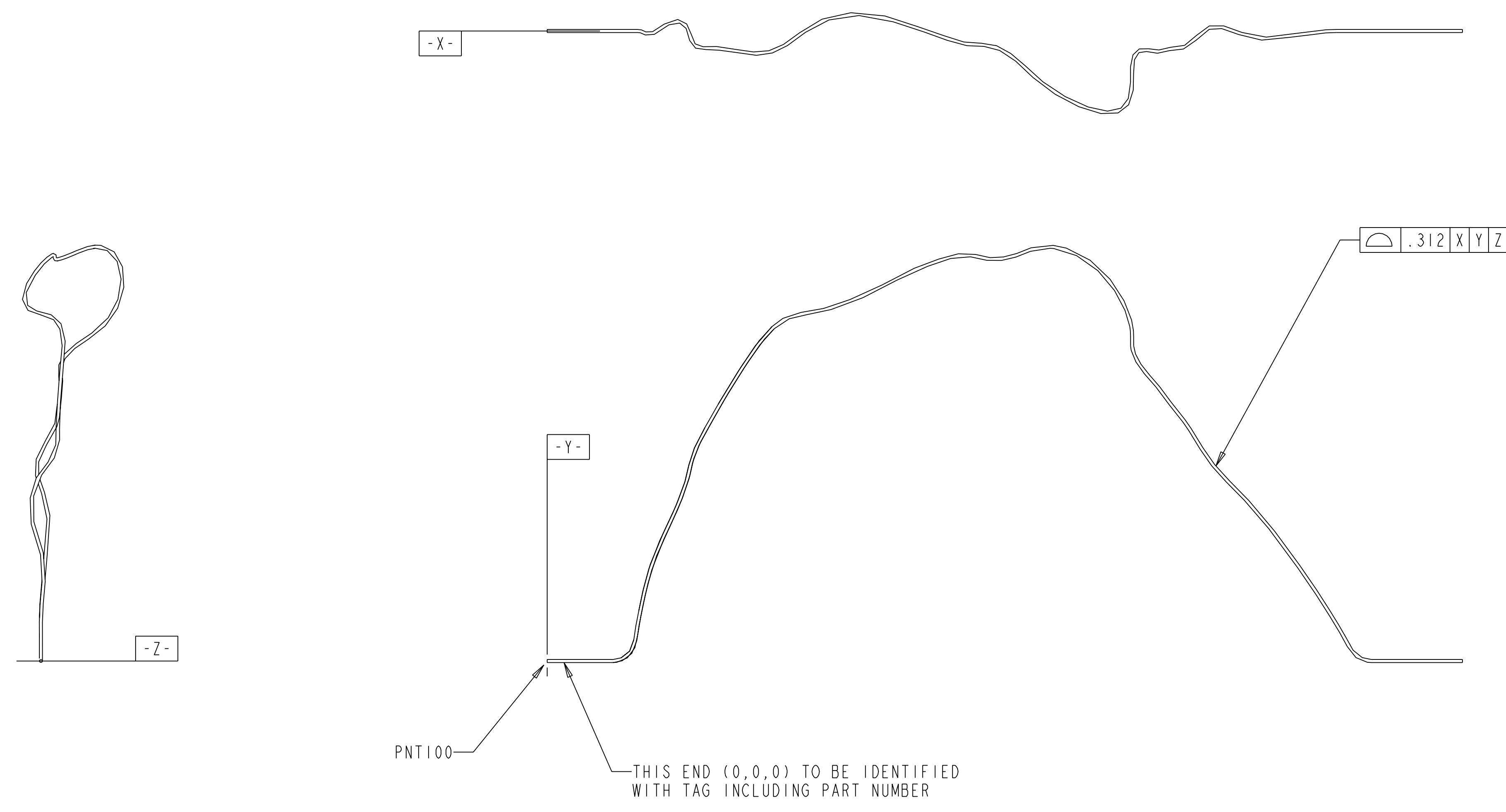


- NOTES
1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M.
 2. DIMENSIONS ARE IN INCHES.
 3. FABRICATION AND MATERIALS PER NCSX-CSPEC-123-01
 4. PROFILE TOLERANCE OF TUBE SURFACE IS BILATERAL, I.E. 0.156" ANY DIRECTION OFF REFERENCE SURFACE.
 5. ALL TUBE BEND RADII ARE 5/8" TO CENTERLINE OF TUBE.
 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	6.646	0.000	0.000
PNT102	7.553	0.200	-0.000
PNT103	8.397	0.875	0.000
PNT104	8.812	1.872	0.000
PNT105	9.069	3.517	0.000
PNT106	9.302	4.716	0.000
PNT107	9.517	5.799	0.087
PNT108	9.718	6.742	0.182
PNT109	9.983	7.852	0.272
PNT110	10.265	8.870	0.290
PNT111	10.584	9.875	0.227
PNT112	10.973	10.939	0.064
PNT113	11.444	12.038	-0.237
PNT114	11.884	12.934	-0.583
PNT115	12.406	14.006	-0.889
PNT116	12.838	14.963	-0.999
PNT117	13.248	15.936	-0.980
PNT118	13.595	16.829	-0.842
PNT119	13.928	17.788	-0.549
PNT120	14.165	18.561	-0.201
PNT121	14.355	19.291	0.250
PNT122	14.510	20.138	1.004
PNT123	14.821	21.096	1.531
PNT124	15.338	22.196	1.717
PNT125	15.889	23.199	1.703
PNT126	16.504	24.267	1.668
PNT127	17.107	25.340	1.739
PNT128	17.669	26.332	1.846
PNT129	18.251	27.314	1.930
PNT130	18.853	28.285	1.997
PNT131	19.327	29.026	2.047
PNT132	19.949	29.984	2.134
PNT133	20.529	30.861	2.231
PNT134	20.981	31.510	2.285
PNT135	21.570	32.279	2.276
PNT136	22.204	33.001	2.165
PNT137	22.820	33.601	1.975
PNT138	23.538	34.167	1.659
PNT139	24.426	34.646	1.126
PNT140	25.307	34.845	0.426
PNT141	26.273	34.934	-0.331
PNT142	27.343	35.174	-0.891
PNT143	28.219	35.412	-1.228
PNT144	29.360	35.770	-1.527
PNT145	30.344	36.127	-1.667
PNT146	31.243	36.486	-1.709
PNT147	32.290	36.945	-1.658
PNT148	33.313	37.435	-1.508
PNT149	34.441	38.051	-1.204
PNT150	35.396	38.590	-0.877
PNT151	36.379	39.078	-0.552
PNT152	37.466	39.544	-0.202
PNT153	38.488	39.933	0.136
PNT154	39.434	40.264	0.471
PNT155	40.378	40.574	0.832
PNT156	41.278	40.771	1.127
PNT157	42.051	40.817	1.293
PNT158	43.008	40.721	1.390
PNT159	43.695	40.563	1.397
PNT160	44.467	40.395	1.442
PNT161	45.224	40.377	1.665
PNT162	46.001	40.482	2.063
PNT163	46.650	40.632	2.492
PNT164	47.321	40.842	3.022
PNT165	47.943	41.088	3.595
PNT166	48.604	41.360	4.249
PNT167	49.304	41.560	4.887
