2 DOCUMENTS

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RCRA PART B PERMIT RENEWAL APPLICATION

TAMPA SERVICE CENTER
5309 24TH AVENUE SOUTH
TAMPA, FLORIDA
FLD 980847271

PREPARED BY:

DELTA ENVIRONMENTAL CONSULTANTS, INC.
5401 WEST KENNEDY BLVD., SUITE 400
TAMPA, FLORIDA 33609

RCRA PART B PERMIT
NOD RESPONSE

TAMPA BRANCH OPERATION
5309 24TH AVENUE SOUTH
TAMPA, FLORIDA
FLD 980847271

PREPARED BY:

DELTA ENVIRONMENTAL CONSULTANTS, INC.
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TAMPA, FLORIDA 33609

SAFETY-KLEEN CORPORATION
TAMPA, FLORIDA SERVICE CENTER
RCRA PART B PERMIT RENEWAL APPLICATION

RECEIVED
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Florida Department of Environmental Protection
SOUTHWEST DISTRICT
BY

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Revised Part II, Section B Attachments - Revision #10

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Revised Part II, Section C Attachments - Revision #10

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II.D to II.O Part II Sections D through O: page 1 of 1 of FDEP permit review checklist modified to incorporate responses to Part II, Section D through Section O.

Attachment #	Title	Pages
II.K.I	Closure Plan	II.K.1-1 to II.K.1-15

P. **Part II, Section P** - Information Regarding Potential Releases from Solid Waste Management Units: (page 1 of 1 of FDEP permit review checklist modified to incorporate responses to Part II, Section P.) and FDEP Part II application form 62-730.900(2)(c), pages 44, 45, and 46.

R. Part II, Section R - Process Vents

Attachment #	Title	Pages
II.R.1	Process Vents - Subpart AA	II.R.1

III. Certifications: FDEP form 62-730(2)(d), pages 1-4 inclusive

A. Operator certification, page 1 of 4

B. Facility and Landowner certifications, page 2 of 4

C. Professional Engineer certification, page 3 of 4

D. Professional Geologist certification, page 4 of 4

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Date	
Page	of

Revision Block not completed.

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	[ ]		
landfill	[ ]	land treatment	[ ]
surface impoundment	[ ]	miscellaneous units	[ ]
Storage	[X]		
containers	[X]	tanks	[X]
piles	[ ]	surface impoundment	[ ]
miscellaneous units	[ ]	containment building	[ ]
Treatment	[ ]		
tanks	[ ]	piles	[ ]
incineration	[ ]	surface impoundment	[ ]
miscellaneous units	[ ]	boiler/industrial furnace	[ ]
type of unit _____		type of unit _____	
		containment building	[ ]

2. Type of application: [ ] TOP [ ] construction [X] operation [ ] closure [ ] RD&D
[ ] construction/operation

3. Revision Number: 10

4. Date current operation began (or is expected to begin): June 28,1985

5. Facility name: Safety-Kleen Corp. (3-163-01)

6. EPA/DEP I.D. No.: FLD 980847271

7. Facility location or street address: 5309 24th Avenue South, Tampa, Florida 33619

8. Facility mailing address: 1000 North Randall Road (Street or P.O. Box) Elgin (City) IL (State) 60123 (Zip)

Revision Number
Date
Page of

Telephone numbers #10 and #12 are different

9. Contact person: Jon Ercole Telephone: (407)734-2560

Title: Manager Environmental Safety & Health

Mailing Address: 5610 Alpha Drive (Street or P.O. Box) Boynton Beach (City) FL (State) 33426 (Zip)

10. Operator's name: Safety-Kleen Corp. Telephone: (708)697-7857

11. Operator's address: 1000 North Randall (Street or P.O. Box) Elgin (City) IL (State) 60123-7857 (Zip)

12. Facility owner's name: Safety-Kleen Corp. Telephone: (708)697-8460

13. Facility owner's address: 1000 North Randall (Street or P.O. Box) Elgin (City) IL (State) 60123-7857 (Zip)

14. Legal structure: [X] Corporation [ ] Non-profit Corporation [ ] Partnership [ ] Individual
[ ] Local Government [ ] State Government [ ] Federal Government [ ] Other

15. If an individual, partnership, or business is operating under an assumed name, specify the county and state where the name is registered.

County: N/A State: N/A

16. If the legal structure is a corporation, indicate the state of incorporation.

State of incorporation: Wisconsin

17. If the legal structure is an individual or partnership, list the owners.

Name: N/A

Address: (Street or P.O. Box) (City) (State) (Zip)

Name: N/A

Address: (Street or P.O. Box) (City) (State) (Zip)

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Name: N/A

Address: _____
Street or P.O. Box City State Zip

18. Site ownership status: [X] 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: _____
Street or P.O. Box City State Zip

19. Name of engineer: W.D. Phelps Registration no.: 43116

Address: 5401 West Kennedy Blvd., Suite 400 Tampa FL 33609
Street or P.O. Box City State Zip

Associated with: _____

20. Facility located on Indian land: [ ] yes [X] no

21. Existing or pending environmental permits: (attach a separate sheet if necessary) RCRA and air Permits ?

NAME OF PERMIT	AGENCY	PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
Hazardous Waste Transporter	Florida Dept. of Env. Protection	FLD 980847071	10/95	10/96

Revision Number	
Date	
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Site information not complete OK

B. Site Information

1. Facility location County: Hillsborough Nearest Community: Tampa

Latitude: 27° 55' 21" North Longitude: 082° 23' 4" West

Section: _____ Township: _____ Range: _____

UTM #: ___/_____/_____

2. Area of facility site (acres): 3

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.

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

5. Is the site located in a 100-year flood plain? [ ] yes [X] no

C. Land Use Information

1. Present zoning of the site LI (Light 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? [X] yes [ ] no

List the SIC codes (4-digit)

7399 5172 5084 5013 _____ _____ _____

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

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Date	
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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	Please see Attachment I.D.3-1		
S02	Please see Attachment I.D.3-1		

Language about operations cente may require additional pages to be revised JK

ATTACHMENT I.B.3
FACILITY LAYOUT AND PHOTOGRAPHS

The facility layout is shown in Figure I.B.3-1. The traffic patterns are illustrated in Figure I.B.3-2. Site photographs follow Figure I.B.3-2. Approximately 18 trucks will leave and return to the site daily. Two to four semi-tractor trucks transport wastes to the recycle center weekly The vans and trucks enter and exit through the mechanically operated gate openings at 24th Avenue. Two additional manually operated gates are available for use. One provides access to 24th Avenue and the other to 54th Street.

Fresh parts washer solvent and spent parts washer solvent arrive and leave, respectively, at the Operations Center in tanker trucks. Fresh parts washer solvent may also be delivered to the Operations Center in containers. The unloading and loading of the fresh parts washer solvent and spent parts washer solvent from the tanker trucks occurs at Area C, as shown on Figure I.B.3-2. The spent parts washer solvent arrives from customers in containers, the containers are poured into the dumpsters in the return and fill station between the two buildings (Area A). The spent solvent is pumped from the dumpsters to the ~~storage~~ waste tank. A tanker truck removes the waste on a periodic basis and transports it to a Safety-Kleen recycle center.

~~Immersion cleaner 609,~~ Non-perchloroethylene dry cleaning wastes and Fluid Recovery Service (FRS) wastes are transfer wastes and can be stored up to a maximum of 10 days onsite. These wastes are transferred and stored in containers in the flammable storage room or in the non-flammable storage areas in the south building.

The text has been edited to delete references to products no longer managed.

~~Ethylene glycol wastes arrive at the Operations Center in either containers or tanker trucks and are considered transfer wastes. Transfer wastes can be stored onsite up to a maximum of 10 days. Storage of these wastes in tanker trucks occurs at Area D, as shown on Figure I.B.3-2.~~

~~Ethylene glycol in containers of 55 gallons or less is stored in the permitted storage areas.~~

Safety-Kleen is currently in dialogue with the FDEP over revisions to the current management practices for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedures when final agreement on this protocol/procedure is achieved.

Fresh solvents and wastes that are ~~stored~~ transported in containers arrive either at the north building, the south docks, or the return/fill shelter. From there, ~~where~~ they ~~are~~ may be placed in the container storage areas. Containerized wastes from the north building ~~are~~ can be moved to the south building ~~periodically~~. On a regular~~ly scheduled~~ basis, the containerized wastes are shipped to a Safety-Kleen recycle center.

Are waste ever shipped to non-Safety-Kleen facilities? OK

ATTACHMENT I.D.2
DESCRIPTION OF FACILITY OPERATION

DESCRIPTION OF THE BUSINESS

Safety-Kleen Corp. of Elgin, Illinois is an international, service-oriented company whose customers are primarily engaged in automotive repair and industrial maintenance. Since 1968, Safety-Kleen has been offering a leasing service for ~~petroleum-based~~ hydrocarbon ~~and chlorinated~~ solvents and small parts washing equipment. A unique feature of this business concept is that the solvent is produced through recycling the used solvent that is leased to the customers. Approximately two-thirds of the clean solvent leased has been previously used by the customers.

The Safety-Kleen parts washing equipment, together with the solvents, are leased to customers; the leasing charge includes regularly scheduled solvent changes and machine maintenance. The business is conducted from local Operations Centers (sales branches) located in 45 states domestically that warehouse the products and equipment required to service the customers in their sales areas. On a ~~regular~~ contractual basis, service representatives furnish clean solvent to the customers, pick up the used solvent, and ensure that the leased equipment is in good working order. In 1979, Safety-Kleen expanded their scope of operations to make their solvent leasing service available to owners of parts cleaning equipment, regardless of manufacturer, using Safety-Kleen's solvents.

Basically, Safety-Kleen handles ~~three~~ two types of parts washers ~~solvents: petroleum-based solvents (Parts Cleaner 105, Premium Solvent, or Actrel®) and old and new formulations of immersion cleaner. The old formulation immersion cleaner solvent is labeled under the trade name of Immersion Cleaner and Carburetor and Cold Parts Cleaner #609. It is a two phase~~

~~system consisting of an upper aqueous (water) layer and lower non-aqueous (solvent) layer. The water phase consists of water and Dresinate TX (sodium soap of tall oil). The solvent phase is composed of methylene chloride, orthodichlorobenzene, cresylic acid, and an amines additive. A new formulation immersion cleaner is being marketed under the name #699 and will eventually replace the old immersion cleaner. It is essentially a non-chlorinated solvent mixture. The solvent is composed of heavy aromatic naphtha, N methyl 2 pyrolidone dipropylene glycol methyl ether, monoethanolamine and oleic acid. The waste contains a maximum of 1 percent total chlorinated solvents.~~ The original service offered by the company in 1968 was the parts cleaner service and it remains the primary business activity. This service involves the leasing of a small parts degreasing unit which consists of a sink affixed to a container of parts washer solvent. On a regularly scheduled basis, a Safety-Kleen sales representative cleans and inspects the parts washer machine and replaces the container of used solvent with one of clean product.

Is the branch a service center or an operation center? OK

The spent solvent is transferred from the containers to a storage tank at the service center, and containers of product are prepared for the next day's services. Periodically, a tanker truck is dispatched from one of the recycle centers to deliver a load of clean solvent and collect the spent solvent at the service center.

Safety-Kleen has also established a parts cleanter service for users who own their machines. This service provides a solvent reclamation service to these customers regardless of machine model.

A second type of parts washer, the immersion cleaner, is available for the removal of varnish and gum from such things as carburetors and transmissions. This machine consists of an immersible basket with an

agitator affixed to a container of the immersion cleaner. The spent solvent remains in the container after delivery to the service center, where it is stored in a contained area of the warehouse. Periodically, a box trailer truck is dispatched from a recycle center to deliver containers of fresh solvent and collect the containers of spent solvent for reclamation.

The solvents are distributed and collected by ~~their~~ service representatives. Containers are transported in specially-equipped, enclosed route trucks. Clean solvents are distributed from and used solvents returned to the Operations Center. ~~where~~ At the Operations Center, ~~they~~ clean parts washer solvent and used parts washer solvent are stored in separate tanks. ~~for the clean parts washer solvent and used parts washer solvent (Parts Cleaner 105, Premium Solvent, and Actrel®) bulk storage~~. Used parts washer solvent 105 is manifested from the customer as hazardous waste. ~~Used Actrel® is manifested from the customer as hazardous waste; unless the generator's hazardous waste determination indicates it is non-hazardous, in which case the used Actrel® would only become hazardous once it is mixed in the used parts washer solvent tank.~~ Other used parts washer ~~Premium Solvent~~ solvent is transported from the customer ~~as a non hazardous waste and only becomes hazardous once it is mixed in the used parts washer solvent tank~~ in accordance with the customer's hazardous waste determination pursuant to 40 CFR 262.11.

Why does the application talk about mineral spirits and immersion cleaner in the same ?

Warehouse space is dedicated for the storage of both clean and used Immersion Cleaner containers. ~~The~~ Clean ~~Premium Solvent and Actrel® are~~ and used parts washer solvents also may be stored ~~in containers~~ in the ~~warehouse~~ permitted storage area. Safety-Kleen leases parts washing equipment, ~~including~~ with partially filled ~~5-, 16-, and 30-gallon~~ containers, which double as the solvent reservoir of the parts washer. During servicing, the quantity of used solvent removed from each machine ranges from 5 to

20 gallons. The spent parts washer solvent is then collected in ~~5-, 16-, and 30-gallon~~ containers. ~~The 609 Immersion Cleaner is housed in 16 gallon steel containers and is managed as a transfer waste. A 16 gallon steel container is used for 699 Immersion Cleaner. The solvent from dry cleaning operations is collected in 16 gallon and split 30 (also known as 20 gallon) steel or polyethylene containers.~~ Immersion cleaner is stored in containers.

Periodically, a company truck is dispatched from one of Safety-Kleen's nationwide solvent recycle facilities to the Operations Center to deliver a load of clean solvent and pick up a load of used solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~. Parts washer solvents (used and fresh) are transported in bulk tank trucks between the Operations Center and the recycle facilities. Clean ~~Premium Solvent and Actrel®~~ parts washer solvents ~~are~~ may be transported in containers ~~and may be transported~~ or in bulk tank trucks. Used parts washer solvent is transported in containers from the customer to the Operations Center, where it is added to the used parts washer solvent tank. The Immersion Cleaner remains in the original covered containers during transfer between the Operations Center and the recycle facilities. ~~Approximately 97 percent of the solvent handled in the parts washer business is petroleum based while the remainder is immersion cleaner.~~

Safety-Kleen's solvent cycle is essentially a closed loop, moving from the Operations Center to the customer, from the customer to the Operations Center, from the Operations Center to the recycle facility and then from the recycle center back to the Operations Center for redistribution to customers. ~~The small quantities of residue remaining in the storage tanks at the Operations Center and after distillation of the used solvent at Safety-~~

~~Kleen's solvent recycling facilities are disposed of in accordance with applicable laws and regulations.~~

"brought" is only correct if it means returned by manifest that is terminated at the branch OK

This closed loop supplies Safety-Kleen with most of its solvent requirements; the resultant stabilized cost benefits are passed on to its customers. Ownership of the solvent remains with Safety-Kleen; the Operations Center personnel are accountable for the quantities of clean and used solvents handled by their branch operations. The Operations Center is basically a temporary storage and transfer facility. By FDEP definition, however, these Centers are considered to be the waste generator. FDEP considers these centers to be the generator once the waste is brought to the Operations Center.

Safety-Kleen also provides a dry cleaning waste reclamation service where containers of dry cleaning wastes are collected and stored temporarily at the Operations Center before shipment to the recycle centers for reclamation and residue disposal. Perchloroethylene dry cleaning solvent is managed as a permitted waste. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

In addition, Safety-Kleen provides a paint waste reclamation service. Wastes containing various thinners and paints are collected in ~~five-gallon pails and 16-gallon~~ containers and are stored at the south building ~~in a room in the southwest corner of the building~~ permitted storage area. Paint wastes are received at the service center on manifests which are terminated at that point. These wastes are ~~periodically~~ then re-manifested and shipped to a reclaimer, and the regenerated solvent ~~is~~ may be distributed to Safety-Kleen customers ~~for use~~ as a product.

Fluid Recovery Services (FRS) is a program managed by the Safety-Kleen Operations Center. Under this program, other types of waste are collected by the Operations Center and ~~received by~~ sent to the recycle centers. The FRS wastes ~~will be~~ are managed as transfer wastes. ~~The~~ Manifests ~~will~~ are not ~~be~~ terminated at the Operations Center. These wastes may or may not have originally been obtained from Safety-Kleen by the industrial customer. Examples of the types of waste that may be received from FRS customers include:

1. Spent hydrocarbon distillates, such as waste fuel, oil, petroleum, naphtha, etc.

2. Lubricating, hydraulic oils, synthetic oils, and machine oils.

3. Industrial halogenated solvents such as 1,1,1-trichloroethane, tetrachloroethylene, freon, and trichloroethane.

4. Photographic and x-ray related wastes.

5. Paint and lacquer thinners ~~and paint wastes~~.

   Text has been edited to reflect that paint wastes are no longer being managed as transfer wastes. Therefore it is now managed as a permitted waste?

