



K.P. KAUFFMAN

SURVEY REPORT

WALTER HUNZIKER #1

KPK 2

1/2/2015



The **Ultimate Partner** In Wellbore Placement

CUSTOMER K.P. Kauffman
PROJECT Walter Hunziker #1
FIELD Spindle

SDI JOB NO. 240945
SDI DISTRICT Casper
SDI KIT/UNIT

SITE INFORMATION

Site Name Weld County, Colorado
Lat/Long 40.103878° N, 104.893326° W
Northing
Easting

Section 28
Township 2N
Range 67W

MAP INFORMATION

North Reference True North
Grid Correction
System US State Plane 1927
Datum North American Datum 1927 (Clarke 1866)
Map Zone Colorado North: 0501



WELL INFORMATION

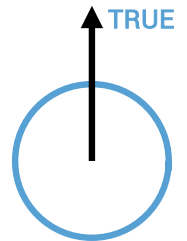
Lat/Long 40.103878° N, 104.893326° W
Northing
Easting
UWI 05 123 07424

DEPTH AND ELEVATION REFERENCE

Ground Level 5048 ft above Mean Sea Level
Reference Datum Ground Level
Reference Height 0 ft above G.L.
Reference Elevation 5048 ft

VERTICAL SECTION REFERENCE

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



LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity 999.034 mG [computed]

WELL NOTES

Survey run in 4.5" casing from surface to 4703'

OPERATORS

J Valenzuela

SDI Operator Name (Printed)

SIGNATURE

DATE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
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
87.53	0.57	195.50	87.53	0.20	-0.42	-0.12	0.66	0.44	195.50
98.45	0.44	184.76	98.45	0.24	-0.52	-0.14	1.53	0.53	194.67
122.74	0.46	188.07	122.74	0.30	-0.71	-0.16	0.13	0.72	192.53
146.26	0.64	206.14	146.25	0.41	-0.92	-0.23	1.06	0.94	193.96
173.97	0.65	211.69	173.96	0.62	-1.19	-0.38	0.23	1.25	197.67
198.77	0.63	215.27	198.76	0.82	-1.42	-0.53	0.19	1.52	200.52
223.82	0.59	217.14	223.81	1.01	-1.63	-0.69	0.19	1.77	202.84
247.93	0.47	220.11	247.92	1.18	-1.81	-0.83	0.49	1.99	204.56
272.52	0.50	211.37	272.51	1.34	-1.98	-0.95	0.33	2.19	205.60
298.34	0.39	222.23	298.33	1.49	-2.14	-1.07	0.55	2.39	206.47
324.36	0.25	256.70	324.35	1.61	-2.22	-1.18	0.89	2.51	208.01
348.67	0.36	260.30	348.66	1.74	-2.24	-1.30	0.45	2.59	210.20
372.91	0.26	270.99	372.90	1.87	-2.25	-1.43	0.46	2.67	212.46
396.49	0.32	296.98	396.47	1.97	-2.22	-1.55	0.61	2.71	214.82
420.69	0.36	322.37	420.68	2.06	-2.13	-1.65	0.65	2.70	217.81
448.76	0.33	320.45	448.74	2.14	-2.00	-1.76	0.14	2.66	221.35
472.95	0.29	309.89	472.94	2.21	-1.91	-1.85	0.29	2.66	224.12
496.35	0.27	315.73	496.33	2.27	-1.83	-1.93	0.13	2.66	226.58
520.51	0.25	281.51	520.49	2.35	-1.78	-2.03	0.65	2.69	228.73
549.42	0.30	258.56	549.40	2.49	-1.78	-2.16	0.41	2.80	230.55
572.81	0.34	259.78	572.79	2.62	-1.80	-2.29	0.16	2.92	231.78
596.95	0.34	262.90	596.94	2.76	-1.83	-2.43	0.08	3.04	233.10
620.45	0.43	254.21	620.44	2.92	-1.86	-2.59	0.45	3.18	234.30
649.20	0.54	251.24	649.18	3.16	-1.93	-2.82	0.40	3.42	235.58
673.32	0.67	249.62	673.31	3.41	-2.02	-3.06	0.53	3.66	236.59
696.68	0.42	269.79	696.66	3.63	-2.06	-3.27	1.33	3.87	237.74
720.79	0.55	261.09	720.77	3.83	-2.08	-3.47	0.62	4.05	239.05
748.86	0.58	256.15	748.84	4.11	-2.14	-3.75	0.21	4.31	240.29
772.97	0.74	246.64	772.95	4.38	-2.23	-4.01	0.80	4.59	240.92
797.06	0.76	248.97	797.03	4.70	-2.35	-4.30	0.14	4.90	241.36
820.39	0.71	248.38	820.36	4.99	-2.46	-4.58	0.22	5.20	241.78

