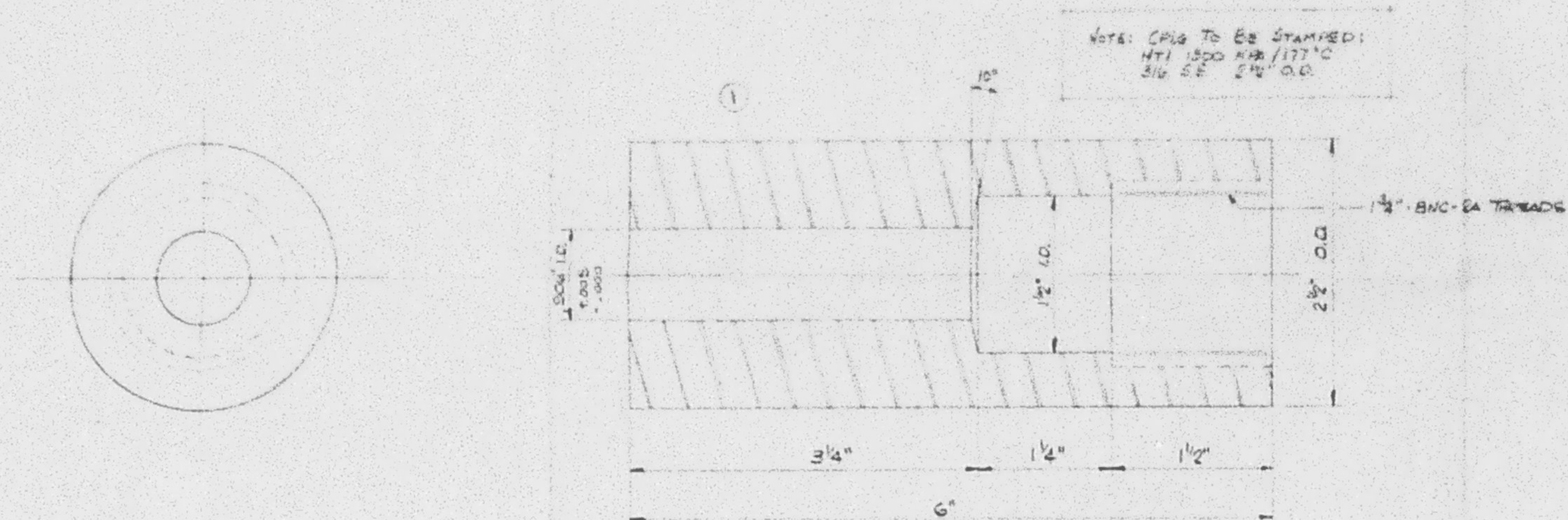
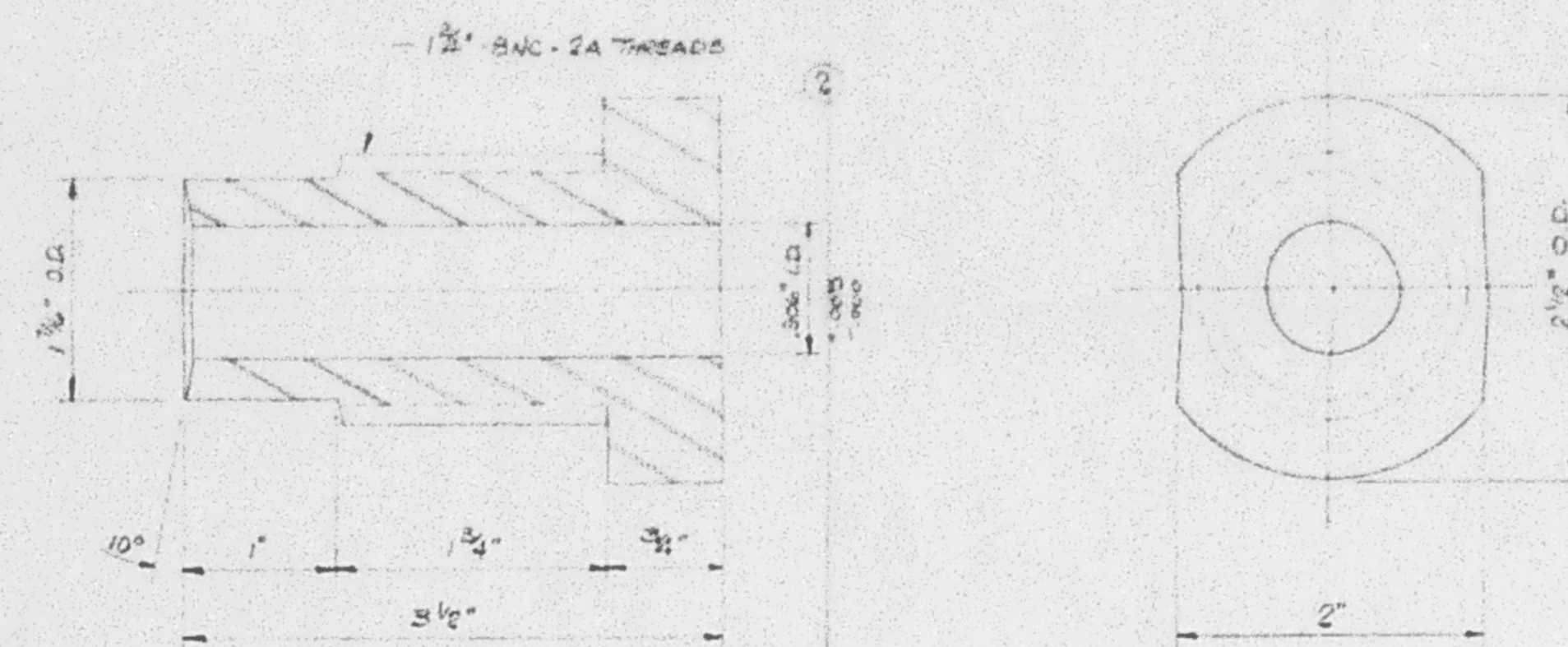


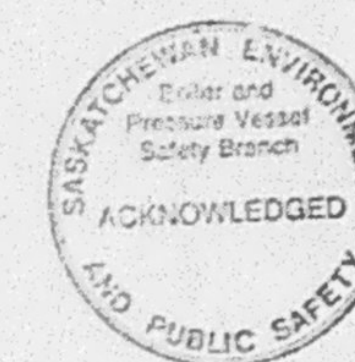
DATE	7/1	TIME	11:00 AM
NAME	J. J. J.		
ADDRESS	1234 Main St.		
CITY	New York		
STATE	NY		
ZIP	10001		
TOTAL DUE			
PAID	10.00		
DATE	7/1	TIME	11:00 AM
NAME	J. J. J.		
ADDRESS	1234 Main St.		
CITY	New York		
STATE	NY		
ZIP	10001		
TOTAL DUE			
PAID	10.00		



PACKING GLAND BODY



PACKING GLAND NUT



ALBERTA REGISTRATION # 03571.2

1752

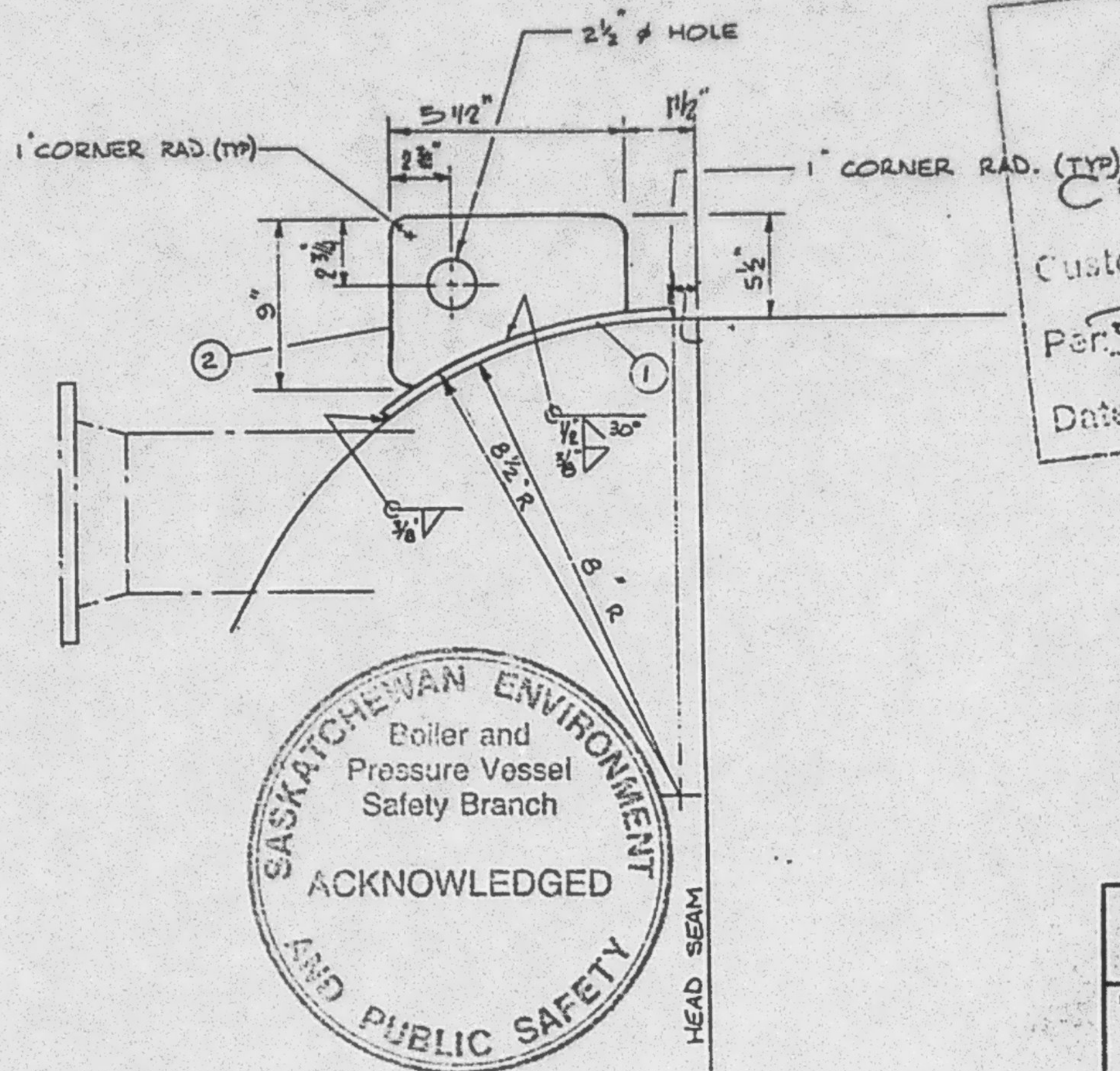
HTI CANADA		HTI Technology Canada Ltd. Calgary, Alberta	
DESCRIPTION <u>GRID DRIVE PACKING GLAND</u>		QUANTITY	<u>25</u>
		INCH	
		CMH'S	
LOCATION <u>CHEM HILL / SAGE OIL</u>		SCALE	<u>10000</u>
		DATE	<u>14 APRIL 1985</u>
THIS DRAWING AND ALL INFORMATION CONTAINED THEREIN IS THE PROPERTY OF CHEM HILL TECHNOLOGY CANADA LTD. AND IS NOT TO BE USED WITHOUT THEIR CONSENT.		DRAWN <u>CB</u> INCHES <u>TO 40-24</u>	

DATE	BY	DESCRIPTION	SW
RECEIVED			

THE (ORIGINAL AND ALL INFORMATION CONTAINED HEREIN IS THE PROPERTY OF HILL HOLDINGS CANADA LTD. AND IS NOT TO BE USED WITHOUT THEIR CONSENT.

