

PERMITTING COVER MEMO

TO: Deborah Getzoff, Director of District Management

FROM/THROUGH: *WR 2/8/00* William Kutash, Environmental Administrator

SCT Stanley Tam, Professional Engineer II

DATE: February 7, 2000

FILE NAME: Safety Kleen (Bartow), Inc.

PERMIT #: 64247-HOMM-005

PROGRAM: Hazardous Waste

COUNTY: Polk

TYPE OF PERMIT ACTION:

☐ Issue☐ Deny☒ Modify☐ Intent☐ Transfer☐ Time Extension☐ Notice of Deficiency☐ Other:

PUBLIC NOTICE PERIOD:

☐ Open☐ Close*n/a*

PROFESSIONAL EVALUATION:

☒ Approve☐ Deny

PERMIT SUMMARY: Facility requested lowering the allowed minimum thickness of two hazardous waste storage tanks (R-202 & R-203). Previously, these two tanks were permitted to operate under pressure. The thickness of the tanks had fallen below the minimum considered safe for operating under pressure. This modification will allow the tanks to continue to operate, but only under atmospheric pressure.

EVALUATION SUMMARY: Calculations and supporting documents show that the reduced minimum thickness is adequate for the tanks to operate at atmospheric pressure.

Is your RETURN ADDRESS completed on the reverse side?

Mod # 64247-HOMM-005 60

SENDER: Permit # 64247-HOSM-003

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address

2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Michael Merashoff
Facility Mgr.
Safety Klean (Barton)
170 Barton Municipal Airport
Barton, FL 33830

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X *[Signature]*

4a. Article Number

P 053 244 154

4b. Service Type

☐ Registered ☒ Certified

☐ Express Mail ☐ Insured

☒ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

2/11/00

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

P 053 244 154

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to	
Michael Merashoff	
Street & Number	
Safety Klean	
Post Office, State, & ZIP Code	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
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TOTAL Postage & Fees	\$
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2-8-2000	

PS Form 3800, April 1995



First-Class Mail
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• Print your name, address, and ZIP Code in this box •

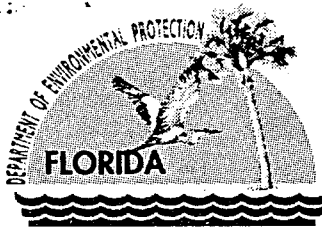
FEB 14 2000

Department of Environmental Protection
BY SOUTHWEST DISTRICT

State of Florida
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Stanley Tam - HW





Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

February 8, 2000

CERTIFIED - RECEIPT REQUESTED

Mr. Michael Merashoff, Facility Manager
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Re: Safety Kleen (Bartow), FLD 980 729 610
Operation Permit #64247-HOSM-003
Modification #64247-HOMM-005
Continued service of tanks R-202 & R-203 under atmospheric pressure

Dear Mr. Merashoff:

The Department has reviewed your request, dated December 10, 1999, for a minor modification of the above referenced operation permit and associated permit application. The modification requested changing the minimum thickness allowed for tanks R-202 and R-203. This will allow these two tanks to continue operating under atmospheric pressure.

The Department hereby grants your request. Tanks R-202 and R-203 may only operate under atmospheric pressure. Specific Condition III.7 of the permit has been modified to reflect the new minimum thickness for tanks R-202 and R-203 (0.1900 inches) and a revised Page 16 of the permit is enclosed.

The Department also acknowledges receipt of the revisions to the emergency contact list, emergency coordinator list (Figure 6.1), and the Authorization to Commit Resources document (Figure 6.2). All other permit conditions and attachments remain as issued. This letter and accompanying documents must be attached to the permit and shall become a part of the permit.

Sincerely yours,

Deborah A. Getzoff
Director of District Management
Southwest District

DAG/st

enclosure

cc: Satish Kastury, FDEP - Tallahassee
Narindar Kumar, US EPA Region IV

"More Protection, Less Process"

Printed on recycled paper.

Permittee:
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 64247 SM-003
I.D. No.: FLD 980 9 610
Issue Date: April 23, 1999
Expiration Date: December 10, 2001

Part III. Tank Systems

Tank system, for the purpose of Part III of this permit, is defined as the storage tank(s), appurtenant equipment and secondary containment structures.

1. The permittee is allowed to store in tanks only those hazardous wastes specified in **Attachment 5** of the permit.
2. The storage of hazardous waste in tanks shall only be conducted in tanks T-101 to T-110, R-202 and R-203. These tanks are depicted in **Attachment 6** and **Attachment 7**.
3. The permittee shall not place waste into tanks that are incompatible with the construction materials of the tank.
[§264.192(a)]
4. The permittee shall not place waste into a unwashed tank which previously held incompatible waste or material. [§264.199(b)]
5. The permittee shall ensure that ignitable or reactive waste are not placed into any tank unless the requirements of §264.198(a) are met.
6. The volume of waste handled in each tank and their corresponding maximum liquid levels shall not exceed the following:

<u>Tank Number</u>	<u>Maximum Working Volume</u>	<u>Maximum Liquid Level</u>
T-101 to T-110	6,000 gallons	2 feet below the top of the tank
R-202 & R-203	6,300 gallons	12 feet from tank bottom

7. The permittee shall notify the Department if annual thickness testing results show any portion of a tank having a thickness less than the limits stated below:

<u>Tank Number</u>	<u>MINIMUM THICKNESS</u>		
	<u>Wall</u>	<u>Head</u>	<u>Cone/Head</u>
T-101 to T-110	0.1801 inches	0.1349 inches	0.2175 inches
R-202 & R-203	0.1900 inches	0.1900 inches	0.1900 inches

Records of all thickness determinations shall be maintained for a period of three years.

8. The permittee shall report any extensive repairs of a tank system to the Department. This report will include the information required by §264.196(e). The tank system shall not be returned to service until the certification report required by §264.196(f) has been submitted to the Department and approved.
9. The permittee shall insure that the secondary containment systems, including the curbed driveway, are sealed and free of cracks.



Mr. Stanley Tam
Professional Engineer
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, FL 33619

10 December 1999

Via Certified Mail: Z 439 809 555

Re: Safety-Kleen (Bartow), Inc. FLD 980 729 610
Operating Permit 64247-HSOM-003

D.E.P.
DEC 13 1999

Dear Mr. Tam:

Southwest District Tampa

Pursuant to FAC 62-4.080, Safety-Kleen (Bartow), Inc. is submitting this request for Permit Modification (Class 1) for your approval.

1. Enclosed please find the revised structural integrity assessment for tanks R-202 and R-203. (Attachment A) These assessments demonstrate that the tank thicknesses are acceptable for continued service under atmospheric pressure. The rupture discs have been replaced with units rated at 5 psig. Thickness testing results for the tanks and the calibration documentation for the meter are included (Attachment B). The thickness testing was performed via ultrasound by Mike Bodiford and Robert Ramos, maintenance personnel assigned to the Bartow facility.
2. Enclosed as Attachment C, please find a revised emergency contact list to be posted by each telephone inside the plant area. Contact names have not changed, but telephone numbers have been updated. We will be posting this immediately.
3. Due to changes in addresses for Emergency Coordinators, we are enclosing a revised Figure 6.1, List of Emergency Coordinators and Alternates. This revision page should replace the previous version in our Operating Permit Application.
4. We have enclosed a replacement page for Figure 6.2, Authorization to Commit Safety-Kleen (Bartow), Inc. Resources. This page should replace the previous version in our Operating Permit Application.



#2, #3, #4

Inserted into permit
application.

SCT

2/7/00

If you have questions or concerns regarding the above information, please contact me at (863) 533-6111.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Michael Merashoff', with a large, stylized loop at the end.

Michael Merashoff
Facility Manager

MM/lws

enclosures: Attachment A, Structural Integrity Assessment Report for Tanks R-202
and R-203
Attachment B, Tank Thickness Testing Results
Attachment C, Emergency Response Phone List
Replacement pages 6.1 and 6.2
Check No 1793473, \$250.00 to Florida Dept of Env Protection

cc: Lin Longshore, Safety-Kleen
Craig Lackey, Safety-Kleen

Attachment A
Revised Structural Integrity Assessment for Tanks R-202 and R-203

FILE

September 30, 1999

Project No. SAFKLNG4488

Mr. Michael Merashoff
Facility Manager
Safety-Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830



RE: *Revised* Integrity Assessment, Former Bottoms Tanks R-202/R-203,
Bartow, Florida

Dear Mike:

Environmental Resources Management (ERM) is pleased to provide this certification related to the structural integrity assessment of Former Bottoms Tanks R-202 and R-203. ERM performed calculations to demonstrate that the tank's shell thickness are adequate for continued service under atmospheric conditions assuming they exceed the minimum thickness listed below. Although the tanks are jacketed, design stress was assumed to be resisted by only the internal tank shell.

The minimum recommended internal shell thicknesses for Tanks R-202 and R-203 under the design conditions are:

- Tank Wall: Minimum of 190 mils. (R-202 actual minimum 1998 thickness = 247 mils)
- Tank Heads: Minimum of 190 mils. (R-202 actual minimum 1998 thickness = 251 mils / R-203 actual minimum 1998 thickness = 255 mils).

Safety-Kleen acquired these tanks in a used condition from Texas, so little is known about their design or former use. The actual exterior condition and integrity of the tanks could not be determined by ERM, because they have a jacket and an exterior layer of insulation. We viewed part of the inside of Tank R-202 from the flange opening for the mixer. The visibility was limited but pitting of the wall surface was evident and most significant at the flange opening. We were not able to view the inside of Tank R-203.

Where tank design information was available from Safety-Kleen it was used. ERM used it's best judgement on items where specific information was not

available in order to complete the assessment. A summary of information used in the design assessment is provided in Attachment A.

The maximum design condition is assumed to occur upon a tank overfill, just prior to activation of the rupture disk. The existing rupture disks are reportedly rated at 28 pounds per square inch (psi) and will be replaced with units rated at 5 psig. Retro-fitting the rupture disk for a lower rupture pressure results in lower stress on the tank shell at the design condition. We did not check the tank stress for external loads (i.e., platforms, mixer).

There are several factors that contribute to our concern for the integrity of these tanks as corrosion decreases the wall thickness, although the calculations demonstrate that a shell thickness less than 190 mils can resist, at least theoretically, the internal stresses. These include: the loads from the mixer, the accelerated corrosion potential from the severe internal conditions, potential for additional stress concentration from abrupt change in cross section of the shell at pitted areas, loads from the elevated platform, and the difficulty in examining the outside of the tank's inner shell.

ERM reviewed two American Petroleum Institute (API) Specifications for welded steel storage tanks to assess thickness tolerance. Both specifications indicated a minimum, nominal shell thickness of 3/16" (approximately 188 mils). We also spoke with Tampa Tank & Welding regarding typical corrosion allowance for tanks. They indicated a typical corrosion allowance of 1/8", with a maximum of 1/4" (for thick shells, e.g., 1/2").

Safety-Kleen's charts of the ultrasonic measurements of these tanks from 1993 to 1998 show they have already lost 3/16" due to corrosion. In general, both tanks' top head and the vertical wall above the normal liquid level, have lost about 2-1/2 to 3 times as much metal due to corrosion than other areas that are normally continuously submerged. This metal loss is 50% of the assumed 3/8" original thickness which is considered a significant loss.

An internal ultrasonic survey of the tank shells should be scheduled to update the last survey with specific focus on the tanks' unsubmerged areas. We recommend that the feasibility of repairing the thinnest and most pitted areas be considered to restore them to original thickness if they have lost 1/32" or more.

Mr. Michael Merashoff
September 30, 1999
Page 3

Environmental
Resources
Management

Please call us if you have any questions. ERM appreciates being able to assist Safety-Kleen with this work.

Sincerely,

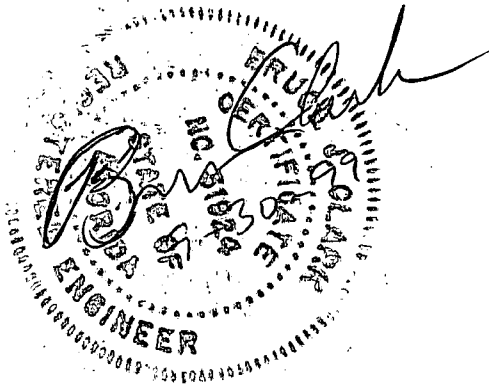


Bruce J. Clark, P.E.
Project Manager

bjc

Enclosure(s)

c: Mike Starks, P.G. - ERM, Tampa



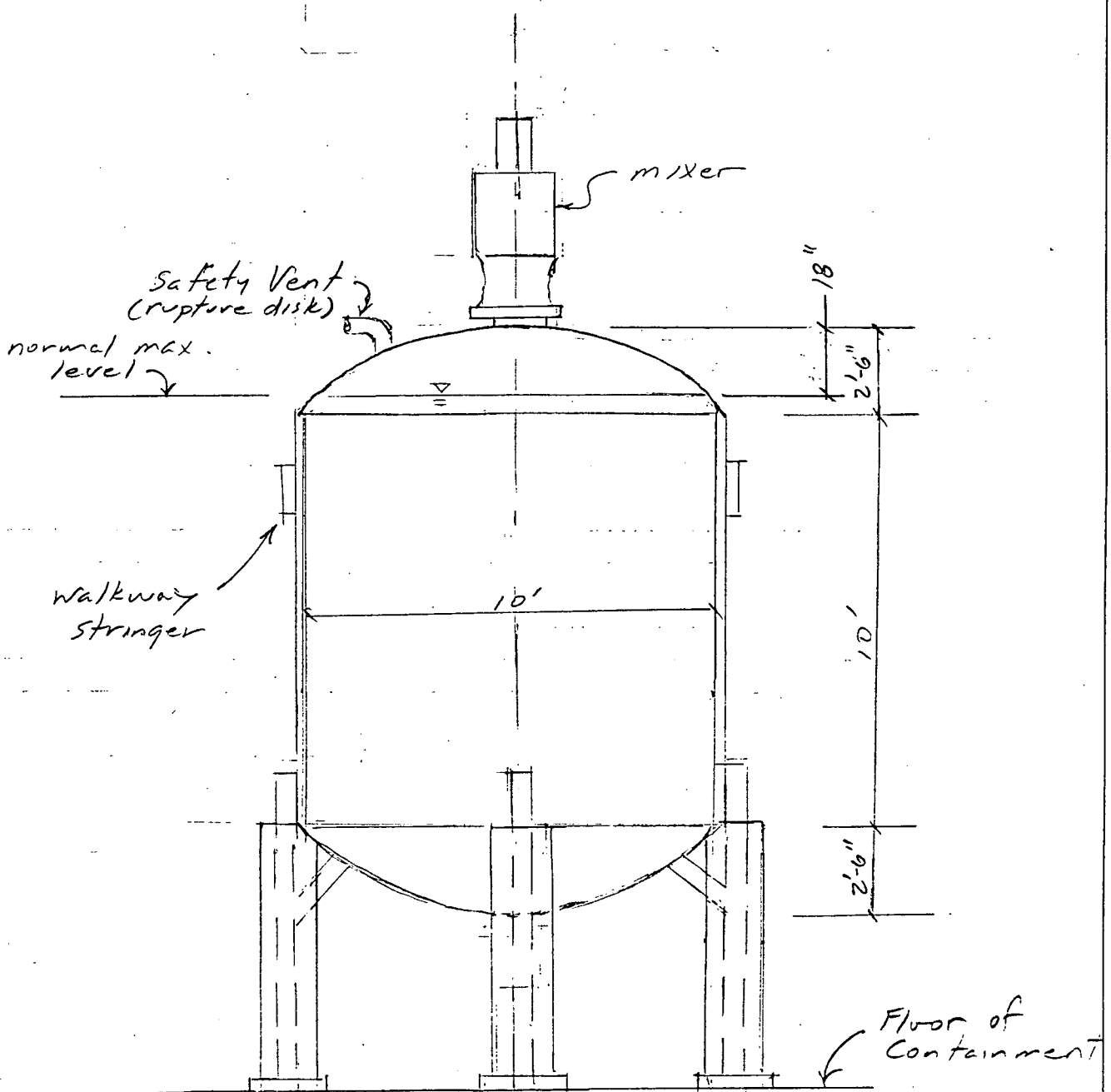
ATTACHMENT A
SUMMARY OF DESIGN INFORMATION
STRUCTURAL INTEGRITY ASSESSMENT - TANKS R-202/R-203
Bartow, Florida

Information Provided by Safety-Kleen

- Stored Products: Hazardous Liquid Wastes (i.e., solvents) compatible with bare steel.
 - Specific Gravity = Maximum of 1.3
 - Temperature = Maximum of 200°F
- Tank Material = Carbon Steel. Tanks are jacketed, however, the jacket will not be used for steam circulation anymore.
- Shell Thicknesses = AST Inspection Services Report, dated June 1998.
- Pressure Relief = Rupture disk set @ 5 psig.
- Tank age = 14 years.
- No internal applied pressure above liquid level (i.e., atmospheric service).

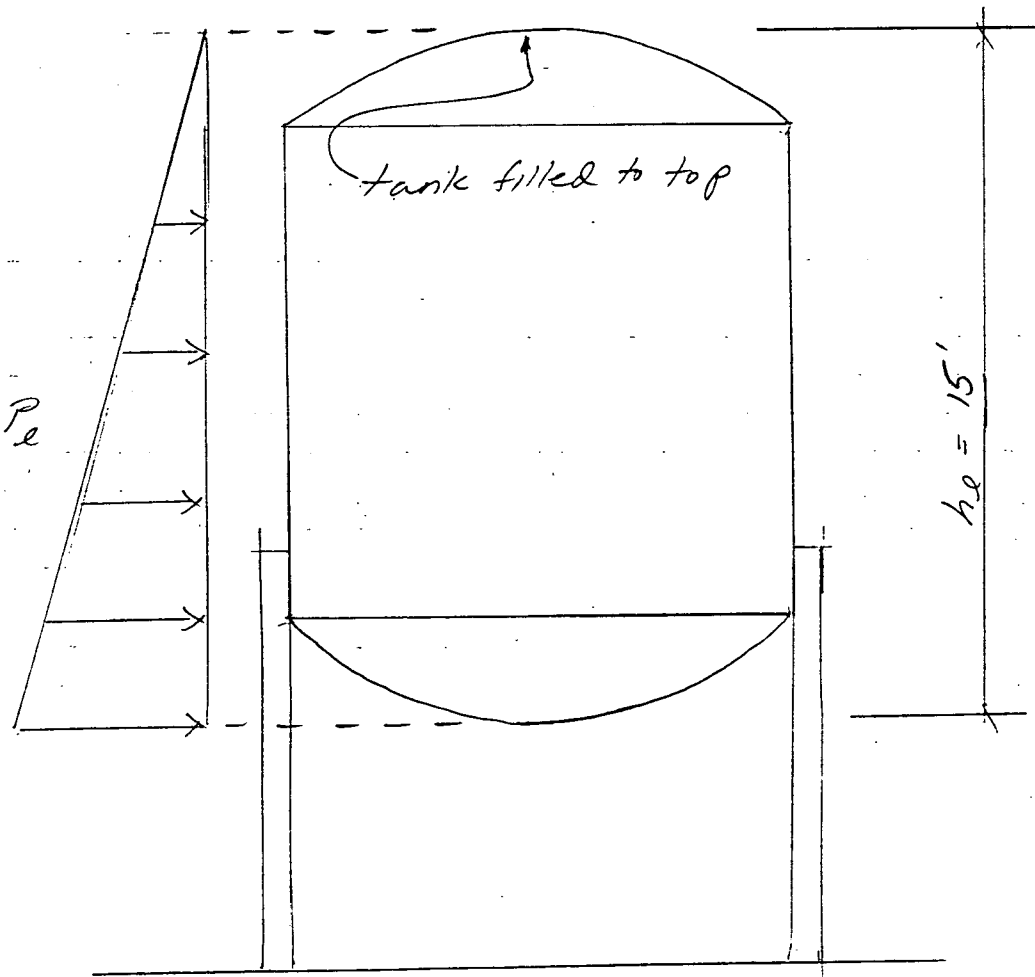
Information Assumed by ERM

- Applicable Code: ASME Section VIII - Pressure Vessels, Division 1, 1980 Edition.
- Grade of Steel = A-36 (mild steel).
- Allowable Steel Stress = 12,700 psi.
- Weld/Joint Efficiency = 0.70 (i.e., no radiography of welds)
- Design Internal Pressure = 13.4 psig (consisting of 8.4 psi from the static head of liquid/tank full to top, and 5 psig required to activate rupture disk upon overfill).





Load Due to Liquid Head



Pressure From Liquid (just @ top)

$$P_L = \gamma_L \cdot h_L$$

$$\gamma_L = (62.4)(1.3) = 81 \text{ lb/ft}^3$$

$$P_L = (81 \text{ lb/ft}^3)(15 \text{ ft}) / 144$$

$$h_L = 15 \text{ ft}$$

$$P_L = 8.4 \text{ lb/in}^2$$



Tank Overfill (Relief Vent set @ 28 $\frac{lb}{in^2}$)

$$P_{rv} = 28 \frac{lb}{in^2}$$

$$P_e = \gamma h_e + P_{rv}$$

$$= 8.4 + 28 \frac{lb}{in^2}$$

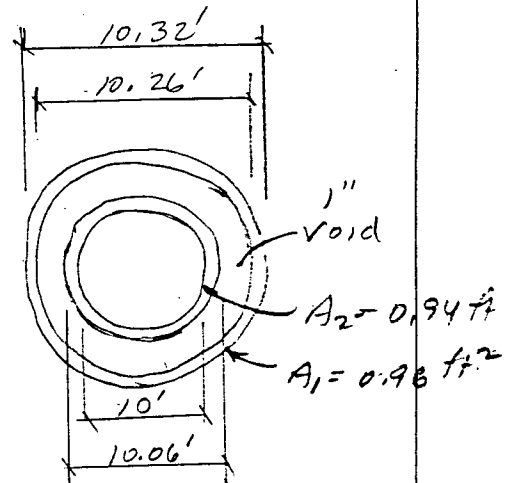
$$P_e = \underline{36.4 \frac{lb}{in^2}}$$

Vertical Loads on Tank (see sht. #5)

1. Weight of Tank, W_T

$$A_1 = \frac{\pi(10.32^2 - 10.26^2)}{4} (10) = 9.64 \text{ ft}^3$$

$$A_2 = \frac{\pi(10.06^2 - 10^2)}{4} (10) = 9.43 \text{ ft}^3$$



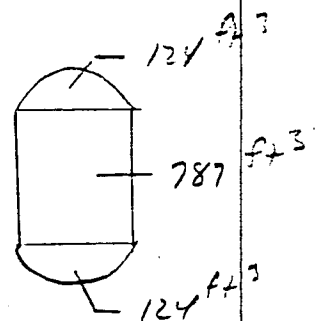
$$W_T = (9.64 + 9.43 \text{ ft}^3)(500 \frac{lb}{ft^3}) + 2(2)(2.2 \text{ ft}^3)(500 \frac{lb}{ft^3})$$

$$= 14,000 \text{ lb.}$$

see sht. #6
for end shape calcs.

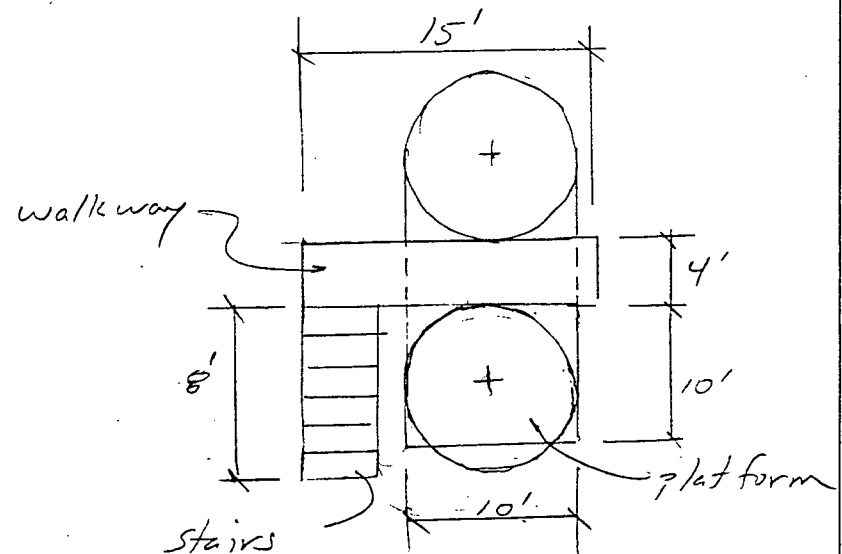
2. Weight of Liquid, W_L

$$W_L = 787 + 2(124) \text{ ft}^3 \times 62.4 \times 1.3 = \underline{84,000 \text{ lb.}}$$



