	768459.74	N 32 6 34.88	W 103 35 59.23	93.99	238.45
	5281.00	3.27	80.59	5271.09	-17.17	-15.60	243.12	0.13	404415.07	768464.99	N 32 6 34.89	W 103 35 59.17	93.67	243.62
	5375.00	3.44	79.54	5364.93	-16.26	-14.65	248.54	0.19	404416.02	768470.41	N 32 6 34.90	W 103 35 59.11	93.37	248.97
	5470.00	3.80	80.90	5459.74	-15.28	-13.64	254.45	0.39	404417.03	768476.32	N 32 6 34.91	W 103 35 59.04	93.07	254.81
	5564.00	4.00	82.17	5553.52	-14.38	-12.70	260.77	0.23	404417.97	768482.64	N 32 6 34.92	W 103 35 58.97	92.79	261.08
	5658.00	4.52	82.80	5647.26	-13.52	-11.79	267.70	0.56	404418.88	768489.57	N 32 6 34.93	W 103 35 58.89	92.52	267.96
	5753.00	4.41	80.11	5741.97	-12.47	-10.69	275.01	0.25	404419.98	768496.88	N 32 6 34.94	W 103 35 58.80	92.23	275.22
	5847.00	4.19	81.29	5835.71	-11.37	-9.55	281.96	0.25	404421.12	768503.83	N 32 6 34.95	W 103 35 58.72	91.94	282.12
	5942.00	3.68	79.13	5930.48	-10.31	-8.45	288.39	0.56	404422.22	768510.26	N 32 6 34.96	W 103 35 58.64	91.68	288.51
	6036.00	3.82	80.18	6024.28	-9.25	-7.35	294.43	0.17	404423.32	768516.30	N 32 6 34.97	W 103 35 58.57	91.43	294.53
	6131.00	4.19	78.82	6119.05	-8.14	-6.19	300.97	0.39	404424.48	768522.84	N 32 6 34.98	W 103 35 58.50	91.18	301.03
	6226.00	3.90	79.79	6213.81	-6.99	-5.01	307.56	0.31	404425.66	768529.43	N 32 6 34.99	W 103 35 58.42	90.93	307.61
	6317.00	4.32	78.68	6304.58	-5.81	-3.79	313.97	0.47	404426.88	768535.84	N 32 6 35.00	W 103 35 58.35	90.69	313.99
	6414.00	4.44	78.81	6401.29	-4.41	-2.34	321.24	0.12	404428.33	768543.11	N 32 6 35.02	W 103 35 58.28	90.42	321.24
	6508.00	4.40	78.41	6495.01	-3.03	-0.91	328.34	0.05	404429.76	768550.21	N 32 6 35.03	W 103 35 58.18	90.16	328.34
	6697.00	4.81	86.09	6683.43	-1.15	1.07	343.02	0.34	404431.74	768564.89	N 32 6 35.05	W 103 35 58.01	89.82	343.02
	6790.00	4.33	85.59	6776.15	-0.87	1.59	350.25	0.30	404432.26	768572.12	N 32 6 35.05	W 103 35 57.92	89.74	350.25
	6885.00	4.09	84.93	6870.89	-0.14	2.17	357.20	0.26	404432.84	768579.07	N 32 6 35.06	W 103 35 57.84	89.65	357.20
	6979.00	3.88	88.95	6964.67	0.17	2.52	363.70	0.38	404433.19	768585.57	N 32 6 35.06	W 103 35 57.77	89.60	363.71
	7073.00	3.80	92.20	7058.46	0.07	2.46	369.98	0.24	404433.13	768591.84	N 32 6 35.06	W 103 35 57.70	89.62	369.98
	7167.00	3.57	91.57	7152.26	-0.17	2.26	376.01	0.25	404432.93	768597.88	N 32 6 35.06	W 103 35 57.63	89.66	376.02
	7261.00	3.80	93.48	7248.07	-0.48	1.99	382.05	0.28	404432.66	768603.92	N 32 6 35.05	W 103 35 57.56	89.70	382.05
	7356.00	4.08	96.14	7340.84	-1.07	1.44	388.55	0.35	404432.11	768610.42	N 32 6 35.05	W 103 35 57.48	89.79	388.55
	7450.00	4.10	97.05	7434.60	-1.89	0.67	395.21	0.07	404431.34	768617.08	N 32 6 35.04	W 103 35 57.40	89.90	395.21
	7545.00	3.74	99.43	7529.38	-2.85	-0.26	401.64	0.42	404430.41	768623.50	N 32 6 35.03	W 103 35 57.33	90.04	401.64
	7641.00	3.61	102.44	7625.18	-4.06	-1.42	407.88	0.24	404429.25	768629.54	N 32 6 35.02	W 103 35 57.26	90.20	407.88
	7735.00	3.65	96.57	7719.00	-5.07	-2.40	413.54	0.40	404428.27	768635.41	N 32 6 35.01	W 103 35 57.19	90.33	413.55
	7830.00	3.98	94.67	7813.79	-5.73	-3.02	419.83	0.37	404427.65	768641.70	N 32 6 35.00	W 103 35 57.12	90.41	419.84
	7924.00	3.69	94.10	7907.58	-6.25	-3.50	426.10	0.31	404427.17	768647.96	N 32 6 35.00	W 103 35 57.04	90.47	426.11
	8018.00	3.99	94.98	8001.36	-8.79	-4.00	432.37	0.33	404426.67	768654.24	N 32 6 34.99	W 103 35 56.97	90.53	432.39
