

**PERMA-FIX OF FLORIDA, INC.**

**PART B PERMIT APPLICATION AND RENEWAL**

***Volume I***

***Revision No. 4 - Final***

**Submitted to:**

**State of Florida  
Department of Environmental Protection  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256**

**November 12, 1999**



[www.perma-fix.com](http://www.perma-fix.com)

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**Submitted by:**

**Perma-Fix of Florida, Inc.  
1940 N.W. 67<sup>th</sup> Place  
Gainesville, Florida 32653  
(352) 373-6066**

December 16, 1999

RECEIVED

To: Ashwin Patel

DEC 20 1999

cc: Chris Bird  
Scott Ellis

STATE OF FLORIDA  
DEPT. OF ENV. PROTECTION  
NORTHEAST DISTRICT-JAX

From: Steve Douglas

Subj: Replacement Page

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Attached is a replacement page for *Attachment I.D. 4* of Perma-Fix of Florida's Part B Permit Application, Volume 1.

ROCKET #

P. 31

# PERMA-FIX OF FLORIDA, INC.

## PART B PERMIT APPLICATION AND RENEWAL

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**PERMA-FIX®**  
ENVIRONMENTAL SERVICES

[www.perma-fix.com](http://www.perma-fix.com)

Submitted by:

Perma-Fix of Florida, Inc.  
1940 N.W. 67<sup>th</sup> Place  
Gainesville, Florida 32653  
(352) 373-6066

DOCKET #

1602  
P-30

1



Revision Number	4
Date	
Page 1 of 5	

**APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT  
PART I - GENERAL  
TO BE COMPLETED BY ALL APPLICANTS**

Please Type or Print

**A. General Information**

1. Type of facility:

Disposal	<input type="checkbox"/>				
landfill	<input type="checkbox"/>		land treatment	<input type="checkbox"/>	
surface impoundment	<input type="checkbox"/>		miscellaneous units	<input type="checkbox"/>	
Storage	<input checked="" type="checkbox"/>				
containers	<input checked="" type="checkbox"/>		tanks	<input checked="" type="checkbox"/>	
piles	<input type="checkbox"/>		surface impoundment	<input type="checkbox"/>	
miscellaneous units	<input type="checkbox"/>		containment building	<input type="checkbox"/>	
Treatment	<input checked="" type="checkbox"/>				
tanks	<input type="checkbox"/>		piles	<input type="checkbox"/>	
incineration	<input type="checkbox"/>		surface impoundment	<input type="checkbox"/>	
miscellaneous units	<input checked="" type="checkbox"/>		boiler/industrial furnace	<input type="checkbox"/>	
type of unit	+See Note Below		type of unit		
			containment building	<input type="checkbox"/>	

2. Type of application: ☐ TOP ☐ construction ☐ operation ☐ closure ☐ RD&D  
☒ construction/operation\*

3. Revision Number: 4

4. Date current operation began (or is expected to begin): October 1983

5. Facility name: Perma-Fix of Florida, Inc.

6. EPA/DEP I.D. No.: FLD980711071

7. Facility location or street address: 1940 N.W. 67th Place

8. Facility mailing address: 1940 N.W. 67th Place Gainesville FL 32653  
Street or P.O. Box City State Zip

+ Note: Grinder/crusher, drums, tankers, totes, reactor vessel,  
debris treatment

\* Renewal permit with changes in operations



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Name: \_\_\_\_\_ N/A

Address: \_\_\_\_\_ N/A

Street or P.O. Box City State Zip

18. Site ownership status: ☒ owned ☐ to be purchased ☐ to be leased \_\_\_\_\_ years  
☐ presently leased; the expiration date of the lease is: \_\_\_\_\_

If leased, indicate:

Land owner's name: \_\_\_\_\_ N/A

Land owner's address: \_\_\_\_\_ N/A

Street or P.O. Box City State Zip

19. Name of engineer: George F. Harder Registration no.: 0047340

Address: 2875B N.W. 104th Court Gainesville FL 32606

Street or P.O. Box City State Zip

Associated with: \_\_\_\_\_ N/A

20. Facility located on Indian land: ☐ yes ☒ no

21. Existing or pending environmental permits: (attach a separate sheet if necessary)

NAME OF PERMIT	AGENCY	PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
Hazardous Waste Permit	FDEP	HO 01-169480	02/28/90	09/27/95*
Radioactive Materials License	FDOH	2598-1	08/18/95	08/31/2000
NPDES Permit	USEPA	FLR05B512	02/18/98	02/18/2003
Permit	FDEP	0010113-001-AC	05/28/99	05/28/2001

\* Renewal Application Pending

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## B. Site Information

1. Facility location County: Alachua Nearest Community: Gainesville  
Latitude: 29° 43' 00" Longitude: 82° 20' 58"  
Section: NW 1/4 of Sec. 18 Township: 9 South Range: 20 East  
UTM #: 17 / 36950 / 03288000

2. Area of facility site (acres): 7.67

3. Attach a scale drawing and photographs of the facility showing the location of all past, present, and future treatment, storage and disposal areas. Also show the hazardous wastes traffic pattern including estimated volume and control.

See Figures I.B.1, I.B.2, and Attachment I.B.1

4. Attach topographic map which show all the features indicated in the instruction sheet for this part.

See Figure I.B.3

5. Is the site located in a 100-year flood plain? ☐ yes ☒ no \*

\* See Figure I.B.1. Reference FEMA Map #1200010280A (09/28/84)

## C. Land Use Information

1. Present zoning of the site I-1 (Industrial)

2. If a zoning change is needed, what should the new zoning be? N/A

3. Present land use of site Industrial

## D. Operating Information

1. Is waste generated on site? ☒ yes ☐ no

List the SIC codes (4-digit)

4953

2. Attach a brief description of the facility operation, nature of the business, and activities that generate, treat, store or dispose of hazardous waste.

See Attachment I.D.1 (Facility Description)

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Date	
Page	5 of 5

3. Using the following table and codes provided, specify, (1) each process used for treating, storing, or disposing of hazardous waste (including design capacities) at the facility, and (2) the hazardous waste (or wastes) listed or designated in 40 CFR Part 261, including the annual quantities, to be treated, stored, or disposed by each process at the facility. (See the instructions for the list of process codes and units).

PROCESS CODE	PROCESS DESIGN CAPACITY AND UNITS OF MEASURE	HAZARDOUS WASTE CODE	ANNUAL QUANTITY OF HAZARDOUS WASTE AND UNITS OF MEASURE
S01	107,300 Gallons	See Attachment I.D.2	2,127,715 Gallons
S02	3,000 Gallons	D001, F001, F002 F003, F005	110,400 Gallons
T04 (P-FI)	N/A <sup>1</sup>	See Attachment I.D.2	577,500 Gallons
T04 (P-FII)	160 Gallons <sup>2</sup>	See Attachment I.D.2	280,000 Gallons
T04	N/A <sup>3</sup>	See Attachment I.D.2	577,500 Gallons

<sup>1</sup>Microencapsulation

<sup>2</sup>Thermal desorption and chemical oxidation

<sup>3</sup>Chemical and physical extraction and macroencapsulation

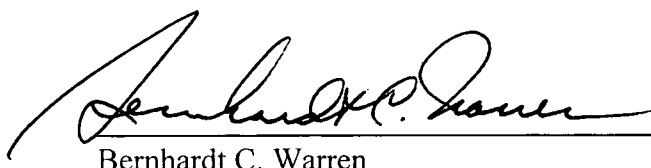
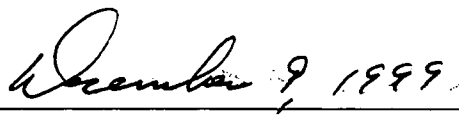


## CERTIFICATION OF FACILITY OWNERSHIP

This statement certifies that Perma-Fix of Florida, Inc., a subsidiary of Perma-Fix Environmental Services, Inc., owns all property and improvements located at 1940 NW 67<sup>th</sup> Place, Gainesville, Florida.

Perma-Fix Environmental Services, Inc. currently leases the second floor of the Perma-Fix of Florida, Inc. administrative building from Perma-Fix of Florida, Inc.

Signed,

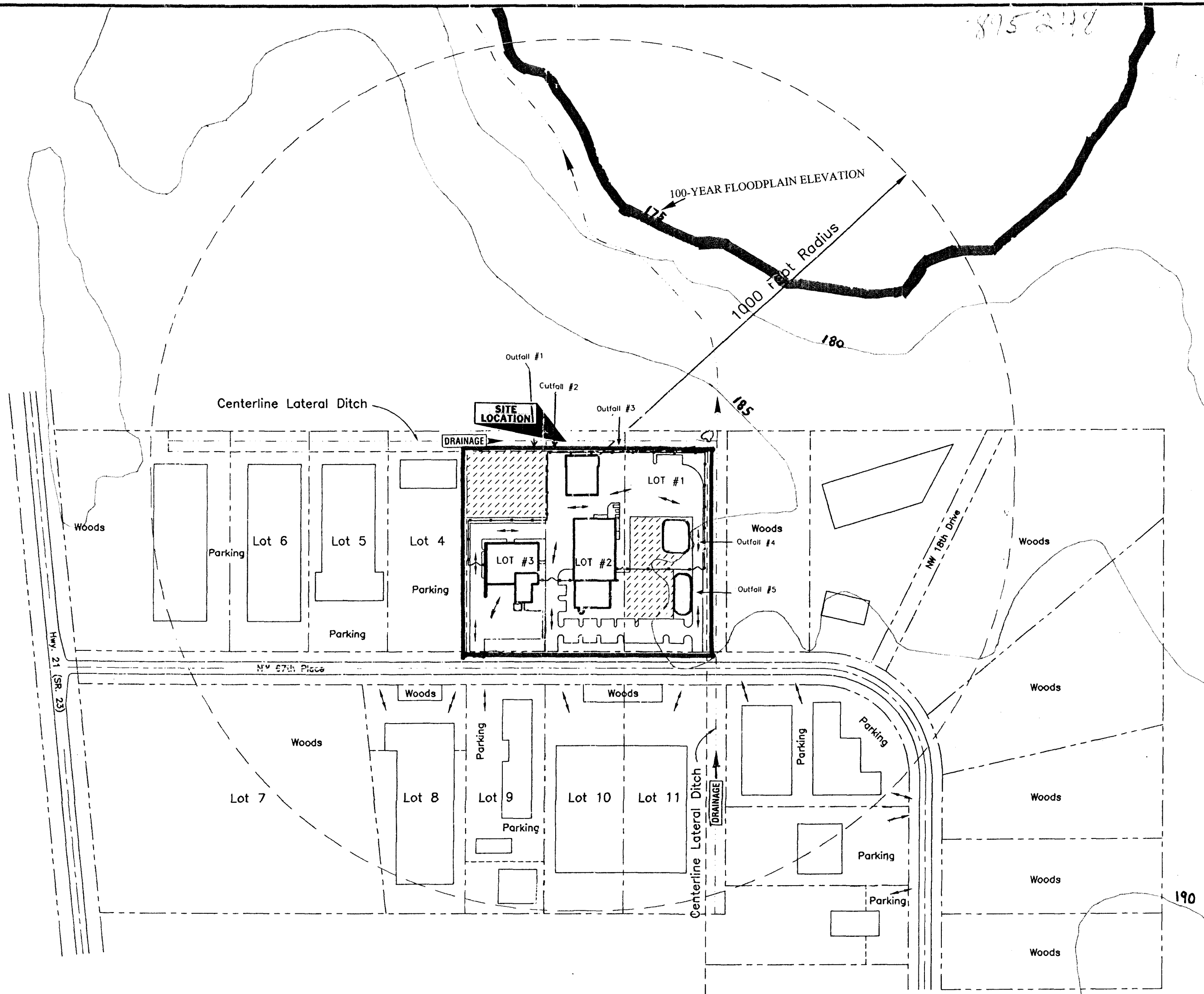
Bernhardt C. Warren

Date

Vice-President

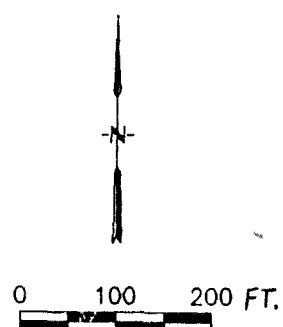
Perma-Fix Environmental Services, Inc.





NOTE: 100 YEAR FLOODPLAIN ELEVATION/LOCATION  
INFORMATION OBTAINED FROM FEMA FLOOD  
INSURANCE MAP # 1200010280A (9/28/84)

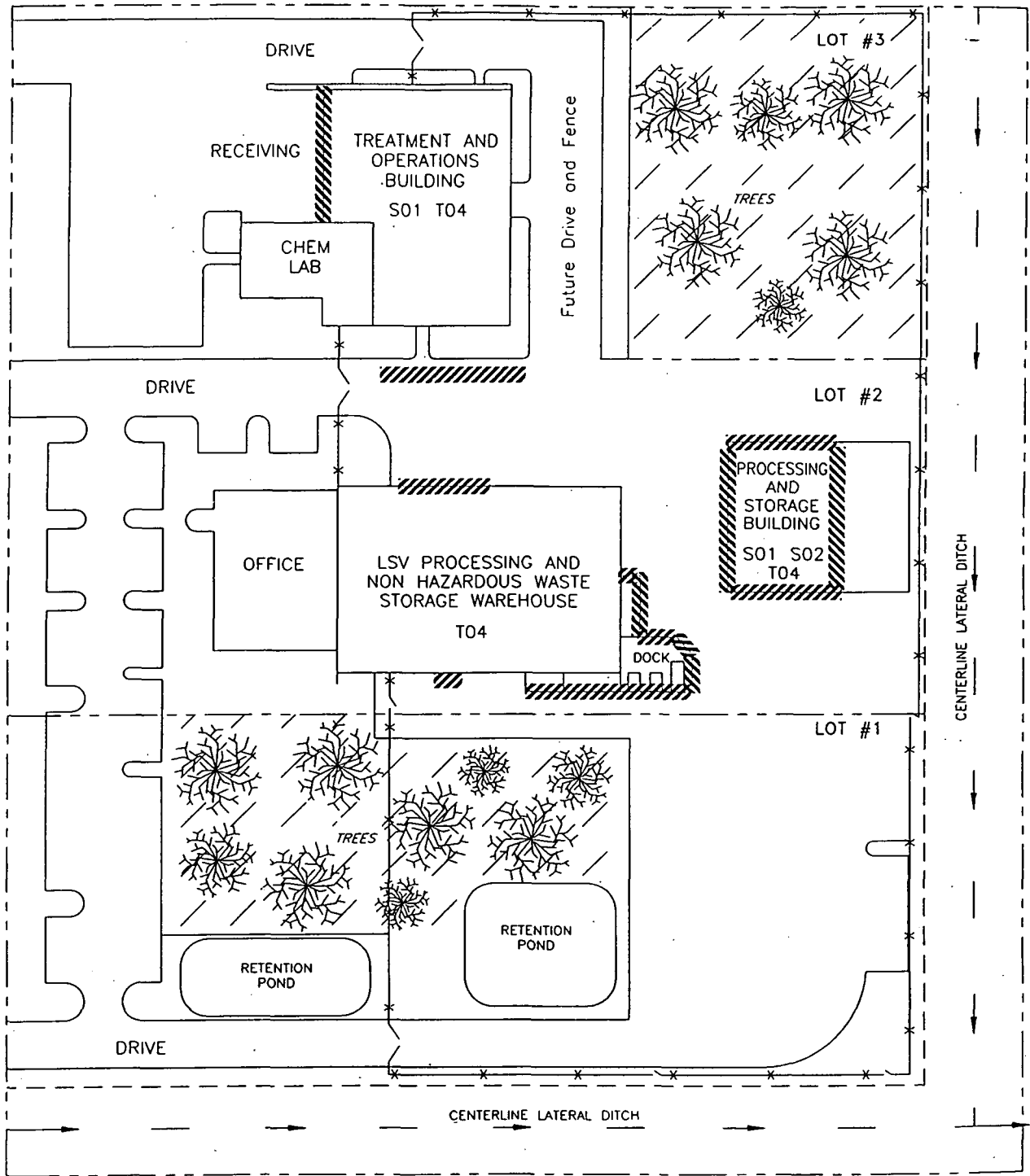
- 100-YEAR FLOODPLAIN ELEVATION
- PROPERTY LINE
- DRAINAGE EASEMENT
- TRAFFIC PATTERN
- WOODED AREA



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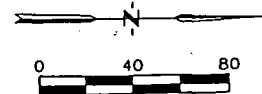
TITLE: <b>100-YEAR FLOODPLAIN AREA &amp; NPDES STORMWATER OUTFALLS</b>		
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL. 32653		
SCALE: 1"=200'	APPROVED BY:	DRAWN: SYA
DATE: June 19, 1998		REVISED:
PROJECT NUMBER: <b>PFIFLA970343</b>	DRAWING NUMBER: <b>Figure I.B.1.</b>	

NW 67th Place



- Property Line
- Drainage Easement
- ////// Loading Areas

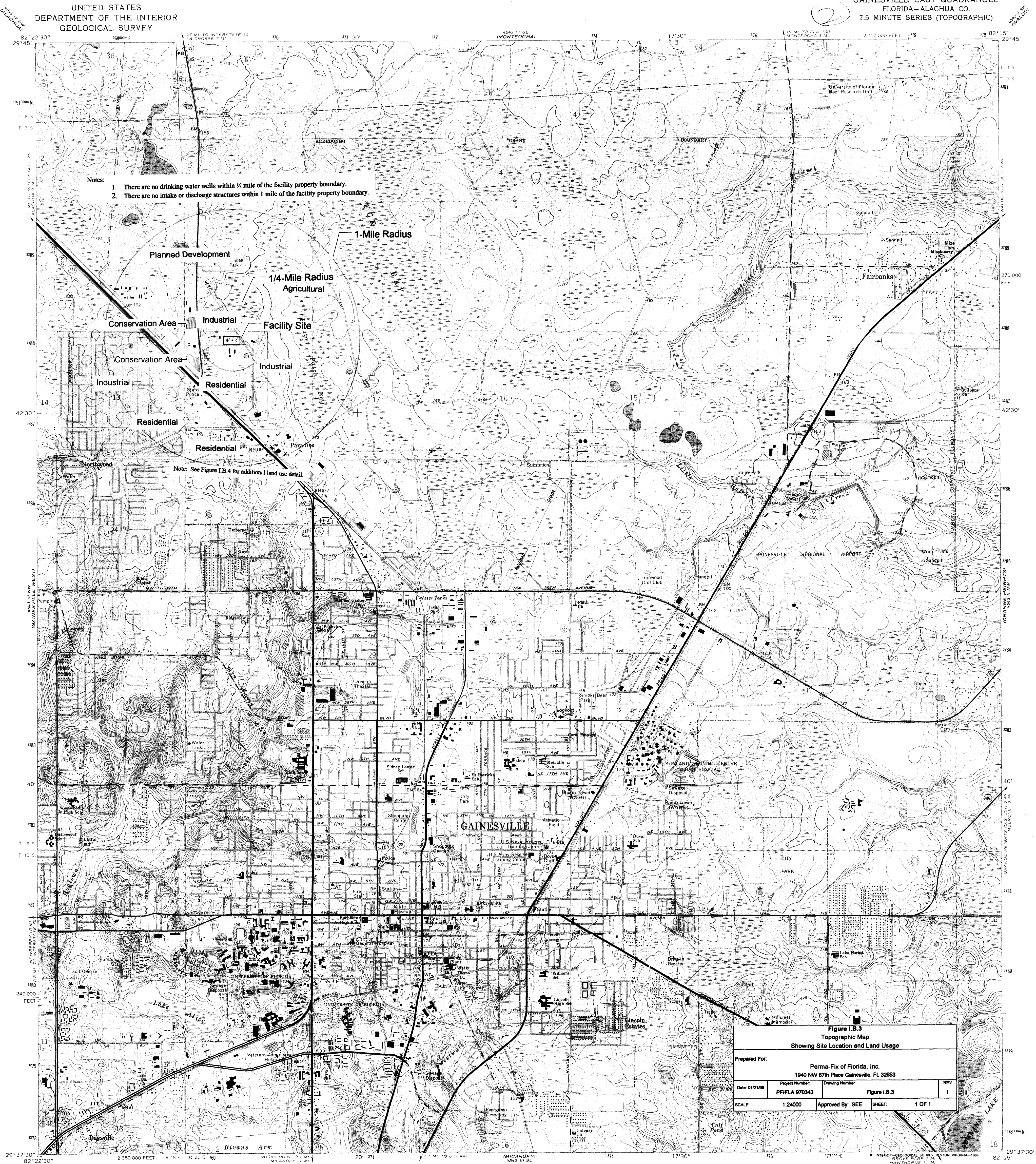
- S01 Hazardous Waste Container Storage
- S02 Hazardous Waste Tank Storage
- T04 Treatment Area



TITLE: <b>FIGURE I. B. 2</b> Waste Management Areas		
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1"=80'	APPROVED BY:	DRAWN: SYA
DATE: 6/17/98		REVISED: 5/20/98
PROJECT NUMBER: PFIFLA 970343		DRAWING NUMBER: PF0343-4

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Notes:  
1. There are no drinking water wells within 1/4 mile of the facility property boundary.  
2. There are no intake or discharge structures within 1 mile of the facility property boundary.

Planned Development

1-Mile Radius

1/4-Mile Radius  
Agricultural

Conservation Area

Industrial

Facility Site

Industrial

Residential

Industrial

Residential

Residential

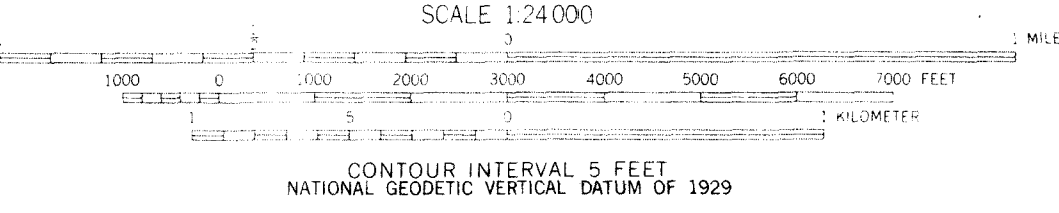
Note: See Figure I.B.4 for additional land use detail.

GAINESVILLE

Figure I.B.3 Topographic Map Showing Site Location and Land Usage			
Prepared For: Perma-Fix of Florida, Inc. 1940 NW 67th Place Gainesville, FL 32653			
Date: 01/21/88	Project Number: PFIFLA 970343	Drawing Number: Figure I.B.3	REV: 1
SCALE: 1:24000	Approved By: SEE	SHEET: 1 OF 1	

Mapped, edited, and published by the Geological Survey  
Control by USGS, NOS/NOAA, USCE, and Florida Geodetic Survey  
Topography by photogrammetric methods from aerial photographs  
taken 1964. Field checked 1966  
Polyconic projection. 10,000-foot grid based on Florida coordinate  
system, north zone. 1000-meter Universal Transverse Mercator  
grid ticks, zone 17, shown in blue 1927 North American  
Datum. To place on the predicted North American Datum  
1983 move the projection lines 23 meters south and 15  
meters west as shown by dashed corner ticks  
Fine red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unchecked  
Red tint indicates areas in which only landmark buildings are shown  
Dotted land lines established by private survey

UTM GRID AND 1988 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET



ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty ———  
Medium-duty ——— Unimproved dirt ———  
U. S. Route ——— State Route ———

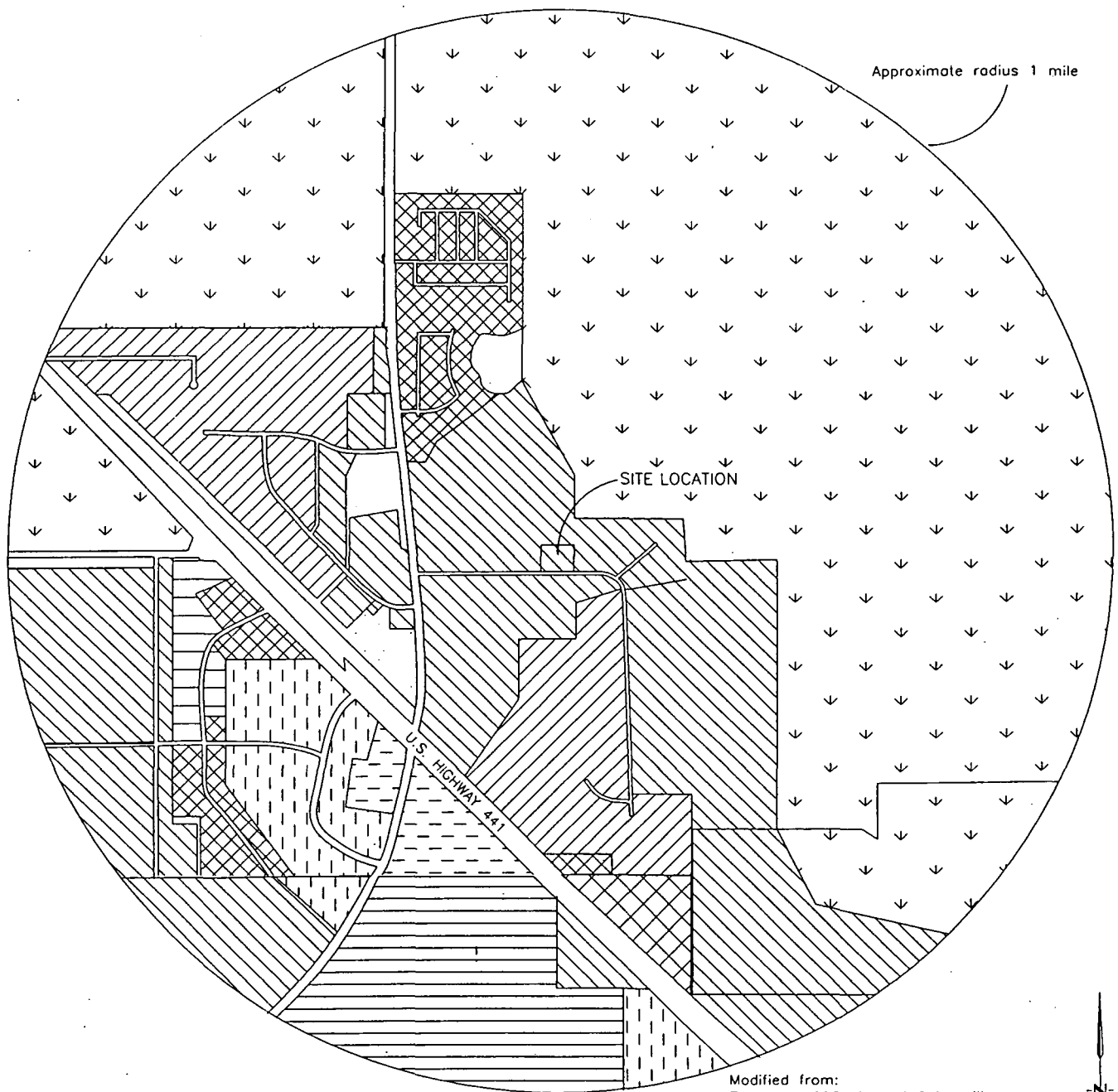
GAINESVILLE EAST, FLA.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs  
taken 1984 and other sources. This information not  
field checked. Map edited 1988  
Purple tint indicates extension of urban areas

29082-F3-TF-024  
1986  
PHOTOREVISED 1988  
DMA 4543 III NE—SERIES V847





- RESIDENTIAL MULTI-FAMILY MEDIUM DENSITY
- MIXED USE MEDIUM DENSITY
- AGRICULTURAL
- CONSERVATION AREA
- PUBLIC SERVICE
- PLANNED DEVELOPMENT

- RESIDENTIAL SINGLE FAMILY LOW DENSITY
- LIMITED INDUSTRIAL
- RESIDENTIAL SINGLE FAMILY MEDIUM DENSITY

Modified from:  
February 1998, City of Gainesville -  
Generalized Zoning Maps.

map	update	map	update
3248	08/96	3049	08/96
3249	09/97	3147	02/98
3047	06/98	3148	02/98
3048	08/96	3149	02/98
3247	08/96		

TITLE: Figure 1.B.4  
SURROUNDING  
LAND USE

PREPARED FOR:  
PERMA-FIX OF FLORIDA, INC.  
1940 NW 67th Place Gainesville, FL 32653

SCALE: 1" = 1500'	APPROVED BY:	DRAWN: SYA
DATE: 1-2-96	SEC	REVISED: 01-19-99
PROJECT NUMBER:	PFIFLA970343	DRAWING NUMBER: IB4

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ENVIRONMENTAL SERVICES

**ATTACHMENT I.B.1**  
**FACILITY PHOTOGRAPHS**

## FACILITY PHOTOGRAPHS

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MAIN ENTRANCE & RECEPTION



## FACILITY PHOTOGRAPHS

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MAIN ENTRANCE



LSV PROCESSING AND NON-HAZARDOUS  
WASTE STORAGE WAREHOUSE (TO4)  
LOADING DOCK

## FACILITY PHOTOGRAPHS

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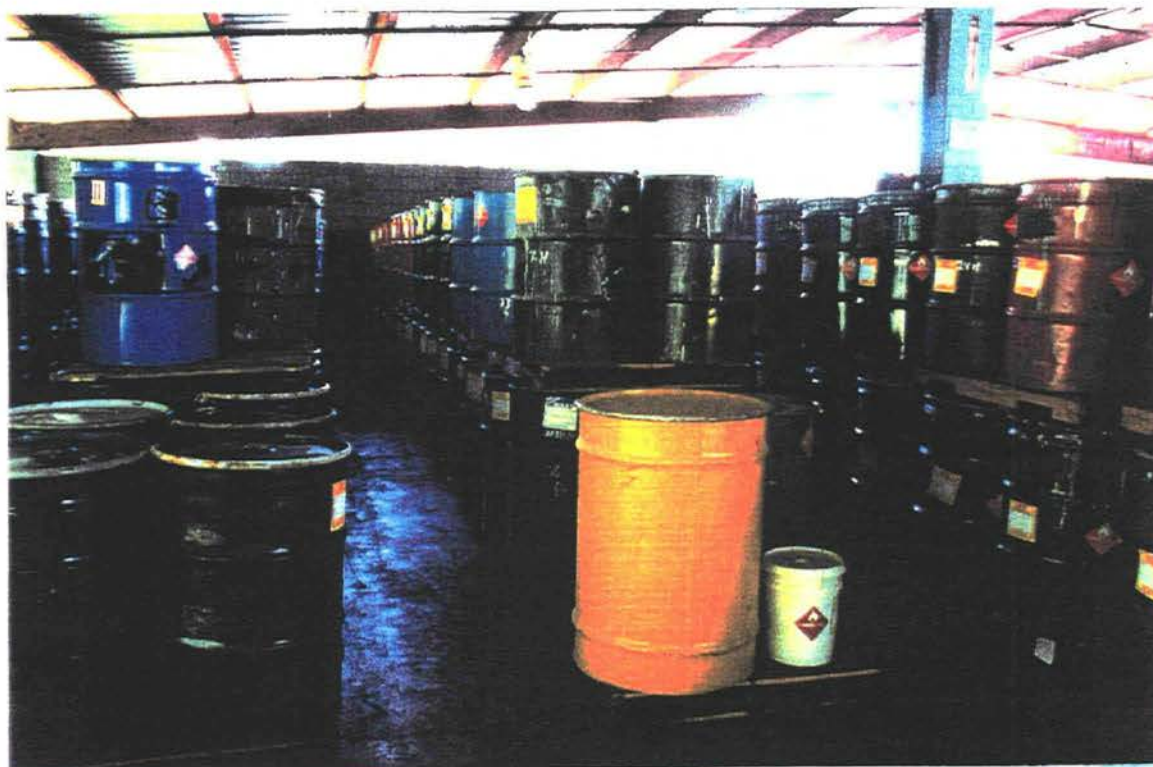


PROCESSING AND STORAGE BUILDING  
(S01, S02, T04)



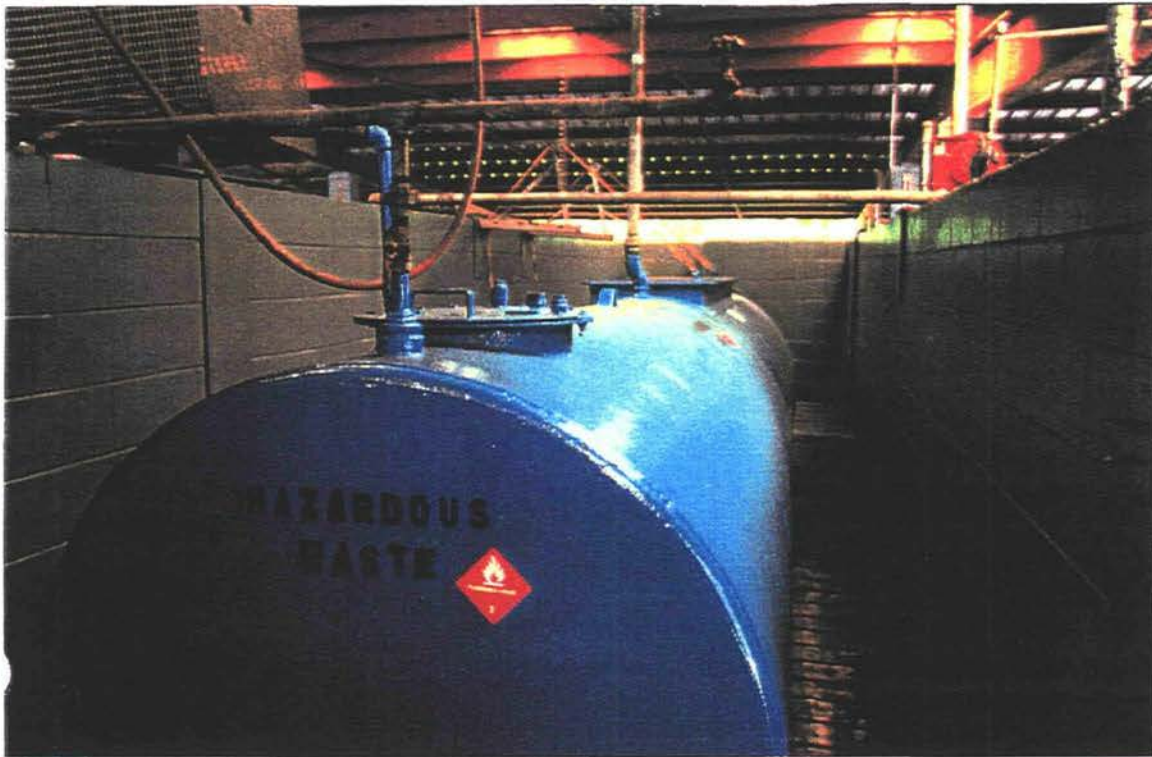


## FACILITY PHOTOGRAPHS



PROCESSING AND STORAGE BUILDING  
(S01, T04)

FACILITY PHOTOGRAPHS



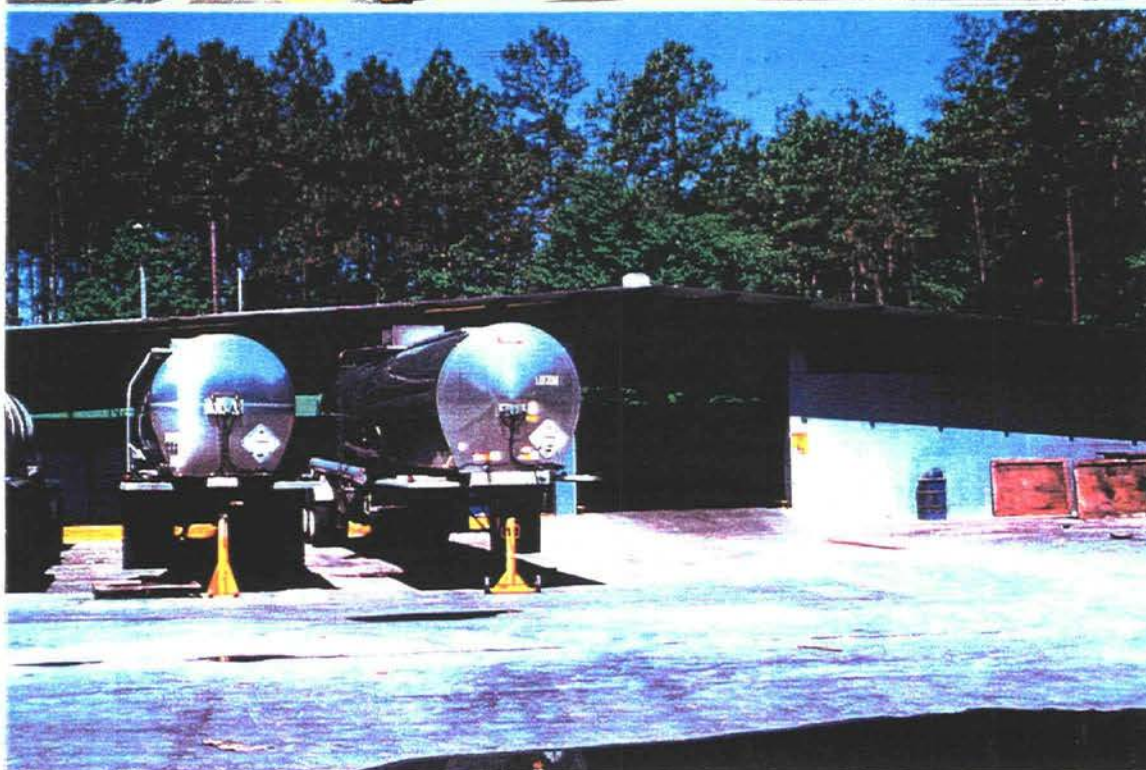
PROCESSING AND STORAGE BUILDING  
(S02 T04)



## FACILITY PHOTOGRAPHS



LSV PROCESSING AND NON-HAZARDOUS  
STORAGE WAREHOUSE (T04)  
HOUSEHOLD AND NONHAZ DRUM  
STORAGE



PROCESSING AND STORAGE BUILDING  
(S01, S02, T04)  
EMPTY TANKER PARKING



## FACILITY PHOTOGRAPHS



LSV PROCESSING AND NONHAZARDOUS  
WASTE STORAGE WAREHOUSE (T04)  
LSV DRUM STAGING AREA



LSV PROCESSING AND NONHAZARDOUS  
WASTE STORAGE WAREHOUSE  
LSV PROCESSING AREA



## FACILITY PHOTOGRAPHS

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PERMA-FIX  
ENVIRONMENTAL SERVICES

TREATMENT AND OPERATIONS BUILDING (S01, T04)  
(FORMER NESLON BUILDING)





## FACILITY PHOTOGRAPHS

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TREATMENT AND OPERATIONS BUILDING  
(S01, T04)



TREATMENT AND OPERATIONS BUILDING  
(T04)

**ATTACHMENT I.D.1****FACILITY DESCRIPTION****INTRODUCTION**

This section of the permit application provides a general description of facility operations. Additional details regarding the various waste management activities at the facility can be found in other parts of this permit application.

Perma-Fix of Florida, Inc., (PFF) a subsidiary of Perma-Fix Environmental Services, Inc. operates a commercial waste bulking, storage and transfer facility (Facility) in Gainesville, Florida. Waste managed on-site includes a wide variety of hazardous, industrial, mixed and non-hazardous wastes. Currently, the Facility separately blends hazardous, non-hazardous and mixed wastes into fuels for use in off-site incinerators, industrial furnaces, etc. to generate energy and power. The Facility also consolidates, repackages and sorts waste for shipment and off-site treatment and/or disposal. Current activities at the Facility also include the receipt and non-permanent storage of mixed wastes pursuant to a license issued by the Florida Department of Health, Bureau of Radiation Control.

Proposed activities at the Facility will include a variety of chemical and physical waste treatment activities. Specifically, PFF plans to receive, store and treat hazardous waste; treatment may include thermal desorption, chemical and physical extraction, chemical oxidation, stabilization and fixation and macroencapsulation. Proposed treatment operations at the Facility include the Perma-Fix® processes as well as treatment of hazardous debris in accordance with certain alternative treatment standards specified in 40 CFR 268.45. In addition, PFF is planning solvent recycling activities which are exempt from RCRA permitting requirements.

**Definition of Mixed Wastes**

Mixed wastes are wastes that are regulated by two primary agency groups, the U.S. Environmental Protection Agency (EPA) and U.S. Nuclear Regulatory Commission (NRC). The wastes could contain hazardous constituents subject to EPA regulation as well as radioactive materials that are regulated by the NRC. The State of Florida Department of Environmental Protection has been delegated authority to administer the RCRA program in the state. The NRC has an agreement with the State of Florida, Department of Health, Bureau of Radiation Control to carry out the regulatory functions regarding radioactive waste management, environmental concerns and employee safety at this facility. There are several waste streams described in the hazardous waste permit (i.e., hazardous waste fuels, metals, etc.) that may also be contaminated with radioactive materials. PFF understands that the wastes must be handled according to applicable hazardous waste management requirements; however, Bureau of Radiation Control regulations must also be followed. So, for purposes of this permit application, references to hazardous wastes may also include mixed wastes. There are certain situations where mixed wastes are specifically addressed. These are as follows:

- a) The 3,000-gallon tank in which only mixed wastes are temporarily blended and stored;
- b) The closure plan includes provisions for disposal for mixed wastes; and
- c) The authorized storage of mixed (hazardous/radioactive) wastes on-site longer than one year may occur pursuant to the facility's radioactive materials license. This license allows PFF to "decay" short-lived radioactive wastes and to perform research and work on the development of treatment options for mixed waste. These activities may take up to 3 years.

Therefore, this initial discussion of hazardous and mixed wastes provides an overall definition of the potential wastes on site. For purposes of the review of this permit application, the term "hazardous wastes" or "wastes" includes mixed wastes unless otherwise specified.

PFF is submitting this permit application in order to:

1. Renew its current Resource Conservation and Recovery Act (RCRA) permit to conduct the waste management activities noted above.
2. Obtain RCRA authorization to manage additional waste streams (i.e., add new waste codes to the permit) at the Facility, and to increase the maximum hazardous waste storage volume allowance.
3. Obtain RCRA authorization to treat hazardous wastes on site.

#### **Wastes Managed and Waste Management Activities**

The waste managed at the facility will come from a variety of sources including medical and research institutions, government agencies, paint and coatings manufacturers and users, solvent users, and other industries that generate hazardous wastes. The Facility will also receive wastes from a variety of conditionally exempt and small quantity generators. In addition, waste collected during various county household hazardous waste collection campaigns will be managed at the Facility.

The following information generally describes the waste management activities, which are being renewed or are proposed pending permit approval:

- The Treatment and Operations Building, which will be used to receive, store and treat hazardous and mixed wastes via thermal desorption chemical oxidation, stabilization and solidification and macroencapsulation. Future solvent recycling (RCRA exempt) via a solvent recovery distillation unit is also planned for this area<sup>1</sup>.

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<sup>1</sup> Vendor specifications for the planned distillation unit are enclosed at the end of this attachment for information purposes.

- The Processing and Storage Building, which is used to receive, store and blend hazardous and mixed waste into fuel for use at off-site facilities and to bulk wastes for transfer to off-site treatment and/or disposal facilities.
- The Liquid Scintillation Vials (LSV) Processing and Non-Hazardous Waste Storage Warehouse, which, in addition to the storage of non-hazardous waste, is used to receive, empty and decontaminate LSVs and other small containers or debris, and to treat hazardous waste via chemical and physical extraction (e.g., water washing, liquid phase solvent extraction).

The conduct of these activities will be driven by the nature of the waste streams received at the Facility. Table 1 at the end of this section summarizes the treatment methods and storage locations for waste streams to be managed at the Facility. Figures I.D.11.1 through I.D.11.4 are decision trees illustrating how incoming waste streams are evaluated and assigned a management (treatment and/or storage) tract within Facility operations.

As shown in Figure I.D.11.1, and addressed in detail in the Facility Waste Analysis Plan, all incoming waste is subjected to a "fingerprint" set of analyses to verify conformance with the generator waste profile and analytical results required for each waste stream to be accepted at the Facility. The generator profile and analytical information, along with the fingerprint analyses performed by the Facility, allow for the determination of the waste stream's acceptability and proper management at the Facility.

## **DESCRIPTION OF OPERATIONS**

### **Treatment and Operations Building (Planned Activities)**

#### **Container Storage**

The Facility will receive and store up to 640 drum equivalents (or 35,200 gallons) of hazardous and/or mixed waste in the Treatment and Operations Building. See Figure I.D.1 for the proposed container storage configuration. Additional details regarding container management practices are provided in Section II.B of this permit application.

#### **Treatment**

Hazardous wastes may be treated in the Treatment and Operations Building via either one or both of two proprietary processes known as the Perma-Fix® Process (stabilization and fixation) and Perma-Fix® II Process (thermal desorption and/or chemical oxidation). See Figure I.D.1 for the general layout of the Treatment and Operations Building. The following provides a general description of the treatment processes. Additional details regarding the treatment processes are provided below, in Appendix II.B.1, and Section II.I of this permit application. See Figure I.D.12 for a detailed illustration of the Perma-Fix treatment processes and a list of associated equipment.

**The Perma-Fix Process** is a two-step procedure for permanent stabilization and/or solidification of characteristic hazardous and mixed wastes. As indicated in Figure I.D.11.2, the characteristic inorganic wastes which do not contain organic hazardous constituents in excess of applicable land disposal restriction levels are target waste streams for the Perma-Fix Process. First, the waste is evaluated for specific chemical characteristics in order to identify the appropriate proprietary treatment "recipe" for converting the key waste constituents to a more chemically stable and insoluble form. After receiving chemical stabilization treatment, the waste is solidified in a pozzolonic matrix to "fix" the key waste components into a dense, impermeable, acid resistant, siliceous monolithic mass.

Once subjected to the Perma-Fix Process, the treated waste is sampled to determine whether it meets the desired treatment standards (e.g., whether the waste no longer exhibits a hazardous waste characteristic and/or meets applicable land disposal restrictions). Typically, the Perma-Fix® Process is applied to wastes in drums. However, larger or smaller containers may be used depending upon the nature of the waste to be treated. In any event, the waste is usually stabilized and solidified in the same container to be used to ship the waste off site for disposal. In some instances, the addition of treatment additives will increase volume such that the stabilized waste must be transformed to an additional or larger container prior to solidification.

The Perma-Fix Process will generate relatively small quantities of secondary waste consisting primarily of personal protective equipment (PPE) and plastic sheeting used to collect any incidental spillage of the treated waste or waste treatment materials. Secondary waste will be appropriately characterized, treated and/or disposed. Additional details regarding the Perma-Fix process are provided in Appendix II.B.1 in Part II of this permit application.

**The Perma-Fix II Process** consists of two primary steps. The first step involves thermal desorption to separate the majority of volatile, semi-volatile and other organic constituents from the waste matrix and collect them for off-site treatment and/or disposal. The second (optional) step is chemical oxidation to destroy remaining organic compounds. As indicated in Figure I.D.11.3, target waste streams for the Perma-Fix II Process are organic contaminated media (i.e., soils and sludges.)

To begin the process, contaminated media (waste) and, if necessary, water are introduced into a reactor vessel and thoroughly mixed to form a homogeneous mixture. Depending on the matrix (nature of the waste), surfactants or organic solvents may be added to the mixture to facilitate mobilization of waste constituents. Heat is applied to the reactor vessel to desorb the organic constituents from the contaminated media. The heat vaporizes the water, volatile and semi-volatile organic constituents. In a condenser unit, vapors being emitted from the reactor vessel condense and accumulate in a collection vessel. The collection vessel for the condensate may be partially filled with an organic liquid (e.g., mineral oil or diesel fuel) to extract the organic constituents from the condensate. The condensate accumulated in the collection vessel will be managed according to its fluid phase characteristics. An inert atmosphere (e.g., nitrogen blanket) will be provided for the process.



If an organic liquid is present or the concentration of volatilized organic constituents is great enough, two immiscible phases will evolve. If not, a water phase will evolve. If an organic phase does exist, it will be containerized and sent off site to an appropriately authorized facility for treatment and/or disposal.

Depending on the process operating conditions and input, the concentration of organic constituents in the water phase may be significant. If the concentration of organic constituents is low enough, the water may be accumulated and reused in the reactor to slurry additional waste or to prepare the solidification media if the waste is to be stabilized/solidified using the Perma-Fix Process. Alternatively, the condensate may be containerized and sent off site to an appropriately authorized facility for treatment and/or disposal.

Depending on the initial concentration, volatility, and solubility of the organic constituents, the second Perma-Fix II Process treatment step (chemical oxidation) may not be required. Upon completion of the thermal desorption step, the temperature inside the reactor vessel will be allowed to cool to below the boiling point of water and an oxidizing solution will be added to chemically react with the residual organic constituents in the waste. Upon completion of the oxidation reaction, the reactor vessel will be heated once again to the boiling point to destroy any residual oxidizer and dry the slurry as appropriate for further treatment and/or disposal.

If the waste is to undergo further treatment on site via the Perma-Fix Process, the remaining contents of the reactor vessel will not be heated in order to retain any free water present. (The free water is necessary for the Perma-Fix Process.) If the stabilization/solidification of inorganic or other constituents (i.e., Perma-Fix Process) is not required, the contents of the reactor vessel will be de-watered and placed in containers for shipment to an authorized treatment and/or disposal facility. Figures I.D.2, I.D.3 and I.D.12 illustrate the Perma-Fix II Process.

### **Solvent Recycling**

The following information is included for informational purposes only since spent solvent recycling/reclamation is exempt from RCRA permitting requirements. The Facility plans to recycle spent solvents (e.g., Freon) generated by various industrial generators. A low-temperature still or distillation unit will be used to separate the re-useable solvents from contaminants. The reclaimed solvent will be returned to the generator for reuse or to a vendor for resale. The separated contaminants will be containerized or managed in on-site process. If hazardous, waste not managed on site will be shipped off-site for subsequent treatment and/or disposal by an authorized hazardous waste facility. Ancillary activities and equipment will be conducted and operated in accordance with applicable regulations. Applicable emissions control requirements are addressed in Section II.R of this permit application. Vendor specifications for the planned distillation unit are enclosed in Appendix B for information purposes.

## **Processing and Storage Building**

### **Fuel Blending**

The majority of waste managed at the Facility is expected to be energy-bearing (organic) hazardous waste suitable for blending and use as a fuel in hazardous waste combustors such as boilers and cement kilns. PFF is proposing to add phase separation and decanting (Fuel Blending) to the list of permitted activities at the Facility to allow for the blending of energy-bearing hazardous wastes that have significant water content.

Currently, the bulking of ignitable liquid hazardous waste from drums and other containers to tankers is performed in the Processing and Storage Building. With this permit application, PFF is proposing to perform phase separation of water in addition to the bulking activities.

Currently, the method for bulking of hazardous waste fuel is to transfer "pumpable" liquids (those that pass the paint filter test) from 55-gallon drums into 450-gallon totes, 550-gallon totes, or directly into a tanker truck using a 2-inch diaphragm pump and hose. The suction hose is attached to a metal wand that is immersed in the liquid waste. The discharge hose is fitted with an immersion wand that remains submerged in the tanker during transfer, so as to reduce emissions.

After all pumpable liquids have been transferred out of the waste container, a small amount (5 to 10 gallons) of hazardous waste solvent is pumped into the drum from the 3,000-gallon bulk storage tank using a 2-inch diaphragm pump. The solvent mixes with the heel or sludge to make the mixture pumpable. The mixture is then pumped into the totes or tanker using the suction hose, pump and discharge hose previously described. The tanker is equipped with an agitator to keep the solids suspended while in transport.

Perma-Fix proposes adding phase separation to the current fuel bulking procedures. In this process, liquid hazardous waste containing excess water will be transferred from smaller containers such as 55-gallon drums into 550-gallon totes and allowed to sit until the excess water separates from the rest of the waste (approximately 3 to 5 hours). Then, the water will be drawn from the totes using the previously described suction wand and pump, containerized and treated or disposed of as a hazardous waste. The remaining hazardous waste will be bulked into a tanker using the methods previously described. See Figure I.D.4 for the layout of the Processing and Storage Building.

### **Container Storage**

The Facility will continue to receive and store up to 1311 drum equivalents (or 72,105 gallons) of hazardous and/or mixed waste in the Processing and Storage Building. See Figure I.D.4 for the layout of the Processing and Storage Building and a typical container storage configuration. Additional details regarding container management practices are provided in Section II.B of this permit application.

**Chemical Extraction, Physical Extraction and Macroencapsulation (Including Debris Treatment)** will also be occasionally conducted on hazardous debris in the LSV Processing Area. These activities will consist of the use of high-pressure steam and water sprays, surfactants, acids, bases, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers. Decontaminated materials will be shipped off site for reuse, reclamation or disposal depending upon the nature of the material. The contaminated media or rinsate generated as a result of the decontamination process will be properly characterized, containerized and, if hazardous, manifested and shipped off site to an authorized treatment, storage and/or disposal facility. If appropriate, contaminated media and/or treatment residuals may be subjected to macroencapsulation or stabilization and fixation prior to shipment to an authorized disposal facility.

As indicated in Figure I.D.11.4, the appropriate debris treatment method depends on the physical characteristics of the debris to be treated. For example, debris with a porous surface would require chemical extraction and non-porous debris is suitable for physical extraction. The debris treatment methods (alternative treatment standards) are technologically simple, performance oriented and specified at 40 CFR 268.45, Table 1. PFF will conduct all debris treatment in accordance with the applicable requirements of 40 CFR 268.45 (and Table 1).

Appropriate containment is in place to accommodate the above treatment activities. Additional details regarding planned debris treatment operations are provided in Appendix A.

### **Solid Waste Management**

Solid, non-hazardous wastes such as rags, paper, cardboard, plastic oily sludges, oil contaminated absorbents, crushed glass and plastic containers will also be received at the Warehouse for bulking and shipment to an authorized treatment, storage and/or disposal facility (TSD). These wastes are managed by simply bulking them into a 30-cubic yard roll-off container lined with 6-mil plastic sheeting. The roll-off containers are then covered with a tight tarpaulin and staged in the driveway between the Warehouse and the Treatment and Operations Building. The roll-offs are then transported, within 24 hours, to a waste-to-energy facility for disposal.

### **Miscellaneous Waste Storage and Transfer**

Used oil, (including used oil regulated under 40 CFR 279), used oil filters, mercury-containing lamps (PFF is registered with the Florida Department of Environmental Protection to operate as a consolidation point for recyclable mercury containing lamps and devices), used antifreeze and other miscellaneous non-hazardous wastes will be received, bulked and stored in the Warehouse. These wastes will be physically separated from any mixed wastes staged in the Warehouse by berms, containment curbs, etc. Spent mercury-containing lamps will be managed in accordance with F.A.C. 62-737. The mercury-containing lamp storage location is indicated on Figure I.D.7.

**WASTE GENERATED ON-SITE**

During the course of the waste management activities describe above, PFF may generate a variety of hazardous wastes including; spent solvent/water mixtures used to rinse and decontaminate equipment and debris, soiled personal protective equipment, treatment residuals, and other incidental wastes. PFF will comply with the applicable requirements of 40 CFR 260-268, 270 (hazardous waste) and 279 (used soil), as well as F.A.C. 62-710 (used oil), 62-730 (hazardous waste), and 62-740 (petroleum contact water) when managing these on-site generated wastes. The Facility will not engage in any waste generation activity other than that described in this and the preceding paragraphs.

**MISCELLANY**

The waste management capacity of the site is dictated by the process design capacity of the treatment equipment, layout of the container storage areas and tank storage capacity. This information is addressed in the completed Part I application forms. Table 1 summarizes the treatment methods and storage locations for waste streams to be managed at the Facility. It is anticipated that the PFF Facility will remain in operation at least until the year 2050.

**TABLE 1****Summary of Treatment Methods and Storage Locations**

Waste Description	Perma-Fix ®	Perma-Fix ® II	Physical Extraction	Chemical Extraction	Macroencapsulation	Phase Separation	Storage Location <sup>1</sup>
Liquid Scintillation Fluid							T
Energy-Bearing Pumpable Liquid							2, 3
Energy-Bearing Pumpable Liquid with high water content						X	1
Hazardous Wastewater							1
D002 wastes							4,5,6,7
D003 wastes		X					10
D004-D011 aqueous waste with no organics > LDR levels	X						8
D004-D011 non-aqueous waste with no organics > LDR levels	X						8
D004-D011 wastes with organics > LDR levels (includes D012-D043 and F001-F005)	X	X					8
Debris (non-porous)			X				8
Debris (porous)				X			8
Debris treatment residuals	X	X			X		8

<sup>1</sup> = T - aboveground storage tank; 1-3 - storage zone in Processing and Storage building; 4-10 - storage zone in Treatment and Operation building. See Figures I.D.1 and I.D.4.

**Appendix A**  
**Debris Treatment Processes**

## Appendix A

### Debris Treatment

#### Process Description

PFF proposes to treat debris using the "Alternative Treatment Standards for Debris" described in 40 CFR 268.45 Table 1. The alternative treatment technologies proposed will either be performed in conjunction with or exclusive of the Perma-Fix process and Perma-Fix II process. The technologies which are predicted to be performed in conjunction with (or purely by) the Perma-Fix® and Perma-Fix® II process are thermal desorption, chemical oxidation, and stabilization and fixation. The details of these processes can be found in Sections II.B and II.I.

The other planned treatment technologies include physical extraction (scarification, grinding and planing; spalling; and, high pressure steam and water sprays) and chemical extraction (water washing and spraying, liquid phase solvent extraction).

All debris will be sorted and segregated from any non-debris prior to size reduction and treatment. Sorting and segregating will consist simply of picking out the debris from the original shipping container and placing it into another container. Size reduction will be performed using hand-operated power tools (e.g., circular saw, reciprocating saw) in the debris treatment vat so that any dust and particles created by the size reduction are captured by the emissions control system. Debris will be received and stored prior to and after treatment based on its hazardous characteristics and/or assigned waste code(s). See Table 1, Summary of Treatment Methods and Storage Locations, at the end of Attachment I.D.1.

#### Physical Extraction

Physical extraction is the removal of the surface layer of a hazardous debris using various abrasive tools and procedures. This alternative treatment technology has been approved for the treatment of the following types of hazardous debris: glass, metal, plastic, rubber, brick, cloth, concrete, paper, pavement rock and wood. The specific details regarding each procedures are as follows:

- *Scarification, Grinding, and Planing* - Process utilizing striking piston heads, saws, or rotating grinding wheels such that contaminated debris surface layers are removed.
- *Spalling* - Drilling or chipping holes at appropriate locations and depth in the contaminated debris surface and applying a tool which exerts a force on the sides of those holes such that the surface layer is removed. The surface layer removed remains hazardous debris subject to the debris treatment standards.

### Appendix A (cont.)

- *High Pressure Steam and Water Sprays* - Application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers.

The proposed alternative treatment technologies will be performed in the LSV processing area. The LSV processing area will be equipped with a stainless steel vat measuring approximately 88" x 40" x 87" which is sufficient in size to accommodate all anticipated forms of debris. Figure 1.D.9 illustrates the location of the vat inside the LSV processing area. The vat will be a trough equipped with a mobile screen attached to a pulley. The screen will be raised and lowered into and out of the vat using the pulley. Treatment residuals will fall through the screen and into the vat where they will be removed by pumping or, in the case of solids, using hand tools (e.g., shovels, hoes). The vat will be equipped with an emissions control hood which is vented directly to the facility air pollution control system.

The debris will be treated using the aforementioned physical extraction methods as follows:

- For *Glass, Metal, Plastic, Rubber* - Treatment will continue until a clean debris surface is achieved. "Clean debris surface" means that the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discoloration. Soil and waste may be present in cracks, crevices, and pits provided that such waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.
- For *Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood* - Treatment will continue until at least 0.6 cm of the surface layer has been removed, and a clean debris surface is achieved.

PFF is aware that acids, solvents, and chemical reagents may react with some debris and contaminants to form hazardous compounds. Therefore, prior to debris treatment, all applicable safety precautions specified in Material Safety Data Sheets and discussed in industrial hygiene publications will be reviewed.

The treatment residue generated from the physical extraction process will be separated from the treated debris using simple physical or mechanical means, (e.g., by screening). Treatment residuals will be containerized and, prior to being manifested to an off-site hazardous waste disposal facility, may be treated using the Perma-Fix® or Perma-Fix II process, in accordance with the waste-specific treatment standards of 40 CFR 268 Subpart D. Treatment residual candidates for the Perma-Fix or Perma-Fix II processes are solids (e.g., soil) containing organic and inorganic hazardous waste constituents in excess of applicable land disposal restriction standards. The treated debris will be managed and disposed of off-site in accordance with the conditioned exclusion provided by 40 CFR 268.45(c).



## Appendix A (cont.)

### Chemical Extraction

Chemical extraction is the removal of hazardous contaminants from the surface layer of a hazardous debris using water sprays, chemical surfactants, acids, bases, detergents, and non-aqueous liquid solutions. This alternative treatment technology has been approved for the treatment of the following types of hazardous debris: glass, metal, plastic and rubber. This procedure is also approved for brick, cloth, concrete, paper, pavement, rock and wood with the following conditions:

1. The debris must be no more than 1.2 cm in one dimension.
2. The debris must be in contact with the cleaning solution for 15 minutes.
3. If reduction of particle size to meet the treatment standards results in a material that no longer meets the 60 mm minimum particle size limit for debris, the material is subject to the waste-specific treatment standards for the waste contaminating the material, unless the debris has been cleaned and separated from the contaminated soil and waste prior to size reduction. At a minimum, simple physical or mechanical means must be used to provide such cleaning and separation of non-debris materials to ensure that the debris surface is free of caked soil, waste, or other non-debris material.

The specific details regarding each procedure are as follows:

- *Water Washing and Spraying* - Application of water sprays or water baths of sufficient temperature, pressure, residence time, agitation, surfactants, acids, bases, and detergents, to remove hazardous contaminants from debris surfaces and surface pores or to remove the contaminated debris surface layer.
- *Liquid Phase Solvent Extraction* - Removal of hazardous contaminants from debris surfaces and surface pores by applying a nonaqueous liquid or liquid solution which causes the hazardous contaminants to enter the liquid phase and be flushed away from the debris along with the liquid or liquid solution while using appropriate agitation, temperature, and residence time.

The debris will be treated using the aforementioned chemical extraction methods as follows:

- For *Glass, Metal, Plastic, Rubber* - Treatment will continue until a clean debris surface is achieved. "Clean debris surface" means that the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

### Appendix A (cont.)

- *For Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood* - Treatment will continue until the contaminant has solubilized to 5% by weight in water solution or 5% by weight in emulsion.

It is anticipated that high-flash mineral spirits will be the most commonly used extraction solvent for the liquid phase solvent extraction procedure. Other extraction solvents will include ethanol and industrial soaps. Treatability study results have shown that most hazardous waste constituents can be effectively treated using high-flash mineral spirits as an extraction solvent. Bench top experiments will be performed on new debris waste streams to determine whether the high-flash mineral spirits is an appropriate solvent for the prospective treatment candidate. Bench testing for solubility consists of adding a 10:1 ratio (by weight) of mineral spirits to hazardous constituent. If no meniscus forms in the mixture, the hazardous constituent is presumed to be at least 5% soluble.

If this technology is ever implemented for waste codes F020, F021, F022, F023, F026, or F027, an application for "Equivalent Technology" approval will be filed prior to the commencement of treatment. PFF is aware that acids, solvents, and chemical reagents may react with some debris and contaminants to form hazardous compounds. Therefore, prior to debris treatment, all applicable safety precautions specified in Material Safety Data Sheets and discussed in industrial hygiene publications will be reviewed.

The treatment residue generated from the physical extraction process will be separated from the treated debris using simple physical or mechanical means (e.g., by screening). Treatment residuals will be containerized and, prior to being manifested to an off-site hazardous waste disposal facility, may be treated using the Perma-Fix or Perma-Fix II process, in accordance with the waste-specific treatment standards of 40 CFR 268 Subpart D. Treatment residual candidates for the Perma-Fix or Perma-Fix II processes are solids (e.g., soil) containing organic and inorganic hazardous waste constituents in excess of applicable land disposal restriction standards. The treated debris will be managed and disposed of off-site in accordance with the conditioned exclusion provided by 40 CFR 268.45(c).

The non-debris which was separated from the debris prior to treatment, and the spent solvent will be manifested to an off-site hazardous waste disposal facility or managed in on-site processes (as applicable).

### Waste Code Tracking

PFF will assign and track waste codes for treatment residuals and treated debris in accordance with 40 CFR 268.45 and 40 CFR 261.3(f)(1). Hazardous debris that exhibits the characteristic of ignitability, corrosivity, or reactivity will be deactivated by treatment using one of the technologies identified in Table 1 of 40 CFR 268.45 (and described in the permit application) or retain the appropriate characteristic waste code. Residue from the deactivation of ignitable, corrosive or reactive characteristic hazardous debris (other than cyanide-reactive wastes) that is not contaminated with a listed waste hazardous constituent will also retain the appropriate characteristic waste code unless it is deactivated. Toxicity characteristic debris treatment

## Appendix A (cont.)

residuals will remain subject to the waste code(s) and treatment standards for the toxic constituent(s) for which the debris exhibited the toxicity characteristic. Residuals from the treatment of debris contaminated with listed waste will remain subject to the treatment standards and waste codes assigned for those constituents or wastes. Hazardous debris that has been treated using one of the proposed extraction technologies in conformance with 40 CFR 268.45 and that does not exhibit a hazardous characteristic will not be a hazardous waste and will not be assigned any waste codes.

### Environmental Performance Standards

#### Release Prevention

The debris treatment train is located, designed, constructed, operated, maintained, and will be closed in a manner that will ensure protection of human health and the environment. The hydrogeologic, geologic, and meteorologic factors of concern for the PFF Facility site and surrounding areas are addressed in Section A of this permit application. For purposes of ensuring protection of human health and the environment, PFF proposes to design and operate the debris treatment equipment in conformance with applicable container standards. Appropriate secondary containment and air emission controls will be incorporated into the design and operation of the equipment and run on and run off of precipitation or liquids from the debris treatment area will be controlled. See Part II, Section B of this permit application for details regarding containment, management of ignitable, reactive and incompatible wastes, condition and management of containers, inspections and prevention of run on and accumulation of precipitation in the Treatment and Operations Building and LSV area where the debris treatment operations will take place.

#### Prevention of Releases to Groundwater or Subsurface Environment

Releases to groundwater or the subsurface environment from the debris treatment train are extremely unlikely for the following reasons:

- Relatively small volumes of waste are incorporated into the debris;
- Debris will be treated within secondary containment systems designed to collect liquids generated during processing. The containment system is coated with a chemically resistant material which is compatible with the waste streams designated for processing.
- The treatment areas are inspected daily in accordance with the facility inspection plan. Leaks or spills from the system are cleaned up within 24 hours of discovery or as soon as it is practicable and safe to do so.
- The areas are located within buildings physically separated from the subsurface environment and groundwater.

### Appendix A (cont.)

- The facility maintains a Contingency Plan to provide a framework for facility response to emergencies such as spills, fires, or explosions. This plan provides procedures to respond to treats to human health or the environment from the system.

#### Prevention of Releases to Surface Water, Wetlands, or Soil Surface

Releases to surface water, wetlands, or soil surface are extremely unlikely for the following reasons:

- Relatively small volumes of waste are incorporated into the debris;
- Debris will be treated within secondary containment systems designed to collect liquids generated during processing. The containment system is coated with a chemically resistant material which is compatible with the waste streams designated for processing.
- The treatment areas are inspected daily in accordance with the facility inspection plan. Leaks or spills from the system are cleaned up within 24 hours of discovery or as soon as it is practicable and safe to do so.
- The areas are located within buildings physically separated from the subsurface environment and groundwater.
- The facility maintains a Contingency Plan to provide a framework for facility response to emergencies such as spills, fires, or explosions. This plan provides procedures to respond to treats to human health or the environment from the system.

#### Prevention of Releases to Air

Releases to air from the Perma-Fix® II treatment train are extremely unlikely for the following reasons:

- The system is located within building areas equipped with emissions control devices. The emissions control system is designed to handle the volume of organic emissions anticipated from the process.
- Emissions at the loading point are minimized by limiting the time the debris is exposed to the atmosphere prior to processing.
- Emissions during unloading are minimal because the potential contaminants will be significantly removed during processing.

## **Appendix A (cont.)**

### **Monitoring and Inspections**

The debris treatment process will be monitored by PFF personnel during processing operations. Loading and unloading will be conducted manually (or automated equipment will be manually operated).

The debris treatment areas will be visually inspected each operating day for evidence of leaks or spills; the inspection will be in accordance with the requirements of the facility inspection plan. The secondary containment systems will also be inspected each operating day for evidence of cracks or breaches in containment as specified in the facility inspection plan.

### **Potential Pathways of Exposure of Humans or Environmental Receptors**

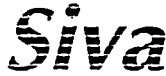
PFF workers within the treatment areas are the most likely human receptors for chemicals or chemical constituents released from the debris treatment process. The exposure is anticipated to be minimal because of the emission control devices provided for the areas. The primary pathway for human receptors from debris treatment processes is air. Specifically, air emissions (volatiles or particulates) generated during treatment processes. Where appropriate, water may be applied during processing to minimize the generation of particulates.

Operating personnel operating (or personnel present in the treatment areas for any other reason) will be required to wear Personal Protective Equipment (PPE) selected to address the potential hazards identified for the wastes to be managed and the operating parameters of the system. The PPE selected will be in accordance with OSHA standards and may include use of particulate/radioactive/organic respirators (as appropriate).

Environmental receptors such as soil, surface water, groundwater, and air are unlikely to be impacted by the debris treatment processes because of the air controls provided for the treatment areas, containment systems and location within buildings physically separated from soils and protected from precipitation, run-on and run-off.

**Appendix B**  
**Solvent Distillation**





A Division of Pneumatic Products Corporation

## M-110 SOLVENT RECOVERY SYSTEM

### Standard Terms and Specifications

#### 1.0 SCOPE

1.1 This Proposal covers standard terms and specifications for the sale of one (1) M-110 solvent recovery distillation unit and accessories ("M-110 System") by Siva, a Division of Pneumatic Products Corporation ("SIVA"), as summarized below and described herein:

- One (1) 30,000 watt, M-110 distillation unit with wetted parts of 304 stainless steel; explosion-proof light; elevated base stand; and on-board, microprocessor control system with LCD and LED operating displays and trouble-shooting indicators (480V, 3Ph, 60Hz)
- One (1) automatic level-controlled fill system

1.2 Siva's "*Standard Terms and Conditions*" included herein as "*Exhibit C*" shall apply to this Proposal. Siva reserves the right to change the terms and specifications of this Proposal at any time.

#### 3.0 EQUIPMENT SPECIFICATIONS

3.1 Size and Approximate Weights of Vessels and Assemblies:

<u>VESSEL</u>	<u>SIZE</u> <u>(W x D x H)</u>	<u>APPROX. WEIGHT</u> <u>(Empty)</u>
M-110 Unit w/ Stand	56" x 70" x 121"	1700 Lbs.



A Division of Pneumatic Products Corporation

### 3.2 M-110 Distillation Unit

One (1) 30,000 watt, 110-gallon capacity, 304 stainless steel distillation unit to include:

- One (1) stainless steel heating jacket surrounding the distillation unit to the height of the liquid at capacity, with two inches (2") of exterior insulation covered with a painted carbon steel cabinet
- Four (4) 7,500 watt electric immersion heaters ( 480V, 3Ph )
- One (1) internal demisting assembly
- One (1) 304 stainless steel condenser with removable 316L stainless steel core, mounted on the distillation vessel
- One (1) painted carbon steel supporting frame
- One (1) 18" front-mounted manway for access and inspection of the solvent chamber
- One (1) manually operated 2"Ø still bottoms discharge valve
- One (1) 5" sight window and one (1) 240 volt explosion proof light
- One (1) 5 psig pressure relief valve and one (1) 15 psig pressure rupture disk ( ventilation piping for the pressure relief valve and rupture disk not supplied by Siva)

### 3.3 Internal Oil Heating Package

One (1) 30,000 watt, internal, explosion-proof thermal oil heating unit connected by fiber optics to the M-110 on-board control system, to include:

- Four (4) 7,500 watt electric immersion heaters, with heating elements connected to two electric circuits (each @ 15 kW; 480V, 3Ph)
- One (1) carbon steel elevated oil expansion tank, with low-level sensor alarm and shutdown.

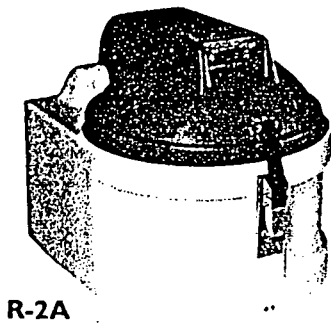
# Siva

...THE COMPLETE APPLICATIONS  
SOLUTION SOURCE

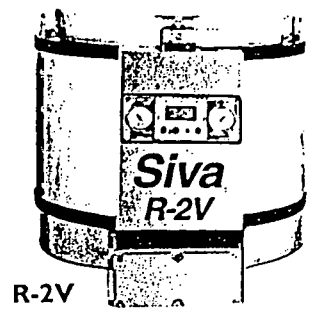
## R-2A/2AX/2V SERIES

Bench-top still for recycling solvents that boil up to 500°F. R-2A distills 4 gallons in 8 hours.

R-2AX includes closed-loop cooling water system. R-2V distills 5 gallons in 8 hours with vacuum assistance. All units feature fully automatic operation with disposable liners for sludge removal.



R-2A

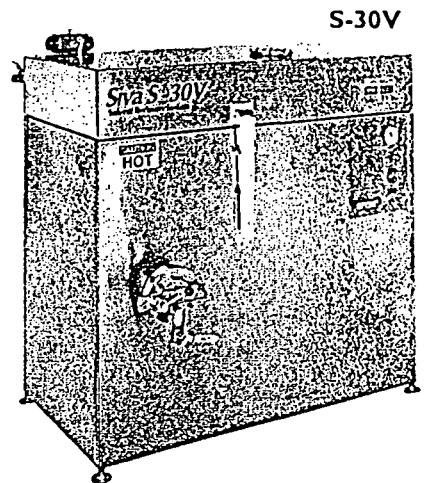
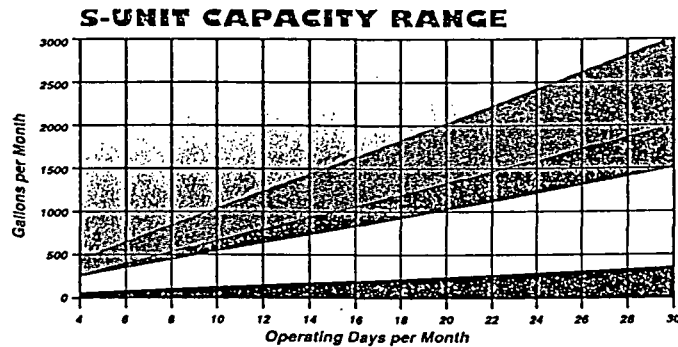


R-2V



## S-SERIES

Self-contained vacuum and non-vacuum stills with all stainless steel and Teflon® parts. Single batch and continuous flow capacities from 10 to 100 gallons per day. Microprocessor controls and safety interlocks allow installation anywhere.