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
849.24	0.79	243.06	849.21	5.36	-2.61	-4.92	0.39	5.57	242.04
872.60	0.87	238.82	872.57	5.68	-2.78	-5.22	0.41	5.91	241.97
896.66	0.81	243.80	896.62	6.02	-2.95	-5.53	0.38	6.26	241.93
924.67	0.89	246.57	924.63	6.43	-3.12	-5.91	0.33	6.68	242.14
948.72	0.95	238.73	948.68	6.80	-3.30	-6.25	0.57	7.07	242.16
972.75	0.89	236.16	972.71	7.16	-3.51	-6.57	0.28	7.45	241.92
995.98	0.97	241.81	995.93	7.52	-3.70	-6.90	0.50	7.83	241.78
1024.18	0.99	238.67	1024.13	7.98	-3.94	-7.32	0.20	8.31	241.69
1047.00	0.96	237.06	1046.95	8.34	-4.15	-7.64	0.16	8.70	241.52
1070.50	0.97	236.45	1070.45	8.71	-4.36	-7.98	0.06	9.09	241.31
1098.57	0.90	234.55	1098.50	9.13	-4.62	-8.35	0.27	9.55	241.04
1121.50	0.87	233.08	1121.43	9.46	-4.83	-8.64	0.16	9.90	240.78
1149.56	0.81	234.84	1149.49	9.83	-5.08	-8.97	0.24	10.31	240.50
1172.36	0.68	233.40	1172.30	10.10	-5.25	-9.21	0.57	10.60	240.33
1196.00	0.74	233.67	1195.93	10.37	-5.42	-9.45	0.24	10.89	240.15
1224.20	0.79	235.57	1224.13	10.72	-5.64	-9.76	0.20	11.27	239.96
1247.00	0.68	232.31	1246.93	10.98	-5.81	-9.99	0.50	11.56	239.81
1270.56	0.59	224.84	1270.48	11.21	-5.98	-10.19	0.51	11.82	239.57
1298.00	0.75	233.08	1297.92	11.49	-6.19	-10.43	0.68	12.13	239.31
1320.79	0.69	230.64	1320.71	11.75	-6.37	-10.66	0.32	12.42	239.14
1349.57	0.71	231.04	1349.48	12.06	-6.59	-10.93	0.08	12.76	238.91
1372.38	0.76	228.51	1372.29	12.32	-6.78	-11.15	0.28	13.05	238.70
1396.06	0.63	229.54	1395.97	12.57	-6.97	-11.37	0.57	13.34	238.49
1423.37	0.58	224.92	1423.29	12.82	-7.17	-11.58	0.26	13.62	238.26
1446.92	0.58	222.68	1446.83	13.02	-7.34	-11.75	0.10	13.85	238.01
1470.47	0.58	231.23	1470.38	13.22	-7.50	-11.92	0.37	14.09	237.83
1497.93	0.51	218.75	1497.84	13.44	-7.68	-12.11	0.50	14.34	237.60
1521.49	0.54	229.71	1521.40	13.62	-7.84	-12.26	0.45	14.55	237.41
1548.98	0.50	225.49	1548.89	13.84	-8.00	-12.44	0.21	14.80	237.25
1572.54	0.52	226.46	1572.44	14.01	-8.15	-12.59	0.08	15.00	237.09
1595.30	0.71	228.87	1595.21	14.22	-8.31	-12.77	0.86	15.24	236.94
1623.33	0.67	229.28	1623.23	14.52	-8.53	-13.03	0.14	15.58	236.77

