

# Operations Report

## H-12002



Flown for

## Stellar Resources

Attention  
Tom Whiting

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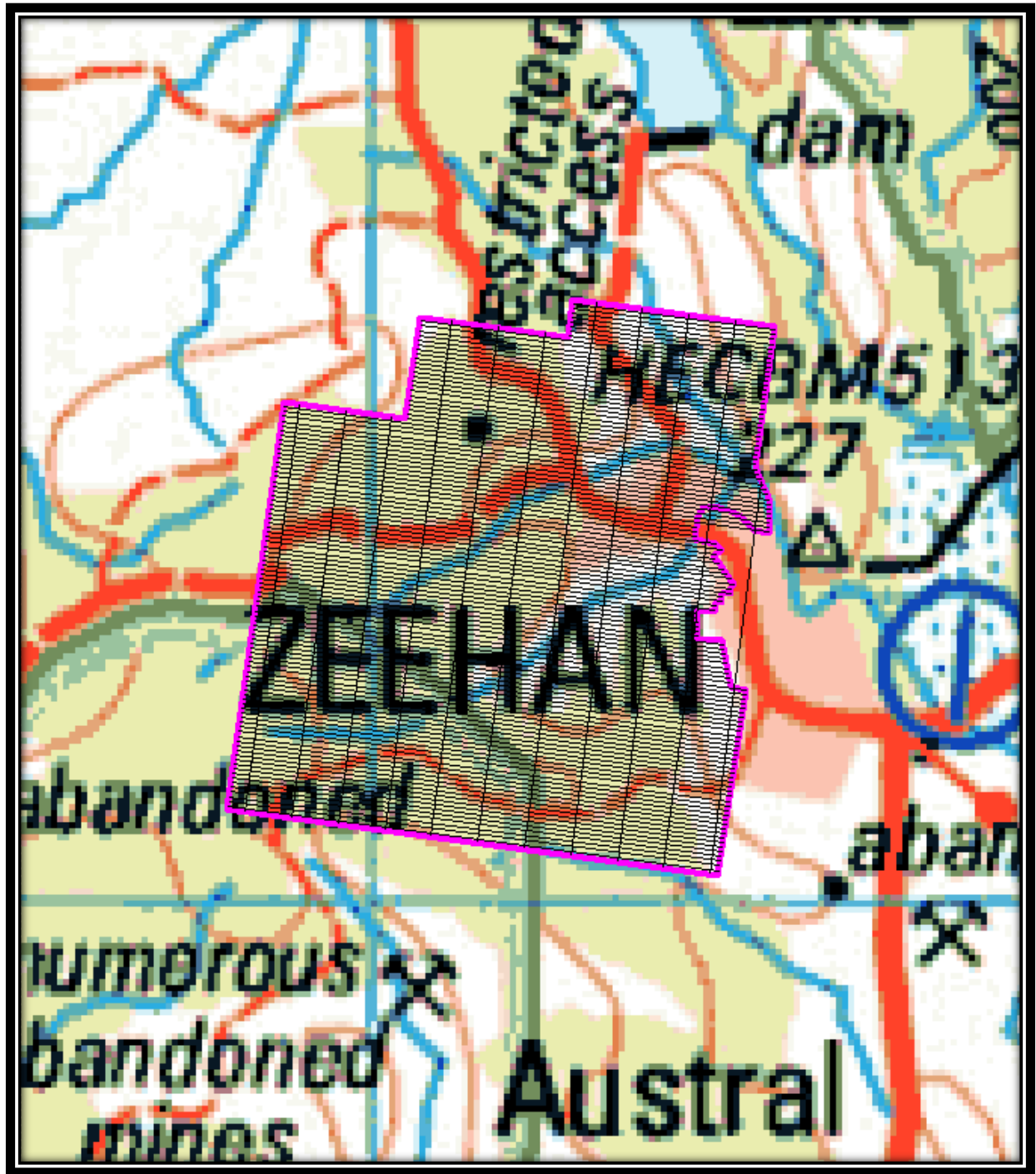
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## SPECIFICATIONS FOR AIRBORNE GEOPHYSICAL SURVEY

### SURVEY AREA

Thomson Aviation carried out a Rotary Wing Geophysical Survey of 419 line kms for your projects, at Zeehan Tasmania. The aircraft used was a Bell Jet Ranger, and was based at the Zeehan Airfield. The position of the project is shown on the map below. The survey was planned and has been delivered in GDA94 Zone 55.