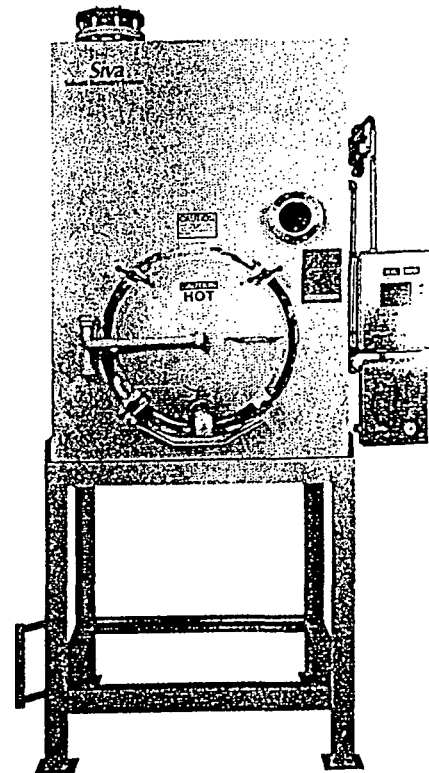
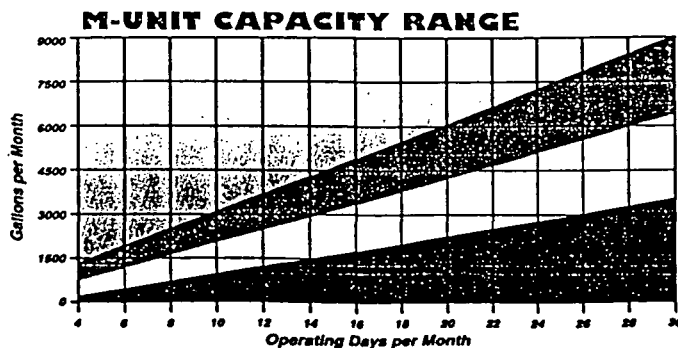
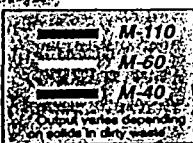


S-30V



## M-SERIES

Batch or continuous flow vacuum and non-vacuum stills with throughput capacities from 40 to over 300 gallons per day. Front door drain and elevated base stand provide easy access to still chamber and allow gravity discharge of liquid still bottoms to a 55-gallon drum.



M-60

Siva

# M and DAS Series Solvent Recovery Systems

# Siva

A Division of Pneumatic Product Corporation

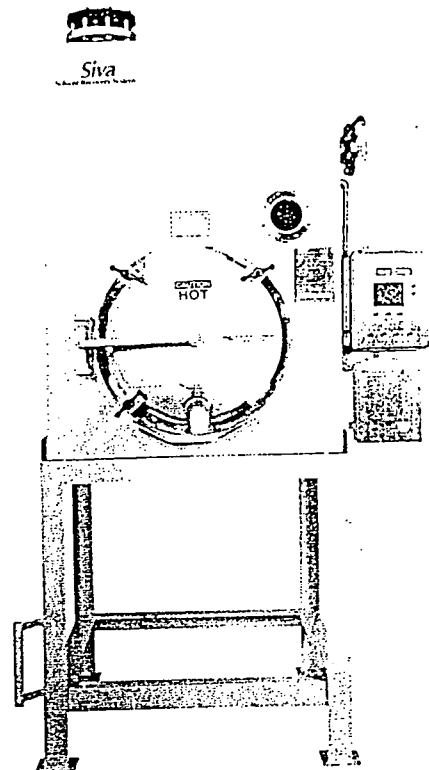
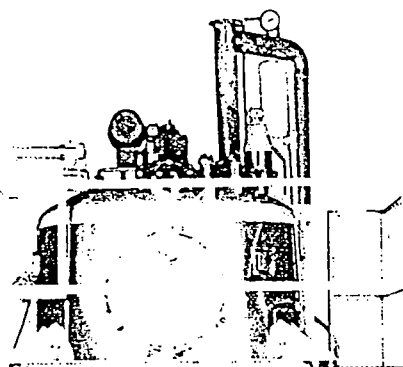
## High Capacity Solvent Distillation

### Description

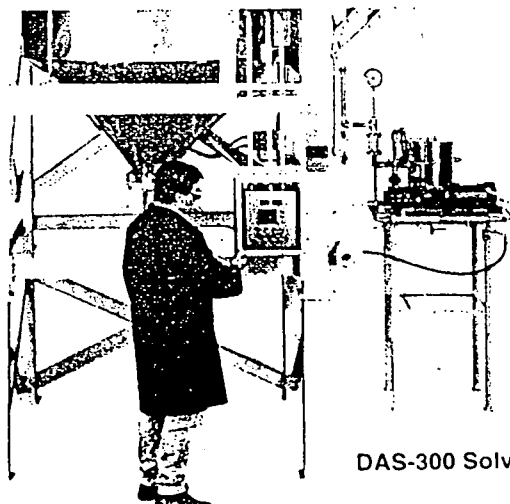
Siva M and DAS Series Solvent Recovery Systems are designed for high volume applications with throughput capacities from 40 to over 1000 gallons per day.

Electric heaters immersed in thermal oil surrounding the solvent chamber provide heat for distillation in M- Series systems. An external oil heating package or in-plant steam provides heat for distillation in DAS Series systems. Reclaimed solvent vapors are condensed in water-cooled stainless steel heat exchangers mounted on the rear of the unit. Waste contaminants remain in the solvent chamber as liquid or semi-liquid still bottoms.

All DAS systems feature an automatic internal scraper to clean the sidewalls of the solvent chamber and improve the heating efficiency of the unit. DAS systems are most effective for distillation of viscous solvents or solvents with thermosetting solids.



M-60 Solvent Recovery System



DAS-300 Solvent Recovery System

All M Series systems feature a large front-mounted door with sludge discharge valve for easy access to the solvent chamber. An elevated base stand allows still bottoms to flow by gravity to a 55-gallon drum. M systems are virtually maintenance free and are exceptionally cost effective when used for applications that leave flowable still bottoms.

All M and DAS Series systems are available with vacuum assistance to reduce the boiling point of the waste solvent. M and DAS systems with vacuum will distill and reclaim most solvents, including the new, high boiling-point, environmentally safe solvents. With vacuum assistance, actual distillation temperatures are typically below 365°F (185°C).

For most M and DAS Series applications, solvent recovery yields exceed 80% and reclaimed solvent purity exceeds 99%.

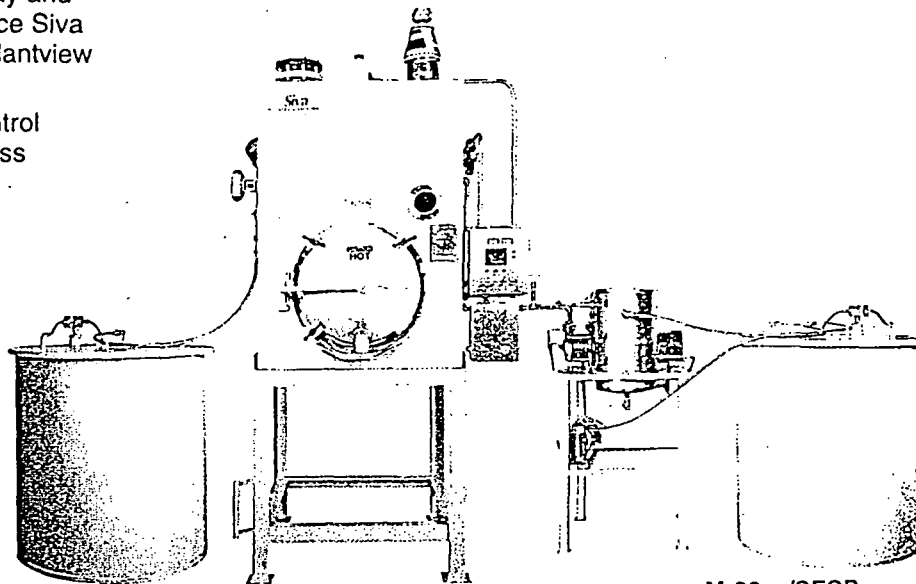
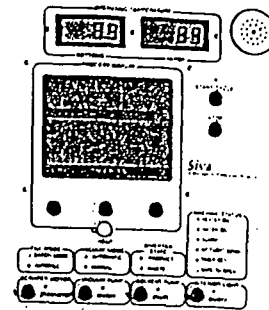
## Control Systems

All Siva M and DAS systems feature an explosion-proof, intrinsically safe solid state control system mounted on the unit. The control system has user friendly, programmable temperature and operating set points and features LCD menu-driven displays of operating conditions and trouble-shooting indicators; as well as automatic start and stop functions.

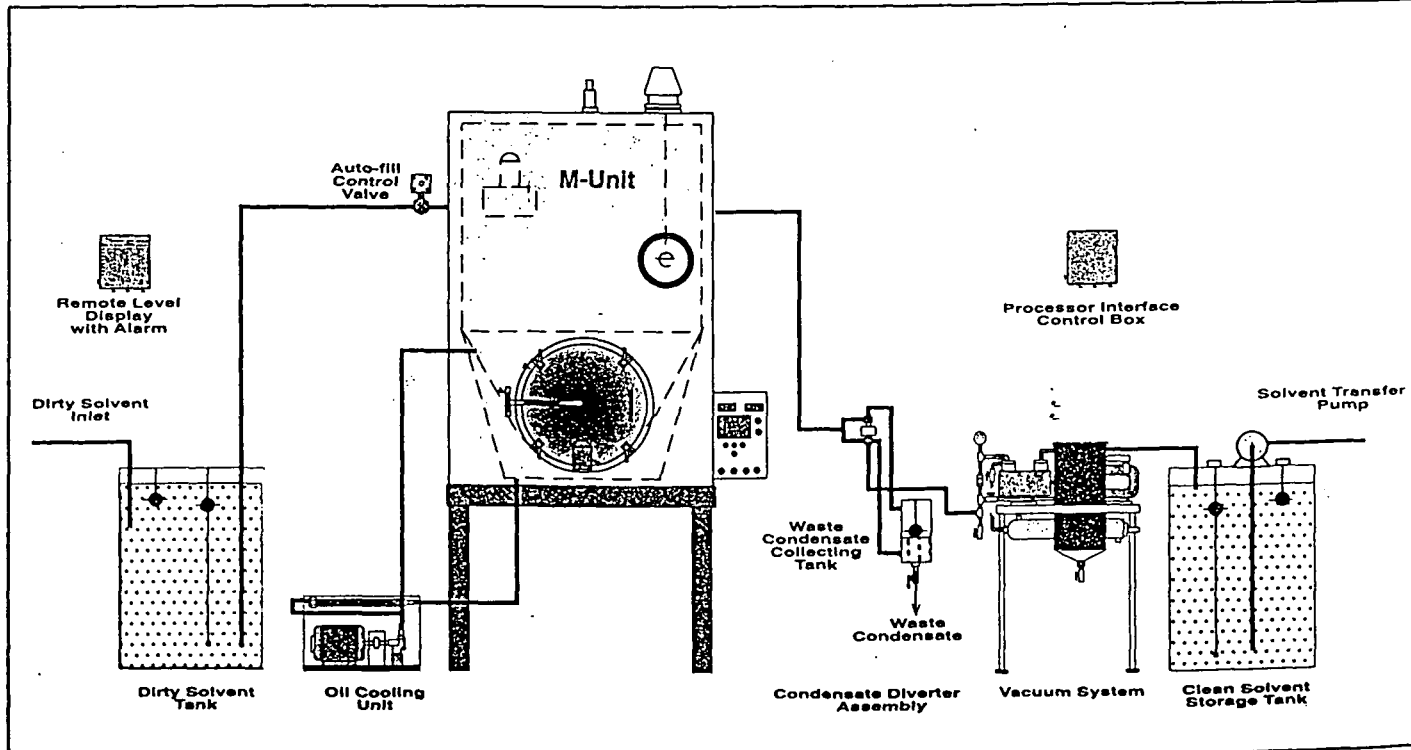
M and DAS Series systems utilize intrinsically safe low voltage electrical circuitry, fiberoptic interfacing of accessories, and explosion-proof electrical components. Remote operating, display and alarm panels and serial ports to interface Siva control systems with customer owned plantview systems are available.

Siva systems with solvent flow and control packages are also available with process interface kits that electronically interface the solvent recovery system with down-stream solvent washers or processors. This allows the user to operate washing equipment with continuous solvent "feed-and-bleed" for true closed-loop operation.

Microprocessor Controller  
M & DAS Series



M-60 w/SFCP

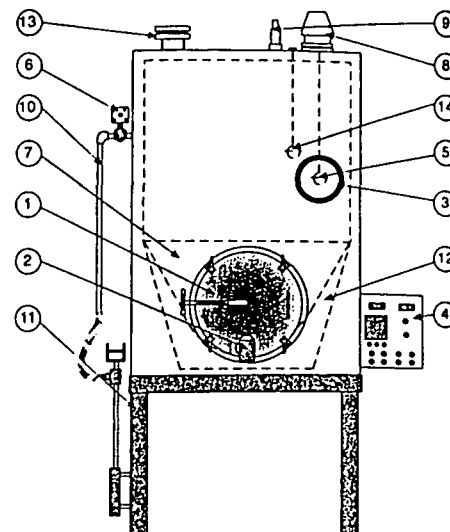


M-Unit with Optional Accessories

## Reference Data\*

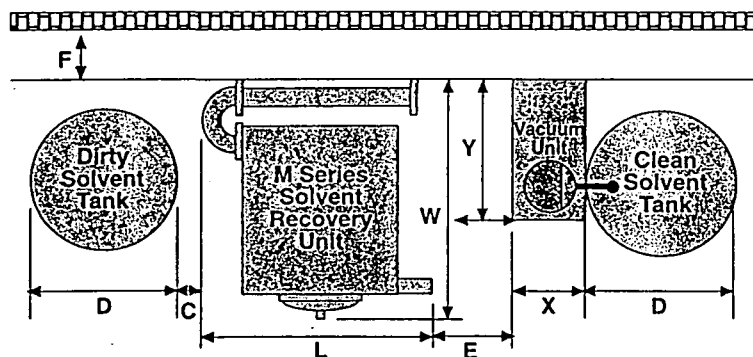
Boiler Capacity, Wattage and Typical Through-put				
M-40	40 gallons (Batch or Auto-Fill)		12,000 Watts	40-120 gallons/day
M-60	60 gallons (Batch or Auto-Fill)		18,000 Watts	60-180 gallons/day
M-110	110 gallons (Batch or Auto-Fill)		30,000 Watts	110-330 gallons/day
Unit		Electrical		
M-40	480 V	60 Hz	Three 3Ø	16 Amps
M-60	480 V	60 Hz	Three 3Ø	22 Amps
M-110	480 V	60 Hz	Three 3Ø	34 Amps
Vacuum Unit	480 V	60 Hz	Three 3Ø	2 Amps
Unit		Utilities		
	Cooling Water			Process Air
	Flow	Inlet	Pressure	Pressure
M-40	2 gpm	<70°F	35-80 psi	80-100 psi
M-60	4 gpm	<70°F	35-80 psi	80-100 psi
M-110	7 gpm	<70°F	35-80 psi	80-100 psi

Note: Daily throughput will vary depending on the type of solvent and the amount of solids in the waste to be reclaimed. Please consult factory for throughput estimates.

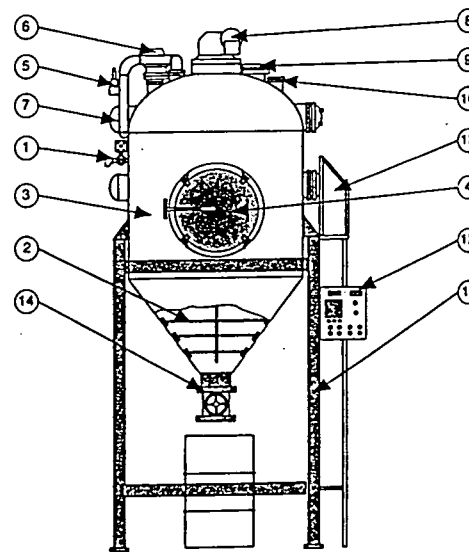


- 1. CLEAN-OUT DOOR
- 2. SLUDGE DRAIN VALVE
- 3. SIGHT GLASS
- 4. CONTROL PANEL
- 5. AUTO-FILL FLOAT
- 6. AUTO-FILL VALVE
- 7. SOLVENT CHAMBER
- 8. EXPLOSIONPROOF LIGHT
- 9. PRESSURE RELIEF VALVE
- 10. VAC/AUTO-FILL PICKUP
- 11. ELEVATED BASE STAND
- 12. THERMAL OIL CHAMBER
- 13. BURST DISK
- 14. OVERFILL SAFETY FLOAT

M-110 Front View



	Width				Depth			Height
	L	X	D	C	W	Y	F	
M-40 w/Stand	58"			5"	68"		24"	110"
M-60 w/Stand	58"			5"	68"		24"	110"
M-110 w/Stand	58"			5"	72"		24"	121"
Vacuum Assy.		30"				37"		48"
100 Gal.			30"					38"
150 Gal.			36"					34"
250 Gal.			48"					36"



- 1. AUTO-FILL VALVE
- 2. SCRAPER BLADES
- 3. DISTILLATION VESSEL
- 4. MANWAY
- 5. PRESSURE RELIEF VALVE
- 6. EXPLOSIONPROOF LIGHT
- 7. CONDENSERS
- 8. ROTATING SCRAPER ASSEMBLY
- 9. INSPECTION GLASS
- 10. BURST DISK
- 11. ELEVATED BASE STAND
- 12. CONTROL PANEL
- 13. PLATFORM/LADDER
- 14. SLUDGE DRAIN VALVE

DAS-175 Front View

\* Please consult factory for DAS Series Dimensions and Installation Data

Because of our policy of continuous improvement some information, specifications and dimensions contained herein may be revised. For confirmed accuracy, always refer to factory submittals.

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- REVISIONS -									
REV	DESCRIPTION	DATE	BY	CHK BY	APP BY	REL BY	DATE	REV	DESCRIPTION
A	ADDED AIR DRIVEN PUMP TO DIRTY SOLVENT TANK LINE	10/27/77	PJC	RMH	DTA	JPN	10/27/77		
B	ADDED AUTO DRAIN OPTION.	2/5/78	SDM	RMH	RMH	WHL	2/5/78		

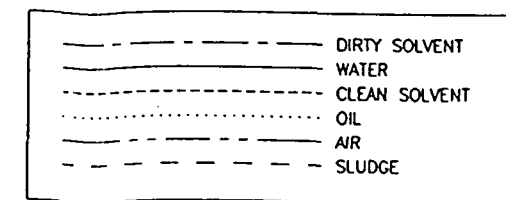
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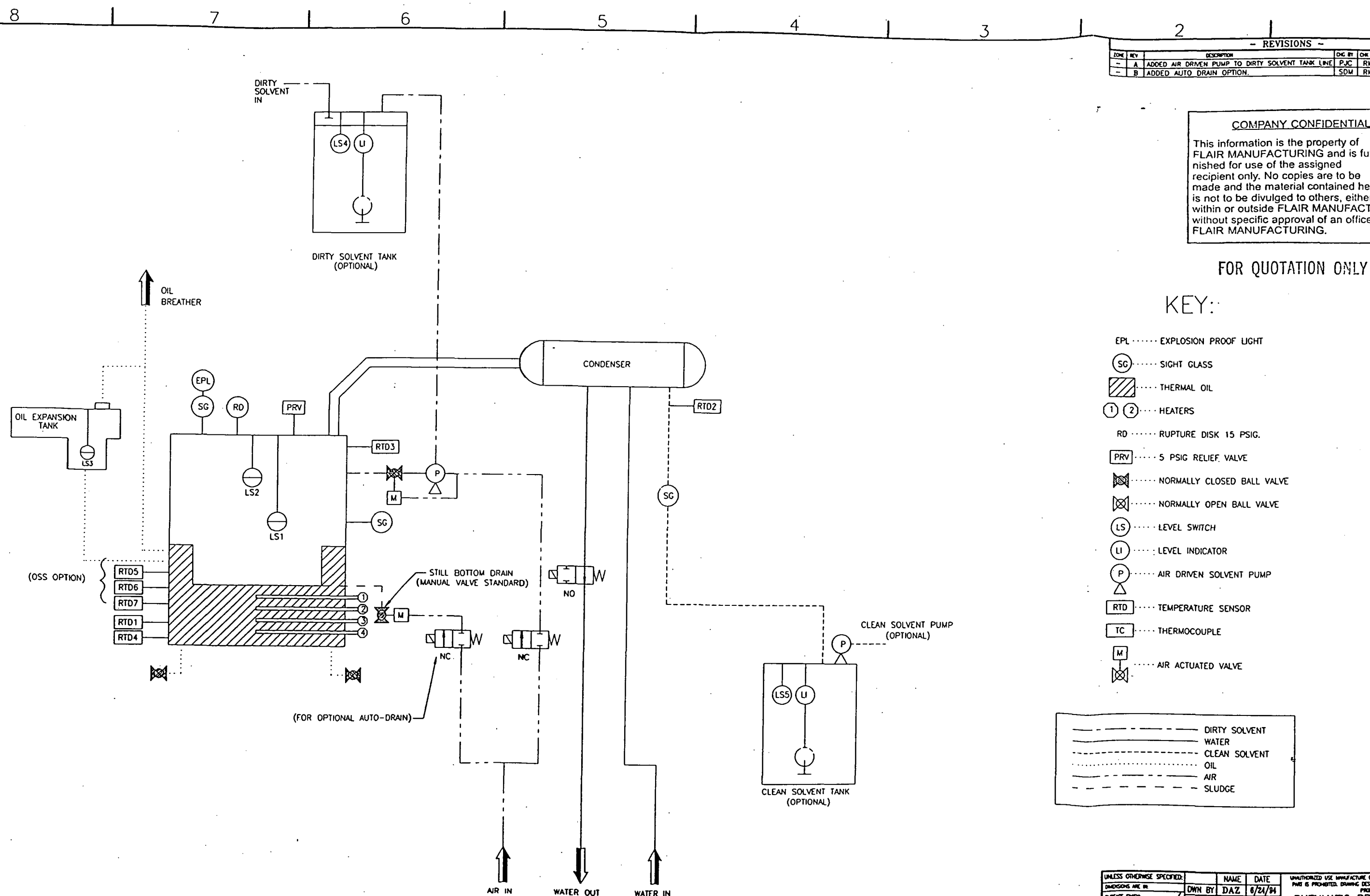
FOR QUOTATION ONLY

KEY:

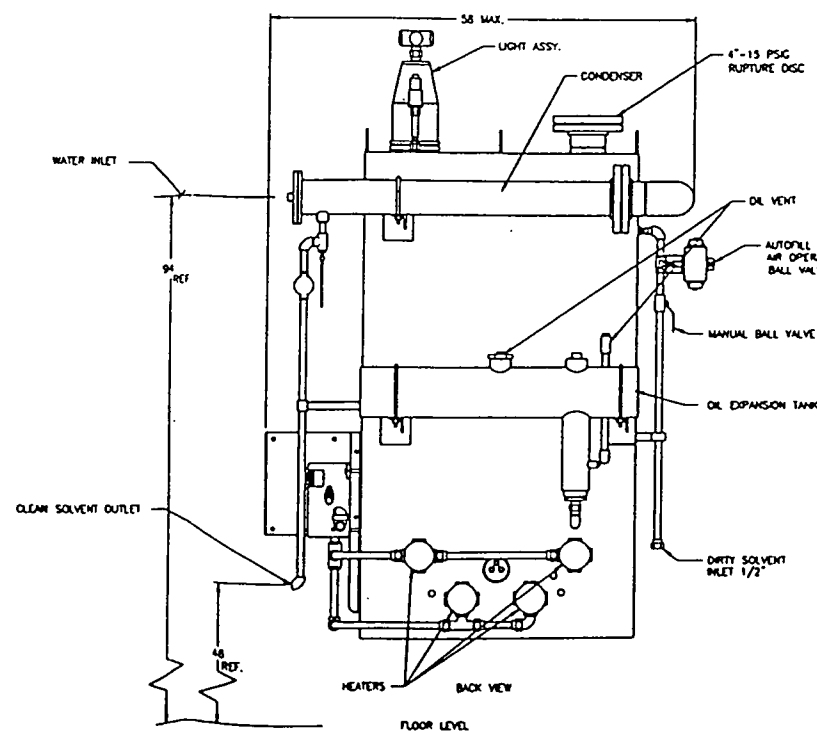
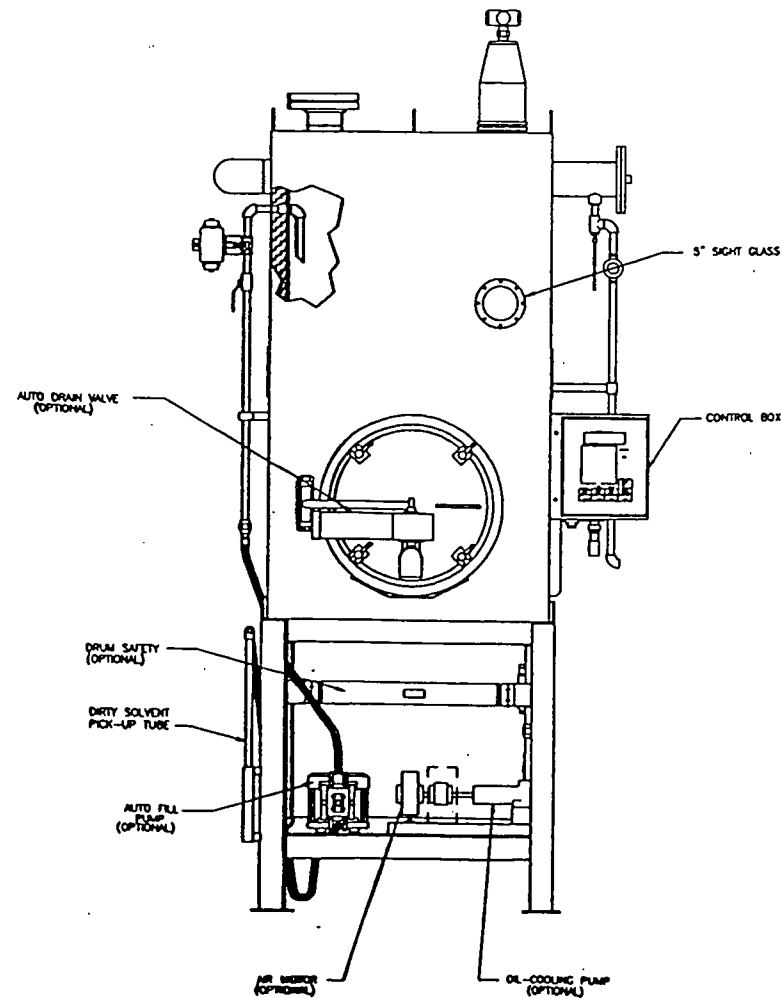
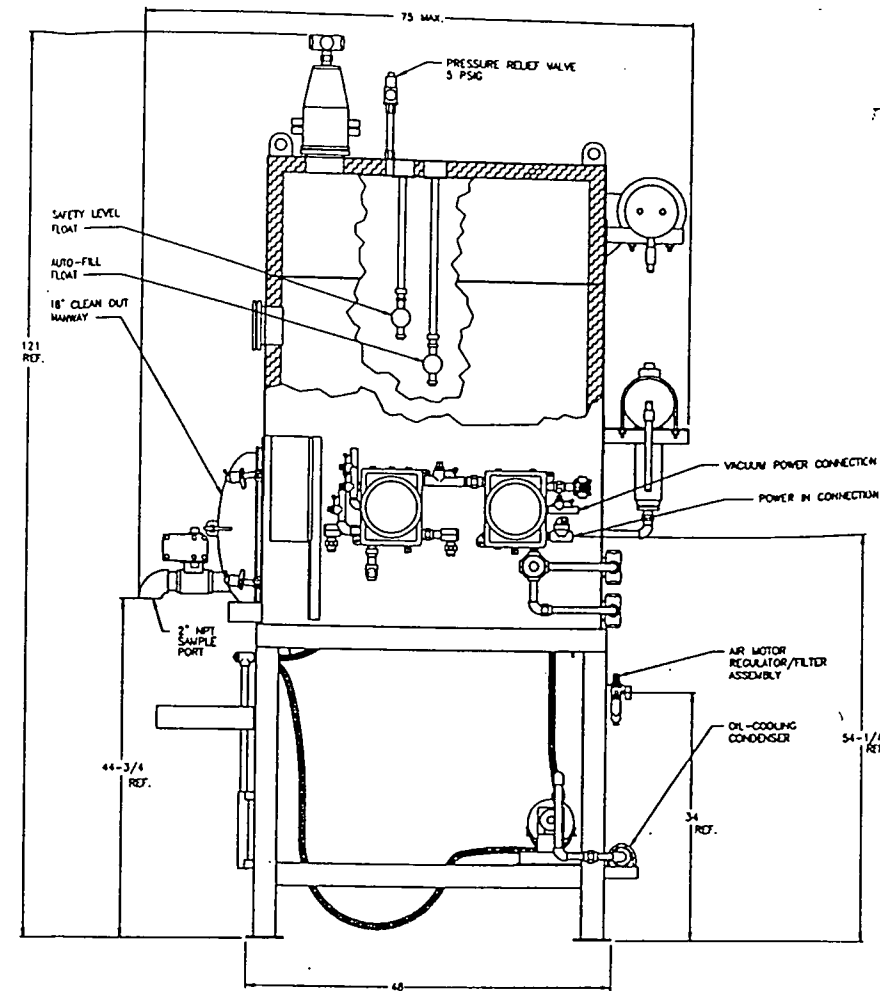
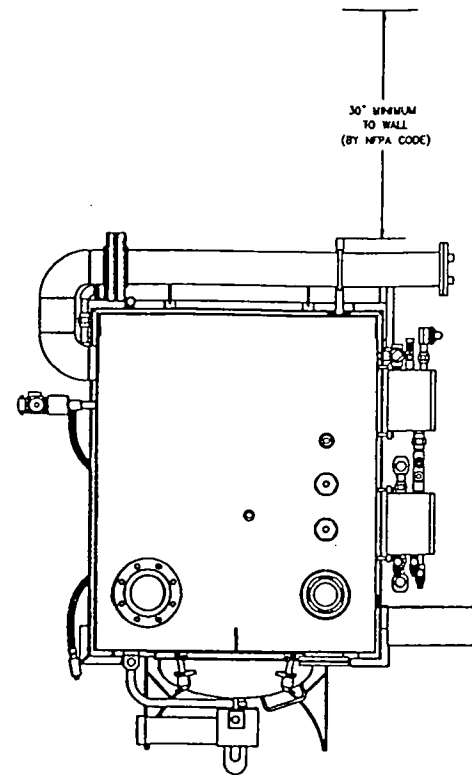
- EPL.....EXPLOSION PROOF LIGHT
- SG.....SIGHT GLASS
- .....THERMAL OIL
- 1 2.....HEATERS
- RD.....RUPTURE DISK 15 PSIG.
- PRV.....5 PSIG RELIEF VALVE
- .....NORMALLY CLOSED BALL VALVE
- .....NORMALLY OPEN BALL VALVE
- LS.....LEVEL SWITCH
- LI.....LEVEL INDICATOR
- P.....AIR DRIVEN SOLVENT PUMP
- RTD.....TEMPERATURE SENSOR
- TC.....THERMOCOUPLE
- M.....AIR ACTUATED VALVE



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SURFACE FINISH:			ENG BY	RMH	6/24/94		
TOL.			CHK BY	EJB	6/24/94		
F.			APP BY	DTA	6/24/94		
J.D.			REL BY	JPN	6/30/94		
SCALE: NONE			CAT NO.			FLOW SCHEMATIC	
			ID NO.	52938		M-SERIES, NON VACUUM W/AF	
						1247688-D1	







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DIMENSIONS ARE IN INCHES			DWN BY	SDM	11/28/97	PNEUMATIC PRODUCTS CORP. * DO NOT SCALE USE DIMENSIONS ONLY *	
SURFACE FINISH			ENG BY	JDL	11/28/97		
TOL.	MM	INCHES	CHK BY	RMH	11/28/97		
F			APP BY	JDL	12/01/97		
J			REL BY	WHL	12/01/97		
FINISH: 21/4			CAT NO.	1270421		M-110, NON-VAC, W/ADA, OCA, 480V	
SCALE: 5/8"			ID NO.	48647		1270421	

## **Tank Storage**

A single, 3,000 gallon storage tank is used to accumulate and store the fluids (mixed waste only) collected from the processing of Liquid Scintillation Vials (LSVs). The waste is stored in the tank until arrangements are made to ship the waste to an authorized waste treatment and/or disposal facility. See Figure I.D.4 for the layout of the Processing and Storage Building and the location of the storage tank. Additional details regarding the tank storage practices are provided in Section II.C of this permit application.

## **Household Hazardous Waste Collection**

PFF occasionally receives 55-gallon drums and smaller containers of paint, solvents, and other household hazardous wastes. These wastes are generally received in conjunction with household hazardous waste collection events. These containers are managed within the Processing and Storage Building as follows. Drums are opened and the contents are sorted into different drums by apparent waste or product type. The contents of smaller containers are also sorted and consolidated or bulked into 55-gallon drums. Filled drums are labeled, sampled and stored pending waste characterization results. Depending upon the waste characterization results, the contents of each drum are bulked, fuel blended and/or shipped off-site individually to an authorized treatment and/or disposal facility. All empty containers will be managed in accordance with applicable regulations.

## **LSV Processing and Non Hazardous Waste Storage Warehouse**

### **LSV Processing**

Medical researchers and scientists conduct research using trace amounts of radioactive materials and a liquid scintillation counting detection system to analyze the results. After the research, the scintillation fluid (typically xylene and toluene), contaminated with the trace amount of radioactive material, is placed in a vial (hence, liquid scintillation vial) and accumulated in containers (usually 55 gallon drums) for subsequent treatment, disposal or reuse as a waste-derived fuel. At the PFF facility, drums containing LSVs are received at the LSV Processing and Non Hazardous Waste Storage Warehouse (Warehouse) and processed as follows.

First, a drum of LSV is received in the processing room, the drum lid is removed, and the inside of the drum is visually examined to confirm its contents. Next, the drum is mechanically lifted and the contents of the drum are dumped onto a conveyor that separates the vials from any absorbent packing material. The packing material is shaken into a 55-gallon drum and accumulated for off-site disposal by incineration. Meanwhile, the LSVs continue along the conveyor and enter a fully enclosed grinder/screw designed to break up the LSVs and separate solids and liquids. The liquid scintillation fluid (LSF) is pumped from the grinder/screw into a Fines Removal System (FRS), which consists of a 100-gallon holding tank, grinder screw and ancillary piping. The FRS removes fines and other small solids from the LSF.

The solids that collect at the bottom of the FRS holding tank are removed via the grinder screw and collected in a 55-gallon drum for off-site disposal by incineration. Next the LSF is pumped from the FRS holding tank into a 350-gallon holding/test tank where it is sampled and screened

for radioactivity. The LSF is then pumped into the 3,000-gallon storage tank in the Processing and Storage Building. From there, the LSF is shipped off site for use as a fuel or for treatment and/or disposal at an authorized mixed waste facility. Depending upon the level of radioactivity, some LSF (and/or LSVs) may be containerized and stored on site to decay and attain the proper activity level before it may be shipped off site.

After the LSF is conveyed from the grinder/crusher to the FRS, a screw conveyor removes the remaining solid materials to a two-stage rinsing system. The rinsing system consists of two inclined conveyors that wash the solids in ethanol. The washed solids are gravity drained and deposited into containers for off-site treatment by incineration or energy recovery.

During the rinsing process, the ethanol is continuously re-circulated through the system. Fines or small solid materials removed by the ethanol are accumulated in the Rinse Fines Removal System (RFRS), which consists of a holding tank, grinder screw and ancillary piping. Solid materials collect at the bottom of the holding tank and are removed by a grinder screw. The solid materials from the RFRS are collected in a 55-gallon drum for off-site treatment by incineration or energy recovery.

At the end of a work day, or when the ethanol becomes spent and unusable, the ethanol is pumped from the RFRS holding tank to the 350-gallon holding/test tank where it is sampled and screened for radioactivity. As with the LSF, the ethanol rinsate is containerized and stored on site to decay or transferred to the 3,000-gallon storage tank in the Processing and Storage Building for subsequent shipment to an authorized mixed waste facility.

As a result of the above process, the Facility generates clean glass and plastic, packing materials, plastic bags/container liners, miscellaneous trash, liquids and empty containers. All of these items are tested for radioactivity to assure that radioactivity is at allowable levels or to determine if reprocessing, decay storage or additional treatment is required. After visually checking and sampling for fluids, the glass and plastic vials are bulked in trailers for shipment and subsequent treatment by incineration or energy recovery.

Other small containers of hazardous or mixed wastes and debris may also be processed in this unit. Typically, such wastes or containers are contaminated with liquids, solids or sludges, or require size reduction or solvent rinsing before further processing or treatment may be conducted. In each case, the containers, debris and other processed materials will be rinsed and cleaned to meet treatment objectives. See Figures I.D.5 and I.D.6 for an overview of the LSV processing operation. Figure I.D.7 illustrates the general layout of the LSV processing area.

It should be noted that containers of hazardous wastes are staged in the LSV Processing and Non-Hazardous Waste Storage Warehouse (Warehouse) prior to processing, but are not stored in the building. All hazardous waste containers not processed within 24 hours of arrival at the Warehouse are moved to the Treatment and Operations Building or Processing and Storage Building for storage until they are returned to the process staging area in the Warehouse.

Technical/regulatory information regarding the sufficiency of the LSV equipment for its intended use, as well as containment calculations, is included as Appendices C and D, respectively.

**Appendix C**

**LSV Process Certification Report**

**INSPECTION AND CERTIFICATION REPORT:  
LIQUID SCINTILLATION VIAL PROCESSING SYSTEM  
PERMA-FIX OF FLORIDA, INC.**

---

**INTRODUCTION**

At the request of Perma-Fix of Florida, Inc., 1940 N.W. 67<sup>th</sup> Place, Gainesville, Florida, an inspection of the Liquid Scintillation Vial (LSV) crushing and processing system was performed by Bodo and Associates, Inc. and Lewis Engineering and Consulting, Inc. of Gainesville, Florida. The inspection was for purposes of assessing compliance with EPA 40 CFR 264.190, Subpart J: Tank Systems, and 40 CFR 264.600, Subpart X: Miscellaneous Units.

The processing system is designed around a Model 13CSE multi-bladed grinder, referred to as a Knife Hog Grinder, designed and manufactured by Reduction Technology, Leeds, Alabama. The grinder and separate wet and dry processing systems were purchased new by Perma-Fix in the first quarter, 1998. The system has been employed, thus far, to grind and process liquid scintillation vials.

System schematics, in Figures 1 through 5, illustrate the configuration of the system and identifies the component parts. During operation, raw feed materials are screened to remove dirt, debris and packing materials. A large permanent magnet positioned above the feed conveyor removes ferrous material from the waste stream that could damage the blades of the knife hog grinder and generate sparks. Potential fire hazards associated with processing flammable solvents are minimized via a fire suppression system and nitrogen purging.

The system can be configured as a wet grinding system for such materials as the liquid scintillation vials, as shown in Figures 1 through 3, or as a dry grinding system to prepare other solid hazardous waste materials as feed stock to the Perma-Fix® II thermal desorption/chemical oxidation system, as shown in Figures 4 and 5. Additional details of the operation of the system are presented by Perma-Fix elsewhere.

**RESULTS OF INSPECTION**

During the site visit, the LSV system was dismantled for installation of replacement screw flights in each of the wet system screw conveyors. The original clearance between the screw flight outside diameter and the barrel of the conveyor was found to be too generous allowing excessive

backflow of crushed material in the conveyors. A set of replacement screw flights were installed under the direct supervision of Reduction Technology that reduced the clearance to the allowable minimum.

All of the wetted materials in the knife hog grinder and screw conveyors, except the knife blades, are manufactured from corrosion resistant T304 stainless steel. The hardened knife blades are fabricated from either AISI 5160 alloy steel, or D2 tool steel. The interior of the screw conveyors were inspected after removal of the original screw flights. All surfaces were found to be in excellent condition with no visual indication of corrosion or deterioration. The leading edge of all screw flights have been weld overlaid with Stellite® hard facing to minimize wear at the leading edge of the flights. The original flights showed no signs of abrasive wear resulting from approximately 6 months of use.

The balance of the wet processing system consists of a holding tank for containment of used ethanol employed in the LSV process. The 350 gallon T304 stainless steel tank was manufactured in 1990, and appears to be good condition. A 16" x 24½" x ½" thick acrylic inspection panel is located on the front. Slight crazing of the inside wetted surface was visible.

The dry system conveyors were inspected and, also, found to be well maintained and in very good condition. The dry system appeared to have been subjected to very little use since installed. The design, selection of materials and fabrication of the system components appears to have been well executed. The knife hog grinder and conveying systems, both for wet and dry materials, are well suited and designed to either process or prepare a variety of hazardous solid wastes compatible with T304 stainless steel.

## **CONCLUSIONS AND RECOMMENDATIONS**

The relatively new age and generally well maintained condition of the knife hog grinder and wet and dry conveying systems indicates that the dedicated system was well designed for the intended purpose and has performed well to date. The use of T304 stainless steel throughout the system for all wetted surfaces provides reliable corrosion resistance for all but very corrosive hazardous waste materials. The system would not be suitable for processing very acidic waste streams, less than pH 2, or high soluble chloride content waste streams that would be treated employing high temperature to evaporate solids to dryness. Neither of these two conditions represent

foreseeable use of the wet/dry grinding system. Magnetic screening of the waste stream conveyed to the knife hog grinder minimizes the potential for generating sparks at the blades, and a fire suppression and nitrogen purge system is installed to further minimize the risk of fire and explosions.

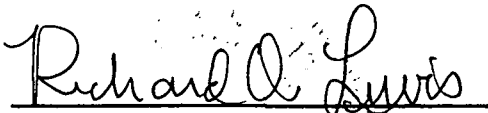
The capacity of the existing concrete floor slab to support equipment loads was also evaluated. Maximum concentrated load was taken as 3200 lb based on a total weight of 12800 lb supported on four legs. A 1¾" core sample was drilled in order to verify the thickness of the slab. Visual inspection of the general floor area revealed no significant cracks or other signs of distress. Concrete quality, as seen in the core sample, appeared to be good, with a fairly uniform distribution of coarse aggregate and no large voids or air pockets. The slab consists of a newer layer of nominal 6" thickness over an older slab of at least 7¾" thickness.

It is the opinion of the undersigned that the system, as installed, is well suited for its intended purpose and is in very good serviceable condition.

As required by EPA 40 CFR 270.11(d):


*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Respectfully submitted,



Richard O. Lewis, PE

11-17-98



Attila A. Bodo, PE

11.17.98



## FIGURES

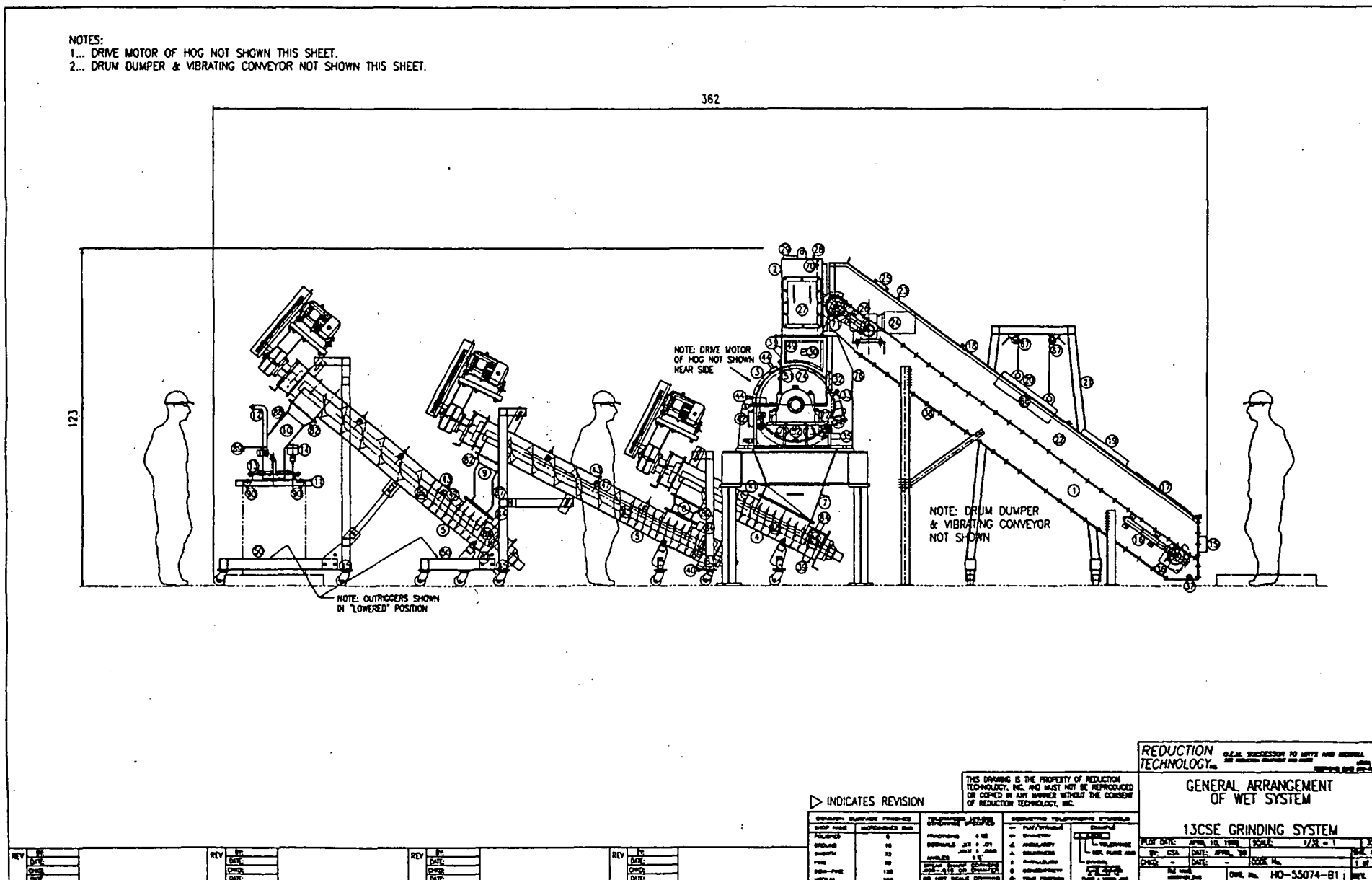


Figure 1. Elevation schematic of Reduction Technology 13CSE wet grinding system configuration; located at Perma-Fix.

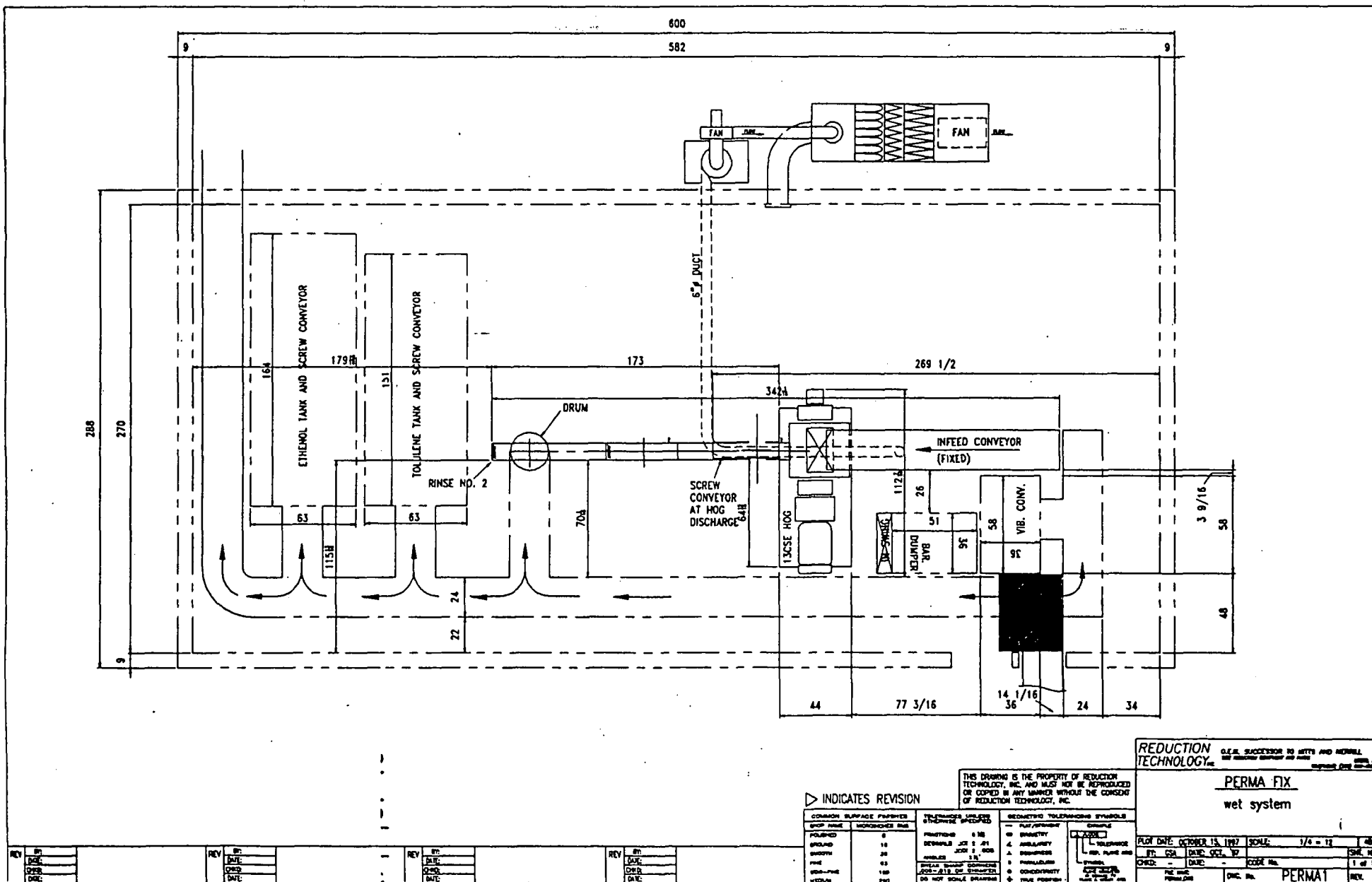


Figure 2. Plan schematic of Reduction Technology wet grinding system configuration; located at Perma-Fix.

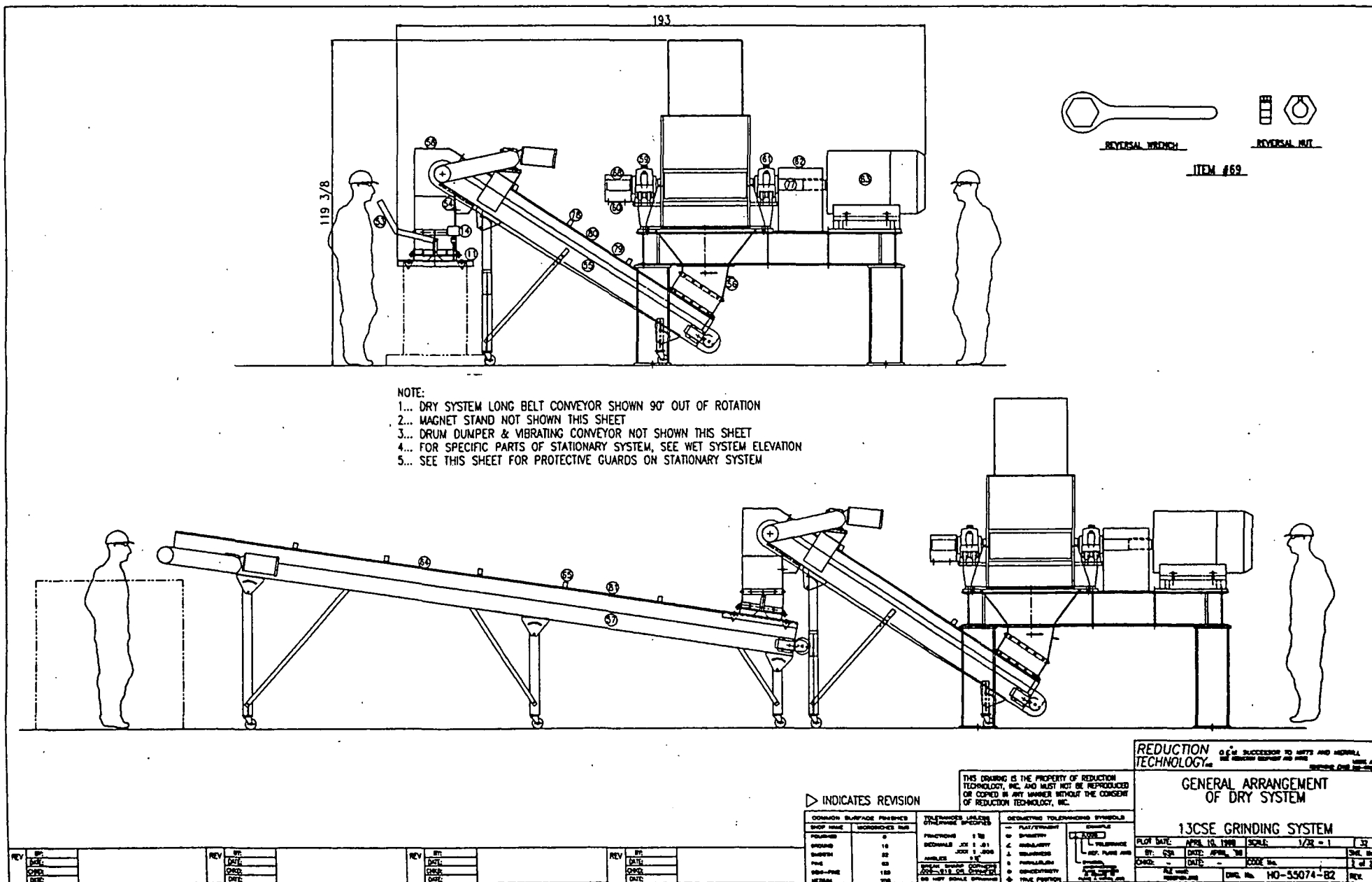
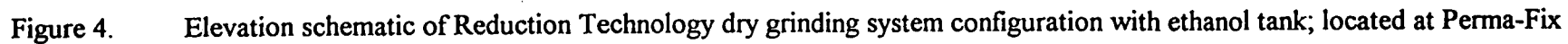


Figure 3. Elevation schematic of Reduction Technology 13CSE dry grinding system configuration; located at Perma-Fix.





**Appendix D**

**LSV Processing Area Containment Calculations**

**Appendix D****Containment Calculations for LSV Area 1****Crusher Room****GIVEN:**

Base Area (a)	= 1,620 ft <sup>2</sup>
Curb Height (h)	= 5.5 in = 5.5 in/12 = 0.46
100% Volume of Largest Tank (LT)	= 521 gal debris diptank
100% Volume of All Tanks (TT)	= 1,071 gal (inc. 200 gallon ethanol fines and test tanks)
100% Volume of Largest Container (LC)	= 55 gal
100% Volume of All (10) Containers (TC)	= 550 gal
100% Volume All Tanks + All Containers (T)	= 1,721 gal
10% of Total Volume (TV = 10% x T)	= 172.1 gal
25 year/24 hour Stormwater Collected (SC)	= 0 gal (LSV Area is in a building)

**CONTAINMENT CAPACITY AVAILABLE (CCA):**

$$\begin{aligned} \text{CCA} &= h \times a \times 7.48 \text{ gal/ft}^3 \\ &= 0.46 \times 1,620 \text{ ft}^2 \times 7.48 \text{ gal/ft}^3 \\ &= 5,574 \text{ gal} \end{aligned}$$

**VOLUME DISPLACED BY EQUIPMENT (VDP):**

$$\text{VDP} = \text{Equipment in this area is elevated; therefore, displacement is negligible} = 0$$

**NET AVAILABLE CONTAINMENT (NAC):**

$$\begin{aligned} X &= \text{TV or LT whichever is greater} \\ \text{NAC} &= \text{CCA} - (X + \text{VDP} + \text{SC}) \\ &= 5,574 \text{ gal} - (521 \text{ gal} + 0 \text{ gal} + 0 \text{ gal}) \\ &= 5,053 \text{ gal} \end{aligned}$$

**CONCLUSION:**

The net available containment volume exceeds the containment capacity needs; i.e., 5,053 gallons of available containment is well over the volume of tank and container volumes.



**Appendix D (cont.)****Containment Calculations for LSV Area 2****Ethanol Room****GIVEN:**

Base Area (a)	= 750 ft <sup>2</sup>
Curb Height (h)	= 5.5 in = 5.5 in/12 = 0.46
100% Volume of Largest Tank (LT)	= 100 gal
100% Volume of All Tanks (TT)	= 100 gal (toluene fines unit)
100% Volume of Largest Container (LC)	= 55 gal
100% Volume of All (2) Containers (TC)	= 110 gal
100% Volume All Tanks + Containers (T)	= 210 gal
10% of Total Volume (TV = 10% x T)	= 21 gal
25 year/24 hour Stormwater Collected (SC)	= 0 gal (LSV Area is in a building)

**CONTAINMENT CAPACITY AVAILABLE (CCA):**

$$\begin{aligned} \text{CCA} &= h \times a \times 7.48 \text{ gal/ft}^3 \\ &= 0.46 \times 750 \times 7.48 \text{ gal/ft}^3 \\ &= 2,580 \text{ gal} \end{aligned}$$

**VOLUME DISPLACED BY EQUIPMENT (VDP):**

$$\text{VDP} = \text{Equipment in this area is elevated; therefore, displacement is negligible} = 0$$

**NET AVAILABLE CONTAINMENT (NAC):**

$$\begin{aligned} X &= \text{TV or LT whichever is greater} \\ \text{NAC} &= \text{CCA} - (X + \text{VDP} + \text{SC}) \\ &= 2,580 \text{ gal} - (100 \text{ gal} + 0 \text{ gal} + 0 \text{ gal}) \\ &= 2,480 \text{ gal} \end{aligned}$$

**CONCLUSION:**

The net available containment volume exceeds the containment capacity needs; i.e., 2,480 gallons of available containment is well over the volume of tank and container volumes.

## Appendix D (cont.)

## Containment Calculations

## Professional Engineer Certification

This is to certify that the containment calculations for this hazardous waste management unit have been reviewed by me and found to be true and accurate to the best of my knowledge.

George F. Harder  
Signature

George F. Harder  
Name (please print or type)

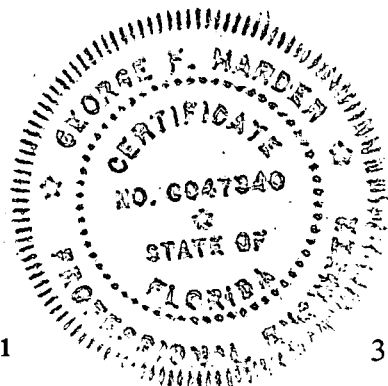
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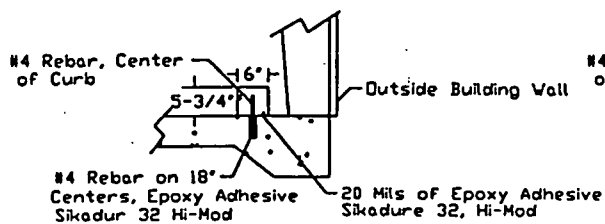
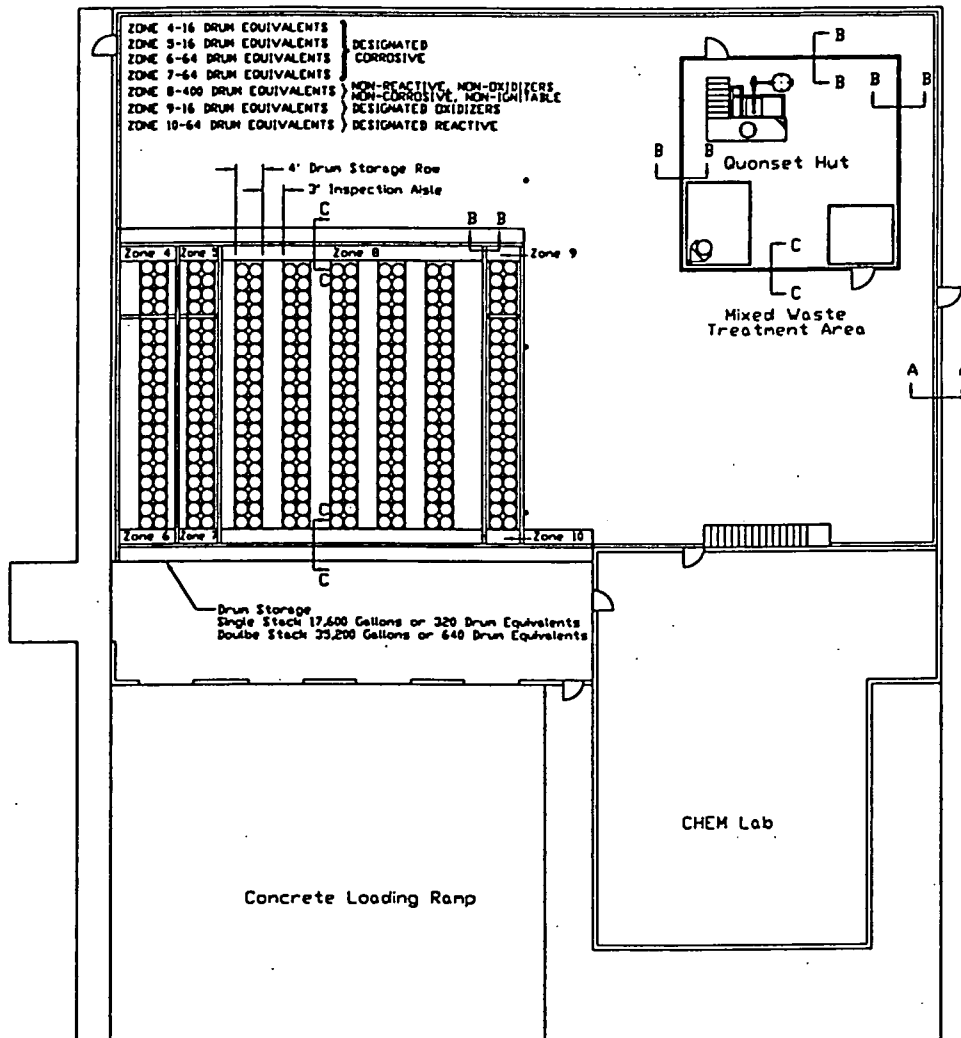
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Gainesville FL 32606  
City State Zipcode

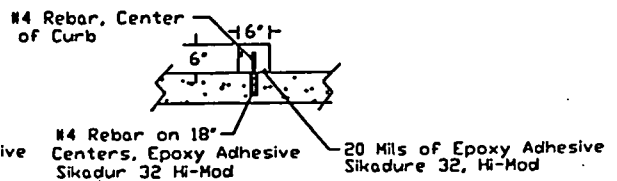
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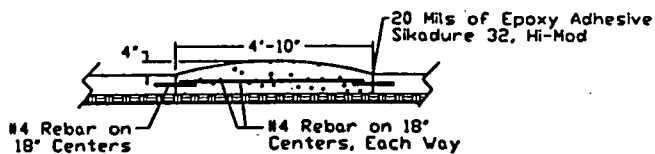




Section A-A  
(N.T.S.)



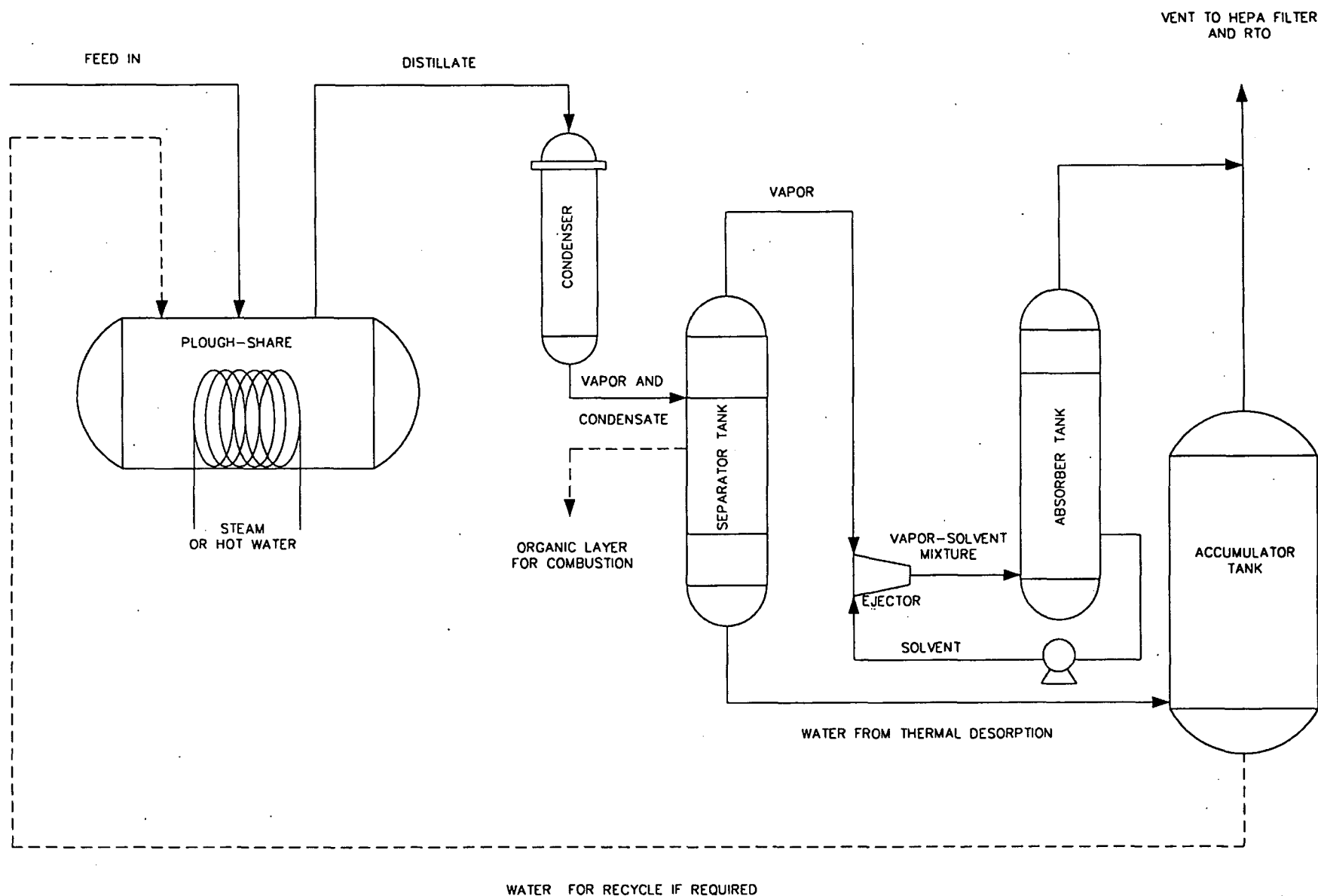
Section B-B  
(N.T.S.)



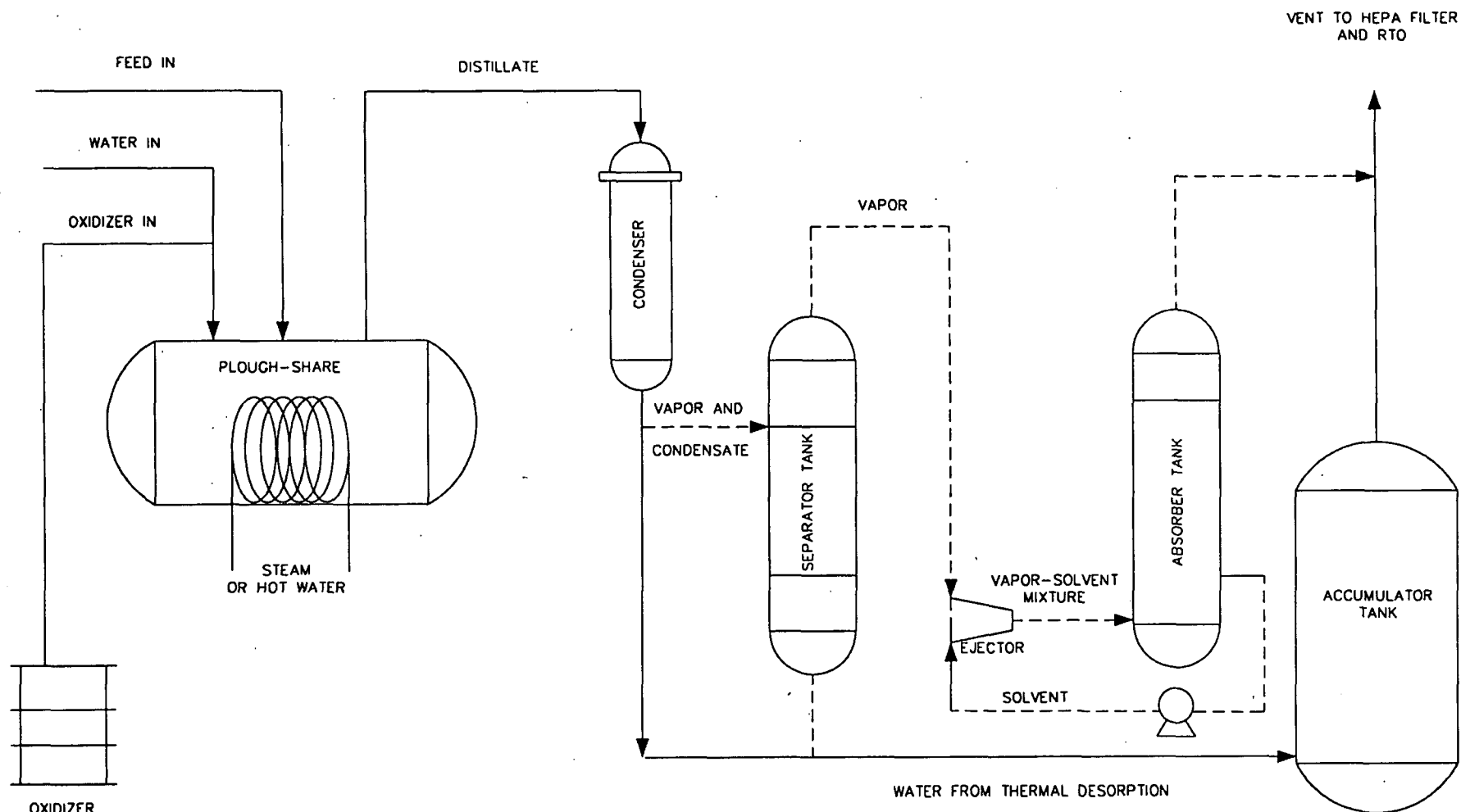
Section C-C  
(N.T.S.)

**PERMA-FIX**  
 ENVIRONMENTAL SERVICES

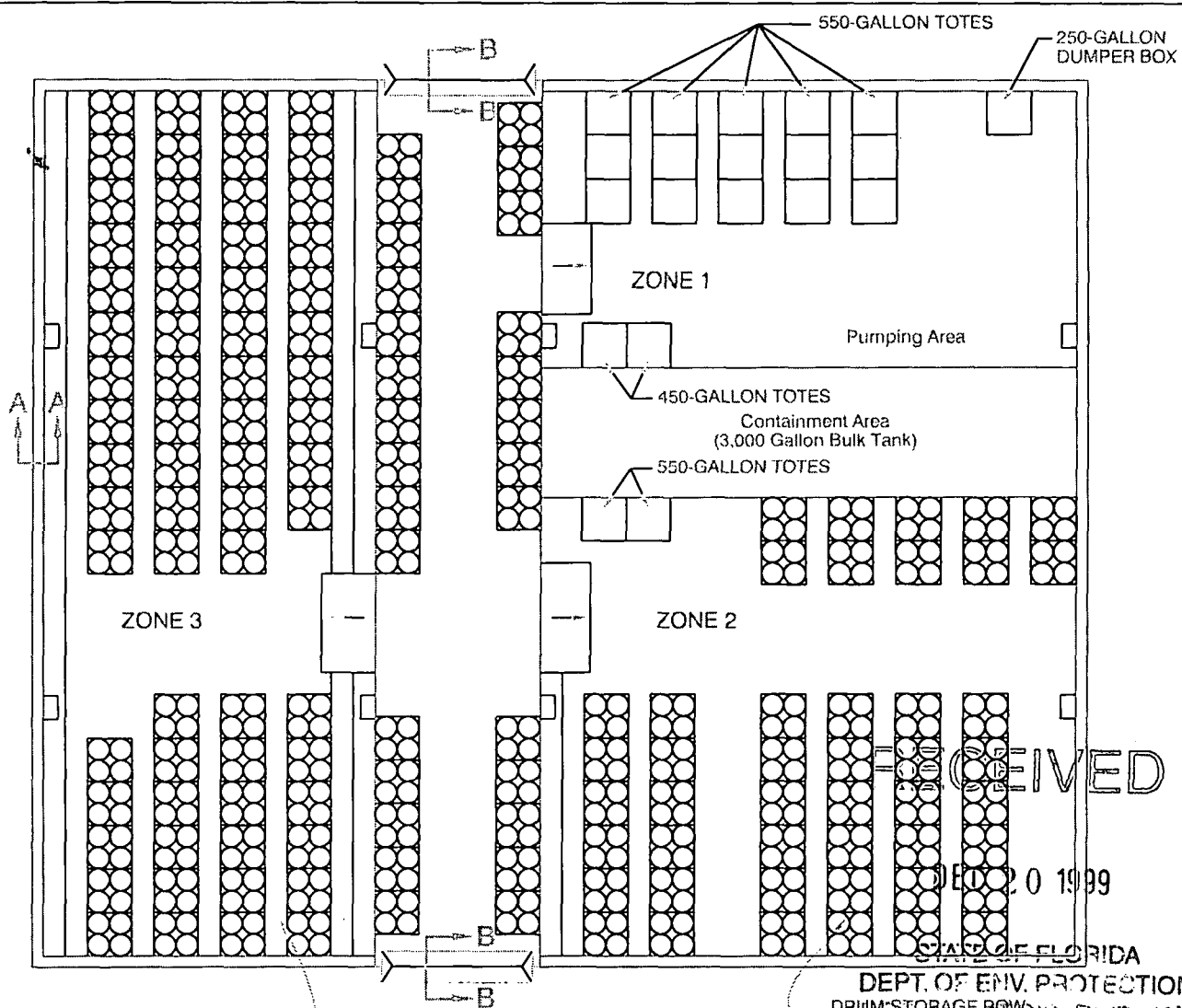
TITLE: <b>TREATMENT AND OPERATING BUILDING</b>			
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL 32653			
SCALE: NTS	APPROVED BY:	DRAWN: SYA	
DATE: 8-25-97	SEC	REVISED: 05-24-99	
PROJECT NUMBER: PFIFLA970343		DRAWING NUMBER: 101	



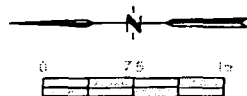
TITLE: <i>Figure 1B2</i> THERMAL DESORPTION STEP - PERMA-FIX II PROCESS		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC.		
SCALE: N.T.S.	APPROVED BY:	DRAWN: N.J.
DATE: 5/24/99		REVISED:
ACAD FILE:		DRAWING NUMBER:
P:\UNBIA\AUTOCAD\UNB24-99.DWG		



TITLE: Figure 1B3 CHEMICAL OXIDATION STEP - PERMA-FIX II PROCESS		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC.		
SCALE: N.T.S.	APPROVED BY:	DRAWN: H.J.
DATE: 3/24/99		REVISED: 11/08/99
ACAD FILE: P:\MARIA\AUTOCAD\WATER-99.DWG		DRAWING NUMBER:



INSPECTION AISLE  
2' Typ.



