



K.P. KAUFFMAN

SURVEY REPORT

STONEBRAKER 42-12

2/2/2018



The **Ultimate Partner** In Wellbore Placement

CUSTOMER K.P. Kauffman
PROJECT Stonebraker 42-12
FIELD Spindle
DEFINITIVE SURVEY None

SDI JOB NO. OP.007810
SDI DISTRICT Casper
SDI KIT/UNIT

SITE INFORMATION

Site Name Stonebraker 42-12
Lat/Long 40.067983° N, 104.945213° W
Northing
Easting

Section 12
Township 1
Range 68W

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

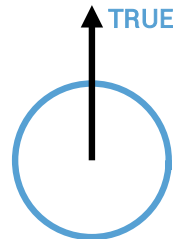
Lat/Long 40.067983° N, 104.945213° E
Northing
Easting
UWI 05-123-16056 UWB1 05-123-16056

DEPTH AND ELEVATION REFERENCE

Ground Level 5095 ft above Mean Sea Level
Reference Datum GL
Reference Height 0 ft above G.L.
Reference Elevation 5095 ft

VERTICAL SECTION REFERENCE

+N/-S 0 ft
+E/-W 0 ft
Proposal Direction 333.97°
Calculation Method Minimum Curvature



LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity 999.026 mG [computed]

WELL NOTES

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

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
94.26	0.31	66.45	94.26	-0.01	0.10	0.24	0.33	0.26	66.45
100.00	0.29	62.55	100.00	-0.01	0.12	0.26	0.49	0.29	66.25
125.00	0.24	52.75	125.00	0.00	0.18	0.36	0.29	0.40	63.93
150.00	0.16	48.76	150.00	0.02	0.23	0.43	0.31	0.49	61.66
175.00	0.13	349.19	175.00	0.06	0.28	0.45	0.60	0.53	57.81
200.00	0.12	16.16	200.00	0.10	0.34	0.45	0.24	0.57	53.30
225.00	0.25	307.31	225.00	0.17	0.40	0.42	0.93	0.57	46.54
250.00	0.34	316.31	250.00	0.29	0.48	0.32	0.41	0.58	33.81
275.00	0.51	291.19	275.00	0.44	0.58	0.17	0.99	0.60	16.23
300.00	0.72	286.78	300.00	0.63	0.66	-0.09	0.88	0.67	352.48
325.00	0.42	308.47	325.00	0.82	0.76	-0.31	1.47	0.83	337.90
350.00	0.39	303.40	349.99	0.98	0.87	-0.45	0.20	0.98	332.46
375.00	0.39	296.19	374.99	1.12	0.95	-0.60	0.20	1.13	327.79
400.00	0.45	298.49	399.99	1.27	1.04	-0.76	0.25	1.29	323.64
425.00	0.45	299.46	424.99	1.43	1.13	-0.94	0.03	1.47	320.43
450.00	0.42	298.98	449.99	1.59	1.23	-1.10	0.14	1.65	318.04
475.00	0.45	293.16	474.99	1.73	1.31	-1.27	0.22	1.83	315.80
500.00	0.48	285.80	499.99	1.88	1.38	-1.46	0.26	2.01	313.24
525.00	0.52	282.25	524.99	2.02	1.43	-1.67	0.23	2.20	310.47
550.00	0.63	277.51	549.99	2.16	1.47	-1.92	0.48	2.42	307.42
575.00	0.61	275.30	574.99	2.31	1.50	-2.19	0.13	2.66	304.41
600.00	0.72	275.36	599.98	2.46	1.53	-2.48	0.45	2.91	301.63
625.00	0.81	277.50	624.98	2.64	1.57	-2.81	0.36	3.22	299.11
650.00	0.83	277.33	649.98	2.84	1.61	-3.16	0.08	3.55	296.98
675.00	0.87	276.39	674.98	3.04	1.66	-3.53	0.19	3.90	295.11
700.00	0.87	275.48	699.97	3.24	1.69	-3.91	0.06	4.26	293.43
725.00	0.80	269.49	724.97	3.41	1.71	-4.28	0.45	4.61	291.81
750.00	0.78	264.47	749.97	3.55	1.69	-4.62	0.30	4.92	290.13
775.00	0.79	267.54	774.97	3.68	1.67	-4.96	0.18	5.23	288.60
800.00	0.76	268.27	799.96	3.81	1.66	-5.30	0.13	5.55	287.37
825.00	0.76	267.18	824.96	3.95	1.64	-5.63	0.06	5.86	286.28

