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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
17901A HONEST JOHN, MISSILE NUMBER 2054, ROUND NUMBER 663 ASL, --ETC(U)
SEP 79

UNCLASSIFIED

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| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind | | |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 17901A HONEST JOHN, Missile Number 2054, Round Number 663 ASL are presented in tabular form. | | |

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INTRODUCTION

17901A HONEST JOHN, Missile Number 2054, Round Number 663 ASL was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1551 MDT, 25 September 1979. The scheduled launch time was 1545 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

SITE AND ALTITUDE

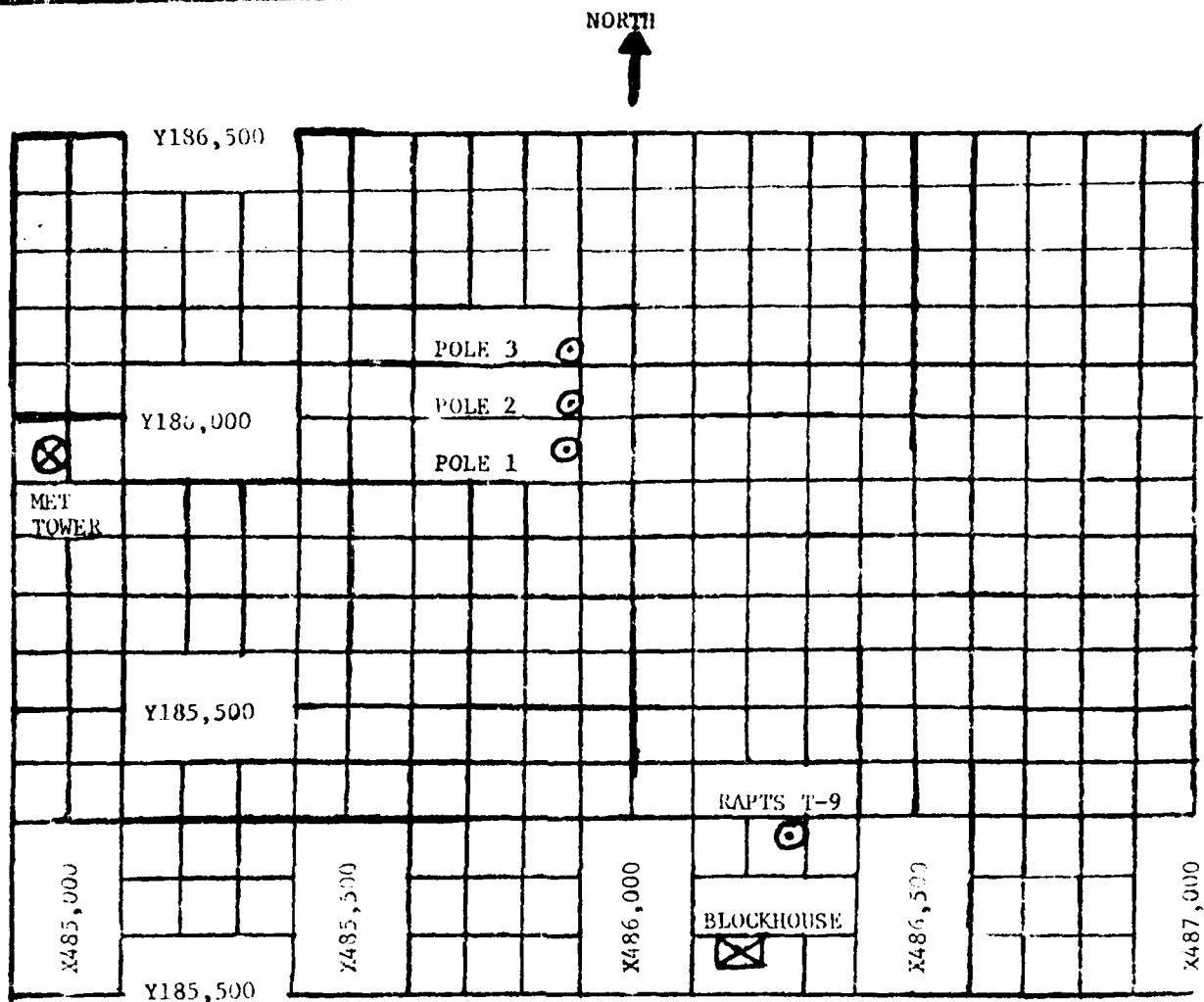
LC-33 3720 METERS

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 27,500 feet in 500-foot increments.

