



K.P. KAUFMAN

SURVEY REPORT

MUSICK MCCLINTOCK #4

4/12/2018



The **Ultimate Partner** In Wellbore Placement

CUSTOMER **K.P. Kaufman**
PROJECT **Musick McClintock #4**
FIELD **Hambert**
DEFINITIVE SURVEY **None**

SDI JOB NO. **OP.009454**
SDI DISTRICT **Casper**
SDI KIT/UNIT

SITE INFORMATION

Site Name **Musick McClintock #4**
Lat/Long **40.270446° N, 104.680291° W**
Northing
Easting

Section **32**
Township **4N**
Range **65W**

MAP INFORMATION

North Reference **True North**
Grid Correction
System **US State Plane 1983**
Datum **North American Datum 1983 (GRS 1980)**
Map Zone **Colorado North: 0501**



WELL INFORMATION

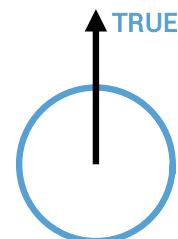
Lat/Long **40.270446° N, 104.680291° W**
Northing
Easting
UWI **05-123-09767 UWB1 05-123-09767**

DEPTH AND ELEVATION REFERENCE

Ground Level **4862 ft above Mean Sea Level**
Reference Datum **GL**
Reference Height **0 ft above G.L.**
Reference Elevation **4862 ft**

VERTICAL SECTION REFERENCE

+N/-S **0 ft**
+E/-W **0 ft**
Proposal Direction **49.55°**
Calculation Method **Minimum Curvature**



LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity **999.067 mG [computed]**

WELL NOTES

Keeper gyro wireline survey in 4.5" casing. All depths reference GL

OPERATORS

P Holbrook

SDI Operator Name (Printed)

SIGNATURE

DATE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
25.00	0.06	50.32	25.00	0.01	0.01	0.01	0.26	0.01	50.32
50.00	0.13	50.32	50.00	0.06	0.04	0.04	0.26	0.06	50.32
75.00	0.19	50.32	75.00	0.13	0.08	0.10	0.26	0.13	50.32
100.00	0.23	50.18	100.00	0.22	0.14	0.17	0.17	0.22	50.29
125.00	0.23	48.67	125.00	0.32	0.20	0.24	0.04	0.32	50.02
150.00	0.22	42.12	150.00	0.42	0.27	0.31	0.10	0.42	48.94
175.00	0.19	37.56	175.00	0.51	0.34	0.37	0.14	0.51	47.34
200.00	0.32	50.59	200.00	0.62	0.42	0.45	0.54	0.62	47.03
225.00	0.26	44.61	225.00	0.74	0.50	0.54	0.25	0.74	47.18
250.00	0.25	31.69	250.00	0.85	0.59	0.61	0.24	0.85	46.03
275.00	0.21	23.42	275.00	0.94	0.68	0.66	0.21	0.95	44.15
300.00	0.21	21.36	300.00	1.02	0.76	0.69	0.03	1.03	42.27
325.00	0.21	21.18	325.00	1.11	0.85	0.73	0.02	1.12	40.58
350.00	0.19	6.56	350.00	1.18	0.93	0.75	0.23	1.20	38.74
375.00	0.17	356.40	375.00	1.23	1.01	0.75	0.14	1.26	36.58
400.00	0.20	16.04	400.00	1.29	1.09	0.76	0.28	1.33	34.85
425.00	0.22	17.67	425.00	1.37	1.18	0.79	0.08	1.42	33.69
450.00	0.22	1.18	450.00	1.44	1.28	0.80	0.26	1.51	32.19
475.00	0.23	350.98	475.00	1.50	1.38	0.80	0.17	1.59	30.11
500.00	0.25	0.56	500.00	1.56	1.48	0.79	0.17	1.68	28.12
525.00	0.26	345.60	525.00	1.62	1.59	0.78	0.27	1.77	26.08
550.00	0.28	350.80	550.00	1.68	1.70	0.75	0.14	1.86	23.86
575.00	0.34	355.77	575.00	1.75	1.84	0.74	0.25	1.98	21.88
600.00	0.34	358.40	600.00	1.84	1.99	0.73	0.06	2.12	20.19
625.00	0.37	5.67	624.99	1.95	2.14	0.74	0.22	2.26	18.98
650.00	0.44	24.88	649.99	2.09	2.31	0.78	0.61	2.44	18.77
675.00	0.55	27.63	674.99	2.29	2.50	0.88	0.44	2.65	19.39
700.00	0.54	26.68	699.99	2.51	2.71	0.99	0.04	2.89	20.03
725.00	0.63	33.67	724.99	2.75	2.93	1.12	0.45	3.14	20.87
750.00	0.70	39.54	749.99	3.04	3.17	1.29	0.38	3.42	22.20
775.00	0.84	47.16	774.99	3.37	3.41	1.52	0.69	3.73	24.08