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
850.00	0.65	266.96	849.96	4.07	1.63	-5.94	0.42	6.16	285.34
875.00	0.71	268.73	874.96	4.19	1.62	-6.23	0.24	6.44	284.55
900.00	0.88	269.69	899.96	4.34	1.61	-6.58	0.70	6.78	283.77
925.00	0.96	270.14	924.95	4.51	1.61	-6.98	0.29	7.17	283.00
950.00	0.95	270.18	949.95	4.70	1.61	-7.40	0.03	7.57	282.30
975.00	0.92	271.94	974.95	4.88	1.62	-7.80	0.17	7.97	281.73
1000.00	0.88	275.71	999.94	5.08	1.65	-8.20	0.27	8.36	281.36
1025.00	1.02	275.53	1024.94	5.29	1.69	-8.61	0.56	8.77	281.09
1050.00	1.11	274.71	1049.94	5.53	1.73	-9.07	0.36	9.24	280.79
1075.00	1.12	275.57	1074.93	5.79	1.77	-9.56	0.08	9.72	280.51
1100.00	1.14	276.92	1099.93	6.05	1.83	-10.05	0.13	10.22	280.30
1125.00	1.15	279.07	1124.92	6.33	1.90	-10.55	0.17	10.71	280.19
1150.00	1.15	280.32	1149.92	6.62	1.98	-11.04	0.10	11.21	280.17
1175.00	1.14	284.64	1174.91	6.93	2.09	-11.53	0.35	11.71	280.27
1200.00	1.22	287.12	1199.91	7.28	2.23	-12.02	0.36	12.23	280.51
1225.00	1.32	285.92	1224.90	7.65	2.39	-12.55	0.42	12.78	280.77
1250.00	1.30	289.13	1249.89	8.05	2.56	-13.10	0.30	13.34	281.05
1275.00	1.44	288.75	1274.89	8.47	2.75	-13.66	0.56	13.94	281.39
1300.00	1.36	291.49	1299.88	8.91	2.96	-14.23	0.42	14.54	281.75
1325.00	1.49	292.60	1324.87	9.37	3.19	-14.81	0.54	15.15	282.17
1350.00	1.52	293.65	1349.86	9.87	3.45	-15.41	0.16	15.79	282.63
1375.00	1.39	299.33	1374.85	10.37	3.73	-15.98	0.77	16.41	283.15
1400.00	1.61	296.78	1399.85	10.90	4.04	-16.56	0.91	17.05	283.71
1425.00	1.63	299.15	1424.84	11.47	4.37	-17.18	0.28	17.73	284.28
1450.00	1.60	303.28	1449.83	12.06	4.74	-17.78	0.48	18.40	284.91
1475.00	1.65	306.76	1474.82	12.68	5.14	-18.36	0.44	19.07	285.64
1500.00	1.92	303.75	1499.80	13.36	5.59	-19.00	1.15	19.81	286.40
1525.00	1.95	304.45	1524.79	14.09	6.06	-19.70	0.16	20.61	287.11
1550.00	2.03	303.12	1549.77	14.84	6.55	-20.42	0.35	21.44	287.78
1575.00	2.12	305.33	1574.76	15.63	7.06	-21.17	0.48	22.31	288.43
1600.00	2.13	306.73	1599.74	16.45	7.60	-21.92	0.22	23.20	289.13
1625.00	2.19	309.84	1624.72	17.30	8.19	-22.66	0.53	24.09	289.86