## FLYING SPECIFICATIONS

Flight line direction	97.5 – 277.5
Flight line spacing	25 m
Tie line direction	7.5 – 187.5
Tie line spacing	250 m
Sensor mean terrain clearance	35 metres
Time base - for magnetics	0.05 sec.
Time base - for radiometrics	1 sec
Total Traverse Kilometers	273
Total Tie Kilometers	28
Shortest Traverse	1
Longest Traverse	2
Average Traverse length	2
Shortest Tie	2
Longest Tie	2
Average Tie Length	2
Total Line Kilometers	302

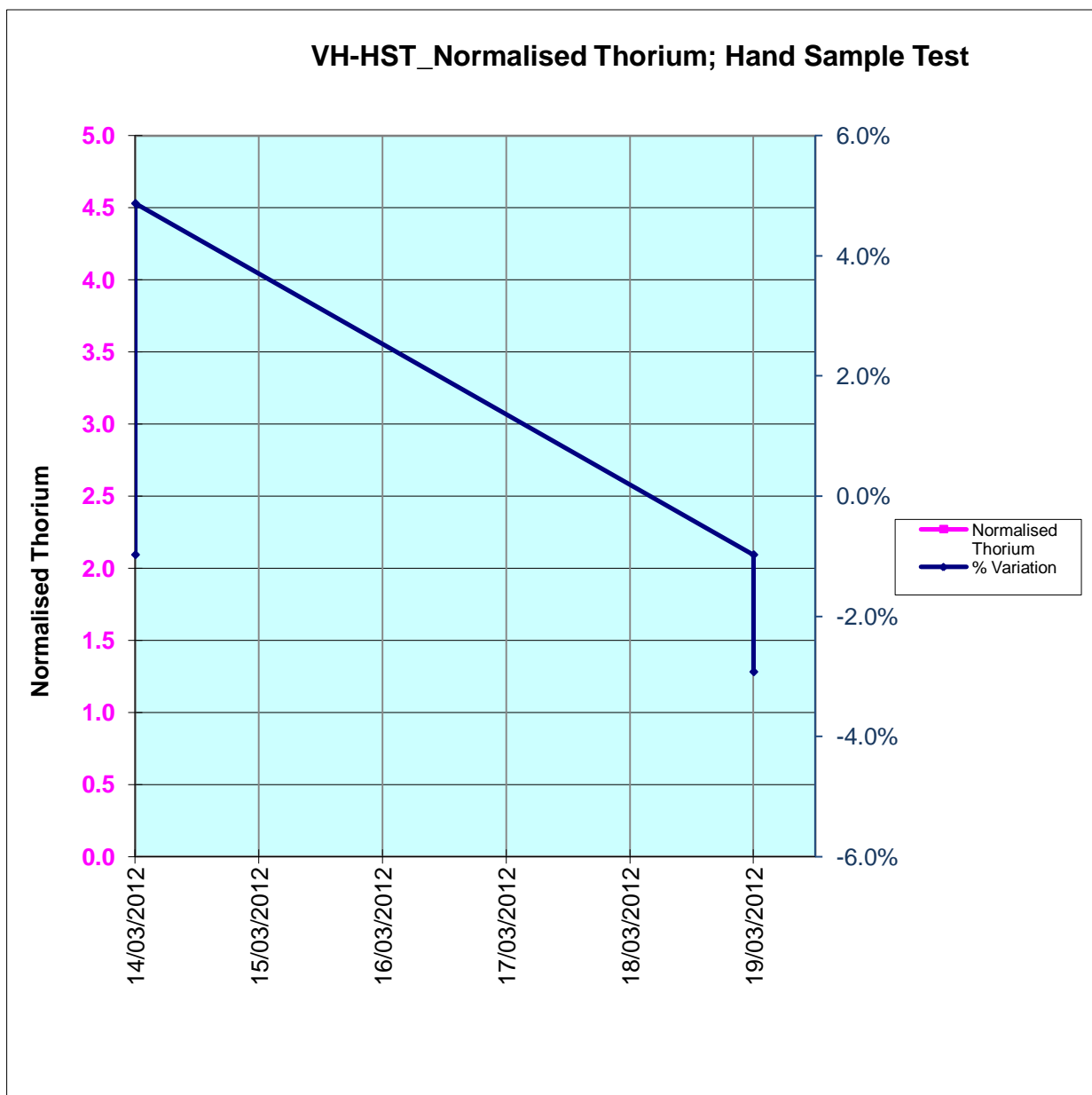
Survey Boundaries	
GDA 94 Zone 55	
360169	5362554
359518	5362643
359214	5360470
361836	5360120
361989	5361112
361903	5361126
361857	5361376
361726	5361372
361722	5361525
361819	5361529
361824	5361572
361854	5361573
361853	5361621
361907	5361621
361907	5361659
361923	5361671
361878	5361732
361834	5361798
361807	5361823
361855	5361859
361824	5361888
361714	5361910
361731	5362037
361757	5362091
361840	5362084
361895	5362067
361965	5362035
362023	5361965
362108	5361944
362113	5362116
362034	5362304
362142	5363051
361062	5363195
361035	5362997
360249	5363101

For detailed information regarding line positioning and flight planning used, please see Appendix B.

## CALIBRATION

The radiometric system was calibrated using Geoscience Australia's calibration range in Carnamah, WA, within 12 months VHL of the commencement of this survey. The following calibrations were carried out before and after each days flying:

- a) Verification of the gamma ray spectrometer system response using hand sample checks. System was exposed to a Thorium sample for a minimum period required to accumulate 10,000 counts in the Thorium window. All background corrected counts fell within a 10% envelope ( $\pm 5\%$  from the mean over the survey period).



