



K.P. KAUFFMAN

SURVEY REPORT

UPRR 42 PAN AM AG #1

2/26/2015



The **Ultimate Partner** In Wellbore Placement

CUSTOMER K.P. Kauffman
PROJECT UPRR PAN AM AG #1
FIELD Spindle

SDI JOB NO. 259200
SDI DISTRICT Casper
SDI KIT/UNIT

SITE INFORMATION

Site Name Weld County, Colorado
Lat/Long 40.05644° N, 104.87976° W
Northing
Easting

Section NENW 15
Township 1N
Range 67W 6PM

MAP INFORMATION

North Reference True North
Grid Correction
System
Datum
Map Zone



WELL INFORMATION

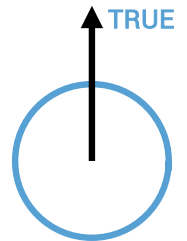
Lat/Long 40.05644° N, 104.87976° W
Northing
Easting
UWI 05-123-08692 UWBI 05-123-08692

DEPTH AND ELEVATION REFERENCE

Ground Level 5062 ft above Mean Sea Level
Reference Datum Ground Level
Reference Height 0 ft above G.L.
Reference Elevation 5062 ft

VERTICAL SECTION REFERENCE

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



LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity 999.029 mG [computed]

WELL NOTES

Keeper gyro survey run in 4.5" casing from surface to 4838' measured depth. All depths reference ground level.

OPERATORS

Jon 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
97.63	0.07	72.36	97.63	-0.06	0.02	0.06	0.08	0.06	72.36
124.37	0.08	79.65	124.37	-0.10	0.03	0.10	0.04	0.10	73.70
148.93	0.03	131.78	148.93	-0.12	0.03	0.12	0.26	0.12	77.05
172.13	0.09	169.75	172.13	-0.11	0.00	0.12	0.31	0.12	87.98
197.24	0.17	140.05	197.24	-0.12	-0.04	0.15	0.41	0.16	106.43
221.19	0.13	147.00	221.19	-0.13	-0.10	0.19	0.18	0.21	116.78
249.75	0.19	165.19	249.75	-0.13	-0.17	0.22	0.26	0.28	127.51
274.29	0.18	176.91	274.29	-0.10	-0.25	0.23	0.16	0.34	136.63
298.17	0.27	168.55	298.17	-0.07	-0.34	0.25	0.42	0.42	144.08
322.68	0.50	162.49	322.68	-0.04	-0.50	0.29	0.93	0.58	149.84
347.28	0.52	165.69	347.27	-0.01	-0.71	0.35	0.14	0.79	153.75
370.66	0.50	166.97	370.65	0.04	-0.91	0.40	0.10	1.00	156.35
399.84	0.56	166.80	399.84	0.10	-1.18	0.46	0.19	1.26	158.58
424.29	0.54	169.30	424.29	0.15	-1.40	0.51	0.13	1.49	160.05
448.06	0.52	174.33	448.05	0.22	-1.62	0.54	0.21	1.71	161.54
472.85	0.51	163.14	472.85	0.27	-1.84	0.58	0.40	1.93	162.36
497.93	0.55	169.49	497.92	0.32	-2.06	0.64	0.28	2.16	162.80
522.42	0.57	172.19	522.41	0.39	-2.29	0.68	0.14	2.39	163.60
547.59	0.65	169.98	547.57	0.47	-2.56	0.72	0.33	2.66	164.34
572.73	0.59	167.62	572.72	0.54	-2.82	0.77	0.24	2.93	164.76
597.11	0.54	168.00	597.09	0.59	-3.06	0.82	0.21	3.17	164.99
622.12	0.56	177.39	622.11	0.67	-3.30	0.85	0.36	3.40	165.53
647.24	0.55	175.53	647.22	0.76	-3.54	0.87	0.07	3.64	166.26
671.46	0.50	175.81	671.44	0.84	-3.76	0.88	0.22	3.86	166.80
696.55	0.48	169.54	696.53	0.91	-3.97	0.91	0.23	4.08	167.11
721.74	0.48	182.93	721.72	0.99	-4.18	0.92	0.44	4.28	167.55
746.03	0.53	186.22	746.01	1.10	-4.39	0.91	0.24	4.49	168.35
771.09	0.57	187.90	771.07	1.23	-4.63	0.88	0.18	4.71	169.29
796.11	0.45	190.73	796.09	1.36	-4.85	0.84	0.48	4.92	170.17
824.24	0.44	176.72	824.21	1.46	-5.07	0.83	0.39	5.14	170.74
849.13	0.47	194.86	849.11	1.57	-5.26	0.81	0.58	5.32	171.30