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
1650.00	2.25	312.13	1649.70	18.19	8.82	-23.39	0.41	25.00	290.66
1675.00	2.29	312.67	1674.68	19.11	9.49	-24.12	0.19	25.92	291.47
1700.00	2.34	312.97	1699.66	20.05	10.17	-24.86	0.22	26.86	292.26
1725.00	2.40	314.34	1724.64	21.02	10.89	-25.61	0.33	27.82	293.03
1750.00	2.53	319.85	1749.62	22.05	11.67	-26.34	1.09	28.81	293.91
1775.00	2.63	322.04	1774.59	23.14	12.55	-27.05	0.56	29.82	294.89
1800.00	2.54	315.36	1799.57	24.23	13.40	-27.79	1.26	30.85	295.74
1825.00	2.63	318.20	1824.54	25.31	14.22	-28.56	0.62	31.90	296.47
1850.00	2.67	319.57	1849.52	26.42	15.09	-29.32	0.30	32.97	297.23
1875.00	2.73	319.62	1874.49	27.56	15.98	-30.08	0.23	34.07	297.98
1900.00	2.76	322.46	1899.46	28.73	16.91	-30.83	0.56	35.17	298.75
1925.00	2.75	323.86	1924.43	29.91	17.88	-31.56	0.27	36.27	299.53
1950.00	2.77	322.16	1949.40	31.09	18.84	-32.28	0.34	37.38	300.27
1975.00	2.88	323.71	1974.37	32.30	19.82	-33.02	0.51	38.52	300.98
2000.00	2.84	321.83	1999.34	33.53	20.82	-33.78	0.40	39.68	301.64
2025.00	2.75	320.67	2024.31	34.72	21.77	-34.54	0.42	40.83	302.22
2050.00	2.82	324.80	2049.28	35.91	22.73	-35.27	0.84	41.96	302.80
2075.00	2.86	326.20	2074.25	37.13	23.75	-35.98	0.32	43.11	303.43
2100.00	2.82	324.87	2099.22	38.35	24.77	-36.68	0.30	44.26	304.04
2125.00	2.94	319.95	2124.19	39.58	25.77	-37.44	1.10	45.45	304.54
2150.00	2.99	319.43	2149.16	40.84	26.75	-38.28	0.22	46.70	304.95
2175.00	3.01	321.79	2174.12	42.11	27.77	-39.11	0.50	47.96	305.37
2200.00	3.04	324.28	2199.09	43.41	28.82	-39.90	0.54	49.22	305.84
2225.00	3.12	324.83	2224.05	44.73	29.91	-40.68	0.33	50.50	306.33
2250.00	3.12	322.20	2249.01	46.07	31.01	-41.49	0.57	51.80	306.77
2275.00	3.08	322.02	2273.98	47.40	32.08	-42.32	0.17	53.11	307.16
2300.00	3.07	324.80	2298.94	48.71	33.15	-43.12	0.60	54.39	307.55
2325.00	2.93	325.25	2323.91	50.00	34.22	-43.87	0.56	55.64	307.96
2350.00	2.82	328.85	2348.87	51.25	35.28	-44.55	0.83	56.83	308.37
2375.00	2.89	331.21	2373.84	52.49	36.35	-45.18	0.54	57.99	308.82
2400.00	2.85	331.32	2398.81	53.74	37.45	-45.78	0.15	59.15	309.29
2425.00	2.87	335.37	2423.78	54.99	38.57	-46.34	0.81	60.29	309.77

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2450.00	2.86	336.73	2448.75	56.24	39.71	-46.84	0.27	61.41	310.29
2475.00	2.77	336.28	2473.72	57.47	40.84	-47.33	0.38	62.51	310.79
2500.00	2.70	338.89	2498.69	58.66	41.94	-47.79	0.57	63.58	311.27
2525.00	2.77	338.67	2523.66	59.85	43.05	-48.22	0.25	64.64	311.76
2550.00	2.79	339.84	2548.63	61.05	44.19	-48.65	0.24	65.72	312.25
2575.00	2.72	340.57	2573.60	62.25	45.32	-49.06	0.31	66.78	312.73
2600.00	2.66	343.00	2598.58	63.41	46.43	-49.42	0.52	67.81	313.21
2625.00	2.67	344.63	2623.55	64.55	47.55	-49.75	0.31	68.81	313.70
2650.00	2.67	343.63	2648.52	65.70	48.67	-50.07	0.19	69.82	314.19
2675.00	2.67	345.57	2673.50	66.84	49.79	-50.38	0.36	70.83	314.66
2700.00	2.63	345.24	2698.47	67.98	50.91	-50.67	0.16	71.82	315.14
2725.00	2.60	344.22	2723.44	69.10	52.01	-50.97	0.23	72.82	315.58
2750.00	2.67	345.08	2748.42	70.23	53.11	-51.27	0.34	73.82	316.01
2775.00	2.66	346.93	2773.39	71.36	54.24	-51.55	0.35	74.83	316.46
2800.00	2.61	347.01	2798.36	72.48	55.36	-51.81	0.18	75.82	316.90
2825.00	2.56	348.11	2823.34	73.58	56.46	-52.05	0.30	76.80	317.33
2850.00	2.53	347.67	2848.31	74.66	57.55	-52.29	0.13	77.76	317.74
2875.00	2.61	353.02	2873.29	75.73	58.65	-52.47	1.00	78.70	318.18
2900.00	2.52	356.00	2898.26	76.78	59.76	-52.58	0.64	79.60	318.66
2925.00	2.44	357.32	2923.24	77.77	60.84	-52.64	0.38	80.46	319.13
2950.00	2.47	358.90	2948.22	78.75	61.91	-52.68	0.30	81.29	319.61
2975.00	2.47	1.25	2973.19	79.72	62.99	-52.68	0.41	82.12	320.09
3000.00	2.40	4.16	2998.17	80.65	64.05	-52.63	0.56	82.90	320.59
3025.00	2.41	5.57	3023.15	81.55	65.10	-52.54	0.24	83.65	321.09
3050.00	2.41	6.65	3048.13	82.44	66.14	-52.43	0.18	84.40	321.60
3075.00	2.33	7.19	3073.10	83.31	67.17	-52.30	0.31	85.13	322.09
3100.00	2.14	5.98	3098.09	84.13	68.14	-52.19	0.78	85.83	322.55
3125.00	2.11	5.84	3123.07	84.91	69.06	-52.10	0.14	86.50	322.97
3150.00	1.99	4.57	3148.05	85.68	69.95	-52.01	0.53	87.17	323.36
3175.00	1.80	2.24	3173.04	86.40	70.77	-51.96	0.80	87.80	323.71
3200.00	1.67	355.28	3198.03	87.08	71.53	-51.98	1.00	88.42	323.99
3225.00	1.58	350.22	3223.02	87.75	72.23	-52.07	0.67	89.04	324.21