A Test Line was flown at the same height as the survey specified height to verify magnetometer, spectrometer and barometric altimeter baselines. The test line was flown over a repeatable line of five kilometers and was flown in either direction. The test line Thorium window counts fell within a 10% envelope (+/- 5% of the mean over the survey period).

Prior to the commencement of the survey, a parallax check was flown to verify the correct parallax values for all of the recorded parameters.



### HEADING CHECKS.

A series of lines were flown to check the magnetic heading of the aircraft at the end of the survey

Two lines were flown North- South and two lines flown East- West

To review this data, intersections were calculated at of each of the cross over points, the lines did not cross over the same point, which is nearly impossible, and Diurnal was not collected on the day and was not removed. As the lines were only several minutes long and not separated by a large time difference then we can assume that the diurnal was near constant during the time period. The IGRF was removed with the appropriate filed and using the gps height as the height control

Lines 10010 was flown East, line 2020 flown North, line 20030 flown South and line 10040 flown West

From the analysis we computed the following results:

Line	Valid number	Heading crossings correction
10010	2	1.28
10040	2	-0.69
20020	2	1.75
20030	2	-0.73

## RADAR ALTIMETER/BAROMETRIC ALTIMETER CHECK

### VH- HST

Radar Altimeter (metres)	Barometric Height (hPa)	GPS Height (metres)	$H_{\text{gps}} - H_{\text{radalt}}$ (metres)
97.59	1375	97.2	-0.39
141.26	1364	141.23	-0.03
191.42	1357	190.3	-1.12
235.17	1352	236.5	1.33
281.37	1346	280.44	-0.93
330.69	1344	330.55	0.86
380.5	1337	380.2	-0.30
441.16	1333	441.6	0.44
486.41	1326	487.36	0.95
505.84	1322	506.35	0.51

### IN-FIELD VERIFICATION AND PROCESSING

Stringent real time data validity checks were employed. Thomson Aviation conducted a daily post-flight verification of all acquired data. The following products were generated on site by a mixture of ChrisDBF and Thomson Aviation proprietary software:

- 1) Flight path plots, to demonstrate quality of navigation
- 2) Magnetic stacked profiles, to demonstrate character of magnetic data
- 3) Statistical summary of line data
- 4) Magnetometer base station plots
- 5) Progressive image presentation of magnetic and topographic data
- 6) Plots of daily parking site of the aircraft to verify GPS position.



## NAVIGATION AND POSITIONING

Navigation was by electronic means using a mobile Novatel OEMV-1 VBS receiver to provide flight guidance to the pilot as well as recording the flight path for subsequent processing. Differential GPS data was obtained in real time using static GPS data obtained from the “Omnistar” wide area GPS service. Position relative to the survey line was displayed to the pilot by a system proprietary to Thomson Aviation which has proven highly effective.

Under normal circumstances differential GPS is expected to yield positional accuracies in the order of 5 metres RMS or better.



## DIURNAL MONITOR

The base station magnetometer was positioned at Zeehan Airfield. It recorded to a sensitivity of 0.1 nT every 5 seconds. Noise levels on the base station magnetometer did not exceed  $\pm 1.0$  nT and the non-linear variations of the diurnal field did not exceed 10 nT in 5 minutes.



## DAILY REPORTS OF AIRCRAFT VH-HST

See Appendix (a)

## AIRCRAFT AND SURVEY INSTRUMENTATION

### AIRCRAFT

A Jet Ranger helicopter will be used as the survey platform. This aircraft combines good manoeuvrability with excellent power to weight figures that will allow this survey to be flown within the specifications stated.



## **SURVEY INSTRUMENTATION**

### **MAGNETOMETER**

The Geometrics G822A Magnetometer is a highly sensitive unit incorporating an optically pumped sensor. The constant harmonic frequency from the sensor is proportional to the surrounding scalar magnetic field. This frequency is resolved by the Counter / Processor which provided the magnetic field to a nominal accuracy of 0.01nT at 20 times per second both in analog and digital forms.

The sensor and pre-amp was mounted in a "stinger" which will be attached to the aircraft.



### **RADAR ALTIMETER**

A King KR 495B Radar Altimeter was used, this unit is a high resolution, short pulse ratio altitude system designed for automatic continuous operation over a wide variation of terrain, target reflectivity, weather and aircraft altitude. The radar altimeter indicator provided a terrain clearance display from 0 – 650 metres (0 – 2,000 feet) above ground.

### **BAROMETRIC ALTIMETER**

Barometric pressure was recorded using a Vaisala pressure transducer with a range of 600 to 1600 Hpa and a resolution of 0.04 Hpa (equivalent to 0.4 metres). The sensor was calibrated to the height given by the GPS.

### **DATA ACQUISITION SYSTEM**

The GeOZ\_DAS digital data acquisition system recorded all system parameters to removable Flash Cards and provided both pilot guidance and error reporting diagnostics for the pilot or

operator. Data was transferred to a field computer for both verification and archiving prior to being shipped to the processing centre.