	8113.00	4.06	97.81	8096.13	-7.57	-4.73	439.00	0.21	404425.94	768660.86	N 32 6 34.98	W 103 35 56.89	90.62	439.03
	8207.00	3.94	91.31	8189.90	-8.12	-5.25	445.53	0.48	404425.42	768667.39	N 32 6 34.98	W 103 35 56.82	90.67	445.56
	8298.00	4.14	90.11	8280.68	-8.24	-5.32	451.94	0.24	404425.35	768673.80	N 32 6 34.98	W 103 35 56.74	90.67	451.97
	8392.00	5.23	82.25	8374.36	-7.72	-4.75	459.58	1.34	404425.92	768681.44	N 32 6 34.98	W 103 35 56.65	90.59	459.60
	8487.00	4.99	83.34	8468.98	-6.71	-3.69	467.97	0.27	404426.98	768689.83	N 32 6 34.99	W 103 35 56.56	90.45	467.98
	8581.00	4.81	84.10	8562.64	-5.88	-2.81	475.95	0.20	404427.86	768697.81	N 32 6 35.00	W 103 35 56.46	90.34	475.96
	8675.00	4.39	85.99	8656.34	-5.28	-2.15	483.46	0.47	404428.52	768705.32	N 32 6 35.01	W 103 35 56.38	90.26	483.46
	8770.00	4.14	87.80	8751.07	-4.93	-1.77	490.51	0.30	404428.90	768712.38	N 32 6 35.01	W 103 35 56.29	90.21	490.52

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)
	8864.00	2.86	84.30	8844.90	-4.61	-1.40	496.24	1.38	404429.27	768718.10	N 32 6 35.01	W 103 35 56.23	90.16	496.24
	8959.00	1.54	83.04	8939.82	-4.24	-1.01	499.86	1.39	404429.66	768721.73	N 32 6 35.02	W 103 35 56.19	90.12	499.86
	9054.00	0.10	136.24	9034.81	-4.16	-0.92	501.19	1.56	404429.75	768723.05	N 32 6 35.02	W 103 35 56.17	90.11	501.19
	9148.00	0.39	194.85	9128.81	-4.52	-1.29	501.16	0.37	404429.38	768723.03	N 32 6 35.01	W 103 35 56.17	90.15	501.16
	9243.00	0.56	217.51	9223.81	-5.20	-1.97	500.80	0.26	404428.70	768722.66	N 32 6 35.01	W 103 35 56.17	90.23	500.80
	9337.00	0.49	222.84	9317.80	-5.88	-2.63	500.24	0.09	404428.04	768722.11	N 32 6 35.00	W 103 35 56.18	90.30	500.25
	9431.00	0.38	230.69	9411.80	-6.35	-3.12	499.73	0.13	404427.55	768721.59	N 32 6 35.00	W 103 35 56.19	90.36	499.74
	9526.00	0.46	251.63	9506.80	-6.66	-3.44	499.12	0.18	404427.23	768720.99	N 32 6 34.99	W 103 35 56.19	90.39	499.14
	9620.00	0.97	257.54	9600.78	-6.95	-3.73	497.99	0.55	404426.94	768719.85	N 32 6 34.99	W 103 35 56.21	90.43	498.00
	9714.00	0.99	254.47	9694.78	-7.32	-4.12	496.43	0.06	404426.55	768718.29	N 32 6 34.99	W 103 35 56.23	90.48	496.45
	9809.00	0.50	286.58	9789.77	-7.42	-4.22	495.24	0.66	404426.45	768717.10	N 32 6 34.99	W 103 35 56.24	90.49	495.26
	9903.00	0.29	160.22	9883.77	-7.52	-4.33	494.93	0.76	404426.34	768716.79	N 32 6 34.98	W 103 35 56.24	90.50	494.95
	9997.00	0.71	129.93	9977.77	-8.12	-4.93	495.46	0.51	404425.75	768717.32	N 32 6 34.98	W 103 35 56.24	90.57	495.48
	10091.00	0.82	125.16	10071.78	-8.89	-5.69	496.45	0.14	404424.98	768718.32	N 32 6 34.97	W 103 35 56.23	90.66	496.48
	10186.00	0.89	149.40	10166.75	-9.92	-6.71	497.38	0.38	404423.96	768719.25	N 32 6 34.96	W 103 35 56.21	90.77	497.43
	10281.00	1.21	160.43	10261.73	-11.51	-8.29	498.10	0.40	404422.38	768719.96	N 32 6 34.95	W 103 35 56.21	90.95	498.16
	10375.00	1.41	167.38	10355.71	-13.58	-10.38	498.68	0.27	404420.31	768720.54	N 32 6 34.92	W 103 35 56.20	91.19	498.79
	10469.00	1.61	163.87	10449.67	-15.98	-12.75	499.30	0.23	404417.92	768721.16	N 32 6 34.90	W 103 35 56.19	91.46	499.46
	10563.00	1.22	168.00	10543.64	-18.22	-14.99	499.91	0.42	404415.68	768721.77	N 32 6 34.88	W 103 35 56.19	91.72	500.13
	10657.00	1.28	173.86	10637.62	-20.24	-17.01	500.26	0.20	404413.66	768722.13	N 32 6 34.86	W 103 35 56.18	91.95	500.55
	10752.00	1.45	162.79	10732.60	-22.44	-19.21	500.73	0.33	404411.46	768722.59	N 32 6 34.84	W 103 35 56.18	92.20	501.10