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
874.22	0.50	173.07	874.19	1.67	-5.47	0.79	0.74	5.53	171.75
898.48	0.42	176.39	898.45	1.74	-5.66	0.81	0.36	5.72	171.85
922.52	0.29	180.61	922.49	1.80	-5.81	0.82	0.53	5.87	172.01
949.06	0.44	174.36	949.04	1.86	-5.98	0.83	0.58	6.04	172.15
972.63	0.43	180.45	972.60	1.93	-6.16	0.83	0.20	6.22	172.30
997.28	0.41	162.19	997.26	1.99	-6.34	0.86	0.55	6.40	172.28
1024.86	0.29	181.26	1024.84	2.03	-6.50	0.89	0.60	6.57	172.22
1048.45	0.44	246.51	1048.42	2.15	-6.60	0.81	1.75	6.65	173.05
1074.21	0.35	189.65	1074.18	2.29	-6.72	0.70	1.48	6.75	174.03
1096.02	0.24	198.63	1095.99	2.36	-6.83	0.68	0.55	6.86	174.34
1122.82	0.11	202.35	1122.79	2.42	-6.90	0.65	0.48	6.93	174.62
1149.77	0.15	205.45	1149.74	2.47	-6.96	0.62	0.18	6.99	174.87
1171.54	0.20	209.98	1171.52	2.52	-7.02	0.59	0.21	7.04	175.17
1198.36	0.20	210.95	1198.33	2.60	-7.10	0.55	0.02	7.12	175.60
1224.58	0.22	190.21	1224.55	2.67	-7.18	0.51	0.30	7.20	175.91
1247.07	0.15	209.13	1247.04	2.72	-7.25	0.49	0.40	7.27	176.12
1273.86	0.10	234.47	1273.83	2.77	-7.30	0.45	0.28	7.31	176.44
1295.73	0.18	195.95	1295.70	2.81	-7.34	0.43	0.55	7.36	176.66
1322.52	0.18	230.48	1322.49	2.88	-7.41	0.38	0.40	7.42	177.03
1348.70	0.07	204.09	1348.67	2.94	-7.45	0.35	0.45	7.46	177.34
1371.17	0.11	272.23	1371.14	2.96	-7.47	0.32	0.47	7.47	177.55
1398.06	0.09	235.27	1398.03	3.01	-7.48	0.28	0.24	7.48	177.89
1424.12	0.18	266.92	1424.09	3.07	-7.49	0.22	0.42	7.49	178.33
1446.58	0.15	246.93	1446.55	3.13	-7.50	0.16	0.28	7.50	178.80
1473.47	0.29	268.92	1473.44	3.22	-7.52	0.06	0.59	7.52	179.56
1499.84	0.10	259.75	1499.81	3.30	-7.52	-0.03	0.72	7.52	180.23
1522.68	0.25	274.64	1522.65	3.37	-7.52	-0.10	0.70	7.52	180.75
1544.93	0.30	273.03	1544.90	3.46	-7.52	-0.21	0.22	7.52	181.57
1572.14	0.27	259.15	1572.11	3.58	-7.52	-0.34	0.27	7.53	182.59
1599.32	0.19	252.91	1599.29	3.69	-7.55	-0.45	0.30	7.56	183.40
1621.41	0.32	269.04	1621.37	3.79	-7.56	-0.55	0.64	7.58	184.13
1648.60	0.47	272.81	1648.57	3.95	-7.56	-0.73	0.57	7.59	185.54

