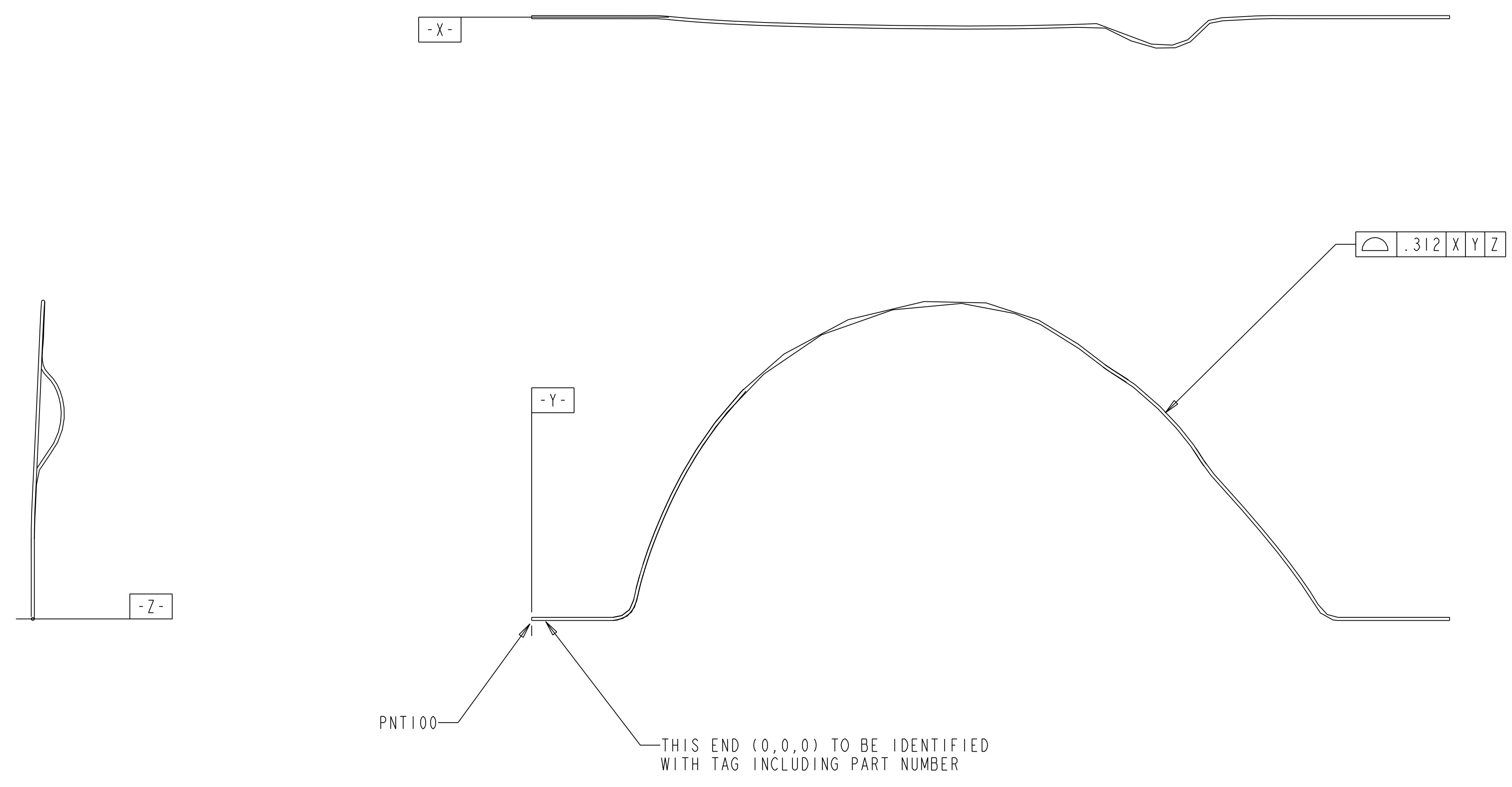


- NOTES**
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
 2. DIMENSIONS ARE IN INCHES.
 3. FABRICATION AND MATERIALS PER NCSX-CSPEC-123-01
 4. PROFILE TOLERANCE OF TUBE SURFACE IS BILATERAL, I.E. 0.156" ANY DIRECTION OFF REFERENCE SURFACE.
 5. ALL TUBE BEND RADII ARE 5/8" TO CENTERLINE OF TUBE.
 6. DATUM POINTS ON CHART ARE THEORETICAL INTERCEPTS OF THE TUBE CENTERLINE. BEND RADII ARE OMITTED. PROFILE TOLERANCE INCLUDES ALLOWANCES FOR THE RADII ERRORS.

