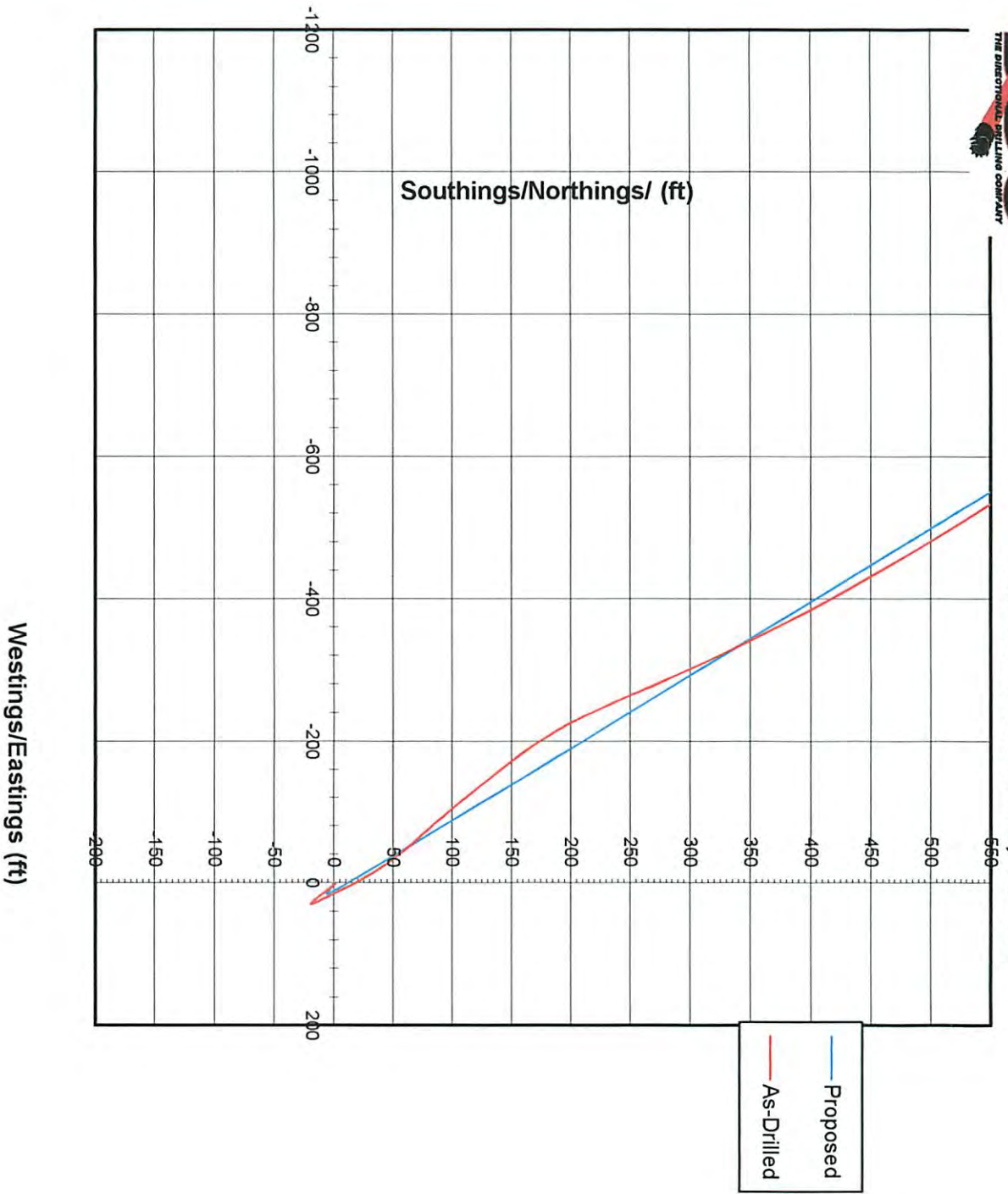