## **NAVIGATION EQUIPMENT**

The GPS receiver was a Novatel OEMV-1VBS 12 channel parallel tracking receiver capable of providing sub-metre resolution at five times per second. The GPS receiver was integrated within the GeoZ-DAS acquisition unit.

## **BASE STATION MAGNETOMETER**

Two Geometrics G-856 magnetometers with analog and digital recording were used as diurnal monitors and run continuously during the survey periods.

## **GAMMA RAY SPECTROMETER SYSTEM**

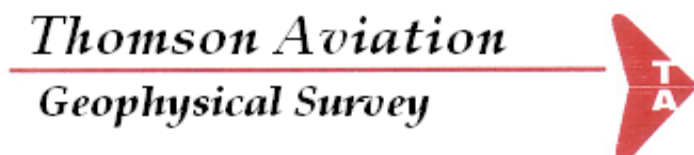
The Gamma Ray Spectrometer was interfaced to a NaI (TI) crystal detector pack with a total volume of 16.5 litres (1024 cubic inches). The detector packs embody the latest techniques whereby the elimination of dead time in the counting process yields up to 30% more counts over competing systems. A Radiation Solutions Inc. RSX-4 Gamma detector systems delivered high-resolution spectral information from 0.33 MeV to 3.0 MeV. In addition, the five primary regions of interest; Total Count, Potassium, Uranium, Thorium and Cosmic were provided.

Superior calibration facilities included the visual real time monitoring of full spectrum data and in flight monitoring of gain drift relative to the selected isotope window, to ensure that long-term data quality was maintained.

Enhancement of the spectrometer data was achieved by noise reduction techniques (NASVD or MNF), followed by dead time correction, energy calibration, cosmic/aircraft background correction and atmospheric radon removal all applied to the 256 channel data. Spectral stripping, height correction and conversion to radio-element concentrations were then applied prior to gridding and microlevelling.

## **Contact Information**

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Appendix (a)

**DAILY REPORTS OF AIRCRAFT VH -HST**

<u>Date</u>	<u>Block</u>	<u>Aircraft</u>	<u>Flight</u>	<u>Operator</u>	<u>Comments</u>
13/03/12	Zeehan	VH-HST	1	Tim Hetherington	Good Weather
14/03/12	Zeehan	VH-HST	2	Tim Hetherington	Good Weather
14/03/12	Zeehan	VH-HST	3	Tim Hetherington	Good Weather
14/03/12	Zeehan	VH-HST	4	Tim Hetherington	Good Weather
14/03/12	Zeehan	VH-HST	5	Tim Hetherington	Good Weather
15/03/12	Zeehan	VH-HST	-	Tim Hetherington	Full Day Standby
16/03/12	Zeehan	VH-HST	-	Tim Hetherington	Full Day Standby
17/03/12	Zeehan	VH-HST	-	Tim Hetherington	Full Day Standby
18/03/12	Zeehan	VH-HST	-	Tim Hetherington	Full Day Standby
19/03/12	Zeehan	VH-HST	6	Tim Hetherington	Good Weather
19/03/12	Infill	VH-HST	7	Tim Hetherington	Good Weather
19/03/12	Zeehan	VH-HST	8	Tim Hetherington	Good Weather

## Appendix (b)

```
=====
Area name           = Zeehan_V5
Client name        = Stellar_Resources_Ltd
=====
```

```
Area Numeric Prefix = 1
Utm Zone            = 55
```

### Flight Planning Parameters

```
-----
Traverse spacing (m)   = 25.000000
Traverse bearing (deg) = 97.500000
```

```
Tie spacing (m)       = 250.000000
Tie bearing (deg)     = 7.500000
```

```
Minimum line handling = Extend lines to minimum line length.
Minimum line length (m) = 1000.000000
Minimum dead segment (m) = 3000.000000
Overfly (m)           = 200.000000
Manual traverse positioning? = Not Used.
Manual tie positioning = Used.
Manual X,Y position   = 359100.490000, 5360256.290000
Add cal lines to .lns file? = Not Added.
```

### Boundary vertices (35)

```
=====
360169.00, 5362554.00
359518.00, 5362643.00
359214.00, 5360470.00
361836.00, 5360120.00
361989.00, 5361112.00
361903.00, 5361126.00
361857.00, 5361376.00
361726.00, 5361372.00
361722.00, 5361525.00
361819.00, 5361529.00
361824.00, 5361572.00
361854.00, 5361573.00
361853.00, 5361621.00
361907.00, 5361621.00
361907.00, 5361659.00
361923.00, 5361671.00
361878.00, 5361732.00
361834.00, 5361798.00
361807.00, 5361823.00
361855.00, 5361859.00
361824.00, 5361888.00
```



361714.00, 5361910.00  
361731.00, 5362037.00  
361757.00, 5362091.00  
361840.00, 5362084.00  
361895.00, 5362067.00  
361965.00, 5362035.00  
362023.00, 5361965.00  
362108.00, 5361944.00  
362113.00, 5362116.00  
362034.00, 5362304.00  
362142.00, 5363051.00  
361062.00, 5363195.00  
361035.00, 5362997.00  
360249.00, 5363101.00