DATE 08-450
 FILE NO. TO-450-24-0

ITEM	REFD	DESCRIPTION	
1	1	1/2" R x 6" x 17"	SA-516-70
2	1	1 1/2" R x 8" x 17-1/2"	SA-516-70



APPROVED
FOR
CONSTRUCTION

Customer:

Per:

Date: Aug 3/88

ABOVE QTY FOR ONE (1) ONE LIFT LUG
TOTAL -- 2 REQ'D

17521



HEAD SEAM

		HTI Technology Canada Ltd. Calgary, Alberta	
DESCRIPTION <u>LIFTING LUG</u> FOR 10' Ø VESSEL 1/2" INSUL.	DRAWN	DE	
	ENGR		
	CHECKD		
CUSTOMER <u>CH2M / SASKOIL</u>	SCALE	NTS	
	DATE	80-07-25	

Saskatchewan Environment
and Public Safety

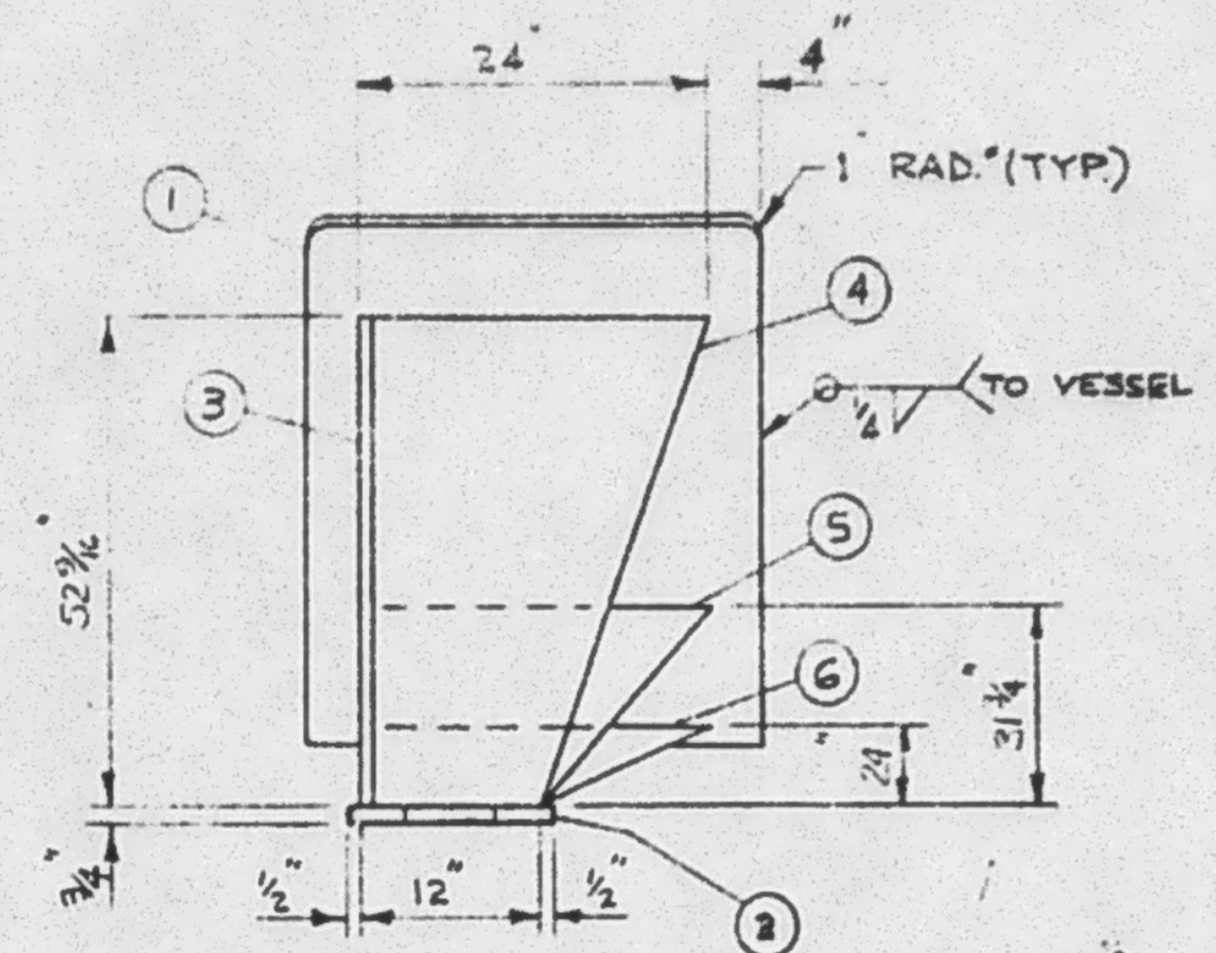
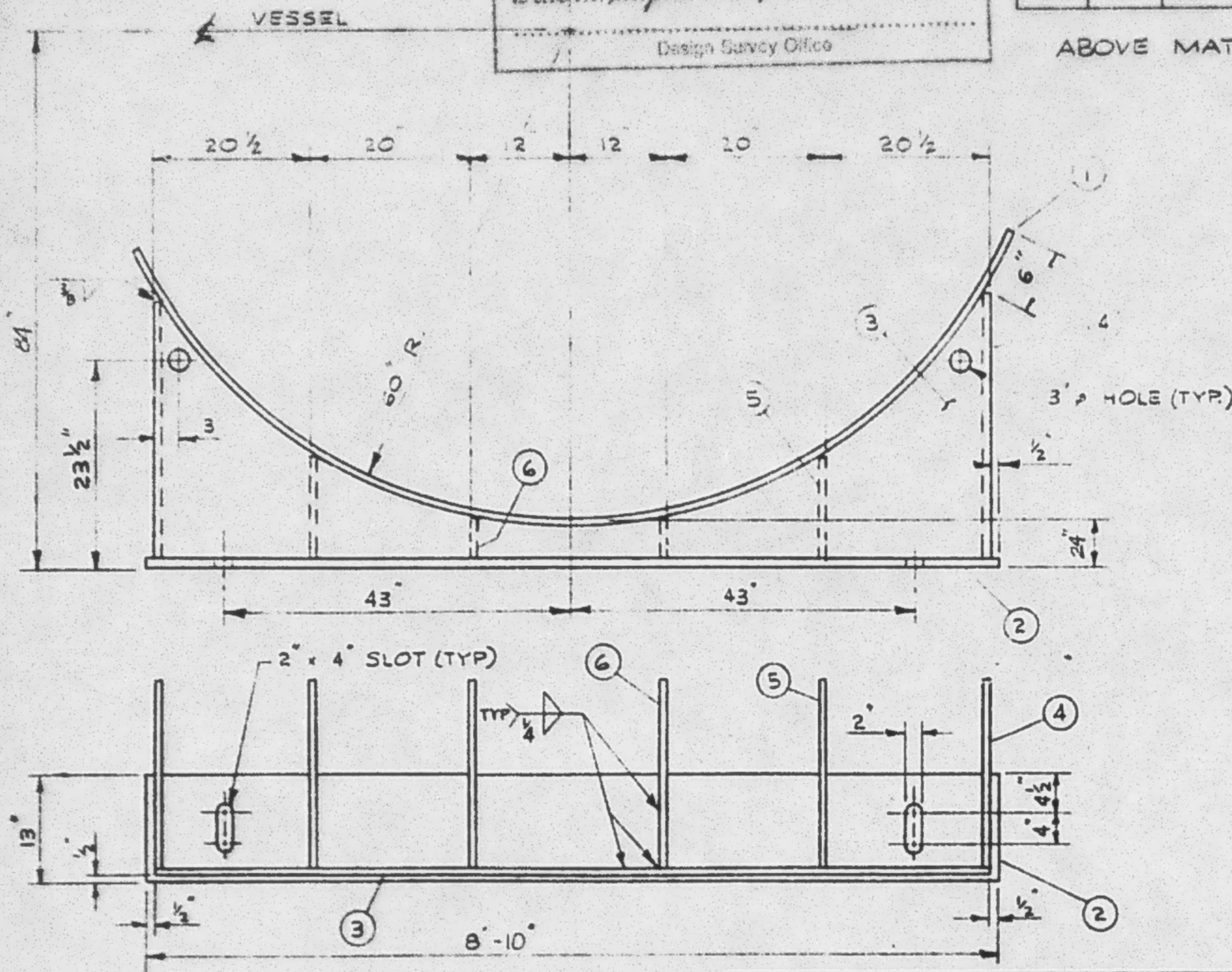
Boiler & Pressure Vessel
Safety Branch

CFM A0777.3
File 17521
Design Press. Temp. 300°F
Shut 75 p.s.i.g.
Tube 300°F
APPROVED
Date Sept. 19, 1988

Design Survey Office

ITEM	REQD	DESCRIPTION	P.O. NO.
1	1	$\frac{3}{8}$ " R x 32" x 11'-6" LG	
2		$\frac{3}{4}$ " R x 13" x 8'-10" LG SA-36	
3	1	$\frac{1}{2}$ " R x 40 $\frac{1}{16}$ " x 8'-9" LG SA-36	
4	2	$\frac{1}{2}$ " R x 23 $\frac{1}{2}$ " x 40 $\frac{1}{16}$ " LG SA-36	
5	2	$\frac{1}{2}$ " R x 23 $\frac{1}{2}$ " x 19 $\frac{3}{4}$ " LG SA-36	
6	2	$\frac{1}{2}$ " R x 23 $\frac{1}{2}$ " x 12" LG SA-36	

ABOVE MAT'L FOR ONE SADDLE ONLY TOTAL 2 REQ'D



Technology Canada Ltd.

Calgary, Alberta

DESCRIPTION	SADDLE DETAIL for 10 FT. DIA. VESSEL	DRAWN	D. M.
CUSTOMER	CH2M / SASKOIL	ENGR	
		CHECKD	
		SCALE	
		DATE	88-07-19
THIS DRAWING AND ALL INFORMATION CONTAINED THEREIN IS THE PROPERTY OF HTI TECHNOLOGY CANADA LTD. AND IS NOT TO BE USED WITHOUT THEIR CONSENT.		DWG No.	TA-450A-5
		JOB No.	88-450A