6. Other hazardous and non-hazardous halogenated and non-halogenated wastes.

~~In 1993, Safety-Kleen began offering an optional filtration unit for use with its parts cleaner 105 and premium solvent equipment. The filtration unit is designed to remove large particles from the solvent, thereby extending the life of the solvent. The cartridge filters are changed at least every four~~

~~weeks by a Safety-Kleen representative. The used filtration cartridges are collected at the customer's site in a small pail which is located next to the equipment. This small pail functions as a satellite accumulation pail. Once the pail is full, it is manifested as hazardous waste, transported to the Operations Center, and managed as a transfer waste under the Fluid Recovery Service (FRS) program. From the Operations Center, the filters are transported to a recycle center for processing. The filters from the parts washer equipment contain essentially the same constituents as those found in dumpster mud.~~

~~The Actrel® and Premium Solvent systems may be equipped with a cyclonic filtration system. Approximately once every 4 to 8 weeks the service representative changes the filter. The filters are placed inside a plastic tube located inside the solvent container which is connected to the parts washer equipment. The filters are removed when the entire contents of the container are replaced with fresh product approximately every six months. The used product is placed in the wet dumpster. The filters are placed in the waste sludge satellite accumulation container located at the return/fill shelter wet dumpster. Once the branch's satellite accumulation container is full, it is transported to a recycle center for processing. The filters from the parts cleaning system will contain approximately the same constituents as dumpster mud.~~

In 1990, Safety-Kleen began offering a service for the collection of spent antifreeze (ethylene glycol) from automobile service stations. These wastes are ~~deposited into a 150-gallon translucent carboy by the customer, which is located on the customer's premises. The contents of the carboy, if nonhazardous, is~~ pumped into a 3,500-gallon tanker truck and combined with used oil. ~~The contents of the carboy, if hazardous, are pumped into 30- or 55-gallon containers. A sales representative conducts the pumping~~

~~of the contents of the carboy. At the Operations Center, it is then contained in the return/fill shelter (either by tanker truck or containers for no more than 10 days) for shipment to a Safety Kleen recycle center.~~ Hazardous spent antifreeze is handled as a transfer waste. Safety-Kleen currently is in dialogue with the FDEP on revisions to the above described waste management practice for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on this protocol/procedure is achieved.

TABLE I.D.3-1
SAFETY-KLEEN CORP.
24TH AVENUE FLORIDA OPERATIONS CENTER
PART 1 ATTACHMENT
PERMITTED AND TRANSFER WASTES

Is spent immersion cleaner managed as a transfer waste? Or

Waste Type	Process Code(s)	Estimated Annual Amount (Tons)	Waste Codes
Spent Parts Washer Solvent*	S01** S02***	2,007	D001 and D-Codes listed in Note below
~~Hazardous~~ Spent ~~Antifreeze~~ Ethylene Glycol	S01*****	5,000	D-Codes listed in Note below.
Spent Immersion Cleaner	S01****	268	F002, F004, and D-Codes listed in Note below
Dry Cleaning Waste	S01**	2,495	F002, F004, and D-Codes listed in Note below
Paint Waste	S01**	531	D001 or F002 and D-Codes listed in Note below
Fluid Recovery Service (FRS) Waste	S01****	Included above	D001, F003, and D-Codes listed in Note below
Dumpster Mud and Tank Bottom	S01**	Included above	D001, D002, and D-Codes, F-Codes, K-Codes, U-Codes listed in Note below

NOTE: D-Codes: D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043

F-Codes: F001, F002, F003, F004, F005, F006, F019, F024, F039

K-Codes: K006, K016, K019, K022, K029, K030, K031, K048, K049, K050, K051, K052, K085, K086, K095, K096, K009, K010, K011, K013, K014, K015, K002, K003, K004, K005

U-Codes: U001, U002, U003, U009, U019, U031, U037, U043, U044, U051, U052, U055, U056, U057, U068, U069, U070, U071, U072, U075, U077, U078, U079, U080, U083, U084, U107, U108, U110, U112, U113, U117, U118, U121, U125, U140, U154, U159, U161, U162, U165, U169, U171, U188, U191, U196, U210, U211, U213, U220, U226, U227, U228, U239, U359

* ~~Spent parts washer premium solvent is transported from the customer to the Operations Center as a non hazardous waste. Once it reaches the Operations Center, it is bulked with hazardous parts washer of a similar nature and managed as a hazardous waste.~~ Spent ~~Parts Washer 105 and Premium Solvent Actrel®~~ parts washer solvents are transported from the customer to the

Operations Center ~~as a hazardous waste unless the generator's hazardous waste determination indicates that it is non-hazardous~~ in accordance with the customer's hazardous waste determination.

operations center ?

** This waste will be stored in containers in the north or south building container storage area. The maximum capacity in the operations center is 5,197 gallons. The maximum capacity in the south building is 12,749 gallons of flammables and 44,367 gallons of nonflammables.

*** The used parts washer solvent storage tank has a maximum storage capacity of 15,000 gallons and may be filled up to a maximum of 14,250 gallons.

**** This waste will be stored in containers in the south building transfer areas.

***** Spent Ethylene Glycol is managed as a non-hazardous waste in conjunction with used oil unless the generator's hazardous waste determination indicates that it is hazardous. If the waste is hazardous, it is managed as a transfer waste.

ATTACHMENT II.A.1(c)
TRAFFIC INFORMATION

The traffic patterns are illustrated in Figure II A.1(c)-1. Approximately 18 trucks will leave and return to the site daily. Two to four semi-tractor trucks transport wastes to the recycle center weekly. The vans and trucks enter and exit through the mechanically operated gate opening at 24th Avenue. Two additional manually operated gates are available. One provides access to 24th Avenue and the other to 54th Street.

Fresh parts washer solvent and spent parts washer solvent arrive and leave, respectively, at the Operation Center in tanker trucks. Fresh parts washer solvent may also be delivered to the Operations Center in containers. The unloading and loading of the fresh bulk parts washer solvent and the spent parts washer solvent from the tanker trucks occurs at Area C, as shown on Figure II.A.1(c)-1. The spent parts washer solvent arrives from customers in containers, the containers are poured into the dumpsters in the return and fill station between the two buildings (Area A). The spent solvent is pumped from the dumpsters to the storage tank. A tanker truck removes the waste on a periodic basis and transports it to a Safety-Kleen recycle center.

~~Immersion cleaner 609, non-perchloroethylene dry cleaning wastes, and~~ Fluid Recovery Service (FRS) wastes are transfer wastes and can be stored up to a maximum of 10 days onsite. These wastes are transferred and stored in containers in the flammable storage or in the non-flammable storage areas in the south building.

Ethylene glycol wastes arrive at the Operation Center in either containers or tanker trucks and are considered ~~transfer wastes~~ non-hazardous unless

the generator's hazardous waste determination indicates that it is hazardous. If it is hazardous, it is managed as a transfer waste. Transfer wastes can be stored onsite up to a maximum of 10 days. Storage of these wastes in tanker trucks occurs at Area D, as shown on Figure II.A.1(c)-1.

Ethylene glycol in containers of 55 gallons or less is stored in the permitted storage areas.

Safety-Kleen is currently in dialogue with the FDEP on revisions to the above waste management practices for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on the protocol/procedures is achieved.

Fresh solvents and wastes that are stored in containers arrive either at the north building, south building docks, or return/fill shelter (area B), where they are placed in the container storage areas. Containerized wastes from the north building ~~are~~ may be moved to the south building periodically. On a regular~~ly scheduled~~ basis, the containerized wastes are shipped to a Safety-Kleen recycle center.

Numeric values with respect to load bearing capacity of the roads leading to the facility are not available. However, the roads have been constructed as "local roads." According to the Florida Department of Transportation, this indicates that there are no bridges and no restrictions. Trucks must fall under Florida's legal limits on loads. The facility and adjacent facilities have been in operation since at least 1985. The roads have been able to sustain the loads being transported over them.

Text edited to remove references to discontinued types of solvents and to update the permit on current waste management practices.

ATTACHMENT II.A.2
FINANCIAL ASSURANCE FOR CLOSURE

Safety-Kleen Corp. is the operator of the Tampa, Florida Operations Center. The cost for closure of the facility, as estimated above, is assured through the use of the financial test specified in Subpart H of 40 CFR Part 264. The letter from the Chief Financial Officer of Safety-Kleen Corp. to demonstrate the financial responsibility for revised closure costs through the financial test ~~is attached~~ will be submitted to the FDEP upon completion of the application review process by the FDEP.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the costs of closure activities. If the design characteristics of the container storage area being evaluated do not conform to the format of the worksheet below, alternative methods should be used to accurately determine the maximum permitted capacity of the unit, the area of all structures to be decontaminated and demolished, and the volume of all structures and soils to be removed. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 MAXIMUM PERMITTED CAPACITY

Determine the maximum permitted capacity of waste in the unit to calculate transportation, treatment, and disposal costs.

1.A	Volume of Waste	63,321	gal
1.B	Supplemental Information on Waste Inventory (In the additional space provided, denote any supplemental information regarding waste characteristics, treatment and disposal methods, and sampling and analysis methods):		

2 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the surface area of the secondary containment system pad to calculate decontamination and demolition costs. Demolition of the secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated or if the owner or operator elects to demolish the pad.

2.A	Length (excluding any curbs or berm)	See calculation	ft	
2.B	Width (excluding any curbs berm)	sheets attached	ft	
2.C	Surface Area of Containment System Pad (Multiply line 2.A by line 2.B)	9,925	ft^2	
2.D	Surface Area of Containment System Pad in yd^2 (Divide line 2.C by 9 ft^2/yd^2)	1,103	yd^2	

3 VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD Assume effective decon; No removal required

Calculate the volume of materials constituting the secondary containment system pad to determine removal costs. Removal of secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated.

3.A	Thickness		yd	
3.B	Volume of Containment System Pad (Multiply line 2.D by line 3.A)	0	yd^3	

4 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the inside surface area of the secondary containment system berm, or curbing, to determine decontamination and demolition costs. Demolition of the secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated or if the owner or operator elects to demolish the berm.

4.A	Inside perimeter (multiply the sum of lines 2.A and 2.B by 2)	530	ft	
4.B	Height	.33	ft	
4.C	**Surface Area of Containment System Berm (Multiply line 4.A by line 4.B)**			177 ft²
4.D	**Surface Area of Containment System Berm in yd² (Divide line 4.C by 9 ft²/yd²)**			20 yd²

5 VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM Assume effective decon

Calculate the volume of materials constituting the secondary containment system berm, or curbing, to determine the removal costs. Removal of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated.

5.A	Thickness		yd	
5.B	**Volume of Containment System Berm (Multiply line 4.D by line 5.A)**			0 yd³

6 SURFACE AREA OF OTHER STRUCTURES

Calculate the surface area of additional structures that will be decontaminated or demolished, for example, ramps or sumps. Demolition of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated or if the owner or operator elects to demolish the structures.

6.A	Surface Area of Other Structures		ft²
6.B	**Surface Area of Other Structures in yd² (Divide line 6.A by 9 ft²/yd²)**	0	yd²

7 VOLUME OF OTHER STRUCTURES

Calculate the volume of materials constituting the other structures to be removed.

7	Volume of Other Structures	0	yd³

8 VOLUME OF CONTAMINATED SOIL TO BE REMOVED Assume no contaminated soil

Calculate the volume of contaminated soil to be removed. Removal of contaminated soil is an additional activity that might be conducted if soil contamination is identified or if removal of contaminated soil is indicated in the closure plan.

8.A	Length	ft		
8.B	Width	ft		
8.C	Depth	ft		
8.D	**Volume of Contaminated Soil to be Removed (Multiply line 8.A by line 8.B by line 8.C)**			ft
8.E	**Volume of Contaminated Soil to be Removed in yd^3 (Divide line 8.D by 27 ft^3/yd^3)**		0	yd^3

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	*Demolition and Removal of Containment System*	CS-3	$ 0
2.	*Removal of Soil*	CS-4	$ 0
3.	*Backfill*	CS-5	$ 0
4.	Decontamination[a]	DC-1	$ 12,543
5.	Sampling and Analysis[b]	SA-2	$ 7,108
6.	*Monitoring Well Installation*[c]	MW-1	$ 0
7.	Transportation[d]	TR-1	$ 18,063
8.	Treatment and Disposal[e]	TD-1	$ 132,863
9.	Subtotal of Closure Costs (Add lines 1 through 8)		$ 170,577
10.	Engineering Expenses (Approximately 10% of closure costs, excluding certification of closure [Multiply line 9 by 0.10])		$ 17,058
11.	Certification of Closure	CS-6	$ 2,700
12.	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs [Add lines 9, 10, and 11])**		$ 190,335
13.	Contingency Allowance (Allow 20% of closure costs, engineering expenses, and cost of certification of closure [Multiply line 12 by 0.20])		$ 38,067
14.	*Landfill Closure*[f]	LF-2	$ 0
	TOTAL COST OF CLOSURE ***(Add lines 12, 13, and 14)***		$ 228,402

Notes:

[a] Decontamination Worksheets are found in Chapter 12.

[b] Sampling and Analysis Worksheets are found in Chapter 13.

[c] Monitoring Well Installation Worksheets are found in Chapter 14.

[d] Transportation Worksheets are found in Chapter 15.

[e] Treatment and Disposal Worksheets are found in Chapter 16.

[f] Landfill Worksheets are found in Chapter 7. Costs of post-closure care are included in this total.

1	Number of units requiring certification of closure[a]	1	
2	Cost of certification of closure per unit[b]	$ 2,700	
TOTAL COST OF CERTIFICATION OF CLOSURE (Multiply line 1 by line 2) (Enter total on worksheet CS-2, line 11)			$ 2,700

Notes:

[a] Facilities closing multiple container storage areas in the same manner at the same time should incur cost of certification of closure only once.

[b] Assumes performance of the following tasks by an independent registered professional engineer at $56.50/hr: 1) 8 hrs for initial review of closure plan, 2) 16 hrs to perform final closure inspections, and 3) 16 hrs to prepare a certification of closure report [(8 hrs + 16 hrs + 16 hrs) x $56.50/hr = $2,260]. The estimate also includes 20 clerical hrs at a rate of $22/hr (20 hrs x $22/hr = $440). The total cost is $2,260 + $440 = $2,700.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the cost of closure activities. If the design characteristics of the tank system being evaluated do not conform to the format of the worksheet below, alternative methods should be used to accurately determine the maximum permitted capacity of the unit, the area of all structures to be decontaminated and demolished, and the volume of all structures and soils to be removed. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Describe the unit to determine the activities to be conducted to close it.

1.A	Type of tank system (aboveground, on-ground, in-ground, or underground)	Above ground	
1.B	Maximum permitted capacity of the tank	15,000 gal	
1.C	Maximum capacity of ancillary piping	62 gal	
1.D	Maximum capacity of tank and ancillary piping (Add lines 1.B and 1.C)	15,062 gal	
1.E	Total length of ancillary piping	94 ft	
1.F	Type of secondary containment system	____ Double-wall tank ____ Vault _X_ Lined containment system (external to tank) ____ Other (explain)	
1.G	Supplemental Information on Waste Inventory (In the additional space provided, denote any supplemental information regarding waste characteristics, treatment and disposal methods, and sampling and analysis methods):		

2 SURFACE AREA OF TANK SYSTEM

Diameter = 10.5'
Height = 23.25'

Determine the surface area of the tank system to determine decontamination costs.

2.A	Tank	940 ft^2	
2.B	Ancillary piping	99 ft^2	
2.C	Surface Area of Tank System (Add lines 2.A and 2.B)		1,039 ft^2
2.D	Surface Area of Tank System in yd^2 (Divide line 2.C by 9 ft^2/yd^2)		115 yd^2

3 VOLUME OF TANK SYSTEM TO BE REMOVED No inground/underground tanks

Determine the volume of in-ground or underground materials constituting components of the tank system to be removed to determine volume of soil needed to backfill. Complete this section only if tank is in-ground or underground.

3.A	Volume of Tank System to be Removed (Divide line 1.B by 7.48 gal/ft^3)		ft^3
3.B	Volume of Tank System to be Removed in yd^3 (Divide line 3.A by 27 ft^3/yd^3)		0 yd^3

4 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the area of the secondary containment system pad for an aboveground or on-ground tank to calculate decontamination and demolition costs. Demolition of containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated or if the owner or operator elects to demolish the pad.

4.A	Length	49 ft	
4.B	Width	18.5 ft	
4.C	Surface Area of Secondary Containment System Pad (Multiply line 4.A by line 4.B)		906.5 ft^2
4.D	Surface Area of Secondary Containment System Pad in yd^2 (Divide line 4.C by 9 ft^2/yd^2)		101 yd^2

5 VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the volume of the secondary containment system pad to determine removal costs. Removal of secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated.

