
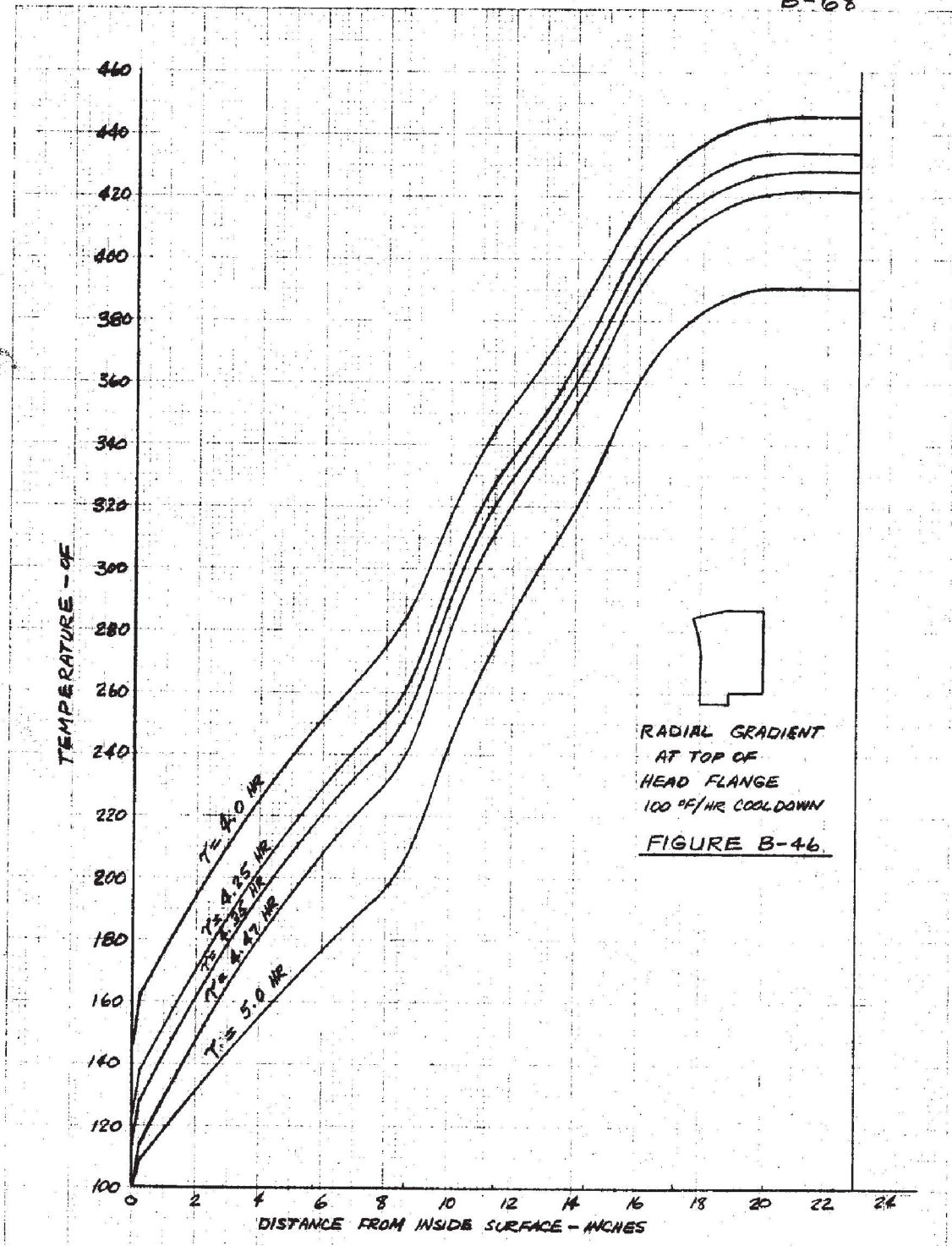
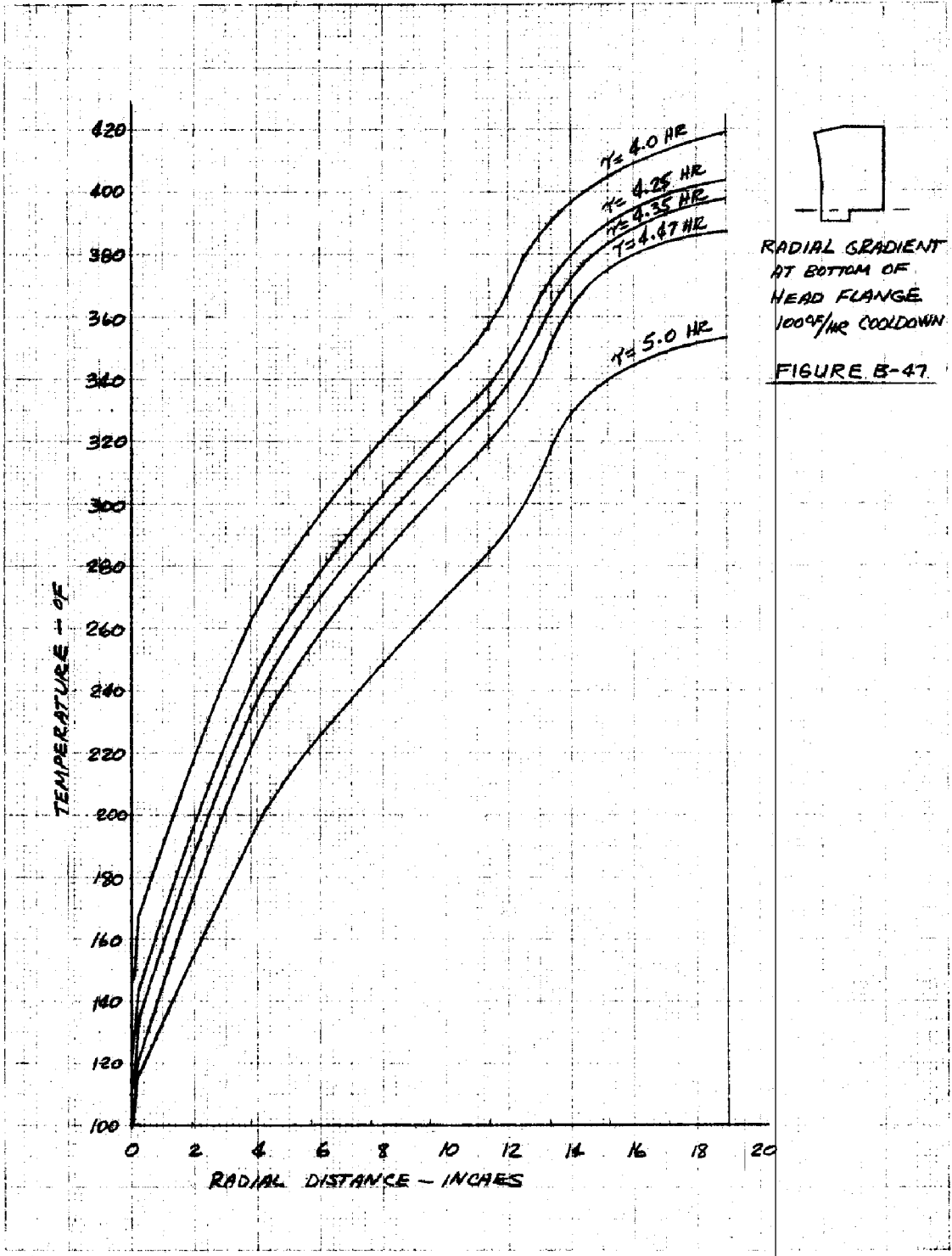


United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)
	ASLBP #: 07-858-03-LR-BD01 Docket #: 05000247   05000286 Exhibit #: RIV00052D-00-BD01 Admitted: 10/15/2012 Rejected: Other:
	Identified: 10/15/2012 Withdrawn: Stricken:

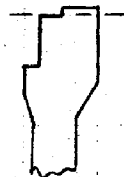
B-68



B-69

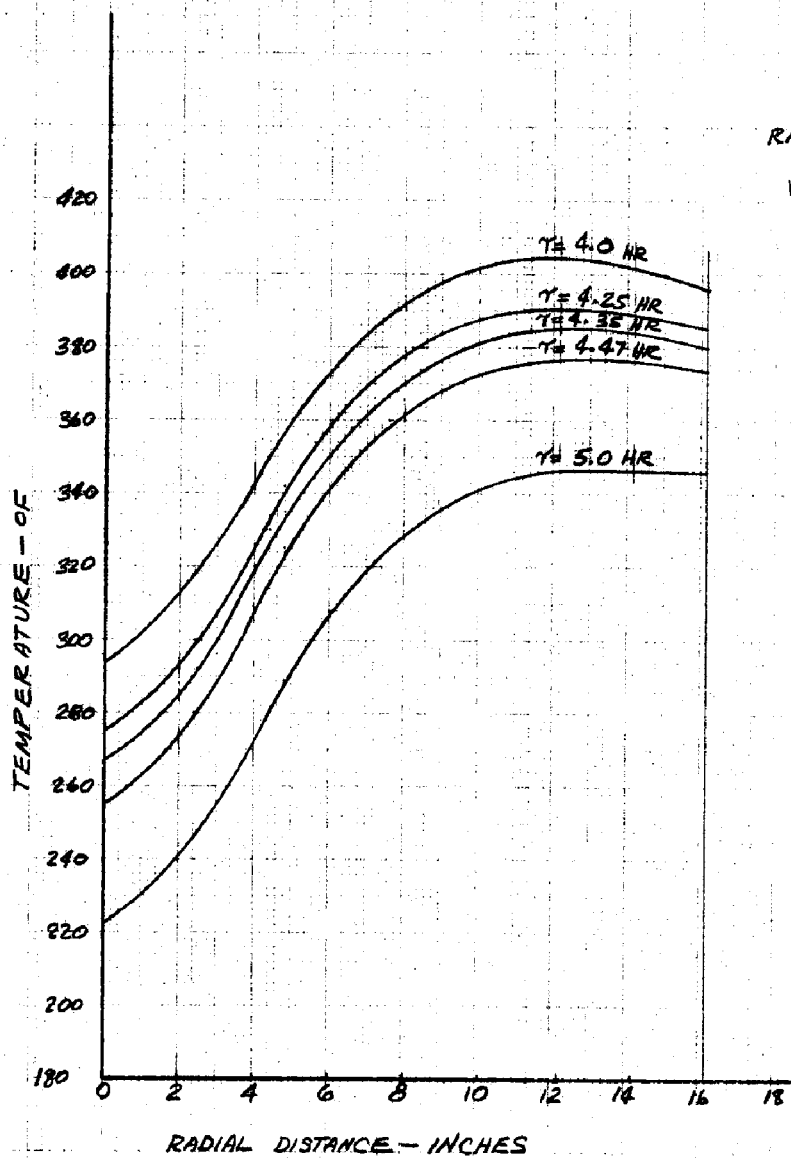


B-70



RADIAL GRADIENT  
AT TOP OF  
VESSEL FLANGE  
100 °/HR COOLDOWN

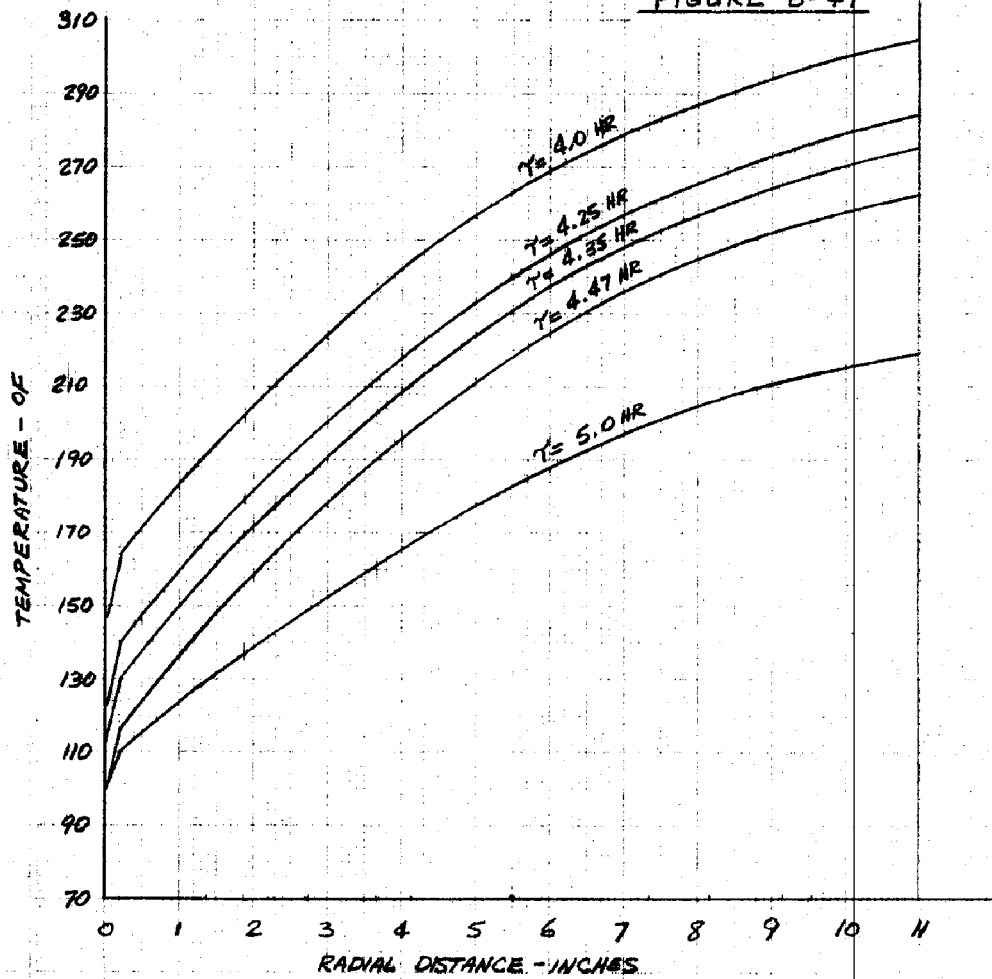
FIGURE B-48



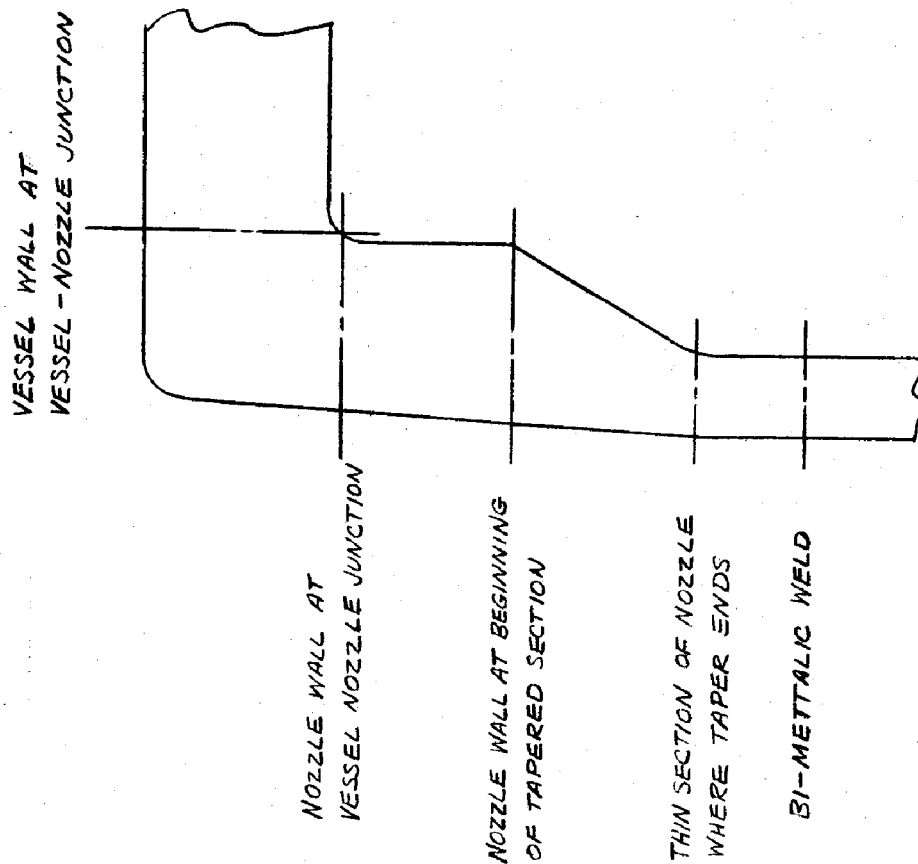
B-71



RADIAL GRADIENT AT  
VESSEL SHELL - FLANGE  
JUNCTION  
100 °F/HR COOLDOWN  
FIGURE B-49



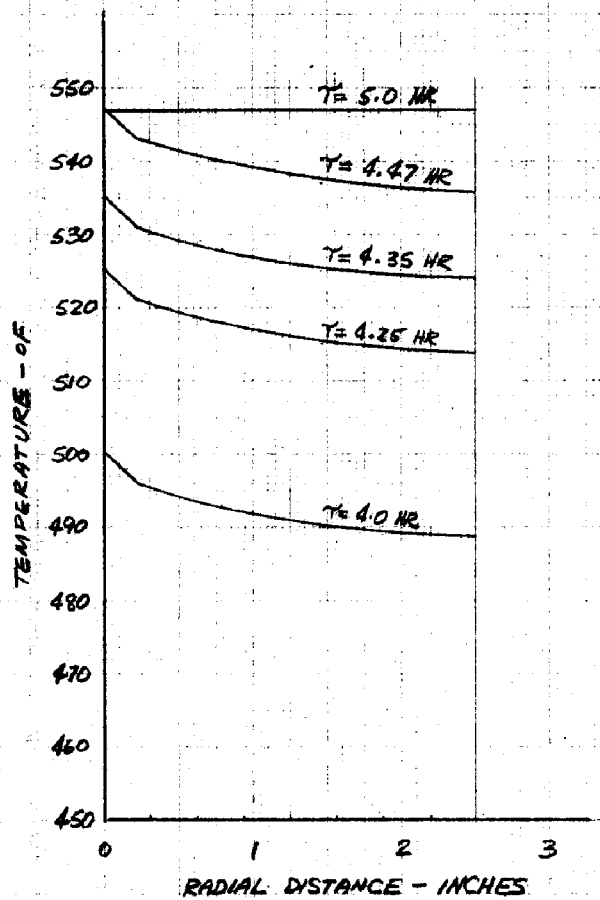
COMBUSTION ENGINEERING, INC. NUMBER \_\_\_\_\_  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN. SHEET B-72 OF \_\_\_\_\_  
 CHARGE NO. \_\_\_\_\_ DATE \_\_\_\_\_ BY \_\_\_\_\_  
 DESCRIPTION INLET NOZZLE CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_



THIS SKETCH INDICATES THE LOCATIONS WHERE RADIAL GRADIENTS WERE PLOTTED AND THE THERMAL MOMENT CALCULATED.

FIGURE B-50

B-73

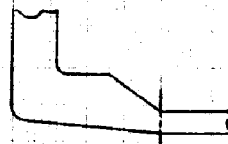
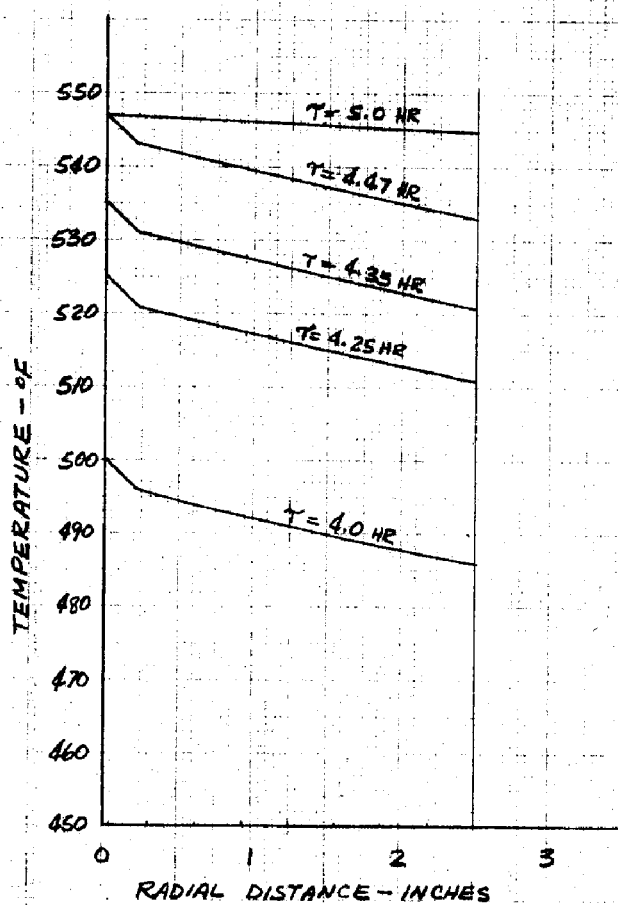


RADIAL GRADIENT THRU INLET NOZZLE AT BI-METTALIC WELD

100 °F/HR HEATUP

FIGURE B-51

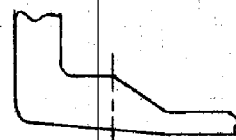
B-74



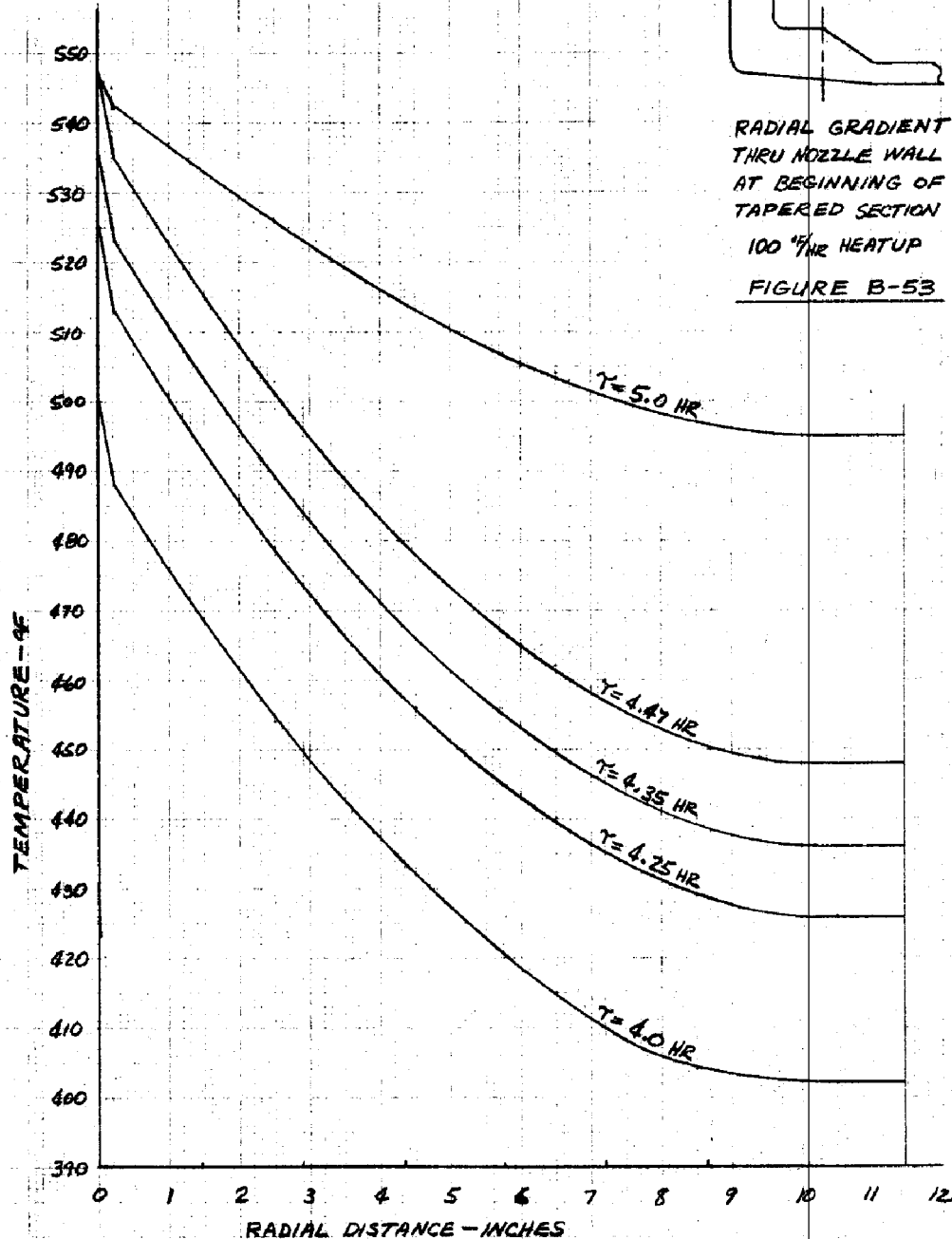
RADIAL GRADIENT  
AT THIN SECTION  
OF INLET NOZZLE  
WHERE TAPER ENDS  
100°F/HR HEATUP

FIGURE B-52

B-75

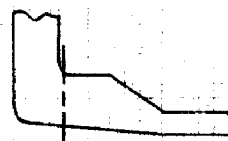


RADIAL GRADIENT  
THRU NOZZLE WALL  
AT BEGINNING OF  
TAPERED SECTION  
100 °/HR HEATUP  
FIGURE B-53



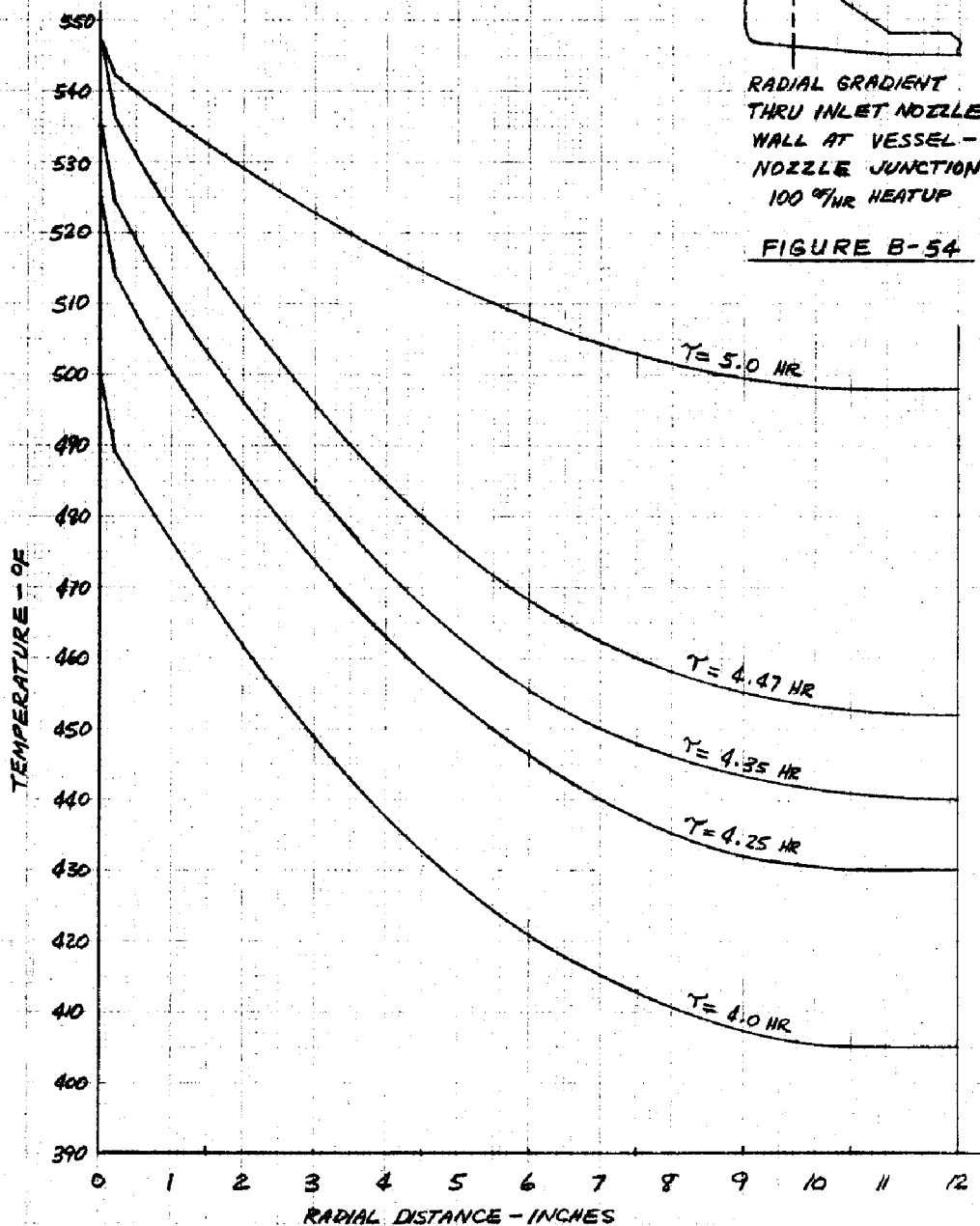


B-76

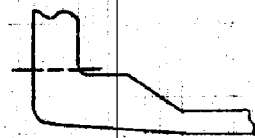


RADIAL GRADIENT  
THRU INLET NOZZLE  
WALL AT VESSEL -  
NOZZLE JUNCTION  
100 °/HR HEATUP

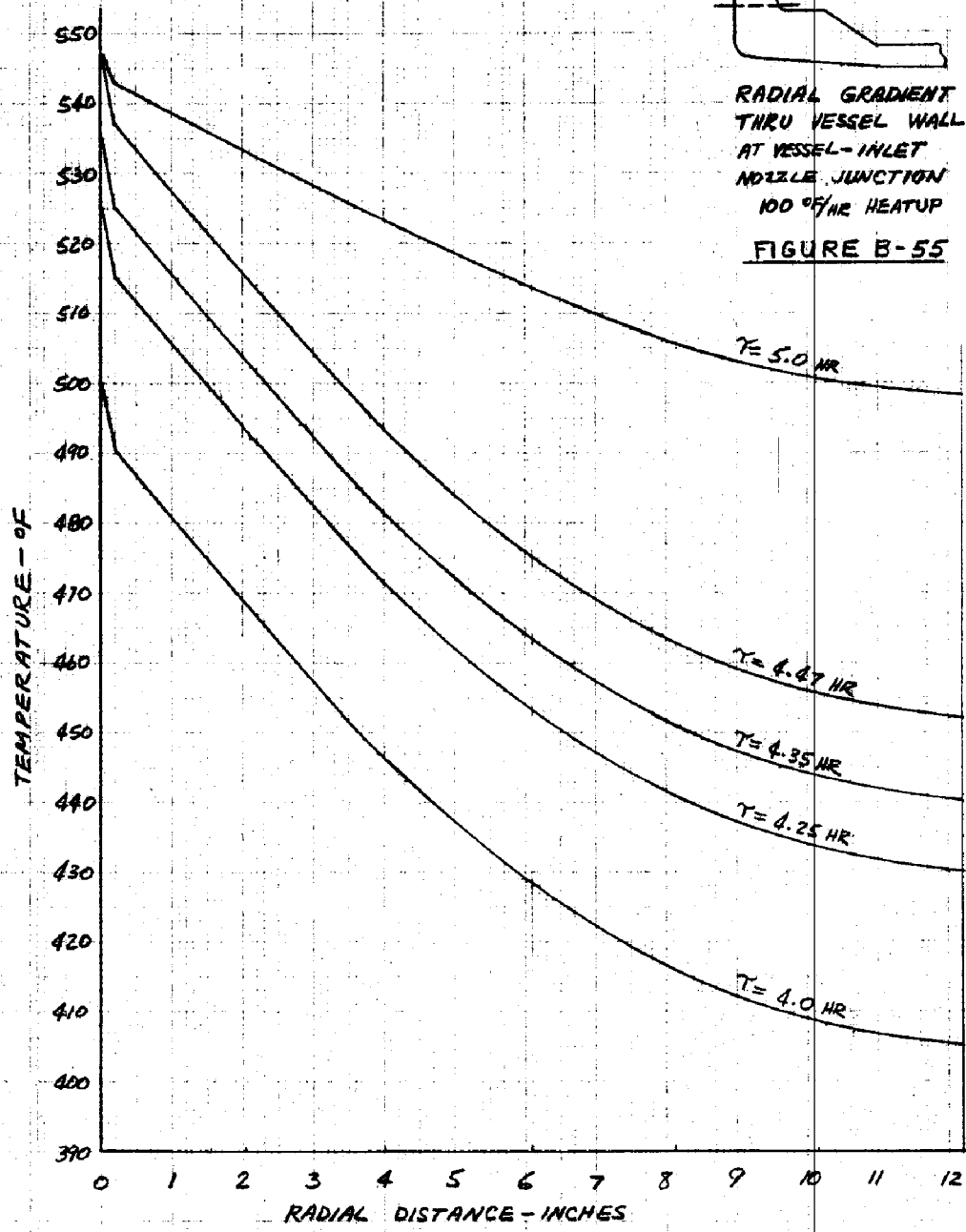
FIGURE B-54



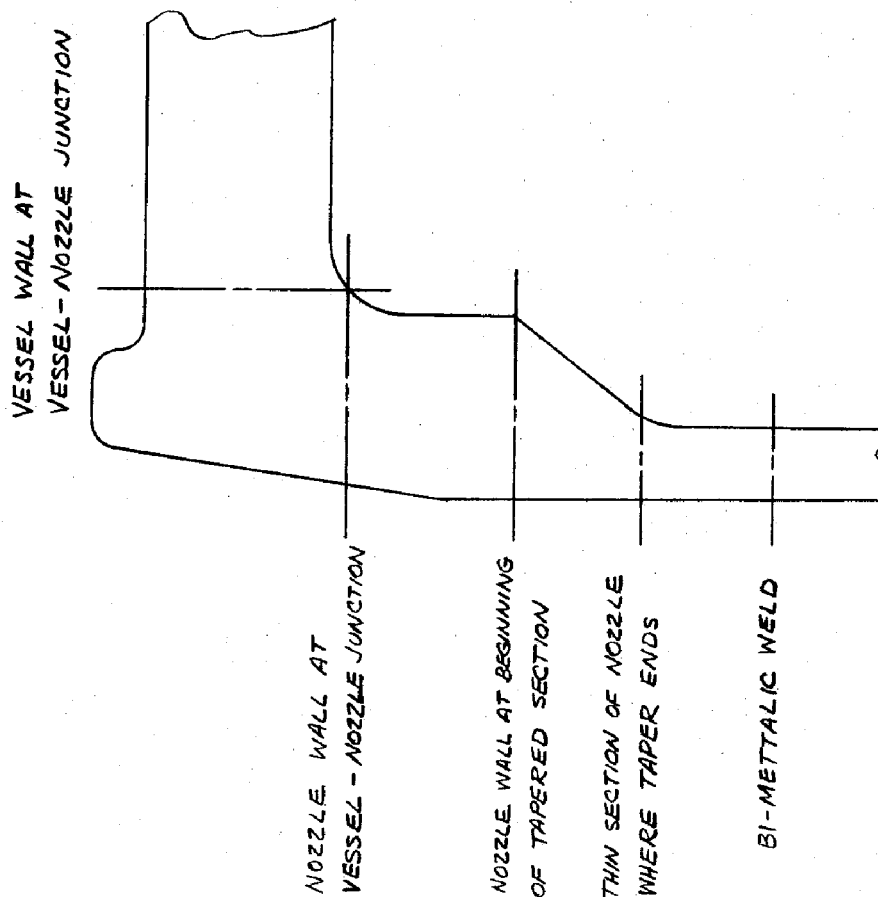
B-77



RADIAL GRADIENT  
THRU VESSEL WALL  
AT VESSEL-INLET  
NOZZLE JUNCTION  
100 °F/HR HEATUP  
FIGURE B-55



COMBUSTION ENGINEERING, INC. NUMBER \_\_\_\_\_  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN. SHEET B-78 OF \_\_\_\_\_  
 CHARGE NO. \_\_\_\_\_ DATE \_\_\_\_\_ BY \_\_\_\_\_  
 DESCRIPTION OUTLET NOZZLE CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_



THIS SKETCH INDICATES THE LOCATIONS WHERE RADIAL GRADIENTS WERE PLOTTED AND THE THERMAL MOMENT CALCULATED.