Lines	Easting start	Northing start	Easting end	Northing end	Length
100010	359155.33	5360298.64	361899.47	5359937.36	2.77
100020	359100.15	5360331.12	361903.28	5359962.08	2.83
100030	359054.09	5360362.40	361957.44	5359980.16	2.93
100040	359057.55	5360387.16	361961.25	5360004.88	2.93
100050	359025.46	5360416.60	362001.74	5360024.76	3.00
100060	359028.93	5360441.36	362005.55	5360049.48	3.00
100070	359032.39	5360466.12	362028.78	5360071.63	3.02
100080	359035.86	5360490.88	362032.59	5360096.35	3.02
100090	359039.32	5360515.64	362036.65	5360121.03	3.02
100100	359025.80	5360542.63	362040.47	5360145.74	3.04
100110	359029.27	5360567.39	362044.28	5360170.46	3.04
100120	359032.73	5360592.15	362048.09	5360195.17	3.04
100130	359036.20	5360616.91	362051.90	5360219.88	3.04
100140	359039.66	5360641.67	362055.71	5360244.60	3.04
100150	359043.12	5360666.43	362059.52	5360269.31	3.04
100160	359046.59	5360691.19	362063.34	5360294.03	3.04
100170	359050.05	5360715.95	362067.15	5360318.74	3.04
100180	359053.52	5360740.71	362070.96	5360343.45	3.04
100190	359056.98	5360765.47	362074.77	5360368.17	3.04
100200	359060.44	5360790.23	362078.58	5360392.88	3.04
100210	359063.91	5360814.99	362082.39	5360417.60	3.04
100220	359067.37	5360839.75	362086.21	5360442.31	3.04
100230	359070.83	5360864.51	362090.02	5360467.02	3.05
100240	359074.30	5360889.27	362093.83	5360491.74	3.05
100250	359077.76	5360914.03	362097.64	5360516.45	3.05
100260	359081.23	5360938.79	362101.45	5360541.17	3.05
100270	359084.69	5360963.55	362105.26	5360565.88	3.05
100280	359088.15	5360988.31	362109.08	5360590.59	3.05
100290	359091.62	5361013.07	362112.89	5360615.31	3.05
100300	359095.08	5361037.82	362116.70	5360640.02	3.05
100310	359098.55	5361062.58	362120.51	5360664.74	3.05
100320	359102.01	5361087.34	362124.32	5360689.45	3.05
100330	359105.47	5361112.10	362128.13	5360714.16	3.05
100340	359108.94	5361136.86	362131.95	5360738.88	3.05

100350	359112.40	5361161.62	362135.76	5360763.59	3.05
100360	359115.86	5361186.38	362139.57	5360788.30	3.05
100370	359119.33	5361211.14	362143.38	5360813.02	3.05
100380	359122.79	5361235.90	362147.19	5360837.73	3.05
100390	359126.26	5361260.66	362151.00	5360862.45	3.05
100400	359129.72	5361285.42	362154.82	5360887.16	3.05
100410	359133.18	5361310.18	362158.63	5360911.87	3.05
100420	359136.65	5361334.94	362162.44	5360936.59	3.05
100430	359140.11	5361359.70	362166.25	5360961.30	3.05
100440	359143.58	5361384.46	362170.06	5360986.02	3.05
100450	359147.04	5361409.22	362173.88	5361010.73	3.05
100460	359150.50	5361433.98	362177.69	5361035.44	3.05
100470	359153.97	5361458.74	362181.50	5361060.16	3.05
100480	359157.43	5361483.50	362185.31	5361084.87	3.05
100490	359160.89	5361508.26	362189.12	5361109.59	3.05
100500	359164.36	5361533.02	362174.00	5361136.79	3.04
100510	359167.82	5361557.78	362177.81	5361161.51	3.04
100520	359171.29	5361582.54	362145.35	5361191.00	3.00
100530	359174.75	5361607.30	362149.16	5361215.71	3.00
100540	359178.21	5361632.06	362102.92	5361247.01	2.95
100550	359181.68	5361656.82	362106.73	5361271.73	2.95
100560	359185.14	5361681.58	362072.95	5361301.39	2.91
100570	359188.61	5361706.34	362068.20	5361327.23	2.90
100580	359192.07	5361731.10	362063.44	5361353.07	2.90
100590	359195.53	5361755.86	362058.69	5361378.91	2.89
100600	359199.00	5361780.62	362053.93	5361404.76	2.88
100610	359202.46	5361805.38	362049.18	5361430.60	2.87
100620	359205.92	5361830.14	362025.82	5361458.89	2.84
100630	359209.39	5361854.89	362025.12	5361484.20	2.84
100640	359212.85	5361879.65	362067.19	5361503.87	2.88
100650	359216.32	5361904.41	362069.36	5361528.80	2.88
100660	359219.78	5361929.17	362083.14	5361552.21	2.89
100670	359223.24	5361953.93	362097.77	5361575.49	2.90
100680	359226.71	5361978.69	362101.27	5361600.25	2.90
100690	359230.17	5362003.45	362107.56	5361624.64	2.90
100700	359233.64	5362028.21	362107.56	5361649.85	2.90
100710	359237.10	5362052.97	362122.31	5361673.13	2.91
100720	359240.56	5362077.73	362101.71	5361701.06	2.89
100730	359244.03	5362102.49	362104.07	5361725.96	2.88
100740	359247.49	5362127.25	362108.74	5361750.56	2.89
100750	359250.95	5362152.01	362170.75	5361767.61	2.94
100760	359254.42	5362176.77	362226.20	5361785.53	3.00
100770	359257.88	5362201.53	362226.93	5361810.65	2.99
100780	359261.35	5362226.29	362270.46	5361830.13	3.04
100790	359264.81	5362251.05	362271.19	5361855.25	3.03
100800	359268.27	5362275.81	362271.92	5361880.37	3.03
100810	359271.74	5362300.57	362299.33	5361901.98	3.05
100820	359275.20	5362325.33	362300.07	5361927.10	3.05
100830	359278.67	5362350.09	362308.76	5361951.17	3.06
100840	359282.13	5362374.85	362309.49	5361976.29	3.05