ZONE 1 - 166 drum equivalents

ZONE 2 - 388 drum equivalents

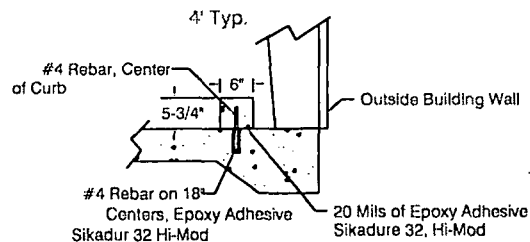
ZONE 3 - 752 drum equivalents

Storage capacity is 1311 equivalent 55 gal. \* drums when stacked a maximum of two (2) high on pallets. Pallets must be used for stacking with a maximum of four (4) 55 gal. drums per each pallet.

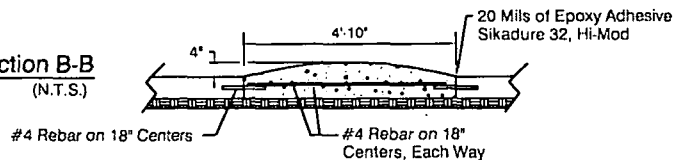
\* Equivalent drums (Examples)

- 1 30/35 gal. drum = .6 55 gal. drum
- 1 85 gal. drum = 1.6 55 gal. drums
- 1 450 gal. tote container = 8.2 55 gal. drums
- 1 550 gal. tote container = 10 55 gal. drums

Section A-A  
(N.T.S.)



Section B-B  
(N.T.S.)



<b>Figure 1.D.4</b> <b>PROCESSING AND STORAGE BUILDING</b>		
<b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1" = 15'	APPROVED BY:	DRAWN: SYA
DATE: 8-8-98	SEE	REVISED: 12-30-98
PROJECT NUMBER:	DRAWING NUMBER:	
PFILA870343	104	

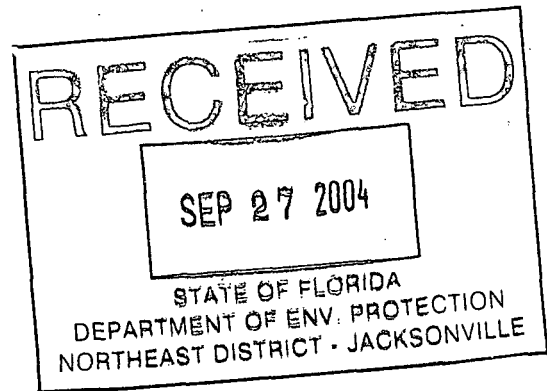
**PERMA-FIX**  
ENVIRONMENTAL SERVICES



September 16, 2004

Hazardous Waste Supervisor  
Department of Environmental Protection  
Suite 200 B  
7825 Baymeadows Way  
Jacksonville, FL 32256-7590

Re: Perma-Fix of Florida, Inc EPA ID # FLD 980 711 071  
Operating Permit # 17680-006-HO



Dear Sirs:

Please find enclosed a copy of our recent Permit Modification request submitted to the Florida Department of Environmental Protection. This is being submitted to you as required by the above mentioned permit.

Sincerely,

A handwritten signature in black ink that reads "Ken Shoemake".

Ken Shoemake  
Environmental Health and Safety Manager  
Perma-Fix of Florida  
1-352-395-1356  
kshoemake@perma-fix.com

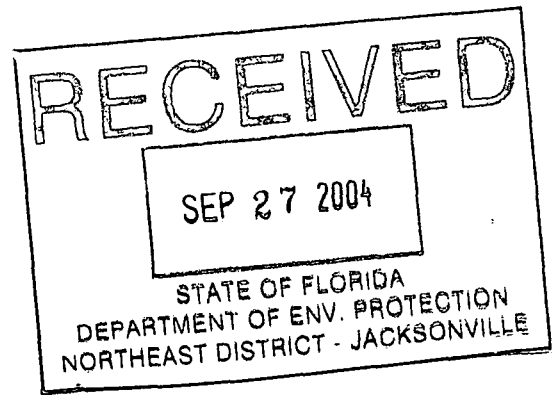
DOCKET# P.04.4



September 16 2004

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

Subject: Perma-Fix of Florida FLD980711071  
Operating Permit 17680-006-HO



Dear Sirs::

With this submission, Perma-Fix of Florida is requesting that the following modifications be made to it's RCRA Part B Hazardous Waste Permit:

1. Enclosed is a copy of a revised Waste Analysis Plan (WAP) we are submitting for the Department's review. Upon approval, this would replace the existing WAP, found in our Permit Application dated November 12, 1999 as Attachment II.A.4.
2. Included in the existing WAP is a chart labeled "Waste Analysis Parameters, Rationale and Applicability, Attachment II.A.4.3" This chart has been revised to 1) include additional tests our lab now performs and 2) to update the PFF method numbers. Upon approval, this updated chart will replace the old one. Also, our Waste Profile Form, Attachment II.A.4.2, has been revised and is being submitted for review.
3. A copy of SOP-021C, Rev. 1 is being added to the WAP as Attachment II.A.4.6. This SOP expands the explanation of the Profile Review Process that is found in the current WAP
4. On May 30, 2002, the Department modified our operating permit by adding 14 waste codes for Chemotherapy drugs and other Pharmaceuticals. In our submission asking for the addition of the 14 codes, we overlooked several drugs that are used in the treatment of various types of cancer or that have other medicinal uses. We are asking that the following codes be added to Attachment A of our Operating permit under "Permitted Waste Codes for Storage in Processing and Storage Building"

P012 Arsenic Trioxide: used to treat acute pro-myelocytic leukemia

P188 Physostigmine salicylate: used to reverse the effects of some antidepressants

P204 Physostigmine: used to reverse the effects of some antidepressants

P001 Warfarin and salts, >0.3%: used as a blood thinner

U248 Warfarin and salts, <0.3%: used as a blood thinner

U205 Selenium sulfide: used as the sole active ingredient (2.5% strength) in the treatment of tinea versicolor, a fungal infection of the skin

U129 Lindane: used as the sole active ingredient (1% strength) in lotions/ointments for the treatment of scabies

The same rationale used of the addition of the 14 codes in 2002 will apply to these codes. These materials will be received as small containers (usually the manufacturer's original container) in lab packs, and will be processed by re-packaging them into larger lab packs for shipment to a Hazardous Waste Incinerator. As with the 2002 submission, we are not providing offsite consequence analysis for these codes due to the limited quantities that will be on site.

5. Currently, drum storage in the Processing and Storage Building (PSB) is limited to two drums high (referred to as double stacking). Perma-Fix would like to have Part IV - Container Storage Areas/Units, modified to allow triple stacking of palletized drums in the Chemotherapy Waste cage located in Zone 2 of the PSB.


Perma-Fix has received a "Restricted Rx Drug Distributer - Destruction Facility permit (#53 : 00010) from the State of Florida Bureau of Pharmacy. A requirement of this permit is that any un-dispensed pharmaceuticals received under this permit must be stored in a secure location protected by an alarm system; thus the installation of the chain link cage in Zone 2 of the PSB. Because space is at a premium in this area, allowing the triple stacking of palletized containers inside the cage will allow us to stay in compliance with this requirement by increasing by 50% the quantity of containers we can store in the cage. The containers the pharmaceuticals are packaged into are uniform in height, making the palletized loads stable. Add to this, they are protected from forklift traffic by the cage itself, so there is very little likelihood that the containers could be damaged or knocked over. Please note that we are not asking for an increase in the total amount of waste that can be stored in Zone 2, just that we be allowed to triple stack in one small area of the zone.

Pictures of the cage showing double stacked drums and triple stacked drums are attached.

A check for \$1,000 and a copy of this letter has been submitted under separate cover for this Class 2 Modification to FDEP, P O Box 3070, Tallahassee, Florida, 32315-3070

Please let me know if you have any questions.

Sincerely,



Ken Shoemake  
Environmental Health and Safety Manager

Enclosures:      Waste Analysis Plan  
                     Attachment II.A.4.3  
                     SOP-021C, Rev 1, Waste Profile Review  
                     Photographs of Pharmaceutical Storage Area

cc:      FDEP, Jacksonville, FL  
         EPA Region IV, Atlanta, GA

**Perma-Fix of Florida**  
**Waste Analysis Plan**

**1.0    Purpose**

This SOP describes how PFF will meet certain regulatory and permit requirements for the analysis of RCRA Hazardous waste received at the Gainesville facility. It will also serve as the written Waste Analysis Plan (WAP) required by 49CFR264.13 and referenced in Specific Conditions, Part II - Facility Operations, Paragraph 4 of the Facility's RCRA Part B Permit.

**2.0    Scope**

This SOP will apply to all RCRA regulated waste submitted for Pre-Approval analysis and for those wastes actually received at the Gainesville Facility.

**3.0    Definitions:**

PFF: Perma-Fix of Florida, Inc.

SOP: Standard operating procedure

RCRA: Resource Conservation and Recovery Act

FDEP: Florida Department of Environmental Regulation

TSDF: Treatment, Storage and Disposal Facility

DAW: Dry Active Waste

LDR: Land Disposal Restriction

PAS: Perma-Fix Analytical Services

EHS: Environmental Health and Safety Manager

**4.0    References**

SOP-021C, Rev. 1: Waste Profile Review and Approval

Perma-Fix Part B Application, November 12, 1999, Attachment II.A.4.3, Waste Analysis Parameters, Rationale and Applicability

FDEP-SOP-001/01, FS 5000, Field Sampling

**5.0    Responsibilities**

## **Perma-Fix of Florida**

### **Waste Analysis Plan**

The Environmental Health and Safety Manager is responsible for supervising the activities of the Waste Acceptance Supervisor and the Waste Sampling Technicians

Waste Sampling technicians are responsible for sampling incoming waste in accordance with this plan

The Waste Acceptance Supervisor is responsible for comparing analytical results from the testing of incoming waste to the appropriate profile and 1) if the received waste matches the profiled waste, releasing the waste to the Waste Treatment Group, 2) if the received waste does not conform to the corresponding waste profile, generate a non-conformance report identifying the non-conformance and the required corrective action.

Perma-Fix Analytical Lab employees are responsible for performing the required tests in accordance with the corresponding analytical method identified in Attachment B.

## **6.0 Procedure**

### **6.1 Background**

40CFR264.13(a) requires that before treating, storing or disposing of any hazardous waste, TSDF's must have all the information needed to properly treat, store or dispose of the hazardous waste.

40CFR264.13(b) requires that TSDF's have a written plan on how they will accomplish 264.13(a). The plan must specify

- the parameters that each waste will be analyzed for and how these analyses will provide sufficient information to comply with paragraph (a)
- which test methods will be used to test for these parameters
- the sampling method used to obtain a representative sample
- the frequency with which the initial analysis will be reviewed to insure it's accuracy
- what analysis the generator has agreed to supply

### **6.2 Incoming Wastes**

Wastes received at PFF fall into 4 major categories:

- Non-hazardous, non-radioactive wastes such as:
  - Diesel contaminated soils
  - Oil contaminated pads, booms and absorbent
  - Off-spec greases, lubricants

**Perma-Fix of Florida**  
**Waste Analysis Plan**

- Petroleum Contact Waters
  - Used oil and oily waters
- Non-hazardous, radioactive wastes such as:
  - DAW (dry active waste containing PPE, rags, wipes, glassware, pipettes, etc)
  - Debris
- Hazardous, radioactive wastes (mixed wastes) such as:
  - Lab packs
  - Bulk liquids (flammables, acids, bases, oxidizers)
  - Solids (soils, sludge's)
  - Debris
- Hazardous, non-radioactive wastes such as:
  - Flammable liquids
  - Hazardous waters
  - Solids (paint solids/sludge's, debris)
  - Lab packs

**6.3 Waste Stream Pre-approval Analysis**

Prior to sending any waste to PFF, the generator of the waste must submit a "Waste Profile", a copy of which is included as Attachment II.A.4.2. The profile details:

- Who is generating the waste
- The process that generated the waste
- The physical and chemical characteristics of the waste and
- Regulatory information (LDR form, Land Ban form, etc.)

The profile approval process is detailed in SOP-021C, Rev. 1 (Attachment II.A.4.6).

Nearly all Mixed wastes and Radioactive-only wastes are accepted without having a pre-approval sample submitted. The nature of the businesses that generate these wastes (Department of Energy, Pharmaceutical Manufacturers, Institutional Research, etc.) is such that the generator knows, with reasonable certainty, what is contained in the waste. This is a result of the requirement in their Radioactive Materials Licenses that they track the isotopes they are licensed for, and thereby, the chemicals the isotopes are mixed with.

For Hazardous and Non-hazardous only wastes, generator knowledge, MSDS's, technical bulletins, etc., often provide all the information needed to make a pre-approval determination. However, for those wastes where



**Perma-Fix of Florida**  
**Waste Analysis Plan**

limited or questionable information is available, a pre-approval analysis may be required.

The analysis required for a pre-approval sample will vary from sample to sample. For example, a Hazardous solids sample submitted for pre-approval may only need a BTU determination to verify it as a Fuel candidate or a material that will be bulked for disposal at a Class C landfill. A non-hazardous, non-radioactive sample, however, may be subjected to a more in-depth screening to assure that it is not hazardous or radioactive.

The following laboratory methods may be used in the Pre-approval process, dependant on the regulatory status and matrix type (solid or liquid) of the sample.

- |                         |   |
|-------------------------|---|
| • GC/FID                | Method # 4000-001   |
| • Flashpoint            | Method # 4000-002 (Miniflash) or<br>4000-005 (Pensky Martin)  |
| • Percent Water         | Method # 4000-003 (Karl Fisher)                               |
| • PH                    | Method # 4000-004 (electrode) or<br>4000-11 (indicator paper) |
| • BTU Content           | Method # 4000-008   |
| • Fuel Compatibility    | Method # 4000-013   |
| • Total Halides         | Method # 4000-014   |
| • Metals                | Method # 4000-015 (Total) or<br>4000-018 (TCLP)               |
| • Total Halide Rebuttal | Method # 4000-016 (GC/MS)                                     |

A full listing of the Analytical methods used by the PAS lab is included in this SOP as Attachment II.A.4.3.

#### **6.3.1 Waste Stream Recertification**

SOP-021C, Rev. 1 addresses the annual re-certification of waste profiles. Submission of additional samples of the waste stream during recertification is not required as long as the generator can certify that the chemical and physical characteristics of the waste have not changed.

#### **6.4 Waste Receipt Analysis**

Every waste stream received at the PFF facility is inspected and/or analyzed when it arrives. The following sections describe the different

**Perma-Fix of Florida**  
**Waste Analysis Plan**

categories of wastes received at PFF, the verification analysis performed and rationale used in determining what analysis to perform.

6.4.1 Waste exempt from sampling

The following types of waste streams will be subject to visual inspection only:

- Lab Packs
- Hazardous Only Solids such as
  - Paint solids
  - Soils
  - Debris

6.4.2 Hazardous Fuels (HF), Fuel Blend (B), Fuels with High Halogens (BH), Fuel Blend with Sludge (BS), High Solid Fuel Blend (BSO) and Fuel with High Water (BW):

All drums received in this category are sampled; if there is more than one drum of a waste stream, a composite sample made up of individual samples from all drums in that waste stream, is collected for analysis.

These waste streams will be tested for density and % water. If the % water is >20%, the pH will be determined. If the waste reacts with the Karl Fisher reagent during the water determination, a compatibility test will be performed.

These waste streams are mostly paint related materials, solvents from hospitals, labs, manufacturing operations, etc. Historically, these tests have been sufficient for screening. A sample from the tanker these materials are bulked into is analyzed with each shipment and has shown that the combined wastes are consistent with the profiled materials. All liquids from this category are sent to an RCRA Permitted Energy Recovery facility (cement kiln) for final treatment (combustion or CMBST).

Depending on the treatment process to be used, any of the analytical methods shown in Attachment II.A.4.3 may be used.

6.4.3 Hazardous waters (HW):

All drums in this category are sampled; if there is more than one drum of a waste stream, a composite sample from all drums in that waste stream is collected for analysis.

**Perma-Fix of Florida**  
**Waste Analysis Plan**

This waste stream will be tested for density, % water and pH. If the waste reacts with the Karl Fisher reagent during the water determination, a compatibility test will be performed.

This waste stream consists of water that has been contaminated with hazardous constituents such as solvents, metals, etc. Examples include oily water from sumps, gas contaminated water from monitoring wells, etc. Historically, these tests have been sufficient for screening. A sample from the tanker these materials are bulked into is analyzed prior to each shipment and has shown that the combined wastes are consistent with the profiled materials. All liquids from this waste stream sent to a permitted hazardous waste incinerator for final treatment (combustion or CMBST).

Depending on the treatment process to be used, any of the analytical methods shown in Attachment II.A.4.3 may be used.

**6.4.4 Mixed Wastes:**

Mixed Wastes (wastes that are RCRA hazardous and Radioactive) fall into two major categories. One is liquids, whose final destination will be PESI's facility in Kingston, TN (for energy recovery). Ash from this Boiler/Industrial Furnace is sent to Envirocare of Utah. The second mixed waste is solids and sludge's, which undergo various treatment processes (PF I, PF II, consolidation, etc) prior to Land Disposal at Envirocare of Utah

Mixed wastes are subjected to a much more stringent incoming waste analysis than Hazardous only liquids for several reasons. Many mixed waste streams from Department of Energy sites may be 10, 15, up to 30 years old. It is not uncommon for generator knowledge on these wastes to be vague at best. Many wastes have been repeatedly over packed as outer containers deteriorate with time, creating the potential for mistakes in labeling and waste tracking.

All mixed wastes (with the exception of lab packs) received at PFF are subjected to a basic 5 test fingerprint analysis consisting of 1) specific gravity, 2) % water, 3) pH, 4) total halides and 5) flashpoint.

Depending on the treatment process to be used, any of the analytical methods shown in Attachment II.A.4.3 may be used.

**Perma-Fix of Florida**  
**Waste Analysis Plan**

**6.5 Non-Conforming Waste:**

Wastes are considered to be non-conforming under the following conditions:

**6.5.1 Analytical results are significantly different from data provided on the profile:**

- The pH is more than  $\pm 2$  units from the pH shown on the profile
- The difference in water content is  $\pm 30\%$  of the profiled value
- The flashpoint is  $\pm 30\%$  different from the profiled value
- The halogen content is greater than  $\pm 10\%$  from the profiled value

**6.5.2 Analytical results indicate that the waste exhibits a RCRA characteristic not shown on the profile. For example:**

- A material is profiled as non-hazardous but analytical shows it to be ignitable, corrosive, contain metals or organics above TCLP limits, etc.
- A material is profiled as hazardous but is shown to have RCRA characteristics not on the approved profile

Non-conforming waste will be handled in the following manner:

- A non-conformance report will be generated by the Waste Acceptance Supervisor (WAS), detailing why the waste is non-conforming. If the waste is still one that PFF can process, the WAS will then contact the generator or broker to get their permission to:
  - Make changes to the profile so that it matches the analytical
  - Generate a Hazardous Waste Manifest if the material has been determined to be hazardous and was shipped as Non-Hazardous
  - If the waste was shipped as Hazardous, make any necessary changes to the Hazardous Waste Manifest (add codes, change shipping description, etc).

The WAS will also generate any Un-manifested Waste reports required by FDEP and submit them in a timely manner

- If the generator disputes the analytical generated from the incoming waste analysis, PFF may agree to send a sample of the waste to an independent outside lab. Another option will be to return the waste to the generator.

**Perma-Fix of Florida**  
**Waste Analysis Plan**

**6.6 Waste Sampling Methods**

EVERY container of liquid waste received at PFF will be sampled for profile verification. If 2 or more drums of a waste stream are received, a composite sample made up of a representative sample from every drum will be collected and submitted for profile verification.

“Hazardous only” solid wastes are subject to visual inspection only (6.4.1).

Samples taken for waste receipt verification must be placed in sample containers that 1) will not react with the sampled material and 2) will not leach and contaminate the material sampled.

Sampling methods for incoming wastes will be those outlined in 40CFR261 Appendix I, Florida DEP SOP-001/01, FS 5000 Waste Sampling, or equivalent.

## ATTACHMENT II.A.4.2



# WASTE PROFILE

Perma-Fix Nuclear Services: DSSI \* M&EC \* Perma-Fix of Florida

Profile Number

## Generator Information:

EPA ID#

Generator Name

Generator Address

City/State/Zip

Telephone

Fax

## Billing Information:

☐ Electronic users: check here to copy Generator info, if same.

Broker/Site

Address

City/ST/Zip

Telephone

Fax

## Check all that apply

☐ Hazardous Waste - Include LDR-UHC Constituent Form

☐ Mercury >260 PPM

☐ Oxidizers

☐ Elemental Mercury

☐ Reactives - specify:

☐ TSCA Regulated PCB

☐ PCB Bulk Products

☐ PCB Remediation Waste

☐ PCB Articles

☐ Radioactive Waste

☐ Non-Hazardous Waste

☐ Universal Waste

☐ Used Oil Filter

☐ Used Oil

Please provide a detailed description of the process that generated this waste. Attach additional sheets if needed.

Note: for a line break, press alt-return.

## Characterization Method: (check ONE only)

☐ Laboratory Analysis

☐ MSDS

☐ Generator Knowledge

## Physical Description: (check all that apply)

☐ Solid

☐ Liquid

☐ Sludge

☐ Debris

☐ Labpack (add inventory form)

☐ Other:

Volume:

(include units: 30 liters, 5 gal., etc)

Gross Weight:

(include units: 75 lbs, 10 kg, etc.)

Container Type:

Total Number of Containers:

Overpacked:

☐ Yes

☐ No

US DOT Hazardous Material:

☐ Yes

☐ No

Proper Shipping Name:

DOT Hazard Class:

primary

subsidiary

☐ This waste stream is subject to the Land Disposal Restriction of 40 CFR 268.

(If checked, complete a Land Disposal Restriction Notification form)

☐ This waste stream contains Benzene.

(If checked, complete the Benzene NESHAP Worksheet)

☐ This waste stream consists of off-spec used oil.

☐ This is a CERCLA waste.

## For Broker Use Only

I certify the following:

The packages used to ship this material meet the requirements of 40 CFR 173 Subpart B (HazMat). This material will be inspected for consistency with the preapproved profile at the time of transportation.

Name

Date

## CHEMICAL PROPERTIES AND COMPOSITION:

Percent Free

Liquid: % (None=0%, all=100%)

Percent Settled

Solids: % (None=0%, all=100%)

Viscosity:

Centistokes

pH Actual:

OR Range: to

Specific Gravity

Actual: OR Range: to

## CERTIFICATION

I certify that all hazards, known or suspected, have been disclosed on this profile. Further I understand that a surcharge may be imposed for any material which is rejected or requires additional handling due to the material being inconsistent with the profile, improper or damaged containers, or improper shipping documents.

1. Any sample submitted is representative as defined in 40 CFR 261-Appendix I or is obtained using an equivalent method.

2. I authorize Perma-Fix to obtain a sample from any waste shipment for purposes of verification.

Name Title Date

## Perma-Fix Use Only

☐ Accepted

☐ Accepted with the following conditions:

☐ Rejected for the following reasons:

Designated Facility:

☐ DSSI

☐ M&EC

☐ PF Florida

Perma-Fix has all of the necessary permits and licenses for the waste that has been characterized and identified by this approved profile and accepted by Perma-Fix.

Name Title Date

Name Nuclear Profile

This Page Rev 9/9/02

Page 1 of 12

## Perma-Fix Environmental Services

### LAB PACK - DRUM INVENTORY

Generator Name: \_\_\_\_\_  
DOT Shipping Name: \_\_\_\_\_  
Hazard Class: UN/NA ID No.: \_\_\_\_\_

Perma-Fix Profile No.: \_\_\_\_\_  
 Generator Drum No.: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_ per drum  
 Outer Container Type/Size: \_\_\_\_\_

**NOTE:** Line item numbers on this sheet must be entered on labels affixed to inner containers holding materials/chemicals identified on the corresponding line. Materials/chemicals that appear in the "U" or "P" hazardous waste list must have the EPA hazardous waste code; otherwise, enter "used", "spent" or "more than one active ingredient", if it applies, to explain why the code is not assigned.

[illegible]

**CERTIFICATION:** The listing above is an accurate and complete description of the contents of this drum, and they are packed in accordance to 49 CFR§173.12.

GENERATOR NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_

PACKED BY: \_\_\_\_\_

\*Physical State: S=Solid; L=Liquid; R=Residue (sludge), A=Aerosol; G=Gas

**\*\*Container Type:** G=Glass; M=Metal; P=Plastic; F=Fiber; A=Aerosol Can; C=Gas Cylinder

## RADIOACTIVE WASTE ADDENDUM

DSSI• M&EC• Perma-Fix of Florida  
(Per Waste Stream)

[Help creating more of  
these worksheets](#)

### A. RADIOACTIVITY (per Waste Stream)

Radionuclides	Activity (mCi) *	Concentration

Radionuclides	Activity (mCi) *	Concentration

Radionuclides	Activity (mCi) *	Concentration

SNM in grams:

Total Pu:

U-235:

U-233:

### B. RADIATION LEVELS FROM OUTSIDE SURFACE OF PACKAGE(S):

Max:  mR/hr

Avg:  mR/hr

☐ Check here if additional information concerning this **Waste Stream** is attached and indicate the number of attached pages:

#### How to Fill out this Form

*What is a Waste Stream:*

1. If there are different types of waste, there are different waste streams (i.e. liquids, soil, PPE are different waste streams)
2. Multiple containers of the same type of waste are considered part of one waste stream (i.e. 4 drums of LSV).
3.
  - a. Annual profiling is required by generator only, not by shipment or package.
  - b. Total types of radionuclides are to be listed. Total radioactivity is not required.
  - c. Each drum will be priced upon receipt according to established fee schedules. If there are questions, please contact Perma-Fix prior to shipping.

For each radionuclide in this particular Waste Stream, list the radionuclide (i.e. Cs-137) and the activity in millicuries, and the concentration or specific Activity (*activity per unit mass*).

Measure the outside of the package(s) and record the highest reading.

#### **Help creating additional Rad Waste Addendum worksheets**

1. With your mouse, move the cursor over the tab below which is marked **Rad Waste Addendum**.
2. Click using your right mouse button.
3. Select the option **Move or Copy...**
4. In the box **Before sheet:**, highlight **LDR**.
5. Also check the box labeled **Create a copy**.
6. Hit **OK**.
7. A duplicate worksheet will be created and it will be called **Rad Waste Addendum (2)**.
8. Repeat the above procedure as often as required.

Rev. 5/02

**PERMA-FIX ENVIRONMENTAL SERVICES  
WASTE CODE INFORMATION**

*Please list all D,F,K,P and U codes that this waste carries.*

<b>EPA Hazardous Waste Codes</b>				

**ADDITIONAL CHEMICAL CONSTITUENT DISCLOSURE**

List any known chemical components that are not reported elsewhere in the profile.

Attach additional sheets if necessary.

*(Constituents should add up to 100%)*

Chemical Constituents	Concen- tration	(Units)

Chemical Constituents	Concen- tration	(Units)

## DSSI • M&amp;EC • Perma-Fix of Florida

Generator USEPA ID No. [REDACTED]  
City/ST/Zip [REDACTED]  
Manifest Doc. No. [REDACTED]

- 1 In Column 1 identify all USEPA hazardous waste codes that apply to this waste shipment.
- 2 In Column 2, choose the appropriate treatability group: Non-Wastewater (NWW) or Wastewater (WW).
- 3 In Column 3, enter the appropriate Subcategory, if applicable, and also enter "Contaminated Soil" or "Debris" if the waste can be treated using one of the alternative treatment technologies provided by 268.49(c) (soil) or 268.45 (debris).
- 4 In Column 4, place an "x" in the block that corresponds to the appropriate LDR management category described at the bottom of this form.
- 5 In Column 5, enter the Reference Number(s) from the LDR-UIC Constituent Table for any constituents subject to treatment in your waste stream.

Manifest Line Item #	1. USEPA HAZARDOUS WASTE CODES	2. NWW or WW	3. SUBCATEGORY	4. HOW MUST THE WASTE BE MANAGED (Check one)										5. REFERENCE NUMBER(s) of Hazardous Constituents contained in the waste.	
				A	B	C	D	E	F	G	H	Soll Only			
11.A		NWW										Does		Is subject to	
		WW									Does Not		complies with		
11.B		NWW										Does		is subject to	
		WW									Does Not		complies with		
11.C		NWW										Does		is subject to	
		WW									Does Not		complies with		
11.D		NWW										Does		is subject to	
		WW									Does Not		complies with		

Generator Name	Title	Date
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- Nuclear Profile  
This Page Revised 8/21/02

**Resource Guide**  
**Underlying Hazardous Constituent (UHC)**  
**Land Disposal Restriction (LDR) Constituents**

Ref #:	Hazardous Constituent	CAS NO.	NWW (mg/kg)	WW (mg/kg)	Concentration			
					11a	11b	11c	11d
1	Acenaphthene	83-32-9	3.4	0.059				
2	Acenaphthylene	208-96-8	3.4	0.059				
3	Acetone	67-64-1	160	0.28				
4	Acetonitrile	75-05-8	38	5.6				
5	Acetophenone	96-86-2	9.7	0.01				
6	2-Acetylaminofluorene	53-96-3	140	0.059				
7	Acrolein	107-02-8	NA	0.29				
8	Acrylonitrile	107-13-1	84	0.24				
9	Acrylamide	79-06-1	23	19				
10	Aldrin	309-00-2	0.066	0.021				
11	4-Aminobiphenyl	92-67-1	NA	0.13				
12	Aniline	62-53-3	14	0.81				
13	Anthracene	120-12-7	3.4	0.059				
14	Aramite	140-57-8	NA	0.36				
15	alpha-BHC	319-84-6	0.066	0.00014				
16	beta-BHC	319-85-7	0.066	0.00014				
17	delta-BHC	319-86-8	0.066	0.023				
18	gamma-BHC (Lindane)	58-89-9	0.066	0.0017				
19	Benz(a)anthracene	56-55-3	3.4	0.059				
20	Benzal chloride	98-87-3	6	0.055				
21	Benzene	71-43-2	10	0.14				
22	Benzo(a)pyrene	50-32-8	3.4	0.061				
23	Benzo(b)fluoranthene	205-99-2	6.8	0.11				
24	Benzo(k)fluoranthene	207-08-9	6.8	0.11				
25	Benzo(g,h,i)perylene	191-24-2	1.8	0.0055				
26	bis(2-Chloroethoxy)methane	111-91-1	7.2	0.036				
27	bis(2-Chloroethyl)ether	111-44-4	6	0.033				
28	bis(2-Chloroisopropyl) ether	39638-32-9	7.2	0.055				
30	Bromodichloromethane	75-27-4	15	0.35				
31	Bromomethane (Methyl bromide)	74-83-9	15	0.11				
32	4-Bromophenyl phenyl ether	101-55-3	15	0.055				
33	n-Butyl alcohol	71-36-3	2.6	5.6				
34	Butyl benzyl phthalate	85-68-7	28	0.017				
35	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	2.5	0.066				
36	Carbon disulfide	75-15-0	4.8*	3.8				
37	Carbon tetrachloride	56-23-5	6	0.057				
38	Chlordane (alpha and gamma isomers)	57-74-9	0.26	0.0033				
39	p-Chloroaniline	106-47-8	16	0.46				
40	Chlorobenzene	108-90-7	6	0.057				
41	Chlorobenzilate	510-15-6	NA	0.1				
42	2-Chloro-1, 3-butadiene (Chloroprene)	126-99-8	0.28	0.057				
43	Chlorodibromomethane	124-48-1	15	0.057				
44	Chloroethane	75-00-3	6	0.27				
45	Chloroform	67-66-3	6	0.046				
46	p-Chloro-m-cresol	59-50-7	14	0.018				
47	2-Chloroethyl vinyl ether	110-75-8	NA	0.062				
48	Chloromethane (Methyl chloride)	74-87-3	30	0.19				
49	2-Chloronaphthalene	91-58-7	5.6	0.055				
50	2-Chlorophenol	95-57-8	5.7	0.044				
51	3-Chloropropylene (Allyl Chloride)	107-05-1	30	0.036				
52	Chrysene	218-01-9	3.4	0.059				



Ref #:	Hazardous Constituent	CAS NO.	NWW (mg/kg)	WW (mg/kg)	Concentration			
					11a	11b	11c	11d
53	o-Cresol (2-Methyl phenol)	95-48-7	5.6	0.11				
54	m-Cresol (3-Methyl phenol)	108-39-4	5.6	0.77				
55	p-Cresol (4-Methyl phenol)	106-44-5	5.6	0.77				
56	Cyclohexanone	108-94-1	0.75 *	0.36				
57	o,p'-DDD	53-19-0	0.087	0.023				
58	p,p'-DDD	72-54-8	0.087	0.023				
59	o,p'-DDE	3424-82-6	0.087	0.031				
60	p,p'-DDE	72-55-9	0.087	0.031				
61	o,p'-DDT	789-02-6	0.087	0.0039				
62	p,p'-DDT	50-29-3	0.087	0.0039				
63	Dibenz(a,h)anthracene	53-70-3	8.2	0.055				
64	Dibenz(a,e)pyrene	192-65-4	NA	0.061				
65	1,2-Dibromo-3-chloropropane	96-12-8	15	0.11				
66	1,2-Dibromoethane (Ethylene dibromide)	106-93-4	15	0.028				
67	Dibromomethane	74-95-3	15	0.11				
68	m-Dichlorobenzene (1,3-Dichlorobenzene)	541-73-1	6	0.036				
69	o-Dichlorobenzene (1,2-Dichlorobenzene)	95-50-1	6	0.088				
70	p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	6	0.09				
71	Dichlorodifluoromethane	75-71-8	7.2	0.23				
72	1,1-Dichloroethane	75-34-3	6	0.059				
73	1,2-Dichloroethane	107-06-2	6	0.21				
74	1,1-Dichloroethylene	75-35-4	6	0.025				
75	trans-1,2-Dichloroethylene	156-60-5	30	0.054				
76	2,4-Dichlorophenol	120-83-2	14	0.044				
77	2,6-Dichlorophenol	87-65-0	14	0.044				
78	2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	10	0.72				
79	1,2-Dichloropropane	78-87-5	18	0.85				
80	cis-1,3-Dichloropropylene	10061-01-5	18	0.036				
81	trans-1,3-Dichloropropylene	10061-02-6	18	0.036				
82	Dieldrin	60-57-1	0.13	0.017				
83	Diethyl phthalate	84-66-2	28	0.2				
84	p-Dimethylaminoazobenzene	60-11-7	NA	0.13				
85	2,4-Dimethyl phenol	105-67-9	14	0.036				
86	Dimethyl phthalate	131-11-3	28	0.047				
87	Di-n-butyl phthalate	84-74-2	28	0.057				
88	1,4-Dinitrobenzene	100-25-4	2.3	0.32				
89	4,6-Dinitro-o-cresol	534-52-1	160	0.28				
90	2,4-Dinitrophenol	51-28-5	160	0.12				
91	2,4-Dinitrotoluene	121-14-2	140	0.32				
92	2,6-Dinitrotoluene	606-20-2	28	0.55				
93	Di-n-octyl phthalate	117-84-0	28	0.017				
94	Di-n-propylnitrosamine	621-64-7	14	0.4				
95	1,4-Dioxane	123-91-1	170	12				
96	Diphenylamine	122-39-4	13	0.92				
97	Diphenylnitrosamine	86-30-6	13	0.92				
98	1,2-Diphenylhydrazine	122-66-7	NA	0.087				
99	Disulfoton	298-04-3	6.2	0.017				
100	Endosulfan I	959-98-9	0.066	0.023				
101	Endosulfan II	33213-65-9	0.13	0.029				
102	Endosulfan sulfate	1031-07-8	0.13	0.029				
103	Endrin	72-20-8	0.13	0.0028				
104	Endrin aldehyde	7421-93-4	0.13	0.025				
105	2-Ethoxyethanol (FO05)+			INCIN				
106	Ethyl acetate	141-78-6	33	0.34				
107	Ethyl benzene	100-41-4	10	0.057				

Ref #:	Hazardous Constituent	CAS NO.	NWW (mg/kg)	WW (mg/kg)	Concentration			
					11a	11b	11c	11d
108	Ethyl ether	60-29-7	160	0.12				
109	Ethyl methacrylate	97-63-2	160	0.14				
110	Ethylene oxide	75-21-8	NA	0.12				
111	Famphur	52-85-7	15	0.017				
112	Fluoranthene	206-44-0	3.4	0.068				
113	Fluorene	86-73-7	3.4	0.059				
114	Heptachlor	76-44-8	0.066	0.0012				
115	Heptachlor epoxide	1024-57-3	0.066	0.016				
116	Hexachlorobenzene	118-74-1	10	0.055				
117	Hexachlorobutadiene	87-68-3	5.6	0.055				
118	Hexachlorocyclopentadiene	77-47-4	2.4	0.057				
119	HxCDDs (All Hexachlorodibenzo-p-dioxin)	NA	0.001	0.000063				
120	HxCDFs (All Hexachlorodibenzofurans)	NA	0.001	0.000063				
121	Hexachloroethane	67-72-1	30	0.055				
122	Hexachloropropylene	1888-71-7	30	0.035				
123	Indeno (1,2,3-c,d) pyrene	193-39-5	3.4	0.0055				
124	Iodomethane	74-88-4	65	0.19				
125	Isobutyl alcohol (Isobutanol)	78-83-1	170	5.6				
126	Isodrin	465-73-6	0.066	0.021				
127	Isosafrole	120-58-1	2.6	0.081				
128	Kepone	143-50-0	0.13	0.0011				
129	Methacrylonitrile	126-98-7	84	0.24				
130	Methanol	67-56-1	0.75 *	5.6				
131	Methapyrilene	91-80-5	1.5	0.081				
132	Methoxychlor	72-43-5	0.18	0.25				
133	3-Methylchloroanthrene	56-49-5	15	0.0055				
134	4,4-Methylene bis (2-chloroaniline)	101-14-4	30	0.5				
135	Methylene chloride	75-09-2	30	0.089				
136	Methyl ethyl ketone	78-93-3	36	0.28				
137	Methyl isobutyl ketone	108-10-1	33	0.14				
138	Methyl methacrylate	80-62-6	160	0.14				
139	Methyl methanesulfonate	66-27-3	NA	0.018				
140	Methyl parathion	298-00-0	4.6	0.014				
141	Naphthalene	91-20-3	5.6	0.059				
142	2-Naphthylamine	91-59-8	N/A	0.52				
143	o- Nitroaniline	88-74-4	14	0.27				
144	p-Nitroaniline	100-01-6	28	0.028				
145	Nitrobenzene	98-95-3	14	0.068				
146	5-Nitro-o-toluidine	99-55-8	28	0.32				
147	o-Nitrophenol	88-75-5	13	0.028				
148	p-Nitrophenol	100-02-7	29	0.12				
149	2-Nitropropane (FO05)+			INCIN				
150	N-Nitrosodiethylamine	55-18-5	28	0.4				
151	N-Nitrosodimethylamine	62-75-9	2.3	0.4				
152	N-Nitroso-di-n-butylamine	924-16-3	17	0.4				
153	N-Nitrosomethylethylamine	10595-95-6	2.3	0.4				
154	N-Nitrosomorpholine	59-89-2	2.3	0.4				
155	N-Nitrosopiperidine	100-75-4	35	0.013				
156	N-Nitrosopyrrolidine	930-55-2	35	0.013				
157	Parathion	56-38-2	4.6	0.014				
158	Total PCBs	1336-36-3	10	0.1				
159	Pentachlorobenzene	608-93-5	10	0.055				
160	PeCDDs (All Pentachlorodibenzo-p-dioxin)	NA	0.001	0.000063				
161	PeCDFs (All Pentachlorodibenzofurans)	NA	0.001	0.000035				
162	Pentachloroethane	76-01-7	6	0.055				

Ref #:	Hazardous Constituent	CAS NO.	NWW (mg/kg)	WW (mg/kg)	Concentration			
					11a	11b	11c	11d
163	Pentachloronitrobenzene	82-68-8	4.8	0.055				
164	Pentachlorophenol	87-86-5	7.4	0.089				
165	Phenacetin	62-44-2	16	0.081				
166	Phenanthrene	85-01-8	5.6	0.059				
167	Phenol	108-95-2	6.2	0.039				
168	Phorate	298-02-2	4.6	0.021				
169	Phthalic acid	100-21-0	28	0.055				
170	Phthalic anhydride	85-44-9	28	0.055				
171	Pronamide	23950-58-5	1.5	0.093				
172	Propanenitrile (Ethyl cyanide)	107-12-0	360	0.24				
173	Pyrene	129-00-0	8.2	0.067				
174	Pyridine	110-86-1	16	0.014				
175	Safrole	94-59-7	22	0.081				
176	Silvex (2,4,5-TP)	93-72-1	7.9	0.72				
177	1,2,4,5-Tetrachlorobenzene	95-94-3	14	0.055				
178	TCDDs (All Tetachlorodibenzo-p-dioxins)	NA	0.001	0.000063				
179	TCDFs (All Tetrachlorodibenzofurans)	NA	0.001	0.000063				
180	1,1,1,2-Tetrachloroethane	630-20-6	6	0.057				
181	1, 1,2,2-Tetrachloroethane	79-34-5	6	0.057				
182	Tetrachloroethylene	127-18-4	6	0.056				
183	2,3,4,6-Tetrachlorophenol	58-90-2	7.4	0.03				
184	Toluene	108-88-3	10	0.08				
185	Toxaphene	8001-35-2	2.6	0.0095				
186	Tribromomethane (Bromoform)	75-25-2	15	0.63				
187	1,2,4-Trichlorobenzene	120-82-1	19	0.055				
188	1, 1, 1 -Trichloroethane	71-55-6	6	0.054				
189	1, 1,2-Trichloroethane	79-00-5	6	0.054				
190	Trichloroethylene	79-01-6	6	0.054				
191	Trichloromonofluoromethane	75-69-4	30	0.02				
192	2,4,5-Trichlorophenol	95-95-4	7.4	0.18				
193	2,4,6-Trichlorophenol	88-06-2	7.4	0.035				
194	2,4,5-Trichlorophenoxyacetic acid/2,4,5-	93-76-5	7.9	0.72				
195	1,2,3-Trichloropropane	96-18-4	30	0.85				
196	1,1,2-Trichloro- 2,2,2-trifluoroethane	76-13-1	30	0.057				
197	tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.1	0.011				
198	Vinyl chloride	75-01-4	6	0.27				
199	Xylenes	1330-20-7	30	0.32				
200	Antimony	7440-36-0	1.15*	1.9				
201	Arsenic	7440-38-2	5.0 *	1.4				
202	Barium	7440-39-3	21 *	1.2				
203	Beryllium	7440-41-7	1.22 *	0.82				
204	Cadmium	7440-43-9	0.11 *	0.69				
205	Chromium (Total)	7440-47-3	0.60 *	2.77				
206	Cyanides (Total)	57-12-5	590	1.2				
207	Cyanides (Amenable)	57-12-5	30	0.86				
208	Fluoride	16984-48-8	NA	35				
209	Lead	7439-92-1	0.75 *	0.69				
210	Mercury (retort residues)	7439-97-6	0.2 *	NA				
211	Mercury (all others)	7439-97-6	0.025 *	0.15				
212	Nickel	7440-02-0	11 *	3.98				
213	Selenium	7782-49-2	5.7 **,	0.82				
214	Silver	7440-22-4	0.14	0.43				
215	Sulfide	18496-25-8	NA	14				
216	Thallium	7440-28-0	0.2	1.4				
217	Vanadium	7440-62-2	1.6**,	4.3				

Ref #:	Hazardous Constituent	CAS NO.	NWW (mg/kg)	WW (mg/kg)	Concentration			
					11a	11b	11c	11d
218	Zinc	7440-66-6	4.3*,**	2.61				
220	Aldicarb sulfone	1646-88-4	0.28	0.056				
221	Barban	101-27-9	1.4	0.056				
222	Bendiocarb	22781-23-3	1.4	0.056				
224	Benomyl	17804-35-2	1.4	0.056				
225	Butylate	2008-41-5	1.4	0.042***				
226	Carbaryl	63-25-2	0.14	0.006				
227	Carbenzadim	10605-21-7	1.4	0.056				
228	Carbofuran	1563-66-2	0.14	0.006				
229	Carbofuran phenol	1563-38-8	1.4	0.056				
230	Carbosulfan	55285-14-8	1.4	0.028				
231	m-Cumenyl methylcarbamate	64-00-6	1.4	0.056				
233	Diethylene glycol, dicarbamate	5952-26-1	1.4	0.056				
235	Dithiocarbarnates (total)	137-30-4	28	0.028				
236	EPTC	759-94-4	1.4	0.042				
237	Formetanate hydrochloride	23422-53-9	1.4	0.056				
241	Methiocarb	2032-65-7	1.4	0.056				
242	Methomyl	16752-77-5	0.14	0.028				
243	Metolcarb	1129-41-5	1.4	0.056				
244	Mexacarbate	315-18-4	1.4	0.056				
245	Molinate	2212-67-1	1.4	0.042				
246	Oxaryl	23135-22-0	0.28	0.056				
247	Pebulate	1114-71-2	1.4	0.042				
249	Physostigmine	57-47-6	1.4	0.056				
250	Physostigmine salicylate	57-64-7	1.4	0.056				
251	Promecarb	2631-37-0	1.4	0.056				
252	Propharn	122-42-9	1.4	0.056				
253	Propoxur	114-26-1	1.4	0.056				
254	Prosulfocarb	52888-80-9	1.4	0.042				
255	Thiodicarb	59669-26-0	1.4	0.019				
256	Thiophanate-methyl	23564-05-8	1.4	0.056				
258	Triallate	2303-17-5	1.4	0.042				
259	Triethylamine	101-44-8	1.5	0.081				
260	Vernolate	1929-77-7	1.4	0.042				

\* "Concentration in mg/l TCLP"

\*\* Not Underlying Hazardous Constituents. (See 60 FR, Jan. 3,1995)

\*\*\* The preamble to the final rule (61 FR 15584) clearly indicates that the wastewater treatment standard for thiocarbamate constituents has been revised to 0.042mg/l. However, the §268.48 universal treatment standards table still shows 0.003 mg/l.

‡ These UTS levels are effective on August 24, 1998 as established in 63 FIR 28556-28753, the finalized Phase IV-Part 2 land disposal restrictions (LDR) rule.

**BENZENE NESHAQ QUESTIONNAIRE**

DSSI • M&amp;EC • Perma-Fix of Florida

Generator:

Profile Number:

1. Does your facility have one of the following SIC codes?

2812 Alkalies and Chlorine	2861 Gum and Wood Chemicals
2813 Industrial Gases	2865 Cyclic Crudes and Intermediates
2816 Inorganic Pigments	2869 Industrial Organic Chemicals, NEC
2819 Industrial Inorganic Chemicals, NEC	2873 Nitrogenous Fertilizers
2821 Plastic Materials and Resins	2874 Phosphatic Fertilizers
2822 Synthetic Rubber	2875 Fertilizers, Mixing Only
2823 Cellulose Man-Made Fibers	2879 Agricultural Chemicals, NEC
2824 Organic Fibers, non-cellulosic	2891 Adhesives and Sealants
2833 Medicinals and Botanicals	2892 Explosives
2834 Pharmaceutical Preparations	2893 Printing Ink
2835 Diagnostic Substances	2895 Carbon Black
2836 Biological Products, exc. Diagnostic	2899 Chemical Preparations, NEC
2841 Soap and Other Detergents	2911 Petroleum Refining
2842 Polishes and Sanitation Goods	3312 Blast Furnaces and Steel Mills
2843 Surface Active Agents	4953 Waste Management, NEC
2844 Toilet Preparations	9511 Air, Water and Solid Waste Management
2851 Paint and Allied Products	

**NEC = not elsewhere classified**

- ☐ Yes Please go to the next question.  
☐ No STOP. Please fill in your Name, Title and Date at the end of this form.

2. What is your facility's total annual benzene (TAB) quantity generated?

 (lb/yr)

If TAB is **less than 22,000 lb/yr**, STOP. Please fill in your Name, Title and Date at the end of this form.

3. Is the TOTAL benzene concentration of this waste greater than 10 ppmw?

- ☐ Yes Please go to the next question.  
☐ No STOP. Please fill in your Name, Title and Date at the end of this form.

4. Does this waste stream contain greater than 10% water?

- ☐ Yes  
☐ No This waste stream is exempt.

**Certification**

I hereby certify, under penalty of law, that the above information is true, accurate and complete to the best of my knowledge.

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

Name

Title

Date

**PCB ADDENDUM**  
DSSI • M&EC • Perma-Fix of Florida

Generator:

Profile Number:

**Waste Description**

*Please complete all sections of the table for each PCB waste stream*

Physical Description of Waste (e.g., sludge, dielectric fluid)	Number/Type of Containers	Total PCB Waste Weight	Date Article Removed from Service for Disposal	Total PCB Concentration

**Certification**

I hereby certify, under penalty of law, that the above information is true, accurate and complete to the best of my knowledge.

--	--	--

Name

Title

Date

## ATTACHMENT II A.4.3



**Revision of Perma-Fix of Florida Analytical Methods****Attachment II.A.4.3****Waste Analysis Parameters, Rationale and Applicability**

<b>Parameter</b>	<b>Rationale</b>	<b>PFF Method No.</b>	<b>Reference Analytical Methods</b>	<b>Applicability</b>
GC/FID (non purge volatiles)	Waste characteristic, qualitative and quantitative evaluation of organic/hydrocarbons	4000-001	SW-846 8000B, SW-846 8015B	Fuels
Flash Point (Miniflash)	Waste characteristic, determine ignitability	4000-002	SW-846 1020A	Non-haz waste streams
Percent Water (KF)	Waste characteristic, fingerprint	4000-003	SW-846 9000	Waste fuel streams PTP liquid streams
pH Electrode	Waste characteristic, fingerprint	4000-004	SW-846 9040B, SW-846 9045C	Liquid waste streams >20% H <sub>2</sub> O
Flash Point (Pensky-Martin)	Waste characteristic, determine ignitability	4000-005	SW-846 1010	Non-haz waste streams
GC/MS (Semi-Volatiles)	Waste characteristic, qualitative and quantitative evaluation of selected target semivolatile compounds	4000-006	SW-846 8270D	PTP liquid streams PTP solid streams
Inorganic Chlorides	Waste characteristic, determine corrosiveness for wastes processed by thermal desorption	4000-007	SW-846 9212	PTP solid streams
BTU Content	Waste characteristic	4000-008	Parr Operations Manual	Fuels
Density/Specific Gravity	Waste characteristic, fingerprint	4000-009	PFF Protocol	All liquid waste streams
GC/ECD (PCB)	Screen for TSCA wastes	4000-010	SW-846 8000B, SW-846 8082	Waste paint Used oil Petroleum contaminated soil Petroleum contact water

Revision of Perma-Fix of Florida Analytical Methods  
Attachment II.A.4.3  
Waste Analysis Parameters, Rationale and Applicability

Parameter	Rationale	PFF Method No.	Reference Analytical Methods	Applicability
Metals Prep. & Digestion	Waste characteristic	4000-011	SW-846 3005A, SW-846 3010A, SW-3050B	PTP metals stream TCLP (PTP treated metals)
pH Indicator Paper	Waste characteristic, fingerprint	4000-012	SW-846 9041A	Liquid waste streams >20% H <sub>2</sub> O
Fuel Compatibility	Waste characteristic, fingerprint	4000-013	PFF Protocol	Waste Fuels
TX (Total Halides)	Fingerprint, screen for total halide content	4000-014	SW-846 9076, SW-846 9023	Halogenated solvents Waste streams
ICP (Metals)	Waste characteristic	4000-015	SW-846 6010B	PTP metals stream TCLP (PTP treated metals)
GC/MS (Volatiles)	Waste characteristic, qualitative and quantitative evaluation of selected target volatile compounds	4000-016	SW-846 8260B	PTP liquid streams PTP solid streams
CVAA (Mercury)	Waste characteristic	4000-017	SW-846 7470A	PTP metals stream TCLP (PTP treated metals)
TCLP Extraction for Metals	Waste characteristic	4000-018	SW-846 1311	PTP metals stream TCLP (PTP treated metals)
Paint Filter Test	Identification of free liquids	4000-019	SW-846 9095A	Optional analysis
Cyanide Screen	Waste characteristic for PTP, identification of reactive wastes	4000-020	Drager Tube Handbook	D003 waste streams
Sulfide Screen	Waste characteristic for PTP, identification of reactive wastes	4000-021	Drager Tube Handbook	D003 waste streams

## ATTACHMENT II.A.4.6



TITLE: WASTE PROFILE REVIEW AND APPROVAL

PROCEDURE No. 021C - REV 1

PAGE 1 OF 6

PREPARED BY:   
KEN SHOEMAKE, EHS MANAGER

DATE: JUNE 7, 2004

APPROVED BY:   
RAYMOND WHITTLE, GENERAL MANAGER

DATE: JUNE 7, 2004

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SINGLE USE ONLY  
June 7, 2004 (3:35pm)

## 1.0 PURPOSE

The purpose of this procedure is to define the review and approval process for Waste Profiles submitted by Perma-Fix Customers prior to the scheduling for transport to the Perma-Fix of Florida, Inc. (PFF) facility.

## 2.0 SCOPE

This procedure is applicable to **ALL** industrial, radiological and mixed waste profiles that are submitted to Perma-Fix of Florida, Inc. for approval.

## 3.0 DEFINITIONS

### 3.1 Special Handling Requirements.

Requirements needed to handle materials that deviate from normal processes or procedures.

### 3.2 Designated Alternate

Person assigned to perform a task when the individual who routinely performs the task is unavailable.

### 3.3 Delivery Method

Status notifications may be delivered by one or all of the following methods: Hard Copy, E Mail or Fax.

### 3.4 Profile Approval Number

A Unique non repeating number identifier that is associated with each specific waste stream approved for acceptance.

## 4.0 REFERENCES

- 4.1 RCRA Permit: EPA ID Number: FLD980711071; Permit Number 17680-003-HO
- 4.2 Radioactive Materials License: Category 4B, License Number 2598-1 Amended.
- 4.3 Florida Administrative Code: 64E-5, "Control of Radiation Hazard Regulations"
- 4.4 PFF Waste Analysis Plan: Document listing waste types, criteria for acceptance for transport into the Perma-Fix of Florida, Inc. Facility.
- 4.5 PFF Radiation Protection Manual: Document outlining radiological protection and controls in effect at Perma-Fix of Florida, Inc.
- 4.6 SOP-004Q: Control and Disposition of Documents.
- 4.7 SOP-009Q: ID Storage and Disposition of Records.

**5.0 RESPONSIBILITIES**

- 5.1 The *General Manager* (GM) is responsible for final review, pricing, process coding and assigning an approval number to all Nuclear division profiles received at the PFF Gainesville facility.
- 5.2 The *Environmental Health and Safety Manager* (EHS) is responsible for reviewing all profiles received at the PFF Gainesville facility for Health, Safety and Regulatory concerns
- 5.3 The *Radiation Safety Officer* (RSO) is responsible for reviewing all radioactive/mixed waste profiles to assure that all radioactive materials to be received comply with PFF's Radioactive Materials License.
- 5.4 The *Manager Technical Services* (MTS) is responsible for acting as the GM's *designated alternate* (Reference 3.2) when the GM is unavailable.
- 5.5 The *Treatment Coordinator* (TC) is responsible for reviewing and assigning treatment codes to all Radioactive and Mixed Waste profiles.
- 5.6 The *Manager of Support Services* (MSS) is responsible for reviewing, assigning a profile number to and pricing all Industrial Waste Profiles.
- 5.7 The *Customer Service Support Specialist* (CSSS) is responsible for maintaining a filing system for Industrial profiles and for organizing the annual re-certification of Industrial Profiles

**6.0 PROCEDURE****6.1 Industrial Profiles**

- 6.1.1 Industrial profiles are for wastes that are either Hazardous or Non-Hazardous only (i.e., NOT radioactive). They are submitted by PFF Sales Representatives, Brokers (Companies representing waste generators), and occasionally, directly by the generators themselves. They are received by mail, fax or e-mail and routed to the MSS. The MSS performs an initial review to assure that all required information is provided (RCRA codes, DOT shipping name, Generator name and address, Physical location of waste if different from address, etc.). The MSS then forwards the profile to the EHS.
- 6.1.2 The EHS will review profiles for compliance with PFF's RCRA Permit and Waste Acceptance Criteria, and for health and safety concerns. If there is a problem with a profile, the EHS will contact the submitting party and resolve the issue. If the material cannot be accepted, the profile is returned to the MSS who in turn notifies the submitter. Profiles approved by the EHS are returned to the MSS who sends a notice to the submitter notifying them that the profile is approved and that PFF has the permits and licenses to properly store, treat and process the

waste. The EHS indicates approval of a profile by affixing an "approved" stamp, date and initials on the front of the profile. The MSS then assigns a non-repeating approval number to the profile.

- 6.1.3 Approved Industrial profiles are routed to the Customer Service Support Specialist (CSSS). The CSSS will maintain a file of all approved profiles. The CSSS will also be responsible for obtaining re-certifications on profiles older than one year.

6.1.4 Pre-Approval Samples

Occasionally, a customer will submit a sample of a waste stream along with a profile. The customer may ask that analytical work be performed by PFF on the sample when MSDS's and generator knowledge is not sufficient to characterize the waste.

Once the analysis is performed on the sample (TCLP metals, gas chromatography, flashpoint, pH, etc), the lab work is sent to the MSS. The MSS will review the test results and after consulting the generator, make whatever changes are needed to the profile (*add/delete code, change shipping name, etc.*). The profile, with test results, is then forwarded to the EHS for review.

Pre-approval samples are typically received on industrial waste streams. If a pre-approval sample is received on a radioactive/mixed waste sample, the analytical results would be sent to the EHS, who would put the results with the profile and start the review process.

6.2 Radioactive and Mixed Waste Profiles

- 6.2.1 Radioactive material and Mixed Waste profiles will be received by fax, e-mail or by conventional mail. Upon receipt by the GM or EHS, the review process will start with the EHS.
- 6.2.2 The EHS will review the profile for compliance with the facilities RCRA Permit and Waste Acceptance Criteria. If there is a problem with a profile, the EHS will contact the submitter and resolve the issue, if possible. If the problem is resolved, the amended or corrected profile is then passed to the RSO. If the profile is not approved at this step, the EHS will notify the submitter of the reason for declining the profile. The EHS indicates approval of a profile by affixing an "approved" stamp, date and initials on the front of the profile.
- 6.2.3 The RSO will review the profile for compliance with PFF's Radioactive Materials License. Compliant profiles are forwarded to the GM. If there is a correctable problem with the profile, the RSO will contact the submitter as attempt to resolve the problem. If the problem cannot be resolved or the waste does not meet our License requirements, the RSO will notify the submitter of the reason why the profile was declined. The RSO indicates approval of a profile by affixing an "approved" stamp, date and initials on the front of the profile



- 6.2.4 The General Manager (GM) receives the approved profile from the EHS/RSO and reviews it. A treatment code and price is determined and written on the front page of the profile and a non-repeating approval number is assigned. The GM keeps a list of all assigned numbers that shows the generator, Waste type and broker/salesman for each approval. Completed profiles are then routed to the Treatment Coordinator.
- 6.2.5 The Treatment Coordinator reviews the profiles and determines the process code which is written on the top right corner of the front page of the profile. The profile is then forwarded to the Document Specialist.
- 6.2.6 The Document Specialist takes the approved profile from the GM and files it in numerical order where it is then available to whoever needs it.
- 6.2.7 Radioactive and mixed waste profile approvals are valid for one year from the date a profile number is assigned. These profiles may be recertified by the generator or agent, thru mail, fax or e-mail. The recertification should:
- 6.2.7.1 state that no changes exist for the waste stream, or
  - 6.2.7.2 describe changes that have occurred
- 6.2 **Unapproved Profiles**  
Unapproved profiles are usually deleted (e-mails) or shredded (those faxed or mailed to PFF). If the customer requests, the profile is returned.
- 6.3 **Special Precautions**  
Some waste streams may require an increased level of PPE or Radiological precaution. Other unique waste streams may require additional monitoring such as Industrial Hygiene monitoring, Radiation monitoring, or special processing (i.e. glove box). If any reviewer makes such a determination during the review process, the reviewer will use the "Waste Profile Addendum" located at F/SOP/FORMS/PROFILES/Waste Profile Addendum to document the unusual hazard presented by the waste and what additional measures need to be implemented. Whenever this form is used, the profile will be recirculated and the addendum initialed by the EHS, RSO, GM and TC. The Profile Addendum will become the 1<sup>st</sup> page of the profile so that it will be obvious to anyone reading or copying the profile that some aspect of the waste requires special attention.
- 6.4 **Records**  
Records that are generated from the review process outlined in this SOP are to be maintained in accordance with PFF permits, licenses and internal policies or procedures (Ref: 4.1 through 4.5, 4.7 and 4.8)

**Table 1**  
**CHAIN OF REVIEW**

*Please review, provide comments, sign, date, and return to AMSS.  
Do not forward to next level of review.*

Name	Procedure Writer <sup>1</sup>	Reviewer	Approver	Signature	Date
<b>Shoemake, K., EH&amp;S Manager</b>	X	X	X	<i>K. Shoemake</i>	3-22-04
Hannah, T., Waste Acceptance Supvr.	/	X	/	<i>T. Hannah</i>	4-22-04
Owens, A., QA Manager	/	X	/	<i>A. Owens</i>	3/24/04
Owens, M., Maintenance Coordinator	/	X	/	<i>M. Owens</i>	04/06/04
Pan D., RSO	/	X	/	<i>D. Pan</i>	4/6/04
Self, R., Sr. Tech. Associate T.C.	/	X	/	<i>R. Self</i>	4/2/04
Singleton, D., Industrial Coordinator	/	X	/	<i>D. Singleton</i>	4/2/04
<b>PAS-LAB</b>					
Brimley, R., Sr. Tech. Associate	/	X	/	<i>R. Brimley</i>	4/27/04
Gardner, D., Lab Manager	/	X	/	<i>D. Gardner</i>	4/27/04
Yarbrough, T., Mgr. Tech. Svcs	/	X	/	<i>T. Yarbrough</i>	4/27/04
<b>FINAL REVIEW / APPROVAL:</b>					
<b>Shoemake, K., EH&amp;S Manager</b>	X	X	X	<i>K. Shoemake</i>	6/8/04
<b>Whittle, R., General Manager</b>	/	X	X	<i>R. Whittle</i>	6/7/04

**TABLE 2**  
**RECORD OF REVISION**

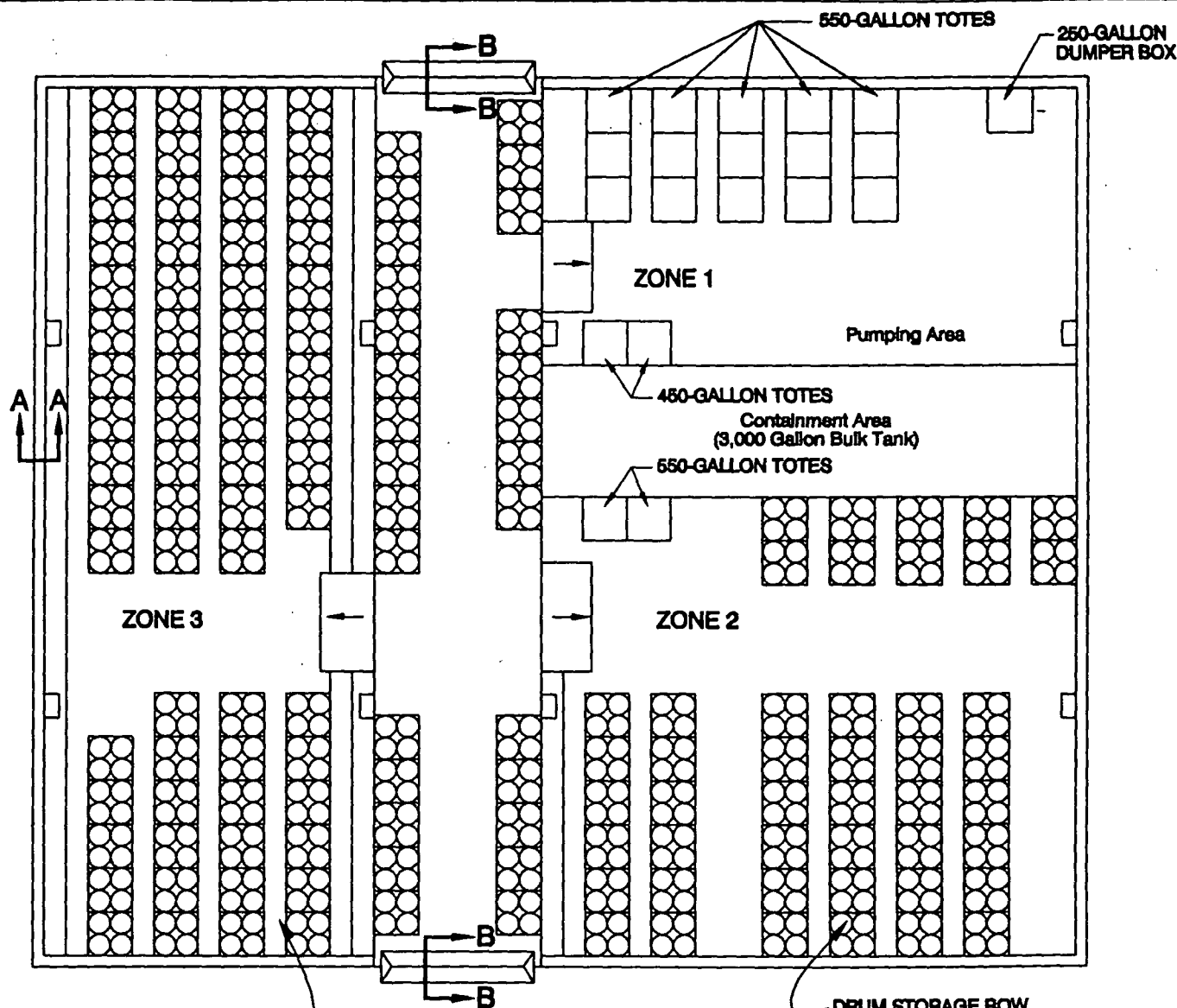
REVISION NUMBER	PURPOSE OF REVISION	EFFECTIVE DATE
0	ORIGINAL	2/17/2003
1	ADJUSTMENTS PER DOE AUDIT	3/22/2004

**1. Notice to Document Writer:** Documents developed which have not had training performed are not considered fully implemented. Once the AMSS notifies the Document Writer of the completion of all approvals, please notify the QA Manager so that training can be scheduled.



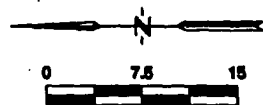






INSPECTION AISLE  
2' Typ.

DRUM STORAGE ROW



ZONE 1 - 166 drum equivalents

ZONE 2 - 388 drum equivalents

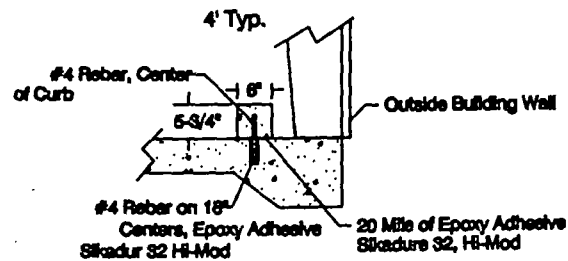
ZONE 3 - 752 drum equivalents

Storage capacity is 1311 equivalent 55 gal.\* drums when stacked a maximum of two (2) high on pallets. Pallets must be used for stacking with a maximum of four (4) 55 gal. drums per each pallet.

\* Equivalent drums (Examples)

- 1 30/35 gal. drum = .6 55 gal. drum
- 1 85 gal. drum = 1.6 55 gal. drums
- 1 450 gal. tote container = 8.2 55 gal. drums
- 1 550 gal. tote container = 10 55 gal. drums

Section A-A  
(N.T.S.)



Section B-B  
(N.T.S.)