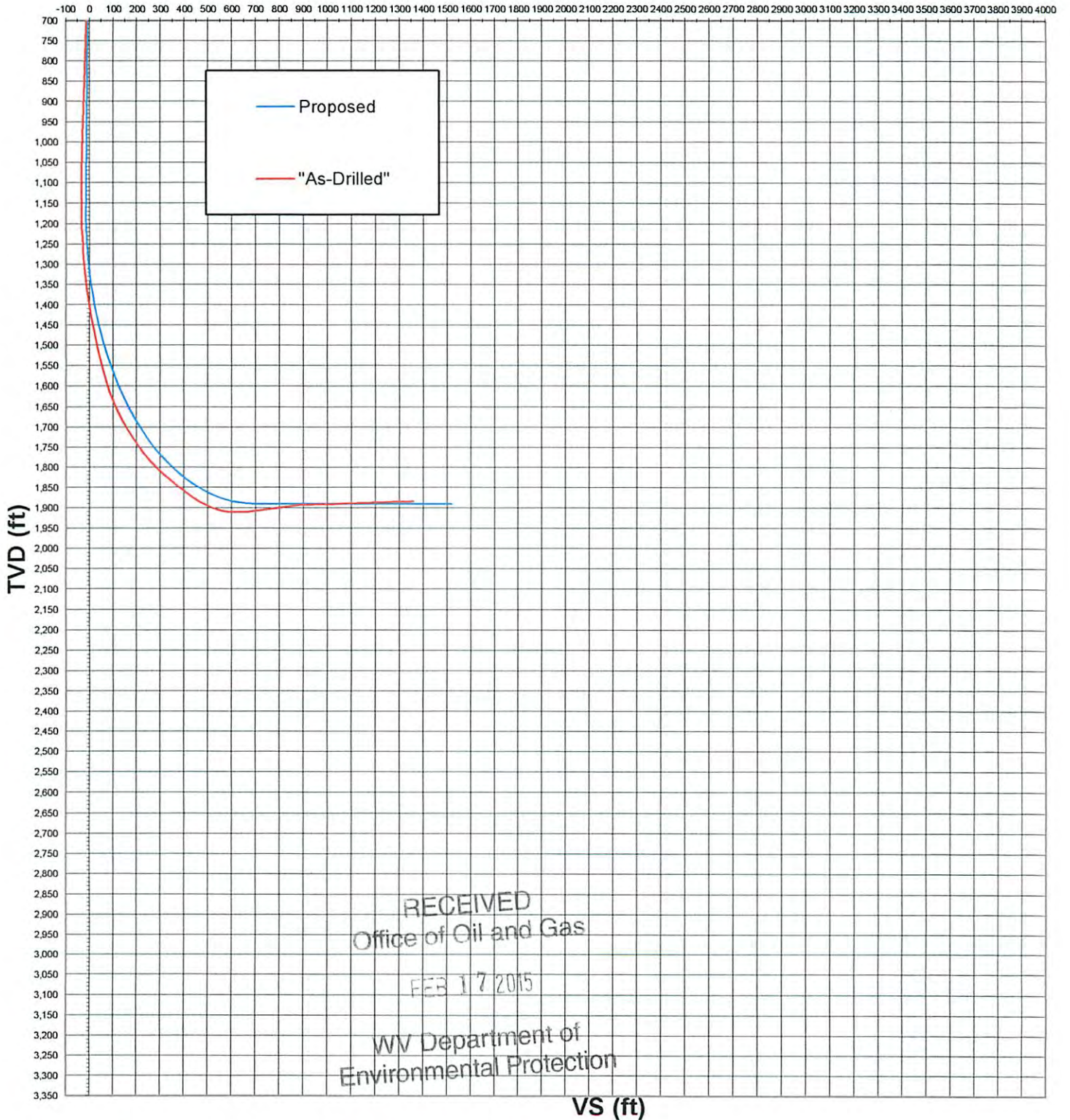
ROBY W-1642H
Plane View 313° Az, 90° Inc