100850	359285.59	5362399.61	362310.22	5362001.41	3.05
100860	359289.06	5362424.37	362310.95	5362026.53	3.05
100870	359292.52	5362449.13	362311.68	5362051.65	3.05
100880	359295.98	5362473.89	362312.41	5362076.77	3.04
100890	359299.45	5362498.65	362313.14	5362101.89	3.04
100900	359302.91	5362523.41	362308.84	5362127.67	3.03
100910	359306.38	5362548.17	362303.06	5362153.65	3.02
100920	359309.84	5362572.93	362303.53	5362178.80	3.02
100930	359313.30	5362597.69	362292.32	5362205.49	3.00
100940	359316.77	5362622.45	362281.10	5362232.18	2.99
100950	359320.23	5362647.21	362269.89	5362258.88	2.98
100960	359323.70	5362671.96	362258.67	5362285.57	2.96
100970	359327.16	5362696.72	362247.45	5362312.26	2.95
100980	359350.86	5362718.82	362239.49	5362338.52	2.91
100990	359354.32	5362743.58	362243.07	5362363.27	2.91
101000	359395.15	5362763.42	362246.65	5362388.01	2.88
101010	359398.62	5362788.18	362250.22	5362412.76	2.88
101020	359452.92	5362806.25	362253.80	5362437.50	2.83
101030	359456.39	5362831.01	362257.38	5362462.25	2.83
101040	360003.91	5362784.14	362260.96	5362486.99	2.28
101050	360007.52	5362808.88	362264.53	5362511.74	2.28
101060	360011.14	5362833.62	362268.11	5362536.48	2.28
101070	360014.76	5362858.36	362271.69	5362561.23	2.28
101080	360018.38	5362883.10	362275.27	5362585.97	2.28
101090	360022.00	5362907.84	362278.84	5362610.72	2.28
101100	360025.62	5362932.58	362282.42	5362635.46	2.28
101110	360029.23	5362957.31	362286.00	5362660.21	2.28
101120	360032.85	5362982.05	362289.58	5362684.95	2.28
101130	360036.47	5363006.79	362293.15	5362709.70	2.28
101140	360040.09	5363031.53	362296.73	5362734.44	2.28
101150	360043.71	5363056.27	362300.31	5362759.19	2.28
101160	360047.32	5363081.01	362303.89	5362783.93	2.28
101170	360050.94	5363105.75	362307.46	5362808.67	2.28
101180	360054.56	5363130.49	362311.04	5362833.42	2.28
101190	360058.18	5363155.23	362314.62	5362858.16	2.28
101200	360081.67	5363177.35	362318.20	5362882.91	2.26
101210	360085.29	5363202.09	362321.77	5362907.65	2.26
101220	360125.97	5363221.95	362325.35	5362932.40	2.22
101230	360129.58	5363246.69	362328.93	5362957.14	2.22
101240	360183.83	5363264.77	362332.51	5362981.89	2.17
101250	360187.45	5363289.51	362336.08	5363006.63	2.17
101260	360867.97	5363225.13	362339.66	5363031.38	1.48
101270	360871.35	5363249.90	362324.86	5363058.54	1.47
101280	360895.17	5363271.98	362328.44	5363083.29	1.45
101290	360898.54	5363296.75	362332.02	5363108.03	1.45
101300	360939.46	5363316.58	362299.81	5363137.49	1.37
101310	360942.84	5363341.35	362303.39	5363162.23	1.37
101320	360997.18	5363359.41	362257.27	5363193.52	1.27
101330	361000.56	5363384.18	362202.10	5363226.00	1.21
190010	361829.62	5359921.36	362257.99	5363175.17	3.28

