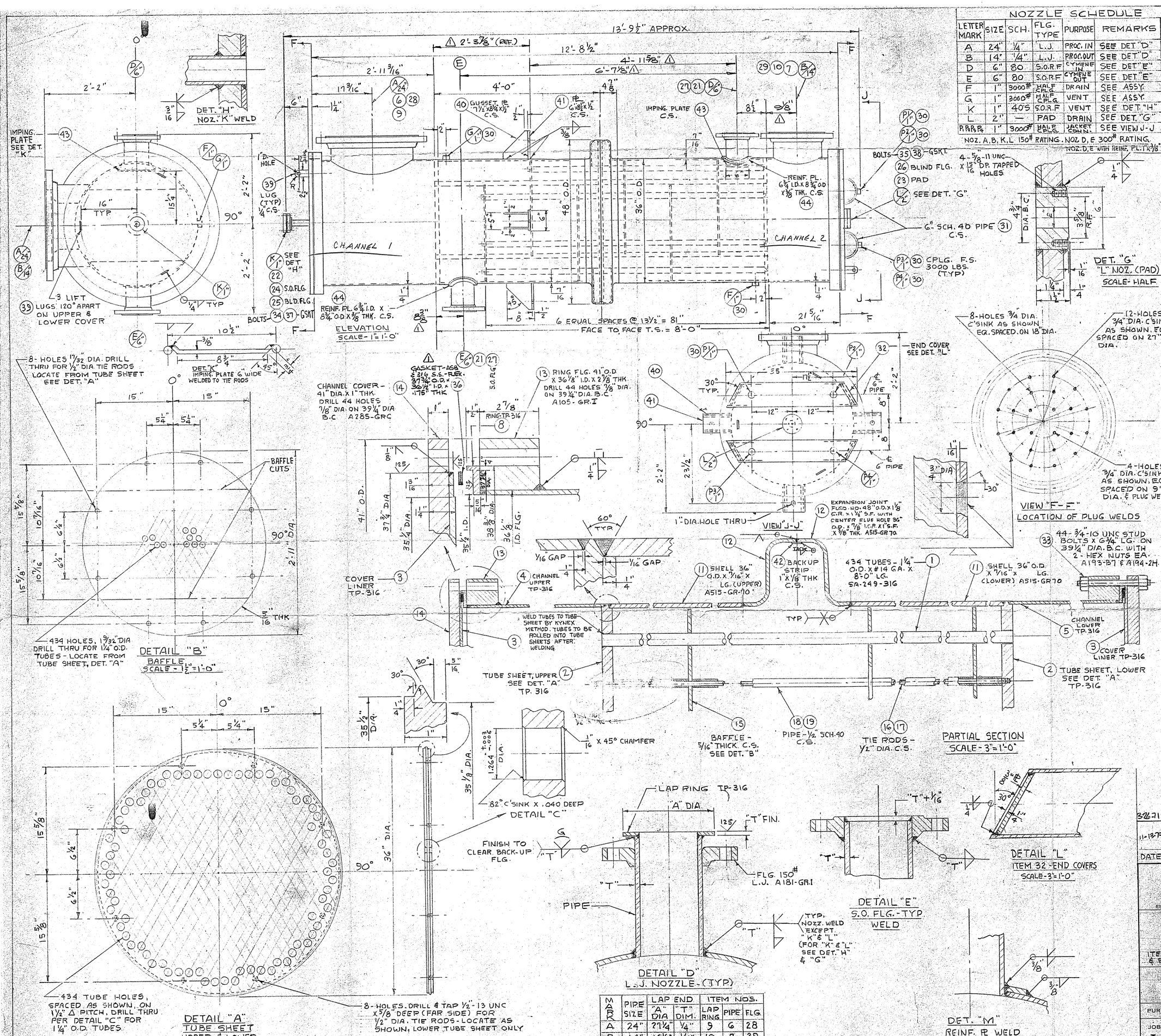

NOZZLE SCHEDULE

LETTER MARK	SIZE	SCH.	FLG. TYPE	PURPOSE	REMARKS
A	24"	¼"	L.J.	PROC. IN	SEE DET. "D"
B	14"	¼"	L.J.	PROC. OUT	SEE DET. "D"
D	6"	80	S.O.R.F.	CYMENE IN	SEE DET. "E"
E	6"	80	S.O.R.F.	CYMENE OUT	SEE DET. "E"
F	1"	3000#	HALF CPLG.	DRAIN	SEE ASSY.
G	1"	3000#	HALF CPLG.	VENT	SEE ASSY.
K	1"	40S	S.O.R.F.	VENT	SEE DET. "H"
L	2"	—	PAD	DRAIN	SEE DET. "G"
P1 P2 P3 P4	1"	3000#	HALF CPLG.	JACKET CONN.	SEE VIEW J-J