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ROBY W-1642H
VS View 313° Az, 90° INC



DIRECTIONAL SURVEY CALCULATION

MINIMUM CURVATURE METHOD

Well Name		Target Direction		Slot Coordinate		N / S	E / W	Hole Size	Calculation by		Date
Roby W-1642H		314.46				0.00	0.00	8.750			#NAME?
Job Number				Tie-in Point				Directional Co.			
AM-140637		EM MWD		PLAN AT SURFACE >>><<<				ADC			
Measured Depth	Hole Angle	Hole Direction	Course Length	True Vertical Depth	Vertical Section	Total Coordinate		Dogleg Severity	Build Up °/100 ft	Walk/ °/100 ft	
						N + / S -	E + / W -				
0.00	0.00	0.00		0.00	0.00	0.00	0.00	TIE-IN POINT			
100	0.6	29.6	100	100.00	0.14	0.48	0.27	0.63	0.63	29.64	
200	0.9	105.1	100	199.99	-0.40	0.75	1.30	0.96	0.27	75.43	
300	0.7	119.4	100	299.98	-1.64	0.27	2.55	0.31	-0.25	14.33	
400	0.8	117.9	100	399.97	-2.85	-0.34	3.67	0.15	0.15	-1.52	
500	2.0	130.1	100	499.94	-5.23	-1.76	5.59	1.19	1.16	12.25	
600	2.5	128.7	100	599.87	-9.09	-4.22	8.59	0.53	0.53	-1.48	
700	3.0	126.8	100	699.75	-13.85	-7.15	12.39	0.52	0.51	-1.86	
800	3.5	130.0	100	799.59	-19.47	-10.66	16.81	0.51	0.48	3.18	
900	3.7	126.1	100	899.40	-25.65	-14.49	21.71	0.30	0.18	-3.87	
1000	2.3	123.9	100	999.26	-30.81	-17.51	25.98	1.33	-1.33	-2.16	
1100	1.5	111.0	100	1,099.20	-34.04	-19.13	28.92	0.90	-0.79	-12.92	
1183	1.7	338.1	83	1,182.19	-33.93	-18.38	29.50	3.58	0.19	273.59	
1213	3.4	326.7	30	1,212.16	-32.66	-17.23	28.85	5.89	5.67	-38.00	
1243	5.3	321.8	30	1,242.07	-30.41	-15.40	27.50	6.45	6.33	-16.33	
1273	7.4	320.4	30	1,271.88	-27.12	-12.82	25.41	7.02	7.00	-4.67	
1303	9.4	320.3	30	1,301.56	-22.76	-9.44	22.62	6.67	6.67	-0.33	
1333	11.4	320.4	30	1,331.07	-17.37	-5.27	19.16	6.67	6.67	0.33	
1363	13.3	320.3	30	1,360.37	-10.99	-0.33	15.07	6.33	6.33	-0.33	
1393	15.1	320.2	30	1,389.45	-3.67	5.32	10.36	6.00	6.00	-0.33	
1423	16.9	320.7	30	1,418.29	4.56	11.70	5.10	6.02	6.00	1.67	
1453	18.5	318.9	30	1,446.87	13.64	18.66	-0.79	5.64	5.33	-6.00	
1483	19.8	316.6	30	1,475.21	23.46	25.94	-7.41	5.01	4.33	-7.67	
1513	21.3	314.3	30	1,503.30	33.99	33.44	-14.81	5.68	5.00	-7.67	
1543	22.5	312.9	30	1,531.13	45.18	41.15	-22.91	4.36	4.00	-4.67	
1573	23.9	307.9	30	1,558.71	56.95	48.79	-31.91	8.05	4.67	-16.67	
1603	27.6	307.0	30	1,585.73	69.88	56.71	-42.26	12.40	12.33	-3.00	
1633	31.9	304.6	30	1,611.77	84.59	65.40	-54.34	14.87	14.33	-8.00	
1663	36.6	304.3	30	1,636.56	101.21	74.95	-68.26	15.68	15.67	-1.00	
1693	39.9	304.6	30	1,660.11	119.50	85.45	-83.57	11.02	11.00	1.00	
1723	42.9	305.1	30	1,682.61	139.06	96.79	-99.85	10.06	10.00	1.67	
1753	45.7	306.1	30	1,704.08	159.76	108.99	-116.88	9.62	9.33	3.33	
1783	48.7	306.6	30	1,724.46	181.55	122.04	-134.61	10.07	10.00	1.67	
1813	51.0	306.7	30	1,743.81	204.27	135.72	-153.01	7.67	7.67	0.33	
1843	52.7	307.8	30	1,762.34	227.67	150.00	-171.78	6.36	5.67	3.67	
1873	55.7	311.4	30	1,779.89	251.91	165.52	-190.51	13.95	10.00	12.00	
1903	59.1	314.4	30	1,796.05	277.16	182.73	-209.01	14.12	11.33	10.00	
1933	62.2	317.8	30	1,810.76	303.29	201.57	-227.13	14.29	10.33	11.33	
1993	65.3	326.3	60	1,837.33	356.55	243.98	-260.13	13.71	5.17	14.17	
2023	65.1	323.3	30	1,849.92	383.34	266.23	-275.83	9.10	-0.67	-10.00	
2053	66.1	323.0	30	1,862.31	410.35	288.09	-292.21	3.46	3.33	-1.00	
2083	68.3	321.8	30	1,873.94	437.74	310.00	-309.09	8.21	7.33	-4.00	
2113	71.2	321.1	30	1,884.32	465.67	332.01	-326.63	9.91	9.67	-2.33	
2143	74.1	320.0	30	1,893.26	494.14	354.11	-344.82	10.28	9.67	-3.67	
2173	77.7	319.2	30	1,900.57	523.11	376.27	-363.68	12.28	12.00	-2.67	
2203	81.6	318.1	30	1,905.96	552.54	398.41	-383.17	13.49	13.00	-3.67	
2233	85.6	317.0	30	1,909.30	582.30	420.41	-403.29	13.82	13.33	-3.67	
2263	89.7	316.6	30	1,910.53	612.25	442.25	-423.81	13.73	13.67	-1.33	
2293	92.0	314.8	30	1,910.09	642.23	463.72	-444.75	9.73	7.67	-6.00	