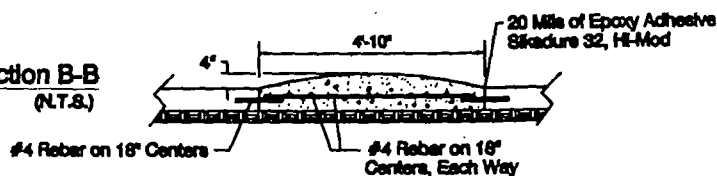
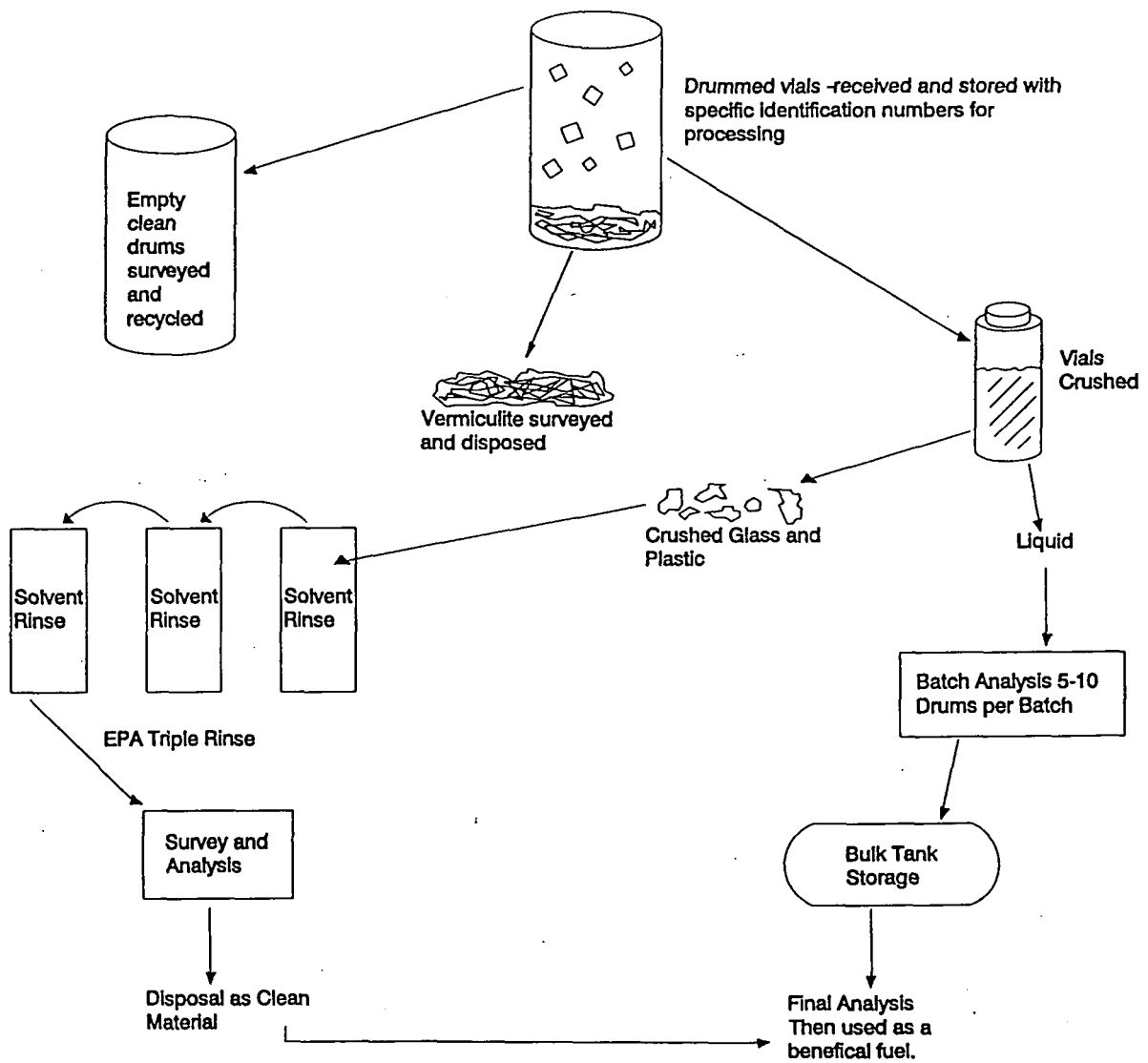


Figure 1.0.4 <b>PROCESSING AND STORAGE BUILDING</b>			
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1040 NW 67th Place, Gainesville, FL 32609			
SCALE: 1" = 10'	APPROVED BY:	DRAWN: 01	
DATE: 6-6-88	SEE:	REVISED: 13	
PROJECT NUMBER: PRFLA670843		DRAWING NO./ 10/	

**PERMA-FIX**  
ENVIRONMENTAL SERVICES

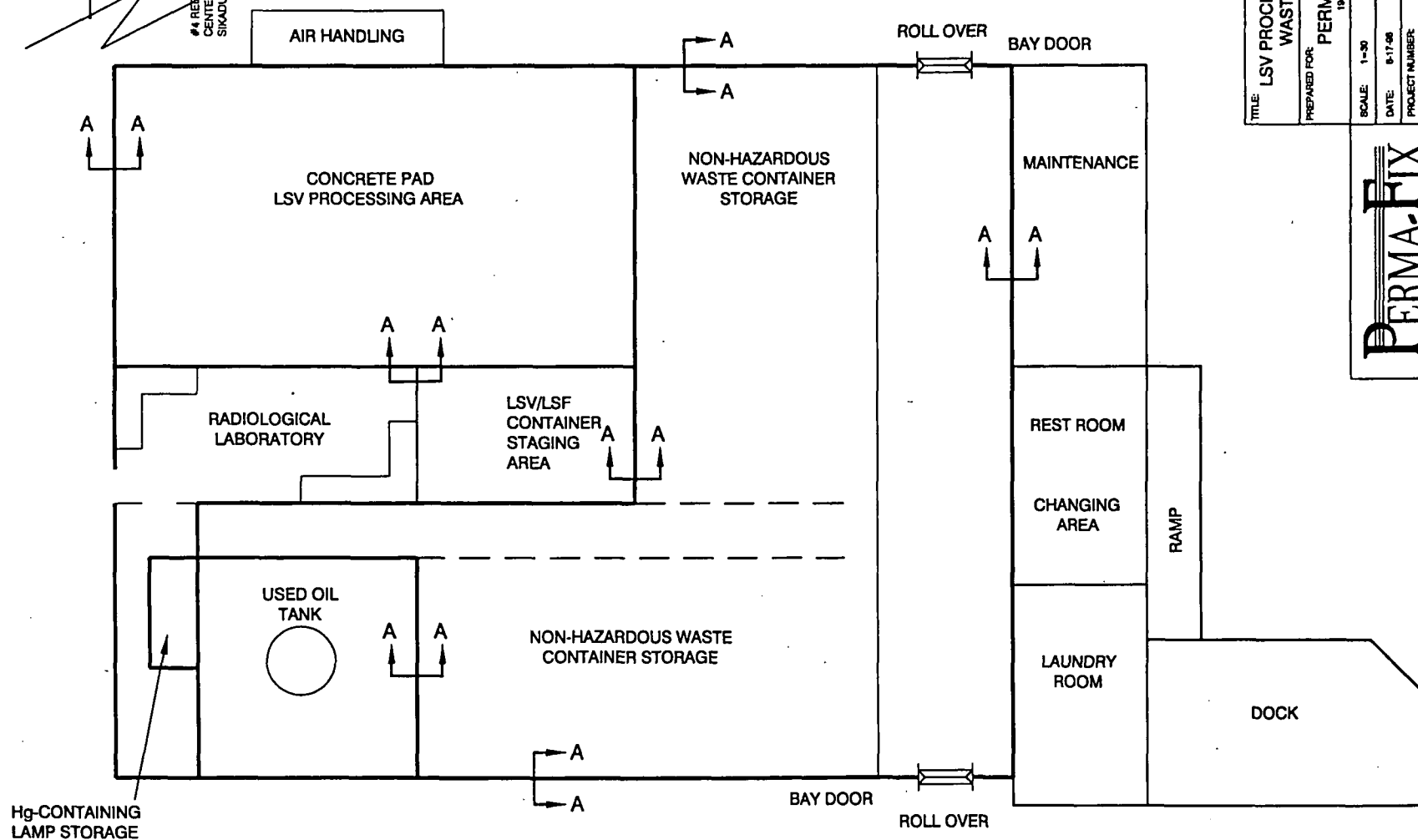
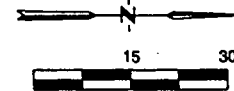
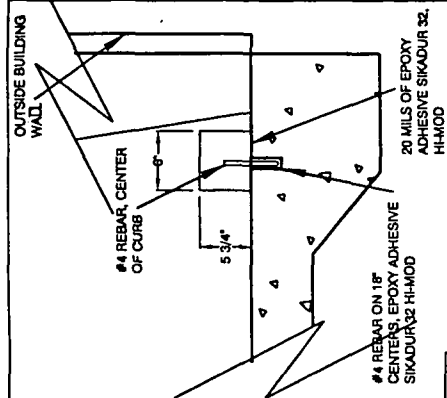




TITLE: FIGURE LD.8			
LSV PROCESS FLOW DIAGRAM			
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL. 32603			
SCALE: NOT TO SCALE	APPROVED BY:	DRAWN: BYA	
DATE: 6-17-88		REVIEWED:	
PROJECT NUMBER: PFFLA 870348		DRAWING NUMBER: PT1-106	

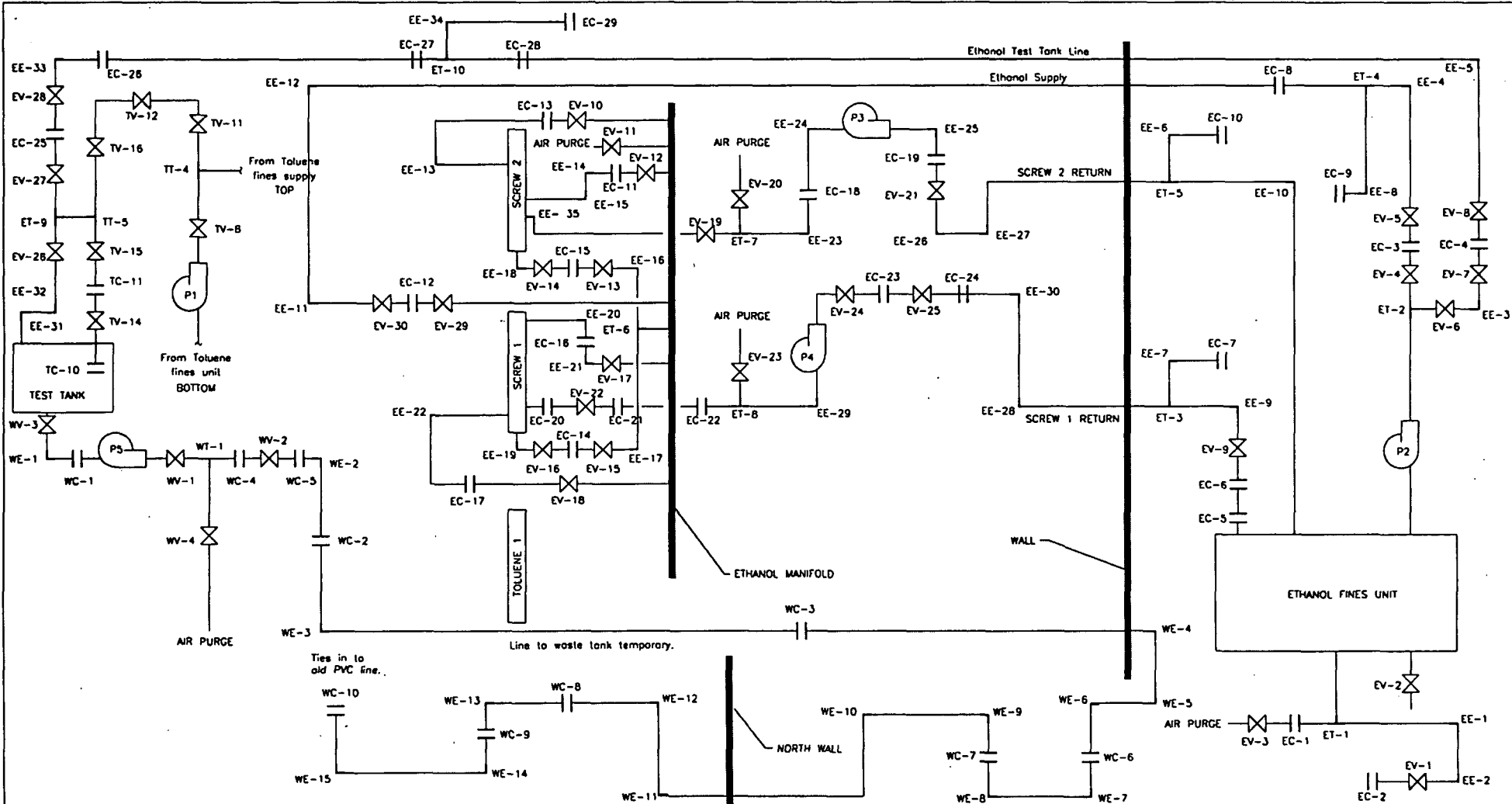






<b>TITLE:</b> LSV PROCESSING AND NON-HAZARDOUS WASTE STORAGE WAREHOUSE		<b>PREPARED FOR:</b> PERMA-FIX OF FLORIDA, INC. <small>1940 NW 67th Place Gainesville, FL 32603</small>	
<b>SCALE:</b> 1"=30' <b>DATE:</b> 8-17-88 <b>PROJECT NUMBER:</b> PPF1A070343	<b>APPROVED BY:</b> SEE	<b>DRAWN:</b> SYA <b>REVISED:</b> 06-21-89 <b>DRAWING NUMBER:</b> ID7	

**PERMA-FIX**  
ENVIRONMENTAL SERVICES



### ETHANOL LEGEND

EV-1	ETHANOL VALVE
P1	PUMP
EE-1	ETHANOL ELBOW
EC-1	ETHANOL CONNECTOR
ET-1	ETHANOL TEE

### TOLUENE LEGEND

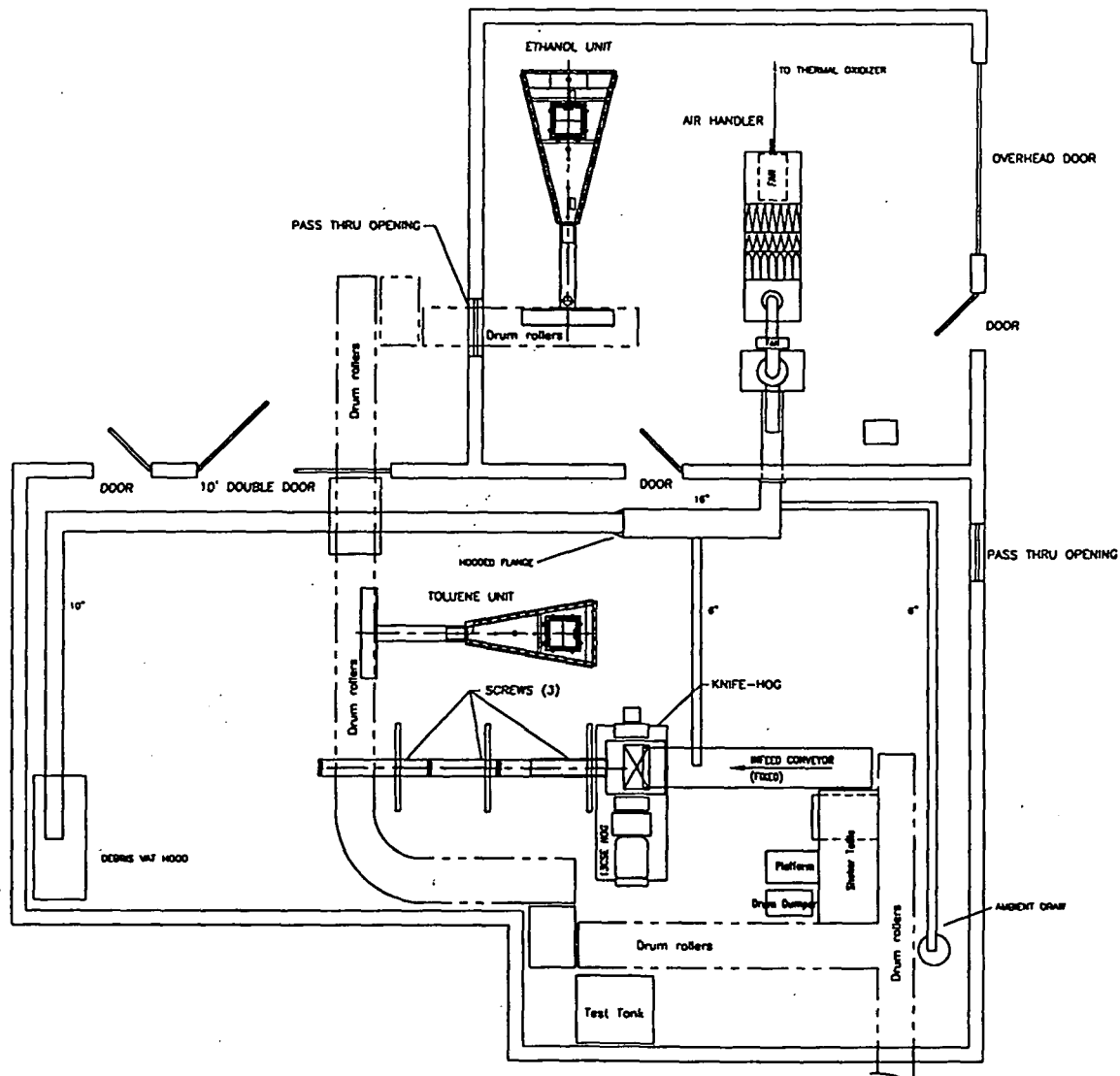
TV-1	TOLUENE VALVE
P1	PUMP
TE-1	TOLUENE ELBOW
TC-1	TOLUENE CONNECTOR
TT-1	TOLUENE TEE

### WASTE LEGEND

WV-1	WASTE VALVE
P1	PUMP
WE-1	WASTE ELBOW
WC-1	WASTE CONNECTOR
WT-1	WASTE TEE

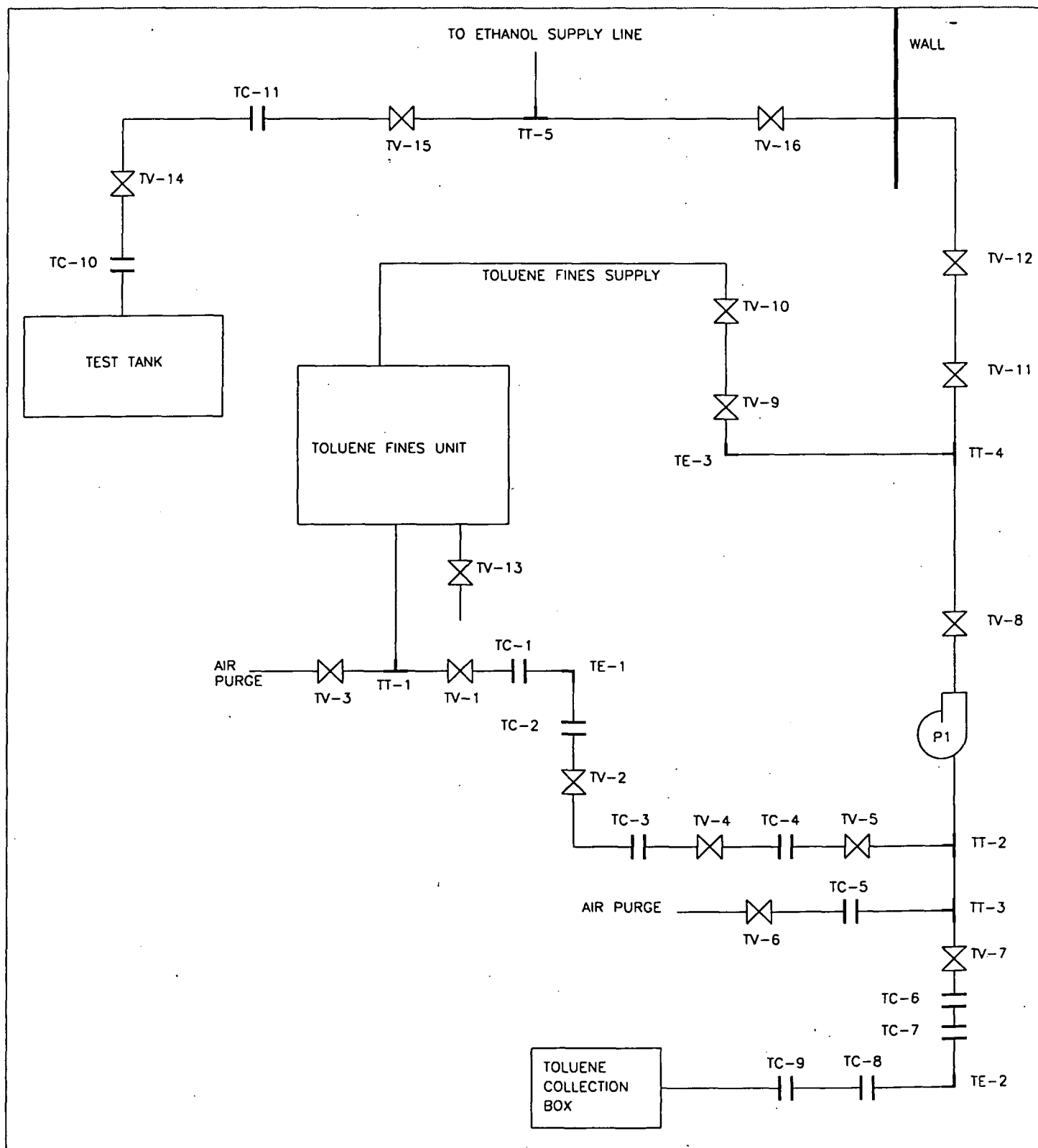


TITLE: LSV PROCESSING AREA WASTE & ETHANOL SYSTEMS PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1949 HWY 67th Street, Gainesville, FL 32602			
SCALE: NTS	APPROVED BY:	DRAWN: SSS	REVIEWED: 11/28/99
DATE: 9-25-98	BLN:	PROJECT NUMBER: PF11A970243	DRAWING NUMBER: 100



TITLE: <i>Figure 1.8.9</i> <b>SYSTEM LAYOUT            TOLUENE &amp; ETHANOL</b>		
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL 32653		
SCALE: NTS	APPROVED BY:	DRAWN: SKG
DATE: 10-9-98	SEE	REVISED: 05-27-99
PROJECT NUMBER: PF1FLA970343		DRAWING NUMBER: 109

**PERMA-FIX**  
 ENVIRONMENTAL SERVICES

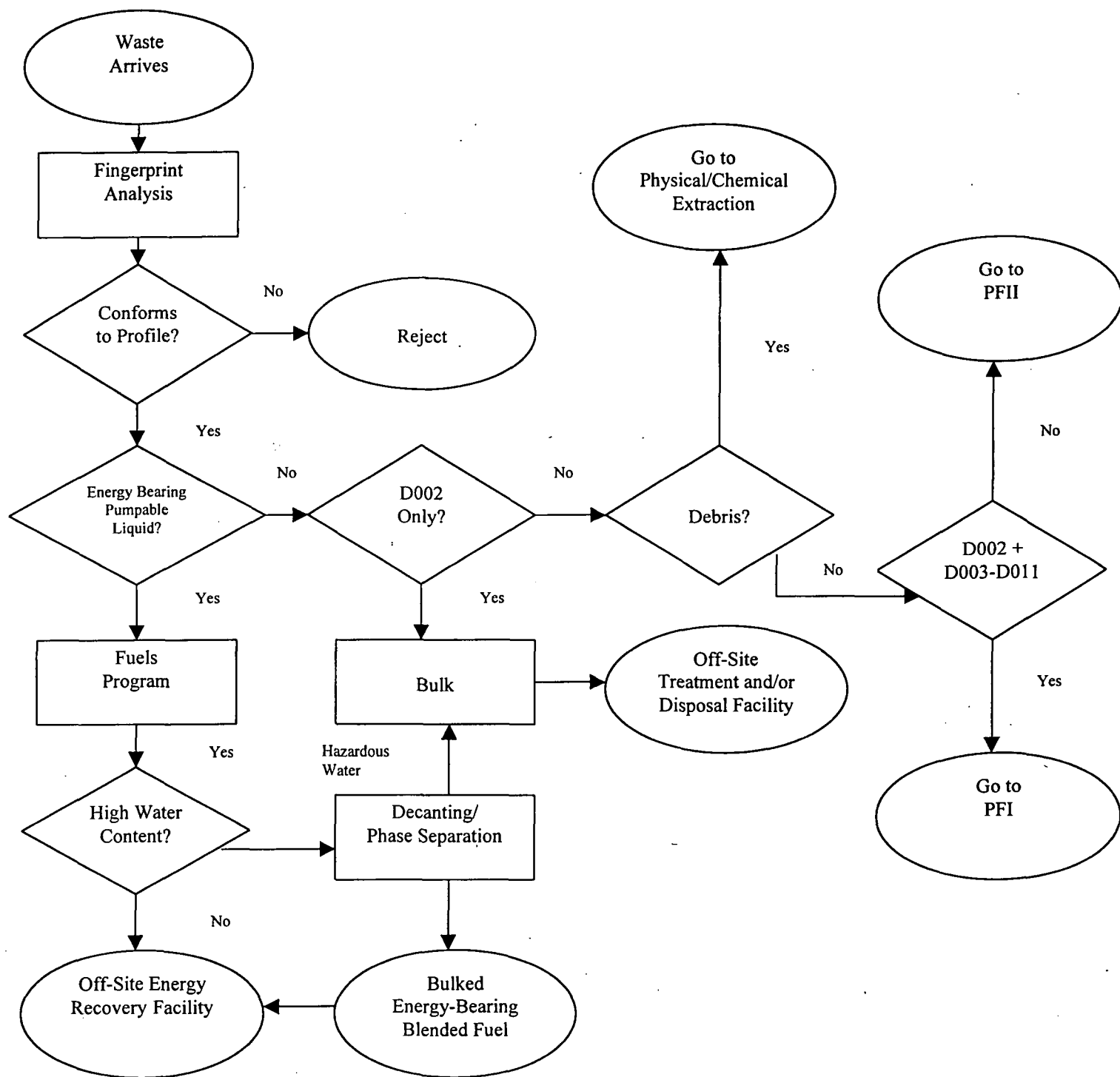


- TV-1 TOLUENE VALVE  
 P1 PUMP  
 TE-1 TOLUENE ELBOW  
 TC-1 TOLUENE CONNECTOR  
 TT-1 TOLUENE TEE

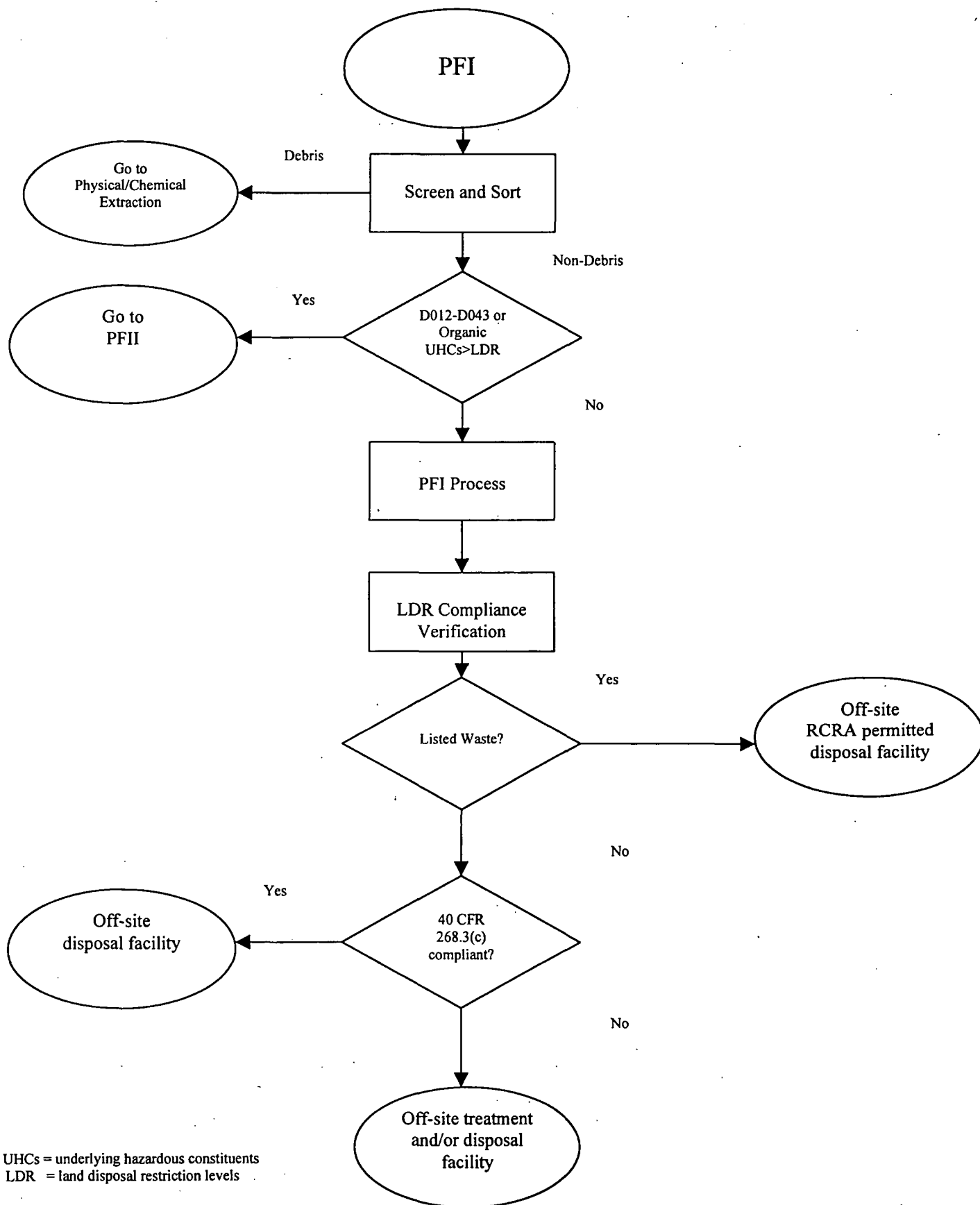
**PERMA-FIX**  
 ENVIRONMENTAL SERVICES

TITLE: Figure I.B.10 LSV PROCESSING AREA TOLUENE SYSTEM			
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653			
SCALE: NTS	APPROVED BY:	DRAWN: SKG	
DATE: 10-2-98	D.L.V.	REVISED:	
PROJECT NUMBER:	DRAWING NUMBER:		
PFIFLA970343	ID10		

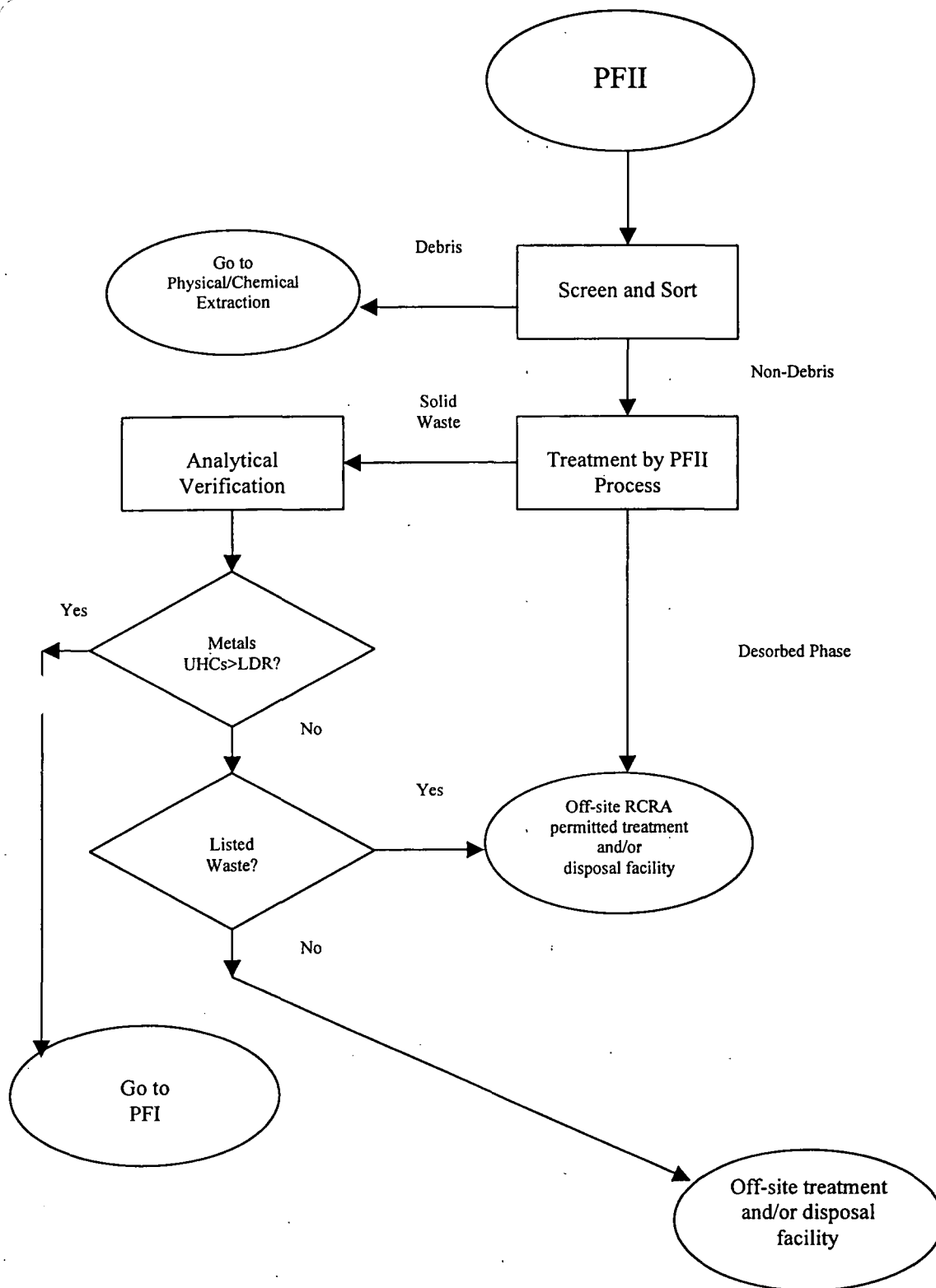
**Figure I.D.11.1**  
**Waste Management Decision Tree**



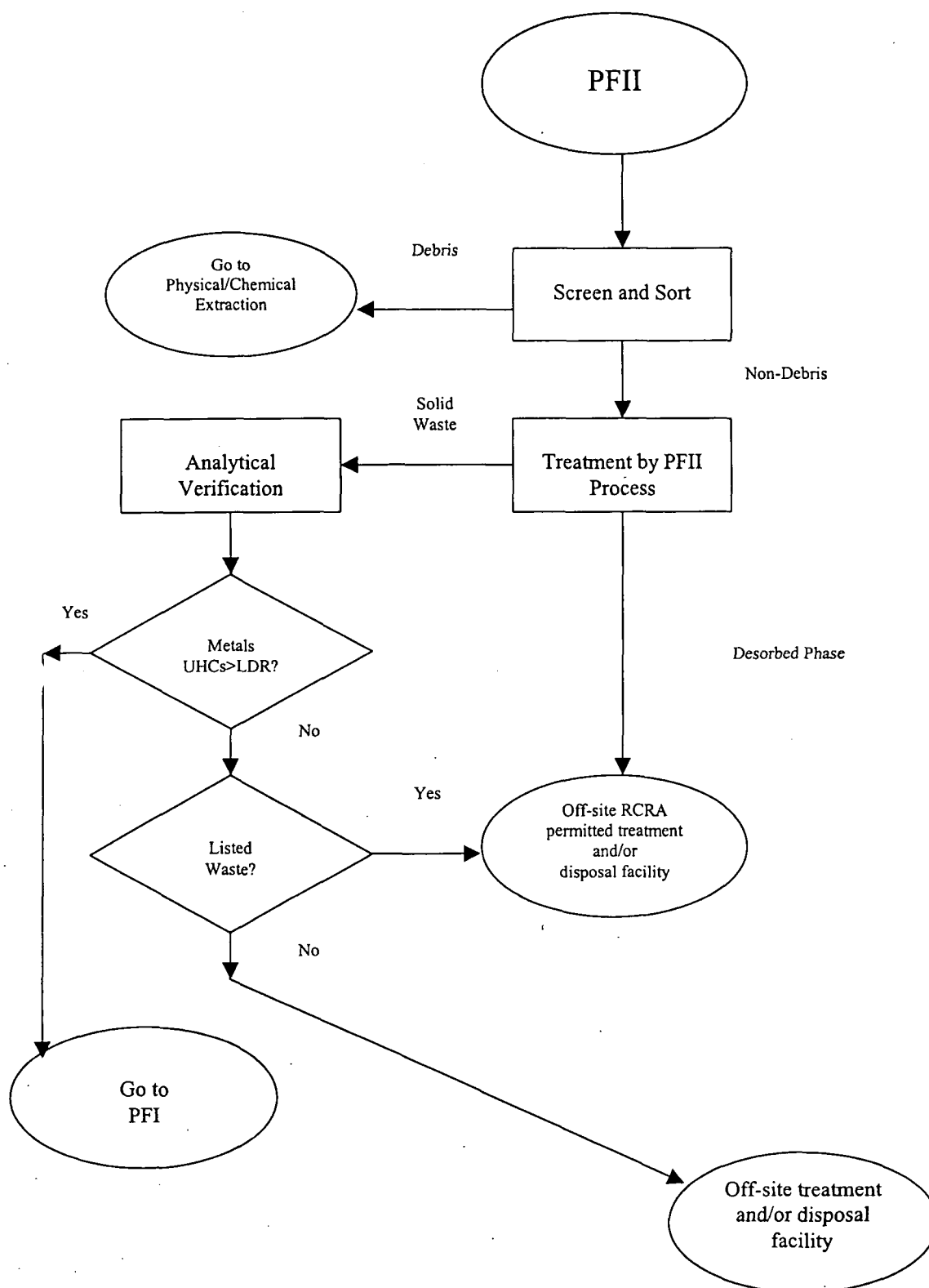
**Figure I.D.11.2**  
**Waste Management Decision Tree**



**Figure I.D.11.3**  
**Waste Management Decision Tree**

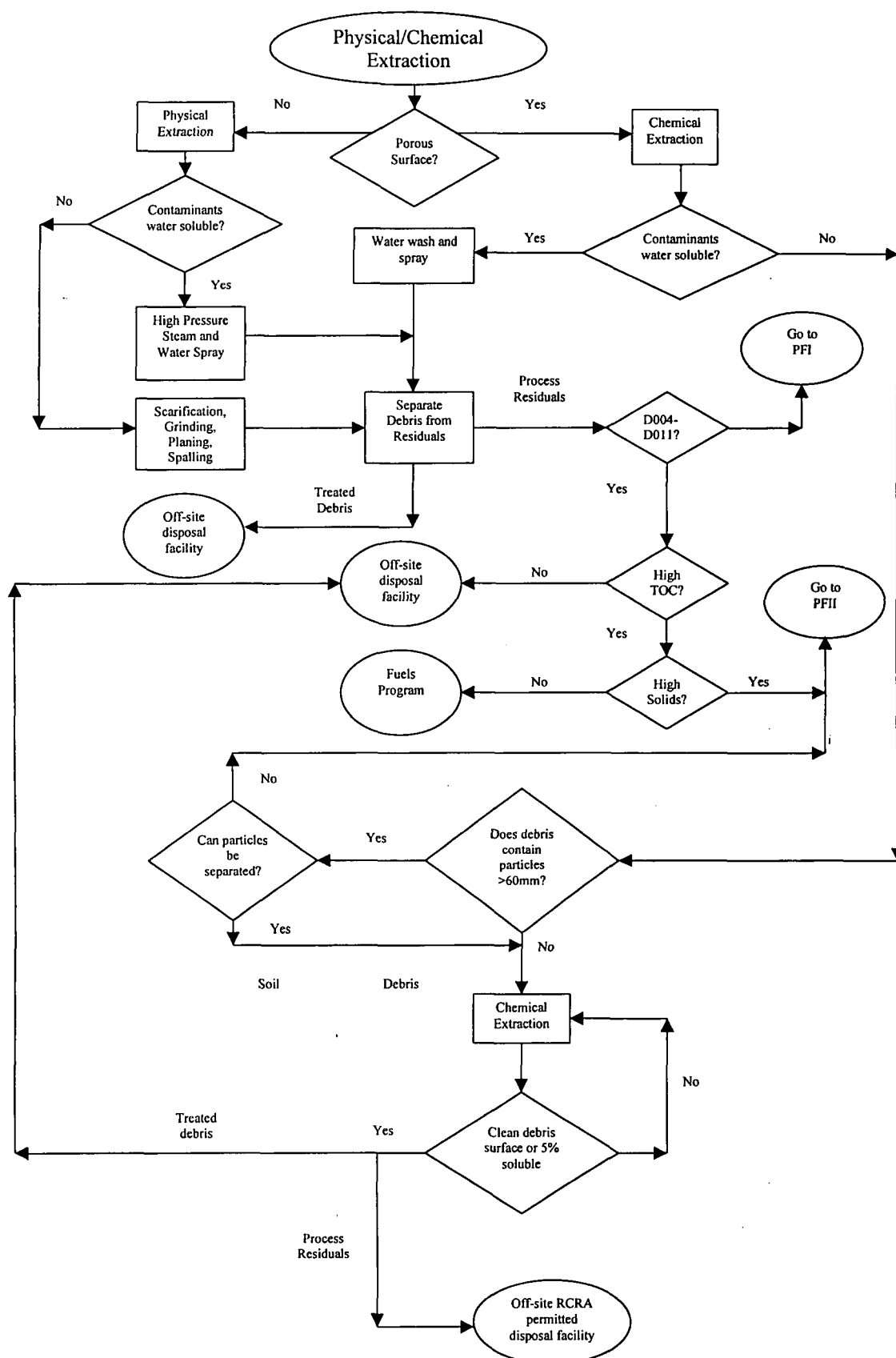


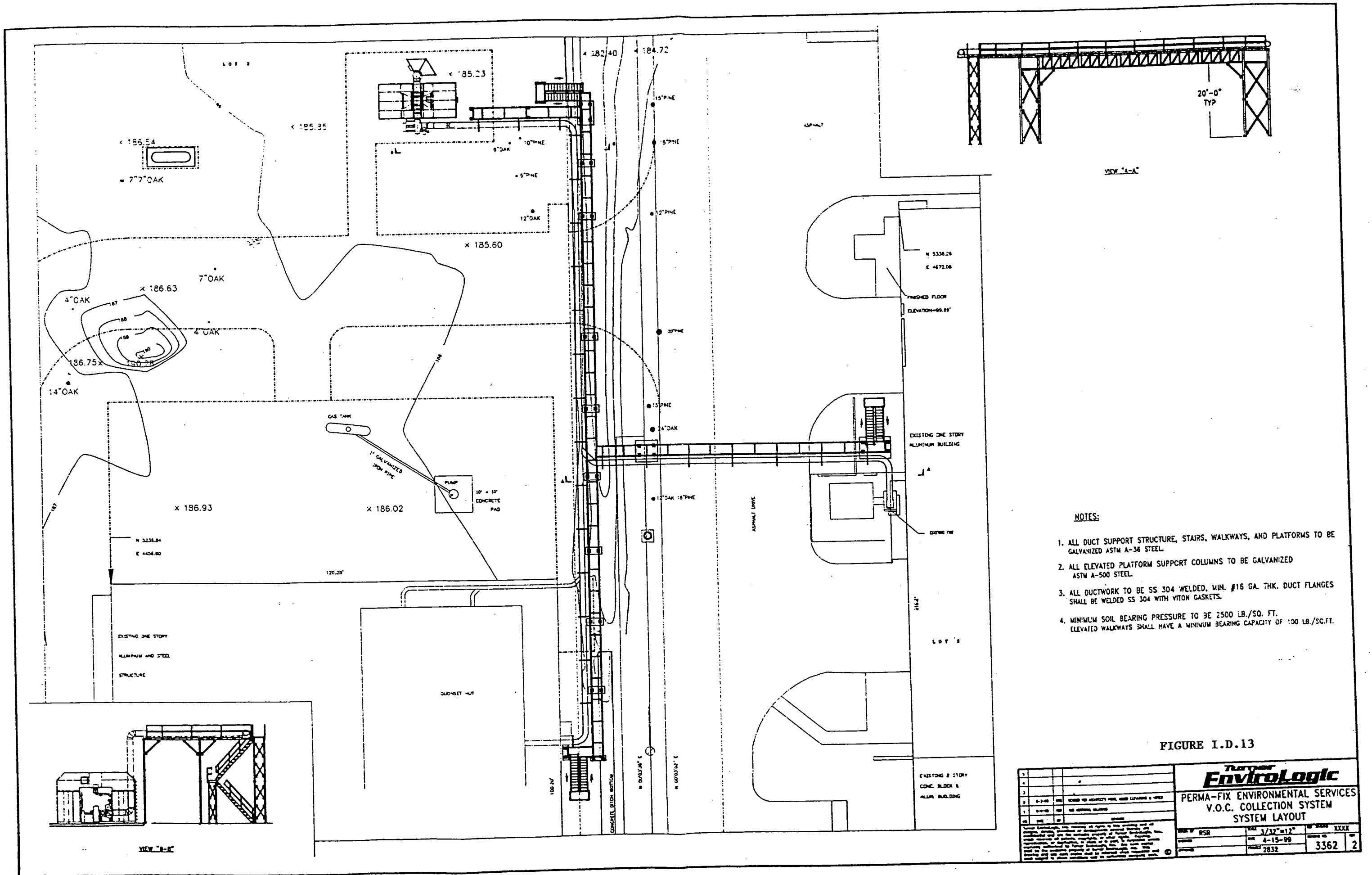
**Figure I.D.11.3**  
**Waste Management Decision Tree**

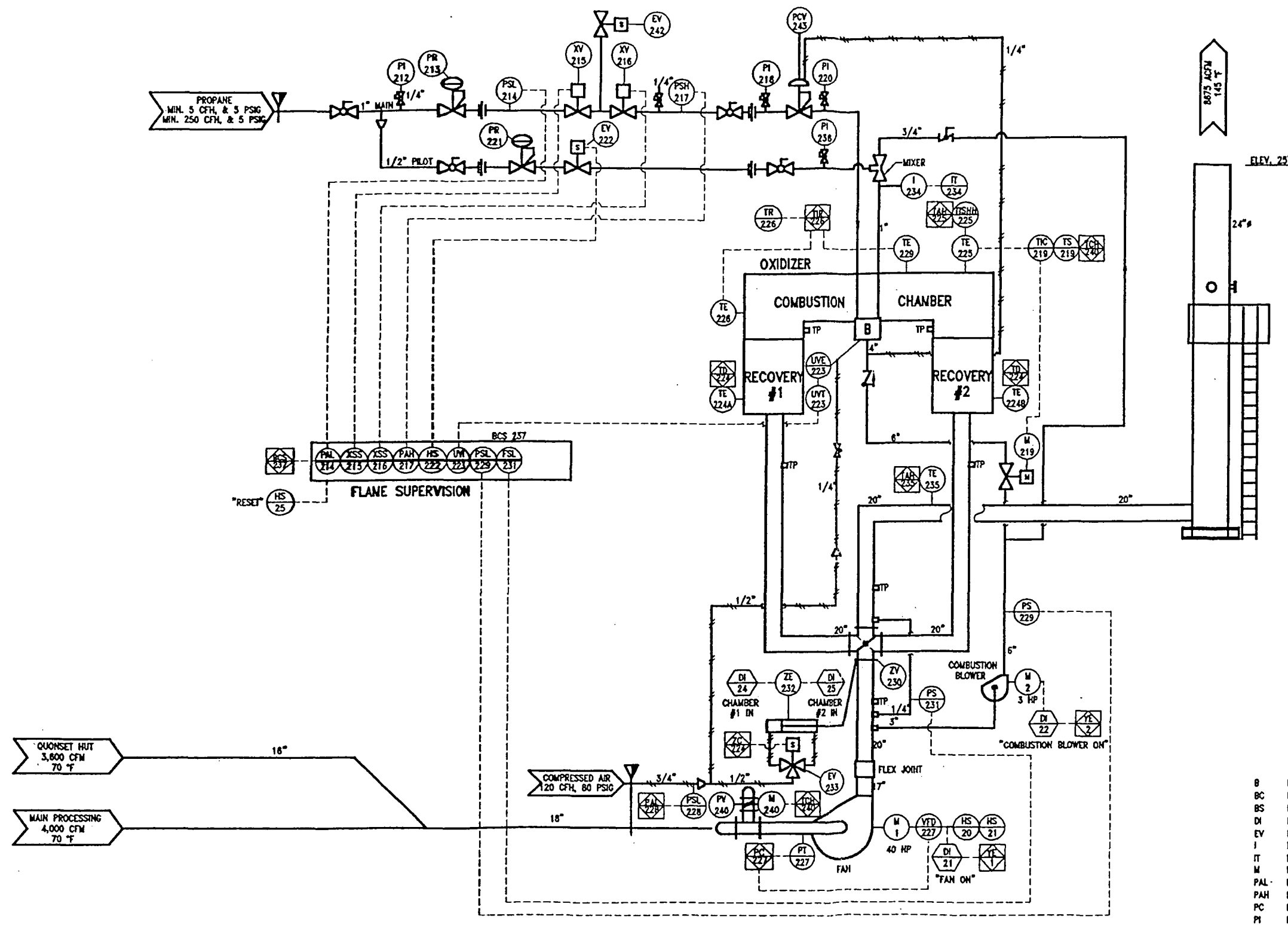




**Figure I.D.11.4**  
**Waste Management Decision Tree**







# LEGEND

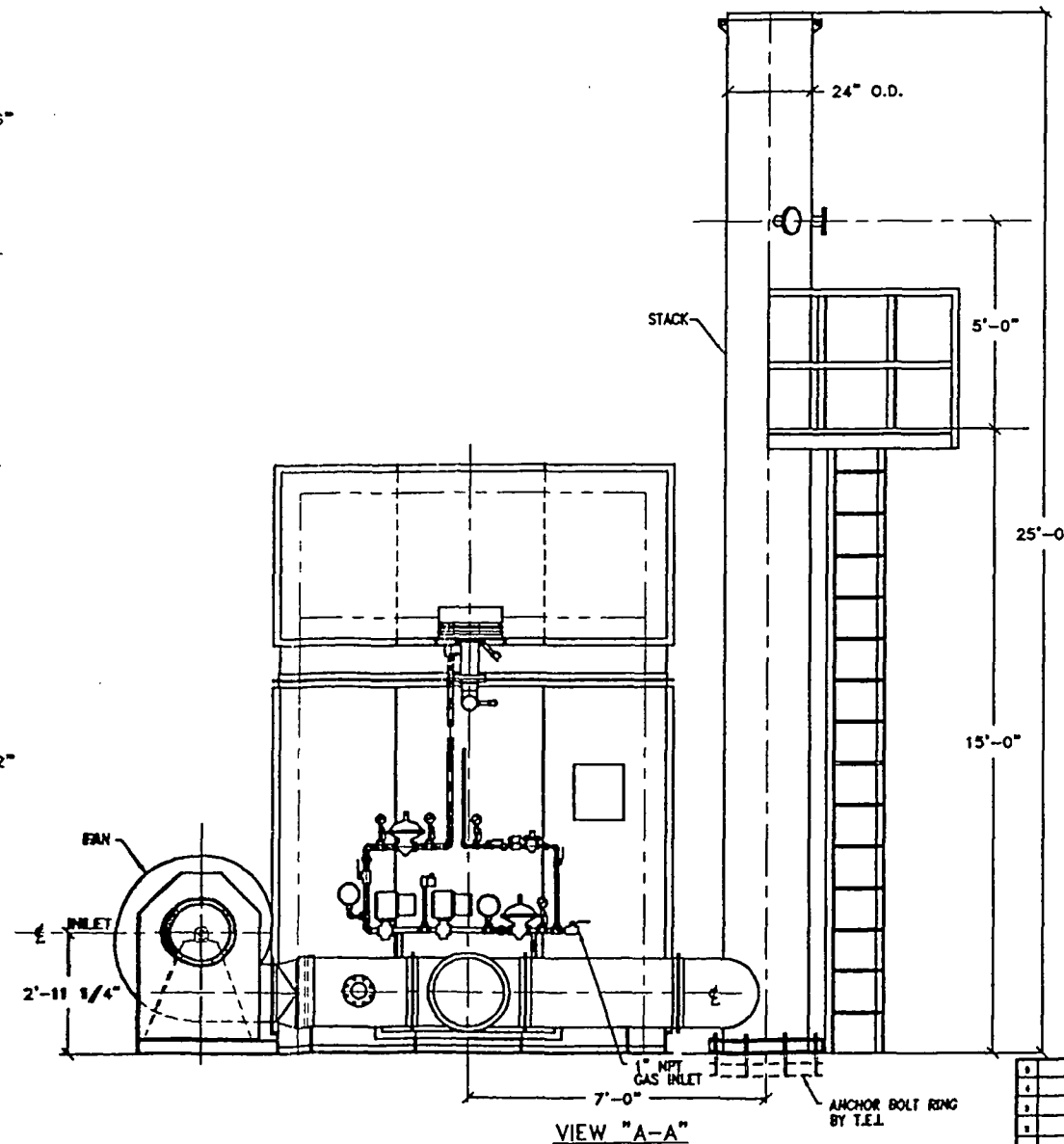
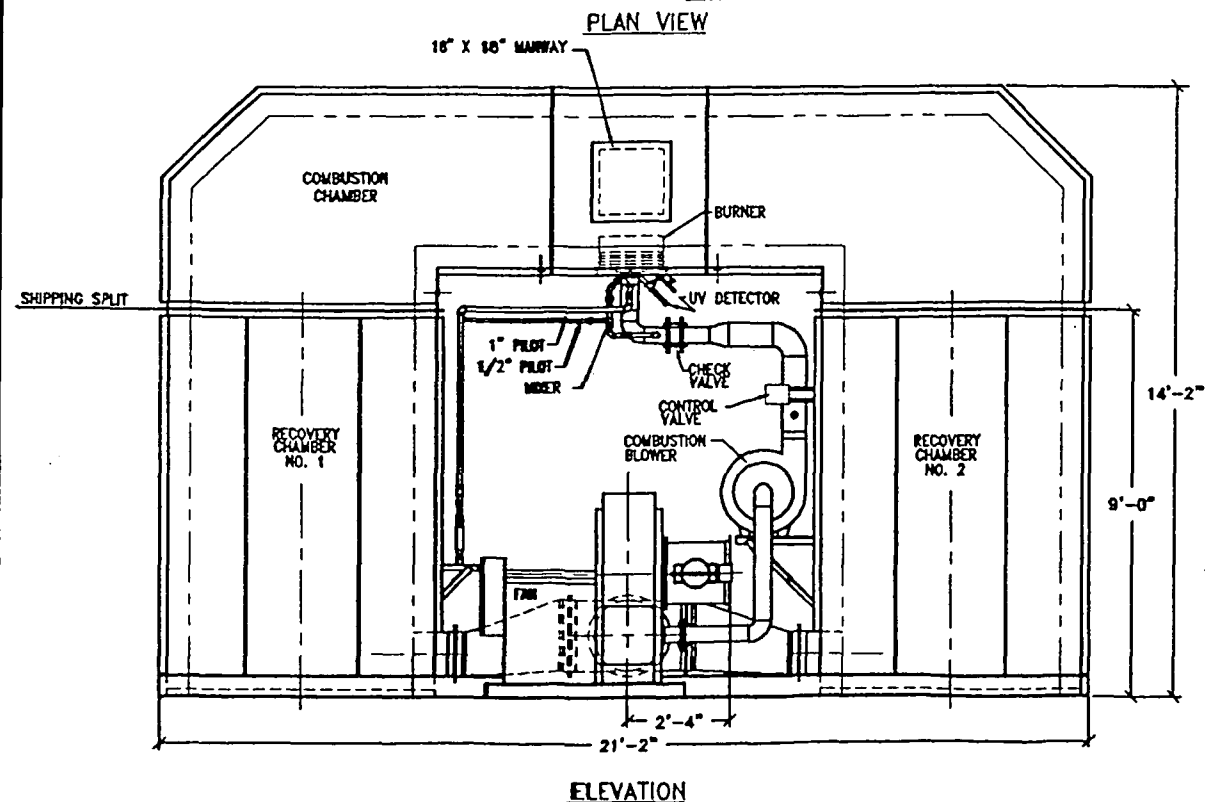
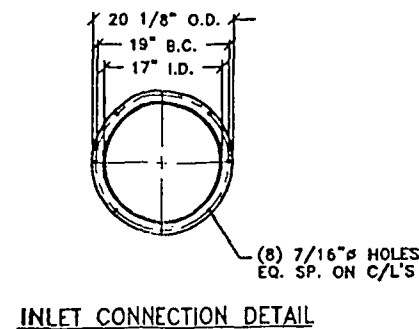
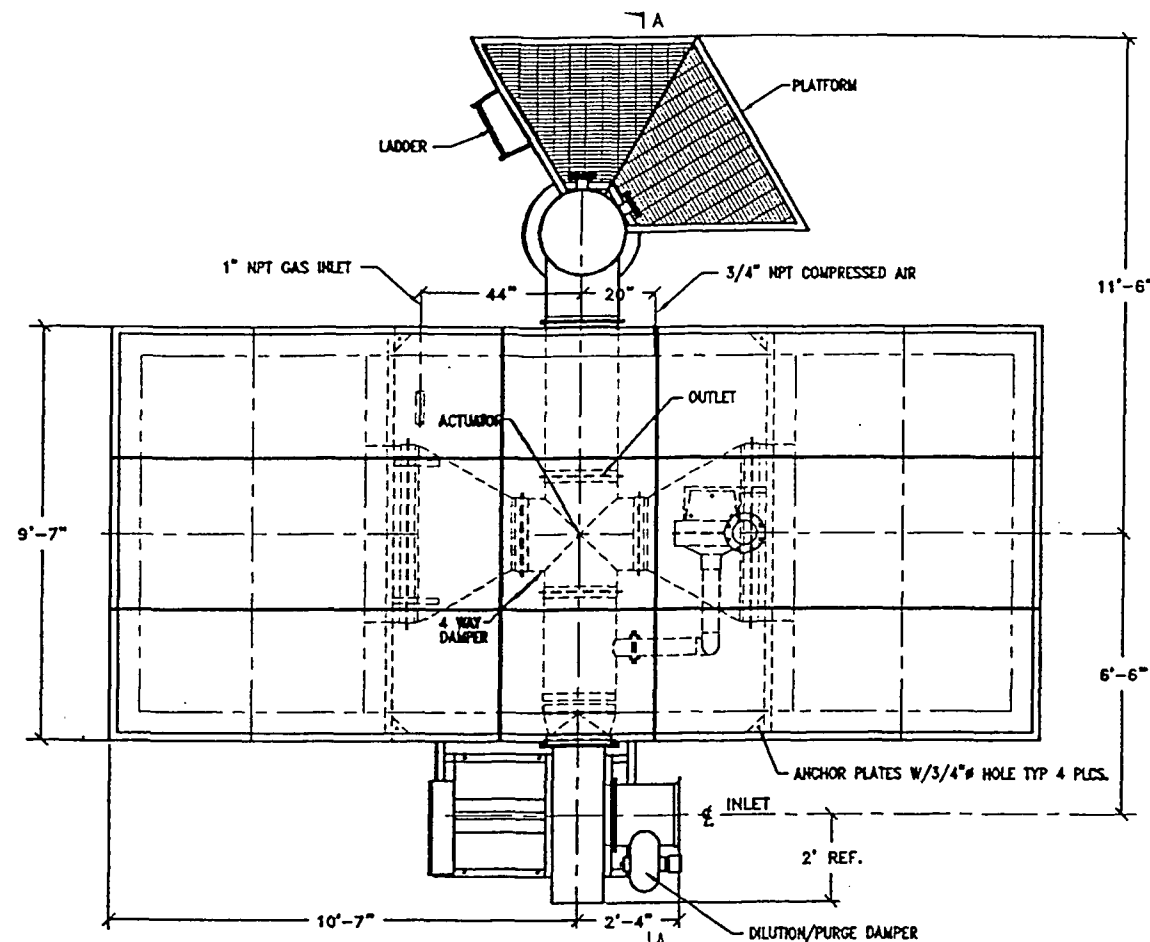
PR	PRESSURE REGULATOR
PT	PRESSURE TRANSMITTER
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
S	SOLENOID
TAH	TEMPERATURE ALARM HIGH
TCH	TEMPERATURE CONTROL HIGH
TE	TEMPERATURE ELEMENT
TIC	TEMPERATURE INDICATING CONTROL
TP	TEST PORT
TR	TEMPERATURE RECORDER
TISHH	HIGH TEMP. INDICATING LIMIT SWITCH
TS	TEMPERATURE SWITCH
UVE	UV ELEMENT
UYI	UV INDICATOR
UYT	UV TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
XSS	SAFETY SHUT OFF SWITCH
XV	SHUT OFF VALVE
YE	EVENT ELEMENT
ZC	POSITION CONTROLLER
ZE	POSITION ELEMENT
ZV	POSITION VALVE
Δ	LIMIT OF SUPPLY (BLACK-TEL/WHITE-PERMA-FIX)

B	BURNER
BC	BURNER CONTROL
BS	BURNER SWITCH
DI	DIGITAL INTERFACE
EV	ELECTRIC VALVE
I	IGNITOR
IT	IGNITION TRANSFORMER
M	MOTOR
PAL	PRESSURE ALARM LOW
PAH	PRESSURE ALARM HIGH
PC	PRESSURE CONTROLLER
PI	PRESSURE INDICATOR

LAST - 242

Figure I.D. 14

<b>EnviroLogic.</b> PERMA-FIX ENVIRONMENTAL SERVICES VOC COLLECTION SYSTEM P&ID			
Rev.	Rev.	Rev.	Rev.
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
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100	100	100	100



# SPECIFICATIONS

- FAN - CINCINNATI RBE17 ARR. 9, 1800 RPM, 32.2 BHP WITH 40 HP TEFC MOTOR (8000 SCFM @ 15" W.C.)
- COMBUSTION CHAMBER - 3/16" (A-36) WELDED; 6" THK. 8# CERAMIC FIBER LINING; FLG. 2 X 2 X 1/4 STIFFENER 1/4 X 2 BAR
- RECOVERY CHAMBERS - 3/16" (A-36) WELDED; 6" THK. 8# CERAMIC FIBER LINING; FLG. 2 X 2 X 1/4 STIFFENER 1/4 X 2 BAR
- CERAMIC - TY-PAK #1 CERAMIC MEDIA 1-1/2" (45.5# PER FT<sup>3</sup>) 371 FT<sup>3</sup> PER RECOVERY CHAMBER
- SKID - C6 X 8.2 (A-36)
- GAS TRAIN - IRI APPROVED; DOUBLE MAXON 5000 BLOCK SSOY'S; MAXON 'Q' CONTROL WITH HONEYWELL MOTOR
- BURNER - NORTH AMERICAN 4841-7; 780,000 BTU MAX.
- 4-WAY DAMPER - ALBION CONSTRUCTION WITH PNEUMATIC ACTUATOR
- COMBUSTION BLOWER - NORTH AMERICAN 2316-17/2-3D 3 HP TEFC, 340 CFM @ 16 OSI
- CONTROL PANEL - NEMA 4 W/CHART RECORDER, TEMP CONTROLLERS BURNER RELAY & PLC - 120VAC
- POWER PANEL - NEMA 4 W/MAIN DISCONNECT, MOTOR STARTERS & CONTROL TRANSFORMER - 3 PH/60HZ/480V
- YTD - NEMA 1 TO BE MOUNTED BESIDE POWER PANEL
- STACK - FREE STANDING A-36 CONSTRUCTION W/2 3" TEST PORTS
- PLATFORM & LADDER - 120" OSHA CONFORMING
- STACK PLATFORM & LADDER 1,800 LBS.
- SHIPPING WEIGHT - OXIDIZER W/FAN 23,000 LBS.
- OXIDIZER W/CERAMIC INSTALLED 57,000 LBS.

## NOTES

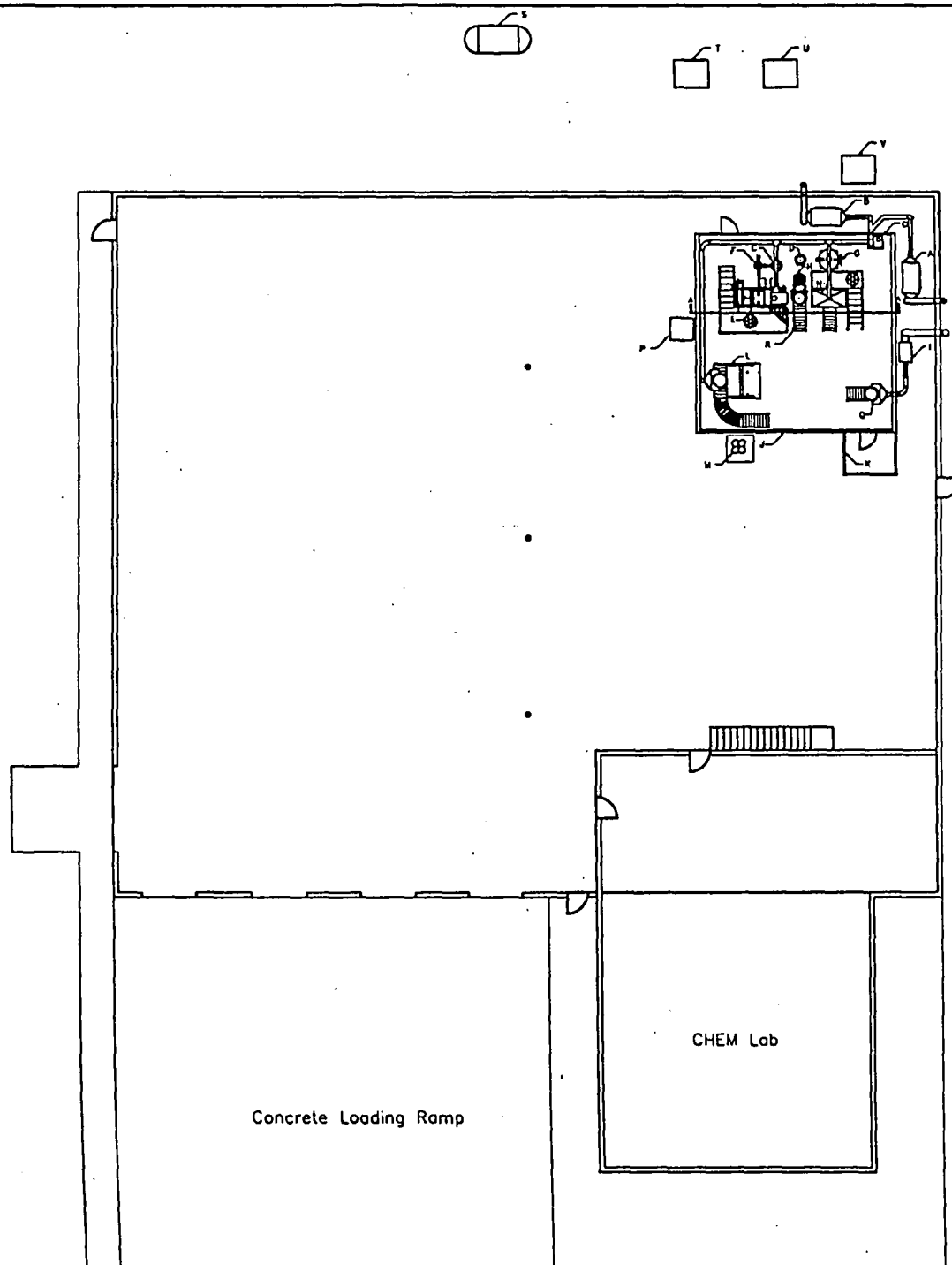
- UNIT SHIPPED W/COMBUSTION CHAMBER LOOSE, ALL CONNECTION HARDWARE INCLUDED
- FIBERGLASS DROPWARP TAPE (INCLUDED) TO BE USED BETWEEN COMBUSTION CHAMBER & RECOVERY CHAMBERS
- CERAMIC PACKING TO BE INSTALLED BY OTHERS (372 CU. FT. PER RECOVERY). PACKING SHIPPED IN 2 CU. FT. BOXES
- ALL GAS AND COMBUSTION PIPING INSTALLED PRIOR TO SHIPPING. UNIONS INSTALLED FOR FINAL CONNECTION AT ASSEMBLY
- FAN IS SKID MOUNTED. FAN SKID SHIPPED LOOSE, ALL CONNECTING HARDWARE INCLUDED.
- STACK PLATFORM & LADDER SHIP LOOSE
- POWER PANEL & CONTROL PANEL SHIP LOOSE

Figure I.D. 15

Revision			
NO.	DATE	BY	CHKD.
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6			
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Project: PERMA-FIX ENVIRONMENTAL SERVICES V.O.C. COLLECTION SYSTEM GENERAL ARRANGEMENT			
Drawn by: RSR	Scale: 1/2" = 12"	Sheet No.: 3360	Total Sheets: 0
Checked by: JWB	Date: 4-8-99	Project No.: 2832	

## LEGEND

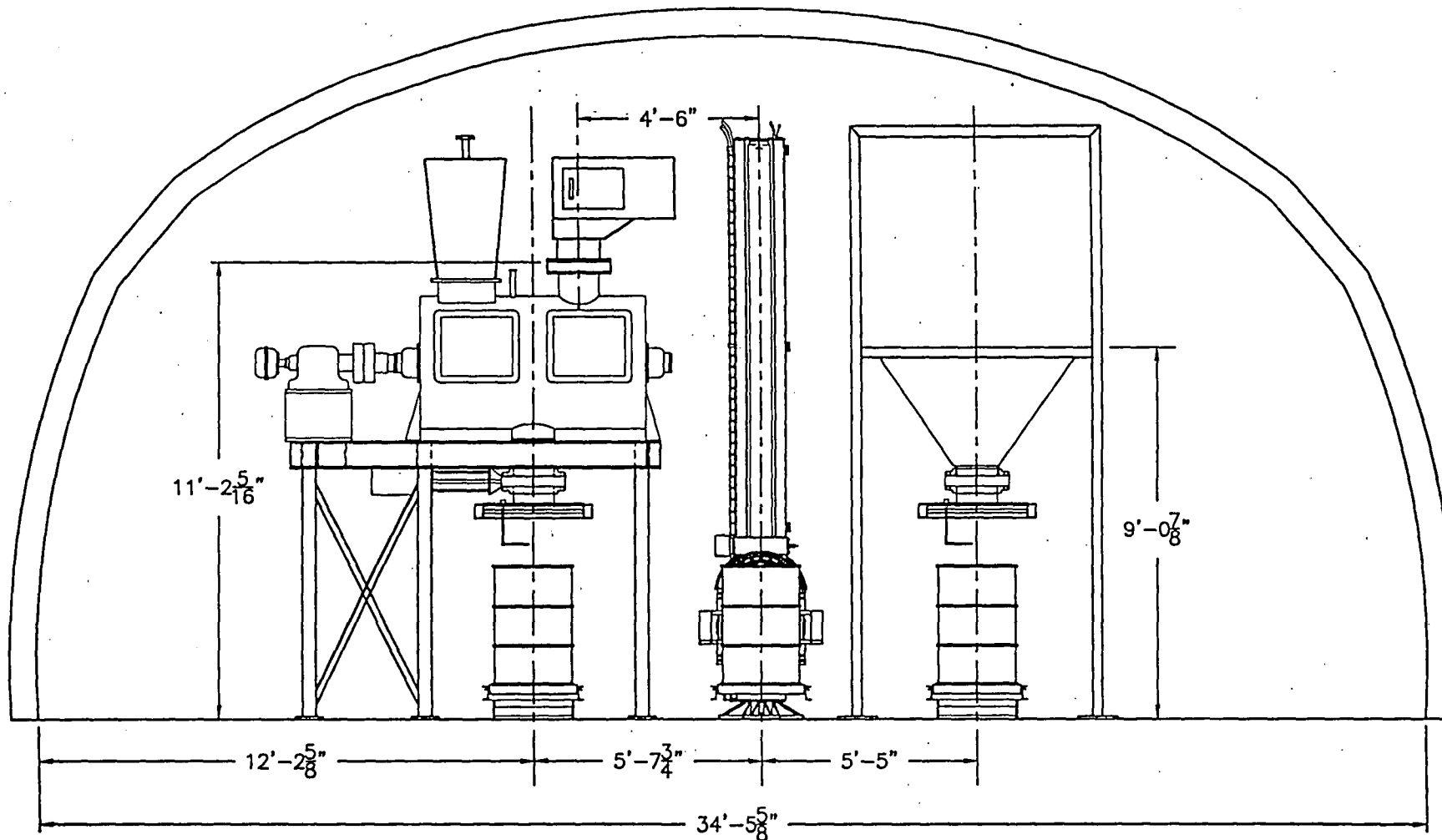
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B	HEPA B
C	Separator Tank
D	Absorber Tank
E	Plough Share Unit
F	Condensor
G	Accumulator
H	High Level Dumper
I	HEPA C
J	Containment Building
K	Dress Out Room
L	* Skid Mixer
M	Scale
N	Screen Hopper With Vibrating Screen
O	Bag House
P	Hydraulic Power Unit
Q	Drum Opening Station
R	Power Conveyor
S	Propane Tank
T	Cooling Tower
U	Boiler
V	Air Compressor



\* Skid Mounted Unit  
Figure I.D.16

**PERMA-FIX**  
ENVIRONMENTAL ENGINEERING

TITLE: EQUIPMENT LAYOUT FOR PERMA-FIX I & II PROCESS		
PREPARED FOR: PERMA-FIX OF FLORIDA 1940 NW 67 Place, Gainesville Florida		
SCALE: 1" = 30'	APPROVED BY:	DRAWN: D.J.R.
DATE: 5/10/99		REVISED:
ACAD FILE: c:\acadwin\acadfile\98-01\9801-09		DRAWING NUMBER: 9801-09



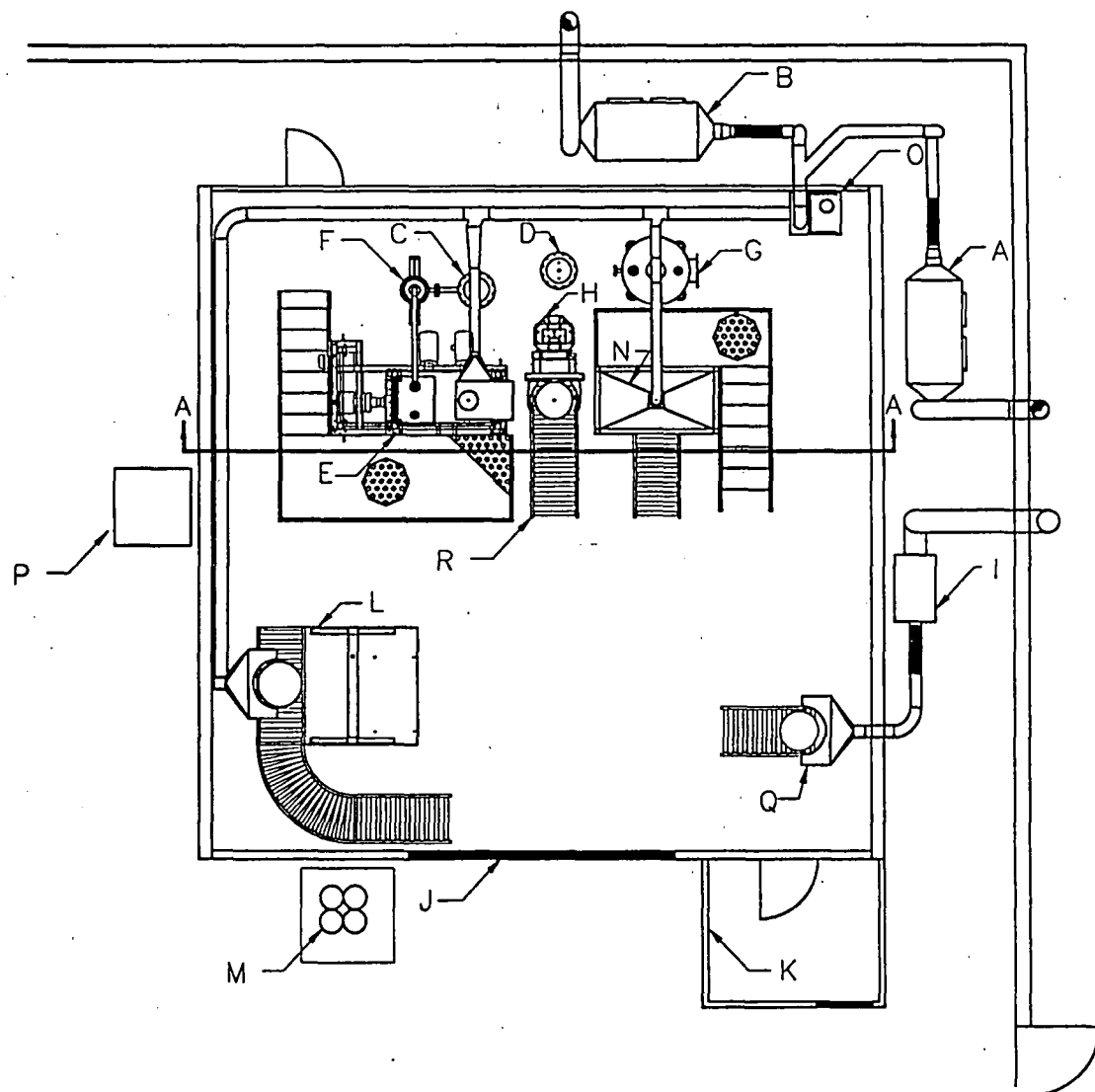
## Section A-A

(Walkways and stairs left off for clarification)

Figure I.D.17

TITLE: EQUIPMENT LAYOUT FOR PERMA-FIX I & II PROCESS		
PREPARED FOR: PERMA-FIX OF FLORIDA 1940 NW 67 Place, Gainesville Florida		
SCALE: 1/4" = 1'	APPROVED BY:	DRAWN: D.J.R.
DATE: 5/10/99		REVISED:
ACAD FILE: c:\acadwin\acadfile\98-01\9801-08		DRAWING NUMBER: 9801-08

**PERMA-FIX**  
ENVIRONMENTAL ENGINEERING



## LEGEND

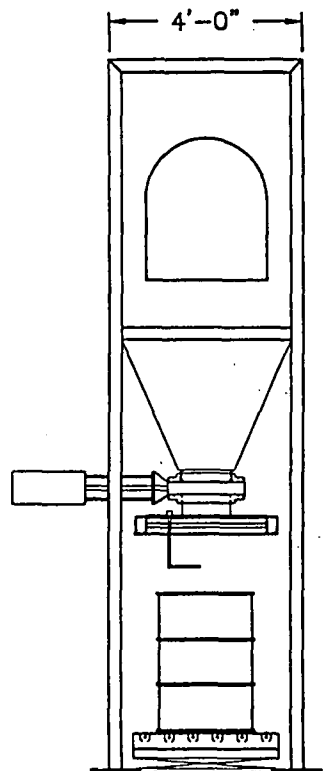
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- B HEPA B
- C Separator Tank
- D Absorber Tank
- E Plough Share Unit
- F Condensor
- G Accumulator
- H High Level Dumper
- I HEPA C
- J Containment Building
- K Dress Out Room
- L \* Skid Mixer
- M Scale
- N Screen Hopper With Vibrating Screen
- O Bag House
- P Hydraulic Power Unit
- Q Drum Opening Station
- R Power Conveyor

\* Skid Mounted Unit

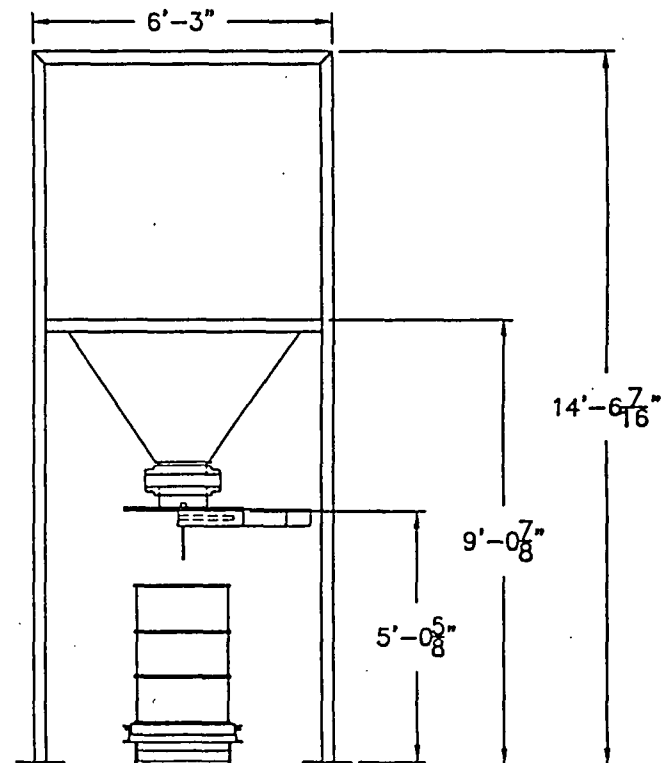
**Figure I.D.18**

TITLE: EQUIPMENT LAYOUT FOR PERMA-FIX I & II PROCESS		
PREPARED FOR: PERMA-FIX OF FLORIDA 1940 NW 67 Place, Gainesville Florida		
SCALE: 1" = 10'	APPROVED BY:	DRAWN: D.J.R.
DATE: 5/10/89		REVISED:
ACADFILE: c:\acadwin\acadfile\88-01\9801-10		DRAWING NUMBER: 9801-10