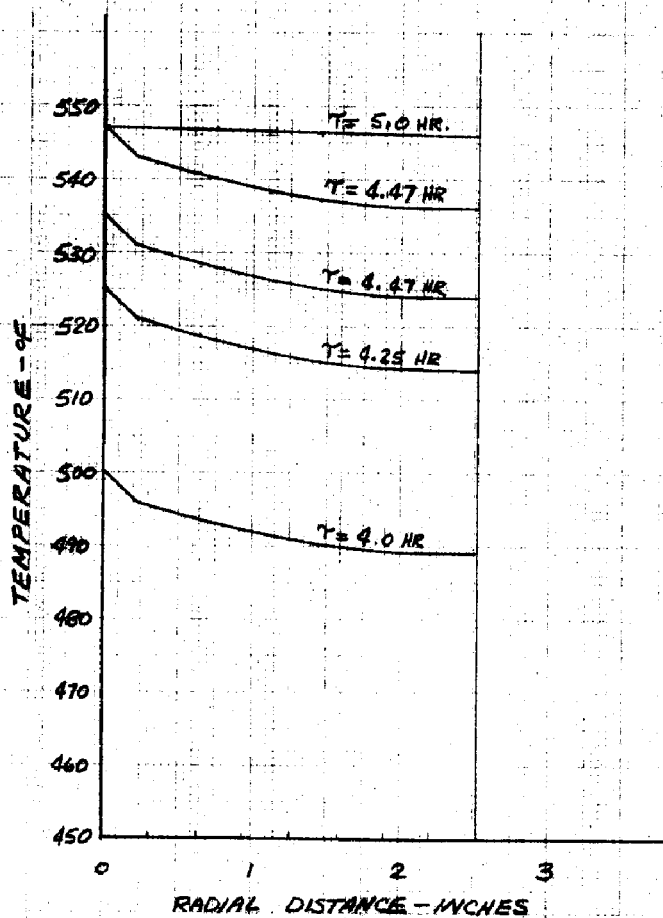
FIGURE B-56

B-79



RADIAL GRADIENT  
THRU OUTLET NOZZLE  
AT BI-METTALIC WELD  
100 °/HR HEATUP

FIGURE B-57

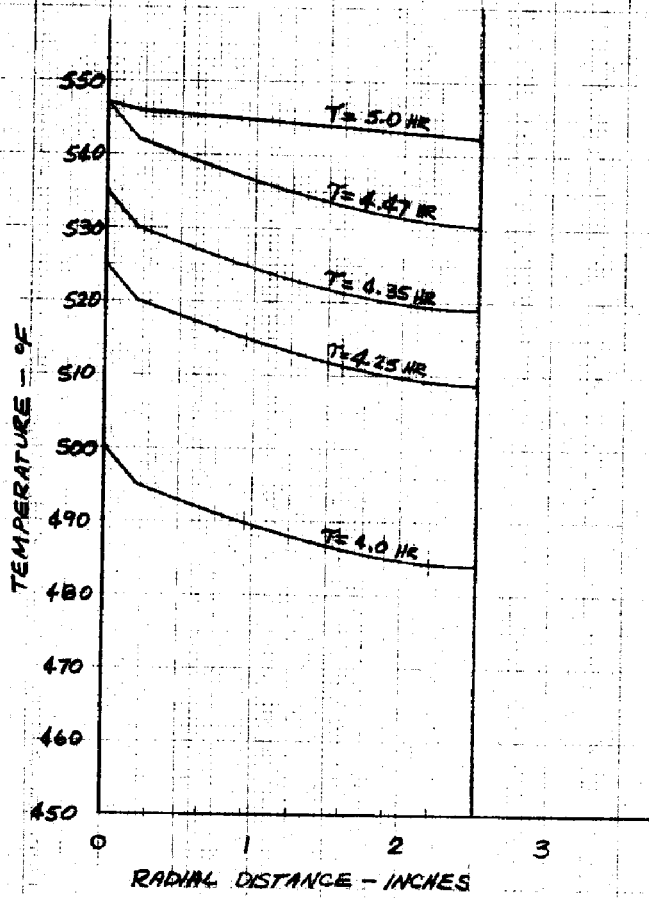


B-80



RADIAL GRADIENT  
AT THIN SECTION OF  
OUTLET NOZZLE  
WHERE TAPER ENDS  
100 °/HR HEATUP

FIGURE B-58

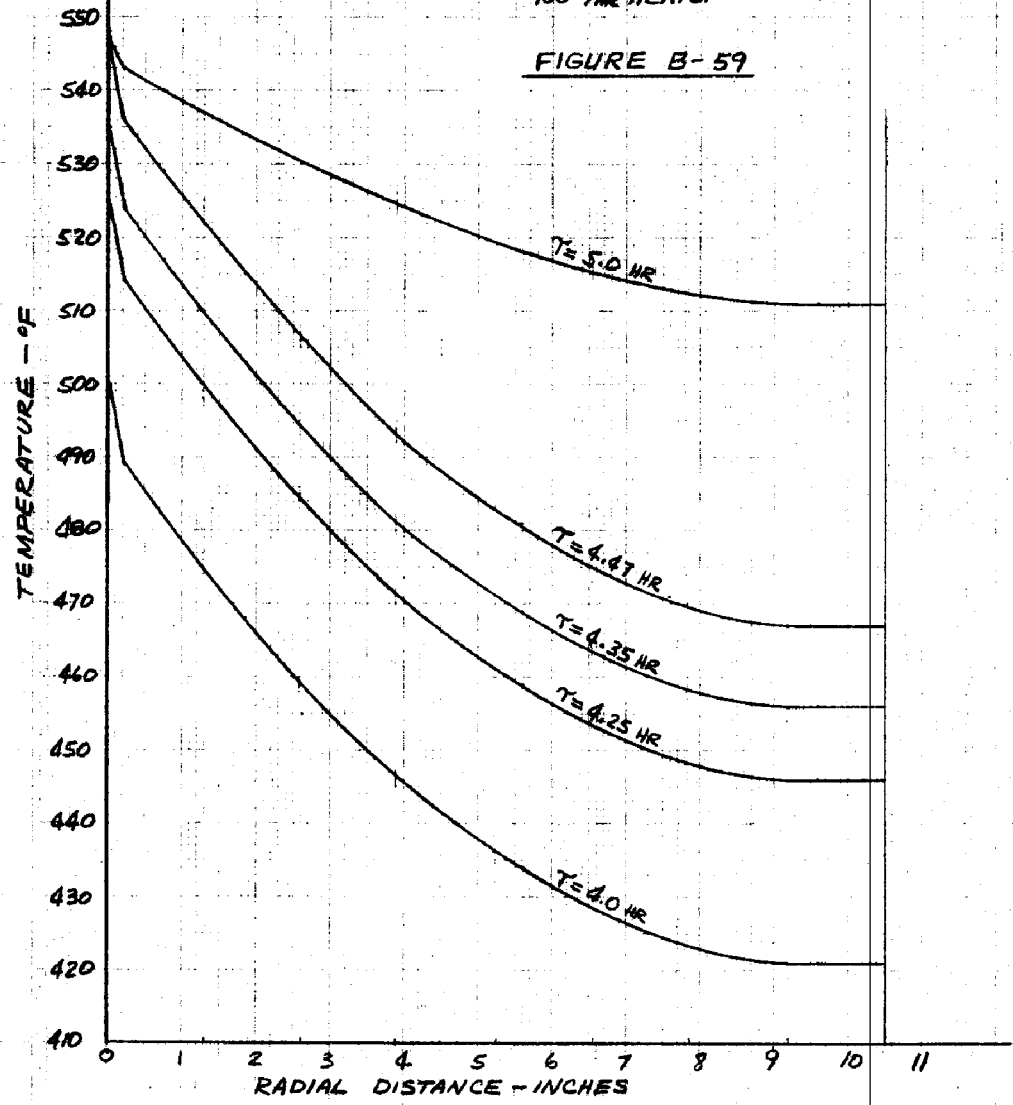


B-81

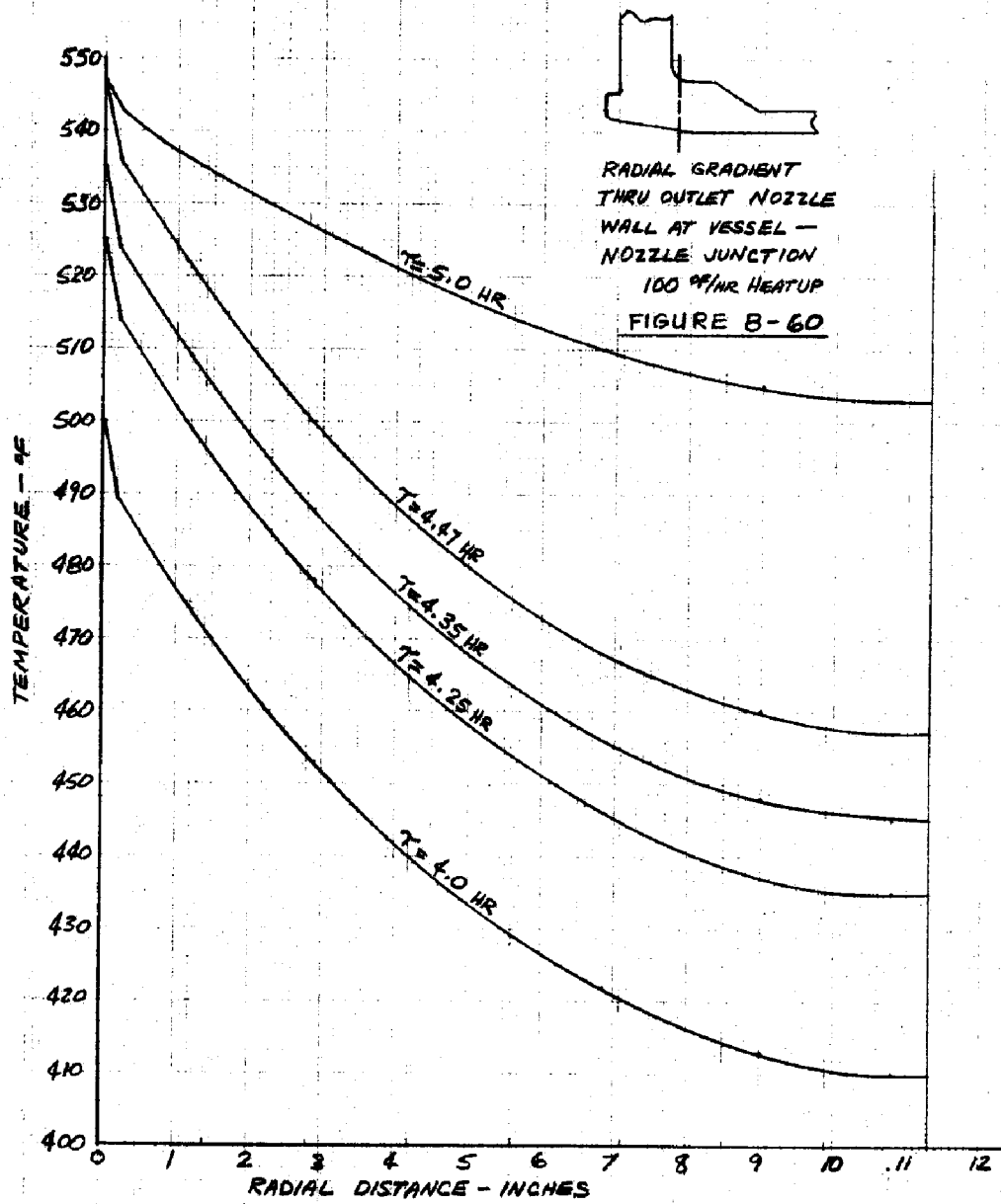


RADIAL GRADIENT  
THRU OUTLET NOZZLE  
AT BEGINNING OF  
TAPERED SECTION  
100% HR HEATUP

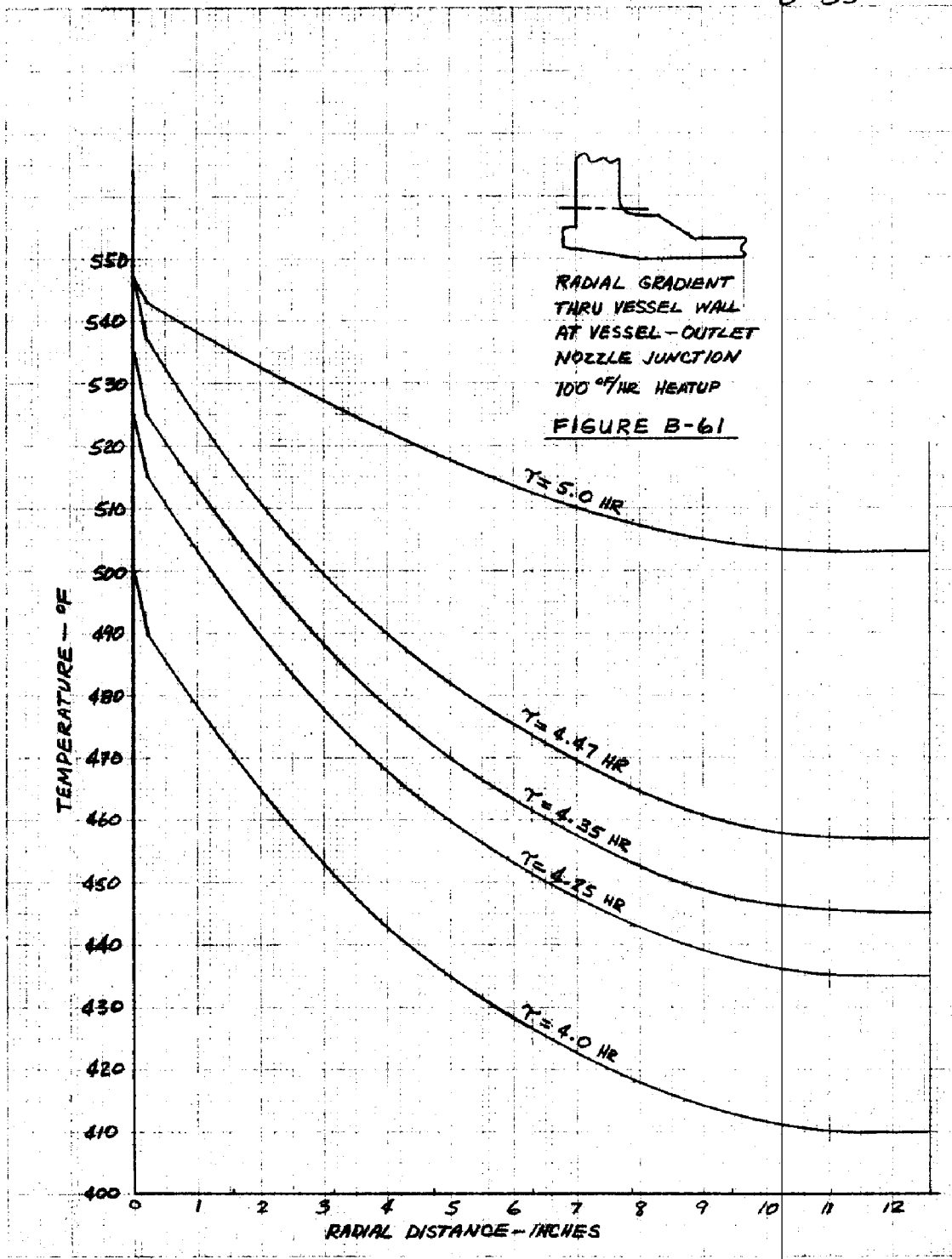
FIGURE B-59



B-82



3-83



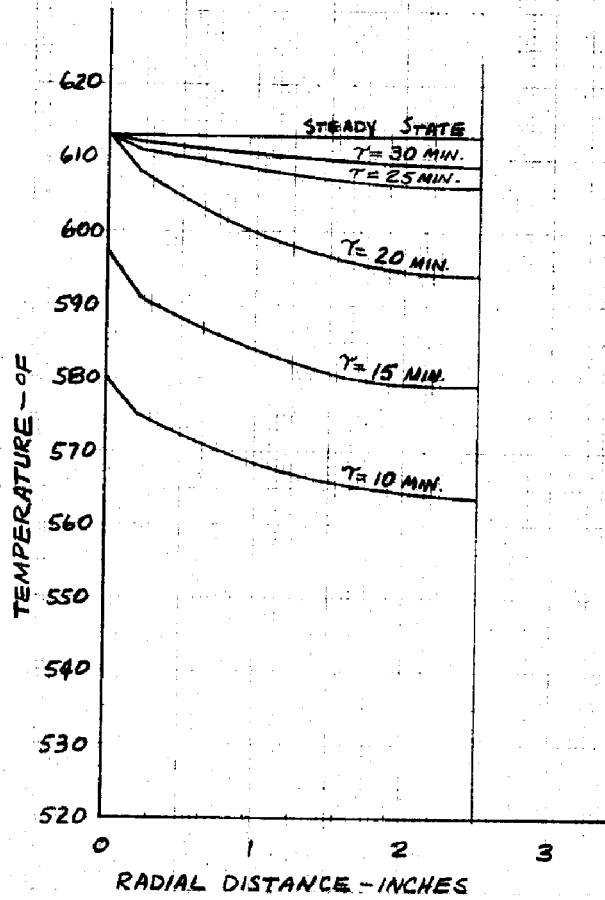


B-84



RADIAL GRADIENT  
THRU OUTLET NOZZLE  
AT BI-METTALIC WELD  
PLANT LOADING

FIGURE B-62

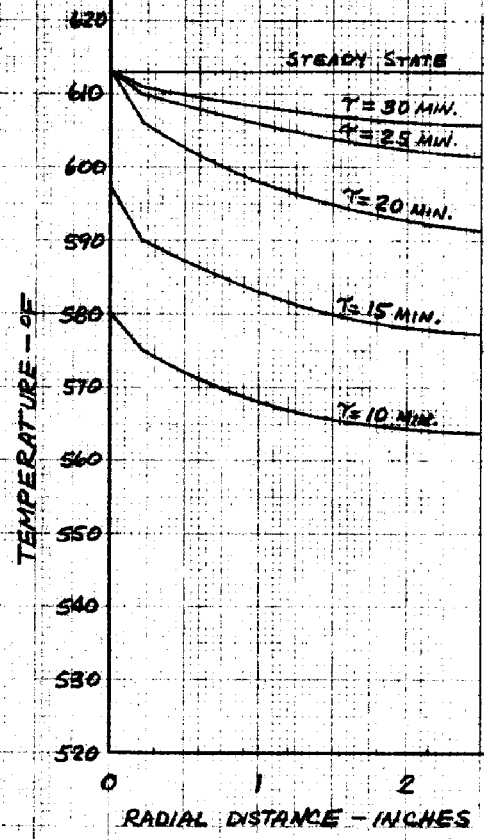


B-85



RADIAL GRADIENT  
AT THIN SECTION OF  
OUTLET NOZZLE  
WHERE TAPER ENDS  
PLANT LOADING

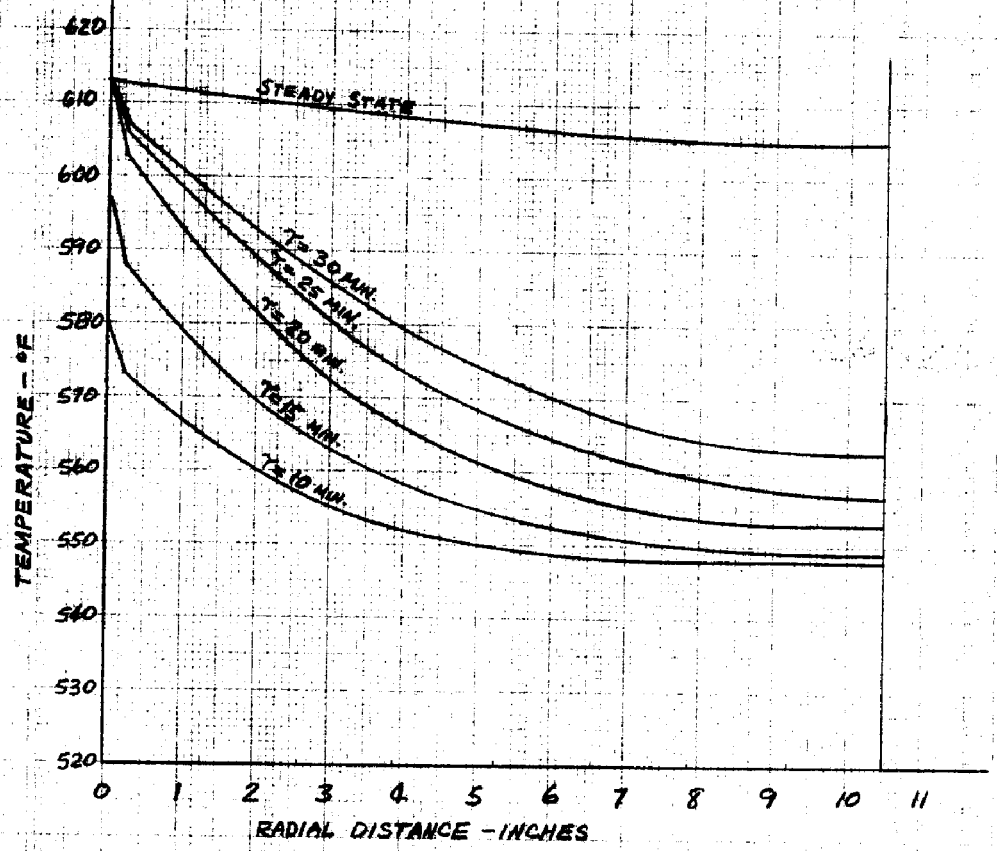
FIGURE B-63



B-86



RADIAL GRADIENT  
OUTLET NOZZLE WALL  
AT BEGINNING OF  
TAPERED SECTION  
PLANT LOADING  
FIGURE B-64



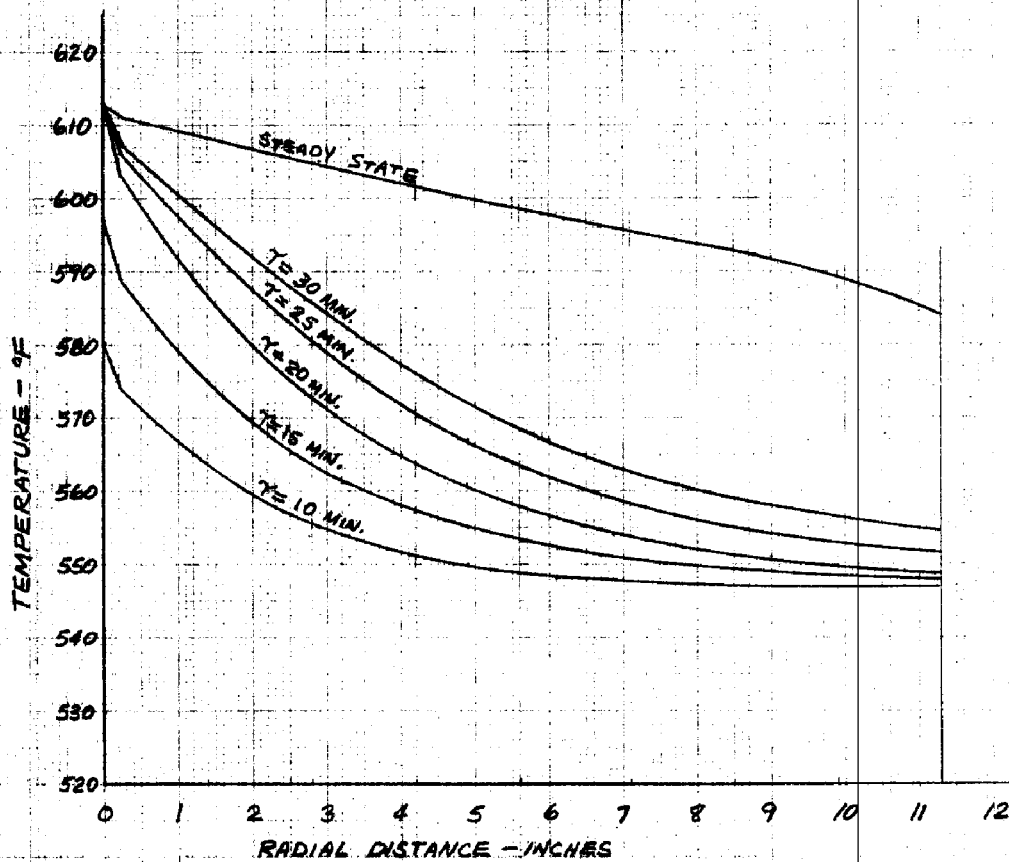
B-87



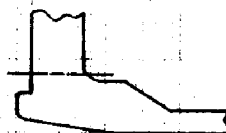
RADIAL GRADIENT  
OUTLET NOZZLE WALL  
AT VESSEL-NOZZLE  
JUNCTION

PLANT LOADING

FIGURE B-65

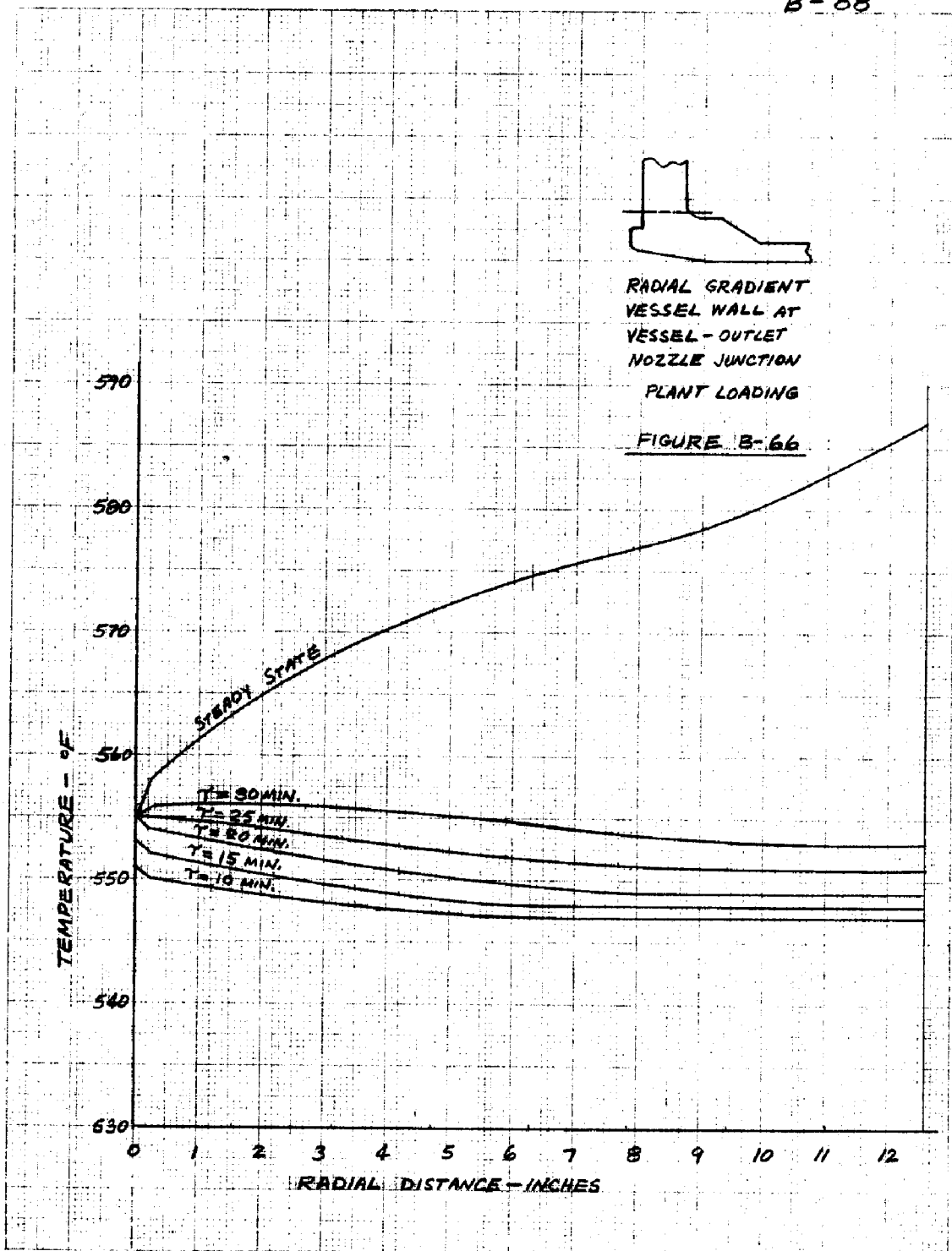


B-88



RADIAL GRADIENT  
VESSEL WALL AT  
VESSEL - OUTLET  
NOZZLE JUNCTION  
PLANT LOADING

FIGURE B-66



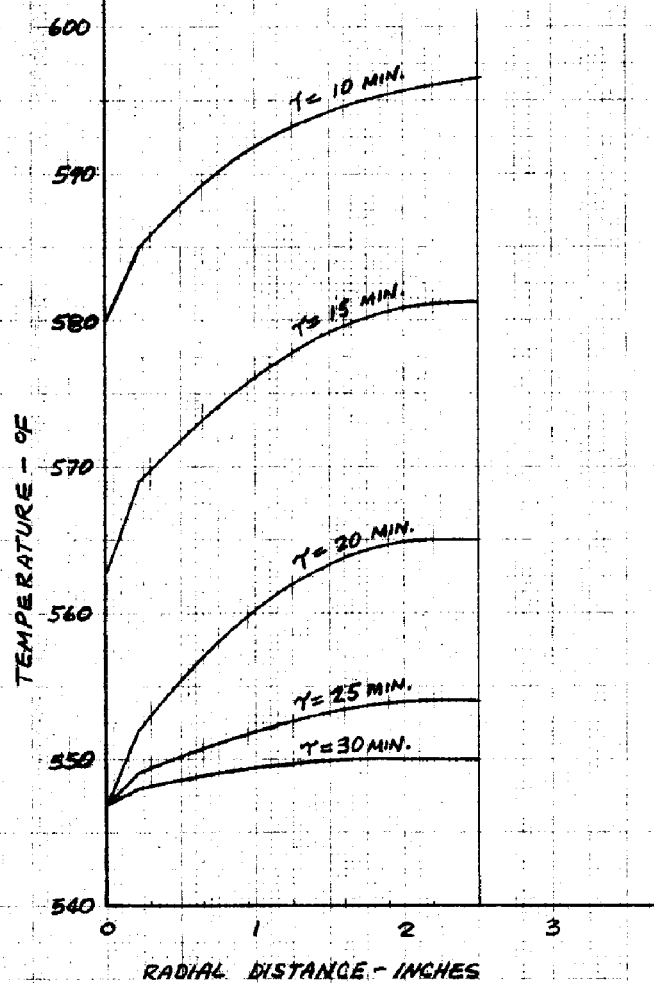
B-89



RADIAL GRADIENT  
OUTLET NOZZLE WALL  
AT BI-METALLIC WELD

PLANT UNLOADING

FIGURE B-67

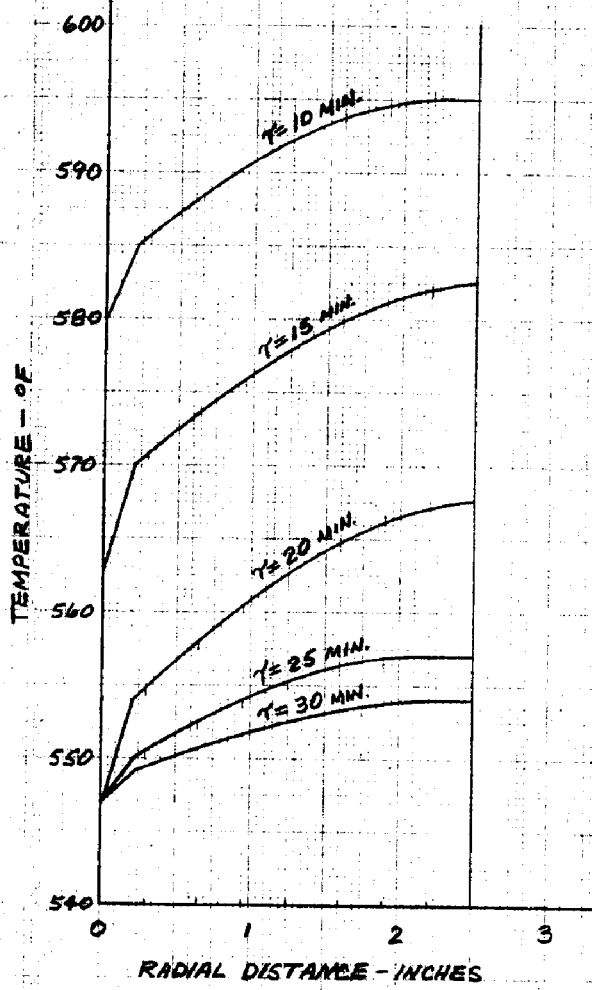


B-90



RADIAL GRADIENT  
AT THIN SECTION OF  
OUTLET NOZZLE  
WHERE TAPER ENDS  
PLANT UNLOADING

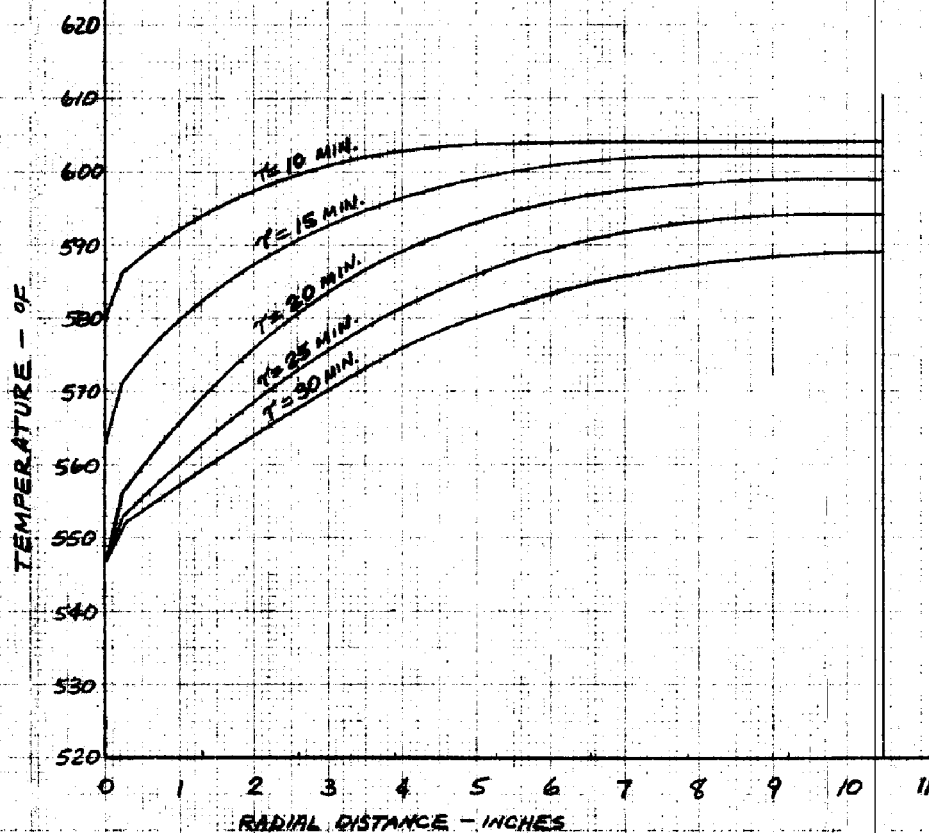
FIGURE B-68



B-91



RADIAL GRADIENT  
OUTLET NOZZLE WALL  
AT BEGINNING OF  
TAPERED SECTION  
PLANT UNLOADING  
FIGURE B-69





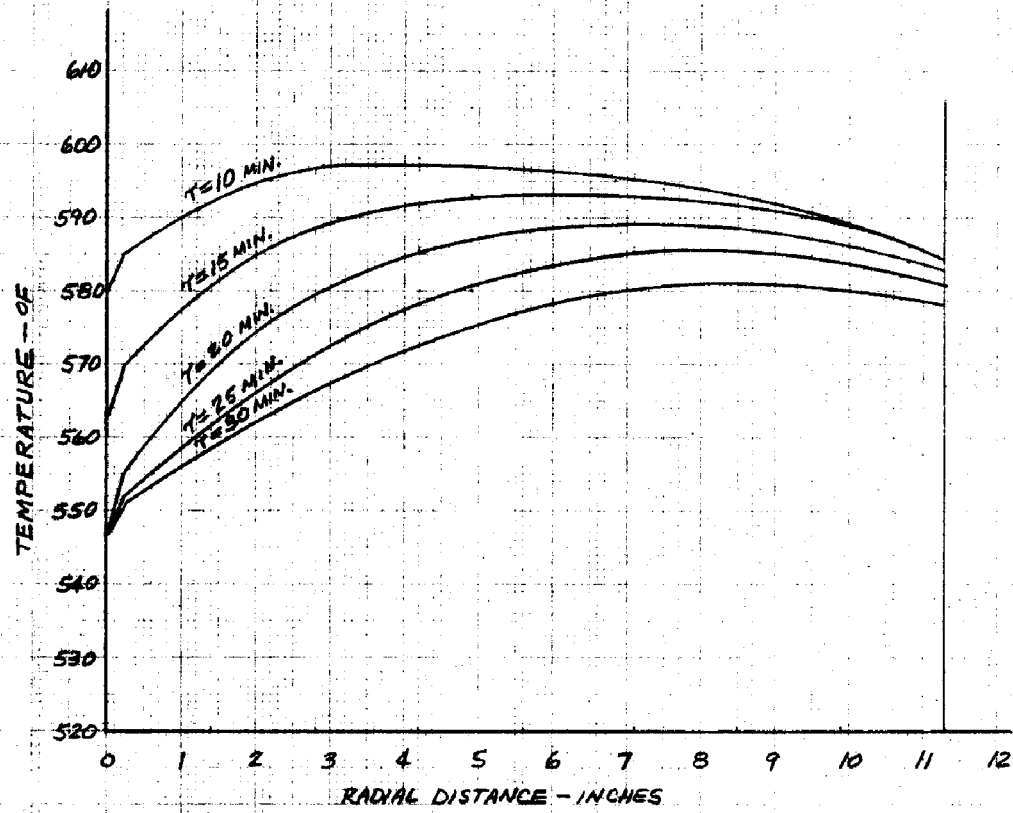
B-92



RADIAL GRADIENT  
OUTLET NOZZLE WALL  
AT VESSEL-NOZZLE  
JUNCTION

PLANT UNLOADING

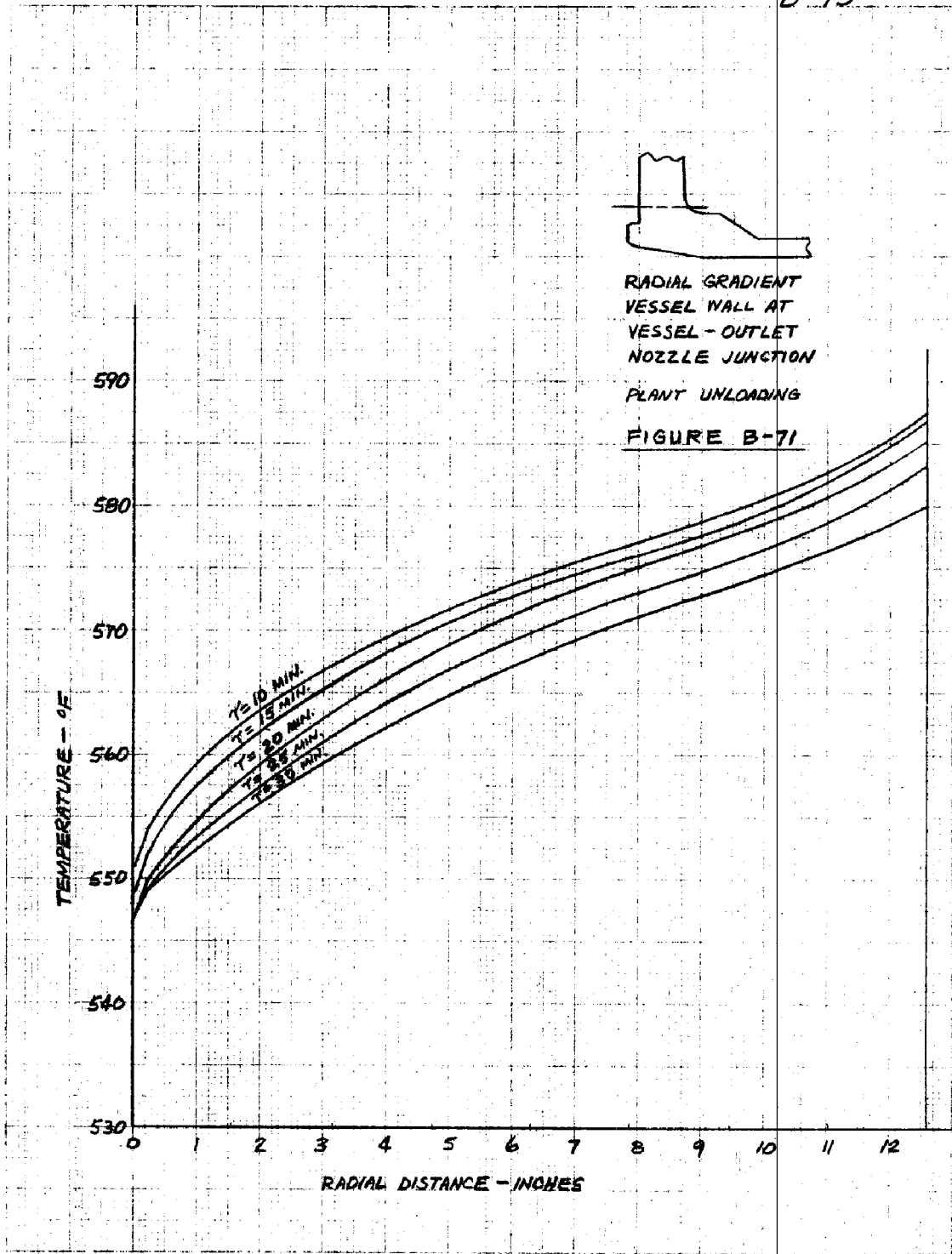
FIGURE B-70



B-93



RADIAL GRADIENT  
VESSEL WALL AT  
VESSEL - OUTLET  
NOZZLE JUNCTION  
PLANT UNLOADING  
FIGURE B-71



COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-94 OF \_\_\_\_\_

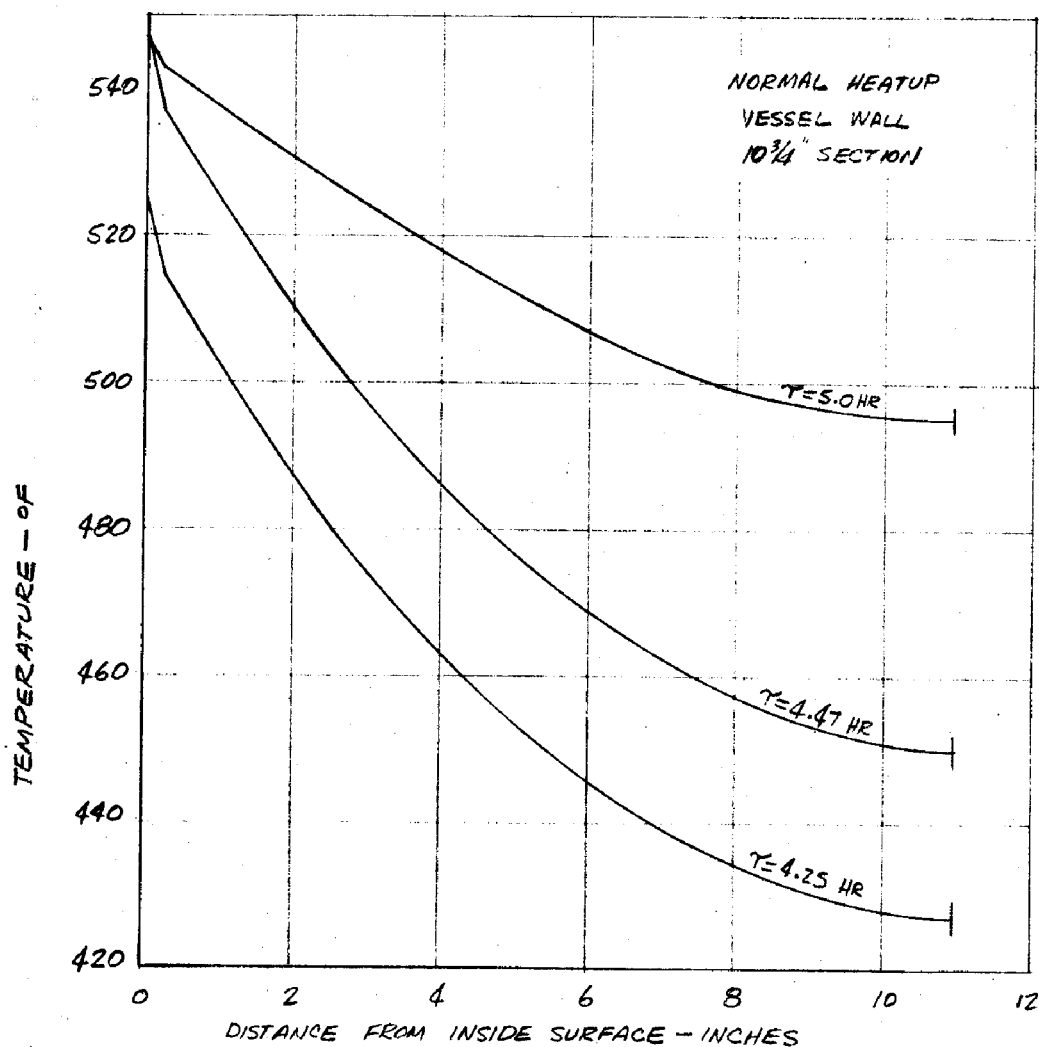
CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION VESSEL WALL

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

FOLLOWING ARE TEMPERATURE DISTRIBUTIONS IN THE VESSEL WALL FOR NORMAL HEATUP,  $100^{\circ}\text{F} \rightarrow 547^{\circ}\text{F}$  @  $100^{\circ}\text{F}/\text{HR}$ , AND FOR THE HYDROSTATIC TEST HEATUP,  $100^{\circ}\text{F} \rightarrow 400^{\circ}\text{F}$  @  $100^{\circ}\text{F}/\text{HR}$ . IN EACH CASE, THE DISTRIBUTION FOR COOLDOWN IS A MIRROR IMAGE OF HEATUP, SINCE THE COOLDOWN TRANSIENT IS OVER THE SAME RANGE AND AT THE SAME RATE AS HEATUP.



COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-95 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION VESSEL WALL

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

NORMAL HEATUP, VESSEL WALL, 8 5/8" SECTION

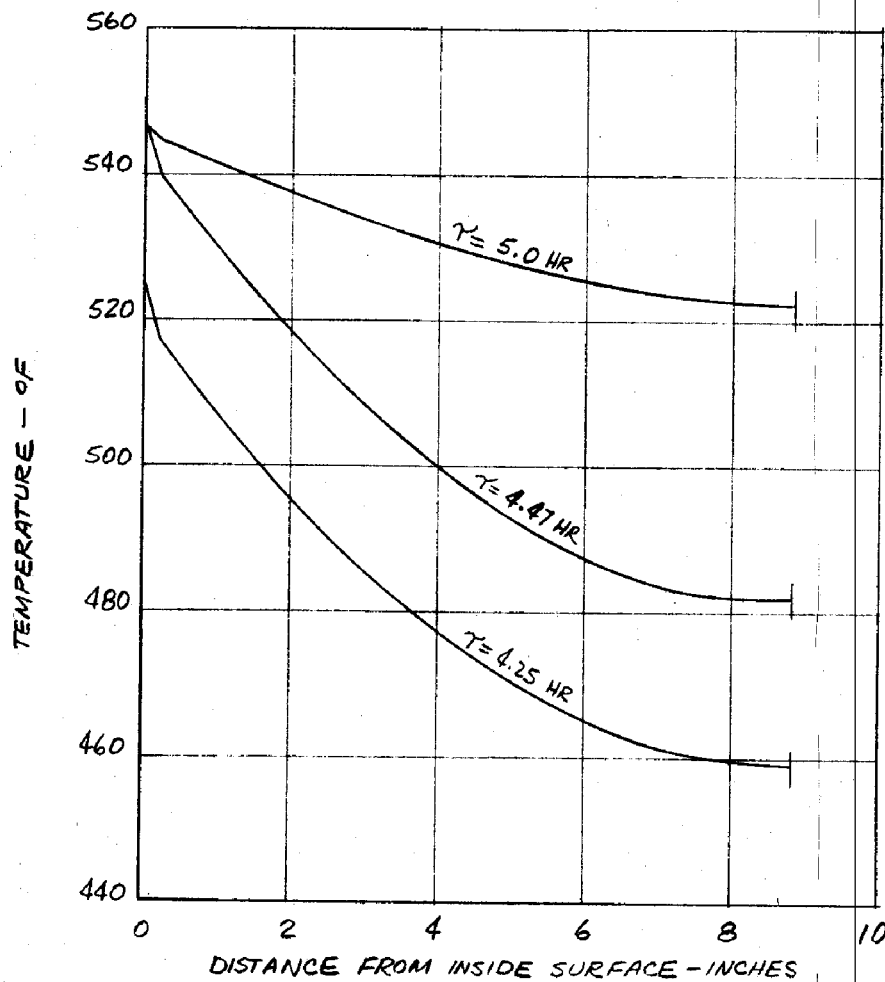


FIGURE B-73

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-96 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION VESSEL WALL

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

HYDRO HEATUP, VESSEL WALL, 10<sup>3</sup>/<sub>4</sub>" SECTION

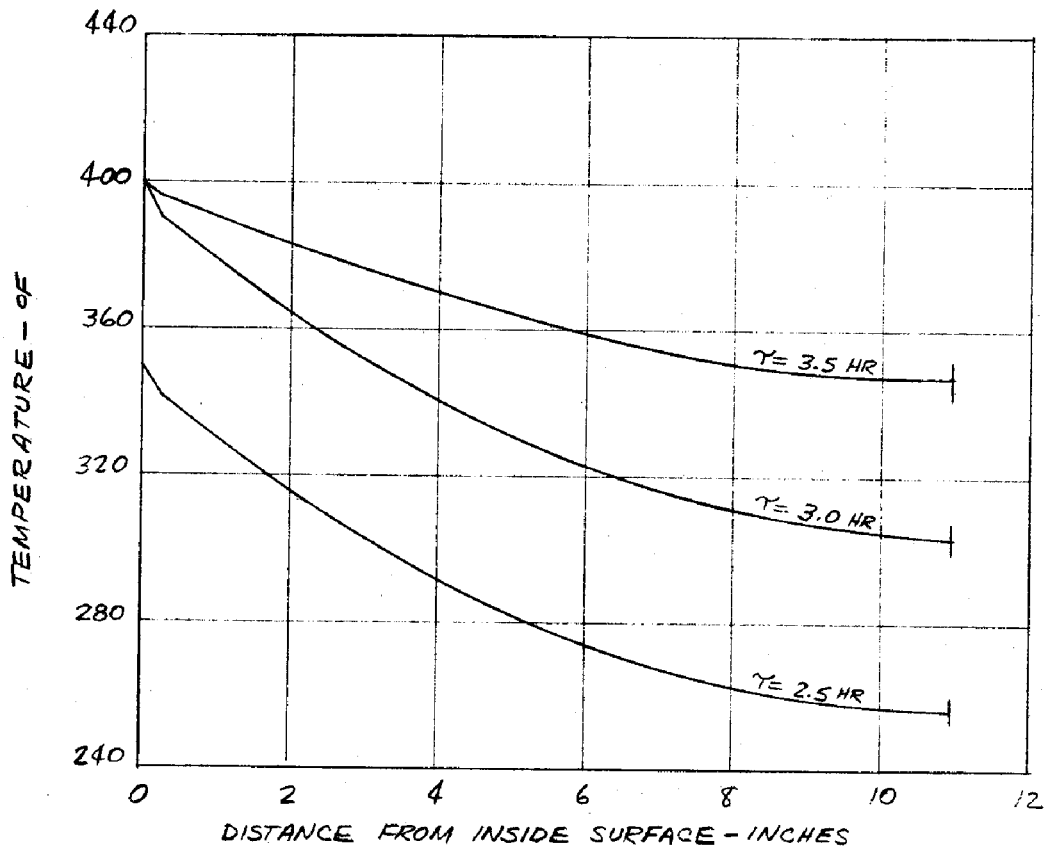


FIGURE B-74

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-97 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION VESSEL WALL

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

HYDRO HEATUP, VESSEL WALL, 8 5/8" SECTION

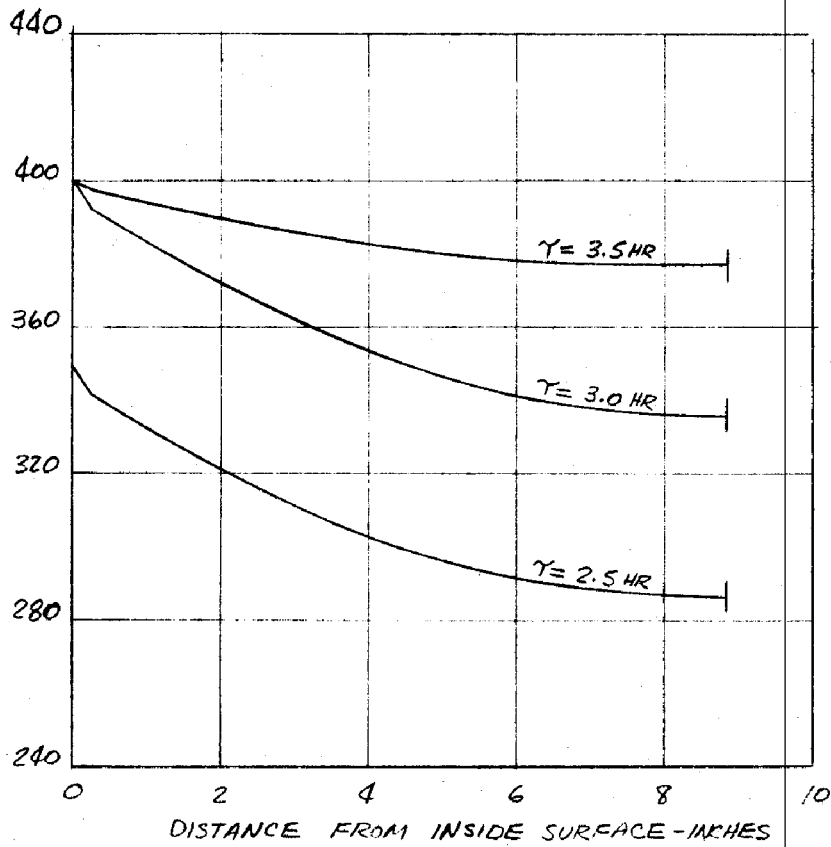
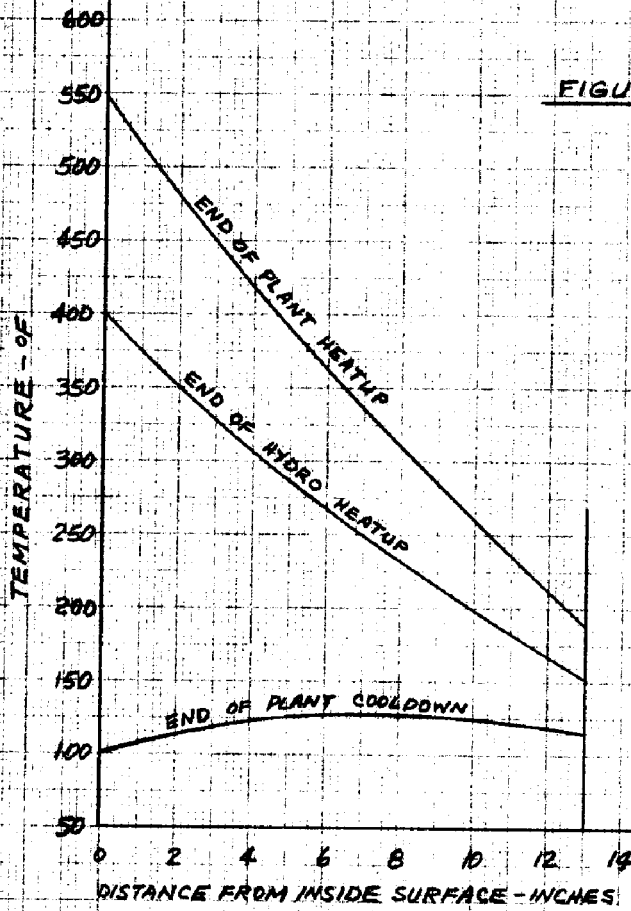


FIGURE B-75

B-98

TEMPERATURE DISTRIBUTION  
THRU NOZZLE WALL AND PAD  
FOR  
INLET AND OUTLET NOZZLES

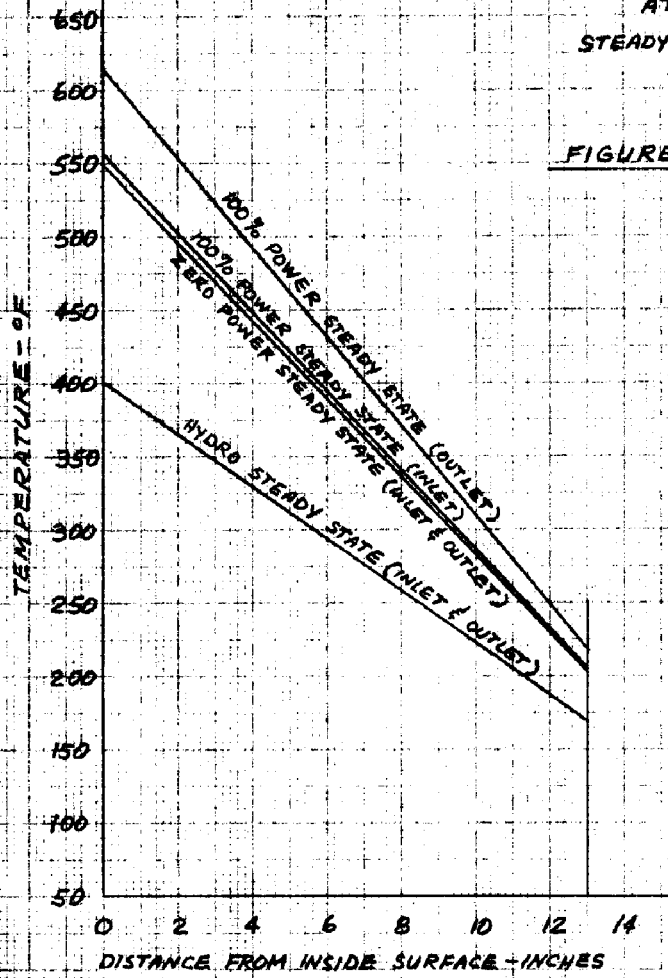
FIGURE B-76



B-99

TEMPERATURE DISTRIBUTION  
THRU NOZZLE WALL AND PAD  
AT  
STEADY STATE

FIGURE B-77





COMBUSTION ENGINEERING, INC. NUMBER \_\_\_\_\_  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN. SHEET B-100 OF \_\_\_\_\_  
 CHARGE NO. \_\_\_\_\_ DATE \_\_\_\_\_ BY \_\_\_\_\_  
 DESCRIPTION HEAD AND VESSEL FLANGES CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

THERMAL MOMENTS RESULTING FROM RADIAL GRADIENTS  
 FOR 100 °F/HR HEATUP AND COOLDOWN, 100°F ↔ 547°F

LOCATION	TIME (HR)	100 °F/HR HEATUP		100 °F/HR COOLDOWN	
		T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN-LB/IN)	T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN-LB/IN)
HEAD FLANGE- HEAD JUNCTION	4.0	412	332271	234	-289429
	4.25	434	334688	212	-292207
	4.35	443	335628	203	-293446
	4.47	456	336991	190	-295197
	5.0	482	259934	164	-225118
	STEADY STATE	546	3217		
TOP OF HEAD FLANGE	4.0	308	4099231	330	-4053144
	4.25	326	4307030	312	-4254050
	4.35	334	4397693	306	-4260472
	4.47	346	4526824	294	-4365332
	5.0	380	4444551	264	-4140627
	STEADY STATE	545	94314		
BOTTOM OF HEAD FLANGE	4.0	307	2178931	332	-2143347
	4.25	325	2267317	314	-2200498
	4.35	334	2295041	306	-2218839
	4.47	344	2332781	295	-2230669
	5.0	375	2180188	264	-2045856
	STEADY STATE	539	64743		
TOP OF VESSEL FLANGE	4.0	243	1023212	374	-726730
	4.25	258	1069229	358	-774763
	4.35	265	1101081	352	-796483
	4.47	274	1134218	343	-821931
	5.0	307	1176806	310	-842210
	STEADY STATE	516	361003		
VESSEL FLANGE- SHELL JUNCTION	4.0	391	458071	193	-402539
	4.25	413	461449	191	-406478
	4.35	423	462890	190	-408144
	4.47	435	464736	189	-410452
	5.0	466	361170	186	-304752
	STEADY STATE	544	17291		

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-101 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION INLET NOZZLE

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

THERMAL MOMENTS RESULTING FROM RADIAL GRADIENTS

100 °F/HR HEATUP

LOCATION	TIME (HR)	T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN- <sup>16</sup> /IN)
NOZZLE WALL AT BI-METALLIC WELD	4.0	492	1432
	4.25	517	1439
	4.35	527	1446
	4.47	539	1453
	5.0	547	0
THIN SECTION OF NOZZLE WALL WHERE TAPER ENDS	4.0	490	1884
	4.25	515	1893
	4.35	525	1902
	4.47	537	1910
	5.0	546	398
NOZZLE WALL AT BEGINNING OF TAPERED SECTION	4.0	423	296455
	4.25	448	297894
	4.35	458	299333
	4.47	470	300772
	5.0	508	171974
NOZZLE WALL AT VESSEL-NOZZLE JUNCTION	4.0	426	308138
	4.25	451	311129
	4.35	461	312625
	4.47	473	314121
	5.0	510	169914
VESSEL WALL AT VESSEL-NOZZLE JUNCTION	4.0	435	336543
	4.25	460	338168
	4.35	470	339794
	4.47	482	341420
	5.0	515	184075

NOTE: THERMAL MOMENTS FOR THE COOLDOWN TRANSIENT  
ARE EQUAL IN MAGNITUDE BUT OPPOSITE IN  
SIGN FROM THOSE FOR HEATUP.