2323	92.7	314.7	30	1,908.86	672.21	484.82	-466.04	2.36	2.33	-0.33
2353	93.7	314.5	30	1,907.18	702.16	505.85	-487.37	3.40	3.33	-0.67
2383	94.2	313.3	30	1,905.12	732.09	526.61	-508.93	4.32	1.67	-4.00
2413	94.7	312.8	30	1,902.79	761.99	547.02	-530.79	2.35	1.67	-1.67
2443	95.1	312.6	30	1,900.23	791.86	567.29	-552.76	1.49	1.33	-0.67
2473	95.4	312.8	30	1,897.48	821.72	587.55	-574.71	1.20	1.00	0.67
2503	94.5	313.0	30	1,894.89	851.60	607.90	-596.61	3.07	-3.00	0.67
2533	92.1	312.2	30	1,893.17	881.53	628.17	-618.65	8.43	-8.00	-2.67
2563	90.6	311.8	30	1,892.46	911.49	648.24	-640.94	5.17	-5.00	-1.33
2593	90.6	311.5	30	1,892.15	941.46	668.17	-663.35	1.00	0.00	-1.00
2623	90.9	311.1	30	1,891.75	971.41	687.97	-685.89	1.67	1.00	-1.33
2653	90.1	310.7	30	1,891.49	1,001.35	707.61	-708.56	2.98	-2.67	-1.33
2683	91.7	310.8	30	1,891.02	1,031.28	727.19	-731.29	5.34	5.33	0.33
2713	91.9	311.8	30	1,890.08	1,061.22	746.98	-753.81	3.40	0.67	3.33
2743	90.8	312.1	30	1,889.37	1,091.18	767.03	-776.12	3.80	-3.67	1.00
2773	91.1	311.8	30	1,888.87	1,121.15	787.08	-798.43	1.41	1.00	-1.00
2803	90.9	311.1	30	1,888.35	1,151.10	806.94	-820.91	2.43	-0.67	-2.33
2833	91.5	311.4	30	1,887.72	1,181.05	826.71	-843.46	2.24	2.00	1.00
2863	92.2	311.4	30	1,886.75	1,210.99	846.54	-865.95	2.33	2.33	0.00
2893	91.1	311.1	30	1,885.89	1,240.93	866.31	-888.50	3.80	-3.67	-1.00
2923	91.6	312.6	30	1,885.18	1,270.89	886.32	-910.84	5.27	1.67	5.00
2953	90.4	311.9	30	1,884.66	1,300.86	906.49	-933.04	4.63	-4.00	-2.33
3011	90.4	311.9	58	1,884.25	1,358.80	945.22	-976.21	0.00	0.00	0.00