	10847.00	1.61	167.23	10827.56	-24.90	-21.66	501.38	0.21	404409.01	768723.24	N 32 6 34.81	W 103 35 56.17	92.47	501.85
	10941.00	1.55	163.66	10921.53	-27.41	-24.17	502.03	0.12	404406.50	768723.89	N 32 6 34.79	W 103 35 56.16	92.76	502.61
	11035.00	0.30	201.35	11015.51	-28.86	-25.62	502.30	1.41	404405.05	768724.16	N 32 6 34.77	W 103 35 56.16	92.92	502.95
	11130.00	0.58	280.01	11110.51	-29.01	-25.77	501.73	0.63	404404.90	768723.60	N 32 6 34.77	W 103 35 56.17	92.94	502.39
	11224.00	1.02	241.82	11204.50	-29.31	-26.08	500.53	0.71	404404.59	768722.39	N 32 6 34.77	W 103 35 56.18	92.98	501.21
	11319.00	1.61	234.63	11299.48	-30.47	-27.25	498.69	0.64	404403.42	768720.56	N 32 6 34.76	W 103 35 56.20	93.13	499.44
	11413.00	2.32	235.25	11393.42	-32.30	-29.10	496.05	0.76	404401.57	768717.92	N 32 6 34.74	W 103 35 56.23	93.36	496.91
	11507.00	2.17	262.66	11487.35	-33.59	-30.41	492.73	1.14	404400.26	768714.59	N 32 6 34.73	W 103 35 56.27	93.53	493.66
	11602.00	2.75	232.59	11582.27	-35.18	-32.03	489.13	1.47	404398.65	768710.99	N 32 6 34.71	W 103 35 56.31	93.75	490.18
	11657.00	2.89	228.97	11637.20	-36.88	-33.74	487.04	0.41	404396.93	768708.90	N 32 6 34.69	W 103 35 56.34	93.96	488.20
	11720.00	3.17	227.01	11700.11	-39.10	-35.97	484.57	0.47	404394.70	768706.43	N 32 6 34.67	W 103 35 56.37	94.25	485.90
	11783.00	0.78	174.00	11763.07	-40.70	-37.58	483.34	4.40	404393.09	768705.20	N 32 6 34.66	W 103 35 56.38	94.45	484.79
	11814.00	1.46	359.58	11794.07	-40.52	-37.40	483.35	7.22	404393.27	768705.22	N 32 6 34.66	W 103 35 56.38	94.42	484.80
	11846.00	5.66	351.43	11826.00	-38.55	-35.43	483.12	13.19	404395.24	768704.98	N 32 6 34.68	W 103 35 56.38	94.19	484.41
	11877.00	9.11	357.67	11856.74	-34.58	-31.46	482.79	11.41	404399.21	768704.65	N 32 6 34.72	W 103 35 56.39	93.73	483.81
	11908.00	12.55	359.58	11887.18	-28.76	-25.64	482.66	11.16	404405.03	768704.53	N 32 6 34.77	W 103 35 56.39	93.04	483.34
	11940.00	17.01	359.63	11918.12	-20.60	-17.48	482.61	13.94	404413.19	768704.47	N 32 6 34.88	W 103 35 56.39	92.07	482.93
	11971.00	20.64	359.78	11947.45	-10.60	-7.48	482.56	11.71	404423.19	768704.42	N 32 6 34.85	W 103 35 56.39	90.89	482.62
	12003.00	23.82	2.02	11977.07	1.50	4.62	482.76	10.28	404435.29	768704.63	N 32 6 35.07	W 103 35 56.38	89.45	482.79
	12035.00	28.32	5.24	12005.81	15.52	18.65	483.69	14.74	404449.32	768705.55	N 32 6 35.21	W 103 35 56.37	87.79	484.05
	12066.00	31.98	5.81	12032.61	31.01	34.14	485.19	11.84	404464.81	768707.05	N 32 6 35.37	W 103 35 56.35	85.97	486.39
	12097.00	34.84	5.13	12058.49	47.99	51.13	486.81	9.30	404481.80	768708.68	N 32 6 35.53	W 103 35 56.33	84.00	489.49
	12128.00	38.59	5.17	12084.13	67.02	70.18	488.53	11.72	404500.85	768710.39	N 32 6 35.72	W 103 35 56.31	81.82	493.54
	12161.00	41.64	4.44	12108.60	87.56	90.72	490.25	9.84	404521.39	768712.12	N 32 6 35.93	W 103 35 56.29	79.52	498.58
	12193.00	43.16	3.43	12132.23	109.07	112.25	491.73	5.20	404542.92	768713.59	N 32 6 36.14	W 103 35 56.27	77.14	504.38
	12224.00	44.79	2.80	12154.54	130.56	133.74	492.90	5.44	404564.41	768714.76	N 32 6 36.35	W 103 35 56.26	74.82	510.72
	12255.00	48.05	2.45	12175.91	152.98	156.17	493.92	10.55	404586.84	768715.79	N 32 6 36.57	W 103 35 56.24	72.45	518.03
	12287.00	51.46	1.70	12196.58	177.38	180.58	494.80	10.81	404611.24	768716.67	N 32 6 36.81	W 103 35 56.23	69.95	526.73