COMBUSTION ENGINEERING, INC. NUMBER \_\_\_\_\_  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN. SHEET B-102 OF \_\_\_\_\_  
 CHARGE NO. \_\_\_\_\_ DATE \_\_\_\_\_ BY \_\_\_\_\_  
 DESCRIPTION OUTLET NOZZLE CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

THERMAL MOMENTS RESULTING FROM RADIAL GRADIENTS

100 °F/HR HEATUP

LOCATION	TIME (HR)	T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN- <sup>16</sup> /IN)
NOZZLE WALL AT BI-METALLIC WELD	4.0	492	1432
	4.25	517	1439
	4.35	527	1446
	4.47	539	1453
	5.0	547	0
THIN SECTION OF NOZZLE WALL WHERE TAPER ENDS	4.0	488	2296
	4.25	513	2307
	4.35	523	2318
	4.47	535	2328
	5.0	544	677
NOZZLE WALL AT BEGINNING OF TAPERED SECTION	4.0	440	201261
	4.25	465	202228
	4.35	475	203196
	4.47	487	204164
	5.0	521	98858
NOZZLE WALL AT VESSEL-NOZZLE JUNCTION	4.0	433	259971
	4.25	458	262483
	4.35	468	263739
	4.47	480	264995
	5.0	516	136549
VESSEL WALL AT VESSEL-NOZZLE JUNCTION	4.0	435	320808
	4.25	460	322358
	4.35	470	323908
	4.47	481	325458
	5.0	516	174296

NOTE: THERMAL MOMENTS FOR THE COOLDOWN TRANSIENT ARE EQUAL IN MAGNITUDE BUT OPPOSITE IN SIGN FROM THOSE FOR HEATUP.

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-103 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION OUTLET NOZZLE

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

THERMAL MOMENTS RESULTING FROM RADIAL GRADIENTS

LOCATION	TIME	PLANT LOADING		PLANT UNLOADING	
		T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN- <sup>16</sup> /IN)	T <sub>MEAN</sub> (°F)	THERMAL MOMENT (IN- <sup>16</sup> /IN)
NOZZLE WALL AT BI-METALLIC WELD	10 MIN.	568	2219	592	- 2300
	15 MIN.	583	2511	577	- 2531
	20 MIN.	599	2825	561	- 2619
	25 MIN.	608	1070	552	- 1020
	30 MIN.	610	646	549	- 420
	STEADY STATE	613	0	547	0
THIN SECTION OF NOZZLE WHERE TAPER ENDS	10 MIN.	568	2199	592	- 2129
	15 MIN.	582	2571	577	- 2601
	20 MIN.	597	2946	562	- 2739
	25 MIN.	605	1655	554	- 1460
	30 MIN.	608	1090	552	- 1040
	STEADY STATE	613	0	547	0
NOZZLE WALL AT BEGINNING OF TAPERED SECTION	10 MIN.	553	67384	602	- 42350
	15 MIN.	558	107043	596	- 72208
	20 MIN.	565	142450	590	- 118670
	25 MIN.	571	145947	584	- 120442
	30 MIN.	576	134611	578	- 111940
	STEADY STATE	607	23488	547	0
NOZZLE WALL AT VESSEL-NOZZLE JUNCTION	10 MIN.	552	78067	593	+ 7834
	15 MIN.	556	123200	589	- 40630
	20 MIN.	562	169119	583	- 82080
	25 MIN.	567	180557	578	- 100958
	30 MIN.	571	178923	574	- 94772
	STEADY STATE	598	85758	547	0
VESSEL WALL AT VESSEL-NOZZLE JUNCTION	10 MIN.	548	11628	573	- 120431
	15 MIN.	549	16178	572	- 125024
	20 MIN.	550	22245	570	- 130637
	25 MIN.	552	18706	568	- 128000
	30 MIN.	555	15167	566	- 121397
	STEADY STATE	574	- 105694	547	0

COMBUSTION ENGINEERING, INC.  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.  
 CHARGE NO. \_\_\_\_\_  
 DESCRIPTION VESSEL WALL

NUMBER \_\_\_\_\_  
 SHEET B-104 OF \_\_\_\_\_  
 DATE \_\_\_\_\_ BY \_\_\_\_\_  
 CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

TABULATED RESULTS

		TIME (HR)	T <sub>MEAN</sub> (°F)	T <sub>INSIDE</sub> (°F)	T <sub>INTERFACE</sub> (°F)	T <sub>OUTSIDE</sub> (°F)	T <sub>M</sub> -T <sub>IN</sub> (°F)	T <sub>M</sub> -T <sub>INP</sub> (°F)	T <sub>M</sub> -T <sub>OUT</sub> (°F)
10 3/4" SECTION	NORMAL HEATUP	4.25	460	525	515	427	-65	-55	33
		4.47	482	547	537	450	-65	-55	32
		5.00	514	547	543	495	-33	-29	19
	NORMAL COOLDOWN	4.25	187	122	132	220	65	55	-33
		4.47	165	100	110	197	65	55	-32
		5.00	133	100	104	152	33	29	-19
	HYDRO HEATUP	2.50	289	350	341	256	-63	-54	33
		3.00	336	400	390	303	-64	-54	33
		3.50	367	400	396	347	-33	-29	20
	HYDRO COOLDOWN	2.50	211	150	159	244	63	54	-33
		3.00	164	100	110	197	64	54	-33
		3.50	133	100	104	153	33	29	-20
8 7/8" SECTION	NORMAL HEATUP	4.25	482	525	517	460	-43	-35	22
		4.47	504	547	540	482	-43	-36	22
		5.00	533	547	544	522	-14	-11	11
	NORMAL COOLDOWN	4.25	165	122	130	187	43	35	-22
		4.47	143	100	107	165	43	36	-22
		5.00	114	100	103	125	14	11	-11
	HYDRO HEATUP	2.50	308	350	342	286	-42	-36	22
		3.00	357	400	393	336	-43	-36	21
		3.50	384	400	397	378	-16	-13	6
	HYDRO COOLDOWN	2.50	192	150	158	214	42	36	-22
		3.00	143	100	107	164	43	36	-21
		3.50	116	100	103	122	16	13	-6

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-10E OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION BOTTOM HEAD

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

TABULATED RESULTS

	TIME (HR)	T <sub>MEAN</sub> (°F)	T <sub>INSIDE</sub> (°F)	T <sub>OUTSIDE</sub> (°F)	T <sub>M</sub> -T <sub>IN</sub> (°F)	T <sub>M</sub> -T <sub>OUT</sub> (°F)
NORMAL HEATUP	4.25	507	525	499	-18	8
	4.47	529	547	521	-18	8
	5.0	545	547	544	-2	1
NORMAL COOLDOWN	4.25	140	122	148	18	-8
	4.47	118	100	126	18	-8
	5.0	102	100	103	2	-1
HYDRO HEATUP	2.5	332	350	324	-18	8
	3.0	382	400	374	-18	8
	3.5	398	400	397	-2	1
HYDRO COOLDOWN	2.5	168	150	176	18	-8
	3.0	178	100	126	18	-8
	3.5	102	100	103	2	-1

**COMBUSTION ENGINEERING, INC.**  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.  
 CHARGE NO. \_\_\_\_\_  
 DESCRIPTION VESSEL SUPPORTS

NUMBER \_\_\_\_\_  
 SHEET B-106 OF \_\_\_\_\_  
 DATE \_\_\_\_\_ BY \_\_\_\_\_  
 CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

DIFFERENCES BETWEEN THE MEAN TEMPERATURE AND THE TEMPERATURES OF THE INSIDE AND OUTSIDE SURFACES OF THE NOZZLE WALL AND PAD FOR THE CONDITIONS ANALYZED

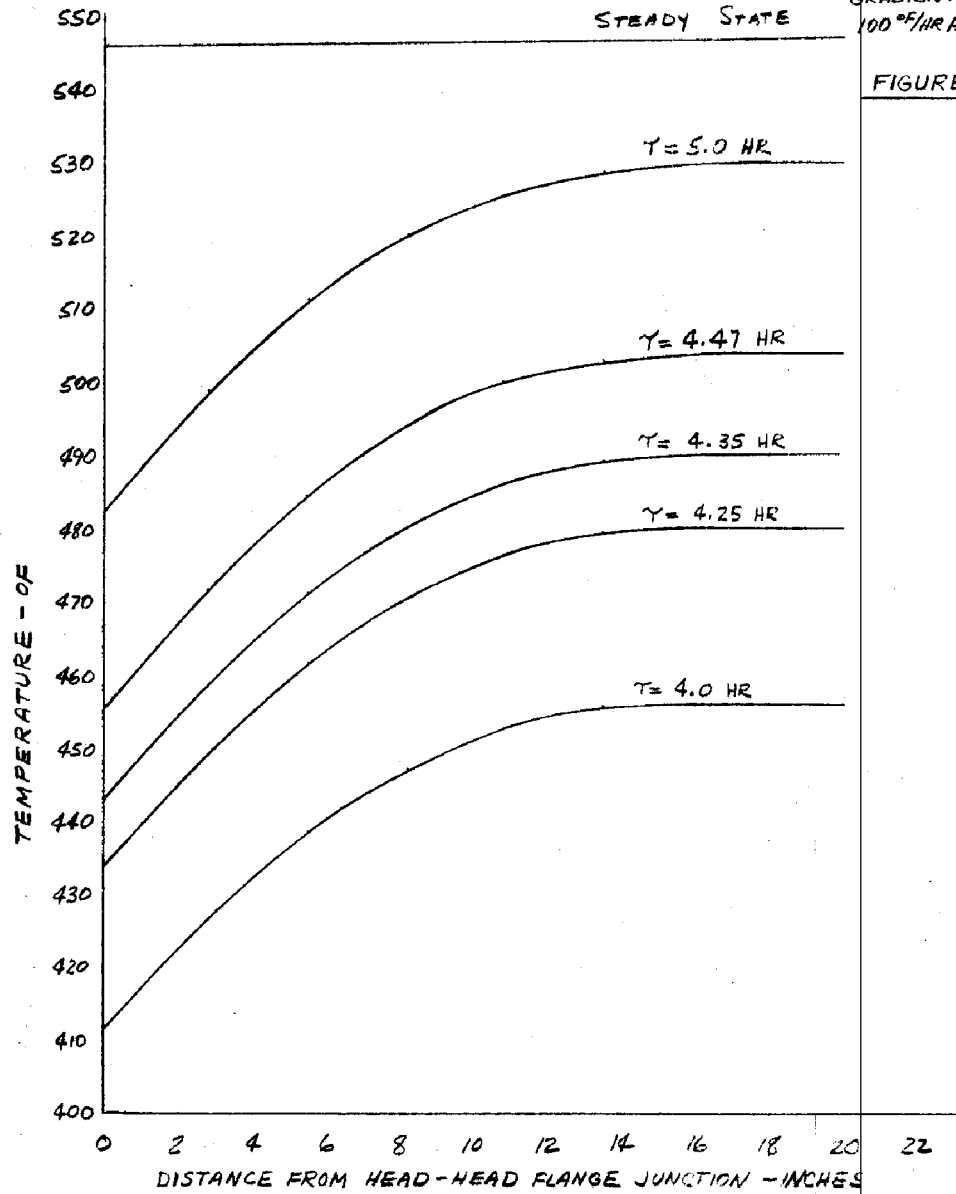
CONDITION	INLET NOZZLE			OUTLET NOZZLE		
	$T_{MEAN}$ OF	$T_M - T_{IN}$ OF	$T_M - T_{OUT}$ OF	$T_{MEAN}$ OF	$T_M - T_{IN}$ OF	$T_M - T_{OUT}$ OF
END OF HYDRO HEATUP	263	-137	113	263	-137	113
END OF PLANT HEATUP	354	-193	168	354	-193	168
HYDRO STEADY STATE	285	-115	115	285	-115	115
ZERO POWER STEADY STATE	375	-172	172	375	-172	172
100% POWER STEADY STATE	379	-176	176	415	-198	198
END OF HYDRO COOLDOWN	120	20	5	120	20	5
END OF PLANT COOLDOWN	120	20	5	120	20	5

B-107



GRADIENT IN HEAD  
100 °F/HR HEATUP

FIGURE B-7B





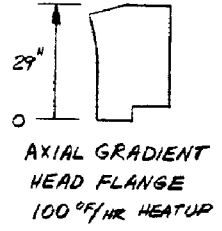
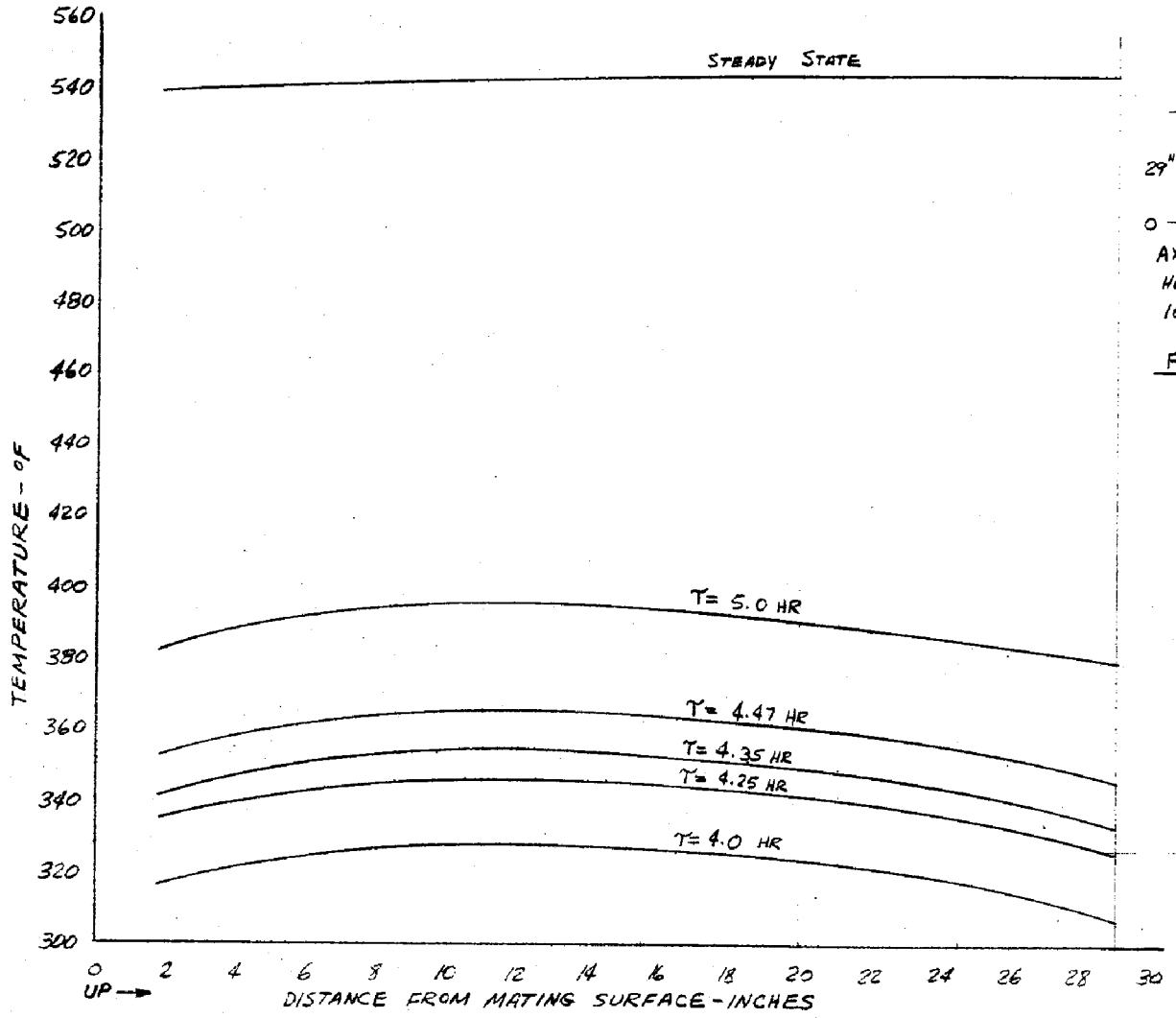
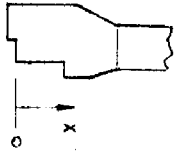
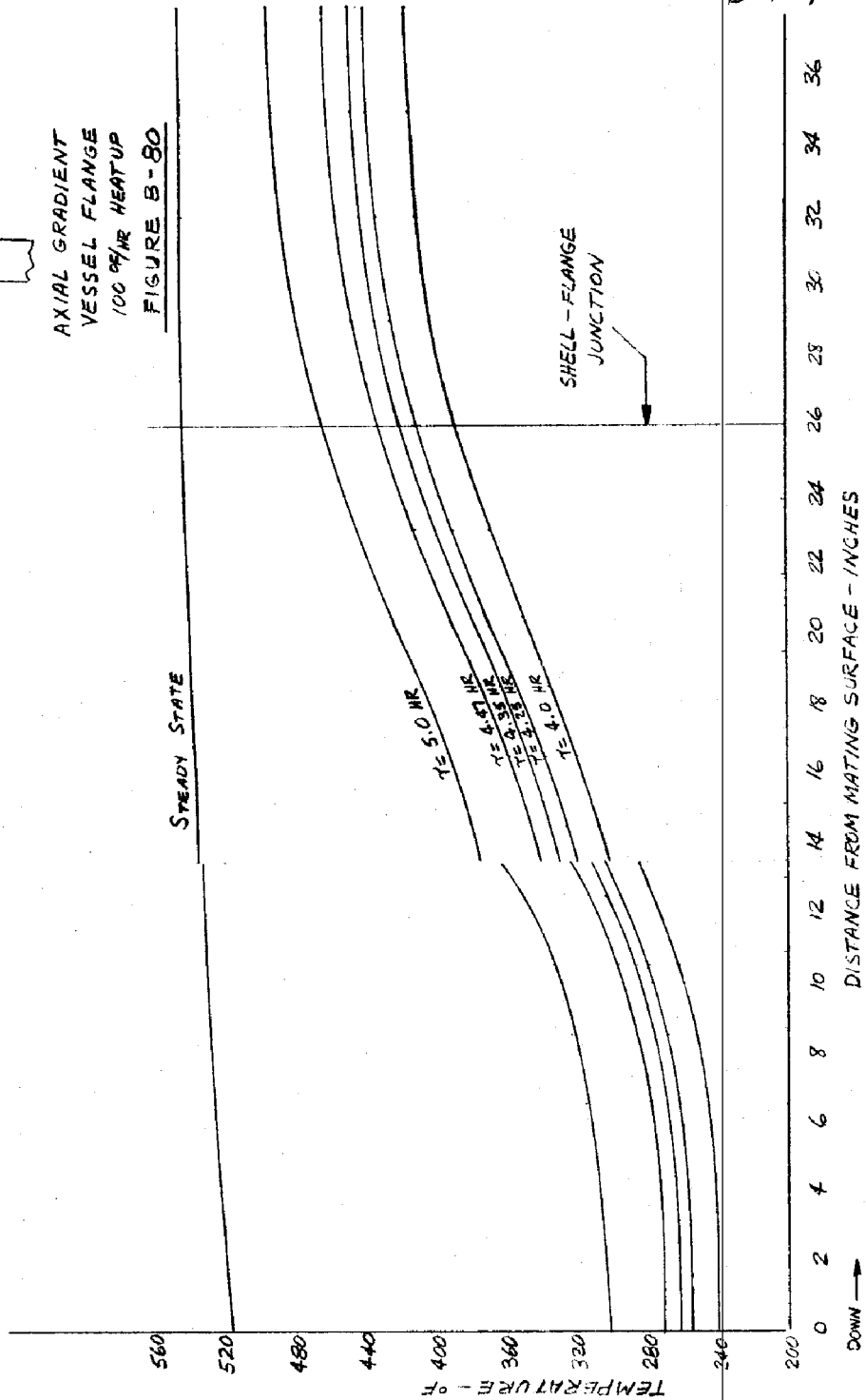


FIGURE B-79

E-108



AXIAL GRADIENT  
VESSEL FLANGE  
100 °F/HR HEAT-UP  
FIGURE B-80



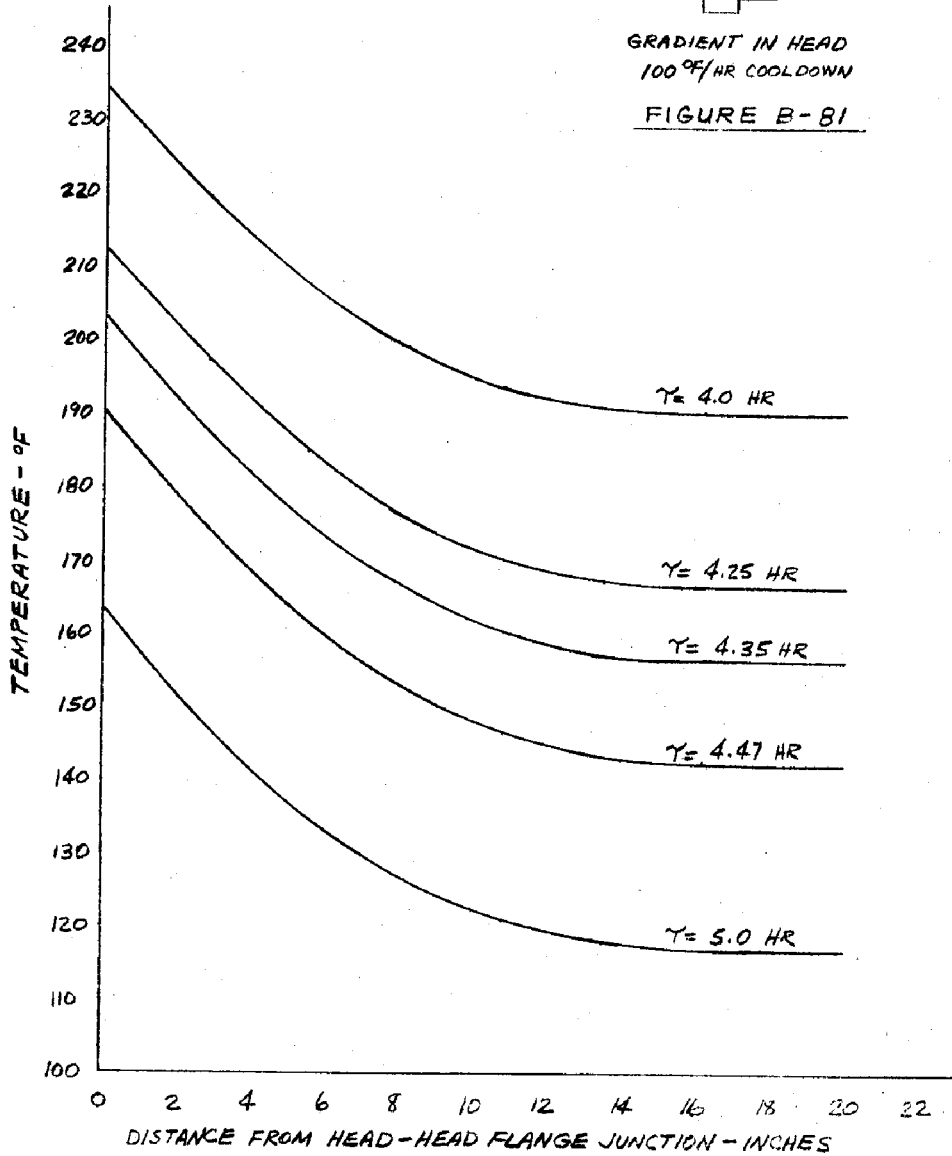
B-109

B-110



GRADIENT IN HEAD  
100 °F/HR COOLDOWN

FIGURE B-81



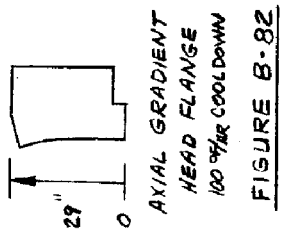
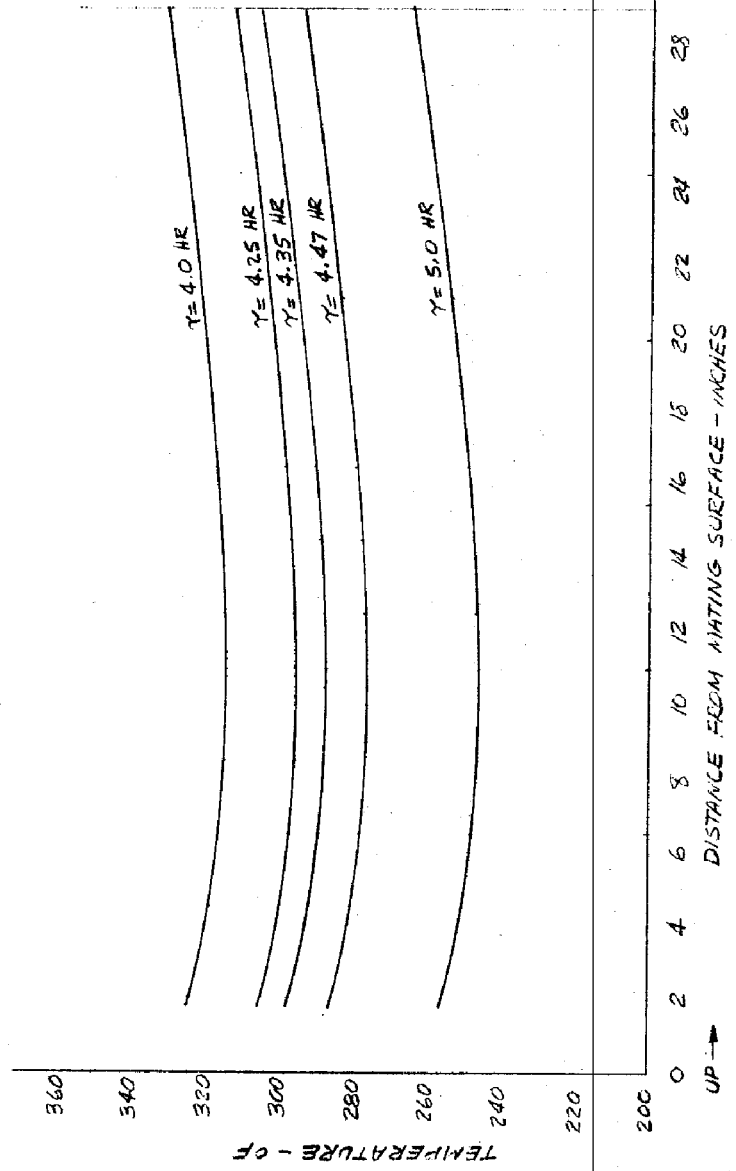
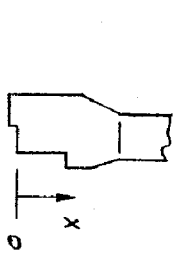


FIGURE B-82

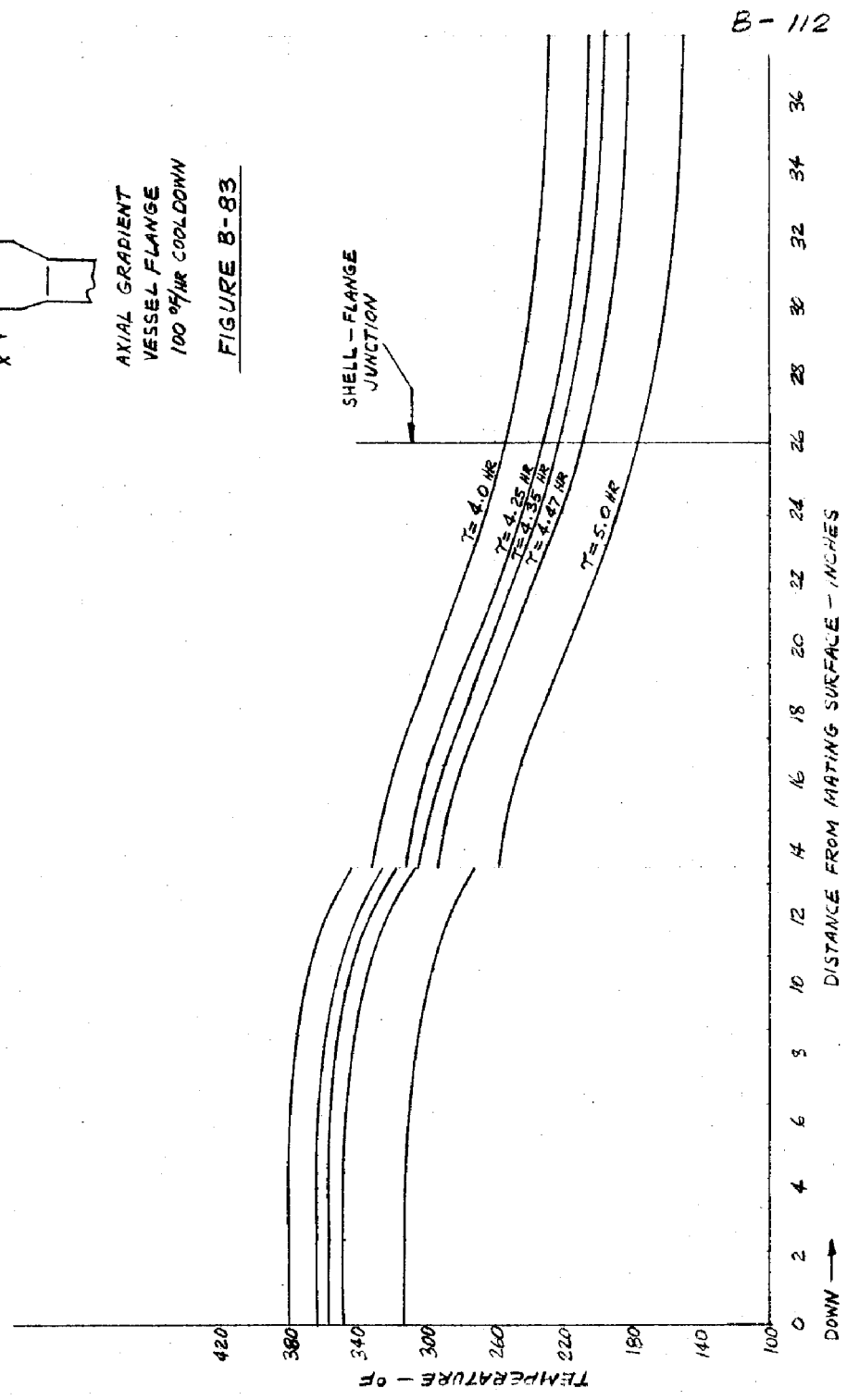


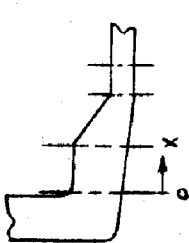
B-111



AXIAL GRADIENT  
VESSEL FLANGE  
100 °F/HR COOLDOWN

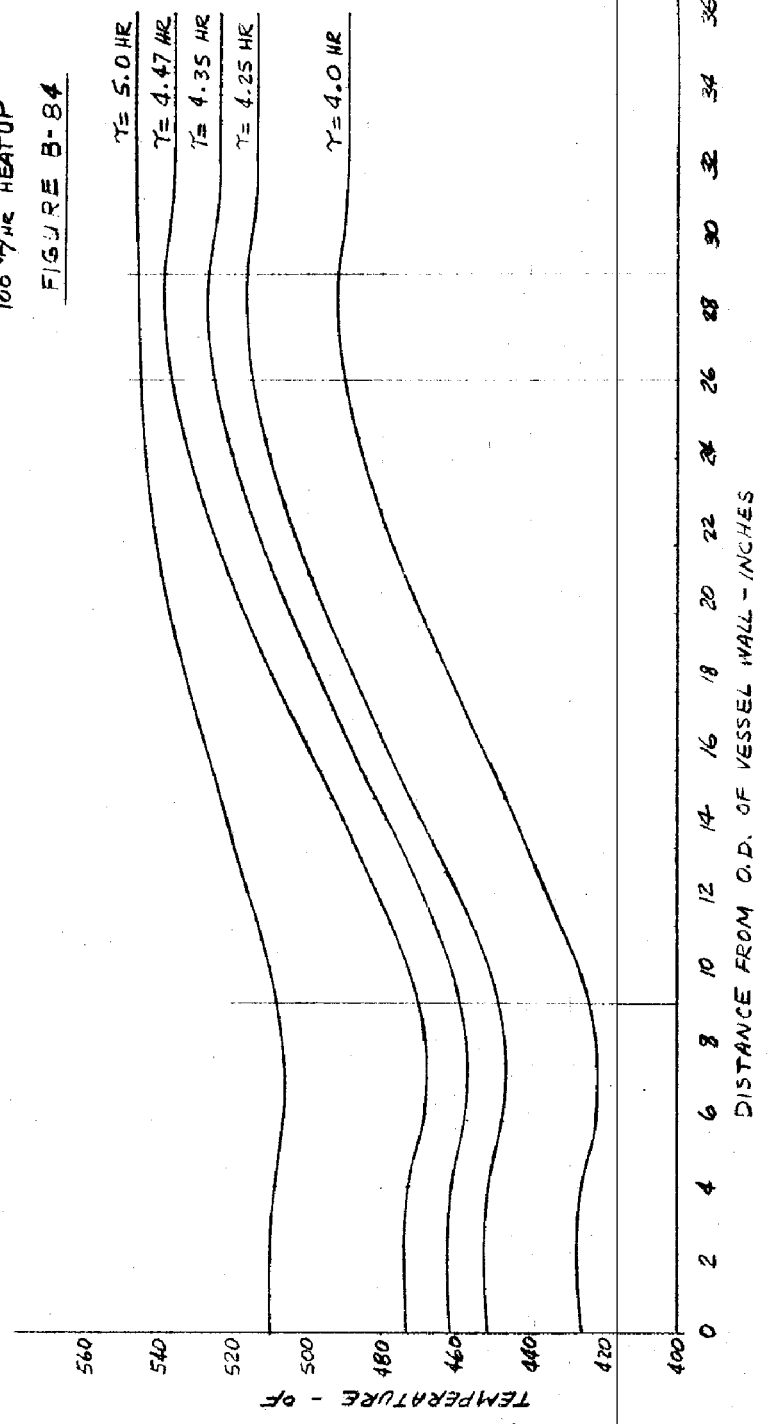
FIGURE B-83





AXIAL GRADIENT  
INLET NOZZLE WALL  
100 °F/HR HEATUP

FIGURE B-84



B-113

B-114

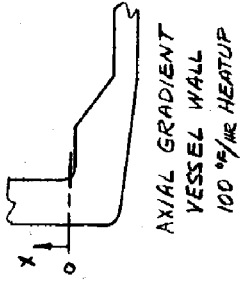
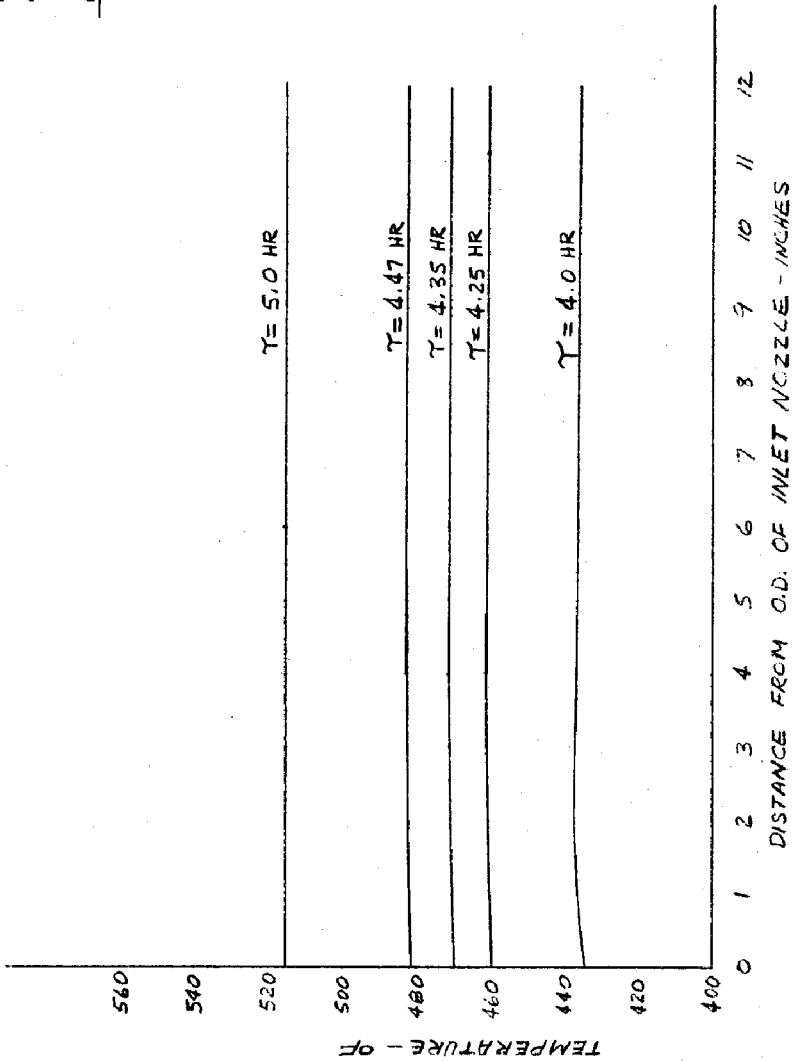
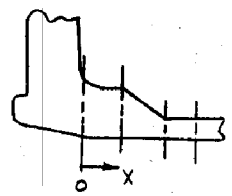
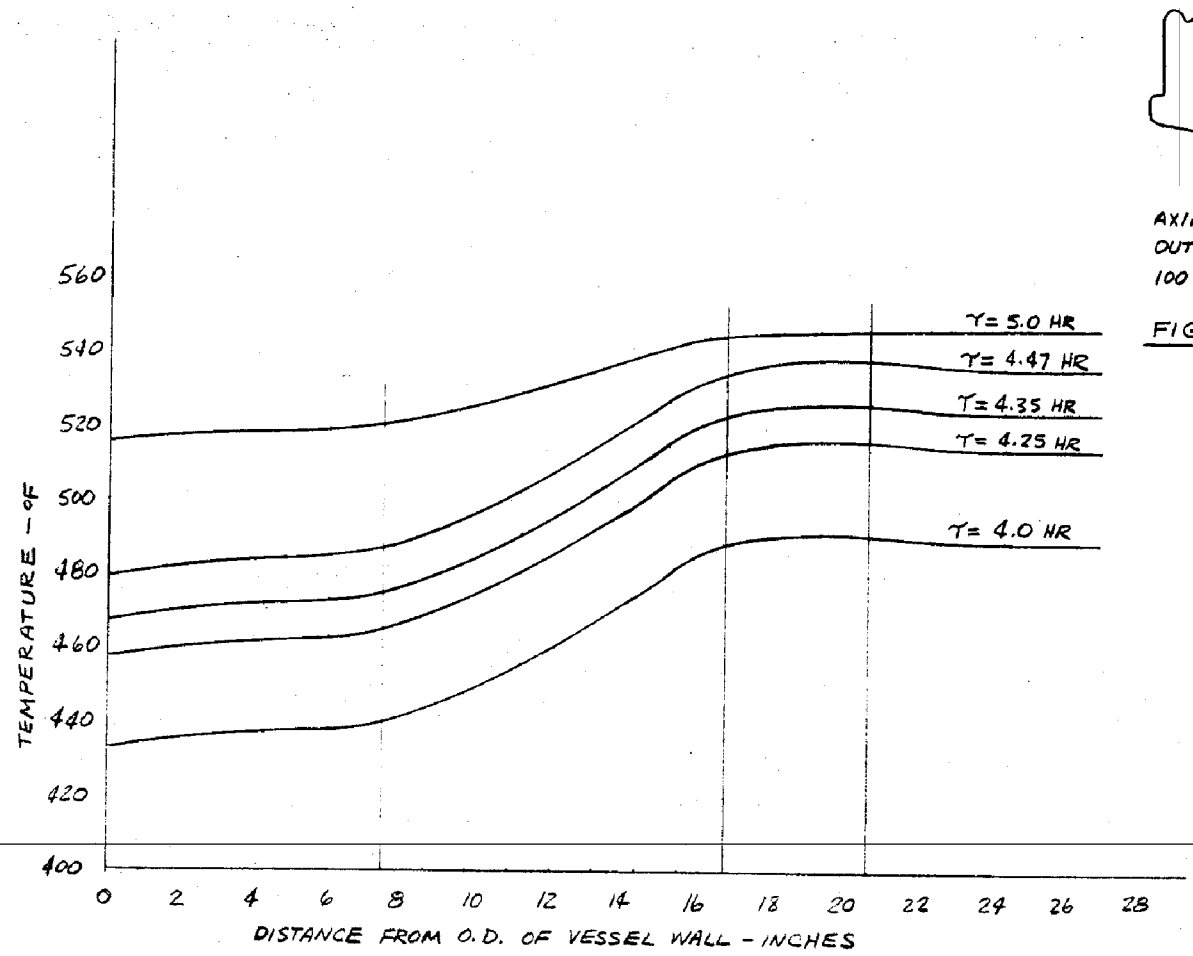