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
800.00	0.85	49.77	799.98	3.74	3.65	1.80	0.17	4.07	26.23
825.00	0.86	51.13	824.98	4.11	3.89	2.09	0.09	4.41	28.22
850.00	0.93	58.60	849.98	4.50	4.11	2.41	0.53	4.77	30.33
875.00	1.06	68.08	874.97	4.92	4.30	2.79	0.84	5.13	32.98
900.00	1.03	69.90	899.97	5.35	4.47	3.22	0.19	5.51	35.76
925.00	0.99	72.06	924.97	5.76	4.61	3.63	0.21	5.87	38.24
950.00	0.95	74.63	949.96	6.15	4.73	4.04	0.24	6.22	40.48
975.00	0.88	77.06	974.96	6.50	4.83	4.43	0.34	6.55	42.50
1000.00	0.89	77.57	999.96	6.84	4.92	4.80	0.05	6.87	44.33
1025.00	0.97	77.43	1024.95	7.20	5.00	5.20	0.33	7.21	46.09
1050.00	0.88	79.02	1049.95	7.56	5.09	5.59	0.36	7.56	47.72
1075.00	0.84	80.06	1074.95	7.88	5.15	5.96	0.18	7.88	49.16
1100.00	0.82	80.19	1099.94	8.19	5.22	6.32	0.09	8.19	50.46
1125.00	0.81	78.04	1124.94	8.50	5.28	6.67	0.13	8.51	51.61
1150.00	0.72	75.63	1149.94	8.80	5.36	6.99	0.37	8.81	52.53
1175.00	0.56	72.99	1174.94	9.05	5.43	7.26	0.63	9.07	53.19
1200.00	0.48	72.63	1199.94	9.26	5.50	7.48	0.32	9.28	53.66
1225.00	0.51	67.17	1224.94	9.46	5.58	7.68	0.21	9.49	54.02
1250.00	0.60	62.44	1249.94	9.69	5.68	7.90	0.42	9.73	54.28
1275.00	0.49	60.95	1274.93	9.93	5.79	8.11	0.44	9.96	54.46
1300.00	0.53	55.84	1299.93	10.15	5.91	8.30	0.24	10.19	54.55
1325.00	0.48	52.56	1324.93	10.37	6.04	8.48	0.22	10.41	54.54
1350.00	0.50	55.69	1349.93	10.58	6.16	8.65	0.12	10.62	54.53
1375.00	0.65	55.23	1374.93	10.83	6.31	8.86	0.62	10.87	54.55
1400.00	0.69	58.48	1399.93	11.12	6.47	9.10	0.23	11.17	54.62
1425.00	0.56	53.99	1424.93	11.39	6.62	9.33	0.57	11.44	54.66
1450.00	0.49	46.51	1449.93	11.62	6.76	9.51	0.40	11.67	54.58
1475.00	0.46	42.04	1474.92	11.83	6.91	9.65	0.19	11.87	54.40
1500.00	0.55	39.90	1499.92	12.04	7.07	9.79	0.39	12.08	54.16
1525.00	0.48	29.36	1524.92	12.26	7.26	9.92	0.48	12.29	53.82
1550.00	0.38	17.42	1549.92	12.43	7.43	10.00	0.53	12.46	53.39
1575.00	0.40	19.19	1574.92	12.57	7.59	10.05	0.10	12.60	52.95