Total Tank
Volume = 7,760 $\frac{ft^3}{(1,035 \text{ ft}^3)}$

3. Weight of Mixer, W_M Say $W_M = \underline{1,000 \text{ lb.}}$

PLAN OF TANKS

4. Weight of Walkway, W_p

$$\text{Live Load } w_{ll} = 100 \text{ lb/ft}^2$$

$$\text{Dead Load } w_{dl} = 15 \text{ lb/ft}^2$$

Platform Area:

$$A_p = (15 \times 4 \text{ ft}^2) + (10 \times 10 \text{ ft}^2) + \left(\frac{8}{2} \times 4 \text{ ft}^2\right)$$

$$A_p = 176 \text{ ft}^2$$

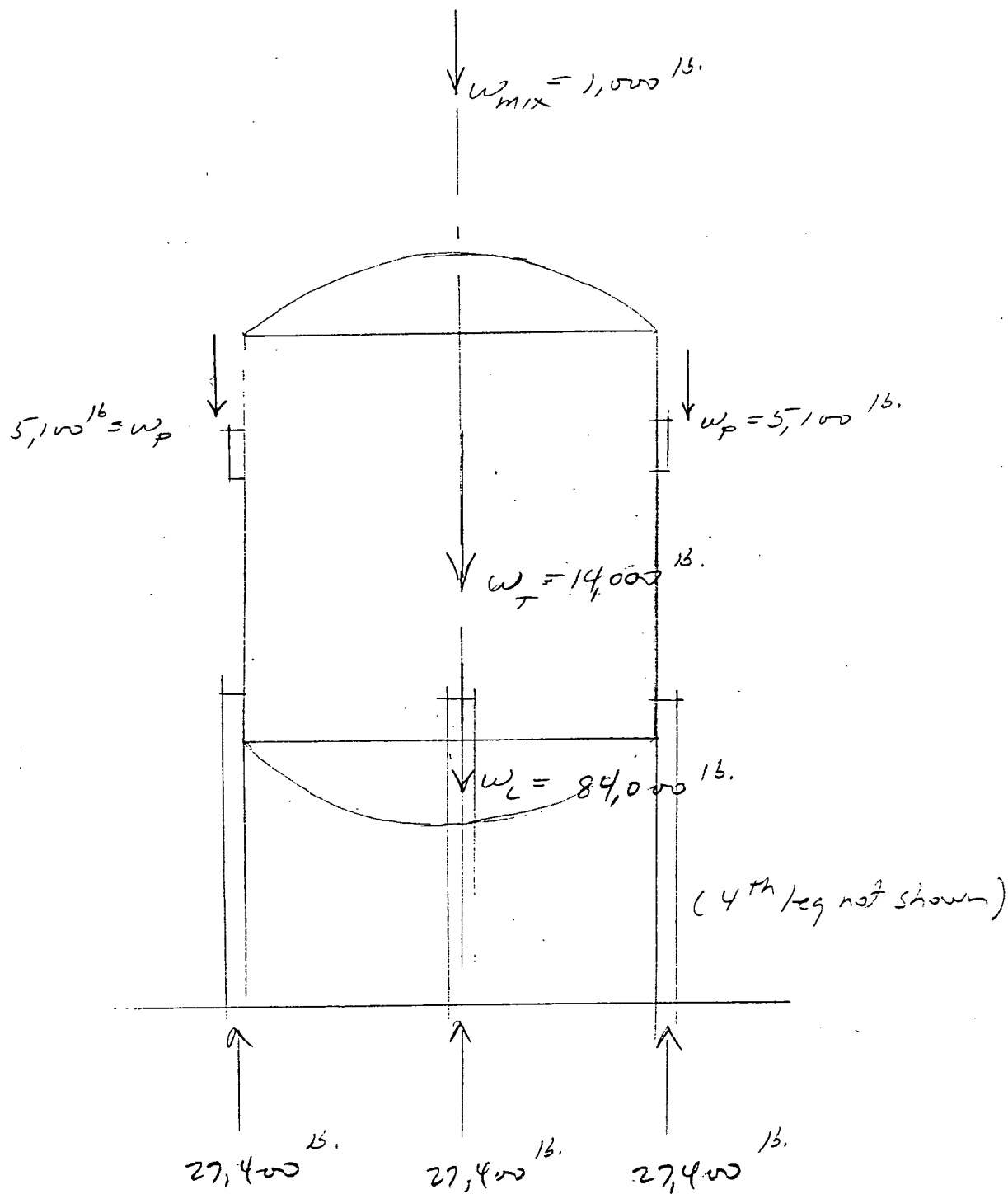
$$W_p = 100 \text{ lb/ft}^2 (176 \text{ ft}^2) + 15 \text{ lb/ft}^2 (176 \text{ ft}^2)$$

$$W_p = 17,600 + 2,700$$

$$W_p = 20,300 \text{ lb.}$$

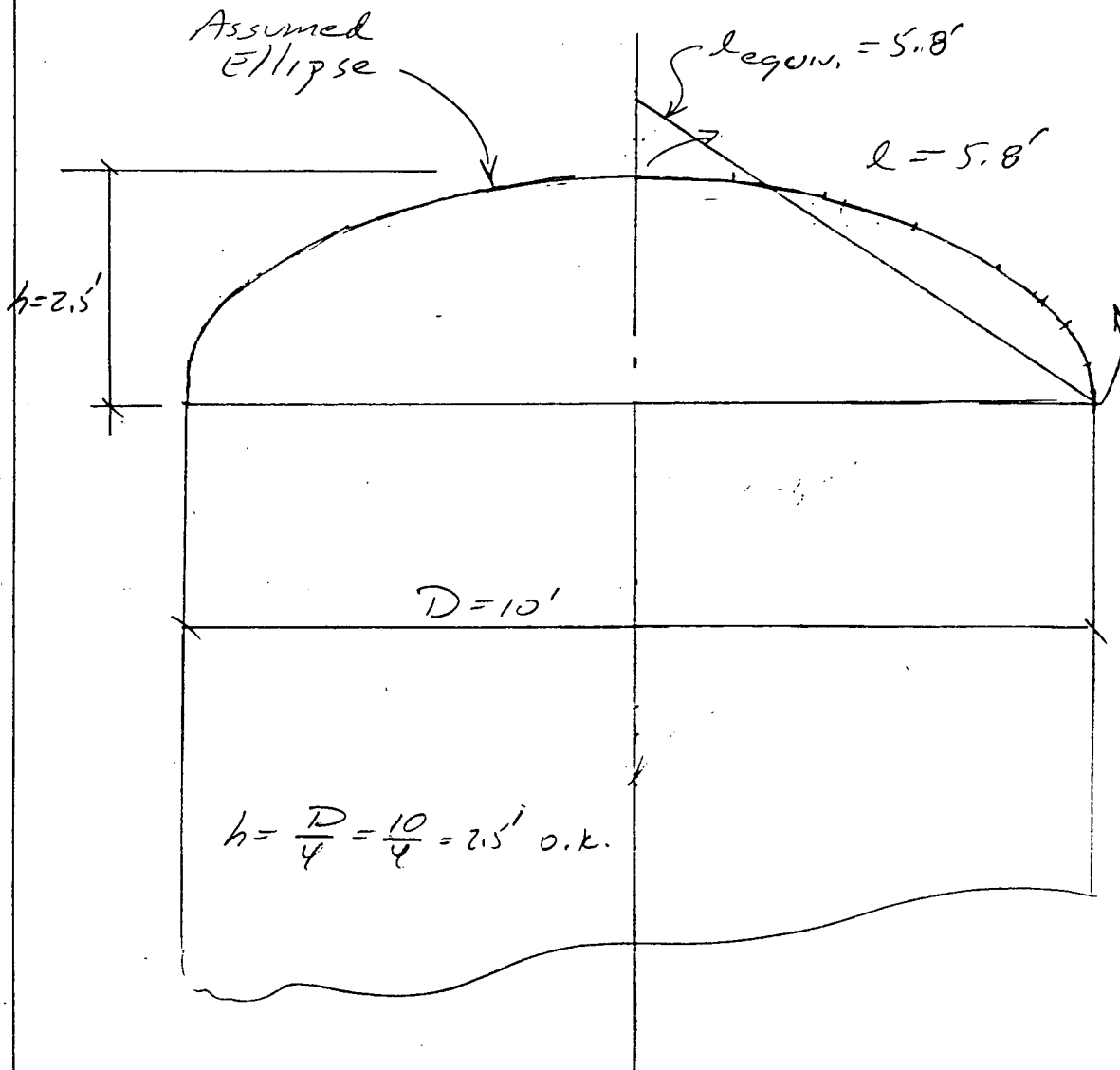
$$W_p/4 = 20,300 \text{ lb}/4 = 5,100 \text{ lb.}$$

$$\begin{aligned} \text{Total Vertical Loads} &= 14,000 + 84,000 + 10,200 \\ &\quad + 1,000 \\ &= 109,200 \text{ lb.} \end{aligned}$$



STATIC VERTICAL LOADS

Head Shell



$$\text{Area of Head} = \frac{\pi (11.6)^2}{4} = 105 \text{ ft}^2$$

$$\text{Volume} = 105 \text{ ft}^2 \left(\frac{0.251 \text{ ft}}{12} \right) = 2.2 \text{ ft}^3$$

Compressive Stress in Tank Wall (Vertical Loads)

$$F_{\text{Total}} = (2)(5,100 \text{ lb}) + 14,000 \text{ lb} + 1,000 \text{ lb}$$

$$F_{\text{Total}} = 25,200 \text{ lb.}$$

$$\times \text{ Safety Factor } 1.5 \approx 40,000 \text{ lb.}$$

$$\text{Area (Assume single tank)} = 0.94 \text{ ft}^2 (135 \text{ in}^2)$$

$$\tau_c = \frac{F}{A} = \frac{40,000 \text{ lb}}{135 \text{ in}^2} = \underline{300 \text{ lb/in}^2}$$

Hoop Stress from Liquid Pressure

$$\tau_h = \frac{Pr}{t}$$

$$r = 5 \text{ ft. } (60 \text{ in.})$$

t = shell thickness,
use minimum from
last inspection.

Reduce t to account
for variability in
thickness measurement

$$t = 0.247 \text{ in.}$$

$$\text{Safety Factor} = 2.57$$

$$t_{\text{reduced}} = \frac{0.247 \text{ in.}}{2.57} = 0.198 \text{ in.}$$

$$\therefore \tau_h = \frac{36.4 \text{ lb/in}^2 (60 \text{ in.})}{0.198 \text{ in.}} = \underline{11,000 \text{ lb/in}^2}$$

→ Skip to
Page 9

Longitudinal Stress in Tank Wall

$$\tau_L = \frac{Pr}{2t}$$

$$r = 5'$$

$t =$ (Use same t as in hoop stress calc.)

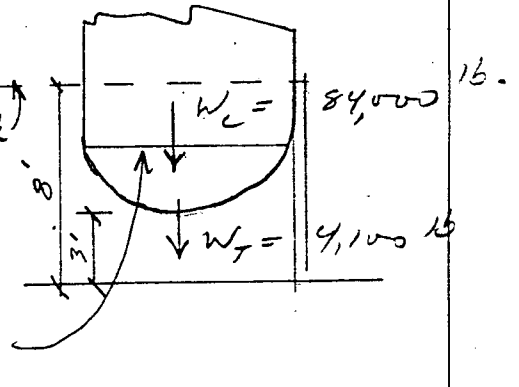
$$t = 0.198 \text{ in.}$$

$$P = \frac{F}{A}$$

$$A = \frac{\pi (10')^2}{4} = 78.5 \text{ ft}^2$$

$$(11,300 \text{ in}^2)$$

Weight of tank below this level



Force acting on this X-sect. area

$$P = \frac{84,000 \text{ lb}}{11,300 \text{ in}^2} = 8 \text{ lb/in}^2$$

Add pressure due to overfill $(28 + 8) = 36 \text{ lb/in}^2$

Check w/ actual measured wall thicknesses:

$$\tau_L = \frac{36 (60)}{2 (0.247)} = \frac{4,400 \text{ lb/in}^2}{1} \quad (\text{Single tank wall})$$

Check w/ conservative thickness, 25% S.F.

$$\tau_L = \frac{36 (60)}{2 (0.198)} = \frac{5,500 \text{ lb/in}^2}{1}$$

skip to
page 9

Check Using ASME Criteria
 Re: Section VIII Rules for Construction
 of Pressure Vessels - Division 1 1980 Edition

A. Minimum Thickness (Circumferential Stress)

$$t_{\min} = \frac{P r}{S E - 0.6 P}$$

$$P = 36.4 \text{ lb/in}^2$$

$$r = 60 \text{ in.}$$

$$S = 12,700 \text{ lb/in}^2 \text{ (Table UCS-23)}$$

for A-36 steel.

$T_{\max} < 650^\circ \text{ F.}$

$E = \text{joint efficiency}$
 (Not spot examined
 welds)

$$= 0.70 \text{ (Table UW-12)}$$

$$\therefore t_{\min} = \frac{36.4 \text{ lb/in}^2 (60 \text{ in.})}{12,700 \text{ lb/in}^2 (0.70) - 0.6 (36.4)}$$

$$t_{\min} = 0.246 \text{ in.}$$

Maximum Pressure

$$P_{\max} = \frac{S E t}{r + 0.6 t} = \frac{12,700 (0.70) (0.198)}{60 + 0.6 (0.198)} = 29 \text{ PSI} \text{ No (25% reduction from actual } t \text{)}$$

Use $t = 0.247 \text{ in.}$ (15% reduction from actual t)

$$P_{\max} = \frac{12,700 (0.70) (0.247)}{60 + 0.6 (0.247)} = 36.5 \text{ PSI ok, } 36.5 \approx 36.4$$

The actual minimum thickness $t = 0.247$ corresponds with max. allowable stress.

B. Minimum Thickness (Longitudinal Stress)

$$t = \frac{P r}{2 S E - 0.2 P} = \frac{36.4 (60)}{2 (12,700 (0.70)) - 0.2 (36.4)} = 0.109 \text{ in. ok.}$$

C. Check Shell Head Thickness

Assume Ellipsoid Head Shape (see Sht. #6)

$$t_{\min} = \frac{P D}{2 S E - 0.2 P}$$

$$h = \frac{1}{4} D = \frac{10}{4} = 2.5$$

$$h = 2.5' \text{ (ok.)}$$

$$D = 120 \text{ in.}$$

$$t_{\min} = \frac{(36.4) (120)}{2 (12,700 (0.70)) - 0.2 (36.4)} = 0.246 \text{ in.}$$

Head Shell Check (cont.)

$$\underline{t_{min.} = 0.246 \text{ in.}}$$

$$t_{actual} = 0.251 \text{ in.} \quad \text{o.k.}$$

Max. Pressure

$$\text{Use } t = 0.246 \text{ in.}$$

$$P_{max} = \frac{2SEt}{D + 0.2t}$$

$$P_{max} = \frac{2(12,700)(0.7)(0.246)}{120 + 0.2(0.246)} = 36.4 \text{ PSI} \quad \text{o.k.}$$

Actual t is slightly greater than $t_{min.}$, so this is o.k.

Note:

Need to watch the t on the roof, because it is equal to the minimum.

Summary = Minimum Shell Thicknesses

Sidewall $t_{min.} = 246 \text{ mils}$ Actual $t = 247 \text{ mils}$

Top/Bottom Head $t_{min.} = 246 \text{ mils}$ Actual $t = 251 \text{ mils}$



Re-check of Tank Integrity

S-K has ordered new rupture disks for both tanks. Pressure rating is 5 psig. (reduced from 28 psig)

Also, the maximum liquid temperature is 200°F, reduced from 300°F.

Both changes received on 9/22/99 from Dave Shire

A. Minimum Thickness (Circumferential Stress)

$$t_{\min} = \frac{P r}{S E - 0.6 P}$$

$$P = \text{static head} + \text{rupture disk rating} \\ = 8.4 + 5 = 14 \text{ psig.}$$

$$t_{\min} = \frac{14 \frac{\text{lb}}{\text{in}^2} (60 \text{ in})}{12,700 \frac{\text{lb}}{\text{in}^2} (0.7) - 0.6 (14 \frac{\text{lb}}{\text{in}^2})}$$

$$S = 12,700 \text{ PSI (up to } 650^\circ\text{F)}$$

$$r = 60 \text{ in.}$$

$$E = 0.70$$

(see sh. 9 of 10 for full details on variables)

$$t_{\min} = 0.095 \text{ in.} \\ = 95 \text{ mils.}$$

A.1 Maximum Pressure

$$P_{\max} = \frac{S E \cdot t}{r + 0.6 t}$$

$$\text{Use } t = 190 \text{ mils (0.190 in.)}$$

$$= \frac{12,700 \frac{\text{lb}}{\text{in}^2} (0.7) (0.190 \text{ in})}{60 \text{ in} + 0.6 (0.190 \text{ in})} = \frac{1689.1}{60.11} = 28.1 \text{ psig.}$$

Actual $P_{\max} = 14 \text{ psig}$ (o.k. at that thickness).



B. Minimum Thickness (Longitudinal Stress)

$$t = \frac{P r}{2 S E - 0.2 P}$$

$$P = 14 \text{ PSI}$$

$$S = 12,700 \text{ lb/in}^2$$

$$E = 0.7$$

$$r = 60 \text{ in.}$$

$$\therefore t = \frac{(14 \text{ lb/in}^2)(60 \text{ in})}{2(12,700 \text{ lb/in}^2)(0.7) - 0.2(14 \text{ lb/in}^2)}$$

$$t = 0.047 \text{ in. (47 mils)} \quad \text{o.k.}$$

C. Check Shell Head Thickness (see assumptions sheet 10 of 11)

$$t_{\min} = \frac{P D}{2 S E - 0.2 P}$$

$$= \frac{(14 \text{ lb/in}^2)(120 \text{ in})}{2(12,700 \text{ lb/in}^2)(0.7) - 0.2(14 \text{ lb/in}^2)}$$

$$t_{\min} = 0.095 \text{ in. (95 mils)}$$

C.1 Maximum Pressure

$$P_{\max} = \frac{2 S E t}{D + 0.2 t}$$

$$\text{Use } t = 190 \text{ mils (0.190 in.)}$$

$$= \frac{2(12,700)(0.7)(0.190)}{120 + 0.2(0.190)} = \frac{3378.2}{120.04} = 28 \text{ PSI}$$

o.k.

SUMMARY

Minimum recommended thickness for shell and head is 190 mils (50% of original thickness $\frac{3}{8}$ "(?)) - API

Pressure of 14 PSI is about half of maximum.

Project S-1cSubject Integrity of Tanks R-202/203By CLARKDate 9-27-99

Chkd by _____

Date _____

min.
Actual thickness (1998) was 247 mils (side)
and 251 mils (top) for Tank R-202.

When a current radiography is done compare
the new thicknesses to allowable.

For Tank R-203, the top is 251 mils and
the side is 338 mils.

sheet 9

B

minimum thickness (longitudinal stress)

applicant used $t = \frac{PR}{2SE - 0.2P}$

which is for spherical shells (see VG-27(d))

applicant should have used

$$t = \frac{PR}{2SE + 0.4P} \quad (\text{see VG-27(c)(2)})$$

$$t = \frac{36.4 \frac{16}{\text{in}^2} (60 \text{ in})}{2 \left(12,700 \frac{16}{\text{in}^2} \right) (0.70) + 0.4 \left(36.4 \frac{16}{\text{in}^2} \right)}$$

$$= 0.123 \text{ inches} \Rightarrow \text{still OK}$$

Similarly, sheet 2 + 3 for calculations at

$P = 14 \frac{16}{\text{in}^2}$ made the same error

$$t = 0.047 \text{ inches} \Rightarrow \text{still OK}$$

ASME BOILER AND PRESSURE VESSEL CODE
AN AMERICAN NATIONAL STANDARD
ANSI/ASME BPV-VIII-1

SECTION VIII

Rules for Construction of Pressure Vessels

Division 1

1980 EDITION

JULY 1, 1980



ASME BOILER AND PRESSURE VESSEL COMMITTEE
SUBCOMMITTEE ON PRESSURE VESSELS

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
United Engineering Center 345 East 47th Street New York, N.Y. 10017

that determined by the design formulas, or by using some other suitable method of protection. (See Appendix E.)

NOTE: When using high alloys and nonferrous materials either for solid wall or clad or lined vessels, refer to UHA-6, UCL-3, and UNF-4, as appropriate.

(c) Material added for these purposes need not be of the same thickness for all parts of the vessel if different rates of attack are expected for the various parts.

(d) Except as required in UCS-25, no additional thickness need be provided when previous experience in like service has shown that corrosion does not occur or is of only a superficial nature.

(e) *Telltale Holes.* Telltale holes may be used to provide some positive indication when the thickness has been reduced to a dangerous degree. Telltale holes shall not be used in vessels which are to contain lethal substances [see UW-2(a)]. When telltale holes are provided, they shall have a diameter of $\frac{1}{16}$ to $\frac{3}{16}$ in. (1.6 to 4.8 mm) and have a depth not less than 80% of the thickness required for a seamless shell of like dimensions. These holes shall be provided in the opposite surface to that where deterioration is expected. [For telltale holes in clad or lined vessels, see UCL-25(b).]

(f) *Openings for Drain.* Vessels subject to corrosion shall be supplied with a suitable drain opening at the lowest point practicable in the vessel; or a pipe may be used extending inward from any other location to within $\frac{1}{4}$ in. (6 mm) of the lowest point.

formulas.¹² In addition, provision shall be made for any of the other loadings listed in UG-22, when such loadings are expected. (See UG-16.)

(b) The symbols defined below are used in the formulas of this paragraph.

t = minimum required thickness of shell, exclusive of corrosion allowance (see UG-25), in.

P = design pressure, psi (see UG-21) (or maximum allowable working pressure, see UG-98)

R = inside radius of the shell course under consideration, before corrosion allowance is added,¹³ in.

S = maximum allowable stress value, psi (see applicable Table of stress values in Subsection C, and the stress limitations specified in UG-24 and UW-12)

E = joint efficiency for, or the efficiency of, appropriate joint in cylindrical shells and any joint in spherical shells, or the efficiency of ligaments between openings, whichever is less:

For welded vessels, use the efficiency specified in UW-12.

For ligaments between openings, use the efficiency calculated by the rules given in UG-53.

(c) *Cylindrical Shells.* The minimum thickness or maximum allowable working pressure of cylindrical shells shall be the greater thickness or lesser pressure as given by (1) or (2):

(1) *Circumferential stress (longitudinal joints).* When the thickness does not exceed one-half of the inside radius, or P does not exceed $0.385SE$, the following formulas shall apply:

$$t = \frac{PR}{SE - 0.6P} \quad \text{or} \quad P = \frac{SEt}{R + 0.6t} \quad (1)$$

(2) *Longitudinal stress (circumferential joints).*¹⁴ When the thickness does not exceed one-half of the inside radius, or P does not exceed $1.25SE$, the following formulas shall apply:

¹²Formulas in terms of the outside radius and for thicknesses and pressures beyond the limits fixed in this paragraph are given in 1-1 to 1-3.

¹³For pipe, the inside radius R is determined by the nominal outside radius minus the nominal wall thickness. Corrosion is to be considered as described in R above.

¹⁴These formulas will govern only when the circumferential joint efficiency is less than one-half the longitudinal joint efficiency, or when the effect of supplementary loadings (UG-22) causing longitudinal bending or tension in conjunction with internal pressure is being investigated. An example illustrating this investigation is given in L-2 (a) and (b).

UG-26 LININGS

Corrosion resistant or abrasion resistant linings, whether or not attached to the wall of a vessel, shall not be considered as contributing to the strength of the wall except as permitted in Part UCL (see Appendix F).

UG-27 THICKNESS OF SHELLS UNDER INTERNAL PRESSURE

(a) The thickness of shells under internal pressure shall be not less than that computed by the following

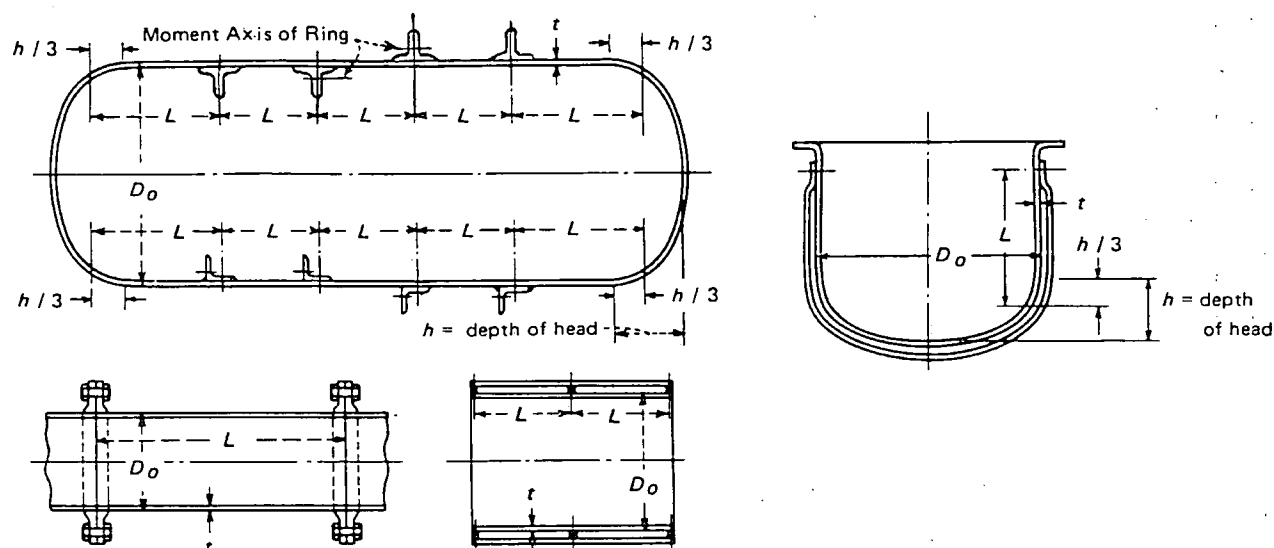


FIG. UG-28 DIAGRAMMATIC REPRESENTATION OF VARIABLES FOR DESIGN OF CYLINDRICAL VESSELS SUBJECTED TO EXTERNAL PRESSURE

$$t = \frac{PR}{2SE + 0.4P} \quad \text{or} \quad P = \frac{2SEt}{R - 0.4t} \quad (2)$$

(d) *Spherical Shells.* When the thickness of the shell of a wholly spherical vessel does not exceed $0.356R$, or P does not exceed $0.665SE$, the following formulas shall apply:

$$t = \frac{PR}{2SE - 0.2P} \quad \text{or} \quad P = \frac{2SEt}{R + 0.2t} \quad (3)$$

(e) When necessary, vessels shall be provided with stiffeners or other additional means of support to prevent overstress or large distortions under the external loadings listed in UG-22 other than pressure and temperature.

(f) A stayed jacket shell that extends completely around a cylindrical or spherical vessel shall also meet the requirements of UG-47 (c).

(g) Any reduction in thickness within a shell course or spherical shell shall be in accordance with UW-9.

UG-28 THICKNESS OF SHELLS AND TUBES UNDER EXTERNAL PRESSURE

(a) Rules for the design of shells and tubes under external pressure given in this Division are limited to

cylindrical shells, with or without stiffening rings, tubes, and spherical shells. Three typical forms of cylindrical shells are shown in Fig. UG-28. Charts used in determining minimum required thicknesses of these components are given in Appendix 5.

(b) The symbols defined below are used in the procedures of this paragraph:

A = factor determined from Fig. 5-UGO-28.0 in Appendix 5 and used to enter the applicable material chart in Appendix 5. For the case of cylinders having D_o/t values less than 10, see UG-28(c)(2).

B = factor determined from the applicable material chart in Appendix 5 for maximum design metal temperature, psi [see UG-20(c)]

D_o = outside diameter of cylindrical shell course or tube, in.

E = modulus of elasticity of material at design temperature, psi (For this value, see the applicable materials chart in Appendix 5. Interpolation may be made between lines for intermediate temperatures.)

L = total length, in., of a tube between tubesheets, or design length of a vessel section, taken as the largest of the following:

(1) the distance between head-bend lines plus one-third the depth of each head if there are no stiffening rings

(2) the distance between cone-to-cyl-

(b) any Category B and C butt welds [but not including Category B and C butt welds in nozzles and communicating chambers that neither exceed 10 in. nominal pipe size nor $1\frac{1}{8}$ in. (29 mm) wall thickness] which are not required to be fully radiographed by subparagraphs (1), (2), (3), or (4) above shall, as a minimum requirement, be partially radiographed. This shall consist of a radiographic examination at least 6 in. (152 mm) long of any section of the weld picked at random, plus a similar examination of any intersections of the weld with all Category A welds in either of the sections being connected. Acceptance standards for partially examined welds shall be as set forth in UW-51 for full radiography.

(6) All butt welds joined by electroslog welding.

(7) Ultrasonic examination in accordance with UW-53 may be substituted for radiography for the final closure seam of a pressure vessel if the construction of the vessel does not permit interpretable radiographs in accordance with Code requirements. The absence of suitable radiographic equipment shall not be justification for such substitution.

(b) *Spot Radiography.* Butt welded joints made in accordance with Type No. (1) or No. (2) of Table UW-12 which are not required to be fully radiographed by (a) shall be examined by spot radiographing in accordance with UW-52, except as described in (c). Spot radiographic examination is not required of Categories B and C butt welds in nozzles and communicating chambers that neither exceed 10 in. nominal pipe size nor $1\frac{1}{8}$ in. (29 mm) wall thickness.

NOTE: This requirement specifies spot radiography for butt welds of Type No. (1) or No. (2) that are used in a vessel, but does not preclude the use of fillet and/or corner welds permitted by other paragraphs, such as for nozzle and manhole attachments, welded stays, flat heads, etc., which need not be spot radiographed.

(c) *No Radiography.* Except as required in (a), no radiographic examination of welded joints is required when the vessel or vessel part is designed for external pressure only, or when the vessel design complies with UW-12(c).

(d) Electroslog welds in ferritic materials shall be ultrasonically examined throughout their entire length in accordance with the requirements of Appendix 12. This ultrasonic examination shall be done following the grain refining (austenitizing) heat treatment or postweld heat treatment.

(e) In addition to the requirements in (a) and (b), all welds made by the electron beam process shall be ultrasonically examined for their entire length in accordance with the requirements of Appendix U.

UW-12 JOINT EFFICIENCIES

Table UW-12 gives the joint efficiencies, E , to be used in the formulas of this Division for joints completed by an arc or gas welding process. The joint efficiencies depend on the type of joint and on the degree of examination of the joints.

(a) The value of E not greater than that given in column (a) of Table UW-12 shall be used in the design calculations for fully radiographed butt welds [see UW-11(a)].

(b) The value of E not greater than that given in column (b) of Table UW-12 shall be used in the design calculations for butt welded joints in vessels or parts of vessels that are spot-radiographically examined in accordance with the requirements of UW-11(b), and for longitudinal stress calculations when partial radiography is used under UW-11(a)(5).

Seamless vessel sections and heads with Category B, C, or D butt joints that are spot radiographed in accordance with UW-11(b) shall be designed for circumferential stress using a stress value equal to 85% of the allowable stress value prescribed for the material in Subsection C (this stress reduction is not applicable to t_r and t_m in reinforcement calculations).