FIGURE B-85





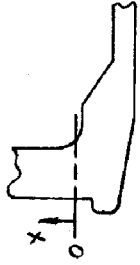
AXIAL GRADIENT  
OUTLET NOZZLE WALL  
100 °F/HR HEATUP

FIGURE B-86

B-115

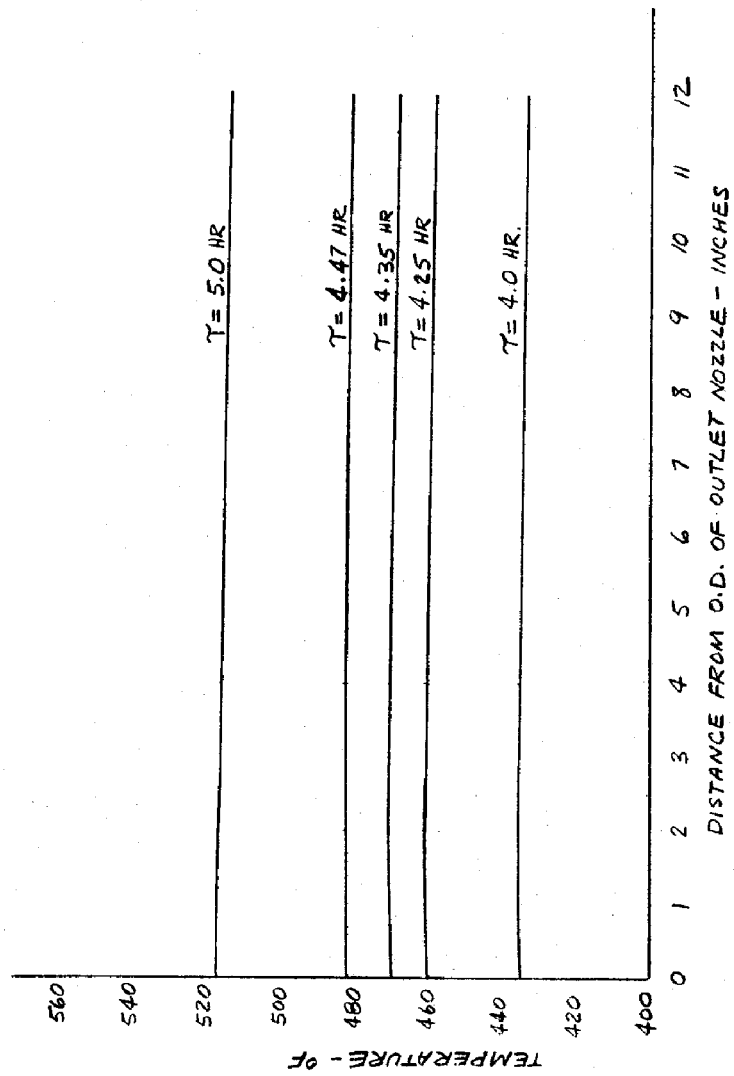


B-116

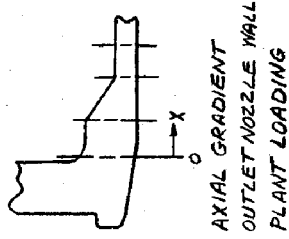


AXIAL GRADIENT  
VESSEL WALL  
100 °F/HR HEATUP

FIGURE B-87

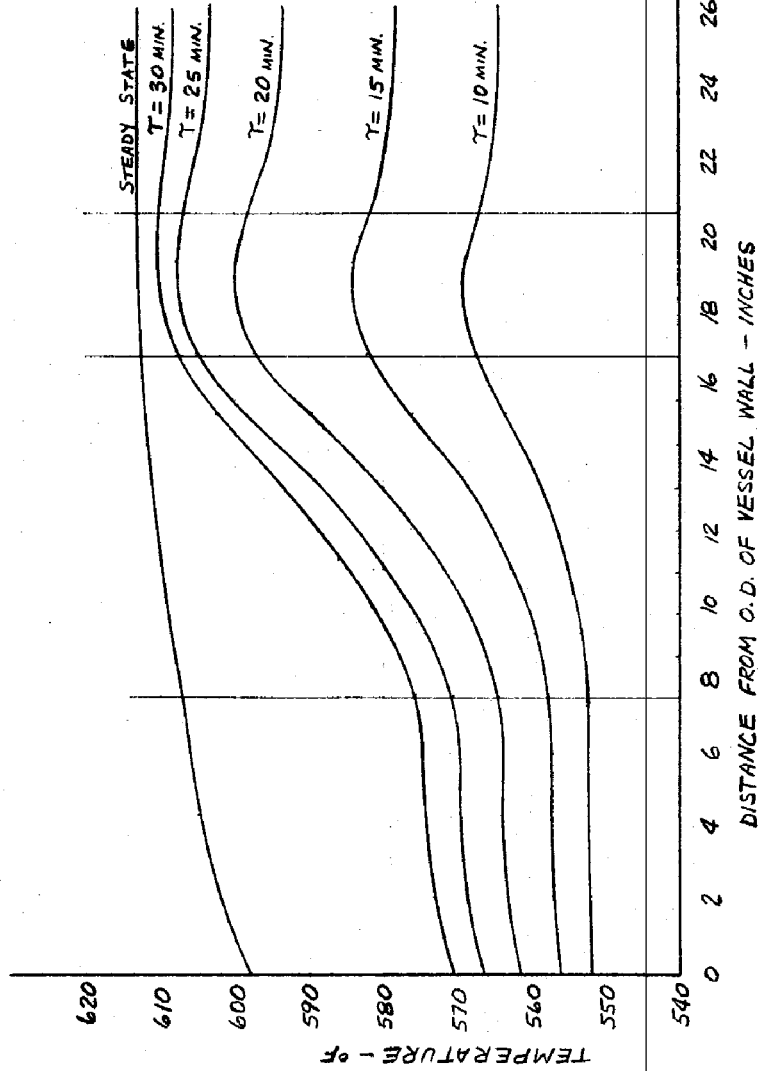


B-117



AXIAL GRADIENT  
OUTLET NOZZLE WALL  
PLANT LOADING

FIGURE B-88



B-118

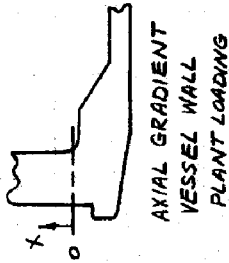
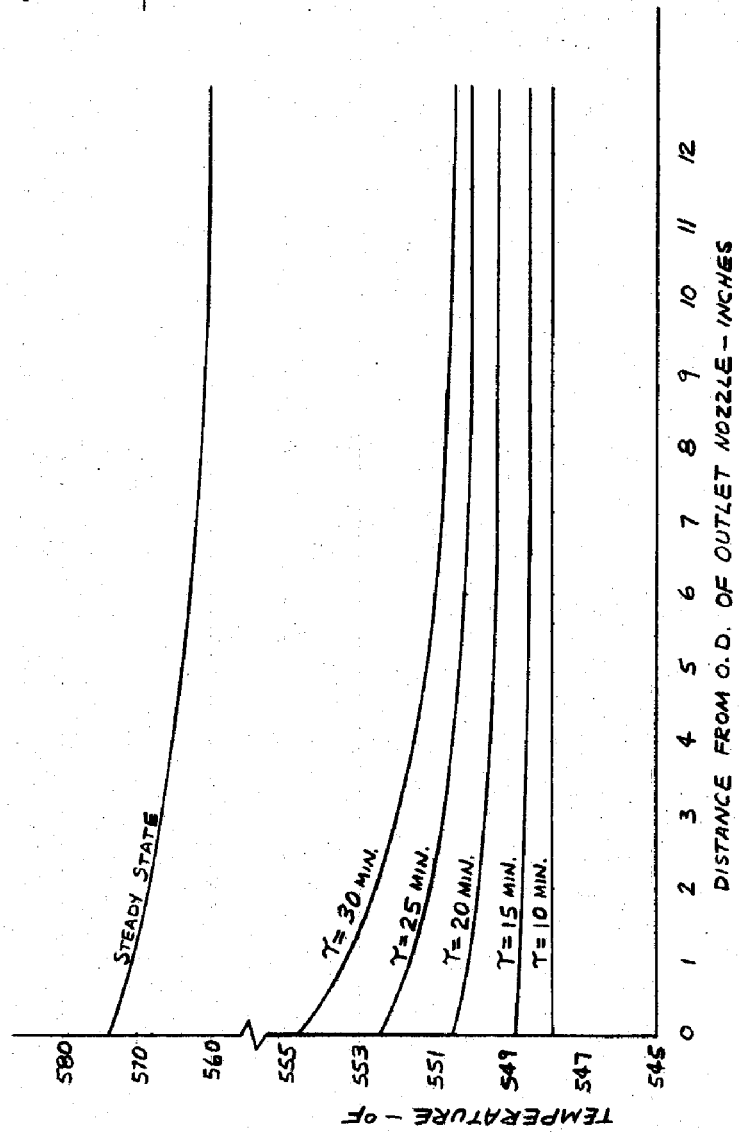
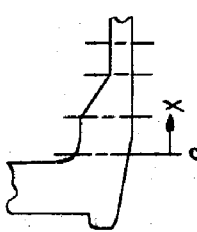


FIGURE B-89

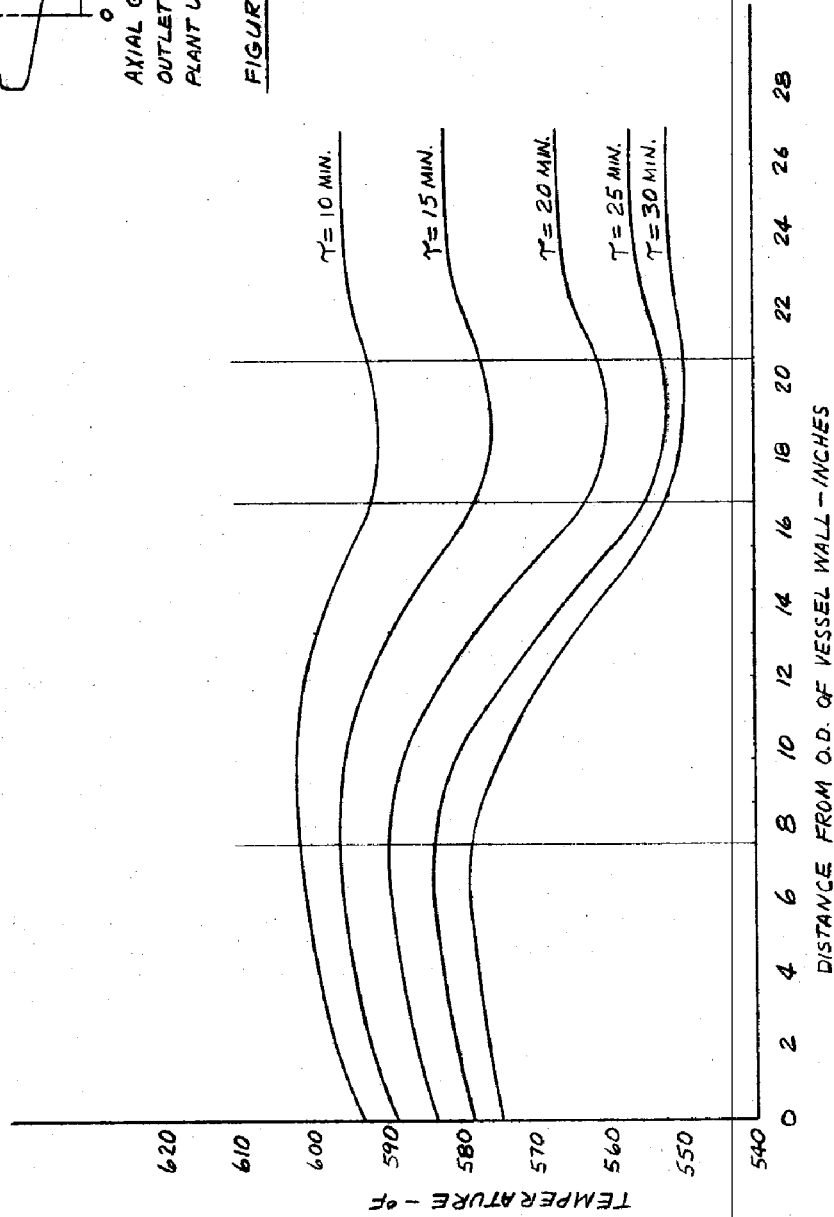


B-119

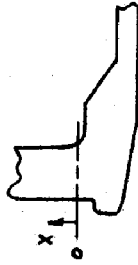


AXIAL GRADIENT  
OUTLET NOZZLE WALL  
PLANT UNLOADING

FIGURE B-90

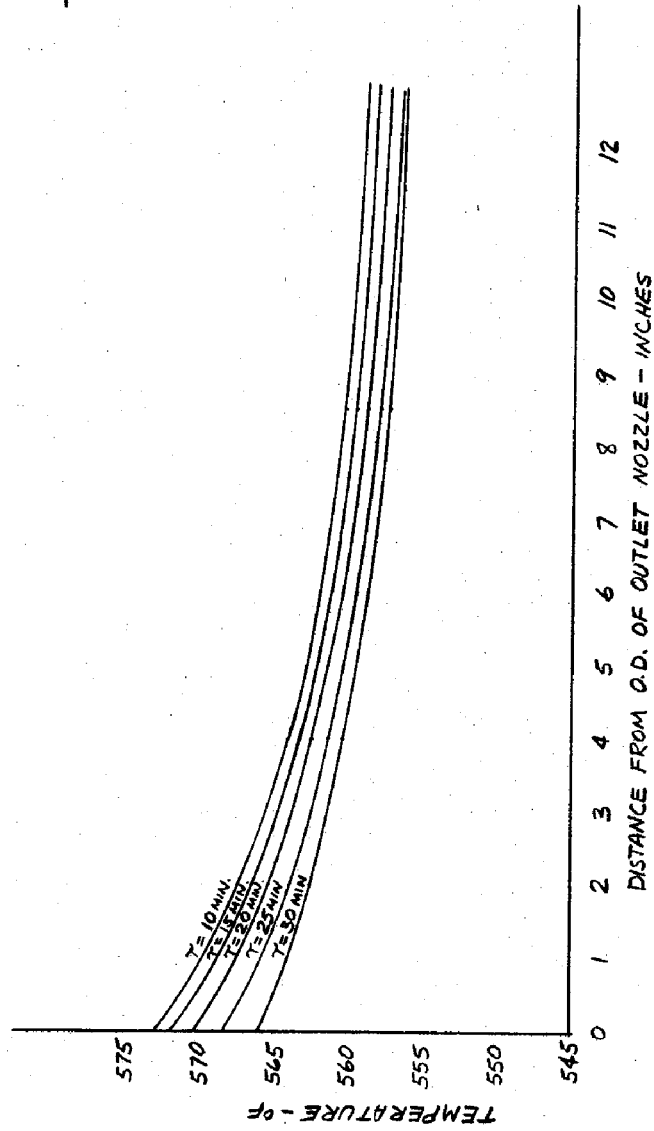


B-120



AXIAL GRADIENT  
VESSEL WALL  
PLANT UNLOADING

FIGURE B-91



## COMBUSTION ENGINEERING, INC.

ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-121 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_

BY \_\_\_\_\_

DESCRIPTION HEAD AND VESSEL FLANGES

CHECK DATE \_\_\_\_\_

BY \_\_\_\_\_

 $T_{MEAN} - T_{SURFACE}$  FOR OPERATING TRANSIENTS

TRANSIENT	TIME	$T_{MEAN} - T_{SURFACE}$
PLANT LOADING	0	0
	20 MIN.	-7.8 °F
PLANT UNLOADING	0	0
	20 MIN.	7.8 °F
10% STEP INCREASE (INITIAL POWER 90%)	0	0
	100 SEC.	11.2 °F
	225 SEC.	1.7 °F
10% STEP DECREASE (INITIAL POWER 100%)	0	0
	40 SEC.	-9.3 °F
	100 SEC.	-13.3 °F
	260 SEC.	-1.3 °F
STEP REDUCTION 100% TO 50% LOAD	0	0
	2 MIN.	-12.0 °F
	3.2 MIN.	-15.0 °F
	10.4 MIN.	0
REACTOR TRIP FROM FULL POWER	0	0
	10 SEC. 65 SEC.	-9.5 °F 8.5 °F
LOSS OF FLOW, ONE PUMP	0	0
	12 SEC.	33.3 °F
LOSS OF LOAD	0	0
	10 SEC.	-30.2 °F
	28 SEC.	-41.2 °F
	160 SEC.	4.8 °F
STEAM BREAK	0	0
	33 SEC.	117 °F
	54 SEC.	197 °F

COMBUSTION ENGINEERING, INC.  
ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

NUMBER \_\_\_\_\_

SHEET B-122 OF \_\_\_\_\_

CHARGE NO. \_\_\_\_\_

DATE \_\_\_\_\_ BY \_\_\_\_\_

DESCRIPTION INLET NOZZLE

CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

$T_{MEAN} - T_{SURFACE}$  FOR OPERATING TRANSIENTS

TRANSIENT	TIME	$T_{MEAN} - T_{SURFACE}$
PLANT LOADING	0 20 MIN.	0 -7.8 °F
PLANT UNLOADING	0 20 MIN.	0 7.8 °F
10% STEP INCREASE (INITIAL POWER 90%)	0 100 SEC. 225 SEC.	0 11.2 °F 1.7 °F
10% STEP DECREASE (INITIAL POWER 100%)	0 40 SEC. 100 SEC. 260 SEC.	0 -9.3 °F -13.3 °F -1.3 °F
STEP REDUCTION 100% TO 50% LOAD	0 2 MIN. 3.2 MIN. 10.4 MIN.	0 -12.0 °F -15.0 °F 0
REACTOR TRIP FROM FULL POWER	0 10 SEC. 65 SEC.	0 -9.5 °F 8.5 °F
LOSS OF FLOW, ONE PUMP	0 12 SEC.	0 33.3 °F
LOSS OF LOAD	0 10 SEC. 28 SEC. 160 SEC.	0 -30.2 °F -41.2 °F 4.8 °F
STEAM BREAK	0 33 SEC. 54 SEC.	0 117 °F 197 °F

COMBUSTION ENGINEERING, INC.

ENGINEERING DEPARTMENT, CHATTANOOGA, TENN.

CHARGE NO. 17765

DESCRIPTION OUTLET NOZZLE

NUMBER \_\_\_\_\_

SHEET B-123 OF \_\_\_\_\_

DATE \_\_\_\_\_

BY \_\_\_\_\_

CHECK DATE \_\_\_\_\_

BY \_\_\_\_\_

$T_{MEAN} - T_{SURFACE}$  FOR OPERATING TRANSIENTS

TRANSIENT	TIME	NOZZLE WALL AT BI-METALLIC WELD		THIN SECTION OF NOZZLE WHERE TAPER ENDS		NOZZLE WALL AT BEGINNING OF TAPERED SECTION		NOZZLE WALL AT VESSEL-NOZZLE JUNCTION		VESSEL WALL AT VESSEL-NOZZLE JUNCTION	
		$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)
10% STEP INCREASE INITIAL POWER 90%	0	584	0	584	0	584	0	584	0	584	0
	100 SEC.	584	11.2	584	11.2	584	11.2	584	11.2	584	11.2
	225 SEC.	584	1.7	584	1.7	584	1.7	584	1.7	584	1.7
10% STEP DECREASE INITIAL POWER 100%	0	584	0	584	0	584	0	584	0	584	0
	40 SEC.	584	-9.3	584	-9.3	584	-9.3	584	-9.3	584	-9.3
	100 SEC.	584	-13.3	584	-13.3	584	-13.3	584	-13.3	584	-13.3
	260 SEC.	584	-1.3	584	-1.3	584	-1.3	584	-1.3	584	-1.3
STEP REDUCTION FROM 100% - 50% LOAD	0	613	0	613	0	607	-6	598	-15	574	19
	2 MIN.	616	-9	616	-9	608	-17	599	-26	575	6
	3.5 MIN.	620	-8	620	-8	609	-19	599	-29	575	5
	6 MIN.	620	5	620	5	609	-6	600	-15	576	12
	11 MIN.	604	14	604	14	606	16	597	7	575	21
	15.5 MIN.	591	11	591	11	602	22	594	14	574	22
17 MIN.	588	8	588	8	601	21	593	13	574	22	
REACTOR TRIP FROM FULL POWER	0	613	0	613	0	607	-6	598	-15	574	19
	5 SEC.	613	10	612	9	607	4	598	-5	574	11
	10 SEC.	612	20	612	20	607	15	598	6	574	10
	15 SEC.	611	27	611	27	607	23	598	14	574	11
	40 SEC.	605	46	604	45	605	46	596	37	574	20
	90 SEC.	593	46	592	45	603	56	594	47	573	28



COMBUSTION ENGINEERING, INC. NUMBER \_\_\_\_\_  
 ENGINEERING DEPARTMENT, CHATTANOOGA, TENN. SHEET B-124 OF \_\_\_\_\_  
 CHARGE NO. 17765 DATE \_\_\_\_\_ BY \_\_\_\_\_  
 DESCRIPTION OUTLET NOZZLE CHECK DATE \_\_\_\_\_ BY \_\_\_\_\_

$$T_{MEAN} - T_{SURFACE} \text{ FOR OPERATING TRANSIENTS}$$

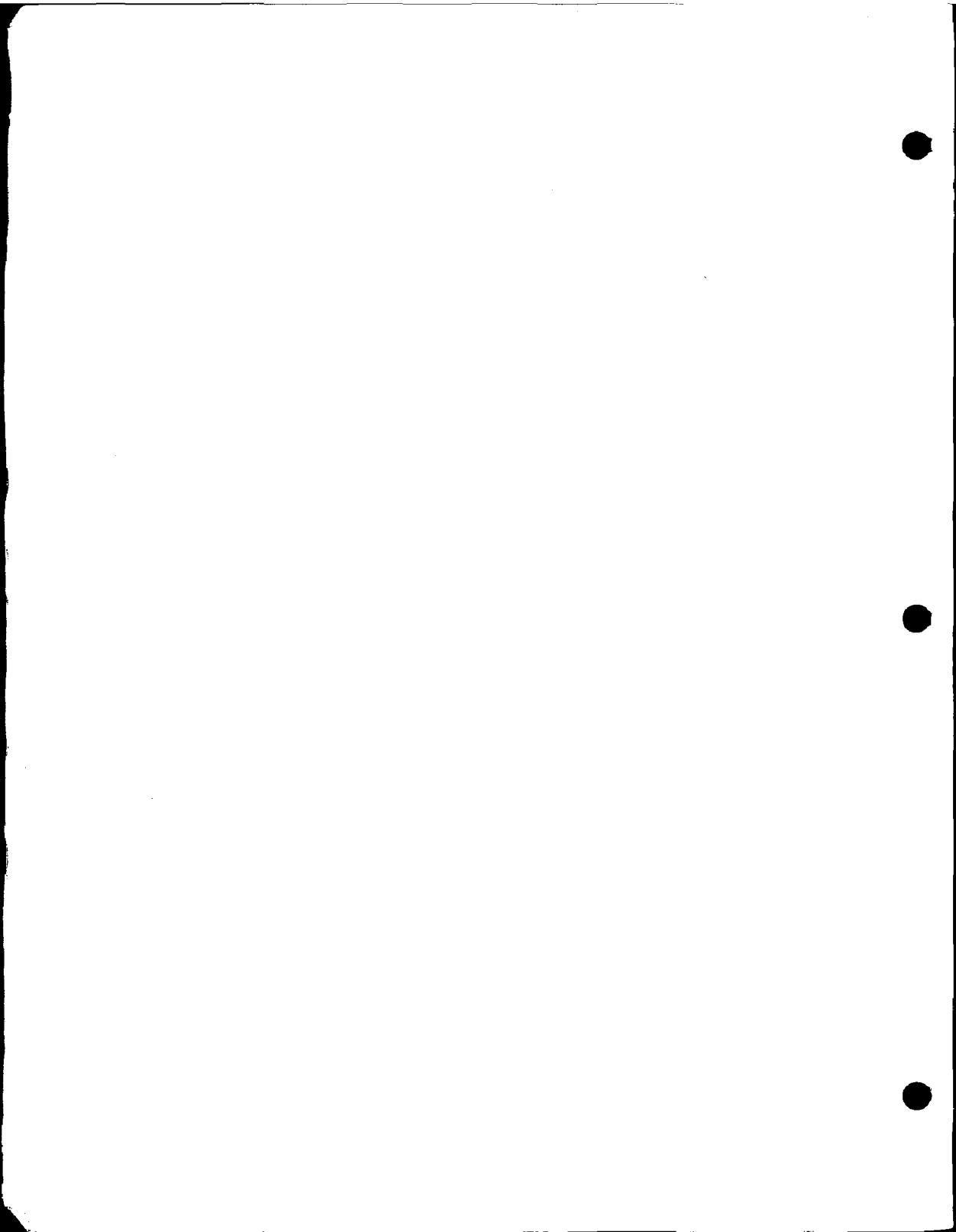
TRANSIENT	TIME (SEC.)	NOZZLE WALL AT BI-METALLIC WELD		THIN SECTION OF NOZZLE WHERE TAPER ENDS		NOZZLE WALL AT BEGINNING OF TAPERED SECTION		NOZZLE WALL AT VESSEL-NOZZLE JUNCTION		VESSEL WALL AT VESSEL-NOZZLE JUNCTION	
		$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)	$T_M$ (°F)	$T_M - T_S$ (°F)
LOSS OF FLOW ONE PUMP	0	613	0	613	0	607	-6	598	-15	574	19
	12	613	0	613	0	607	-6	598	-15	573	52
	13	613	33	612	32	607	27	598	18	573	50
	14	613	48	612	47	607	42	598	33	573	45
	16	611	71	611	71	607	67	598	58	573	31
	18.5	609	89	609	89	606	86	597	77	573	21
	22	607	81	607	81	606	80	597	71	573	15
	30	603	75	602	74	605	77	596	68	573	15
LOSS OF LOAD	0	613	0	613	0	607	-6	598	-15	574	19
	7	614	-37	614	-37	607	-44	598	-53	574	-4
	12	616	-37	615	-38	608	-45	598	-55	574	-11
	20	618	-32	617	-33	608	-42	599	-51	574	-19
	26	618	-17	618	-17	608	-27	599	-36	575	-21
	34	618	3	618	3	608	-7	599	-16	575	-19
	60	613	29	613	29	607	23	598	14	576	3
	115	601	44	600	43	605	48	596	39	575	25
144	595	45	594	44	603	53	595	45	574	24	
STEAM BREAK	0	547	0	547	0	547	0	547	0	547	0
	33	547	117	547	117	547	117	547	117	547	117
	54	547	197	547	197	547	197	547	197	547	197

C-1

## APPENDIX C

## COMBUSTION ENGINEERING DRAWINGS

1. Control Rod Mechanism Housing - Details	E-232-051
2. Control Rod Penetrations - Details	E-232-052
3. Closure Head Forming and Welding	E-232-046
4. Closure Head Machining	E-232-047
5. Stud, Nut and Washer Details	E-232-049
6. Pressure Vessel Forming and Welding	E-232-042
7. Pressure Vessel Final Machining	E-232-044
8. Nozzle Details	E-232-045
9. Miscellaneous Attachments	E-232-050
10. Miscellaneous Details	E-232-055
11. Bottom Head Forming and Welding	E-232-043
12. Instrumentation Penetrations Assembly and Details - Bottom Head	E-232-056



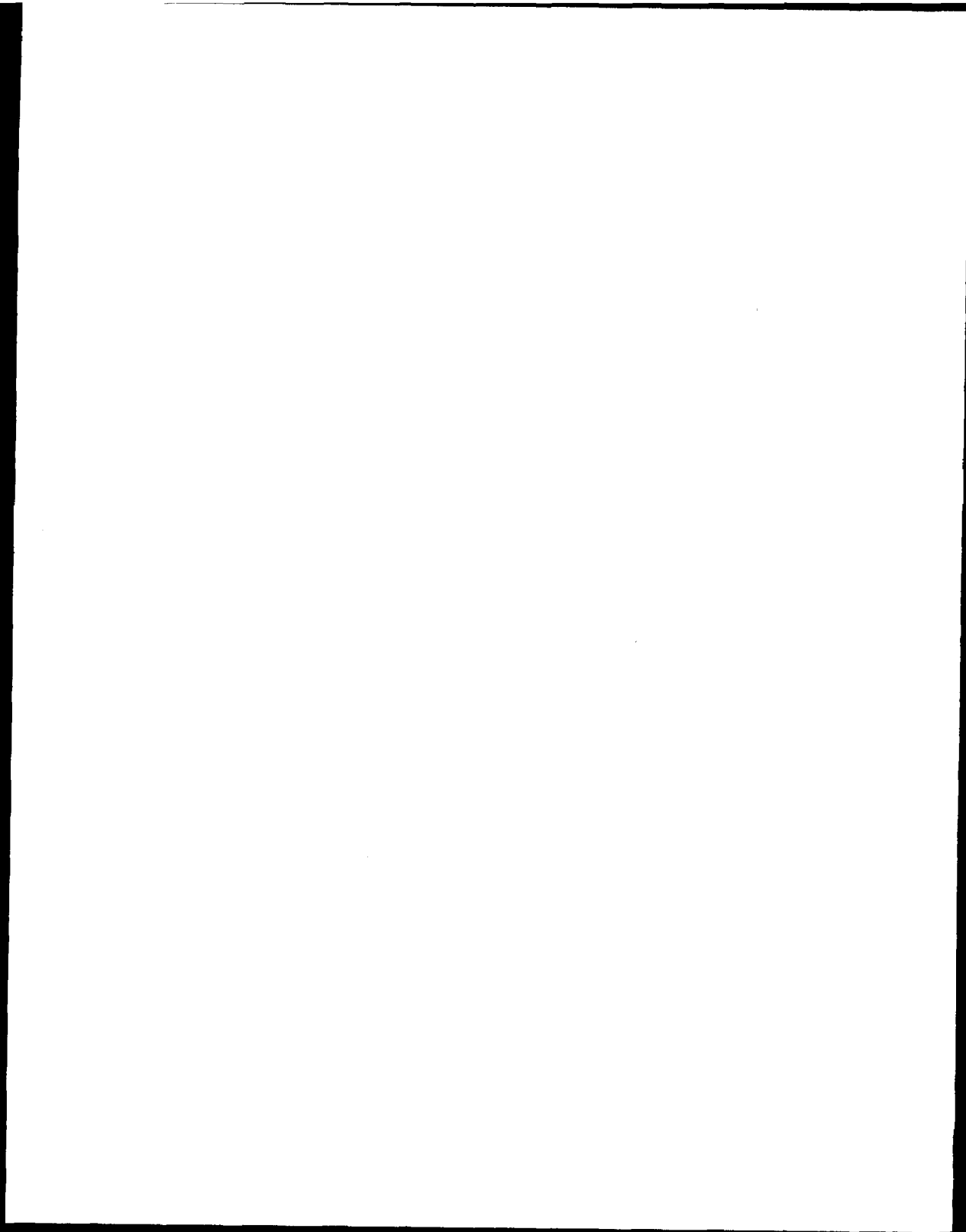
INDICATOR SHEET
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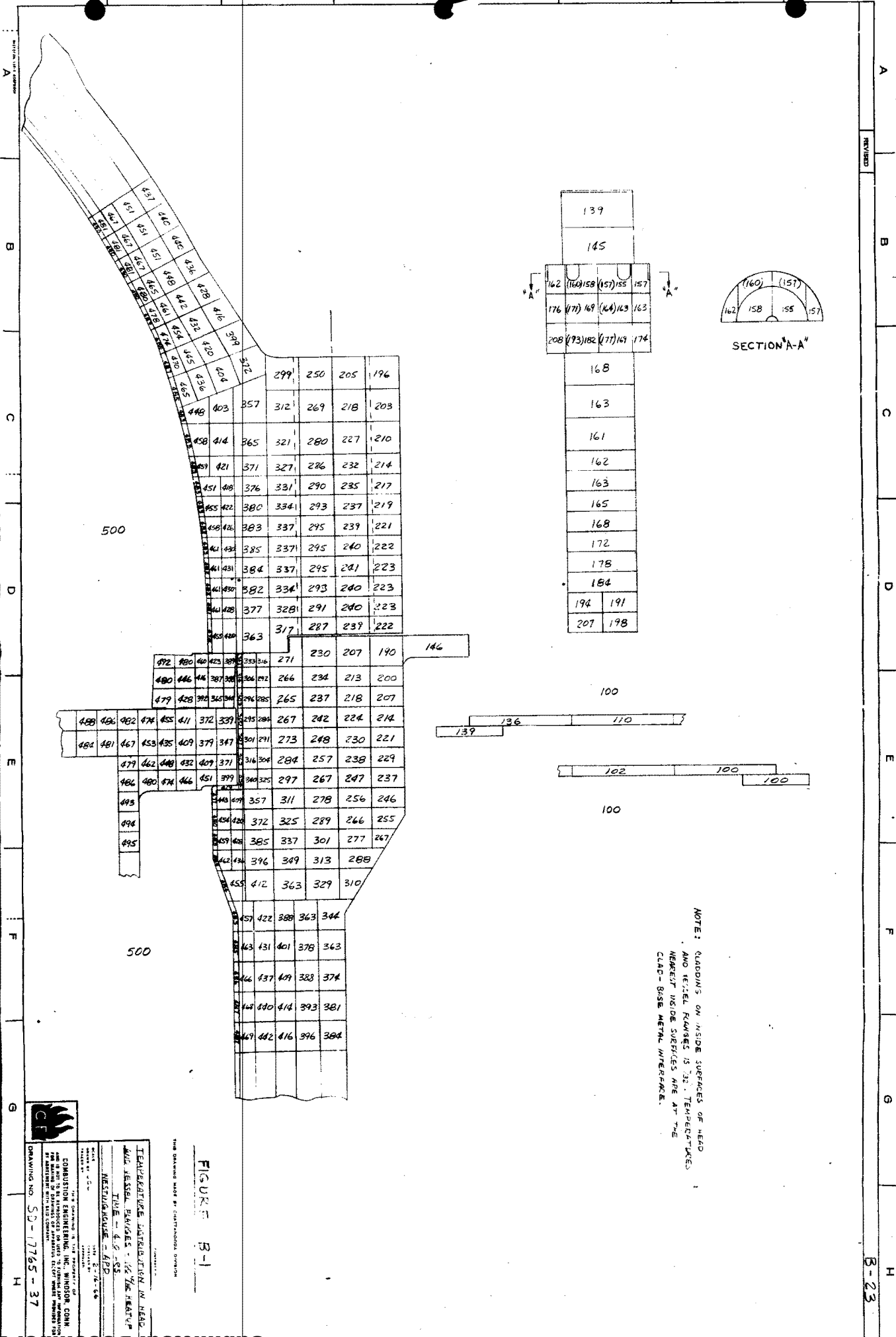
<u>(QTY)</u>	<i>SIZE</i>	<b>SHEET DESCRIPTIONS</b>
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( )	8.5x14	
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(12)	11x17	
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( )	Oversized	
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NOTE: QUADRICS ON INSIDE SURFACES OF HEAD AND HEAD FLANGES IS 32°. TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

**CFI**

COMBUSTION ENGINEERING, INC. - INDIANAPOLIS, IN  
 THE STATE OF INDIANA I hereby certify that I am a duly Licensed Professional Engineer in the State of Indiana under License No. 12345.

DATE: 12-2-05  
 TIME: 4:00 PM  
 PROJECT: NESTLINGHOUSE - APR  
 DRAWING NO. 50-1765-37

FIGURE B-1



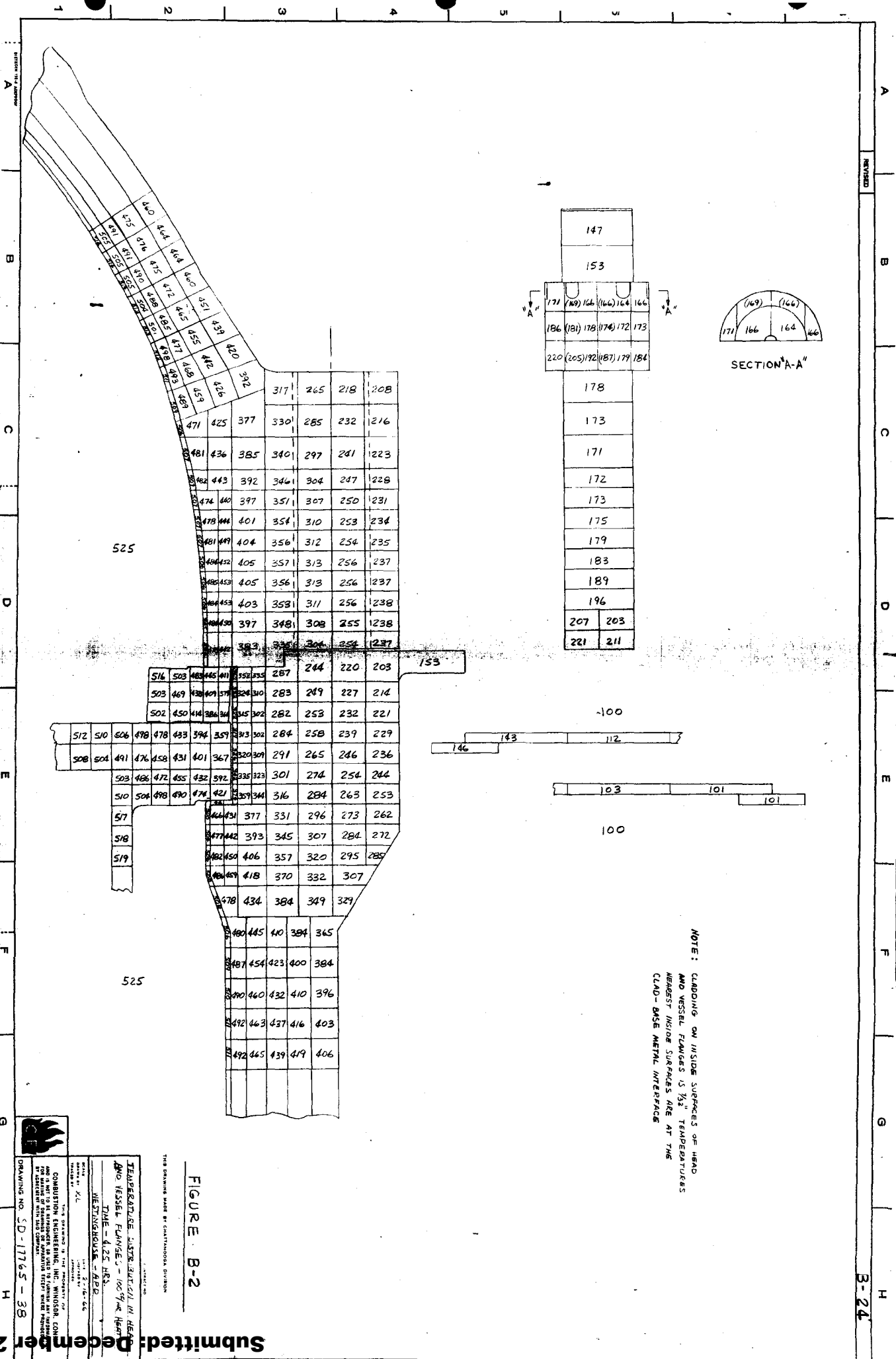


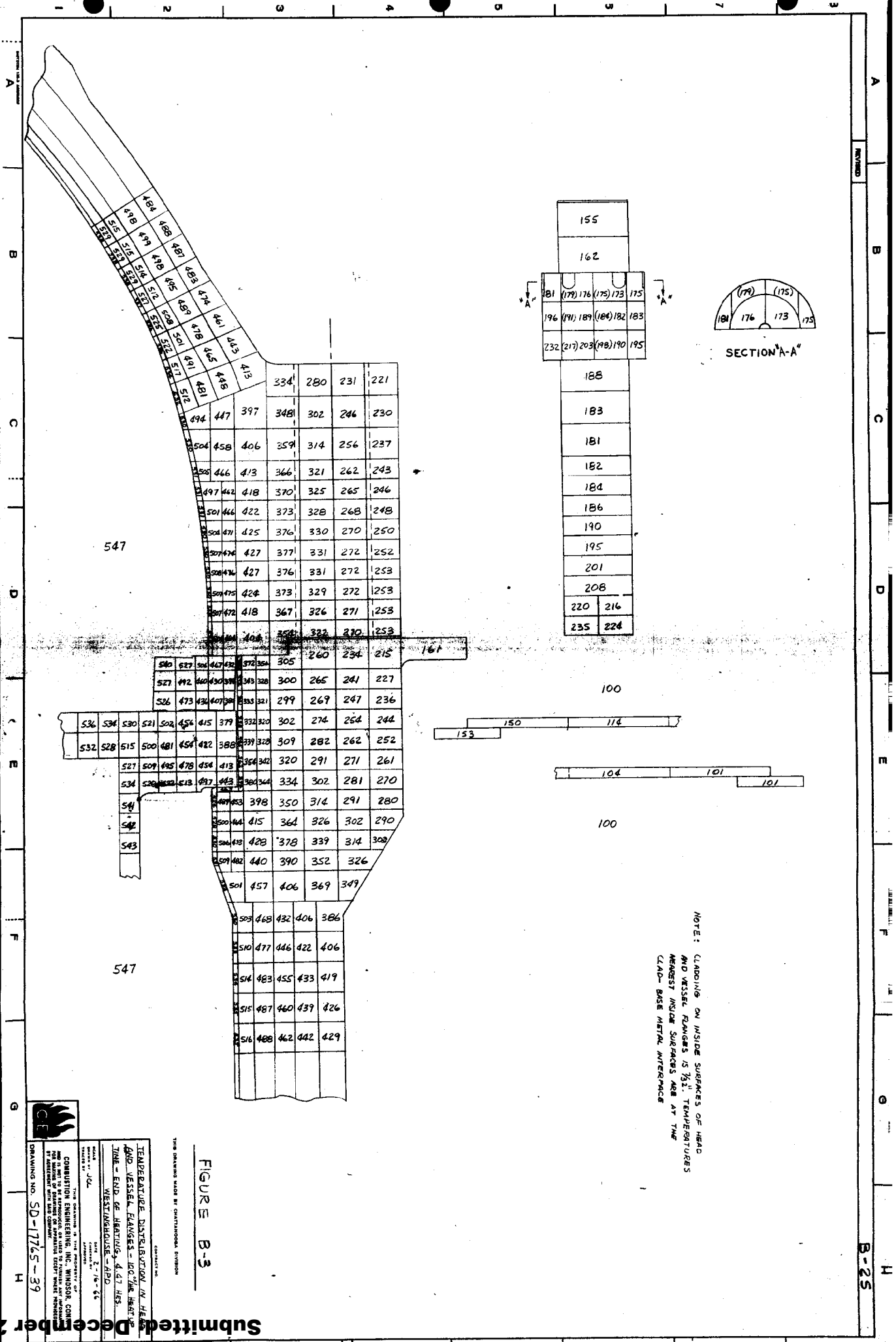
FIGURE B-2

NOTE: CLADDING ON INSIDE SURFACES OF HEAD AND VESSEL FLANGES IS 1/8" TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE

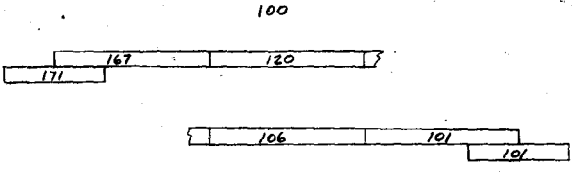
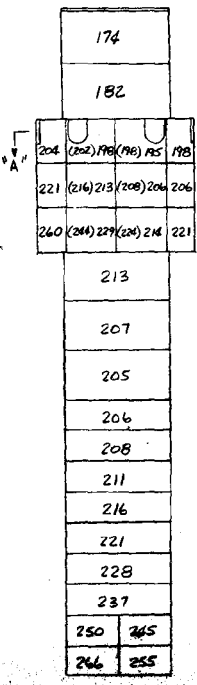
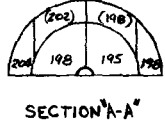
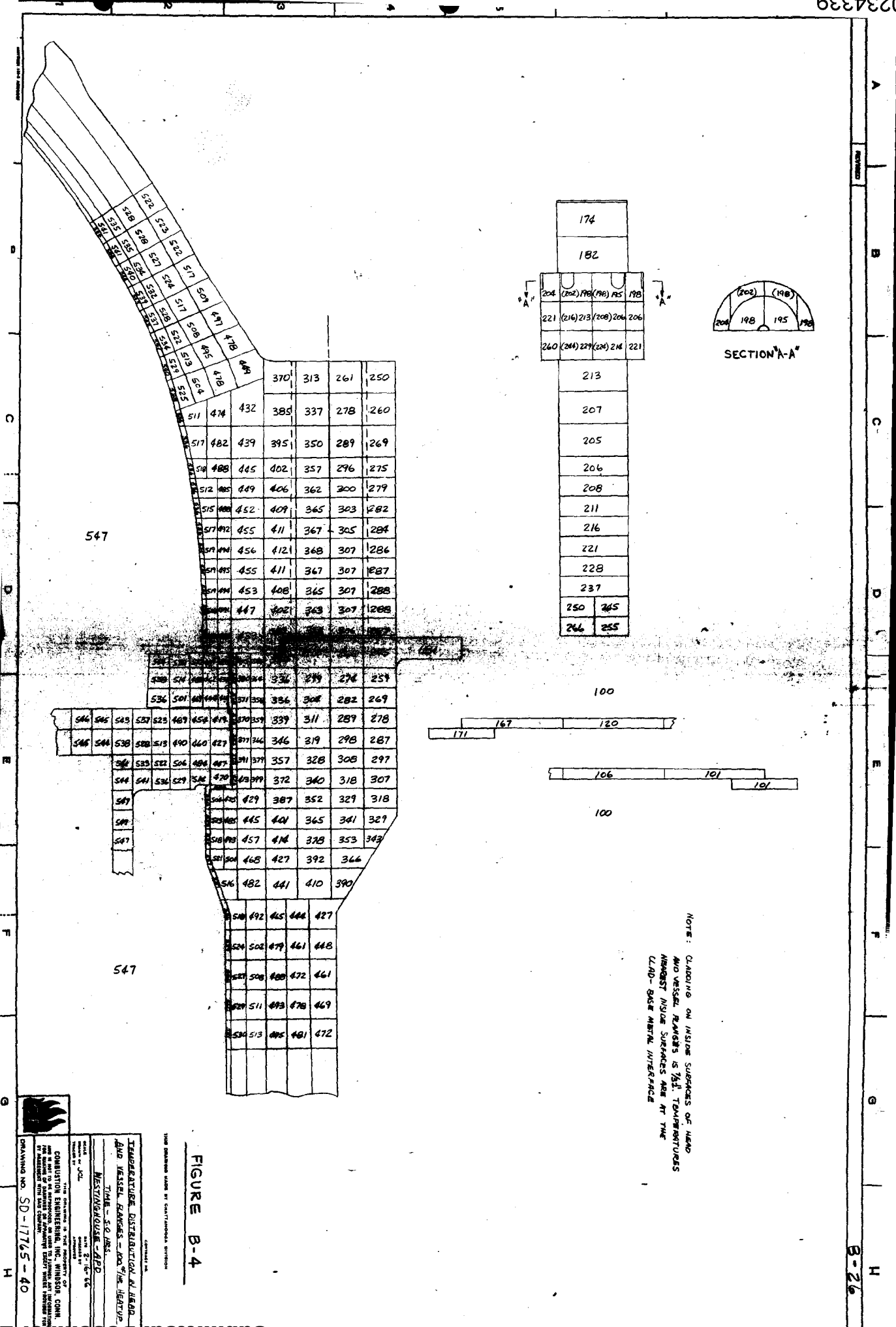
COMPOSITION ENGINEERING, INC., WINNIPEG, CANADA  
 DRAWING NO. SD-17765-38  
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NOTE: CLADDING ON INSIDE SURFACES OF HEAD AND VESSEL REMAINS AT 75% TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE LAD - BASE METAL INTERFACE

FIGURE B-4

TEMPERATURE DISTRIBUTION IN HEAD AND VESSEL FLANGES - 100% VIB. HEAVY - WESTHOUSE - APO  
 TIME - 5.0 HRS.  
 DRAWING NO. SD-17745-40



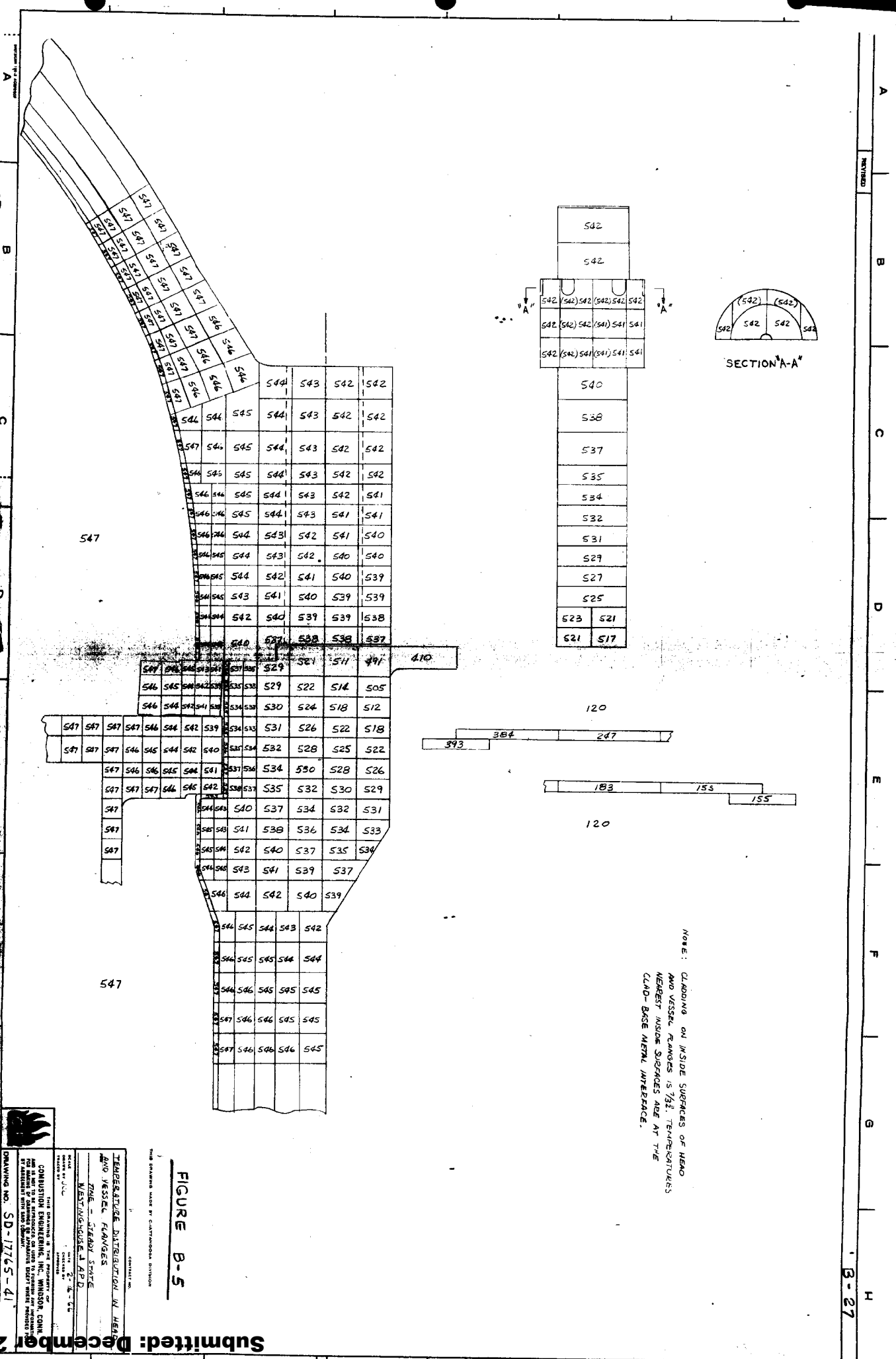


FIGURE B-5

THIS DRAWING IS THE PROPERTY OF  
 CONSOLIDATION ENGINEERING, INC., WINSTON-SALEM, NORTH CAROLINA  
 AND VESSEL FLANGES  
 TITLE - STEADY STATE  
 WASTINGHOUSE 4 APD  
 DATE 2-8-76  
 DRAWING NO. SD-17765-41

NOTE: CLADDING ON INSIDE SURFACES OF HEAD  
 AND VESSEL FLANGES IS 7/32" THICK. TEMPERATURES  
 NEAREST INSIDE SURFACES ARE AT THE  
 CLAD-BASE METAL INTERFACE.