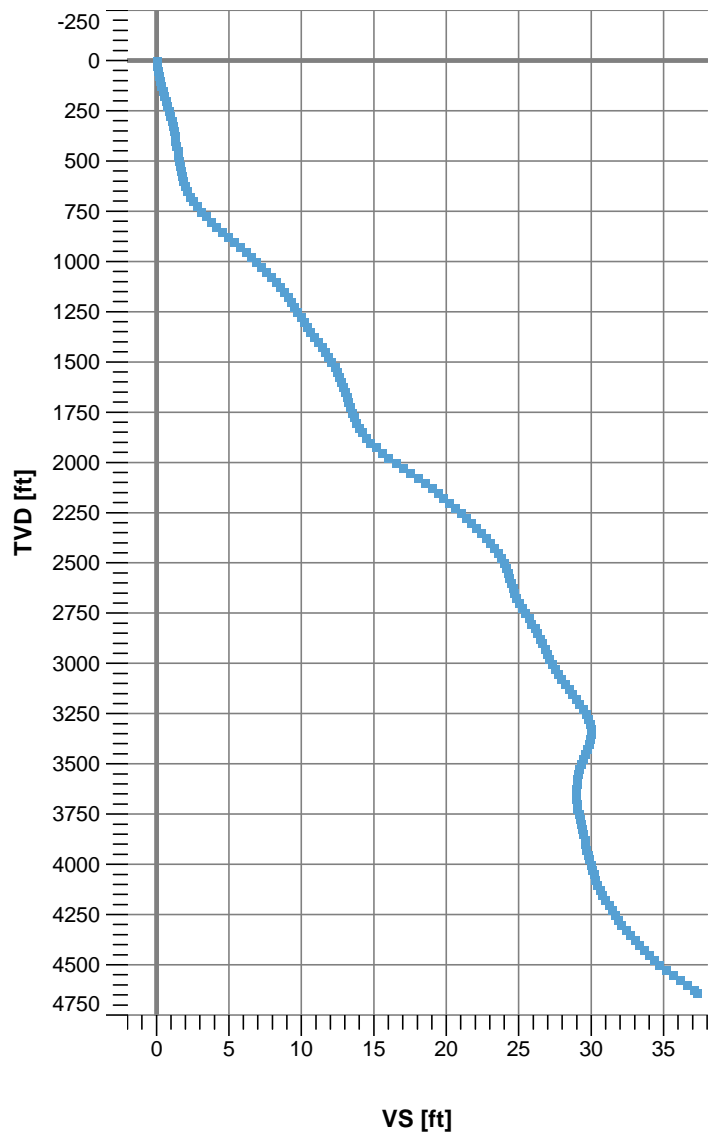
MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
1600.00	0.39	19.66	1599.92	12.72	7.75	10.11	0.03	12.74	52.52
1625.00	0.38	17.16	1624.92	12.87	7.91	10.16	0.09	12.88	52.10
1650.00	0.36	5.14	1649.92	12.99	8.07	10.19	0.32	13.00	51.63
1675.00	0.38	5.25	1674.92	13.11	8.23	10.21	0.07	13.12	51.12
1700.00	0.41	355.72	1699.92	13.22	8.40	10.21	0.28	13.22	50.54
1725.00	0.43	351.91	1724.92	13.33	8.59	10.19	0.15	13.33	49.89
1750.00	0.50	359.02	1749.92	13.44	8.79	10.18	0.35	13.44	49.19
1775.00	0.50	359.42	1774.92	13.58	9.00	10.17	0.02	13.59	48.49
1800.00	0.53	6.89	1799.92	13.74	9.23	10.19	0.29	13.74	47.83
1825.00	0.61	15.15	1824.91	13.93	9.47	10.23	0.46	13.94	47.22
1850.00	0.67	19.06	1849.91	14.17	9.74	10.32	0.30	14.18	46.66
1875.00	0.76	27.62	1874.91	14.45	10.02	10.44	0.55	14.47	46.18
1900.00	0.73	30.45	1899.91	14.75	10.30	10.60	0.19	14.78	45.81
1925.00	0.95	40.31	1924.91	15.10	10.60	10.81	1.06	15.14	45.57
1950.00	1.00	45.94	1949.90	15.52	10.91	11.10	0.43	15.56	45.51
1975.00	1.11	51.85	1974.90	15.98	11.21	11.45	0.61	16.02	45.61
2000.00	1.21	54.46	1999.89	16.49	11.51	11.85	0.47	16.52	45.84
2025.00	1.14	52.97	2024.89	17.00	11.81	12.27	0.31	17.03	46.08
2050.00	1.20	52.46	2049.88	17.51	12.12	12.67	0.26	17.54	46.27
2075.00	1.16	55.04	2074.88	18.02	12.43	13.09	0.27	18.05	46.48
2100.00	1.10	56.88	2099.87	18.52	12.71	13.50	0.27	18.54	46.74
2125.00	0.99	59.65	2124.87	18.97	12.95	13.89	0.50	18.99	47.01
2150.00	0.92	60.88	2149.86	19.38	13.15	14.25	0.29	19.39	47.29
2175.00	0.98	57.80	2174.86	19.79	13.37	14.61	0.31	19.80	47.54
2200.00	0.87	58.57	2199.86	20.19	13.58	14.95	0.45	20.20	47.75
2225.00	0.94	63.44	2224.85	20.57	13.77	15.29	0.41	20.58	48.00
2250.00	0.94	61.78	2249.85	20.97	13.96	15.66	0.11	20.98	48.29
2275.00	0.79	67.43	2274.85	21.34	14.12	16.00	0.69	21.34	48.57
2300.00	0.84	68.93	2299.85	21.67	14.25	16.33	0.20	21.67	48.88
2325.00	0.84	70.84	2324.84	22.01	14.38	16.67	0.11	22.01	49.22
2350.00	0.88	72.95	2349.84	22.36	14.49	17.03	0.20	22.36	49.59
2375.00	0.81	76.53	2374.84	22.69	14.59	17.38	0.35	22.70	49.99