(c) The value of E not greater than that given in column (c) of Table UW-12 shall be used in the design calculations for welded joints in vessels that are neither fully radiographed nor spot-radiographically examined, provided that in all other design calculations a stress value equal to 80% of the allowable stress value prescribed for the material in Subsection C is used except for stress S for unstayed flat heads and covers in UG-34, stresses S_a , S_b , S_f and S_n used in flange design and defined in UA-47, or for calculating the thickness of braced and stayed surfaces by Eqs. (1) and (2) of UG-47(a).

(d) A value of E not greater than 0.80 may be used in the formulas of this Division for joints completed by forge welding or by any of the pressure welding processes given in UW-27(b), except for electric resistance welding, provided the welding process used is permitted by the rules in the applicable parts of Subsection C for the material being welded. The quality of such welds used in vessels or parts of vessels shall be proved as follows: Test specimens shall be representative of the production welding on each vessel. They may be removed from the shell itself or from a prolongation of the shell including the longitudinal joint, or, in the case of vessels not containing a longitudinal joint, from a test plate of the same material and thickness as the vessel and welded in accordance with the same procedure. One reduced-

TABLE UW-12
MAXIMUM ALLOWABLE JOINT EFFICIENCIES FOR ARC AND GAS WELDED JOINTS

No.	Type of Joint Description	Limitations	Degree of Examination		
			(a) Fully Radio- graphed ¹	(b) Spot Examined ²	(c) Not Spot Examined ³
(1)	Butt joints as attained by double-welding or by other means which will obtain the same quality of deposited weld metal on the inside and outside weld surfaces to agree with the requirements of UW-35. Welds using metal backing strips which remain in place are excluded.	None	1.00	0.85	0.70
(2)	Single-welded butt joint with backing strip other than those included under (1)	(a) None except as in (b) below (b) Butt weld with one plate off-set—for circumferential joints only, see UW-13(c) and Fig. UW-13.1(k)	0.90	0.80	0.65
(3)	Single-welded butt joint without use of backing strip.	Circumferential joints only, not over $\frac{5}{8}$ in. thick and not over 24 in. outside diameter	...	...	0.60
(4)	Double full fillet lap joint	Longitudinal joints not over $\frac{3}{8}$ in. thick. Circumferential joints not over $\frac{5}{8}$ in. thick	...	...	0.55
(5)	Single full fillet lap joints with plug welds conforming to UW-17	(a) Circumferential joints ⁴ for attachment of heads not over 24 in. outside diameter to shells not over $\frac{1}{2}$ in. thick (b) Circumferential joints for the attachment to shells of jackets not over $\frac{5}{8}$ in. in nominal thickness where the distance from the center of the plug weld to the edge of the plate is not less than $1\frac{1}{2}$ times the diameter of the hole for the plug.	...	...	0.50
(6)	Single full fillet lap joints without plug welds	(a) For the attachment of heads convex to pressure to shells not over $\frac{5}{8}$ in. required thickness, only with use of fillet weld on inside of shell; or (b) for attachment of heads having pressure on either side, to shells not over 24 in. inside diameter and not over $\frac{1}{4}$ in. required thickness with fillet weld on outside of head flange only.	...	...	0.45

NOTES:

(1) See UW-12(a) and UW-51.

(2) See UW-12(b) and UW-52.

(3) The maximum allowable joint efficiencies shown in this column are the weld joint efficiencies multiplied by 0.80 (and rounded off to the nearest 0.05), to effect the basic reduction in allowable stress required by this Division for welded vessels that are not spot examined. See UW-12(c).

(4) Joints attaching hemispherical heads to shells are excluded.

UG-31 TUBES, AND PIPE WHEN USED AS TUBES OR SHELLS

(a) *Internal Pressure.* The required wall thickness for tubes and pipe under internal pressure shall be determined in accordance with the rules for shells in UG-27. The applicable stress values given in the stress tables for welded tubes and pipe shall be used instead of the factor SE in the formulas of UG-27. No increase in these stress values shall be allowed for the performance of radiography.

(b) *External Pressure.* The required wall thickness for tubes and pipe under external pressure shall be determined in accordance with the rules in UG-28.

(c) The thickness as determined under (a) or (b) shall be increased when necessary to meet the following requirements:

(1) Additional wall thickness should be provided when corrosion, erosion, or wear due to cleaning operations is expected;

(2) Where tube ends are threaded, additional wall thickness is to be provided in the amount of $0.8/n$ in. (where n equals the number of threads per inch).

NOTE: The requirements for rolling, expanding, or otherwise seating tubes in tube plates may require additional wall thickness and careful choice of materials because of possible relaxation due to differential expansion stresses.

UG-32 FORMED HEADS, PRESSURE ON CONCAVE SIDE

(a) The required thickness at the thinnest point after forming¹⁵ of ellipsoidal, torispherical, conical, and hemispherical heads under pressure on the concave side (plus heads), shall be computed by the appropriate formulas in this paragraph¹⁶ (see UG-16). In addition, provision shall be made for any of the other loadings given in UG-22.

(b) The thickness of an unstayed ellipsoidal or torispherical head shall in no case be less than the required thickness of a seamless hemispherical head divided by the efficiency of the head-to-shell joint.

(c) The symbols defined below are used in the formulas of this paragraph:

t = minimum required thickness of head after forming, exclusive of corrosion allowance, in.

P = design pressure, psi (see UG-21), (or maximum allowable working pressure for existing vessels, see UG-98)

D = inside diameter of the head skirt; or inside length of the major axis of an ellipsoidal head; or inside diameter of a cone head at the point under consideration, measured perpendicular to the longitudinal axis, in. (measurements to be taken before corrosion allowance is added)

D_1 = inside diameter of the conical portion of a toriconical head at its point of tangency to the knuckle, measured perpendicular to the axis of the cone, in.

S = maximum allowable stress value as given in Subsection C, psi, except as limited in UG-24, UG-32(e), and UW-12

E = lowest efficiency of any joint in the head; for hemispherical heads this includes head-to-shell joint; for welded vessels, use the efficiency specified in UW-12

L = inside spherical or crown radius, in.

α = one-half of the included (apex) angle of the cone at the center line of the head (see Fig. 1-4)

(d) *Ellipsoidal Heads.* The required thickness of a dished head of semiellipsoidal form, in which half the minor axis (inside depth of the head minus the skirt) equals one-fourth of the inside diameter of the head skirt, shall be determined by:

$$t = \frac{PD}{2SE - 0.2P} \quad \text{or} \quad P = \frac{2SEt}{D + 0.2t} \quad (1)$$

(e) *Torispherical Heads.* The required thickness of a torispherical head for the case in which the knuckle radius is 6% of the inside crown radius and the inside crown radius equals the outside diameter of the skirt, [see (j)], shall be determined by:

$$t = \frac{0.885PL}{SE - 0.1P} \quad \text{or} \quad P = \frac{SEt}{0.885L + 0.1t} \quad (2)$$

Torispherical heads made of materials having a specified minimum tensile strength exceeding 80,000 psi (552 MPa) shall be designed using a value of S equal to 20,000 psi (138 MPa) at room temperature and reduced in proportion to the reduction in maximum allowable stress values at temperature for the material as shown in the appropriate Table of Subsection C.

¹⁵In order to insure that a finished head is not less than the minimum thickness required, it is customary to use a thicker plate to take care of possible thinning during the process of forming. The neck of an opening in a head with an integrally flanged opening will thin out due to the flanging operation. This is permissible provided the neck thickness is not less than the thickness required for a cylindrical shell having a diameter equal to the maximum diameter of the opening. [See UG-46(j).]

¹⁶Formulas in terms of outside dimensions and for heads of other proportions are given in 1-4 together with illustrative examples.

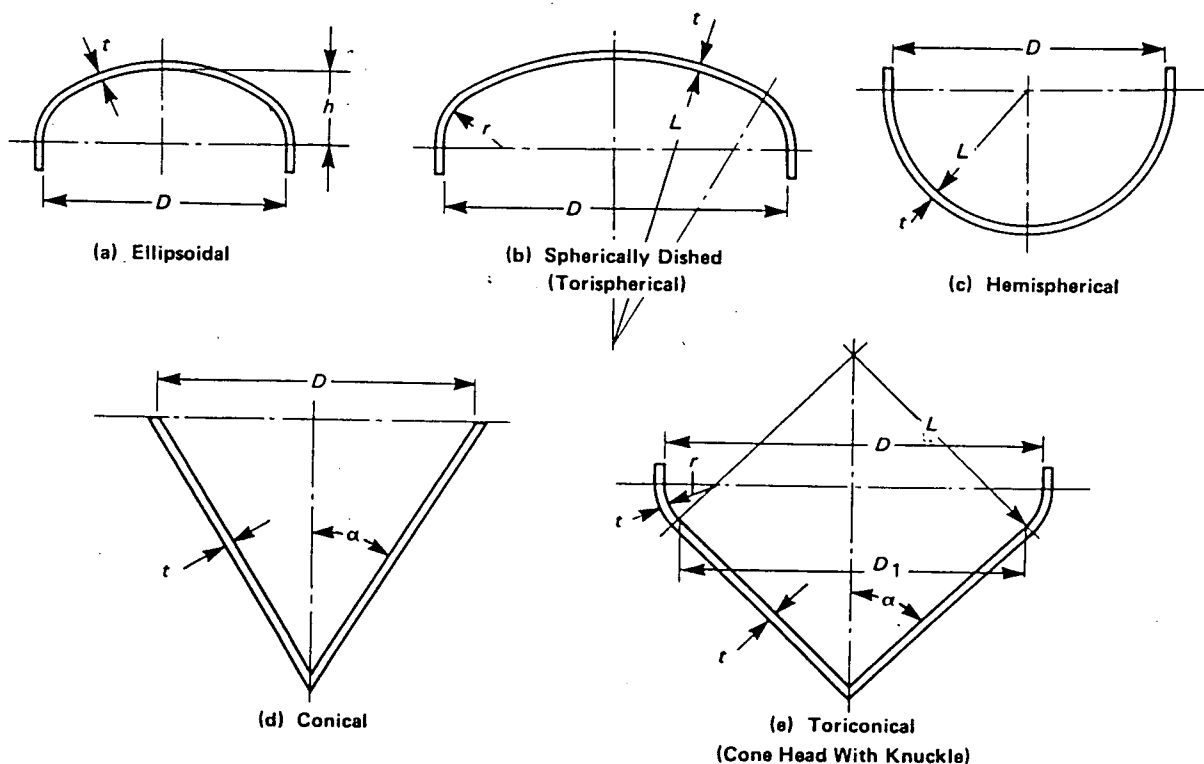


FIG. 1-4 PRINCIPAL DIMENSIONS OF TYPICAL HEADS

internal pressure exceeds $0.356R$, or when P exceeds $0.665SE$, the following formulas shall apply:

When P is known and t is desired:

$$t = R(Y^{1/3} - 1) = R_0 \left(\frac{Y^{1/3} - 1}{Y^{1/3}} \right)$$

where

$$Y = \frac{2(SE + P)}{2SE - P}$$

When t is known and P is desired:

$$P = 2SE \left(\frac{Y - 1}{Y + 2} \right)$$

where

$$Y = \left(\frac{R + t}{R} \right)^3 = \left(\frac{R_0}{R_0 - t} \right)^3$$

Symbols are as defined in UG-27 and 1-1.

1-4 FORMULAS FOR THE DESIGN OF FORMED HEADS UNDER INTERNAL PRESSURE

(a) The formulas of this paragraph provide for the design of formed heads of proportions other than those given in UG-32, in terms of inside and outside diameter.

(b) The symbols defined below are used in the formulas of this paragraph (see Fig. 1-4):

t = minimum required thickness of head after forming, in. (exclusive of corrosion allowance, see UG-25)

P = design pressure, psi (see UG-21) (or maximum allowable working pressure for existing vessels, see UG-98)

D = inside diameter of the head skirt; or inside length of the major axis of an ellipsoidal head; or inside diameter of a cone head at the point under consideration measured perpendicular to the longitudinal axis; in. (measurements to be taken before corrosion allowance is added)

TABLE UCS-23
MAXIMUM ALLOWABLE STRESS VALUES IN TENSION FOR CARBON AND LOW-ALLOY STEEL
(CAUTION: See UW-12 for vessels constructed under Part UW)

Spec. No.	Grade	Nominal Composition	P- No.	Group No.	Notes	Specified Min. Yield, ksi	Specified Min. Tensile, ksi
Bolting — All Carbon & Low Alloy Steels							
SA-193	B5	5Cr-1/2Mo	...	...	(7)	80.0	100.0
	B7	1Cr-1/5Mo ≤ 2 1/2 in.	...	...	(7)	105.0	125.0
		1Cr-1/5Mo < 2 1/2 in. and ≤ 4 in.	...	...	(7)	95.0	115.0
		1Cr-1/5Mo > 4 in.	...	...	(7)	75.0	100.0
	B7M	1Cr-1/5Mo ≤ 2 1/2 in.	...	...	...	80.0	100.0
	B16	1Cr-1/2Mo-V ≤ 2 1/2 in.	...	...	(7)	105.0	125.0
		1Cr-1/2Mo-V > 2 1/2 in. and ≤ 4 in.	...	...	(7)	95.0	110.0
		1Cr-1/2Mo-V > 4 in.	...	...	(7)	85.0	100.0
SA-307	B	C	...	...	(8)	...	55.0
SA-320	L43	Cr-Mo and Ni-Cr-Mo	...	...	(7)(11)	105.0	125.0
	L7	Cr-Mo and Ni-Cr-Mo	...	...	(7)(33)	105.0	125.0
SA-325	1 in. and under	C	...	...	(7)	92.0	120.0
	>1 in. and ≤ 1 1/2 in.	C	...	...	(7)	81.0	105.0
	1	C	...	...	(7)	77.0	105.0
SA-354	BB	...	...	...	(7)	78.0	100.0
	BC	...	...	...	(7)	99.0	115.0
	BD	...	...	...	(7)	125.0	150.0
SA-449	1 in. & under	C	...	...	(7)	92.0	120.0
	>1 in. and ≤ 1 1/2 in.	C	...	...	(7)	81.0	105.0
	>1 1/2 in. and ≤ 3 in.	C	...	...	(7)	58.0	90.0
Carbon Steel Plates and Sheets							
SA-36	...	C-Mn-Si	1	1	(1)(2)(3)(18)	36.0	58.0
SA-283	A	C	1	1	(1)(2)	24.0	45.0
	B	C	1	1	(1)(2)	27.0	50.0
	C	C	1	1	(1)(2)	30.0	55.0
	D	C	1	1	(1)(2)	33.0	60.0
SA-285	A	C	1	1	(3) (18) (24)	24.0	45.0
	B	C	1	1	(3) (18) (24)	27.0	50.0
	C	C	1	1	(3) (18) (24)	30.0	55.0
SA-299	...	C-Mn-Si	1	2	(18)	40.0/42.0	75.0
SA-414	A	C	1	1	(3) (18)	25.0	45.0
	B	C	1	1	(3) (18)	30.0	50.0
	C	C	1	1	(3) (18)	33.0	55.0
	D	C-Mn	1	1	(3) (18)	35.0	60.0
	E	C-Mn	1	1	(3) (18)	38.0	65.0
	F	C-Mn	1	2	(3) (18)	42.0	70.0
	G	C-Mn	1	2	(3) (18)	45.0	75.0

TABLES

Table UCS-23

TABLE UCS-23
 MAXIMUM ALLOWABLE STRESS VALUES IN TENSION FOR CARBON AND LOW-ALLOY STEEL
 (CAUTION: See UW-12 for vessels constructed under Part UW)

Maximum Allowable Stress, ksi (Multiply by 1000 to Obtain psi), for Metal Temp., °F, Not Exceeding												Spec. No.	Ext. Press. Chart Fig. No.
-20 to 650	700	750	800	850	900	950	1000	1050	1100	1150	1200		
Bolting — All Carbon & Low Alloy Steels													
20.0	20.0	20.0	18.5	14.5	10.4	7.6	5.6	4.2	3.1	2.0	1.3	SA-193	NA
25.0	25.0	23.6	21.0	17.0	12.5	8.5	4.5	...	...	...	...	SA-193	NA
23.0	23.0	22.2	20.0	16.3	12.5	8.5	4.5	...	...	...	...	SA-193	NA
18.8	18.8	18.8	18.0	16.3	12.5	8.5	4.5	...	...	...	...	SA-193	NA
20.0	20.0	20.0	18.5	16.2	12.5	8.5	4.5	...	...	...	...	SA-193	NA
25.0	25.0	25.0	25.0	23.5	20.5	16.0	11.0	6.3	2.8	...	...	SA-193	NA
22.0	22.0	22.0	22.0	21.0	18.5	15.3	11.0	6.3	2.8	...	...	SA-193	NA
20.0	20.0	20.0	20.0	18.8	16.7	14.3	11.0	6.3	2.8	...	...	SA-193	NA
...	...	...	...	...	...	...	...	...	...	...	...	SA-307	NA
25.0	25.0	...	...	...	...	...	...	...	...	...	...	SA-320	NA
23.0	...	...	...	...	...	...	...	...	...	...	...	SA-320	NA
20.2	...	...	...	...	...	...	...	...	...	...	...	SA-325	NA
19.3	...	...	...	...	...	...	...	...	...	...	...	SA-325	NA
19.5	...	...	...	...	...	...	...	...	...	...	...	SA-325	NA
23.0	...	...	...	...	...	...	...	...	...	...	...	SA-354	NA
30.0	...	...	...	...	...	...	...	...	...	...	...	SA-354	NA
23.0	...	...	...	...	...	...	...	...	...	...	...	SA-354	NA
20.2	...	...	...	...	...	...	...	...	...	...	...	SA-449	NA
14.5	...	...	...	...	...	...	...	...	...	...	...	SA-449	NA
												SA-449	NA
Carbon Steel Plates and Sheets													
12.7	...	...	...	...	...	...	...	...	...	...	...	SA-36	UCS-28.2
10.4	...	...	...	...	...	...	...	...	...	...	...	SA-283	UCS-28.1
11.5	...	...	...	...	...	...	...	...	...	...	...	SA-283	UCS-28.1
12.7	...	...	...	...	...	...	...	...	...	...	...	SA-283	UCS-28.2
12.7	...	...	...	...	...	...	...	...	...	...	...	SA-283	UCS-28.2
11.3	11.0	10.3	9.0	7.8	6.5	...	...	...	...	...	...	SA-285	UCS-28.1
12.5	12.1	11.2	9.6	8.1	6.5	...	...	...	...	...	...	SA-285	UCS-28.1
13.8	13.3	12.1	10.2	8.4	6.5	...	...	...	...	...	...	SA-285	UCS-28.2
18.8	17.7	15.7	12.6	9.6	6.5	4.5	2.5	...	...	...	...	SA-299	UCS-28.2
11.3	11.0	10.3	9.0	7.8	6.5	...	...	...	...	...	...	SA-414	UCS-28.1
12.5	12.1	11.2	9.6	8.1	6.5	...	...	...	...	...	...	SA-414	UCS-28.1
13.8	13.3	12.1	10.2	8.4	6.5	...	...	...	...	...	...	SA-414	UCS-28.2
15.0	14.3	12.9	10.8	8.6	6.5	...	...	...	...	...	...	SA-414	UCS-28.2
16.2	15.5	13.8	11.4	8.9	6.5	...	...	...	...	...	...	SA-414	UCS-28.2
17.5	16.6	14.7	12.0	9.2	6.5	...	...	...	...	...	...	SA-414	UCS-28.2
18.8	17.7	15.7	12.6	9.6	6.5	...	...	...	...	...	...	SA-414	UCS-28.2

coefficient in general accordance with the procedures of UG-131, as applicable.

(3) *Application of Rupture Disks*

(a) A rupture disk device may be used as the sole pressure relieving device on a vessel.

NOTE: When rupture disk devices are used, it is recommended that the design pressure of the vessel be sufficiently above the intended operating pressure to provide sufficient margin between operating pressure and rupture disk bursting pressure to prevent premature failure of the rupture disk due to fatigue or creep.

Application of rupture disk devices to liquid service should be carefully evaluated to assure that the design of the rupture disk device and the dynamic energy of the system on which it is installed will result in sufficient opening of the rupture disk.

(b) A rupture disk device may be installed between a pressure relief valve⁴³ and the vessel provided:

(1) The combination of the spring loaded safety or safety relief valve and the rupture disk device is ample in capacity to meet the requirements of UG-133(a) and (b).

(2) The stamped capacity of a spring loaded safety or safety relief valve (nozzle type) when installed with a rupture disk device between the inlet of the valve and the vessel shall be multiplied by a factor of 0.80 of the rated relieving capacity of the valve alone, or alternatively, the capacity of such a combination shall be established in accordance with (3) below.

(3) The capacity of the combination of the rupture disk device and the spring loaded safety or safety relief valve may be established in accordance with the appropriate paragraphs of UG-132, Certification of Capacity of Safety and Safety Relief Valves in Combination with Nonreclosing Pressure Relief Devices.

(4) The space between a rupture disk device and a safety or safety relief valve shall be provided with a pressure gage, a try cock, free vent, or suitable telltale indicator. This arrangement permits detection of disk rupture or leakage.⁴⁴

(5) The opening (see footnote 42) provided through the rupture disk, after burst, is sufficient to permit a flow equal to the capacity of the valve [(2)

and (3) above], and there is no chance of interference with proper functioning of the valve; but in no case shall this area be less than 80% of the area of the inlet of the valve unless the capacity and functioning of the specific combination of rupture disk and valve have been established by test in accordance with UG-132.

(c) A rupture disk device may be installed on the outlet side⁴⁵ of a spring loaded safety relief valve which is opened by direct action of the pressure in the vessel provided:

(1) The valve is so designed that it will not fail to open at its proper pressure setting regardless of any back pressure that can accumulate between the valve disk and the rupture disk. The space between the valve disk and the rupture disk shall be vented or drained to prevent accumulation of pressure due to a small amount of leakage from the valve.⁴⁶

(2) The valve is ample in capacity to meet the requirements of UG-133(a) and (b).

(3) The stamped bursting pressure of the rupture disk at the coincident disk temperature plus any pressure in the outlet piping shall not exceed the design pressure of the outlet portion of the safety or safety relief valve and any pipe or fitting between the valve and the rupture disk device. However, in no case shall the stamped bursting pressure of the rupture disk at the coincident operating temperature plus any pressure in the outlet piping exceed the maximum allowable working pressure of the vessel or the set pressure of the safety or safety relief valve.

(4) The opening provided through the rupture disk device after breakage is sufficient to permit a flow equal to the rated capacity of the attached safety or safety relief valve without exceeding the allowable overpressure.

(5) Any piping beyond the rupture disk cannot be obstructed by the rupture disk or fragment.

(6) The contents of the vessel are clean fluids, free from gumming or clogging matter, so that accumulation in the space between the valve inlet and

⁴³Use of a rupture disk device in combination with a safety or safety relief valve shall be carefully evaluated to insure that the media being handled and the valve operational characteristics will result in pop action of the valve coincident with the bursting of the rupture disk.

⁴⁴Users are warned that a rupture disk will not burst at its design pressure if back pressure builds up in the space between the disk and the safety or safety relief valve which will occur should leakage develop in the rupture disk due to corrosion or other cause.

⁴⁵This use of a rupture disk device in series with the safety or safety relief valve is permitted to minimize the loss by leakage through the valve of valuable or of noxious or otherwise hazardous materials, and where a rupture disk alone or disk located on the inlet side of the valve is impracticable, or to prevent corrosive gases from a common discharge line from reaching the valve internals.

⁴⁶Users are warned that an ordinary spring loaded safety relief valve will not open at its set pressure if back pressure builds up in the space between the valve and rupture disk. A specially designed valve is required, such as a diaphragm valve or a valve equipped with a bellows above the disk.

APPENDIX 9

JACKETED VESSELS

9-1 SCOPE

(a) The rules in Appendix 9 cover minimum requirements for the design, fabrication, and inspection of the jacketed portion of a pressure vessel. The jacketed portion of the vessel is defined as the inner and outer walls, the closure devices, and all other penetrations or parts within the jacket which are subjected to pressure stresses. Parts such as nozzle closure members and stiffening or stay rings are included.

(b) All other Parts of this division shall apply unless otherwise stated in this Appendix.

(c) Where the internal pressure is 15 psi (103 kPa) or less, any combination of pressures and vacuum in the vessel and jacket which will produce a total external pressure greater than 15 psi (103 kPa) on the inner vessel wall, the entire jacket shall be interpreted as within the scope of this part.

(d) For the purpose of this Appendix, jackets are assumed to be integral pressure chambers, attached to a vessel for one or more purposes such as:

- (1) to heat the vessel and its contents
- (2) to cool the vessel and its contents
- (3) to provide a sealed insulation chamber for the vessel

(e) As stated in U-2(g), this Division does not contain rules to cover all details of design and construction. These rules are therefore established to cover most common jacket types, but are not intended to limit configurations to those illustrated or otherwise described herein.

9-2 TYPES OF JACKETED VESSELS

This Appendix shall apply to jacketed vessels having jackets which cover the shell or heads as illustrated in Fig. 9-2 and partial jackets as illustrated in Fig. 9-7. Jackets, as shown in Fig. 9-2, shall be continuous circumferentially for Types 1, 2, 4, or 5 shown and shall be circular in cross section for Type

3. The use of any combination of the Types shown is permitted on any one vessel provided the individual requirements for each are met. Dimpled jackets are not covered in this Appendix (See UW-19).

9-3 MATERIALS

Materials used in the fabrication of jackets shall be in accordance with Subsection A.

9-4 DESIGN OF JACKET SHELLS AND JACKET HEADS

Design shall comply with the applicable requirements of Subsection A except where otherwise provided for in this Appendix.

(a) Shell and head thickness shall be determined by the appropriate formula given in Subsection A. In consideration of the loadings given in UG-22, particular attention to the effects of local internal and external loads and expansion differentials at design temperatures shall be given. Where vessel supports are attached to the jacket, consideration shall be given to the transfer of the supported load of the inner vessel and contents.

(b) The requirements for inspection openings as prescribed in UG-46 shall apply to jackets except that the maximum size of opening need not exceed 2-in. pipe size for all diameter vessels.

(c) The use of impingement plates or baffles at the jacket inlet connection to reduce erosion of the inner wall shall be considered for media where vapors are condensed, i.e., steam.

(d) Jacketed vessels may be designed utilizing braced and stayed surfaces as given in UG-47 provided the jacket wall in addition to meeting the requirements of UG-47(a) also meets the applicable requirements of UG-27(c) and (d) and UG-32. This paragraph is not intended to apply to dimpled jackets. (See UW-19.)