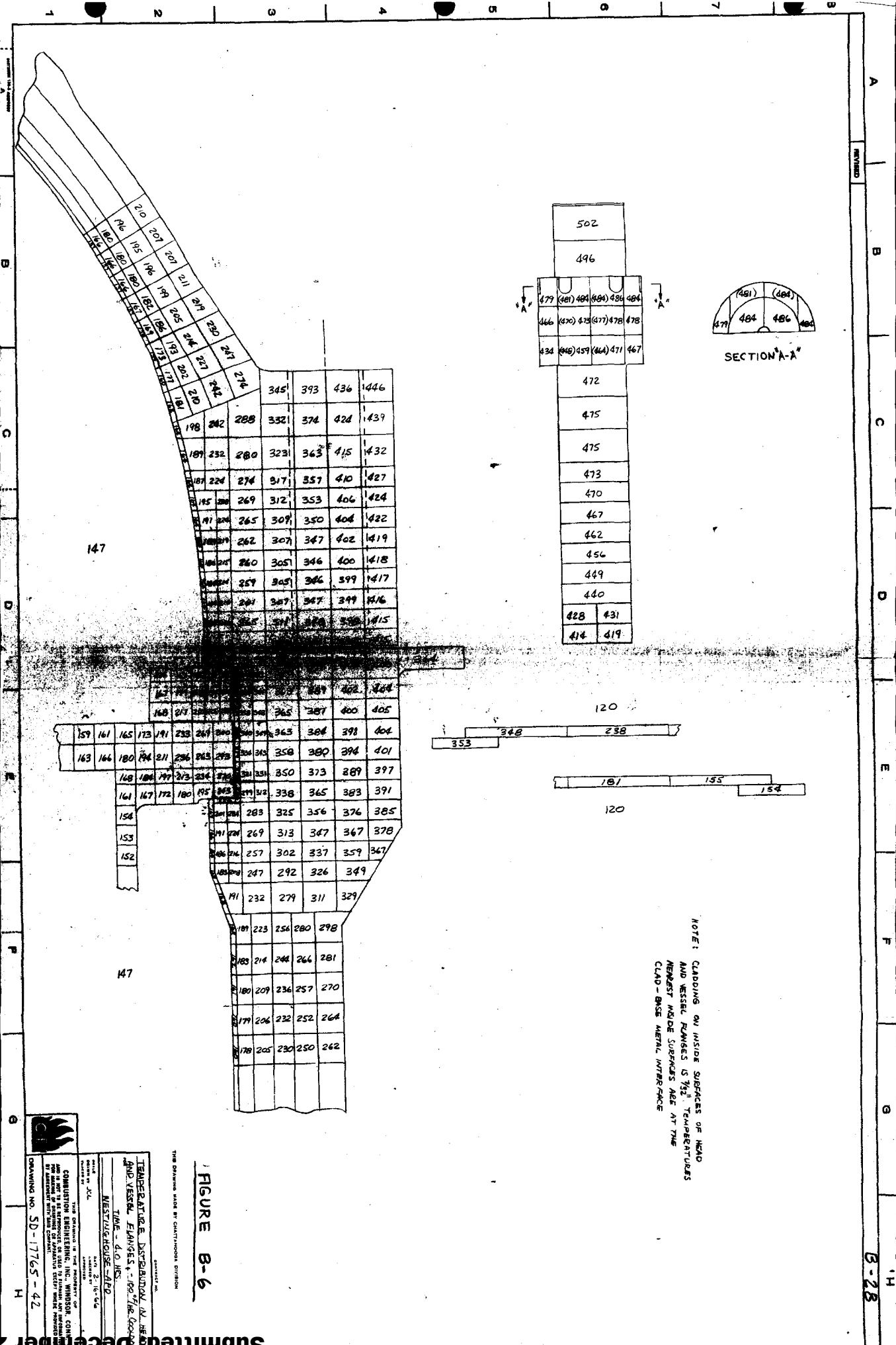


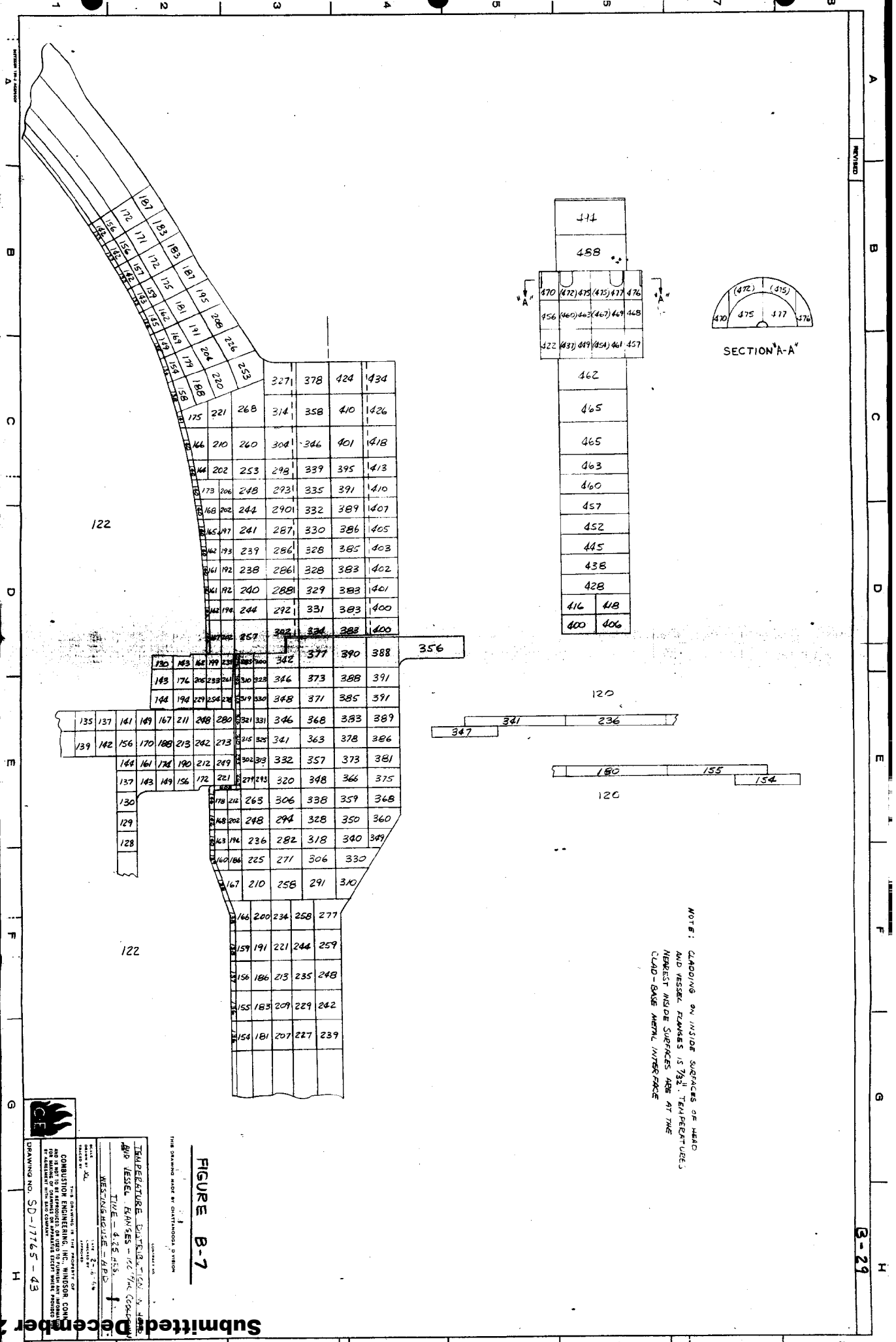
FIGURE B-6

DRAWING NO. SD-17765-42  
 TEMPERATURE DISTRIBUTION IN HEAD AND WHEEL FRAMES & 10% TAIL SECTION  
 TIME - 4.0 HRS  
 NESTLING HOUSE - AFD  
 DATE: 2-10-66  
 DRAWN BY: JCL  
 CHECKED BY: JCL  
 APPROVED BY: JCL  
 COMPLIANT WITH THE REQUIREMENTS OF THE NATIONAL BUREAU OF STANDARDS, INC. FOR THE DESIGN AND CONSTRUCTION OF AIRCRAFT STRUCTURES

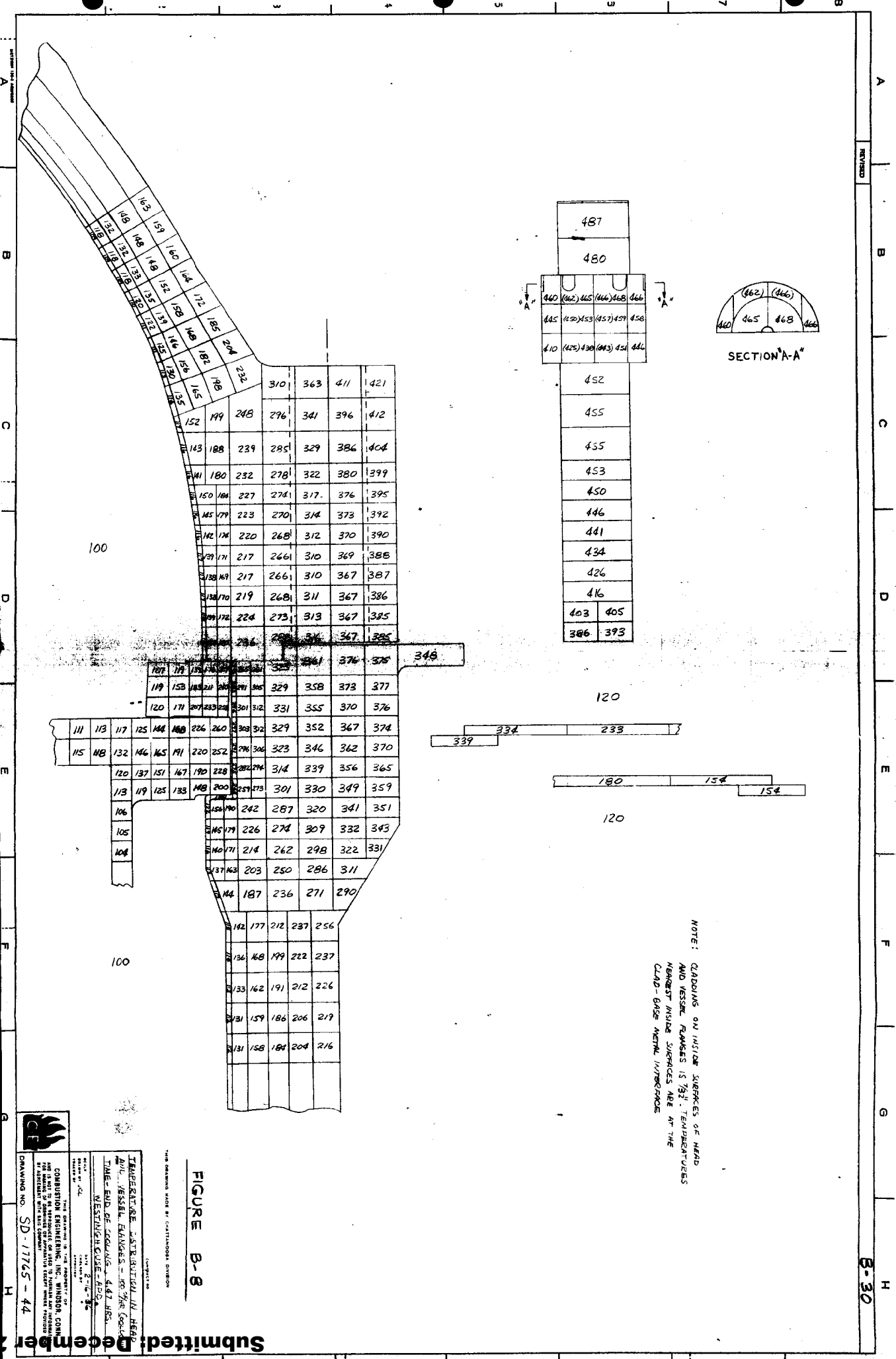
NOTE: CLADDING ON INSIDE SURFACES OF HEAD AND WHEEL RANGES IS 7% TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD - BRSS METAL INTERFACE

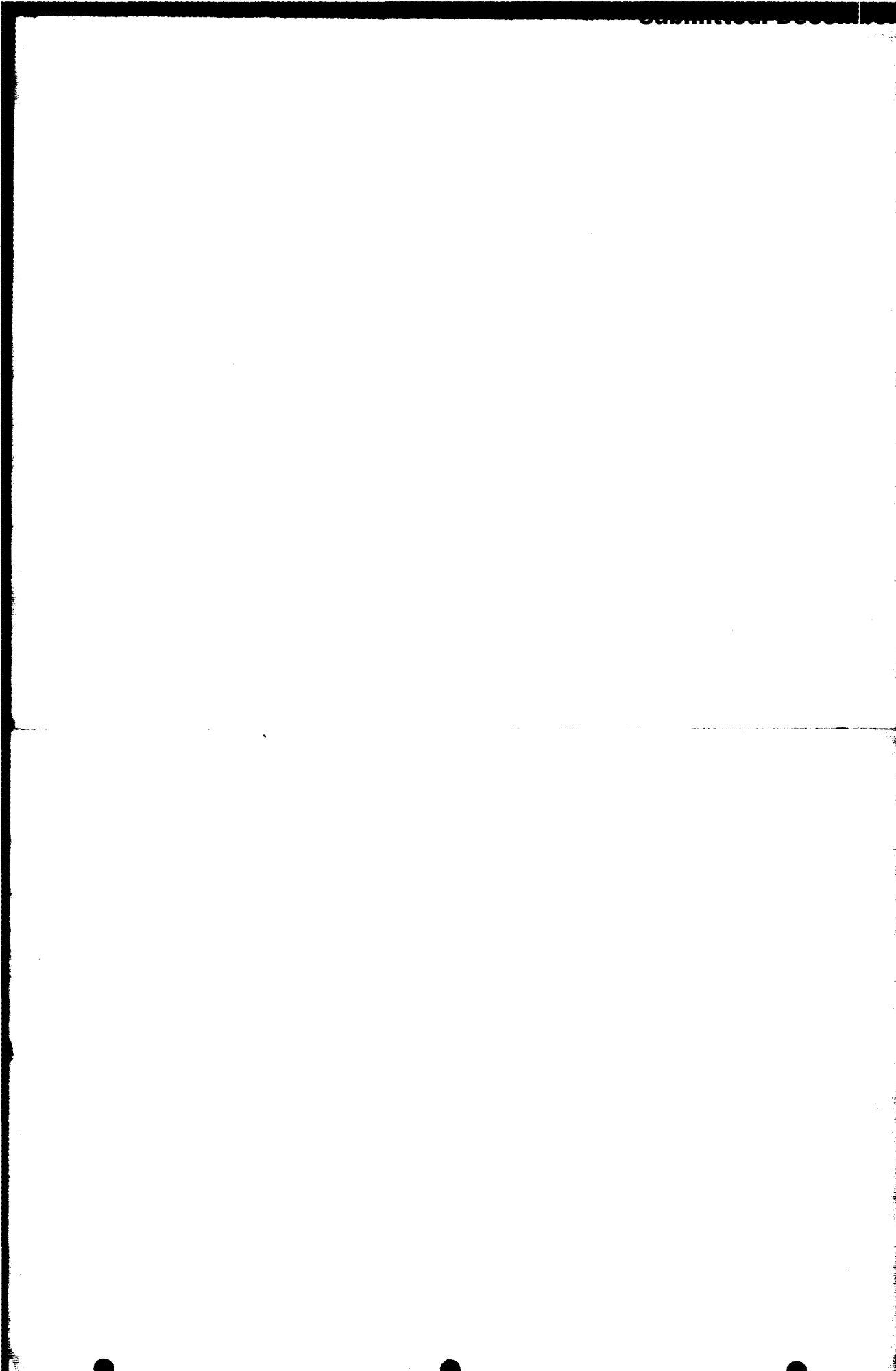












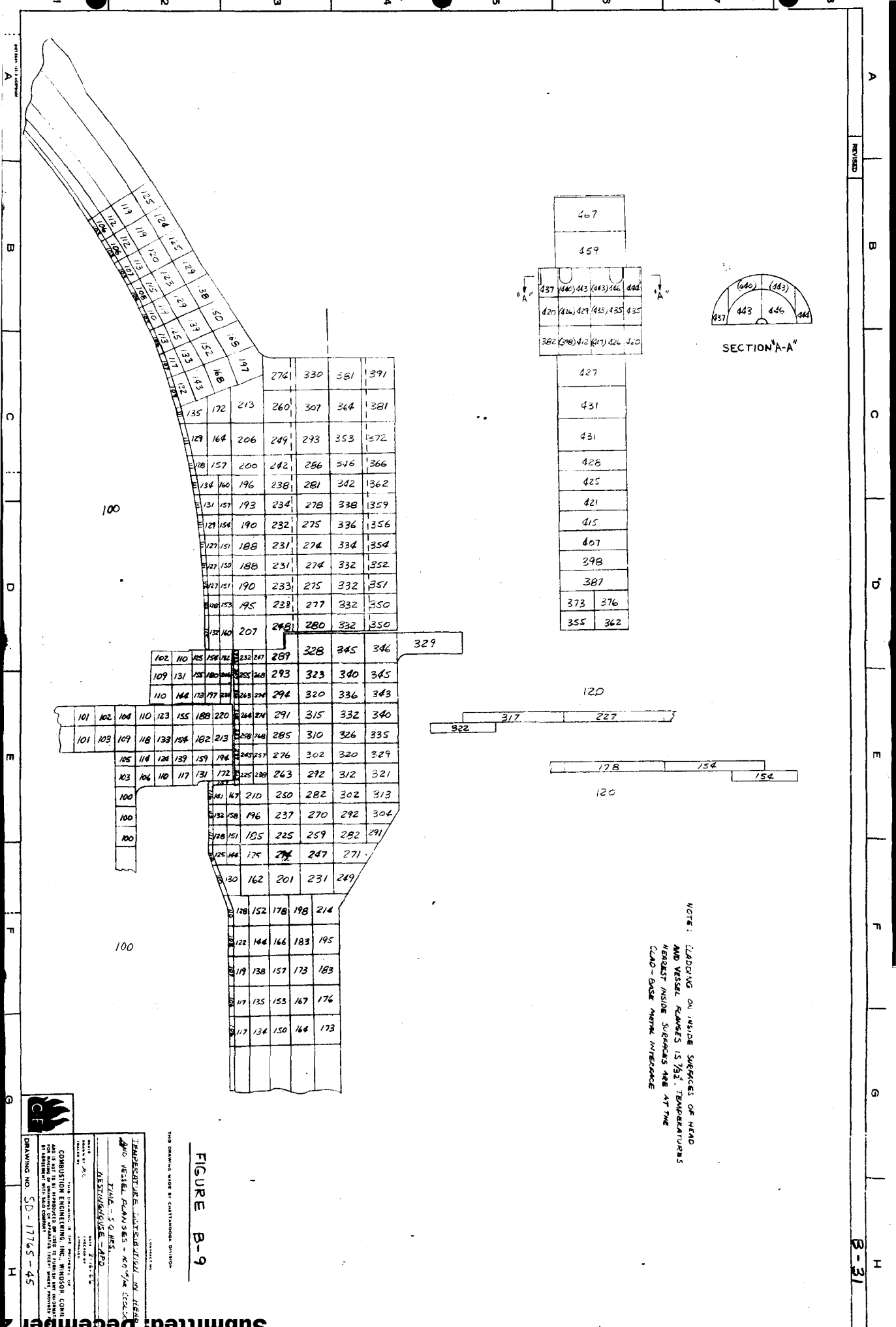


FIGURE B-9

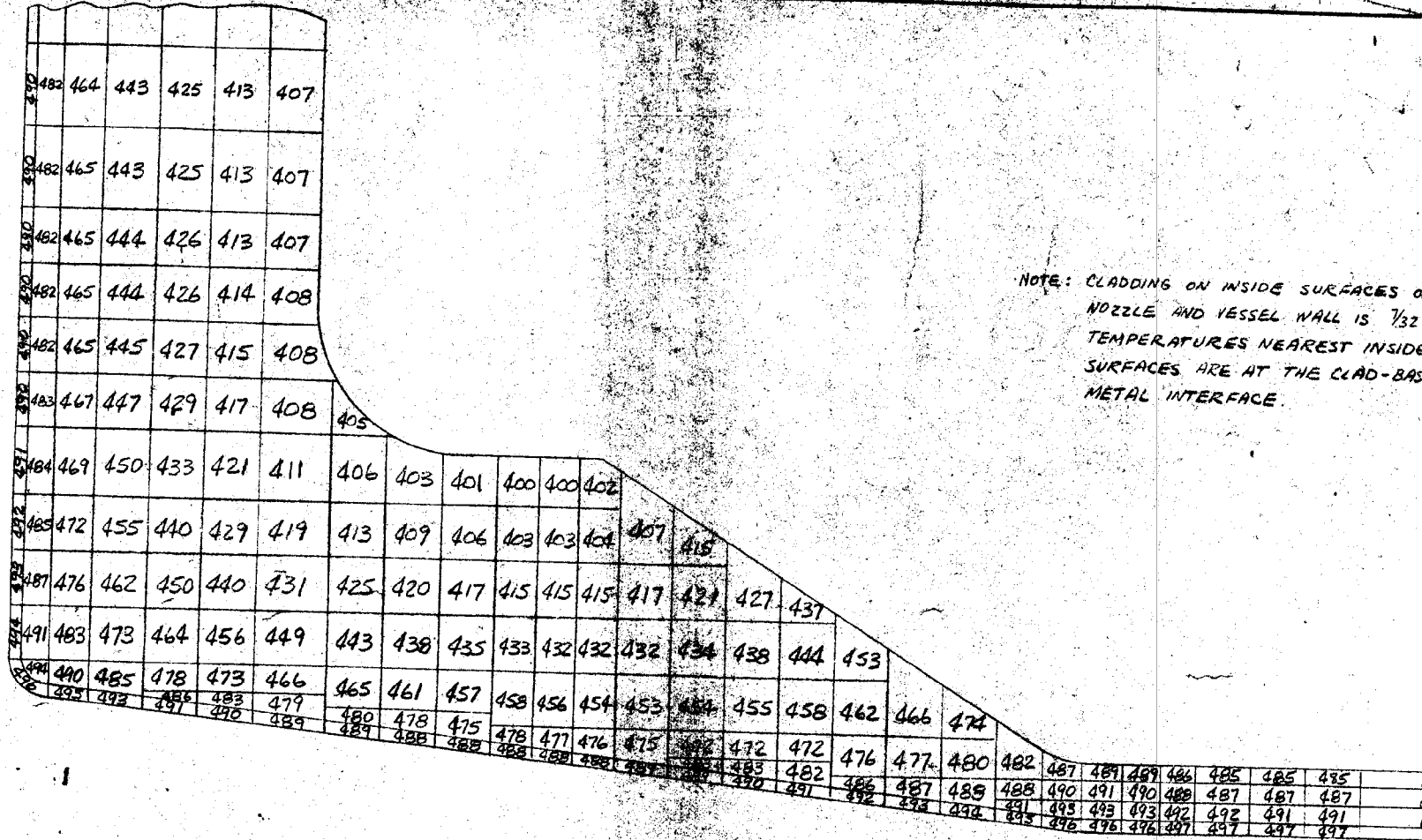
TEMPERATURE DISTRIBUTION FOR HEAD AND VESSEL FLANGES - 400°F/200°C TIA - 5 Q.H.S. RESTRICTION - AFD

CONSULTED BY: [Name] FOR PROJECT OF [Name] COMPANY

DATE: 2/7/75

DRAWING NO. SD-1765-45





500

FIGURE B-10

ORIGINATED BY: CHATTANOOGA CONTRACT NO. \_\_\_\_\_  
 TEMPERATURE DISTRIBUTION IN  
 INLET NOZZLE - 100°/HR HEATUP  
 TIME - 4.0 HR  
 WESTINGHOUSE-APD  
 SCALE DRAWN BY: JCL DATE: 3/14/66  
 CHECKED BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_



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Submitted: December 22, 2011  
RW 00052D





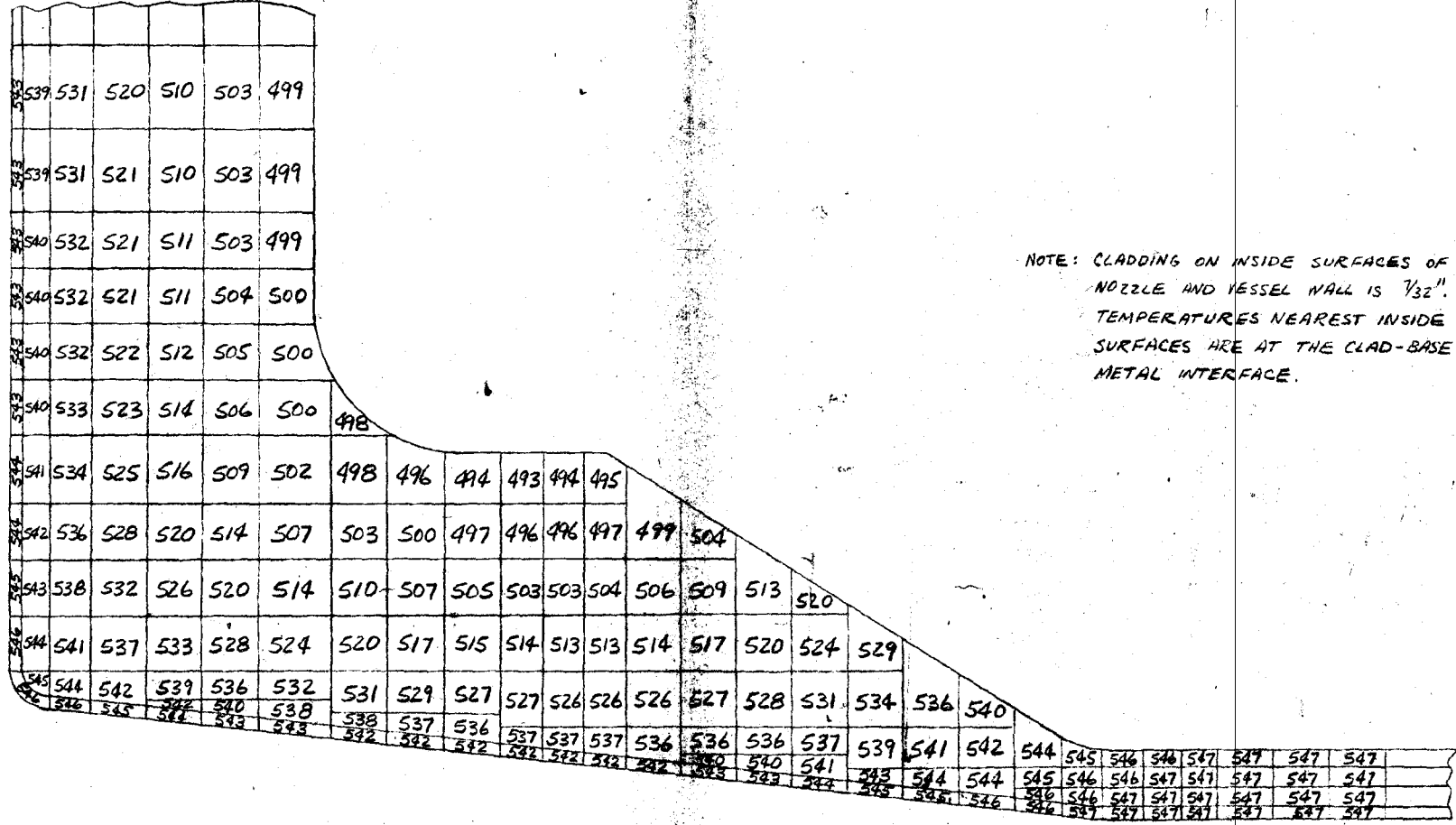








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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 1/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-13

547

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMPERATURE DISTRIBUTION IN INLET NOZZLE - 100% HR HEATUP FOR TIME - 5.0 HR WESTINGHOUSE - APD

SCALE: DRAWN BY JCL TRACED BY DATE 3/19/66 CHECKED BY APPROVED

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Submitted: December 22, 2011 0052D



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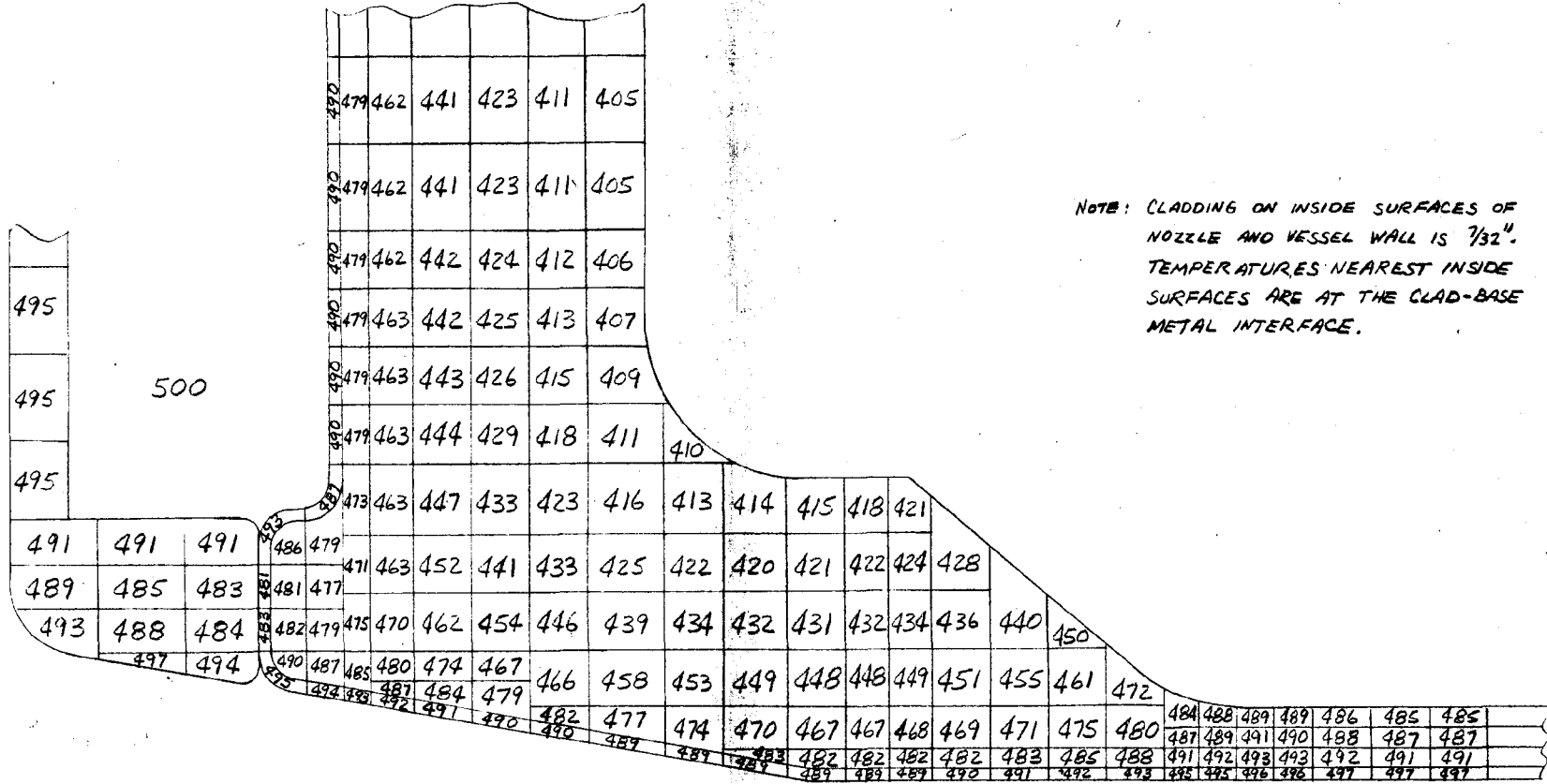


FIGURE B-14

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 100 °F/HR HEATUP  
 FOR TIME - 4.0 HR.  
 WESTINGHOUSE APD

SCALE DATE 4-7-66  
 DRAWN BY JCL CHECKED BY APPROVED  
 TRACED BY



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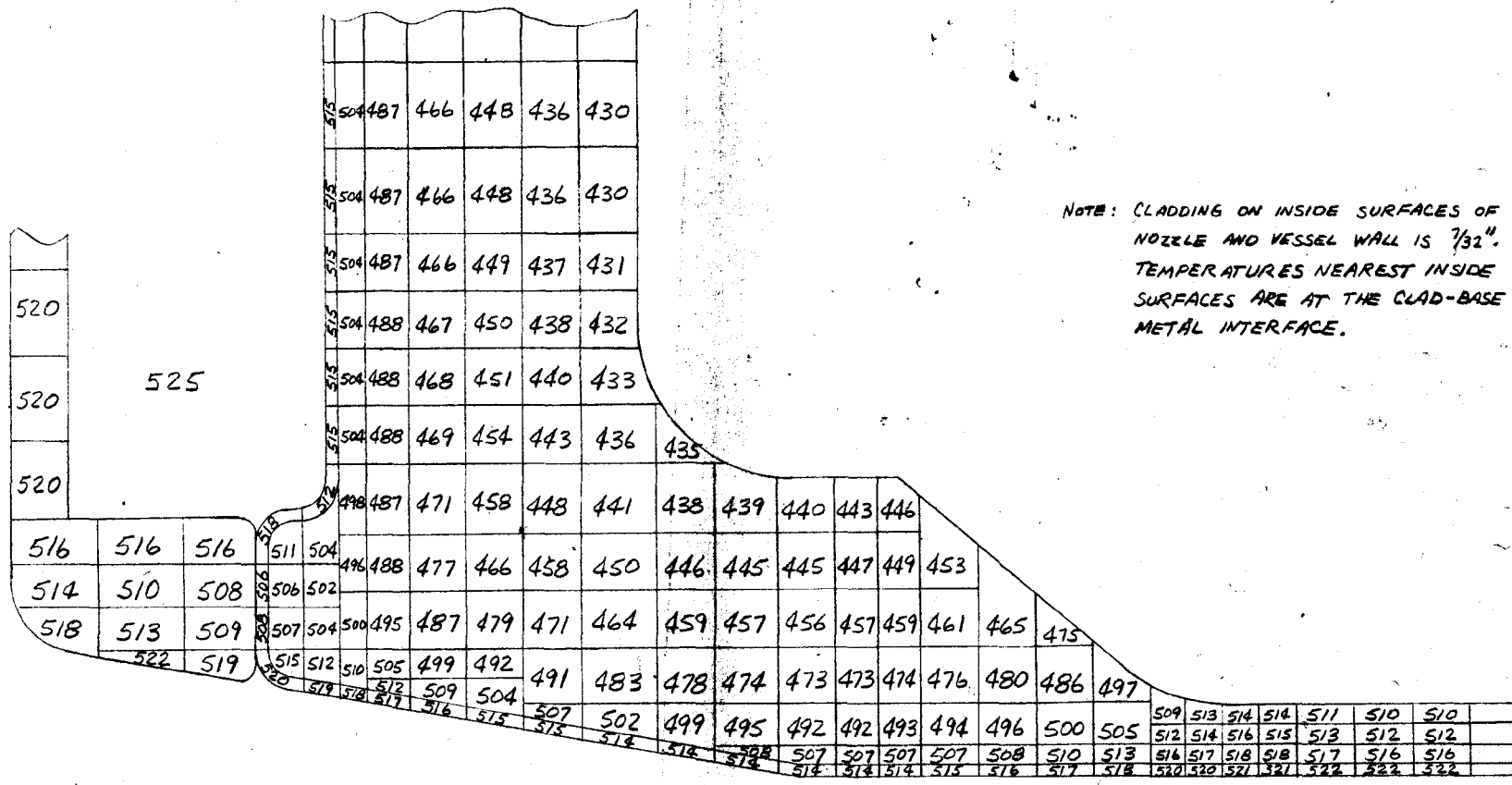
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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-1

525

ORIGINATED BY: CHATTANOOGA      CONTRACT NO.

TEMP. DISTRIBUTION 1/4" OUTLET NOZZLE

FOR 100 °/HR HEATUP

TIME - 4.25 HR.

WESTINGHOUSE APD

SCALE DRAWN BY JLL      DATE 4-7-66

TRACED BY      CHECKED BY

APPROVED

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DRAWING NO. SB-17765-52





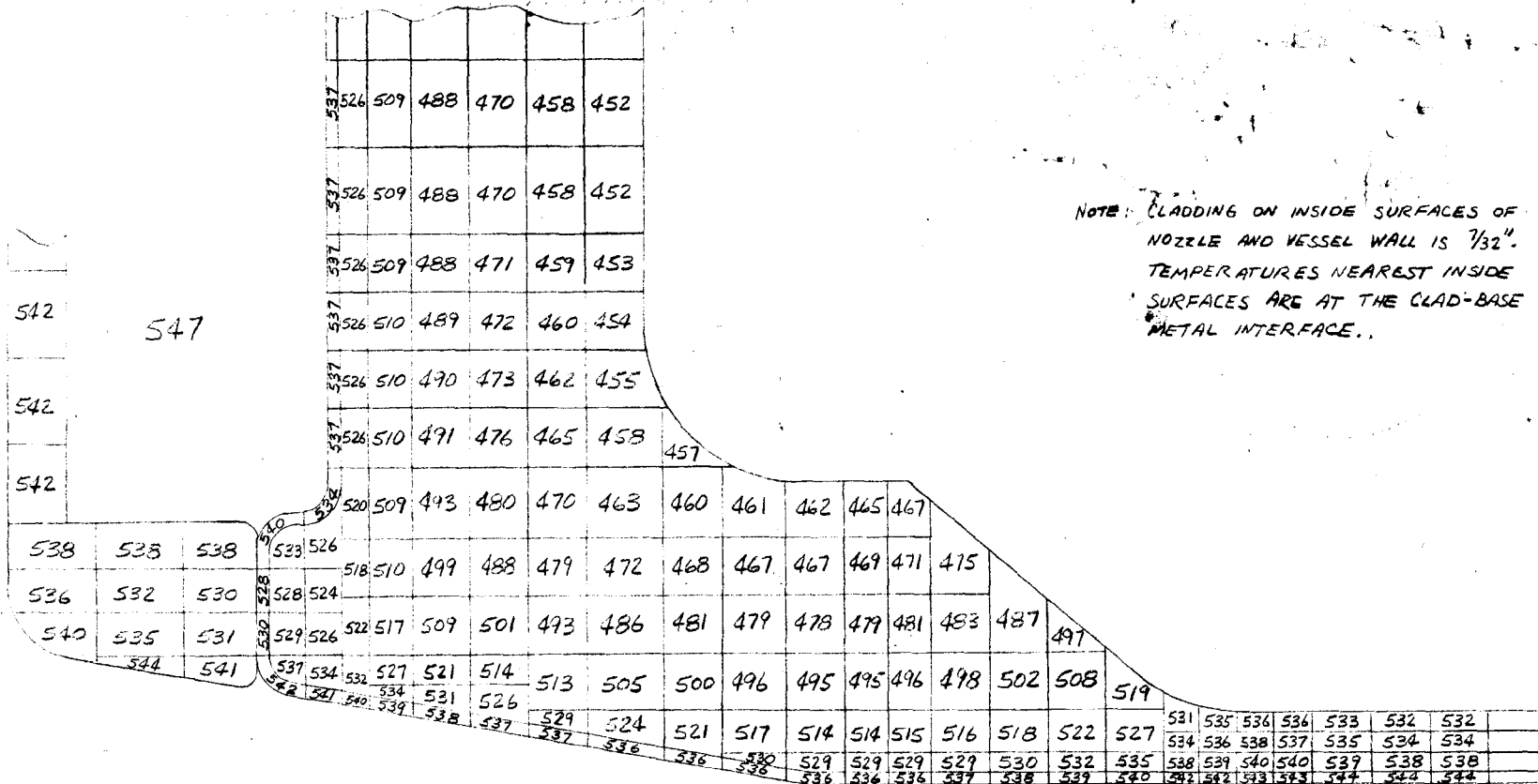


FIGURE B-16

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

**TEMP. DISTRIBUTION IN OUTLET NOZZLE**

100 °F/HR HEATUP

END OF HEATING, 4.47 HR.