| Point Name | X | Y | Z |
|------------|--------|--------|--------|
| PNT100 | 0.000 | 0.000 | 0.000 |
| PNT101 | 8.157 | -0.000 | -0.000 |
| PNT102 | 9.019 | 0.162 | 0.000 |
| PNT103 | 9.859 | 0.739 | 0.000 |
| PNT104 | 10.318 | 1.646 | 0.000 |
| PNT105 | 10.589 | 2.864 | -0.000 |
| PNT106 | 10.904 | 4.073 | 0.000 |
| PNT107 | 11.230 | 5.178 | -0.000 |
| PNT108 | 11.587 | 6.274 | -0.000 |
| PNT109 | 12.005 | 7.451 | 0.000 |
| PNT110 | 12.564 | 8.883 | -0.000 |
| PNT111 | 13.127 | 10.211 | 0.014 |
| PNT112 | 13.676 | 11.459 | 0.076 |
| PNT113 | 14.167 | 12.497 | 0.127 |
| PNT114 | 14.719 | 13.585 | 0.180 |
| PNT115 | 15.230 | 14.533 | 0.226 |
| PNT116 | 15.763 | 15.468 | 0.271 |
| PNT117 | 16.356 | 16.452 | 0.318 |
| PNT118 | 16.975 | 17.419 | 0.363 |
| PNT119 | 17.661 | 18.428 | 0.409 |
| PNT120 | 18.206 | 19.186 | 0.444 |
| PNT121 | 18.813 | 19.988 | 0.480 |
| PNT122 | 19.394 | 20.718 | 0.513 |
| PNT123 | 20.087 | 21.542 | 0.549 |
| PNT124 | 20.708 | 22.239 | 0.580 |
| PNT125 | 21.348 | 22.919 | 0.610 |
| PNT126 | 22.007 | 23.580 | 0.639 |
| PNT127 | 22.685 | 24.221 | 0.667 |
| PNT128 | 23.328 | 24.795 | 0.691 |
| PNT129 | 23.987 | 25.350 | 0.715 |
| PNT130 | 24.663 | 25.885 | 0.738 |
| PNT131 | 25.529 | 26.526 | 0.765 |
| PNT132 | 26.360 | 27.092 | 0.789 |
| PNT133 | 27.273 | 27.664 | 0.814 |
| PNT134 | 28.334 | 28.268 | 0.840 |
| PNT135 | 29.355 | 28.795 | 0.865 |
| PNT136 | 30.397 | 29.278 | 0.887 |
| PNT137 | 31.392 | 29.692 | 0.907 |
| PNT138 | 32.401 | 30.069 | 0.926 |
| PNT139 | 33.355 | 30.389 | 0.943 |
| PNT140 | 34.457 | 30.715 | 0.960 |
| PNT141 | 35.570 | 31.000 | 0.977 |
| PNT142 | 36.553 | 31.215 | 0.990 |
| PNT143 | 37.612 | 31.411 | 1.004 |
| PNT144 | 38.607 | 31.561 | 1.015 |
| PNT145 | 39.749 | 31.692 | 1.025 |
| PNT146 | 40.752 | 31.766 | 1.032 |
| PNT147 | 41.972 | 31.800 | 1.039 |
| PNT148 | 42.978 | 31.781 | 1.042 |
| PNT149 | 44.053 | 31.709 | 1.043 |
| PNT150 | 45.265 | 31.559 | 1.040 |
| PNT151 | 46.394 | 31.345 | 1.035 |
| PNT152 | 47.576 | 31.040 | 1.025 |
| PNT153 | 48.669 | 30.666 | 1.011 |
| PNT154 | 49.805 | 30.238 | 0.993 |
| PNT155 | 51.041 | 29.660 | 0.968 |
| PNT156 | 52.179 | 29.046 | 0.944 |
| PNT157 | 53.165 | 28.455 | 0.925 |
| PNT158 | 54.122 | 27.820 | 0.895 |
| PNT159 | 55.048 | 27.141 | 0.839 |
| PNT160 | 55.954 | 26.435 | 0.792 |
| PNT161 | 56.917 | 25.687 | 0.830 |
| PNT162 | 57.891 | 24.990 | 1.062 |
| PNT163 | 58.732 | 24.471 | 1.486 |
| PNT164 | 59.556 | 23.951 | 1.946 |
| PNT165 | 60.429 | 23.316 | 2.340 |
| PNT166 | 61.344 | 22.575 | 2.665 |
| PNT167 | 62.346 | 21.681 | 2.906 |
| PNT168 | 63.220 | 20.835 | 3.002 |
| PNT169 | 64.136 | 19.881 | 2.969 |
| PNT170 | 64.814 | 19.122 | 2.837 |
| PNT171 | 65.483 | 18.320 | 2.592 |
| PNT172 | 65.985 | 17.674 | 2.306 |
| PNT173 | 66.445 | 17.035 | 1.943 |
| PNT174 | 66.827 | 16.448 | 1.514 |
| PNT175 | 67.169 | 15.876 | 1.034 |
| PNT176 | 67.660 | 15.173 | 0.612 |
| PNT177 | 68.373 | 14.298 | 0.333 |
| PNT178 | 69.415 | 13.127 | 0.198 |
| PNT179 | 70.289 | 12.164 | 0.159 |
| PNT180 | 71.349 | 10.969 | 0.101 |
| PNT181 | 72.376 | 9.778 | 0.037 |
| PNT182 | 73.363 | 8.611 | 0.000 |
| PNT183 | 74.249 | 7.509 | -0.078 |
| PNT184 | 75.122 | 6.452 | 0.000 |
| PNT185 | 75.942 | 5.385 | -0.000 |
| PNT186 | 76.739 | 4.302 | -0.000 |
| PNT187 | 77.512 | 3.202 | 0.000 |
| PNT188 | 78.204 | 2.162 | 0.000 |
| PNT189 | 78.918 | 1.023 | 0.000 |
| PNT190 | 79.358 | 0.515 | 0.000 |
| PNT191 | 80.148 | 0.096 | 0.000 |
| PNT192 | 80.814 | 0.000 | -0.000 |
| PNT193 | 92.000 | 0.000 | 0.000 |