190020	361581.82	5359954.43	362018.06	5363268.03	3.34
190030	361334.02	5359987.51	361770.25	5363301.07	3.34
190040	361086.21	5360020.59	361522.45	5363334.11	3.34
190050	360838.41	5360053.67	361274.64	5363367.15	3.34
190060	360590.61	5360086.75	361024.50	5363382.47	3.32
190070	360342.81	5360119.82	360752.90	5363234.83	3.14
190080	360095.00	5360152.90	360505.06	5363267.62	3.14
190090	359847.20	5360185.98	360257.22	5363300.42	3.14
190100	359599.40	5360219.06	359937.37	5362786.17	2.59
190110	359351.60	5360252.14	359689.67	5362820.03	2.59
190120	359106.71	5360307.33	359434.95	5362800.59	2.51

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===== LINE SUMMARY =====

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Lines	Cumulative Length	Cumulative Trav Length	Cumulative Tie Length	Cumulative Length
100010 ,	2.77,	2.77,	0.00,	2.77
100020 ,	2.83,	5.60,	0.00,	5.60
100030 ,	2.93,	8.52,	0.00,	8.52
100040 ,	2.93,	11.45,	0.00,	11.45
100050 ,	3.00,	14.45,	0.00,	14.45
100060 ,	3.00,	17.46,	0.00,	17.46
100070 ,	3.02,	20.48,	0.00,	20.48
100080 ,	3.02,	23.50,	0.00,	23.50
100090 ,	3.02,	26.52,	0.00,	26.52
100100 ,	3.04,	29.57,	0.00,	29.57
100110 ,	3.04,	32.61,	0.00,	32.61
100120 ,	3.04,	35.65,	0.00,	35.65
100130 ,	3.04,	38.69,	0.00,	38.69
100140 ,	3.04,	41.73,	0.00,	41.73
100150 ,	3.04,	44.77,	0.00,	44.77
100160 ,	3.04,	47.82,	0.00,	47.82
100170 ,	3.04,	50.86,	0.00,	50.86
100180 ,	3.04,	53.90,	0.00,	53.90
100190 ,	3.04,	56.95,	0.00,	56.95
100200 ,	3.04,	59.99,	0.00,	59.99
100210 ,	3.04,	63.04,	0.00,	63.04
100220 ,	3.04,	66.08,	0.00,	66.08
100230 ,	3.05,	69.13,	0.00,	69.13
100240 ,	3.05,	72.17,	0.00,	72.17
100250 ,	3.05,	75.22,	0.00,	75.22
100260 ,	3.05,	78.26,	0.00,	78.26
100270 ,	3.05,	81.31,	0.00,	81.31
100280 ,	3.05,	84.36,	0.00,	84.36
100290 ,	3.05,	87.40,	0.00,	87.40
100300 ,	3.05,	90.45,	0.00,	90.45
100310 ,	3.05,	93.50,	0.00,	93.50
100320 ,	3.05,	96.55,	0.00,	96.55
100330 ,	3.05,	99.60,	0.00,	99.60
100340 ,	3.05,	102.65,	0.00,	102.65

100350 ,	3.05,	105.70,	0.00,	105.70
100360 ,	3.05,	108.75,	0.00,	108.75
100370 ,	3.05,	111.80,	0.00,	111.80
100380 ,	3.05,	114.85,	0.00,	114.85
100390 ,	3.05,	117.90,	0.00,	117.90
100400 ,	3.05,	120.95,	0.00,	120.95
100410 ,	3.05,	124.00,	0.00,	124.00
100420 ,	3.05,	127.05,	0.00,	127.05
100430 ,	3.05,	130.10,	0.00,	130.10
100440 ,	3.05,	133.16,	0.00,	133.16
100450 ,	3.05,	136.21,	0.00,	136.21
100460 ,	3.05,	139.26,	0.00,	139.26
100470 ,	3.05,	142.32,	0.00,	142.32
100480 ,	3.05,	145.37,	0.00,	145.37
100490 ,	3.05,	148.43,	0.00,	148.43
100500 ,	3.04,	151.46,	0.00,	151.46
100510 ,	3.04,	154.50,	0.00,	154.50
100520 ,	3.00,	157.50,	0.00,	157.50
100530 ,	3.00,	160.50,	0.00,	160.50
100540 ,	2.95,	163.45,	0.00,	163.45
100550 ,	2.95,	166.40,	0.00,	166.40
100560 ,	2.91,	169.31,	0.00,	169.31
100570 ,	2.90,	172.21,	0.00,	172.21
100580 ,	2.90,	175.11,	0.00,	175.11
100590 ,	2.89,	178.00,	0.00,	178.00
100600 ,	2.88,	180.88,	0.00,	180.88
100610 ,	2.87,	183.75,	0.00,	183.75
100620 ,	2.84,	186.59,	0.00,	186.59
100630 ,	2.84,	189.43,	0.00,	189.43
100640 ,	2.88,	192.31,	0.00,	192.31
100650 ,	2.88,	195.19,	0.00,	195.19
100660 ,	2.89,	198.08,	0.00,	198.08
100670 ,	2.90,	200.98,	0.00,	200.98
100680 ,	2.90,	203.88,	0.00,	203.88
100690 ,	2.90,	206.78,	0.00,	206.78
100700 ,	2.90,	209.68,	0.00,	209.68
100710 ,	2.91,	212.59,	0.00,	212.59
100720 ,	2.89,	215.47,	0.00,	215.47
100730 ,	2.88,	218.36,	0.00,	218.36
100740 ,	2.89,	221.24,	0.00,	221.24
100750 ,	2.94,	224.19,	0.00,	224.19
100760 ,	3.00,	227.19,	0.00,	227.19
100770 ,	2.99,	230.18,	0.00,	230.18
100780 ,	3.04,	233.22,	0.00,	233.22
100790 ,	3.03,	236.25,	0.00,	236.25
100800 ,	3.03,	239.28,	0.00,	239.28
100810 ,	3.05,	242.33,	0.00,	242.33
100820 ,	3.05,	245.38,	0.00,	245.38
100830 ,	3.06,	248.44,	0.00,	248.44
100840 ,	3.05,	251.49,	0.00,	251.49