WESTINGHOUSE APD

SCALE DATE 4-7-66  
 DRAWN BY JCL CHECKED BY  
 TRACED BY APPROVED

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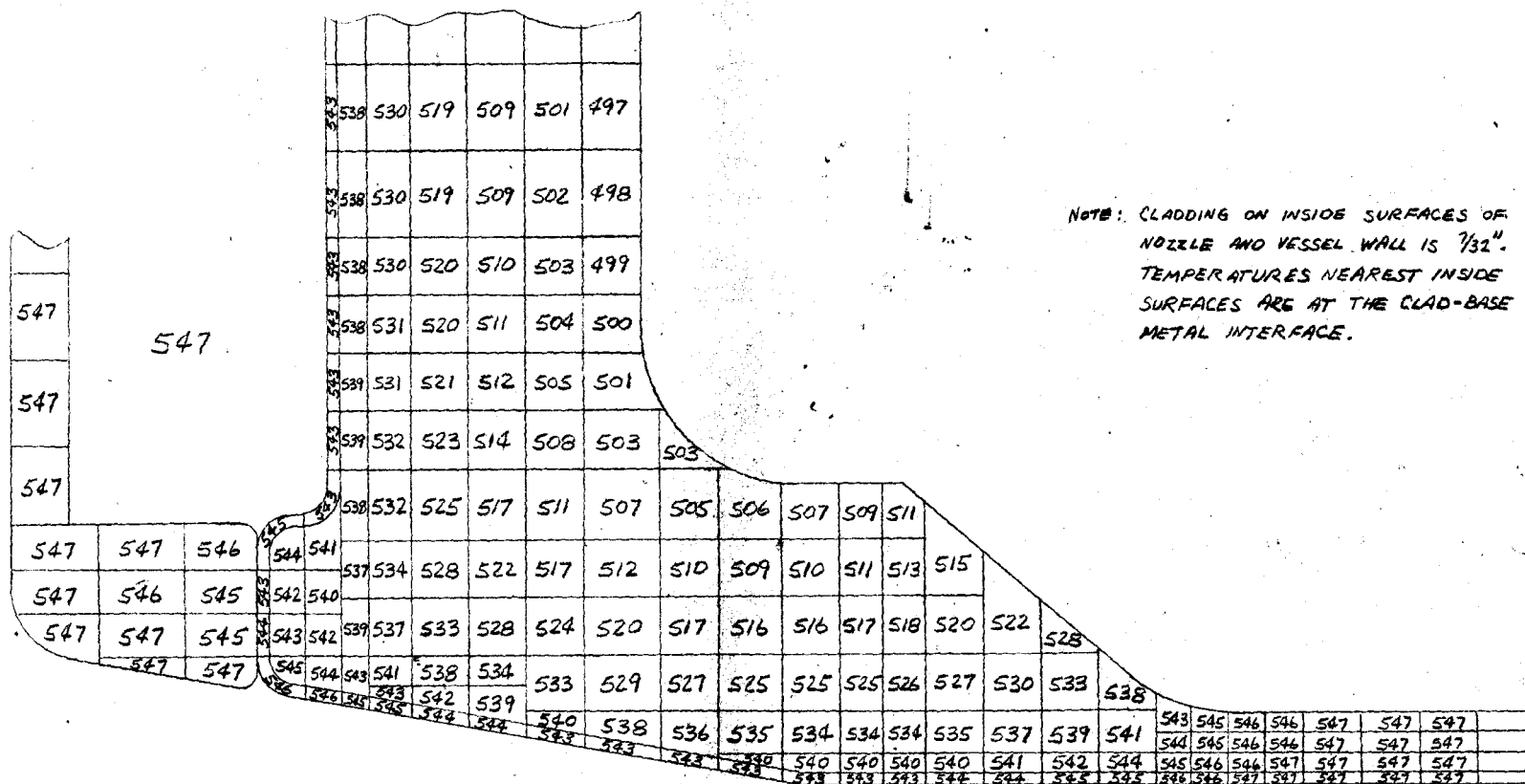


FIGURE B-17

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

**TEMP. DISTRIBUTION IN OUTLET NOZZLE**  
 100 °F/HR HEATUP  
 TIME - 5.0 HR.  
 WESTINGHOUSE APO

SCALE \_\_\_\_\_ DATE 4-7-66  
 DRAWN BY JCL CHECKED BY \_\_\_\_\_  
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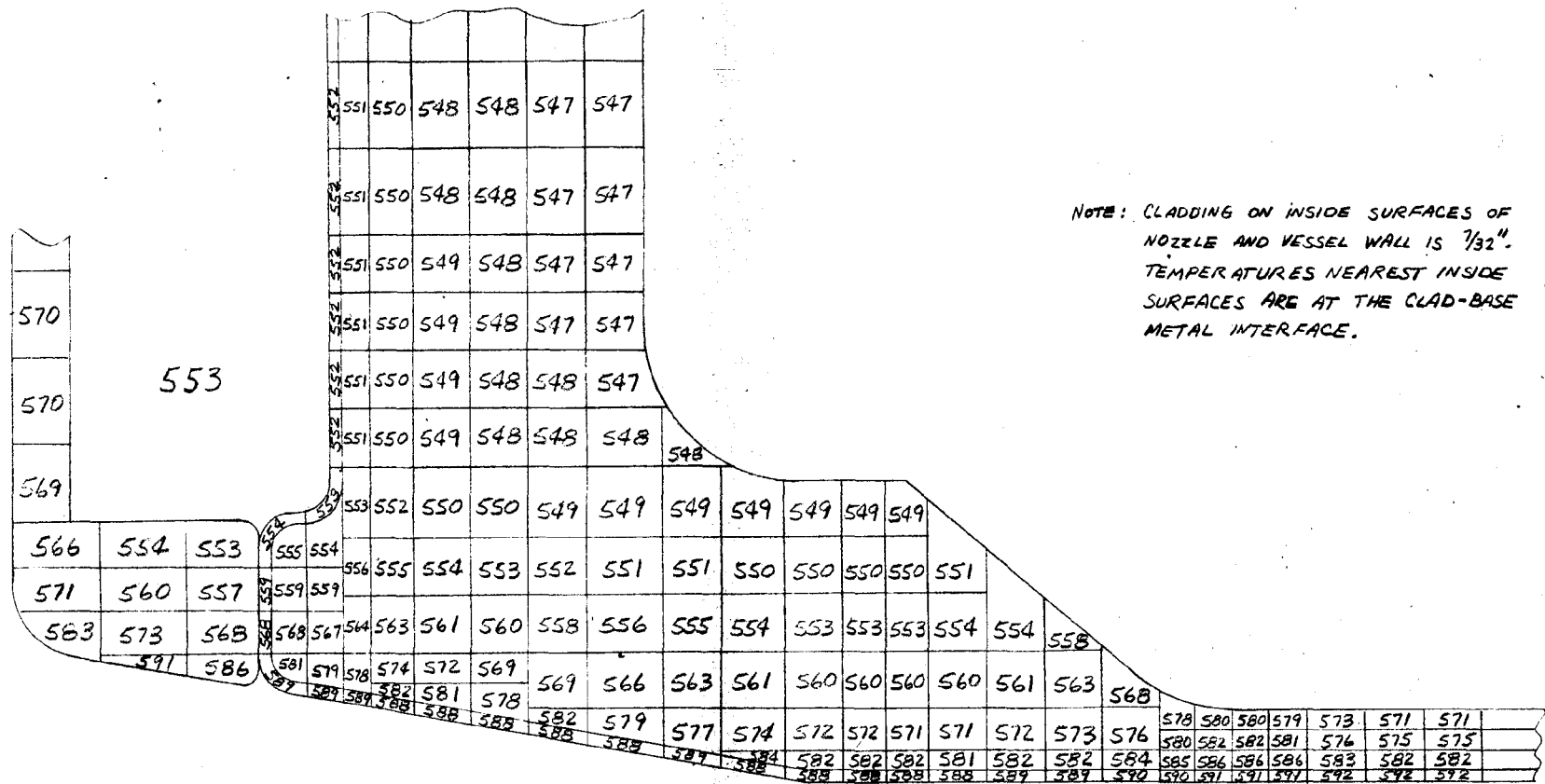
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Submitted: December 2, 2011



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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-10

597

ORIGINATED BY: CHATTANOOGA      CONTRACT NO. \_\_\_\_\_

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 PLANT LOADING  
 TIME - 15 MIN.  
 WESTINGHOUSE APD

SCALE \_\_\_\_\_      DATE 8-7-66  
 DRAWN BY JCL      CHECKED BY \_\_\_\_\_  
 TRACED BY \_\_\_\_\_      APPROVED \_\_\_\_\_

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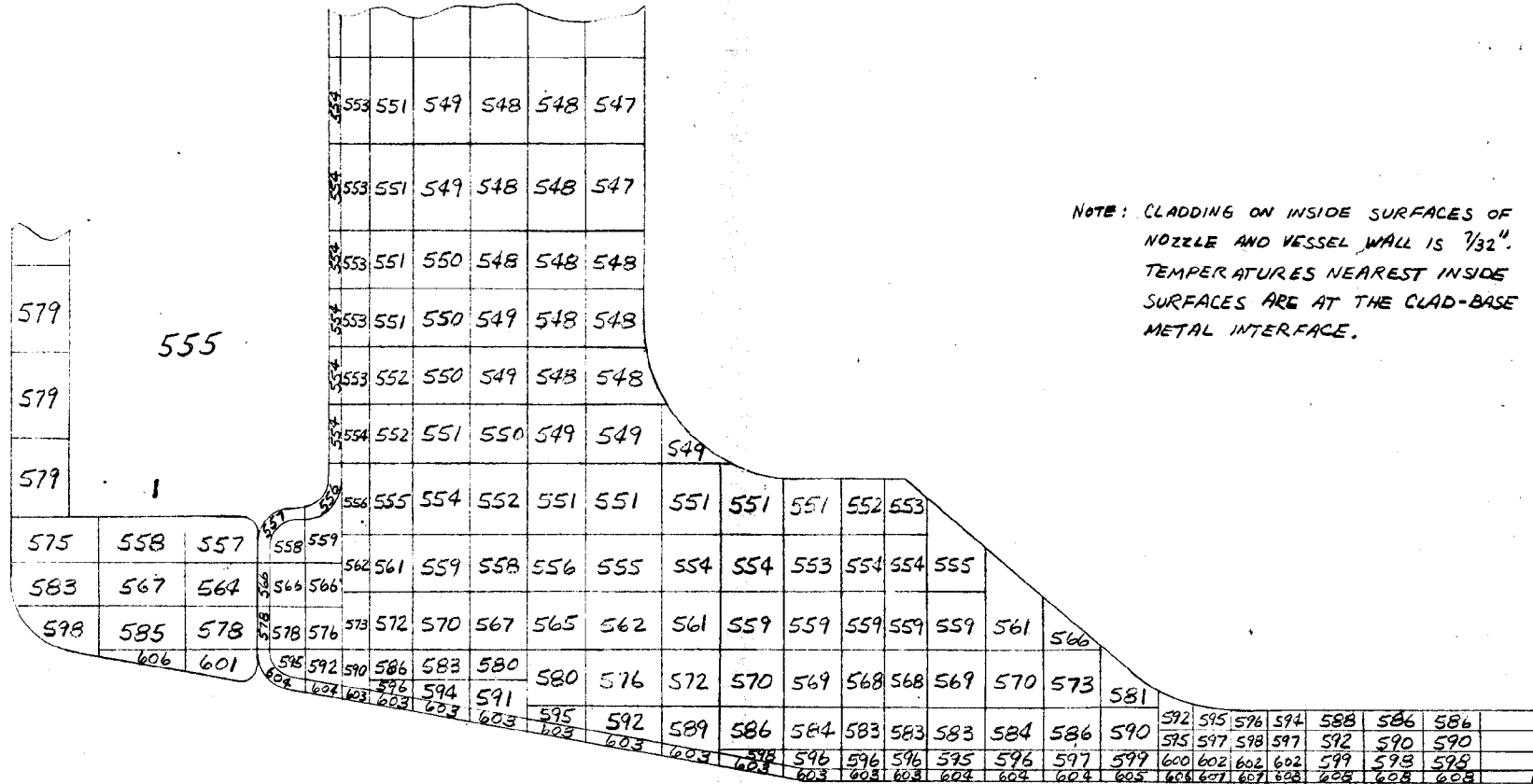






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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-19

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE

PLANT LOADING

TIME - 20 MIN.

WESTINGHOUSE APD

SCALE: DRAWN BY JCL TRACED BY DATE: 8-7-66 CHECKED BY APPROVED

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DRAWING NO. SB-17765-56

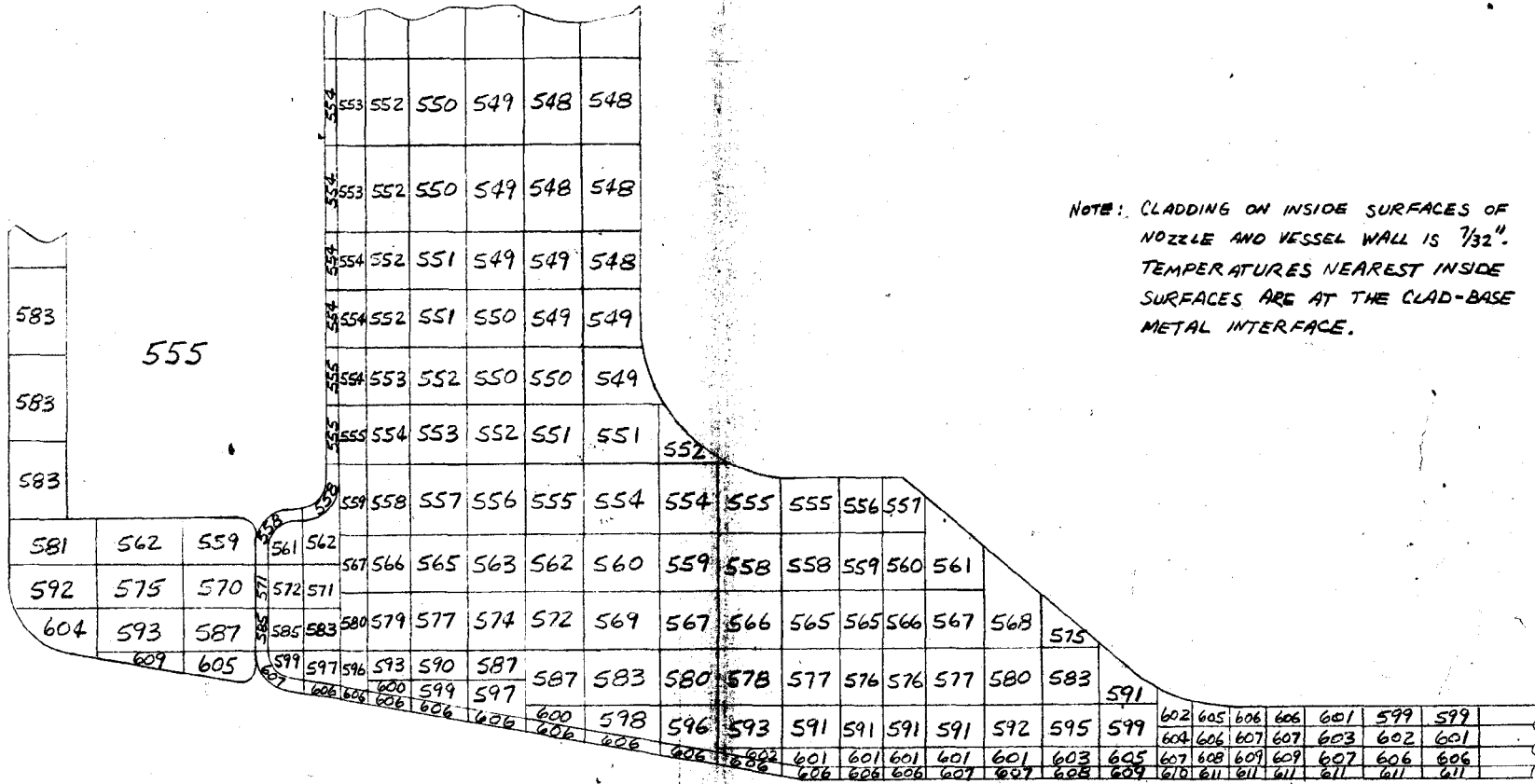


613



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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE

PLANT LOADING

FOR TIME - 25 MIN.

WESTINGHOUSE APD

SCALE: DATE 4-7-66

DRAWN BY JCL CHECKED BY

TRACED BY APPROVED

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DRAWING NO. SB-17765-57



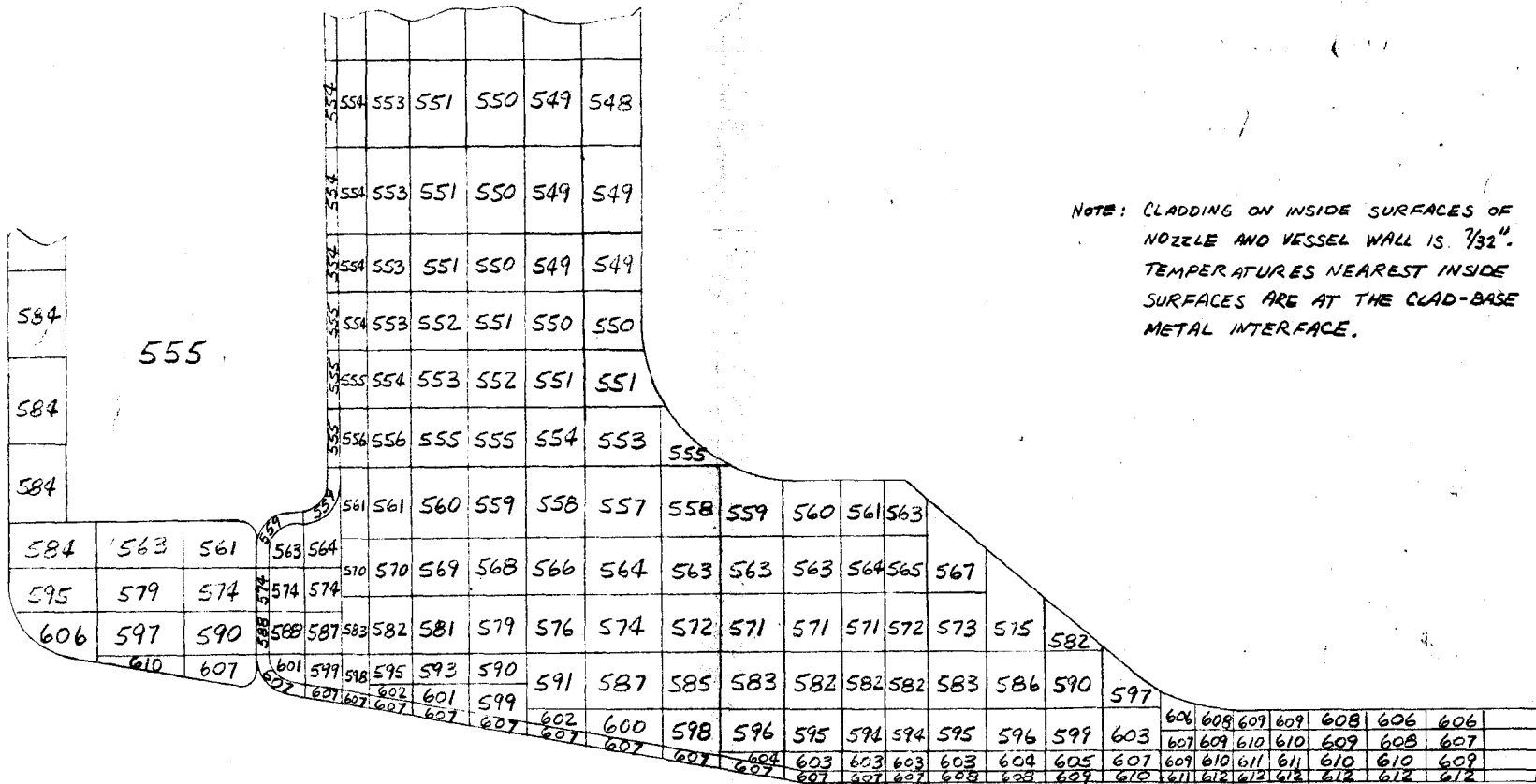
613

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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

613

FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
PLANT LOADING  
FOR TIME - 30 MIN.  
WESTINGHOUSE APD

SCALE DATE 4-7-66  
DRAWN BY JCL CHECKED BY  
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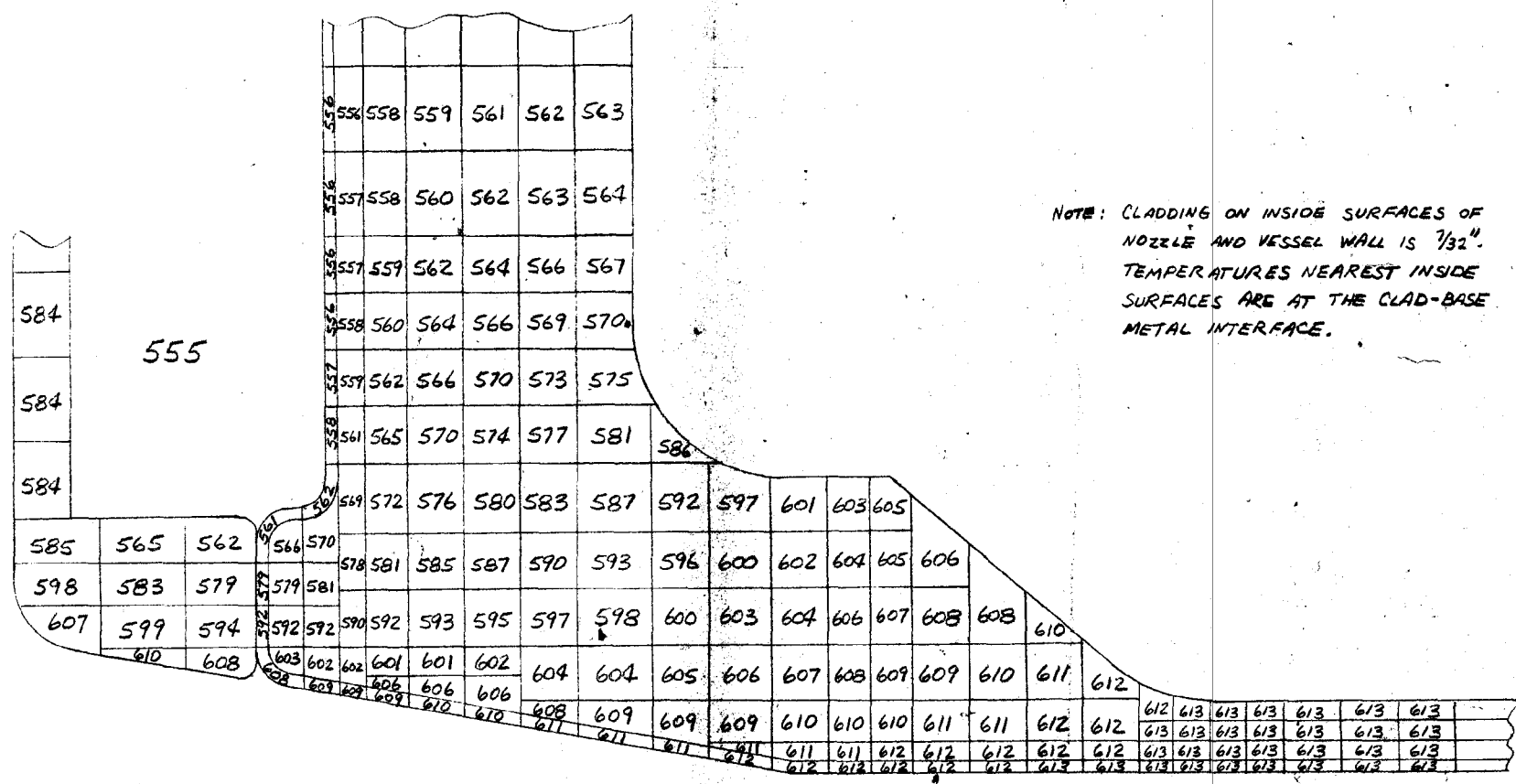
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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO. \_\_\_\_\_

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 100% POWER  
 FOR STEADY STATE WESTINGHOUSE APPD.

SCALE \_\_\_\_\_ DATE 6-7-66  
 DRAWN BY JCL CHECKED BY \_\_\_\_\_  
 TRACES BY \_\_\_\_\_ APPROVED \_\_\_\_\_

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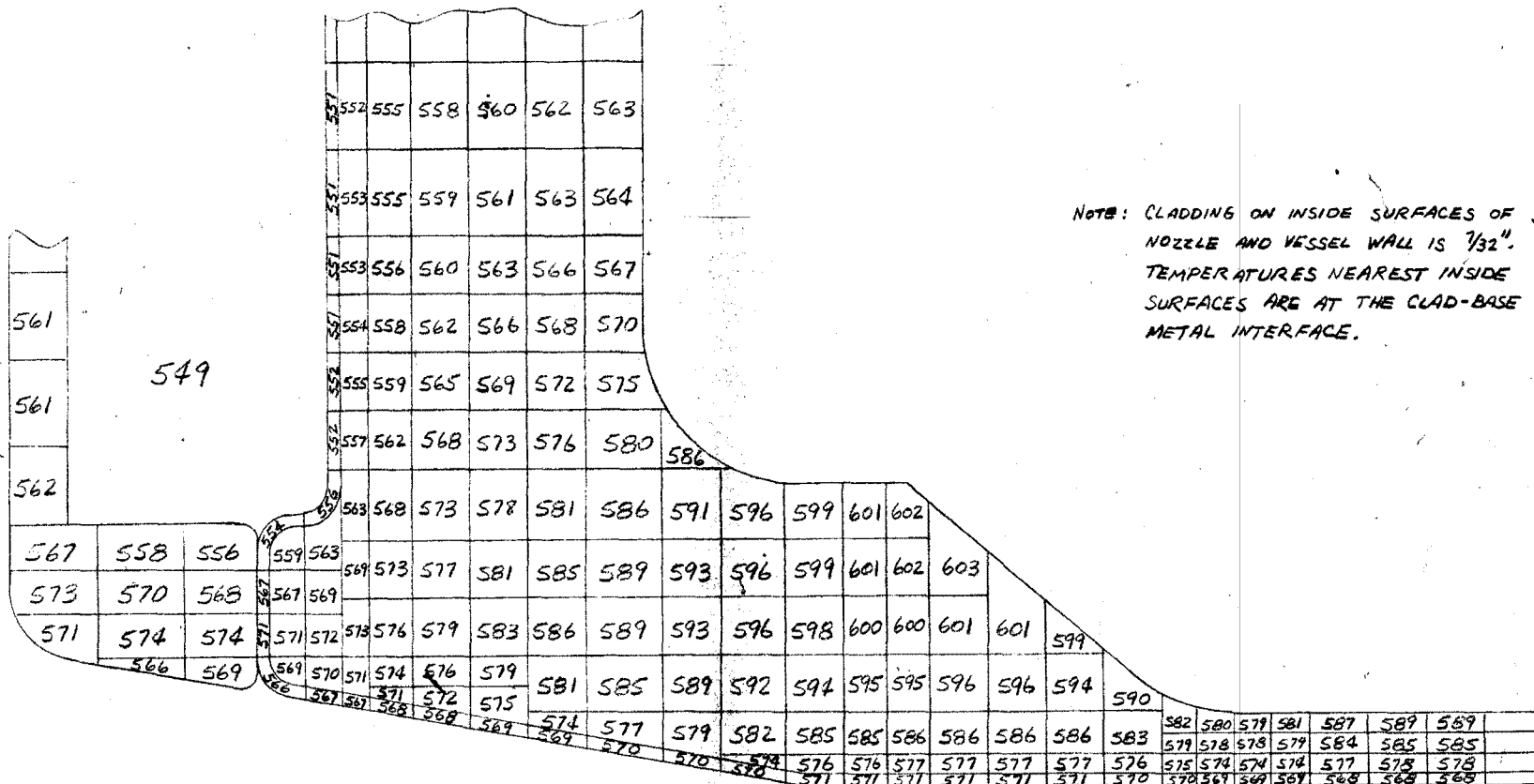
Submitted: December 2, 2011  
 RIV000522D





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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 1/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-2

563

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE

FOR PLANT UNLOADING

TIME - 15 MIN.

WESTINGHOUSE APD

SCALE: DRAWN BY JCL TRACED BY

DATE: 4-7-66 CHECKED BY APPROVED

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DRAWING NO. SB-17765-60

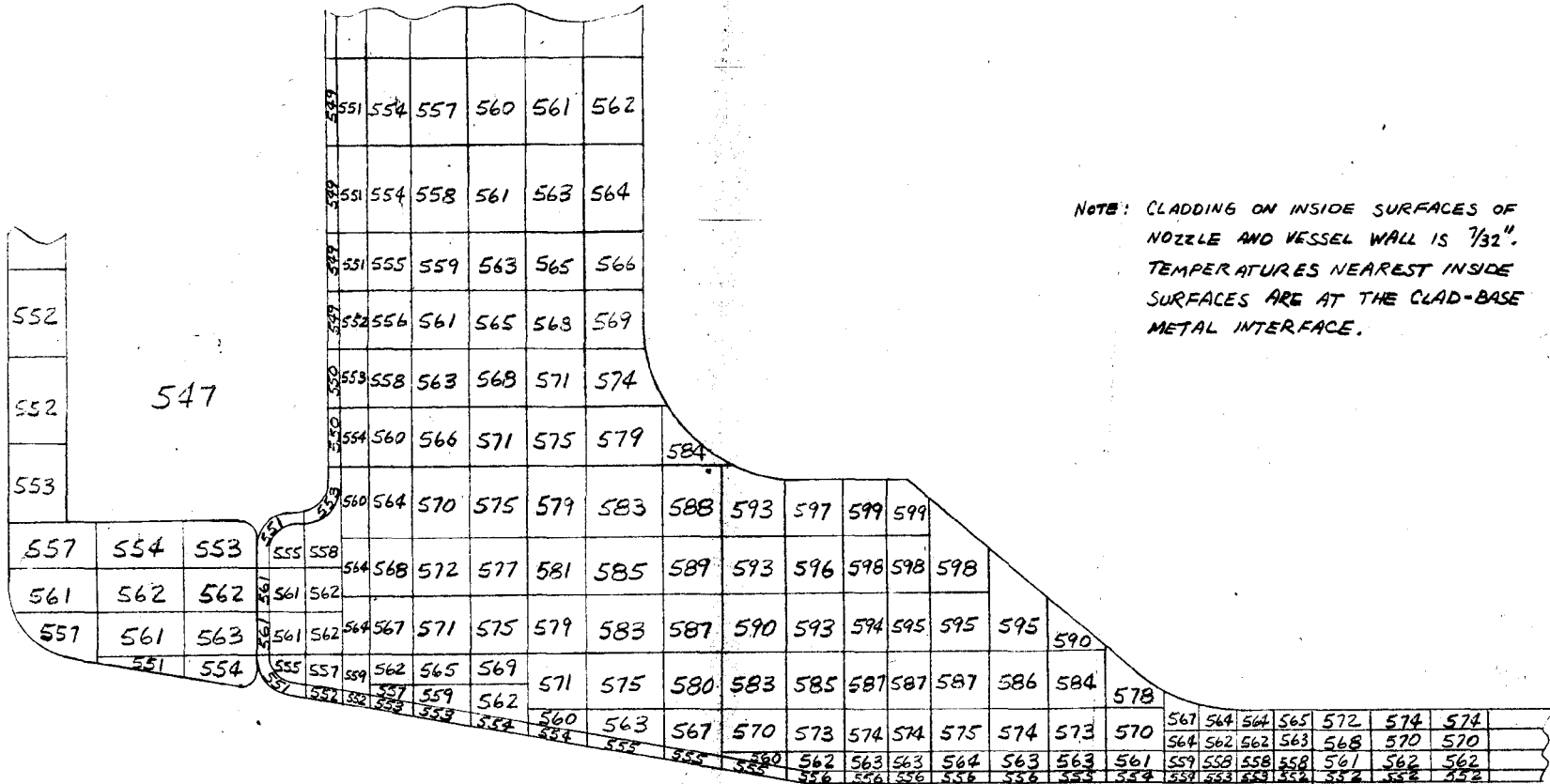


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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS  $\frac{7}{32}$ ". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO. \_\_\_\_\_

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 FOR PLANT UNLOADING  
 TIME - 20 MIN.  
 WESTINGHOUSE APD

SCALE \_\_\_\_\_ DATE 4-7-66  
 DRAWN BY JCL CHECKED BY \_\_\_\_\_  
 TRACED BY \_\_\_\_\_ APPROVED \_\_\_\_\_

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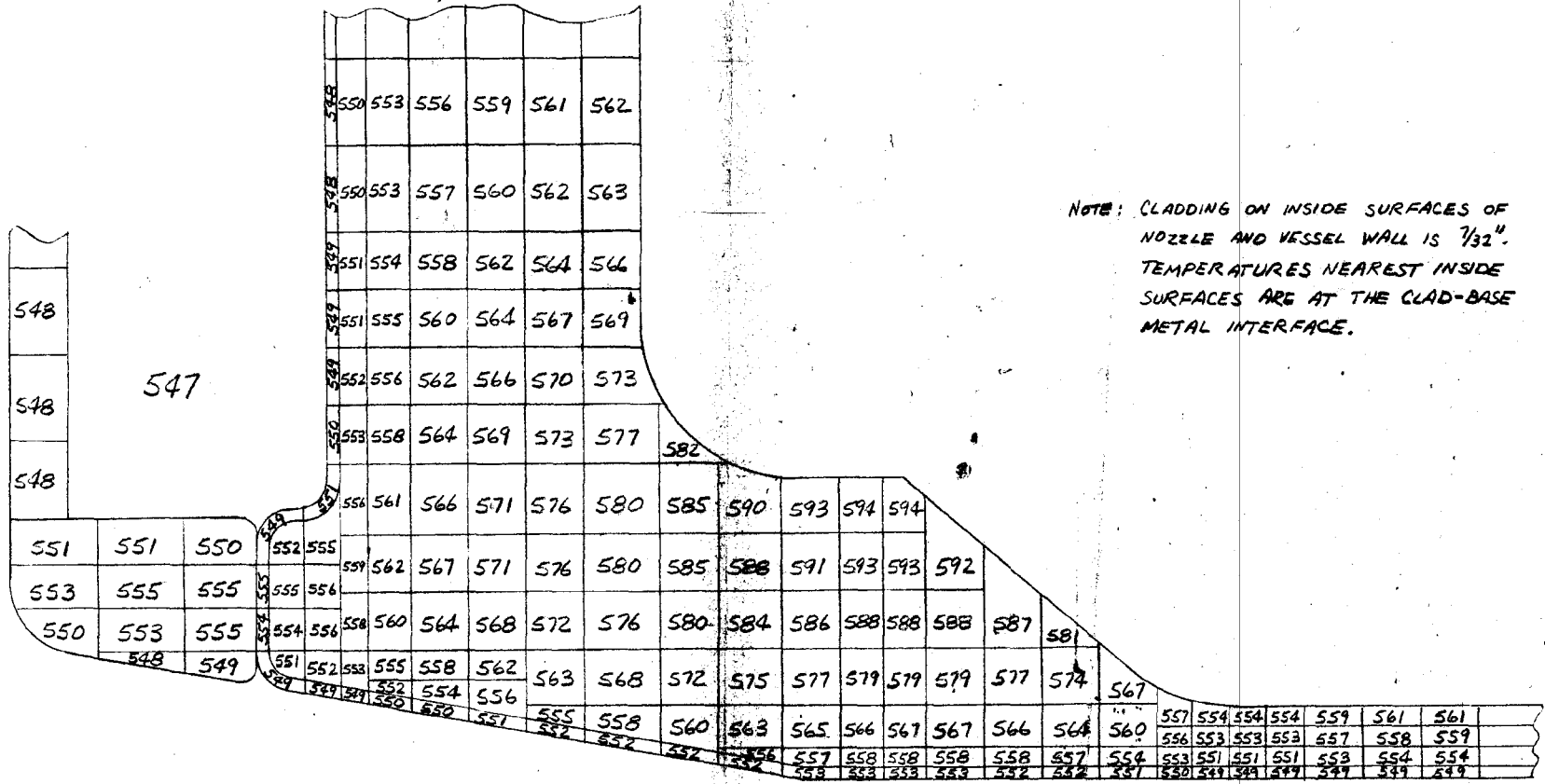


FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO:

**TEMP. DISTRIBUTION IN OUTLET NOZZLE**

**PLANT UNLOADING**

FOR **WESTINGHOUSE APP**

TIME - 25 MIN.

SCALE: \_\_\_\_\_ DATE: 6-7-66

DRAWN BY: JCL CHECKED BY: \_\_\_\_\_

TRACED BY: \_\_\_\_\_ APPROVED: \_\_\_\_\_

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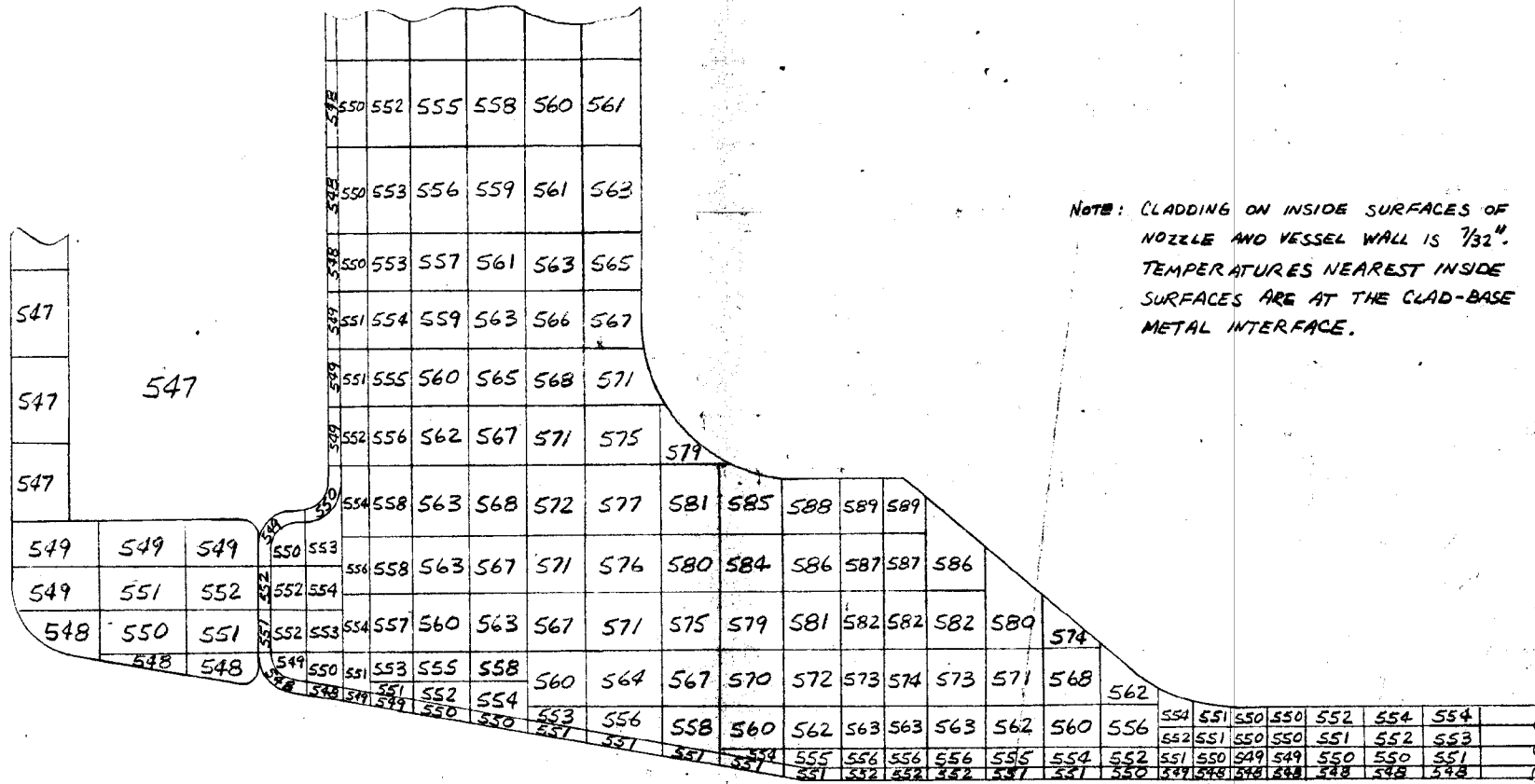


FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 PLANT UNLOADING  
 FOR TIME - 30 MIN.  
 WESTINGHOUSE APD

SCALE DATE 4-7-66  
 DRAWN BY JCL CHECKED BY  
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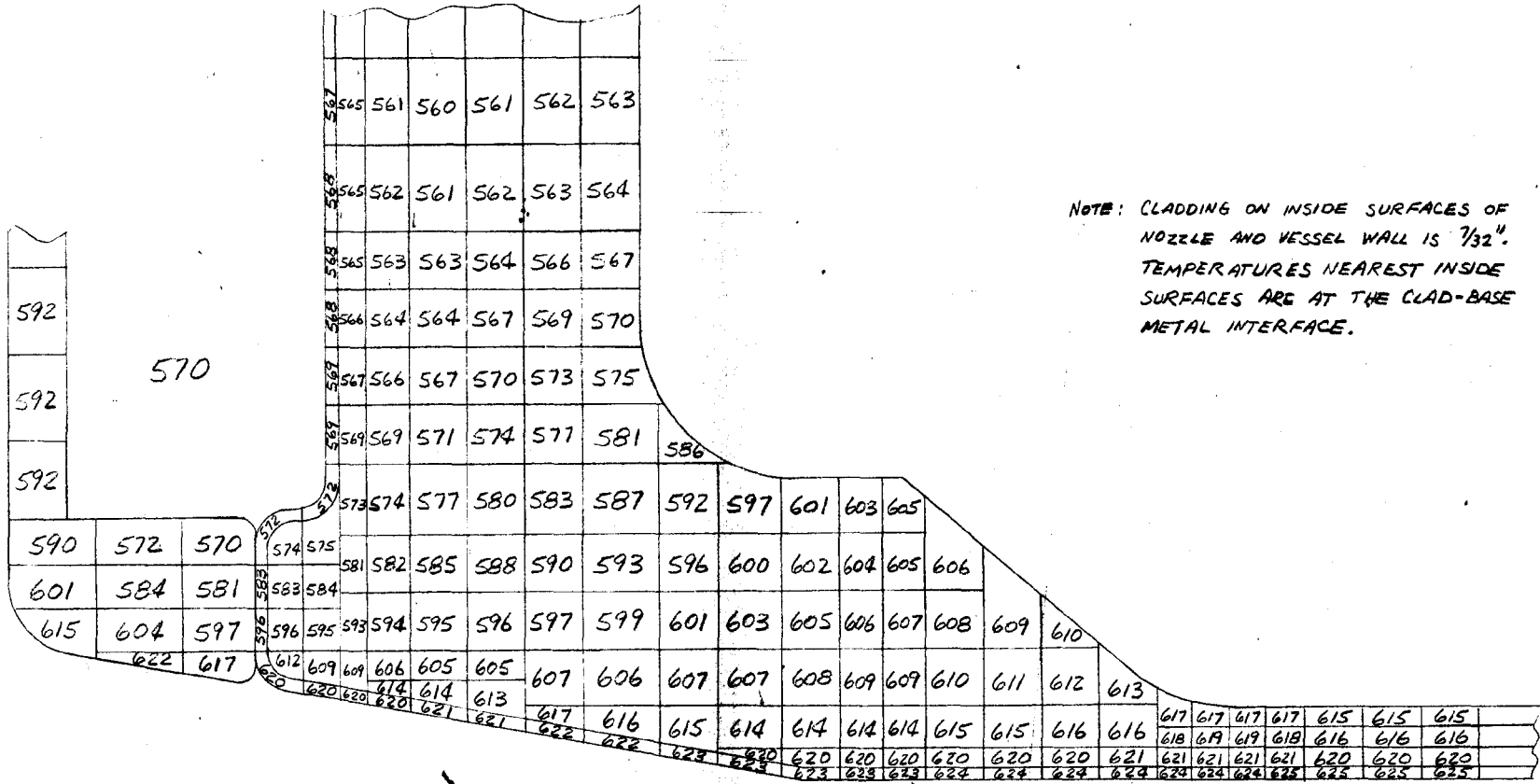


FIGURE B-22

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 STEP REDUCTION FROM 100% TO 50% LOAD  
 FOR  
 TIME - 3.5 MIN.  
 WESTINGHOUSE APD

SCALE DRAWN BY JCL CHECKED BY DATE 4-7-66 TRACED BY APPROVED



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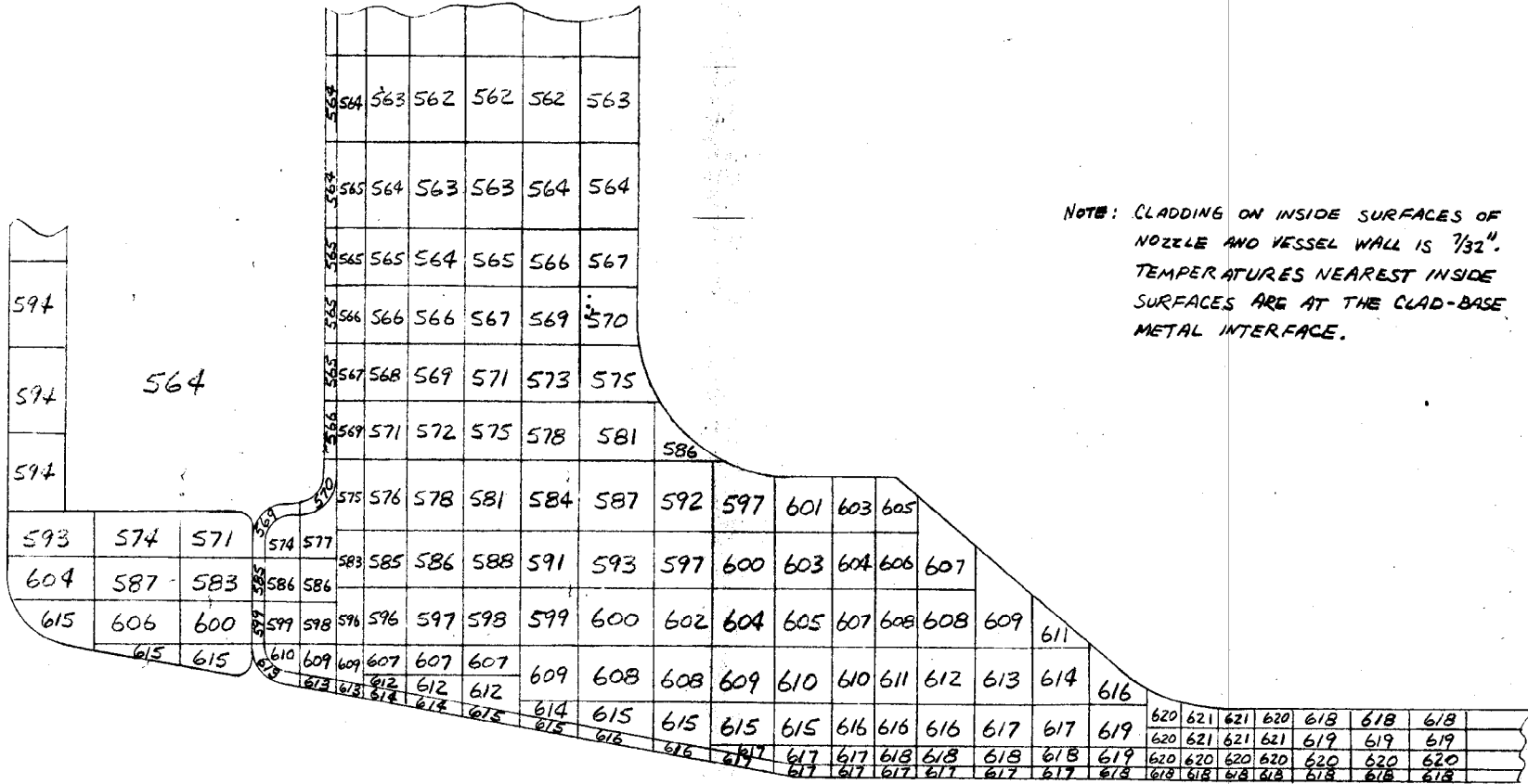


FIGURE B-22

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 STEP REDUCTION FROM 100% TO 50% LCA  
 FOR  
 TIME - 6 MIN.  
 WESTINGHOUSE APD

SCALE  
 DRAWN BY JCL DATE 4-7-66  
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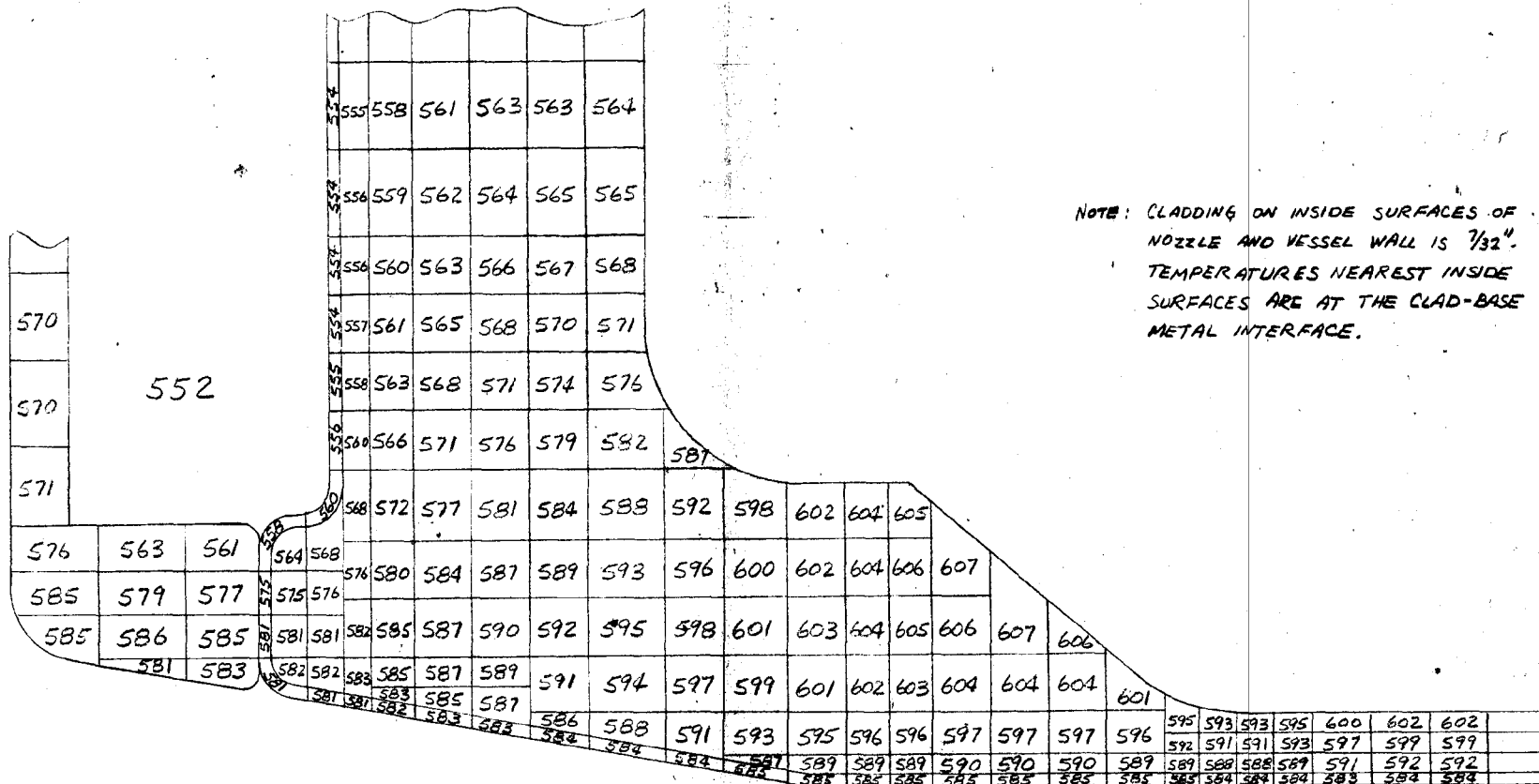


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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 1/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-2

ORIGINATED BY: CHATTANOOGA CONTRACT NO. \_\_\_\_\_

TEMP. DISTRIBUTION IN OUTLET NOZZLE

STEP REDUCTION FROM 100% TO 50% LOSS FOR

TIME - 15.5 MIN.