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DISTANCE ft	CLOSURE DIRECTION deg
1646.97	0.69	232.04	1646.87	14.77	-8.71	-13.25	0.16	15.86	236.66
1672.38	0.48	230.72	1672.28	15.00	-8.88	-13.45	0.82	16.11	236.58
1697.12	0.53	237.46	1697.01	15.20	-9.00	-13.63	0.30	16.33	236.55
1721.74	0.61	249.34	1721.63	15.44	-9.11	-13.85	0.57	16.57	236.66
1749.48	0.67	249.95	1749.38	15.74	-9.22	-14.14	0.23	16.87	236.89
1773.53	0.69	251.06	1773.42	16.03	-9.31	-14.41	0.11	17.15	237.12
1799.37	0.67	247.10	1799.27	16.33	-9.42	-14.69	0.21	17.45	237.33
1824.05	0.80	250.53	1823.94	16.64	-9.54	-14.99	0.55	17.76	237.53
1849.49	0.66	249.81	1849.38	16.96	-9.64	-15.29	0.55	18.08	237.76
1871.39	0.39	264.92	1871.28	17.16	-9.69	-15.48	1.36	18.27	237.94
1898.94	0.65	252.97	1898.82	17.41	-9.75	-15.72	1.02	18.50	238.20
1922.77	0.75	253.10	1922.65	17.70	-9.83	-16.00	0.44	18.78	238.43
1945.84	0.73	257.93	1945.72	17.99	-9.91	-16.29	0.29	19.07	238.69
1974.36	0.70	266.76	1974.24	18.35	-9.96	-16.64	0.40	19.39	239.11
1998.17	0.61	281.19	1998.05	18.61	-9.94	-16.91	0.77	19.61	239.55
2021.22	0.58	275.93	2021.10	18.83	-9.90	-17.15	0.27	19.80	239.99
2049.71	0.62	279.15	2049.59	19.11	-9.86	-17.44	0.18	20.04	240.51
2073.52	0.66	288.20	2073.39	19.35	-9.80	-17.70	0.46	20.23	241.03
2096.55	0.42	267.27	2096.43	19.55	-9.76	-17.91	1.34	20.40	241.41
2124.90	0.41	284.26	2124.77	19.74	-9.74	-18.11	0.43	20.57	241.73
2148.05	0.37	288.10	2147.92	19.88	-9.70	-18.26	0.21	20.68	242.03
2172.33	0.36	296.76	2172.20	20.01	-9.64	-18.41	0.23	20.78	242.36
2199.39	0.24	284.52	2199.26	20.13	-9.59	-18.54	0.50	20.87	242.65
2223.16	0.29	281.78	2223.03	20.23	-9.56	-18.64	0.23	20.95	242.84
2247.05	0.23	308.37	2246.92	20.31	-9.52	-18.74	0.56	21.02	243.07
2274.59	0.20	322.40	2274.46	20.37	-9.45	-18.81	0.22	21.05	243.33
2298.33	0.18	21.54	2298.20	20.37	-9.38	-18.83	0.79	21.03	243.51
2321.33	0.24	18.74	2321.20	20.32	-9.30	-18.80	0.30	20.97	243.67
2349.72	0.41	46.67	2349.59	20.20	-9.18	-18.70	0.79	20.83	243.87
2373.47	0.44	44.66	2373.34	20.05	-9.05	-18.58	0.13	20.67	244.02
2396.44	0.40	45.14	2396.31	19.91	-8.93	-18.46	0.17	20.51	244.17
2424.85	0.56	57.08	2424.71	19.70	-8.79	-18.27	0.66	20.28	244.31

