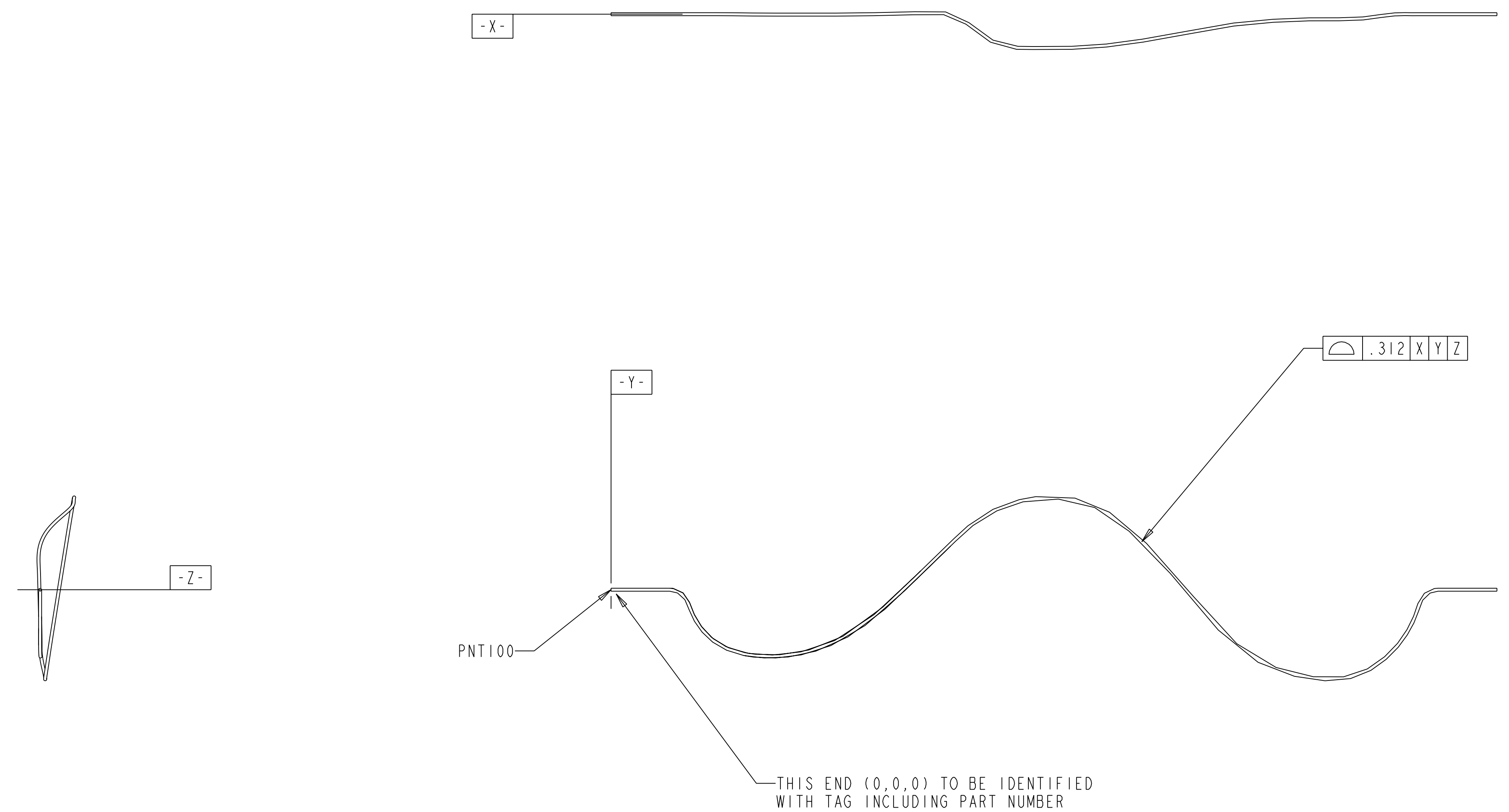


- NOTES
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
 2. DIMENSIONS ARE IN INCHES.
 3. FABRICATION AND MATERIALS PER NCSX-CSPEC-123-01
 4. PROFILE TOLERANCE OF TUBE SURFACE IS BILATERAL, I.E. 0.156" ANY DIRECTION OFF REFERENCE SURFACE.
 5. ALL TUBE BEND RADII ARE 5/8" TO CENTERLINE OF TUBE.
 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	6.107	0.000	0.000
PNT102	6.959	-0.191	0.000
PNT103	7.648	-0.727	0.000
PNT104	8.008	-1.385	0.000
PNT105	8.519	-2.671	0.000
PNT106	8.968	-3.478	0.000
PNT107	9.508	-4.226	0.000
PNT108	10.041	-4.802	-0.000
PNT109	10.862	-5.474	0.000
PNT110	11.736	-5.991	0.000
PNT111	12.571	-6.346	-0.004
PNT112	13.402	-6.591	0.015
PNT113	14.295	-6.772	0.028
PNT114	15.245	-6.892	0.037
PNT115	16.110	-6.941	0.041
PNT116	16.830	-6.941	0.043
PNT117	17.750	-6.898	0.044
PNT118	18.611	-6.807	0.044
PNT119	19.511	-6.661	0.043
PNT120	20.401	-6.463	0.043
PNT121	21.279	-6.215	0.043
PNT122	22.098	-5.933	0.044
PNT123	22.774	-5.660	0.044
PNT124	23.600	-5.274	0.042
PNT125	24.441	-4.817	0.037
PNT126	25.180	-4.364	0.030
PNT127	26.008	-3.789	0.021
PNT128	26.775	-3.225	0.009
PNT129	27.623	-2.535	-0.006
PNT130	28.482	-1.785	-0.025
PNT131	29.254	-1.076	-0.044
PNT132	29.882	-0.479	-0.060
PNT133	30.569	0.187	-0.078
PNT134	31.254	0.856	-0.094
PNT135	31.840	1.430	-0.107
PNT136	32.428	2.002	-0.126
PNT137	33.085	2.635	-0.157
PNT138	33.675	3.204	-0.169
PNT139	34.360	3.872	-0.129
PNT140	35.073	4.567	-0.008
PNT141	35.742	5.217	0.206
PNT142	36.483	5.918	0.589
PNT143	37.117	6.483	1.041
PNT144	37.724	6.976	1.510
PNT145	38.447	7.488	2.070
PNT146	39.289	7.985	2.655
PNT147	40.100	8.380	3.092
PNT148	40.987	8.742	3.385
PNT149	41.886	9.050	3.484
PNT150	42.811	9.298	3.497
PNT151	43.752	9.470	3.517
PNT152	44.932	9.579	3.536
PNT153	46.295	9.581	3.528
PNT154	47.304	9.498	3.510
PNT155	48.330	9.326	3.477
