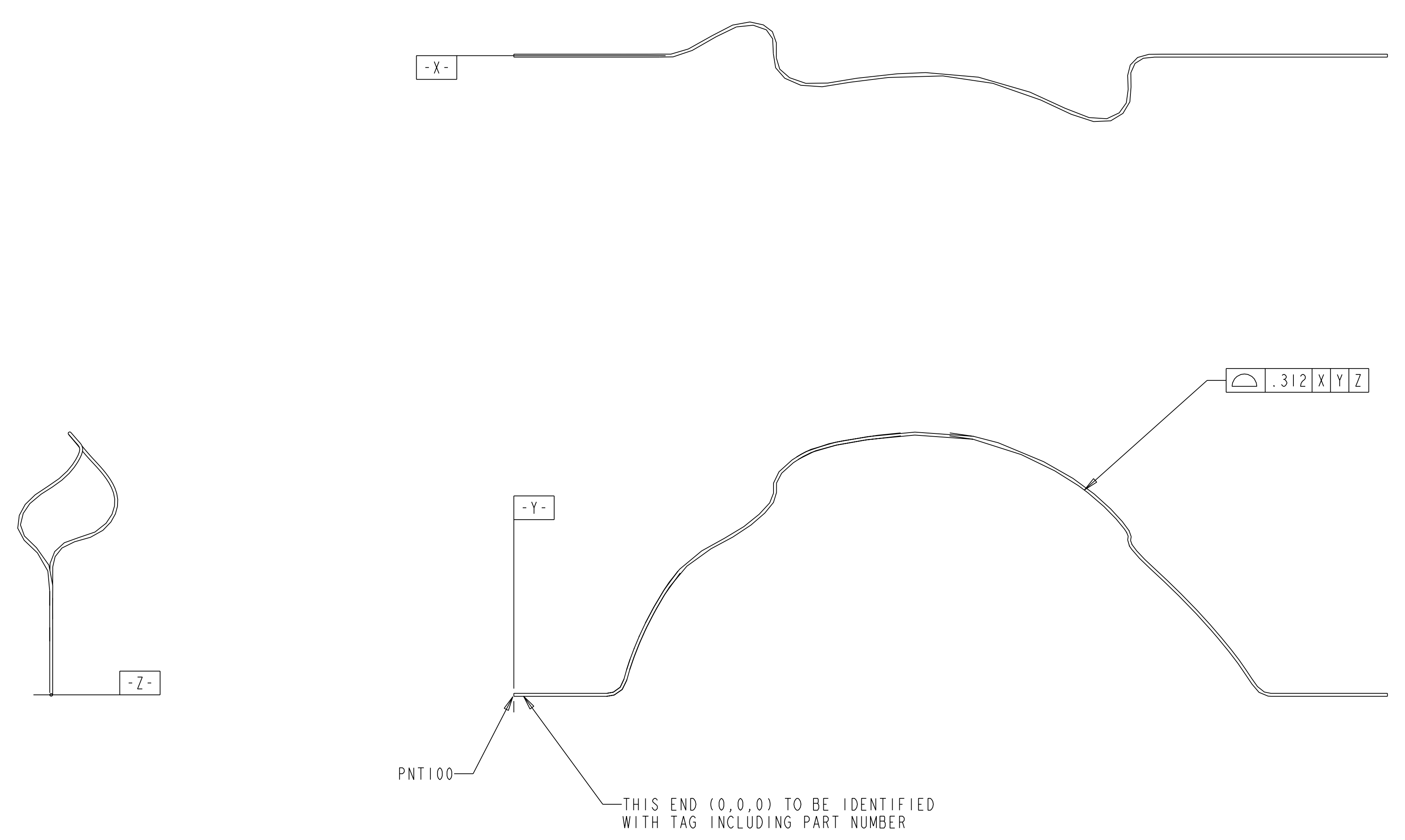


- NOTES
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
  2. DIMENSIONS ARE IN INCHES.
  3. FABRICATION AND MATERIALS PER NCSX-CSPEC-123-01
  4. PROFILE TOLERANCE OF TUBE SURFACE IS BILATERAL, I.E. 0.156" ANY DIRECTION OFF REFERENCE SURFACE.
  5. ALL TUBE BEND RADII ARE 5/8" TO CENTERLINE OF 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	9.719	-0.000	0.000
PNT102	10.522	0.130	-0.000
PNT103	11.252	0.615	0.000
PNT104	11.673	1.383	0.000
PNT105	12.041	2.648	0.000
PNT106	12.432	3.815	0.000
PNT107	12.802	4.802	0.000
PNT108	13.238	5.858	0.000
PNT109	13.784	7.057	-0.000
PNT110	14.334	8.157	0.000
PNT111	14.963	9.315	0.000
PNT112	15.587	10.376	0.000
PNT113	16.346	11.585	0.023
PNT114	17.028	12.499	-0.069
PNT115	17.841	13.401	-0.311
PNT116	18.459	13.980	-0.566
PNT117	18.956	14.389	-0.807
PNT118	19.401	14.720	-1.045
PNT119	19.815	14.999	-1.280
PNT120	20.225	15.256	-1.523
PNT121	20.744	15.557	-1.836
PNT122	21.213	15.812	-2.118
PNT123	21.705	16.069	-2.405
PNT124	22.262	16.362	-2.705
PNT125	22.872	16.705	-2.972
PNT126	23.535	17.086	-3.218
PNT127	24.133	17.473	-3.350
PNT128	24.785	17.941	-3.395
PNT129	25.350	18.391	-3.345
PNT130	25.827	18.807	-3.229
PNT131	26.280	19.231	-3.058
PNT132	26.751	19.714	-2.796
PNT133	27.165	20.256	-2.374
PNT134	27.408	20.776	-1.813
PNT135	27.487	21.160	-1.303
PNT136	27.505	21.519	-0.770
PNT137	27.494	21.952	-0.091
PNT138	27.510	22.348	0.515
PNT139	27.651	22.823	1.147
PNT140	27.988	23.327	1.671
PNT141	28.560	23.923	2.170
PNT142	29.402	24.624	2.672
PNT143	30.306	25.210	2.997
PNT144	31.530	25.792	3.159
PNT145	32.674	26.168	3.098
PNT146	34.379	26.552	2.819
PNT147	36.099	26.860	2.538
PNT148	37.835	27.127	2.315
PNT149	39.302	27.369	2.103
PNT150	41.825	27.507	1.982
PNT151	43.916	27.542	1.946
PNT152	46.083	27.424	2.041
PNT153	47.825	27.186	2.240
PNT154	50.138	26.660	2.683
PNT155	52.278	25.953	3.282
PNT156	54.666	24.934	4.143
PNT157	57.069	23.697	5.185
PNT158	58.913	22.597	6.100
PNT159	60.289	21.628	6.641
PNT160	61.701	20.457	6.856
PNT161	62.805	19.414	6.712