NESTINGHOUSE APD

SCALE \_\_\_\_\_ DATE 4-7-66

DRAWN BY JCL CHECKED BY \_\_\_\_\_

TRACED BY \_\_\_\_\_ APPROVED \_\_\_\_\_

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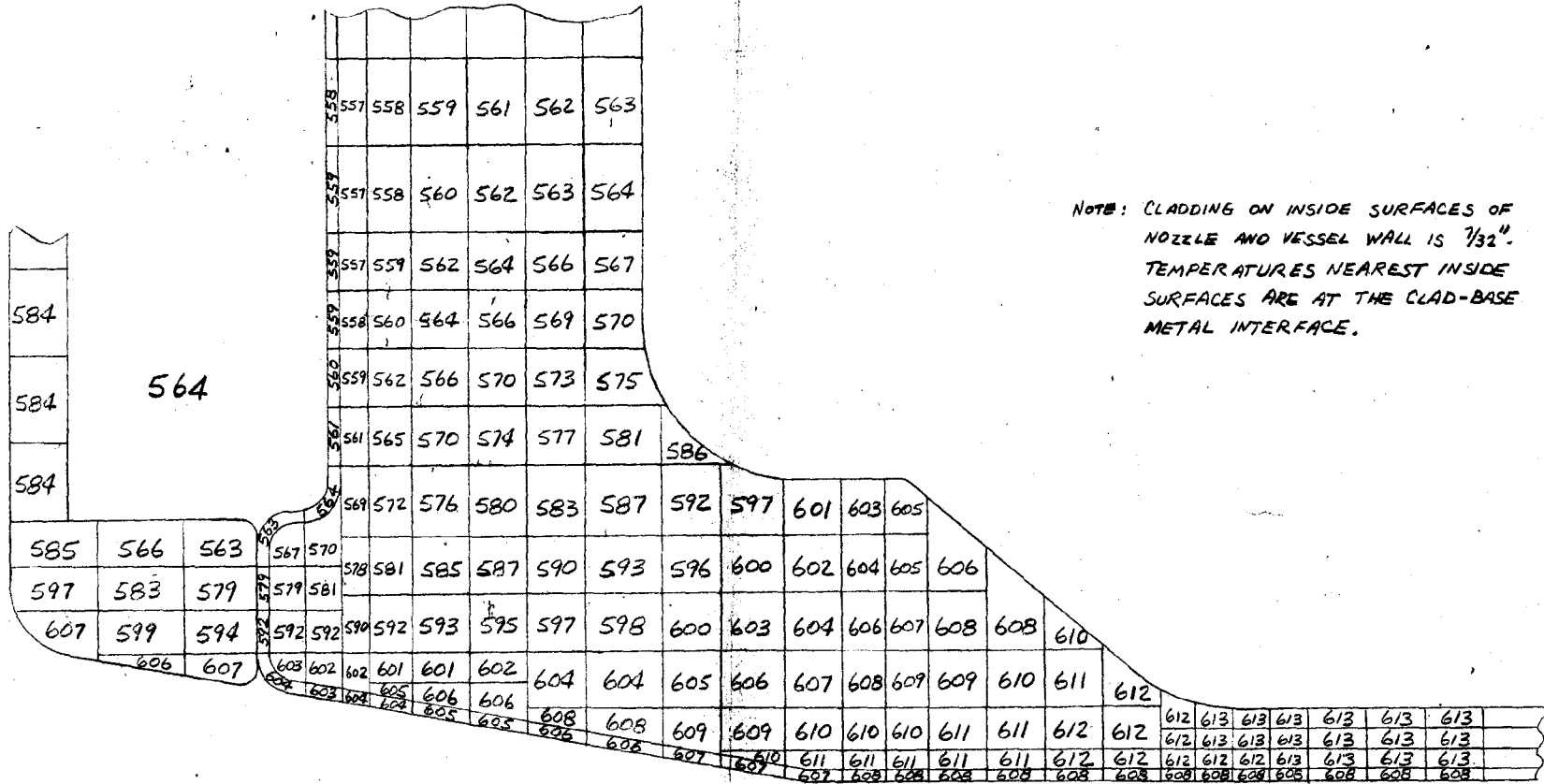
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NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-30

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP DISTRIBUTION IN OUTLET NOZZLE  
 REACTOR TRIP FROM FULL POWER  
 FOR TIME - 10 SEC.  
 WESTINGHOUSE APD

SCALE: DRAWN BY JCL CHECKED BY DATE 4-7-66 TRACED BY APPROVED



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Submitted: December 2, 2011 0052D





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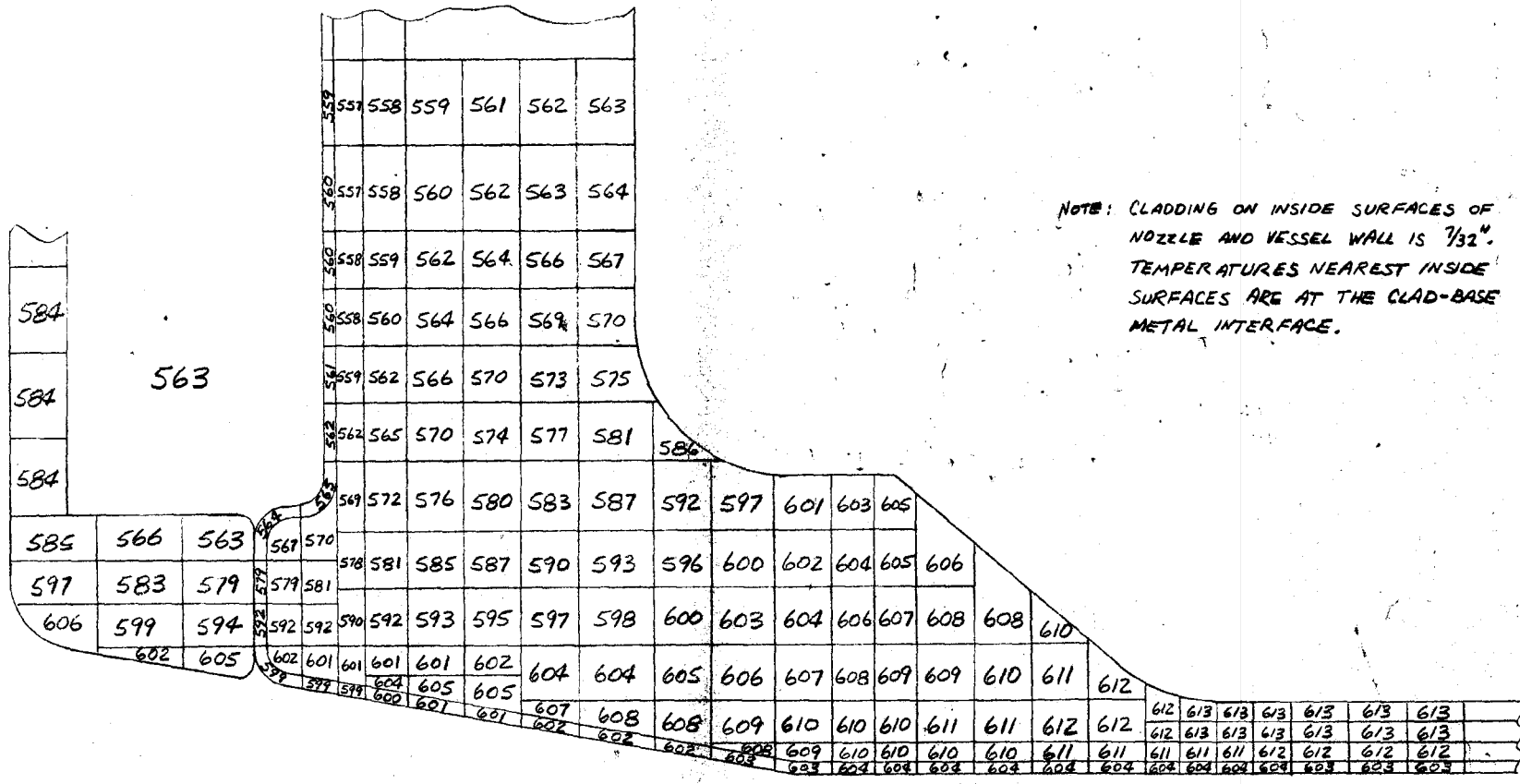


FIGURE B-3

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 REACTOR TRIP FROM FULL POWER  
 FOR TIME - 15 SEC.  
 WESTINGHOUSE APD

SCALE: DRAWN BY JCL CHECKED BY DATE 4-7-66  
 TRACED BY APPROVED

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DRAWING NO. SB-17765-68



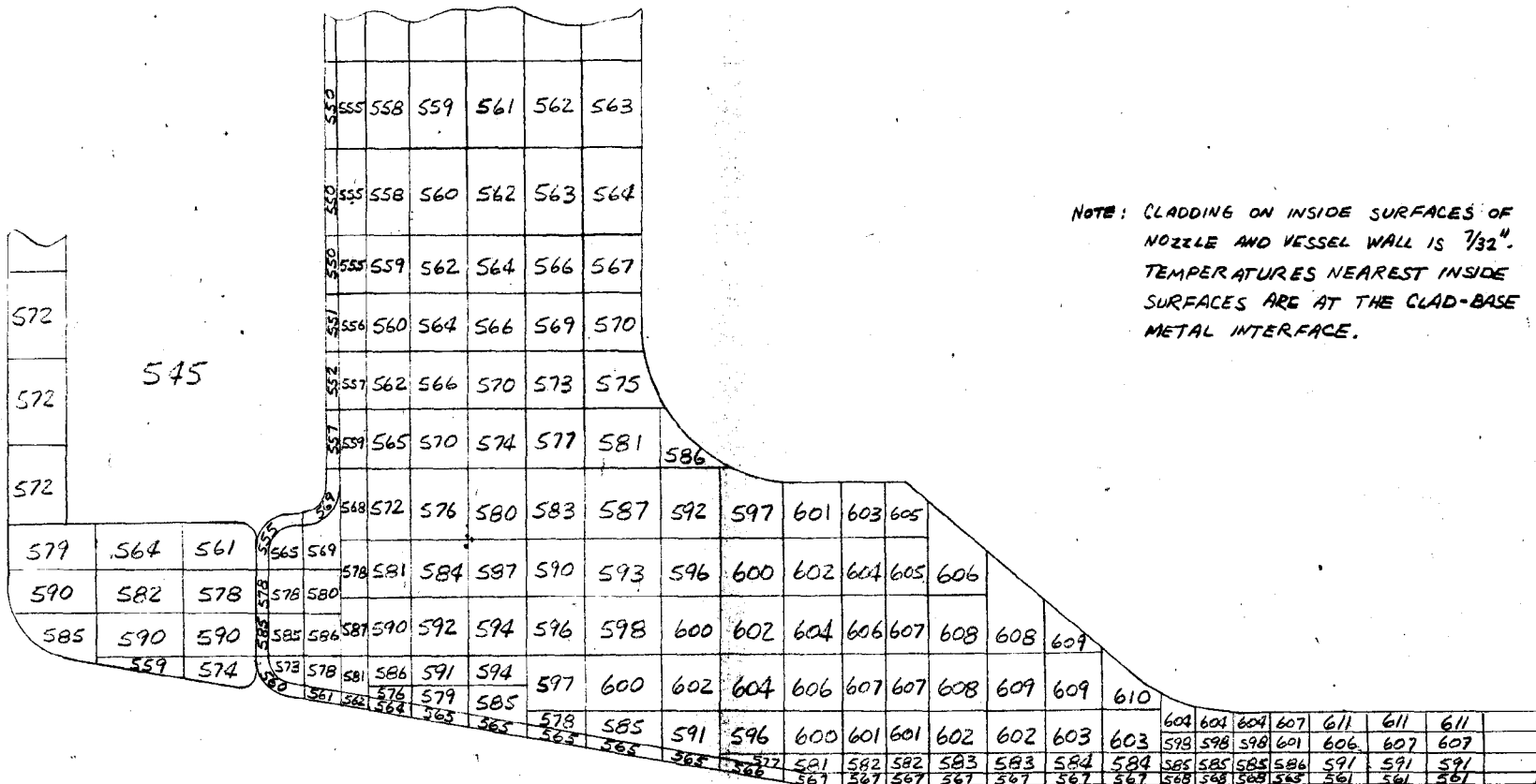
Submitted: December 2, 2011

00522D



REVISIONS

B-54



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-3

547

ORIGINATED BY: CHATTANOOGA CONTRACT NO.  
 TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 FOR REACTOR TRIP FROM FULL POWER  
 TIME - 90 SEC.  
 WESTINGHOUSE APD

SCALE: DRAWN BY JCL CHECKED BY DATE 8-7-66 APPROVED



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DRAWING NO. SB-17765-69

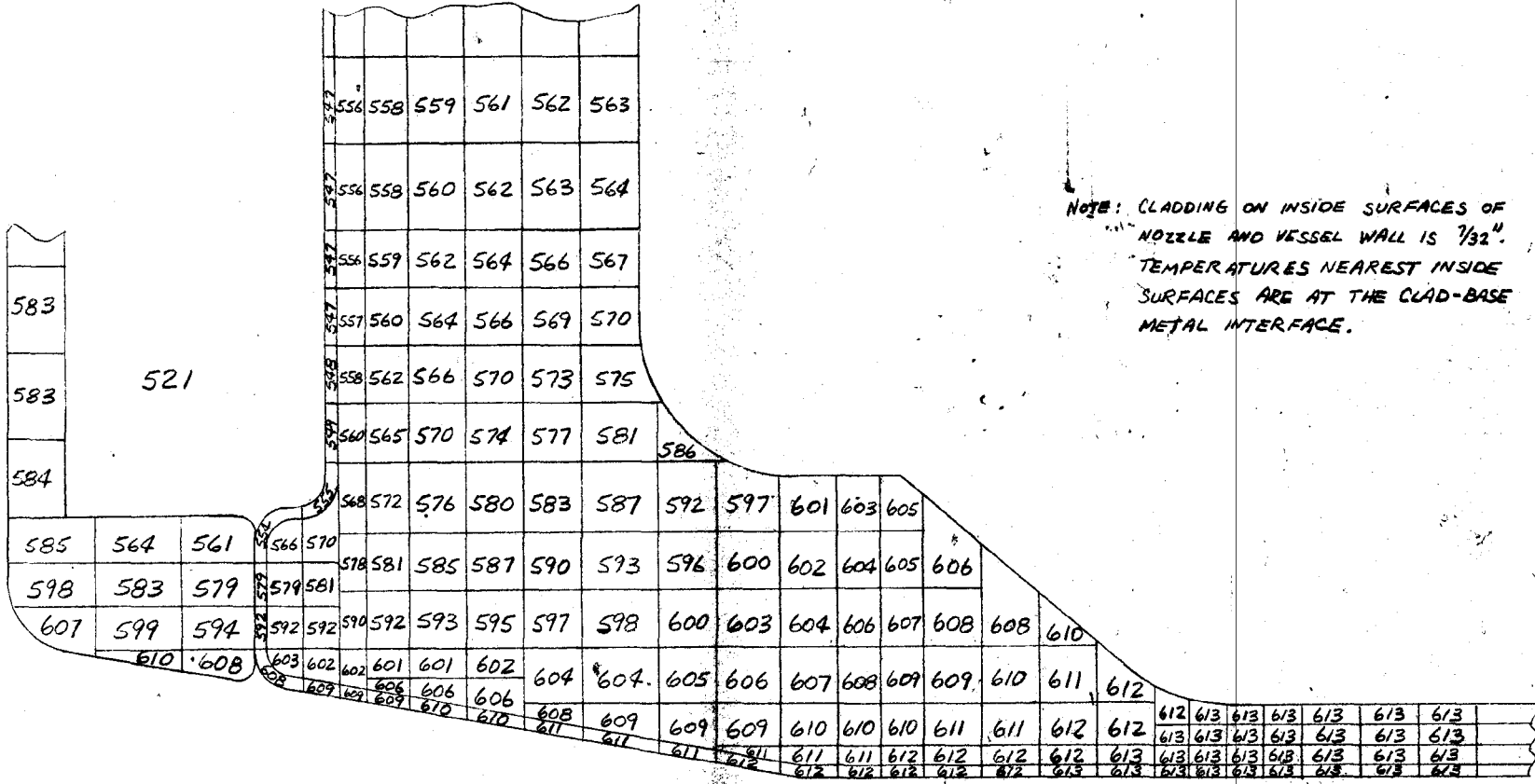
Submitted: December 22, 2011

RW00052D



REVISIONS

B-55



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 1/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
LOSS OF FLOW, ONE PUMP  
TIME - 12 SEC.  
WESTINGHOUSE APD

SCALE: DRAWN BY JCL TRACED BY  
DATE: 4-7-66 CHECKED BY APPROVED

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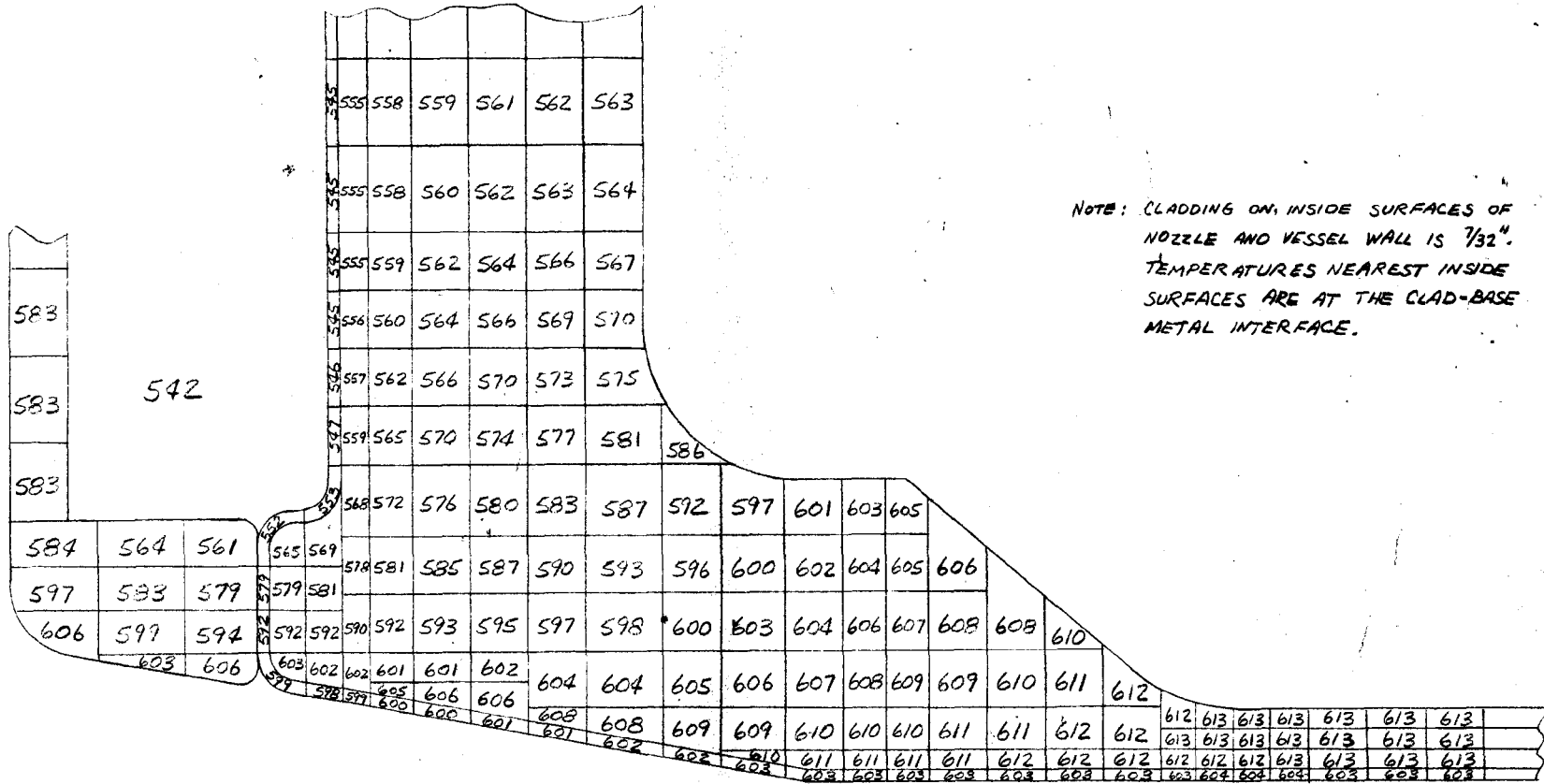
DRAWING NO. SB-17765-70





REVISIONS

B-56



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS  $\frac{7}{32}$ "  
 TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-3

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 FOR LOSS OF FLOW, ONE PUMP  
 TIME - 1/6 SEC.  
 WESTINGHOUSE APD

SCALE: DRAWN BY JCL TRACED BY DATE: 8-7-66 CHECKED BY APPROVED

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DRAWING NO. SB-17765-71



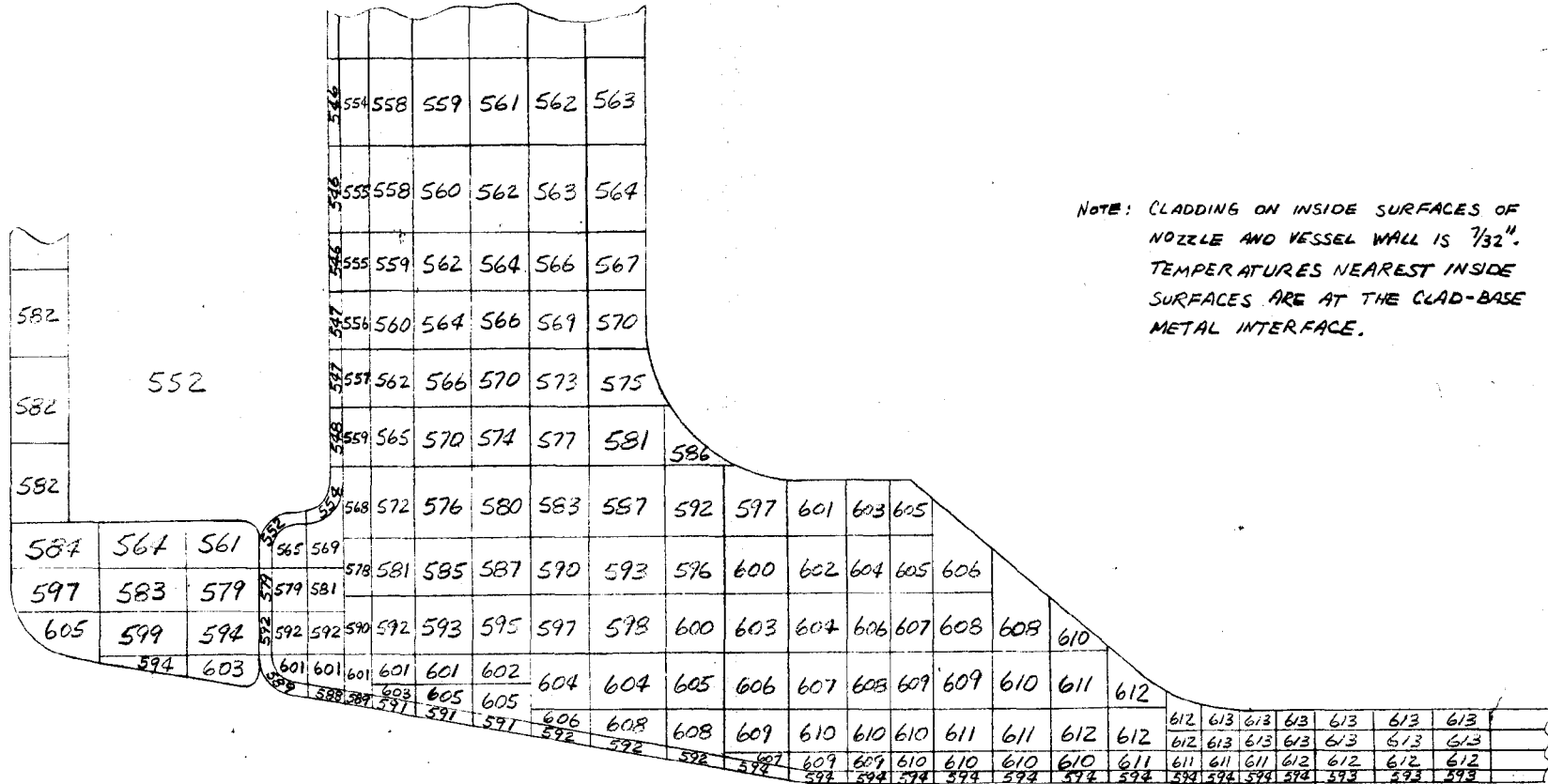
Submitted: December 22, 2011 RIV 00052D





REVISIONS

B-57



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-3

520

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
LOSS OF FLOW, ONE PUMP  
TIME - 18.5 SEC.  
WESTINGHOUSE APD

SCALE: DRAWN BY JCL CHECKED BY DATE 4-7-66 TRACED BY APPROVED

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DRAWING NO. SB-17765-72



Submitted: December 22, 2011 RIV000052D



REVISIONS

B-58

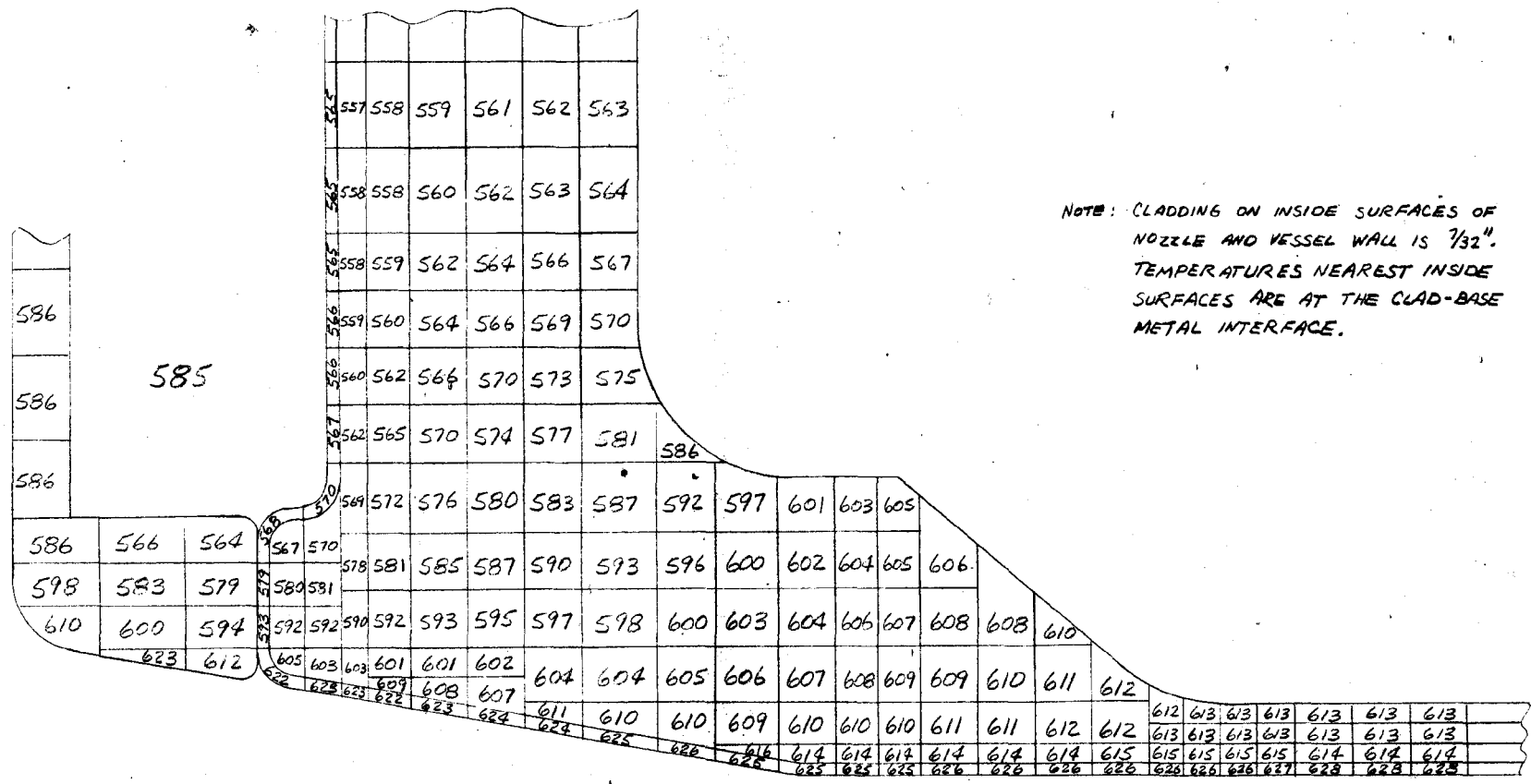


FIGURE B-36

653

ORIGINATED BY: CHATTANOOGA CONTRACT NO.  
 TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 LOSS OF LOAD  
 TIME - 12 SEC.  
 WESTINGHOUSE APD

SCALE DRAWN BY JCL CHECKED BY DATE 4-7-66 TRACED BY APPROVED



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DRAWING NO. SB-17765-73

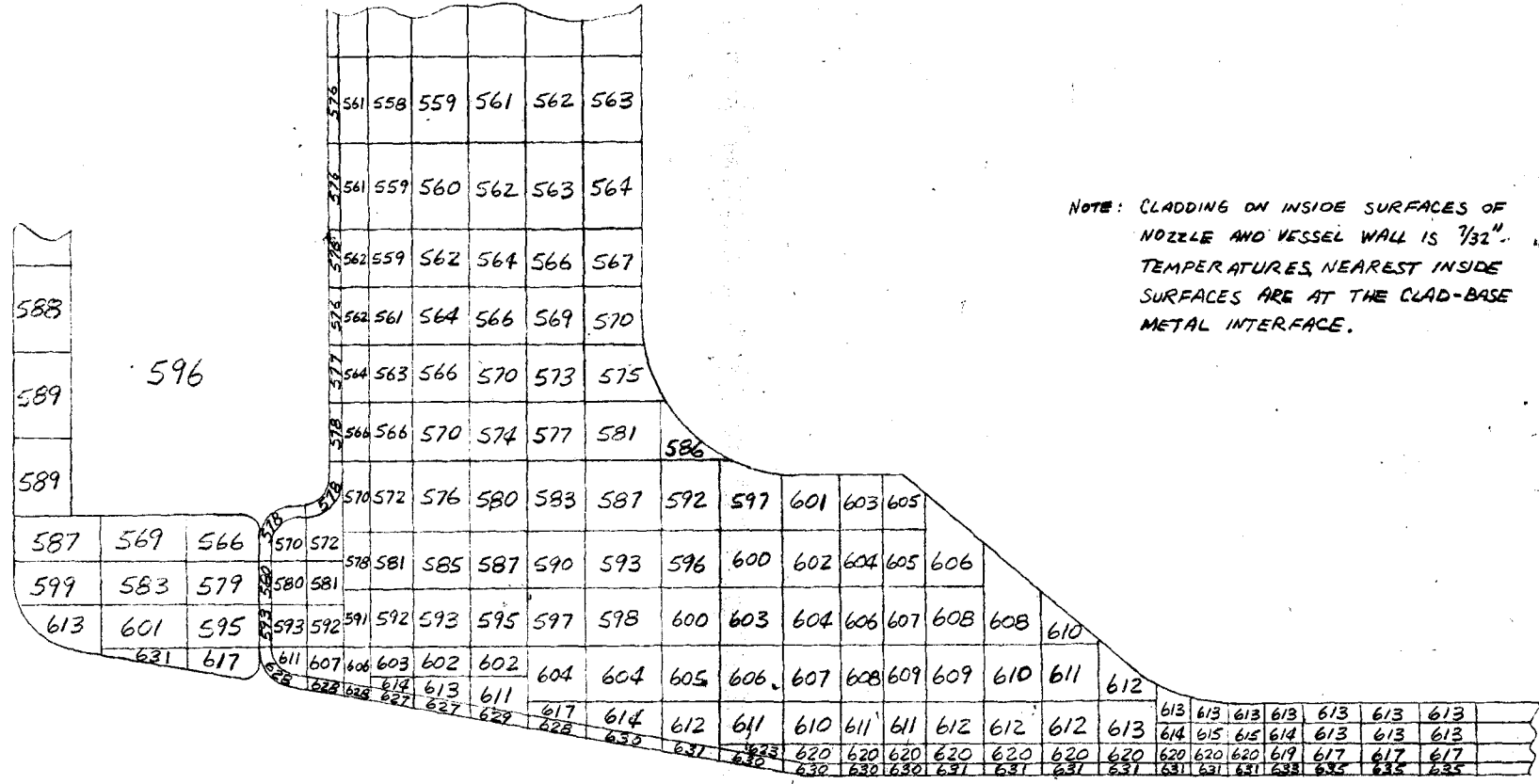
Submitted: December 22, 2011 RIV000052D



IPEC00234405

REVISIONS

B-59



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 1/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-37

ORIGINATED BY: CHATTANOOGA CONTRACT NO.  
 TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 FOR LOSS OF LOAD  
 TIME - 26 SEC.  
 WESTINGHOUSE APD

SCALE DRAWN BY JEL. DATE 4-7-66  
 CHECKED BY APPROVED



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DRAWING NO. SB-17765-74

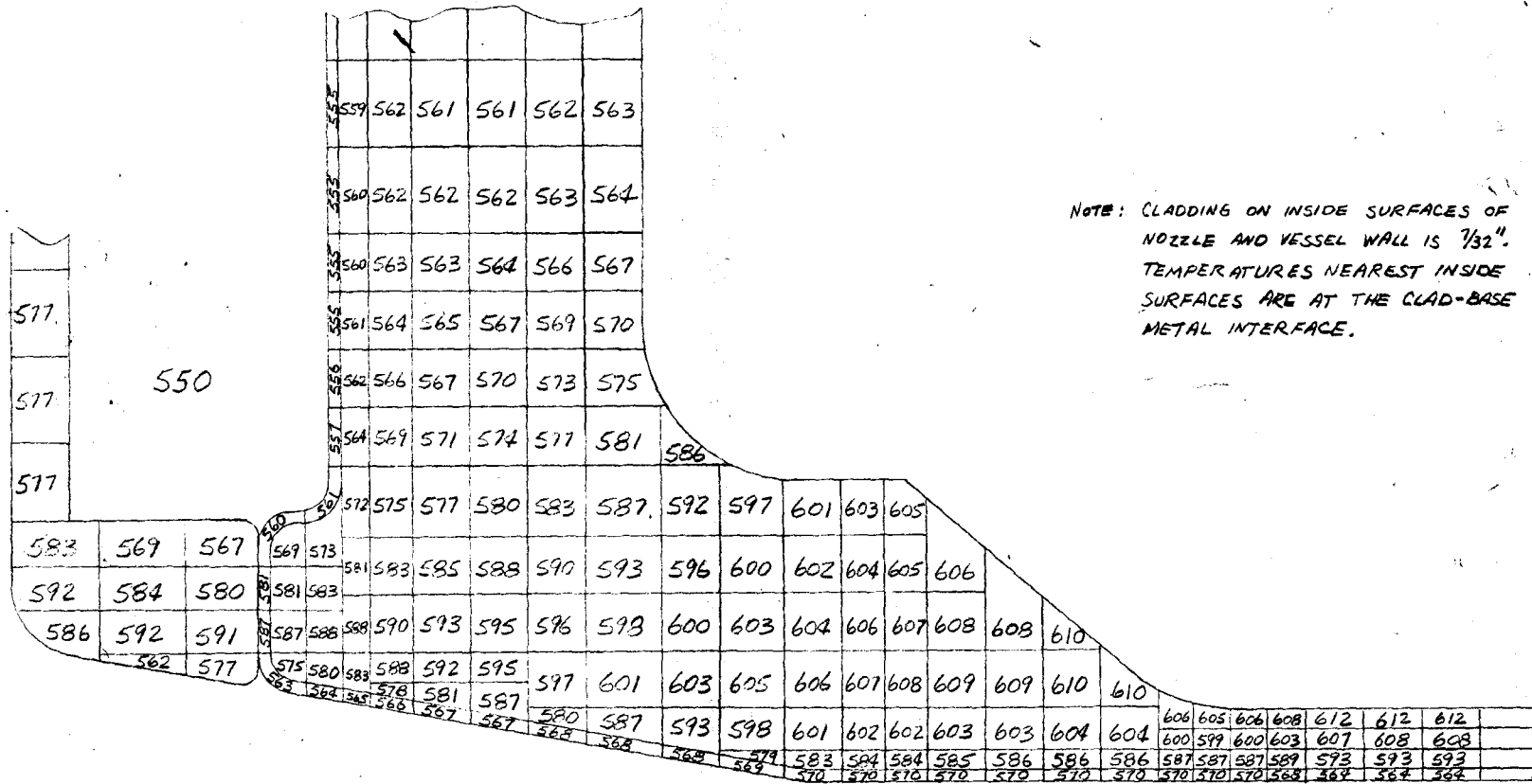
635

Submitted December 22, 2011 00052D



REVISIONS

B-60



NOTE: CLADDING ON INSIDE SURFACES OF NOZZLE AND VESSEL WALL IS 7/32". TEMPERATURES NEAREST INSIDE SURFACES ARE AT THE CLAD-BASE METAL INTERFACE.

FIGURE B-36

ORIGINATED BY: CHATTANOOGA CONTRACT NO.

TEMP. DISTRIBUTION IN OUTLET NOZZLE  
 LOSS OF LOAD  
 TIME - 144 SEC.  
 WESTINGHOUSE APP

SCALE DATE 4-7-66  
 DRAWN BY JCL CHECKED BY  
 TRACED BY APPROVED



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DRAWING NO. SB-17765-75

Submitted December 22, 2011 00052D

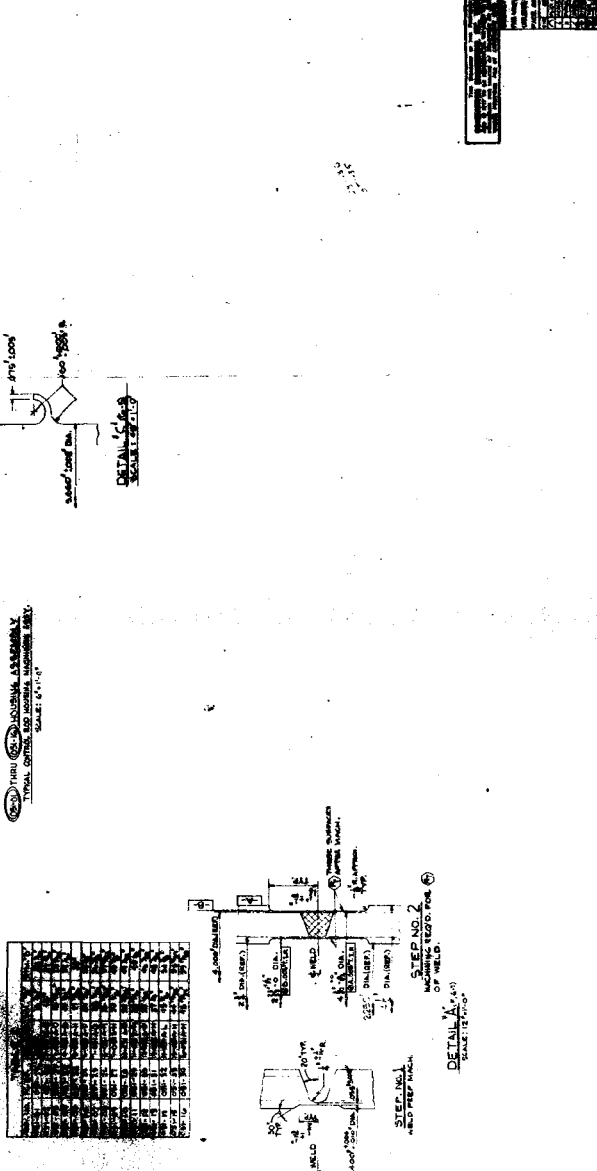
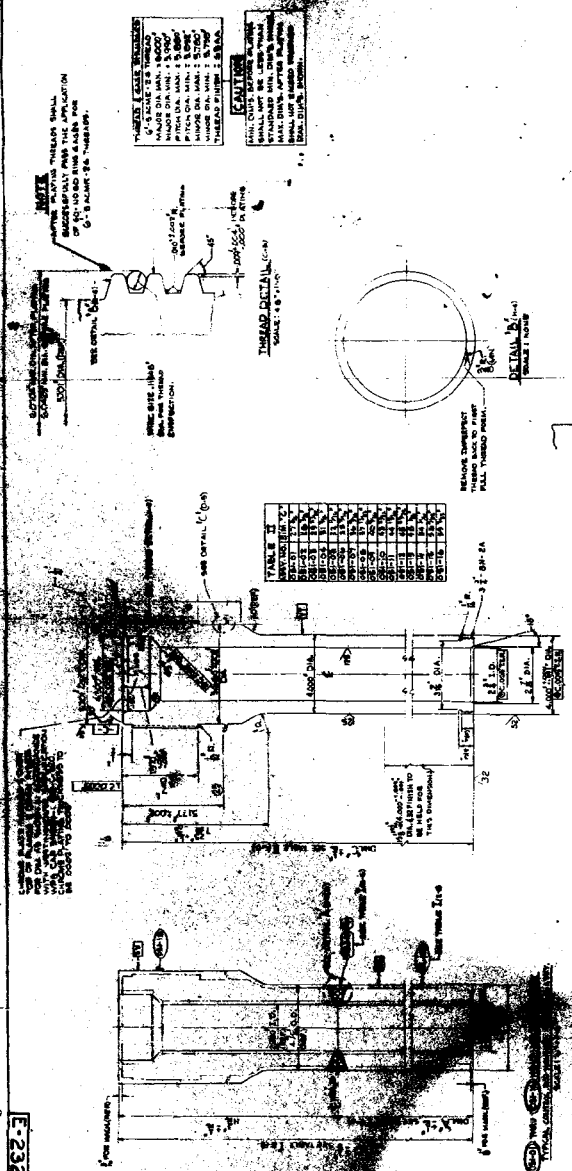




1	GENERAL NOTES	1/7/11
2	GENERAL NOTES	1/7/11
3	GENERAL NOTES	1/7/11
4	GENERAL NOTES	1/7/11
5	GENERAL NOTES	1/7/11
6	GENERAL NOTES	1/7/11
7	GENERAL NOTES	1/7/11
8	GENERAL NOTES	1/7/11
9	GENERAL NOTES	1/7/11
10	GENERAL NOTES	1/7/11

MATERIAL NOTES  
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 2. ALL SUPPLEMENTED BY C.E. PURCHASE SPEC. #45828A.