5.A	Thickness	.166 yd	
5.B	Volume of Secondary Containment System Pad (Multiply line 4.D by line 5.A)		17 yd^3

6 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the area of the secondary containment system berm, or curbing, to determine the cost of decontamination and demolition costs. Demolition of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated or if the owner or operator elects to demolish the berm.

6.A	Total Length	118.5 ft	
6.B	Height	3.9 ft	
6.C	Surface Area of Secondary Containment System Berm (Multiply line 6.A by line 6.B)		464 ft^2
6.D	Surface Area of Secondary Containment System Berm in yd^2 (Divide line 6.C by 9 ft^2/yd^2)		52 yd^2

7 VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the volume of the secondary containment system berm, or curbing, to determine the removal costs. Removal of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated.

7.A	Thickness	.166 yd	
7.B	Volume of Secondary Containment System Berm (Multiply line 6.D by line 7.A)		9 yd^3

8 SURFACE AREA OF OTHER STRUCTURES IN SECONDARY CONTAINMENT SYSTEM

Calculate the surface area of additional structures that will be decontaminated or demolished, for example, ramps or sumps. Demolition of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated or if the owner or operator elects to demolish the structures.

8.A	Surface Area of Other Structures		ft^2
8.B	Surface Area of Other Structures in yd^2 (Divide line 8.A by 9 ft^2/yd^2		0 yd^2

9 VOLUME OF OTHER STRUCTURES IN SECONDARY CONTAINMENT SYSTEM

Calculate the volume of materials constituting other structures to determine removal costs. Removal of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated.

9	Volume of Other Structures	0 yd^3

10 VOLUME OF CONTAMINATED SOIL TO BE REMOVED Assume no contaminated soil

Calculate the volume of contaminated soil to be removed. Removal of contaminated soil is an additional activity that might be conducted if soil contamination is identified or if removal of contaminated soil is indicated in the closure plan.

10.A	Length	ft	
10.B	Width	ft	
10.C	Depth	ft	
10.D	Volume of Contaminated Soil to be Removed (Multiply line 10.A by line 10.B by line 10.C)		ft^3
10.E	Volume of Contaminated Soil to be Removed in yd^3 (Divide line 10.D by 27 ft^3/yd^3		yd^3

Surface Areas for Various Tank Capacities
Reference for Line 2.A

Capacity (gal)	Approximate Diameter (ft)	Approximate Height or Length (ft)	Surface Area[a] (ft^2)
TYPICAL VERTICAL TANK DIMENSIONS			
5,000	9	10.5	424
10,000	11.5	13	575
15,000	13	15	745
20,000	15	15	884
25,000	16	17	1,055
30,000	17	18	1,188
TYPICAL HORIZONTAL TANK DIMENSIONS			
5,000	6	23	490
10,000	8	26	750
15,000	8	29	1,080
20,000	10	34	1,225
25,000	10	38	1,350
30,000	11	42	1,640

Standard Equations for Calculating Surface Area of a Tank System
Reference for Line 2.A

Shape	Equation[b]
Cylinder	$2\pi rh$
Circle	πr^2
Cone	$\pi r\sqrt{r^2 + h^2}$

Notes:

[a] Includes top and bottom.

[b] r = radius
h = height

Properties of Standard Wall Steel Pipe[a]
Reference for Lines 1.C and 2.B

Nominal Size (inches)	Inside Diameter (inches)	Inside Volume (gal/ft)[b]	Inside Surface Area (ft^2/ft)[c]
.75	0.824	0.0276	0.217
1	1.049	0.0448	0.274
1.25	1.380	0.0776	0.362
1.5	1.610	0.106	0.421
2	2.067	0.174	0.540
2.5	2.469	0.248	0.646
3	3.068	0.384	0.802
4	4.026	0.661	1.06
6	6.065	1.500	1.59
8	7.981	2.59	2.09
10	10.020	4.09	2.62
12	12.090	5.95	3.17
14	13.250	7.17	3.46
16	15.250	9.48	3.99
18	17.250	12.09	4.52
20	19.250	15.19	5.04
24	23.250	22.13	6.08

Notes:

[a] Modified from Carrier Air Conditioning Company, Inc., *Carrier System Design Manual*, 1973, Chapter 1, page 3-2

[b] Gallons per linear foot of straight pipe

[c] Square foot per linear foot of straight pipe

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	Removal of Waste	TS-3	$ 306
2.	Tank System Purging (ignitable wastes *only*)	TS-4	$ 290
3.	*Flushing the Tank and Piping*	TS-5	$ 560
4.	*Excavation, Disassembly, and Loading*	TS-6	$ 1,203
5.	*Demolition and Removal of Containment System*	TS-7	$ 3,043
6.	*Removal of Soil*	TS-8	$ 0
7.	*Backfill*	TS-9	$ 0
8.	Decontamination[a]	DC-1	$ *
9.	Sampling and Analysis[b]	SA-2	$ *
10.	*Monitoring Well Installation*[c]	MW-1	$ 0
11.	Transportation[d]	TR-1	$ *
12.	Treatment and Disposal[e]	TD-1	$ *
13.	Subtotal of Closure Costs (Add lines 1 through 12)		$ 5,402
14.	Engineering Expenses (Approximately 10% of closure costs, excluding certification of closure [Multiply line 13 by 0.10])		$ 541
15.	Certification of Closure	TS-10	$ *
16.	Subtotal (Add engineering expenses and cost of certification of closure to closure costs [Add lines 13, 14, and 15])		$ 5,943
17.	Contingency Allowance (Allow 20% of closure costs, engineering expenses, and cost of certification of closure [Multiply line 16 by 0.20])		$ 1,189
18.	*Landfill Closure*[f]	LF-2	$ 0
	TOTAL COST OF CLOSURE *(add lines 16, 17, and 18)*		$ 7,132

* = Included with container costs

Notes:

[a] Decontamination Worksheets are found in Chapter 12.

[b] Sampling and Analysis Worksheets are found in Chapter 13.

[c] Monitoring Well Installation Worksheets are found in Chapter 14.

[d] Transportation Worksheets are found in Chapter 15.

[e] Treatment and Disposal Worksheets are found in Chapter 16.

[f] Landfill Summary Worksheets are found in Chapter 7. Costs of post-closure care are included in this total.

1	Maximum volume of waste to be removed from the tank and ancillary piping (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Labor and equipment cost per work hour[a]	$ 101.90	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 101.90/work hr[b]		
	b. Protection Level C $ 127.87/work hr[c]		
	c. Protection Level B $ 151.45/work hr[c]		
3	Work rate required to remove waste from tank and ancillary piping[d]	0.00017 work hr/ gal capacity	
4	Number of hours required to remove waste from tank and ancillary piping (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	3 work hrs	
TOTAL COST OF REMOVAL OF WASTE FROM TANK AND ANCILLARY PIPING (Multiply line 2 by line 4) (Enter total on worksheet TS-2, line 1)			$ 306

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. Activity described is removing sludge, water, and remaining waste from bottom of tank with a vacuum truck.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader. See Appendix B of this manual for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. A waste removal estimate of one hour for a one-person crew is required for one, 6,000-gallon tank.

Complete this worksheet *only* if the contents of the tank are ignitable.

1	Maximum capacity of tank system (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Amount of solid carbon dioxide (dry ice) needed per gal capacity[a]	1.5 lbs/ 100 gal capacity	
3	Amount of dry ice needed to purge tank system (Divide line 1 by 100 gal and multiply value by 1.5 lbs)	226 lbs	
4	Cost of dry ice[a]	$ 0.75/lb	
5	Cost of dry ice needed to purge tank system (Multiply line 3 by line 4)		$ 170
6	Labor cost per work hour[b]	$ 30.10	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 30.10/work hr[c]		
	b. Protection Level C $ 45.30/work hr[d]		
	c. Protection Level B $ 58.11/work hr[d]		
7	Work rate required to purge tank per gal capacity[a]	0.00024 work hr/ gal capacity	
8	Number of hours required to purge tank system (Multiply line 1 by line 7) (One hour minimum; round up to the 0.5 hour)	4 work hrs	
9	Labor cost to purge tank system (Multiply line 6 by line 8)		$ 120
TOTAL COST OF TANK SYSTEM PURGING (Add lines 5 and 9) (Enter total on worksheet TS-2, line 2)			$ 290

Notes:

[a] Material requirements derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401.

[b] Labor requirements derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401. One common laborer is specified for this activity.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 499, crew A-1. Total cost for one common laborer is $29.10/hr.

[d] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 499, crew A-1. Total cost for one common laborer is $29.10/hr. See Appendix B of this manual for details of the calculation.

[c] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401. The work rate was estimated assuming the work hours required per pound of dry ice as follows: 0.016 work hr/lb of dry ice x 1 ½ lbs of dry ice/100-gal capacity = 0.00024 work hr/gal capacity.

1	Maximum capacity of the tank and ancillary piping (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Number of times tank and ancillary piping are flushed (If unknown, assume 1)	1	
3	Total volume of flushing solution (Multiply line 1 by line 2)	15,062 gal	
4	Labor and equipment cost per work hour[a]	$ 101.90	
	Choose the appropriate level of PPE:		
	a. Protection Level D $101.90/work hr[b]		
	b. Protection Level C $ 127.87/work hr[c]		
	c. Protection Level B $ 151.45/work hr[c]		
5	Work rate required to flush tank and ancillary piping[d]	0.00034 work hr/ gal capacity	
6	Number of hours required to flush tank and ancillary piping (Multiply line 3 by line 5) (One hour minimum; round up to the 0.5 hour)	5.5 work hrs	
7	Subtotal of labor and equipment costs to flush tank and ancillary piping (Multiply line 4 by line 6)		$560
8	Total volume of flushing solution (Enter from line 3). (The volume of flushing solution generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be handled effectively by placement in drums, use worksheet TD-3 (for water-based flushing solution) or TR-1 and TD-2 (for a solvent solution) to calculate the transportation, treatment, and disposal cost. If the flushing solution is to be placed in drums, complete lines 9 through 11.)	15,062 gal	
9	Number of drums required to contain flushing solution (Divide line 8 by 55 gallons per drum; round up to the nearest whole number)	/ drums Containerize in Tankers	
10	Cost of one drum[e]	$ 62.95/drum	
11	Cost of drums needed to contain flushing solution (Multiply line 9 by line 10)		$ 0
TOTAL COST TO FLUSH TANK AND ANCILLARY PIPING (Add lines 7 and 11) (Enter total on worksheet TS-2, line 3)			$ 560

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. Activity described is removing sludge, water, and remaining waste from bottom of tank with a vacuum truck.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader. See Appendix B of this manual for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. The work rate for a 1-person crew was derived based on the waste removal rate for a 6,000-gal tank as follows: 1 hr/6,000-gal tank x 2 = 0.00034 work hr/gal capacity, because the tank must be filled and emptied to flush it.

[e] Lab Safety Supply, *General Catalog*, pg. 354, 55-gallon, lock-ring, open-head, 18-gauge steel drum.

This worksheet can be used to determine the costs of excavation and disassembly of tanks and ancillary piping for aboveground, on-ground, in-ground, and underground tanks. To determine costs for in-ground and underground tanks, complete sections 1 and 2; to determine costs for on-ground and aboveground tanks, complete sections 2 and 3.

1 EXCAVATION AND LOADING (FOR IN-GROUND AND UNDERGROUND TANKS ONLY)			
1.A	Capacity of tank (Enter from worksheet TS-1, line 1.B)	gal	
1.B	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 36.16/work hr[b] b. Protection Level C $ 52.27/work hr[c] c. Protection Level B $ 65.99/work hr[c]	$	
1.C	Work rate required to remove and load tank per gallon capacity[d]	0.002 work hr/ gal capacity	
1.D	Number of hours required to excavate and load tank (Multiply line 1.A by line 1.C) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.E	**Cost to Excavate and Load Tank (Multiply line 1.B by line 1.D)**		$ 0

2 DISASSEMBLY OF ANCILLARY PIPING			
2.A	Length of ancillary piping to be disassembled (Enter from worksheet TS-1, line 1.E)	94 ft	
2.B	Labor and equipment cost per work hour[e] Choose the appropriate level of PPE: a. Protection Level D $ 41.18/work hr[f] b. Protection Level C $ 58.04/work hr[g] c. Protection Level B $ 72.51/work hr[g]	$ 41.18	
2.C	Work rate required to disassemble 1 ft of pipe[h]	0.150 work hr/ft	
2.D	Number of hours required to disassemble ancillary piping (Multiply line 2.A by line 2.C) (One hour minimum; round up to the 0.5 hour)	14 work hrs	
2.E	**Cost of disassembly of ancillary piping (Multiply line 2.B by line 2.D)**		$ 577

3 LOADING (FOR ON-GROUND AND ABOVEGROUND TANKS ONLY)			
3.A	Capacity of tank (Enter from worksheet TS-1, line 1.B)	15,000 gal	
3.B	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 41.72/work hr[b] b. Protection Level C $ 58.66/work hr[c] c. Protection Level B $ 73.22/work hr[d]	$41.72	
3.C	Work rate required to load tank per gallon capacity[e]	0.001 work hr/ gal capacity	
3.D	Number of hours required to load tank (Multiply line 3.A by line 3.C) (One hour minimum; round up to the 0.5 hour)	15 work hrs	
3.E	Cost to Load Tank (Multiply line 3.B by line 3.D)		$ 626
TOTAL COST OF EXCAVATION, DISASSEMBLY, AND LOADING (Add lines 1.E, 2.E, and 3.E) (Enter total on worksheet TS-2, line 4)			$1,203

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. Activity described is excavating an underground tank and loading it into a trailer.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-14. Crew B-14 consists of one labor foreman, four building laborers, one equipment operator, and one backhoe loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 495, crew B-14. Crew B-14 consists of one labor foreman, four building laborers, one equipment operator, and one backhoe loader. See Appendix B for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. An excavation and loading estimate of 12 work hours for a six-person crew is required for one 6,000 gallon tank. Therefore, the per gallon work rate is 12 work hrs/6,000-gal capacity = 0.002 work hr/gal capacity.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-3200. activity described is demolition of 4-in steel pipe with welded connections.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader.

[g] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader. See Appendix B of this manual for details of the calculation.

[h] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-3200. Work rate is based on a three-person crew.

i Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. Activity described is excavating an underground tank and loading it into a trailer. Activity and crew costs are modified to exclude excavation and cost only loading of a tank.

k R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-13. Crew B-13 consists of one labor foreman, four building laborers, one crane operator, one equipment operator oiler, and one 25-ton hydraulic crane.

l Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-13. Crew B-13 consists of one labor foreman, four building laborers, one crane operator, one equipment operator oiler, and one 25-ton hydraulic crane. See Appendix B for details of the calculation.

m Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. An excavation and loading time of 12 hours for a six-person crew is required for one 6,000-gallon underground tank. Therefore, an estimate of 6 hours (half the time) is assumed for one 6,000-gallon aboveground tank. Calculation of the work rate of 0.001 work hour per gallon capacity was derived as follows: 6 hrs/tank x 1 tank/6,000 gal = 0.001 work hr/gal capacity.

DEMOLITION AND REMOVAL OF CONTAINMENT SYSTEM - Page 1 of 2

1	DEMOLITION OF CONTAINMENT SYSTEM		
1.A	Area of containment system (Enter from worksheet TS-1; add lines 4.C, 6.C, and 9)	1,371 ft²	
1.B	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 34.98/work hr[b] b. Protection Level C $ 50.91/work hr[c] c. Protection Level B $ 64.45 work hr[c]	$ 34.98	
1.C	Work rate to demolish one ft² of containment system[d]	0.040 work hr/ft²	
1.D	Number of hours required to demolish the containment system (Multiply line 1.A by line 1.C) (One hour minimum; round up to the 0.5 hour)	55 work hrs	
1.E	Cost to Demolish the Containment System (Multiply line 1.B by line 1.D)		$ 1,924
2	REMOVAL AND LOADING OF CONTAINMENT SYSTEM		
2.A	Volume of the containment system (Enter from worksheet TS-1; add lines 5.B, 7.B, and 9)	26 yd³	
2.B	Labor and equipment cost per work hour[e] Choose the appropriate level of PPE: a. Protection Level D $ 41.18/work hr[f] b. Protection Level C $ 58.04/work hr[g] c. Protection Level B $ 72.51/work hr[g]	$ 41.18	
2.C	Work rate to remove and load one yd³[h]	0.300 work hr/yd³	
2.D	Number of hours required to remove the containment system (Multiply line 2.A by line 2.C) (One hour minimum; round up to the 0.5 hour)	8 work hrs	
2.E	Subtotal of labor and equipment costs to remove and load the containment system (Multiply line 2.B by line 2.D)		$ 330
2.F	Number of debris box containers needed to hold containment system (Divide line 2.A by 20 yd³ per container; round up to the nearest whole number)	2 containers	
2.G	Cost of one 20-yd³-capacity debris box container (Rent per week)[i]	$ 260/container	

2.H	Cost of containers (Multiply line 2.F by line 2.G)	$ 520
2.I	Cost of mobilization and demobilization (flat rate)[k]	$ 269.00
2.J	Cost to Remove and Load Containment System (Add lines 2.E, 2.H, and 2.I)	$ 1,119
TOTAL COST OF DEMOLITION AND REMOVAL OF CONTAINMENT SYSTEM (Add lines 1.E and 2.J) (Enter total on worksheet TS-1, line 5)		$ 3,043

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994 pg. 24, item no. 554-2320. Activity described is site demolition, concrete, 6-in-thick, no reinforcing.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 506, crew B-39. Crew B-39 consists of one labor foreman, four building laborers, one light equipment operator, one air compressor (250 cubic feet per minute [cfm]), two air tools and accessories, and two 50-ft air hoses (1.5-in diameter).