PNT168	50.203	41.653	5.588
PNT169	51.371	41.550	6.365
PNT170	52.340	41.291	6.915
PNT171	53.302	40.883	7.382
PNT172	54.304	40.288	7.780
PNT173	55.314	39.490	8.072
PNT174	56.289	38.485	8.211
PNT175	57.135	37.363	8.145
PNT176	57.865	36.101	7.817
PNT177	58.399	34.851	7.198
PNT178	58.683	33.842	6.400
PNT179	58.190	32.932	5.333
PNT180	58.789	32.237	4.314
PNT181	58.832	31.471	3.240
PNT182	58.987	30.823	2.541
PNT183	59.343	30.072	2.054
PNT184	59.778	29.433	1.893
PNT185	60.496	28.604	1.995
PNT186	61.188	27.793	2.078
PNT187	61.921	26.805	1.918
PNT188	62.614	25.903	1.803
PNT189	63.374	24.963	1.763
PNT190	64.026	24.116	1.629
PNT191	64.735	23.092	1.239
PNT192	65.395	21.985	0.537
PNT193	66.062	20.872	-0.143
PNT194	66.997	19.618	-0.459
PNT195	67.920	18.564	-0.396
PNT196	68.700	17.776	-0.122
PNT197	69.590	16.886	0.231
PNT198	70.623	15.801	0.566
PNT199	71.634	14.663	0.763
PNT200	72.580	13.496	0.763
PNT201	73.424	12.379	0.642
PNT202	74.436	11.020	0.510
PNT203	75.492	9.571	0.392
PNT204	76.481	8.155	0.284
PNT205	77.280	6.965	0.157
PNT206	78.056	5.759	0.051
PNT207	78.821	4.542	-0.000
PNT208	79.402	3.595	-0.000
PNT209	79.960	2.635	-0.000
PNT210	80.390	1.858	-0.000
PNT211	80.701	1.269	0.000
PNT212	81.171	0.652	0.000
PNT213	81.935	0.171	0.000
PNT214	82.823	-0.000	0.000
PNT215	92.000	0.000	0.000



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

-1 COOLANT TUBE 7-1
SCALE .125

APPROX TUBE LENGTH = 145.2 IN

REV	DESCRIPTION	BY	DATE	CHK	DEPT	DATE	PE	REG	DATE	ORNL	DOE	DATE
1	PER ECN NO. 5003	MJC	8/24/08	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 :		
		RD :		
		PPPL DRFT :		
		REO :		

VERSION NO.	PLANT	BLDG	FL	SHT	OF	TYPE	CLASS
0	ORNL	5700	3	1	1	S	U

REVISION OR ISSUE PURPOSE	REVISION APPROVAL	RELEASE LEVEL
		Fabrication

PROJECT NO.	PROJECT NAME	PROJECT CLASS
SE123-095	NATIONAL COMPACT STELLARATOR EXPERIMENT	VACUUM VESSEL HEATING/COOLING COOLANT TUBE 7-1

REV	NO	DATE	BY	CHK	DEPT	DATE
1	1					

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P THIS DRAWING PRODUCED ON PRO-ENGINEER

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UT-BATTELLE

NATIONAL COMPACT STELLARATOR EXPERIMENT

VACUUM VESSEL HEATING/COOLING COOLANT TUBE 7-1

DETAIL

SE123-096