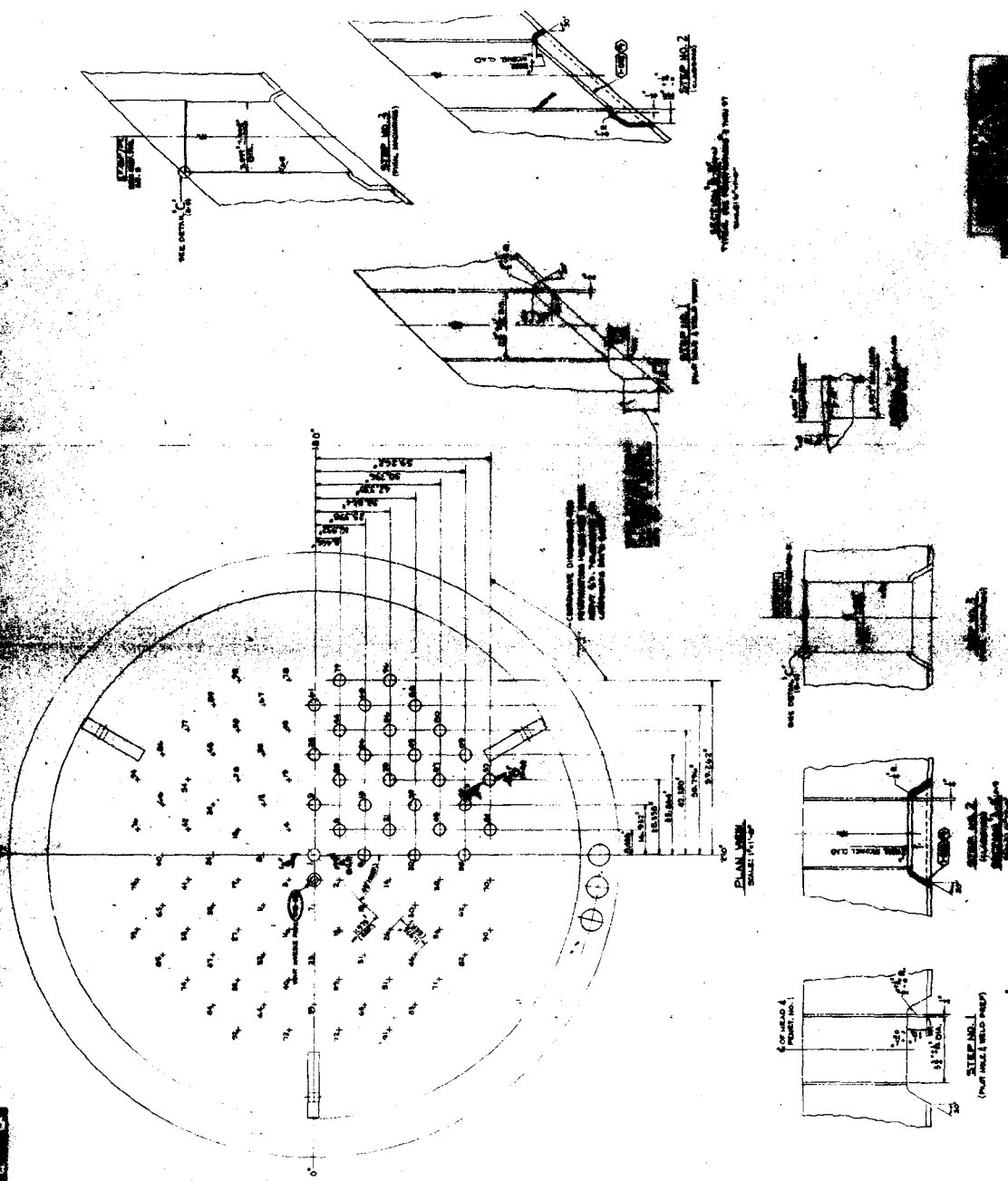
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1	STEEL PLATE	100	SQ. FT.	1.50	150.00
2	STEEL PLATE	200	SQ. FT.	1.50	300.00
3	STEEL PLATE	300	SQ. FT.	1.50	450.00
4	STEEL PLATE	400	SQ. FT.	1.50	600.00
5	STEEL PLATE	500	SQ. FT.	1.50	750.00
6	STEEL PLATE	600	SQ. FT.	1.50	900.00
7	STEEL PLATE	700	SQ. FT.	1.50	1050.00
8	STEEL PLATE	800	SQ. FT.	1.50	1200.00
9	STEEL PLATE	900	SQ. FT.	1.50	1350.00
10	STEEL PLATE	1000	SQ. FT.	1.50	1500.00



ITEM	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	STEEL PLATE	100	SQ. FT.	1.50	150.00
2	STEEL PLATE	200	SQ. FT.	1.50	300.00
3	STEEL PLATE	300	SQ. FT.	1.50	450.00
4	STEEL PLATE	400	SQ. FT.	1.50	600.00
5	STEEL PLATE	500	SQ. FT.	1.50	750.00
6	STEEL PLATE	600	SQ. FT.	1.50	900.00
7	STEEL PLATE	700	SQ. FT.	1.50	1050.00
8	STEEL PLATE	800	SQ. FT.	1.50	1200.00
9	STEEL PLATE	900	SQ. FT.	1.50	1350.00
10	STEEL PLATE	1000	SQ. FT.	1.50	1500.00



1	GENERAL NOTES	1/1
2	PLAN VIEW	1/1
3	SECTION 1	1/1
4	SECTION 2	1/1
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100	SECTION 98	1/1
101	SECTION 99	1/1
102	SECTION 100	1/1



GENERAL NOTES

1. ALL DIMENSIONS ARE IN FEET AND INCHES.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
5. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED.
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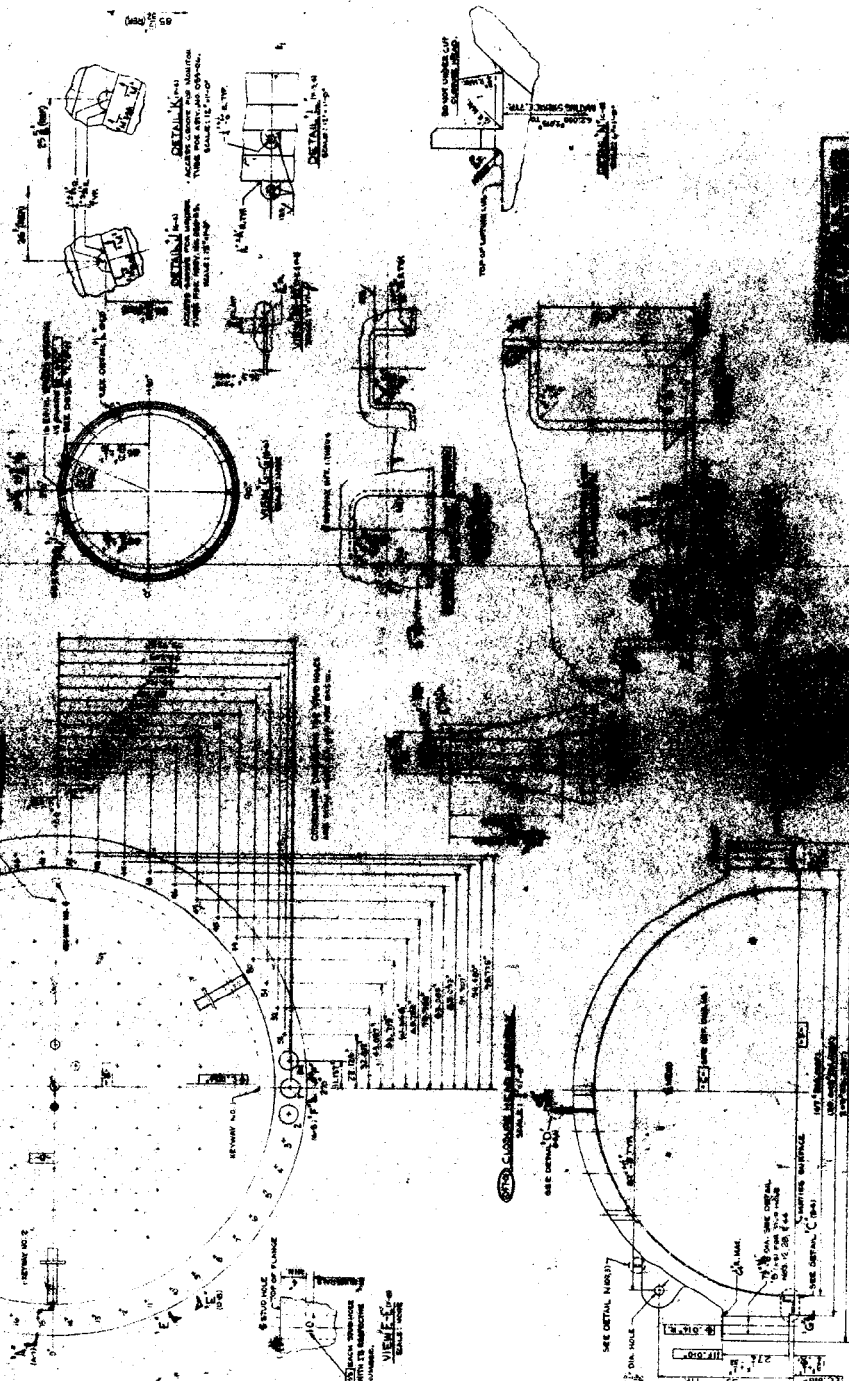
E 232-052-4







NO.	REV.	DATE	BY	CHKD.	DESCRIPTION
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2					REVISION TO DRAWING
3					REVISION TO DRAWING
4					REVISION TO DRAWING
5					REVISION TO DRAWING



NO.	REV.	DATE	BY	CHKD.	DESCRIPTION
1					ISSUED FOR FABRICATION
2					REVISION TO DRAWING
3					REVISION TO DRAWING
4					REVISION TO DRAWING
5					REVISION TO DRAWING

COMPANY INFORMATION  
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 DRAWING NO: 15100000000000000000  
 PART NO: 15100000000000000000  
 QUANTITY: 1  
 DATE: 12/22/11  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 APPROVED BY: [Name]

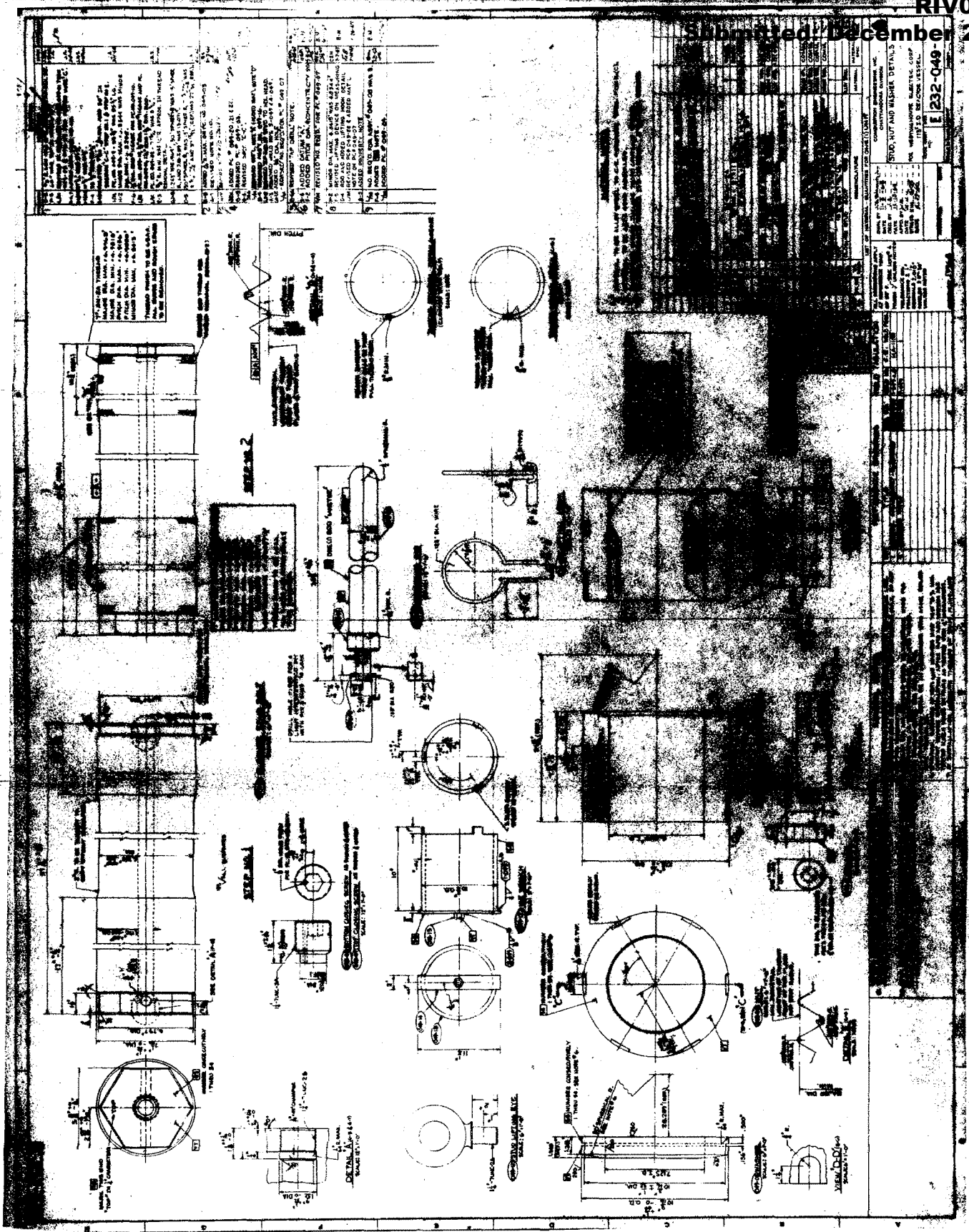
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 2. REFER TO THE DIMENSIONS WITH THE  
 3. REFER TO THE DIMENSIONS WITH THE  
 4. REFER TO THE DIMENSIONS WITH THE

SECTION A-A  
 SECTION B-B  
 SECTION C-C  
 SECTION D-D  
 SECTION E-E  
 SECTION F-F  
 SECTION G-G  
 SECTION H-H

NO.	REV.	DATE	BY	CHKD.	DESCRIPTION
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2					REVISION TO DRAWING
3					REVISION TO DRAWING
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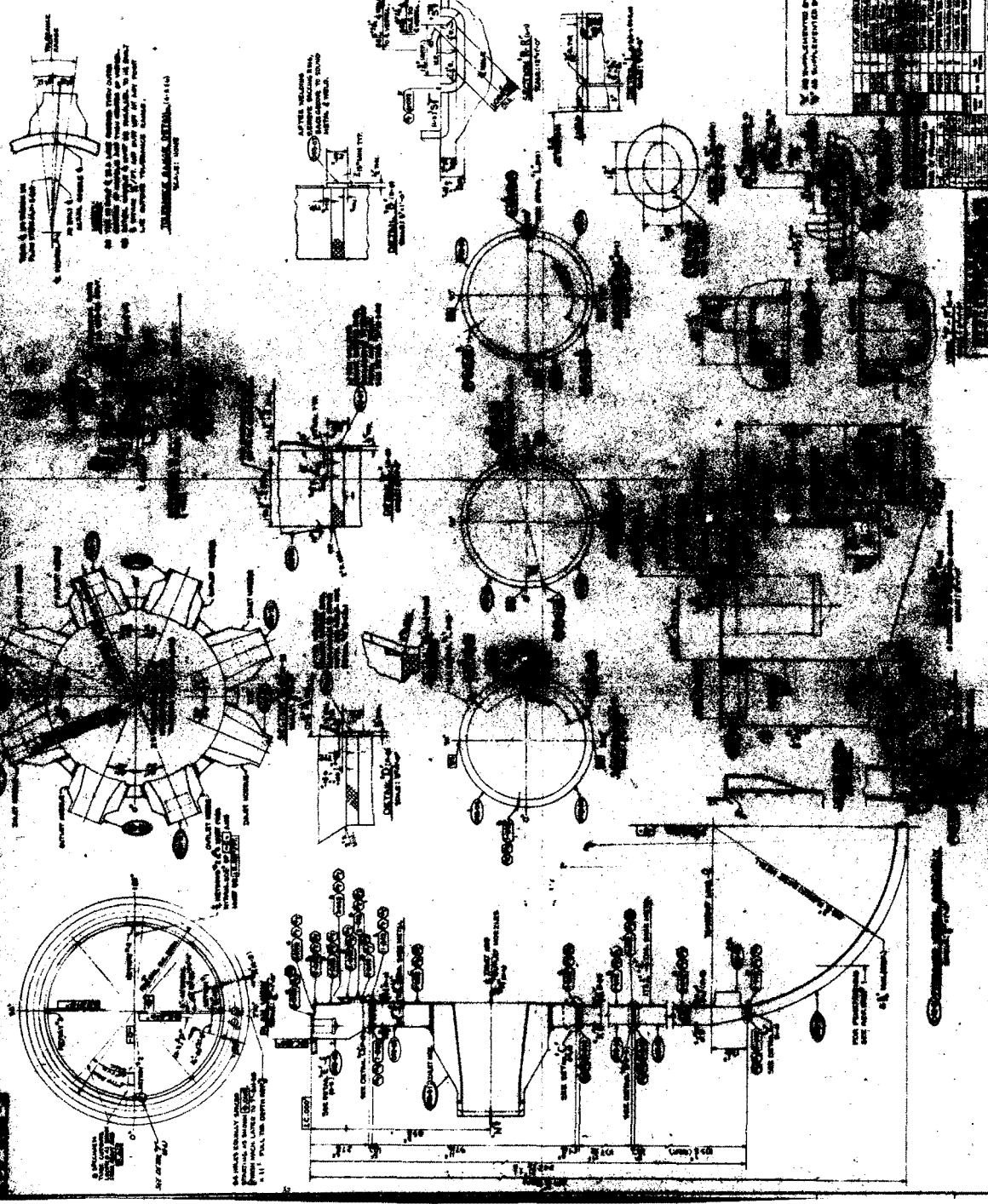




NO.	DESCRIPTION	QUANTITY	UNIT	REMARKS
1	30" x 24" STOVE	1	EA	
2	30" x 24" REFRIG	1	EA	
3	18" x 24" SINK	1	EA	
4	3/4" THICK POLISHED CHROME COUNTER	1	EA	
5	3/4" THICK POLISHED CHROME CABINETS	1	EA	
6	30" x 24" STOVE	1	EA	
7	30" x 24" REFRIG	1	EA	
8	18" x 24" SINK	1	EA	
9	3/4" THICK POLISHED CHROME COUNTER	1	EA	
10	3/4" THICK POLISHED CHROME CABINETS	1	EA	



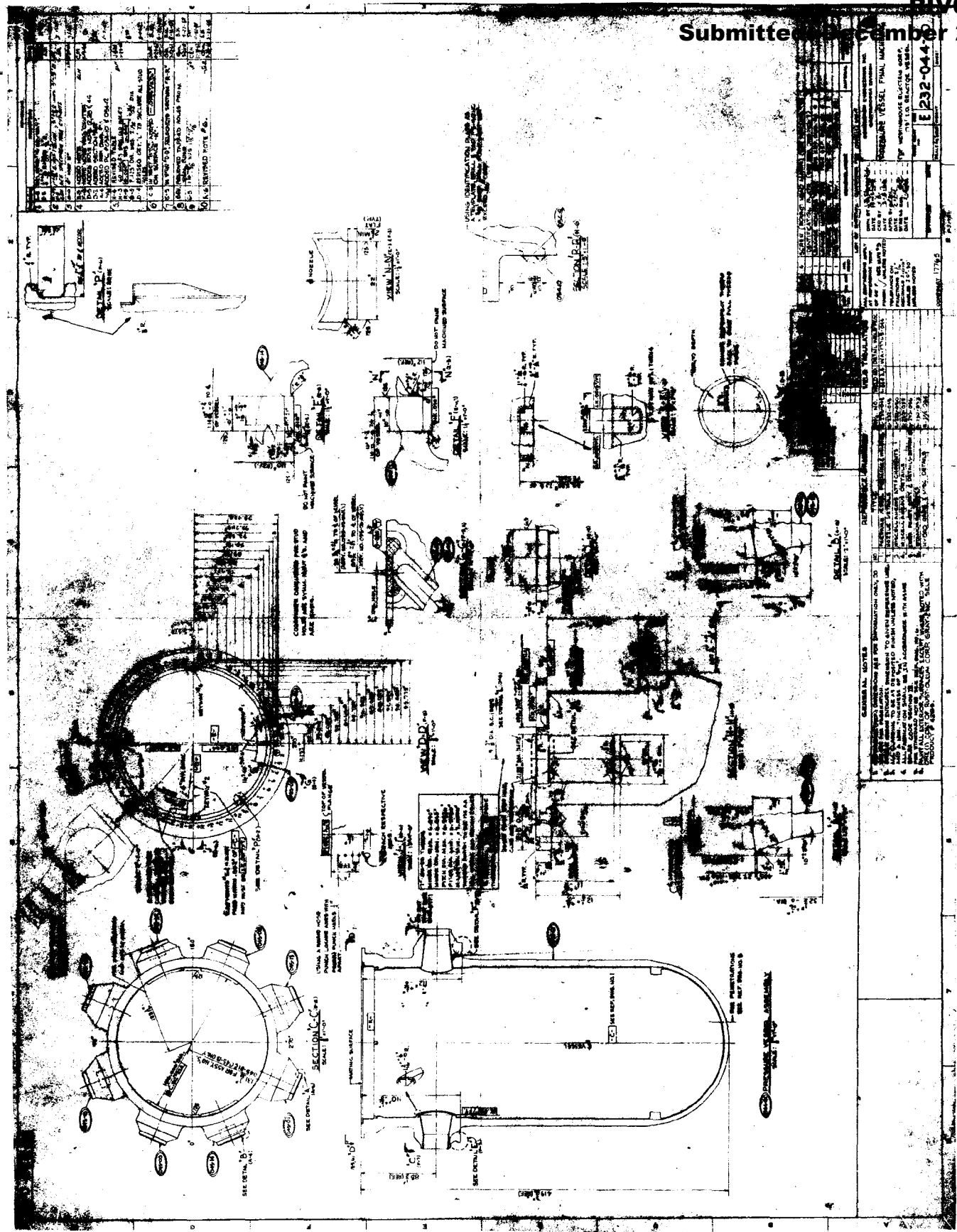
1	GENERAL NOTES	1. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE SPECIFIED.
2	GENERAL NOTES	2. ALL MATERIALS SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED.
3	GENERAL NOTES	3. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODES AND ALL APPLICABLE LOCAL ORDINANCES.
4	GENERAL NOTES	4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
5	GENERAL NOTES	5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES.
6	GENERAL NOTES	6. ALL UTILITIES SHALL BE PROTECTED AND DEEPER THAN THE FOUNDATION OF ANY ADJACENT BUILDING.
7	GENERAL NOTES	7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
8	GENERAL NOTES	8. ALL FOUNDATIONS SHALL BE CONCRETE ON A COMPACTED GRAVEL PAD UNLESS OTHERWISE SPECIFIED.
9	GENERAL NOTES	9. ALL EXTERIOR WALLS SHALL BE CONCRETE BLOCK WITH A MINIMUM OF 8" THICKNESS.
10	GENERAL NOTES	10. ALL ROOFS SHALL BE 2" POLYSTYRENE INSULATION OVER 1/2" GYP BOARD OVER 2" CONCRETE SLAB UNLESS OTHERWISE SPECIFIED.
11	GENERAL NOTES	11. ALL FLOORS SHALL BE 2" POLYSTYRENE INSULATION OVER 1/2" GYP BOARD OVER 2" CONCRETE SLAB UNLESS OTHERWISE SPECIFIED.
12	GENERAL NOTES	12. ALL CEILING SHALL BE 5/8" GYP BOARD UNLESS OTHERWISE SPECIFIED.
13	GENERAL NOTES	13. ALL INTERIORS SHALL BE PLASTER OR GYP BOARD UNLESS OTHERWISE SPECIFIED.
14	GENERAL NOTES	14. ALL EXTERIOR FINISHES SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED.
15	GENERAL NOTES	15. ALL PAINTS SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED.
16	GENERAL NOTES	16. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC).
17	GENERAL NOTES	17. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (IPC).
18	GENERAL NOTES	18. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC).
19	GENERAL NOTES	19. ALL STRUCTURAL WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC).
20	GENERAL NOTES	20. ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE APPROPRIATE AGENCIES.



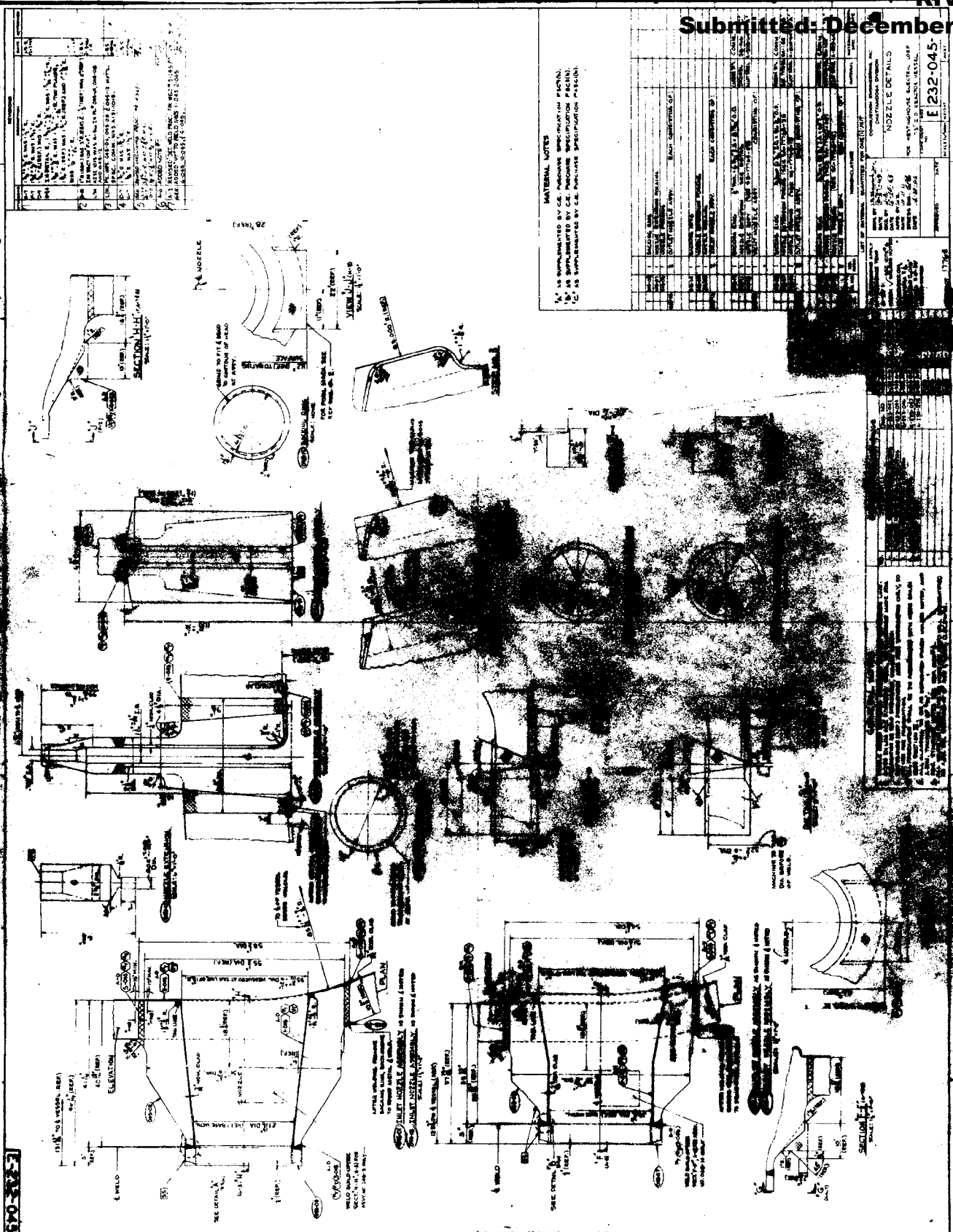
PROJECT: [REDACTED] SHEET: [REDACTED] OF [REDACTED] DATE: [REDACTED]	
DRAWN BY: [REDACTED] CHECKED BY: [REDACTED] APPROVED BY: [REDACTED]	PROJECT NO.: [REDACTED] SHEET NO.: [REDACTED]
CONTRACTOR: [REDACTED] ARCHITECT: [REDACTED]	

GENERAL NOTES: 1. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE SPECIFIED. 2. ALL MATERIALS SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED. 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODES AND ALL APPLICABLE LOCAL ORDINANCES. 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. 5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES. 6. ALL UTILITIES SHALL BE PROTECTED AND DEEPER THAN THE FOUNDATION OF ANY ADJACENT BUILDING. 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. 8. ALL FOUNDATIONS SHALL BE CONCRETE ON A COMPACTED GRAVEL PAD UNLESS OTHERWISE SPECIFIED. 9. ALL EXTERIOR WALLS SHALL BE CONCRETE BLOCK WITH A MINIMUM OF 8" THICKNESS. 10. ALL ROOFS SHALL BE 2" POLYSTYRENE INSULATION OVER 1/2" GYP BOARD OVER 2" CONCRETE SLAB UNLESS OTHERWISE SPECIFIED. 11. ALL FLOORS SHALL BE 2" POLYSTYRENE INSULATION OVER 1/2" GYP BOARD OVER 2" CONCRETE SLAB UNLESS OTHERWISE SPECIFIED. 12. ALL CEILING SHALL BE 5/8" GYP BOARD UNLESS OTHERWISE SPECIFIED. 13. ALL INTERIORS SHALL BE PLASTER OR GYP BOARD UNLESS OTHERWISE SPECIFIED. 14. ALL EXTERIOR FINISHES SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED. 15. ALL PAINTS SHALL BE AS SHOWN ON THE DRAWING UNLESS OTHERWISE SPECIFIED. 16. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC). 17. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (IPC). 18. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC). 19. ALL STRUCTURAL WORK SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC). 20. ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE APPROPRIATE AGENCIES.
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MATERIAL NOTES  
 1. IS SUPPLEMENTED BY C.E. MACHINE SPECIFICATION (P&ID).  
 2. IS SUPPLEMENTED BY C.E. MACHINE SPECIFICATION (P&ID).  
 3. IS SUPPLEMENTED BY C.E. MACHINE SPECIFICATION (P&ID).

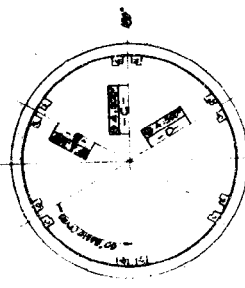
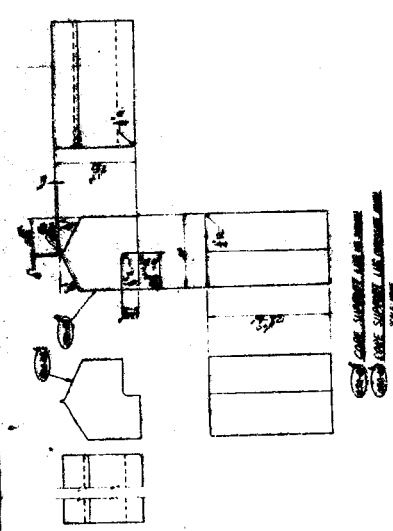
NOZZLE DETAILS	
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29	NOZZLE NO. 29
30	NOZZLE NO. 30
31	NOZZLE NO. 31
32	NOZZLE NO. 32
33	NOZZLE NO. 33
34	NOZZLE NO. 34
35	NOZZLE NO. 35
36	NOZZLE NO. 36
37	NOZZLE NO. 37
38	NOZZLE NO. 38
39	NOZZLE NO. 39
40	NOZZLE NO. 40
41	NOZZLE NO. 41
42	NOZZLE NO. 42
43	NOZZLE NO. 43
44	NOZZLE NO. 44
45	NOZZLE NO. 45
46	NOZZLE NO. 46
47	NOZZLE NO. 47
48	NOZZLE NO. 48
49	NOZZLE NO. 49
50	NOZZLE NO. 50

E 232-045

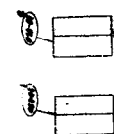
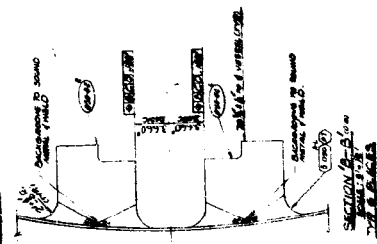
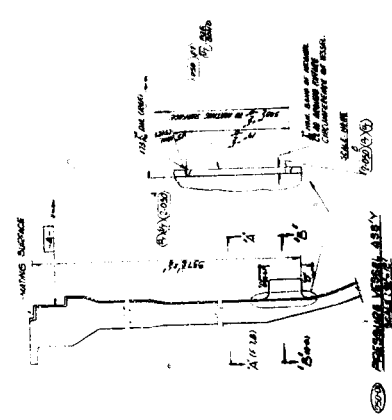




1	GENERAL NOTES
2	CONSTRUCTION
3	INSTALLATION
4	OPERATION
5	MAINTENANCE
6	REPAIRS
7	REPLACEMENT
8	DISMANTLING
9	DEMOLITION
10	REMOVAL
11	DISPOSAL
12	RECYCLING
13	ENVIRONMENTAL
14	SAFETY
15	QUALITY CONTROL
16	INSPECTION
17	TESTING
18	RECORDS
19	TRAINING
20	COMPLIANCE



SECTION A-A



WELD DETAILS

GENERAL NOTES TO BE OBSERVED BY THE CONTRACTOR

GENERAL NOTES	
CONSTRUCTION	
INSTALLATION	
OPERATION	
MAINTENANCE	
REPAIRS	
REPLACEMENT	
DISMANTLING	
DEMOLITION	
REMOVAL	
DISPOSAL	
RECYCLING	
ENVIRONMENTAL	
SAFETY	
QUALITY CONTROL	
INSPECTION	
TESTING	
RECORDS	
TRAINING	
COMPLIANCE	

E 232 - 050







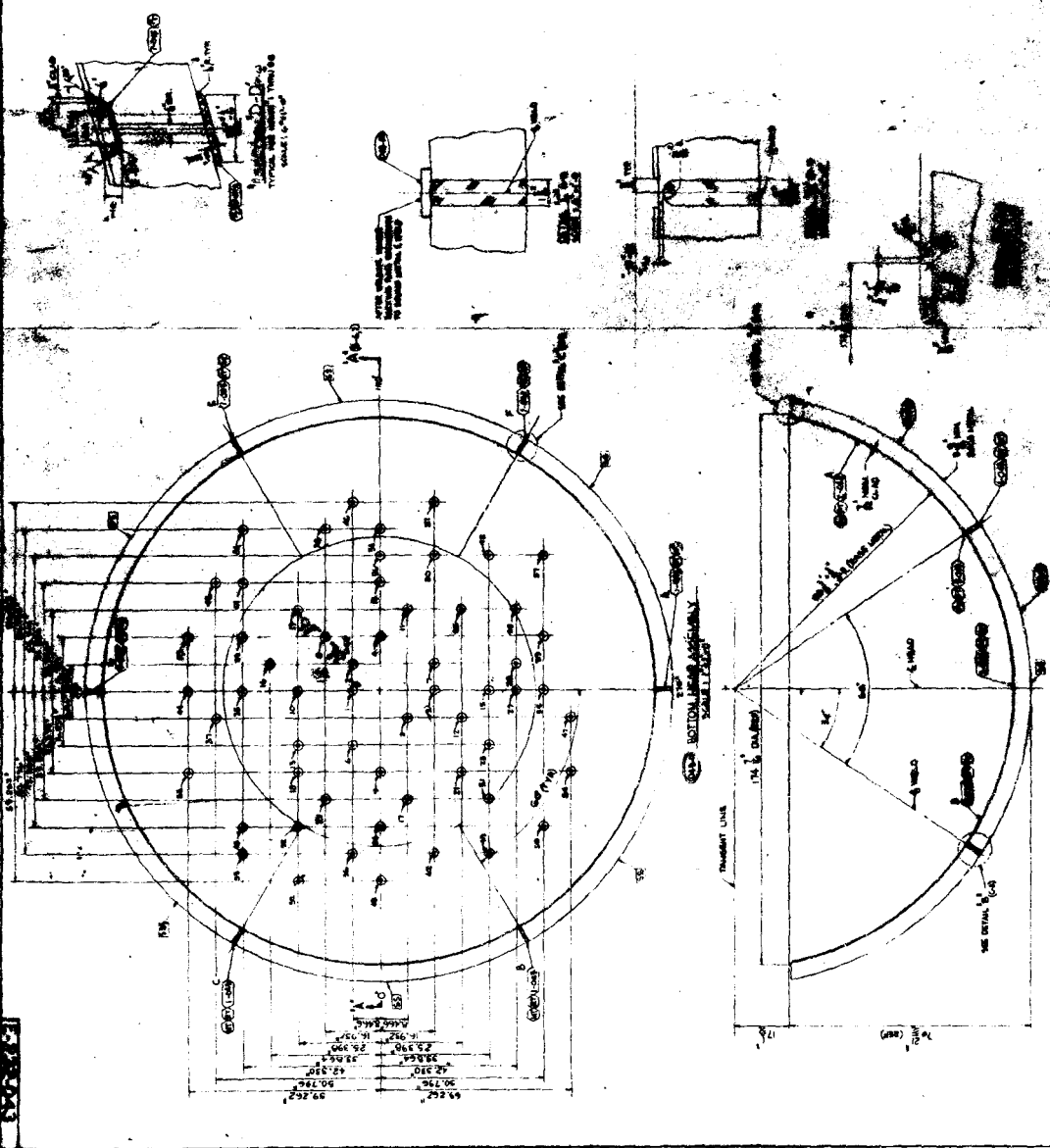
Submitted: December 2, 2011

NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	...	...	...	...	...
2	...	...	...	...	...
3	...	...	...	...	...
4	...	...	...	...	...
5	...	...	...	...	...
6	...	...	...	...	...
7	...	...	...	...	...
8	...	...	...	...	...
9	...	...	...	...	...
10	...	...	...	...	...

AS SUBMITTED BY CONTRACTOR SUBSCRIPTION P&E (16)

NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	...	...	...	...	...
2	...	...	...	...	...
3	...	...	...	...	...
4	...	...	...	...	...
5	...	...	...	...	...
6	...	...	...	...	...
7	...	...	...	...	...
8	...	...	...	...	...
9	...	...	...	...	...
10	...	...	...	...	...

E232-043



GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

2. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.

3. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE HOLE UNLESS OTHERWISE SPECIFIED.

4. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE HOLE UNLESS OTHERWISE SPECIFIED.

5. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE HOLE UNLESS OTHERWISE SPECIFIED.

SECTION A-A

SECTION B-B

SECTION C-C



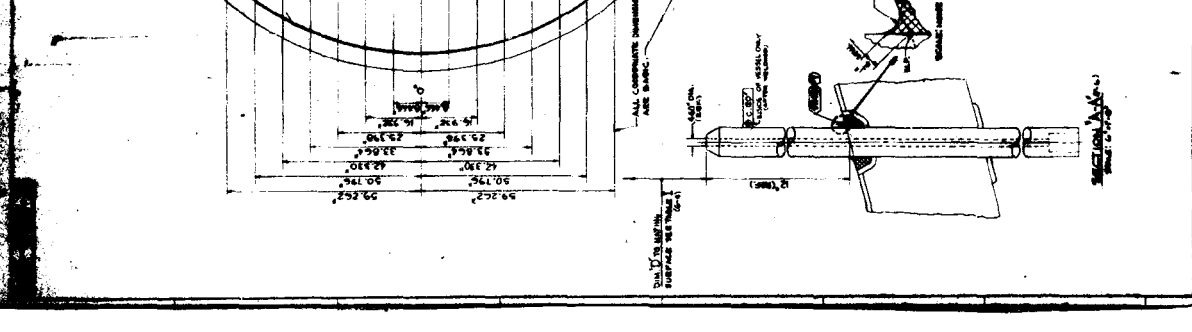
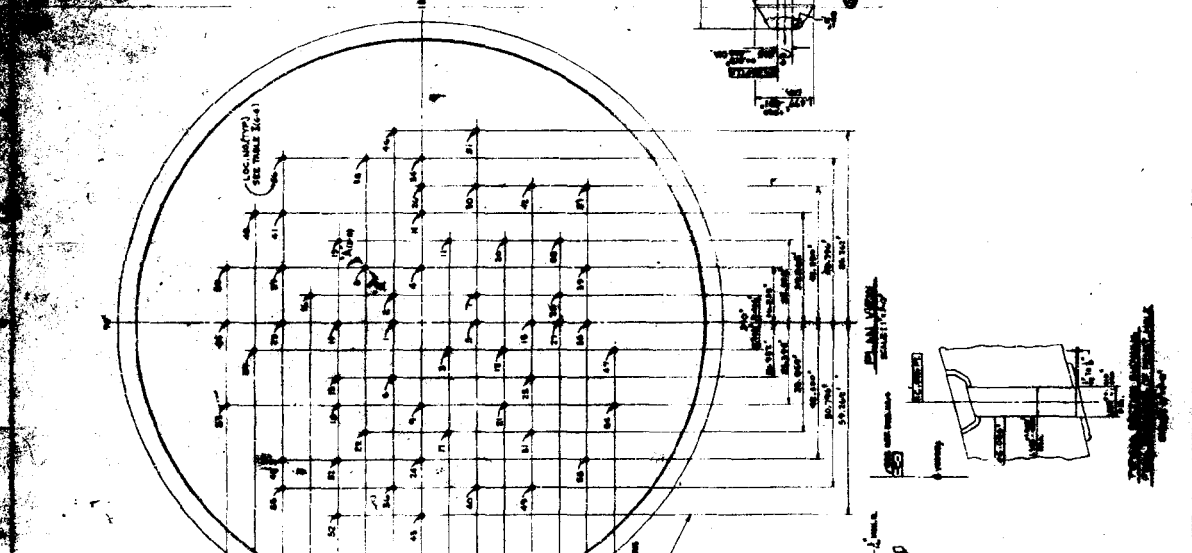
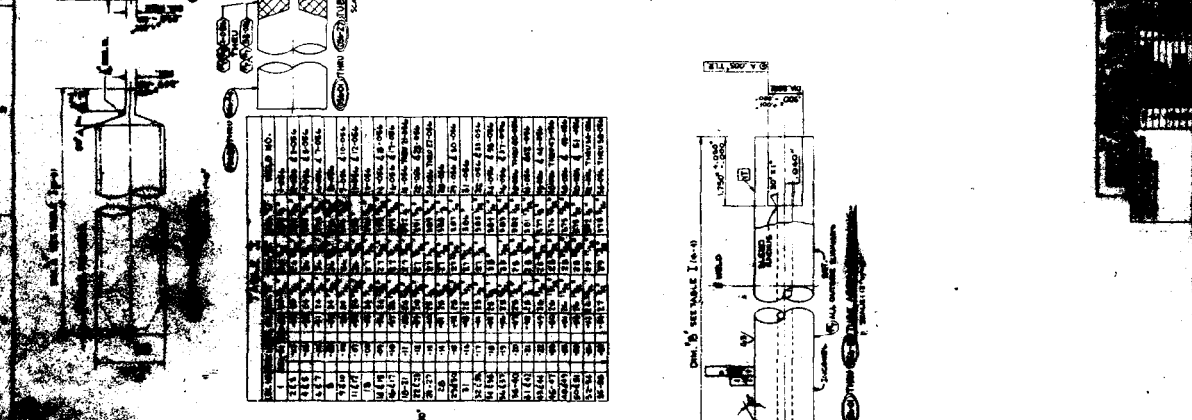
1/233-0560

**MATERIAL NOTES**

1. IS SUPPLEMENTED BY CE PURCHASE SPEC P-110. 01

2. ADDITIONAL VERIFICATION INSPECTIONS REQUIRED IN CONJUNCTION WITH REPRESENTATIVE OF THE BUYER AND THE SUPPLIER.

ITEM NO.	QTY	DESCRIPTION	UNIT	REMARKS
100	1	ASSEMBLY	EA	SEE NOTE 1
101	1	ASSEMBLY	EA	SEE NOTE 1
102	1	ASSEMBLY	EA	SEE NOTE 1
103	1	ASSEMBLY	EA	SEE NOTE 1
104	1	ASSEMBLY	EA	SEE NOTE 1
105	1	ASSEMBLY	EA	SEE NOTE 1
106	1	ASSEMBLY	EA	SEE NOTE 1
107	1	ASSEMBLY	EA	SEE NOTE 1
108	1	ASSEMBLY	EA	SEE NOTE 1
109	1	ASSEMBLY	EA	SEE NOTE 1
110	1	ASSEMBLY	EA	SEE NOTE 1
111	1	ASSEMBLY	EA	SEE NOTE 1
112	1	ASSEMBLY	EA	SEE NOTE 1
113	1	ASSEMBLY	EA	SEE NOTE 1
114	1	ASSEMBLY	EA	SEE NOTE 1
115	1	ASSEMBLY	EA	SEE NOTE 1
116	1	ASSEMBLY	EA	SEE NOTE 1
117	1	ASSEMBLY	EA	SEE NOTE 1
118	1	ASSEMBLY	EA	SEE NOTE 1
119	1	ASSEMBLY	EA	SEE NOTE 1
120	1	ASSEMBLY	EA	SEE NOTE 1
121	1	ASSEMBLY	EA	SEE NOTE 1
122	1	ASSEMBLY	EA	SEE NOTE 1
123	1	ASSEMBLY	EA	SEE NOTE 1
124	1	ASSEMBLY	EA	SEE NOTE 1
125	1	ASSEMBLY	EA	SEE NOTE 1
126	1	ASSEMBLY	EA	SEE NOTE 1
127	1	ASSEMBLY	EA	SEE NOTE 1
128	1	ASSEMBLY	EA	SEE NOTE 1
129	1	ASSEMBLY	EA	SEE NOTE 1
130	1	ASSEMBLY	EA	SEE NOTE 1
131	1	ASSEMBLY	EA	SEE NOTE 1
132	1	ASSEMBLY	EA	SEE NOTE 1
133	1	ASSEMBLY	EA	SEE NOTE 1
134	1	ASSEMBLY	EA	SEE NOTE 1
135	1	ASSEMBLY	EA	SEE NOTE 1
136	1	ASSEMBLY	EA	SEE NOTE 1
137	1	ASSEMBLY	EA	SEE NOTE 1
138	1	ASSEMBLY	EA	SEE NOTE 1
139	1	ASSEMBLY	EA	SEE NOTE 1
140	1	ASSEMBLY	EA	SEE NOTE 1
141	1	ASSEMBLY	EA	SEE NOTE 1
142	1	ASSEMBLY	EA	SEE NOTE 1
143	1	ASSEMBLY	EA	SEE NOTE 1
144	1	ASSEMBLY	EA	SEE NOTE 1
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151	1	ASSEMBLY	EA	SEE NOTE 1
152	1	ASSEMBLY	EA	SEE NOTE 1
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154	1	ASSEMBLY	EA	SEE NOTE 1
155	1	ASSEMBLY	EA	SEE NOTE 1
156	1	ASSEMBLY	EA	SEE NOTE 1
157	1	ASSEMBLY	EA	SEE NOTE 1
158	1	ASSEMBLY	EA	SEE NOTE 1
159	1	ASSEMBLY	EA	SEE NOTE 1
160	1	ASSEMBLY	EA	SEE NOTE 1
161	1	ASSEMBLY	EA	SEE NOTE 1
162	1	ASSEMBLY	EA	SEE NOTE 1
163	1	ASSEMBLY	EA	SEE NOTE 1
164	1	ASSEMBLY	EA	SEE NOTE 1
165	1	ASSEMBLY	EA	SEE NOTE 1
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169	1	ASSEMBLY	EA	SEE NOTE 1
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195	1	ASSEMBLY	EA	SEE NOTE 1
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197	1	ASSEMBLY	EA	SEE NOTE 1
198	1	ASSEMBLY	EA	SEE NOTE 1
199	1	ASSEMBLY	EA	SEE NOTE 1
200	1	ASSEMBLY	EA	SEE NOTE 1



**GENERAL NOTES**

1. THIS DRAWING IS A PRELIMINARY DRAWING AND IS SUBJECT TO CHANGE WITHOUT NOTICE.

2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

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5. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE BORE UNLESS OTHERWISE SPECIFIED.

6. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE BORE UNLESS OTHERWISE SPECIFIED.

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8. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE BORE UNLESS OTHERWISE SPECIFIED.

9. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE BORE UNLESS OTHERWISE SPECIFIED.

10. ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF THE BORE UNLESS OTHERWISE SPECIFIED.