PNT162	63.831	18.309	6.165
PNT163	64.522	17.410	5.276
PNT164	64.827	16.853	4.350
PNT165	64.868	16.322	2.754
PNT166	64.887	15.892	1.467
PNT167	65.321	15.246	0.668
PNT168	65.747	14.761	0.342
PNT169	66.454	14.041	0.076
PNT170	67.700	12.879	0.000
PNT171	68.598	12.038	0.000
PNT172	69.547	11.124	0.000
PNT173	70.297	10.383	0.000
PNT174	71.160	9.506	0.000
PNT175	72.008	8.615	-0.000
PNT176	72.899	7.644	-0.000
PNT177	74.000	6.389	-0.000
PNT178	74.899	5.308	-0.000
PNT179	75.824	4.136	0.000
PNT180	76.613	3.080	0.000
PNT181	77.371	2.002	-0.000
PNT182	78.096	0.901	0.000
PNT183	78.479	0.461	0.000
PNT184	79.067	0.118	0.000
PNT185	79.737	-0.000	-0.000
PNT186	92.000	0.000	0.000



**-1 COOLANT TUBE 4-2**  
SCALE .125

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

APPROX TUBE LENGTH = 124.6 IN

AR	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
SE123-080	-1	-1	COOLANT TUBE 4-2	316L SS 5/16"-.032 WALL	SEE NOTE 4	1
NEXT ASSEMBLY			PARTS LIST			

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

**P** THIS DRAWING PRODUCED ON PRO-ENGINEER

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REG	DATE	ORNL	DOE	DATE
1	PER ECN NO. 5003	MJC	6/24/05	PLG								

SCALE NOTED		DES	DATE	UT-BATTELLE		NATIONAL COMPACT STELLARATOR EXPERIMENT		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
TOLERANCES UNLESS OTHERWISE SPECIFIED		P GORANSON	4-22-05	U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
FRACTIONS		G MCGINNIS	4-22-05	U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
XX DECIMALS	±.01	G.H. JONES	05-04-05	U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
XXX DECIMALS	±.005			U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
ANGLES	±0°15'			U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
BREAK SHARP EDGES OR MAX FINISH	.125 UNLESS OTHERWISE SPECIFIED			U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
PPPL DRFT				U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	
DRAWING APPROVALS				U.S. GOVERNMENT CONTRACT DE-AC05-00OR22725		PROJECT NAME		VACUUM VESSEL HEATING/COOLING COOLANT TUBE 4-2		DETAIL	

SE123-082