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 506, crew B-39. Crew B-39 consists of one labor foreman, four building laborers, one light equipment operator, one air compressor (250 cfm), two air tools and accessories, and two 50-ft air hoses (1.5-in diameter). See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-2320. Work rate is based on a six-person crew and a 6-in-thick concrete slab without reinforcing.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25, item no. 620-3080. Activity described is loading by machine of demolition rubbish.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader.

[g] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader. See Appendix B of this manual for details of the calculation.

[h] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25, item no. 620-3080. Work rate is based on a three-person crew.

[i] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25. Cost is determined by averaging the weekly rental rate of a 10-yd^3-capacity debris box container (item no. 620-0700) and a 30-yd^3-capacity debris box container (item no. 620-800).

[k] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

REMOVAL OF SOIL - Page 1 of 2

Assume No Contaminated Soil

1	Volume of contaminated soil to be removed (Enter from worksheet TS-1, line 10.E)	yd^3	
2	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 59.83/work hr[b] b. Protection Level C $ 79.49/work hr[c] c. Protection Level B $ 96.76/work hr[c]	$	
3	Work rate required to remove one yd^3[3,d]	0.030 work hr/yd^3	
4	Number of hours required to remove soil (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	work hrs	
5	Cost to remove soil (Multiply line 2 by line 4)		$
6	Number of debris box containers needed to contain soil (Divide line 1 by 20 yd^3 per container; round up to the nearest whole number)	containers	
7	Cost of one 20-yd^3-capacity debris box container (rent per week)[e]	$260/container	
8	Cost of containers (Multiply line 6 by line 7)		$
9	Cost of mobilization and demobilization (flat rate)[f]		$ 269.00
	TOTAL COST OF REMOVAL OF SOIL (Add lines 5, 8, and 9) (Enter total on worksheet TS-2, line 6)		$ 0

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 43, item no. 242-2020. Activity described is excavating common earth and hauling the common earth 50 ft.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 501, crew B-10L. Crew B-10L consists of one medium equipment operator, one-half building laborer, and one 75-horsepower dozer.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 501, crew B-10L. Crew B-10L consists of one medium equipment operator, one-half building laborer, and one 75-horsepower dozer. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 43, item no. 242-2020. Work rate is based on a one-and-one-half-person crew.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25. Cost is determined by averaging the weekly rental rate of a 10-yd^3-capacity debris box container (item no. 620-0700) and a 30-yd^3-capacity debris box container (item no. 620-800).

Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

To calculate backfill costs, an estimate of the total volume of fill material required must be provided. Add the volumes of all materials removed to determine the total volume of fill material needed.

1	Volume of fill (Enter from worksheet TS-1; add lines 3.B, 5.B, and 10.E, as appropriate)	yd^3	
2	Compaction factor[a]	0.25	
3	Volume of additional fill required because of compaction factor (Multiply line 1 by line 2)	yd^3	
4	Total volume of fill needed (Add lines 1 and 3) (One yd^3 minimum; round up to the nearest whole number)	yd^3	
5	Labor, material, and equipment cost per yd^3[b]	$11.70/$yd^3$	
6	Subtotal of labor, material, and equipment costs to backfill (Multiply line 4 by line 5)		$
7	Cost of mobilization and demobilization (flat rate)[c]		$269.00
TOTAL COST OF BACKFILL (Add lines 6 and 7) (Enter total on worksheet TS-2, line 7)			$ 0

Notes:

[a] U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H)*, January 1987, EPA/530-SW-87-009, Volume III, pg. 7-10. Compaction factor provided is for native soil for slope and fill.

[b] R.S. Means Company, Inc. *Means Building Construction Cost Data*, 1994, pg. 42, item nos. 212-0200 and 212-0900. Cost is $8.30/$yd^3$ for common borrow plus $3.40/$yd^3$ for hauling the material a distance of 5 miles for a total cost of $11.70/$yd^3$.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

1	Number of units requiring certification of closure[a]	1	
2	Cost of certification of closure per unit[b]	$ 2,700	
TOTAL COST OF CERTIFICATION OF CLOSURE (Multiply line 1 by line 2) (Enter total on worksheet TS-2, line 15)			$ 2,700

Notes:

[a] Facilities closing multiple tanks in the same manner at the same time should incur cost of certification of closure only once.

[b] Assumes performance of the following tasks by an independent registered professional engineer at $56.50/hr: 1) 8 hrs for initial review of closure plan, 2) 16 hrs to perform final closure inspections, and 3) 16 hrs to prepare a certification of closure report [(8 hrs + 16 hrs + 16 hrs) x $56.50/hr = $2,260]. The estimate also includes 20 clerical hrs at a rate of $22/hr (20 hrs x $22/hr = $440). The total cost is $2,260 + $440 = $2,700.

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	Decontamination of Unit by Steam Cleaning or Pressure Washing	DC-2	$ 10,176
2.	Decontamination of Unit by Sand Blasting	DC-3	$ --
3.	Decontamination of Heavy Equipment	DC-4	$ 2,367
TOTAL COST OF DECONTAMINATION *(Add lines 1, 2, and 3)*			$ 12,543

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING - Page 1 of 2

Use this worksheet when the proposed method of decontaminating the unit is steam cleaning or pressure washing.

1	Area of unit to be decontaminated (Enter from appropriate unit inventory worksheet)	10,832 ft²	
2	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 34.79/work hr[b] b. Protection Level C $ 50.69/work hr[c] c. Protection Level B $ 64.21/work hr[c]	$34.79	
3	Work rate to steam clean or pressure wash one ft²[,d]	0.027 work hrs/ft²	
4	Number of hours required to steam clean or pressure wash the unit (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	292.5 work hrs	
5	Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing (Multiply line 2 by line 4)		$ 10,176
6	Volume of decontamination fluid (Multiply line 1 by 4 gal/ft²)[e] (The volume of decontamination fluids generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be handled effectively by placement in drums, use worksheet TD-3 in Chapter 16 to calculate the transportation, treatment, and disposal cost. If the decontamination fluids are to be placed in drums, complete lines 7 through 9.)	43,326 gal	
7	Number of drums required to contain decontamination fluid for removal (Divide line 6 by 55 gallons per drum; round up to the nearest whole number)	0 drums Containerize in Tanks	
8	Cost of one drum[f]	$ 62.95/drum	
9	Cost of drums needed to contain decontamination fluid (Multiply line 7 by line 8)		$ 0
	TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING (For bulk liquids, obtain cost from line 5. For drummed liquids, add lines 5 and 9.) (Enter total on worksheet DC-1, line 1)		$ 10,176

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Decontamination of heavy equipment typically will be conducted for equipment that will come into direct contact with hazardous waste.

1	Number of hours needed to decontaminate all heavy equipment used during closure of the unit (Enter from attachment to this worksheet)	8 work hrs	
2	Cost of steam cleaner rental per hour[a]	$ 5.98/hr	
3	Subtotal steam cleaner rental costs (Multiply line 1 by line 2)		$ 48
4	Labor cost per work hour[b] Choose the appropriate level of PPE: a. Protection Level D $ 30.10/work hr[b] b. Protection Level C $ 45.30/work hr[c] c. Protection Level B $ 58.11/work hr[c]	$ 30.10	
5	Subtotal of labor costs (Multiply line 1 by line 4)		$ 241
6	Volume of decontamination fluid (Multiply line 1 by 100 gallons per hour)[d] (The volume of decontamination fluids generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be effectively handled by placement in drums, use TD-3 worksheet in Chapter 16 to calculate the transportation, treatment and disposal cost. If the decontamination fluids are to be placed in drums, complete lines 7 through 9.)	800 gal Contain in Tanks	
7	Number of drums required to contain decontamination fluid for removal (Divide line 6 by 55 gallons per drum and round up to the nearest whole number)	drums	
8	Cost of one drum[e]	$ 62.95/drum	
9	Cost of drums (Multiply line 7 by line 8)		$ --
10	Cost of construction of temporary decontamination area for heavy equipment (Include this cost if permanent decontamination area does not exist)[f] NOTE: THIS COST SHOULD ONLY BE INCURRED ONCE FOR THE CLOSURE OF ALL UNITS		$ 1,225.71

11	Cost of demolition of temporary decontamination area for heavy equipment (Include this cost if permanent decontamination area does not exist)[e] NOTE: THIS COST SHOULD ONLY BE INCURRED ONCE FOR THE CLOSURE OF ALL UNITS	$ 852.10
	TOTAL COST OF DECONTAMINATION OF HEAVY EQUIPMENT (Add lines 3, 5, 9, 10, and 11) (Enter total on worksheet DC-1, line 3)	$ 2,367

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use Worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Notes:

[a] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-6300. Rental cost per hour was derived by dividing the daily rental rate by hours per day and adding the hourly operating cost: ($45/day ÷ 8 hrs/day) + $0.35/hr = $5.98/hr.

[b] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-1. The cost provided is the hourly rate for one building laborer.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-1. The cost provided is the hourly rate for one building laborer. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-6300. Production rate of steam cleaner is 100 gal/hr.

[e] Lab Safety Supply, *General Catalog*, 1993, pg. 354, 55-gallon, lock-ring, open head, 18-gauge steel drum.

[f] Assume the temporary decontamination area is 25.5 ft by 17 ft and is constructed on a 3/4-in plywood base, with 6-in-by-8-in-by 8.5-ft railroad tie curbs and 2-in-by-8-in-by-16-in concrete blocks that hold the 6-mil polyethylene sheeting that covers the decontamination area.

Plywood - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 166, item no. 164-0200. The cost per ft^2 is $0.56. A total of 433.5 ft^2 of plywood is needed to cover the decontamination area. The cost of the plywood was calculated by multiplying the cost per ft^2, $0.56, by the number of ft^2, 433.5 = $242.76.

Railroad Ties - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 62, item no. 258-0600. The cost per ft is $2.25. A total of 10 railroad ties is needed to construct a curb around the decontamination area. The cost of the railroad ties was calculated by multiplying the cost per foot, by the length of each railroad tie, and by the number of railroad ties needed: $2.25/ft x 8.5 ft x 10 = $191.30.

Polyethylene Sheeting - Lab Safety Supply, *General Catalog*, 1993, pg. 635, 20-ft-by-100-ft roll of 6-mil polyethylene sheeting. The cost per roll is $54.95. A total of one roll is needed to cover the decontamination area.

Concrete Blocks - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 140, item no. 204-0020. The cost per block is $0.70. A total of 15 concrete blocks is needed to hold the polyethylene sheeting. The cost of the blocks was calculated by multiplying the cost of one block by the number of blocks needed: $0.70/block x 15 = $10.50.

Labor to Construct Decontamination Area - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 449, crew A-1. Assume that two building laborers at $30.10 per hour will construct the decontamination area in eight hours. The cost of the labor was calculated by multiplying the cost per

hour for one building laborer, by the number of work hours needed to construct the decontamination area: $30.10/hr x 16 = $481.60.

Equipment Rental - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 17, item no. 420-2020. One forklift will be needed to move the railroad ties into place. The cost of renting one forklift for one day was calculated by multiplying the operational cost per hour by 8 hours and adding the daily rental cost: (8.95/hr x 8 hrs) + $173 = $244.60.

The total cost of constructing the decontamination area is $242.76 + $191.30 + 54.95 + 10.50 + $481.60 + $244.60 = $1,225.71.

Costs for demolition of the temporary decontamination area were derived as follows:

Labor to Demolish Decontamination Area - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1993, pg. 451, crew A-1. Assume that two building laborers, at $30.10/hr, demolish the decontamination area in eight hours. The cost of the labor was calculated by multiplying the cost per hour for one building laborer, by the number of work hours needed to demolish the decontamination area: $30.10/hr x 16 hrs = $481.60.

Equipment Rental - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1993, pg. 17, item no. 420-2020. One forklift will be needed to move the railroad ties into place. The cost of renting one forklift for one day (8 hours) was calculated by multiplying the operational cost per hour by 8 hours and adding the daily rental cost: ($8.95/hr x 8 hrs) + $173 = $244.60.

Drums to Contain Contaminated Polyethylene Sheeting - Lab Safety Supply, *General Catalog*, 1993, pg. 354, 55-gallon, lock-ring, open head, 18-gauge steel drum. The cost of one drum is $62.95. Two drums are needed to contain the polyethylene sheeting. The cost of purchasing drums was calculated as follows: $62.95/drum x 2 drums = $125.90.

The total cost of demolishing the decontamination area is $481.60 + $244.60 + $125.90 = $852.10.

Decontamination Times for Heavy Equipment[a] Reference for Line 1

Use the following time estimates to calculate the total number of hours needed to decontaminate all heavy equipment. Assume that each piece of heavy equipment will be decontaminated at least once for the closure of each unit.

Equipment	Decontamination Time (Hrs)
Forklift	X 1
Rotary disc	X 1
Tractor	2
Tank wagon	2
Front-end loader	X 3
Dozer	X 3
Backhoe	3
Front shovel	3

Notes:

- U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H)*, January 1987, EPA/530-SW-87-009, Volume III, pg. 5-2.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the cost of sampling and analysis during closure. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 NUMBER OF BORING AND SUBSURFACE SOIL SAMPLES

In the additional space below, identify the number of boring and subsurface soil samples being collected for each individual unit. Add the number of samples and record the total in the box provided.

1	Number of Boring and Subsurface Soil Samples	0 samples

2 NUMBER OF CONCRETE CORE SAMPLES

In the additional space below, identify the number of concrete core samples being collected for each individual unit. Add the number of samples and record the total in the box provided.

2	Number of Concrete Core Samples	0 samples

3 NUMBER OF WIPE SAMPLE LOCATIONS

In the additional space below, identify the number of wipe sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

3	Number of Wipe Sample Locations	1 sample locations

4 NUMBER OF AQUEOUS SAMPLE LOCATIONS

In the additional space below, identify the number of aqueous sample locations being collected for each individual unit. Add the number of sample locations and record the total in the box provided.

4	Number of Aqueous Sample Locations Decon final rinse water from 5 areas Decon (prior to disposal)	7 sample locations

5 NUMBER OF NONAQUEOUS SAMPLE LOCATIONS

In the additional space below, identify the number of nonaqueous sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

5	**Number of Nonaqueous Sample Locations** Tank Area = 2	2 sample locations

6 NUMBER OF GROUNDWATER SAMPLE LOCATIONS

In the additional space below, identify the number of groundwater sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

6	**Number of Groundwater Sample Locations**	0 sample locations

7 NUMBER OF LYSIMETERS TO BE SAMPLED

In the additional space below, identify the number of lysimeters to be sampled. Record the number in the box provided.

7	**Number of Lysimeters to be Sampled**	0 samples

8 NUMBER OF SUBSURFACE SOIL SAMPLES COLLECTED DURING MONITORING WELL INSTALLATION

In the additional space below, identify the number of subsurface soil samples collected during monitoring well installation.

8	**Number of Subsurface Soil Samples Collected During Monitoring Well Installation**	0 samples

Facility Name: _____

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Boring and Subsurface Soil Sample	SA-3	$ 0
2.	Concrete Core Sample	SA-4	$ 0
3.	Wipe Sample	SA-5	$ 466
4.	Aqueous Sample	SA-6	$ 4,779
5.	Nonaqueous Sample	SA-7	$ 1,863
6.	Groundwater Sample	SA-8	$ 0
7.	Soil-Pore Liquid Sample	SA-9	$ 0
8.	Analysis of Subsurface Soil Sample (from Monitoring Well Installation)	SA-10	$ 0
TOTAL SAMPLING AND ANALYSIS COST *(Add lines 1 through 8)*			$ 7,108

Use this worksheet when you are estimating the cost to collect soil or rock samples at depth. This worksheet estimates cost by using a drill rig or other mechanical equipment to bore or core soil and rock using various drilling methods.