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DISTANCE ft	CLOSURE DIRECTION deg
1670.69	0.35	280.69	1670.66	4.09	-7.54	-0.89	0.59	7.59	186.73
1697.90	0.36	272.54	1697.86	4.23	-7.52	-1.06	0.19	7.60	188.01
1720.98	0.36	259.60	1720.94	4.36	-7.53	-1.20	0.35	7.63	189.07
1747.55	0.39	259.28	1747.51	4.53	-7.56	-1.37	0.10	7.69	190.30
1774.67	0.31	273.03	1774.63	4.69	-7.58	-1.54	0.43	7.73	191.48
1797.23	0.29	263.54	1797.20	4.79	-7.58	-1.66	0.23	7.76	192.33
1823.31	0.67	281.13	1823.27	4.98	-7.56	-1.87	1.52	7.79	193.91
1845.72	0.46	269.63	1845.68	5.16	-7.53	-2.09	1.06	7.82	195.51
1872.55	0.38	263.63	1872.52	5.34	-7.54	-2.28	0.34	7.88	196.85
1898.53	0.33	263.41	1898.49	5.49	-7.56	-2.44	0.18	7.95	197.91
1920.91	0.43	276.03	1920.87	5.63	-7.56	-2.59	0.58	7.99	198.92
1946.98	0.39	278.06	1946.93	5.78	-7.54	-2.78	0.18	8.03	200.21
1973.62	0.30	270.01	1973.58	5.92	-7.53	-2.93	0.38	8.08	201.29
1995.98	0.36	271.40	1995.94	6.03	-7.52	-3.06	0.31	8.12	202.15
2022.01	0.24	280.27	2021.96	6.15	-7.51	-3.20	0.51	8.16	203.06
2048.76	0.24	299.14	2048.72	6.23	-7.48	-3.30	0.29	8.17	203.83
2070.84	0.20	354.08	2070.80	6.24	-7.41	-3.35	0.93	8.13	204.29
2098.13	0.34	350.68	2098.09	6.20	-7.29	-3.36	0.51	8.03	204.78
2121.58	0.40	0.26	2121.53	6.15	-7.14	-3.37	0.37	7.89	205.31
2149.14	0.28	333.35	2149.10	6.11	-6.98	-3.41	0.71	7.77	206.00
2172.70	0.27	324.22	2172.66	6.12	-6.88	-3.46	0.20	7.71	206.71
2196.51	0.22	14.18	2196.46	6.10	-6.79	-3.48	0.89	7.63	207.15
2223.82	0.27	330.22	2223.78	6.07	-6.68	-3.50	0.70	7.55	207.66
2247.75	0.24	327.06	2247.70	6.08	-6.59	-3.56	0.16	7.49	208.36
2270.67	0.37	329.62	2270.62	6.09	-6.49	-3.62	0.57	7.43	209.16
2298.99	0.55	311.56	2298.94	6.15	-6.32	-3.77	0.81	7.36	210.80
2321.90	0.44	323.24	2321.85	6.21	-6.18	-3.90	0.65	7.31	212.28
2345.43	0.50	303.13	2345.38	6.28	-6.05	-4.04	0.75	7.28	213.75
2373.59	0.57	309.55	2373.54	6.40	-5.89	-4.26	0.32	7.27	215.83
2396.47	0.57	306.87	2396.42	6.50	-5.75	-4.43	0.12	7.26	217.62
2424.64	0.59	306.54	2424.59	6.63	-5.58	-4.66	0.05	7.27	219.86
2448.51	0.73	298.54	2448.46	6.77	-5.44	-4.89	0.72	7.32	221.98