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Directional Survey Calculation
 Minimum Curvature Method - version 2.0

For Microsoft Excel Version 3.0 for Macintosh
 and Microsoft Excel Version 3.0 for Windows (IBM)

4.00	Direction,	Interval's	Ratio	D	D	D	Closure	Closure
2.00	Azimuth	Dog Leg	Factor	N / S	E / S	TVD	Distance	Direction
3.00	0.00						0.00	#DIV/0!
0.30	29.64	0.63	1.00	0.48	0.27	100.00	0.55	29.64
	105.07	0.96	1.00	0.27	1.03	99.99	1.50	60.01
	119.40	0.31	1.00	-0.48	1.25	99.99	2.57	83.99
	117.88	0.15	1.00	-0.60	1.11	99.99	3.68	95.24
	130.13	1.19	1.00	-1.43	1.92	99.97	5.86	107.52
	128.65	0.53	1.00	-2.46	3.00	99.92	9.58	116.17
	126.79	0.52	1.00	-2.92	3.79	99.88	14.30	119.99
	129.97	0.51	1.00	-3.52	4.42	99.84	19.91	122.39
	126.10	0.30	1.00	-3.83	4.90	99.81	26.11	123.72
	123.94	1.33	1.00	-3.02	4.27	99.86	31.33	123.98
	111.02	0.90	1.00	-1.62	2.94	99.94	34.67	123.48
	338.10	2.97	1.00	0.74	0.58	82.99	34.76	121.93
	326.70	1.77	1.00	1.16	-0.65	29.97	33.60	120.85
	321.80	1.93	1.00	1.83	-1.35	29.91	31.52	119.24
	320.40	2.11	1.00	2.58	-2.09	29.81	28.46	116.77
	320.30	2.00	1.00	3.37	-2.80	29.68	24.51	112.66
	320.40	2.00	1.00	4.17	-3.46	29.51	19.87	105.39
	320.30	1.90	1.00	4.94	-4.09	29.30	15.07	91.27
	320.20	1.80	1.00	5.66	-4.71	29.08	11.65	62.81
	320.70	1.81	1.00	6.38	-5.26	28.84	12.76	23.54
	318.90	1.69	1.00	6.96	-5.89	28.58	18.68	-2.44
	316.60	1.50	1.00	7.28	-6.62	28.34	26.98	-15.95
	314.30	1.70	1.00	7.50	-7.39	28.09	36.57	-23.88
	312.90	1.31	1.00	7.71	-8.10	27.83	47.10	-29.11
	307.90	2.42	1.00	7.64	-9.00	27.58	58.30	-33.19
	307.00	3.72	1.00	7.92	-10.35	27.02	70.73	-36.69
	304.60	4.46	1.00	8.69	-12.08	26.04	85.03	-39.72
	304.90	4.70	1.00	9.55	-13.92	24.79	101.37	-42.33
	304.60	3.31	1.00	10.51	-15.31	23.56	119.53	-44.36
	305.10	3.02	1.00	11.34	-16.28	22.50	139.06	-45.89
	306.10	2.89	1.00	12.20	-17.03	21.47	159.81	-47.00
	306.60	3.02	1.00	13.05	-17.73	20.38	181.69	-47.80
	306.70	2.30	1.00	13.69	-18.40	19.34	204.53	-48.43
	307.80	1.91	1.00	14.28	-18.78	18.53	228.06	-48.87
	311.40	4.19	1.00	15.51	-18.73	17.55	252.37	-49.02
	314.40	4.24	1.00	17.21	-18.50	16.16	277.62	-48.84
	317.80	4.29	1.00	18.84	-18.12	14.71	303.68	-48.41
	326.30	8.23	1.00	42.41	-33.00	26.57	356.64	-46.84
	323.30	2.73	1.00	22.25	-15.70	12.59	383.35	-46.01
3.50	323.00	1.04	1.00	21.86	-16.38	12.39	410.35	-45.41
1.25	321.80	2.46	1.00	21.91	-16.87	11.63	437.76	-44.92
	321.10	2.97	1.00	22.01	-17.54	10.38	465.74	-44.53
	320.00	3.08	1.00	22.11	-18.19	8.95	494.27	-44.24
	319.20	3.68	1.00	22.15	-18.86	7.31	523.30	-44.03
	318.10	4.05	1.00	22.15	-19.49	5.39	552.77	-43.88
	317.00	4.15	1.00	21.99	-20.12	3.34	582.57	-43.81
	316.60	4.12	1.00	21.85	-20.51	1.23	612.54	-43.78
	314.80	2.92	1.00	21.47	-20.95	-0.45	642.53	-43.80