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2447.83	0.39	51.82	2447.69	19.52	-8.68	-18.12	0.74	20.09	244.40
2471.36	0.75	68.65	2471.23	19.30	-8.57	-17.91	1.66	19.85	244.42
2499.14	0.78	66.69	2499.00	18.93	-8.43	-17.56	0.15	19.48	244.36
2521.61	0.83	71.42	2521.47	18.62	-8.32	-17.27	0.35	19.17	244.28
2549.30	0.96	75.95	2549.16	18.19	-8.20	-16.86	0.54	18.74	244.06
2571.77	0.94	74.14	2571.62	17.82	-8.10	-16.50	0.15	18.38	243.84
2599.57	1.10	95.51	2599.42	17.34	-8.07	-16.01	1.46	17.93	243.27
2622.79	1.18	89.86	2622.64	16.89	-8.09	-15.55	0.60	17.53	242.53
2649.84	1.11	87.20	2649.68	16.36	-8.07	-15.01	0.32	17.05	241.73
2673.06	1.10	89.70	2672.89	15.93	-8.06	-14.57	0.22	16.65	241.04
2699.99	1.12	91.84	2699.82	15.42	-8.07	-14.05	0.17	16.20	240.13
2723.23	1.03	85.09	2723.05	14.99	-8.06	-13.61	0.65	15.82	239.38
2746.58	0.94	91.16	2746.40	14.60	-8.04	-13.21	0.60	15.47	238.67
2773.51	0.67	92.49	2773.33	14.23	-8.05	-12.83	1.00	15.15	237.89
2796.73	0.52	83.10	2796.55	13.99	-8.05	-12.60	0.77	14.95	237.43
2824.53	0.43	96.74	2824.35	13.77	-8.04	-12.37	0.51	14.75	236.96
2847.03	0.28	71.04	2846.85	13.63	-8.04	-12.23	0.97	14.63	236.69
2874.71	0.26	113.99	2874.53	13.52	-8.04	-12.11	0.71	14.54	236.42
2897.33	0.24	82.29	2897.15	13.43	-8.05	-12.02	0.60	14.47	236.17
2925.00	0.08	60.77	2924.82	13.35	-8.04	-11.94	0.59	14.40	236.06
2947.49	0.13	86.67	2947.31	13.32	-8.03	-11.91	0.28	14.36	236.01
2970.71	0.14	120.99	2970.53	13.27	-8.04	-11.86	0.35	14.33	235.85
2998.51	0.02	206.33	2998.33	13.25	-8.06	-11.83	0.51	14.31	235.72
3021.00	0.20	71.37	3020.81	13.21	-8.05	-11.79	0.93	14.28	235.67
3048.67	0.16	40.96	3048.49	13.13	-8.01	-11.72	0.36	14.20	235.65
3072.00	0.19	358.08	3071.81	13.10	-7.95	-11.70	0.56	14.15	235.82
3098.78	0.15	26.58	3098.60	13.07	-7.87	-11.69	0.35	14.09	236.04
3122.13	0.17	1.53	3121.94	13.04	-7.81	-11.67	0.31	14.05	236.22
3148.91	0.34	4.02	3148.72	13.01	-7.69	-11.67	0.61	13.97	236.61
3172.35	0.30	315.73	3172.16	13.03	-7.58	-11.71	1.12	13.94	237.08
3199.70	0.32	80.10	3199.52	12.99	-7.51	-11.68	2.02	13.89	237.25
3221.69	0.09	134.15	3221.51	12.92	-7.52	-11.61	1.27	13.83	237.08