No Borings

1 BORING AND SUBSURFACE SOIL SAMPLE COSTS - 2-1/2-INCH-DIAMETER HOLE			
1.A	Number of borings to be drilled (Enter from worksheet SA-1; line 1)	borings	
1.B	Enter total of bore depths (Add all depths. If the depth is not provided, use the average boring depth and multiply by line 1.A)	ft	
1.C	Labor and equipment cost per work hour (Enter costs from Attachment A to this worksheet)	$ /work hr	
1.D	Work rate to drill 2-1/2-inch-diameter hole (Enter work rates from Attachment B to this worksheet)	work hr/ft	
1.E	Number of hours required to drill 2-1/2-inch-diameter hole (Multiply line 1.B by line 1.D) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.F	Cost to Drill 2-1/2-inch Borings (Multiply line 1.C by line 1.E)		$

2 BORING AND SUBSURFACE SOIL SAMPLE COSTS - 4-INCH-DIAMETER HOLE			
2.A	Number of borings to be drilled (Enter from worksheet SA-1; line 1)	borings	
2.B	Enter total of bore depths (Add all depths. If depth is not provided, use the average depth and multiply by line 2.A)	ft	
2.C	Labor and equipment cost per work hour (Enter costs from Attachment A to this worksheet)	$ /work hr	
2.D	Work rate to drill 4-inch-diameter hole (Enter work rates from Attachment B to this worksheet)	work hr/ft	
2.E	Number of work hours required to drill 4-inch-diameter hole (Multiply line 2.B by line 2.D) (One hour minimum; round up to the 0.5 hour)	work hrs	
2.F	Cost to Drill 4-inch Borings (Multiply line 2.C by line 2.E)		$

3 ANALYSIS OF BORING SAMPLE			
3.A	Using the table in Attachment C to this worksheet, calculate the cost of analysis per sampling event for boring or soil core samples (Enter cost from Attachment C to this worksheet)	$ /event	
3.B	Enter the number of sampling events	events	
3.C	**Cost to Analyze Soil Samples (Multiply line 3.A by line 3.B)**		$
	TOTAL COST OF SAMPLING AND ANALYSIS OF BORING AND SOIL CORE SAMPLES (Add line 1.F, 2.F, and 3.C) (Enter total on worksheet SA-2, line 1)		$ 0

Drilling Labor and Equipment Costs Reference for Lines 1.C and 2.C

Drilling Method	Drilling Labor and Equipment Cost Per Work Hour ($) for 2-1/2-Inch and 4-Inch Diameter Boreholes		
	Level D	Level C	Level B
Hollow-Stem Auger	57.04[a]	76.28[b]	93.13[b]
Cased Borings	57.04[a]	76.28[b]	93.13[b]
BX-size Rock Core	69.41[c]	90.51[d]	109.21[d]
NX-size Rock Core	69.41[c]	90.51[d]	109.21[d]

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-55. Crew B-55 consists of two building laborers, one truck driver, one flatbed truck with auger, and one 3-ton truck.

[b] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-55. Crew B-55 consists of two building laborers, one truck driver, one flatbed truck with auger, and one 3-ton truck. See Appendix B of this manual for details of the calculation.

[c] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-56. Crew B-56 consists of one building laborer, one light equipment operator, one 4-in crawler-type drill, one 600-cfm air compressor, and one 3-in-diameter, 50-ft air hose.

[d] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-56. Crew B-56 consists of one building laborer, one light equipment operator, one 4-in crawler type drill, one 600 cfm air compressor, and one 3-in-diameter, 50-ft air hose. See Appendix B of this manual for details of the calculation.

Drilling Work Rate
Reference for Lines 1.D and 2.D

Drilling Method	Borehole Diameter (in)	Drilling Rate (Work Hour/Foot)
Hollow-Stem Auger (with sample collection)	2-1/2 4	0.457[a] 0.534[b]
Cased Borings (with sample collection)	2-1/2 4	0.432[c] 0.736[d]
BX-size Rock Core (with casing and sample collection)	2-1/2	0.505[e]
NX-size Rock Core (with casing and sample collection)	4	0.640[f]

Notes:

[a] Work rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0600. Work rate is based on a three-person crew. Activities include augering 2-1/2-in-diameter holes in earth. Assume a 50 percent decrease in drilling rate efficiency for collection of continuous split-spoon samples.

[b] Work rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0650. Work rate is based on a three-person crew. Activities include augering 4-in-diameter holes in earth. Assume a 50 percent decrease in drilling rate efficiency for collection of continuous split-spoon samples.

[c] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0800. Work rate is based on a three-person crew. Activities include cased borings in earth, with samples, 2-1/2-in-diameter.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0850. Work rate is based on a three-person crew. Activities include cased borings in earth, with samples, 4-in-diameter.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-1050. Work rate is based on a two-person crew. Activities include drilling a "BX" core, in rock, with casing and sampling.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-1250. Work rate is based on a two-person crew. Activities include drilling a "NX" core in rock, with casing and sampling.

Cost of Analysis per Sampling Event
Reference for Line 3.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF SOIL SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Coring may be necessary for collecting bulk samples from hard surfaces, such as concrete.
No Core Samples

1	COLLECTION OF CORE SAMPLE		
1.A	Number of corings to be drilled (Enter from worksheet SA-1; line 2)	coring samples	
1.B	Labor and equipment cost per work hour[a]	$	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 38.29/work hr[b]		
	b. Protection Level C $ 54.72/work hr[c]		
	c. Protection Level B $ 68.76/work hr[c]		
1.C	Work rate to drill each core sample to a 6-inch depth[d]	0.400 work hr/sample	
1.D	Number of hours required to drill 3-inch-diameter boring (Multiply line 1.A by Line 1.C) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.E	Cost to Collect Core Samples (Multiply line 1.B by line 1.D)		$
2	ANALYSIS OF CORE SAMPLES		
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for core samples (Enter cost from the attachment to this worksheet)	$ /event	
2.B	Enter the number of sampling events	events	
2.C	Cost to Analyze Core Samples (Multiply line 2.A by line 2.B)		$
	TOTAL COST OF SAMPLING AND ANALYSIS OF CORING SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 2)		$

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 125-0300. Activities include drilling a 3-in-diameter core in a concrete slabs up to 6-in thick.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 510, crew B-89A. Crew B-89A consists of one skilled worker, one laborer, and one large-core drill.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 510, crew B-89A. Crew B-89A consists of one skilled worker, one laborer, and one large-core drill. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 125-0300. Work rate is based on a two-person crew. The work rate is for coring to a 6-in depth; if the coring sample is deeper than 6 in, add 0.060 to the work rate for each additional inch.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis (¢) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis (¢) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF CORING SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Wipe samples are used to assess surface contamination of hard, relatively nonporous surfaces. Wipe sampling should be used only when the contaminant of concern has a heavy, persistent characteristic, meaning it does not easily volatilize or leave the surface being sampled. Contaminants typically sampled by wipe sampling techniques are polychlorinated biphenyls (PCB) and dioxins.

1 COLLECTION OF WIPE SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 3)	1 sample locations	
1.B	Sampling team and equipment cost per work hour[a]	$ 91.29	
	Choose the appropriate level of PPE: a. Protection Level D $ 91.29/work hr[b] b. Protection Level C $ 115.67/work hr[c] c. Protection Level B $ 137.66/work hr[c]		
1.C	Work hours required to collect samples from one sampling location[d]	0.5 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	.5 work hrs	
1.E	Cost to Collect Wipe Samples (Multiply line 1.B by line 1.D)		$ 46
2 ANALYSIS OF WIPE SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for wipe samples (Enter cost from the Attachment to this worksheet)	$ 420 /event	
2.B	Enter the number of sampling events	1 events	
2.C	Cost to Analyze Wipe Samples (Multiply line 2.A by line 2.B)		$ 420
TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 3)			$ 466

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

d Work rate is determined by assuming two wipe samples can be collected in an hour, using the following method: saturate a piece of filter paper or gauze with appropriate solvent. Using a pair of stainless steel forceps or rubber gloves, wipe an area of 100 cm^2 with the saturated filter paper or gauze to obtain the sample. Place the filter paper or gauze in the sample jar, label the sample jar, place the sample jar in an ice chest (cool to 4° C), complete appropriate sample documentation, and move to the next sample location.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF WIPE SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Aqueous samples refer to liquid samples, including samples of rinsate and wastewater. Do not use this worksheet for estimating the cost of sampling other aqueous media, such as groundwater.

1 COLLECTION OF AQUEOUS SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 4)	7 sample locations	
1.B	Sampling team and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 91.29/work hr[b] b. Protection Level C $ 115.67/work hr[c] c. Protection Level B $ 137.66/work hr[d]	$91.29	
1.C	Work hours required to collect samples from one sampling location[e]	1 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	7 work hrs	
1.E	**Cost to Collect Aqueous Samples (Multiply line 1.B by line 1.D)**		$ 639.03
2 ANALYSIS OF AQUEOUS SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for aqueous samples (Enter cost from the Attachment to this worksheet)	$4140 /event	
2.B	Enter the number of sampling events	1 events	
2.C	**Cost to Analyze Aqueous Samples (Multiply line 2.A by line 2.B)**		$ 4140
	TOTAL COST OF SAMPLING AND ANALYSIS OF AQUEOUS SAMPLES (Add line 1.E to line 2.C) (Enter total on cost worksheet SA-2, line 4)		$ 4779

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

4 Work rate obtained by assuming two aqueous samples can be collected in an hour using the following methods:

Rinsate Sample - Using laboratory prepared de-ionized water or an appropriate solvent, pour water over an area of the surface to be sampled. Collect the water or solvent in a precleaned sample container. Preserve the sample, label the sample jar, place the sample in an ice chest (cool to 4° C), complete the appropriate sample documentation, and move to the next sample location.

Wastewater and other aqueous samples - Various sample collection devices (bailers, kemmerer samples, Van Dorn samples, peristaltic pump, and others) can be used to collect wastewater and other aqueous samples. Samples are collected with the appropriate device and the liquid is poured into sample containers. The samples are then preserved, labeled, and placed in an ice chest (cooled to 4° C). Sample documentation is completed, the sampling equipment is decontaminated, and the samplers move to the next location.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
Metals 8150 8240/8260 8270 Specific Constituents	$460	9	$4,140
TOTAL COST FOR ANALYSIS OF AQUEOUS SAMPLES (Total of all costs in column 4)			$ 4,140 /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Nonaqueous samples refer to sludge, chip, or surface soil samples. These samples are shallow samples, that is, they are collected at depths of less than 1.5 feet below ground surface.

1 COLLECTION OF NONAQUEOUS SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 5)	2 sample locations	
1.B	Sampling team and equipment cost per work hour[a]	$ 91.29	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 91.29/work hr[b]		
	b. Protection Level C $ 115.67/work hr[c]		
	c. Protection Level B $ 137.66/work hr[c]		
1.C	Work hours required to collect samples from one sampling location[d]	1 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	2 work hrs	
1.E	**Cost to Collect Nonaqueous Samples (Multiply line 1.B by line 1.D)**		$ 183
2 ANALYSIS OF NONAQUEOUS SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for nonaqueous samples (Enter costs from the attachment to this worksheet)	$ 1,680 /event	
2.B	Enter the number of sampling events	1 events	
2.C	**Cost to Analyze Nonaqueous Samples (Multiply line 2.A by line 2.B)**		$ 1,680
	TOTAL COST OF SAMPLING AND ANALYSIS OF NONAQUEOUS SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 5)		$ 1,863

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

[d] U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subpart G and H)*, January 1987, EPA/530-SW-009, Volume III, pg. 2-16.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
Metals 8015 8150 8240/8260 8270 Specific Constituents	$420	4	$1,680
TOTAL COST FOR ANALYSIS OF NONAQUEOUS SAMPLES (Total of all costs in column 4)			$ 1,680 /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

TRANSPORTATION OF WASTE - Page 1 of 1

Facility Name: _____

Depending on the activities being conducted, it may not be necessary to complete each section of the transportation worksheet.

1 TRANSPORTATION OF DRUMMED WASTE			
1.A	Number of drums of waste	1,057 drums	Based on South Building and Dumpsters (58,124 gal.)
1.B	Cost to transport one truckload of 55-gallon drums 250 miles[a]	$ 1,062.50/truckload	
1.C	Number of truckloads needed to transport waste in drums (Divide line 1.A by 80 drums per truckload; round up to the nearest whole number)	13 truckloads	
1.D	**Cost to Transport Drummed Waste (Multiply line 1.B by line 1.C)**		$13,813
2 TRANSPORTATION OF BULK LIQUIDS			
2.A	Gallons of liquid waste	15,000 gal	
2.B	Cost to transport one truckload of bulk liquids 250 miles[b]	$ 1,062.50/truckload	
2.C	Number of truckloads needed to transport bulk free liquid waste (Divide line 2.A by 6,900 gallons per truckload; round up to the nearest whole number)	2 truckloads	
2.D	**Cost to Transport Bulk Liquid Waste (Multiply line 2.B by line 2.C)**		$2,125
3 TRANSPORTATION OF BULK WASTE			
3.A	Number of waste debris boxes	2 debris boxes	
3.B	Cost to transport one truckload of bulk waste 250 miles[a]	$ 1,062.50/truckload	
3.C	Number of truckloads needed to transport bulk waste (Assume one debris box can be hauled on every truck)	2 truckloads	
3.D	**Cost to Transport Bulk Solid Waste (Multiply line 3.B by line 3.C)**		$ 2,125
	TOTAL COST OF TRANSPORTATION OF WASTE (Add lines 1.D, 2.D, and 3.D) (Enter total on appropriate unit summary worksheet)		$18,063

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 30, item no. 717-1270. Activity described is transporting one truckload of solid waste. Maximum capacity of truck is 80 drums or 25 yd^3 and the cost per mile is $4.25. Assume a 250-mi trip to transport waste. The cost is calculated as follows: $4.25/mi x 250 mi = 1,062.50.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 30, item no. 717-3400. Activity described is transporting one truckload of bulk free liquid waste. Maximum capacity of truck is 6,900 gallons, and the cost per mile is $4.25. Assume a 250-mi trip to transport waste. The cost is calculated as follows: $4.25/mi x 250 mi = 1,062.50.

Facility Name: _____

SUMMARY WORKSHEET			
	Activity	Worksheet Number	Cost
1.	Treatment and Disposal of Waste	TD-2	$109,920
2.	Transportation and Disposal of Decontamination Fluids	TD-3	$ 22,943
	TOTAL COST OF TREATMENT AND DISPOSAL *(Add lines 1 and 2)*		$132,863

1 TREATMENT AND DISPOSAL OF WASTE 1 Waste Solvent			
1.A	Volume of Waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual or conversion factors, if needed)	1057 55-gal drums yd^3	1,057 55-gal. drums
1.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
1.C	Amount of waste to be treated as disposed of (Multiply line 1.A by line 1.B)	lb	
1.D	Amount of waste to be treated or disposed of in tons (Divide line 1.C by 2,000 lb/ton)	tons	
1.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ 60/drum /ton	
1.F	**Cost to Treat and Dispose of Waste 1 (Multiply line 1.D by line 1.E)**		$ 63,420

2 TREATMENT AND DISPOSAL OF WASTE 2 Waste Solvent			
2.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	15,000/gal yd^3	15,000 gal bulk
2.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
2.C	Amount of waste to be treated as disposed of (Multiply line 2.A by line 2.B)	lb	
2.D	Amount of waste to be treated or disposed of in tons (Divide line 2.C by 2,000 lb/ton)	tons	
2.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ 1.0/gal /ton	
2.F	**Cost to Treat and Dispose of Waste 2 (Multiply line 2.D by line 2.E)**		$ 15,000

3 TREATMENT AND DISPOSAL OF WASTE 3 Bulk Debris			
3.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	yd^3	
3.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
3.C	Amount of waste to be treated as disposed of (Multiply line 3.A by line 3.B)	lb	
3.D	Amount of waste to be treated or disposed of in tons (Divide line 3.C by 2,000 lb/ton)	tons	
3.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ /ton	
3.F	**Cost to Treat and Dispose of Waste 3 (Multiply line 3.D by line 3.E)**		$ 1,500 *
4 TREATMENT AND DISPOSAL OF WASTE 4			
4.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	yd^3	
4.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
4.C	Amount of waste to be treated as disposed of (Multiply line 4.A by line 4.B)	lb	
4.D	Amount of waste to be treated or disposed of in tons (Divide line 4.C by 2,000 lb/ton)	tons	
4.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ /ton	
4.F	**Cost to Treat and Dispose of Waste 4 (Multiply line 4.D by line 4.E)**		$
TOTAL COST OF TREATMENT AND DISPOSAL (Add lines 1.F, 2.F, 3.F, and 4.F) (Enter total on worksheet TD-1, line 1)			$ 109,920

Notes:

* Depending on information available, treatment costs per unit may be determined by using either Attachment B (based on waste characteristics) or Attachments C and D (based on treatment and disposal technologies).

* = Based upon Altamont Springs Costs from BFI

TRANSPORTATION AND DISPOSAL OF DECONTAMINATION FLUIDS- Page 1 of 2

If the amount of wastewater generated during unit closure activities exceeds a volume that can be handled effectively by placing the waste in drums, wastewater may be handled and disposed of as a bulk liquid. This worksheet may be used to determine the cost to transport and dispose of wastewater generated during closure as a bulk hazardous liquid.