**PERMA-FIX**  
ENVIRONMENTAL ENGINEERING



Front View



Right Side View

Figure I.D.19

**PERMA-FIX**  
ENVIRONMENTAL ENGINEERING

TITLE: SCREEN HOPPER WITH VIBRATING SCREEN (SH-1)		
PREPARED FOR: PERMA-FIX OF FLORIDA 1940 NW 67 Place, Gainesville Florida		
SCALE: 1/4" = 1'	APPROVED BY:	DRAWN: D.J.R.
DATE: 5/10/99		REVISED:
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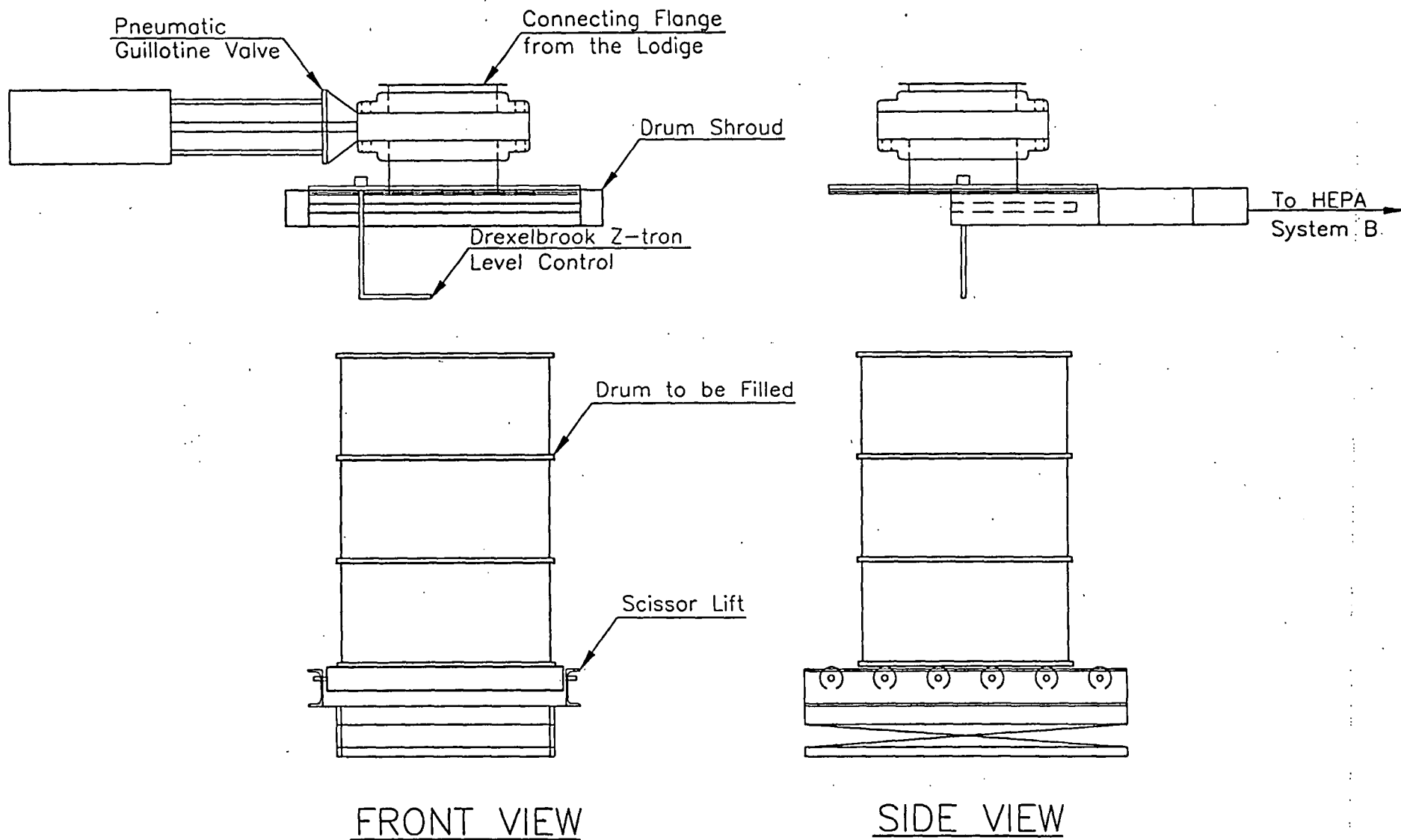
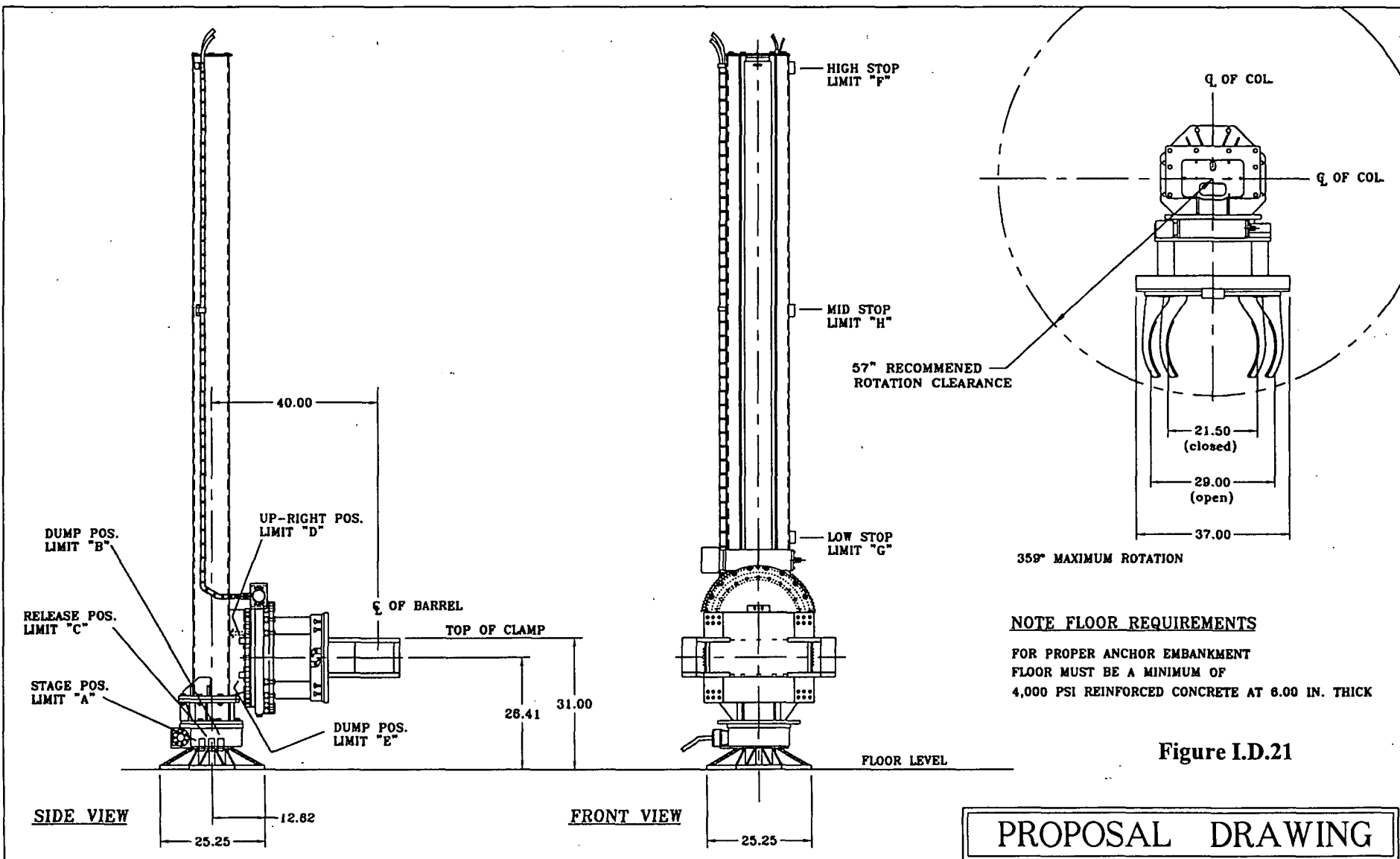


Figure I.D.20

TITLE: UNLOADING DETAILS FROM LODGE			
PREPARED FOR: PERMA-FIX of FLORIDA 1940 NW 57 Place, Gainesville Florida			
SCALE: 3/4" = 1"	APPROVED BY:	DRAWING: D.M.	
DATE: 8/18/98	D. ROKOSKY	REVISION:	
ACAD FILE:	DRAWING NUMBER:		9801-05
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**PERMA-FIX**  
ENVIRONMENTAL ENGINEERING





REVISIONS

⑤ REDRAWN & REVISED. JC 21 OCT. 67 X AR	⑥ CH. 8 1/4" TO 10 1/4" FEB 72 JC 16 MAR 68 AR		
⑦ CH. 8 1/4" TO 9 1/4" AR			

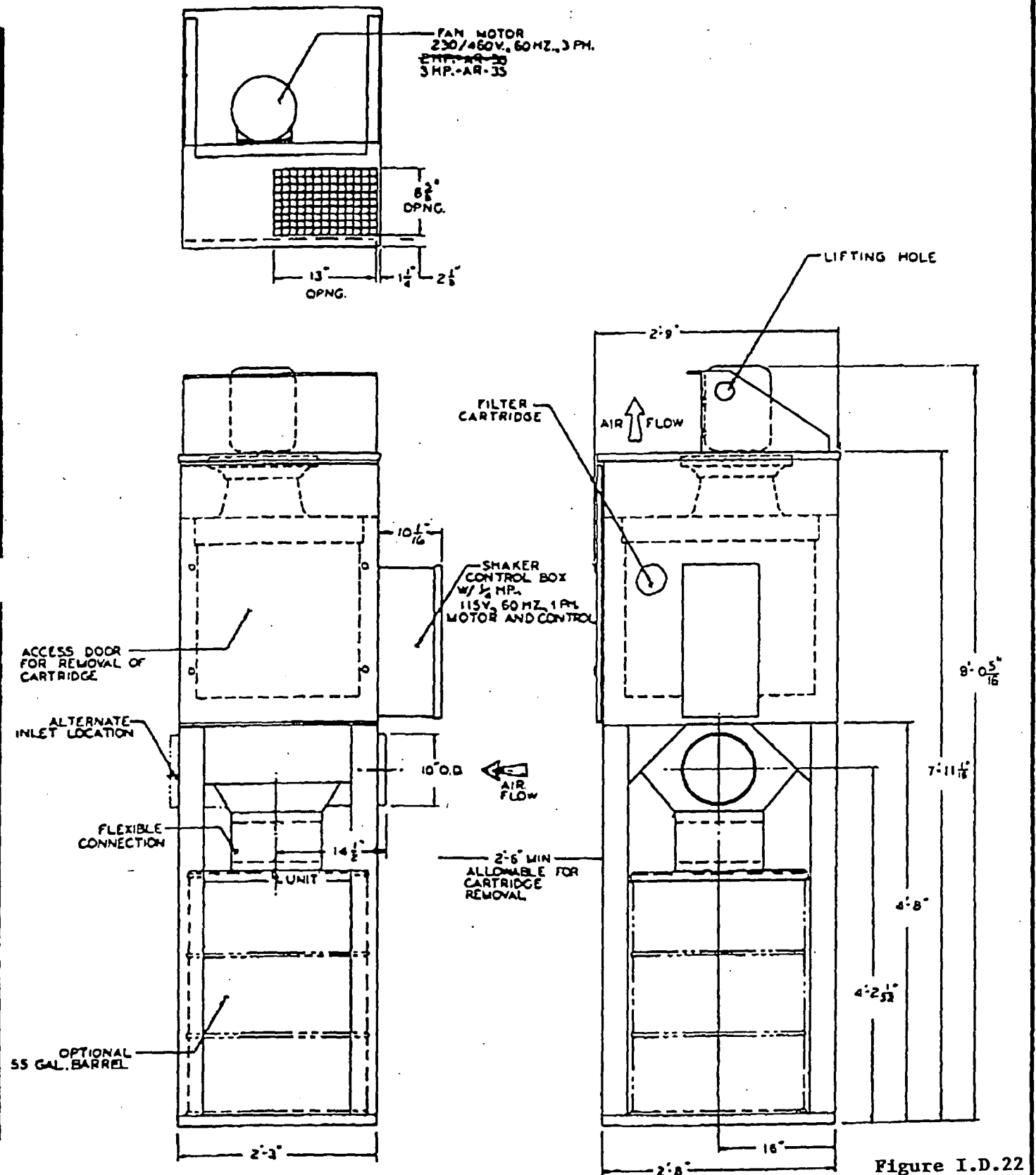


Figure I.D.22

DRAWN J. KEARNEY DATE 21 OCT. 67	APPROVED _____ DATE _____	<b>AAF</b> American Air Filter COMPANY, INC., LOUISVILLE, KY.	SUPERSEDES U68P-1390558-E
ARRESTALL DUST COLLECTOR, FUNNEL BOTTOM SIZES AR-30 & AR-35			DRAWING No. U68P-1390558-F

**ATTACHMENT I.D. 2****List of Waste Numbers for Waste Stored in  
Containers and Treated at the Facility  
(S01 and T04)****EPA Hazardous Waste Number**

D001	D021	D041	U037	U122
D002	D022	D042	U044	U124
D003	D023	D043	U052	U140
D004	D024	F001	U053	U154
D005	D025	F002	U055	U159
D006	D026	F003	U056	U161
D007	D027	F004	U057	U165
D008	D028	F005	U068	U169
D009	D029	P003	U070	U171
D010	D030	P022	U071	U196
D011	D031	P075	U072	U208
D012	D032	U001	U076	U209
D013	D033	U002	U077	U210
D014	D034	U003	U080	U211
D015	D035	U004	U083	U213
D016	D036	U012	U108	U220
D017	D037	U019	U110	U226
D018	D038	U027	U112	U227
D019	D039	U029	U117	U228
D020	D040	U031	U121	U239
				U328
				U353
				U359

**APPLICATION FOR HAZARDOUS WASTE PERMIT****PART II****Section A****A1 GENERAL INFORMATION****A1a Site Information**

1. Topographic map: See Figure I.B.3 in Part I of this application.
2. 100 - Year flood zone map: See Figure I.B.1 in Part I of this application.
3. Map orientation: See figure legends.
4. Access control: See Figure II.A.1.
5. There are no injection wells or withdrawal wells used by Perma-Fix of Florida and there are no injection or withdrawal wells within one mile of the Facility.
6. Building and other structures: See Figure II.A.2.
7. Contours: See Figure II.A.3.
8. Loading and unloading areas: See Figure II.A.2.
9. Drainage or flood control: See Figure II.A.4.
10. Hazardous waste units: See Figure II.A.5.
11. Runoff control system: See Figure II.A.4.

**A1b Wind Rose**

Five years of wind data selected to represent the Gainesville Regional Utilities Deerhaven Site were obtained from the National Weather Service station at the Gainesville Regional Airport. The Deerhaven site is approximately three miles east of the PFF Facility. The attached wind rose contains the most currently available data for Gainesville, Florida. Based on these data, the annual average wind speed is 6.3 mph. The wind direction during the 1985-1989 time period was variable. Approximately seven percent of the time the wind direction was from the east. Wind directions from the west, west-northwest, and northwest each occurred approximately six percent of the time. An annual wind rose for Gainesville for this time period is presented in Figure II.A.6, and quarterly wind roses are presented in Figure II.A.7.

**A1c Traffic Patterns**

Traffic pattern, traffic control and access patterns are identified in Figure II.A.8. The average truck traffic of incoming and outgoing waste is anticipated to be 5 trailers or tanker trucks per day. The road system and parking area have adequate load-bearing capacity to withstand the projected loads. The access route to the plant is from US441 to SR121 to NW 67th Place and then to Perma-Fix of Florida, Inc. (PFF). US441 and SR121 roadways are capable of truck traffic carrying in excess of 80,000 pounds. There are no weight restrictions on these roadways. The internal roadway (NW 67 Place) and PFF parking lot are asphalt paved and can withstand truck traffic without difficulty.

**A2 FINANCIAL RESPONSIBILITY INFORMATION****A2a Closure Cost Estimate and Financial Liability Information**

Financial responsibility information and the most recent closure cost estimate are included in the attached Closure Plan (see Section K). A copy of the financial mechanism used to establish financial assurance for closure of the facility and a copy of the facility liability coverage is attached (see Attachment II.A.1).

**A3 FLOOD MAP**

The PFF site is located outside of the 100-year flood plain. See Figure I.B.1 in Part I of this application.

**A4 FACILITY SECURITY INFORMATION****A4a Description of Security**

The entire PFF facility is surrounded by a high quality six-foot chain linked fence topped with three strands of barbwire. The fence is in good condition and is periodically inspected. Entry into the facility is controlled by gate access. The entrance gates are closed at all time and only authorized personnel are allowed into the facility.

All facility visitors must enter through the main reception area located in the office building. See Figure II.A.1.

**Warning Signs:** Entrances to PFF loading, unloading, processing and storage areas are posted with appropriate signs signifying "Danger - Unauthorized Personnel Keep Out" and "No Smoking". These signs are visible and legible from a distance of at least 25 feet.

**A4b Contingency Plan**

A copy of the facility Contingency Plan is included as Attachment II.A.2.

**A4c Description of Procedures, Structures or Equipment to Prevent Hazards, etc.**

In the event of a power failure, all transfer pumps and treatment operations will stop. Automatic check valves prevent reversal of flow of waste in the LSV transfer lines. Operations in the container and tank storage areas and in the treatment areas are not rendered unsafe during a power failure. Nevertheless, potential hazards will be assessed by the Emergency Coordinator and facility personnel during power outages and once again upon restoration of power. Emergency exit signs and lighting are provided at critical locations throughout the facility and are powered by battery backup power units. A portable gas-powered electric generator is available for use, if necessary.

Containers of hazardous waste are unloaded from transport trucks into the staging and storage areas located in each of the three buildings where hazardous waste is managed. Special equipment such as forklift trucks and non-sparking tools will be used in the hazardous waste management areas. Forklift operators are instructed in proper and safe operation of the forklift and incident response procedures. See the Contingency Plan and Personnel Training Plan included as Attachment II.A.2 and II.A.3, respectively, for training and incident response details.

All persons entering hazardous waste management areas are required to wear protective clothing, which is appropriate for the activities to be conducted in those areas. Personal protective equipment (PPE) is selected and used according to the standards and guidelines promulgated by the Occupational Safety and Health Administration (OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH). The Contingency Plan contains a list of available PPE. Training in the use of PPE is covered by the Personnel Training Plan.

The Facility has been designed to prevent runoff from waste management areas onto other areas of the Facility or to the environment (e.g., ground water). Waste management areas are enclosed and/or have sufficient containment to prevent runoff of contaminated water. Rainwater is directed to the on-site retention pond or to a drainage ditch north of the facility. The 3,000 gallon mixed waste storage tank is located inside the Processing and Storage Building in a containment area which is capable of containing 150% of the entire contents of the tank. Curbs and/or storm drains prevent surface drainage from passing through the waste management areas. Adequate containment is also provided for the Perma-Fix® II process area which is located in a Quonset hut inside of the Treatment and Operations Building.

Avoiding the discharge of hazardous materials onto unprotected ground will prevent groundwater contamination. No drains are located within the waste management areas and no unauthorized materials are released to the sanitary sewer or to surface water runoff. PFF accounts for all hazardous wastes delivered to and removed from the Facility through a material accounting system. This includes a generator-specific numbering system to identify, at all times, the current status of each container of material received on-site. PFF tracks each container of material from time of receipt through final disposition. In addition, hazardous waste is stored and managed at the Facility in areas equipped with secondary containment to prevent releases to the surrounding environment. In the unlikely event of a spill on unprotected ground from a transportation incident, the procedures outlined in the Contingency Plan would provide for immediate control and removal of hazardous material spills.

All hazardous wastes received at the Facility are assumed to be ignitable and are managed accordingly. Appropriate precautions are taken to eliminate sources of ignition including open flames; smoking, cutting and welding hot surfaces, frictional heat and spark from in



and around the container storage, tank storage and processing area. The facility is fenced for security and smoking is not allowed within the Facility.

The hazardous waste storage and treatment areas are operated in accordance with applicable National Fire Prevention Association (NFPA) standards. Other precautions against ignition include the following:

- All electrical systems and motors will be properly grounded and adequately rated for their intended use.
- Storage and treatment areas will be adequately ventilated.
- Special tools with low spark risk will be used for maintenance or repair work.

In the LSV processing and storage areas, additional safety features include:

- Electrical grounding for all key equipment including grinder/screw, sampling tanks, bulk storage tank, and ancillary equipment.
- Automatic fire suppression for the LSV process line.
- Overflow interlocks and alarms for the sampling tanks and bulk storage tank.
- Circuit overload and lockout mechanisms.
- Ventilation systems for the process and work areas that maintain negative pressure in these areas and filter the exhaust for particulate matter and organic vapors.
- Automatic LSV process line shutdown button.

In the Perma-Fix® II processing and storage areas, additional safety features include:

- Electrical grounding for all key equipment including the desorption unit, chemical oxidation unit, condenser, and ancillary equipment.
- Automatic fire suppression for the Perma-Fix II process line.
- Mechanical drum dumper for loading the Perma-Fix II reactor vessel.
- Overflow interlocks and alarms for the process units.
- Mechanical drum lifter and pneumatic guillotine valve for emptying the reactor vessel into drums.
- Circuit overload and lockout mechanisms.

- Ventilation systems for the process and work areas that maintain negative pressure in these areas and filter the exhaust for particulate matter and organic vapors.
- Equipment pressure relief valves and conservation vents to prevent over pressurization.
- Automatic Perma-Fix II process line shutdown button.

Additional details regarding safety equipment and procedures for these operations are provided in Sections II. A-C and II.I.

Undesirable, uncontrolled and dangerous reactions between incompatible wastes will be prevented by the early identification of potentially incompatible waste streams. Waste characterization and screening procedures are described in detail in the Facility Waste Analysis Plan (WAP) included as Attachment II.A.4. In addition, compatibility testing will be conducted on materials that are part of lab packs or that will be bulked with other waste streams. Compatibility testing procedures are also addressed in the WAP. These procedures include the mixing of samples of potentially incompatible wastes. The mixture(s) will be observed for temperature rise, evolution of gases and/or polymerization. Leaking or damaged containers of hazardous waste will be isolated from each other until the contents have been placed in new or overpack containers.

#### **A4d Preparedness and Prevention Procedures**

##### **Design and Operation of Facility**

The PFF treatment, storage and processing areas, and associated process equipment are designed, constructed, maintained and operated to minimize the possibility of a fire, explosion or any unplanned release of hazardous waste constituents to the air, soil, surface water or groundwater that could threaten human health or the environment. To facilitate effective responses to potential emergency situations, the following equipment and procedures are used at the Facility.

All hazardous waste to be treated with the Perma-Fix® II process will be assumed to be ignitable until proven otherwise. This waste will be separated and protected from sources of ignition or reaction such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electric, or mechanical), spontaneous ignition, and radiant heat. The Facility is fenced for security and smoking is not allowed within the Treatment and Operations Building where the Perma-Fix II process equipment is to be located. 50 feet will be considered a safe distance to store ignitable or reactive wastes away from an ignition source.

Potentially incompatible wastes, or incompatible wastes and materials will not be placed in the same container, tank or treatment equipment unless the wastes/materials are first tested in order to determine the necessary precautions to prevent reactions which:

1. Generate extreme heat or pressure, fire or explosions, or violent reactions;
2. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
3. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion;
4. Damage the structural integrity of the container, tank or treatment equipment or the Facility; or
5. Through other like means threaten human health or the environment.

Incompatible wastes will be stored in separate containers in separate secondary containment areas. Separation will be maintained by the use of berms, dikes, or by placing containers of incompatible waste in separate buildings. Incompatible wastes will not be placed in the same container or tank.

### **Required Equipment**

A computer system is used for management of important operations data. To minimize the potential for loss of information during power outages or computer system failure, key waste management information is also maintained in hard copy form. The following emergency or incident response equipment is maintained at the Facility:

- Internal telephone communication system capable of notifying all employees in the event of an emergency.
- External communications equipment to summon outside assistance, if necessary.
- Emergency equipment:
  - Fire fighting (automatic fire suppression system in LSV processing area, the Perma-Fix® II process line area, and strategically located fire extinguishers)
  - Spill clean-up (e.g., absorbent materials, booms, shovels, etc.)
  - Decontamination
- Water for fire control at an adequate volume and pressure to supply water hose streams, foam-producing equipment, or water spray systems. The water source for supplying water hose streams is the City of Gainesville.

Emergency equipment is listed in Table 1 below.

TABLE 1

## EMERGENCY EQUIPMENT LIST

<u>Item</u>	<u>Description/Capability</u>	<u>Location(s)</u>
Telephone	Telephone communication for emergency notification	Waste areas, laboratory and other general locations
Fire Extinguishers	Dry chemical, CO <sub>2</sub> , Halon extinguish fires	Waste areas, laboratory, tank and container storage areas administration area
Fire Hydrant	Fire hydrants-combat fire	Southwest corner of treatment and operations building
Absorbent Material	Vermiculite and absorbent material in spill kits-absorbs liquid spills	Waste treatment areas, container storage and tank storage areas
Respirators	Full face, half face/SCBA-Filter ambient air/supply compressed air	Waste treatment areas, laboratory
Eye Wash	Permanent installation and portable eye wash bottles-flush eyes	Waste treatment areas, laboratory
First Aid Kits	Band-aids, bandages-provide minor first aid	Change out area
Fork Lift, Bobcat	8,000 pound capacity, fossil fuel powered-assist in moving materials	Container storage areas
Automatic Fire Suppression	CO <sub>2</sub> dry system-control spread of fire or extinguish	LSV processing area, Perma-Fix II processing area

### **Access to Communication System**

Access to the communication system is readily available from several locations in and around the Facility waste management areas. Additionally, a paging system allows for broadcasting of announcements at the Facility. To facilitate communications in the event of an emergency, activities are not conducted in treatment or process areas unless at least two employees are present. Operating personnel will carry two-way portable radios or will have ready access to the plant telephone or both. The plant telephone system is connected to outside telephone systems and will be used to notify local authorities in the event of an emergency. The local fire department is less than one mile from the Facility and is adequately equipped to respond in the event of a fire.

### **Testing and Maintenance of Equipment**

An outside contractor routinely inspects facility fire suppression equipment. In addition, all emergency response equipment and supplies are tested and maintained by facility personnel to assure proper operation in time of emergency. The Contingency Plan lists the locations, number, and types of emergency equipment at the Facility, including fire extinguishers, fire suppression equipment, spill control equipment, emergency response personal protective equipment and decontamination equipment.

### **Required Aisle Space**

Adequate aisle space will be maintained in all areas of the Facility to provide unobstructed movement of personnel, material handling machinery, fire suppression equipment, and spill control equipment. Pallets of containers or drums in storage areas that may be stacked up two high will be banded and situated so that at least two sides of each pallet is visible and accessible at all times. Pallets or drums are added and removed from the ends of rows by lift trucks. Minimum aisle space will be maintained as follows:

- Four (4) feet between rows of pallets to allow access for fire fighting, container inspection, and manual extraction of a leaking container from a pallet load.
- Eight (8) feet in appropriate locations to allow lift truck to move freely from one area of the building to another.
- Twelve (12) feet at the ends of the container rows to allow adequate room for lift trucks to maneuver for the purpose of depositing or retrieving a pallet or container.

### **Arrangements with Local Authorities**

Arrangement have been made to familiarize local authorities, such as police, fire and emergency response departments with the:

- Layout of the Facility,

- Properties and associated hazards of the wastes managed on site,
- Places where Facility personnel would normally be working,
- Entrances to and roads inside the facility, and
- Possible evacuation routes.

This includes the opportunity for Facility inspections/visits by the local authorities. The opportunity for site inspections/visits will be repeated whenever there are relevant changes in Facility operations or on an annual basis. Arrangements with state and local emergency response authorities for assisting PFF (in the event that outside emergency response becomes necessary) are documented in the Facility Contingency Plan. See Attachment II.A.2 of the Facility permit application.

Copies of the current Facility Contingency Plan are provided to the local police and fire departments, the nearest major hospital and the local emergency response team (i.e., the fire department). Copies of each Contingency Plan update will be provided to each of the listed agencies.

#### **A4e Personnel Training**

The training programs used to prepare persons to operate or maintain the facility in a safe manner are addressed in the Personnel Training Plan included as Attachment II.A.3 to this permit application.

### **A5 CHEMICAL AND PHYSICAL ANALYSIS**

The hazardous waste that is stored and treated at the Facility is generated by off-site and on-site sources. Off-site sources of hazardous waste may include, but are not limited to, RCRA treatment, storage or disposal (TSD) facilities; remediation sites; research institutions; government agencies; paint and coatings manufacturers and users; solvent users and other industries that generate hazardous wastes. The facility will also receive wastes from a variety of conditionally exempt and small quantity generators. In addition, waste collected during various county household hazardous waste collection campaigns will be managed at the facility. Hazardous waste generated by on-site sources consists primarily of treatment residues, spent personal protective equipment, laboratory wastes, including samples of hazardous waste taken for testing and analysis and, to a lesser extent, occasional small spill clean-up residues and soils.

The diverse nature of waste sources results in hazardous waste of variable chemical composition being stored and treated at the Facility. A list of wastes and waste constituents that may be accepted at the Facility is included as Attachment II.A.5. These materials are listed by the EPA waste numbers found in 40 CFR Part 261, Subparts C and D.

The physical composition of the hazardous waste managed at the facility is either liquid (pumpable) or solid (non-pumpable). The physical composition of hazardous waste generated off-site generally determines its mode of transportation to the facility. Typically, the hazardous waste that is used and stored at the facility can be characterized as follows:

- Organic liquids, including suspended solids, which are received from off-site in Department of Transportation (DOT) drums and other small containers.
- Sludges and solids, possibly containing free liquids, which are received from off-site by truck in drums and other containers meeting the requirement of the DOT.
- A variety of debris contaminated with hazardous constituents received in containers.
- Miscellaneous liquid and solid hazardous waste generated at the Facility as a result of waste treatment and miscellaneous management activities, such as clean-up materials, personal protective equipment and decontamination rinsate.

Liquid wastes generated on-site include cleaning solvents and residues. Solid wastes generated on-site include filter cleaning residues and used personal protective equipment (PPE).

All hazardous waste shipments determined to be unacceptable will be rejected. Rejected shipments will be returned to the generator or shipped to an alternate authorized TSD facility. Acceptance parameters are addressed in the Facility Waste Analysis Plan.

## **A6 WASTE ANALYSIS PLAN**

The Waste Analysis Plan (WAP) has been developed as a stand-alone document and is included as Attachment II.A.4. The WAP establishes hazardous waste acceptance procedures, sampling methods, frequency of analyses, analytical techniques, and related quality control/quality assurance procedures that will be followed at the facility to ensure that sufficient information is available for proper storage and treatment of hazardous waste. The chemical and physical analytical parameters that define acceptable hazardous waste, along with the rationale for their selection, are presented in the WAP.

Also addressed in the WAP are the precautions used to prevent undesirable chemical reactions resulting from mixing of incompatible hazardous waste or from the inadvertent receipt of hazardous waste exhibiting undesirable chemical reactions.

Undesireable chemical reactions are listed in 40 CFR 264.17(b) as reactions that:

1. Generate extreme heat or pressure, fire or explosions, or violent reactions,
2. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health and the environment,
3. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions,
4. Damage the structural integrity of the facility, and
5. Through other like means, threaten human health and the environment.

## **A7 MANIFEST SYSTEM, RECORDKEEPING AND REPORTING**

### **Required Notice**

Before receiving a hazardous waste from a foreign source, PFF will notify the EPA Regional Administrator in writing at least four weeks in advance of the date the waste is expected to arrive at PFF. Notice of subsequent shipment of the same waste from the same foreign source is not required.

When entering into any agreement to receive any waste for processing from a generator, PFF will inform the generator in writing of PFF's permit status and the ability to accept the waste the generator will be shipping.

Prior to transferring ownership or operation of PFF, PFF will provide appropriate notification in writing to the proper authorities in accordance with 40 CFR Parts 264 and 270.

### **Use of Manifest System**

PFF requires generators to provide a completed manifest for each shipment of hazardous waste. Manifests will be used in accordance with 40 CFR 264.71 and 264.72. In addition to the manifest number, PFF will assign an internal tracking number to each container and/or shipment received at the Facility for ease of identification.

If the Facility receives hazardous waste accompanied by a manifest, PFF will:

1. Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received;
2. Note any significant discrepancies in the manifest (as defined in 40 CFR 264.72(a)) on each copy of the manifest;
3. Immediately give the transporter at least one copy of the signed manifest;
4. Within 30 days after the delivery, send a copy of the manifest to the generator; and
5. Retain at the Facility a copy of each manifest for at least three years from the date of delivery.

### **Manifest Discrepancies**

Upon discovering a significant discrepancy (as defined in 40 CFR 264.72(a)), PFF will attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, PFF will immediately submit to the Florida Department of Environmental Protection a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest at issue.

### **Unmanifested Waste Report**

If the Facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, as described in 40 CFR 263.20(e)(2), and if the waste is



not excluded from the manifest requirement by 40 CFR 261.5, then PFF will prepare and submit a single copy of a report to the Florida Department of Environmental Protection within fifteen days after receiving the waste.

Such report will be submitted on EPA form 8700-13B, be designated "Unmanifested Waste Report" and include the following information:

1. The EPA identification number, name and address of the Facility;
2. The date the Facility received the waste;
3. The EPA identification number, name, and address of the generator and the transporter, if available;
4. A description and the quantity of each unmanifested hazardous waste the Facility received;
5. The method of treatment, storage, or disposal for each hazardous waste;
6. The certification signed by the owner or operator of the Facility or his authorized representative; and
7. A brief explanation of why the waste was unmanifested, if known.

### **Operating Record/Biennial Report**

Copies of the manifests and operating records will be maintained regarding each generator and records will be maintained at the Facility until the Facility is certified closed and the closure certification has been submitted to the appropriate state and/or federal authorities unless relieved of the responsibility by Florida Statutes. The Biennial Report of hazardous waste received and processed at the Facility will address the quantities of materials shipped to PFF. Copies of the Biennial Report will be submitted to the Florida Department of Environmental Protection by March 1 of each even numbered year.

The biennial report will be submitted on EPA form 8700-13B. The report will cover Facility activities during the previous calendar year and will include:

1. The EPA identification number, name, and address of the Facility;
2. The calendar year covered by the report;
3. For off-site facilities, the EPA identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipments, the report will provide the name and address of the foreign generator;
4. A description and the quantity of each hazardous waste the facility received during the year. For off-site facilities, this information will be listed by EPA identification number of each generator;
5. The method of treatment, storage, or disposal for each hazardous waste;
6. The most recent closure cost estimate under 40 CFR 264.142;
7. A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
8. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and

9. The certification signed by the owner or operator of the facility or his authorized representative.

The following reports will be maintained at the Facility:

- A description and the quantity of each hazardous waste received, and the method(s) and date(s) of its treatment and/or storage at the Facility, as required.
- The location of each hazardous waste within the Facility and the quantity at each location. This information will include cross-reference to specific manifest document numbers if the waste was accompanied by a manifest.
- Records and results of waste analysis performed.
- Summary reports and details of all incidents that require implementation of the Contingency Plan.
- Records and results of inspections for past three years.
- All closure cost estimates in accordance with 40 CFR 264, Subpart G.

PFF will also maintain the following records and provide copies to the FDEP.

- Waste minimization certification.
- Reports of releases, fire and explosions.
- Closure Plan and Closure Cost Estimate.
- Notices to the off-site generators in accordance with 40 CFR 264.12.
- Land disposal restriction notices received from off-site generators.

All operating records maintained on site pursuant to this permit application will be available to state and federal environmental regulatory personnel for inspection.

#### **A8 FEDERAL ENVIRONMENTAL LEGISLATION**

PFF is not subject to the Coastal Zone Management Act, Fish and Wildlife Coordination Act, the National Historic Preservation Act, and Wild and Scenic River Act. PFF is located within an Industrial Park in urban setting and to the best of our knowledge there are no endangered species or archeological or historical sites within the property. Supporting documentation from the Florida Department of State, Division of Historical Resources and the Florida Game and Fresh Water Fish Commission is included as Attachment II.A.6.

**Attachment II.A.1**

**Financial Assurance Documentation**

STATE OF FLORIDA  
HAZARDOUS WASTE FACILITY INSURANCE CERTIFICATE TO DEMONSTRATE  
FINANCIAL ASSURANCE

FOR

☒ Closure ☐ Post-Closure ☐ Corrective Action

[Check Appropriate Box(es)]

The term "Required Action" as used in this document means closure, post-closure, or corrective action, or any combination of these, which is checked above.

Name and Address of Insurer (herein called the "Insurer"):

Steadfast Insurance Company

1400 American Lane, Schaumburg, IL 60196-1056

Name and Address of Insured (herein called the "Insured"):

Perma-Fix of Florida, Inc.

1940 Northwest 67th Place, Gainesville, FL 32653

Facilities Covered: List for each facility: The EPA/DEP Identification Number, name, address, and the amount of insurance for "Required Action". Indicate "Required Action" amounts separately (these amounts for all facilities covered must total the face amount shown below).

EPA/DEP I.D. No.

Name

Address

Perma-Fix of Florida, Inc.

1940 NW 67th Place  
Gainesville, FL 32653

FLD980711071

Perma-Fix of Florida, Inc.

2010 NW 67th Place  
Gainesville, FL 32653

\$ 395,338.00 - Florida Dept. of Environmental Protection

\$ 60,792.00 - Florida Dept. of Health and Rehabilitation Services

Face Amount: \$ 456,130

Policy Number: PLC 82-48-584-00

Effective Date: August 2, 1995

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for Closure

Insert the "Required Action"

for the facilities identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of 40 CFR 264.143(e), 264.145(e), 265.143(d), and 265.145(d), as adopted by reference in Section 62-730.180, Florida Administrative Code (F.A.C.), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the Secretary of the Florida Department of Environmental Protection (FDEP), the Insurer agrees to furnish to the FDEP Secretary a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is substantially identical to the wording specified in 40 CFR 264.151(e), as adopted by reference in Section 62-730.180, F.A.C., as such regulations were constituted on the date shown immediately below.

Authorized Signature for Insurer

RON ANDERSON

Name of Person Signing

UP

Title of Person Signing

Signature of Witness Or Notary:

8/3/98

Date





# Department of Environmental Protection

Lawton Chiles  
Governor

Twin Towers Office Building  
2600 Blair Stone Road MS# 4560  
Tallahassee, Florida 32399-2400

Virginia B. Wetherell  
Secretary

October 13, 1998

Mr. Steven Douglas  
Regulatory Affairs Manager  
Perma-Fix of Florida, Inc.  
1940 NW 67th Place  
Gainesville, Florida 32653

Re: FLD 980 711 071 - Perma-Fix of Florida, Inc.  
Gainesville, Florida  
Permit HO01-271872

Dear Mr. Douglas:

I reviewed the Hazardous Waste Facility Insurance Certificate, policy number PLC 82-48-584-00, effective August 2, 1995, with Steadfast Insurance Company and find it in order. The \$399,173.00 adequately covers the inflation adjusted closure estimate required by the Department.

The June 19, 1998, permit application closure estimate amount, currently \$1,098,115.00, shall be provided to the Department upon completion of the permit application review process.

Perma-Fix of Florida, Inc. is in compliance with the financial requirements of 40 CFR Part 264 Subpart H, as adopted by reference in Rule 62-730.180, Florida Administrative Code. If you have any questions, please contact me at (850)488-0300.

Sincerely,

Ainë Marie Ryan  
Hazardous Waste Regulation

AMR

cc: Jeff Pallas, EPA  
Ashwin Patel

**ACORD<sup>TM</sup> CERTIFICATE OF LIABILITY INSURANCE**

DATE (MM/DD/YY)

1/12/99

## PRODUCER

Sedgwick of Florida, Inc.  
P.O. Box 958421  
Lake Mary, FL 32795-8421

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

## INSURERS AFFORDING COVERAGE

## INSURED

Perma-Fix Environmental  
Services, Inc. et al  
1940 N. W. 67th Place  
Gainesville FL 32653

INSURER A: **Commerce & Industry Ins. Co.**  
INSURER B: **National Union Fire Ins.**  
INSURER C: **American Int'l Specialty Line**  
INSURER D:  
INSURER E:

## COVERAGES

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INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY	GL3408807	1/01/99	1/01/00	EACH OCCURRENCE \$ 1000000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				FIRE DAMAGE (Any one fire) \$ 50000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				MED EXP (Any one person) \$ 5000
					PERSONAL & ADV INJURY \$ 1000000
	GEN'L AGGREGATE LIMIT APPLIES PER:				GENERAL AGGREGATE \$ 2000000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC				PRODUCTS-COMP/OP AGG \$ 1000000
A	AUTOMOBILE LIABILITY	CA5052827	1/01/99	1/01/00	COMBINED SINGLE LIMIT (Ea accident) \$ 1000000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS				
	<input checked="" type="checkbox"/> NON-OWNED AUTO				
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN EA ACC \$
					AUTO ONLY: AGG \$
	EXCESS LIABILITY				EACH OCCURENCE \$
	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE \$
	<input type="checkbox"/> DEDUCTIBLE				\$
	<input type="checkbox"/> RETENTION \$				\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC5718436	1/01/99	1/01/00	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
					E.L. EACH ACCIDENT \$ 1000000
					E.L. DISEASE-EACH EMPLOYEE \$ 1000000
					E.L. DISEASE-POLICY LIMIT \$ 1000000
C	POLLUTION LEGAL LIABILITY	PLS2676820	1/01/99	1/01/00	\$ 2,000,000 EACH LOSS \$ 4,000,000 AGGREGATE

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED ENDORSEMENTS/SPECIAL PROVISIONS \* Sedgwick is not listing exclusions or Special Provisions.

INCLUDES PERMA-FIX OF FLORIDA, INC., 1940 NW 67 PLACE, GAINESVILLE, FL

## CERTIFICATE HOLDER

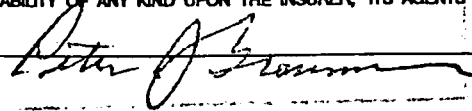
ADDITIONAL INSURED; INSURER LETTER: \_\_\_\_\_

## CANCELLATION

PERMA-FIX ENVIRONMENTAL  
SERVICES, et al  
1940 NW 67 PLACE, SUITE A  
GAINESVILLE, FL 32653

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THIS EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE



## **IMPORTANT**

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**ACORD<sup>TM</sup> CERTIFICATE OF LIABILITY INSURANCE**

DATE (MM/DD/YY)

1/12/99

## PRODUCER

Sedgwick of Florida, Inc.  
P.O. Box 958421  
Lake Mary, FL 32795-8421

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## INSURERS AFFORDING COVERAGE

## INSURED

Perma-Fix Environmental  
Services, Inc. et al  
1940 N. W. 67th Place  
Gainesville FL 32653

INSURER A: Commerce & Industry Ins. Co.  
INSURER B: National Union Fire Ins.  
INSURER C: American Int'l Specialty Line  
INSURER D:  
INSURER E:

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A	GENERAL LIABILITY	GL3408807	1/01/99	1/01/00	EACH OCCURRENCE \$ 1000000 FIRE DAMAGE (Any one fire) \$ 50000 MED EXP (Any one person) \$ 5000 PERSONAL & ADV INJURY \$ 1000000 GENERAL AGGREGATE \$ 2000000 PRODUCTS-COMP/OP AGG \$ 1000000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				
	GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				
A	AUTOMOBILE LIABILITY	CA5052827	1/01/99	1/01/00	COMBINED SINGLE LIMIT (Ea accident) \$ 1000000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTO				
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
	EXCESS LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURENCE \$ AGGREGATE \$ \$ \$ \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC5718436	1/01/99	1/01/00	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1000000 E.L. DISEASE-EACH EMPLOYEE \$ 1000000 E.L. DISEASE-POLICY LIMIT \$ 1000000
C	OTHER CONTRACTORS OPERATIONS & PROFESSIONAL SERVICES	2676819	1/01/99	1/01/00	\$2,000,000 EACH LOSS \$4,000,000 AGGREGATE

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED ENDORSEMENTS/SPECIAL PROVISIONS \* Sedgwick is not listing exclusions or Special Provisions.

INCLUDES PERMA-FIX OF FLORIDA, INC.

## CERTIFICATE HOLDER

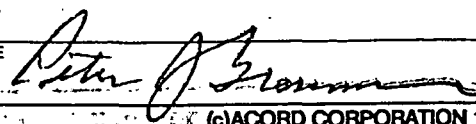
ADDITIONAL INSURED; INSURER LETTER: \_\_\_\_\_

## CANCELLATION

PERMA-FIX ENVIRONMENTAL  
SERVICES, INC. et al  
940 NW 67 PLACE  
SUITE A  
GAINESVILLE, FL 32653

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AUTHORIZED REPRESENTATIVE



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ACORD<sub>DM</sub>

## CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)

1/12/99

## PRODUCER

Sedgwick of Florida, Inc.  
P.O. Box 958421  
Lake Mary, FL 32795-8421

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Perma-Fix Environmental  
Services, Inc. et al  
1940 N. W. 67th Place  
Gainesville FL 32653

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INSURER B: National Union Fire Ins.

INSURER C:

INSURER D:

INSURER E:

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					GENERAL AGGREGATE \$ 2000000
	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS-COMP/OP AGG \$ 1000000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				
A	AUTOMOBILE LIABILITY	CA5052827	1/01/99	1/01/00	COMBINED SINGLE LIMIT (Ea accident) \$ 1000000
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	<input checked="" type="checkbox"/> NON-OWNED AUTO				
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
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					AUTO ONLY: AGG \$
	EXCESS LIABILITY				EACH OCCURENCE \$
	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE \$
					\$
	DEDUCTIBLE				\$
	RETENTION \$				\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC5718436	1/01/99	1/01/00	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER \$ 1000000
					E.L. EACH ACCIDENT \$ 1000000
					E.L. DISEASE-EACH EMPLOYEE \$ 1000000
					E.L. DISEASE-POLICY LIMIT \$ 1000000
	OTHER				

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED ENDORSEMENTS/SPECIAL PROVISIONS \* Sedgwick is not listing exclusions or Special Provisions.

INCLUDES PERMA-FIX OF FLORIDA, INC.  
2010 NW 67 PLACE, GAINESVILLE, FL

## CERTIFICATE HOLDER

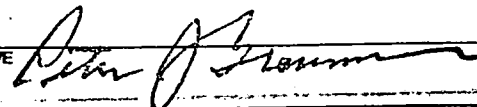
ADDITIONAL INSURED; INSURER LETTER:

## CANCELLATION

PERMA-FIX ENVIRONMENTAL  
SERVICES, INC., et al  
940 NW 67 PLACE, SUITE A  
GAINESVILLE, FL 32653

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AUTHORIZED REPRESENTATIVE



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# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)

1/12/99

PRODUCER

Sedgwick of Florida, Inc.  
P.O. Box 958421  
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INSURERS AFFORDING COVERAGE

INSURED

Perma-Fix Environmental  
Services, Inc. et al  
1940 N. W. 67th Place  
Gainesville FL 32653

INSURER A: Commerce & Industry Ins. Co.  
INSURER B: National Union Fire Ins.  
INSURER C: Zurich Insurance Co.  
INSURER D:  
INSURER E:

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	GL3408807	1/01/99	1/01/00	EACH OCCURRENCE \$ 1000000 FIRE DAMAGE (Any one fire) \$ 50000 MED EXP (Any one person) \$ 5000 PERSONAL & ADV INJURY \$ 1000000 GENERAL AGGREGATE \$ 2000000 PRODUCTS-COMP/OP AGG \$ 1000000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTO	CA5052827	1/01/99	1/01/00	COMBINED SINGLE LIMIT (Ea accident) \$ 1000000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
	EXCESS LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC5718436	1/01/99	1/01/00	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1000000 E.L. DISEASE-EACH EMPLOYEE \$ 1000000 E.L. DISEASE-POLICY LIMIT \$ 1000000
C	OTHER PROPERTY	PCA8342828	1/01/99	1/01/00	RISKS OF PHYSICAL DAMAGE NOT OTHERWISE LIMITED OR EXCLUDED

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED ENDORSEMENTS/SPECIAL PROVISIONS \* Sedgwick is not listing exclusions or Special Provisions.

INCLUDES PERMA-FIX OF FLORIDA, INC.

CERTIFICATE HOLDER

ADDITIONAL INSURED; INSURER LETTER: \_\_\_\_\_

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THIS EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

PERMA-FIX ENVIRONMENTAL  
SERVICES, INC. et al  
1940 NW 67 PLACE  
SUITE A  
GAINESVILLE, FL 32653

## IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

IF SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

## DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

**Attachment II.A.2**

**Contingency Plan**

# **CONTINGENCY PLAN**

**PERMA-FIX OF FLORIDA, INC.  
1940 NW 67TH PLACE  
GAINESVILLE, FLORIDA 32653  
(352) 373-6066**

**DEP/EPA ID#: FLD 980 711 071**



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CP-3	Emergency Response Procedures for Spill/Unplanned Release
CP-4	Emergency Notification Information
CP-5	Emergency Equipment List
CP-6	Emergency Equipment Locator Map
CP-7	Emergency Evacuation Route Map
CP-8	Facility Hazard Location Map
CP-9	Coordination Agreement/Receipt Documentation
CP-10	Contingency Plan Revisions-Transmittal Letter

## 1.0 SCOPE AND OBJECTIVES

This Contingency Plan (hereafter referred to as "the Plan") describes an organized course of action to be taken by Facility personnel or outside organizations in response to possible hazardous waste emergencies at the Perma-Fix of Florida, Inc. facility (Facility). In addition, the Plan lists emergency equipment to be maintained on-site and designates the primary and alternate Emergency Coordinators. This plan is designed to fulfill the Resource Conservation and Recovery Act (RCRA) Subpart D requirements of 40 CFR Part 264.

The Plan is designed to be a stand-alone document that provides instructions and guidance for responding to Facility emergencies. The Facility was designed and will be operated in a manner to prevent spills, fires, and explosions. Personnel are trained to immediately implement and execute the Plan whenever there is an imminent or actual fire, explosion, or release of hazardous waste or hazardous waste constituents. Additionally, the Plan will be implemented in the event of natural disasters or bomb threats.

Updated copies of the Plan are posted within the Facility and maintained in the Facility operating record. Also, copies of the Plan have been supplied to the state and local agencies that may be called upon to assist in the event of an actual emergency at the Facility.

## 2.0 FACILITY OPERATIONS

Perma-Fix of Florida, Inc. (PFF) currently conducts a commercial waste bulking, storage and transfer facility operation at its Gainesville, Florida facility. Waste managed on-site includes a wide variety of hazardous, industrial, mixed and non-hazardous wastes. The Facility separately blends hazardous and mixed wastes into fuels for reuse (i.e., energy recovery) in permitted, off-site incinerators, industrial furnaces, etc. The Facility also consolidates, repackages and sorts waste materials for shipment and off-site treatment and/or disposal.

Proposed activities at the Facility will include a variety of chemical and physical waste treatment activities. Specifically, PFF plans to receive, store and treat hazardous waste via thermal desorption, chemical and physical extraction (extraction methods include water washing, high pressure steam, blasting, grinding, spalling etc.), chemical oxidation, size reduction and separation techniques, microencapsulation and macroencapsulation.

A general description of the proposed treatment operations at the Facility include the Perma-Fix® (chemical stabilization) and Perma-Fix® II (thermal desorption/chemical oxidation) processes as well as treatment of hazardous debris in accordance with the alternative treatment standards specified in 40 CFR 268.45 (namely physical abrasion, chemical washing, and encapsulation). In addition, PFF is planning solvent recycling activities (distillation) which are exempt from RCRA permitting requirements. Complete details of these process may be found in Part II Section I of PFF's RCRA permit application.

Figure CP-1 is a Site Plan showing the locations of hazardous waste management areas at the Facility.

Liquid scintillation fluid (LSF) is an example of one waste stream received at PFF. LSFs are generally received in vials from off-site generators. The vials are crushed and the scintillation fluid is captured and pumped into a 3,000-gallon aboveground storage tank located in the Processing and Storage Building (see Figure CP- 1). The scintillation fluid is then fuel blended and shipped off site for energy recovery. The broken vials are washed with an ethanol solvent and disposed as a non-hazardous solid waste.

Size reduction prior to other treatment activities will also be conducted in the LSV Processing and Non-Hazardous Waste Storage Warehouse. Perma-Fix® and debris decontamination activities will be conducted in an empty storage bay in the proposed container storage area in the Treatment and Operations Building or in the Quonset Hut if VOC emissions controls are required. The Perma-Fix® II process, macroencapsulation, and solvent recycling activities will be carried out inside the Quonset hut located in the Treatment and Operations Building. Fuel blending (bulking and de-watering) operations are conducted in the Processing and Storage Building.

Used oil is stored in the LSV Processing and Non-Hazardous Waste Storage Warehouse (see Figure CP-1) in either 55-gallon drums or 250-gallon tote containers. The used oil is fuel blended. Spent fluorescent lamps destined for recycling, and various non-hazardous wastes are also stored in the LSV Processing and Non-Hazardous Waste Storage Warehouse.

Additional information regarding facility operations relevant to contingency plan implementation are addressed in the procedures noted below.

### **3.0 EMERGENCY COORDINATORS**

This Plan identifies a primary Emergency Coordinator and alternate Emergency Coordinators as indicated in Attachment CP-1. The individuals identified are familiar with all aspects of PFF operations, trained in Contingency Plan implementation and are capable of making appropriate decisions under emergency circumstances. The primary and alternate Emergency Coordinators are authorized and have the ability to commit the resources of Perma-Fix Environmental Services, Inc. in order to implement the plan. The Emergency Coordinators have the authority to shut down and restart processing areas and evacuate plant personnel. An Emergency Coordinator will be able to reach the Facility in a short period of time, should it be necessary to respond after regular business hours.

### **4.0 IMPLEMENTATION**

The Plan will be implemented whenever an incident or emergency threatens or has the potential to threaten human health, the environment, and public or private property. Criteria for implementation of the Contingency Plan at the Facility include the following scenarios and potential emergencies:

**A. Fires and/or Explosions**

- A large fire has been discovered and the fire is not extinguished using portable fire extinguishers
- Facility personnel have exhausted locally available fire extinguishers on a small fire and the fire continues to burn or spread.
- A fire causes the release of toxic fumes affecting the surrounding area.
- Use of water or chemical fire suppressant could result in contaminated runoff.
- An imminent danger of an explosion exists.
- An explosion has occurred.

**B. Spills or Releases**

- A spill exceeds the size or seriousness that can be controlled and remediated by Facility personnel using portable equipment available in the immediate area of a spill or release.
- A spill or uncontrolled reaction has caused or could cause the release of hazardous waste or hazardous waste constituents to the air, surface water, or soil.

**C. Natural Disasters**

- A hurricane, tornado, or severe weather event is forecast for the immediate area of the facility.
- A hurricane, tornado, or severe weather event has occurred at the Facility.

**D. Bomb Threat**

- A bomb threat concerning the Facility is received by Facility personnel or by other persons who make the event known to Facility personnel.

The designated Emergency Coordinator will implement the Plan in the event of an imminent or actual emergency. The Emergency Coordinator will also provide coordinated assistance to the internal personnel and outside organizations responding to the emergency incident.

**4.1 Emergency Response Procedures****4.1.1 Notification**

Facility personnel will immediately notify the Emergency Coordinator by telephone or intercom when an actual or imminent emergency is identified. If the emergency occurs after regular business hours, the Emergency Coordinator (or designated alternate) will be immediately notified using the telephone numbers listed in the Emergency Coordinator Contact List (Attachment CP-1).

The Gainesville Police and Fire Department can be summoned by telephone. All telephones in the Facility have outdial capability (dial "9" for outside line). Telephones are located inside each building containing hazardous waste management areas. Copies of the Contingency Plan and the Emergency Coordinator Contact List are posted in several heavy traffic areas inside the Facility, on the employee bulletin board, and beside the telephones near the waste management areas.

#### **4.1.2 Identification of Hazardous Materials**

As a precaution, all waste received at PFF is assumed to be ignitable and toxic. All smoke and fumes from fires and explosions will be assumed to be hazardous. The atmosphere around all spills will be assumed to be toxic and potentially reactive until determined to be otherwise. The Emergency Coordinator or his/her alternate will make an inspection of the material(s) involved in an incident and determine the next course of action.

Whenever there is a release, fire, or explosion, the Emergency Coordinator will (to the extent possible) immediately identify the character, source, amount, and aerial extent of any released materials. He may do this by visual observation, review of facility records, and (if necessary) by chemical analysis. Facility records available for review include manifests, operator records, truck placards, container labels, and waste analysis data on-site. The Emergency Coordinator may consider incident character (i.e., size of spill or type of incident) as well as weather conditions when coordinating response actions.

#### **4.1.3 Hazard Assessment**

As part of the Facility training program, facility personnel are trained to assess the potential emergencies for which they have the capacity to respond. Facility personnel will be trained to use locally available fire extinguishers and control equipment for minor spills. If more serious events are immediately recognized, or local resources are exhausted, the Emergency Coordinator will be notified, and local authorities will be summoned for assistance. The Emergency Coordinator will provide information regarding the materials (if known) and the Facility in advising the fire department as to when firefighting efforts should cease, and when defensive measures to prevent the spread of contamination should be initiated. The on-site fire or emergency response official shall have primary control and authority during an emergency situation at PFF.

The need for partial or full evacuations of the Facility and surrounding areas will be assessed by the Emergency Coordinator and outside emergency agency personnel.

Medical emergencies will be assessed by the affected employees' supervisor. Any employee who is injured to the extent where the injury cannot be remedied by simple first aid, will be treated by either the Facility's local medical provider, or a local emergency medical facility.

Bomb threats will be treated as actual emergency events until determined otherwise. The Gainesville Police Department will make further assessments and recommendations to the PFF Emergency Coordinator.

The Emergency Coordinator will have a variety of tools and equipment available to assess the extent and severity of an incident including:

- photo-ionization detector
- organic vapor analyzer
- colorimetric tubes
- wellpoints and groundwater sampling equipment
- gas chromatograph, mass spectrometer, and miscellaneous lab instruments

The Emergency Coordinator will assess the potential environmental effects of an incident using the following criteria:

- Potential effects of gases, vapors, and smoke.
- Potential effect of water run-off from fire control.
- Potential effect of fire fighting foams or chemicals.
- Potential effect on local surface water or groundwater.
- Potential effect on human and animal health or life; inside and outside the facility.

#### **4.1.4 Control Procedures**

##### **4.1.4.1 Fire and Explosion**

All Facility employees are trained in fire prevention and response. Employees are trained to respond to small fires with portable fire extinguishers. Structural, or large incipient fires will be responded to by the Gainesville Fire Department. Specific instructions for responding to a fire or explosion at PFF are contained in Attachment CP-2, Emergency Procedures for Fire and Explosion.

In the event of fire or explosion, the following actions will be immediately taken:

1. All work will cease and all non-essential personnel will be evacuated to the designated assembly area.
2. All valves and conveyance systems in the LSV processing area which lead to the 3,000-gallon aboveground storage tank, and those in the treatment area will be secured. All loading, processing, and unloading operations of the Perma-Fix, Perma-Fix® II system or other site operations in the affected area will be shut down.
3. The Emergency Coordinator and local authorities will be notified.

#### **4.1.4.2 Minor Spills**

Minor spills may occur during waste sampling, equipment maintenance, waste transfer, and treatment operations. Waste is managed throughout the Facility within secondary containment structures. Therefore, minor spills have minimal potential for off-site migration to the local environment. In most cases, these spills occur where adequate ventilation is present to dissipate any harmful vapors. These spills can generally be remediated using absorbent pads or materials.

#### **4.1.4.3 Major Spills**

Major spills may result from overturned containers or ruptures in the storage tank, containers, piping or hoses. Secondary spill containment has been installed at hazardous waste treatment process areas and storage locations within the Facility.

Specific instructions for responding to a spill or unplanned release at PFF are contained in Attachment CP-3, Emergency Procedures for a Spill/Unplanned Release. Attachment CP-3 includes a step-action table which summarizes those activities that should be taken immediately upon the discovery of a spill or release in any one of the process areas (e.g., LSV processing, Perma-Fix®, Perma-Fix® II, or other treatment areas on site).

#### **4.1.4.4 Natural Disasters**

The most probable natural disasters to affect the Facility would be either a tornado or a hurricane. Warnings of approaching tornadoes and hurricanes will be received from the National Weather Service or local media. Given sufficient warning, the Facility will shut down all facility operations. All loose objects and projectile hazards will be secured, and personnel will seek shelter. If a severe weather event results in a fire, explosion or spill, control and containment efforts will begin as soon as weather conditions permit. The Emergency Coordinator will activate the Contingency Plan in response to these conditions.

#### **4.1.4.5 Bomb Threats**

All bomb threats will be reported to the Emergency Coordinator or company officials and subsequently to the Gainesville Police and Fire Departments. The Facility will be evacuated and a bomb search may be conducted by law enforcement officials. The Facility will remain unoccupied until the law enforcement officials and Emergency Coordinator determine the threat no longer exists, and it is safe to return to the facility.

#### **4.1.4.6 Power or Equipment Failure**

In the event of a power failure, all transfer pumps and treatment operations will stop. Reversal of flow in the LSV transfer lines is prevented by existing automatic check valves. The container storage facilities and conveyors in the LSV area are not rendered



unsafe during a power failure. Potential damage resulting from a loss of power will be surveyed by the Emergency Coordinator and facility personnel. Equipment will be repaired immediately after power is restored or as soon as possible. If equipment is beyond repair, it will be properly disposed or managed as scrap. If power failure occurs during Perma-Fix process operations, the operator will remove mixing equipment from the container and will close the container. No run-away reactions will occur as a result of suspension of the Perma-Fix process. Equipment damage would not be anticipated as a result of a power outage.

In the event of a power failure, all operations in the Perma-Fix® II process line will be discontinued. The system is manually loaded and unloaded so backflow or unintended unloading of material will not occur. The process line (including the heating system) is equipped with an automatic shut-off that will not reactivate until the operator re-starts; (i.e., in the event of a power failure, the system will shut-down automatically so that inadvertent re-start will not occur when power is restored. Power failure will not be a factor for container treatment operations since these operations are manually operated. Therefore, in the event of a power failure, the process will be shut-down and all container(s) will be closed until safe processing can be resumed. No other facility operations are anticipated to potentially result in safety or damage problems if interrupted by a power outage.

Emergency exit signs and lighting are provided at critical locations throughout the facility and are supplied with battery-backup power units. The Facility is not equipped with automatic emergency backup generators. However, a portable gas-powered electric generator is located on site.

Equipment failure and malfunction will be recorded in the operating record. Maintenance personnel will check and repair malfunctioning equipment as needed. Equipment and instrument calibration will be performed as needed by qualified individuals to minimize the potential for equipment failure. The facility inspection schedule and inspection log sheets provide a mechanism for inspection of tanks and accessories and implementation of inspection procedures minimize the potential for equipment failure and potential releases to the environment. Most equipment failures would not result in any release of hazardous constituents to the environment. In addition, storage and treatment areas are provided with secondary containment systems designed to prevent migration of released materials to environmental media. In the event that equipment failure results in a release, the incident response procedures outlined in this CP are designed to address the most likely possible scenarios.

## **5.0 PREVENTION OF RECURRENCE OR SPREAD OF FIRES, EXPLOSIONS OR RELEASES**

In the event of a fire, explosion or release, transfer pumps, electric motors, heating units, mixing equipment and other equipment items will be shut off to mitigate the possibility of recurrence. This is instituted by the Emergency Coordinator, as necessary. The storage tank is equipped with

a high-level alarm system to prevent overfilling. The proper functioning of this system also will mitigate the possibility of a recurrent emergency situation. The automatic power shut-off system for the Perma-Fix® II process line will minimize the potential for recurrence of any fire, explosion or release.

Plant personnel will tour affected areas of the Facility on a two-hour schedule frequency, inspecting for possible recurrences of fire or material release until the "all clear" determination has been announced.

## **6.0 STORAGE AND TREATMENT OF RELEASED MATERIAL**

If PFF halts operations in response to a fire, explosion or release, the Emergency Coordinator must monitor for potential leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, wherever appropriate.

Immediately after an emergency, the Emergency Coordinator must provide for the treatment, storage or disposal of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire or explosion at PFF. If the recovered material cannot be processed on-site, it will be characterized and disposed of properly in an approved off-site hazardous or non-hazardous waste management Facility, as applicable. Collected waste, contaminated soil/surface water, or other material resulting from release response will be designated a storage area (prior to treatment on-site or shipment off-site) based on the identity of the waste and conditions at the facility. In most cases, the material will be containerized and stored in container storage areas used for management of the original waste. If incident conditions preclude storage in standard storage areas, temporary areas will be designated in accordance with the requirements of 40 CFR 262.34. In some cases, liquid waste may be collected directly onto a tanker and shipped off-site for proper disposal.

## **7.0 EMERGENCY EQUIPMENT**

A list of emergency equipment available on-site is provided in Attachment CP-5, Emergency Equipment List. Locations of the facility's emergency equipment is shown on CP-6, Emergency Equipment Locator Map. Available equipment includes fire extinguishers, portable pumps, forklift, containers, shovels, brooms and absorbent.

The Emergency Coordinator will supervise Facility personnel in the clean-up and treatment of hazardous wastes after the emergency is mitigated. If an outside emergency response/cleanup contractor is required, the Emergency Coordinator will interface with the outside contractor to ensure proper response or cleanup in accordance with procedures in the contingency plan.

Corrosive materials will be neutralized in place, then absorbed and containerized. All others will be absorbed (if liquid) and containerized, followed by waste characterization, and (if necessary, analysis) analysis and shipment off-site for disposal. Large volumes of liquids may be pumped into containers or tanker trucks for appropriate management.

## **8.0 INCOMPATIBLE WASTE**

The Emergency Coordinator will ensure that (in the affected area(s) of the Facility) all waste that may be incompatible with the released material is treated, stored or disposed of until clean-up procedures are completed. Depending on the situation, this may require isolation of certain classes of material on-site, or loading and shipping certain classes of material off site.

## **9.0 POST-EMERGENCY EQUIPMENT MAINTENANCE**

All emergency equipment listed in Attachment CP-5 will be replenished or cleaned and inspected for integrity before operations are resumed. The FDEP (see Section 15) and the local response authorities will be notified when emergency equipment and supplies are replenished and operations resume.

After an incident, all emergency equipment listed in this Contingency Plan will be cleaned and fit for its intended use before operations are resumed (i.e., equipment used for emergency response will be decontaminated by steam cleaning, water washing or other appropriate method, used fire extinguishers re-charged, depleted supplies restocked, etc.). Appropriate decontamination methods will be chosen based on manufacturers recommendation and/or the type/quantity of contamination present. Disposable equipment will be properly managed and decontamination residues will be managed in accordance with 40 CFR 262.34.

## **10. CONTAINER SPILL AND LEAKAGE**

Leaking containers will be overpacked into non-leaking secondary containers until processed; or the material in the leaking container will be transferred into another appropriate DOT container. No attempt will be made to repair leaking containers. Waste which leaked from the container will be absorbed and managed and disposed as hazardous waste.

The Perma-Fix process will be conducted in an area equipped with secondary containment and debris treatment as well as container treatment activities will be conducted within secondary containment. Spills will be managed in the same manner as tank releases discussed above. Incidental spills will be removed from containment upon detection. Containment areas are subject to routine inspections in order to facilitate the detection and timely response to leaking containers or accumulated liquids.

## **11.0 TANK SPILLS AND LEAKAGE**

The bulk storage tank at the Facility is located within secondary containment. Spills will be absorbed and managed as hazardous waste for proper disposal. If the tank itself develops a leak, the remaining waste will be pumped from the tank into containers, or directly into a tanker truck. The tank will then be assessed by a Florida registered professional engineer and either repaired or closed in accordance with the approved closure plan contained in the Facility's Part B permit.

The Perma-Fix® II system is also equipped with secondary containment. Spills will be managed in the same manner as tank releases discussed above. Incidental spills will be removed in a timely manner. Additionally, these areas are subject to routine inspections in order to facilitate the detection and timely response to leaking containers or accumulated liquids.

## 12.0 COORDINATION AGREEMENTS

Arrangements have been made with the following state and local authorities to provide emergency assistance to the facility:

<u>NAME OF ORGANIZATION</u>	<u>FUNCTION</u>
• City of Gainesville Fire and Rescue Department	• Respond to fires, explosions, spills or releases
• City of Gainesville Police Department	• Primary responder for plant security & traffic control
• Alachua County Sheriff's Office	• Secondary responder for plant security & traffic control
• North Florida Regional Medical Center	• Emergency medical treatment
• State of Florida DEP Emergency Response Unit	• Assist in emergency response coordination efforts

Coordination agreements are intended to document each emergency response organization's ability and willingness to assist the PFF facility in the event of an emergency incident.

Complete copies of the current Plan have been sent to the local police and fire departments, nearby hospital, emergency response contractor, and state and local emergency response teams to familiarize them with the facility and those actions needed in case of an emergency. Documentation indicating that a copy of the plan has been submitted to these organizations is maintained in the Facility Operating Record. Also, documentation of each organization's acceptance or refusal to enter into a coordination agreement is maintained in the Facility operating record. Example copies of these documents are provided as Attachments CP-9 and CP-10 respectively.

Whenever the Plan is amended, copies of the amendments will be provided to these organizations. The invitation for site inspections will be offered whenever there are significant changes to PFF operations, or annually.

## 13.0 \*COORDINATION OF EMERGENCY SERVICES

This section of the contingency plan identifies outside organizations that are available for emergency response services. Written agreements with these organizations are maintained in the Facility Operating Record. These service agencies and organizations are to be summoned only by the PFF Emergency Coordinator or his/her alternate.

The following table summarizes those notifications and actions that should be undertaken in response to emergency situations that could arise at the Facility.

<u>IN CASE OF A</u>	<u>THEN NOTIFY</u>	<u>SIMULTANEOUS ACTIONS</u>
<ul style="list-style-type: none"> <li>• Fire or Explosion</li> </ul>	Gainesville Fire Department & Rescue  Call 911, or (352) 334-2586	<ul style="list-style-type: none"> <li>• Evacuate Facility employees to assembly location</li> <li>• Take attendance for missing persons</li> <li>• Emergency Coordinator assists ranking Fire official</li> </ul>
<ul style="list-style-type: none"> <li>• Release of harmful or toxic gases or fumes</li> </ul>	Gainesville Fire Department & Rescue  Call 911, or (352) 334-2586	<ul style="list-style-type: none"> <li>• Evacuate facility employees to upwind assembly location</li> <li>• Take attendance for missing persons</li> <li>• Emergency Coordinator assists ranking Fire official</li> </ul>
<ul style="list-style-type: none"> <li>• Spill or release of hazardous materials or hazardous wastes</li> </ul>	Local Hazardous Materials Response Team (Gainesville Fire Department)  Call 911, or (352) 334-2586  <u>OR</u>  Florida DEP Emergency Response Section (904) 448-4320 (24 hours)	<ul style="list-style-type: none"> <li>• Evacuate facility employees to Assembly Location (as required)</li> <li>• Take attendance for missing persons (if required)</li> <li>• Emergency Coordinator(s) evaluate the situation and potential hazards</li> <li>• Either coordinate in-house spill response (minor spills) <u>or</u> contact outside responders major spills).</li> </ul>
<ul style="list-style-type: none"> <li>• Bomb threat or unauthorized trespass</li> </ul>	Gainesville Police Department  Call 911, or (352) 334-2401  <u>OR</u>  Alachua County Sheriff's Office Call (352) 955-2660	<p style="text-align: center;"><u><b>BOMB THREAT</b></u></p> <ul style="list-style-type: none"> <li>• Evacuate Facility employees to assembly location</li> <li>• Take attendance for missing persons</li> <li>• Emergency Coordinator assists ranking police official</li> </ul> <p style="text-align: center;"><u><b>TRESPASS</b></u></p> <ul style="list-style-type: none"> <li>• Emergency Coordinator &amp; Operations Personnel check for tampering, theft, etc.</li> <li>• Resecure facility</li> </ul>
* Written reports and additional agency notifications may be required beyond those emergency notifications listed above (e.g., RQ report, or hazardous waste tank release, etc.).		

#### 14.0 EVACUATION PLAN

Potential emergencies requiring evacuation from hazardous waste management areas are primarily fire hazards and the potentially associated release of toxic, irritating or asphyxiating gas/fumes or bomb threat. In either case, PFF employees will execute the procedures listed below.

All employees are trained in evacuation procedures. Periodic evacuation drills are conducted to familiarize facility personnel of the primary and secondary evacuation routes and assembly locations throughout the facility. Evacuation routes are shown on Attachment CP-7, Emergency Evacuation Route Map.

Criteria for implementation of the PFF evacuation plan include the following scenarios and potential emergency situations:

- Fire and Explosion

All Facility employees are trained in PFF's evacuation plan procedures in the event of a fire or explosion. Employees are instructed to evacuate the facility using either primary or alternate emergency evacuation routes, as instructed. Employees shall remain at the assembly location until clearance has been given by the ranking fire official and Emergency Coordinator, unless conditions warrant an off-site evacuation.

- Release of Toxic, Irritating or Asphyxiating Gases or Fumes

A remote possibility exists for the release of gases or fumes which may cause toxic, irritating or asphyxiating effects on Facility employees. Employees are instructed to evacuate the Facility and proceed to the designated assembly point for attendance counts. If the primary evacuation routes and assembly point are unusable due to encroaching gases or fumes, employees shall use the secondary evacuation routes and assembly point, depending on wind direction or dispersal of fumes or gases. Employees shall remain at the assembly location until clearance has been given by either the Emergency Coordinator or ranking emergency official, unless conditions warrant an off-site evacuation.

- Bomb Threat

If a bomb threat is received by the Facility, all employees are instructed to evacuate the PFF Facility via either primary or secondary evacuation routes, as instructed. All employees will evacuate and proceed to either the primary or secondary assembly area as instructed for an attendance count. Employees shall remain at the assembly location until clearance has been given by the ranking police official and the Emergency Coordinator.

#### Procedure

- Signals: An internal announcement is broadcasted using the telephone public address system.
- All personnel and employees are instructed to evacuate the Facility through the front door or closest exit, excluding those near the LSV processing area, as directed by the Emergency Coordinator.

- Primary evacuation routes have been established and are depicted on Attachment CP-7, Emergency Evacuation Route Map. Additionally, secondary evacuation routes have been established in order to provide employees with an alternate route to the assembly location so that an attendance count may be taken. Secondary routes are utilized in the event that primary routes are unusable due to fire, heat, smoke, fumes or asphyxiating gases. Attachment CP-8 illustrates the areas where potential facility hazard locations could exist.
- Evacuation Route Maps are posted at strategic locations throughout the Facility in order to guide employees to assembly locations by illustrating the established primary and secondary evacuation routes.
- Upon complete evacuation of the Facility, all employees will immediately assemble in the parking lot adjacent to the east side entrance (or alternate assembly location) as directed by the Emergency Coordinator. In the event that toxic or irritating gases are generated, the Emergency Coordinator shall direct further evacuation from the area to a safe upwind location. Authorized emergency response personnel remaining in the area will be required to don appropriate personal protective equipment.
- The first person arriving at the assembly point will take attendance and report this information to the responding Fire and Police departments. Outside agencies will receive copies of the plan and will be aware of the assembly point location(s).
- All employees will remain at the assembly point location until instructed otherwise by the Emergency Coordinator or outside agencies.
- The Emergency Coordinator will advise the appropriate responding agencies if there is a need for the evacuation of the surrounding area.

#### **15.0 REQUIRED REPORTS**

The time, date and details of any incident that requires implementation of the Plan will be documented in the facility operating log. Within 15 days after an incident, a written report will be submitted to the Florida Department of Environmental Protection. The report will include:

- (1) Name, address and telephone number of the owner or operator;
- (2) Name, address and telephone number of PFF;
- (3) Date, time and nature of incident (e.g., fire, explosion);
- (4) Name and quantity of material(s) involved;
- (5) The extent of injuries, if any;

- (6) An assessment of actual or potential hazards to human health or impacts to the environment, where applicable; and
- (7) Estimated quantity and disposition of recovered material that resulted from the incident.

After an incident that requires implementation of the Contingency plan [in accordance with the requirements of 40 CFR 264.70(i)], PFF will notify the Florida Department of Environmental Protection and appropriate local authorities that the facility is in compliance with the requirements of 40 CFR 264.70(h) prior to resumption of operations in the affected portions of the facility.