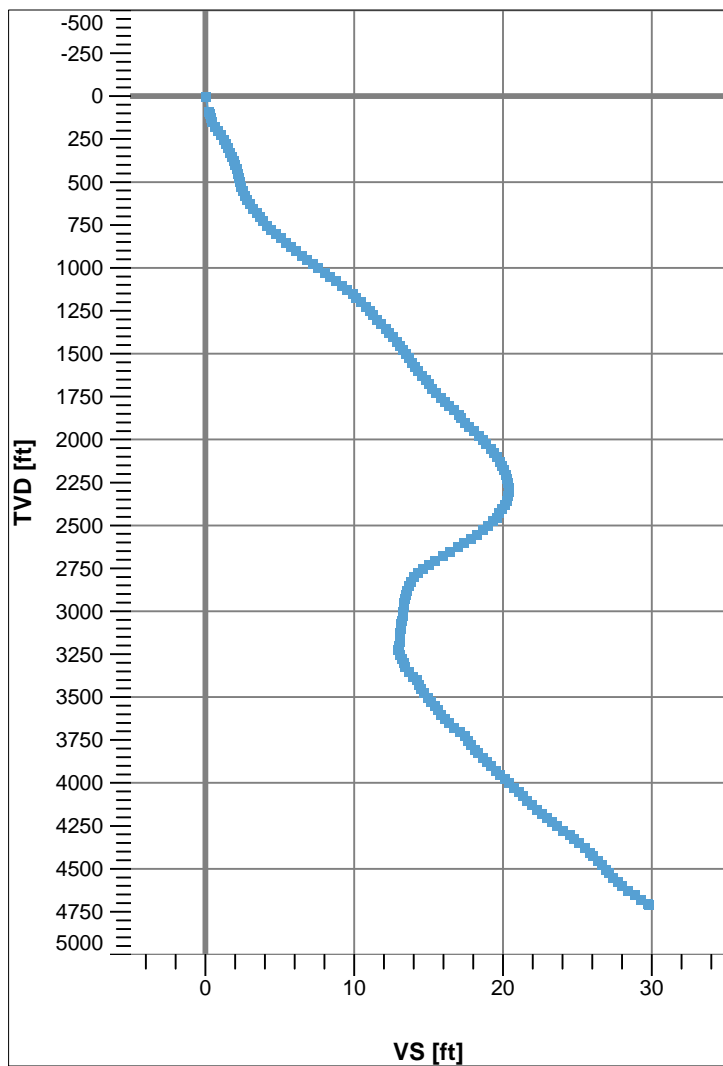
MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3248.77	0.71	310.87	3248.58	13.00	-7.42	-11.72	2.95	13.87	237.65
3270.76	0.41	264.91	3270.57	13.16	-7.34	-11.90	2.33	13.98	238.33
3297.93	0.32	188.77	3297.75	13.29	-7.42	-12.01	1.69	14.12	238.27
3320.39	0.45	234.94	3320.20	13.39	-7.54	-12.09	1.44	14.24	238.06
3347.07	0.72	270.93	3346.89	13.65	-7.59	-12.34	1.65	14.49	238.40
3374.10	0.50	255.89	3373.91	13.93	-7.62	-12.62	1.00	14.74	238.89
3396.79	0.55	263.35	3396.60	14.14	-7.66	-12.83	0.38	14.94	239.17
3423.20	0.26	283.13	3423.01	14.32	-7.66	-13.01	1.20	15.10	239.52
3445.88	0.29	250.87	3445.69	14.42	-7.66	-13.12	0.69	15.19	239.70
3472.31	0.51	263.95	3472.12	14.61	-7.70	-13.30	0.89	15.37	239.93
3499.33	0.69	276.25	3499.14	14.88	-7.69	-13.58	0.81	15.61	240.47
3522.01	0.63	288.65	3521.81	15.12	-7.64	-13.83	0.68	15.80	241.09
3548.42	0.71	302.97	3548.22	15.36	-7.50	-14.11	0.71	15.98	241.99
3571.08	0.54	286.51	3570.89	15.55	-7.40	-14.33	1.08	16.13	242.70
3597.36	0.52	279.11	3597.16	15.78	-7.34	-14.57	0.28	16.31	243.25
3624.35	0.69	270.39	3624.15	16.05	-7.32	-14.85	0.71	16.56	243.76
3647.14	0.66	255.73	3646.94	16.31	-7.35	-15.11	0.77	16.81	244.06
3673.29	0.97	267.60	3673.08	16.68	-7.40	-15.48	1.34	17.16	244.45
3696.17	0.96	276.19	3695.96	17.05	-7.39	-15.86	0.63	17.50	245.03
3723.12	0.62	293.18	3722.91	17.39	-7.30	-16.22	1.54	17.79	245.76
3749.50	0.52	293.43	3749.29	17.60	-7.20	-16.46	0.36	17.97	246.38
3772.21	0.96	317.98	3771.99	17.78	-7.02	-16.69	2.34	18.10	247.19
3799.29	0.80	299.48	3799.07	18.03	-6.76	-17.00	1.20	18.29	248.33
3821.17	0.80	280.04	3820.95	18.29	-6.65	-17.28	1.23	18.52	248.94
3848.14	0.79	302.01	3847.91	18.60	-6.52	-17.63	1.13	18.80	249.69
3874.46	0.77	289.68	3874.23	18.88	-6.37	-17.95	0.64	19.04	250.47
3896.69	0.86	288.41	3896.46	19.15	-6.26	-18.25	0.41	19.29	251.05
3923.00	0.74	290.37	3922.77	19.47	-6.14	-18.59	0.47	19.58	251.72
3948.79	0.86	283.82	3948.56	19.78	-6.04	-18.94	0.60	19.88	252.32
3970.93	0.74	284.86	3970.70	20.06	-5.96	-19.24	0.58	20.14	252.78
3996.73	0.73	283.18	3996.49	20.35	-5.88	-19.56	0.09	20.42	253.26
4023.11	0.74	273.18	4022.87	20.67	-5.83	-19.89	0.48	20.73	253.65