100850 ,	3.05,	254.54,	0.00,	254.54
100860 ,	3.05,	257.59,	0.00,	257.59
100870 ,	3.05,	260.64,	0.00,	260.64
100880 ,	3.04,	263.68,	0.00,	263.68
100890 ,	3.04,	266.72,	0.00,	266.72
100900 ,	3.03,	269.75,	0.00,	269.75
100910 ,	3.02,	272.77,	0.00,	272.77
100920 ,	3.02,	275.79,	0.00,	275.79
100930 ,	3.00,	278.80,	0.00,	278.80
100940 ,	2.99,	281.79,	0.00,	281.79
100950 ,	2.98,	284.76,	0.00,	284.76
100960 ,	2.96,	287.72,	0.00,	287.72
100970 ,	2.95,	290.67,	0.00,	290.67
100980 ,	2.91,	293.58,	0.00,	293.58
100990 ,	2.91,	296.50,	0.00,	296.50
101000 ,	2.88,	299.37,	0.00,	299.37
101010 ,	2.88,	302.25,	0.00,	302.25
101020 ,	2.83,	305.07,	0.00,	305.07
101030 ,	2.83,	307.90,	0.00,	307.90
101040 ,	2.28,	310.17,	0.00,	310.17
101050 ,	2.28,	312.45,	0.00,	312.45
101060 ,	2.28,	314.73,	0.00,	314.73
101070 ,	2.28,	317.00,	0.00,	317.00
101080 ,	2.28,	319.28,	0.00,	319.28
101090 ,	2.28,	321.56,	0.00,	321.56
101100 ,	2.28,	323.83,	0.00,	323.83
101110 ,	2.28,	326.11,	0.00,	326.11
101120 ,	2.28,	328.39,	0.00,	328.39
101130 ,	2.28,	330.66,	0.00,	330.66
101140 ,	2.28,	332.94,	0.00,	332.94
101150 ,	2.28,	335.21,	0.00,	335.21
101160 ,	2.28,	337.49,	0.00,	337.49
101170 ,	2.28,	339.77,	0.00,	339.77
101180 ,	2.28,	342.04,	0.00,	342.04
101190 ,	2.28,	344.32,	0.00,	344.32
101200 ,	2.26,	346.57,	0.00,	346.57
101210 ,	2.26,	348.83,	0.00,	348.83
101220 ,	2.22,	351.05,	0.00,	351.05
101230 ,	2.22,	353.27,	0.00,	353.27
101240 ,	2.17,	355.43,	0.00,	355.43
101250 ,	2.17,	357.60,	0.00,	357.60
101260 ,	1.48,	359.08,	0.00,	359.08
101270 ,	1.47,	360.55,	0.00,	360.55
101280 ,	1.45,	362.00,	0.00,	362.00
101290 ,	1.45,	363.44,	0.00,	363.44
101300 ,	1.37,	364.81,	0.00,	364.81
101310 ,	1.37,	366.19,	0.00,	366.19
101320 ,	1.27,	367.46,	0.00,	367.46
101330 ,	1.21,	368.67,	0.00,	368.67
190010 ,	3.28,	368.67,	3.28,	371.95



190020 ,	3.34,	368.67,	6.62,	375.29
190030 ,	3.34,	368.67,	9.97,	378.64
190040 ,	3.34,	368.67,	13.31,	381.98
190050 ,	3.34,	368.67,	16.65,	385.32
190060 ,	3.32,	368.67,	19.97,	388.64
190070 ,	3.14,	368.67,	23.12,	391.79
190080 ,	3.14,	368.67,	26.26,	394.93
190090 ,	3.14,	368.67,	29.40,	398.07
190100 ,	2.59,	368.67,	31.99,	400.66
190110 ,	2.59,	368.67,	34.58,	403.25
190120 ,	2.51,	368.67,	37.09,	405.76

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