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
2400.00	0.77	78.15	2399.84	23.00	14.67	17.72	0.16	23.00	50.38
2425.00	0.72	81.33	2424.83	23.28	14.73	18.04	0.28	23.29	50.78
2450.00	0.65	78.92	2449.83	23.54	14.78	18.33	0.31	23.55	51.13
2475.00	0.48	72.31	2474.83	23.76	14.84	18.57	0.72	23.77	51.38
2500.00	0.36	62.79	2499.83	23.93	14.90	18.74	0.54	23.95	51.51
2525.00	0.33	47.22	2524.83	24.08	14.99	18.87	0.40	24.10	51.53
2550.00	0.29	41.49	2549.83	24.22	15.09	18.96	0.23	24.23	51.49
2575.00	0.28	23.05	2574.83	24.33	15.19	19.03	0.36	24.34	51.40
2600.00	0.30	9.55	2599.83	24.44	15.31	19.06	0.29	24.45	51.23
2625.00	0.36	15.55	2624.83	24.55	15.45	19.09	0.27	24.56	51.02
2650.00	0.40	5.31	2649.83	24.68	15.61	19.12	0.31	24.69	50.77
2675.00	0.46	11.68	2674.83	24.82	15.80	19.15	0.30	24.83	50.48
2700.00	0.50	18.51	2699.83	25.00	16.00	19.21	0.28	25.00	50.20
2725.00	0.54	25.03	2724.82	25.20	16.21	19.29	0.28	25.20	49.96
2750.00	0.57	28.64	2749.82	25.42	16.43	19.40	0.20	25.42	49.74
2775.00	0.54	31.17	2774.82	25.65	16.64	19.52	0.17	25.65	49.56
2800.00	0.48	34.57	2799.82	25.86	16.82	19.64	0.25	25.86	49.42
2825.00	0.51	36.46	2824.82	26.07	17.00	19.77	0.14	26.07	49.30
2850.00	0.47	36.37	2849.82	26.28	17.17	19.89	0.16	26.28	49.20
2875.00	0.37	27.38	2874.82	26.45	17.33	19.99	0.49	26.46	49.08
2900.00	0.38	20.90	2899.82	26.60	17.48	20.06	0.18	26.60	48.94
2925.00	0.42	16.34	2924.82	26.75	17.64	20.11	0.21	26.75	48.75
2950.00	0.51	18.19	2949.82	26.92	17.84	20.17	0.34	26.93	48.52
2975.00	0.48	11.33	2974.82	27.10	18.04	20.23	0.26	27.11	48.27
3000.00	0.51	12.02	2999.82	27.27	18.25	20.27	0.11	27.28	48.00
3025.00	0.56	14.36	3024.81	27.46	18.48	20.33	0.24	27.47	47.72
3050.00	0.63	15.53	3049.81	27.67	18.73	20.39	0.29	27.69	47.43
3075.00	0.67	21.27	3074.81	27.92	19.00	20.48	0.30	27.94	47.15
3100.00	0.66	22.55	3099.81	28.17	19.27	20.59	0.09	28.20	46.90
3125.00	0.63	20.86	3124.81	28.42	19.53	20.70	0.14	28.46	46.66
3150.00	0.64	25.09	3149.81	28.67	19.78	20.80	0.19	28.71	46.44
3175.00	0.62	24.33	3174.80	28.91	20.03	20.92	0.07	28.96	46.24