1	Determine the volume of decontamination fluid generated from closure activities. Add all volumes calculated from closure activity worksheets to determine the total volume of liquid to be transported and disposed of. _____ gal _____ gal _____ gal _____ gal _____ gal	59,188 total gal	
2	Labor and equipment cost per work hour[a] Choose the appropriate Level of PPE: a. Protection Level D $39.24/work hr[b] b. Protection Level C $55.81/work hr[c] c. Protection Level B $69.99/work hr[c]	$ 39.24	
3	Work rate to pump decontamination fluid to a holding tank (per gallon)[d]	0.0000667 work hrs/ gallon	
4	Number of hours required to pump decontamination fluid to a holding tank (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	4 work hours	
5	Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank (multiply line 2 by line 4)		$ 157
6	Number of days required to rent holding tank (Round up line 4 to nearest 8 hours; divide by 8 hours per day)	1 days	
7	Holding tank rental fee (10,000 gallon capacity) (Flat rate per tank per day)[e]	$345.00/day	
8	Number of tanks required (Divide line 1 by 10,000 gallons; round up to the nearest whole number)	6 tanks	
9	Subtotal of tank rental costs (Multiply lines 6, 7, and 8)		$ 2,070
10	Removal costs for bulk liquid (Multiply line 1 by $1.05 per gallon)[f]		$ 20,716 *
TOTAL COST TO TRANSPORT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID (Add lines 5, 9, and 10) (Enter total on worksheet TD-1, line 2)			$ 22,943

*Note: This assumes decon water is non-haz. .35/gal trans & disp.

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pgs. 18 and 38, item nos. 420-4300 and 404-0900. The activity described is pumping liquid with a 3-inch centrifugal gas pump at a rate of 15,000 gallons per hour.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-10J. Crew B-10J consists of one equipment operator, 0.5 building laborers, and one 3-inch centrifugal gas pump and accessories.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-10J. Crew B-10J consists of one equipment operator, one-half building laborer, and one 3-inch centrifugal water pump and accessories. See Appendix B of this manual for details of the calculations.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 18, item no. 420-4300. The work rate is obtained by determining the time required to pump one gallon of decontamination fluid ((1 hour ÷ 15,000 gallons).

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-7000. The cost is based on the daily cost of renting a 10,000-gallon-capacity liquid holding tank.

[f] Cost for removal of 1 gallon of decontamination fluid is based on 1994 price quotes from several commercial hazardous waste management companies. The cost includes transport, treatment, and disposal of bulk, water-based, hazardous liquids by a third-party contractor.

Decon water should not be hazardous!

CLOSURE COST CALCULATIONS

PERMITTED WASTE CAPACITY

Above Ground Storage Tank		15,000
North Building Container Storage		5,197
South Building Non-flammable Storage		44,367
South Building Flammable Storage		12,749
Dumpsters		1,008
	Container Areas	63,321
	Total Facility Capacity (gallons)	78,321

CONTAINER AREAS - CONTAINMENT SURFACE AREA

North Building Storage	40' x 30'	1,200
South Building Non-flammable	60' x 45'	2,700
South Building Flammable	45' x 45'	2,025
South Building Flammable Storage	50' x 80'	4,000
	Total (ft^2)	9,925

CONTAINER BERM SURFACE AREA

North Building	2 x (40' + 30')	140
South Building Non-flammable	2 x (60' + 45')	210
South Building Flammable	2 x (45' + 45')	180
	Total (feet)	530

Height = 4"
Surface Area = 530' x 4" = 177 ft^2

AST INTERIOR SURFACE AREA

Walls:	2π (5.25') (23.25') (radius) (height)	767
Top/Bottom:	2 x π $(5.25)^2$	173
	Total (ft^2)	940

CLOSURE COST CALCULATIONS

VOLUME OF AST CONTAINMENT

Surface Area:	2 x 47" x 49' (height) (length)	384
	2 x 47" x 18.5' (width)	147
Base Pad:	49' x 18.5'	906.5
	Total (ft^2)	1,435.5

Thickness = 6"
Volume = 717.75 ft^3

ESTIMATED ANCILLARY PIPE LENGTH

From dock to 16' height	12
From dock to tanks	50
Back to ground level	16
	78
+ 20%	15.6
Total (feet)	93.6

Capacity: 93.6' x .661 gal./ft. = 61.9 gallons (4" pipe)

Assumptions

- No contaminated soil.
- FDEP will require only 2 samples (under AST area).
- No groundwater monitoring will be required.
- Hazardous waste transport and disposal - quoted from Laidlaw 5/9/96 (800)465-2435.
  - Disposal: $.54 - $2.5 per gallon
    $45 - $180 per 55-gallon drum
  - Transport: (to Florida facility; bulked and shipped to incinerator)
    $10 per drum
- No costs included * for south flammable area pipe to external containment.
- Decon water will be non-hazardous.
- AST area cover will be wipe-tested; no decon will be necessary.

EMERGENCY PHONE NUMBERS

Emergency Coordinators

Primary: Chad Little
836 Greenbelt Circle
Brandon, FL 33510
Home: (813) 654-2189
Office: (813) 626-1203
Beeper: (813) 969-8203

Alternate: Shannon Sink
9228 Sunnyoak Dr.
Riverview, FL 33569
Home: (813) 671-2721
Office: (813) 626-1203
Beeper:813) 969-9399

Emergency Notification Phone Numbers

Safety-Kleen Environmental Department
Telephone (800) 468-1760

National Response Center
Telephone (800) 424-8802

Southwest Florida Department of the FDEP, 3804 Coconut Palm Drive
Tampa, Florida 33619-8318 (813) 744-6462 (normal business hours)

State Warning Point (904) 413-9911 (24 hours)

Emergency Team to be Notified

Hillsborough County Fire Department
715 S. 58th Street
Tampa, FL 33619
(813) 681-9927 or 911

Hillsborough County Sheriff's Office
220 Hilltop Road
Brandon, FL 33511
(813) 247-8555 or 911

Brandon Hospital
119 Oakfield Drive
Brandon, FL 33511
(813) 681-5551

O.H. Materials Company
P.O. Box 551
Findlay, OH 45840
(800) 537-9540
(Primary Cleanup Contractor)

Ryckman's Emergency Action
and Consulting Team
P.O. Box 27310
St. Louis, MO 63141
(800) 325-1398
(Secondary Cleanup Contractor)

ATTACHMENT II.A.4(b)

CONTINGENCY PLAN AND EMERGENCY PROCEDURES FOR DAILY BUSINESS OPERATIONS

GENERAL FACILITY INFORMATION

Purpose

The contingency plan and emergency procedures are designed to ensure that Safety-Kleen is prepared to address emergency situations rapidly and in a manner to prevent or minimize hazards to human health or the environment from fire, explosion, or any unplanned sudden or non-sudden release of hazardous material constituents to the air, soil, surface water, or ground water at the facility.

The provisions of the contingency plan are to be carried out immediately if there is a fire, explosion, or release of hazardous materials occurs that could threaten human health or the environment. All contingency plan responses must conform with the procedures contained in this plan.

General Description of Activities

The business activities conducted a the Tampa Operations Center relate to the leasing and servicing of Safety-Kleen Parts Cleaning Equipment, including the provisions of a solvent leasing service for the customers. Clean solvents are distributed from, and the used solvents are returned to, the Operations Center, where separate storage tanks are utilized for the storage of clean and used parts washer solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~. There are two fresh parts washer solvent storage tanks at this time. These tanks may store any of the clean parts washer solvents ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~. Warehouse space is designated for the storage of containers of both clean

and used Immersion Cleaner, parts washer solvent, FRS wastes, antifreeze, paint waste, and dry cleaning wastes (chlorinated and non-chlorinated solvent). ~~An 85-gallon salvage~~ Overpack containers ~~is~~ are used for the management of containers whose integrity has been compromised.

~~The~~ Parts washer solvent is transported in covered~~, 5-, 16- and 30-gallon~~ containers between the Operations Center and customers. Upon returning to the Operations Center, the used parts washer solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~ is transferred from the containers into a wet dumpster (solvent return receptacle) in which coarse solids in the parts washer solvent is retained. Used parts washer solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~ from the wet dumpster flows into a covered 15,000-gallon aboveground tank for storage. Used parts washer solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~ is picked up ~~periodically~~ regularly by a bulk tank truck from the recycle facility which at the same time delivers clean parts washer solvent. The sludge in the wet dumpster is ~~periodically~~ regularly cleaned out, containerized, and temporarily stored in the container storage area for later shipment to the recycle facility for reclamation or disposal.

The immersion cleaner remains in ~~16-gallon~~ a covered containers at all times during transportation and storage. The solvent is not transferred to another container while being used by the customers or while in storage at the Operations Center. The immersion cleaner is managed as a transfer waste. Dry cleaning wastes are picked up at commercial dry cleaning establishments in ~~16-, split 30 (also known as 20-gallon), and 30-gallon~~ containers and stored temporarily at the Operations Center. The containers are picked up ~~periodically~~ regularly for recycling at the recycle facility. ~~Immersion cleaner 609 is managed as a transfer waste and may be stored onsite for up to 10 days.~~

Dry cleaning wastes consist of spent filter cartridges, powder residue from diatomaceous or other powder filter systems, and still bottoms. The still bottoms and powder residue are packaged on the customer's premises in ~~16-, split 30 (also known as 20-gallon), and 30-gallon~~ containers ~~with lock rings~~. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

~~The antifreeze waste is approximately two-thirds water and one-third antifreeze (ethylene glycol) and contaminants. Antifreeze wastes are transfer wastes. They may be temporarily stored onsite for up to 10 days.~~ Currently, spent antifreeze is handled as non-hazardous unless the generator's hazardous waste determination indicates that it is hazardous. Nonhazardous antifreeze waste may be commingled with used oil and contained in tanker trucks in the return/fill shelter containment area while awaiting transfer to another outgoing tanker truck. Hazardous antifreeze waste is handled in containers and is temporarily stored in the permitted container storage area and managed as a transfer waste.

are used oil and commingled antifreeze shipped out by tanker truck?

Safety-Kleen is currently in dialogue with the FDEP on revisions to the above described waste management practice for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on this protocol/procedure is achieved.

Paint wastes consist of various lacquer thinners and paints. The waste is collected in ~~5-gallon pails and in 16-gallon~~ containers at the customer's place of business and the containers are then ~~palletized and~~ stored in the container storage area of the warehouse. The paint wastes manifests are terminated upon receipt at the Operation Center. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

The FRS wastes are packaged in polyethylene or steel containers which are not opened until they reach the recycle center. ~~Containers are palletized whenever possible (four 55-gallon; 10 or 15 split 30 (also known as 20-gallon); five 30-gallon; eight 16-gallon; or sixteen 5-gallon containers or 16 boxes per pallet) to facilitate shipping and storage.~~ The FRS wastes are transfer wastes. These may be ~~temporarily~~ stored onsite for up to 10 days. The FRS wastes may also undergo ~~branch-to-branch or~~ truck-to-truck transfer. This transfer will occur at the return/fill area inside secondary containment ~~and will require less than two hours to complete. Pallets may be stacked up to six feet high, or two high (whichever is higher), while in storage. Pallets may be shipped up to three high during transportation. This will prevent the containers from contacting any standing liquid while they are in storage.~~

The waste products exhibit essentially the same biological, physical, and chemical properties as the fresh product. Used products are basically fresh products with impurities of dirt and metals. The MSDSs provided in Appendix A represent the biological, physical, and chemical properties of the fresh and used products.

Figures II.A.4(b)-1 and II.A.4(b)-2 show the basic site and floor plans, particularly, the locations of waste management facilities and facility storage.

Text edited to remove references to discontinued types of solvents, and to update the permit on current waste management practices.

EMERGENCY NOTIFICATION

Emergency Coordinator

The Operations Manager or ~~his~~ designee is the emergency coordinator. Page iii includes the names, home addresses, and both office and home phones of the primary emergency coordinator and ~~his~~ alternates. At least one employee is either present on the facility premises or on call with responsibility for coordinating all emergency response measures at all times. This primary emergency coordinator and alternate emergency coordinator are thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of materials handled, the location of all records within the facility, and the facility layout. In addition, these coordinators have the authority to commit the resources needed to carry out the contingency plan.

EMERGENCY RESPONSE AGENCIES AND TEAM MEMBERS

The agencies and response team members to be notified whenever an imminent or actual emergency occurs are presented on page iii. A Telephone Notification Log is shown in Table II.A.4(b)-1.

ACTIONS OF THE EMERGENCY COORDINATOR

Whenever there is an imminent or actual emergency situation, the emergency coordinator (or ~~his or her~~ the designee when the emergency coordinator is on call) must immediately:

a. Activate internal or communication systems to notify all facility personnel. The relatively small size of this Operations Center makes direct verbal communication the most expedient form of emergency notification. The emergency coordinator may also elect to proceed to the front of the building and repeatedly sound a car

horn to notify building occupants of an emergency. A head count will be performed by the emergency coordinator.

b. Notify appropriate state or local agencies with designated response roles if their help is needed.

c. Summon the primary emergency coordinator, if ~~he is~~ that person is absent.

Whenever a release, fire, or explosion occurs, the emergency coordinator must immediately identify the character, exact source, amount, and area extent of any released materials. Because of the limited types of chemicals in storage, the identification processes can easily be performed visually.

Procedure for Assessing Possible Hazard to the Environment and Human Health:

a. After identification of the character, source, amount, and extent of a release, fire, or explosion, the emergency coordinator must decide whether the situation can be contained or cleaned up by plant personnel and equipment.

b. If a fire or explosion is determined uncontrollable by plant personnel or threatening neighboring establishments or population, assistance from a local emergency response agency shall be summoned immediately and an evacuation order be requested.

c. In case of a release outside of the containment area that is deemed immediately uncontainable or unrecoverable, the local emergency

response agency and/or specialty cleanup contractor shall be called in.

d. After termination of a fire or explosion, containment and preliminary cleanup of a spill, evaluate whether residues in the form of gas or liquid have become airborne, seeped into ground water, and/or flowed into surface water bodies.

e. Expert assistance ~~should~~ may be requested to determine whether the escaped materials are potentially harmful and whether the receiving medium ultimately will be a populated area, public water supply source, a private well, or an environmentally sensitive area.

f. Additional steps shall then be taken to mitigate the potential impact on the environment and human health, in accordance with expert recommendations.

If the emergency coordinator determines that the facility has had a release, fire, or explosion that could threaten human health, or the environment outside the facility, the coordinator must report those findings, as follows:

a. If the assessment indicates that evacuation of local areas may be advisable, the coordinator must immediately notify appropriate authorities. The coordinator must be available to help appropriate officials decide whether local areas should be evacuated.

b. The coordinator must immediately notify the Southwest Florida District of the FDEP, (813) 744-6462 during regular business hours, or the State Warning Point at (904)413-9911 outside regular

business hours and holidays or the National Response Center (800) 424-8802, by telephone.

The report must include:

(1) Name and telephone number of notifier;
(2) Name and address of facility;
(3) Time and type of incident (e.g., release, fire);
(4) Name and quantity of material(s) involved, to the extent known;
(5) The extent of injuries, if any; and
(6) The possible hazards to human health or the environment outside the facility.

Immediate assistance in assessing and responding to an emergency is obtained by the emergency coordinator by calling the 24-hour emergency number of the Safety-Kleen Corporation Environmental, Health and Safety Department ((800) 468-1760). This number does not reach Safety-Kleen. OK

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

The emergency coordinator must ensure that, in the affected area(s) of the facility:

a. No waste that may be incompatible with the released material is treated or stored until cleanup procedures are completed; and

b. All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

The owner or operator must notify the appropriate state and local authorities that the facility is in compliance with the requirements of the preceding paragraph, before operations are resumed in the affected area(s) of the facility.

The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, the owner must submit a written report on the incident to the Southwest Florida District of the FDEP, 3804 Coconut Palm Drive, Tampa, Florida 33619 (813) 744-6462. The report must include:

a. Name, address, and telephone number of the owner or operator;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (e.g., fire, explosion);

d. Name and quantity of material(s) involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

g. Estimated quantity and disposition of recovered material that resulted from the incident.

POTENTIAL SPILL SOURCES

The following is a list of activities that have the potential for a small scale (less than 55 gallons of waste) pollution incident.

a. Moving of containers.

Every time a container is moved, the possibility exists that it could tip over or be dropped. To minimize the possibility of spillage of solvent under those conditions, all container lids must be secured before the container is moved.

b. Delivery truck container transfers.

(1) Individual delivery containers contain from five to 55 gallons of waste, a quantity which can be contained by oil sorbent clay or pads, if accidentally spilled.

(2) Each vehicle is equipped with a hoist and hand cart for ease of moving clean solvent off the truck and into the customer's shop and returning the dirty solvent to the truck.

(3) Clamp type lids are on containers during movement to prevent a spill.

(4) Each truck ~~should~~ contains a complete spill kit, shovel and a quantity of sorbent material to contain ~~a~~ minor spills.

(5) The cargo ~~should~~ must be secured in the route vehicle before transit.