The Plan will be reviewed and immediately amended, if necessary, whenever:

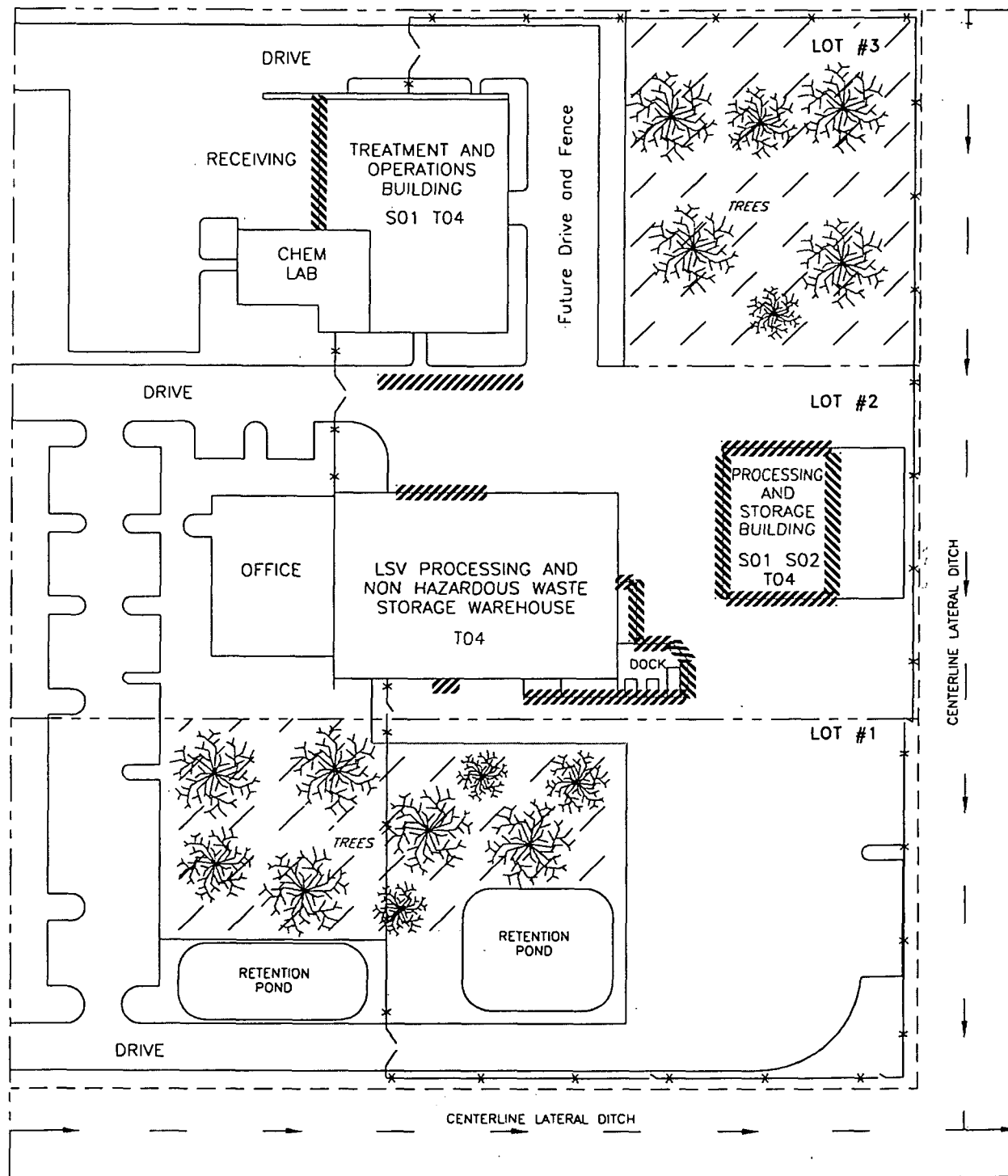
- The Plan fails in an emergency.
- The list of emergency equipment changes.
- Changes occur in the Facility's design, construction, operating, maintenance, or other circumstances which materially increase the potential for fires, explosions, or releases of hazardous waste.
- The list of Emergency Coordinators changes.
- The Facility permit is revised.



**FIGURE CP-1**

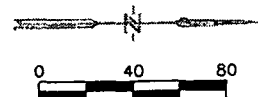
**SITE PLAN**

NW 67th Place



- Property Line
- Drainage Easement
- /// Loading Areas

- S01 Hazardous Waste Container Storage
- S02 Hazardous Waste Tank Storage
- T04 Treatment Area



TITLE: FIGURE CP-1 Site Plan		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1"=80'	APPROVED BY:	DRAWN: STA
DATE: 5/20/98		REVISED: 6/17/98
PROJECT NUMBER: PFILA 970343		DRAWING NUMBER: CPFIG1



**Attachment CP-1**  
**Emergency Coordinators**

**ATTACHMENT CP-1  
EMERGENCY COORDINATORS**

Primary Emergency Coordinator

Name:	<b>Raymond Whittle</b>
Position/Title:	Facility Manager
Work Telephone Number:	(352) 395-1353/373-6066
Home Telephone Number:	(904) 964-7475
Pager Number:	(352) 334-5473
Mobile Phone	(904) 966-7322

Alternate Emergency Coordinators

Name:	<b>Steve Douglas</b>
Position/Title:	Regulatory Affairs Manager
Work Telephone Number:	(352) 395-1356/373-6066
Home Telephone Number:	(352) 374-9181
Pager Number	(352) 334-5476
Mobile Phone	(352) 215-3267

Name:	<b>Dwayne Singleton</b>
Position/Title:	Site Coordinator
Work Telephone Number:	(352) 395-1362/373-6066
Home Telephone Number:	(352) 376-9624
Pager Number	(352) 334-5475

Name:	<b>Andy Owens</b>
Position/Title:	Site Coordinator
Work Telephone Number:	(352) 395-1357/373-6066
Home Telephone Number:	(904) 684-2520
Pager Number	(352) 334-5474

Revised November, 1998

**Attachment CP-2**

**Emergency Procedures for Fire and Explosion**

**ATTACHMENT CP-2  
EMERGENCY PROCEDURES FOR FIRE AND EXPLOSION**

**Initial Response**

- Assess the extent and magnitude of the event
- No entry into any area that would jeopardize the safety of an employee will be allowed.
- Sound alarm using the intercom and by word of mouth. If after hours, contact the Emergency Coordinator using the phone numbers in CP-1 (Emergency Coordinator Contact List).
- FOLLOW THE SPECIFIC INSTRUCTIONS OF THE EMERGENCY COORDINATOR, including evacuation of the Facility and surrounding areas.

**Fire Fighting Procedures**

- Begin using the nearest available portable fire extinguisher.
- Stop the flow of ignitable and/or reactive material, if possible.
- Second person on scene should go for one or more additional portable fire extinguishers.

**Sustained Response**

- Use proper personal protective equipment.
- Use available monitoring equipment to assess safety of area.
- Be alert for wind shifts or other weather changes.

**Fire Department Guidance**

- The Emergency Coordinator will provide the Fire Department with guidance on the location of ignitable, corrosive, reactive and toxic material in the Facility.
- Due to the potential for contaminant runoff, use only as much water as absolutely necessary.
- Allow only emergency vehicles into the Facility during the emergency.

**ATTACHMENT CP-2 (continued)****Containment and Cleanup**

- Contain any spilled material or contaminated water using absorbent or booms.
- Pump free liquids into containers or a tank truck
- Collect all contaminated absorbent and place in closed and labeled containers.
- If directed by the Emergency Coordinator, survey all affected areas and materials for radiation.

**Emergency Terminated**

- Begin equipment and area cleanup.
- Complete a written description of the event while details are still fresh.

The following actions should be taken immediately upon discovery of a fire anywhere within the facility's processing areas.

STEP	ACTION										
1	<p>Sound alarm and quickly evaluate the extent of the emergency. The alarm should alert the Emergency Coordinator.</p> <p>If after hours, contact Emergency Coordinate using phone numbers in CP-1 posted by phone.</p>										
2	<p>If the situation allows it, actuate the kill switch to disconnect the power to all process equipment. This should stop the flow of potentially ignitable and/or reactive materials. Lights should remain on inside the process area.</p>										
3	<p>Follow the specific instructions of the Emergency Coordinator who will direct any internal efforts to contain, control or extinguish the fire, if the Emergency Coordinator is present.</p>										
4	<p>If Emergency Coordinator is not present, attempt to contain the fire as follows, otherwise Emergency Coordinator will conduct evaluation:</p> <table><tr><th>If the fire is a...</th><th colspan="2">Then respond by following these steps...</th></tr><tr><td rowspan="3">Large fire (i.e., it cannot be extinguished without outside assistance)</td><td>a</td><td>Call the Fire Department – 911</td></tr><tr><td>b</td><td><p>The Emergency Coordinator should contact the following as necessary:</p><ul style="list-style-type: none"><li>• Gainesville Police Department 911</li><li>• Gainesville Fire Department &amp; Rescue (352) 334-2586</li></ul></td></tr><tr><td>c</td><td>Evacuate the affected area to the designated evacuation assembly area.</td></tr></table>	If the fire is a...	Then respond by following these steps...		Large fire (i.e., it cannot be extinguished without outside assistance)	a	Call the Fire Department – 911	b	<p>The Emergency Coordinator should contact the following as necessary:</p> <ul style="list-style-type: none"><li>• Gainesville Police Department 911</li><li>• Gainesville Fire Department &amp; Rescue (352) 334-2586</li></ul>	c	Evacuate the affected area to the designated evacuation assembly area.
If the fire is a...	Then respond by following these steps...										
Large fire (i.e., it cannot be extinguished without outside assistance)	a	Call the Fire Department – 911									
	b	<p>The Emergency Coordinator should contact the following as necessary:</p> <ul style="list-style-type: none"><li>• Gainesville Police Department 911</li><li>• Gainesville Fire Department &amp; Rescue (352) 334-2586</li></ul>									
	c	Evacuate the affected area to the designated evacuation assembly area.									

## ATTACHMENT CP-2 (continued)

		d	If the situation allows it, prevent the spread of fire beyond the immediate area using fire extinguishers until outside assistance arrives.
		e	Follow directions given by ranking fire official.
		f	If hazardous materials are involved in the fire, provide the MSDS or chemical information for the materials to the Fire Department.
		g	After the fire is extinguished, the Emergency Coordinator should evaluate the situation and determine whether an emergency response contractor is needed for environmental cleanup.
		h	Resume operations only after the fire department and Emergency Coordinator have made a full inspection and have determined that the area is fit for restarting operations.
		i	Make proper notifications and prepare a written report regarding the incident.
	Small isolated fire (i.e., one that can be extinguished without outside assistance)	a	Attempt to use fire extinguishers to control the fire.
		b	Use dry chemical, foam or CO <sub>2</sub> fire extinguishers for fighting fires. Do not use water on electrical fire or liquid fires. <ul style="list-style-type: none"> <li>• Class C extinguishers: For use on electrical fires</li> <li>• Class B extinguishers: For use on flammable liquid fires.</li> </ul>
		c	Direct the stream from the extinguisher at the base of the fire from upwind and the sides. Do not stand downgradient of the fire.
		d	If efforts to extinguish the fire are not immediately effective, the Emergency Coordinator should contact the following as necessary: <ul style="list-style-type: none"> <li>• Gainesville Police Department 911</li> <li>• Gainesville Fire Department &amp; Rescue (352) 334-2586</li> </ul>
		e	After the fire is extinguished, the Emergency Coordinator must conduct an inspection before resuming operations.
		f	Prepare a fire report.
	5	Refer to Attachment CP-4 for reporting requirements (if applicable).	
	6	If incident required implementation of the Contingency Plan, then notify the Florida DEP that the Facility is in compliance with 40 CFR 264.70(h) before operations are resumed in affected areas of the facility.	



**ATTACHMENT CP-2 (continued)****EMERGENCY RESPONSE PROCEDURE  
RESPONSE TO FIRES**

The following actions should be taken immediately upon discovery of a fire anywhere in the Perma-Fix® II processing area.

STEP	ACTION
1	Sound alarm and quickly evaluate the extent of the emergency. The alarm should alert the Emergency Coordinator. If after hours, contact Emergency Coordinator using phone numbers in CP-1 posted by phone.
2	If the situation allows it, actuate the kill switch to disconnect the power. This should stop the flow of ignitable and/or reactive materials. Lights should remain on inside the Quonset Hut.
3	Follow the specific instructions of the Emergency Coordinator who will direct any internal efforts to contain, control or extinguish the fire, if the Emergency Coordinator is present.
4	If Emergency Coordinator is not present, attempt to contain the fire as follows, otherwise Emergency Coordinator will conduct evaluation:
	If the fire is a ... Then respond by following these steps ...
	Large fire (i.e., it cannot be extinguished without outside assistance.) a Call the Fire Department – 911
	b The Emergency Coordinator should contact the following as necessary: • Gainesville Police Department: 911 • Gainesville Fire Department & Rescue (352)334-2586
	c Evacuate the affected area to the designated evacuation assembly area.
	d If the situation allows it, prevent the spread of fire beyond the Quonset Hut using fire extinguishers until outside assistance arrives.
	e Follow directions given by ranking fire official.

## ATTACHMENT CP-2 (continued)

		f	If hazardous materials are involved in the fire, provide and MSDS or chemical information for the materials to the Fire Department.
		g	After fire is extinguished, the Emergency Coordinator should evaluate the situation and determine whether an emergency response contractor is needed for environmental cleanup.
		h	Resume operations only after the Fire Department and Emergency Coordinator have made a full inspection and have determined that the area is fit for restarting operations.
		i	Prepare a written report regarding the incident.
	Small isolated fire (i.e., one that can be extinguished without outside assistance.)	a	Attempt to use fire extinguishers to control the fire.
		b	Use dry chemical, foam or CO <sub>2</sub> fire extinguishers for fighting fires. Do not use water on electrical fire or liquid fires. <ul style="list-style-type: none"> <li>• Class C extinguishers: For use on electrical fires</li> <li>• Class B extinguishers: For use on flammable liquid fires.</li> </ul>
		c	Direct the stream from the extinguisher at the base of the fire from upwind and the sides. Do not stand downwind of the fire.
		d	If efforts to extinguish the fire are not immediately effective, the emergency coordinator should contact the following as necessary: <ul style="list-style-type: none"> <li>• Gainesville Police Department: 911</li> <li>• Gainesville Fire Department &amp; Rescue (352)334-2586</li> </ul>
		e	After the fire is extinguished, the Emergency coordinator must conduct an inspection before resuming operations.
		f	Prepare a fire report.
5	Refer to Attachment CP-4 for reporting requirements (if applicable).		
6	If incident required implementation of the Contingency Plan, then notify the FDEP that the Facility is in compliance with 40 CFR 264.70 (h) before operations are resumed in affected areas of the facility.		

**Attachment CP-3**

**Emergency Response Procedures  
for Spill/Unplanned Release**

**ATTACHMENT CP-3**  
**EMERGENCY RESPONSE PROCEDURES FOR SPILL/UNPLANNED RELEASE**

Minor spills may occur during sampling, equipment maintenance, transfer, and treatment operations. In most cases, these spills will occur where adequate ventilation is present to dissipate any harmful vapors. These spills can generally be remediated using pads and absorbent materials.

Major spills may result from overturned containers or ruptures in storage tanks, containers, piping and hoses. Secondary spill containment has been installed at hazardous waste process and storage areas. The following actions will be taken in the event of a major spill:

**Initial Response**

- Assess the extent and magnitude of the event.
- No entry into any area that would jeopardize the safety of an employee will be allowed.
- Sound alarm using the intercom and by word of mouth. If after hours, contact the Emergency Coordinator using the phone numbers in CP-1 (Emergency Coordinator Contact List).
- FOLLOW THE SPECIFIC INSTRUCTIONS OF THE EMERGENCY COORDINATOR, including evacuation of the facility and surrounding areas.
- If it is safe to do so, stop the flow of the released material by closing valves, shutting off pumps, or rotating ruptured containers.
- All loading and transfer activities are to be ceased.

**Spill Control Procedure**

- Close all stormwater effluent gates.
- Contain the spill as much as possible using the following equipment:

1. Absorbent booms

Use these in tandem (one placed a few inches behind the other) to help control the flow of the material.

Absorbent booms should be used on any surface water that could be contaminated.

2. Use other absorbent materials

Use a commercial absorbent to soak up spills.

Empty 55-gallon drums can be turned on their sides and rolled to create an "instant" dike.

**ATTACHMENT CP-3 (continued)****3. Use mechanical means (where applicable)**

Ditch with Shovels.

Ditch with front end loader.

**Sustained Response**

- Use on-site monitoring equipment to determine safety of area.
- If there is a need for outside help, the Emergency Coordinator will contact the appropriate agency.
- Pump free liquids into containers, drums, or tanker truck.
- Collect all contaminated absorbent and place in closed and labeled containers.
- If directed by the Emergency Coordinator, survey all affected areas and materials for radiation.

**Emergency Terminated**

- Begin equipment and area clean-up.
- Complete a written description of the event while details are still fresh.

The following actions should be taken immediately upon discovery of a spill or release of hazardous materials within the facility:

Step	Action											
1	Communicate the spill event to others.											
2	Assess the extent and magnitude and source of the event.											
3	Shut down processing operations, if necessary.											
4	Assess immediate health and safety concerns. Evacuate area if necessary.											
5	Attempt to remediate the spill/release as follows:											
	<table><tr><th>If spill is a...</th><th colspan="2">Then respond by following these steps...</th></tr><tr><td rowspan="2">Minor spill (may occur during sampling, equipment maintenance...)</td><td>a</td><td>Remediate using pads and absorbent materials.</td></tr><tr><td>b</td><td>Collect all contaminated absorbent and place in closed and labeled container.</td></tr><tr><td>Major spill (may result from</td><td>a</td><td>Deny entry into any area that would jeopardize the safety of an employee.</td></tr></table>	If spill is a...	Then respond by following these steps...		Minor spill (may occur during sampling, equipment maintenance...)	a	Remediate using pads and absorbent materials.	b	Collect all contaminated absorbent and place in closed and labeled container.	Major spill (may result from	a	Deny entry into any area that would jeopardize the safety of an employee.
If spill is a...	Then respond by following these steps...											
Minor spill (may occur during sampling, equipment maintenance...)	a	Remediate using pads and absorbent materials.										
	b	Collect all contaminated absorbent and place in closed and labeled container.										
Major spill (may result from	a	Deny entry into any area that would jeopardize the safety of an employee.										

## ATTACHMENT CP-3 (continued)

	overtaken containers or ruptures in storage tanks, containers, piping and hoses.)	b	Sound alarm. The alarm should alert the Emergency Coordinator. If after hours, contact Emergency Coordinator using phone number in Attachment CP-1.
		c	Follow the specific instructions of the Emergency Coordinator, including evacuation of the area (if required).
		d	If it is safe to do so, stop the flow of the released material by closing valves, shutting off pumps, or rotating or "overpacking" ruptured containers.
		e	All loading and transfer activities in the area are to be ceased.
		f	Contain the spill as much as possible using the following equipment: <ul style="list-style-type: none"> <li>- <b>Absorbent booms:</b> Use these in tandem (one place a few inches behind the other) to help control the flow of the material.</li> <li>- <b>Use other absorbent materials:</b> Use a commercial absorbent to soak up spills.</li> <li>- <b>Empty 55-gallon drums</b> can be turned on their sides and rolled to create an "instant" dike.</li> <li>- <b>Use mechanical means:</b> Ditch and shovels, if applicable.</li> </ul>
		g	If there is a need for outside help, the Emergency Coordinator will contact the appropriate local authority, agency or remediation contractor.
		h	Pump free liquids into containers or drums <u>or</u> tanker trucks.
		i	Collect all contaminated absorbent and place in closed and labeled containers.
		j	If directed by the Facility Radiation Safety Officer, survey all affected areas and materials for radiation.
		k	Begin equipment and area clean-up.
		l	Complete a written description of the event while details are still fresh.
6	Notify local, state and/or federal agencies listed in Attachment CP-1, as appropriate.		

## ATTACHMENT CP-3 (continued)

The following actions should be taken immediately upon the discovery of a spill/release in the Perma-Fix® II processing area.

STEP	ACTION	
1	Assess the extent and magnitude of the event.	
2	Attempt to remediate the spill/release as follows:	
	If spill is a ...	Then respond by following these steps...
	Minor spill (may occur during sampling, equipment maintenance,...)	a Remediate using pads and absorbent materials.
		b Collect all contaminated absorbent and place in closed and labeled container.
	Major spill (may result from overturned containers or ruptures in storage tanks, containers, piping and hoses.)	a No entry into any area that would jeopardize the safety of an employee will be allowed.
		b Sound alarm. The alarm should alert the Emergency Coordinator. If after hours, contact Emergency Coordinator using phone number in CP-1 posted by phone.
		c Follow the specific instructions of the Emergency Coordinator, including evacuation of the area, if required.
		d If it is safe to do so, stop the flow of the released material by closing valves, shutting off pumps, or rotating ruptured containers, or other appropriate means.
		e All loading and transfer activities are to be ceased.
		f Contain the spill as much as possible using the following equipment:
		<ul style="list-style-type: none"> <li>• <b>Absorbent booms:</b> Use these in tandem (one place a few inches behind the other) to help control the flow of the material.</li> <li>• <b>Use other absorbent materials:</b> Use a commercial absorbent to soak up spills.</li> <li>• <b>Empty 55-gallon drums</b> can be turned on their sides and rolled to create and "instant" dike.</li> </ul>

**ATTACHMENT CP-3 (continued)**

		g	If there is a need for outside help, the Emergency Coordinator will contact the appropriate agency.
		h	Pump free liquids into containers or drums. Plug or overpack leaking containers.
		i	Collect all contaminated absorbent and place in closed and labeled containers.
		j	If directed by the Facility Radiation Safety Officer, survey all affected areas and materials for radiation.
		k	Begin equipment and area clean-up.
		l	Arrange for proper management of remediation waste.
		m	Complete a written description of the event while details are still fresh.
		n	Refer to Attachment CP-4 to complete reporting requirements, if applicable.
3	If incident required implementation of the Contingency Plan, then notify the FDEP that the Facility is in compliance with 40 CFR 264.70 (h) before operations are resumed in affected areas of the Facility.		



**Attachment CP-4**

**Emergency Notification Information**

**ATTACHMENT CP-4  
EMERGENCY NOTIFICATION INFORMATION**

In the event of an emergency which could threaten human health or the environment outside of PFF, the General Manager or Emergency Coordinator shall immediately notify:

State of Florida  
Department of Environmental Protection  
Northeast District  
Jacksonville, Florida  
Telephone: (904) 448-4320 (24 hours)

To report a reportable quantity spill or release of a listed hazardous material, the PFF General Manager or Emergency Coordinator shall immediately notify:

National Response Center (NRC)  
Telephone: 800-424-8802 (24 hours)  
or  
State Warning Point Number  
(904) 413-9911

If unsuccessful in reporting to the above numbers, call:

U.S. Environmental Protection Agency  
Region 4, Atlanta, GA  
Emergency Response Center  
Telephone: (404) 562-8700 (24 hours)

Within 15 days after the incident, send written report to:

State of Florida  
Department of Environmental Protection  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256  
Attention: Northeast District Manager

**ADDITIONAL OUTSIDE ORGANIZATIONS:**

Police Departments:	Gainesville Police Department Alachua County Sheriff's Office
Fire & Rescue:	Gainesville Fire & Rescue Department
Hospital:	North Florida Regional Medical Center
Local Emergency Planning Committee:	North Central Florida LEPC

**Attachment CP-5**  
**Emergency Equipment List**

**ATTACHMENT CP-5  
EMERGENCY EQUIPMENT LIST**

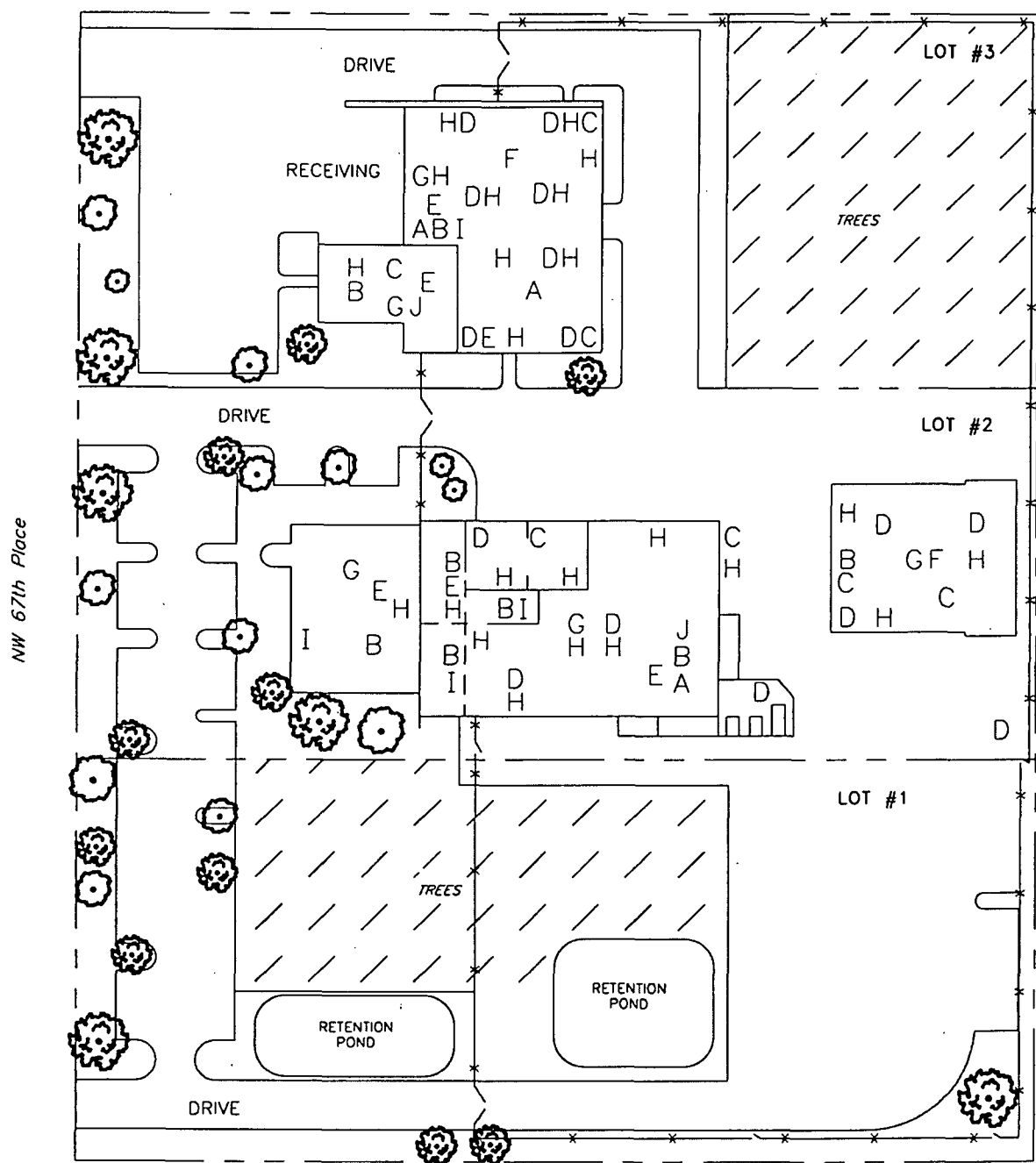
<b><u>Item</u></b>	<b><u>Description/Capability</u></b>	<b><u>Location(s)</u></b>
Telephone	Telephone communication for emergency notification	Waste areas, laboratory and other general locations
Fire Extinguishers	Dry chemical, CO <sub>2</sub> , Halon extinguish fires	Waste areas, laboratory, tank and container storage areas administration area
Fire Hydrant	Fire hydrants-combat fire	Southwest Corner of Treatment and Operations Building
Absorbent Material	Vermiculite and absorbent material in spill kits-absorbs liquid spills	Waste treatment areas, container storage and tank storage areas
Respirators	Full face, half face/SCBA-Filter ambient air/supply compressed air	Waste treatment areas, laboratory
Eye Wash	Permanent installation and portable eye wash bottles-flush eyes	Waste treatment areas, laboratory
First Aid Kits	Band-aids, bandages-provide minor first aid	Change out area
Fork Lift, Bobcat	8,000 pound capacity, fossil fuel powered-assist in moving materials	Container storage areas
Automatic Fire Suppression	CO <sub>2</sub> dry system-control spread of fire or extinguish	LSV Processing area, Perma-Fix II Processing Area

## ATTACHMENT CP-5 (Continued)

<b><u>Item</u></b>	<b><u>Description/Capability</u></b>	<b><u>Location(s)</u></b>
Protective Aprons & Gloves	Cloth, Tyvek, Rubber or Nitrile-Body Protection	Waste Management Areas & Maintenance Area
Safety Glasses	Personal Protective Eyeware-Issued to Employees	All Operational Areas
Emergency Exit Lighting & Signs	Emergency Egress Equipment	Throughout Administrative Offices, Lab, Waste Management Areas
Portable Radios and/or Cellular Phones	Communication Devices	Portable Devices
Spill Kit(s)	Clean Up Minor Spills	Each Waste Management Area

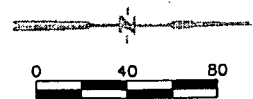
**Attachment CP-6**

**Emergency Equipment Location Map**



### Legend

- A Protective Equipment
- B Phone
- C Eyewash
- D Spill Kit
- E First Aid
- F Drum Storage
- G Alarm
- H Fire Extinguisher
- I Contingency Plans
- J Shower



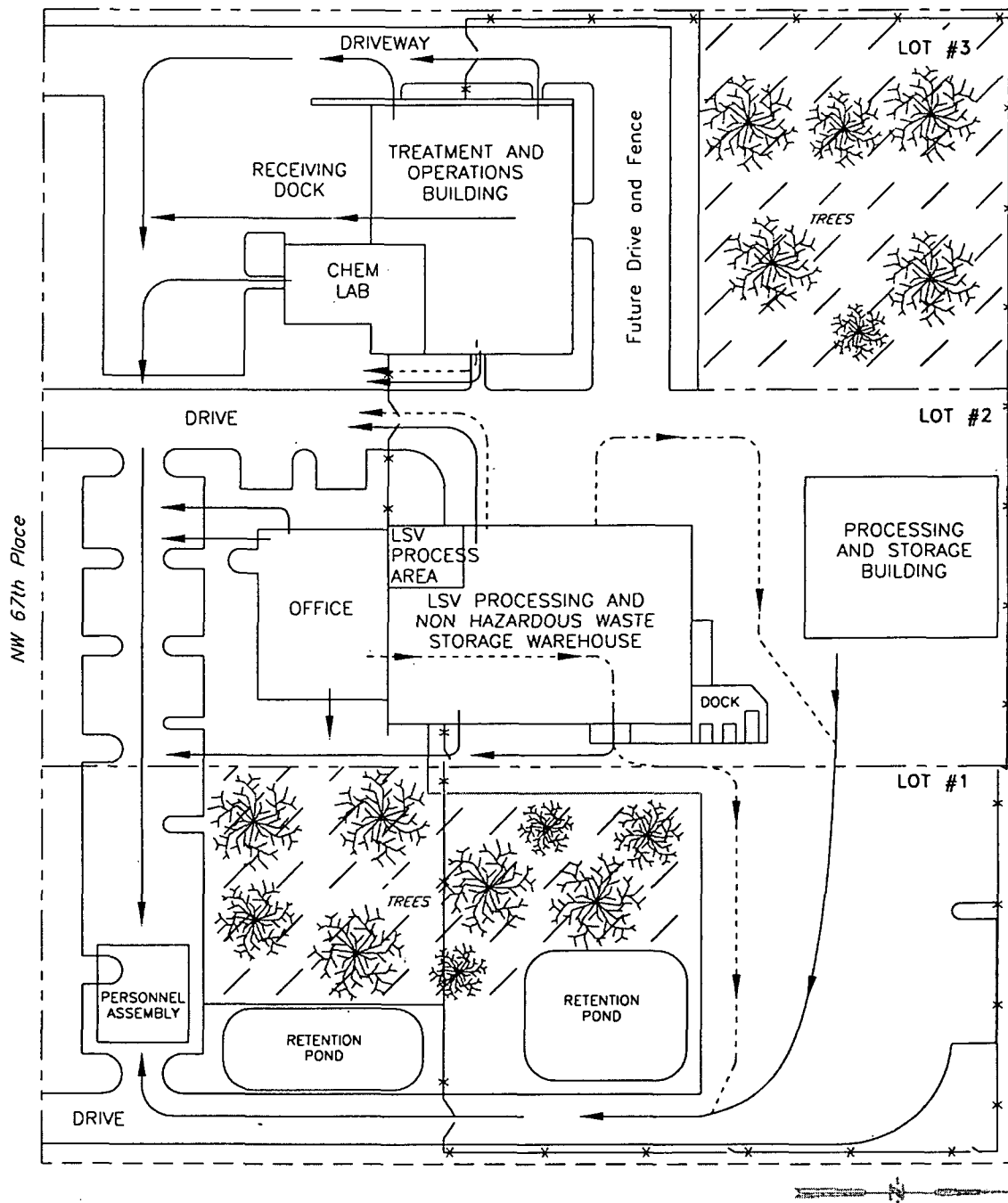
**PERMA-FIX**  
ENVIRONMENTAL SERVICES

TITLE: FIGURE CP-6 EMERGENCY EQUIPMENT LOCATOR MAP		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1"=80'	APPROVED BY: J. HAZARD	DRAWN: PRODRIFT
DATE: 6/17/98		REVISED:
PROJECT NUMBER: 9003		DRAWING NUMBER: CP-6

**Attachment CP-7**

**Emergency Evacuation Route Map**





PRIMARY EXCAVATION ROUTE  
 ALTERNATIVE EXCAVATION ROUTE

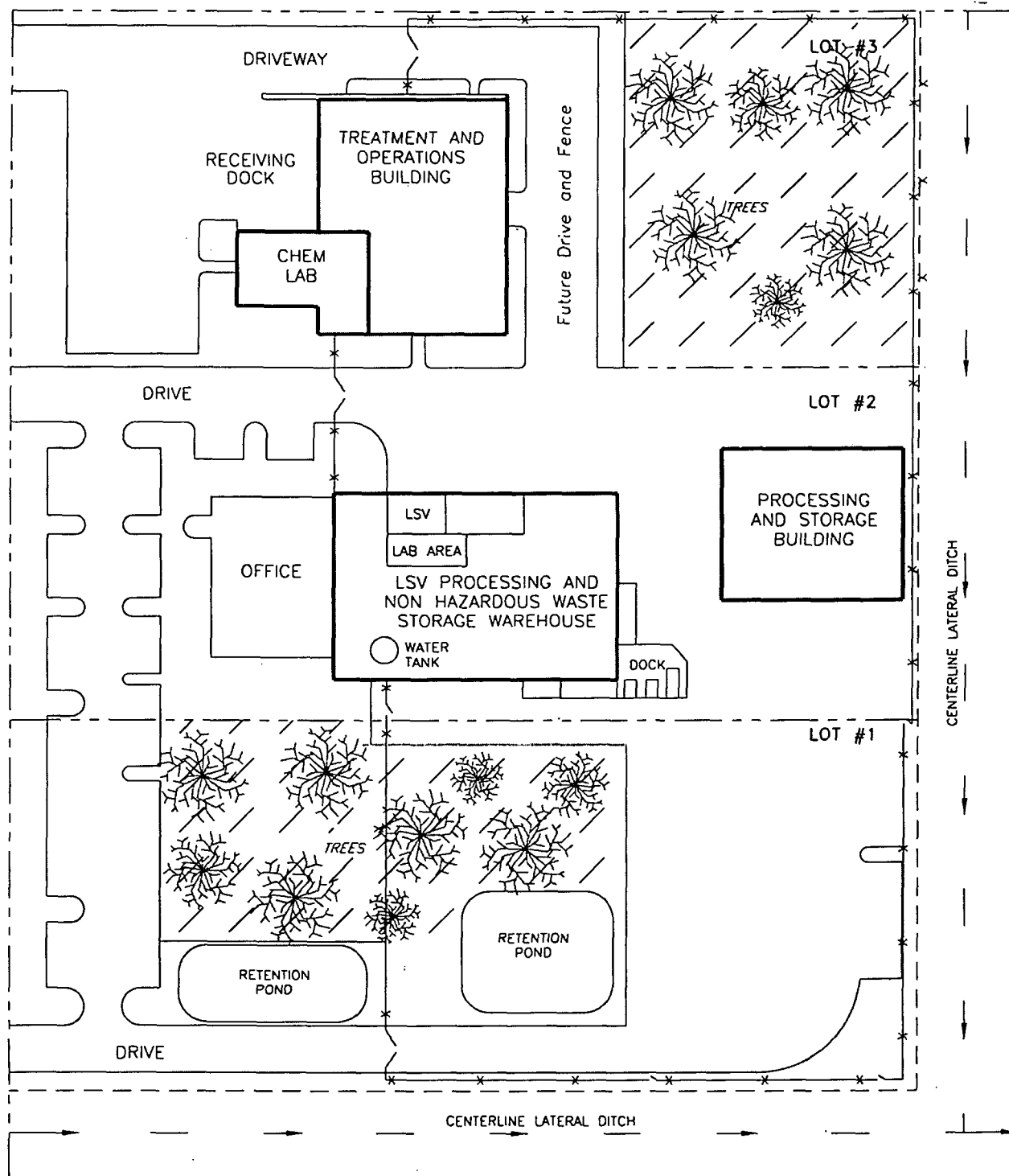


TITLE: FIGURE CP-7	
EMERGENCY EVACUATION ROUTE MAP	
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 N.W. 67th Place, Gainesville, Florida 32653	
SCALE: 1" = 80'	APPROVED BY:
DATE: 8/17/98	DRAWN: SYA
ACAD FILE:	REVISED:
PERFLA 970343	DRAWING NUMBER: CP-7

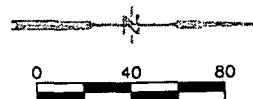
**Attachment CP-8**

**Facility Hazard Location Map**

NW 67th Place



- Property Line
- - - Drainage Easement
- == Facility Hazard Locations



TITLE: FIGURE CP-8 FACILITY HAZARD LOCATION MAP			
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653			
SCALE: 1"=80'	APPROVED BY:		DRAWN: STA
DATE: 6/17/88			REVISED:
PROJECT NUMBER:	PFILA 970343		DRAWING NUMBER: CP-8

**PERMA-FIX**  
ENVIRONMENTAL SERVICES

**Attachment CP-9**

**Coordination Agreements/Receipt Documentation**

**ATTACHMENT CP-9**  
**COORDINATION AGREEMENTS/RECEIPT DOCUMENTATION**

EXAMPLE

Certified Mail

# \_\_\_\_\_

Return Receipt

Request

**CONTINGENCY PLAN SUBMITTAL**

**ACCEPTANCE**

I certify that on this \_\_\_\_\_ day of \_\_\_\_\_, I received a copy of the Contingency Plan for Perma-Fix of Florida located at 1940 NW 67th Place in Gainesville, Florida 32653. Further, this organization agrees to respond to, or assist in, emergency situations which may arise at the subject facility should the need arise.

**REFUSAL**



By checking this box, the undersigned organization refuses to enter into an agreement to provide emergency response services to the subject facility. However, we do acknowledge receipt of the Contingency Plan being offered by Perma-Fix of Florida, Inc.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

**NOTE:** Contingency Plan submittals and coordination agreements are required in order to document Perma-Fix of Florida, Inc.'s compliance with 40 CFR 264.37. Where state or local authorities or organizations decline to enter into emergency response agreements or arrangements, the facility owner or operator must document the refusal within the facility's operating record.

**Attachment CP-10**

**Contingency Plan Revisions - Transmittal Letter**

**ATTACHMENT CP-10  
CONTINGENCY PLAN REVISIONS - TRANSMITTAL LETTER**

EXAMPLE

Certified Mail

# \_\_\_\_\_

Return Receipt

Request

DATE: \_\_\_\_\_

TO: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

FROM: Perma-Fix of Florida, Inc.  
1940 NW 67th Place  
Gainesville, FL 32653

RE: Contingency Plan Revisions - Perma-Fix of Florida, Inc.

Dear \_\_\_\_\_:

Perma-Fix of Florida, Inc. has revised the facility's Contingency Plan document. Copies of the revised pages are enclosed for insertion within your organization's copy of the Perma-Fix Contingency Plan document. Please make the necessary updates to your copy of the plan and discard all outdated pages.

Our facility is required to supply your organization with a complete copy of the Contingency Plan document, and all subsequent revisions in accordance with federal EPA regulations listed at 40 CFR 264.53/264.54.

If you have any questions regarding the information received or your organization's role in contingency planning for the Perma-Fix of Florida, Inc. facility, please contact me at (352) 373-6066.

Sincerely,

Steve Douglas  
Regulatory Affairs Manager  
Perma-Fix of Florida, Inc.

Contingency Plan

**Attachment II.A.3**

**Personnel Training Program**



**HAZARDOUS WASTE-RELATED  
HEALTH AND SAFETY PERSONNEL  
TRAINING PROGRAM  
FOR  
PERMA-FIX OF FLORIDA, INC.  
GAINESVILLE, FLORIDA**

**Dates of Revision  
Original: June 19, 1998  
Revised: November 23, 1998**

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## LIST OF ATTACHMENTS

Attachment 1 Personnel Training Plan

### LIST OF TABLES

Table 1	Job Titles Related to Hazardous Waste Management
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Table 3	Job Titles Not Involved with hazardous Waste Operations or Emergency Response
Table 4	Employee Initial Training Topics Record
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### LIST OF FIGURES

Figure 1	Organization Chart for Perma-Fix of Florida, Inc.
Figure 2	Job Assignments – Training Topics Matrix
Figure 3	On-The-Job Task Training by Job Title

## **1.0 PERSONNEL TRAINING PROGRAM**

This section outlines, in accordance with 40 CFR §264.16, the initial and continuing training that Perma-Fix of Florida (PFF) employees at the Gainesville waste management facility (Facility) will receive. Training methods include lecture, discussion, hands-on skill training, on-the-job training (OJT), and video or movie viewing followed by discussions. Subject matter for training includes:

- Job content and responsibilities
- Hazard recognition
- Hazard communication
- Health affects and physical hazards of hazardous wastes
- Communication and alarm systems
- Medical surveillance and medical monitoring
- Process and safety controls and operating procedures
- Inspection, repair and replacement of emergency equipment and supplies
- Use of personal protective equipment (PPE)
- Emergency response procedures and review of the facility's Contingency Plan
- First aid
- Recordkeeping connected with the storage and management of hazardous wastes
- Standards for owners and operators of TSDFs and other applicable RCRA regulations

PFF's personnel training program is designed to provide all facility employees with a level of training that is directly related and pertinent to their level of responsibility and specific job functions.

### **1.1 Outline of the Training Program**

A description of the content of the classroom training sessions, drills and OJT is presented in the Personnel Training Plan (Training Plan) which is included as Attachment 1 to this section. A training manual, containing lesson outlines, covers the material presented in the formal training sessions and is available for review at the facility.

The Training Plan will be modified in response to changes in government regulations, upon direction of the U.S. Environmental Protection Agency (EPA) or the Florida Department of Environmental Protection (FDEP), or when required as a condition of an issued permit.

### **1.2 Job Title, Job Description, and Duties**

The job title, job description, and name of each employee filling a job at the facility related to hazardous waste management will be kept as part of the Facility Operating Record. Job descriptions include educational and other necessary qualifications as well as the assigned duties and responsibilities for each position.

### 1.3 Training Content, Frequency and Techniques

This Section of the Permit Application and Attachment 1, the Personnel Training Plan describes the training that employees receive at the PFF Facility.

#### A. Job Assignment and Training Prerequisites

No employee shall be assigned the duties of transferring, handling, sorting, or mixing hazardous waste unless that employee has demonstrated his/her capabilities to:

1. Read and comprehend label instructions, operational procedures, contingency plans, regulatory directives, and where applicable, inspection procedures;
2. Understand the basic nature of the hazardous materials which he/she is assigned to transfer, handle, sort, or mix relative to the material's reactivity, toxicity, explosiveness, flammability and corrosivity;
3. Operate all equipment which he/she is assigned to operate, including personal safety and emergency equipment.

No employee of the facility shall be assigned the duties of transferring, handling, sorting, or mixing hazardous waste unless that employee meets the minimum requirements set out in 40 CFR §264.16(a), (b), and (c). These job prerequisites will be verified during pre-employment interviews or through observation and knowledge of present employees, and will be documented in each employee's training file.

#### B. Initial Training Period

All newly hired, transferred or cross-trained personnel will receive the instruction and OJT relating to the specific job assignments at the facility within six months of hire and assignment or reassignment to a job. Employees will not work in unsupervised positions until they have completed the following minimum training requirements and have demonstrated they can safely perform their duties in compliance with applicable regulations and company operating procedures.

1. Procedures for using, inspecting, repairing and replacing facility emergency, safety, and monitoring equipment applicable to their job tasks.
2. Key parameters for automatic waste feed cut-off systems.
3. Communications or alarm systems.
4. Response to fires or explosions.
5. Response to groundwater contamination incidents.
6. Shutdown of operations.
7. Security provisions.

The initial training will vary in duration for each job title as presented in the training matrices presented as Figures 2 and 3 in the Training Plan, which is found in Attachment 1.

**C. On-The-Job Training**

The Training Plan lists specific OJT tasks for each job title. The acquisition and mastery of specific skills or operational procedures will be accomplished through supervised OJT activities which will continue during and after the initial training period. Supervisory personnel will observe and evaluate the performance and competence of trainees during the period of OJT. The completion of OJT will be documented on a form that will be retained in the employee's training file.

**D. Annual Review, Update Training and Retraining**

The Training Module Matrix, Figure 2, of the Training Plan lists facility personnel who will attend eight hours of annual update training and review. These personnel are indicated in Column A2 of Figure 2. The annual review and update program consists of an abbreviated review of the introductory training program, updates and a detailed review of existing emergency response procedures as contained in the Facility's Contingency Plan. Emphasis is placed on any changes in waste constituents and characteristics, equipment, operating procedures or regulations that affect the Contingency Plan and emergency response activities. Emergency response drills will be a part of the refresher training when the Contingency Plan or emergency response procedures are changed. Question and answer periods will allow for focused discussion of any employee concerns, operational difficulties, equipment malfunctions, and incidents or emergencies which may have occurred in the preceding six months.

Employees may be required to participate in retraining activities under the discretion of their supervisor or the Training Director. Examples of this situation include a return to work from an extended leave of absence, new job assignment, unsatisfactory or unsafe job performance, a return to a previous job assignment, or involvement in an accident or incident where review is appropriate to prevent recurrence.

## **1.4 Training Director**

The PFF Regulatory Affairs Manager will serve as the facility Training Director. That person shall be qualified by way of training and experience to serve in this function. Records documenting the training and qualifications of the Training Director will be maintained in the facility Operating Record. The facility Training Director may be assisted by qualified outside training consultants, the PFF Health & Safety Officer, or other qualified staff persons, in executing the duties of this function.

## **1.5 Relevance of Training to Job Position**

The personnel training program seeks to accomplish two goals:

- Preparation of facility personnel to safely, effectively and efficiently manage the hazardous and non-hazardous materials that are received for storage or processing.
- Protection of human health and the environment.

OJT supplements more formal classroom training and provides the practical training and experience in daily waste handling operations that are related to each employee's particular duties. OJT builds upon PFF's formal classroom training to provide specific job skills an employee will need to function efficiently and safely in their position.

## **1.6 Training for Emergency Response**

Facility personnel will receive training in implementing the Contingency Plan during initial training and thereafter during annual refresher training and emergency response drills. Facility employees will be trained to be familiar with the facility's emergency procedures, equipment and systems so that they can promptly, safely and effectively respond to emergency situations; consistent with the level of emergency response training that each employee has received.

## **2.0 IMPLEMENTATION OF THE TRAINING PROGRAM**

The Training Program is outlined in the Training Plan in Attachment 1. It is designed to be more detailed and comprehensive than that currently required under 40 CFR Part 264.

Facility employees will receive, or have received, introductory training in accordance with the Training Plan in Attachment 1 (or an earlier version) and will receive continuing training in accordance with the training frequency described in Section 1.3 above. Refresher training will be conducted annually and documented in the facility's operating record. The following records will be maintained in the Facility's Operating Record to document the training status of each employee:

- The job title for each position at the Facility relating to waste management and the name of the employee filling each position.

- A written job description for each position, including the requisite skills, education, qualifications and duties of the employees assigned to each position.
- A written description of the type or amount of both introductory and continuing training that will be given to each employee filling a position.
- A written record which confirms that the appropriate training and OJT outlined in the Training Plan has been given to, and completed by, facility employees.

Training records on current personnel shall be kept for three (3) years from the date the employee last worked at the Facility. An example of the records that will be kept in the Operating Record within each employee's training file to show compliance with the requirements of 40 CFR §264.16(a), (b) and (c), is contained in Appendix 1 to the Training Plan.

- An attendance record for individual training sessions.
- An example certificate of training that is used to verify completion of training classes or modules by individual employees and is the basis of entries to the employee training record.
- The individual training record for each employee.
- A form used to verify OJT.

**Attachment 1**

**Personnel Training Plan**



## A. INTRODUCTION

Perma-Fix of Florida, Inc. (PFF) operates a RCRA-regulated treatment, storage and disposal facility (Facility) located at 1940 N.W. 67th Place in Gainesville, Florida. The EPA ID# for the facility is FLD 980 711 071.

Currently, hazardous waste management operations conducted on-site include the storage and treatment of a wide variety of industrial wastes. The Facility receives shipments of hazardous wastes from industrial generators and subsequently blends similar waste types into a fuel that will be beneficially reused as a hazardous waste-derived fuel at facilities such as cement kilns. The facility also repackages, sorts and consolidates other hazardous wastes for shipment and treatment off-site. A variety of chemical and physical treatment activities are also conducted at the facility.

This document is PFF's Hazardous Waste Related Health and Safety Training Plan, referred to herein as the "Training Plan," for routine and emergency waste handling operations. The Training Plan enumerates the job titles of and necessary training for those employees who work directly with hazardous and non-hazardous wastes and employees who have emergency response duties. Only PFF employees are included in the Training Plan. Hazard awareness and recognition training is provided to PFF personnel whose job function does not include direct waste handling activities, but are trained as first responders.

This Training Plan describes the integral components of PFF's comprehensive Health and Safety Training and resources used to train employees, in addition to methods used to evaluate employee training. Table 4 and Table 5 contain examples of training topic records that will be maintained in the facility Operating Record. Tables 4 and 5 also list the title and minimum length of each Training Module.

Training assignments are made through the designation of specific Training Modules to employees filling the job titles listed in this Training Plan. Instructor Manuals, which contain the lesson outlines and course outlines for each training topic, and master sets of participant resource materials are not contained in this Training Plan, but are supplementary materials maintained by the facility Training Director, or his designee.

## B. SCOPE OF TRAINING PLAN

The objective of this Training Plan is to provide a comprehensive program, whereby PFF personnel who work directly with hazardous wastes receive training in the following areas, as appropriate:

- Management of all waste materials in a manner that is safe, effective, efficient and in compliance with applicable laws and regulations.
- Emergency response procedures, equipment and emergency systems.
- Safety and health-related matters.

All employees who work directly with hazardous waste are trained to perform their job duties in a manner that ensures the operation of the Gainesville hazardous waste management facility in compliance with the requirements of EPA and FDEP regulations. Some of these employees also receive training as required by applicable OSHA and USDOT regulations and requirements. The degree of training that each person receives depends upon his/her job duties, as well as that person's assigned tasks or responsibilities involving hazardous waste in a routine or emergency response capacity.

In addition to providing a training program for employees who work directly with hazardous waste, this Training Plan provides for the training of PFF employees who have emergency response duties. These employees are responsible for implementing the facility's Contingency Plan. The degree of training of these employees is consistent with their role in emergency response, as specified in the facility's Contingency Plan.

PFF recognizes that there are potential safety and health hazards associated with the improper handling and storage of hazardous waste. In order that facility personnel, the community, the environment and PFF property be adequately protected, it is necessary to provide safety and health training based on worst-case scenarios for day-to-day operations, maintenance activities and emergencies. The Training Plan is meant to be flexible and will be reviewed at least annually by the PFF Regulatory Affairs Manager. The Training Plan will be modified based on Facility or process changes, the Facility's needs, and changing government regulations, or upon direction of the EPA or FDEP, or when modification is required as a condition of a permit.

#### **C. LOCATION OF TRAINING**

The majority of personnel training will be conducted on site at the PFF Gainesville Facility. Adequate classroom Facilities' and training aids are available. Documented OJT will be conducted on the premises in the related work areas.

Some training courses may be offered away from the Facility due to small numbers of personnel needing training in specialty subjects or when special facilities are necessary.

#### **D. PERSONNEL TO BE TRAINED**

An organizational chart for the PFF Gainesville Facility as it relates to waste management activities is shown in Figure 1. The jobs that are directly involved with hazardous waste operations are listed in Table 1. The job titles of personnel who have emergency response duties are listed in Table 2. Other jobs at the facility which have no direct relationship to hazardous waste management and no emergency response duties under the facility's Contingency Plan are listed in Table 3.

Job descriptions and qualifications for the various jobs that are directly involved with waste management operations have been developed and included in the facility Operating Record, which is maintained on-site. Each job qualification requires the completion of specific training topics, as described in this Training Plan, including on-the-job training

and annual refresher training. Section H of this Training Plan provides details about the training topics and the specific training assignments required for personnel in each job classification.

Not all personnel are required to be trained in all of the training topics. The training that an employee receives depends upon his or her assigned job duties, as contained in their job description.

No employee shall be assigned to work in an unsupervised position in the waste management Facility until he/she has demonstrated their capabilities and has successfully completed the training topics assigned to his/her job description, in compliance with 40 CFR §264.16(a) and (b) or 40 CFR §265.16(a) and (b) or any condition of the Facility's Part B permit.

#### **E. INSTRUCTORS AND TRAINING METHODS**

With the exception of OJT, training conducted at the PFF Facility will be under the direction of the Facility Training Director, who is also the Regulatory Affairs Manager. The Training Director is experienced in hazardous waste management procedures and other appropriate areas of instruction. On-the-job training is under the director of the employee's supervisor. Supervisors have received classroom training and OJT appropriate to their positions and job functions and are qualified and authorized to provide OJT under this Training Plan.

Methods of training may include lecture, discussion, hands-on skill training, on-the-job training, and video or movie viewing followed by discussions. This Training Plan incorporates simulation or case study/scenario training where pertinent. Some training materials may be recorded or video taped and subsequent trainees will view the recording. The Training Director or an authorized designee may facilitate training by video or movie viewing by introducing the material and leading discussion after the recording has been reviewed.

Individual instructors may be PFF employees or consultants depending upon the course, the topic, and the schedule. All instructors will be knowledgeable in the subjects that they teach or facilitate. The instructors will be familiar with PFF Gainesville and hazardous waste operations. Instructors will be qualified through education, credentials or experience. The Training Director's qualifications will be maintained on-site in the Facility Operating Record. This file will be maintained by the Facility Manager or other authorized designee of the Facility Manager who is responsible for scheduling personnel training and recordkeeping requirements. Credentials of the Training Director are provided in Attachment 2.

#### **F. EVALUATION**

Training will be evaluated by participants and instructors. The evaluation technique will vary by course, purpose, and format. Techniques may include written exam, skills

observation, skills performance checklists or questionnaires. Occasionally, other representatives of PFF may participate in evaluating course instruction. OJT will be evaluated by the employee's supervisor or the Training Director.

## **G. RECORD KEEPING AND CERTIFICATION**

As required by EPA, FDEP, OSHA and USDOT, documentation of attendance, method of instruction, instructor's qualifications and successful completion of each training topic will be maintained in the Facility Operating Record. Tables 4 and 5 contain examples of employee training topic records that will be maintained in the Facility Operating Record.

Each participant will be awarded training certificates signed by the Training Director or his/her authorized designee denoting successful completion of the various training topics (except OJT). Copies of training certificates will be placed in the training file of each employee required to be trained under this Training Plan. A record of successful completion of OJT Task Training will be completed by the employee's supervisor and maintained in the training file of each employee.

Records documenting completion of the various training topics by current personnel will be kept for three (3) years following closure of the facility. Records documenting former employees' completion of the various training topics will be kept for at least three (3) years from the date the employee last worked at the facility. Training records will be maintained in the Facility Operating Record.

Additional records required by 40 CFR §264.16(d), including job titles, names of incumbents in those jobs, and job descriptions will be maintained in the Facility Operating Record for three (3) years following closure of the Facility.

## **H. TRAINING TOPICS, LENGTH AND SCHEDULING**

This Training Plan provides numerous training topics. Each job classification is assigned specific training topics related to the successful performance of that job in a manner that is safe and healthful to self, co-worker, environment and property. These training assignments are listed on Figure 2 in this Training Plan. Tables 4 and 5 list a description and minimum length of each training topic assigned to employees.

The Facility operates five (5) days per week. There is one shift per day. It is the responsibility of the Facility Training Director or his/her authorized designee to schedule the necessary training for each person and to document attendance and successful course completion. It is the responsibility of the Personnel Manager to advise the Facility Training Director of new hires and personnel classification changes that result in the need for training. The Facility Training Director will be responsible for scheduling timely refresher training for current employees when annual refresher training comes due.

Supervisors are responsible for providing OJT and for assuring that employees will not work in unsupervised positions until they have completed the training requirements of their job classification. Supervisors evaluate OJT and document the completion of each assigned OJT task. The OJT training documentation is provided to the Facility Training Director for appropriate record keeping. Table 6 contains a list of OJT tasks. Supervisors also provide refresher OJT to appropriate personnel, and document the completion of assigned OJT tasks for record keeping by the Training Director.

**TABLE 1****JOB TITLES RELATED TO HAZARDOUS WASTE MANAGEMENT**

Radiation Safety Officer  
Facility Manager  
QA/QC Technician  
Site Coordinator  
Process Technician  
Support Technician  
Maintenance Technician  
Sales Representative  
Regulatory Affairs Manager  
Health & Safety Consultant  
Senior Health Physicist  
Analytical Service Manager  
Assistant Lab Manager  
Senior Lab Technician  
Research & Development Manager  
Research & Development Technician  
Project Engineer

Note: Job description for the above positions are maintained at the PFF Gainesville facility.  
Each job description contains those duties typically performed by an individual filling each position.

**TABLE 2****JOB TITLES OF EMERGENCY COORDINATORS AND  
OTHERS WITH EMERGENCY RESPONSE DUTIES**

<b>EMERGENCY COORDINATORS</b>	
<b>Primary Emergency Coordinator</b>	<b>Alternative Emergency Coordinator</b>
Facility Manager	Regulatory Affairs Manager
	Site Coordinator 1
	Site Coordinator 2

**TABLE 3**

**JOB TITLES NOT INVOLVED WITH HAZARDOUS WASTE  
OPERATIONS OR EMERGENCY RESPONSE**

Controller  
Document Specialist  
Administration/Marketing Support Specialist  
Accounting Specialist  
Receptionist  
Customer Service Supervisor  
Telemarketing Specialist



TABLE 4

**PERMA-FIX OF FLORIDA, INC.  
EMPLOYEE INITIAL TRAINING TOPICS RECORD**

NAME: \_\_\_\_\_

START DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

HAZARDOUS WASTE MANAGEMENT TRAINING					
GROUP	DATE	COURSE TOPIC	HOURS*	INSTRUCTOR	RESULTS
A	_____	New Hire Training		_____	N/A
	_____	General Orientation	2.00	_____	N/A
	_____	The Convincer	0.50	_____	N/A
	_____	Right to Know/The MSDS	1.00	_____	
	_____	Right to Know/Hazcom Labels	1.0	_____	
	_____	Mod V-Right to Know	1.50	_____	
B	_____	RCRA Hazardous Waste Training	0.50	_____	
	_____	Protect the Environment	0.25	_____	
	_____	Mod I-Intro to RCRA	1.50	_____	
	_____	Forklift Training Part 1		_____	
	_____	Forklift Training Part 2		_____	
	_____	Forklift Training Part 3		_____	
C	_____	Forklift Training Part 4	2.00	_____	
	_____	Hazardous Waste Safety Part 1		_____	
	_____	Hazardous Waste Safety Part 2	0.50	_____	
	_____	DOT Regs-Placards	0.50	_____	
	_____	Flammable Liquids	0.50	_____	
	_____	Hazardous Flammable Material	0.50	_____	
D	_____	Extinguishers	0.50	_____	
	_____	Chemical Safety-PT 1, Handling	0.75	_____	
	_____	Chemical Safety-PT 2, Health Haz	0.75	_____	
	_____	Chemical Safety-PT 3, Fire	0.75	_____	
	_____	Mod III-Safety/Clothing/Equip <sup>1</sup>	1.50	_____	
	_____	Bonding & Grounding	1.00	_____	
E	_____	Lifting Safely <sup>1</sup>	0.50	_____	
	_____	Drum Handling Safety <sup>1</sup>	0.50	_____	
	_____	Drum and Other Spills <sup>1</sup>	0.50	_____	
	_____	SCBA Training	1.00	_____	
	_____	Respirator Training	1.00	_____	
	_____	Pro-Flex Training	1.0	_____	
F	_____	Intro to Hazardous Waste & Special Waste Operations <sup>1</sup>	1.75	_____	N/A
G	_____	Mod II-Keeping Track of HW	1.50	_____	
	_____	Occupational Heat Stress	1.00	_____	
	_____	Mod IV-Conting Plan & Spills	0.50	_____	
H	_____	Standard Operation Procedures #1-11	4.00	_____	N/A

Table 4 (cont'd)

HAZARDOUS WASTE MANAGEMENT TRAINING					
GROUP	DATE	COURSE TOPIC	HOURS*	INSTRUCTOR	RESULTS
I	_____	Standard Operation Procedure #12-21	4.00	_____	N/A
J	_____	First Aid-Part 1	0.75	_____	
	_____	First Aid-Part 2	0.75	_____	
	_____	First Aid-Part 3	0.75	_____	
K	_____	Intro to Radiation-Part 1 <sup>1</sup>	4.00	_____	
	_____	Intro to Radiation-Part 2 <sup>1</sup>	4.00	_____	
	_____	Intro to Radiation-Part 3 <sup>1</sup>	4.00	_____	
	_____	Intro to Radiation-Part 4 <sup>1</sup>	4.00	_____	
L		Standard Operating Procedures #22-2X	2.5	_____	
TOTAL			55.5	_____	

\*Does Not Include Review or Test Time

<sup>1</sup>Indicates training that will address new treatment operations at the Facility (e.g., Perma-Fix® II) specifically.

Training must be completed within 6 months of hire or assignment to the facility, or transfer to a new position at the facility, whichever is later.

TARGET DATE FOR COMPLETION OF INITIAL TRAINING (Date: \_\_\_\_\_)

TABLE 5

**PERMA-FIX OF FLORIDA, INC.  
EMPLOYEE ANNUAL REFRESHER TRAINING RECORD**

NAME: \_\_\_\_\_

START DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

HAZARDOUS WASTE MANAGEMENT TRAINING					
GROUP	DATE	COURSE TOPIC	HOURS*	INSTRUCTOR	RESULTS
A	_____	Annual RCRA Refresher - Including Contingency Plan and Emergency Response Procedures	8.00		
B	_____	Fire Safety Alachua County Fire Department	2.00		
C	_____	Hazardous Waste Safety (1 hour/month)	12.00		
D	_____	Bonding & Grounding Video #17	1.00		
E	_____	Drum & Other Spills On-site exercise	2.00		
F	_____	Respirators	1.00		
G	_____	Container Management	2.00		
H	_____	Forklift Training	2.00		
I	_____	History of Other Training	2.00		
TOTAL			32.00		

TABLE 6

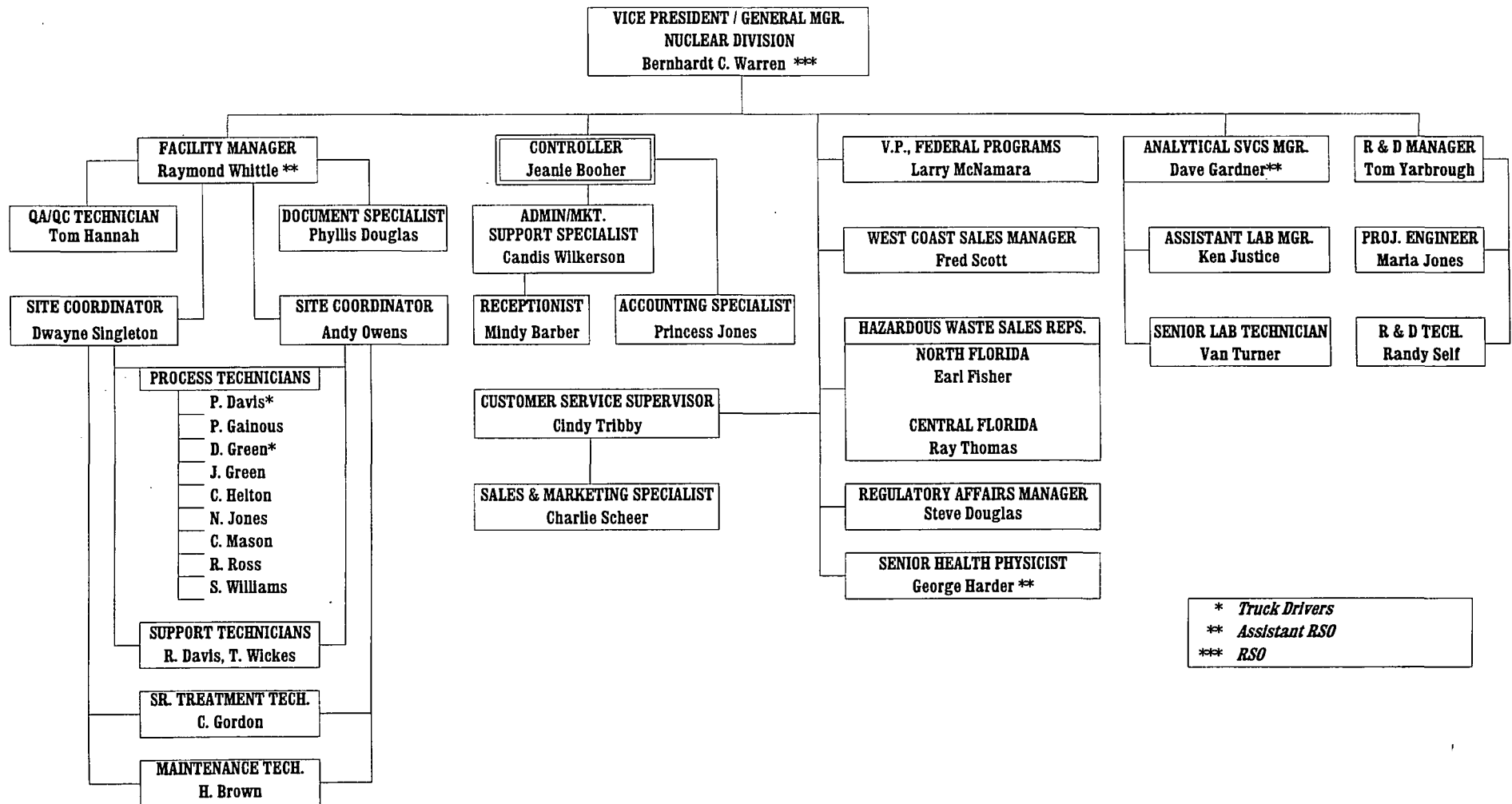
## ON-THE JOB TRAINING TOPICS

<u>TASK</u>	<u>MATRIX ABBREVIATION</u>
1. Sampling	Sample
2. Off Loading	Off Load
3. Maintenance	Maint.
4. Tank Management Practices	Tnk Mgt Pract
5. Container Management Practices	Contr Mgt Pract
6. Repackaging Operations	Repack Oper
7. Laboratory	Lab
8. Inspection and Remedial Action	Insp & Remed
9. Recordkeeping	Record Keep
10. Administration	Admin
11. Personal Protective Equipment	PPE
12. Emergency Procedures and Controls	Emer Proc
13. Supervisory Duties	Super Duties

**FIGURE 1**

**ORGANIZATION CHART  
of  
PERMA-FIX OF FLORIDA  
and  
PERMA-FIX ANALYTICAL SERVICES**

**ORGANIZATION CHART  
of  
PERMA-FIX OF FLORIDA  
and  
PERMA-FIX ANALYTICAL SERVICES**



**FIGURE 2**

**JOB ASSIGNMENTS  
TRAINING TOPIC MATRIX**

**FIGURE 2**

## JOB ASSIGNMENTS - TRAINING TOPIC MATRIX

[illegible]



**FIGURE 2**

**JOB ASSIGNMENTS - TRAINING TOPIC MATRIX**  
**(continued)**

[illegible]

**FIGURE 3**

**ON-THE-JOB TASK TRAINING**

**BY JOB TITLE**



**Attachment 2**

**Credentials of Training Director**

**STEVEN DOUGLAS**  
**PERMA-FIX ENVIRONMENTAL SERVICES, INC.**

**REGULATORY AFFAIRS MANAGER**

**EXPERIENCE HIGHLIGHTS**

- Instrumental in planning and conducting recovery efforts at several high profile environmental disaster sites including the grounding of the *Exxon-Valdez* and the explosion of the space shuttle *Challenger*;
- Extensive experience in regulation and transportation of hazardous materials and explosives;
- Demonstrated regulatory expertise in matters of hazardous waste compliance, worker health and safety, hazardous materials transportation and loss prevention.

**PROFESSIONAL EXPERIENCE**

**1998- PRESENT     PERMA-FIX ENVIRONMENTAL SERVICES, INC.**

***Regulatory Affairs Manager.*** Responsible for all environmental, health and safety activities at Perma-Fix of Florida, Inc., a publically-owned hazardous waste management corporation. Duties include preparing and maintenance of EPA permit applications, SARA Title III reporting, training of facility employees, hazard analysis, industrial hygiene, and investigations of regulatory requirements for new business areas. Also provide training and consultation services in the fields of environmental, health and safety compliance, industrial hygiene and emergency response.

**1994 - 1995 and 1996 - 1998**

**FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION**

***Environmental Specialist.*** Hazardous waste compliance specialist responsible for the evaluation and enforcement of Federal and State pollution control regulations. Review and monitor corrective and remedial actions for cases involving hazardous waste violations and pollutant discharge. Respond to and supervise emergency response activities involving illegal dumping, spills, and improper handling of hazardous materials. Provide expert testimony in cases involving criminal violations of pollution law.

**1995 - 1996**

**COASTAL SCIENCE ASSOCIATES, INC.**

***Environmental Scientist (Consultant).*** Project Manager for a variety of environmental assessment and remediation projects throughout the southeast United States. Assessments included Phase I/Phase II investigations, Pollutant Storage Tank evaluations, abandoned drums and pollutant releases. Remedial projects included underground storage tank removal, spill response, hazardous waste removal, and groundwater remediation. Performed compliance audits to evaluate conformity with various environmental laws including CERCLA, RCRA and TSCA.

**1985 - 1990 and 1997 - PRESENT**

**UNITED STATES COAST GUARD/COAST GUARD RESERVE**

***Commissioned Officer.*** Operational and administrative supervisor of explosives handling supervision team that reports directly to the Captain of the Port, Jacksonville, FL. Responsible for compliance inspections and permitting of marine hazardous materials transfers involving military and commercial explosive materials. Operations are typically high-profile involving several million pounds of ammunition transferred in a single operation and receive extensive media coverage and congressional interest.

**EDUCATION:**

- B.S., Environmental Science, Jacksonville University
- A.A., Florida Community College at Jacksonville

**PROFESSIONAL CERTIFICATION:**

- Certified Hazardous Materials Manager, Master Level

**MEMBERSHIP AND AFFILIATION:**

- Member, American Industrial Hygiene Association
- Member, Academy of Certified Hazardous Materials Managers
- Member, Reserve Officers Association
- Alternate, North Central Florida Local Emergency Planning Council

**Attachment II.A.4**

**Waste Analysis Plan**

## ATTACHMENT II.A.4

### WASTE ANALYSIS PLAN

#### 1.0 INTRODUCTION

The Perma-Fix of Florida (PFF) facility receives wastes from off-site generators for treatment and storage. Wastes received on-site are managed using the following methods: Perma-Fix® Process solidification/stabilization, Perma-Fix® II Process (thermal desorption and/or chemical oxidation), waste bulking activities, storage and miscellaneous treatment processes (i.e., chemical and physical extraction and fuel blending). The facility accepts hazardous waste, non-hazardous waste, and mixed waste for these processes. This section provides details on the types of hazardous wastes received, the analyses performed, and acceptance limits. This section also provides information regarding post-treatment analysis, where applicable.

#### 1.1 General Description of the Wastes

PFF receives wastes in both pumpable and solid forms from various generators. In general, the pumpable wastes received at the PFF facility are received from industrial, manufacturing and service industries. PFF typically receives solids from service industries and environmental remediation sites.

The wastes accepted at the facility can be divided into the general categories hazardous and non-hazardous waste.

##### 1.1.1 Hazardous Waste

Hazardous wastes received at the PFF facility can include liquids, solids, or sludges. At the PFF facility, pumpable liquids which have a suitable BTU value will be fuel blended for off-site energy recovery. 5,000 Btus per pound is the generally accepted criteria for adequate energy content. PFF uses 5,000 Btus as a minimum for energy recovery use. Hazardous liquids with little or no BTU value are sent to an off-site incineration facility.

Liquids received at the PFF facility which exhibit a RCRA hazardous characteristic for metals only may be processed using the Perma-Fix Process. After being treated with the Perma-Fix process, the material will be disposed of as a non-hazardous waste.

Liquid wastes with a combination of high BTU organics and water will go through phase separation. The water will be sent off-site and treated as hazardous wastewater, and the organics will be fuel blended for off-site energy recovery.

Solids received at the site will be bulked and manifested to an off-site incinerator. However, if the solids exhibit a RCRA hazardous characteristic for metals only, the waste may be processed using the Perma-Fix Process. The resulting waste will be disposed of as a non-hazardous waste.



Materials that are hazardous due to corrosivity (D002) will be bulked and manifested to an appropriately permitted facility for treatment and/or disposal.

The facility also receives contaminated media and debris from various facilities. The contaminated media and debris may be treated using the Perma-Fix and/or Perma-Fix II processes. Perma-Fix process residues remaining after treatment of mixed wastes will either be sent off-site for further treatment (e.g., incineration) and/or disposal.

Attachment II.A.4.1 includes a list of the hazardous waste codes accepted at the facility.

### **1.1.2 Non-Hazardous Waste**

The non-hazardous wastes received at the PFF facility include, but are not limited to, used oil, used oil filters, used oil contaminated media, and used antifreeze from automotive and industrial facilities.

The used oil received at the facility is fuel blended, and the antifreeze is sent off-site for recycling. The used oil filters are bulked on-site and shipped off-site for recycling. The used oil contaminated media is shipped off-site for energy recovery.

## **2.0 WASTE ANALYSIS PLAN**

PFF has developed waste analysis procedures, as described in the following sections.

The Waste Analysis Plan for the PFF facility incorporates procedures to meet three main objectives:

1. Pre-Acceptance Analyses performed by or at the request of PFF to determine whether a waste will be accepted from off-site generators;
2. Waste Receipt Analyses used to confirm that wastes, when received, are consistent with the profile; and
3. Post-Treatment Analyses to confirm that the Perma-Fix and/or Perma-Fix II treatment processes have successfully treated the waste, as required.

The following provides details regarding the Pre-Acceptance Waste Profile Analysis, the Waste Receipt Analysis, and the Post-Treatment Analysis for the wastes received at the facility.