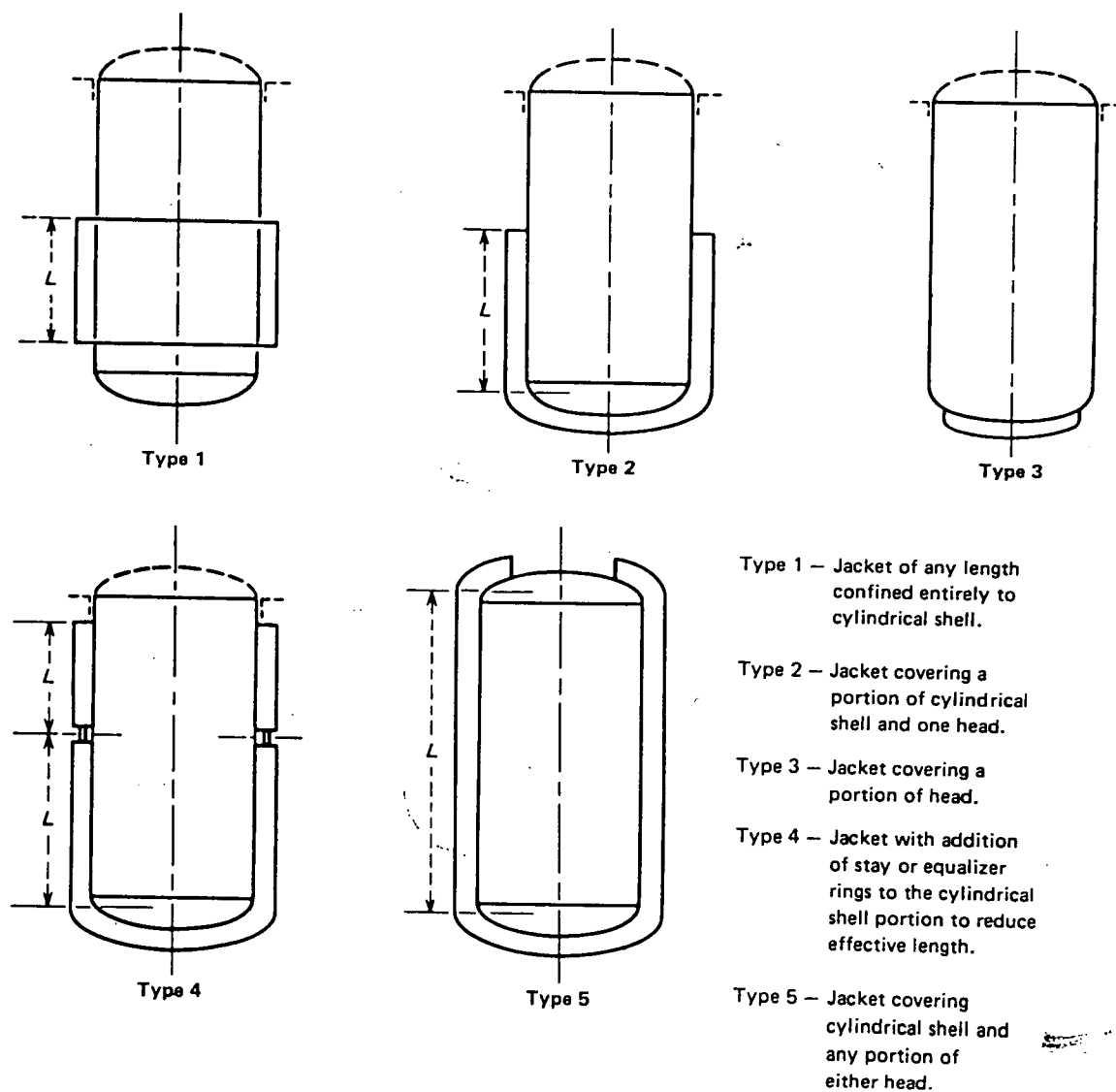


FIG. 9-2 SOME ACCEPTABLE TYPES OF JACKETED VESSELS

HAZARDOUS WASTE TANKS SURVEY REPORT

**LIDLAW ENVIRONMENTAL SERVICES OF
BARTOW, INC.**

BARTOW, FLORIDA

**TANKS
T101 thru T110
T112 and T114 - R202 and R203**

INSPECTION COMPLETED

June 1998

***AST INSPECTION SERVICES, INC.
PO BOX 902
MADISON, FL. 32341***

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July 15, 1998

LIDLAW ENVIRONMENTAL SERVICES OF BARTOW, INC.
170 Bartow Municipal Airport
Bartow, Fl. 33830-9504

Attn. Mr. Bill Crawford,

Re: Ultrasonic Inspection Report - Tanks 101 thru 110; Tanks 202 and 203; and Tanks 112 and 114.

INTRODUCTION

Fourteen permitted hazardous waste tanks were surveyed for shell thickness on June 25 and 26 at your plant in Bartow, Florida. The thickness tests were performed at the same locations on each tank where surveyed last year by C.A.T.. The original drawings of the tanks and locations of the tests are contained in the report submitted by C.A.T. last year. The format of the thickness readings in the tables of this report correlate to last years report for easy evaluation of the data.

FIELD INVESTIGATION

Metal thickness tests were performed using a Krautkramer Branson DME Ultrasonic thickness gage. The gage was calibrated to 1/4" carbon steel block. All the locations where thickness measurements were taken were scraped clean to remove all paint before the thickness readings were taken to insure accurate readings. Access to the areas inspected was obtained through the use of a high lift and scaffolding.

FINDINGS:

Tanks T101-T110

These 6000 gallon tanks are constructed with a 3/16" roof, 1/4" shell and a 3/8" cone bottom. See enclosed sketch for elevation locations of the thickness readings. It is noted the Ultrasonic readings taken by C.A.T. last year exceed the original thickness. This was probably caused from the readings being taken through a primer coating left on the shell at the U-T locations.

Roof - All of the roofs on these tanks have severe metal loss. Most of the roofs have holes corroded thru from interior corrosion. These holes are patched with a fiberglass epoxy. Sufficient metal remains to support the roof nozzles and other appurtances although pinholes are prevalent.

Shell - The 1/4" shell on these tanks are in good condition except for the upper 18" where there is significant metal loss. Tank 110 has a pinhole thru the shell 12" down from the roof. The vapor zone

of these tanks which appears to be the upper 18" of the shell and the roof has significant corrosion. The upper U-T readings were taken 2 feet down from the roof and are not representative of the metal loss in the upper shell above these measurements. The lowest of these readings indicated only a 1/16" maximum shell loss. All the other readings on the tank shells averaged approximately 20 mils loss except for tank 110 which has approximately 1/16" metal loss throughout the shell.

Cone - The cone bottom on the tanks are in good condition and have a maximum 30 mil loss.

Recommendation for T101-T110

Based on the Ultrasonic thickness readings and visual inspection we recommend the tanks not be filled higher than 2 feet from the roof to prevent any small leaks from any pinholes which may open. At present any pinholes found in the roof and upper 2 feet of the shell may be patched to prevent vapor loss. The shell thickness of the tanks remains sufficient and has structural integrity to hold product if filled as noted above. We also recommend the roof and upper shell be replaced on all tanks. It is also noted that tank 110 is experiencing accelerated interior corrosion compared to the other tanks and should be prioritized for repair or replacement.

Tanks T112 and T114 - Mixing Tanks

Tank T112 - This mixing tank has been moved since the previous inspection therefore the orientation of the previous thickness readings was not determined. We understand a new roof lid was also installed on this mixing tank since the last inspection. Random U-T readings were taken at previous inspection locations and did not indicate any significant loss as compared to the previous report.

Tank T114 - This mixing tank was out of service and open during this inspection. Random U-T readings did not indicate any significant loss as compared to the previous report.

Bottom Tanks R202 and R203

Both of these tanks were internally inspected. Visual inspection revealed heavy scale on the interior. Thickness readings taken revealed a maximum 1/16" metal loss from the original thickness in the upper sections of both tanks. The thickness readings were random and could not be compared exactly with the previous readings taken last year. The original design drawings indicate the tanks were designed for vacuum service. The thickness readings indicated pitting and not necessarily uniform loss. A structural analysis was not performed to determine the structural integrity of the tank for vacuum service.

CONCLUSION

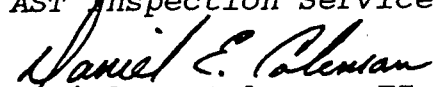
Based on this inspection of the tanks we recommend Tanks T101-T110 be scheduled for repair in the near future as indicated in this report.

The mixing tanks are in good condition and do not appear to have corroded significantly since the previous inspection.

The bottom tanks have significant internal scaling and metal loss of 1/16". If the tanks are used in the design vacuum service we recommend a structural engineer determine the integrity of the tanks for that service. If the bottom tanks are used for atmospheric pressure service there remains significant shell material for continued service.

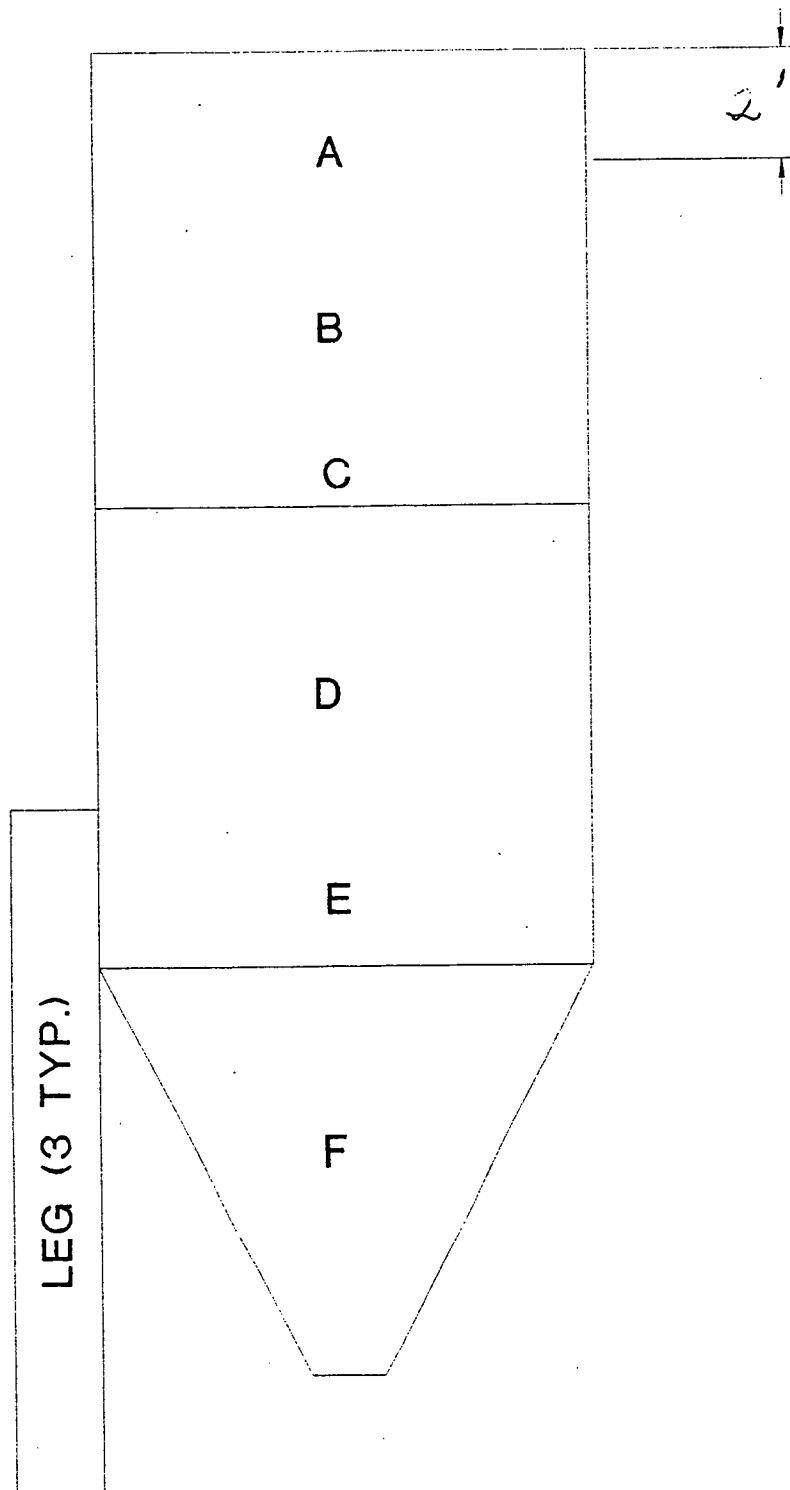
Thank you for allowing us to perform this inspection.

AST Inspection Services, Inc.



Daniel E. Coleman, EI API Inspector Certification 0867

U-T ELEVATION LOCATIONS



TANKS T101-T110

COMPARISON OF MINIMUM TANK THICKNESSES (1993 - 1998)

TANK I.D./LOCATION	PERMIT LIMITS (mils)	ANNUAL MEASUREMENTS (mils)					
		1993	1994	1995	1996	1997	1998
T-101 to T-110 top	135	233	231	167	161	155	112
T-101 to T-110 side	181	241	242	229	221	221	190
T-101 to T-110 bottom	218	359	382	352	355	351	246
T-111 top	133	243	241	240	253	253	n/a
T-111 side	131	272	208	249	249	249	n/a
T-111 bottom	136	236	227	233	230	246	n/a
T-112 and T-114 top	147	236	235	232	246	246	n.c.
T-112 and T-114 side	134	206	157	175	169	171	n.c.
T-112 and T-114 bottom	156	174	170	171	170	232	n.c.
R-202 and R-203 top	243	314	310	312	305	295	251
R-202 and R-203 side	283	328	325	322	315	303	247
R-202 and R-203 bottom	284	349	345	342	403	365	348

H:\WORD\ DEP\ RCRA\ INSPECTIONS\ TANK THICKNESS SUMMARY

TABLE 1

NOTES: All U-T readings are in thousands of inches. These readings were taken at the same location as where the readings were taken last year by C.A.T.. Where it is noted the roofs have holes means they are patched with a fiberglass epoxy where rusted thru from internal corrosion. Also the upper 12" of the tank shells are severely corroded with approx. 3/16" metal loss.

Tank#	Side	Section					
		A	B	C	D	E	F
T101 Roof has holes	North	239	244	241	245	247	359
	South	237	239	241	253	250	344
	East	241	243	239	249	246	356
	West	240	241	239	249	251	346
T102 Roof has holes	North	246	243	241	247	241	367
	South	239	243	240	246	248	363
	East	237	241	240	251	251	359
	West	241	242	237	251	249	361
T103 Roof 112	North	247	249	239	246	244	356
	South	234	237	239	241	243	355
	East	240	239	241	245	247	361
	West	207	-	241	239	242	356
T104 Roof 120	North	240	237	235	239	243	351
	South	239	239	242	248	245	354
	East	202	-	241	245	247	351
	West	229	232	236	248	246	353
T105 Roof has holes	North	235	238	242	246	246	361
	South	253	244	241	247	242	251
	East	248	244	241	248	246	357
	West	247	251	249	249	243	354

TABLE 1 (Continued)

NOTES: All U-T readings are in thousands of inches. These readings were taken at the same location as where the readings were taken last year by C.A.T.. Where it is noted the roofs have holes means they are patched with a fiberglass epoxy where rusted thru from internal corrosion. Also the upper 12" of the tank shells are severely corroded with approx. 3/16" metal loss.

Tank#	Side	Section					
		A	B	C	D	E	F
T106 Roof 147	North	239	237	212	235	241	356
	South	239	241	235	237	236	353
	East	234	244	239	239	237	351
	West	230	237	231	239	237	358
T107 Roof has holes	North	243	248	242	241	241	357
	South	243	241	246	246	251	376
	East	241	241	244	241	247	376
	West	241	241	240	249	246	358
T108 Roof has holes	North	216	241	208	239	241	353
	South	245	241	241	243	242	352
	East	239	246	237	251	243	351
	West	221	246	237	243	246	356
T109 Roof 143	North	227	233	231	246	248	379
	South	235	239	241	245	249	359
	East	236	242	236	246	249	373
	West	231	237	242	247	258	379
T110 Roof has holes	North	203	194	211	227	220	336
	South	230	216	203	211	218	246
	East	208	212	219	223	235	336
	West	190	201	202	214	221	334

Note: Tank 110 has holes corroded thru in upper 12" of shell.
Also tank 110 has general loss of 3/64" on the shell.

TABLE 2

NOTES: All U-T readings are in thousands of inches. These readings were taken at general sections of the shell as the readings taken last year by C.A.T.. There was significant scale on the tank interior which had to be chipped away for accurate measurements. The thickness readings indicated a maximum shell loss of 1/16".

Tank#	Side	Section 30			
		A-Upper	B-Lower	Bottom	Roof
R202	North	320	367	348	314
	South	292	342	367	302
	East	264	353	378	354
	West	247	364	370	251
R203	North	350	372	363	270
	South	338	368	370	301
	East	342	343	382	306
	West	344	368	367	255

12 29 19 51



Vertical Vessel Data Sheet

Project BARTOW SOLVENT RECOVERY PLANT

Equipment No. R-203/R-203

Date AUG./86

Prepared by J.W. CALDWELL

Checked by _____

Rev. No. _____

Equipment Name BOTTOMS TANKS
Total Number Required Two (2)

Design Data

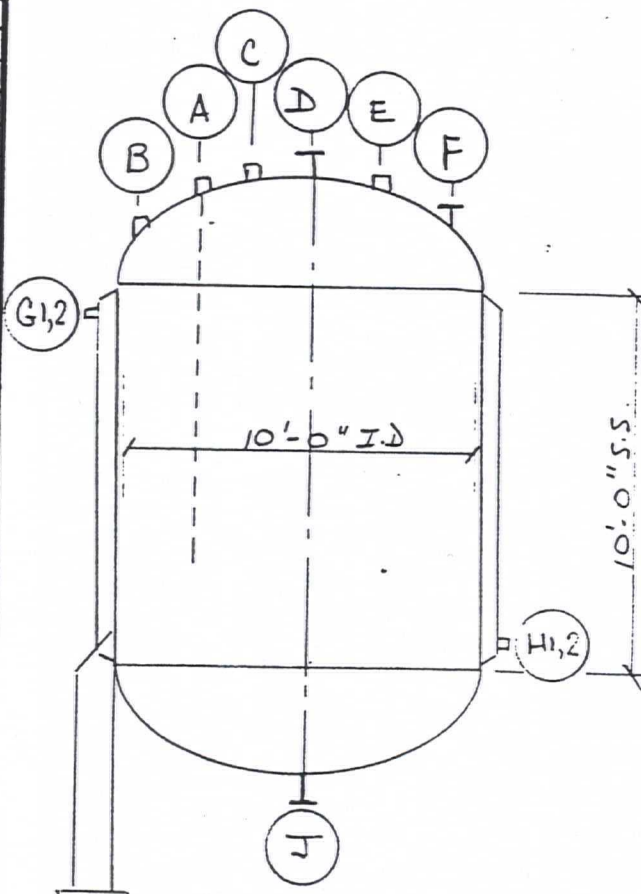
Max Operating Pressure 28 in Hg VACUUM psig
Design Pressure * psig
Max Operating Temperature 260 °F
Design Temperature 300 °F
Corrosion Allowance * in
Radiography +
Stress Relieved NONE
Code *
Estimated Weight (Empty) _____ lbs
JACKET DESIGN PRESSURE *

Material Specification

Shell - CARBON STEEL
Internals - CARBON STEEL
Lining - NONE
Supports - CARBON STEEL LEGS
Insulation - 2" FIBERGLASS
JACKET CARBON STEEL

Nozzle Schedule

Nozzle	Mark No.	Qty.	Size, in	Rating
FEED	A	1	1 1/2	3000
VACUUM BREAK	B	1	3/4	3000
VACUUM	C	1	1	3000
AGITATOR	D	1		150
PRESSURE	E	1	1	3000
LEVEL	F	1	2	150
STEAM	G	2	1	3000
CONDENSATE	H	2	1	3000
BOTTOM	J	1	6	150



Remarks 1. TANK CAPACITY IS 6000 US GALLONS
2. NOZZLE "A" IS FITTED WITH DIP PIPE AND 1/4" WEEP HOLE

Total Volume = 7,760 gals.

Agitator

Ht-Level Probe ≈ 18" from top

Cheminer

MAP 400-838

Tanks acquired used from Texas

Specification for Shop Welded Tanks for Storage of Production Liquids

**API SPECIFICATION 12F
ELEVENTH EDITION, NOVEMBER 1, 1994**

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American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005



Specification for Shop Welded Tanks for Storage of Production Liquids

1 Scope

1.1 GENERAL

a. This specification covers material, design, fabrication, and testing requirements for shop-fabricated vertical, cylindrical, aboveground, closed top, welded steel storage tanks in various standard sizes and capacities for internal pressures approximately atmospheric, not to exceed those listed in Column 2, Table 1.

b. This specification is designed to provide the oil production industry with tanks of adequate safety and reasonable economy for use in the storage of crude petroleum and other liquids commonly handled and stored by the production segment of the industry. This specification is for the convenience of purchasers and manufacturers in ordering and fabricating tanks.

1.2 COMPLIANCE

The manufacturer is responsible for complying with all of the provisions of this specification. The purchaser may make any investigation necessary to satisfy himself of compliance by the manufacturer and may reject any material that does not comply with this specification. It is urged that the purchaser avail himself of this right and furnish his own inspection independently of any supervisory inspection furnished by the manufacturer, and that the purchaser's inspector follow closely all the details of shop fabrication and/or field construction and testing herein specified which affect the integrity and safety of the completed structure.

2 Material

2.1 GENERAL

Materials listed in this section have been selected to provide adequate strength and reasonable service life. Other materials having mechanical properties equal to or greater than these listed may be used by agreement between the purchaser and the manufacturer. Where higher strength materials are used, the minimum thicknesses called for in this specification shall not be reduced.

2.2 PLATES

a. Plates shall conform to the latest edition of the following ASTM Standards*:

A 36 *Structural Steel*

A 283 *Low and Intermediate Tensile Strength Carbon Steel Plates of Structural Quality—grade C or D.*

A 285 *Low and Intermediate Tensile Strength Carbon Steel Plates for Pressure Vessels—Grade C.*

b. Shell plates for which minimum thicknesses have been fixed for practical reasons (greater than required by computation) and which will not underrun the required computed thickness by more than 0.01 in., as well as all roof and bottom plates, may be purchased on a weight basis. The plate thicknesses or weights, as stipulated herein, are minimums; thicker or heavier material may be required on the order at the option of the purchaser.

2.3 SHEETS

Sheets shall conform to the latest revision of ASTM A 570, grade C or D, open-hearth process and basic oxygen process. Sheets may be ordered on a weight or thickness basis, at the option of the tank manufacturer.

2.4 WELDING ELECTRODES

Manual arc-welding electrodes shall conform to the E 60 and E 70 Series of Classification (suitable for the electric current characteristics, the position of welding, and other conditions of intended use) in the latest edition of AWS** A-5.1 *Specification for Mild Steel Arc-Welding Electrodes.*

2.5 STRUCTURAL SHAPES

Structural shapes shall be of open-hearth, electric-furnace, or basic oxygen process and shall conform to the latest edition of ASTM A 36.

2.6 PIPING

Pipe shall conform to Grade A or B of the latest edition of API Specification 5L; ASTM A 53; or ASTM A-106.

2.7 FLANGES

Hub slip-on welding and welding-neck flanges shall conform to the material requirements for forged carbon steel flanges as specified in ANSI B16.5.†

2.8 COUPLINGS

Couplings for threaded connections may be supplied with or without recess, complying with the dimensional, physical and chemical requirements of the latest edition of API Specification 5L, Grade B. Alternatively, couplings may comply with the latest edition of ANSI B16.11† for Steel Pipe Couplings.

**Available from American Welding Society (AWS) P.O. Box 351040, Miami, Florida 33135.

†American National Standards Institute (ANSI), 1430 Broadway, New York, N.Y. 10018.

*Available from American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pa. 19103.

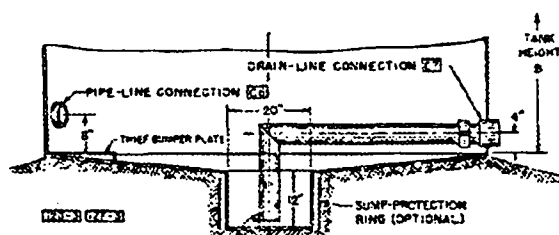


Figure 2—Type A (Unskirted) Cone Bottom

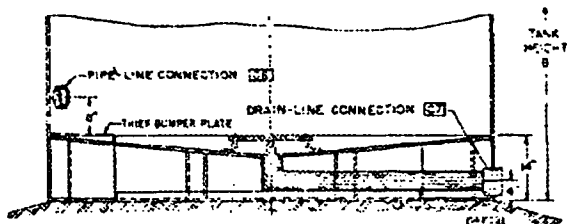


Figure 3—Type B (Skirted) Cone Bottom

SHELL DESIGN

3.10 THICKNESS

The thickness of shell plates shall be either $\frac{3}{16}$ in. (7.65 lb. per sq. ft.) nominal, or $\frac{1}{4}$ in. (10.20 lb. per sq. ft.) nominal, as specified on the purchase order. The width of shell plates shall be determined by the manufacturer, but preferably should be not less than 60 in.

3.11 SHELL JOINTS

Shell-plate joints shall be double-welded butt joints with complete penetration.

DECK DESIGN

3.12 TYPE

The deck shall be of the self-supporting, cone type, with a slope of 1 in. in 12 in.

3.13 THICKNESS

The thickness of deck plates shall be the same as the thickness of the shell plates, except that for 15 ft.-6 in. diameter tanks the deck shall be $\frac{1}{4}$ in. nominal unless added structural supports in the form of rafters are provided.

3.14 DECK JOINTS

Deck plate joints shall be double-welded butt joints with complete penetration.

3.15 SHELL ATTACHMENT

The tank deck shall be attached to the tank shell, if the deck is flanged, by a double-welded butt joint with complete

penetration, or by a double-welded, full-fillet lap joint; or, if the deck is not flanged, by full-fillet welds, both inside and outside.

APPURTENANCE DESIGNS

3.16 CLEANOUT

Tanks shall be furnished with a 24-in. x 36-in. extended-neck cleanout, located as shown in Fig. 1 and conforming to Fig. 4. Cleanout cover plates shall be of one-piece construction, except that, if so specified on the purchase order they shall be of two-piece construction with a horizontal lap seam having one row of $\frac{1}{2}$ -in. bolts on 2-in. centers with suitable gaskets and bolt retainers. If two-piece construction is specified, the top inspection plate shall have a clear opening of approximately 14 in. by 24 in., unless otherwise specified. When specified on the purchase order, handles for lifting the cleanout cover plate(s) shall be furnished.

3.17 CONNECTIONS

Tanks may be provided with inlet and outlet connections as shown in Table 1, Columns 9 and 10, and Fig. 1. Unless otherwise specified by the purchaser, connections shall be full couplings, and shall be attached to the tank member by full-fillet welds on both inside and outside surfaces, with equal projections inside and outside the tank, except that half couplings may be used for connections C-1, C-4, C-5, and C-6, at the option of the manufacturer. Additional or fewer connections of other sizes or locations may be provided, if so agreed between the purchaser and the manufacturer. When flanged or other types of connections are specified, the nozzle neck shall be a minimum of standard weight pipe and attached by full-fillet welds, both inside and outside. The bolting pattern for the thief hatch shall conform to Fig. 1.

3.18 ANTI-CHANNEL DRAIN BAFFLE

An anti-channel drain baffle conforming to the following requirements shall be furnished if so specified on the purchase order.

- The periphery of the baffle, in plan view, shall be 64 in.
- The height of the baffle from the inside surface of the tank bottom to the top of the baffle shall be 4 in. minimum for 90-bbl. tanks, and $5\frac{1}{4}$ in. minimum for all other sizes.
- The baffle shall be equipped with spacers so that the bottom edge of the baffle is 1 in. above the tank bottom.
- A drain line shall be provided from the baffle to the tank shell. The line size shall be 3 in. nominal for 90-bbl. tanks and 4 in. nominal for all other sizes.
- The baffle shall be attached to the tank bottom by a J-bolt passing through an eye retainer welded to the tank bottom, and by the line connection to the tank shell. The baffle shall not be welded to the tank bottom.

Welded Steel Tanks for Oil Storage

Refining Department

**API STANDARD 650
SEVENTH EDITION, NOVEMBER 1980**

OFFICIAL PUBLICATION



REG. U.S. PATENT OFFICE

TP
25
104
W4
1980

Welded Steel Tanks for Oil Storage

SECTION 1—SCOPE

1.1 General

1.1.1 This standard covers material, design, fabrication, erection, and testing requirements for vertical cylindrical aboveground, closed and open-top, welded steel storage tanks in various sizes and capacities for internal pressures approximating atmospheric pressures, except that a small internal pressure is permitted when the additional requirements of Appendix F are met. This standard covers only nonrefrigerated service.

1.1.2 This standard is designed to provide the oil industry with tanks of adequate safety and reasonable economy for use in the storage of petroleum and its products and those other liquid products commonly handled and stored by the various branches of the industry. It does not present, nor is it contemplated to establish, a fixed series of allowable tank sizes; but rather it is intended to permit the selection by the purchaser of whatever size of tank may be required to best meet his particular needs. This standard is for the convenience of purchasers and manufacturers in ordering, fabricating, and erecting tanks and is not intended to prohibit purchasers and manufacturers from purchasing and fabricating tanks meeting specifications other than those contained herein.