SITE AND TIME

WSD 1445 MST

| | |
|---------------------|-------------------------------------|
| Accession For | |
| NTIS G.W.A.I. | <input checked="" type="checkbox"/> |
| DDC TAB | <input type="checkbox"/> |
| Unannounced | <input type="checkbox"/> |
| Justification | <input type="checkbox"/> |
| By _____ | |
| Distribution/ _____ | |
| Availability Codes | |
| Dist | Available for |
| A | original |
| | BH |
| | 33 |



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
 - (a) Pole #1 - 38.7 ft
 - (b) Pole #2 - 53.0 ft
 - (c) Pole #3 - 83.6 ft
3. RAPTTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

TABLE 1. Surface Observations taken at 1551 MDT,
 25 September 1979, at LC-33,
 17901A HONEST JOHN, Missile Number 2054,
 Round Number 663 ASL.

| | | |
|-------------------|------------|-------------------|
| ELEVATION | 3977.30 | FT/MSL |
| PRESSURE | 884.7 | MBS |
| TEMPERATURE | 29.6 | °C |
| RELATIVE HUMIDITY | 18 | % |
| DEW POINT | 2.5 | °C |
| DENSITY | 1012 | GM/M ³ |
| WIND SPEED | Gusting 12 | KTS |
| WIND DIRECTION | 06/280 | DEGREES |
| CLOUD COVER | 0 | Cu |

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

| POLE #1 | | | POLE #2 | | | POLE #3 | | |
|---------------|------------|--------------|---------------|------------|--------------|---------------|------------|--------------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | 141 | 13 | -30 | 144 | 11 | -30 | 145 | 13 |
| -20 | 129 | 15 | -20 | 125 | 13 | -20 | 141 | 15 |
| -10 | 132 | 15 | -10 | 126 | 15 | -10 | 140 | 13 |
| 0.0 | 126 | 13 | 0.0 | 123 | 14 | 0.0 | 132 | 10 |
| +10 | 125 | 14 | +10 | 113 | 15 | +10 | 123 | 11 |

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft AGL

TABLE 2

TYPE 17901A HONEST JOHN MISSILE NO. 2054 ROUND NO. 663 ASL

LAUNCHED FROM LC-33 DATE 25 September 1979 TIME 1551 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

| LEVEL #1 12 Feet | | | LEVEL #2 62 Feet | | |
|----------------------|------------|--------------|----------------------|------------|--------------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | 150 | 09 | -30 | 140 | 14 |
| -20 | 150 | 10 | -20 | 135 | 13 |
| -10 | 159 | 09 | -10 | 132 | 13 |
| 0.0 | 147 | 07 | 0.0 | 141 | 09 |
| +10 | 141 | 10 | +10 | 144 | 12 |
| LEVEL #3 102 Feet | | | LEVEL #4 202 Feet | | |
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | 125 | 14 | -30 | 114 | 15 |
| -20 | 143 | 14 | -20 | 121 | 15 |
| -10 | 128 | 15 | -10 | 123 | 16 |
| 0.0 | 135 | 11 | 0.0 | 141 | 15 |
| +10 | 148 | 12 | +10 | 128 | 14 |

WTSM COORDINATES: X484,982.64 Y185,057.73 H3983.00 (base)

TABLE 3

TYPE 17901A HONEST JOHN MISSILE NO. 2054 ROUND NO. 663 ASL

LAUNCHED FROM LC-33 DATE 25 September 1979 TIME 1551 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

GSRS PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM IC33 DATE 25 September 1979 TIME 1551 MDT
 RELEASE POINT COORDINATES (WSTM) X= 486.037,24 Y= 182.350.15 H 3977.30
 MISSILE TYPE 17901A HONEST JOHN MISSILE NO. 2054 ROUND NO 663 ASL
 MISSILE LAUNCHED FROM IC-33 DATE 25 September 1979 TIME 1551 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