	12318.00	56.22	1.78	12214.87	202.38	205.59	495.56	15.38	404636.25	768717.43	N 32 6 37.06	W 103 35 56.22	67.47	536.52
	12349.00	60.24	2.11	12231.18	228.71	231.92	496.46	13.00	404662.58	768718.32	N 32 6 37.32	W 103 35 56.21	64.96	547.96
	12381.00	63.20	2.33	12246.34	256.86	260.08	497.55	9.27	404690.74	768719.42	N 32 6 37.60	W 103 35 56.19	62.40	561.43
	12412.00	66.48	1.63	12259.52	284.89	288.12	498.52	10.78	404718.78	768720.38	N 32 6 37.88	W 103 35 56.18	59.97	575.79
	12430.00	68.77	1.29	12268.37	301.53	304.76	498.94	12.84	404735.41	768720.81	N 32 6 38.04	W 103 35 56.17	58.58	584.65
	12505.00	75.07	1.80	12289.64	372.75	375.99	500.87	8.42	404806.65	768722.73	N 32 6 38.75	W 103 35 56.14	53.11	626.29
	12536.00	75.47	2.44	12297.52	402.70	405.95	501.98	2.38	404836.61	768723.84	N 32 6 39.04	W 103 35 56.13	51.04	645.58
	12567.00	77.03	3.58	12304.89	432.76	436.02	503.58	6.17	404866.67	768725.43	N 32 6 39.34	W 103 35 56.11	49.11	666.10
	12599.00	78.40	4.36	12311.70	463.93	467.21	505.73	4.90	404897.86	768727.59	N 32 6 39.65	W 103 35 56.08	47.27	688.51
	12630.00	79.80	4.94	12317.56	494.26	497.55	508.20	4.88	404926.20	768730.06	N 32 6 39.95	W 103 35 56.05	45.61	711.21
	12662.00	81.54	5.89	12322.75	525.67	528.98	511.18	6.18	404959.64	768733.04	N 32 6 40.26	W 103 35 56.01	44.02	735.61
	12693.00	83.04	6.22	12328.91	556.20	559.53	514.42	4.95	404990.18	768736.28	N 32 6 40.56	W 103 35 55.97	42.59	760.07
	12725.00	84.94	6.21	12330.26	587.81	591.17	517.86	5.94	405021.82	768739.72	N 32 6 40.88	W 103 35 55.93	41.22	785.91

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S °'")	Longitude (E/W °'")	Closure Azimuth (°)	Closure (ft)
	12756.00	86.39	5.69	12332.60	618.53	621.91	521.07	4.97	405052.56	768742.93	N 32 6 41.18	W 103 35 55.89	39.96	811.35
	12787.00	88.18	4.90	12334.07	649.35	652.74	523.92	6.31	405083.39	768745.78	N 32 6 41.48	W 103 35 55.85	38.75	837.00
	12850.00	90.41	2.35	12334.84	712.18	715.60	527.90	5.38	405148.25	768749.77	N 32 6 42.11	W 103 35 55.80	36.42	889.25
	12881.00	91.00	1.21	12334.46	743.15	746.58	528.87	4.14	405177.23	768750.73	N 32 6 42.41	W 103 35 55.79	35.31	914.93
	12975.00	90.83	356.32	12332.96	837.10	840.52	528.84	5.20	405271.16	768748.70	N 32 6 43.34	W 103 35 55.81	32.08	991.99
	13069.00	89.24	352.57	12332.90	930.70	934.06	517.74	4.33	405364.70	768739.61	N 32 6 44.27	W 103 35 55.90	29.00	1067.96
	13163.00	88.04	352.94	12335.13	1023.99	1027.28	505.89	1.34	405457.92	768727.76	N 32 6 45.19	W 103 35 56.03	26.22	1145.09
	13258.00	87.87	356.48	12338.52	1118.57	1121.80	497.14	3.73	405552.43	768719.01	N 32 6 46.13	W 103 35 56.13	23.90	1227.02
	13352.00	87.83	358.03	12342.05	1212.42	1215.63	492.64	1.65	405646.25	768714.51	N 32 6 47.06	W 103 35 56.17	22.06	1311.66
	13446.00	89.48	358.31	12344.26	1306.36	1309.55	489.64	1.78	405740.17	768711.51	N 32 6 47.99	W 103 35 56.20	20.50	1398.09
	13540.00	90.34	356.34	12344.40	1400.28	1403.44	485.26	2.29	405834.06	768707.12	N 32 6 48.92	W 103 35 56.24	19.07	1484.96
	13635.00	87.56	357.99	12346.15	1495.16	1498.30	480.56	3.40	405928.91	768702.42	N 32 6 49.85	W 103 35 56.29	17.78	1573.48
	13729.00	89.62	359.87	12348.46	1589.12	1592.24	478.80	2.97	406022.86	768700.67	N 32 6 50.78	W 103 35 56.30	16.74	1662.67
	13824.00	88.59	359.05	12349.94	1684.10	1687.22	477.91	1.39	406117.84	768699.77	N 32 6 51.72	W 103 35 56.31	15.81	1753.60
	13918.00	88.49	2.04	12352.34	1778.05	1781.18	478.80	3.18	406211.79	768700.67	N 32 6 52.65	W 103 35 56.29	15.05	1844.41