## **2.1 Pre-Acceptance Waste Profile Analysis**

### **2.1.1 Pre-Acceptance Waste Profile Sheet**

Before approving wastes for management at the facility, PFF conducts a preliminary evaluation to determine if the material is suitable for management at the facility. A Waste (Material) Profile Sheet summarizing waste characteristics is required to be completed by the generator for each hazardous waste stream. See Attachment II.A.4.2.

### **2.1.2 Pre-Acceptance Waste Profile Analysis**

Prior to accepting shipments of hazardous waste, a Pre-Acceptance Analysis is conducted for the following parameters: specific gravity, pH, percent water, flash point, volatile organic compounds, total BTU value, and RCRA Metals. Additionally, hazardous waste streams which will undergo the Perma-Fix Process are also analyzed for sulfides and cyanides. Analyses may be performed by Perma-Fix of Florida, a Perma-Fix affiliate or a comparable independent environmental laboratory.

Alternately, the generator may apply process knowledge to complete the Waste Profile Analysis. Process knowledge must, however, be substantiated by analytical data from an outside independent laboratory, Material Safety Data Sheets (MSDS), or profile information, including analytical data from a permitted Treatment, Storage, or Disposal facility.

Attachment II.A.4.4 provides a summary of the Pre-Acceptance Analyses for wastes received at the PFF facility.

### **2.1.3 Waste Stream Recertification**

The initial waste profile will be evaluated and recertified annually. If a generator can certify that the chemical and physical characteristics and the process generating the waste have not changed over the past year, the initial waste analysis requirements (if applicable) will not be repeated. A periodically shipped waste will be recertified with the first shipment after the annual recertification date.

Recertification of a waste stream will be required for generators who have not manifested the profiled waste stream to the facility during the preceding 12-month period. Additionally, when a generator notifies PFF that the process or operation generating a profiled waste stream has changed, the waste must be re-characterized. In the event PFF has reason to believe that the process or operation generating the waste has changed without notice from the generator, a re-characterization will also be required. In order to re-characterize their waste stream, the generator may be required to complete a revised Waste Profile Sheet and conduct a Waste Profile Analysis on the new waste stream. The results will be submitted to PFF before additional waste can be accepted from the generator.

For certain emergency response situations and generator spills, some of the initial waste analysis parameters for on-site management may be waived until after the waste is received at PFF. This will only occur if the generator can adequately make the hazardous waste determination of 40 CFR 262.11. The available analytical data and supporting MSDSs will be evaluated prior to receipt of the waste at the facility.

## 2.2 Waste Receipt Analysis

Upon arrival of a hazardous waste at PFF, a visual inspection is conducted and resultant observations are compared to data contained on the Waste Profile Sheet to verify that the waste stream is consistent with the Waste Profile Sheet. If the waste is visually consistent with the physical characteristics indicated on the Waste Profile Sheet, a sample of the waste stream is collected and subjected to on-site "fingerprint analysis."<sup>1</sup> A waste stream is considered visually consistent if its physical consistency is the same as that which is indicated on the waste profile; i.e., liquids must be pumpable, sludges must be viscous and pourable, but not pumpable, and solids must not contain significant quantities of pumpable or pourable liquids.

The analyses conducted on-site are for selected analytical (fingerprint) parameters. Fingerprint parameters are selected to screen incoming wastes to determine that the wastes received at the facility are the anticipated wastes. These parameters are normally a subset of the initial waste analysis information (profile) that generators have provided to PFF during pre-acceptance procedures. The analysis performed on a waste will be selected to provide adequate information to provide confirmation of waste identity, facilitate sound waste management practices on-site, and determine applicability of LDR requirements for appropriate waste management. The fingerprint sample will be analyzed for the following: specific gravity (liquids only), pH, percent water, flash point and percent halogens.

The results of the fingerprint analyses are compared to the Waste Profile Analysis data. If the fingerprint analysis results are within acceptance tolerances, the waste received at the facility will be accepted for management at the facility. Examples of anticipated waste variability could be the result of any of the following: 1) differences due to temperature; 2) precipitation or absorption of constituents after sampling for waste analysis data due to varying length of storage before disposal; and 3) sedimentation of solids during prolonged storage times or during transportation to the PFF facility.

After undergoing fingerprint analysis, waste will be considered non-conforming if the sample is physically different from the Waste Profile Analysis, the pH is significantly different ( $\pm 2$  points) from the Waste Profile Analysis, the difference in water content is greater than 30% from the Waste Profile Analysis, the flash point is significantly different ( $\pm 30\%$ ), or the difference in the halogen content is greater than 10% from the Waste Profile Analysis. The generator may be given the opportunity to provide a corrected Waste Profile Analysis or opt to transport the waste to another facility. If a non-conforming waste is one which PFF is not permitted to accept, the

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<sup>1</sup> All waste streams received at the facility are sampled and subjected to the Finger Print Analysis. For single waste streams consisting of multiple containers, 20% of the containers for that waste stream are sampled (non-composite) and analyzed.

waste will be rejected and arrangements will be made to have the generator remove the rejected waste within 5 working days of the date of the rejection decision.

Waste streams consisting of transshipped wastes, discarded/off-spec chemical products, and lab packs will be scrutinized for consistency with the Waste Profile Analysis and the packing list. No analysis of these materials will occur.

### **2.3 Post-Treatment Analysis**

Residues remaining after on-site treatment of wastes will either be sent off-site for further treatment (e.g., combustion) or sent off-site for disposal, depending on whether the residues meet LDR treatment standards as specified in 40 CFR § 268.40. Hazardous waste/residues sent off-site will be sent to facilities with interim or final hazardous waste permits. In accordance with 40 CFR § 268.7(a)(4), the facility has developed and will follow a Post-Treatment Waste Analysis Plan to determine whether the treatment residues meet LDR treatment standards.

Treatment residues that exceed applicable LDR treatment standards will be sent off-site for further treatment (e.g., combustion). LDR notifications will be supplied with the shipment of waste and will contain the information required under 40 CFR § 268.7.

Several types of waste may be generated by the various steps in the Perma-Fix II process. Waste characterization will be conducted on these wastes in accordance with the requirements of 40 CFR 262 and may include application of process knowledge and/or analytical testing. Residuals from the Perma-Fix II process will be assumed to retain detectable radioactivity levels. The anticipated disposition of these wastes is discussed below. Alternative disposal options may be used if additional facilities become available.

Treatment residues that are shipped off site for land disposal will be analyzed to verify that the wastes meet LDR treatment standards as specified in 40 CFR § 268.40. If the residue to be disposed exhibits a hazardous characteristic and/or possesses a listed waste code, the residue will be disposed at a Subtitle C facility. Otherwise, the residue may be shipped to a Subtitle D facility.

For treatment residue that is sent to a Subtitle C facility:

- Analytical results will be used to ensure that accurate LDR notifications and certifications are prepared.
- LDR notifications and certifications will be supplied with the shipment of waste and will contain the information required under 40 CFR § 268.7.
- Analytical results completed in support of LDR requirements will be retained within the facility operating record.

For treatment residue that is sent to a Subtitle D facility:

- Analytical results will be used to ensure that accurate LDR notifications and certifications are prepared.
- LDR notifications and certifications will be submitted to the EPA region or authorized state.
- LDR notifications and certifications will be placed within the facility operating record.

## **2.4 Waste Analysis Parameters and Rationale**

Summaries of the pre-acceptance and receipt waste analysis parameters selected and their rationale for selection are shown in Attachment II.A.4.3.

### **2.4.1 Pre-Acceptance Waste Profile Analysis Parameters and Rationale**

#### **Specific Gravity and Percent Water:**

Specific gravity analysis is conducted to provide general information regarding the waste stream, including the percent water.

#### **pH:**

pH analysis is conducted in order to identify corrosive materials.

#### **Flash Point:**

A flash point determination is conducted in order to identify wastes as D001 ignitable wastes. It is also used to provide verification that non-hazardous wastes are not ignitable.

#### **Organic/Hydrocarbon Analysis**

Organic/hydrocarbon analysis is conducted in order to assist the generator in assigning the appropriate waste codes to their waste stream and to identify the underlying hazardous constituents (UHCs) in order to determine proper treatment and management of the waste at the Facility.

#### **BTU Content**

The BTU content is determined to provide general information on the waste stream. The information will be used to aid in fuel blending composition.

#### **Paint Filter Test:**

The paint filter test is conducted when necessary to determine if a waste stream meets the regulatory definition of a liquid and to determine if the waste contains free liquid. This aids in material handling at the facility.

**Sulfide/Cyanide Screen:**

The sulfide and cyanide screens are conducted on materials that carry the D003, F006, and/or F019 waste codes. The sulfide and cyanide screens are used to determine reactivity of a material.

**Metals:**

Metals analysis is conducted to assist the generator in assigning appropriate waste codes to a waste stream to confirm metals content and to determine whether the facility can effectively manage (treat) the waste.

**2.4.2 Waste Receipt Analysis Parameters and Rationale****Specific Gravity and Percent Water:**

Specific gravity analysis is conducted to verify that the material received is similar to the material analyzed under the Pre-Acceptance Waste Profile Analysis. Specific gravity information is also used to determine percent water and to make volume/weight determinations for incoming and outgoing loads of material.

**pH:**

pH analysis is conducted to confirm that the material received matches the Pre-Acceptance Analysis. It is also used to identify materials that are considered corrosive.

**Compatibility:**

Compatibility testing will be conducted on materials that are part of lab packs or on materials that will be bulked with other waste streams.

**Chlorides/Halogen:**

Chloride/halogen analyses are conducted to confirm that the material received matches the Pre-Acceptance Analysis.

**Polychlorinated Biphenyls (PCB)**

PCB analysis will be conducted on aged paint waste and petroleum waste where petroleum was used as a heat sink. PFF has been granted approval by EPA to store commercially-generated, PCB-contaminated waste.

**2.4.3 Post-Treatment Analysis Parameters and Rationale**

Identification of the parameters to be tested are determined based on pretreatment waste stream knowledge, RCRA waste identification information (i.e., 40 CFR Part 261, Appendices VII and VIII; the basis for listing hazardous wastes, and hazardous characteristics, respectively) and the generator's land disposal restriction notification information. Each sample will be analyzed for concentrations of constituents that are identified. For LDR treatment standards expressed as concentrations in the residue extract, the TCLP (EPA SW-846 Method 1311) will be employed to obtain an extract of the waste. Then, the extract and/or residue sample will be analyzed for TCLP and/or total waste concentrations, respectively.

## 2.5 Analytical Test Methods

Analytical test methods used by PFF to test for waste parameters are standard laboratory methods or methods developed specifically for waste managed on-site. Attachment II.A.4.3 provides analytical test methods which may be used to evaluate physical/chemical waste analysis parameters for pre-accepted and received waste.

The analytical test methods performed for the Post-Treatment organic and inorganic constituents follow SW-846 Test Methods or American Society for Testing and Materials (ASTM) methodologies, or equivalent.

## 2.6 Methods for Additional Waste Analysis Requirements

The methods used for analysis are detailed in Attachment II.A.4.3.

## 2.7 Sampling Methods

Sampling methods used at the PFF facility will be those listed in 40 CFR 261 Appendix I or equivalent. PFF recognizes the importance of collecting a representative sample (as defined in 40 CFR 260) of each waste stream and recommends appropriate sampling methods specified in 40 CFR 261, Appendix I or equivalent sampling methods. If standard facility sampling techniques do not provide a representative sample for analysis, an appropriate alternate method will be used.

Wastes are primarily received at the facility in containers (e.g., drums) and roll-off boxes. However, wastes may also be received at the facility in vials, lab packs, and tanker trucks. Off-site generators are responsible for collecting representative samples of their waste streams; however, PFF staff or waste brokers may perform this service for the generator. For waste streams which consist of multiple containers, a grab sample will be drawn from at least twenty percent (20%) of the total number of containers for each waste stream. COLIWASA methods are used for sampling containerized liquids. Sampling devices for other than containerized liquids may be weighted bottles, dippers, coliwesas, triers or other equivalent devices depending upon the characteristics of waste to be sampled. Sludges and/or solids are sampled using a scoop or similar device in order to obtain a representative sample.

The Perma-Fix treatment processes are batch operations. Therefore, PFF will either:

- 1) collect and analyze one grab sample from the residue generated from each batch; or
- 2) if residues are generated from multiple treatment batches from the same waste stream, collect one random grab sample from no less than 10% of the total number of containers of residues generated, composite the grab samples, and analyze the composite sample.

Perma-Fix treatment residues will be sampled using one of the following:

- coliwasa, dipper (liquids)
- trier, auger, scoop, tube sampler, dipper (solids, sludges)

Once a sample is drawn, the sample is placed in a sample container. The samples are stored in glass or polyethylene bottles, depending on whether organic analyses are conducted. The container is labeled with an identification of the sample source, the date and initials of the person taking the sample. In addition, the samples will be refrigerated if necessary to insure that volatile constituents do not evaporate.

## **2.8 Procedures for Ignitable, Reactive or Incompatible Wastes**

PFF may handle ignitable, reactive or incompatible wastes. Prior to co-mingling wastes, PFF operations personnel will use existing waste analysis information provided by the generator, and/or published literature to determine if there is a potential danger in mixing incompatible wastes. Potentially incompatible wastes will also be bench tested in the on-site laboratory.

Materials will be considered incompatible and will not be mixed together in containers, tanks or treatment processes if they:

- Generate extreme heat or pressure, fire or explosions, or violent reactions;
- Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- Damage the structural integrity of the container, tank or treatment process or facility;
- Through other like means threaten human health or the environment.

The following resources, among others, may be referenced to evaluate incoming waste streams for potential incompatibility:

1. 40 CFR 264 Appendix V;
2. *Dangerous Properties of Industrial Materials*, 7<sup>th</sup> edition, N. Irving Sax and Richard J. Lewis, Sr., Van Nostrand Reinhold, New York, NY, 1989;
3. *Manual of Hazardous Chemical Reactions*, NFPA No. 491M-1975, National Fire Protection Association; and
4. *Handbook of Toxic and Hazardous Chemicals*, Marshall Sittig, Noyes Publications, Park Ridge, NJ, 1981.

PFF will manage ignitable and reactive waste in accordance with the following procedures. Ignitable or reactive wastes are either stored in containers or tanks and are protected from sources



if ignition or reaction. Activities that would produce open flames, hot surfaces, frictional heat, sparks, spontaneous ignition or radiant heat will not occur in the vicinity of ignitable wastes. As a safeguard for handling ignitable and reactive wastes, smoking is not allowed within the facility (except in designated areas).

Incompatible wastes are placed in separate secondary containment areas. Incompatible wastes are physically separated by the use of a berm, dike, or by placing them in separate buildings. Incompatible wastes will not be placed in the same container or tank. Figure I.D.1 in Part A of the facility's permit application illustrates the separate storage areas for containers of incompatible wastes. Ignitable wastes will be stored in the Processing and Storage building. See Figure I.D.4 in Part A of the facility permit application.

### **3.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL**

#### **3.1 Sampling Quality Assurance/Quality Control**

The quality assurance (QA) of sampling is controlled through the proper training of all personnel who are involved in sampling. In addition, chain of custody information is documented on each sample taken, usually in the form of an initialed label which is attached to the sample container.

Quality control (QC) on samples is measured by comparing the analytical results of the sample against its Pre-Acceptance Waste Profile Analysis. If a discrepancy is noted, a second sample may be obtained and analyzed to verify the results of the first analysis, or the instruments which yielded the discrepant result will be checked for proper calibration, programmed dilution factors, etc. Where applicable, and depending on the specific QA/QC requirements of a test procedure, a duplicate sample analysis will be performed to verify sampling and instrumentation quality control.

#### **3.2 Laboratory Quality Control**

The Perma-Fix on-site laboratory uses standard quality control procedures as part of the overall quality assurance program. These quality control procedures specify that QC checks must be conducted to verify that all analyses are accurate and precise. Each analytical procedure uses the following QC checks, where applicable:

##### **Calibration and Reagent Standardization:**

Each time an instrument is calibrated or a reagent is standardized, a record is kept of the results. The analytical methods specify the procedure and frequency required to maintain accuracy.

##### **Known Standards:**

If an instrument is not calibrated at an equivalent frequency, a known standard is analyzed on a frequent basis. Calibration or analysis of a known standard is done either daily or weekly, depending upon the specific requirements of the analytical method. Calibration or analysis of a known standard is done at least once for every 20 samples run, even if it is more frequent than weekly or daily.

##### **Blanks:**

Where applicable, blanks are run for each analytical method on a daily basis, and the results are recorded in the laboratory log.

**Duplicates:**

A duplicate sample is run, on the average, after the analysis of 10 or 20 samples, depending upon the method, and the results are recorded in the laboratory log.

**Spiked Samples:**

Where applicable, samples are spiked with the analyte and analyzed. Spikes are typically conducted after 10 or 20 samples, depending upon the method.

**Attachment II.A.4.1**

**List of Waste Codes Accepted at the Facility**

**ATTACHMENT II.A.4.1****List of Waste Codes for Waste Accepted  
at the Facility****EPA Hazardous Waste Number**

D001	D021	D041	U037	U122
D002	D022	D042	U044	U124
D003	D023	D043	U052	U140
D004	D024	F001	U053	U154
D005	D025	F002	U055	U159
D006	D026	F003	U056	U161
D007	D027	F004	U057	U165
D008	D028	F005	U068	U169
D009	D029	P003	U070	U171
D010	D030	P022	U071	U196
D011	D031	P075	U072	U208
D012	D032	U001	U076	U209
D013	D033	U002	U077	U210
D014	D034	U003	U080	U211
D015	D035	U004	U083	U213
D016	D036	U012	U108	U220
D017	D037	U019	U110	U226
D018	D038	U027	U112	U227
D019	D039	U029	U117	U228
D020	D040	U031	U121	U239
				U328
				U353
				U359

**Attachment II.A.4.2**

**Example Waste (Material) Profile Sheet**



## MATERIAL PROFILE FORM

EPA ID# \_\_\_\_\_  
Generator Name \_\_\_\_\_  
Generator Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Telephone \_\_\_\_\_

### For Broker Use Only

Broker \_\_\_\_\_  
Contact: \_\_\_\_\_  
Telephone \_\_\_\_\_

- ☐Hazardous Waste      ☐Mixed Waste (requires Mixed Waste Profile)  
☐PCB (requires PCB Addendum)      ☐Used Oil      ☐Used Oil Filters      ☐Universal Waste      ☐Non-Hazardous Waste

Please provide a detailed description of the process that generated this waste:

Characterization Method:      ☐Laboratory Analysis      ☐MSDS      ☐Generator Knowledge

Physical Description:      ☐Solid      ☐Liquid      ☐Sludge

RCRA Waste Codes: \_\_\_\_\_

Volume: \_\_\_\_\_ Gross Weight: \_\_\_\_\_

Container Type: \_\_\_\_\_ Total Number of Containers: \_\_\_\_\_

DOT Hazardous Material?      ☐Yes      ☐No

DOT Shipping Description: \_\_\_\_\_

### For Broker Use Only:

I certify the following:

- The containers used to ship this material meet the requirements of 49 CFR 173 Subpart B (HazMat).
- This material will be inspected for consistency with the pre-approved profile at the time of transportation.

Signature \_\_\_\_\_ Date \_\_\_\_\_

☐This waste stream subject to the Land Disposal Restrictions of 40 CFR 268.  
If checked, complete a Land Disposal Restriction Notification form.

☐This waste stream contains benzene.  
If checked, complete the Benzene NESHAP worksheet.

### For Used Oil Only:

Does the used oil exceed any of the metals specification levels?      ☐Yes      ☐No  
*If yes, check which applies:*  
☐Arsenic - >5 ppm      ☐Cadmium - >2 ppm      ☐Chromium - >10 ppm      ☐Lead - >100 ppm

Is the Total Organic Halogen (TOX) content greater than 1,000 ppm?      ☐Yes      ☐No  
*If yes, the used oil is presumed to be hazardous waste, unless a successful rebuttal is demonstrated.*

Is the flashpoint less than 100°F?      ☐Yes      ☐No  
*If yes, the used oil is off-spec.*

I certify that all hazards, known or suspected, have been disclosed on this profile. Further I understand that a surcharge may be imposed for any material which is rejected or requires additional handling due to the material being inconsistent with the profile, improper or damaged containers, or improper shipping documents.

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

### Perma-Fix Facility Use Only

☐Accepted

☐Accepted with the following conditions: \_\_\_\_\_

☐Rejected for the following reasons: \_\_\_\_\_

**Attachment II.A.4.3**

**Waste Analysis Parameters, Rationale and Applicability**

**Attachment II.A.4.3  
Waste Analysis Parameters, Rationale and Applicability**

<b>Parameter</b>	<b>Rationale</b>	<b>Perma-Fix Protocol</b>	<b>Method (see notes)</b>	<b>Applicability</b>
Specific Gravity	Waste characteristic, fingerprint		ASTM D-1298 or ASTM 287	All liquid waste streams
pH	Waste characteristic, fingerprint	PAS-4000-004	SW-846 9040B or SW-846 9041A or SW-846-9045C	Liquid waste streams >20% H <sub>2</sub> O
Percent Water	Waste characteristic, fingerprint	PAS-4000-003	ASTM E 203-75 ASTM D 4017-81 ASTM D 1744-83 ASTM 4377-84	Waste fuel streams PTP liquid streams
Flash Point	Waste characteristic, determine ignitability	PAS-4000-002	SW-846 1010 ISO 2719	Non-haz waste streams
Gas Chromatograph (FID)	Waste characteristic, qualitative and quantitative evaluation of organic/hydrocarbons	PAS-4000-001	PAS Protocol	Fuels
Paint Filter Test	Identification of free liquids	PAS-4000-011	SW-846 9095	Optional analysis
BTU	Waste characteristic	PAS-4000-008	ASTM D-4809	Fuels
Sulfide Screen	Waste characteristic for PTP, identification of reactive wastes	PAS-4000-018	SW-846-9030 SW-846-9031 EPA 372.6	D003, F006, F019 Waste streams



**Attachment II.A.4.3 (cont.)  
Waste Analysis Parameters, Rationale and Applicability**

Parameter	Rationale	Perma-Fix Protocol	Method (see notes)	Applicability
Cyanide Screen	Waste characteristic for PTP, identification of reactive wastes	PAS-4000-019	EPA 335.3 SW-846-9010 SW-846-9012 SW-846-9013	D003, F006, F019 Waste streams
Fuel Compatibility	Waste characteristic, fingerprint	PAS-4000-013	PAS Protocol	Waste fuels
Chlorides/Halogen	Fingerprint, screen for chloride content	PAS-4000-007	SW-846 5050 SW-846 9252A	Halogenated solvents Waste streams
Chlorides/Halogen, (TOX)		PAS-4000-014	SW-846-9253 SW-846-9076	
Chloride/Halogen, (Test Kit)		Manufacturer's specification	SW-846-9023 SW-846-9077	
PCB Screen	Screen for TSCA wastes	PAS-2000-004	Chlor-N-Oil, Chlor-N-Soil, SW-846-8080, EPA 608	Waste paint Used oil <u>Petroleum contaminated soil</u> Petroleum contact water
Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)	Waste characteristic	PAS-4000-015	SW-846-1311 SW-846-3051 SW-846-6010A SW-846-7470A SW-846-7471A	PTP metals stream TCLP (PTP treated metals)

**Attachment II.A.4.4**

**Summary of Pre-Acceptance Analyses**

## Attachment II.A.4.4

## Summary of Pre-Acceptance Analyses

Type of Analysis	Pre-Acceptance Waste Profile Analysis	Waste Receipt Analysis
Specific Gravity <sup>1</sup>	X	X
pH	X	X
Percent water	X	X
Flash point	X	X
Gas Chromatographic (FID) (Organics/Hydrocarbons)	X	X
Paint Filter Test	(optional analysis)	(optional analysis)
BTU	X	
PCBs	X	
Sulfide Screen	X <sup>2</sup>	
Cyanide Screen	X <sup>2</sup>	
Fuel compatibility		X <sup>3</sup>
Chlorides/Halogen, (TOX)	X	X
Metals		
Arsenic	X	
Barium	X	
Cadmium	X	
Chromium	X	
Lead	X	
Mercury	X	
Selenium	X	
Silver	X	

<sup>1</sup> Liquids only<sup>2</sup> Performed for wastes that will be treated using the Perma-Fix I treatment process<sup>3</sup> Bulk materials and lab packs

**Attachment II.A.4.5**

**Potential Incompatibility Testing Procedure**

**ATTACHMENT II.A.4.5****POTENTIAL INCOMPATIBILITY TESTING PROCEDURE**

PFF currently mixes different waste streams during bulking operations for its waste-derived fuels blending operations. Although it is not anticipated that different waste streams will be routinely mixed and treated in the same batch during Perma-Fix® treatment operations, the need exists to confirm the compatibility of individual waste streams that may come into contact with other waste streams and with treatment additives used in the Perma-Fix treatment processes. In addition to avoiding undesirable chemical reactions such as those listed in 40 CFR 264.17(b), potential reactions that may be incompatible with the treatment processes or equipment (e.g., polymerization of liquid wastes into a solid inside process equipment, excessive foaming, synergistic interference with the effectiveness of a treatment process, etc.) need to be identified.

In situations where there is a need to mix different waste streams together or to mix treatment additives with waste streams, samples of the wastes (and additives as appropriate) will first be segregated into compatibility groups based on the available waste generator material profile and analytical data. Next, samples from within each of these groups will be blended together and observed for changes in temperature, pH and other signs of chemical reactions such as fumes, smoke, bubbles, color changes, and changes in viscosity. See 40 CFR 264.17(b). Observation will be continuous for the first five minutes after blending. The samples will then be periodically (every 5-10 minutes) inspected during a 30-minute period following blending. Any counter-indications to mixing or treatment will be evaluated further. For example, tests may be conducted to determine whether blending with different wastes or in smaller or more dilute quantities would allow the mixing or treatment to proceed in a safe manner. Mixing of wastes will be prohibited or managed in accordance with the observations and determinations made as described above.

Samples of wastes and treatment additives intended for treatment using the Perma-Fix treatment processes will be mixed in a manner simulating the entire treatment processes (Perma-Fix and/or Perma-Fix II) on a bench scale prior to full scale processing. In addition, samples of waste streams intended for fuel blending will be tested for compatibility prior to blending.

**Attachment II.A.5**

**Acceptable Hazardous Waste and Waste Constituents**

Waste Code	Description
D001	Ignitable Waste
D002	Corrosive Waste
D003	Reactive Waste (not DOT Class I (explosive) hazardous materials)
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver
D012	Endrin
D013	Lindane
D014	Mehtoxychlor
D015	Toxaphene
D016	2,4-D
D017	2,4,5-TP (Silvex)
D018	Benzene
D019	Carbon Tetrachloride
D020	Chlordane
D021	Chlorobenzene
D022	Chloroform
D023	o-Cresol
D024	m-Cresol
D025	p-Cresol
D026	Cresol
D027	1,4-Dichlorobenzene
D028	1,2-Dichloroethane
D029	1,1-Dichloroethylene
D030	2,4-Dinitrotoluene
D031	Heptachlor (and its epoxide)
D032	Hexachlorobenzene
D033	Hexachlorobutadiene
D034	Hexachloroethane
D035	Methyl ethyl ketone
D036	Nitrobenzene
D037	Pentachlorophenol
D038	Pyridine
D039	Tetrachloroethylene
D040	Trichloroethylene
D041	2,4,5-Trichlorophenol
D042	2,4,6-Trichlorophenol

Waste Code	Description
D043	Vinyl chloride
<b>F-Codes</b>	
F001	The following spent halogenated solvents used in degreasing; tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixture.
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluorethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	The following spent non-halogenated solvents; xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
<b>P-Codes</b>	



Waste Code	Description
P003	Acrolein; 2-Propenal
P022	Carbon disulfide
P075	Nicotine & salts; Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts
<b>U-Codes</b>	
U001	Acetaldehyde; Ethanol
U002	Acetone; 2-Propanone
U003	Acetonitrile
U004	Acetophenone; Ehtanone, 1-phenyl-
U012	Aniline; Benzenamine
U019	Benzene
U031	1-Butanol; n-Butyl alcohol
U037	Benzene, chloro-; Chlorobenzene
U044	Chloroform; Methane, trichloro-
U052	Cresol (Cresylic acid); Phenol, methyl-
U053	2-Butenal; Crotonaldehyde
U055	Cumene; Benzene, (1-methylethyl)-
U056	Benzene, hexahydro-; Cyclohexane
U057	Cyclohexanone
U068	Methane, dibromo-; Methylene bromide
U070	o-Dichlorobenzene; Benzene, 1,2-dichloro-
U071	m-Dichlorobenzene; Benzene, 1,3-dichloro-
U072	Benzene, 1,4-dichloro-; p-Dichlorobenzene
U076	Ethane, 1,1-dichloro-; Ethylidene dichloride
U077	Ethane, 1,2-dichloro-; Ethylene dichloride
U080	Methylene chloride; Methane, dichloro-
U083	Propane, 1,2-dichloro-; Propylene dichloride
U108	1,4-Dioxane; 1,4-Diethyleneoxide
U110	Dipropylamine; 1-Propanamine, N-propyl-
U112	Ethyl acetate; Acetic acid, ethyl ester
U117	Ethyl ether; Ethane, 1,1'-oxybis
U121	Methane, trichlorofluoro-; Trichloromonofluoromethane
U122	Formaldehyde
U124	Furan; Furfuran
U140	Isobutyl alcohol; 1-Propanol, 2-methyl-
U154	Methanol; Methyl alcohol
U159	Methyl ethyl ketone (MEK); 2-Butanone
U161	Methyl isobutyl ketone; 4-Methyl-2-pentanone; Pentanol, 4-methyl-
U165	Napthalene
U169	Nitrobenzene; Benzene, nitro-
U171	2-Nitropropane; Propane, 2-nitro-
U196	Pyridine
U208	1,1,1,2-Tetrachloroethane; Ethane, 1,1,1,2-tetrachloro-

Waste Code	Description
U209	1,1,2,2-Tetrachloroethane; Ethane, 1,1,2,2-tetrachloro-
U210	Tetrachloroethylene; Ethene, tetrachloro-
U211	Carbon tetrachloride; Methane, tetrachloro-
U213	Tetrahydrofuran; Furan, tetrahydro-
U220	Benzene, methyl-
U226	Ethane, 1,1,1-trichloro-; Methyl chloroform
U227	Ethane, 1,1,2-trichloro-; 1,1,2-Trichloroethane
U228	Trichloroethylene; Ethene, trichloro-
U239	Xylene; Benzene, dimethyl-
U239	Xylene; Benzene, dimethyl-
U359	Ethylene glycol monoethyl ether; Ethanol, 2-ethoxy-

**Attachment II.A.6**

**Federal Environmental Legislation**



FLORIDA DEPARTMENT OF STATE

Sandra B. Mortham

Secretary of State

DIVISION OF HISTORICAL RESOURCES

R.A. Gray Building

500 South Bronough Street

Tallahassee, Florida 32399-0250

Director's Office  
(904) 488-1480

Telecopier Number (FAX)  
(904) 488-3353

April 10, 1996

Ms. Jennifer B. Hazard  
Perma-Fix  
1940 N.W. 67th Place  
Gainesville, Florida 32653

In Reply Refer To:  
Robin D. Jackson  
Historic Sites Specialist  
(904) 487-2333  
Project File No. 961234

RE: Cultural Resource Assessment Request  
Permit Renewal - Existing Treatment, Storage and Disposal Facility  
Gainesville, Alachua County, Florida

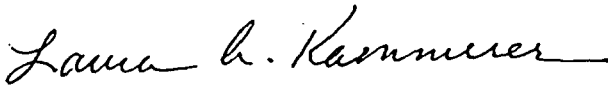
Dear Ms. Hazard:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

It is the opinion of this agency that because of the project nature it is considered unlikely that archaeological or historical sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on any sites listed, or eligible for listing in the National Register.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

*for*   
George W. Percy, Director  
Division of Historical Resources  
and

State Historic Preservation Officer

GWP/Jrj

**PERMA-FIX**  
ENVIRONMENTAL SERVICES

April 2, 1996

Mr. George W. Percy, Compliance Review Department  
Division of Historical Resources  
R A Gray Building, 500 South Bronough  
Tallahassee, Florida 32399

**CERTIFIED MAIL**

Dear Mr. Percy:

Perma-Fix of Florida, Inc. (PFF) is an existing Treatment, Storage and Disposal (TSD) facility located in Gainesville, Florida. PFF received its Final Part B Permit in September of 1989 and we are presently in the renewal phase of our permit with the Florida Department of Environmental Protection (FDEP).

On April 2, 1996, I spoke with Gary Goodwin, Historical Preservation Planner, to determine if any historically significant sites exist in the vicinity of the PFF facility. After reviewing an extensive list of sites and concluding no sites existed in the PFF vicinity, Mr. Goodwin transferred me to Ms. Robin Jackson, of your office. Ms. Jackson suggested that I submit a facility description and a USGS map for an archaeological review.

In accordance with 40 CFR 270.3(b), PFF requests an evaluation of the presence of any historically significant sites in the area of our facility.

Should you have any questions or concerns, please contact me at (352) 395-1356.

Sincerely,



Jennifer B. Hazard  
Southeast Regional Compliance Coordinator

Enclosures: Facility Description and USGS Map

JBH96.049



## FLORIDA GAME AND FRESH WATER FISH COMMISSION

JULIE K. MORRIS  
Sarasota

QUINTON L. HEDGEPEETH, DDS  
Miami

MRS. GILBERT W. HUMPHREY  
Miccosukee

THOMAS B. KIBLER  
Lakeland

ALLAN L. EGBERT, Ph.D., Executive Director  
WILLIAM C. SUMNER, Assistant Executive Director

NORTHEAST REGION  
Lt. COL. LARRY L. MARTIN, Director  
Route 7, Box 440  
Lake City, FL 32055  
(904) 758-0525

April 5, 1996

Ms. Jennifer B. Hazard  
Southeast Regional Compliance Coordinator  
Perma-Fix Environmental Services  
1940 N.W. 67th Place  
Gainesville, FL 32653

Dear Ms. Hazard:

This responds to your inquiry dated April 3, 1996 regarding the potential occurrence of listed species in the vicinity of your facility in Alachua County, Florida. You defined the location as Latitude 29°43'00" and Longitude 82°20'58". We have conducted a search on our computer database and other pertinent records of wildlife observations. To facilitate this, we searched an area whose boundaries are two miles north, east, south, and west of your facility:

Latitude: >29°41'00"N and <29°45'00"N  
Longitude: >82°18'58"W and <82°22'58"W

As for wildlife species over which this agency has jurisdiction, at least one wading bird rookery is known to occur in close proximity of the searched area. It is located at 29°45'30"N, 82°23'42"W, T8S, R19E, Sec. 12SW. Cattle egret (Bubulcus ibis), little blue heron (Egretta caerulea), a Species of Special Concern, and other unidentified small white wading birds have been known to occur there.

Please note, however, that our database is not necessarily inclusive of all listed species which may occur in a given area. For various reasons, occurrence records for some species are not necessarily input into our database on a site-specific basis. The indigo snake, gopher tortoise and most listed mammal species are notable examples of that. Moreover, some species which are accounted for in the database may occur in areas we are unaware of. Only through systematic field surveys could such data be factored in with respect to your request.

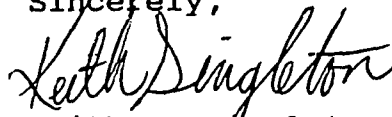
1943 - 1993

50 YEARS AS STEWARD OF FLORIDA'S FISH AND WILDLIFE

Ms. Jennifer B. Hazard  
April 5, 1996  
Page 2

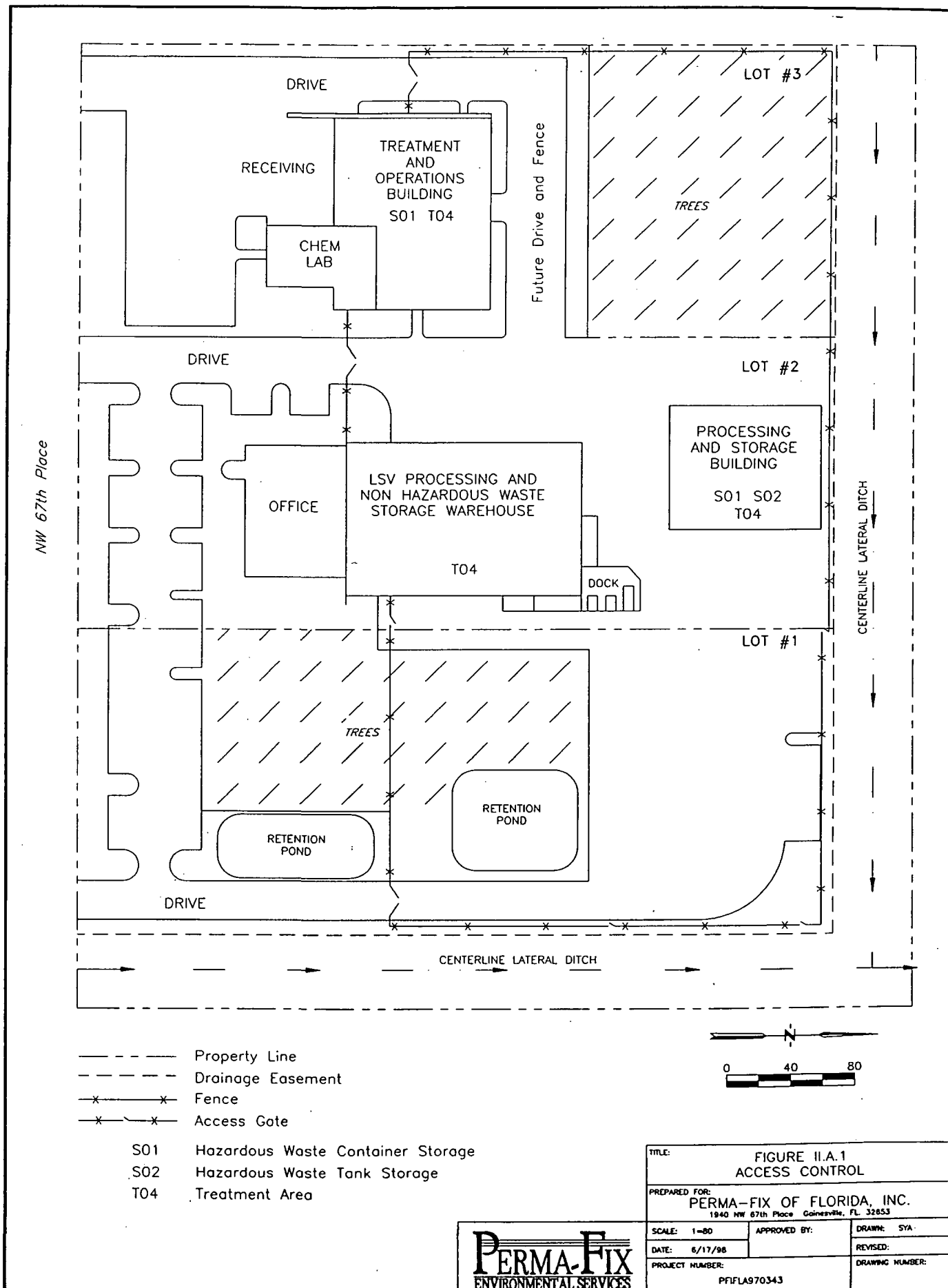
Thank you for consulting us in this matter. As for occurrence records for listed plants and plant communities of concern, the appropriate contact would be the Florida Natural Areas Inventory, 1018 Thomasville Road, Suite 200C, Tallahassee, FL 32303, 904/224-8207.

Sincerely,

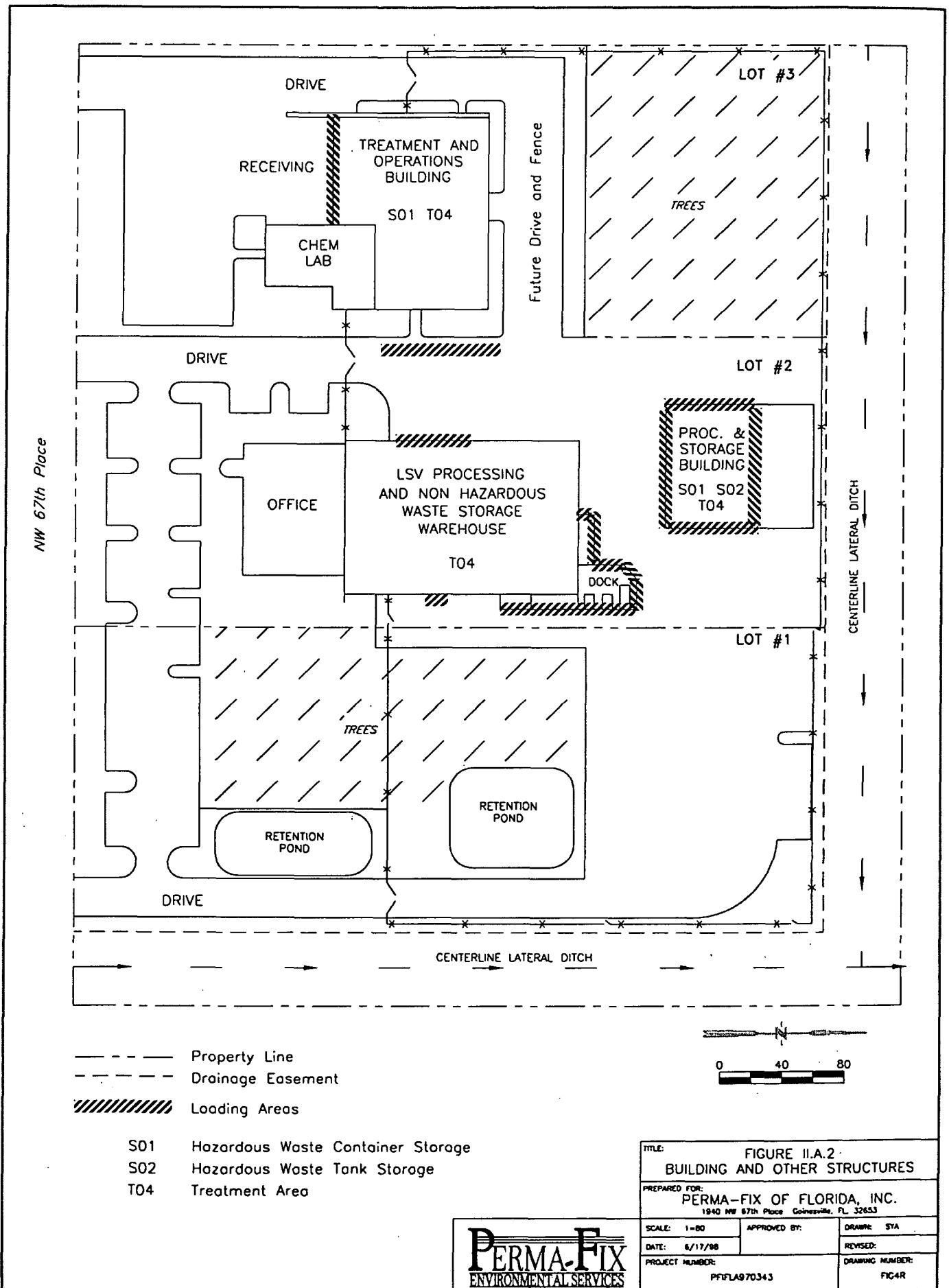
A handwritten signature in cursive script that reads "Keith Singleton".

Keith G. Singleton  
Nongame Wildlife Biologist

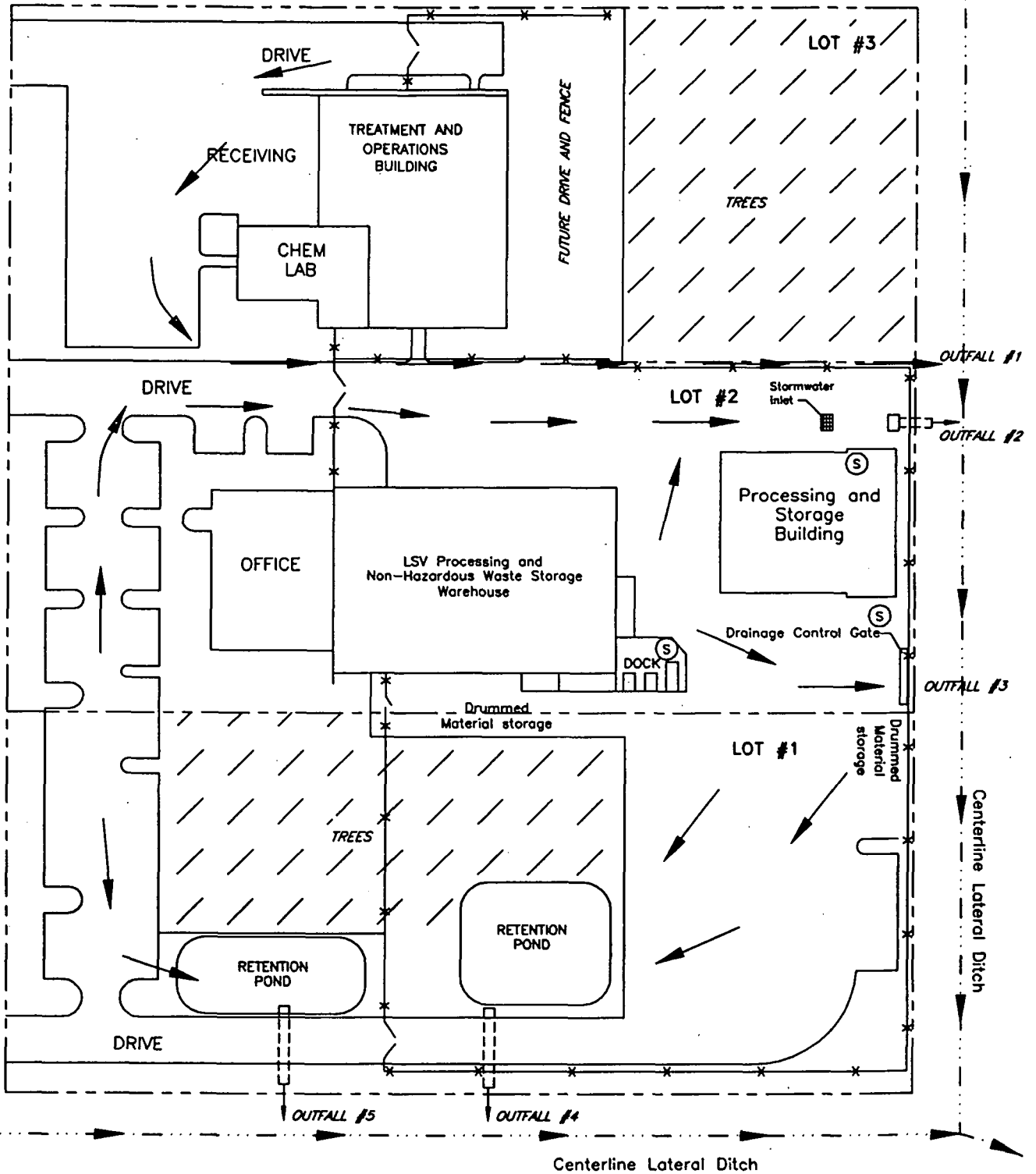
KGS/  
WLD 4-3-5  
Enclosure  
listed13.ltr







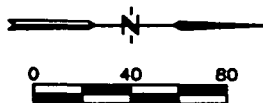
NW 67th Place



Surface water flow direction

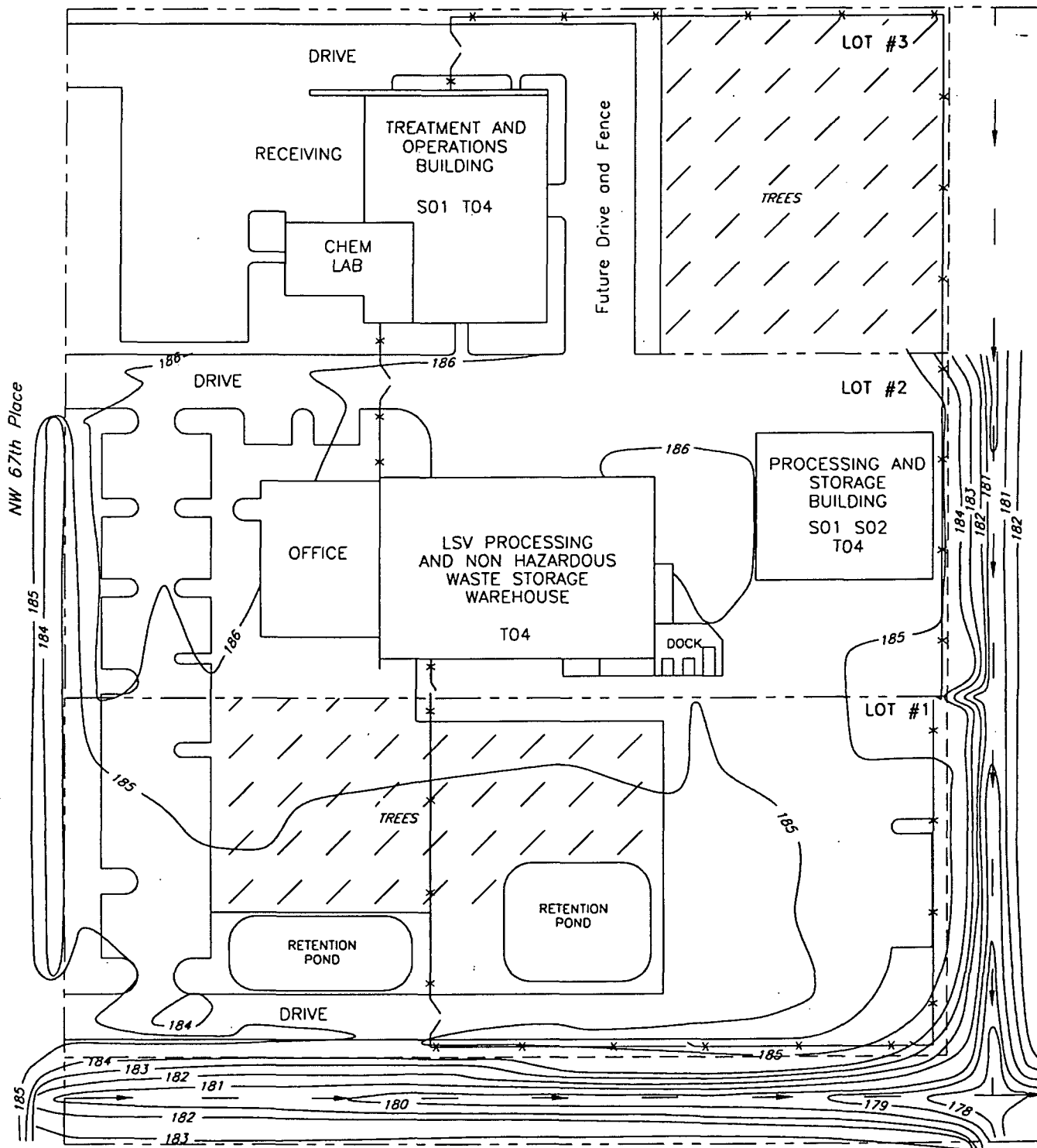
(S)

Spill Response Kit



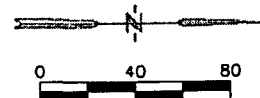
**PERMA-FIX**  
ENVIRONMENTAL SERVICES

TITLE: Figure 1A.2.a SURFACE WATER FLOW DIRECTION		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653		
SCALE: NTS	APPROVED BY:	DRAWN: SYA
DATE: 6-30-95	W. A. DECKER	REVISED:
PROJECT NUMBER: PF1A970343	DRAWING NUMBER: 1A2a	



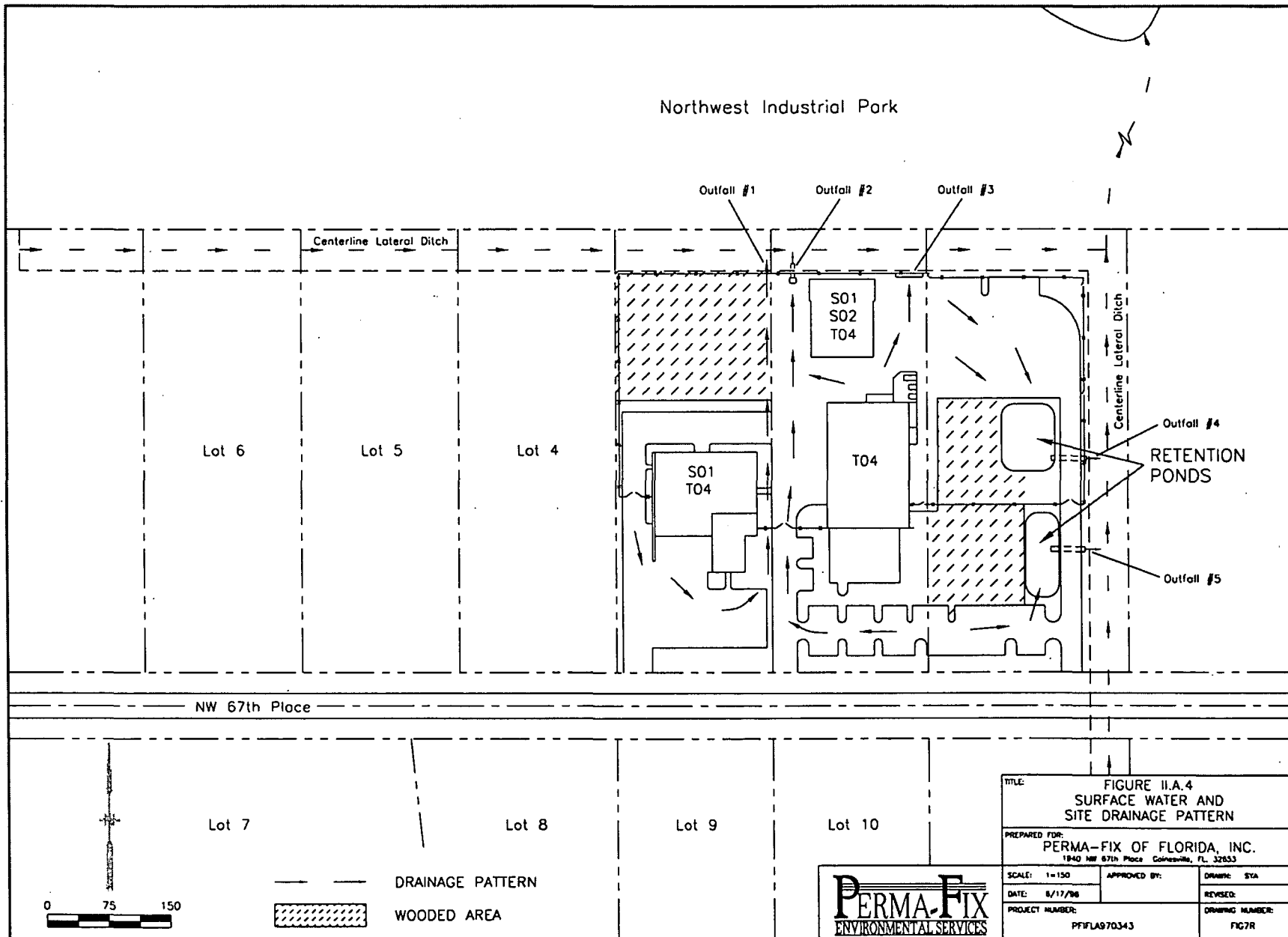
- - - - - Property Line  
 - - - - - Drainage Easement

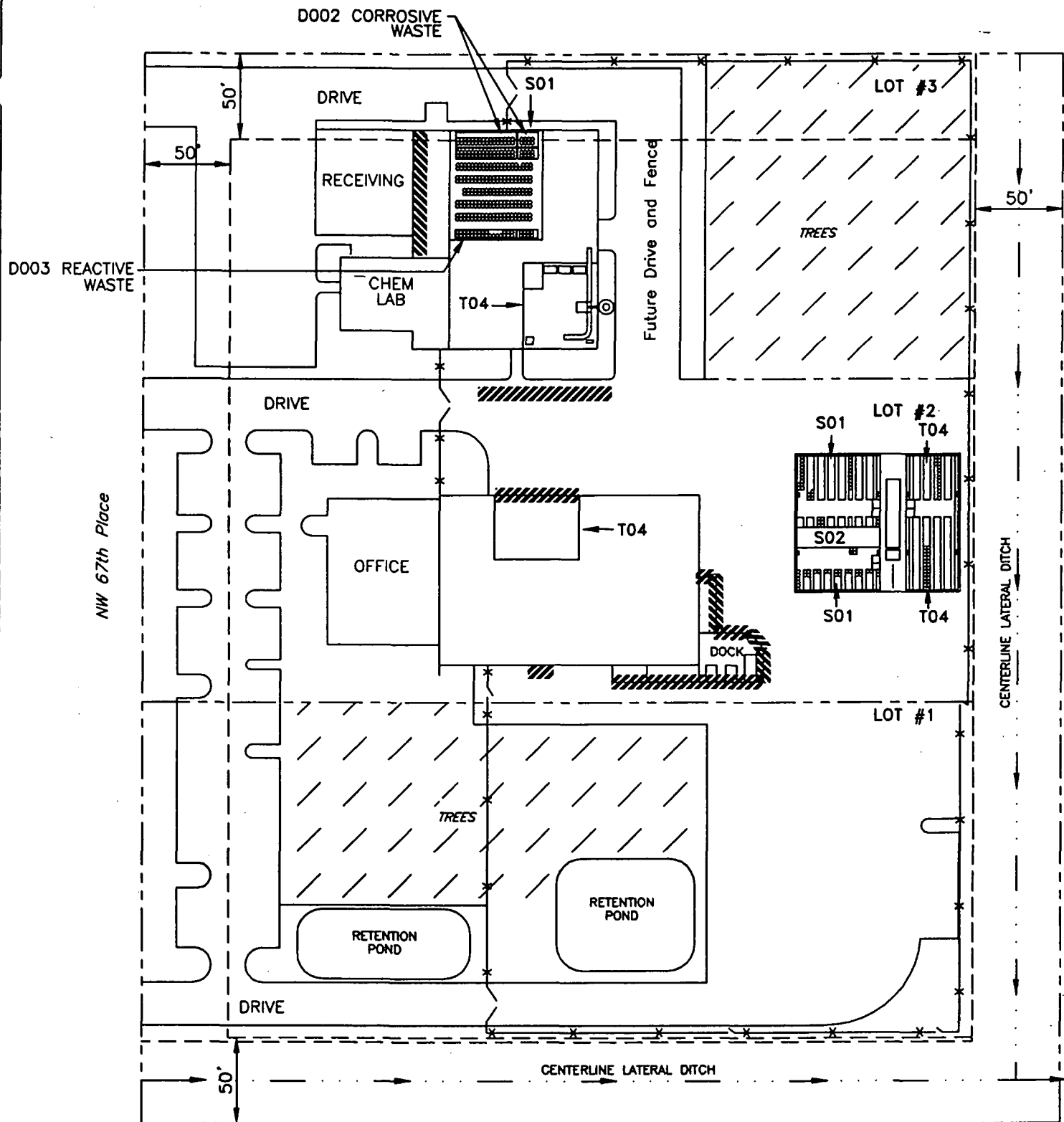
S01 Hazardous Waste Container Storage  
 S02 Hazardous Waste Tank Storage  
 T04 Treatment Area



TITLE: FIGURE II.A.3 CONTOURS		
PREPARED FOR: PERMA-FIX OF FLORIDA, INC. 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1"=80'	APPROVED BY:	DRAWN: SYA
DATE: 6/17/98		REVISED:
PROJECT NUMBER: PFILA970343		DRAWING NUMBER: FIG5R

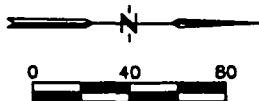
**PERMA-FIX**  
 ENVIRONMENTAL SERVICES





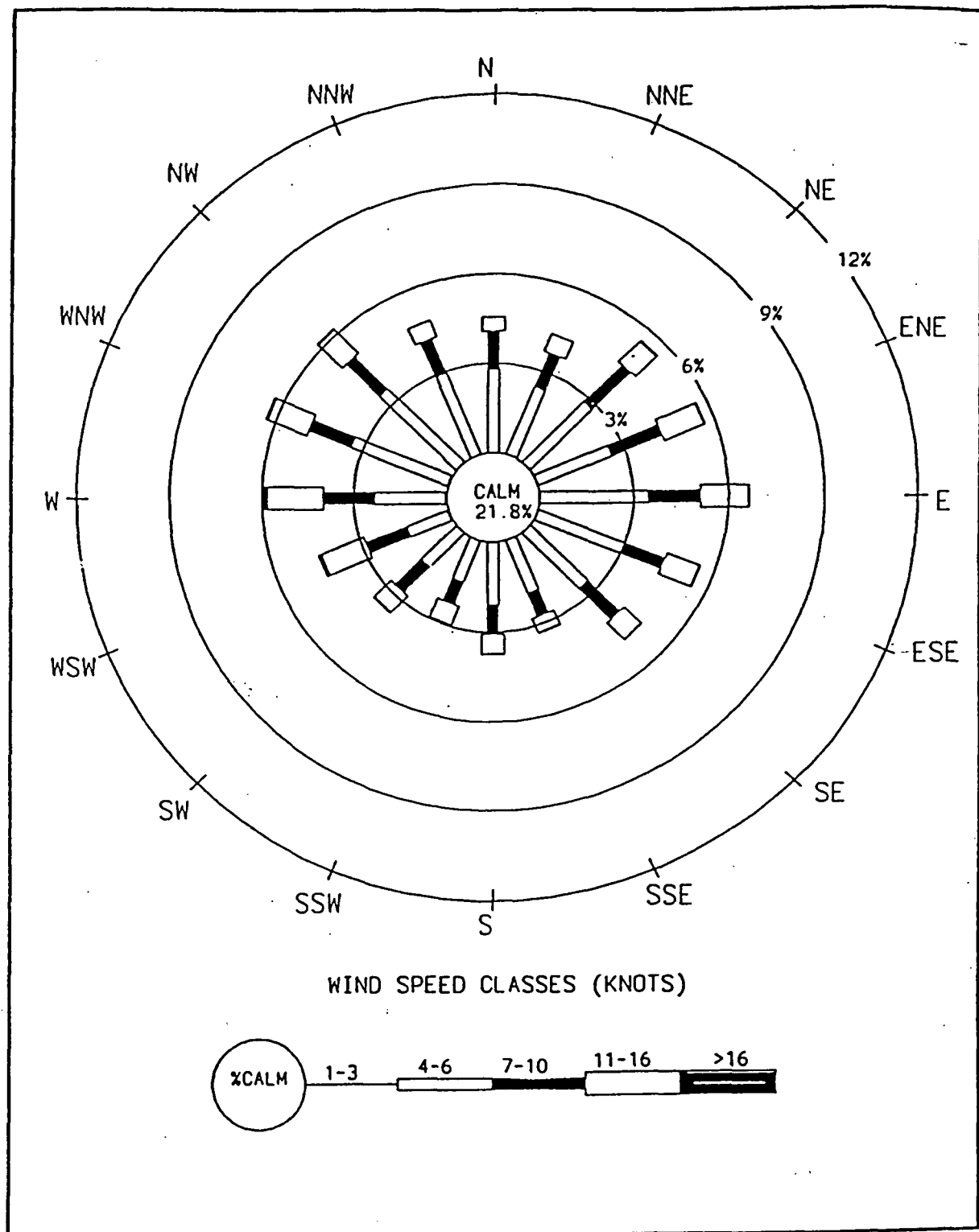
- Property Line
- Drainage Easement
- ////// Loading Areas

- S01 Hazardous Waste Container Storage
- S02 Hazardous Waste Tank Storage
- T04 Treatment Area



**PERMA-FIX**  
ENVIRONMENTAL SERVICES

TITLE: Figure IIA.5 <b>HAZARDOUS WASTE UNITS</b>		
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Gainesville, FL 32653		
SCALE: 1"=80'	APPROVED BY:	DRAWN: SYA
DATE: 6-17-88	SEE	REVISED: 12-30-88
PROJECT NUMBER: PFFLA870343		DRAWING NUMBER: IIA.5



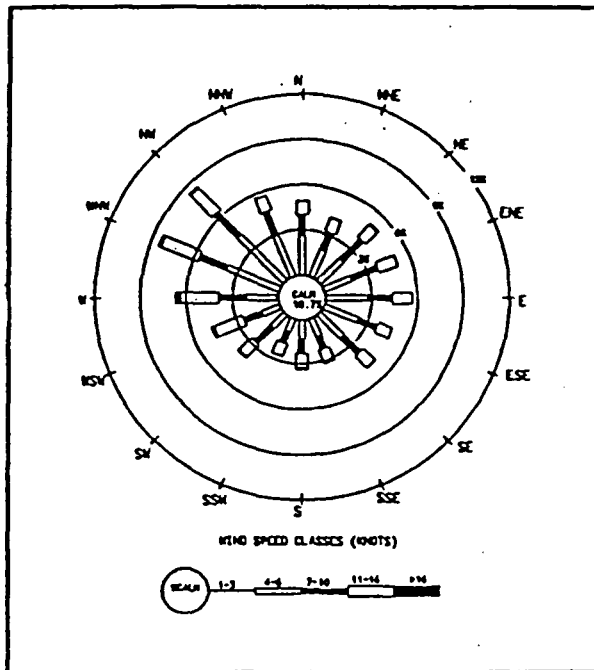
**GAINESVILLE FLORIDA**  
1985 - 1989

Source: ENSERCH Environmental, 1994

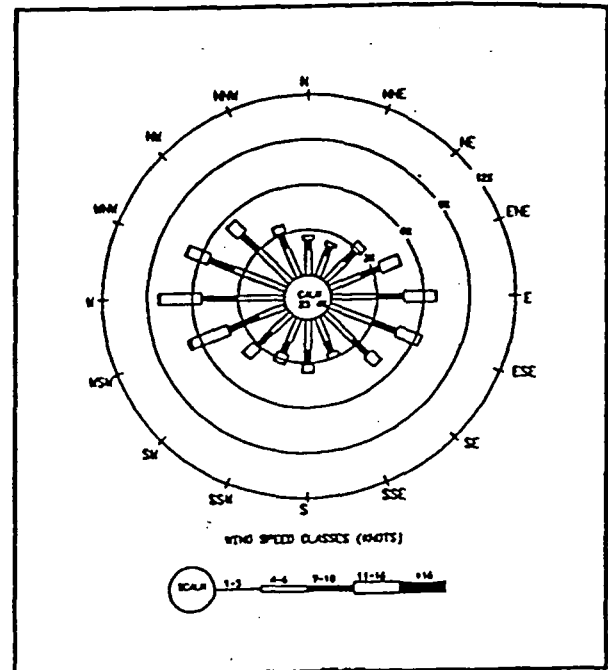


**Annual Wind Rose**

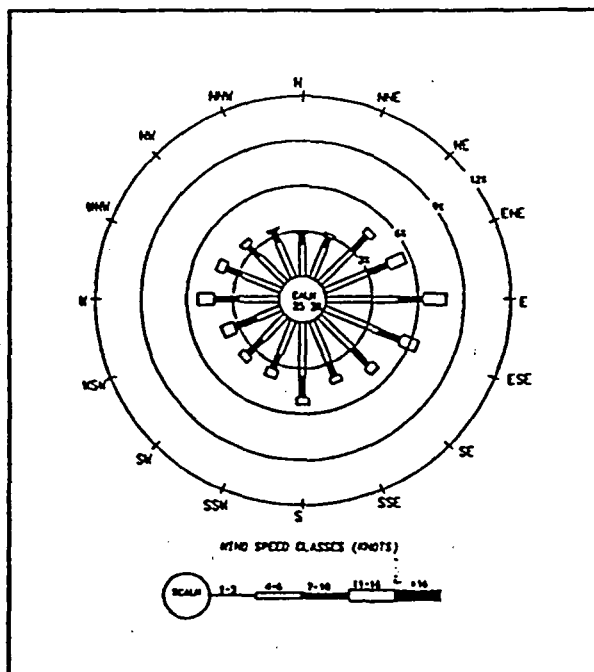
**FIGURE**  
II.A.6



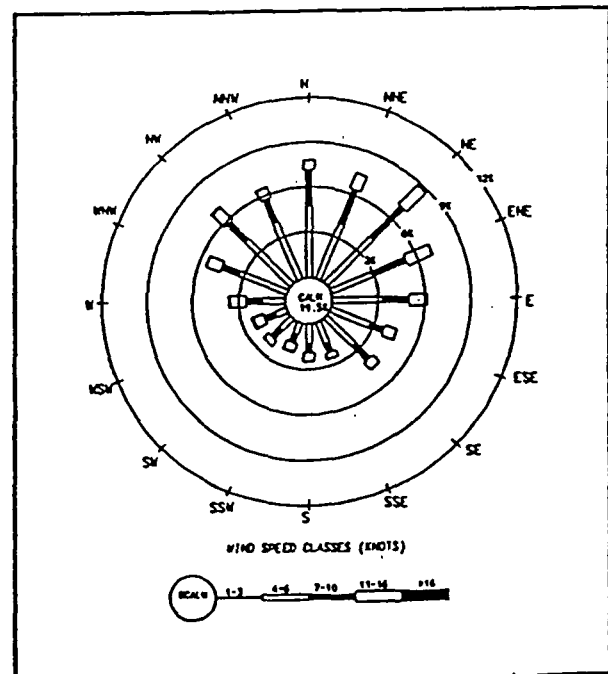
**GAINESVILLE FLORIDA**  
1985 - 1989 JAN - MAR



**GAINESVILLE FLORIDA**  
1985 - 1989 APR - JUN



**GAINESVILLE FLORIDA**  
1985 - 1989 JUL - SEP



**GAINESVILLE FLORIDA**  
1985 - 1989 OCT - DEC

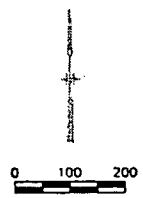
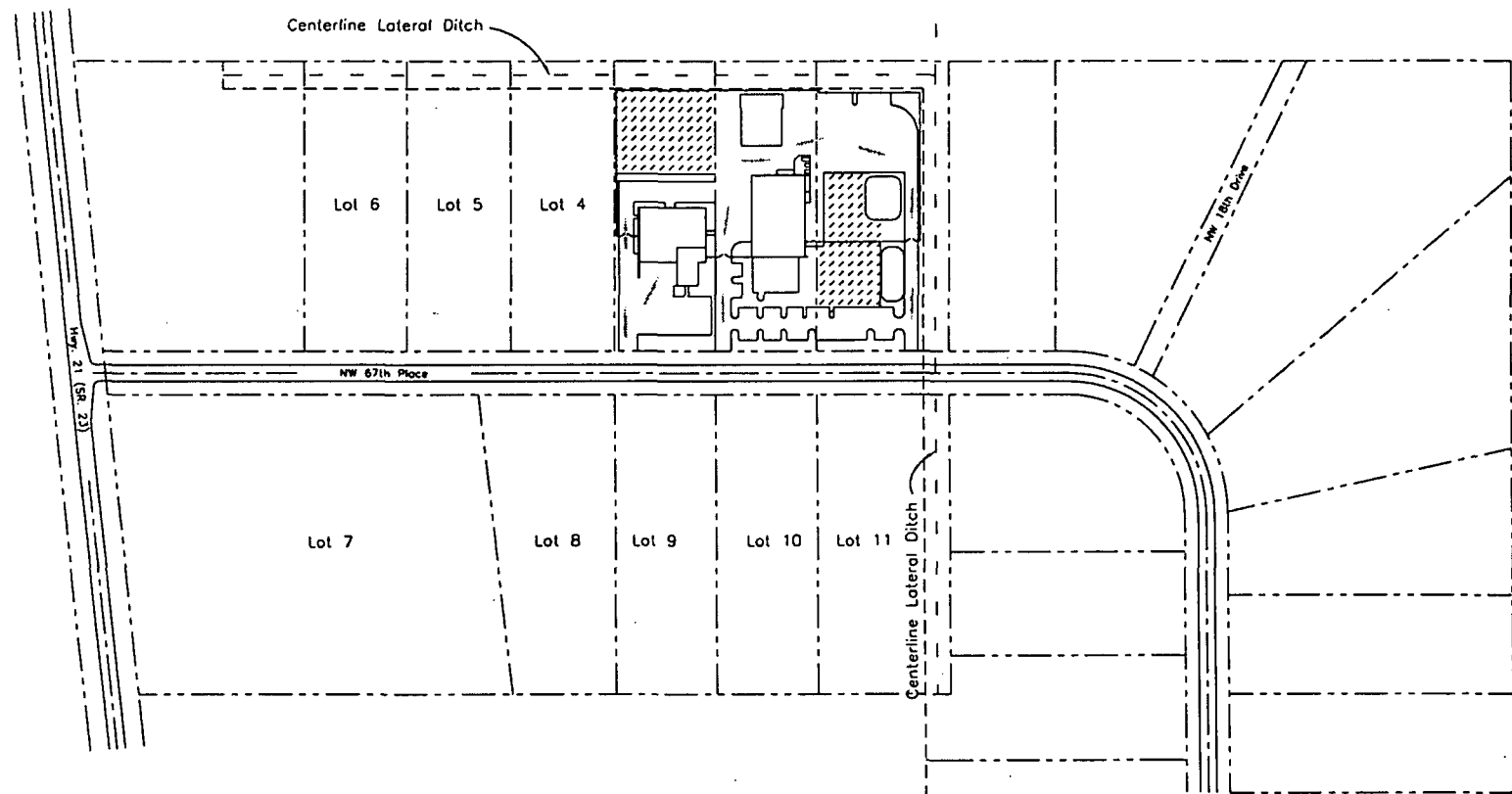
Source: ENSERCH Environmental, 1994



Quarterly Wind Roses

FIGURE

II.A.7



- — — — — PROPERTY LINE
- - - - - DRAINAGE EASEMENT
- → → → → TRAFFIC PATTERN
- ▨ ▨ ▨ ▨ ▨ WOODED AREA



TITLE: <b>FIGURE II.A.8 TRAFFIC PATTERNS</b>		
PREPARED FOR: <b>PERMA-FIX OF FLORIDA, INC.</b> 1940 NW 67th Place Colmesville, FL 32833		
SCALE: 1"=150'	APPROVED BY:	DRAWN: STA
DATE: 8/17/98		REVISED:
PROJECT NUMBER: PF1FLA970343		DRAWING NUMBER: FIG10R



**APPLICATION FOR A HAZARDOUS WASTE PERMIT****PART II****Section B****B. CONTAINERS**

PFF is currently permitted to store 72,105 gallons of containerized hazardous waste in the Processing and Storage Building (see Figure I.D.4 in Part I of this application). PFF proposes to permit a total of 107,305 gallons of container storage as well as treatment in containers at the Facility. The additional 35,200 gallons of container storage capacity will be in the Treatment and Operations Building (see Figure I.D.1 in Part I of this application). Proposed container treatment activities include stabilization/solidification; i.e., the Perma-Fix® Process (see Appendix II.B.1 for details regarding this process).

**B1 Containment**

The secondary containment systems for the Processing and Storage Building and the Treatment and Operations Building consist of curbed and sloped concrete slabs and sumps, which are designed and operated to drain and remove liquids resulting from leaks, spills or precipitation. The containment system for the Processing and Storage Building consist of the following:

- 4-inch by 6-inch #4 rebar reinforced concrete curb berming around separated container storage areas.
- 4-inch by 58-inch #4 rebar reinforced concrete sloped berming ("rollovers") at forklift entry points to container storage areas.
- 5.75-inch by 6-inch #4 rebar reinforced concrete curb berming around storage building perimeters.
- Continuous Neoprene® water stops within the concrete berming.
- Minimum of 20 mils of epoxy sealer at all joints and gaps.
- Polysulfide joint sealant in all floor joints.
- Minimum of 30 mils of flexible epoxy sealer on the entire floor of the Treatment and Operations building.