DATE	BY	DESCRIPTION	SYM
		REVISIONS	

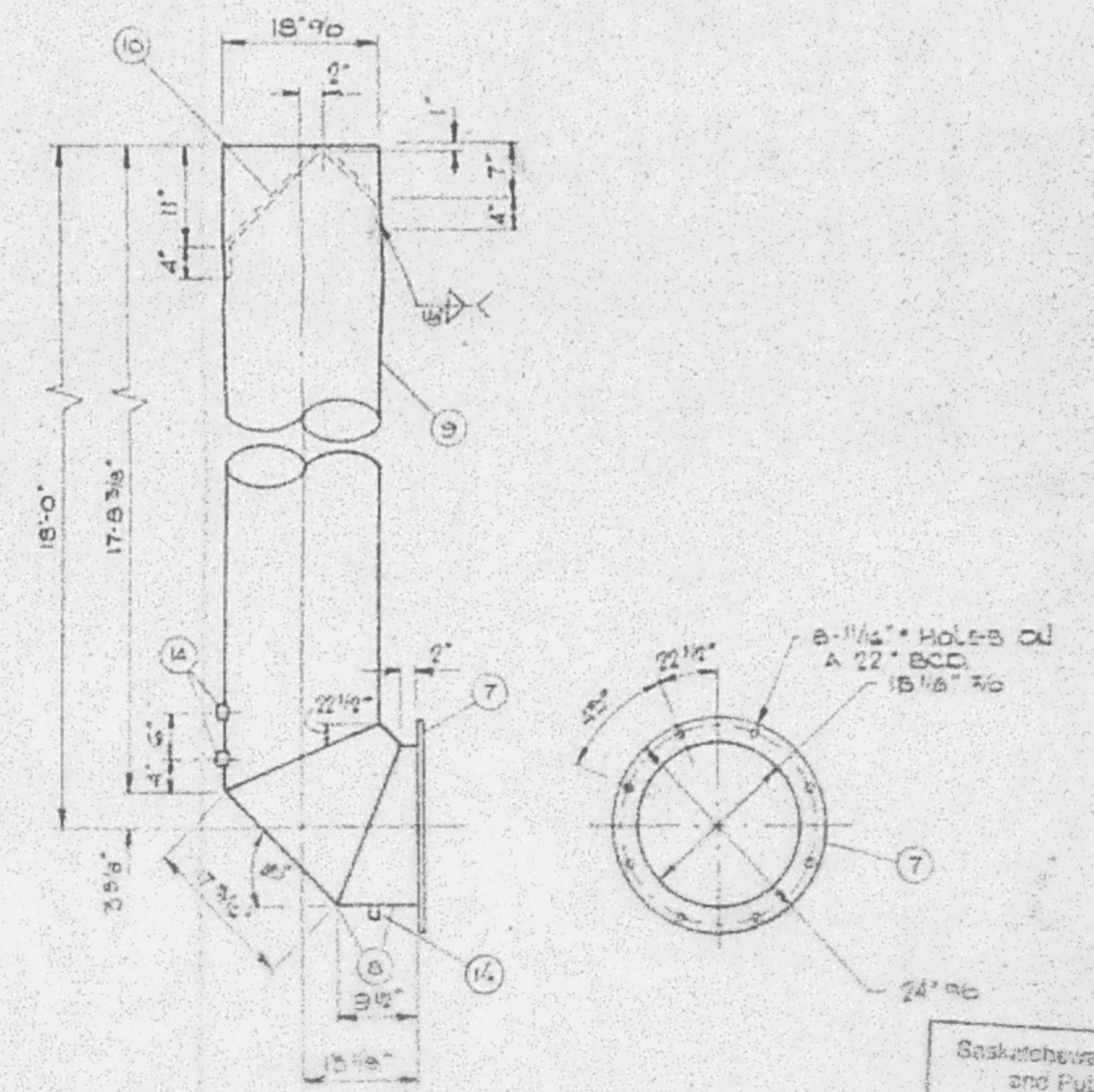
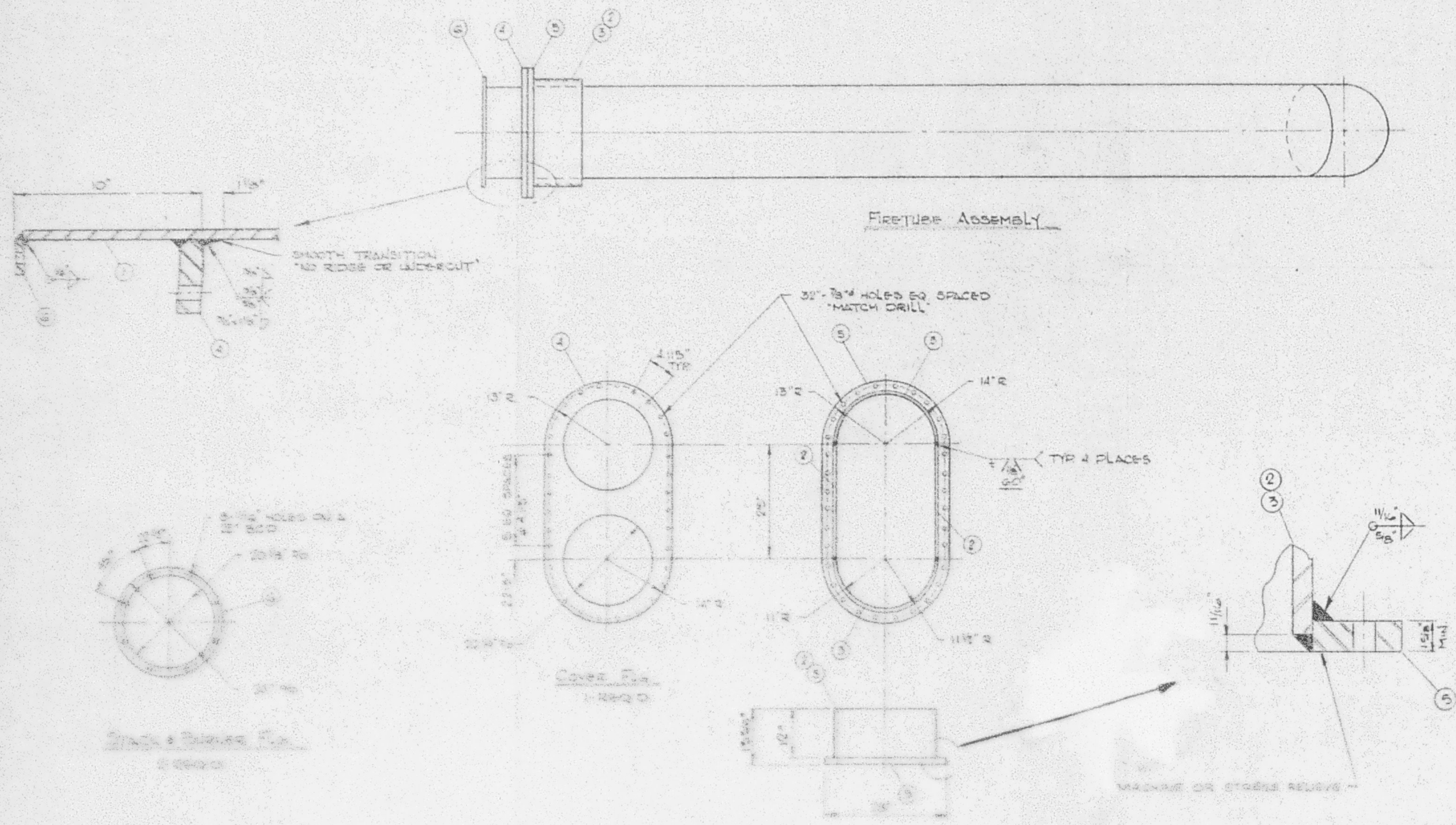
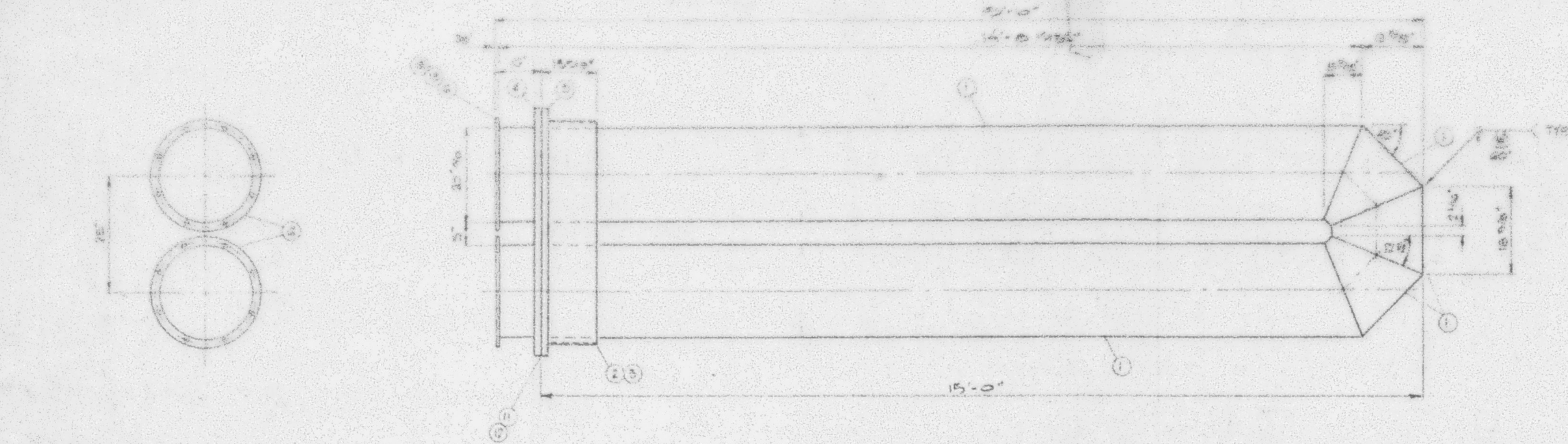
17521

ITEM	QTY	SERVICE	DESCRIPTION
1	1	FIRE TUBE	20" O.D. x 15' Lg. 150# 304 SS
2	2	FLANGE	20" O.D. x 15" I.D. x 2" THK 304 SS
3	2	FLANGE	18" O.D. x 16" I.D. x 2" THK 304 SS
4	2	FLANGE	16" O.D. x 14" I.D. x 2" THK 304 SS
5	2	FLANGE	14" O.D. x 12" I.D. x 2" THK 304 SS
6	2	FLANGE	12" O.D. x 10" I.D. x 2" THK 304 SS
7	1	FLANGE	10" O.D. x 8" I.D. x 2" THK 304 SS
8	1	STACK	18" O.D. x 15' Lg. 150# 304 SS
9	1	STACK	16" O.D. x 14' Lg. 150# 304 SS
10	1	STACK	14" O.D. x 12' Lg. 150# 304 SS
11	1	STACK	12" O.D. x 10' Lg. 150# 304 SS
12	1	STACK	10" O.D. x 8' Lg. 150# 304 SS
13	1	STACK	8" O.D. x 6' Lg. 150# 304 SS
14	1	STACK	6" O.D. x 4' Lg. 150# 304 SS
15	1	STACK	4" O.D. x 2' Lg. 150# 304 SS

X TO BE SHIPPED LOOSE.