	14012.00	89.52	1.81	12353.97	1871.96	1875.11	481.96	1.12	406305.72	768703.82	N 32 6 53.58	W 103 35 56.25	14.41	1936.06
	14107.00	90.52	2.09	12353.94	1966.88	1970.05	485.19	1.09	406400.66	768707.06	N 32 6 54.52	W 103 35 56.20	13.84	2028.92
	14202.00	90.45	0.95	12353.13	2061.82	2065.01	487.71	1.20	406495.61	768709.58	N 32 6 55.46	W 103 35 56.16	13.29	2121.83
	14296.00	90.45	359.87	12352.39	2155.81	2159.01	488.38	1.15	406589.60	768710.25	N 32 6 56.39	W 103 35 56.15	12.75	2213.56
	14390.00	89.66	358.87	12352.30	2249.81	2253.00	487.35	1.36	406683.59	768709.21	N 32 6 57.32	W 103 35 56.15	12.21	2305.11
	14484.00	90.10	359.18	12352.50	2343.80	2346.99	485.75	0.57	406777.58	768707.62	N 32 6 58.25	W 103 35 56.16	11.69	2396.73
	14579.00	88.76	359.33	12353.45	2438.79	2441.97	484.52	1.42	406872.56	768706.38	N 32 6 59.19	W 103 35 56.17	11.22	2489.57
	14673.00	89.48	0.73	12354.89	2532.77	2535.96	484.57	1.87	406966.54	768706.43	N 32 7 0 12	W 103 35 56.16	10.82	2581.84
	14767.00	90.03	359.40	12355.29	2626.77	2629.95	484.67	1.53	407060.53	768706.54	N 32 7 1 05	W 103 35 56.15	10.44	2674.24
	14861.00	89.35	359.42	12355.80	2720.77	2723.95	483.70	0.72	407154.52	768705.57	N 32 7 1 98	W 103 35 56.16	10.07	2766.56
	14956.00	89.86	0.04	12356.46	2815.76	2818.94	483.26	0.85	407249.52	768705.12	N 32 7 2 92	W 103 35 56.16	9.73	2860.07
	15050.00	90.03	359.04	12356.55	2909.76	2912.94	482.50	1.08	407343.51	768704.37	N 32 7 3 85	W 103 35 56.16	9.41	2952.63
	15145.00	89.83	359.04	12356.66	3004.76	3007.92	480.91	0.21	407438.49	768702.77	N 32 7 4 79	W 103 35 56.17	9.08	3046.13
	15239.00	89.69	0.18	12357.06	3098.75	3101.92	480.27	1.22	407532.48	768702.13	N 32 7 5 72	W 103 35 56.17	8.80	3138.88
	15333.00	90.21	359.33	12357.14	3192.75	3195.92	479.87	1.06	407626.48	768701.73	N 32 7 6 65	W 103 35 56.16	8.54	3231.74
	15427.00	90.69	359.16	12356.40	3286.75	3289.91	478.63	0.54	407720.46	768700.49	N 32 7 7 58	W 103 35 56.17	8.28	3324.54
	15521.00	89.38	0.21	12356.34	3380.74	3383.90	478.11	1.79	407814.46	768699.98	N 32 7 8 51	W 103 35 56.17	8.04	3417.51
	15616.00	90.72	359.52	12356.26	3475.74	3478.90	477.89	1.59	407909.45	768699.75	N 32 7 9 45	W 103 35 56.17	7.82	3511.57
	15710.00	89.45	358.01	12356.12	3569.72	3572.87	475.88	2.10	408003.42	768697.73	N 32 7 10 38	W 103 35 56.18	7.59	3604.42
	15804.00	89.72	0.66	12356.80	3663.71	3666.85	474.77	2.83	408097.40	768696.64	N 32 7 11 31	W 103 35 56.19	7.38	3697.46
	15899.00	89.90	359.30	12357.12	3758.71	3761.85	474.74	1.44	408192.39	768696.60	N 32 7 12 25	W 103 35 56.18	7.19	3791.69
	15992.00	90.62	0.89	12356.69	3851.70	3854.85	474.89	1.88	408285.39	768696.76	N 32 7 13 17	W 103 35 56.17	7.02	3883.99
	16087.00	91.20	359.80	12355.18	3946.68	3949.83	475.47	1.30	408380.37	768697.33	N 32 7 14 11	W 103 35 56.16	6.86	3978.35
	16181.00	89.69	0.27	12354.45	4040.67	4043.83	475.52	1.68	408474.36	768697.39	N 32 7 15 04	W 103 35 56.15	6.71	4071.69
	16275.00	91.07	0.03	12353.83	4134.66	4137.82	475.77	1.49	408568.35	768697.63	N 32 7 15 57	W 103 35 56.14	6.56	4165.08
	16369.00	90.76	359.51	12352.33	4228.65	4231.81	475.39	0.64	408662.33	768697.28	N 32 7 16 50	W 103 35 56.13	6.41	4258.43
	16463.00	88.93	0.27	12352.58	4322.64	4325.80	475.21	2.11	408756.33	768697.08	N 32 7 17 83	W 103 35 56.13	6.27	4351.83