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3200.00	0.58	27.21	3199.80	29.15	20.27	21.03	0.20	29.21	46.06
3225.00	0.58	31.38	3224.80	29.39	20.49	21.15	0.17	29.45	45.92
3250.00	0.49	19.95	3249.80	29.60	20.70	21.26	0.55	29.67	45.77
3275.00	0.43	11.12	3274.80	29.77	20.89	21.31	0.38	29.84	45.57
3300.00	0.34	359.56	3299.80	29.89	21.05	21.33	0.46	29.97	45.37
3325.00	0.35	335.79	3324.80	29.96	21.20	21.30	0.57	30.05	45.13
3350.00	0.47	311.88	3349.80	29.96	21.33	21.19	0.82	30.07	44.80
3375.00	0.60	302.04	3374.80	29.91	21.47	21.00	0.66	30.03	44.37
3400.00	0.80	298.88	3399.80	29.81	21.63	20.74	0.81	29.96	43.80
3425.00	0.93	297.50	3424.79	29.67	21.80	20.40	0.50	29.86	43.10
3450.00	0.93	300.89	3449.79	29.53	22.00	20.05	0.22	29.77	42.34
3475.00	0.90	300.63	3474.79	29.40	22.21	19.70	0.12	29.69	41.58
3500.00	0.88	302.30	3499.78	29.28	22.41	19.37	0.14	29.62	40.84
3525.00	0.90	304.48	3524.78	29.17	22.62	19.05	0.17	29.57	40.10
3550.00	0.94	306.07	3549.78	29.07	22.85	18.72	0.17	29.54	39.32
3575.00	1.04	313.14	3574.77	29.00	23.13	18.39	0.64	29.55	38.49
3600.00	1.11	316.52	3599.77	28.96	23.46	18.06	0.36	29.61	37.58
3625.00	1.03	317.46	3624.76	28.94	23.80	17.74	0.32	29.69	36.70
3650.00	1.12	318.31	3649.76	28.93	24.15	17.43	0.38	29.78	35.81
3675.00	1.04	320.93	3674.76	28.93	24.51	17.12	0.36	29.90	34.94
3700.00	0.81	327.41	3699.75	28.96	24.83	16.88	1.04	30.03	34.21
3725.00	0.62	341.37	3724.75	29.03	25.11	16.74	1.01	30.18	33.70
3750.00	0.43	358.82	3749.75	29.14	25.33	16.70	0.97	30.34	33.39
3775.00	0.23	4.62	3774.75	29.24	25.48	16.70	0.84	30.46	33.25
3800.00	0.14	17.47	3799.75	29.30	25.55	16.71	0.39	30.53	33.19
3825.00	0.17	18.43	3824.75	29.35	25.62	16.73	0.12	30.60	33.16
3850.00	0.20	51.33	3849.75	29.43	25.68	16.78	0.43	30.67	33.16
3875.00	0.19	67.34	3874.75	29.51	25.72	16.85	0.22	30.75	33.23
3900.00	0.13	35.16	3899.75	29.58	25.76	16.91	0.42	30.81	33.28
3925.00	0.19	36.05	3924.75	29.64	25.82	16.95	0.25	30.88	33.28
3950.00	0.23	45.76	3949.75	29.74	25.89	17.01	0.21	30.97	33.31
3975.00	0.24	55.80	3974.75	29.84	25.95	17.09	0.17	31.07	33.36