Spills Inside Buildings

In the event of a spill indoors, the doors and windows should be opened to improve the ventilation in the confined area. Following the instructions of the Material Safety Data Sheet (MSDS), the worker would enter the area wearing rubber gloves, boots, and respirator and mop up the liquid and return it to dirty storage. The cleanup is completed only when the workers have cleaned themselves and the emergency equipment with soap and water.

Spills on Concrete Pads

Concrete pads in loading and unloading areas are, in most cases, equipped with emergency containment. Under most spill conditions, product can be totally contained on the concrete surface and in the catchment system. Upon containment, arrangements must be immediately undertaken to recover the material. Any soil that may be involved must be removed and treated as a hazardous waste.

Tank Spills or Leakage

Aboveground tanks are underlain by a concrete slab and surrounded by a ~~47-inch~~ concrete dike wall adequate to contain any spilled or leaked solvent. The containment system has been sized in accordance with the regulations, and the product will be totally contained under most spill conditions. Should a spill occur, arrangements must be immediately undertaken to recover the material. In the event of leakage, tank repair or replacement will be initiated. Any soil that may be involved must be removed and treated as hazardous waste.

Spill Control Procedures

If a harmful discharge occurs:

a. Stop the discharge, if possible, by immediately transferring the liquid to a good container.

b. Retain, contain, or slow the flow of the material, if possible, by diking with sorbent pad or dirt. Appropriate personal protective equipment should be worn. Pump and mop up the liquid from the floor into a good container, and return the container to storage and then later to the recycle center for reclamation/disposal. The area and equipment that comes in contact with the spill must be decontaminated with soap and water. All residues resulting from containment and decontamination should be collected for proper disposal at a Safety-Kleen recycle center.

c. If the material escapes the containment efforts, immediately call the cleanup contractor with response time less than two hours (page iii). Record the date, time, and name of person taking the message. Call the primary emergency coordinator, if ~~he is~~ that person is absent.

d. Immediately recover spilled solvent to reduce property and environmental damage using the safety equipment stored onsite for such situations (Figure II.A.4(b)-3) and Table II.A.4(b)-2 or call in emergency response contractors (page iii). Start recovery operations immediately.

After recovery of spilled solvent, wash all contaminated impervious surfaces and equipment with soap and water. The residue of spill- or fire-contaminated soils and waste waters must be removed and disposed of at a Safety-Kleen recycle center. In addition, the recovered solvent will be sent to a Safety-Kleen recycle center for reclamation.

e. Report any incident as soon as possible to Safety-Kleen Corporate Environmental Department on the 24-hour telephone line: (800) 468-1760. If the Environmental Department does not respond within 30 minutes, call the National Response Center (telephone: (800) 424-8802) or the State Warning Point (904) 413-9911 and Southwest Florida District of the FDEP, 3804 Coconut Palm Drive, Tampa, Florida 33619; (813) 744-6462.

f. The person reporting a spill should be prepared to give ~~his~~ their name, position, company name, address, and telephone number. The person reporting also should give the nature of the material spilled (e.g., immersion cleaner, etc.) and, if possible, some estimate of the amount, and whether it is near a stream or could enter a stream by flowing through ditches or storm sewers.

If assistance is needed, the emergency coordinator should describe the containment status and specify any additional equipment needed. When

reporting a spill, record the date and time of the call and the name of the person answering the call at the above number.

Spill prevention plans are reviewed with facility personnel every year, and records of the training are kept at the facility.

Every spill must be recorded on the attached form with the revision of the contingency plan to prevent similar spills in the future. A copy of this report is sent to the Corporate Environment Health and Safety Department.

Reports of emergency incidents will be transmitted to the Secretary of the FDEP or ~~his~~ designee within 15 days of occurrence. This report shall include:

a. Name, address, and telephone number of the owner of operator;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (e.g., fire, explosion);

d. Name and quantity of materials involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

g. Estimated quantity and disposition of recovered material that resulted from the incident.

DECONTAMINATION

Once the spilled material has been cleaned-up, the spill area and equipment used during the spill clean-up must be decontaminated and/or disposed.

Concrete surfaces/containment areas:

- Concrete surfaces/containment areas will be cleaned with a detergent solution and then rinsed with hot water. The rinsate will be collected via wet vacuums and placed in containers. Visual inspection will be used to determine the success of the decontamination procedure.

- The intent of the surface decontamination is to prevent current or future releases of materials to the environment. It is believed that a vigorous cleaning with detergent is sufficient to prevent releases to the environment during normal operations. Potential for hazards from residual materials to future occupants of the facility are addressed in the Closure Plans for the facility and the decontamination procedures incorporated therein.

Equipment

The equipment used to clean the area includes mops, pails, scrub brushes, and a wet/dry vacuum. Equipment which is considered reusable (i.e., pails, wet/vac, hoses) will be washed with detergent and the wash water and rinsate collected. All non-reusable equipment and/or equipment which is not capable of being decontaminated will be containerized and disposed of as hazardous waste.

Wash Water and Rinsate

If the rinsate or other wastes generated in the clean-up process is determined to be hazardous, it will be properly disposed of as a hazardous waste; otherwise, the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to the ~~waterway~~ surface waters.

EMERGENCY RESPONSE EQUIPMENT AND COMMUNICATION

Due to the small size of the facility, routine communication is accomplished by voice communication. Telephones are used in case of a spill or fire emergency to summon assistance. Emergency numbers are posted by each phone in the office. Included with these phone numbers is the 24-hour spill number for the Corporate Environmental Department at the corporate office in Elgin, Illinois. Figure II.A.4(b)-3 provides locations of telephones, fire extinguisher, the first-aid kit, and the emergency eyewash. Other emergency response equipment (Table II.A.4(b)-2) is kept in two places. In the Operations Center, emergency response equipment is kept inside the door leading to the fill/return shelter. In the Operations Center, emergency response equipment is kept adjacent to the south wall of the Operations Center office and between the two northernmost docks located on the eastern side of the Operations Center building. This equipment includes mops and buckets, soap, shovels, and spill sorbent pads. Rubber gloves, boots, pumps, and a wet/dry vacuum cleaner are stored in an emergency supply area near the container storage area. Descriptions and uses of the equipment are provided in Table II.A.4(b)-3. Adequate aisle space is provided in the container storage area for movement in an emergency situation.

A fire suppression system is available at the facility. The system is supplied from an onsite well. The well water is pumped to a storage tank located outside the southwest corner of the warehouse building. The fire suppression system is charged via a pump which is located adjacent to the water storage tank. The suppression system utilizes both water and foam. The sprinkler water from the flammable storage area is captured in a pipe which is connected to a trench in the flammable storage room and discharges to a containment area outside the southwest corner of the warehouse.

The equipment available at the facility for emergency situations is adequate for most cases. Large or serious emergency situations will be remediated by local emergency response teams or special emergency response or cleanup contractors. The facility is constructed and operated in accordance with National Fire Protection Association (NFPA) standards and applicable local ordinances. Applicable health and safety standards also are observed at the Operations Center. A recent air quality survey conducted by an independent industrial hygienist at the Los Angeles Operations Center has shown that air quality at a typical Operations Center is within Threshold Limit Values (TLV) as specified by OSHA and local air pollution control criteria; no respirator or special protection unit is deemed mandatory.

FIRE CONTROL PROCEDURES

Call the Fire Department.

a. ~~Immersion cleaner (which is a mixture of chlorinated solvents and water) and~~ Dry cleaning wastes are initially not flammable, but may produce toxic gases and hydrochloric acid at elevated temperatures (about 1200° F).

Center aisles are available in container storage areas to permit fire department personnel to pass with fire fighting equipment.

Act quickly with the fire extinguisher to put out the fire before it spreads.

Call the Police Department and local hospital (page iii) when injury occurs, and/or the order of on-lookers and traffic is to be maintained.

AVAILABILITY AND REVISION OF THE CONTINGENCY PLAN

This plan and all revisions to the plan are kept at the facility and regularly updated throughout the operating life of the facility.

Copies of this document are provided to local authorities and organizations listed under the Preparedness and Prevention Plan, which may be called upon to provide emergency services.

This plan and all revisions to the plan are made readily available to employees working at the facility.

This plan is reviewed and updated, if necessary, whenever:

a. The facility license is modified to allow new process wastes to be stored or treated, or applicable regulations are revised;

b. The list or location of emergency equipment changes;

c. The facility changes in its design, construction, operation maintenance, or other circumstances in a way that:

(1) Materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or

(2) Changes in response necessary in an emergency.

d. The names, addresses, or phone numbers of emergency coordinators change;

e. The employee assigned to each emergency task changes, or

f. The plan fails when implemented in an emergency.

ARRANGEMENTS WITH LOCAL AUTHORITIES

Arrangements have been made to familiarize the Police Department, Fire Department, and local emergency response teams with the layout of the facility, properties of hazardous materials handled (Material Safety Data Sheets) at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

Potential primary and secondary spill control contractors as well as sorbent suppliers are identified in the Contingency Plan and Emergency Procedures.

Arrangements have been made to familiarize the local hospital with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which would result from fires, explosions, or releases at the facility.

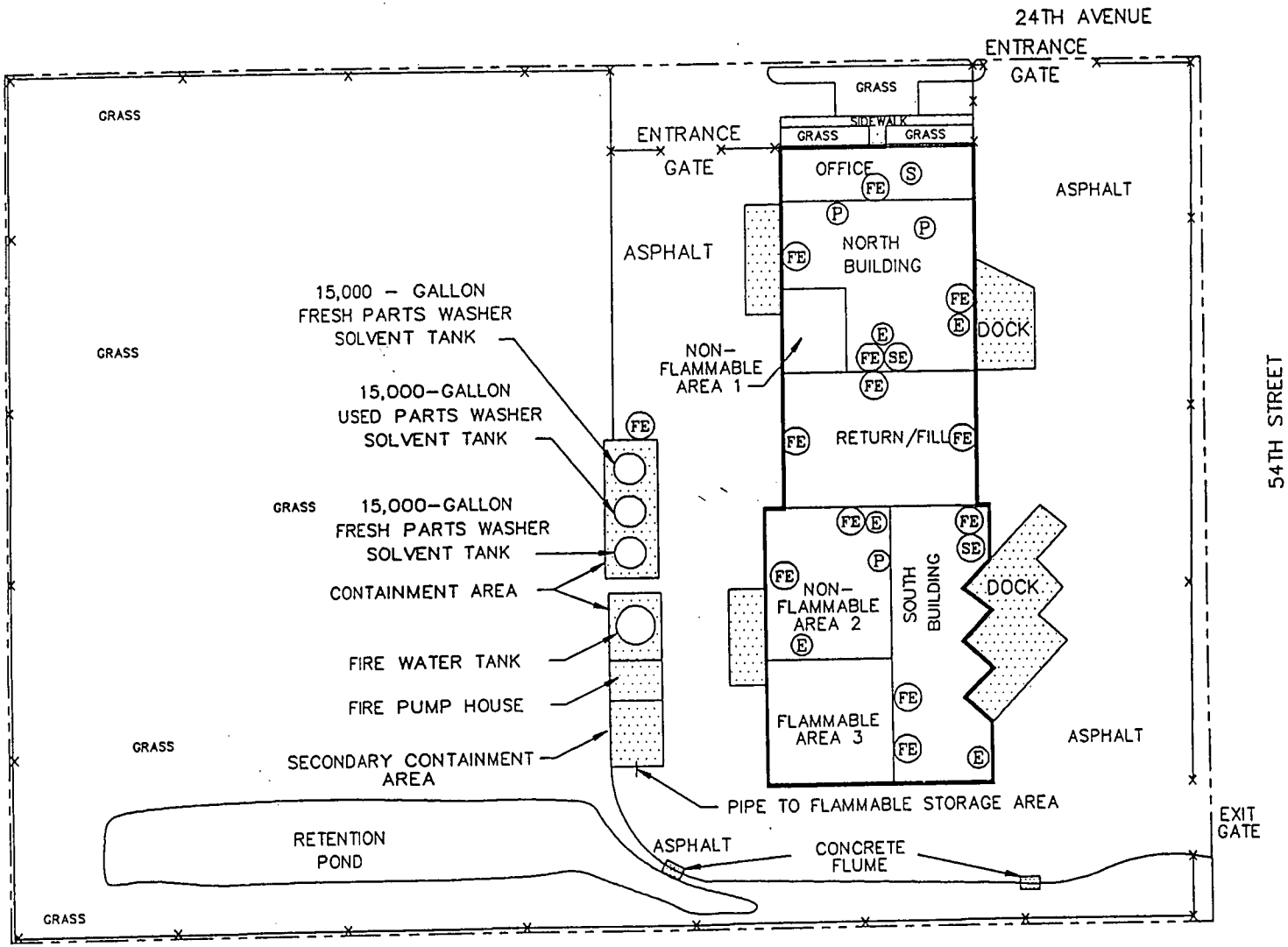
Appendix B includes copies of letters which have been transmitted to local authorities for emergency response in the event of an incident where pubic health or environment is threatened.

EVACUATION PLAN

In an uncontrolled emergency, all persons are to be evacuated from the area by means of a verbal cry and assemble across from the entrance drive to the facility. Assure that all personnel are accounted for and out of the area. The emergency coordinator may elect to use a car horn as a means of emergency notification. A head count will be performed by the emergency coordinator.

The Fire Department must be notified at the time of evacuation either from a safe onsite building or neighboring facilities.

Clearly marked exits exist in warehouse and office area.



ADAPTED FROM ERM DRAWING PTB–SPC

N

0 APPROXIMATE SCALE 60

FEET

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CONCRETE
- (FE) FIRE EXTINGUISHER
- (SE) SPILL EQUIPMENT
- (E) EYEWASH/SHOWER
- (S) SHOWER
- (P) PHONES

FIGURE II.A.4(b)–3
LOCATION OF EMERGENCY EQUIPMENT
SAFETY–KLEEN CORP. FACILITY
TAMPA, FLORIDA

PROJ. NO.	PREP. BY	DRAWN BY
B095–061		M.W.K.
DATE	REV. BY	DWG. NO.
4–25–96		001

Delta Environmental Consultants, Inc.

APPENDIX A

MATERIAL SAFETY DATA SHEETS FOR KNOWN HAZARDOUS CONSTITUENTS

CHURCH & DWIGHT CO., INC.
469 NORTH HARRISON STREET
PHONE (609) 683-5900
PRINCETON, NJ 08543-5297
CABLE ADDRESS: CHURDWIGHT
TWX 710 480 9286

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name

AquaWorks™ Cleaning Solution

Emergency Phone:
1-609-683-5900 (U.S.A.)

Medical Emergency Phone:
1-800-228-5635
Ext. 007 (U.S.A.)

2. COMPOSITION/INFORMATION ON INGREDIENTS

- Not hazardous under the OSHA Hazard Communication Standard 29 CFR 1910.1200.
- Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Hazy, whitish-gray liquid.
Slight/mild odor.
Not a primary skin irritant.
May cause mild eye irritation.
Not a fire hazard.
No other significant health or environmental effects known or anticipated.

HMIS Rating	
Health	0
Fire	0
Reactivity	0

Potential Health Effects

EYE: May be mildly irritating to eyes.

SKIN CONTACT: May cause slight irritation from continually repeated, prolonged, or occluded contact.

INGESTION: Considered non-toxic. Swallowing a small amount (< 1 ounce) is not likely to have an adverse effect. Ingestion of a large quantity (more than an ounce) may cause abdominal discomfort and may irritate the alimentary mucosa.

INHALATION: Considered non-toxic. Prolonged inhaling of mist may aggravate pre-existing upper respiratory disorders and cause irritation to the nose, throat and lungs.

SUBCHRONIC EFFECTS/CARCINOGENICITY: None known. The ingredients in this product are not listed as carcinogens or potential carcinogens by NTP Annual Report, IARC Group I or II, OSHA 29 CFR 1910 Subpart Z, and ACGIH Appendix A.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

4. FIRST AID MEASURES

SKIN: Remove contaminated clothing. Wash exposed areas with soap and water.

EYES: Immediately flush eyes with clean, flowing water, low pressure and luke warm if possible, occasionally lifting upper and lower eyelids. Make sure contact lenses are removed. Seek medical attention if irritation develops.

INHALATION: Move from area of exposure. Treat symptomatically. Seek medical attention if irritation develops or if person has difficulty breathing.

INGESTION: If large amounts are ingested, do not induce vomiting. If person is conscious, give two glasses of water to drink. **Do not attempt to give anything orally to an unconscious person.** Seek medical attention.

NOTE TO PHYSICIAN: Ingestion of large amounts may cause systemic alkalosis. Treatment based on judgement of physician in response to reactions of patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASHPOINT: Not Applicable
METHOD USED: Not Applicable

FLAMMABLE LIMITS

LFL: Not Applicable
UFL: Not Applicable

EXTINGUISHING MEDIA: Use extinguishing media for surrounding fire.