(2)-REQ'D

SHOP NOTE: 100% X-RAY ON MITER WELDS
STRESS RELIEF NOT REQ'D

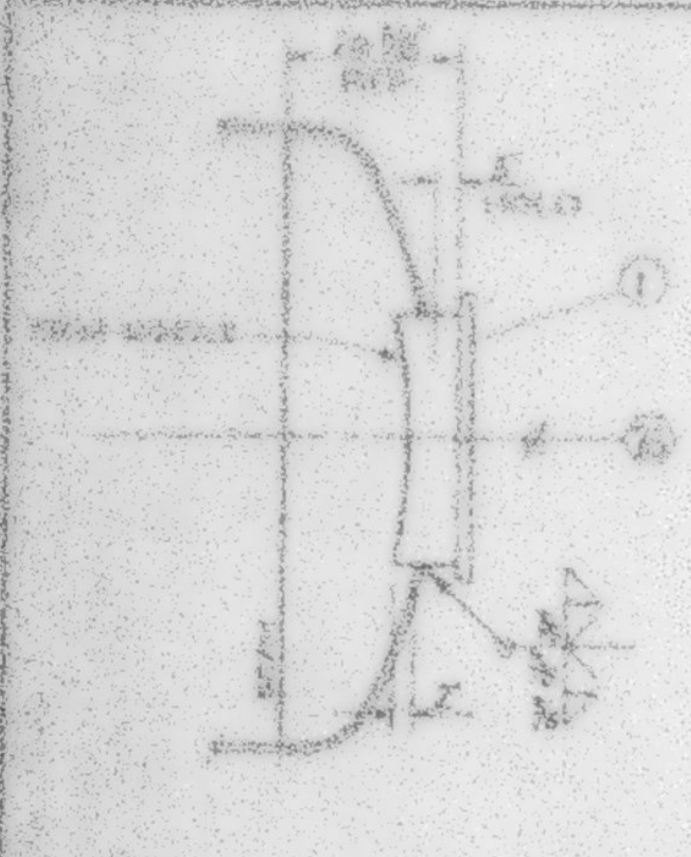


STACK DETAIL

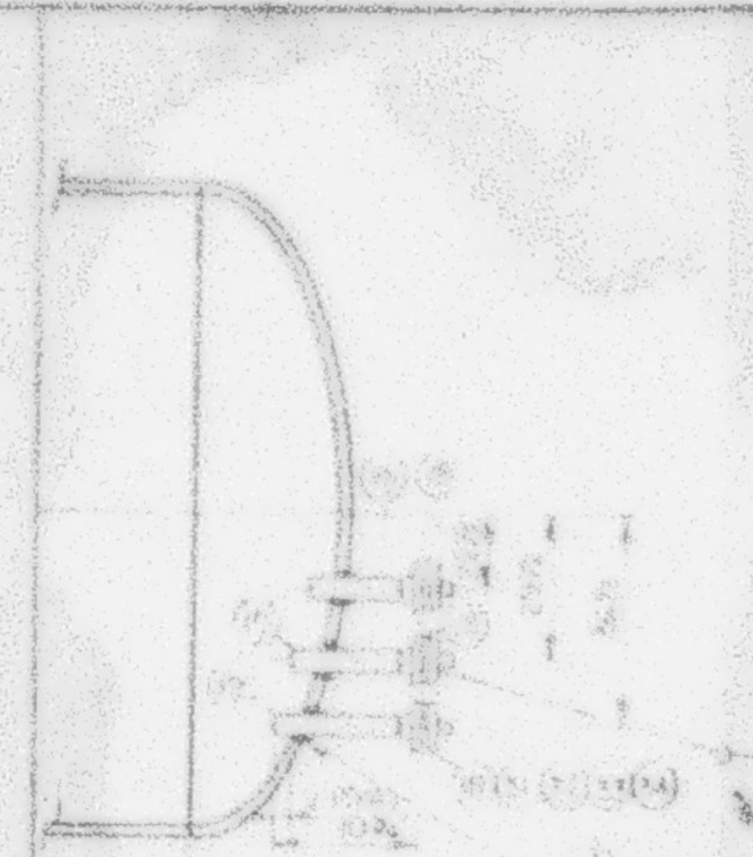
17521

Saskatchewan Environment
and Public Safety
Enter & Pressure Vessel
Code Book
40777.3
12521
Environ. Press. Equip.
Sask. Reg. Code
Book

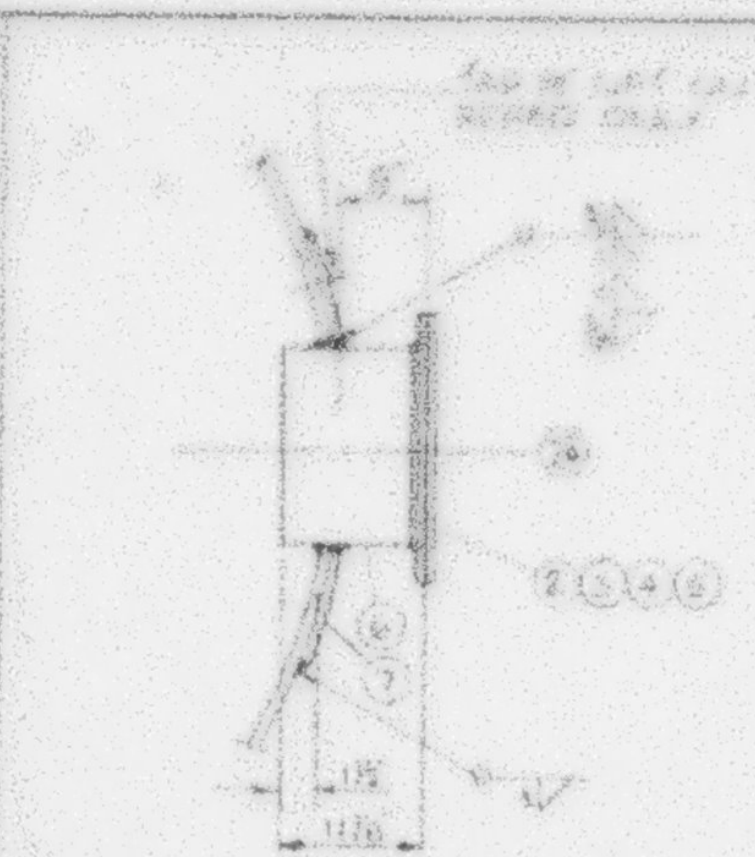
HTI Technology Canada Ltd.	
Calgary, Alberta	Calgary, Alberta
Phone: (403) 243-1111	Fax: (403) 243-1111
Website: www.hti.ca	Email: sales@hti.ca