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3250.00	1.36	337.69	3248.01	88.38	72.84	-52.24	1.56	89.64	324.35
3275.00	1.50	332.30	3273.00	89.00	73.41	-52.50	0.78	90.25	324.43
3300.00	1.52	329.94	3297.99	89.66	73.98	-52.82	0.26	90.90	324.47
3325.00	1.57	326.41	3322.98	90.33	74.56	-53.18	0.43	91.58	324.50
3350.00	1.62	325.68	3347.97	91.02	75.13	-53.57	0.23	92.27	324.51
3375.00	1.59	326.41	3372.96	91.71	75.71	-53.96	0.17	92.97	324.52
3400.00	1.69	327.30	3397.95	92.42	76.31	-54.35	0.44	93.69	324.54
3425.00	1.69	326.17	3422.94	93.16	76.93	-54.75	0.14	94.43	324.56
3450.00	1.75	325.23	3447.93	93.90	77.55	-55.18	0.27	95.18	324.57
3475.00	1.77	328.04	3472.92	94.66	78.19	-55.60	0.35	95.94	324.59
3500.00	1.74	328.97	3497.91	95.42	78.85	-56.00	0.16	96.71	324.62
3525.00	1.77	333.00	3522.90	96.19	79.51	-56.37	0.50	97.47	324.67
3550.00	1.65	332.95	3547.89	96.93	80.18	-56.71	0.45	98.21	324.73
3575.00	1.67	338.00	3572.88	97.66	80.84	-57.01	0.59	98.92	324.81
3600.00	1.57	338.82	3597.87	98.36	81.50	-57.27	0.45	99.61	324.90
3625.00	1.65	340.06	3622.86	99.06	82.15	-57.52	0.35	100.28	325.00
3650.00	1.66	339.29	3647.84	99.77	82.83	-57.77	0.09	100.98	325.11
3675.00	1.66	343.41	3672.83	100.49	83.51	-58.00	0.48	101.68	325.22
3700.00	1.72	342.00	3697.82	101.22	84.22	-58.22	0.30	102.38	325.35
3725.00	1.70	344.16	3722.81	101.96	84.93	-58.43	0.27	103.09	325.47
3750.00	1.83	350.09	3747.80	102.71	85.68	-58.60	0.89	103.81	325.63
3775.00	1.92	351.12	3772.79	103.49	86.49	-58.74	0.37	104.55	325.82
3800.00	1.85	353.51	3797.77	104.27	87.30	-58.85	0.40	105.28	326.02
3825.00	2.04	358.23	3822.76	105.06	88.15	-58.91	0.98	106.02	326.25
3850.00	2.18	358.56	3847.74	105.90	89.07	-58.93	0.56	106.80	326.51
3875.00	2.12	359.98	3872.72	106.74	90.01	-58.94	0.31	107.59	326.78
3900.00	2.08	5.72	3897.71	107.55	90.92	-58.90	0.86	108.33	327.06
3925.00	2.20	11.14	3922.69	108.31	91.84	-58.76	0.95	109.03	327.39
3950.00	2.31	14.68	3947.67	109.08	92.80	-58.54	0.70	109.72	327.76
3975.00	2.20	18.63	3972.65	109.80	93.74	-58.26	0.75	110.37	328.14
4000.00	2.15	20.09	3997.63	110.47	94.64	-57.94	0.31	110.97	328.52
4025.00	2.31	20.37	4022.61	111.14	95.55	-57.61	0.62	111.58	328.91