PNT156	49.266	9.079	3.432
PNT157	50.378	8.649	3.355
PNT158	51.524	8.020	3.248
PNT159	52.693	7.199	3.109
PNT160	53.627	6.437	2.982
PNT161	54.465	5.691	2.860
PNT162	55.339	4.862	2.727
PNT163	56.100	4.096	2.605
PNT164	56.814	3.342	2.485
PNT165	57.540	2.543	2.357
PNT166	58.305	1.668	2.217
PNT167	59.002	0.845	2.085
PNT168	59.744	-0.050	1.943
PNT169	60.428	-0.883	1.810
PNT170	61.326	-1.972	1.637
PNT171	62.431	-3.266	1.431
PNT172	63.386	-4.305	1.267
PNT173	64.672	-5.545	1.073
PNT174	65.870	-6.512	0.925
PNT175	67.455	-7.511	0.775
PNT176	68.969	-8.210	0.672
PNT177	70.555	-8.731	0.593
PNT178	72.147	-9.079	0.539
PNT179	73.514	-9.255	0.517
PNT180	74.934	-9.311	0.525
PNT181	76.430	-9.166	0.534
PNT182	77.710	-8.790	0.475
PNT183	78.795	-8.265	0.358
PNT184	79.830	-7.575	0.205
PNT185	81.017	-6.516	0.000
PNT186	81.688	-5.809	0.000
PNT187	82.310	-4.997	0.000
PNT188	82.874	-4.085	0.000
PNT189	83.328	-3.167	0.000
PNT190	83.673	-2.308	0.000
PNT191	83.963	-1.428	0.000
PNT192	84.400	-0.654	0.000
PNT193	85.130	-0.146	0.000
PNT194	85.879	-0.000	0.000
PNT195	92.000	0.000	0.000



-1 COOLANT TUBE 16-1
SCALE .125

RELEASED FOR FABRICATION / INSTALLATION
PPPL Drafting:

APPROX TUBE LENGTH = 113.0 IN

AR	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	SPECIFICATION	FIND NO
SE123-140	-1	COOLANT TUBE 16-1	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	REG	DATE	ORNL	DOE	DATE
1	PER ECN NO. 5003	MJC	6/24/05	PLG								

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		
		REG		
		DOE		
		DATE		
		PPPL DRFT		
		VERSION NO.	0	
		PLANT	ORNL	
		BLDG	5700	
		FL	3	
		SHT	1	
		OF	1	
		TYPE	S	
		CLASS	U	
		RELEASE LEVEL		
		Fabrication		
		SE123-141		
		REV		

Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee

UT-BATTELLE
PROJECT NAME
NATIONAL COMPACT STELLARATOR EXPERIMENT
VACUUM VESSEL HEATING/COOLING COOLANT TUBE 16-1
DETAIL

SE123-141