A nearly identical containment system will be built for the proposed container storage area in the Treatment and Operations Building. The only significant difference between the two containment systems is that the Treatment and Operations Building curb height will be 6" rather than 4". See Figure I.D.1 of Part I of this permit application.

The floor slab making up the container storage areas in the Treatment and Operations Building and in the Processing and Storage Building will consist of a concrete base that is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. In addition, the surface of the concrete base will be coated with an epoxy designed to ensure the impervious nature of the containment base. The product data for the proposed epoxy coating is included as Attachment II.B.3. In addition, the entire perimeter of the Treatment and Operations Building will be fitted with a 6" Neoprene-impregnated containment curb.

The capacities of the containment systems in both the Processing and Storage Building and Treatment and Operations Building are sufficient to contain greater than 10% of the volume of the maximum number of containers in the building. Containment calculations are included as Attachment II.B.1. Details of the secondary containment system for the Processing and Storage Building are shown on Figure I.D.4 in Part I of this application. The secondary containment details for the Treatment and Operations Building are shown on Figure I.D.1 in Part I of this application.

Engineering reviews have been conducted on the floor slabs in the container storage areas of each container storage building at the facility. Copies of the engineering reports for the floors are included as Attachment II.B.2. The October 13, 1997 Floor Slab Inspection letter addresses the concrete pad in the former Nelson Building; referred to in this permit application as the Treatment and Operations Building. The 1989 work sheet addresses the integrity of the concrete pad in the former Quadrex container and tank storage building; referred to in this permit application as the Processing and Storage Building.

To prevent run-on and accumulation of precipitation, the container storage areas in the Processing and Storage Building and Treatment and Operations Building are roofed and sufficiently sided to prevent run-on of stormwater. In addition, the perimeters of the concrete floor slabs are curbed in each building. Finally, site grading directs surface water away from the buildings.

The sloped floors in the Processing and Storage Building will direct any liquid to the sumps. The container storage area and sumps will be inspected at least once a day for accumulation of liquids and any accumulation will be removed from the container storage area and/or sumps in as timely a manner as possible but no later than within 24 hours of detection by PFF personnel. Material removed from the container storage area and/or sump will be characterized and managed in accordance with applicable regulations. In addition, all containers stored in the Processing and Storage Building are kept off the floor on pallets or, in the case of totes, on built-in legs to keep them from coming into contact the standing liquids.

The concrete slab in the Treatment and Operations Building is on a near level gradient. However, the container storage area will be inspected at least once a day for accumulation of liquids which will be remediated in as timely a manner as possible but no later than within 24 hours of detection. Depending on the amount involved, absorbents, submersible

pumps or a vacuum truck will be used to remove any liquids. All containers stored in the Treatment and Operations Building will also be kept off the floor on pallets or, in the case of totes, on built in legs to keep them from coming into contact with standing liquids. All material removed from secondary containment areas will be characterized in accordance with 40 CFR 262.11 and stored, treated or disposed of accordingly.

### **B2 & 3 Ignitable, Reactive and Incompatible Wastes**

No container of ignitable or reactive waste will be stored within 15 meters (50 feet) of the Facility property line or a public right-of-way. See revised Figure I.B.2 in Part I of this permit application.

PFF will not intentionally mix, combine or commingle incompatible waste streams. In order to ensure compatibility of waste streams intended for commingling, the Facility will implement the following management procedures prior to mixing potentially incompatible wastes:

- Prior to receipt at the Facility, all hazardous wastes must be profiled and preapproved. See the Facility Waste Analysis Plan (WAP) (Attachment II.A.4 of this permit application) for details on the approval and profile process.
- Containers of incompatible waste identified by the waste profile and/or WAP will be segregated from each other.
- Potentially incompatible wastes will be mixed together in small quantities and observed under laboratory conditions for undesirable reactions prior to being stored, treated or otherwise managed together at the Facility. See the WAP for compatibility testing details. Incompatible wastes, or incompatible wastes and materials will not be placed in the same container (or an unwashed container), unless the requirements of 40 CFR 264.17(b) are complied with.
- Lab Pack packing lists will be reviewed to identify potentially incompatible wastes.
- During decommissioning (transfer of waste from small containers to bulk containers), potentially incompatible wastes will not be bulked together unless compatibility testing indicates that the wastes may be combined i.e., the requirements of 40 CFR 264.17 (b) are complied with. Lab Pack wastes determined to be incompatible will be segregated from each other and shipped off site for disposal in separate containers. See revised Figure I.D.1 in Part I of this permit application for an illustration of segregated storage bays.

### **B4 Condition and Management of Containers**

Upon receipt of a shipment of containers, PFF personnel will review the manifest and other documents accompanying the shipment for completeness and accuracy and to identify the shipment and verify its compliance with 40 CFR 264.71 and 40 CFR 264.72.

After verification, the containers will be inspected for defects and/or unacceptable conditions, as required in 40 CFR 264.171. If a container is found to be leaking, or is of questionable integrity, the container will be overpacked. If, following analysis in accordance with the WAP, the contents of a container are found to be unacceptable, the containerized waste will be rejected and returned to the generator, or sent to an alternate TSD, per the generator's instructions.

A representative sample of the incoming waste will be collected and analyzed in accordance with the WAP "finger print" analysis to determine consistency with the waste profile<sup>1</sup>. Containers of waste will remain in the receiving area portions of the storage areas until accepted for storage in accordance with the WAP. Upon acceptance, containers will be moved to one of the container storage areas in the Processing and Storage Building or Treatment and Operations Building. Unacceptable or rejected containers will be stored in one of the container storage areas until transportation to the generator or an alternate TSD can be arranged.

All containers will be managed as if they contain free liquids. Containers of hazardous waste will be kept closed except during sampling or when hazardous waste is added or removed. All containers will be palletized upon arrival, and all palletized containers will be banded when double-stacked. The following minimum aisle spaces will be maintained in the container storage areas:

- Four (4) feet between rows of pallets to allow access for fire fighting, container inspection, and manual extraction of a leaking container from a pallet load.
- Eight feet (8) in the aisle spaces to allow forklifts to move unobstructed through the aiseways.

All containers received from off-site must meet US Department of Transportation (DOT) requirements for the material being shipped in the container. Containers that do not meet DOT requirements will be overpacked into suitable containers for storage and/or shipment off site.

Types of DOT containers typically received at the Facility will include:

- 55 gallon steel drums (on standard pallets)<sup>2</sup>
- 55 and 30 gallon poly drums (on standard pallets)<sup>2</sup>
- 30 gallon steel drums (on standard pallets)<sup>2</sup>

---

<sup>1</sup> All waste streams (shipments) received at the facility are sampled and subjected to the "finger print" analysis. For single waste streams consisting of multiple containers, 20% of the containers for that waste stream are sampled (non-composite) and analyzed.

<sup>2</sup> Typical dimensions: 55-gal drum – 36" x 22" dia; 30-gal drum – 27" x 18" dia; 5-gal container – 14" x 10" dia.

- 5 gallon steel drums (on standard pallets)<sup>2</sup>
- DOT overpacked drums containing: glass vials, plastic vials, ½ to 1 gallon glass or plastic containers, and up to 30 gallon plastic carboy containers (on standard pallets)
- DOT specification roll-off containers (not stored in container storage areas)
- DOT specification fiberboard containers (on standard pallets)
- DOT specification tote tanks (450 and 550 gallon capacity)<sup>3</sup>
- DOT specification tanker/trailers (not stored in container storage areas)
- Other DOT approved (performance oriented) containers (on standard pallets)

It should be noted that 550-gallon totes are the largest containers that will be stored in the Processing and Storage Building. Figures I.D.1 and I.D.4 in Part I of this permit application illustrate typical container storage configurations in the container storage areas. PFF will only receive containers made of or lined with materials, which will not react with, and are otherwise compatible with, the hazardous waste to be stored.

## **B5 Inspections**

PFF personnel will inspect areas where containers are stored or treated on a daily basis. The inspections will cover proper placement of containers for ready access, container conditions labeling and inventory control. A detailed inspection log is maintained to ensure compliance with applicable Florida container and tank inspection requirements. Sample inspection logs are included as Attachment II.B.4. Inspection logs will be maintained in the Facility operating record until closure of the Facility.

## **B6 and B7 Closure Plan and Closure Cost Estimate**

A copy of the Facility Closure Plan and closure cost estimate is included in Section II.K of Part II of this application.

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<sup>3</sup> Totes are on legs which keep them off the ground and away from accumulated liquid in containment areas. The dimensions for 450-gallon totes are 4 feet by 4.5 feet (base) by 5 feet, 4 inches (height). 450-gallon totes have 5.5 inch legs. 550-gallon totes have a base which is 3.5 feet by 4 feet and are 6 feet, 3 inches tall. 550-gallon totes sit on 6.5 inch legs.

**Attachment II.B.1**

**Treatment and Operations Building  
Container Storage Area**

**Containment Calculations**

**Attachment II.B.1****Treatment and Operations Building  
Container Storage Area****Containment Calculations**

Given:

Base Area (a)	2,736 ft <sup>2</sup>
Curb Height (h)	6 in = 6 in / 12 in = .5 ft
Pallet Displacement (pd)	(12.48 gal) (80 pallets) = 998.4 gal
100% volume of largest container (LC)	= 55 gal
100% volume of total containers (TC)	= 35,200 gal (640, 55-gallon drums)
10% volume of total container = (10%) (TC)	= 3,520
25 year/24 hour storm water volume	= 0 gal (building is totally enclosed)

**Containment Capacity Available (CCA):**

$$CCA = (h \times a \times 7.48 \text{ gal/ft}^3) - pd$$

$$CCA = (.5 \text{ ft} \times 2,736 \text{ ft}^2 \times 7.48 \text{ gal/ft}^3) - 998.4$$

$$CCA = 9,234 \text{ gal}$$

**Conclusion**

The net available containment volume (9,234 gal) exceeds the volume of the largest container (55 gal) and is in excess of 10% of the maximum volume (3,520 gal) of containerized waste that will be stored in the Treatment and Operations Building container storage area. No equipment that may displace containment volume is kept in the container storage area.

**Attachment II.B.1 (cont.)****Processing and Storage Building  
Container Storage Area****Containment Calculations****Containment Calculations Adjustment for Pallet Displacement**

Given:

Zone 1 Containment Capacity	3,257 gal (see attached calculations)
Zone 2 Containment Capacity	5,308 gal (see attached calculations)
Zone 3 Containment Capacity	7,208 gal (see attached calculations)
Pallet Displacement (pd) Total	(12.48 gal) (164 pallets) = 2,046.72 gal
Zone 1 pd	(12.48 gal) (24 pallets) = 299.52 gal
Zone 2 pd	(12.48 gal) (46 pallets) = 574.08 gal
Zone 3 pd	(12.48 gal) (94 pallets) = 1,173.12 gal
100% volume of largest container (LC)	= 550 gal
Zone 1 LC	= 550 gal
Zone 2 LC	= 550 gal
Zone 3 LC	= 55 gal
100% volume of total containers (TC)	= 72,105 gal
Zone 1 TC	= 10,560 gal drum equivalents
Zone 2 TC	= 20,240 gal drum equivalents
Zone 3 TC	= 41,305 gal drum equivalents
550 gal totes displacement	= not significant (totes are on legs 5.5 in off the ground, containment curb is 5 ¼ in)
Other equipment displacement	= not significant (no equipment of significance is kept in containment areas)
25 year/24 hour storm water volume	= 0 gal (building will be totally enclosed)

**Containment Capacity Available (CCA):**

Zone 1 CCA

$$CCA = 3,257 \text{ gal} - 299.52 \text{ gal}$$

$$CCA = 2,957.48 \text{ gal}$$

Zone 1 Conclusion

The net available containment volume (2,957 gal) exceeds the volume of the largest container (550 gal) and is in excess of 10% of the maximum volume (1,056 gal) of containerized waste that will be stored in Zone 1.



**Attachment II.B.1 (cont.)**

**Processing and Storage Building  
Container Storage Area**

**Containment Calculations**

**Zone 2 CCA**

CCA = 5,308 gal – 574.08 gal

CCA = 4,733.92 gal

**Zone 2 Conclusion**

The net available containment volume (4,733.92 gal) exceeds the volume of the largest container (550 gal) and is in excess of 10% of the maximum volume (2,024 gal) of containerized waste that will be stored in Zone 2.

**Zone 3 CCA**

CCA = 7,208 gal – 1,173.12 gal

CCA = 6,034.88 gal

**Zone 3 Conclusion**

The net available containment volume (6,034.88 gal) exceeds the volume of the largest container (55 gal) and is in excess of 10% of the maximum volume (4,130.5 gal) of containerized waste that will be stored in Zone 3.

## Attachment II.B.1 (cont.)

Treatment and Operations Building  
and Processing and Storage Building  
Container Storage Area

## Containment Calculations

## Professional Engineer Certification

This is to certify that the containment calculations for these hazardous waste management units have been reviewed by me and found to be true and accurate to the best of my knowledge.

George F. Harder  
Signature

George Harder  
Name (please print or type)

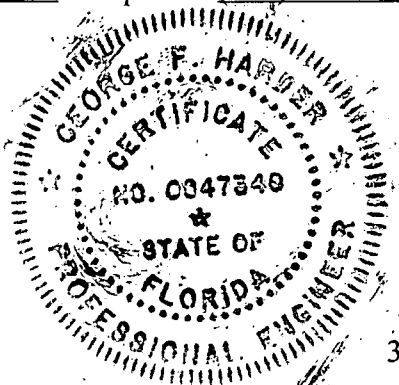
47340  
Florida Registration Number

Mailing Address: 2825 B NW 104<sup>th</sup> Court  
Street or P.O. Box

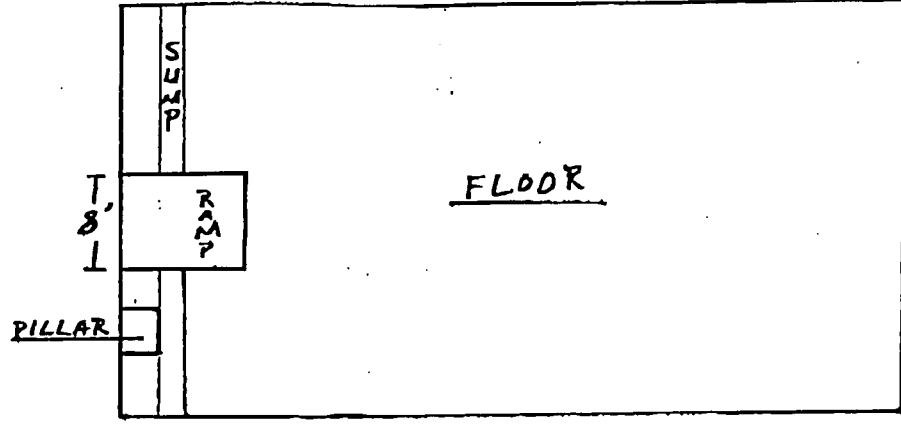
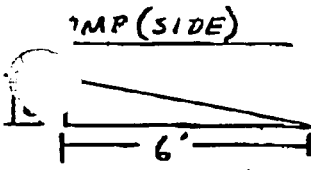
<u>Gainesville</u>	<u>Florida</u>	<u>32606</u>
City	State	Zipcode

Date: 12-9-99 Telephone: (352) 373-6066

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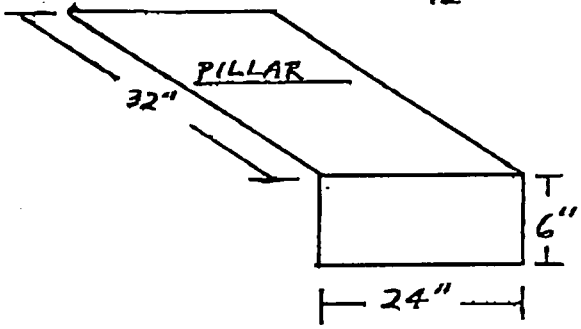
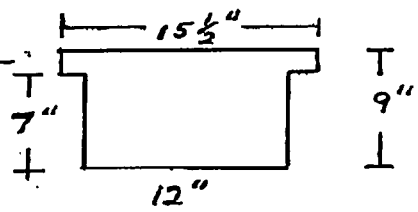


ZONE 1

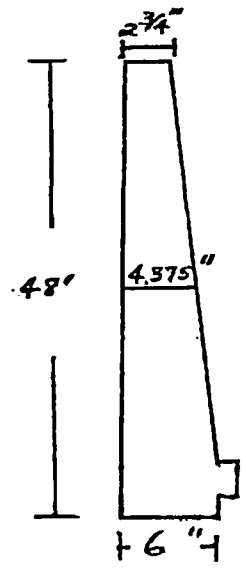


PILLAR

SUMP (SIDE)  
(ZONE 1, 2, 3)



FLOOR (ON END)



VOLUME ZONE 1 = FLOOR VOLUME + SUMP VOLUME - RAMP VOLUME - PILLAR VOLUME

FLOOR VOLUME = 1/6 HEIGHT [UPPER BASE AREA + LOWER AREA BASE +  
(4 X AREA OF MIDSECTION)]  
= 1/6 (48') [(2.75" x 25'2") + (6" x 25'2") +  
4(4.375 x 25'2")]  
= 1/6 (576") (830.5" + 1812" + 5285")  
= 761,040 cubic inches

SUMP VOLUME = LENGTH [UPPER AREA + LOWER AREA]  
= 25'2" [(12" X 2") + (15.5" X 2")]  
= 302"(24" + 31")  
= 16610 cubic inches

RAMP VOLUME = 1/2 (BASE x HEIGHT x WIDTH)  
= 1/2 (6" x 72" x 96")  
= 20,736 cubic inches

PILLAR VOL = BASE x HEIGHT x WIDTH  
= 24" x 6" x 32"  
= 4608 cubic inches

VOLUME ZONE 1 = 761,040 + 16,610 - 20,736 - 4608  
= 752,306 cubic inches

752,306 cubic inches x 1 gallon/231cubic inches = 3257 gallons

*Handwritten signature*

VOLUME ZONE 1 = FLOOR VOLUME + SUMP VOLUME - RAMP VOLUME - PILLAR VOLUME

FLOOR VOLUME =  $1/6$  HEIGHT [UPPER BASE AREA + LOWER AREA BASE +  
(4 X AREA OF MIDSECTION)]  
=  $1/6$  (48') [(2.75" x 25'2") + (6" x 25'2") +  
4(4.375 x 25'2")]  
=  $1/6$  (576") (830.5" + 1812" + 5285")  
= 761,040 cubic inches

SUMP VOLUME = LENGTH [UPPER AREA + LOWER AREA]  
= 25'2" [(12" X 2") + (15.5" X 2")]  
= 302"(24" + 31")  
= 16610 cubic inches

RAMP VOLUME =  $1/2$  (BASE x HEIGHT x WIDTH)  
=  $1/2$  (6" x 72" x 96")  
= 20,736 cubic inches

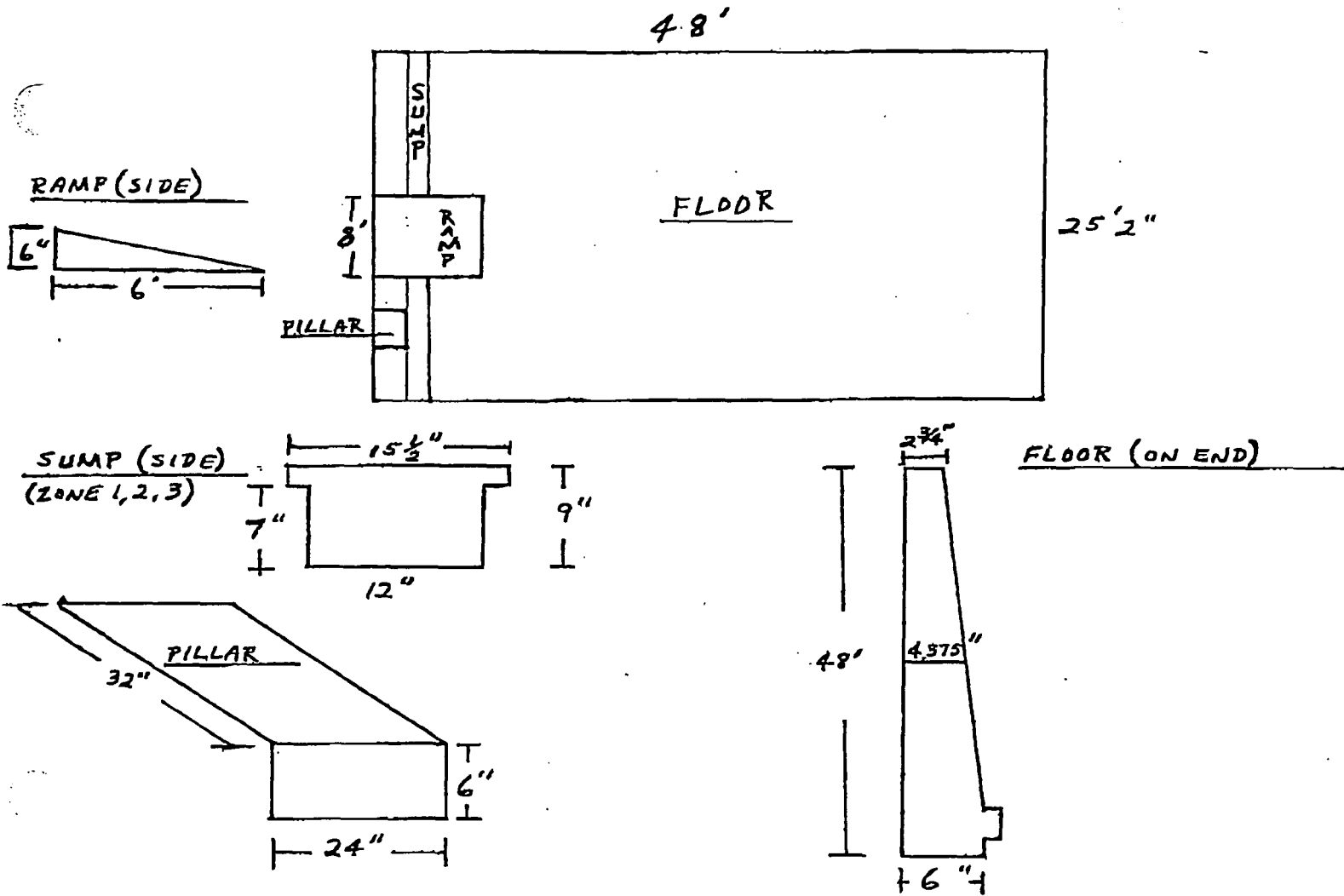
PILLAR VOL = BASE x HEIGHT x WIDTH  
= 24" x 6" x 32"  
= 4608 cubic inches

VOLUME ZONE 1 = 761,040 + 16,610 - 20,736 - 4608  
= 752,306 cubic inches

752,306 cubic inches x 1 gallon/231cubic inches = 3257 gallons

*Frank Wilson*

# ZONE 1



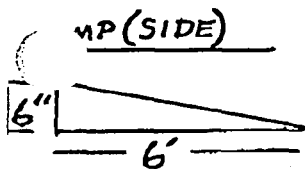
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$$\text{FLOOR VOLUME} = 1/6 \text{ HEIGHT}(\text{UPPER BASE AREA} + \text{LOWER AREA BASE} + 4 \times \text{AREA OF MIDSECTION})$$

$$1/6(48')[(2.75 \times 25'2'') + (6'' \times 25'2'') + 4(4.375 \times 25'2'')]$$

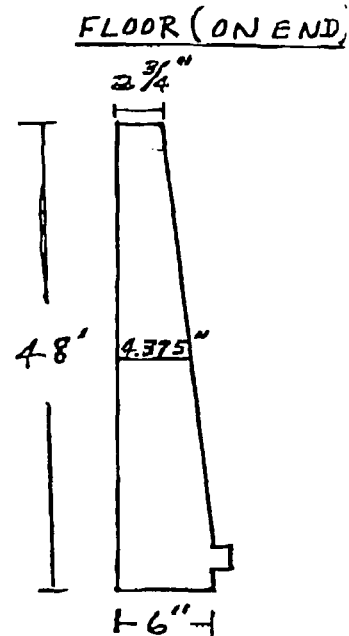
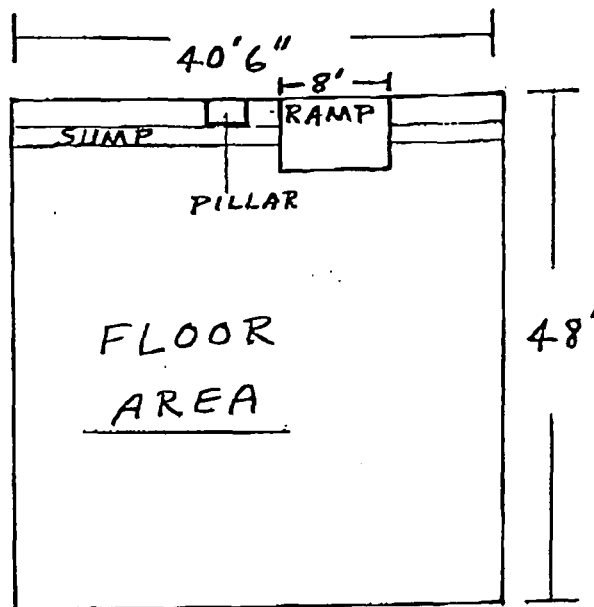
*Frank A. G.*

# ZONE 2



SUMP DIM. AS ZONE 1

PILLAR DIM. AS ZONE 1



VOLUME ZONE 2 = FLOOR VOLUME + SUMP VOLUME - RAMP VOLUME - PILLAR VOLUME

FLOOR VOLUME =  $\frac{1}{6}$  HEIGHT [UPPER BASE AREA + LOWER AREA BASE + (4 X AREA OF MIDSECTION)]  
 =  $\frac{1}{6}$  (48') [(2.75" x 40'6") + (6" x 40'6") + 4(4.375 x 40'6")]  
 =  $\frac{1}{6}$  (576") (1336.5" + 2916" + 8505")  
 = 1,224,720 cubic inches

SUMP VOLUME = LENGTH [UPPER AREA + LOWER AREA]  
 = 40'6" [(12" x 2") + (15.5" x 2")]  
 = 486" (24" + 31")  
 = 26730 cubic inches

RAMP VOLUME =  $\frac{1}{2}$  (BASE x HEIGHT x WIDTH)  
 =  $\frac{1}{2}$  (6" x 72" x 96")  
 = 20,736 cubic inches

PILLAR VOL = BASE x HEIGHT x WIDTH  
 = 24" x 6" x 32"  
 = 4608 cubic inches

VOLUME ZONE 2 = 1,224,720 + 26730 - 20,736 - 4608  
 = 1,226,106 cubic inches

1,226,106 cubic inches x 1 gallon/231 cubic inches = 5308 gallons

*Frank G. Giff*

VOLUME ZONE 2 = FLOOR VOLUME + SUMP VOLUME - RAMP VOLUME - PILLAR VOLUME

FLOOR VOLUME =  $\frac{1}{6}$  HEIGHT [UPPER BASE AREA + LOWER AREA BASE +  
(4 X AREA OF MIDSECTION)]  
=  $\frac{1}{6}$  (48') [(2.75" x 40'6") + (6" x 40'6") +  
4(4.375 x 40'6")]  
=  $\frac{1}{6}$  (576") (1336.5" + 2916" + 8505")  
= 1,224,720 cubic inches

SUMP VOLUME = LENGTH [UPPER AREA + LOWER AREA]  
= 40'6" [(12" X 2") + (15.5" X 2")]  
= 486"(24" + 31")  
= 26730 cubic inches

RAMP VOLUME =  $\frac{1}{2}$  (BASE x HEIGHT x WIDTH)  
=  $\frac{1}{2}$  (6" x 72" x 96")  
= 20,736 cubic inches

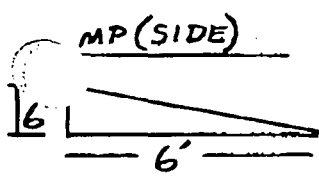
PILLAR VOL = BASE x HEIGHT x WIDTH  
= 24" x 6" x 32"  
= 4608 cubic inches

VOLUME ZONE 2 = 1,224,720 + 26730 - 20,736 - 4608  
= 1,226,106 cubic inches

1,226,106 cubic inches x 1 gallon/231cubic inches = 5308 gallons

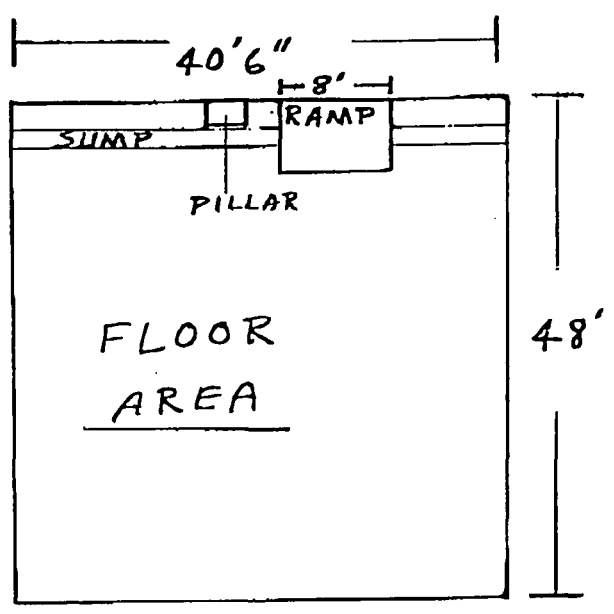
*Frank A. [Signature]*

ZONE 2

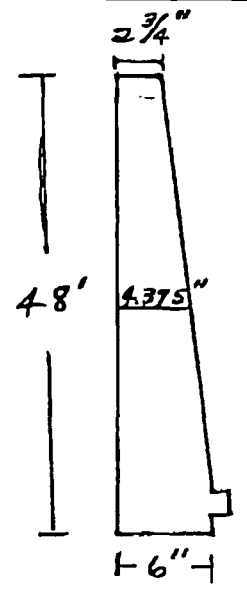


SUMP DIM. AS ZONE 1

PILLAR DIM. AS ZONE 1



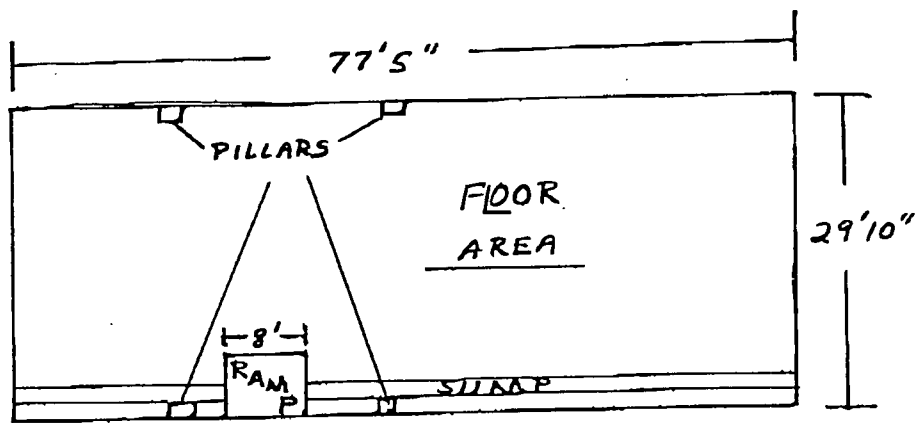
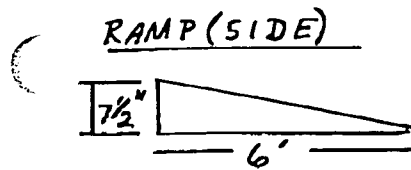
FLOOR (ON EN)



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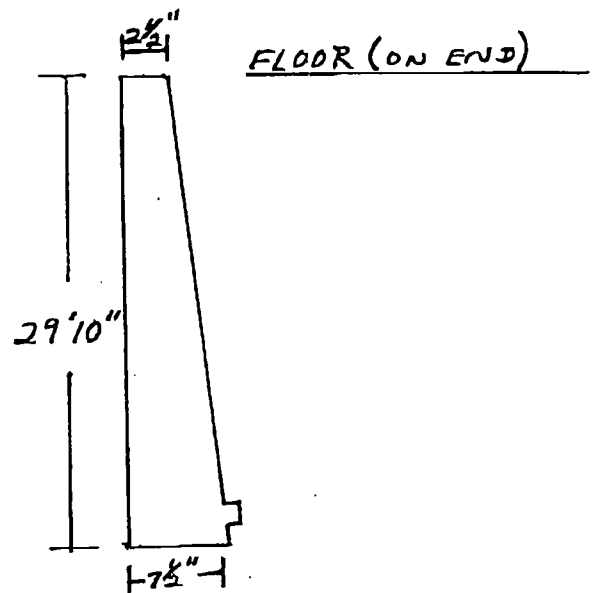


ZONE 3



SUMP DIM. AS ZONE 1

PILLAR DIM



*Frank A. Lane*

VOLUME ZONE 3 = FLOOR VOLUME + SUMP VOLUME - RAMP VOLUME - 4 PILLAR VOLUMES

FLOOR VOLUME =  $1/6$  HEIGHT [UPPER BASE AREA + LOWER AREA BASE +  
(4 X AREA OF MIDSECTION)]  
=  $1/6$  (29'10") [(2.5" x 77'5") + (7.5" x 77'5") +  
4(5" x 77'5")]  
=  $1/6$  (358") (2322.5" + 6967.5" + 18580")  
= 1,662,910 cubic inches

SUMP VOLUME = LENGTH [UPPER AREA + LOWER AREA]  
= 77'5" [(12" X 2") + (15.5" X 2")]  
= 929" (24" + 31")  
= 51,095 cubic inches

RAMP VOLUME =  $1/2$  (BASE x HEIGHT x WIDTH)  
=  $1/2$  (7.5" x 72" x 96")  
= 25,920 cubic inches

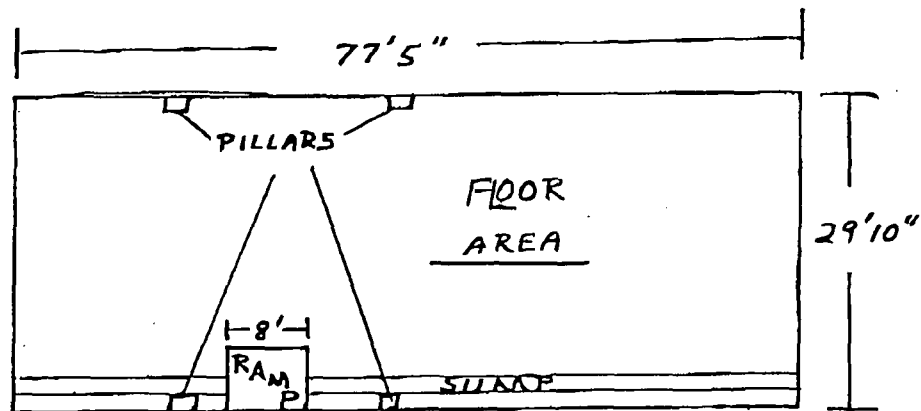
PILLAR VOL = BASE x HEIGHT x WIDTH x 4  
= 24" x 7.5" x 32" x 4  
= 23,040 cubic inches

VOLUME ZONE 3 = 1,662,910 + 51,095 - 25,920 - 23,040  
= 1,665,045 cubic inches

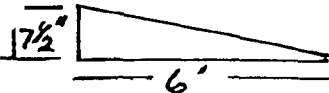
1,665,045 cubic inches x 1 gallon/231cubic inches = 7208 gallons

*Frank A. Alar*

# ZONE 3

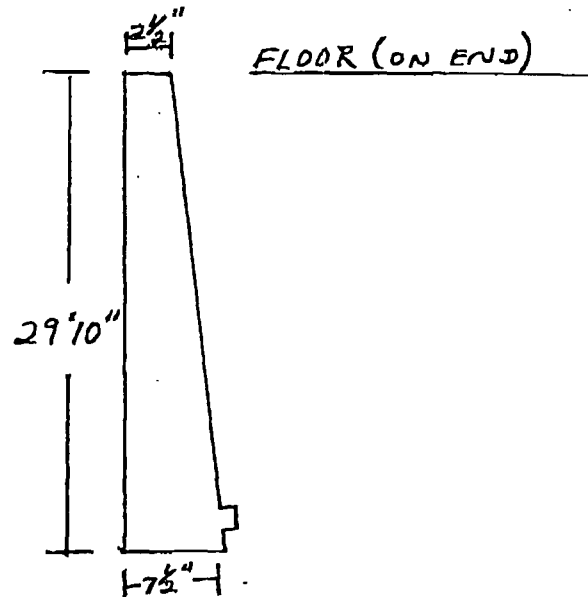


RAMP (SIDE)



SUMP DIM. AS ZONE 1

PILLAR DIM.



$$\text{VOLUME ZONE 3} = \text{FLOOR VOLUME} + \text{SUMP VOLUME} - \text{RAMP VOLUME} - 4 \text{ PILLAR VOLUMES}$$

$$\begin{aligned} \text{FLOOR VOLUME} &= 1/6 \text{ HEIGHT [UPPER BASE AREA + LOWER AREA BASE + (4 X AREA OF MIDSECTION)]} \\ &= 1/6 (29'10") [(2.5" \times 77'5") + (7.5" \times 77'5") + 4(5" \times 77'5")] \\ &= 1/6 (358") (2322.5" + 6967.5" + 18580") \\ &= 1,662,910 \text{ cubic inches} \end{aligned}$$

$$\begin{aligned} \text{SUMP VOLUME} &= \text{LENGTH [UPPER AREA + LOWER AREA]} \\ &= 77'5" [(12" \times 2") + (15.5" \times 2")] \\ &= 929" (24" + 31") \\ &= 51,095 \text{ cubic inches} \end{aligned}$$

$$\begin{aligned} \text{RAMP VOLUME} &= 1/2 (\text{BASE} \times \text{HEIGHT} \times \text{WIDTH}) \\ &= 1/2 (7.5" \times 72" \times 96") \\ &= 25,920 \text{ cubic inches} \end{aligned}$$

$$\begin{aligned} \text{PILLAR VOL} &= \text{BASE} \times \text{HEIGHT} \times \text{WIDTH} \times 4 \\ &= 24" \times 7.5" \times 32" \times 4 \\ &= 23,040 \text{ cubic inches} \end{aligned}$$

$$\begin{aligned} \text{VOLUME ZONE 3} &= 1,662,910 + 51,095 - 25,920 - 23,040 \\ &= 1,665,045 \text{ cubic inches} \end{aligned}$$

$$1,665,045 \text{ cubic inches} \times 1 \text{ gallon}/231 \text{ cubic inches} = \underline{7208 \text{ gallons}}$$

*Frank G. G. G.*

**Attachment II.B.2**

**Sealant Specifications**

4.03

PRODUCT  
DATA

C-56, E18)

## TILE-CLAD® II EPOXY

B62 Series (Part A)  
B60V70 Gloss Hardener (Part B)  
B60VA7 Eg-Shel Hardener (Part B)



Industrial Maintenance  
Coatings

## RECOMMENDED SYSTEMS

- o **Steel (Epoxy Primer)**  
1 ct. Tile-Clad II Hi-Bild Primer, \*B62N71/B60V70 @ 4 mils DFT  
NOTE: Topcoat within 90 days  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 12 mils  
\* NOTE: Recoatable Epoxy Primer B67 Series/B67V5 also acceptable.
- o **Steel (Universal Primer)\***  
1 ct. Kem Kromik Universal Metal Primer, B50NZ6, B50WZ1, B50HZ1 @ 3 mils DFT  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 11 mils.
- o **Steel (Epoxy Mastic Primer)**  
1 ct. Epoxy Mastic Aluminum II, B62S100/B60V100 or Epoxy Mastic B58 Series/B58V1 @ 1 mils DFT  
NOTE: Topcoat within 7 days  
1 ct. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT  
Total DFT: 10 mils
- o **Aluminum**  
1 ct. Wash Primer P60G2/R7K44 @ 0.3 mil DFT  
NOTE: Topcoat within 4 hours.  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 8.3 mils
- o **Concrete Block\***  
1 ct. Heavy Duty Block Filler, B42W46 @ 10-12 mils DFT  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 18-20 mils  
\* NOTE: Kem Cat-Coat Epoxy Filler/Sealer also acceptable.
- o **Galvanized Metal**  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 8 mils  
(Rusty only): 1 ct. Tile-Clad II Primer, B62N71/B60V70 @ 4 mils DFT  
NOTE: Topcoat within 90 days.
- o **Interior Plaster and Wallboard:**  
1 ct. ProMar 200 Latex Wall Primer, B28W200 @ 1.4 mils DFT  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 8-9.4 mils
- o **Masonry and Wood (Including floors):\***  
2 cts. Tile-Clad II Epoxy, B62 Series/B60V70 @ 4 mils DFT/ct.  
Total DFT: 8 mils.

## APPLICATION

Strong solvents in this material may loosen old residual paint and cause blocking of equipment. To eliminate possible blocking of equipment during spraying, clean equipment before use and before extended periods of downtime with Methyl Ethyl Ketone, following supplier's safety cautions. Moisture condensation on Tile-Clad II Epoxy which is not thoroughly dry will adversely affect its cure.

- o **Application Conditions:**  
Temperature (air, surface, material): 55°-95°F (at least 5°F above the dew point)  
Relative Humidity: 85% maximum
- o **Methods:**  
Brush, roll, conventional and airless spray
- o **Airless Spray:**  
Unit: 2500 psi pressure  
Tip: .015"  
Filter: 60 mesh
- o **Conventional Spray:**  
Binks 18 gun, 66 fluid nozzle, 69p air nozzle, 80 psi atomization pressure, 20-25 psi fluid pressure or equivalent equipment.
- o **Mixing Instructions:**  
Thoroughly mix each separate component (A & B). Then combine equal parts by volume of Part A with Part B; thoroughly agitate mixture. Allow material to "sweat in" 1 hour when temperatures are between 65°-95°F. At lower temperatures (55-65°F), or when high humidity (60-85%) is present, "sweat-in" time must be 2 hours. Proper induction time is essential for Tile-Clad II Epoxy to dry. Do not mix previously catalyzed material with new.
- o **Tinting:**  
Tint with Blend-A-Color colorants into Part A only. 150% tint strength. Shake on mechanical shaker for 15 minutes for complete mixing of color. DO NOT USE RED. Nuodex Chroma-Chem 844 Colorants also acceptable, use 150% tint strength formulas.
- o **Reducer:**  
Reducer #54, R7K54
- o **Reduction:**  
Up to 1 pint per gallon catalyzed material after induction as necessary to be compatible with the existing application and environmental conditions. NOTE: When using B60VA7, Eg-Shel Hardener, catalyzed mixture may be reduced up to 20%.
- o **Clean-up:**  
Use Reducer #54, R7K54, or Methyl Ethyl Ketone, following safety cautions.

## PRECAUTIONS

**ANGER! EYE AND SKIN IRRITANT.**  
CONTAINS XYLENE AND AROMATIC HYDROCARBONS.

Contents are **FLAMMABLE**. Keep away from heat, sparks and open flame. During use and until all vapors are gone, keep area ventilated; do not smoke; extinguish all flames, pilot lights and heaters; turn off stoves, electric tools, appliances and any other sources of ignition.

**VAPOR HARMFUL.** Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches or dizziness, increase fresh air or wear respiratory protection (TC23C or equivalent) or leave the area.

Avoid contact with skin and eyes. If ingested, seek medical attention immediately. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage.

**NOTICE:** Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

**DO NOT TAKE INTERNALLY.**

**KEEP OUT OF THE REACH OF CHILDREN.**

**NOTE:** Not for immersion service.

**SEE MATERIAL SAFETY DATA SHEET.**

The information, rating and opinions stated here pertain to the material currently offered and represent the results of tests believed to be reliable. Published technical data and instructions are subject to change. Consult with your Sherwin-Williams Representative for coating recommendations.

## FOR SHERWIN-WILLIAMS USE

		1's	5's
Gloss Hardener	B60V70	630-2905	630-2913
Eg-Shel Hardener	B60VA7	6401-50629	6401-50637
Hi-Bild Metal Primer	B62N71	617-2126	617-2134
Black	B62B11	617-1920	
Pure White	B62W101	9143-99993	9157-99993
Midtone Base	B62W102	9162-99993	
Deeptone Base	B62W103	9181-99993	
Ultra-deep Base	B62T104	6204-99993	
OSHA Orange*	B62E39	617-4080	
OSHA Red*	B62R38	617-4031	
OSHA Yellow*	B62Y39	617-4049	

**NOTE:** Deep colors in Deeptone and Ultra-deep bases exhibit less abrasion resistance. Scratches and film haze are more apparent in these colors. Use these dark colors on floor surfaces with caution.



Industrial Maintenance  
Coatings

PRODUCT  
DATA

4.03  
(MC-56, E18)

## TILE-CLAD® II EPOXY

B62 Series (Part A)  
B60V70 Gloss Hardener (Part B)  
B60VA7 Eg-Shel Hardener (Part B)

### PRODUCT DESCRIPTION

**TILE-CLAD II® EPOXY** is a polyamide/bisphenol A epoxy resin coating formulated for high performance.

#### USES:

- o Heavy duty interior structural coating
- o Abrasion and chemical resistant floor coating
- o Institutional/commercial high traffic, sanitary wall coating
- o Chemical resistant equipment coating
- o Chemical processing equipment and structures
- o Schools
- o Paper mills
- o Clean rooms
- o Refineries
- o Lavatories
- o Institutional kitchens
- o Masonry construction
- o Storage tanks
- o Laboratories
- o Power plants
- o Offshore structures

#### PERFORMANCE INFORMATION:

- o Chemical resistant
- o Resists bacterial attack
- o Abrasion resistant

#### PHYSICAL PROPERTIES:

- o Abrasion resistance (pure white) ..... 132 mg. (ASTM D4060, CS-17 wheel, 1,000 cycles)
- o Direct impact resistance (ASTM G14) 84 in lbs.
- o Dry heat resistance ..... 250°F (ASTM D2485, discolors)
- o Elcometer adhesion (ASTM D4541) ..... 750 psi
- o Exterior durability ..... Excellent (with non-progressive chalk face developing in 3-6 months)
- o Flexibility ..... Passes (ASTM D522, 180° bend, 1/4" mandrel)
- o Moisture condensation resistance ..... No failure (ASTM D4585, 100°F, 1500 hours)
- o Pencil hardness (ASTM D3363) ..... 3H
- o Salt Fog Resistance ..... Good (ASTM B117, 1000 hours)
- o Scrub resistance ..... no gloss change (ASTM D2486, 9,700 cycles)
- o Thermal shock (ASTM D2246, 5 cycles) Good
- o Washability and stain resistance

for complete removal of:

lipstick      butter      tea  
ketchup      coke      fruit juice

- o Wet heat resistance (not immersion) ..... 100°F

#### RESISTANCE GUIDE:

(Resistance to fumes, splash and spillage - not immersion ASTM D3912)

- o Alcohols, select chlorinated solvents, formaldehyde, glycol ethers ..... MODERATE
- o Aliphatic hydrocarbon solvents ..... SEVERE
- o Alkalies ..... SEVERE
- o Oils (cutting, vegetable, lubricating) ... SEVERE
- o Aromatic hydrocarbon solvents .... MODERATE
- o Fresh Water & Salt Water ..... SEVERE
- o Weak solutions of mineral and organic acids ..... MODERATE

### CHARACTERISTICS

- o Color/Finish: \*Wide range of colors possible /Gloss: 90±10 units @60°. Eg-Shel: 25±10 units @ 60° (\*White, Black, Safety Colors, 4 Tinting Bases)
- o Curing Mechanism: Crosslink Polymerization
- o Drying Schedule: (temperature & humidity dependent) @ 77°F and 50% RH @ 9 mils wet:  
To Touch: 1 hour  
Tack Free: 4 hours  
To Recoat: 6 hrs. min., 30 days max. If max. recoat time is exceeded, brush blast before recoating.
- o To Cure: 14 days
- o Flash Point: 90°F (catalyzed) (Pensky-Martens Closed Cup)

- o Number of Components: 2 (equal parts by volume)

- o Packaging: 1 and 5 gallon containers
- o Pot Life: 8 hours @ 77°F

- o Recommended Spreading Rate: wet mils: 7.0-9.0  
dry mils: 3.0-4.0  
approx. sq.ft./gal.: 185-245

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

- o Spreading Rate Coverage: 738 sq.ft./gal. @ 1 mil dry (theo., no loss)

- o Shelf Life: 36 months unopened @77°F

- o Shipping Classification:

	1's	5's
Part A	X002	X003
Part B	X002	X003

- o Shipping Weight (Pure White):

	1's(4/case)	5's
Part A	49.5 lbs.	60.1 lbs.
(B60V70) Part B	38.4 lbs.	46.3 lbs.
(B60VA7) Part B	46.9 lbs.	57.0 lbs.

- o "Sweat-In" Time: 1 hr @ 65-95°F  
2 hrs @ 55-65°F or when humidity is 60-85%

- o VOC: (Pure White) (catalyzed) 475 gms./ltr. or 4.0 lbs./gal
- o Volume Solids: 46 % ± 2% (catalyzed)
- o Weight Solids: 59 % ± 2% (catalyzed)
- o Weight/Gallon: 9.8 ± .1 lbs. (catalyzed) (Pure White)

#### Analysis (Pure White) (catalyzed)

Pigment by weight	26%
Titanium Dioxide (Class III)	17%
Silicates	9%
Vehicle by Weight	74%
Epoxy Resin	22%
Polyamide Resin	11%
Aromatic Hydrocarbons	33%
Alcohols	7%
Additives	1%
Total	100% 100%

### SURFACE PREPARATION

Surface must be dry and in sound condition. Remove oil, dust, dirt, mill-scale or other foreign substances to ensure good adhesion. Use recommended primer.

**Iron and Steel:** Surfaces are to be cleaned as outlined on the label for the appropriate recommended primer.

**Aluminum:** Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Prime with Industrial Wash Primer, P60G2/R7K44.

**Concrete Block:** Surfaces should be thoroughly clean and dry. Surface temperature must be at least 55°F. Use Heavy Duty Block Filler, B42W46, or Kem Cat-Coat Epoxy Filler/Sealer, B42WA8/B42WA9. The filler must be thoroughly dry before topcoating per manufacturer's recommendations.

**New Floors:** Surface must be thoroughly clean. Lifting, bleeding or peeling can occur because of improper surface preparation. Sanding wood floors to a clear sound surface and brush blasting or a 10% Muriatic Acid etch on concrete floors is required. Concrete must be aged at least 30 days @ 75°F and elimination of moisture in or beneath the concrete is required before coating. Reduce the first coat of catalyzed Tile Clad II Epoxy with 1 pint per gallon of Reducer No. 54, R7K54.

**Galvanized Metal:** The surface should be exterior weathered for 6 months prior to painting. Solvent Clean per SSPC-SP1. Self Priming.

When weathering is not possible or the surface has been treated with chromates or silicates, Solvent Clean per SSPC-SP1. Apply a test area. Allow paint to dry 1 week before testing adhesion. If adhesion is poor, brush blasting is necessary to remove these treatments.

Rusty galvanizing shall be hand tool cleaned per SSPC-SP2. Prime rusty areas with Tile-Clad II Hi-Bild Prime B62N71/B60V70 or Recoatable Epoxy Primer, B67H5/B67V5.

**Masonry:** All masonry must be free of moisture, dirt, oil, grease, loose paint, mortar, etc. Poured, troweled, or trowel up concrete, plaster, mortar, etc. must be thoroughly cured at least 30 days at 75°F. Form release compound and curing membranes must be removed by Brush Blasting. Weathered masonry and soft or porous cement board must be Brush Blasted or Power Tool Cleaned to remove loosely adhering contamination and to get to a hard, firm surface. Surface temperature must be at least 55°F before painting. Prime interior plaster and wallboard with 1 coat Pro Mar 200 Latex Wall Prime B28W200.

**Wood:** Sand smooth and remove all dust and dirt. Apply first coat of Tile-Clad II Epoxy reduced with 1 pint reducer No. 54, R7K54. Apply a second coat at full bod

**Previously Painted Surfaces:** If in sound condition, clean the surface of all foreign material. Test for compatibility to previous coating. If lifting or bleeding occurs, apply a barrier coat of Kem Kromik Universal Metal Primer, B50NZ6, B50WZ1, B50HZ1, and follow with Tile-Clad II Epoxy. Old epoxy films or previous Tile-Clad II Epoxy films which have exceeded their maximum recoat time must be brush blasted or scuff sanded to assure adhesion. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface.

— SECTION I —  
PRODUCT IDENTIFICATION



# MATERIAL SAFETY DATA SHEET

THE SHERWIN - WILLIAMS CO.  
101 PROSPECT AVE. N.W.  
CLEVELAND, OH 44115

EMERGENCY TELEPHONE NO.  
(216) 566-2917  
INFORMATION TELEPHONE NO.  
(216) 566-2902

DATE OF PREPARATION  
1 - JUL - 95

©1995, The Sherwin-Williams Co.

## Epoxy Coatings

## B62/1

— SECTION II — CAS No. HAZARDOUS INGREDIENT (percent by weight)		ACGIH TLV <STEL>	OSHA PEL <STEL>	Units	Vapor Pressure (mm Hg)	B62W101 Pure White	B62W102 Midtone Base	B62W103 Oeoptone Base	B62T104 Ultradeep Base	B62B11 Black	B62E39 Safety Orange	B62R38 Safety Red	B62Y37 Safety Yellow	B62N71 Primer Brown	B60V70 Hardener	B60VA7 Hardener (Eggshell)
107-21-1	§ Ethylene Glycol.	C 50	C 50	PPM	0.1	<2 % may be added due to tinting										
64742-88-7	Mineral Spirits.	100	100	PPM	2.0	4-6	4-6	4-6	0-2					5		
100-41-4	§ Ethylbenzene	100 <125>	100 <125>	PPM	7.1	2	2	2	3	2	5	3	2	3	3	2
1330-20-7	§ Xylene.	100 <150>	100 <150>	PPM	5.9	10	12	12	16	10	27	17	11	17	16	12
64742-95-6	Light Aromatic Hydrocarbons.	Not Established			3.8	3	3	3	5	5		2	4		4	2
98-82-8	§ Cumene.	50	50	PPM (Skin)	10.0				1	1						
108-67-8	1,3,5-Trimethylbenzene	25	25	PPM	10.0	4	4	4	6	7		3	5		5	2
95-63-6	§ 1,2,4-Trimethylbenzene	25	25	PPM	2.0	6	6	6	9	10		4	7		8	3
64742-94-5	Medium Aromatic Hydrocarbons.	Not Established			0.1											4
78-83-1	2-Methyl-1-propanol	50	50	PPM	8.7						1	1			1	1
34590-94-8	2-Methoxymethylethoxypropanol	100 <150>	100 <150>	PPM (Skin)	0.4											3
111-76-2	§ 2-Butoxyethanol	25	25	PPM (Skin)	0.6	4	5	5	6	7	4	6	6		9	
Unknown	Epoxy Polymer.	Not Established													51	40
Unknown	Polyamide.	Not Established				19	22	22	24	23	24	25	23	11		
14807-96-6	Talc	2	2	Mg/M3 as Resp. Dust						27	22	25	17			
13463-67-7	Titanium Dioxide.	10	10[5]	Mg/M3 as Dust (Resp. Fraction)		30					2	2	15			
1333-86-4	Carbon Black.	3.5	3.5	Mg/M3 as Dust						4						
§ Nickel Compound [% Nickel]											3[0.1]					
§ Antimony Compound [% Antimony]											3[0.4]					
§ Zinc Compound [% Zinc]														11[4.9]		
Weight per Gallon (lbs.)						11.16	10.45	10.23	9.14	9.58	9.67	9.62	10.19	12.97	8.48	10.29
Solids by Weight (%)						65.0	62.7	61.6	52.8	57.8	61.9	61.3	63.6	75.3	52.9	68.5
Solids by Volume (%)						45.5	45.5	45.2	40.6	44.4	48.9	48.6	49.0	54.3	45.1	55.6
Volatile Organic Compounds (VOC - lbs./gal.)						3.90	3.89	3.92	4.31	4.03	3.64	3.68	3.70	3.20	3.99	3.24
Photochemically Reactive						Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flash Point (°F)						80	90	90	80	90	74	80	80	80	82	82
HMIS (NFPA) Rating (health - flammability - reactivity)						3* 3 0	3* 3 0	3* 3 0	3* 3 0	3* 3 0	2* 3 0	3* 3 0	3* 3 0	2* 3 0	3* 3 0	3* 3 0

§ Ingredient subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313, 40 CFR 372.65 C

**Attachment II.B.3**

**Floor Slab Inspection**





13 October 1997

Perma-Fix of Florida, Inc.  
Attention: **Mr. George Harder**  
1940 NW 67th Place  
Gainesville, FL 32653

**RE: Floor Slab Inspection**  
**Nelson Building, Perma-Fix Plant**  
**Gainesville, Florida**

Gentlemen:

At your request Bodo and Associates, Inc. performed an evaluation of the floor at the Nelson Building located at the Perma-Fix Plant in Gainesville, Florida. This letter presents our findings and opinions.

The purpose of our work was to assess the capacity of the existing floor slab to support the loads due to storage of hazardous and radioactive waste. The materials are stored in drums on pallets with four drums per pallet. Each drum weighs a maximum of 800 lb when full. Two pallets may be stacked on top of each other. The pallets are moved around on a forklift with a rated capacity of 6000 lb.

Five core samples were drilled in order to verify the thickness of the slab. The sampling points were located in the approximate center of the floor area and as near to the four corners as was practical and accessible. The subgrade was also evaluated qualitatively at each of the five locations by measuring the distance that a  $\frac{3}{4}$ " diameter steel rod moved through under ten hammer blows.

Visual inspection of the general floor area revealed no significant cracks or other signs of distress. Concrete quality, as seen in the core samples, appeared to be good, with a fairly uniform distribution of coarse aggregate and no large voids or air pockets. The slab has welded wire fabric reinforcement which is generally located near the bottom. Slab thickness varied from 4" to 6½" with the average estimated as 5". The subgrade appeared to be uniform and dense.

726 NW 23rd Avenue

New Area Code: 352

◆ (904) 378-8806 ◆ FAX (904) 378-6488

Mailing Address: P.O. Box 698, Gainesville, Florida 32602

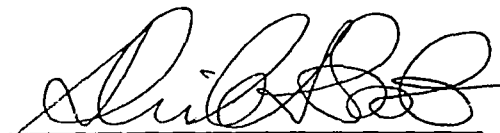
The slab was analyzed for the loads using procedures derived from *Slab Thickness Design for Industrial Concrete Floors on Grade*, a publication of the Portland Cement Association. The modulus of subgrade reaction was conservatively assumed as 250 pci. The modulus of rupture of concrete was taken as 530 psi.

Results of the numerical analysis imply a factor of safety with respect to flexural fatigue failure of about 1.7 which is the recommended value for moderate-to-heavy traffic. A value of 2.0 would permit unlimited repetitions of the design load.

Based on our observations and analysis we conclude that the slab can be expected to continue to perform satisfactorily as described above.

We appreciate the opportunity to provide our services to you. If you have any questions or require additional assistance, please do not hesitate to call.

Sincerely,  
**BODO AND ASSOCIATES, INC.**

A handwritten signature in dark ink, appearing to read 'Attila A. Bodo', is written over a horizontal line.

Attila A. Bodo, P.E. 10-20-97  
President

11/24/88 11:02 01 001 012 0000

**DARABI  
AND  
ASSOCIATES, INC.**

Environmental Consultants

Suite A • 730 North Waldo Road, Gainesville, Florida 32601 • Phone: 904/376-6533

December 1, 1989

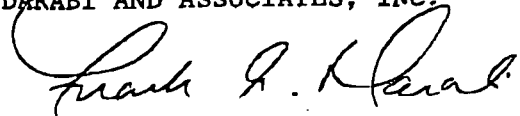
Mr. Dennis Fleetwood  
Quadrex Environmental  
1940 N.W. 67th Place  
Gainesville, Florida 32606

Dear Dennis:

Attached is the structural review of the slab by Bodo & Associates. Please include this in the package that is being prepared for submittal to the Department of Environmental Regulation.

Sincerely,

DARABI AND ASSOCIATES, INC.



Frank A. Darabi, P.E.  
President


FAD/ns[514]

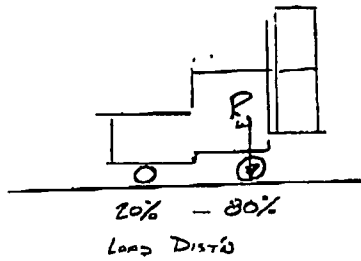
**BODO & ASSOCIATES, INC.**

**DESIGN CRITERIA**

Designed by: DWG  
Checked by: AAB  
Date Checked: 24 Nov 88

1. Project Number: 193-00-04
2. Project Name: QUDREX HPS: STORAGE AREA SLAB
3. Location: Gainesville, FL
4. General Use of Structure:  
STORAGE AREA
5. Applicable Building Codes, Design Standards and Publications:  
BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-83(36)  
NAVFAC DIV 7.2 FOUNDATIONS & EARTH STRUCTURES  
STANDARD BUILDING CODE, 1988
6. Design Loads:  
STORAGE DRUMS :  $375^{\pm}$ /EA.  
FORKLIFT :  $7085^{\pm}$
7. Assumptions:  
 $F_y = 60 \text{ ksi}$   
 $f'_c = 3000 \text{ psi}$   
MODULUS OF SUBGRADE REACTION: 300 pci
8. Checklists Required:

  
4.2.90



$$R_w = .8 \left[ \frac{1}{2} (7100^2 + 2(375)) \right] = 3140^2$$

$$R_{w'} = 1.7 \times 3140^2 = 5340^2 \text{ say } 6000^2$$

$$k = 300 \text{ pci}$$

CONCRETE PLACED OVER  
EXISTING ASPHALT PAVEMENT

FROM FIG 23-8 HIGHWAY ENGINEERING HANDBOOK (CONTAINED IN  
"CONCRETE PAVEMENT DESIGN, 1951. PCA, FIG 5 P. 20")

FOR 6" SLAB w/ 6000<sup>2</sup> wheel load if  $k = 300 \text{ pci}$   
the flexural stress in the concrete  $\sim 310 \text{ psi}$

$$\text{Modulus of rupture} = 7.5 \sqrt{f'_c} = 7.5 \sqrt{3000} = 410 \text{ psi} > 310 \text{ psi} \quad \text{OK}$$

Therefore the slab should perform satisfactorily.

**Attachment II.B.4**

AISLE DAILY INSPECTION SHEET									
1	2	3	4	5	6	7	8	9	10

[illegible]

## INSTRUCTIONS

COLUMN 1: Enter the date and time of inspection.

**COLUMN 2:** Enter your initial or full name. Print clearly.

COLUMN 3: Is the area clean? (Yes or No) Note any dirty areas in comment section. Be descriptive.

COLUMN 5: Are the drums stacked only one (1) drum high? (Yes or No)

**COLUMN 6:** Are there any leaks or spills in the area? (Yes or No) If yes, describe in column above.

[illegible]

**COLUMN 7:** Describe the condition of the drums on a whole. Answer satisfactory (S) or unsatisfactory (U). If drums need replacing or are damaged, identify drum & condition in comment section above. Be descriptive.

COLUMN 8: Describe condition of sumps satisfactory (S) or unsatisfactory (U). Is there any liquid, trash, etc., in the sump? If yes, describe in comment section above.

COLUMN 9: Describe any discrepancies that exist concerning the items inspected under columns 1 through 8.

**COLUMN 10:** Indicate date and describe actions taken to resolve discrepancies discussed under column 9.

\_\_\_\_\_

HAZARDOUS ZONE 1 DAILY INSPECTION SHEET									
1	2	3	4	5	6	7	8	9	10

[illegible]

## INSTRUCTIONS

**COLUMN 10:** Indicate date and describe actions taken to resolve discrepancies discussed under column 9.



[illegible]

[illegible]

## INSTRUCTIONS

**COLUMN 10:** Indicate date and describe actions taken to resolve discrepancies discussed under column 9.

**Appendix II.B.1**

**Perma-Fix® Process**

### Description of Perma Fix ® Process

The Perma-Fix Process is used for treating characteristic inorganic hazardous (or industrial) wastes to meet treatment standards for land disposal. Specially designed mixing equipment is utilized to treat these wastes; this treatment may be conducted at the point of waste generation (in the tanks or containers in which they are accumulated) or at a RCRA permitted TSDF.

The basis for The Perma-Fix Process is the permanent stabilization of the waste. Stabilization (fixation and solidification) is the current term the Environmental Protection Agency (EPA) has adopted to use in its regulations and guidelines. Stabilization is a chemical process which changes the chemical composition and permanently binds the potentially hazardous and leachable components of the hazardous or industrial waste. The Perma-Fix Process utilizes the addition of a solidifying agent which incorporates the "fixed" waste components into a dense, very impermeable, acid resistant, siliceous monolithic mass which may be disposed of in a properly permitted landfill.

A waste can be classified as a hazardous waste if it is listed under 40 CFR Part 261, Subpart D, or if it exhibits one or more of the general characteristics of a hazardous waste presented in the regulations under 40 CFR Part 261, Subpart C. The wastes of Subpart C are commonly referred to as "characteristic" hazardous wastes. These characteristic wastes currently fall into four general categories: Ignitability, Corrosivity, Reactivity, and Toxicity. The Perma-Fix Process will, in many instances, convert a characteristic inorganic hazardous waste to a non-hazardous waste. This often allows for the waste to be classified as an "other industrial waste" which can be disposed of properly in a permitted "Other Industrial Waste" landfill facility, rather than in a hazardous waste disposal facility.

### Process Description

EPA has determined that stabilization, which is the basis for the Perma-Fix Process, is the best demonstrated available technology (BDAT) for the treatment and pre-treatment of certain listed and characteristic hazardous wastes. The Perma-Fix Process will be conducted in the Quonset hut located in the Treatment and Operations Building.

The Perma-Fix Process includes the determination of the proper stabilizing agents required to be used in the fixation/solidification process, the amounts of the various stabilization agents to be utilized, the technique (duration and efficiency) of the mixing procedure, and the testing and results reporting mechanisms for the project. The "formula" developed for each particular waste takes into consideration whether the waste or hazardous waste must be chemically pre-treated with oxidizing or reducing agents or chemical polymers and considers the ambient moisture and percentage of oil in the waste to be treated.

The resultant stabilized wastes generally exhibit permeabilities ranging from  $1 \times 10^{-6}$  cm/sec to as low as  $1 \times 10^{-9}$  cm/sec. Forty-eight hour (2-day) unconfined compressive strengths on the stabilized wastes range from 20 to 300 pounds per square inch (psi), with 7 day strength ranging from 50 to 1000 psi and 28 day strengths which may exceed 3000 psi. Perma-Fix formulations can be optimized to achieve any desired compressive strength within the ranges presented above.

The Perma-Fix Process presents a cost effective, environmentally sound method for landfill disposal of many listed or characteristic hazardous wastes. Non-hazardous liquids and sludges can likewise be stabilized to allow for more efficient handling and disposal of the wastes. Liquid waste collected in 55 gallon drums and stabilized by the Perma-Fix Process no longer poses a significant "spill" hazard for transportation companies, and minimizes the handling cost at the ultimate disposal facility.

A number of different waste types have been successfully treated using The Perma-Fix® Process. The following is a partial list:

- Glass and plastic beads used for paint removed;
- Powdered coatings containing cadmium;
- Caustic cleaners;
- Spent acid sludge;
- Acid sludges from lubrication oil manufacturers;
- Chromium & cadmium sludge from plating tank;
- Dust contaminated with heavy metal;
- Zinc phosphate sludge;
- Caustic queach sludge;
- Water fall paint booth sludge;
- Cyanide contaminated sludges;
- Lead chromate sludge;
- Soils contaminated with heavy metals.

For each of these waste types, Perma-Fix has developed a formula which renders the waste non-hazardous and solidifies the waste so that it can be disposed of in a non-hazardous waste landfill. The Perma-Fix Process will be used at the facility to treat characteristic hazardous waste with an average Volatile Organic Chemical (VOC) concentration of less than 500 ppmv.

#### Physical Characteristics, Materials of Construction, and Dimensions of the Unit

The Perma-Fix Process will be conducted on containerized waste; the operation consists of adding treatment chemicals to the container and subsequently mixing the additives into the waste. Because of the additional volume caused by addition of treatment chemicals and (where applicable) water, the waste may be divided into two containers for treatment. The process will be conducted in an area equipped with secondary containment and the equipment will be designed, located, constructed, operated, maintained, monitored,

inspected and closed in accordance with the applicable requirements of 40 CFR 264 Subpart I. All relevant procedures to prevent hazards, inspections, testing and maintenance and closure procedures and containment requirements addressed in this permit application for containers will be applied to the construction and operation of the Perma-Fix Process equipment as well. Records of inspections, etc. will be maintained in the Facility Operating Record. The Perma-Fix Process equipment and location has been addressed in the Facility Closure Plan included in this permit application. See Figure I.D.12 (Perma-Fix and Perma-Fix II Process Flow Diagram) for a detailed description of Perma-Fix equipment.

#### Decontamination Procedures

The Perma-Fix Process uses a skid-mounted hydraulic mixer with each container of waste (drum) serving as the mixing vessel. Only the steel shaft of the mixer enters the top of the drum undergoing treatment. No other equipment comes into contact with the waste during treatment. The steel shaft will be decontaminated in the following manner, as appropriate.

Upon completion of the treatment and mixing of the last drum before decontamination of the mixer shaft is required, the operator of the mixer will reverse the rotation of the shaft as it is being removed from the drum of treated, thickening waste. Reversing the mixer shaft as it is withdrawn from the drum will remove most of the residual waste from the shaft. The bulk of any remaining waste will be scraped from the shaft with a spatula or other suitable scraping device. Next, the shaft will be wiped down as necessary to remove remaining waste residuals. The mixer shaft will be deemed decontaminated when visual inspection of the shaft reveals there is no waste remaining that may inappropriately contaminate the next drum of waste to be treated.

#### Environmental Performance Standards

##### Release Prevention

The Perma-Fix Process area and equipment is located, designed, constructed, operated, maintained, and will be closed in a manner that will ensure protection of human health and the environment. The hydrogeologic, geologic, and meteorologic factors of concern for the PFF Facility site and surrounding areas are addressed in Section A of this permit application. For purposes of ensuring protection of human health and the environment, PFF will operate the Perma-Fix Process in conformance with applicable container standards. Appropriate secondary containment will be incorporated into the design and operation of the equipment and run on and run off of precipitation or liquids from the Perma-Fix Process area will be controlled. See Part II, Section B of this permit application for details regarding containment, management of ignitable, reactive and incompatible wastes, condition and management of containers, inspections and prevention of run on and accumulation of precipitation in the Treatment and Operations Building where the Perma-Fix Process operations will take place.

### Prevention of Releases to Groundwater or Subsurface Environment

Releases to groundwater or the subsurface environment from the Perma-Fix Process are extremely unlikely for the following reasons:

- The containers to be treated contain relatively small volumes of material and the operation is a batch process; i.e., waste will be treated in 55 gallon drums
- The process is located within a secondary containment system designed to meet the requirements of 40 CFR Subpart I. The containment system is designed to contain the volume of the largest container or 10 % of the total volume of containers permitted for the area, whichever is larger. The containment system is coated with a chemically resistant material which is compatible with the waste streams designated for processing.
- The Perma-Fix Process area is inspected daily in accordance with the facility inspection plan. Leaks or spills are cleaned up within 24 hours of discovery or as soon as it is practicable and safe to do so.
- The system is located within a building; i.e., the system is physically separated from the subsurface environment and groundwater.
- The facility maintains a Contingency Plan to provide a framework for facility response to emergencies such as spills, fires, or explosions. This plan provides procedures to respond to threats to human health or the environment from the system.

### Prevention of Releases to Surface Water, Wetlands, or Soil Surface

Releases to surface water, wetlands, or soil surface from the Perma-Fix treatment process are extremely unlikely for the following reasons:

- The containers to be treated contain relatively small volumes of material and the operation is a batch process; i.e., waste will be treated in 55 gallon drums.
- The process is located within a secondary containment system designed to meet the requirements of 40 CFR Subpart I. The containment system is designed to contain the volume of the largest container or 10 % of the total volume of containers permitted for the area, whichever is larger. The containment system is coated with a chemically resistant material which is compatible with the waste streams designated for processing.
- The Perma-Fix Process area is inspected daily in accordance with the facility inspection plan. Leaks or spills are cleaned up within 24 hours of discovery or as soon as it is practicable and safe to do so.

- The system is located within a building; i.e., the system is physically separated from the subsurface environment and groundwater.
- The facility maintains a Contingency Plan to provide a framework for facility response to emergencies such as spills, fires, or explosions. This plan provides procedures to respond to threats to human health or the environment from the system. See Attachment II.A.2 to Part II.A of this permit application.

#### Prevention of Releases to Air

Releases to air from the Perma-Fix Process are extremely unlikely for the following reasons:

- The system is located within a building;
- Containers will be kept closed at all times except during treatment or removal of waste from containers;
- Organic vapors are not anticipated because the wastes to be treated are classified as inorganic wastes (The Perma-Fix Process will be used to treat characteristic inorganic hazardous wastes having an average VOC content of less than 500 ppmw.);
- Particulate emissions generation during the addition of treatment chemicals are minimized by wetting or other means (as appropriate);
- Particulate emissions after treatment are minimal because of the consistency of the treated waste and solidification of the matrix.
- Any fugitive particulate emissions generated during treatment will be captured by a dust collector and HEPA filter system.
- Screening the wastes for reactive cyanide and sulfide will prevent generation of fumes from reactive wastes.

#### Monitoring and Inspections

The Perma-Fix Process will be monitored by PFF personnel during processing operations. The system will be operated manually (or automated equipment will be manually operated).

The Perma-Fix Process area will be visually inspected each operating day for evidence of leaks or spills; the inspection will be in accordance with the requirements of the facility inspection plan. The secondary containment system will also be inspected each operating day for evidence of cracks or breaches in containment as specified in the facility inspection plan.



### **Potential Pathways of Exposure of Humans or Environmental Receptors**

PFF workers within the Treatment and Operations building are the most likely human receptors for chemicals or chemical constituents released from the Perma-Fix Process. The exposure is anticipated to be minimal because personnel will be provided with appropriate personal protective equipment including, as applicable, respirators. The primary pathway for human receptors from the Perma-Fix II Process is air. Specifically, air emissions (particulates) generated by addition of treatment chemicals. Where appropriate, water may be added to the wastes or treatment chemicals prior to loading to minimize the generation of particulates.

Personnel operating the system (or personnel present for any other reason) will be required to wear Personal Protective Equipment (PPE) selected to address the potential hazards identified for the wastes to be managed and the operating parameters of the system. The PPE selected will be in accordance with OSHA standards and may include use of particulate respirators (as appropriate).

Environmental receptors such as soil, surface water, groundwater, and air are unlikely to be impacted by the Perma-Fix Process because of the containment system and location of the treatment area within a building physically separated from soils and protected from precipitation, run-on and run-off.

### **Effectiveness of Perma-Fix Process**

EPA has determined that stabilization, which is the basis for the Perma-Fix Process, is the best demonstrated available technology (BDAT) for the treatment and pre-treatment of certain listed and characteristic hazardous wastes. Perma-Fix has been conducting the Perma-Fix Process for many years and has a large experience base on which to determine optimal formulations for a wide variety of wastes.