NOZ. A, B, K, L 150# RATING. NOZ. D, E 300# RATING.
NOZ. D, E WITH REINF. PL. 1" X ⅜"

DESIGN DATA:	SHELL	TUBE SIDE
DESIGN AND FABRICATION:	ASME-UFPV SEC. VIII, 1968	ASME CODE SECT VIII-1968 & TEMA C
DESIGN PRESSURE	300 PSIG	FV
DESIGN TEMPERATURE	600° F	550°F
CORROSION ALLOWANCE	1/16"	NONE
WELDING	UW-47	UW-47
FLANGE FACE FINISH	125	125
RADIOGRAPHIC EXAMINATION	SPOT	SPOT
HEAT TREATMENT	NONE	NONE
TEST PROCEDURE	UG-99	UG-99
FINAL TEST PRESSURE	450 PSIG	25 P.S.I.
MATERIAL:		
SHELL	A515 GR 70	SA 240-TP316
~~HEADS CHANNEL COVER~~		CA285-GR C W/ TP316 SS LINER
SUPPORTS	CARBON STL	
NOZZLE NECKS	SA53-GR.B	SA-240-TP316 312-TP316
MANHOLE NECK		
REINFORCING PADS		
NOZZLE FLANGES	SA-181-GR.1	SA-181-GR1 182-F316
SHELL AND HEAD FLANGES		SA-105-GR1
BOLTS		SA-193-B7
NUTS		SA-194-2H
GASKETS	ASB & 316 S.S.	FLEXITALLIC
TUBES	SA-249-TP316	
EXPANSION JOINT	A515-GR-70	
TUBE SHEETS		SA-240-TP316
BAFFLES	CARBON STL	
TIE RODS & SPACERS	CARBON STL	
HALF COUPLINGS	SA105-GRII	

TEST PRESSURE BASED ON 1½ X DESIGN PRESSURE

WEIGHT EMPTY 9800 LBS.
WEIGHT FULL OF WATER 14800 LBS.
OPERATING WEIGHT
PAINTING ONE COAT RED LEAD PRIMER C.STL. ONLY
INSPECTION UNDERWRITERS, HERCULES & OAT
STAMPING ASME CODE STAMP REQD.

ALL MANHOLE AND NOZZLE OPENINGS SHALL MEET THE REQUIREMENTS FOR REINFORCEMENT OF OPENINGS PER THE ASME CODE FOR UNFIRED PRESSURE VESSELS.

MANHOLES AND NOZZLES SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
MANHOLES _____ NOZZLES _____

UNLESS OTHERWISE NOTED:
ALL BOTTOM NOZZLES SHALL BE FLUSH WITH INSIDE OF VESSEL. OTHER NOZZLES SHALL _____

BOLT HOLES SHALL STRADDLE THE NORMAL VESSEL CENTER LINES.

MARK	PIPE SIZE	LAP END "A" DIA	LAP END "T" DIM.	ITEM NOS. LAP RING	ITEM NOS. PIPE	ITEM NOS. FLG.
A	24"	27¼"	¼"	9	6	28
B	14"	16¼"	¼"	10	7	29

B.P.F. NO. 41615 DATE 5/29/71
SHEET 1 APPARATUS NO. E-400-5A E-2400-5A
PROJECT & ACCOUNT 26019 2003 2016
ORDER NO. 336-026-19355
PLANT HANOVER
APPROVED P.T. Boynton

104049

DATE	REVISIONS	BY
3/26/71	② ADDED 25 P.S.I. TO TUBE SIDE FINAL TEST PRESS.	C.M.
11-18-70	DIMS. REVISED - 4'-11⅝" WAS 4'-11½" - 2⅞" WAS 3" ADDED DIMS. - 6'-7⅞", 3⅛", 2'-3⅜" (REF.) ① REVISED GASKET SIZE & MATERIAL. ISSUED FOR FABRICATION.	JKC

JOSEPH OAT & SONS, INCORPORATED
CHEMICAL ENGINEERS/DESIGNERS/FABRICATORS
236 QUARRY STREET
PHILADELPHIA, PENNSYLVANIA 19106
ESTABLISHED 1788

ESTER STILL REBOILER
36" O.D. X 13'-9½" O.A.L. 1-PASS
CARBON STL. & TP316 CONST.
ITEMS E-400-5A & E-2400-5A ASSEMBLY & FABRICATION
FOR
HERCULES, INCORPORATED
HANOVER PLANT
WILMINGTON, NO. CAROLINA

PURCHASE ORDER NO. 336-026-19355-08 000-ECD
NO. REQ'D. 2
JOB NO. J-1960-1 A B
DRAWN: RO
DATE: 9-15-70
SCALE: AS NOTED
DRAWING NO. 5028
REV. 2

B-1625