-1 COOLANT TUBE 5-1
SCALE .125

APPROX TUBE LENGTH = 122.6 IN

**RELEASED FOR
FABRICATION / INSTALLATION**
PPPL Drafting:

| AR | CAGE CODE | PART OR IDENTIFYING NO | NOMENCLATURE OR DESCRIPTION | MATERIAL | SPECIFICATION | FIND NO |
|---------------|-----------|------------------------|------------------------------|------------|---------------|---------|
| SE123-085 | -1 | COOLANT TUBE 5-1 | 316L SS 5/16" ± .032 WALL | SEE NOTE 4 | I | |
| NEXT ASSEMBLY | | | PARTS LIST | | | |

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P THIS DRAWING PRODUCED ON PRO-ENGINEER

| REV | DESCRIPTION | BY | DATE | CHK | DEPT | DATE | PE | REQ | DATE | ORNL | DOE | DATE |
|---------------------------|------------------|-----|---------|-----|------|------|----|-----|------|------|-----|------|
| 1 | PER ECN NO. 5003 | MJC | 8/24/08 | PLG | | | | | | | | |
| REVISION OR ISSUE PURPOSE | | | | | | | | | | | | |

| | | | | |
|---------------------------------------|---------------------------------|---------------|-------------|----------|
| SCALE NOTED | | DES | P GORANSON | 4-22-05 |
| TOLERANCES UNLESS OTHERWISE SPECIFIED | | DRW | G MCGINNIS | 4-22-05 |
| FRACTIONS | | CHK | G. H. JONES | 05-04-05 |
| XX DECIMALS | ± .01 | SECT | | |
| XXX DECIMALS | ± .005 | DEPT | | |
| ANGLES | ± 0'15" | PE | | |
| BREAK SHARP EDGES OR MAX FINISH | .125 UNLESS OTHERWISE SPECIFIED | CR | | |
| | | PJ | | |
| | | REQ | | |
| | | PPPL DRFT | | |
| | | VERSION NO. | 0 | |
| | | PLANT | ORNL | |
| | | BLDG | 5700 | |
| | | FL | 3 | |
| | | SHT | 1 | |
| | | OF | 1 | |
| | | TYPE | I | |
| | | CLASS | S | |
| | | RELEASE LEVEL | Fabrication | |
| | | SE123-086 | | |
| | | REV | 1 | |

SE123-086