HEIGHT - METERS AGL

| HEIGHT AGL | DIRECTION DEGREES | SPEED KTS | HEIGHT AGL | DIRECTION DEGREES | SPEED KTS | HEIGHT AGL | DIRECTION DEGREES | SPEED KTS |
|---------------|----------------------|--------------|---------------|----------------------|--------------|---------------|----------------------|--------------|
| SFC | 280 | 05 | 600 | 144 | 21 | 1200 | 146 | 20 |
| 30 | 240 | 05 | 630 | 143 | 21 | 1230 | 149 | 20 |
| 60 | 199 | 05 | 660 | 141 | 19 | 1260 | 151 | 19 |
| 90 | 158 | 05 | 690 | 139 | 19 | 1290 | 154 | 19 |
| 120 | 117 | 04 | 720 | 137 | 18 | 1320 | 156 | 18 |
| 150 | 120 | 08 | 750 | 112 | 19 | 1350 | 157 | 18 |
| 180 | 123 | 12 | 780 | 087 | 19 | 1380 | 157 | 18 |
| 210 | 126 | 15 | 810 | 062 | 20 | 1410 | 157 | 19 |
| 240 | 128 | 19 | 840 | 037 | 20 | 1440 | 157 | 20 |
| 270 | 128 | 19 | 870 | 063 | 21 | 1470 | 160 | 19 |
| 300 | 127 | 19 | 900 | 089 | 21 | 1500 | 162 | 19 |
| 330 | 127 | 19 | 930 | 115 | 22 | 1530 | 164 | 18 |
| 360 | 126 | 19 | 960 | 140 | 22 | 1560 | 166 | 18 |
| 390 | 130 | 19 | 990 | 140 | 22 | 1590 | 165 | 18 |
| 420 | 134 | 19 | 1020 | 140 | 22 | 1620 | 163 | 19 |
| 450 | 138 | 19 | 1050 | 140 | 22 | 1650 | 161 | 20 |
| 480 | 141 | 18 | 1080 | 139 | 22 | 1680 | 159 | 21 |
| 510 | 142 | 19 | 1110 | 141 | 22 | 1710 | 158 | 21 |
| 540 | 143 | 20 | 1140 | 143 | 21 | 1740 | 157 | 20 |
| 570 | 144 | 20 | 1170 | 145 | 21 | 1770 | 156 | 20 |

STATION ALTITUDE 3989.00 FEET MSL
 25 SEP. 79
 ASCENSION NO. 396

SIGNIFICANT LEVEL DATA
 2680020366
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 5

| PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET | TEMPERATURE | | REL. HUM. PERCENT | |
|--|----------------|------------------------|----------------------|------|
| | AIR DEGREES | DEWPOINT CENTIGRADE | | |
| 885.0 | 3989.0 | 30.4 | -4.6 | 10.0 |
| 850.0 | 5162.2 | 26.6 | -3.1 | 14.0 |
| 728.6 | 9513.1 | 13.6 | -11.0 | 17.0 |
| 700.0 | 10617.5 | 9.9 | -12.6 | 19.0 |
| 638.2 | 13109.7 | 3.4 | -16.3 | 22.0 |
| 594.8 | 14976.4 | .5 | -23.1 | 15.0 |
| 577.8 | 15740.9 | .5 | -24.7 | 13.0 |
| 520.4 | 18468.9 | -5.6 | -28.8 | 14.0 |
| 506.0 | 19497.9 | -6.6 | -30.4 | 13.0 |
| 444.0 | 22513.1 | -12.9 | -35.3 | 13.0 |
| 436.6 | 22934.2 | -13.5 | -35.9 | 13.0 |
| 400.0 | 25103.0 | -18.8 | -40.2 | 13.0 |
| 360.8 | 27599.7 | -25.3 | -44.2 | 15.0 |

UPPER AIR DATA
 2580020300
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
 25 SEP. 79 1445 HRS MST
 ASCENSION NO. 366