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DISTANCE ft	CLOSURE DIRECTION deg
2471.39	0.74	289.56	2471.34	6.96	-5.32	-5.16	0.50	7.41	224.13
2499.69	0.70	297.70	2499.63	7.19	-5.18	-5.48	0.38	7.54	226.64
2522.54	0.73	291.21	2522.49	7.38	-5.06	-5.74	0.38	7.66	228.62
2546.04	0.66	297.18	2545.98	7.56	-4.94	-6.01	0.43	7.78	230.54
2573.38	0.69	286.36	2573.32	7.78	-4.82	-6.31	0.48	7.94	232.58
2596.32	0.75	280.18	2596.25	8.00	-4.76	-6.59	0.44	8.13	234.15
2624.22	0.79	281.18	2624.16	8.30	-4.69	-6.96	0.13	8.39	236.01
2646.69	0.71	283.64	2646.62	8.54	-4.63	-7.24	0.38	8.59	237.43
2674.44	0.72	262.93	2674.37	8.83	-4.61	-7.58	0.92	8.87	238.72
2697.62	0.82	269.28	2697.55	9.12	-4.63	-7.89	0.59	9.15	239.62
2724.61	0.81	267.27	2724.54	9.47	-4.64	-8.28	0.12	9.49	240.74
2747.78	0.80	275.03	2747.70	9.76	-4.63	-8.60	0.47	9.77	241.70
2774.75	0.81	267.50	2774.67	10.10	-4.62	-8.98	0.39	10.10	242.75
2797.91	0.80	257.76	2797.82	10.40	-4.67	-9.30	0.59	10.41	243.36
2820.32	0.76	264.91	2820.23	10.70	-4.71	-9.60	0.48	10.70	243.86
2847.89	0.83	260.91	2847.80	11.06	-4.76	-9.98	0.34	11.06	244.50
2871.02	0.85	265.44	2870.93	11.38	-4.80	-10.32	0.30	11.38	245.05
2897.96	0.90	260.47	2897.87	11.77	-4.85	-10.73	0.33	11.77	245.66
2921.07	0.74	258.64	2920.98	12.09	-4.91	-11.05	0.72	12.09	246.04
2948.72	0.76	252.48	2948.63	12.44	-5.00	-11.40	0.31	12.45	246.31
2971.08	0.77	264.25	2970.98	12.73	-5.06	-11.69	0.71	12.74	246.60
2998.59	0.72	266.45	2998.48	13.07	-5.09	-12.05	0.21	13.08	247.10
3020.94	0.77	272.91	3020.84	13.33	-5.09	-12.34	0.43	13.35	247.58
3048.58	0.79	269.23	3048.48	13.66	-5.08	-12.72	0.20	13.70	248.21
3071.66	0.73	255.11	3071.55	13.95	-5.12	-13.02	0.85	13.99	248.52
3098.57	0.90	276.92	3098.46	14.30	-5.14	-13.40	1.31	14.35	249.00
3121.65	0.86	266.61	3121.54	14.61	-5.13	-13.75	0.71	14.68	249.54
3148.42	0.76	266.26	3148.31	14.96	-5.16	-14.13	0.37	15.04	249.96
3171.51	0.77	270.86	3171.39	15.25	-5.16	-14.44	0.27	15.33	250.32
3199.13	0.72	270.88	3199.01	15.57	-5.16	-14.80	0.19	15.67	250.78
3221.48	0.75	277.14	3221.36	15.82	-5.14	-15.08	0.39	15.93	251.19
3249.00	0.72	276.69	3248.88	16.11	-5.09	-15.44	0.12	16.25	251.73

