

Job Number: SVGJ-120569 State Colorado (N 40 1
 Company: Anadarko Petroleum Corpo Declination: 8.72° East To True - NAD 27
 Lease/Well: HSR-Brinton 14-10 Grid: Referenced To True North
 Location: Weld County, CO File name: F:\SURVEY\2012SU~1\ANADARKO\LORENZ\HSR-BR~1\14-10.SVY
 Rig Name: Cable Wireline Date: 23-May-12 Time: 16:24
 RKB: 0' Curve Name: Surface - 7300' M.D. (Rate Gyro) (API 0512316059)
 G.L. or M.S.L.: GL

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane .00

Vertical Section Referenced to offset from Wellhead: EW =.00 Ft , NS=.00 Ft

Rectangular Coordinates Referenced to Wellhead

Measured	Incl	Drift	TRUE	N-S	E-W	Vertical	CLOSURE	CLOSURE	Dogleg
Depth	Angle	Direction	Vertical	FT	FT	Section	Distance	Direction	Severity
FT	Deg	Deg	Depth			FT	FT	Deg	Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.59	231.12	100.00	-0.32	-0.40	-0.32	0.51	231.12	0.59
200.00	0.38	260.84	199.99	-0.70	-1.13	-0.70	1.33	238.23	0.32
300.00	0.32	261.73	299.99	-0.79	-1.73	-0.79	1.91	245.43	0.06
400.00	0.30	239.87	399.99	-0.96	-2.24	-0.96	2.43	246.68	0.12
500.00	0.22	281.72	499.99	-1.06	-2.65	-1.06	2.85	248.27	0.20
600.00	0.27	305.96	599.99	-0.88	-3.03	-0.88	3.15	253.82	0.11
700.00	0.41	315.07	699.99	-0.49	-3.47	-0.49	3.51	262.01	0.15
800.00	0.52	312.40	799.98	0.07	-4.06	0.07	4.06	271.02	0.11
900.00	0.55	308.27	899.98	0.68	-4.77	0.68	4.82	278.06	0.05
1000.00	0.60	304.49	999.98	1.27	-5.58	1.27	5.72	282.81	0.06
1100.00	0.59	310.38	1099.97	1.90	-6.40	1.90	6.68	286.52	0.06
1200.00	0.61	306.57	1199.96	2.55	-7.22	2.55	7.66	289.44	0.04
1300.00	0.62	308.21	1299.96	3.20	-8.08	3.20	8.69	291.63	0.02
1400.00	0.61	315.35	1399.95	3.92	-8.88	3.92	9.70	293.80	0.08
1500.00	0.62	313.60	1499.95	4.67	-9.64	4.67	10.71	295.83	0.02
1600.00	0.62	317.14	1599.94	5.44	-10.40	5.44	11.74	297.60	0.04
1700.00	0.60	320.68	1699.94	6.24	-11.10	6.24	12.73	299.33	0.04
1800.00	0.50	314.50	1799.93	6.95	-11.74	6.95	13.65	300.61	0.12
1900.00	0.48	315.94	1899.93	7.56	-12.35	7.56	14.48	301.47	0.02
2000.00	0.51	316.93	1999.92	8.18	-12.94	8.18	15.31	302.30	0.03
2100.00	0.68	321.20	2099.92	8.97	-13.62	8.97	16.31	303.37	0.18
2200.00	0.84	322.78	2199.91	10.02	-14.43	10.02	17.57	304.76	0.16
2300.00	0.85	319.46	2299.90	11.16	-15.36	11.16	18.99	306.01	0.05
2400.00	0.95	297.04	2399.89	12.10	-16.58	12.10	20.53	306.13	0.36
2500.00	1.08	289.85	2499.87	12.80	-18.20	12.80	22.25	305.12	0.18
2600.00	1.04	292.56	2599.85	13.47	-19.93	13.47	24.05	304.05	0.06
2700.00	0.98	299.55	2699.84	14.24	-21.51	14.24	25.80	303.50	0.14
2800.00	0.96	301.63	2799.82	15.10	-22.97	15.10	27.49	303.32	0.04
2900.00	0.89	305.49	2899.81	15.99	-24.31	15.99	29.10	303.33	0.09
3000.00	0.64	304.76	2999.80	16.76	-25.40	16.76	30.43	303.41	0.25