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4050.00	2.35	21.57	4047.59	111.84	96.50	-57.24	0.26	112.20	329.32
4075.00	2.25	19.96	4072.57	112.52	97.44	-56.89	0.50	112.83	329.72
4100.00	2.15	22.70	4097.56	113.17	98.33	-56.54	0.56	113.43	330.10
4125.00	2.16	30.08	4122.54	113.74	99.18	-56.12	1.11	113.95	330.49
4150.00	2.18	32.32	4147.52	114.26	99.99	-55.63	0.35	114.42	330.91
4175.00	2.12	29.82	4172.50	114.77	100.79	-55.15	0.45	114.89	331.31
4200.00	1.73	24.70	4197.49	115.26	101.53	-54.76	1.71	115.36	331.66
4225.00	1.50	22.83	4222.48	115.72	102.18	-54.48	0.93	115.79	331.94
4250.00	1.58	27.00	4247.47	116.14	102.78	-54.19	0.54	116.20	332.20
4275.00	1.54	22.71	4272.46	116.57	103.40	-53.91	0.49	116.61	332.47
4300.00	1.53	15.16	4297.45	117.04	104.03	-53.69	0.81	117.07	332.70
4325.00	1.51	17.22	4322.44	117.53	104.67	-53.50	0.24	117.55	332.93
4350.00	1.31	15.18	4347.43	117.99	105.26	-53.33	0.82	118.00	333.13
4375.00	0.88	16.00	4372.43	118.35	105.72	-53.20	1.74	118.36	333.29
4400.00	0.93	18.32	4397.43	118.63	106.10	-53.09	0.24	118.64	333.42
4425.00	0.88	12.30	4422.42	118.93	106.48	-52.98	0.42	118.93	333.55
4450.00	0.75	353.97	4447.42	119.23	106.83	-52.96	1.17	119.24	333.63
4475.00	0.77	4.69	4472.42	119.53	107.16	-52.96	0.57	119.53	333.70
4500.00	0.74	9.71	4497.42	119.80	107.48	-52.92	0.28	119.81	333.79
4525.00	0.75	13.75	4522.41	120.06	107.80	-52.86	0.22	120.06	333.88
4550.00	0.71	15.35	4547.41	120.30	108.11	-52.78	0.19	120.30	333.98
4575.00	0.55	6.45	4572.41	120.52	108.38	-52.72	0.73	120.52	334.06
4600.00	0.50	5.57	4597.41	120.72	108.61	-52.70	0.23	120.72	334.12
4625.00	0.34	7.60	4622.41	120.87	108.79	-52.68	0.65	120.87	334.16
4650.00	0.35	7.99	4647.41	121.00	108.94	-52.66	0.08	121.00	334.20
4675.00	0.27	13.54	4672.41	121.10	109.07	-52.63	0.38	121.11	334.24
4700.00	0.14	339.22	4697.41	121.18	109.16	-52.63	0.68	121.18	334.26
4725.00	0.23	243.91	4722.41	121.21	109.16	-52.68	1.11	121.21	334.24
4750.00	0.19	224.16	4747.41	121.20	109.11	-52.76	0.32	121.20	334.20
4775.00	0.17	185.90	4772.41	121.15	109.04	-52.79	0.47	121.15	334.17
4800.00	0.19	203.10	4797.41	121.09	108.97	-52.81	0.22	121.09	334.14
4825.00	0.26	229.57	4822.41	121.05	108.90	-52.87	0.51	121.05	334.10

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4850.00	0.34	215.93	4847.41	121.00	108.80	-52.96	0.41	121.00	334.05
4875.00	0.31	203.84	4872.41	120.93	108.68	-53.03	0.29	120.93	333.99
4884.86	0.35	192.11	4882.27	120.88	108.62	-53.04	0.76	120.88	333.97