	16557.00	89.38	1.03	12353.97	4416.82	4419.79	476.28	0.84	408850.31	768698.14	N 32 7 18 76	W 103 35 56.11	6.15	4445.37
	16652.00	88.14	359.72	12356.03	4511.58	4514.76	476.90	1.80	408945.27	768698.78	N 32 7 19 70	W 103 35 56.09	6.03	4539.88
	16746.00	89.72	1.14	12357.78	4605.55	4608.73	477.81	2.28	409039.25	768699.47	N 32 7 20 63	W 103 35 56.08	5.92	4633.41
	16840.00	89.83	358.90	12358.15	4699.54	4702.73	477.64	2.39	409133.24	768699.50	N 32 7 21 56	W 103 35 56.07	5.80	4726.92
	16935.00	89.62	1.44	12358.81	4794.53	4797.72	477.92	2.68	409228.22	768699.78	N 32 7 22 50	W 103 35 56.06	5.69	4821.46
	17029.00	90.65	356.93	12358.39	4888.50	4891.68	476.58	4.92	409322.19	768698.45	N 32 7 23 43	W 103 35 56.07	5.56	4914.84
Section Line Crossing [1215' FWL]	17089.30	90.24	357.71	12357.92	4948.75	4951.91	473.76	1.46	409382.42	768695.63	N 32 7 24 03	W 103 35 56.10	5.47	4974.53
	17124.00	90.00	358.16	12357.85	4983.44	4986.59	472.51	1.46	409417.09	768694.38	N 32 7 24 37	W 103 35 56.11	5.41	5008.93
	17218.00	89.90	357.61	12357.93	5077.39	5080.53	469.05	0.59	409511.02	768690.91	N 32 7 25 30	W 103 35 56.14	5.27	5102.13
	17312.00	91.20	358.99	12357.03	5171.36	5174.48	466.26	2.02	409604.97	768688.12	N 32 7 26 23	W 103 35 56.17	5.15	5195.44
	17406.00	94.54	359.10	12352.32	5265.22	5268.33	464.69	3.56	409698.82	768686.56	N 32 7 27 16	W 103 35 56.18	5.04	5288.79
	17500.00	91.89	357.77	12347.05	5359.04	5362.14	462.13	3.15	409792.63	768683.99	N 32 7 28 09	W 103 35 56.20	4.93	5382.02
	17594.00	90.10	356.56	12345.42	5452.94	5456.00	457.48	2.30	409886.49	768679.34	N 32 7 29 02	W 103 35 56.25	4.79	5475.15
	17688.00	87.83	354.35	12347.11	5546.66	5549.68	450.03	3.37	409980.16	768671.90	N 32 7 29 94	W 103 35 56.33	4.64	5567.90
	17782.00	84.56	353.81	12353.35	5640.00	5642.96	440.36	3.53	410073.44	768662.23	N 32 7 30 87	W 103 35 56.43	4.46	5660.12
	17876.00	83.00	357.63	12363.54	5733.21	5736.13	433.38	4.37	410166.60	768655.25	N 32 7 31 79	W 103 35 56.50	4.32	5752.47
	17970.00	82.45	0.87	12375.45	5826.44	5829.35	432.16	3.47	410259.82	768654.03	N 32 7 32 71	W 103 35 56.51	4.24	5845.35
	18064.00	83.28	3.78	12387.12	5919.59	5922.53	435.95	3.20	410353.00	768657.81	N 32 7 33 64	W 103 35 56.46	4.21	5938.56

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)
	18158.00	89.90	5.22	12392.71	6013.03	6016.02	443.31	7.21	410446.49	788665.18	N 32 7 34.56	W 103 35 56.37	4.21	6032.33
	18252.00	91.31	4.42	12391.72	6106.64	6109.68	451.21	1.72	410540.14	788673.07	N 32 7 35.49	W 103 35 56.27	4.22	6126.32
	18346.00	89.31	1.72	12391.21	6200.46	6203.53	456.24	3.57	410633.99	788678.11	N 32 7 36.41	W 103 35 56.20	4.21	6220.29
	18440.00	89.21	0.85	12392.43	6294.41	6297.50	458.35	0.93	410727.95	788680.21	N 32 7 37.34	W 103 35 56.17	4.16	6314.16
	18534.00	92.20	357.62	12391.27	6388.37	6391.46	457.10	4.68	410821.91	788678.96	N 32 7 38.27	W 103 35 56.18	4.09	6407.78
	18628.00	89.00	357.23	12390.28	6482.29	6485.35	452.87	3.43	410915.80	788674.74	N 32 7 39.20	W 103 35 56.22	3.99	6501.14
	18723.00	88.66	1.43	12392.22	6577.25	6580.30	451.76	4.43	411010.75	788673.63	N 32 7 40.14	W 103 35 56.22	3.93	6595.79
	18817.00	90.65	1.98	12392.79	6671.18	6674.25	454.56	2.20	411104.69	788676.42	N 32 7 41.07	W 103 35 56.18	3.90	6689.71
	18911.00	89.00	1.38	12393.08	6765.11	6768.21	457.31	1.87	411198.65	788679.18	N 32 7 42.00	W 103 35 56.14	3.87	6783.64
	19005.00	90.86	2.35	12393.19	6859.04	6862.15	460.37	2.23	411292.59	788682.24	N 32 7 42.93	W 103 35 56.10	3.84	6877.58