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 6

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND M/SEC | DIRECTION DEGREES (TN) | WIND DATA SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|------------------------------|----------------------------|---------------------------|-----------------------------|---------------------------|
| | | | | | | | | |
| 3989.0 | 865.0 | 30.4 | 10.0 | 1013.8 | 679.4 | 120.0 | 9.9 | 1.000244 |
| 4000.0 | 864.7 | 30.4 | 10.0 | 1013.5 | 679.3 | 120.1 | 9.9 | 1.000244 |
| 4500.0 | 809.6 | 28.7 | 11.7 | 1001.4 | 677.6 | 125.0 | 8.7 | 1.000242 |
| 5000.0 | 854.8 | 27.1 | 13.4 | 989.5 | 675.8 | 133.2 | 7.6 | 1.000241 |
| 5500.0 | 839.9 | 25.6 | 14.2 | 977.4 | 674.1 | 142.8 | 6.7 | 1.000238 |
| 6000.0 | 825.2 | 24.1 | 14.6 | 965.1 | 672.3 | 142.9 | 6.6 | 1.000234 |
| 6500.0 | 810.7 | 22.6 | 14.9 | 953.1 | 670.6 | 135.9 | 6.9 | 1.000230 |
| 7000.0 | 796.5 | 21.1 | 15.3 | 941.2 | 668.9 | 134.3 | 7.3 | 1.000226 |
| 7500.0 | 782.5 | 19.6 | 15.6 | 929.5 | 667.2 | 133.4 | 7.8 | 1.000223 |
| 8000.0 | 768.8 | 18.1 | 16.0 | 918.0 | 665.4 | 131.3 | 8.7 | 1.000219 |
| 8500.0 | 755.3 | 16.6 | 16.3 | 906.6 | 663.7 | 127.3 | 9.9 | 1.000216 |
| 9000.0 | 742.1 | 15.1 | 16.6 | 895.4 | 662.0 | 120.1 | 12.2 | 1.000213 |
| 9500.0 | 729.1 | 13.7 | 17.0 | 884.3 | 660.2 | 115.1 | 14.3 | 1.000209 |
| 10000.0 | 715.9 | 12.0 | 17.9 | 873.6 | 658.3 | 109.5 | 14.2 | 1.000206 |
| 10500.0 | 703.0 | 10.3 | 18.8 | 862.9 | 656.3 | 103.9 | 14.3 | 1.000203 |
| 11000.0 | 690.1 | 8.9 | 19.5 | 851.4 | 654.7 | 99.3 | 23.7 | 1.000200 |
| 11500.0 | 677.5 | 7.6 | 20.1 | 839.6 | 653.1 | 97.4 | 34.1 | 1.000197 |
| 12000.0 | 665.0 | 6.3 | 20.7 | 828.1 | 651.6 | 98.2 | 38.0 | 1.000194 |
| 12500.0 | 652.8 | 5.0 | 21.3 | 816.7 | 650.1 | 99.7 | 39.2 | 1.000191 |
| 13000.0 | 640.8 | 3.7 | 21.9 | 805.5 | 648.5 | 120.0 | 39.1 | 1.000188 |
| 13500.0 | 628.9 | 2.8 | 22.5 | 793.2 | 647.4 | 151.1 | 49.0 | 1.000184 |
| 14000.0 | 617.1 | 2.0 | 18.7 | 780.7 | 646.5 | 164.8 | 55.6 | 1.000180 |
| 14500.0 | 605.6 | 1.2 | 16.8 | 768.3 | 645.6 | 172.2 | 48.9 | 1.000177 |
| 15000.0 | 594.3 | .5 | 14.9 | 756.1 | 644.6 | 180.0 | 37.0 | 1.000173 |
| 15500.0 | 583.1 | .5 | 13.6 | 741.9 | 644.6 | 190.9 | 13.6 | 1.000170 |
| 16000.0 | 572.1 | -.1 | 13.1 | 729.4 | 643.9 | 296.2 | 6.4 | 1.000167 |
| 16500.0 | 561.2 | -1.2 | 13.3 | 718.6 | 642.6 | 199.0 | 4.9 | 1.000164 |
| 17000.0 | 550.6 | -2.3 | 13.5 | 707.8 | 641.3 | 173.1 | 10.6 | 1.000161 |
| 17500.0 | 540.1 | -3.4 | 13.6 | 697.3 | 639.9 | 180.3 | 11.5 | 1.000159 |
| 18000.0 | 529.8 | -4.6 | 13.8 | 686.9 | 638.6 | 186.3 | 12.5 | 1.000156 |
| 18500.0 | 519.8 | -5.6 | 14.0 | 675.6 | 637.3 | 192.1 | 11.0 | 1.000154 |
| 19000.0 | 509.8 | -6.1 | 13.5 | 664.8 | 636.7 | 199.7 | 9.5 | 1.000151 |
| 19500.0 | 500.0 | -6.6 | 13.0 | 653.2 | 636.1 | 211.8 | 6.9 | 1.000148 |
| 20000.0 | 490.2 | -7.6 | 13.0 | 643.0 | 634.9 | 239.2 | 4.6 | 1.000146 |
| 20500.0 | 480.6 | -8.7 | 13.0 | 632.9 | 633.6 | 277.3 | 4.3 | 1.000143 |
| 21000.0 | 471.3 | -9.7 | 13.0 | 623.1 | 632.4 | 299.8 | 5.4 | 1.000141 |
| 21500.0 | 462.1 | -10.8 | 13.0 | 613.4 | 631.1 | 305.0 | 7.0 | 1.000139 |
| 22000.0 | 453.1 | -11.8 | 13.0 | 603.8 | 629.9 | 290.8 | 8.7 | 1.000136 |
| 22500.0 | 444.2 | -12.9 | 13.0 | 594.4 | 628.6 | 281.5 | 10.9 | 1.000134 |
| 23000.0 | 435.4 | -13.7 | 13.0 | 584.4 | 627.6 | 277.4 | 12.0 | 1.000132 |