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314.70	0.71	1.00	21.10	-21.29	-1.23	672.49	-43.87
314.50	1.02	1.00	21.03	-21.33	-1.67	702.44	-43.93
313.30	1.30	1.00	20.75	-21.56	-2.07	732.34	-44.02
312.80	0.71	1.00	20.42	-21.86	-2.33	762.22	-44.14
312.60	0.45	1.00	20.27	-21.97	-2.56	792.06	-44.26
312.80	0.36	1.00	20.26	-21.95	-2.75	821.90	-44.37
313.00	0.92	1.00	20.35	-21.89	-2.59	851.75	-44.46
312.20	2.53	1.00	20.27	-22.04	-1.73	881.66	-44.56
311.80	1.55	1.00	20.07	-22.29	-0.71	911.60	-44.68
311.50	0.30	1.00	19.94	-22.42	-0.31	941.54	-44.79
311.10	0.50	1.00	19.80	-22.54	-0.39	971.47	-44.91
310.70	0.89	1.00	19.64	-22.67	-0.26	1,001.39	-45.04
310.80	1.60	1.00	19.58	-22.72	-0.47	1,031.30	-45.16
311.80	1.02	1.00	19.79	-22.53	-0.94	1,061.23	-45.26
312.10	1.14	1.00	20.05	-22.31	-0.71	1,091.19	-45.34
311.80	0.42	1.00	20.05	-22.31	-0.50	1,121.15	-45.41
311.10	0.73	1.00	19.86	-22.48	-0.52	1,151.10	-45.49
311.40	0.67	1.00	19.78	-22.55	-0.63	1,181.05	-45.57
311.40	0.70	1.00	19.83	-22.49	-0.97	1,210.99	-45.65
311.10	1.14	1.00	19.77	-22.55	-0.86	1,240.94	-45.72
312.60	1.58	1.00	20.01	-22.34	-0.71	1,270.90	-45.78
311.90	1.39	1.00	20.17	-22.20	-0.52	1,300.88	-45.83
311.90	0.00	1.00	38.73	-43.17	-0.40	1,358.84	-45.92

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