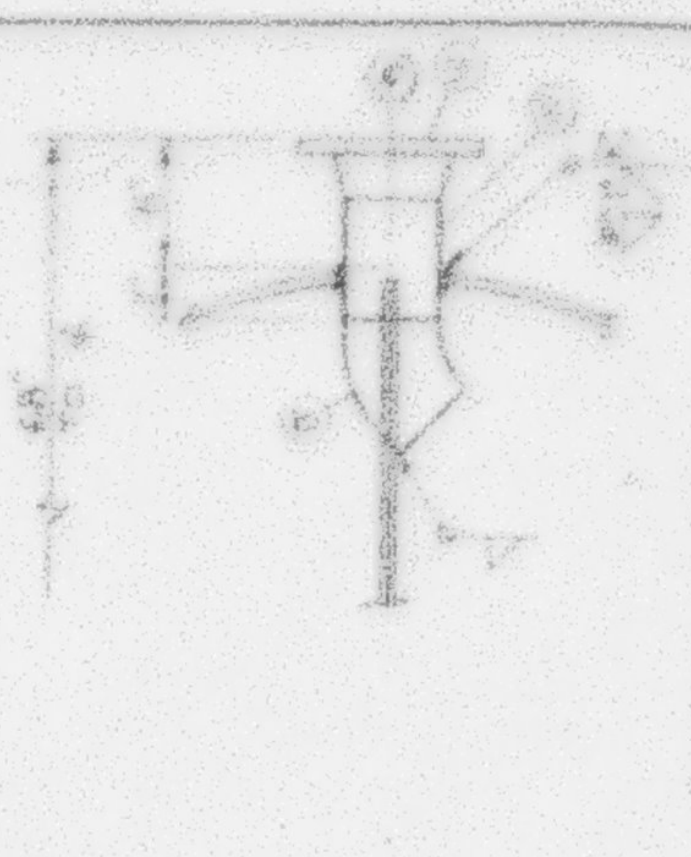
PRETUBE NOZZLE
2-REQ'D



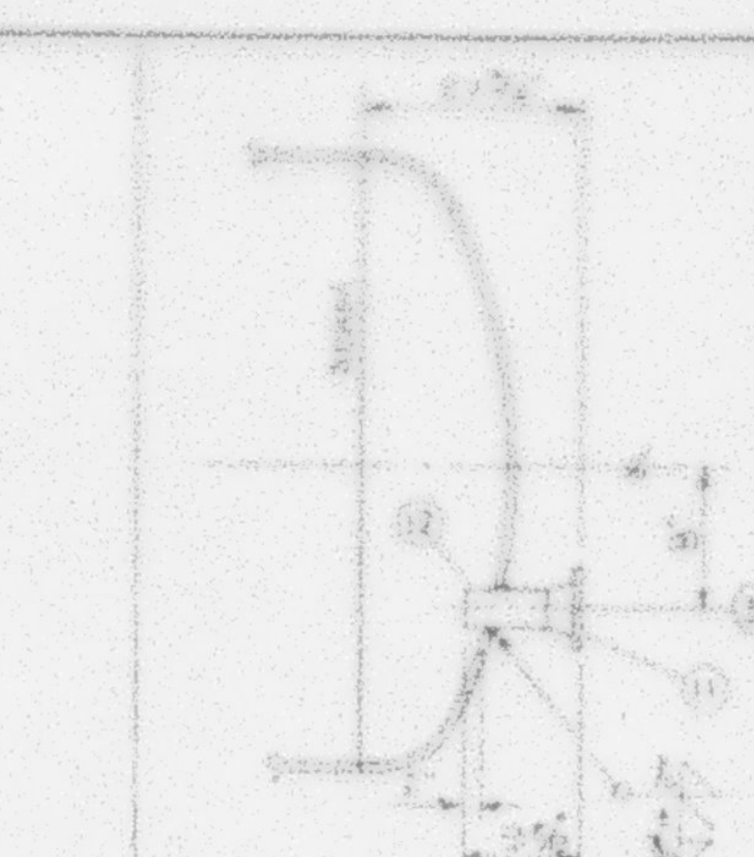
INTERFACE - OIL
2-REQ'D



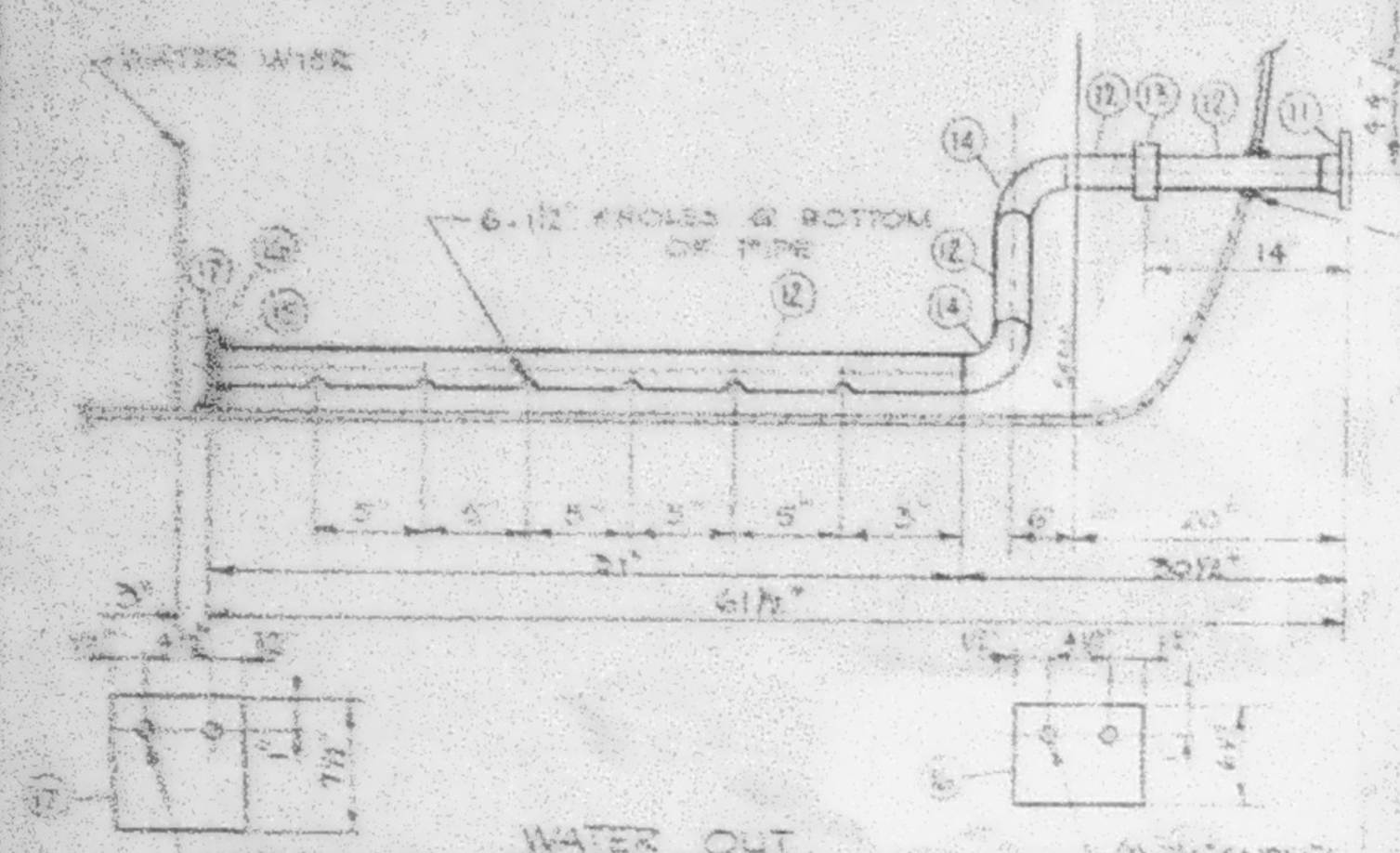
SHELL MANWAY
2-REQ'D



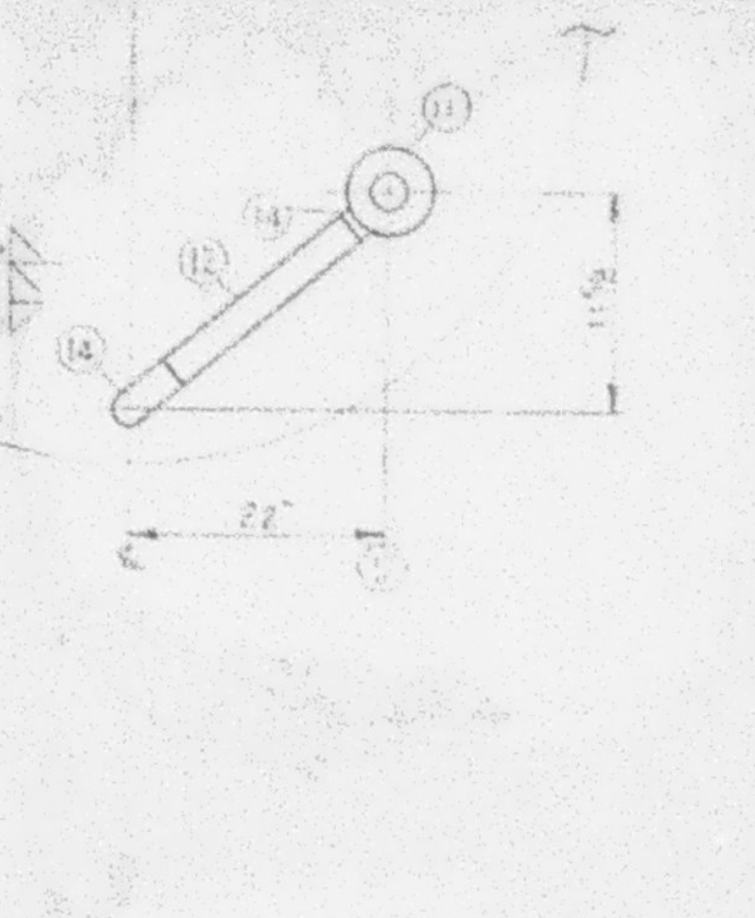
PRODUCTION INLET
2-REQ'D



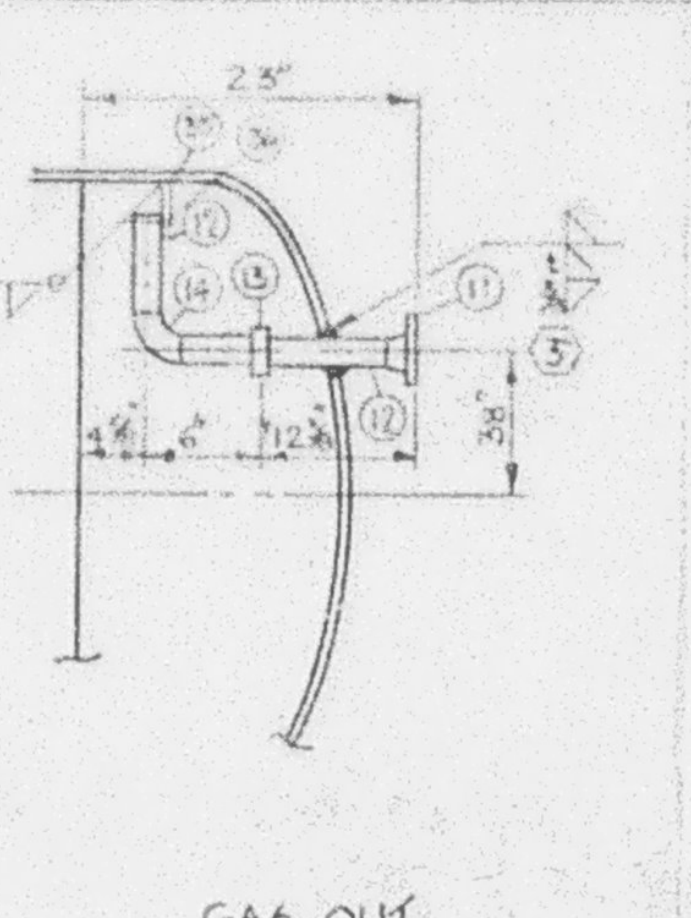
OIL OUT
2-REQ'D



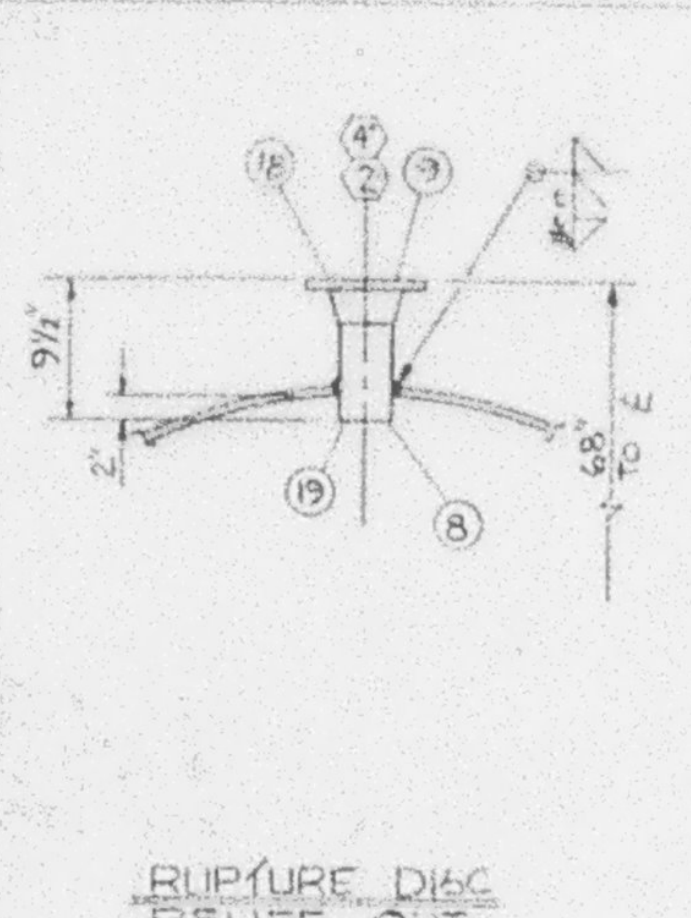
WATER WISER
WATER OUT
4\"/>



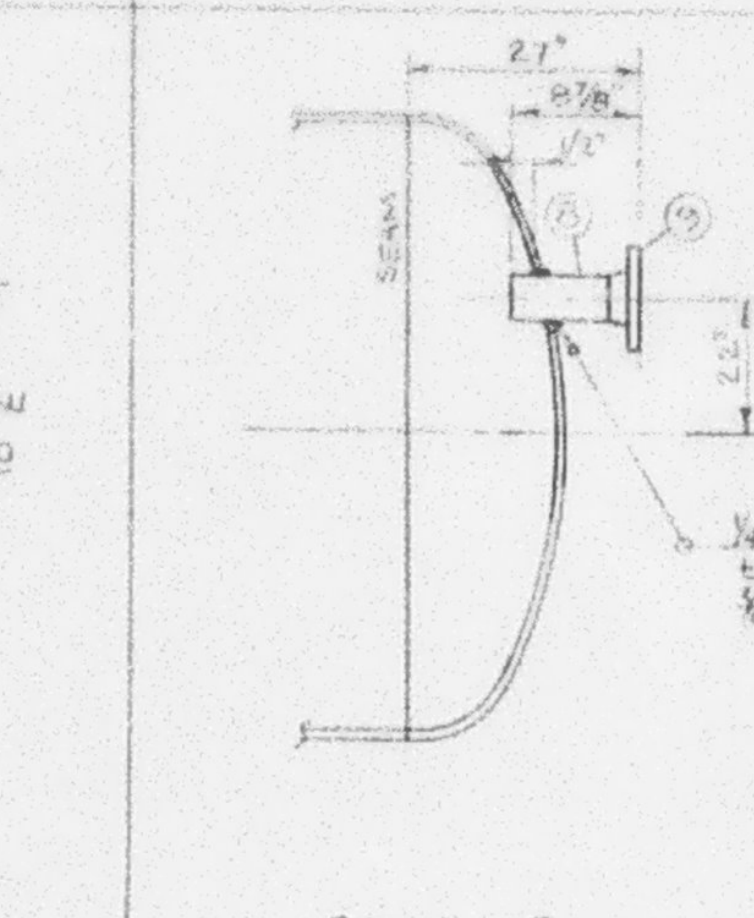
GAS OUT
2-REQ'D



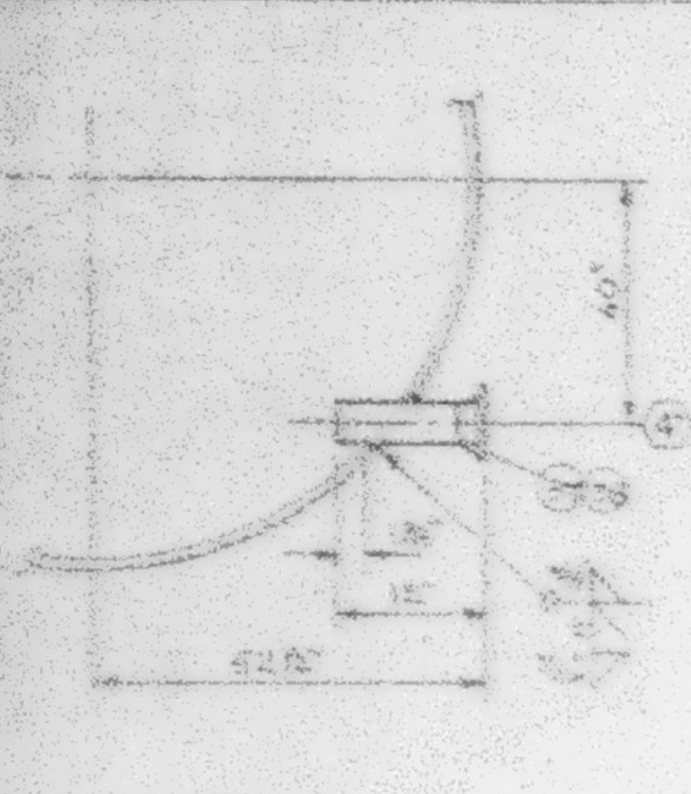
RUPTURE DISC
RELIEF OUT
2-REQ'D



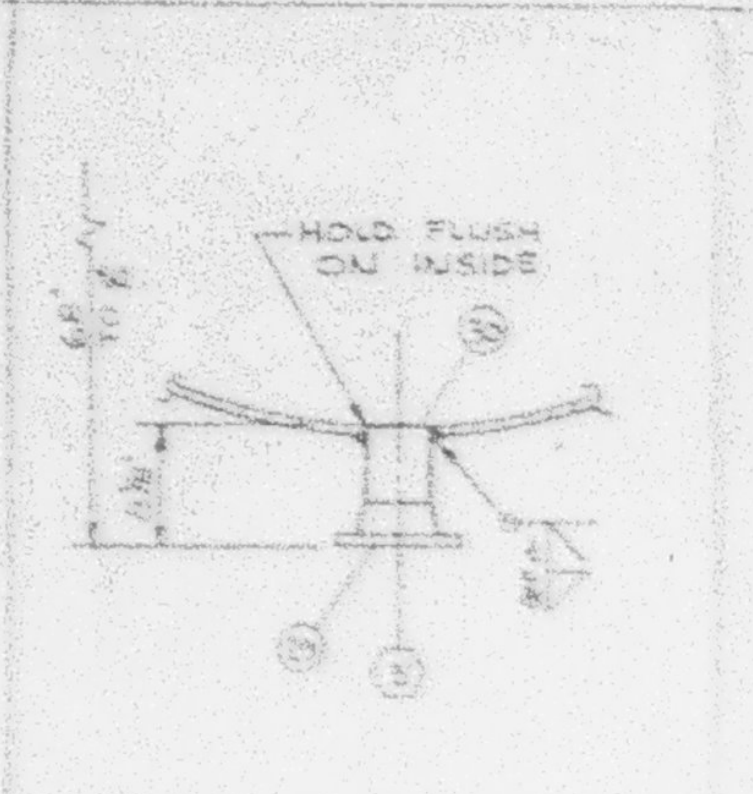
OIL L.L.C.
2-REQ'D



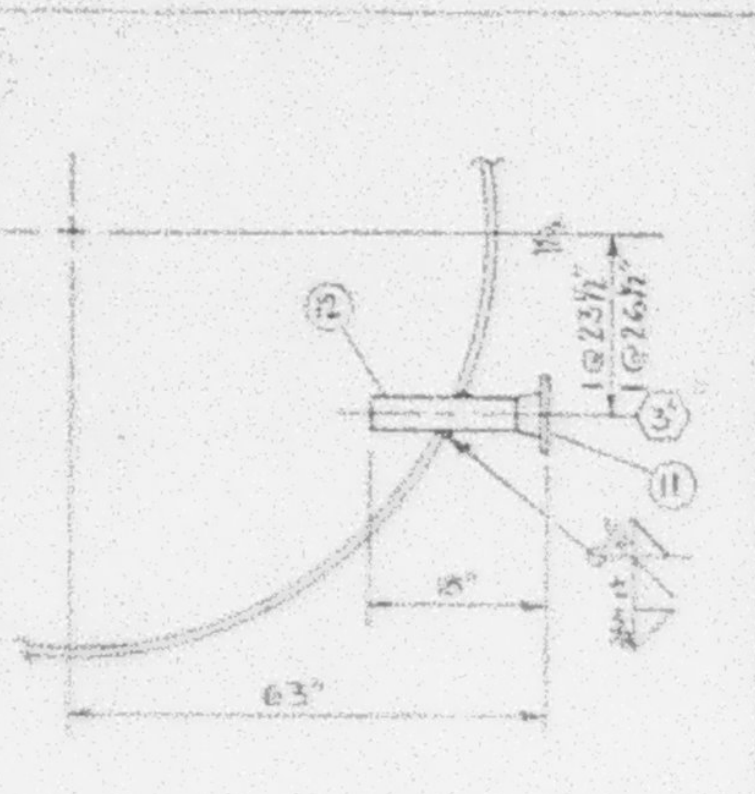
VESSEL H.L.S.
2-REQ'D



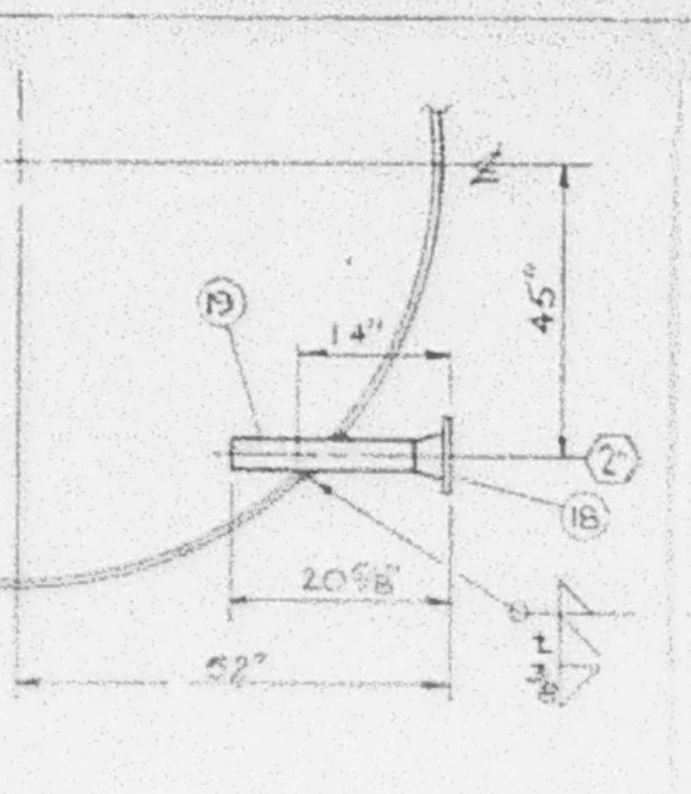
SNOOD
2-REQ'D



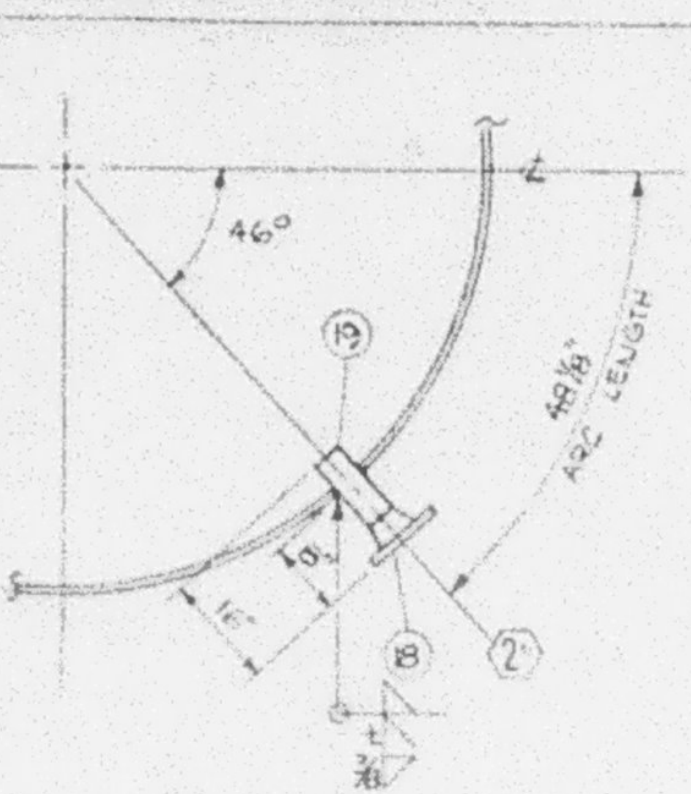
VESSEL DRAIN
2-REQ'D



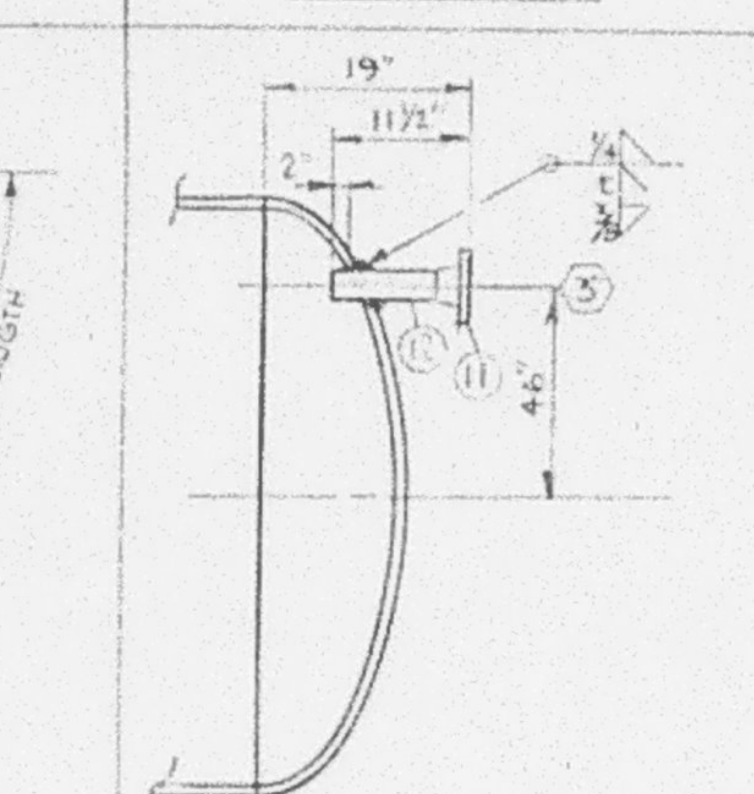
INTERFACE DRAWOFF
2-REQ'D



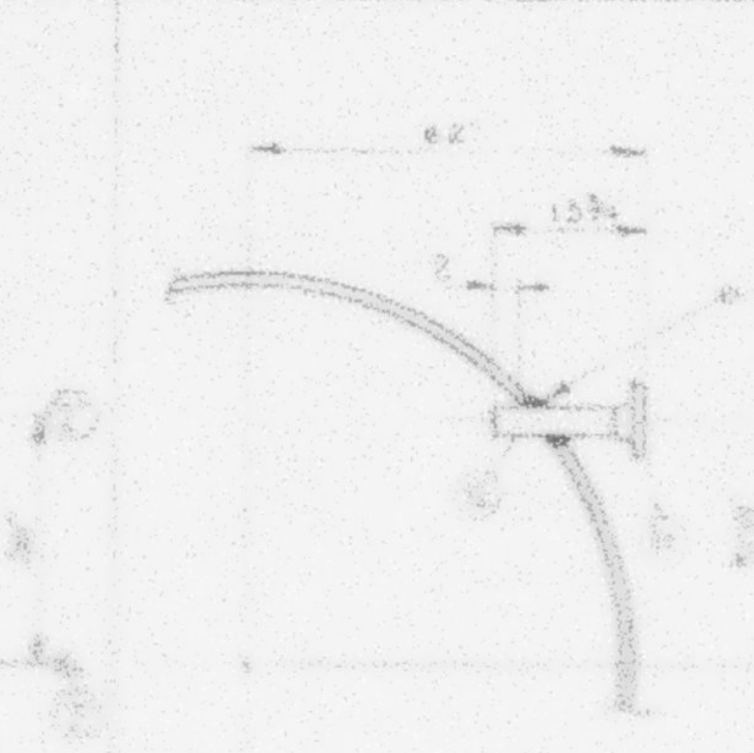
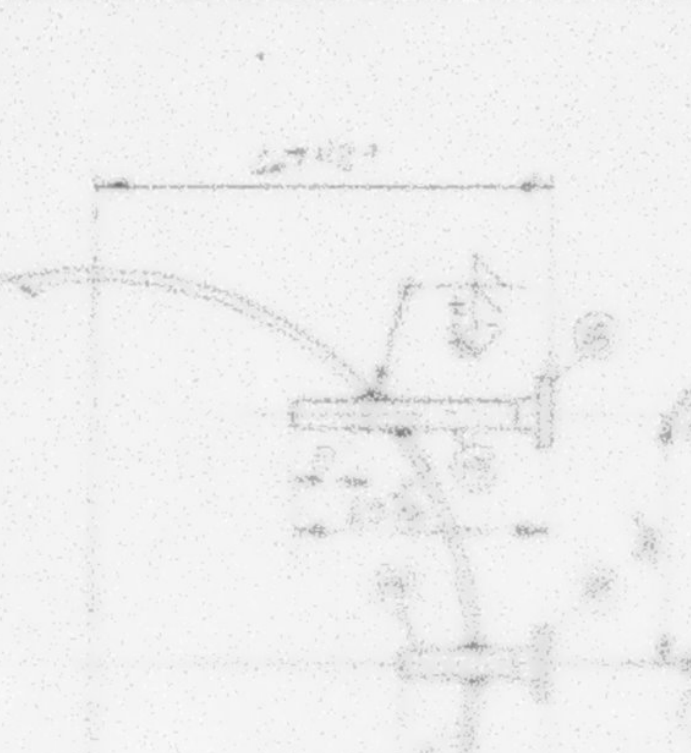
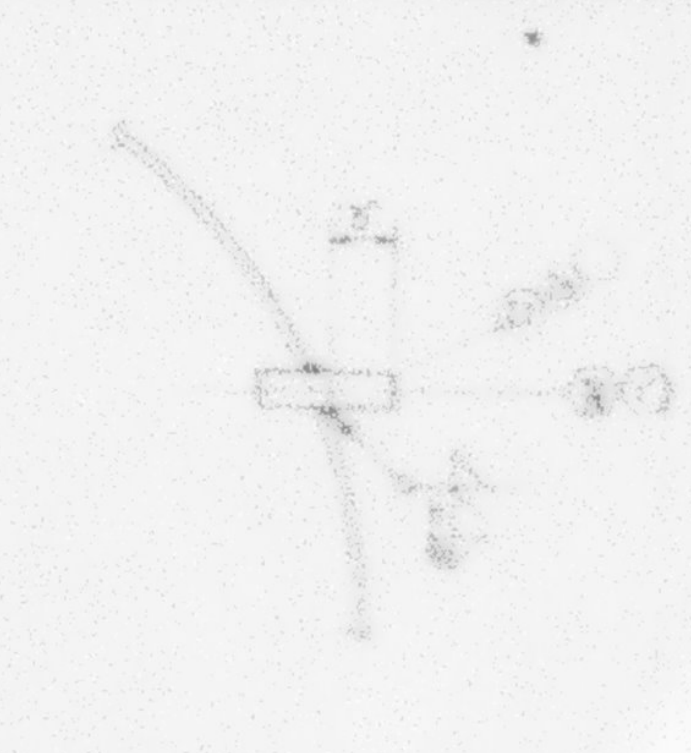
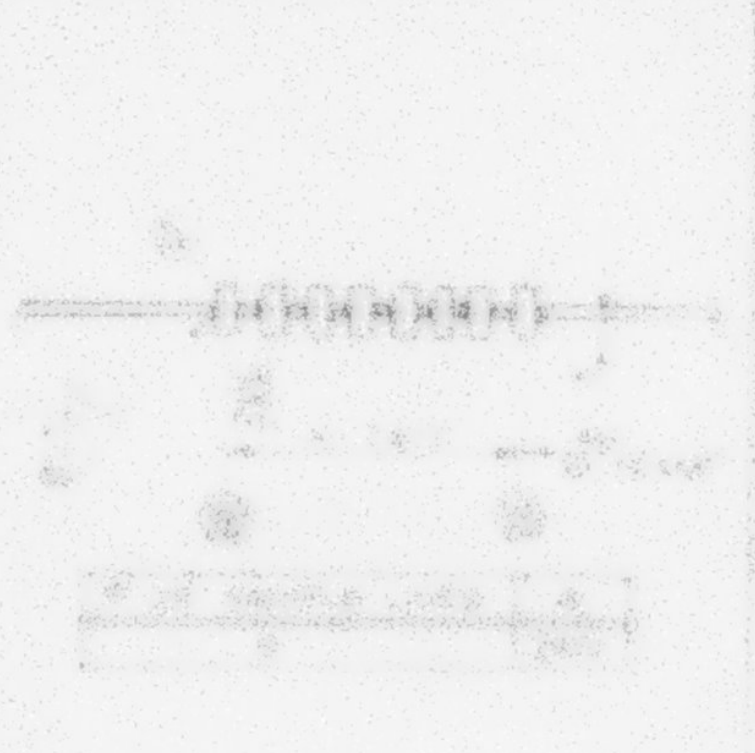
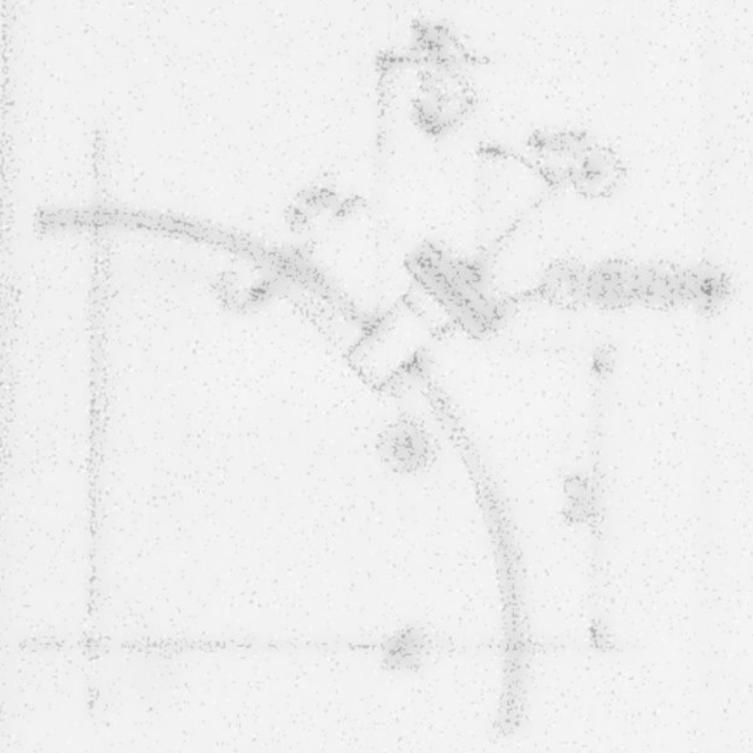
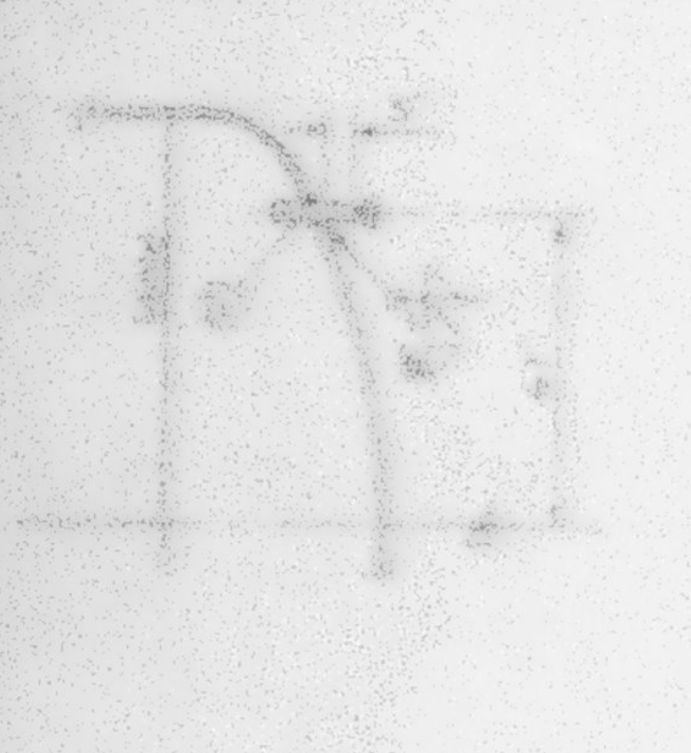
SAND JET
5-REQ'D



SAND DUMP
5-REQ'D



VESSEL H.L.S.
2-REQ'D



ITEM NO.	QTY	SERVICE	DESCRIPTION	SALES