	19099.00	92.68	2.19	12390.29	6952.89	6956.03	464.09	1.94	411386.46	788685.96	N 32 7 43.86	W 103 35 56.05	3.82	6971.49
	19193.00	91.65	359.92	12388.74	7046.78	7049.94	465.82	2.65	411480.37	788687.69	N 32 7 44.79	W 103 35 56.02	3.78	7065.31
	19287.00	91.79	357.70	12383.92	7140.73	7143.87	463.87	2.37	411574.30	788685.74	N 32 7 45.72	W 103 35 56.04	3.72	7158.91
	19381.00	92.10	359.71	12380.73	7234.85	7237.79	461.75	2.16	411668.21	788683.61	N 32 7 46.65	W 103 35 56.06	3.65	7252.50
	19475.00	89.87	357.38	12379.03	7328.81	7331.73	459.36	3.36	411762.15	788681.23	N 32 7 47.58	W 103 35 56.08	3.59	7346.11
	19569.00	91.20	356.92	12378.07	7422.52	7425.61	454.69	1.40	411856.02	788676.55	N 32 7 48.51	W 103 35 56.12	3.50	7439.51
	19663.00	89.82	356.25	12377.40	7518.38	7519.43	449.09	1.83	411949.85	788670.95	N 32 7 49.44	W 103 35 56.18	3.42	7532.83
	19758.00	91.93	355.22	12376.14	7609.15	7612.16	442.18	2.72	412042.57	788664.04	N 32 7 50.35	W 103 35 56.25	3.32	7624.99
	19851.00	90.10	353.97	12374.45	7703.76	7706.72	433.23	2.33	412137.13	788655.09	N 32 7 51.29	W 103 35 56.35	3.22	7718.88
	19944.00	88.93	356.95	12375.24	7796.50	7799.41	425.87	3.44	412229.81	788647.73	N 32 7 52.21	W 103 35 56.43	3.13	7811.03
	20039.00	90.17	359.66	12375.99	7891.46	7894.35	423.06	3.14	412324.76	788644.82	N 32 7 53.15	W 103 35 56.45	3.07	7905.68
	20133.00	90.07	1.38	12375.79	7985.44	7988.35	423.91	1.83	412418.75	788645.78	N 32 7 54.08	W 103 35 56.44	3.04	7999.59
	20228.00	92.96	358.57	12373.28	8080.39	8083.29	423.87	4.24	412513.69	788645.74	N 32 7 55.02	W 103 35 56.43	3.00	8094.40
	20322.00	92.82	358.55	12368.54	8174.25	8177.14	421.51	0.15	412607.54	788643.38	N 32 7 55.95	W 103 35 56.45	2.95	8188.00
	20416.00	90.52	359.32	12365.80	8268.20	8271.08	419.77	2.58	412701.47	788641.63	N 32 7 56.88	W 103 35 56.46	2.91	8281.73
	20510.00	88.73	2.65	12366.42	8362.15	8365.05	421.38	4.02	412795.43	788643.25	N 32 7 57.81	W 103 35 56.44	2.88	8375.66
	20604.00	90.79	2.20	12366.81	8456.04	8459.96	425.36	2.24	412889.34	788647.22	N 32 7 58.73	W 103 35 56.38	2.88	8469.65
	20698.00	90.31	1.57	12365.91	8549.96	8552.90	428.45	0.84	412983.28	788650.32	N 32 7 59.66	W 103 35 56.34	2.87	8563.63
	20792.00	90.83	0.95	12364.97	8643.91	8646.87	430.52	0.86	413077.25	788652.38	N 32 8 0 0.59	W 103 35 56.31	2.85	8657.59
	20886.00	88.69	1.23	12365.37	8737.88	8740.85	432.31	2.30	413171.22	788654.17	N 32 8 1.52	W 103 35 56.28	2.83	8751.53
	20980.00	91.27	1.39	12365.40	8831.83	8834.82	434.45	2.75	413265.19	788656.32	N 32 8 2.45	W 103 35 56.25	2.82	8845.49
	21074.00	90.41	0.13	12364.02	8925.80	8928.80	435.70	1.62	413359.16	788657.57	N 32 8 3.38	W 103 35 56.22	2.79	8939.42
	21169.00	90.10	0.49	12363.60	9020.79	9023.79	436.21	0.50	413454.16	788658.08	N 32 8 4.32	W 103 35 56.21	2.77	9034.33
	21262.00	89.55	0.63	12363.88	9113.78	9116.79	437.12	0.61	413547.15	788658.99	N 32 8 5.24	W 103 35 56.19	2.75	9127.26
	21357.00	91.65	1.46	12362.89	9208.74	9211.76	438.86	2.38	413642.12	788660.72	N 32 8 6.18	W 103 35 56.16	2.73	9222.21
	21451.00	92.34	1.84	12359.61	9302.82	9305.87	441.56	0.84	413736.02	788663.43	N 32 8 7.11	W 103 35 56.13	2.72	9316.14
	21545.00	92.20	1.71	12355.89	9396.48	9399.55	444.47	0.20	413829.90	788666.34	N 32 8 8.04	W 103 35 56.08	2.71	9410.05
	21639.00	92.13	1.67	12352.34	9490.35	9493.44	447.24	0.09	413923.79	788669.11	N 32 8 8.97	W 103 35 56.05	2.70	9503.97