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

UPPLR AIR DATA
 2680020300
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
 25 SEP. 79 1445 HRS MST
 ASCENSION NO. 386

TABLE 6 (CONT)

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|----------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | | DIRECTION DEGREES (T.N) | SPEED KNOTS | |
| 23500.0 | 426.7 | -14.9 | -37.1 | 13.0 | 575.5 | 620.1 | 274.0 | 13.2 | 1.000130 |
| 24000.0 | 418.2 | -16.1 | -38.0 | 13.0 | 566.7 | 624.7 | 275.8 | 13.8 | 1.000128 |
| 24500.0 | 409.9 | -17.3 | -39.0 | 13.0 | 558.0 | 623.2 | 278.5 | 14.3 | 1.000125 |
| 25000.0 | 401.7 | -18.5 | -40.0 | 13.0 | 549.5 | 621.7 | 280.2 | 15.3 | 1.000123 |
| 25500.0 | 393.5 | -19.8 | -40.9 | 13.3 | 541.1 | 620.1 | 280.4 | 16.9 | 1.000122 |
| 26000.0 | 385.4 | -21.1 | -41.6 | 13.7 | 532.7 | 618.5 | 280.5 | 18.6 | 1.000120 |
| 26500.0 | 377.6 | -22.4 | -42.4 | 14.1 | 524.6 | 615.9 | | | 1.000118 |
| 27000.0 | 369.9 | -23.7 | -43.3 | 14.5 | 516.5 | 615.3 | | | 1.000116 |
| 27500.0 | 362.3 | -25.0 | -44.1 | 14.9 | 508.6 | 613.7 | | | 1.000114 |

STATION ALTITUDE 3789.00 FEET MSL
 25 SEP. 79
 ASCENSION NO. 386

MANDATORY LEVELS
 2080020300
 WHITE SANDS

GEODETTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 7

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUM. | WIND DATA | |
|-----------------------|--------|-------------|---------------------|-----------|-----------------------|-------------|
| MILLIBARS | FEET | AIR DEGREES | DENPOINT CENTIGRADE | PERCENT | DIRECTION DEGREES(TN) | SPEED KNOTS |
| 850.0 | 5158. | 26.6 | -3.1 | 14. | 136.0 | 7.3 |
| 800.0 | 6893. | 21.5 | -6.0 | 15. | 134.5 | 7.2 |
| 750.0 | 8707. | 16.0 | -9.4 | 16. | 123.9 | 10.9 |
| 700.0 | 10607. | 9.9 | -12.0 | 19. | 102.5 | 15.7 |
| 650.0 | 12006. | 4.7 | -15.5 | 21. | 100.0 | 39.5 |
| 600.0 | 14729. | .9 | -22.2 | 10. | 176.5 | 40.0 |
| 550.0 | 17012. | -2.4 | -26.0 | 13. | 173.5 | 10.6 |
| 500.0 | 19470. | -6.6 | -30.4 | 13. | 211.4 | 7.0 |
| 450.0 | 22141. | -12.2 | -34.9 | 13. | 257.2 | 9.4 |
| 400.0 | 25060. | -18.8 | -40.2 | 13. | 280.2 | 15.6 |