1	2		20' PRETUBE SEE H11 DWG NO. 10-450-40	
2	2		24-150" RF BLIND FLANGE	SA-105
3	2		24-150" RF ASBESTOS GASKET	304-55
4	40		1/8" x 6 3/8" Lg B-7 STUDS 9/16" (2) 2H NUTS	
5	2		24-150" RF SLIP ON FLANGE	SA-105
6	-		24 SCH 50 SMLS PIPE	SA-106-B
7	2	REPAD	3/8" x 35 S.D. 24" I.D.	SA-56-70
8	-		4 SCH 40S 3" PIPE	SA-106-B
9	3		4-150" RF WEL FLNG. SCH 40S BORE	SA-105
10	1		4 SCH 40S 45" LR WELD ELL	SA-234-WPB
11	6		3-150" RF WEL FLNG. SCH. 40S BORE	SA-105
12	-		5 SCH. 40S SMLS PIPE	SA-106-B
13	2		3" STYLE 99 VICI AULIC PIPE CPLG.	
14	2		3" SCH. 40S 90° LR WELD ELL.	SA-234-WPB
15	2		3/8" x 1 1/4" Lg HEX BOLT, NUT & LOCKWASHER	55
16	1		3/8" R. 5 1/2" x 7 1/2" Lg	SA-36
17	1		3/8" R. 5 1/2" x 6 1/2" Lg	SA-36
18	16		2-150" RF WEL FLNG. SCH 160 BORE	SA-105
19	-		2 SCH 160 SMLS PIPE	SA-106-B
20	4		4-150" RFLVN FLNG. 12" Lg	SA-105
21	1		GRID DRIVE PULG. GLAND SEE H11 DWG NO. 10-450-32-0	
22	1		4-150" RF ASBESTOS GASKET	304-55
23	8		5/8" x 3 1/2" Lg B-7 STUDS 9/16" (2) 2H NUTS	
24	1		4-150" RF BLIND FLANGE (SUPPLIED BY H11)	SA-105
25	-			
26	8		1/2" 3000# FS. SCR'D CPLG. x 6" Lg	SA-105
27	14		3/4" 3000# FS. SCR'D CPLG. x 6" Lg	SA-105
28	2		1" 3000# FS. SCR'D CPLG. x 6" Lg	SA-105
29	2		3-150" RF WEL FLNG. SCH 40S BORE	SA-105