1.1.3 Appendix A to this standard provides for an alternative (and simplified) tank in which the stressed components (shell plates, reinforcing plates, and so forth) are limited to a maximum of $\frac{1}{2}$ inch nominal thickness, including any corrosion allowance, and to the minimum design metal temperatures stated therein. This tank is generally similar to the basic tank in the 6th Edition of API Standard 650.

1.1.4 Appendix B to this standard contains recommendations for the design and construction of foundations under flat bottom oil storage tanks.

1.1.5 Appendixes C and H to this standard present rules for special types of roofs for storage tanks. Appendix C provides requirements for pan-type, pontoon-type, and double-deck-type floating roofs. Appendix H provides requirements for a floating roof in a tank having a fixed roof at the top of the tank shell.

1.1.6 Appendixes D, G, and part of K of the 6th Edition of API Standard 650 have been deleted and

their applicable requirements are incorporated in this standard.

1.1.7 Appendix E to to this standard provides a recommended practice for the design of storage tanks subject to seismic load when specified by the purchaser.

1.1.8 Appendix F covers the additional requirements for the design of tanks having a small internal pressure.

1.1.9 Appendix J to this standard presents rules covering the complete shop assembly of tanks not exceeding 20 feet in diameter.

1.1.10 Appendix L provides a specification data sheet to be used by the purchaser in ordering a storage tank and by the manufacturer upon completion of construction.

1.1.11 These rules apply to tanks having a metal temperature not exceeding 200 F. When the additional requirements of Appendix M are fulfilled:

1. Temperatures not exceeding 500 F are permitted for tanks having shell materials in Groups I, II, III, or IIIA.
2. Temperatures not exceeding 250 F are permitted for tanks having materials in Groups IV, IVA, V, or VI.

1.1.12 Appendix N states the conditions for the use of materials on hand which are not identified as complying with any listed specification.

1.1.13 Appendix O contains basic recommendations for the design and construction of under bottom connections for storage tanks.

1.2 Compliance

The manufacturer is responsible for complying with all of the provisions of this standard. The purchaser may make any investigation necessary to satisfy himself of compliance by the manufacturer, and he may reject any material that does not comply with this standard. It is urged that the purchaser avail himself of this right and furnish his own inspection independently of any supervisory inspection furnished by the manufacturer and that the purchaser's inspector follow closely all of the details of shop fabrication, field construction, and testing specified which affect the integrity and safety of the completed structure.

3.5.2 Annular bottom plates shall have a radial width providing at least 24 inches between the inside of the shell and any lap-welded joint in the remainder of the bottom and at least a 2-inch projection outside the shell. A greater radial width of annular plate is required when calculated by

$$\frac{390t_b}{\sqrt{(H)(G)}}$$

Where:

t_b = nominal thickness of the annular plate, in inches.

H = maximum height of liquid, in feet.

G = design specific gravity of the liquid to be stored.

3.5.3 The thickness of the annular bottom plates shall not be less than the thicknesses listed in Table 3-1.

3.5.4 The ring of annular plates shall have a circular outside circumference but may have a regular polygonal shape inside the tank shell with the number of sides equal to the number of annular plates. These pieces shall be welded in accordance with 3.1.5.5 and 3.1.5.6 Item 2.

3.6 Shell Design

3.6.1 GENERAL

3.6.1.1 The required shell thicknesses shall be the greater of design shell thicknesses, including corrosion allowance, or hydrostatic test shell thicknesses but in no case shall the shell thickness be less than the following:

Nominal Tank
Diameter¹
(feet)

Nominal Plate
Thickness²
(inches)

Smaller than 50.....	$\frac{3}{16}$
50 to 120, exclusive.....	$\frac{1}{4}$
120 to 200, inclusive.....	$\frac{5}{16}$
Over 200.....	$\frac{3}{8}$

Notes:

1. Nominal tank diameter shall be the centerline diameter of the bottom shell course plates, unless otherwise specified by the purchaser.

2. Nominal plate thickness refers to the tank shell as constructed. The thicknesses specified are based on erection requirements.

3.6.1.2 The width of shell plate shall be as agreed upon between the purchaser and the manufacturer, but preferably should not be less than 72 inches. Plates which are to be butt welded shall be properly squared.

3.6.1.3 The design shell thicknesses shall be computed on the basis that the tank is filled with a liquid which has a specific gravity as specified by the purchaser.

3.6.1.4 The hydrostatic test shell thicknesses shall be computed on the basis that the tank is filled with water.

3.6.1.5 Where it is practicable, the tank shall be filled with water for hydrostatic testing. Although it is recognized that the hydrostatic test may be impracticable in some instances, the computed hydrostatic test shell thicknesses shall be used when they are greater than design shell thicknesses.

Table 3-1—Annular Bottom Plate Thicknesses²

Nominal Thickness First Shell Course (inches)	Hydrostatic Test Stress ¹ in First Shell Course (pounds per square inch gage)			
	≤27,000	≤30,000	≤33,000	≤36,000
$t \leq 0.75$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{11}{32}$
$0.75 < t \leq 1.00$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{3}{8}$	$\frac{7}{16}$
$1.00 < t \leq 1.25$	$\frac{1}{4}$	$\frac{11}{32}$	$\frac{15}{32}$	$\frac{9}{16}$
$1.25 < t \leq 1.50$	$\frac{5}{16}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{11}{16}$
$1.50 < t \leq 1.75$	$\frac{11}{32}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$

Notes:

1. Calculated from $\frac{2.6D(H-1)}{t}$ (see 3.6.3.2).

2. The above thicknesses and width (see 3.5.2) are based on the foundation providing a uniform support under the full width of the annular plate. Unless the foundation is properly compacted, particularly at the inside of a concrete ringwall, settlement will produce additional stresses in the annular plate.

Attachment B
1999 Tank Thickness Testing Results and Calibration Records



Safety-Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

EQUIPMENT CALIBRATION LOG

Name of Equipment: KrautKramer Branson

Person Calibrating: Michael Bodiford

☒ Standard Calibration of Equipment per Manufacturer's Directions
☐ Other: _____

Date: 11-5-99

Results:

Meter Read .250 on Calibrating Block &
on face of meter.

Certification:

I understand the process for calibration of the above equipment, and have recorded above any non-standard results of the calibration.

Signature: Michael Bodiford


Date: 11-5-99

1999 Tank Thicknesses in (mils)

Tank	Side	Section			
		A-Upper	B-Lower	Bottom	Roof
R-202	North	320	375	364	312
	South	345	242	367	304
	East	304	365	369	295
	West	352	349	362	335
R-203	North	334	355	370	334
	South	337	381	366	336
	East	339	369	369	317
	West	350	385	362	352
T-112	North	173	168	219	241
	South	171	164	226	242
	East	178	157	221	242
	West	170	163	230	241
T-114	North	240	237	230	271
	South	242	238	233	270
	East	239	233	233	278
	West	240	237	239	277

Attachment C
Revised Emergency Contact List

PERMITTING COVER MEMO

TO:  Richard Garrity, Ph.D., Director of District ManagementFROM/THROUGH: William Kutash, Environmental Administrator
Stanley Tam, Professional Engineer II SCT

DATE: April 23, 1999

FILE NAME: Safety Kleen (Bartow), Inc.

PERMIT #: 64247-HOSM-003

PROGRAM: Hazardous Waste

COUNTY: Polk

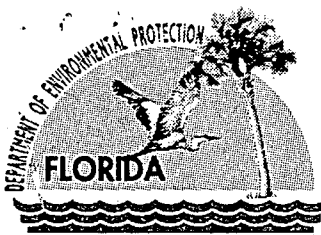
TYPE OF PERMIT ACTION:

<input checked="" type="checkbox"/> Issue	<input type="checkbox"/> Deny	<input checked="" type="checkbox"/> Modify
<input type="checkbox"/> Intent	<input type="checkbox"/> Transfer	<input type="checkbox"/> Time Extension
<input type="checkbox"/> Notice of Deficiency	<input type="checkbox"/> Other:	

PUBLIC NOTICE PERIOD: ☐ Open ☒ ClosePROFESSIONAL EVALUATION: ☒ Approve ☐ Deny

PERMIT SUMMARY: This major modification to the operation permit was required by the Department via a construction permit to incorporate the operation of a new container storage building (capacity of 2480 55-gallon drums) was waste storage in roll-off boxes (2 40-cubic yard roll-offs maximum). The net effect will be to increase permitted container storage capacity from 106,920 gallons to 259,476 gallons. The new storage building has been in operation since January 1998.

EVALUATION SUMMARY: No comments were received during the public comment period.



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

April 23, 1999

Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830-9504

Attention: Mr. Michael Merashoff, Facility Manager

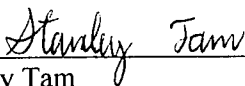
Dear Mr. Merashoff:

Enclosed is Permit Number 64247-HOSM-003 to operate a hazardous waste storage and fuel blending facility located at 170 Bartow Municipal Airport, Bartow, Polk County, Florida, issued pursuant to Section 403.722, Florida Statutes.

Any party to this permit has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Notice is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Stanley Tam
Professional Engineer II
Hazardous Waste Section

enclosure

cc: Narindar Kumar, US EPA Region IV (w/enclosure)
Satish Kastury, FDEP - Tallahassee (w/enclosure)

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

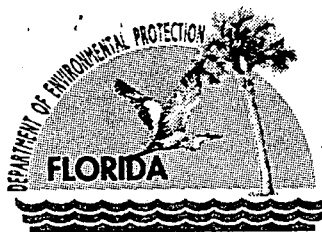
Printed on recycled paper.

CERTIFICATE OF SERVICE

This undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on April 23, 1999 to the listed persons.

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to §120.52(10), Florida
Statutes, with the designated Department, Clerk,
receipt of which is hereby acknowledged.

Arena Black 4/23/99
Clerk Date



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

PERMITTEE:

Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830-9504

ATTENTION:

Mr. Michael Merashoff
Facility Manager

Permit No.: 64247-HOSM-003
ID. No.: FLD 980 729 610

Issue Date: April 23, 1999
Expiration Date: December 10, 2001
County: Polk
Latitude: 27°57'05" N
Longitude: 81°47'09" W
Section / Township / Range
14 / 29S / 25E

Project: Operation of a Hazardous
Waste Container & Tank Storage and Fuel
Blending Facility.

This permit is issued under the provisions of Chapter 403.722, Florida Statutes (FS), and Chapters 62-4 and 62-730, Florida Administrative Code (FAC). The above named Permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

This permit will authorize the permittee to operate a hazardous waste storage and fuel blending facility, located at Safety Kleen (Bartow), Inc., 170 Bartow Municipal Airport, Bartow, Polk County, Florida. The layout of this facility is shown in **Attachment 1**.

This facility operates the following permitted hazardous waste management units:

North Container Storage Building

This hazardous waste container storage building has dimensions of 200 feet by 100 feet. The layout of the building is shown in **Attachment 2**. The building is designed to store a maximum volume of 136,400 gallons (equivalent to 2,480 55-gallon drums). The building is subdivided into 17 separate storage cells, designated as Cells A through Q, each with independent secondary containment. Hazardous wastes stored in this unit and their designated hazardous waste codes are listed in **Attachment 3**.

Permittee:
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 64247 4OSM-003
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Expiration Date: December 10, 2001

South Container Storage Building

This hazardous waste container storage building has dimensions of 125 feet 3 inches by 120 feet 3 inches. The permitted container storage area is in the southern half and a small portion of the northern half of the building. Other activities performed in the building include container staging and fuel blending. The layout of this building is shown in **Attachment 4**. The permitted container storage area is designed to store a maximum volume of 106,920 gallons (equivalent to 1,944 55-gallon drums). The container storage area south of the fluid collection trench consists of 18 rows, whereas the container storage area north of the fluid collection trench, located next to the fuel blending area, consist of 1 row. Hazardous wastes stored in this unit and their designated hazardous waste codes are listed in **Attachment 5**.

Roll-off Boxes

Hazardous wastes may be stored in roll-off boxes. Roll-off boxes may be stored only on the fenced paved road area within the facility boundary. The permitted capacity allowed for the roll-off boxes is 16,156 gallons (equivalent to 2 40-cubic yard roll-off boxes). Hazardous wastes stored in these containers and their designated hazardous waste codes are listed in **Attachment 3**.

Storage Tanks

Hazardous waste storage in tank systems are conducted in twelve tanks; ten 6,800 gallon tanks designated as T-101 to T-110 and two 7,000 gallon bottoms tanks designated as R-202 and R-203. Hazardous wastes stored in these twelve tanks and their designated hazardous waste codes are listed in **Attachment 5**.

Tanks T-101 through T-110 are situated on a 12 inch thick concrete slab with dimensions of 55 feet 4 inches by 22 feet 8 inches. This area is designated as the South Tank Farm. The layout of the South Tank Farm is shown in **Attachment 6**. The perimeter of this area is provided with a 16 inch high reinforced concrete block wall which provides secondary containment volume of 12,258 gallons. Storage in each tank must have a 2 foot minimum freeboard. The total permitted storage capacity is 60,000 gallons or 6,000 gallons per tank.

Bottoms tanks R-202 and R-203 are situated in the West Tank Farm. Ten intermediate product tanks not regulated under RCRA are also located in the West Tank Farm. The layout of the West Tank Farm is shown in **Attachment 7**. The bottoms tanks receive hazardous wastes such as bottoms materials from various waste recycling operations within the facility. The total permitted storage capacity is 12,600 gallons or 6,300 gallons per tank.

Fuel Blending Tanks

Hazardous waste fuel blending is conducted in two 980 gallon tanks designated as T-112 and T-114. Hazardous wastes blended in these two tanks and their designated hazardous waste codes are listed in **Attachment 5**. Fuel blending tanks T-112 and T-114 and associated ancillary equipment are situated in the fuel blending area located inside the northeastern portion of the South Container Storage

Permittee:
Safety Kleen (Bartow), LLC.
170 Bartow Municipal Airport
Bartow, FL 33830

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Building as depicted in **Attachment 4**. The maximum working volume for each of the two tanks is 780 gallons.

Associated ancillary equipment include all applicable equipment used in the fuel blending process described in Figure F-1.2 of the permit application and depicted in the Fuel Blending Area of Attachment 4; e.g., the drum scraping machine, the drum crusher/compactor, pumps, basket filters, etc.

In addition to the above permitted units, the permittee also operates a hazardous waste transfer facility at this site. The permittee shall operate the transfer facility in accordance with Chapter 62-730.171, FAC. Current regulations allow the storage of transfer facility waste anywhere on the paved road area within the facility boundary.

The documents which form the basis of this permit are:

1. Request for a major modification to operation permit HO 53-292488 received on April 10, 1998.
2. Response to the First Notice of Deficiency received on October 7, 1998.

Permit History:

Type	Number	Issued Date	Expiration Date
Construction	HC53-60967	06/23/83	12/31/84
Operation	HO53-86011	11/06/85	11/6/90
Operation	HO53-86011A	05/15/89	11/6/90
Operation	HO53-182726	12/10/91	12/10/96
Construction	HC53-170970	01/10/92	01/10/97
Operation	HO53-292488*	01/05/98	12/10/01
Construction	HC53-294150	01/05/98	01/05/03

* This permit is a major modification of permit HO 53-292488

Permittee:
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 6424 4OSM-003
I.D. No.: FLD 9 29 610
Issue Date: April 23, 1999
Expiration Date: December 10, 2001

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of 403.161, 403.727, or 403.859 through 403.861, FS. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in 403.087(6) and 403.722(5), FS, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.
6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

Permittee:
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 642' HOSM-003
I.D. No.: FLD 9 729 610
Issue Date: April 23, 1999
Expiration Date: December 10, 2001

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of:
- Having access to and copying any records that must be kept under the conditions of the permit;
 - Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
 - Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:
- a description of and cause of non-compliance; and
 - the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by 403.73 and 403.111, FS. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in 62-302.500, FAC, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

Permittee:
Safety Kleen (Bartow), Inc.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 6424 40SM-003
I.D. No.: FLD 90 /29 610
Issue Date: April 23, 1999
Expiration Date: December 10, 2001.

11. This permit is transferable only upon Department approval in accordance with 62-4.120 and 62-730.300, FAC, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof is required to be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - ☐ Determination of Best Available Control Technology (BACT);
 - ☐ Determination of Prevention of Significant Deterioration (PSD);
 - ☐ Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500); and,
 - ☐ Compliance with New Source Performance Standards
14. The permittee shall comply with the following monitoring and record keeping requirements:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action;
 - b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule;
 - c. Records of monitoring information shall include:
 1. the date, exact place, and time of sampling or measurements;
 2. the person responsible for performing the sampling or measurements;
 3. the date(s) analyses were performed;
 4. the person responsible for performing the analyses;
 5. the analytical techniques or methods used; and
 6. the results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is

Permittee:
Safety Kleen (Bartow), . .C.
170 Bartow Municipal Airport
Bartow, FL 33830

Permit No.: 64217 HOSM-003
I.D. No.: FLD 9 129 610
Issue Date: April 23, 1999
Expiration Date: December 10, 2001

needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

16. In the case of a hazardous waste facility permit, the following permit conditions shall also apply:

a. The permittee will submit the following reports to the Department:

1. Manifest discrepancy report: If a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy. If not resolved within 15 days after receiving the waste, the permittee shall immediately submit a letter report including a copy of the manifest to the Department.
2. Unmanifested waste report: The permittee shall submit an unmanifested waste report to the Department within 15 days of receipt of unmanifested waste.
3. Biennial report: A biennial report covering facility activities during the previous calendar year shall be submitted to the Department by March 1 of each even numbered year pursuant to Chapter 62-730, FAC.

b. Notification of any non-compliance which may endanger public drinking water supplies, or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be verbally submitted to the Department within 24 hours and a written submission provided within 5 days. The verbal submission within 24 hours shall contain the name, address, I.D. number and telephone number of the facility and owner or operator, the name and quantity of materials involved, the extent of injuries (if any), an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain the following:

1. a description of any cause of non-compliance; and
2. if not corrected, the anticipated time the non-compliance is expected to continue and steps being taken to reduce, eliminate, and prevent reoccurrence of the non-compliance.

c. Reports of compliance or non-compliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each scheduled date.

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170 Bartow Municipal Airport
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- d. All reports or information required to be submitted to the Department by a hazardous waste permittee shall be signed by a person authorized to sign a permit application.

SPECIFIC CONDITIONS:

Part I. General

1. The facility shall comply with all applicable portions of 40 CFR Part (S) 260 through §268 and those conditions required by §270.30 and §270.31. [62-730.280, FAC]
2. The permit conditions in this permit shall take precedence over the permit application documents where there are differences between these documents and the permit conditions.
3. The permittee shall notify the Department in writing at least four weeks in advance of receiving hazardous waste from a foreign source. [§264.12(a)]
4. The permittee shall follow the procedures described in Chapter 2 (Waste Analysis Plan) of the permit application. [§264.13]
5. Prior to acceptance of new hazardous waste codes for any hazardous waste management unit, the permittee shall submit a permit modification request for Department approval. The permit modification request shall include a revised waste analysis plan which incorporates the proposed new waste codes. This revision must also be integrated into the general waste analysis plan and retained on site. [§264.13]
6. The permittee shall maintain security at the facility as described in Chapter 3 (Security) of the permit application. [§264.14]
7. The permittee shall inspect the facility operating, emergency, and safety equipment and conduct general inspections as described in Chapter 4 (Inspections) of the permit application. Changes or deletions to the inspection procedures must be approved in writing by the Department. The completed inspection logs must be maintained as part of the operating record of the facility. [§264.15]
8. Facility personnel must successfully complete the approved training program indicated in Chapter 8 (Personnel Training) of the permit application. New employees must complete training described in Section 8.1 within 180 calendar days. Verification of initial and annual training must be kept with the personnel training records and maintained on site. Personnel shall not work unsupervised until training has been completed. [§264.16]
9. The permittee shall comply with the following concerning preparedness and prevention:

Permittee:
Safety Kleen (Bartow), LLC
170 Bartow Municipal Airport
Bartow, FL 33830

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- a. The permittee shall maintain the facility in accordance with the preparedness and prevention procedures described in Chapter 5 (Preparedness and Prevention) and Chapter 7 (Procedures, Structures, and Equipment) of the permit application.
 - b. The facility shall be operated and maintained to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment. [S264.31]
 - c. The permittee shall maintain and test all facility communication equipment, alarm systems, fire protection equipment, spill control equipment, and decontamination equipment as necessary to assure its proper operation in time of emergency.
 - d. The permittee shall maintain arrangements with state and local authorities as required by S264.37. If state or local officials refuse to enter into preparedness and prevention arrangements with the permittee, the permittee must document this refusal in the operating record.
10. The permittee shall comply with the following concerning the contingency plan:
- a. The permittee shall carry out the provisions of the contingency plan and follow the emergency procedures described in Chapter 6 (Contingency Plan) of the permit application, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threaten human health or the environment.
 - b. The permittee shall give proper notification if an emergency situation arises and must submit to the Department within 15 calendar days a written report which includes all information required under S264.56(j).
 - c. The permittee shall keep close to the telephone from where emergency calls will most likely be made, a list containing the names and telephone numbers of the emergency coordinators and emergency response organizations.
 - d. The Department of Environmental Protection's 24-hour emergency telephone number is (850)413-9911. During normal business hours, the DEP Southwest District Office may be contacted at (813)744-6100.
 - e. A copy of the contingency plan, along with all revisions, shall be maintained at the facility and distributed to all applicable emergency response organizations. [S264.53]

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- f. With 7 days of meeting any criteria in \$264.54, the permittee shall amend the plan and submit it for Department approval. Amended plans shall be distributed to the appropriate agencies.
11. The permittee shall comply with the manifest requirements of \$264.71, \$264.72, and \$264.76.
12. The permittee shall maintain written operating records at the facility which include:
- a. Description and quantity of each hazardous waste received, and the methods and dates of its blending or storage at the facility
 - b. Location of each hazardous waste within the facility and quantity at each location
 - c. Results of all waste analysis
 - d. A summary report and details of incidents that require implementation of the Contingency Plan
 - e. Manifests and Land Disposal Restriction (LDR) documents (for 3 years)
 - f. Notices to generators
 - g. Records and results of inspection (for 3 years)
 - h. Results of periodic tank thickness, equipment leakage, air emissions, and other related testing (for 3 years)
 - i. Annual certification of waste minimization
 - j. Closure Plan and updated closure cost estimate
 - k. Biennial reports (for 3 years)
 - l. Documentation of hazardous waste containers' loading and unloading times (for 3 years)

Unless otherwise specified above, these records must be maintained at the facility until the Certification of Closure is accepted by the Department.

13. The permittee may not store hazardous wastes restricted from land disposal for more than one year from the date of receipt. The permittee shall notify the Department in writing within 14 days if any wastes restricted from land disposal are stored at the facility for more than one year. The notice must include a summary of all previous actions taken by the permittee to find a facility to accept the waste for treatment or disposal. The notice shall also include what measures the permittee shall undertake to dispose of the waste. The permittee shall submit copies of all manifests for wastes stored more than one year to the Department within 30 days of shipment off-site. [\$268.50]
14. Known Solid Waste Management Units (SWMUs) at the facility are listed on Pages 1-6 & 1-7 of the permit application. If any new SWMUs are discovered, the permittee shall notify the Department in writing within 30 days of discovery.
15. This permit may be reopened if additional information becomes available indicating that the provisions of Section 3004(u) of

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the Hazardous and Solid Waste Amendments (HSWA) of 1984 apply to this facility. At that time, this permit may be modified to address the requirements of Section 3004(u) of HSWA if the State has been authorized for the provisions, or alternately, the United States Environmental Protection Agency (EPA) would issue a separate federal permit addressing Section 3004(u) requirements.

16. The permittee shall operate and maintain its on-site transfer facility in accordance with 62-730.171, FAC. Transfer facility waste may be accumulated anywhere on the paved road area within the facility boundary.

17. Submittals in response to any conditions of this permit (except Specific Condition I.18) shall be submitted as follows:

a. One copy shall be submitted to:

Hazardous Waste Section Supervisor
Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

b. One copy shall be submitted to:

Chief, Waste Management Division
South Section, RCRA Program Branch
US EPA, Atlanta Federal Center, 10th Floor
61 Forsyth Street, SW
Atlanta, Georgia 30303-3104

c. One copy shall be submitted to:

Environmental Administrator
Hazardous Waste Regulation Section, MS #4560
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

18. The permittee shall maintain compliance with §264, Subpart H - Financial Requirements, until the permittee is released per §264.143(i). All submittals in response to this Specific Condition shall be submitted to:

Financial Officer
Hazardous Waste Regulation Section, MS #4560
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

19. All documents submitted pursuant to the conditions of this permit shall be accompanied by a cover letter stating: the name and date of the document submitted; the number(s) of the Specific Condition(s) affected; the permit number, EPA identification

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number, and project name of the permit involved; and the document has been sent to each organization listed in Specific Condition I.17.

20. All submittals modifying major engineering features of the hazardous waste management units shall be signed, sealed, and certified by a qualified Professional Engineer licensed in the State of Florida, in accordance with 62-730.220(7), FAC. All submittals incorporating interpretation of geological data shall be signed and sealed by a Professional Geologist licensed in the State of Florida in accordance with Chapter 492, FS and 62-730.220(8), FAC.
21. The permittee shall submit a revised "Part I - General" of the Application for a Hazardous Waste Facility Permit [62-730.900(2)(a), FAC] to the Department within 30 days of any changes in the information stated in the Part I.
22. The Department may modify, revoke, reissue, or terminate for cause this permit in accordance with 62-730.290, FAC. The filing of a request for a permit modification, revocation, reissuance, termination, the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition. The permittee may submit any subsequent revisions to the Department for approval. These revisions shall meet the requirements of 62-730.290, FAC and the fee requirements of 62-4.050, FAC.
23. The permittee shall use all reasonable efforts, including but not limited to correspondence, telephone calls, personal contacts, drafting and redrafting agreements, and payment of a fee, to obtain any access to real property necessary for work to be performed in the implementation of this permit. If necessary access cannot be obtained by the permittee, or if obtained, is revoked by owners or entities controlling access to the properties to which access is necessary, the permittee shall notify the Department within 5 business days of such refusal or revocation. The Department may at any time seek to obtain such access as is necessary to implement the terms of this permit. The permittee shall reimburse the Department for any damages, costs, or expenses, including expert and attorneys' fees, that the Department is ordered to pay, or that the Department incurs in connection with its efforts to obtain necessary access to said property. The permittee shall pay these sums to the Department, or arrange a payment schedule with the Department, within 30 days of demand by the Department.
24. Before transferring ownership or operation of this facility during its operating life, the permittee must notify the new owner or operator in writing of the requirements of §264 and 62-730.300(2), FAC. The permittee shall also submit an application for transfer of the permit on DEP form 62-1.201(1), in accordance with 62-730.300, FAC.

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25. At least 180 days before the expiration of this operation permit, the permittee shall submit a complete application for the renewal of the operation permit on forms and in a manner prescribed by the Department in accordance with 62-730.300, FAC. At least 180 days before beginning closure at the facility, the permittee shall submit a complete application for a closure permit in accordance with 62-730.260, FAC.