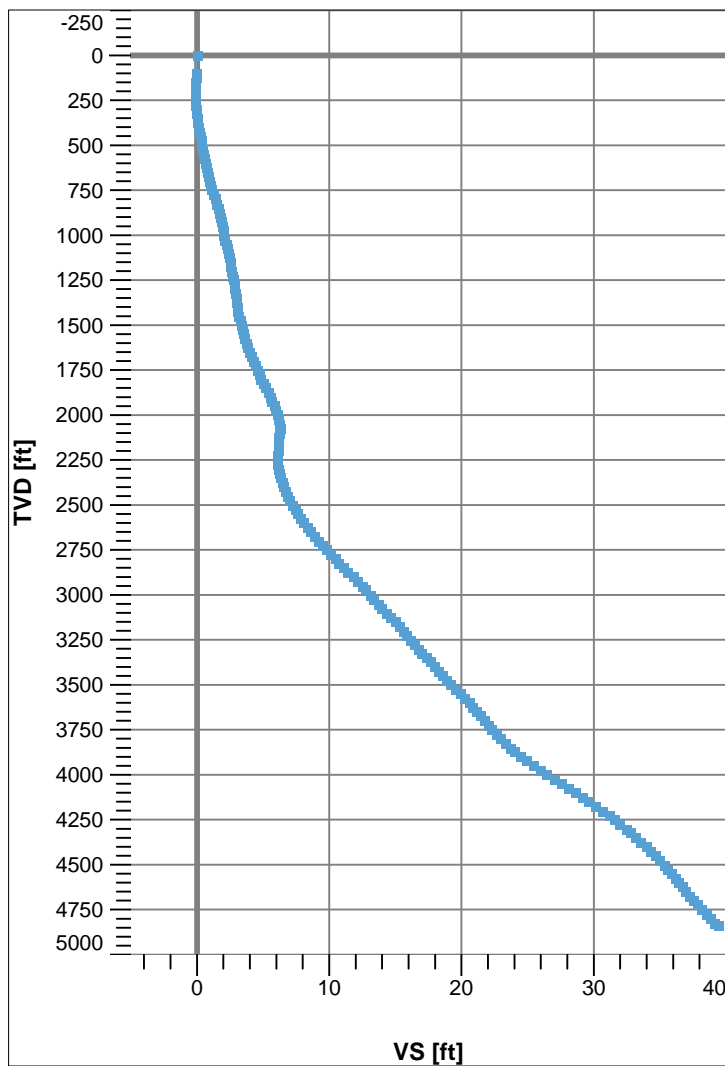
MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3272.21	0.85	278.91	3272.09	16.38	-5.05	-15.75	0.56	16.54	252.22
3298.83	0.86	278.70	3298.70	16.70	-4.99	-16.14	0.04	16.89	252.82
3321.91	0.79	277.67	3321.78	16.98	-4.94	-16.47	0.31	17.19	253.29
3347.99	0.99	276.36	3347.85	17.32	-4.89	-16.87	0.78	17.57	253.82
3370.86	0.83	266.98	3370.72	17.64	-4.88	-17.23	0.94	17.91	254.18
3397.95	0.70	272.10	3397.80	17.96	-4.89	-17.59	0.54	18.26	254.48
3424.18	0.79	277.14	3424.04	18.26	-4.86	-17.93	0.41	18.58	254.85
3446.79	0.90	275.55	3446.64	18.54	-4.82	-18.26	0.49	18.89	255.21
3473.11	0.78	277.36	3472.96	18.86	-4.78	-18.64	0.46	19.25	255.63
3495.68	0.86	271.06	3495.53	19.14	-4.76	-18.97	0.55	19.55	255.92
3522.81	0.93	275.81	3522.65	19.51	-4.73	-19.39	0.37	19.96	256.29
3549.14	0.89	274.38	3548.99	19.87	-4.69	-19.80	0.16	20.35	256.67
3571.83	0.89	274.55	3571.67	20.18	-4.66	-20.16	0.01	20.69	256.97
3598.99	0.83	269.00	3598.83	20.54	-4.65	-20.56	0.39	21.08	257.26
3620.94	0.68	266.19	3620.78	20.80	-4.66	-20.85	0.70	21.37	257.40
3648.11	0.74	259.47	3647.94	21.12	-4.71	-21.19	0.38	21.70	257.48
3670.06	0.75	268.40	3669.89	21.39	-4.74	-21.47	0.53	21.98	257.56
3697.09	0.64	262.29	3696.92	21.69	-4.76	-21.80	0.47	22.31	257.68
3724.21	0.76	257.47	3724.03	22.01	-4.82	-22.12	0.47	22.64	257.71
3746.15	0.68	265.34	3745.97	22.28	-4.86	-22.39	0.57	22.92	257.75
3773.14	0.77	257.01	3772.96	22.60	-4.92	-22.73	0.50	23.26	257.80
3795.06	0.84	253.28	3794.88	22.90	-5.00	-23.03	0.42	23.56	257.76
3822.03	0.84	255.64	3821.85	23.29	-5.10	-23.41	0.13	23.96	257.71
3849.01	0.82	248.98	3848.82	23.68	-5.22	-23.78	0.36	24.35	257.62
3870.92	0.95	236.49	3870.74	24.02	-5.38	-24.08	1.05	24.67	257.41
3897.90	0.98	223.68	3897.70	24.45	-5.67	-24.42	0.80	25.07	256.94
3920.78	1.19	223.48	3920.58	24.86	-5.98	-24.72	0.92	25.43	256.40
3947.13	1.23	223.83	3946.93	25.38	-6.38	-25.11	0.15	25.90	255.74
3974.20	1.37	219.90	3973.99	25.94	-6.84	-25.51	0.62	26.41	255.00
3996.82	1.33	220.03	3996.60	26.43	-7.25	-25.85	0.19	26.85	254.35
4023.03	1.44	217.74	4022.81	27.00	-7.74	-26.25	0.49	27.37	253.57
4045.63	1.37	215.85	4045.40	27.49	-8.18	-26.58	0.38	27.82	252.89