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DISTANCE ft	CLOSURE DIRECTION deg
4049.61	0.76	269.71	4049.37	21.01	-5.83	-20.24	0.19	21.06	253.94
4071.05	0.72	272.04	4070.81	21.27	-5.82	-20.51	0.24	21.32	254.15
4097.56	0.63	266.55	4097.32	21.58	-5.82	-20.82	0.42	21.62	254.37
4123.96	0.76	271.23	4123.71	21.89	-5.83	-21.14	0.56	21.93	254.58
4149.77	0.85	270.27	4149.52	22.25	-5.83	-21.50	0.35	22.28	254.84
4171.93	0.82	266.65	4171.68	22.56	-5.83	-21.83	0.29	22.59	255.04
4198.33	0.74	269.32	4198.07	22.92	-5.85	-22.18	0.32	22.94	255.24
4224.15	0.79	262.90	4223.89	23.26	-5.87	-22.53	0.39	23.28	255.39
4246.33	0.87	272.56	4246.07	23.57	-5.88	-22.85	0.71	23.59	255.56
4272.86	1.01	272.31	4272.60	23.99	-5.86	-23.28	0.55	24.01	255.86
4298.57	0.90	268.78	4298.30	24.41	-5.86	-23.71	0.48	24.42	256.12
4320.74	0.86	270.90	4320.48	24.74	-5.86	-24.05	0.26	24.76	256.31
4346.58	0.76	274.09	4346.31	25.10	-5.84	-24.41	0.42	25.10	256.54
4373.02	0.78	265.87	4372.75	25.44	-5.85	-24.77	0.43	25.45	256.72
4399.57	0.62	261.25	4399.29	25.77	-5.88	-25.09	0.66	25.77	256.81
4421.03	0.74	259.67	4420.76	26.02	-5.92	-25.34	0.56	26.03	256.85
4447.58	0.55	252.42	4447.30	26.32	-5.99	-25.63	0.76	26.32	256.84
4473.99	0.59	257.97	4473.71	26.58	-6.06	-25.89	0.26	26.59	256.83
4499.79	0.63	272.48	4499.51	26.85	-6.08	-26.16	0.61	26.86	256.91
4521.94	0.57	271.49	4521.66	27.08	-6.07	-26.39	0.24	27.08	257.04
4547.35	0.63	268.33	4547.07	27.34	-6.07	-26.66	0.27	27.34	257.17
4572.35	0.79	259.44	4572.06	27.65	-6.11	-26.97	0.77	27.65	257.24
4596.59	0.73	267.85	4596.30	27.97	-6.15	-27.29	0.53	27.97	257.31
4622.90	0.92	266.96	4622.61	28.34	-6.16	-27.66	0.73	28.34	257.44
4649.47	1.10	275.81	4649.17	28.79	-6.15	-28.13	0.89	28.79	257.67
4673.59	1.07	263.48	4673.29	29.24	-6.15	-28.58	0.97	29.24	257.86
4699.60	0.96	268.28	4699.30	29.69	-6.18	-29.04	0.53	29.69	257.98
4703.54	0.98	262.03	4703.24	29.76	-6.19	-29.10	2.75	29.76	257.99



Name : Keeper Wireline Survey: Outrun
Generated : 1/5/2015 19:52:11 Mountain Standard Time

VS View



Plan View