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
4000.00	0.25	63.35	3999.75	29.94	26.00	17.18	0.15	31.17	33.45
4025.00	0.31	88.16	4024.75	30.05	26.03	17.30	0.53	31.25	33.60
4050.00	0.41	99.59	4049.75	30.16	26.02	17.45	0.49	31.33	33.85
4075.00	0.55	107.96	4074.75	30.28	25.97	17.65	0.63	31.40	34.21
4100.00	0.66	111.62	4099.74	30.41	25.88	17.90	0.46	31.47	34.68
4125.00	0.65	103.93	4124.74	30.56	25.79	18.18	0.35	31.55	35.18
4150.00	0.67	96.24	4149.74	30.74	25.74	18.46	0.36	31.67	35.65
4175.00	0.65	91.34	4174.74	30.95	25.72	18.75	0.24	31.82	36.09
4200.00	0.69	89.69	4199.74	31.17	25.72	19.04	0.19	32.00	36.51
4225.00	0.70	97.76	4224.74	31.39	25.70	19.34	0.39	32.16	36.97
4250.00	0.79	103.38	4249.73	31.59	25.64	19.66	0.48	32.31	37.48
4275.00	0.79	99.34	4274.73	31.81	25.57	20.00	0.22	32.46	38.03
4300.00	1.01	97.30	4299.73	32.06	25.51	20.39	0.87	32.66	38.63
4325.00	1.02	95.25	4324.72	32.37	25.46	20.83	0.16	32.90	39.28
4350.00	1.07	98.94	4349.72	32.68	25.41	21.28	0.34	33.14	39.95
4375.00	1.13	99.48	4374.72	32.99	25.33	21.75	0.25	33.39	40.66
4400.00	1.18	102.22	4399.71	33.30	25.23	22.25	0.30	33.64	41.41
4425.00	1.30	104.07	4424.70	33.62	25.11	22.78	0.49	33.90	42.21
4450.00	1.43	105.08	4449.70	33.97	24.96	23.35	0.52	34.18	43.10
4475.00	1.48	107.32	4474.69	34.31	24.78	23.96	0.31	34.47	44.04
4500.00	1.53	102.28	4499.68	34.69	24.62	24.60	0.56	34.80	44.98
4525.00	1.40	89.40	4524.67	35.12	24.55	25.23	1.40	35.20	45.78
4550.00	1.52	91.92	4549.66	35.60	24.54	25.86	0.52	35.65	46.50
4575.00	1.64	99.94	4574.66	36.08	24.47	26.55	1.02	36.10	47.33
4600.00	1.86	96.86	4599.64	36.58	24.36	27.30	0.95	36.59	48.26
4625.00	1.63	99.56	4624.63	37.08	24.25	28.06	0.97	37.08	49.16
4636.80	1.43	107.68	4636.43	37.27	24.18	28.36	2.49	37.27	49.55

VS View



Plan View