Part II. Containers

1. The permittee is allowed to store hazardous waste in containers in the North Container Storage Building as depicted in **Attachment 2**. The hazardous wastes that are permitted for storage in this unit are specified in **Attachment 3**. Total container storage volume in this unit shall not exceed 136,400 gallons (equivalent to 2,480 55-gallon drums). The maximum number of linear rows shall not exceed 62 rows in 17 individual cells.
2. The permittee is allowed to store hazardous waste in containers in the South Container Storage Building, in the areas located south and north of the fluid collection trench, as depicted in **Attachment 4**. The hazardous wastes that are permitted for storage in this unit are specified in **Attachment 5**. Total container storage volume in this unit shall not exceed 106,920 gallons (equivalent to 1,944 55-gallon drums). The maximum number of linear rows in the southern and northern storage area shall not exceed 18 and 1 rows respectively.
3. The permittee is allowed to store hazardous waste in roll-off boxes. The roll-off boxes may be stored only on the fenced paved road area within the facility boundary. The hazardous wastes that are permitted for storage in these containers are specified in **Attachment 3**. Total storage volume for these containers shall not exceed 16,156 gallons (equivalent to 2 40-cubic yard roll-off boxes).
4. Containers in storage (except for roll-off boxes described in Specific Condition II.3) shall be on pallets or otherwise elevated so that any liquids on the floor will not come into direct contact with the containers. Pallet storage shall be a maximum of 255 gallons in drums or the capacity of one bulk container. Containers may be stacked up to 2 pallets high. Aisle space between pallet rows or between pallet rows and adjacent walls shall not be less than 30 inches.
5. Containers shall be kept closed except when adding or removing waste and shall be handled in a manner that will not allow the containers to rupture or leak. If a container holding hazardous waste is not in good condition, or begins to leak, the waste shall be transferred to another container in good condition.
[§264.171, §264.172 and §264.173]

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6. The permittee shall remove spilled or leaked waste and accumulated precipitation from the container storage and staging areas and the secondary containment collection systems in as timely a manner as possible, but no later than 24 hours after discovery. [§264.172(b)(5)]
7. The permittee shall use containers which are compatible with the hazardous waste to be stored. [§264.172]
8. The permittee shall not store incompatible waste in containers or place it in unwashed containers that have previously held incompatible waste. [§264.177]
9. The permittee shall follow the procedures and precautions concerning incompatible wastes and materials as stated in Section 11.4.2 of the permit application at all times.
10. The permittee shall clearly mark each container of hazardous waste restricted from land disposal with the following information:
 - a. A description of the contents, including all applicable EPA Waste Codes
 - b. The date the waste was received at the facility
11. The permittee shall inspect the container storage and staging areas (see Specific Condition II.12) in accordance with the procedures noted in Chapter 4 (Inspections) of the permit application.
12. Receipt and sampling of containerized wastes (except bulk containers) shall only be conducted in the following staging areas:
 - a. Cells A through G of the North Container Storage Building (see **Attachment 2**). Each of these cells may be used as a permitted storage area or a staging area at the discretion of the permittee as long as the function of the cell is clearly marked.
 - b. The northwestern portion of the South Container Storage Building (see **Attachment 4**).

Staging time shall not exceed 3 working days.

13. Waste containers scheduled for fuel blending processing may be staged outside of the permitted container storage areas. Staging time shall not exceed 24 hours. This condition shall not apply to hazardous waste satellite accumulation containers or to hazardous waste sample containers having a volume of 0.5 gallons or less.

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14. All hazardous waste samples shall be stored in the sample container storage units located in the South Container Storage Building and the on-site laboratory.
15. The permittee may store non-regulated materials in the permitted container storage areas provided that:
 - a. The permittee complies with the requirements of §264.175 and includes the volume of non-regulated materials in calculating the total volume of liquid to be stored in a permitted container storage area.
 - b. The permittee ensures that non-regulated materials have labels indicating the contents of the containers and that the materials are non-regulated.
 - c. The permittee shall maintain a written record (in the facility operating record) of non-regulated materials in the permitted container storage areas. The record shall include:
 1. Description and quantity of each type of non-regulated material received
 2. Location of each type of non-regulated material within the facility and quantity at each location
 3. Waste analysis or equivalent documentation that the material is not regulated
 4. Documentation of the compatibility of the non-regulated materials with all other materials already present in the storage area
16. The permittee shall manage all containers, including containers in staging areas and containers of non-regulated materials, in the manner described in "**Part II. Containers**" of this permit to minimize the potential of a release of hazardous waste or hazardous constituents.
17. Vehicles with incoming shipments of hazardous waste shall be unloaded into the appropriate storage or staging area within three consecutive working days of the vehicle's arrival. Vehicles being loaded for outgoing shipment shall leave the facility within five consecutive working days of the first container of hazardous waste being placed on the vehicle. Documentation of the above shall be maintained in the facility's operating record.

This condition does not apply to vehicles transporting hazardous waste for which the permittee is acting solely as a transfer facility. Appropriate documentation verifying transfer facility activity shall be maintained in accordance with Specific Condition I.16.

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Part III. Tank Systems

Tank system, for the purpose of Part III of this permit, is defined as the storage tank(s), appurtenant equipment and secondary containment structures.

1. The permittee is allowed to store in tanks only those hazardous wastes specified in **Attachment 5** of the permit.
2. The storage of hazardous waste in tanks shall only be conducted in tanks T-101 to T-110, R-202 and R-203. These tanks are depicted in **Attachment 6** and **Attachment 7**.
3. The permittee shall not place waste into tanks that are incompatible with the construction materials of the tank. [§264.192(a)]
4. The permittee shall not place waste into a unwashed tank which previously held incompatible waste or material. [§264.199(b)]
5. The permittee shall ensure that ignitable or reactive waste are not placed into any tank unless the requirements of §264.198(a) are met.
6. The volume of waste handled in each tank and their corresponding maximum liquid levels shall not exceed the following:

<u>Tank Number</u>	<u>Maximum Working Volume</u>	<u>Maximum Liquid Level</u>
T-101 to T-110	6,000 gallons	2 feet below the top of the tank
R-202 & R-203	6,300 gallons	12 feet from tank bottom

7. The permittee shall notify the Department if annual thickness testing results show any portion of a tank having a thickness less than the limits stated below:

<u>Tank Number</u>	<u>MINIMUM THICKNESS</u>		
	<u>Wall</u>	<u>Head</u>	<u>Cone/Head</u>
T-101 to T-110	0.1801 inches	0.1349 inches	0.2175 inches
R-202 & R-203	0.2829 inches	0.2428 inches	0.2835 inches

Records of all thickness determinations shall be maintained for a period of three years.

8. The permittee shall report any extensive repairs of a tank system to the Department. This report will include the information required by §264.196(e). The tank system shall not be returned to service until the certification report required by §264.196(f) has been submitted to the Department and approved.
9. The permittee shall insure that the secondary containment systems, including the curbed driveway, are sealed and free of cracks.

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10. The permittee shall inspect all permitted storage tank systems (T-101 to T-110, R-202 and R-203) in accordance with procedures stipulated in Chapter 4 (Inspection) of the permit application.
11. The permittee shall report any release greater than 1 lb. resulting from a leak or spill to the environment within 24 hours of its detection to the Department. [§264.196(d)] The released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment. [§264.196(b)(2)]
12. The permittee shall submit to the Department a report that contains the requirements of §264.196(d)(3) within 30 calendar days of detection of a release to the environment.
13. The permittee shall comply with the provision of response to leaks or spills and disposition of leaking or unfit-for-use tank systems of §264.196 by satisfying the following requirements:
 - a. Stop flow or addition of waste into the tank or secondary containment and inspect the system to determine the cause of the release. [§264.196(a)]
 - b. Remove waste from leaking tank system to prevent further releases and to allow for inspection and repair, and remove released waste from the secondary containment structure at the earliest possible time. [§264.196(b)]
 - c. Prevent possible or further migration of the leak or spill to the environment, and remove and properly dispose of wastes, contaminated soils or residues. [§264.196(c)]
 - d. Comply with the notification and report requirements of §264.196(d).
 - e. Comply with the secondary containment, repair or closure requirements of §264.196(e).
 - f. Certify major repairs of the tank system in accordance with §264.196(f).

Part IV. Fuel Blending

1. The permittee is allowed to process and blend only those hazardous wastes specified in **Attachment 5** of the permit.
2. The blending of hazardous waste fuels in tanks shall only be conducted in tanks T-112 and T-114. Storage of hazardous waste fuels shall not be conducted in these tanks. Blended fuels shall be removed from the blending tanks immediately after blending. These two tanks are depicted in **Attachment 4**.

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3. The fuel blending tanks, appurtenant equipment and secondary containment systems shall be maintained to minimize the release of hazardous constituents to the environment.
4. The volume of waste handled in each tank and their corresponding maximum liquid levels shall not exceed the following:

<u>Tank Number</u>	<u>Maximum Working Volume</u>	<u>Maximum Liquid Level</u>
T-112 & T-114	780 gallons	5.5 feet or 2 feet minimum freeboard

5. The permittee shall notify the Department if annual thickness testing results show any portion of a tank having a thickness less than the limits stated below:

<u>Tank Number</u>	<u>MINIMUM THICKNESS</u>		
	<u>Wall</u>	<u>Head</u>	<u>Cone/Head</u>
T-112 & T-114	0.1337 inches	0.1462 inches	0.1551 inches

Records of all thickness determinations shall be maintained for a period of three years.

6. The permittee shall inspect all permitted fuel blending tank systems (T-112 & T-114) in accordance with procedures stipulated in Chapter 4 (Inspection) of the permit application.

Part V. Air Emissions Standards

1. The permittee shall operate and maintain the pumps, compressors, pressure relief devices, and valves according to detailed plans contained in Chapters 13 and 14 of the permit application.
2. The permittee shall keep complete and current the Equipment Identification Log described as Figure 14-2 of the permit application. [§264.1064(b)(1)]
3. The permittee shall keep, as part of the operating records, results of inspections, monitoring reports, repairs, and other documents required by §264 Subparts AA and BB for a minimum of three years. [§264.1064]
4. In the December 6, 1994, Federal Register, EPA published the final rule for Subpart CC - Air Emission Standards for Tanks, Surface Impoundments, and Containers for hazardous waste treatment, storage, and disposal facilities. The final rule was amended in the Federal Register on November 25, 1996. The unit(s) shall operate in accordance with Subpart CC requirements in EPA HSWA Permit FLD 980 729 610 until the Department adopts the Subpart CC amendments and modifies the permit to incorporate the amended Subpart CC requirements.

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Part VI. Waste Minimization

1. The permittee shall, for hazardous waste generated on-site, comply with § 264.73(b) (9) and certify no less often than annually, that:
 - a. the permittee has a program in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the permittee to be economically practicable;
 - b. the proposed method of treatment, storage or disposal is the most practicable method available to the permittee which minimizes the present and future threat to human health and the environment; and,
 - c. the permittee shall maintain copies of certification in the facility operation record.
2. The waste minimization program identified in Specific Condition VI.1.a and VI.1.b shall, at a minimum, address the following elements:
 - a. Top management support:
 1. a dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan;
 2. a description of employee awareness and training program to involve employees in waste minimization planning and implementation to the maximum extent feasible; and
 3. a description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance;
 - b. Characterization of waste generation:

identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation;
 - c. Periodic waste minimization assessments:
 1. identification of all points in a process where materials can be prevented from becoming a waste, or can be recycled;
 2. identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation;

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3. description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation;
 4. specific performance goals, preferably quantitative, for the source reduction of waste by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.
- d. Cost allocation system:
1. identification of waste management cost for each waste, factoring in liability, transportation, record keeping, personnel, pollution control, treatment, disposal, compliance, and oversight cost to the extent feasible;
 2. description of how departments are held accountable for the waste they generate;
 3. comparison of waste management cost with cost of potential reduction and recycling techniques applicable to each waste;
- e. Technology transfer:
- description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants;
- f. Program evaluation:
1. description of types and amounts of hazardous waste reduced or recycled;
 2. analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented;
 3. amendments to waste minimization plan and explanation;
 4. explanation and documentation of reduction efforts completed or in progress before development of the waste minimization plan; and
 5. explanation and documentation regarding impediments to hazardous waste reduction specified to the individual facility.

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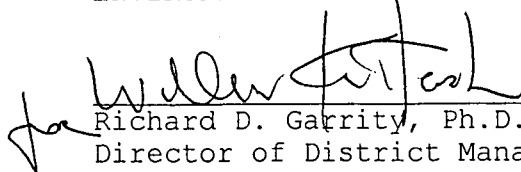
Permit No.: 6424-4OSM-003
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Part VII. Closure

1. The permittee shall close the hazardous waste management units as required by §264.111 and in accordance with the closure plan specified in Chapter 9 (Closure) of the permit application.
2. The permittee shall notify the Department at least 30 days prior to the date on which he expects to begin partial or final closure of a unit(s). [§264.112]
3. The permittee shall decontaminate and/or dispose of all facility equipment as required by §264.114, §264.178, and the closure plan.
4. The permittee shall conduct sampling and analyses in accordance with the latest edition of US EPA publication SW-846, Test Methods for Evaluating Solid Waste, or other methods as approved in the closure plan.
5. The permittee shall complete all closure activities in accordance with the closure plan within 180 days of issuance of the closure permit. Any changes in the time allowed for closure of the unit will require prior Department approval. [§264.113]
6. The permittee shall keep a copy of the closure plan and all revisions to the plan until closure is completed, certified, and the Certification of Closure is accepted by the Department. [§264.112(a)(1)]
7. The permittee shall revise the closure plan in accordance with §264.112(c) whenever necessary. The revision shall be accompanied by the appropriate fee in accordance with 62-4.050, FAC.
8. Within 60 days of completion of closure, the permittee shall submit to the Department, by certified mail or hand delivery, a report signed by the permittee and an independent Professional Engineer licensed in the State of Florida. The report must state that the facility has been closed in accordance with the specifications in the closure plan.

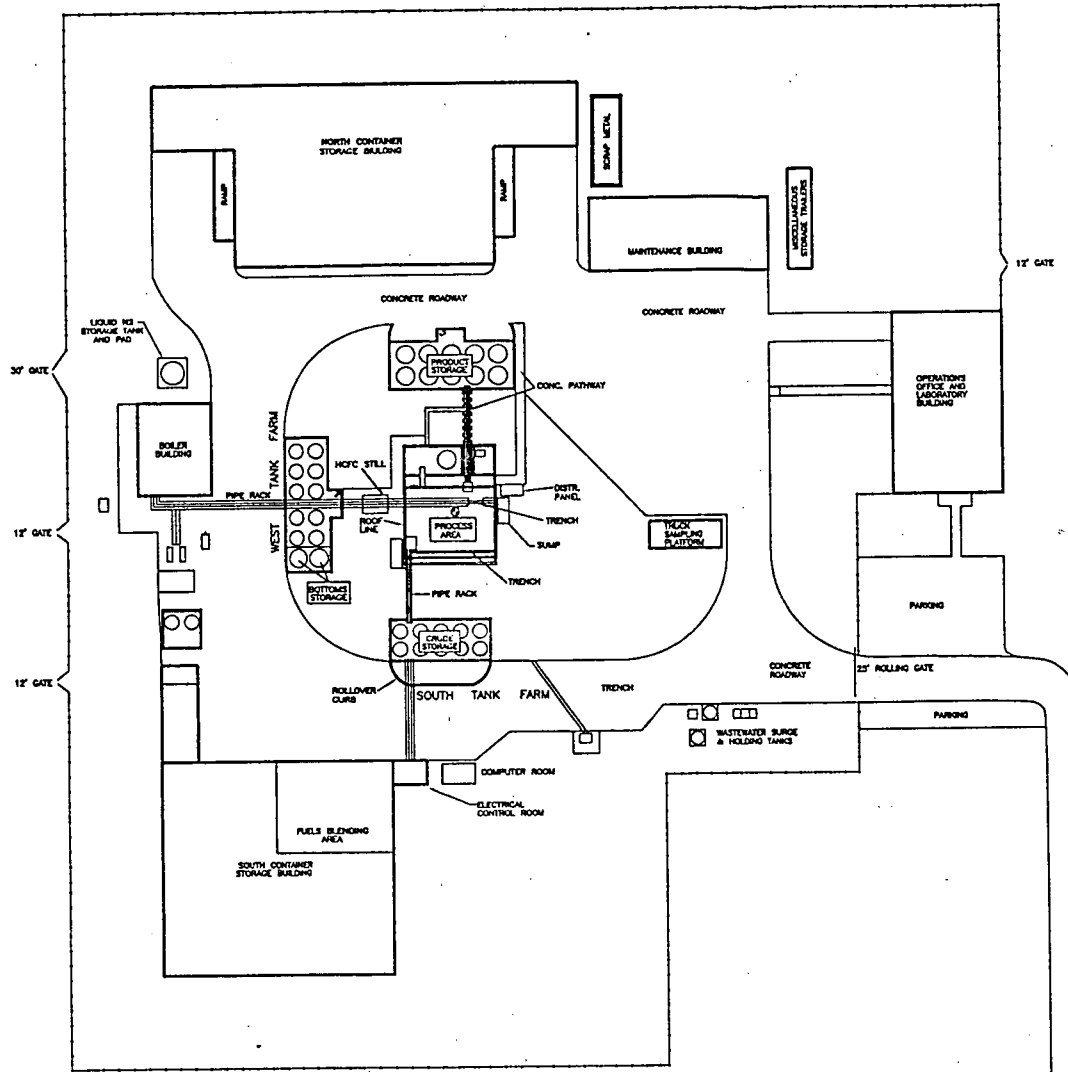
Issued this 23 day of April, 1999.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION


Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

cc: Satish Kastury, FDEP - Tallahassee
Narindar Kumar, US EPA Region IV

Appendix A
 Facility Drawing/Plot Plan
 Laidlaw Environmental Services of Bartow, Inc.
 Bartow, Florida



LEGEND

- ⊙ AIR EMISSIONS STACK
- CHAIN LINK FENCE
- ≡ PIPE RACK

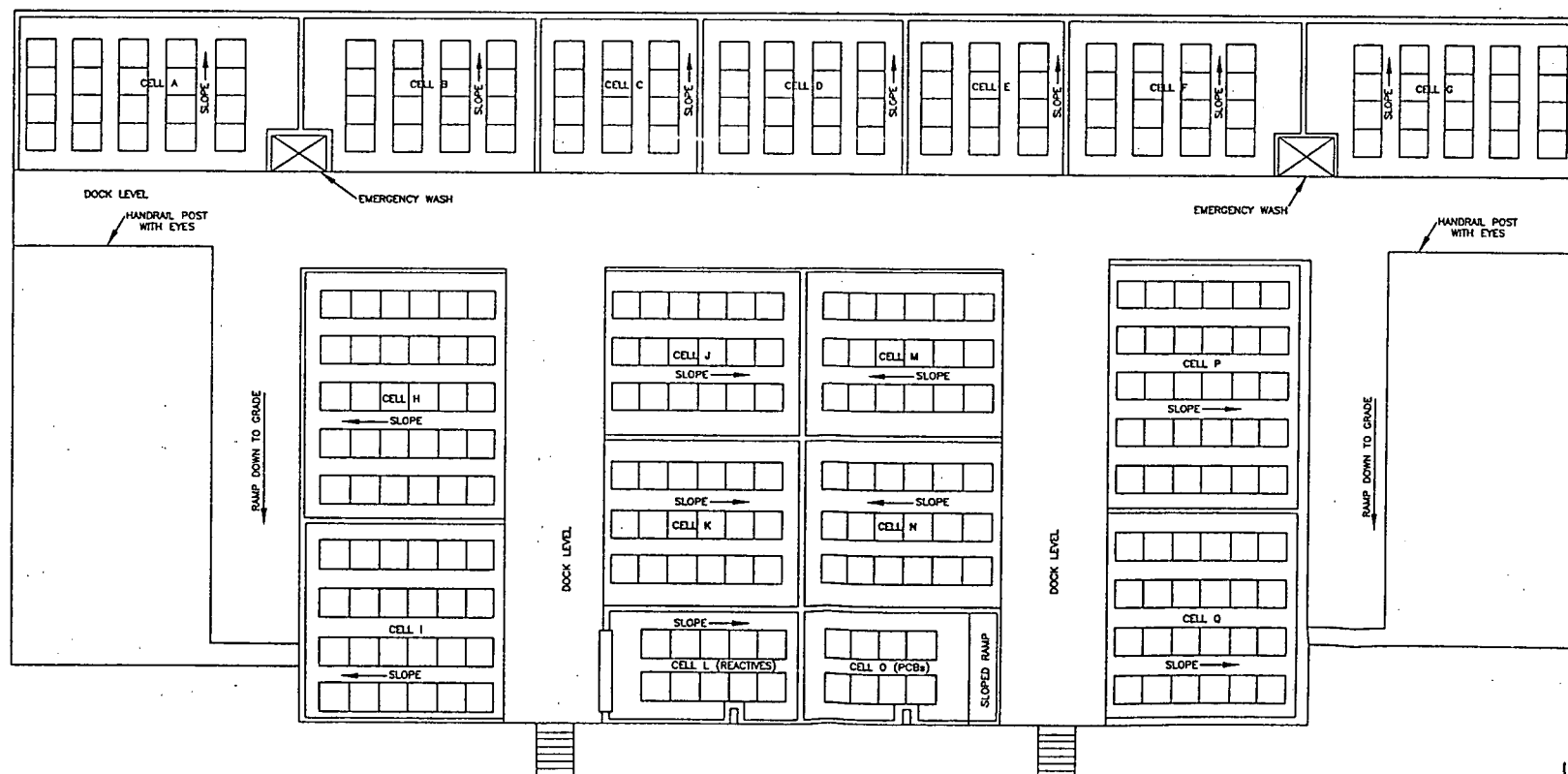


662.01/LL-BM3/091597

ATTACHMENT #1

Figure 11.2
 Floorplan & Typical Arrangement of Pallets
 in North Container Storage Building
 Laidlaw Environmental Services of Bartow, Inc.
 Bartow, Florida

NOTE: FOR CELL DIMENSIONS, SEE FIGURE 11.3



Attachment #3

Waste Codes Permitted for Storage at the North Container Storage Building and the Roll-off Boxes

D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013,
D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026,
D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039,
D040, D041, D042, D043

F001, F002, F003, F004, F005, F006, F007, F008, F009, F010, F011, F012, F019,
F020, F021, F022, F023, F024, F025, F026, F027, F028, F032, F034, F035, F037,
F038, F039

K001, K002, K003, K004, K005, K006, K007, K008, K009, K010, K011, K013, K014,
K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027,
K028, K029, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040,
K041, K042, K043, K044, K045, K046, K047, K048, K049, K050, K051, K052, K060,
K061, K062, K064, K065, K066, K069, K071, K073, K083, K084, K085, K086, K087,
K088, K090, K091, K093, K094, K095, K096, K097, K098, K099, K100, K101, K102,
K103, K104, K105, K106, K107, K108, K109, K110, K111, K112, K113, K114, K115,
K116, K117, K118, K123, K124, K125, K126, K131, K132, K136, K141, K142, K143,
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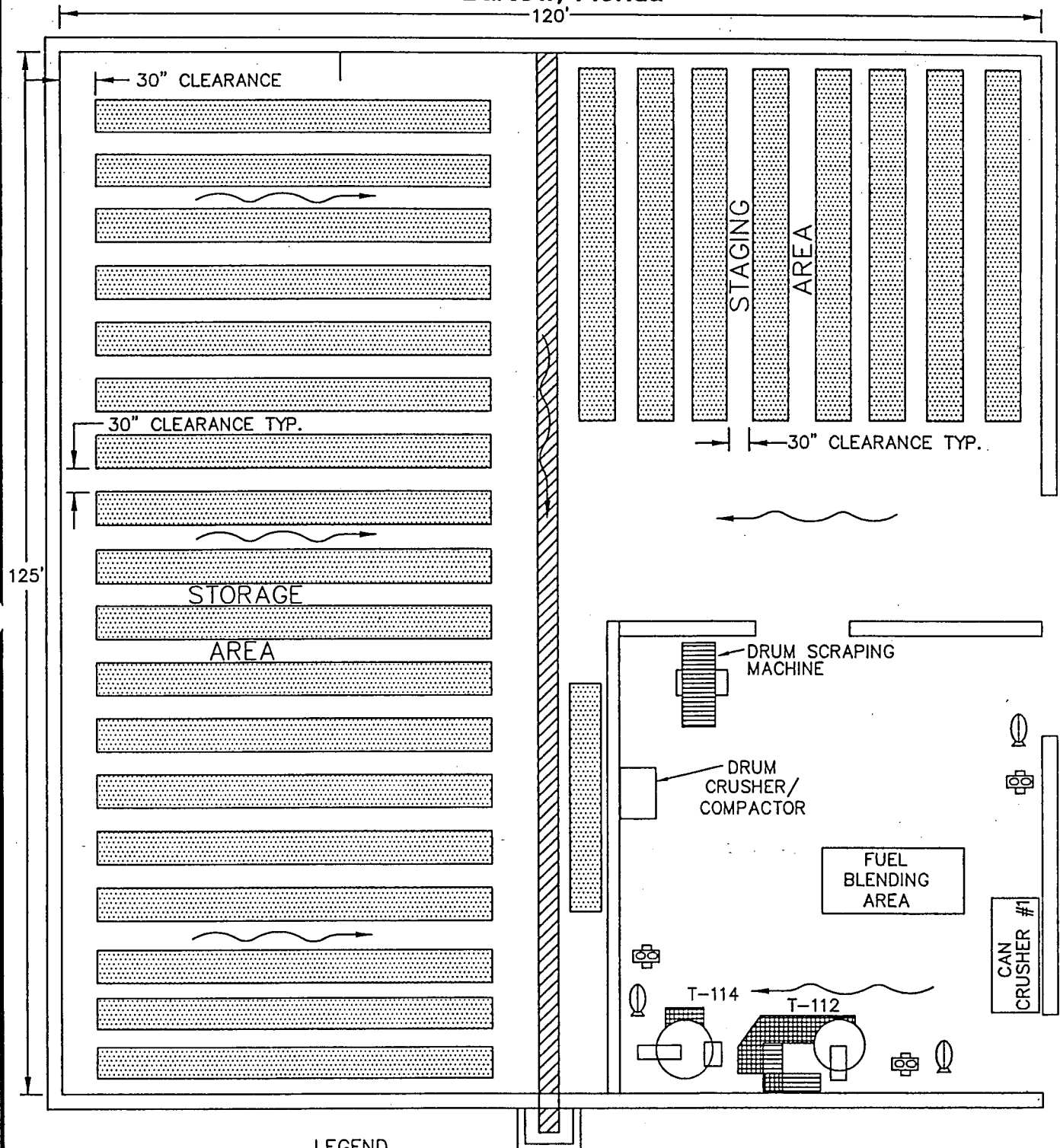
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U394, U395, U396, U400, U401, U402, U403, U404, U407, U409, U410, U411

South C
Laidlaw E

Bartow, Florida

Layout
tow, Inc.