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DISTANCE	CLOSURE DIRECTION
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
4071.83	1.31	218.37	4071.60	28.04	-8.67	-26.95	0.33	28.31	252.17
4098.35	1.31	217.93	4098.11	28.58	-9.15	-27.33	0.04	28.82	251.49
4124.76	1.24	225.53	4124.51	29.12	-9.59	-27.72	0.69	29.33	250.92
4146.23	1.24	219.56	4145.98	29.56	-9.93	-28.03	0.60	29.74	250.50
4172.74	1.27	217.02	4172.48	30.08	-10.38	-28.39	0.24	30.23	249.91
4199.12	1.35	219.97	4198.86	30.62	-10.86	-28.77	0.38	30.75	249.33
4224.68	1.05	223.56	4224.41	31.11	-11.25	-29.12	1.21	31.22	248.87
4247.05	1.08	224.40	4246.78	31.50	-11.55	-29.41	0.17	31.60	248.55
4272.72	1.08	221.30	4272.43	31.96	-11.91	-29.74	0.23	32.03	248.18
4299.19	1.06	216.75	4298.91	32.40	-12.29	-30.05	0.33	32.47	247.75
4321.30	0.94	220.61	4321.01	32.75	-12.59	-30.29	0.63	32.80	247.42
4347.06	0.97	218.29	4346.77	33.14	-12.93	-30.56	0.19	33.18	247.08
4373.40	0.88	215.97	4373.10	33.52	-13.26	-30.82	0.38	33.55	246.71
4399.86	1.02	225.41	4399.56	33.92	-13.59	-31.11	0.78	33.95	246.40
4421.26	0.88	220.39	4420.95	34.25	-13.85	-31.35	0.76	34.27	246.16
4447.71	0.84	219.00	4447.40	34.61	-14.16	-31.60	0.15	34.62	245.87
4474.02	0.81	222.66	4473.71	34.96	-14.44	-31.85	0.23	34.97	245.61
4499.60	0.78	225.72	4499.29	35.29	-14.70	-32.09	0.20	35.30	245.40
4521.77	0.68	227.41	4521.46	35.56	-14.89	-32.30	0.45	35.57	245.25
4548.06	0.74	213.60	4547.75	35.86	-15.14	-32.51	0.68	35.86	245.03
4573.04	0.70	218.63	4572.72	36.13	-15.39	-32.69	0.29	36.13	244.79
4595.79	0.70	222.79	4595.47	36.39	-15.60	-32.87	0.22	36.39	244.61
4621.43	0.67	213.56	4621.11	36.66	-15.84	-33.06	0.44	36.66	244.40
4647.65	0.58	223.70	4647.32	36.92	-16.07	-33.24	0.54	36.92	244.20
4673.82	0.78	234.53	4673.50	37.22	-16.26	-33.48	0.89	37.22	244.09
4697.67	0.69	254.64	4697.34	37.52	-16.40	-33.75	1.14	37.52	244.09
4721.74	0.64	247.07	4721.42	37.80	-16.49	-34.01	0.41	37.80	244.14
4748.13	0.71	237.99	4747.80	38.11	-16.63	-34.29	0.47	38.11	244.12
4774.73	0.82	238.62	4774.40	38.46	-16.82	-34.59	0.44	38.46	244.07
4798.21	0.69	244.35	4797.87	38.77	-16.97	-34.86	0.65	38.77	244.05
4823.43	0.99	256.94	4823.09	39.13	-17.08	-35.21	1.38	39.13	244.12
4838.88	1.00	248.43	4838.54	39.40	-17.16	-35.46	0.96	39.40	244.18



Name : Keeper Gyro Wireline Survey: Outrun
Generated : 3/4/2015 13:44:50 Mountain Standard Time

VS View



Plan View