3100.00	0.39	284.47	3099.80	17.16	-26.19	17.16	31.31	303.24	0.31
3200.00	0.46	274.35	3199.79	17.28	-26.92	17.28	31.99	302.69	0.10
3300.00	0.51	296.06	3299.79	17.50	-27.72	17.50	32.79	302.27	0.19
3400.00	0.57	322.45	3399.79	18.09	-28.43	18.09	33.70	302.48	0.25
3500.00	0.64	347.62	3499.78	19.03	-28.85	19.03	34.56	303.42	0.27
3600.00	0.80	2.98	3599.77	20.28	-28.93	20.28	35.33	305.02	0.25
3700.00	0.76	0.53	3699.76	21.64	-28.89	21.64	36.09	306.83	0.05
3800.00	0.86	357.20	3799.75	23.05	-28.92	23.05	36.98	308.56	0.11
3900.00	0.99	358.81	3899.74	24.66	-28.97	24.66	38.05	310.40	0.13
4000.00	1.07	6.87	3999.73	26.45	-28.88	26.45	39.16	312.49	0.17
4100.00	1.07	5.02	4099.71	28.31	-28.69	28.31	40.30	314.62	0.03
4200.00	1.56	8.44	4199.68	30.59	-28.41	30.59	41.74	317.12	0.50
4300.00	1.68	27.15	4299.64	33.24	-27.54	33.24	43.16	320.36	0.54
4400.00	1.40	43.56	4399.61	35.43	-26.03	35.43	43.96	323.70	0.52
4500.00	1.13	53.33	4499.58	36.90	-24.39	36.90	44.24	326.53	0.34
4600.00	0.75	66.59	4599.57	37.75	-23.00	37.75	44.21	328.65	0.44
4700.00	0.58	54.80	4699.56	38.30	-21.99	38.30	44.17	330.14	0.22
4800.00	0.29	159.56	4799.56	38.36	-21.49	38.36	43.97	330.74	0.71
4900.00	0.56	153.89	4899.56	37.68	-21.18	37.68	43.23	330.66	0.27
5000.00	1.01	125.02	4999.55	36.74	-20.25	36.74	41.95	331.14	0.59
5100.00	0.79	128.85	5099.54	35.80	-18.99	35.80	40.52	332.06	0.23
5200.00	0.29	58.56	5199.53	35.50	-18.23	35.50	39.91	332.81	0.74
5300.00	0.79	334.26	5299.53	36.25	-18.32	36.25	40.62	333.19	0.81
5400.00	1.21	326.99	5399.51	37.76	-19.19	37.76	42.36	333.06	0.44
5500.00	1.27	317.32	5499.49	39.46	-20.52	39.46	44.47	332.53	0.22
5600.00	1.70	318.22	5599.46	41.38	-22.26	41.38	46.99	331.72	0.43
5700.00	1.51	320.43	5699.42	43.50	-24.09	43.50	49.72	331.03	0.20
5800.00	1.54	322.89	5799.38	45.59	-25.74	45.59	52.35	330.55	0.07
5900.00	1.35	326.65	5899.35	47.64	-27.19	47.64	54.86	330.28	0.21
6000.00	1.19	321.67	5999.32	49.44	-28.49	49.44	57.06	330.05	0.19
6100.00	1.11	317.05	6099.30	50.97	-29.79	50.97	59.03	329.69	0.12
6200.00	1.19	312.49	6199.28	52.38	-31.22	52.38	60.97	329.21	0.12
6300.00	1.52	313.55	6299.26	53.99	-32.94	53.99	63.25	328.61	0.33
6400.00	1.04	311.21	6399.23	55.50	-34.59	55.50	65.40	328.07	0.48
6500.00	1.44	302.61	6499.21	56.78	-36.33	56.78	67.40	327.39	0.44
6600.00	1.31	339.44	6599.18	58.53	-37.79	58.53	69.66	327.15	0.88
6700.00	1.26	344.71	6699.15	60.66	-38.48	60.66	71.83	327.61	0.13
6800.00	0.58	351.22	6799.14	62.22	-38.85	62.22	73.35	328.02	0.69
6900.00	0.69	227.65	6899.14	62.31	-39.37	62.31	73.71	327.72	1.12
7000.00	1.69	252.65	6999.12	61.47	-41.22	61.47	74.01	326.15	1.10
7100.00	2.30	248.81	7099.06	60.30	-44.50	60.30	74.94	323.57	0.62
7200.00	2.70	245.20	7198.96	58.59	-48.51	58.59	76.06	320.38	0.43
7300.00	3.32	249.66	7298.82	56.59	-53.36	56.59	77.78	316.68	0.66