LEGEND

- PALLET ROW
- FLUID COLLECTION TRENCH
- ELEVATED WALKWAY
- STAIRWAY
- SLOPE OF BUILDING FLOOR

- BASKET FILTER
- PUMPS
- FUEL BLENDING TANK



Not to Scale



Attachment #5

Waste Codes Permitted for: Storage at the South Container Storage Building, Tanks T-101 through T-110, R-202, and R-203; and Fuel Blending at Tanks T-112 and T-114

D001, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015,
D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028,
D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041,
D042, D043

F001, F002, F003, F004, F005, F006, F024, F025, F034, F035, F037, F038, F039

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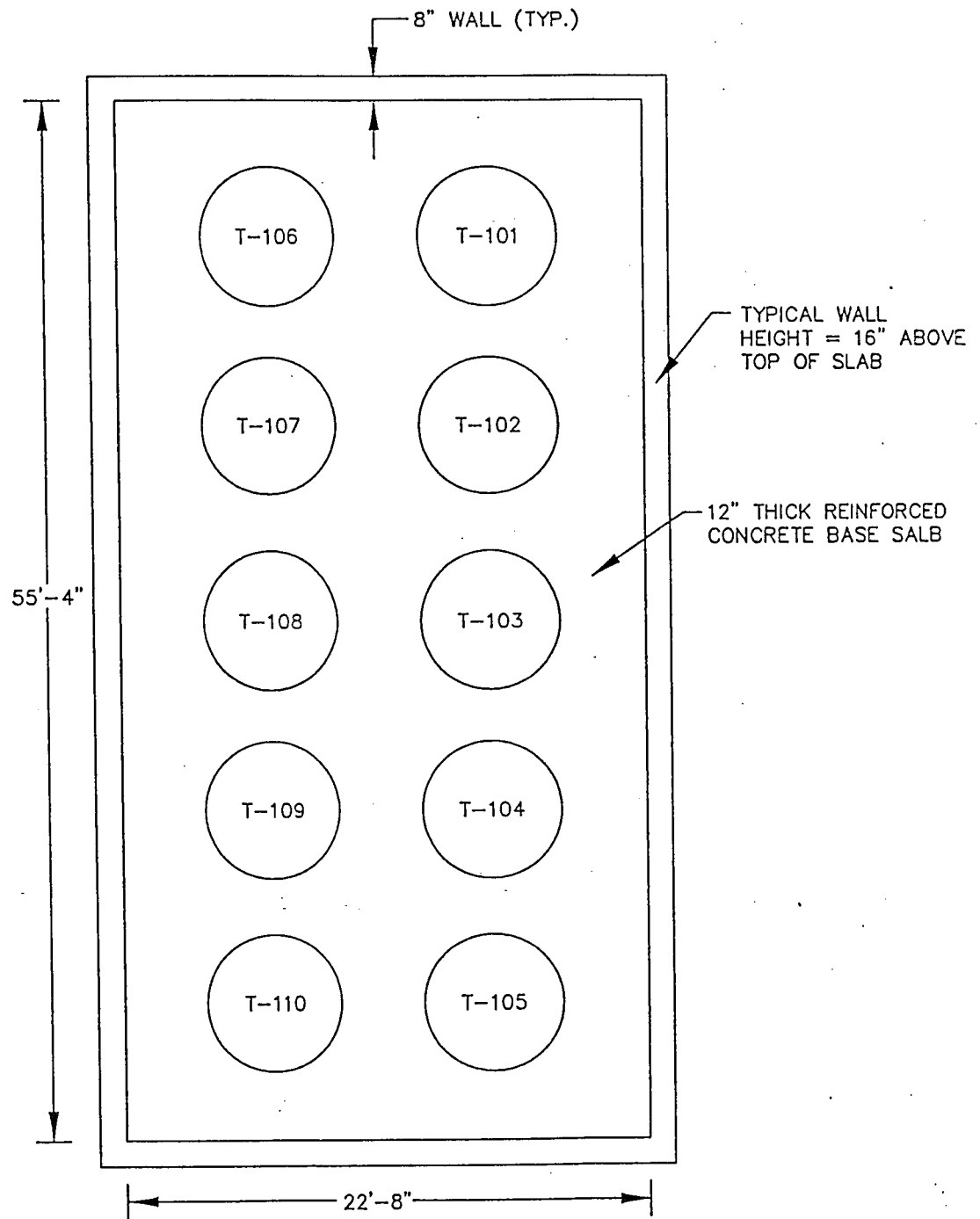
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U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U405, U407,
U409, U410, U411

Ci
Laidlaw I

ATTACHMENT #6

ut
tow, Inc.

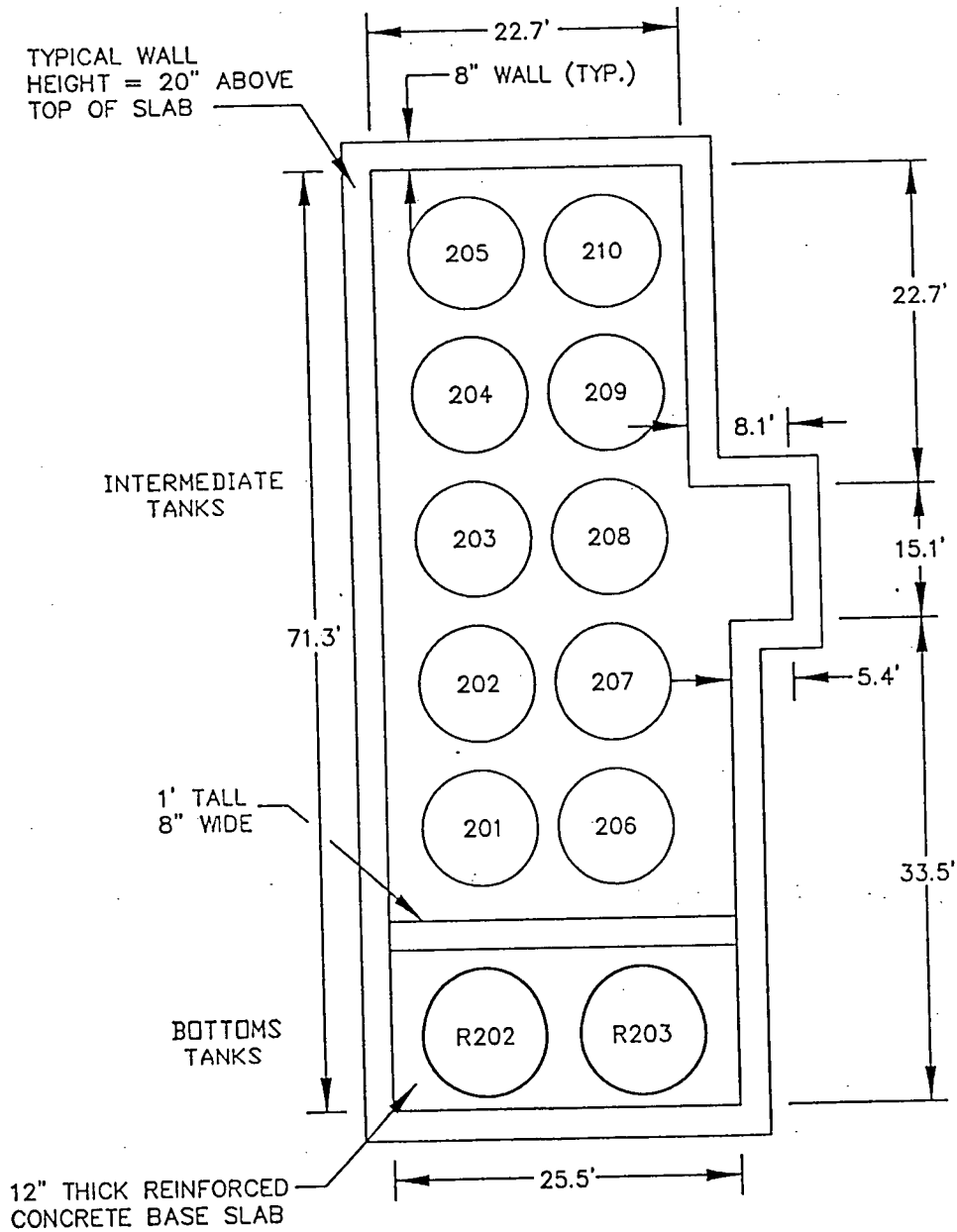


Not to Scale

Laidlaw

Bartow, Florida

Bartow, Inc.





Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

Mr. Mark Behel
Safety and Compliance Manager
Laidlaw Environmental Services
170 Bartow Municipal Airport
Bartow, Florida 33830-9504

March 3, 1998

Re: ***Laidlaw Environmental Services of Bartow, FLD 980 729 610***
Operating Permit No. H053-292488
Revised Attachment A

Dear Mr. Behel:

The Florida Department of Environmental Protection (FDEP) has discovered several typographic errors in the list of waste codes presented in Attachment 1 of the referenced permit. The enclosed Attachment 1 has been revised to include the missing codes (F034, U390, U410, U411).

Should you have any questions, please call me at 813-744-6100, ext. 372.

Sincerely,

William C. Crawford
Engineer IV
Hazardous Waste Permitting
Division of Waste Management

cc: Kent Williams, EPA Region 4
Satish Kastury, Administrator, FDEP - Tallahassee

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"Protect, Conserve and Manage Florida's Environment and Natural Resources"

PERMITTEE:
Laidlaw Environmental
Services of Bartow, Inc.

PERMIT/CERTIFICATION NO.: H053-292488
PROJECT: Operation of a Hazardous Waste
Storage and Fuel Blend Facility

Attachment 1

D001, D004, D005, D006, D007, D008, D009, D010, D011, D012,
D013, D014, D015, D016, D017, D018, D019, D020, D021, D022,
D023, D024, D025, D026, D027, D028, D029, D030, D031, D032,
D033, D034, D035, D036, D037, D038, D039, D040, D041, D042,
D043

F001, F002, F003, F004, F005, F006, F024, F025, F034, F035,
F037, F038, F039

K001, K002, K003, K004, K005, K006, K007, K008, K009, K010,
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U390, U391, U392, U393, U394, U395, U396, U400, U401, U402,
U403, U404, U405, U407, U409, U410, U411

PERMIT COVER MEMO

TO: RICK GARRITY, Director of District Management

FROM/THROUGH:

WJR 11/18
William Kutash, ENVIRONMENTAL ADMINISTRATOR
Stanley Tam, PROFESSIONAL ENGINEER II SCT
Bill Crawford, ENGINEER IV *WCC*

DATE: December 22, 1997

FILE NAME: Laidlaw Env. Services
PROGRAM: Hazardous Waste

PERMIT #: HO53-292488
COUNTY: Polk

TYPE OF PERMIT ACTION: X ISSUE DENY MODIFY
 TRANSFER OWNER NOD
 PUBLIC NOTICE INTENT

PUBLIC NOTICE PERIOD CLOSED? Yes

PERMIT SUMMARY: This permit application was received August 1, 1996. The application was deemed complete August 25, 1997. The Laidlaw Bartow facility is basically a hazardous waste fuel blending solvent recovery facility. The submitted application is for the renewal of these operations. The notice of intent to issue was public noticed on November 15, 1997. No comments were received

PROFESSIONAL RECOMMENDATION: X APPROVE DENY

EVALUATION SUMMARY: The application describes operations and procedures that provide reasonable assurance that the facility will comply with state and federal rules and regulations.

CERTIFICATION

Application Number: HO53-292488

I HEREBY CERTIFY that the engineering features described in the above referenced application (provide/do not provide) reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 62. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, chemical structural, hydrological and geological features).

Stanley Tam
(Signed) # 50851

December 30, 1997
(Date)





Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

CERTIFIED - RETURN RECEIPT

January 5, 1998

Laidlaw Environmental Services of Bartow
170 Bartow Municipal Airport
Bartow, Florida 33830-9504

Attention: Mike Merashoff

**RE: Laidlaw Environmental Services of Bartow, FLD 980 729 610
Operation Permit, File No.: HO53-292488
Hazardous Waste Facility - Polk County**


Dear Mr. Merashoff:

Enclosed is Permit Number HO53-292488 to operate a hazardous waste storage and treatment facility located at 170 Bartow Municipal Airport, Polk County, Florida, issued pursuant to Section 403.722, Florida Statutes.

Any party to this permit has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Notice is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


William C. Crawford
Permitting Engineer
Hazardous Waste Program
Division of Waste Management

cc: Narindar Kumar - EPA/Atlanta
Satish Kastury - FDEP/Tallahassee

CERTIFICATE OF SERVICE

This undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on Jan 5, 1998 to the listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to §120.52(10), Florida Statutes, with the designated Department, Clerk, receipt of which is hereby acknowledged.

Anna Black
Clerk

1/5/98
Date



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

Laidlaw Environmental Services
of Bartow, Inc.
170 Bartow Municipal Airport
Bartow, FL 33830-9504

Attn.: Mr. Mike Merashoff
Facility Manager

PERMIT/CERTIFICATION:

I.D. Number: FLD 980 729 610
Permit No.: H053-292488
County: Polk
Issue Date: January 5, 1998
Expiration Date: December 10, 2001
Latitude / Longitude:
27°57'05"N / 81°47'09"W
Section / Township / Range:
14 / 29S / 25E
Project: Operation of a Hazardous
Waste Storage and Fuel
Blend Facility

This permit is issued under the provisions of Chapter 403.722, Florida Statutes, and Florida Administrative Code Rules 62-730. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

To operate a hazardous waste storage and fuel blending facility located at 170 Bartow Municipal Airport in Bartow, Polk County, Florida.

Permitted hazardous waste storage includes storage in tanks and containers. Container storage is conducted in the southern half and a small portion of the northern half of a roofed container storage building. Other activities in the northern portion of the building include container staging (arranged 8 rows by 12 pallets deep) and fuel blending. The building dimensions are 125 feet 3 inches by 120 feet 3 inches. Container storage capacity is 106,920 gallons or the volume equivalent of 1,944 - 55 gallon containers. The southern container storage area consists of 18 rows whereas the northern container storage, located next to the fuel blending area, consist of 1 row. Each linear row in the southern and northern storage area may have up to 13 and 9 pallets respectively. Containers are stacked on pallet holding up to 255 gallons or one bulk container and up to 2 pallets high. Minimum aisle space between rows of pallets in the storage area is 30 inches. All containers are stored under sprinklers.

Storage in tanks includes ten 6,800 gallons tanks designated as T-101 thru T-110, and two 7,000 gallons bottoms tanks designated as R-202 and R-203. Blending of hazardous waste fuels in tanks includes two 980 gallons tanks designated as T-112 and T-114.

PERMITTEE:
Laidlaw Environmental
Services of Bartow, Inc.

PERMIT/CERTIFICATION NO.: HO53-292488
PROJECT: Operation of a Hazardous Waste
Storage and Fuel Blend Facility

Tanks T-101 through T-110 are situated on a 12 inch thick concrete slab with dimensions of 55 feet 4 inches by 22 feet 8 inches. This area is designated as the South Tank Farm. The perimeter of this storage area is provided with a 16 inch high reinforced concrete block wall. Storage in each tank must have a 2 foot minimum freeboard. Total storage capacity is 60,000 gallons. Secondary containment volume is 12,258 gallons.

Bottoms tanks R-202 and R-203 are situated in the West Tank Farm along with ten non-RCRA intermediate product tanks. The tanks receive: 1) bottoms materials from various waste recycling operations within the facility; and 2) permitted hazardous waste. The working volume in each 7,000 gallons tank is 6,300 gallons.

Fuel blending tanks T-112 and T-114 and associated ancillary equipment are situated in the fuel blending area located inside the northeastern portion of the container storage building. Associated ancillary equipment include the following:

- a. Container unloading pumps P-105 and P-107
- b. Container unloading filters K-103 and K-105
- c. Basket Filters K-128, K-144 and K-129
- d. Heavy fuels blend pump P-117
- e. Transfer pumps P-126 and P-109
- f. Magnetic Separators K-124 and K-115
- g. Solids Grinders G-116 and G-125
- h. Shredder G-123 with Hopper M-122
- i. Pegasus container scraping machine L-157
- j. All other associated piping

This facility is permitted to accept, store and process the waste codes identified in **Attachment 1**.

Transfer Station

The permittee shall operate the transfer facility on-site in accordance with Chapter 62-730.171, F.A.C. Current rules allow the storage of transfer facility waste anywhere on the paved road area within the facility boundary.

The following submittals were used in preparation of this document and are considered part of the permit application:

Application for renewal operating permit FDEP FORM 62-730.900(2)(a) submitted July 26, 1996. Revised pages to the application for operating permit renewal submitted January 6, and April 21, 1997.

Permit History:

Type	Number	Issued Date	Expiration Date
Construction	HC53-60967	06/23/83	12/31/84
Operating	HO53-86011	11/06/85	11/6/90
Operating	HO53-86011A	05/15/89	11/6/90
Operating	HO53-182726	12/10/91	12/10/96
Construction	HC53-170970	01/10/92	01/10/97

PERMITTEE:
Laidlaw Environmental
Services of Bartow, Inc.

PERMIT/CERTIFICATION NO.: HO53-292488
PROJECT: Operation of a Hazardous Waste
Storage and Fuel Blend Facility

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, FS. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), FS, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.
6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

PERMITTEE:
Laidlaw Environmental
Services of Bartow, Inc.

PERMIT/CERTIFICATION NO.: H053-292488
PROJECT: Operation of a Hazardous Waste
Storage and Fuel Blend Facility

GENERAL CONDITIONS: (cont'd)

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of:

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

- (a) a description of and cause of non-compliance; and
- (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Section 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

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11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- () Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
- () Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.
- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;

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- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

16. In the case of a hazardous waste facility permit, the following permit conditions shall also apply:

a. The permittee will submit the following reports to the Department:

(1) Manifest discrepancy report: If a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy. If not resolved within 15 days after receiving the waste, the permittee shall immediately submit a letter report including a copy of the manifest to the Department.

(2) Unmanifested waste report: The permittee shall submit an unmanifested waste report to the Department within 15 days of receipt of unmanifested waste.

(3) Biennial report. A biennial report covering facility activities during the previous calendar year shall be submitted to the Department by March 1, of each even numbered year pursuant to Chapter 62-730, F.A.C.

b. Notification of any non-compliance which may endanger public drinking water supplies, or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be verbally submitted to the Department within 24 hours and a written submission provided within 5 days. The verbal submission within 24 hours shall contain the name, address, I.D. number and telephone number of the facility and owner or operator, the name and quantity of materials involved, the extent of injuries (if any), an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain the following:

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- (1) a description of any cause of non-compliance; and
- (2) if not corrected, the anticipated time the non-compliance is expected to continue and steps being taken to reduce, eliminate, and prevent reoccurrence of the non-compliance.
- (c) Reports of compliance or non-compliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each scheduled date.
- (d) All reports or information required to be submitted to the Department by a hazardous waste permittee shall be signed by a person authorized to sign a permit application.

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SPECIFIC CONDITIONS

Part I. General

1. The permittee shall notify the Department in writing at least four weeks in advance of receiving hazardous waste from a foreign source [§264.12(a)].
2. The permittee shall inspect and analyze each hazardous waste received at the facility as described in Chapter 2 (Waste Analysis) of the permit application [§264.13].
3. This permit allows the permittee to store or blend into hazardous waste fuels only those wastes specified in **Attachment 1** of the permit. Prior to acceptance of new hazardous waste codes, the permittee shall submit for Department approval a request for a permit modification with a revised waste analysis plan for the proposed new waste codes. This analysis must also be incorporated in the general waste analysis plan and retained on site [§264.13].
4. The permittee shall maintain security at the facility as described in Chapter 3 (Security) of the permit application [§264.14].
5. The permittee shall inspect the facility operating, emergency, and safety equipment and conduct general inspections as described in Chapter 4 (Inspection) of the permit application. Changes or deletions to the inspection procedures must be approved in writing by the Department. The completed inspection logs must be maintained as part of the operating record of the facility [§264.15.].
6. Facility personnel must successfully complete the approved training program described in Section 8 (Training) of the permit application. New employees must complete training described in Section 8.1 within 180 calendar days. Verification of initial and annual training must be kept with the personnel training records and maintained on site. Personnel shall not work unsupervised until training has been completed [§264.16].
7. The facility shall be operated and maintained to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment [§264.31].
8. The contingency plan must be amended and distributed to the appropriate agencies if any criteria in §264.54 are met. Amendments to the plan must be approved in writing by the Department.

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Specific Conditions

Part I. General (Cont'd)

9. The permittee shall follow the emergency procedures described in Chapter 6 (Contingency Plan) of the permit application. The permittee shall give proper notification if an emergency situation arises and must submit to the Department within 15 calendar days a written report which includes all information required under §264.56(j).

10. The permittee shall, upon discovering a significant waste discrepancy, attempt to reconcile the discrepancy with the waste transporter or generator. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee must immediately submit to the Department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue [§264.72(b)].

11. The permittee shall keep written operating records which include:

- Movement and holding times of RCRA-related containers situated outside of the permitted container storage building (retained 3 years);
- The results of all waste analysis (retained until closure of facility);
- A summary report and details of incidents that require implementation of the Contingency Plan (retained until closure of facility);
- Copy of manifests (retained 3 years);
- Closure plan and updated closure cost estimate (retained until closure of facility);
- Description and quantity of each hazardous waste received, and the method(s) and date(s) of its blending or storage at the facility (retained until closure of facility);
- Location of each hazardous waste within the facility and quantity at each location (retained until closure of facility);
- Records and results of inspection (retained 3 years);
- Results of tanks, emissions, or leak testing (retained 3 years);
- Biennial report (retained 3 years).

12. The permittee shall notify the Department of any Solid Waste Management Units (SWMU) that are not listed on pages 1-6 and 1-7 of FDEP application Form number 62-730.900(2).

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Specific Conditions

Part I. General (Cont'd)

13. Submittals in response to these conditions (except Specific Condition 14 of this part) shall be submitted as follows:

- a) One copy shall be sent to:

Director of District Management
Southwest District Office
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

- b) One copy shall be sent to:

Chief, Waste Management Division
South Section, RCRA Program Branch
USEPA, Region 4
Atlanta Federal Center, 10th Floor
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

- c) One copy shall be sent to:

Environmental Administrator
Hazardous Waste Regulation Section
Bureau of Solid and Hazardous Waste
Department of Environmental Protection
2600 Blair Stone Road, MS#4560
Tallahassee, Florida 32399-2400

The cover letter of each submittal shall indicate the submittal of the information to each agency.

14. The permittee shall meet the financial requirements of §264, Subpart H - Financial Requirements, until the permittee is released as provided for in § 264.143(i) as adopted in Rule 62-730, F.A.C. All submittals in response to this Specific Condition shall be submitted to:

Financial Officer
Hazardous Waste Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road, MS#4560
Tallahassee, Florida 32399-2400

15. All documents submitted pursuant to the conditions of this permit shall be accompanied by a cover letter stating the name and date of the document submitted, the number(s) of the specific condition(s) affected, and number and project name of the permit involved.

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Specific Conditions

Part I. General (Cont'd)

16. The permittee shall comply with the required notice of §264.12(c) and 62-730.300, F.A.C before transferring ownership or operation of the facility during its operating life.
17. The permittee shall apply for a closure permit at least 180 calendar days prior to beginning closure at the facility as required by 62-730.260, F.A.C.
18. The permittee shall apply for an operating permit renewal at least 180 calendar days before the expiration date of this permit, and comply with all other requirements of the Rule 62-730.300, F.A.C.
19. The Department may modify the conditions of this permit if any of the conditions of Rule 62-730.290(1), F.A.C apply.
20. Pursuant to Rule 62-730.290, F.A.C, this permit may be modified if additional information becomes available indicating that the provisions of Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) apply to this facility. At that time, this permit may be modified to address the requirements of Section 3004(u) of HSWA if the State has been authorized for these provisions, or alternately, the Environmental Protection Agency would issue a separate federal permit addressing Section 3004(u) requirements.
21. The permittee shall operate and maintain the on-site transfer facility pursuant to Rule 62-730.171, F.A.C.
22. The permittee shall comply with the provisions of §268.7 regarding notification and certifications which must accompany each shipment of waste restricted from land disposal. The permittee shall keep copies of all notices and certifications made by the permittee pursuant to this section for wastes shipped from the facility. The permittee shall also keep copies of all land disposal restriction notices and certifications which accompany shipments of hazardous waste received at the facility. These documents are to be kept filed with the permittee's copy of the manifest that accompanied the original shipment.
23. The permittee may not store hazardous wastes restricted from land disposal for more than one year from the date of receipt. The permittee shall notify the Department in writing within 14 days if any wastes restricted from land disposal are stored at the facility for more than one year. The notice must include a summary of all previous actions taken by the permittee to find a facility to accept the waste for treatment or disposal. The notice shall also include what measures the permittee shall undertake to dispose of the waste. The permittee shall submit copies of all manifests for wastes stored more than one year to the Department within 30 days of shipment off-site [§268.50].

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Specific Conditions

Part I. General (Cont'd)

24. The permittee shall clearly mark each container of hazardous waste restricted from land disposal with the following information:

- a description of the contents, including all applicable EPA Waste Identification Numbers; and
- the date the waste was received at the facility.

Part II. Containers

1. The permittee is allowed to store in containers only those hazardous wastes specified in **Attachment 1** of the permit.
2. Container storage shall only be conducted within the container storage building, in the area located south and north of the trench, as depicted in **Attachment 2**. Total container storage volume shall not exceed 106,920 gallons or the volume equivalent to 1,944 - 55 gallon containers.
3. Container storage shall always be elevated (on pallets or self-contained legs). Pallet storage shall have a maximum of 255 gallons in drums or the capacity of one bulk container. Containers may be stacked up to 2 pallets high. The maximum number of linear rows in the northern and southern storage area shall not exceed 1 and 18 rows respectively. Aisle space between pallet rows or between pallet rows and adjacent walls shall not be less than 30 inches.
4. Receipt and sampling of containerized wastes (except bulk containers) shall only be conducted in the northwestern portion of the container storage building as depicted in **Attachment 2**. All containers shall be elevated (on pallets or self contained legs) during receipt. Container stacking during receipt shall be allowed up to 2 pallets high for a period not to exceed 3 working days.
5. Staging of containers outside of the container storage area when scheduled for processing shall not exceed 24 hours. This condition shall not apply to hazardous waste satellite accumulation containers or to hazardous waste sample containers having a volume of 0.5 gallons or less.
6. The movement and holding times of containers and bulk containers situated outside of the container storage building shall be tracked in a tracking log.
7. All hazardous waste sample containers shall be stored in the sample container storage units located in the container storage area. Storage of hazardous waste sample containers in the on-site laboratory or outside the container storage area shall not exceed the holding times allowed by the test methods specified in the Chapter 2 (Waste Analysis Plan).

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Specific Conditions
Part II. Containers (Cont'd)

8. The permittee may store non-regulated materials in the regulated storage area provided:

- a. The permittee complies with the requirements of §264.175 and includes the volume of non-regulated materials in calculating the total volume of liquid to be stored in the regulated storage area.
- b. The permittee shall maintain the required aisle spacing in the storage area for both the regulated and non-regulated materials in accordance with §264.35.
- c. The permittee ensures that non-regulated materials have labels indicating the contents of the containers and that the materials are non-regulated.
- d. The permittee shall maintain a written record (in the facility operating record) of non-regulated materials in the regulated storage area. The notice shall include:
 - the type and the quantity of the materials;
 - verification of adequate secondary containment;
 - confirmation that appropriate aisle spacing is available;
 - documentation of the compatibility of the non-regulated materials with all other materials already present in the storage area.

9. Containers shall be kept closed except when adding or removing waste and shall be handled in a manner that will not allow the containers to rupture or leak. If a container holding hazardous waste is not in good condition, or begins to leak, the waste shall be transferred to another container in good condition [§264.171, .172 and .173].

10. The permittee shall inspect the container holding and storage areas in accordance with the procedures noted in Chapter 4 (Inspections) of the application.

11. The permittee shall remove spilled or leaked waste and accumulated precipitation from the container storage, staging areas and secondary containment collection system in as timely a manner as possible, but no later than 24 hours after discovery [§264.172(b)(5)].

12. The permittee shall not store incompatible waste in containers or place it in unwashed containers that have previously held incompatible waste [§264.177].

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Specific Conditions

Part II. Containers (Cont'd)

13. The permittee shall comply with the 15 meters (50 feet) setback rule concerning the storage of ignitable and reactive wastes in containers [§264.176].
14. The permittee shall use containers which are compatible with the hazardous waste to be stored [§264.172].
15. Containers shall not be placed/stored in the aisles between facility storage units.
16. The permittee shall manage all containers, which shall include containers of non-regulated waste, in the manner described above in "Part II. Containers" of this permit to minimize the potential of a release of hazardous waste or hazardous constituents.
17. Vehicles with incoming shipments of hazardous waste shall be unloaded into the appropriate storage area within three consecutive working days of the vehicle's arrival. Vehicles being loaded for outgoing shipment shall leave the facility within five consecutive working days of the first container of hazardous waste being placed on the vehicle. This condition does not apply to vehicles transporting hazardous waste for which the permittee is acting solely as a transfer facility. Appropriate documentation verifying transfer facility activity shall be maintained in accordance with Specific Condition I.21.
18. The permittee shall document the placement of RCRA waste containers on board the transport vehicle designated for off-site disposal of such RCRA waste.

Part III. Tank Systems

Tank system, for the purpose of Part III of this permit, is defined as the storage tank(s), appurtenant equipment and secondary containment structures.

1. The permittee is allowed to store in tanks only those hazardous wastes specified in **Attachment 1** of the permit.
2. The storage of hazardous waste in tanks shall only be conducted in tanks T-101 to T-110, R-202 and R-203. The regulated tanks are depicted in **Attachment 3** and **Attachment 4**.
3. The permittee shall not place waste into tanks that are incompatible with the construction materials of the tank [§264.192(a)].
4. The permittee shall not place waste into a unwashed tank which previously held incompatible waste or material [§264.199(b)].