30	-		3 SCH. 40S SMLS PIPE	SA-106-B
31	5		2-150" RF 1/8" ASBESTOS GASKET	304-55
32	3		2-150" RF BLIND FLG.	SA-105
33	12		5/8" x 3" Lg B7 STUDS 9/16" (2) 2H NUTS	
34	3		1" 3000# FS. SCR'D CPLG. x 3" Lg	SA-105
35	1		3/8" R. 8" x 5 1/2"	SA-36
36	1		2" U BOLT 9/16" NUTS	
37	4		4-150" RF WEL SCH 40S FLG	SA-105
38	2		4 SCH 40S SMLS PIPE	SA-106-B

Saskatchewan Environment
and Public Safety
Boiler & Pressure Vessel
Safety Board
CRN 80725.3
File 17521
Design: [Signature]
Drawn: [Signature]
Checked: [Signature]
Date: [Signature]

17521

HTI Technology Canada Ltd.	
Company Address	
Project Name	
Project Number	
Project Date	
Project Status	
Project Manager	
Project Engineer	
Project Designer	
Project Checker	
Project Approver	



UNI-MELT LTD.
6619 - 86 AVENUE SE
P.O. BOX 5, STE 1, RR 5
CALGARY, ALBERTA T2P 2G8
PHONE (403) 279-7411

For Unfired Pressure Vessel

Separate vessel design data is required for each diameter and pressure

Before construction of any vessel is begun, "Manufacturer's Specification" sheets, together with design drawings must be forwarded in duplicate to the office of the Chief Inspector at Regina for approval and registration, otherwise the use of the vessel will be prohibited.