	21734.00	91.62	359.80	12349.23	9585.28	9588.38	448.46	2.04	414018.72	788670.32	N 32 8 9.91	W 103 35 56.02	2.68	9598.86
	21828.00	90.79	357.61	12347.25	9679.24	9682.32	446.33	2.49	414112.67	788668.20	N 32 8 10.84	W 103 35 56.04	2.64	9692.61
	21921.00	90.62	357.22	12346.11	9772.16	9775.22	442.14	0.46	414205.56	788664.01	N 32 8 11.78	W 103 35 56.08	2.59	9785.22
	22015.00	91.00	357.77	12344.78	9868.09	9869.12	438.03	0.71	414299.46	788659.90	N 32 8 12.69	W 103 35 56.12	2.54	9878.84
	22109.00	91.13	359.13	12343.03	9960.05	9963.07	435.49	1.45	414393.40	788657.36	N 32 8 13.62	W 103 35 56.14	2.50	9972.58
	22203.00	89.66	359.13	12342.39	10054.04	10057.05	434.06	1.56	414487.38	788655.93	N 32 8 14.55	W 103 35 56.15	2.47	10066.42
Last Legal Take Point [100' FNL, 1208' FWL]	22278.30	88.75	358.57	12343.43	10129.33	10132.33	432.55	1.43	414562.66	788654.41	N 32 8 15.29	W 103 35 56.17	2.44	10141.56
Last Survey	22283.00	88.69	358.53	12343.54	10134.02	10137.03	432.43	1.43	414567.35	788654.29	N 32 8 15.34	W 103 35 56.17	2.44	10146.25
TD, PTB [50' FNL, 1208' FWL]	22328.00	90.05	1.00	12344.03	10179.02	10182.02	432.25	6.27	414612.34	788654.11	N 32 8 15.78	W 103 35 56.16	2.43	10191.19

Survey Type: Def Survey

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

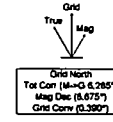
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure Azimuth (°)	Closure (ft)
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey						
	1	0.000	23.000	1/98.425	12.250	9.825	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Vaca Draw 20-17 Federal #8H MWD 0ft-22328ft (Surcon						
	1	23.000	23.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Vaca Draw 20-17 Federal #8H MWD 0ft-22328ft (Surcon						
	1	23.000	11657.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Vaca Draw 20-17 Federal						
	1	11657.000	12505.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Vaca Draw 20-17 Federal						
	1	12505.000	22328.000	Act Stns	8.750	4.500	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Vaca Draw 20-17 Federal						

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Vaca Draw 20-17 Federal #8H	NM Lea County (NAD 83)	Cimarex Vaca Draw 20-17 Federal #8H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, East Zone, US Feet	Microseismic
Model: HDGM 2019	Lat: N 92 6 56.06	Northings: 404430.877015	Site: Cimarex Vaca Draw 20-17 Federal #8H
MagDec: 6.87°	Long: W 103 36 2.00	Eastings: 768221.881015	Plan: Cimarex Vaca Draw 20-17 Federal #8H
Obs: 4780M, 222mT	Gravity FB: 988.42mgals (BGR65 Based)	Grid Conv: 0.3286°	TVD Ref: RKB(3448.8ft above MSL)
		Scale Fact: 0.98889308	Final Surveys - Cimarex Vaca Draw 20-17 Federal #8H (Burton Corrected)

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DL8
SHL [330° FSL, 710° FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Section Line Crossing [1215° FWL]	17069.30	80.24	357.71	12357.82	4948.75	4851.81	473.78	1.48
Last Legal Take Point [100° FWL, 1208° FWL]	22278.30	88.75	358.57	12343.43	10129.33	10132.33	432.55	1.43
Last Survey	22283.00	88.89	358.53	12343.54	10134.02	10137.03	432.43	1.43
TD, PTB [50° FNL, 1208° FWL]	22328.00	90.05	1.00	12344.03	10179.02	10182.02	432.25	6.27



CONTROLLED	
Drawn by	UT
Checked by	UT
Scale	1:480.58
Date	10/26/2019
Drawn by	UT
Checked by	UT
Scale	1:480.58
Date	10/26/2019