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Specific Conditions
Part III. Tanks (Cont'd)

5. The permittee shall ensure that ignitable or reactive waste are not placed into any tank unless the requirements of §264.198(a) are met.
6. The permittee shall inspect all regulated tank systems (T-101 to T-110, R-202 and R-203) in accordance with procedures stipulated in Chapter 4 (Inspection) of the permit application.
7. The volume of waste handled in each tank and their corresponding maximum liquid levels shall not exceed the following:

<u>Tank No.</u>	<u>Maximum Working Volume</u>	<u>Maximum Liquid Level</u>
T-101 to T-110	6,000 gallons	21 feet from cone bottom.
R-202 to R-203	6,300 gallons	12 feet from tank bottom.

8. The permittee shall notify the Department if annual thickness testing results show any portion of a tank having a thickness less than the limits stated below:

<u>Tank Number</u>	<u>Wall</u>	<u>Minimum Thickness</u>	
		<u>Head</u>	<u>Cone/Head</u>
T-101 to T-110	.1801"	.1349"	.2175"
R-202	.2829"	.2428"	.2835"
R-203	.2829"	.2428"	.2835"

Records of all thickness determinations shall be maintained for a period of three years.

9. The permittee shall report any extensive repairs of a tank system to the Department. This report will include the information required by §264.196(e). The tank system shall not be returned to service until the certification report required by §264.196(f) has been submitted to the Department and approved.
10. The permittee shall insure that the secondary containment systems, including the curbed driveway, are sealed and free of cracks.
11. The permittee shall report any release greater than 1 lb. resulting from a leak or spill to the environment within 24 hours of its detection to the Department [§264.196(d)]. The released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment [§264.196(b)(2)].

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Part III. Tanks (Cont'd)

12. The permittee shall submit to the Department a report that contains the requirements of §264.196(d)(3) within 30 calendar days of detection of a release to the environment.

13. The permittee shall comply with the provision of response to leaks or spills and disposition of leaking or unfit-for-use tank systems of §264.196 by satisfying the following requirements:

- a. Stop flow or addition of waste into the tank or secondary containment and inspect the system to determine the cause of the release [§264.196(a)].
- b. Remove waste from leaking tank system to prevent further releases and to allow for inspection and repair, and remove released waste from the secondary containment structure at the earliest possible time [§264.196(b)].
- c. Prevent possible or further migration of the leak or spill to the environment, and remove and properly dispose of wastes, contaminated soils or residues [§264.196(c)].
- d. Comply with the notification and report requirements of §264.196(d).
- e. Comply with the secondary containment, repair or closure requirements of §264.196(e).
- f. Certify major repairs of the tank system in accordance with §264.196(f).

Part IV. Fuel Blending

1. The blending of hazardous waste fuels in tanks shall only be conducted in tanks T-112 and T-114. Storage of hazardous waste fuels shall not be conducted in these tanks. Blended fuels shall be removed from the blending tanks immediately after blending. The regulated tanks are depicted in **Attachment 5**.

2. The fuels blend tanks, appurtenant equipment and secondary containment systems shall be maintained to minimize the release of hazardous constituents to the environment.

3. Staging of containers outside of the container storage area when scheduled for processing shall not exceed 24 hours.

4. The permittee shall inspect all regulated tank systems (T-112 and T-114) in accordance with procedures stipulated in Chapter 4 (Inspection) of the permit application.

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Part IV. Fuel Blend (Cont'd)

5. The volume of waste handled in each tank and their corresponding maximum liquid levels shall not exceed the following:

<u>Tank No.</u>	<u>Maximum Working Volume</u>	<u>Maximum Liquid Level</u>
T-112 & T-114	780 gallons	5.5 feet (or 2 foot minimum freeboard).

6. The permittee shall notify the Department if annual thickness testing results show any portion of a tank having a thickness less than the limits stated below:

<u>Tank Number</u>	<u>Wall</u>	<u>Minimum Thickness</u>	
		<u>Head</u>	<u>Cone/Head</u>
T-112	.1337"	.1462"	.1551"
T-114	.1337"	.1462"	.1551"

Records of all thickness determinations shall be maintained for three years.

Part V. Air Emissions Standards

1. The Permittee shall operate and maintain the pumps, compressors, pressure relief devices, and valves according to detailed plans contained in Chapters 13 and 14 of the application.

2. The Permittee shall keep complete and current the Equipment Identification Log described as Figure 14-2 of the permit application [§264.1064(b)(1)].

3. The permittee shall keep, as part of the operating records, results of inspections, monitoring reports, repairs, and other documents required by §264 Subparts AA and BB for a minimum of three years [§264.1064].

4. In the December 6, 1994, Federal Register, EPA published the final rule for Subpart CC - Air Emission Standards for Tanks, Surface Impoundments, and Containers for hazardous waste treatment, storage, and disposal facilities. The final rule was amended in the Federal Register on November 25, 1996. The unit(s) shall operate in accordance with Subpart CC requirements in EPA HSWA Permit FLD 980 729 610 until the Department adopts the Subpart CC amendments and modifies the permit to incorporate the amended Subpart CC requirements.

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Part VI. Closure Conditions

1. The permittee shall have a written closure plan as required by §264.112(a). The closure plan and all revisions to the plan must be kept at the facility until closure is completed, certified in accordance with §264.115, and accepted by the Department.
2. The permittee shall close the hazardous waste units in a manner that minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere [§264.111].
3. The permittee will notify the Department 30 days prior to the date on which he expects to begin partial or final closure of a unit(s) [§264.112].
4. The permittee shall decontaminate or dispose of all facility equipment, structures, and residues resulting from the closure activities as specified in §264.114.
5. The permittee shall manage all hazardous waste, residues, sludges, spilled or leaked waste, or contaminated liquids and soils removed during closure of the units in accordance with the applicable provisions of §260 through §270 and 62-730 F.A.C, including the manifest requirements. A copy of each manifest required as a result of closure activities shall be submitted to the Department with closure certification.
6. The permittee shall submit a written request for a permit modification to authorize a change in the closure plan in accordance with the procedures in 62-730. The written request must include a copy of the amended closure plan for Department approval [§264.112].
7. Closure of tank systems, the container storage area or any components thereof, or of any other hazardous waste unit shall be conducted in accordance with plans specified in Chapter 9 - Closure of the permit application.
8. The permittee must complete closure activities within 180 days after Department approval of the closure plan. Any changes in the time allowed for closure of the units after approval shall require prior Departmental approval [§264.113].
9. Within 60 days of the completion of closure, the permittee shall submit to the Department, by certified mail or hand delivery, a letter signed by the permittee and an independent, Professional Engineer registered in the State of Florida, stating that the facility has been closed in compliance with the closure plan [§264.115].

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Part VII. Waste Minimization

1. The permittee shall, for hazardous waste generated onsite, comply with § 264.73(b)(9) and certify no less often than annually, that:
 - a) the permittee has a program in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the permittee to be economically practicable;
 - b) the proposed method of treatment, storage or disposal is the most practicable method available to the permittee which minimizes the present and future threat to human health and the environment; and,
 - c) the permittee shall maintain copies of certification in the facility operation record.
2. The waste minimization program identified in Specific Condition VII.1a and VII.1b shall, at a minimum, address the following elements:
 - a) Top management support:
 1. a dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan;
 2. a description of employee awareness and training program to involve employees in waste minimization planning and implementation to the maximum extent feasible; and
 3. a description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance;
 - b) Characterization of waste generation:

identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation;

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Part VII. Waste Minimization (Cont'd)

c) Periodic waste minimization assessments:

1. identification of all points in a process where materials can be prevented from becoming a waste, or can be recycled;
2. identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation;
3. description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation;
4. specific performance goals, preferably quantitative, for the source reduction of waste by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.

d) Cost allocation system:

1. identification of waste management cost for each waste, factoring in liability, transportation, record keeping, personnel, pollution control, treatment, disposal, compliance, and oversight cost to the extent feasible;
2. description of how departments are held accountable for the waste they generate;
3. comparison of waste management cost with cost of potential reduction and recycling techniques applicable to each waste;

e) Technology transfer:

description of efforts to seek and exchange technical information on waste minimization from other parts of the company, other firms, trade associations, technical assistance programs, and professional consultants;

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Specific Conditions

Part VII. Waste Minimization (Cont'd)

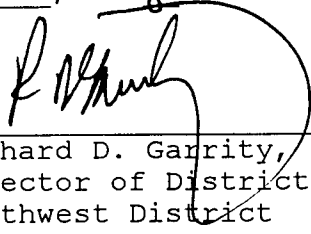
f) Program evaluation:

1. description of types and amounts of hazardous waste reduced or recycled;
2. analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented;
3. amendments to waste minimization plan and explanation;
4. explanation and documentation of reduction efforts completed or in progress before development of the waste minimization plan; and
5. explanation and documentation regarding impediments to hazardous waste reduction specified to the individual facility.

Issued this 5 day of

Jan

, 1998


Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

PERMITTEE:
Laidlaw Environmental
Services of Bartow, Inc.

PERMIT/CERTIFICATION NO.: HO53-292488
PROJECT: Operation of a Hazardous Waste
Storage and Fuel Blend Facility

Attachment 1

D001, D004, D005, D006, D007, D008, D009, D010, D011, D012,
D013, D014, D015, D016, D017, D018, D019, D020, D021, D022,
D023, D024, D025, D026, D027, D028, D029, D030, D031, D032,
D033, D034, D035, D036, D037, D038, D039, D040, D041, D042,
D043

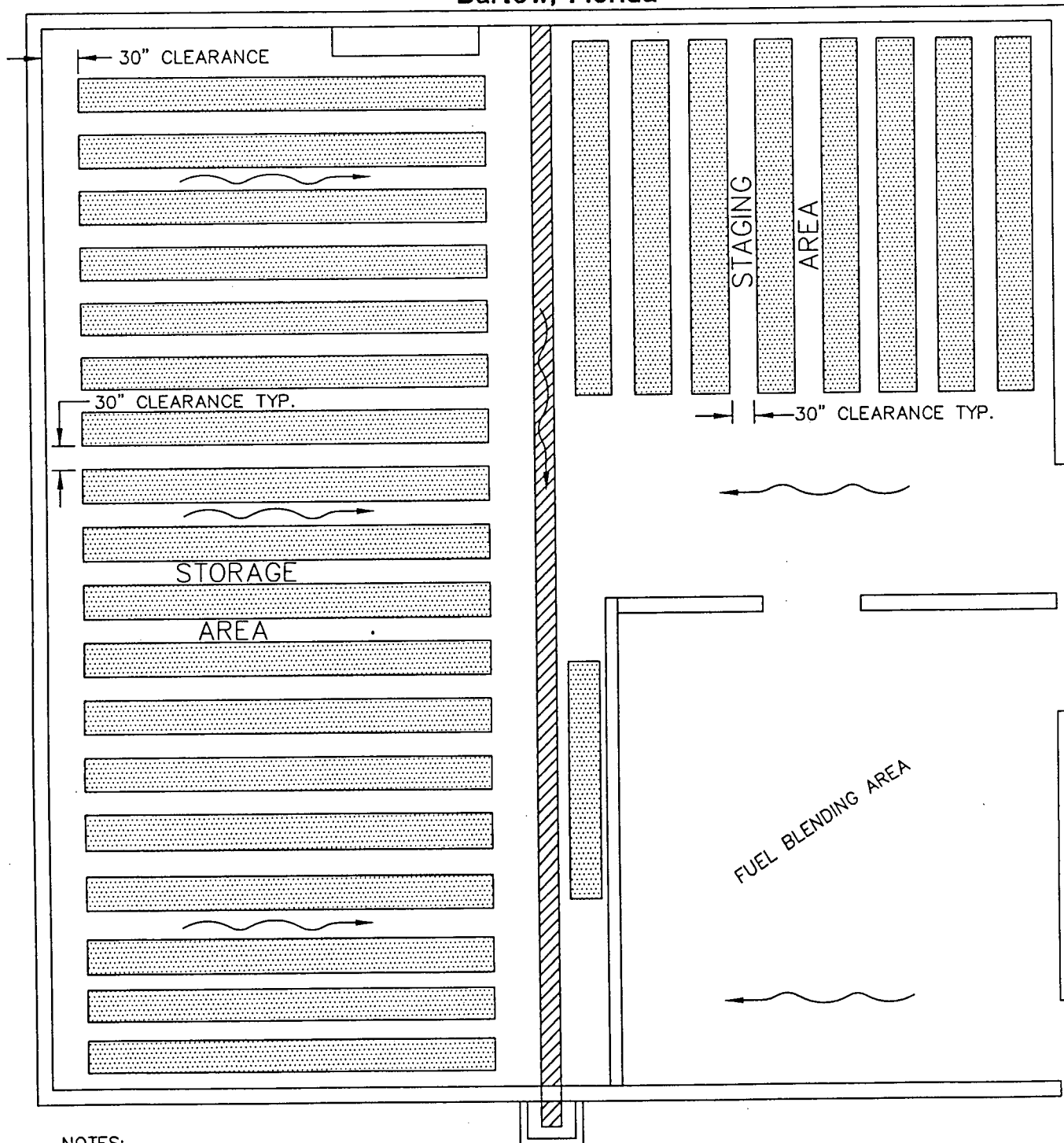
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F038, F039

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P192, P194, P196, P197, P198, P199, P201, P202, P203, P204,
P205

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U379, U380, U381, U382, U383, U384, U385, U386, U387, U389,
U391, U392, U393, U394, U395, U396, U400, U401, U402, U403,
U404, U405, U407, U409

Attachment 2
Typical Pallet Arrangement and Drainage Patterns
in Existing Container Storage Building
Laidlaw Environmental Services of Bartow, Inc.
Bartow, Florida



NOTES:

1. CONTAINERS AND PALLETS MAY BE STAGED IN THE STAGING AREA TEMPORARILY FOR CHARACTERIZATION AND LABELING BEFORE STORAGE.

2. ANY ARRANGEMENT OF PALLETS WILL NOT ALLOW MORE THAN THE MAXIMUM OF 139,975 GALLONS IN THE CONTAINER STORAGE BUILDING.

LEGEND

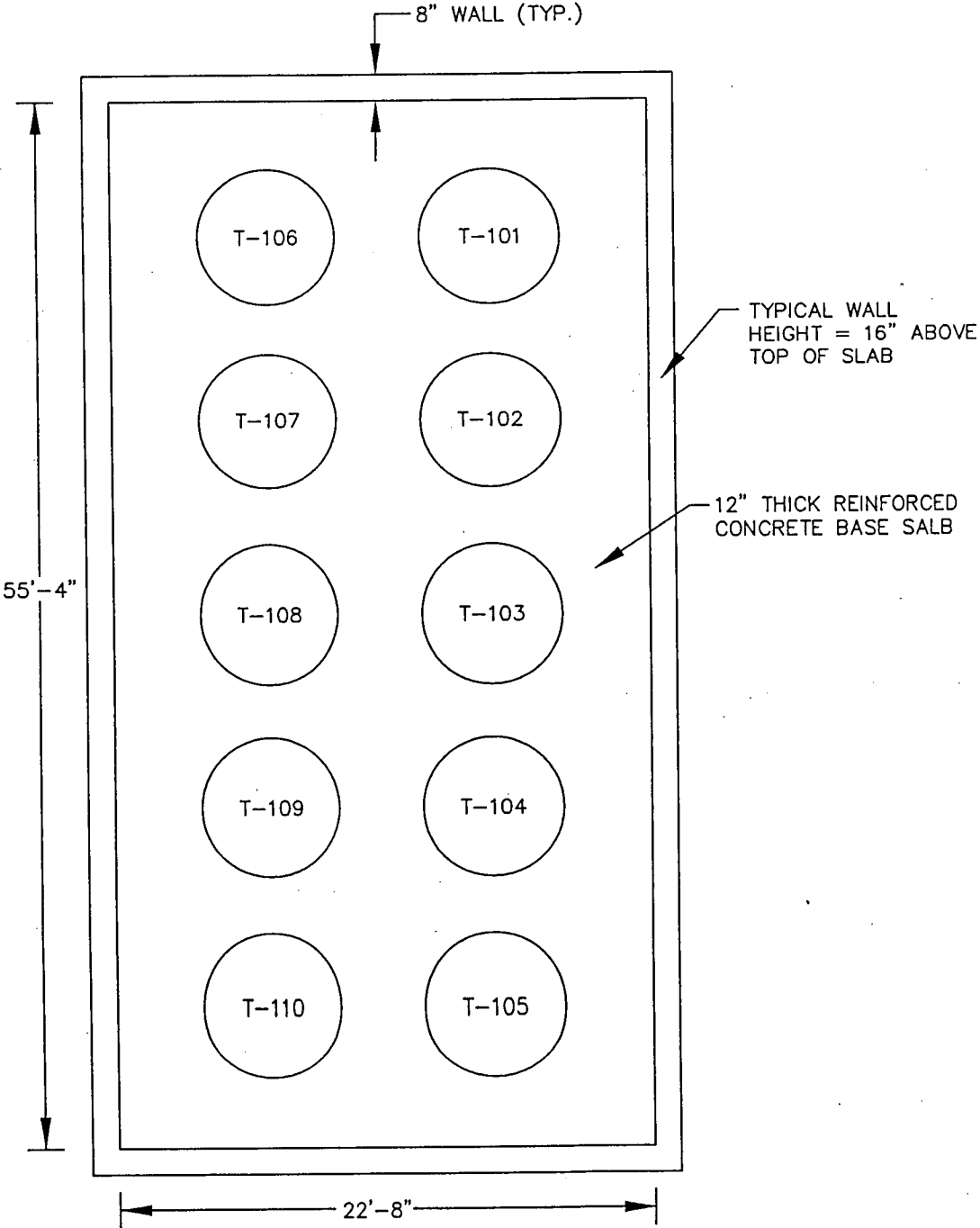
- PALLET ROW
- FLUID COLLECTION TRENCH

~> SLOPE OF BUILDING FLOOR



Not to Scale

Attachment 3
Crude Storage Tanks Layout
Laidlaw Environmental Services of Bartow, Inc.
Bartow, Florida



Not to Scale

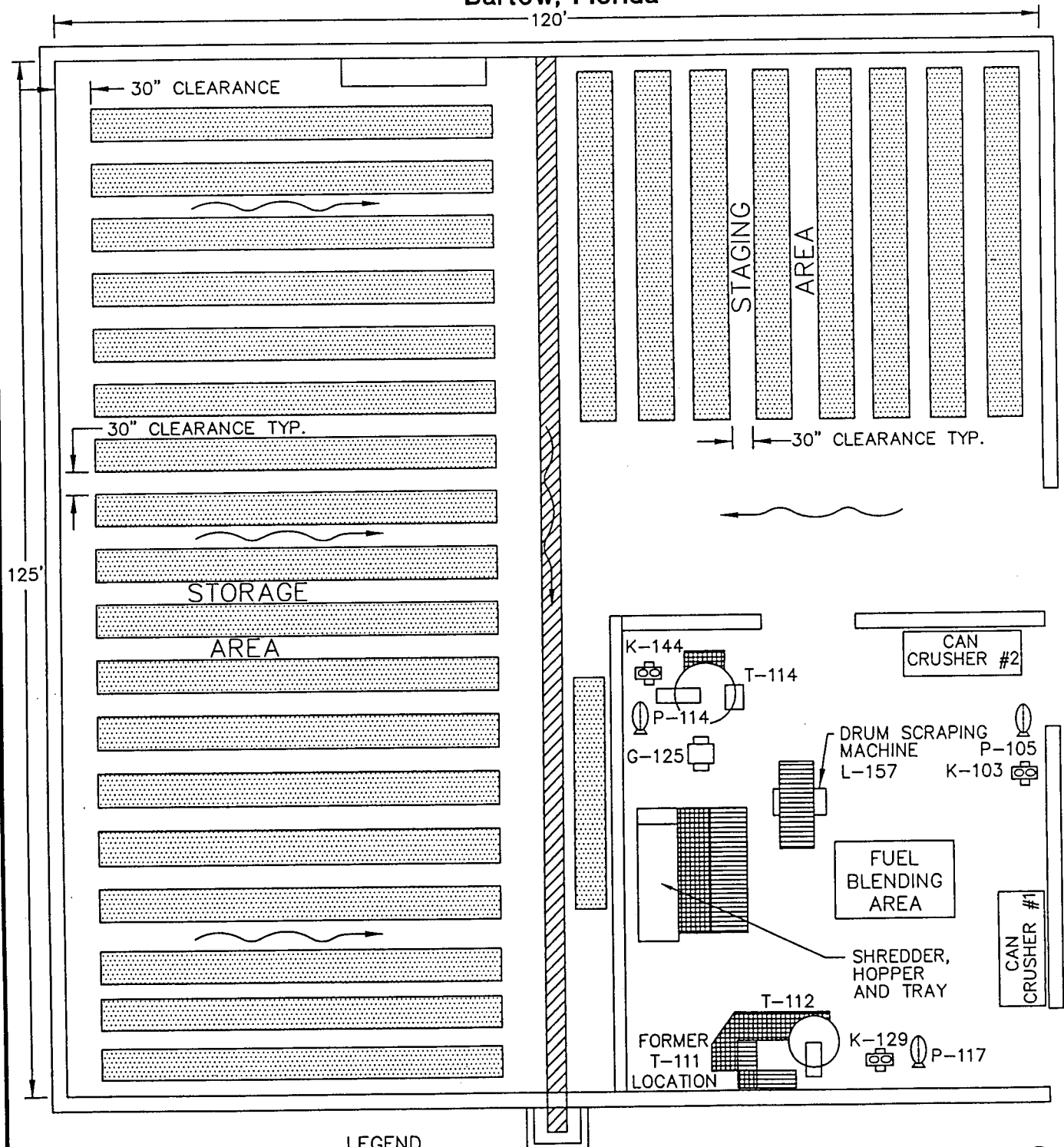
Diagram illustrating the cross-section of a storage tank structure, showing dimensions and components:

- Overall Dimensions:**
 - Top width: 22.7'
 - Bottom width: 25.5'
 - Left side height: 71.3'
 - Right side height segments: 22.7', 15.1', 33.5'
- Structural Details:**
 - Top wall: 8" WALL (TYP.)
 - Intermediate Tanks: 1' TALL 8" WIDE
 - Bottoms Tanks: 12" THICK REINFORCED CONCRETE BASE SLAB
- Internal Components (Tanks):**
 - Top row: 205, 210
 - Second row: 204, 209
 - Third row: 203, 208
 - Fourth row: 202, 207
 - Fifth row: 201, 206
 - Bottom row: R202, R203
- Other Dimensions:**
 - 8.1' (horizontal offset on the right side)
 - 5.4' (horizontal offset on the right side)



Not to Scale

Attachment 5 Fuel Blending Tanks Layout Laidlaw Environmental Services of Bartow, Inc. Bartow, Florida



LEGEND

- | | |
|-------------------------|-------------------------|
| PALLET ROW | K-# BASKET FILTER |
| FLUID COLLECTION TRENCH | P-# PUMPS |
| ELEVATED WALKWAY | T-# FUEL BLENDING TANK |
| STAIRWAY | G-# GRINDER |
| SLOPE OF BUILDING FLOOR | |



Not to Scale

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
PERMITTING APPLICATION PROJECT EVENT SUMMARY REPORT

09-AUG-00

Site Name: LAIDLAW ENVIRONMENTAL SERVICES OF BARTOW
County: POLK

PROJECT

Permit Office: SWD (DISTRICT) CRA Reference #: 58209
Project #: 58209 Agency Action: Issued
Project name: MODIFICATION OF OPER. PERMIT Desc:
Type/Sub/Req: HO/MM / New Permit Application
Received: 13-DEC-1999 Issued: 08-FEB-2000 Expires: 10-DEC-2001
Fee: \$250.00 Realized: \$250.00 Dele: Override: NONE

PROJECT EVENTS

Event	Begin Date	Prd Due Date	Rmn Status	End Date
Receive Request	13-DEC-1999	1 14-DEC-1999	000 Done	13-DEC-1999
Fee Verification	13-DEC-1999	2 15-DEC-1999	000 Sufficient Fee	14-DEC-1999
Completeness Review	13-DEC-1999	60 11-FEB-2000	000 Complete	07-FEB-2000
Determine Agency Action	13-DEC-1999	90 12-MAR-2000	000 Issue	08-FEB-2000
Issue Final Permit	08-FEB-2000	14 22-FEB-2000	000 Issued	08-FEB-2000
ISSUE PERMIT	08-FEB-2000	1 09-FEB-2000	000 Issued	08-FEB-2000
STOP CLOCK	08-FEB-2000	1 09-FEB-2000	000 Done	08-FEB-2000

perMits|_Events_|_Payment_|_Site_|_Facility_|_party_|_Reports_|_>
 ----- Permitting Application -----
 +----- SITE Permit -----+
 Site Name: LAIDLAW_ENVIRONMENTAL_SERVICES_OF_BARTOW Site #: 0064247
 County: POLK Comments: N RPAs: N # Cases: 0
 ----- Project -----+
 Permit #: - - Project #:005 Received:13-DEC-1999 CRA#:58209
 Permit Office: SWD (DISTRICT) Agency Action: Pending
 Project Name: MODIFICATION OF OPER. PERMIT Desc: _____
 Type/Sub/Des: HO_/MM MINOR MODIFICATION COE #: _____
 Logged: 14-DEC-1999 Issued: _____ Expires: _____ OGC: _____
 Fee: 250.00 Fee Recd: 250.00 Dele: _____ Override: NONE
 ----- Related Party -----+
 Role: APPLICANT Begin: 14-DEC-1999 End: _____
 Name: MERASHOFF, MICHAEL Company: SAFETY-KLEEN (BARTOW), INC.
 Addr: 170 BARTOW MUNICIPAL AIRPORT
 City: BARTOW State: FL Zip: 33830-9504 Country: _____
 Phone: 941-533-6111 Fax: 941-519-6363
 ----- Processors -----+
 Processor: TAM_S Y Active: 14-DEC-1999 Inactive: _____
 -----+
 Enter Project Name. _____
 Count: 1 ^ v <Replace>

AREA: SWD

Cash Receiving Application
Collection Point Log Remittance

CRAF006A

Tot: \$250.00

SYS\$REMT: 367435 Type: CP Recvd Date: 13-DEC-1999 Status: RECEIVED
 SYS\$RCPT: 303949 PNR: Check #: 1793473 Amount: 250.00
 SSN/FEI#: Name: SAFETY-KLEEN CORPORATION
 First: Middle: Title: Suf:
 Address1: P_O_BOX_11393 Short Comments:
 Address2: S-HW/64247-005
 City: COLUMBIA ST: SC Zip: 29211- Country:

> P A Y M E N T (S) <

Distr	CL	Object	Payment	Reference#	Applic/	S
	Area..	Code/Description.....	Amount.....		Fund	T
SYS\$PAYT	385515	SWD	002234 HAZAR/WASTE-OPE	\$250.00	64247-005 PA PFTF	CO

COMMIT FREQUENTLY

\$250.00 Payment total

Press <TAB> to accept Collection Point or enter F&A.

Count: *1

<Replace>



SAFETY - KLEEN CORPORATION
Post Office Box 11393
Columbia, South Carolina 29211

THE FIRST NATIONAL BANK OF CHICAGO
PAYABLE THROUGH
REPUBLIC BANK, SHELBYVILLE, KY

73-426
839

CHECK NO: 1793473



PAY *****EXACTLY*****250***DOLLARS AND 00 CENTS*****

TO
THE
ORDER
OF

FLORIDA DEPT OF ENV PROTECTION
3804 COCONUT PALM DRIVE
TAMPA FL 33619
USA

DATE
11/29/99
AMOUNT
*****\$250.00

VOID AFTER 90 DAYS


AUTHORIZED SIGNATURE

AUTHORIZED SIGNATURE

⑈01793473⑈ ⑆083904262⑆ 09 91880⑈

12/13
Hw
Stanley