List registration numbers previously allotted by other provinces: Alberta Registration in Process

Drawing No. TD-450-4-0

Manufacturer Uni-Melt Ltd.

Name

Address 6619 - 86th Ave. S.E., Calgary, Alberta

Address

Type or name of vessel Treater ----- Water/Gas/Oil

Code year and paragraph 1986 UW12 (b)

Outside diameter 10'

Overall length 37'

Cubic feet capacity 2525

Heating surface N/A

Shell and Heads:

Design pressure 75 PSIG

Design Temp. 300°F

Inside diameter of shell 9' 11-1/4"

Min. thickness shell plates

Top, bottom, intermediate, etc.

Shell material spec. No. SA-516-70

ASTM-ASME

Top, bottom, intermediate, etc.

Longitudinal joint double

Single, double or lap welded, etc.

Longitudinal joint eff. .85

Unit stress, p.s.i.

Heads dished

0.75", 0.5" nom.

Flat, dished, elliptical, 2:1, etc.

Top, bottom, intermediate, etc.

Radius of dish 9' 6"

Of knuckle 8"

Inside diameter of heads 0.75" Tk - 9' 10.5"

Top, bottom, intermediate, etc.

0.5" Tk - 9' 11"

Minimum thickness of head plates 0.75" nom -- 0.5" min.

Concave head

Convex Head

0.5" nom -- 0.5" min.

Head material specification No. SA-516-70

ASTM-ASME

Top, bottom, intermediate, etc.

Type of head joints double

Single, double or lap welded, etc.

Top, bottom, intermediate, etc.

Note: If bolted or riveted construction give detail sketches with all dimensions, etc., on design drawings.

Corrosion allowance thickness 0.0625"

On shell

0.0625"

On heads

Safety valve outlets In Piping

Number and size

Required safety valve capacity N/A

ASME, lbs. per hour or cubic feet per minute

Fusible plug No

Yes or No

Drain connection Yes

Yes or No

3"

Size

Manhole Yes

Yes or No

2

Number

Number, size and kind of inspection openings 2-24" Manways

Free of piping and other attachments

17521

Design of vessel to be constructed in accordance with the provisions of the C.S.A. B51 Code and Saskatchewan Regulations.
Name of Manufacturer: SA-106-B
Design No: 17521
Date: 1988-08-15
Is welding procedure required? Yes
Welding procedure Reg. No: 588.2 Reg. date: 1982-01-03

Nozzles and Manholes:

Diameter or Size	Material	Asst. Thickness	Reinforcing Ring Width, Thickness	Flange Rating	Number of Nozzles	Cover Rating or Thickness
24"	SA-106-B	0.375"	35"O.D.x0.375"	150#	2	150#
20"	SA-516-70	0.625"	N/A	ASME	2	ASME
4"	SA-105	0.674"	N/A	150#	4	150#
4"	SA-106-B	0.75"	N/A	150#	4	150#
3"	SA-106-B	0.300"	N/A	150#	9	150#

Remarks, etc. SA-106-B

I hereby certify that if the design to which the foregoing statements pertain is registered by the department, that every vessel manufactured under such registration will be constructed strictly in accordance with these specifications and related drawings, and that each vessel will be stamped in accordance with the C.S.A. B51 Code and Saskatchewan Regulations.

Date submitted 15/08/88 Signature [Signature]
For manufacturer

Note: Drawings submitted without specification sheets or with incomplete specification sheets will not be accepted for registration by the department.

For Departmental Use Only: Leave Blank for Department Registration Stamp

Approved for: _____
Shell side _____ p.s.i. @ _____ °C
Tube side _____ p.s.i. @ _____ °C
Date _____, 19____
Certified by _____

Registration No. _____

Saskatchewan Environment and Public Safety
Roller & Pressure Vessel Safety Branch
CRN 40777.3
File 17521
Design 17521 Press. 300°F
Tube _____
APPROVED
Date Sept 19, 1988
Design Survey Office

17521

FACTORS SUCH AS SUPPLEMENTARY SHEET

Manufactured and designed by Uni-Melt Ltd., 6610 - 29th Ave. S.E., Calgary, Alta.

1. Type	Horizontal	88-J-57	N/A	TD-450-4-0	N/A	N/A
	(Specify gun type and if	(Specify gun type and if	(Crew)	(ID no.)	(Weight in lbs. and in	(Maximum range in

[illegible]

Date 15/08/88 Co. name Uni-Melt Ltd. Signed [Signature]

SHELL THICKNESS CALCULATION

Formulas	Code	Par.	
I.S.	UG-27	$t = \frac{PR}{SE-0.6P}$	
O.S.	APP 1-1	$t = \frac{PR}{SE+0.4P}$	

DESIGN PRESSURE P =
DESIGN TEMPERATURE T =
DIAMETER D =
MATERIAL S =
RADIOGRAPHIC EXAM. E =
CORROSION ALLOWANCE =

HEAD THICKNESS CALCULATION

Crown Radius
Knuckle Radius

Formulas	Code	Par.	Hemi	2:1 Ell	F & D
I.S.	UG-32	$t = \frac{PR}{2SE-0.2P}$	$t = \frac{PD}{2SE-0.2P}$	$t = \frac{PLM}{2SE-0.2P}$	
O.S.	APP1-4	$t = \frac{PR_0}{2SE+0.8P}$	$t = \frac{PD_0}{2SE+1.8P}$	$t = \frac{PL_0M}{2SE+P(M-0.2)}$	

DESIGN PRESSURE P =
DESIGN TEMPERATURE T =
DIAMETER D =
MATERIAL S =
RADIOGRAPHIC EXAM. *E =
CORROSION ALLOWANCE =
TABLE 1 - 4.2 VALUE OF FACTOR M =

MANUFACTURER: UNI-MELT LTD.
IDENTIFICATION: HORIZONTAL TREATER
SIZE: 10' x 34'

ASME SECTION VIII MINIMUM THICKNESS CRITERION
FOR A CYLINDRICAL SHELL SUBJECT TO INTERNAL PRESSURE

DESIGN PRESSURE P= 75.00 psig
DESIGN TEMPERATURE T= 300 °F
INSIDE DIAMETER ID= 119.2500 in
MATERIAL USED IS SA-516-70
ALLOWABLE STRESS S= 17500 psi
JOINT EFFICIENCY E= 0.85
CORROSION ALLOWANCE C= 0.0625 in

THICKNESS REQ'D tr= 0.3644 in
NOMINAL THICKNESS tn= 0.3750 in

ASME SECTION VIII MINIMUM THICKNESS CRITERION
FOR A F&D HEAD SUBJECT TO INTERNAL PRESSURE

INSIDE DIAMETER ID= 119.0000 in
MATERIAL USED IS SA-516-70
RADIOGRAPHIC EXAM. *E= 1.00

THICKNESS REQ'D tr= 0.4765 in
MINIMUM THICKNESS tm= 0.4780 in
NOMINAL THICKNESS tn= 0.5000 in

NOZZLE SCHEDULE

LOCATION	DIAMETER (in)	THICK (in)	INT. PROJ. (in)	RE-PAD TH (in)	O.D. (in)	O. NOZ	WELDS I. NOZ	REIN
SHELL	4.500	0.674	0.313	0.000	0.000	0.375	0.188	0.000
SHELL	24.000	0.375	0.781	0.375	35.000	0.375	0.313	0.375
HEAD	4.500	0.674	0.938	0.000	0.000	0.375	0.188	0.000

17521

Saskatchewan Environment
and Public Safety

Boiler & Pressure Vessel
Safety Branch

CRN... P.O. 777-3
File... 17521

Design Press. Temp.
Shell 75 psig 300 °F
Tube

APPROVED

Date Sept 19 1988
Design Survey Office

DATA ENTERED BY: M. Harker DATE: Sept 19 1988

DESIGN DRAWING T.D.-450-4-0 Rev B

REMARKS, ETC.

Note Revision B as per changes
added for registration

SHELL THICKNESS CALCULATION

Formulas

Code	Par.	
I.S.	UG-27	$t = \frac{PR}{SE-0.6P}$
O.S.	APP 1-1	$t = \frac{PR}{SE+0.4P}$

DESIGN PRESSURE	P =
DESIGN TEMPERATURE	T =
DIAMETER	D =
MATERIAL	S =
RADIOGRAPHIC EXAM.	E =
CORROSION ALLOWANCE	=

HEAD THICKNESS CALCULATION

Formulas

Code	Par.	Hemi	2:1 Ell	F & D
I.S.	UG-32	$t = \frac{PR}{2SE-0.2P}$	$t = \frac{PD}{2SE-0.2P}$	$t = \frac{PLM}{2SE-0.2P}$
O.S.	APP1-4	$t = \frac{PR_b}{2SE+0.8P}$	PD_b	PL_bM

DESIGN PRESSURE	P =
DESIGN TEMPERATURE	T =
DIAMETER	D =
MATERIAL	S =
RADIOGRAPHIC EXAM.	*E =
CORROSION ALLOWANCE	=
TABLE 1 - 4.2 VALUE OF FACTOR M =	

ASME SECTION VIII MINIMUM THICKNESS CRITERION
FOR A F&D HEAD SUBJECT TO INTERNAL PRESSUREINSIDE DIAMETER ID= 118.5000 in
MATERIAL USED IS SA-516-70THICKNESS REQ'D tr= 0.4765 in
MINIMUM THICKNESS tm= 0.0000 in
NOMINAL THICKNESS tn= 0.7500 in

NOZZLE SCHEDULE

LOCATION	DIAMETER (in)	THICK (in)	INT.PROJ. (in)	RE-PAD TH(in) O.D.(in)	O.NOZ	WELDS I.NOZ	REIN
HEAD	47.000	0.625	1.406	0.000 0.000	0.375	0.313	0.000
HEAD	23.000	0.625	1.406	0.000 0.000	0.375	0.313	0.000

17521

Saskatchewan Environment
and Public SafetyBoiler & Pressure Vessel
Safety BranchCRN..... 40777.3
File..... 17521
Design Press. Temp.
Shell 25.000 300.000
TubeAPPROVED
Date.....
Design Survey Office

DATA ENTERED BY:

DATE:

DESIGN DRAWING

REMARKS, ETC.