FIRE-FIGHTING INSTRUCTIONS: Carbon dioxide may be generated by thermal decomposition or exposure to acids. Thermal decomposition may also yield carbon monoxide and oxides of sulfur and nitrogen. Wear a self-contained breathing apparatus (SCBA) and full protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

6. ACCIDENTAL RELEASE MEASURES

Will create slippery conditions if spilled. Close off area to traffic. Exercise proper cautions during clean-up. Large spills should be contained. Absorb using clay or commercial absorbent and dispose of in suitable waste containers as regulations permit (See Section 12). Flush residues to sewer or waste water system. Prevent eye and skin contact by wearing appropriate protective equipment (See Section 8). Be sure cleaned area is dry or slip-free before reopening to traffic.

7. HANDLING AND STORAGE

Store in original containers away from incompatible materials (acids). Keep containers tightly closed. Prevent skin and eye contact during handling by wearing appropriate protective equipment (See Section 8).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: None required under normal use conditions. If mists are generated, wear a NIOSH approved respirator.

PROTECTIVE GLOVES: It is good personal and industrial hygiene to prevent skin contact with the solution. Impermeable gloves are recommended to prevent skin contact during use or for cleaning up spills.

EYE PROTECTION: Chemical splash goggles are recommended when handling or working with solution, or for cleaning up spills.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: As part of normal personal hygiene, wear an impermeable apron where splashing of solution cannot be avoided.

VENTILATION: No special requirements unless mists are generated, then use local exhaust ventilation.

PROTECTIVE WORK/HYGIENIC PRACTICES: No special requirements with respect to chemical exposure other than those noted above. Specific requirements with respect to equipment and specific applications are the responsibility of the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Hazy whitish-gray liquid
ODOR: Slight/mild
PHYSICAL STATE: Liquid
pH AS IS: 10.8
VAPOR PRESSURE: N/A
BOILING POINT: 100-110°C
FREEZING POINT: -10°C - 0°C
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY (Water = 1): Approximately 1.0 @ 25°C
APPARENT DENSITY: 8.4 lbs/gal @ 25°C
SURFACE TENSION: 35 dynes
VISCOSITY: < 100 cp
% VOLATILE: Approximately 98% as water
VOLATILE ORGANIC COMPOUNDS: None with vp $\geq$0.1 mm Hg.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

CONDITIONS TO AVOID: Acids

INCOMPATIBILITY WITH OTHER MATERIALS: Reacts with acids to release carbon dioxide.

HAZARDOUS DECOMPOSITION PRODUCTS: May produce carbon monoxide, carbon dioxide, and fumes of SO_x and NO_x.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: No specific data available. Tests on concentrated versions of similar formulations indicate that mild to moderate irritation is possible with those concentrates. These effects are minimized and reversible with immediate treatment with no corneal involvement or visual impairment expected. The 10% bath solution can be expected to have a minimal to mild effect if not treated.

SKIN EFFECTS: No specific data available. Not a primary skin irritant based on testing of a concentrated version of a similar formulation. Bath solution may be irritating to humans under conditions of repeated or prolonged contact. Any irritant effect would be expected to be minimal and fully reversible.

ACUTE ORAL EFFECTS: No specific data available. Concentrated versions of similar formulations have been shown to be non-toxic with an $LD_{50} > 5000$ mg/kg.

INHALATION EFFECTS: No data available. May cause irritation to upper respiratory tract if inhaled as a mist. Irritation would be expected to be transient with no permanent damage.

12. DISPOSAL CONSIDERATIONS

Dispose of spilled or waste product and other large amounts in accordance with all local, state and federal environmental regulations. State and local regulations may differ from Federal. Be sure to consult with appropriate agencies for specific rules.

13. TRANSPORTATION INFORMATION

D.O.T. SHIPPING NAME: Not regulated
TECHNICAL SHIPPING NAME: Aqueous Cleaning-Solution
D.O.T. HAZARD CLASS: None
U.N./N.A. NUMBER: None
HAZARDOUS SUBSTANCE/RQ: None
D.O.T. LABEL: None
D.O.T. PLACARD: None

14. REGULATORY INFORMATION

OSHA

This product has been assessed as nonhazardous under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

TSCA

The ingredients in this product are reported in the U.S. EPA TSCA Inventory.

15. MSDS REVISION SUMMARY

SUPERSEDES DATE: NEW

This Product Safety Data Sheet is offered solely for your information, consideration and investigation. Church & Dwight Co., Inc. provides no warranties, either express or implied, and assumes no responsibility for the accuracy or completeness of data contained herein. Church & Dwight Co., Inc. urges persons receiving this information to make their own determination as to the information suitability for their particular application.

ABC

MAY 17 1996

safety-kleen®

Material Safety Data Sheet

SAFETY-KLEEN AQUEOUS CLEANER

Part Number: 6300

Revision 10/94; Form No. 82470

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

MAY 17 1996

SECTION 1 -- PRODUCT AND PREPARATION INFORMATION

RODUCT INFORMATION

IDENTITY (TRADE NAME):	SAFETY-KLEEN AQUEOUS CLEANER
SYNONYMS:	Not available.
SK PART NUMBER:	6300
FAMILY/CHEMICAL NAME:	Not available.
PRODUCT USE:	Cleaning and degreasing metal parts. If this product is used in combination with other chemicals, refer to the Material Safety Data Sheets for those chemicals.

24-HOUR EMERGENCY TELEPHONE	*MEDICAL:*	*TRANSPORTATION:*
These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed below.	1-800-752-7869 (USA)	1-708-888-4660 (USA)
	1-312-942-5969 (CANADA)	1-613-996-6666 (CANADA)

MANUFACTURER/SUPPLIER: Safety-Kleen Corp. - 1000 North Randall Road - Elgin, IL, 60123-7857 USA
Telephone number: 1-800-669-5740
Safety-Kleen Canada Inc. - 300 Woolwich Street South - Breslau, ON, Canada N0B 1M0
Telephone number: 1-800-265-2792

REPARATION INFORMATION

MSDS FORM NO.: 82470 *REVISION DATE:* October 12, 1994

ORIGINAL ISSUE DATE: March 23, 1992 *SUPERSEDES:* August 18, 1993

PREPARED BY: Product MSDS Coordinator *APPROVED BY:* MSDS Task Force

TELEPHONE NUMBER: For Product Technical Information Call 1-312-694-2700 (USA); 1-519-648-2291 (Canada)

SECTION 2 -- HAZARDOUS COMPONENTS

				OSHA PEL		ACGIH TLV		OTHER DATA	
NAME	SYNONYM	CAS NO.	WT%	TWA	STEL	TWA	STEL	LD[a]	LC[b]
Alcohols, C12-14-secondary, ethoxylated	Alkyloxy polyethylene oxyethanol	84133-50-6	2	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.

N.Av. = Not Available [a]Oral-Rat LD50 [b]Inhalation LC

SECTION 3 -- EMERGENCY AND FIRST AID PROCEDURES

EYES: For direct contact, flush eyes with water for 15 minutes lifting upper and lower lids occasionally. Material misting is unlikely. However, if irritation or redness from exposure to mist develops, move victim away from exposure into fresh air. Consult physician if irritation or pain persists.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

SKIN: Remove contaminated clothing and shoes. Wash skin twice with soap and water. Consult physician if irritation or pain persists.

INHALATION: (Breathing) Inhalation of material is unlikely. Nevertheless, if inhalation occurs, remove to fresh air immediately. Use oxygen if there is difficulty breathing or artificial respiration if breathing has stopped. Do not leave victim unattended. Seek immediate medical attention if necessary.

INGESTION: (Swallowing) Seek immediate medical attention. Drink two glasses of water. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below hips to avoid aspiration (breathing) into the lungs.

SPECIAL NOTE TO PHYSICIAN: No specific antidote available. Administration of gastric lavage, if warranted, should be performed by qualified medical personnel. Call emergency telephone number (see Section 1) for additional information.

SECTION 4 -- HEALTH HAZARD DATA AND TOXICOLOGICAL PROPERTIES

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact; inhalation, ingestion.

EXPOSURE LIMITS: See Section 2.

SIGNS AND SYMPTOMS OF EXPOSURE

ACUTE: *Eyes:* Contact with liquid may cause stinging, tearing, itching, swelling, or redness, with possible injury.

Skin: Contact with liquid may cause irritation. No significant skin absorption hazard.

Inhalation (Breathing): Inhalation of material is unlikely. Nevertheless, inhalation of misted material may irritate the respiratory tract.

Ingestion (Swallowing): Harmful if swallowed. May cause mouth and throat irritation, nausea, abdominal discomfort, diarrhea, vomiting, and central nervous system depression. Breathing into the lungs during ingestion or vomiting may cause lung injury and possibly death.

CHRONIC: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause drying, cracking, or dermatitis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing skin disorders may have increased susceptibility to the effects of exposure.

CARCINOGENICITY: Not applicable.

Also see Section 9.

OTHER POTENTIAL HEALTH HAZARDS: The following information is required by Canadian WHMIS regulations. Irritancy is covered in Signs and Symptoms of Exposure in Section 4. There is no known human sensitization, toxicologically synergistic product, reproductive toxicity, mutagenicity, or teratogenicity associated with this product as a whole.

SECTION 5 -- FIRE AND EXPLOSION HAZARD DATA

EMERGENCY RESPONSE GUIDE NUMBERS: 31
Reference *DOT Emergency Response Guidebook*
49
Reference *Dangerous Goods Initial Emergency Response Guide*

FIRE AND EXPLOSION HAZARDS: This is an aqueous solution and is not expected to sustain combustion. Not sensitive to mechanical impact or static discharge.

FIRE FIGHTING PROCEDURES: Not applicable. (Combustion is not expected.)

EXTINGUISHING MEDIA:	Water, alcohol-resistant foam. (Combustion is not expected.)
CONDITIONS OF FLAMMABILITY:	Not applicable. (Combustion is not expected.)
FLASH POINT:	Not applicable. (Combustion is not expected.)
AUTOIGNITION TEMPERATURE:	Not applicable. (Combustion is not expected.)
FLAMMABLE LIMITS IN AIR:	*LOWER:* Not applicable. (Combustion is not expected.) *UPPER:* Not applicable. (Combustion is not expected.)
HAZARDOUS COMBUSTION PRODUCTS:	Although combustion is not expected, if burning occurs, toxic compounds may be produced.

SECTION 6 -- REACTIVITY DATA

STABILITY:	Stable under normal temperatures and pressures, and not reactive with water.
INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):	None known under normal temperatures and pressures.
HAZARDOUS POLYMERIZATION:	Not known to occur under normal temperatures and pressures.
HAZARDOUS DECOMPOSITION PRODUCTS:	None under normal temperatures and pressures.

SECTION 7 -- PREVENTIVE MEASURES

PRECAUTIONS FOR SAFE USE AND HANDLING

HANDLING PRECAUTIONS:	Minimize contact with eyes, skin, clothing, or shoes. Avoid breathing mist.
PERSONAL HYGIENE:	Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned.
SHIPPING AND STORING PRECAUTIONS:	Keep container tightly closed when not in use and during transport. Empty product containers may contain product residue.
SPILL PROCEDURES:	Stop leak if you can do it without risk. Wear protective equipment specified in Section 7, CONTROL MEASURES. Contain away from surface waters and sewers. If possible, sorb with compatible sorbent material and shovel into closable container for proper disposal. See *DOT Emergency Response Guidebook* guide number 31 or *Dangerous Goods Initial Emergency Response Guide* guide number 49 for more information.
WASTE DISPOSAL METHODS:	Dispose in accordance with federal, state, provincial, and local regulations. Contact Safety-Kleen regarding recycling or proper disposal.

CONTROL MEASURES

EYE PROTECTION:	Where there is likelihood of eye contact, wear chemical goggles; use of contact lenses is not recommended.
PROTECTIVE GLOVES:	Use PVC or equivalent gloves to prevent contact with skin; use of natural rubber or equivalent gloves is not recommended.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

RESPIRATORY PROTECTION:	None required with normal use. However, if required, the selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134 or in Canada with CSA Standard Z94.4-M1982.
ENGINEERING CONTROLS:	No specific controls are needed.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, wear appropriate protective clothing. Clean water should be available in work areas for flushing the eyes and skin.

SECTION 8 -- PHYSICAL DATA

PHYSICAL STATE, APPEARANCE AND ODOR:	Liquid, clear, colorless or blue, odorless.
ODOR THRESHOLD:	Not applicable.
SPECIFIC GRAVITY:	1 (water = 1) (approximately)
DENSITY:	8.33 lb/US gal (1000 g/l) (approximately)
VAPOR DENSITY:	0.6 (air = 1) (approximately)
VAPOR PRESSURE:	17.5 mm Hg at 68°F (20°C) (approximately)
BOILING POINT:	212°F (100°C) (approximately)
FREEZING POINT:	32°F (0°C) (approximately)
pH:	greater than 7 (approximately)
VOLATILE ORGANIC COMPOUNDS: (PHOTOCHEMICALLY REACTIVE AS PER 40 CFR PART 51.100 (S))	3 WT%; 0.2 lb/US gal; 30 g/l (approximately)
EVAPORATION RATE:	less than 1 (butyl acetate = 1) (approximately)
SOLUBILITY IN WATER:	Complete.
COEFFICIENT OF WATER/OIL DISTRIBUTION:	greater than 1
MOLECULAR WEIGHT:	Not available.

SECTION 9 -- OTHER REGULATORY INFORMATION

TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Not regulated.
DOT CLASS:	Not regulated.
DOT ID NUMBER:	Not regulated.
TDG CLASSIFICATION:	Not regulated.
SARA TITLE III:	Components listed in Section 2 are not subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

	Product poses the following health hazard as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986: Immediate (Acute) Health Hazard
WHMIS CLASSIFICATION:	Not regulated.
TSCA:	All the components of this product are listed on, or are exempted from the requirement to be listed on, the TSCA Inventory.
CALIFORNIA:	This product is not for sale or use in the State of California.

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers. The data contained on this sheet apply to the material as supplied to the user.

ATTACHMENT II.A.4(d)
PREPAREDNESS AND PREVENTION PROCEDURES

OPERATING FACILITY PROCEDURES

Inspection of Waste Management Facilities

1. The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance. Table II.A.4(d)-1 provides an Inspection Schedule.

2. The Operations Manager or ~~his~~ that person's designee is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

3. The Operations Manager inspects the facility ~~daily~~ weekly for security (gates and locks) and any evidence of sticking, corrosion, or ~~uncommon~~ unusual activity. The facility fence is checked weekly for deterioration, gaps, and broken wire ties.

4. ~~Daily~~ Weekly inspections include the following:

   a. Physically examine the container storage area to verify that leaks have not occurred since the last inspection.

   b. Verify that the tanks and containers have not been damaged or rusted to the point of near leakage.

   c. Replace or adjust damaged, missing, or loose equipment.

d. Examine the tank and container storage areas to verify that all container identification, dates, loading data, hazardous waste labels are attached and current.

e. Containment areas to detect signs of deterioration and failure of the containment system such as cracks, breakage, settlement, and spillage.

f. Container placement and stacking such as aisle space, height, and stability of stacks.

5. Daily inspections of aboveground tanks also include the following:

measure or review by observing gages

a. Check the automatic high level alarm. In addition, measure the depth of used solvent in the tanks to confirm the proper functioning of the automatic alarm system and to determine unexpected deviations in tank measuring data, or a sudden drop in liquid level, which may indicate leakage.

b. Inspect the solvent dispensing hose, connections, and valve for any leaks, damage, or wear that could cause a leak to develop.

c. Drain the hose and unloading pipe so that all of the solvent is collected and returned to storage.

d. Inspect the valves for proper seat. Stem leaks from worn glands and warped valve bodies should be repaired. If the valve cannot be repaired, replace the unit.

e. Pumps should be inspected for packing leaks and cool, quiet operation.

~~6. The tanks will be periodically visually inspected and tested. Every five years, a general structural inspection, hydraulic test of the tank, internal inspection, and wall thickness will be made.~~

~~This inspection and testing will involve withdrawal of contents, a squeegee cleaning, visual inspection, and performance of Kent Moore® or other leak detection tests. Frequency and method of future inspection and testing will be determined based upon results of prior evaluations.~~

~~7~~ 6. Daily inspection of the solvent return receptacle (wet dumpster) consists of the inspection for leaks and excess dumpster mud build-up.

Text has been edited to correct inspection frequency to comply with regulatory requirements and to delete a reference to a five-year tank integrity assessment which is not required by the regulations.

Inspection of Emergency and Spill Control Equipment

1. The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of emergency and spill control equipment to ensure proper operation and to maintain compliance.

2. The Operations Manager or ~~his~~ designee is responsible for carrying out the inspection in accordance with the following procedure and schedule.

   a. A weekly inspection of fire extinguishers must be performed to ensure that the tag date has not expired and the units are properly charged and accessible. The unit must be inspected by a fire service supplier on a yearly basis.

b. A weekly inspection of eye wash stands must be performed to assure accessibility; check for proper operation of this equipment on a monthly basis. Inventory of the first-aid kit must be checked on a weekly basis.

c. A weekly check of the supply of spill control equipment (absorbent material) must be performed.

d. A weekly check of the conditions and inventory of other emergency equipment will be made. This includes gloves, aprons, goggles, respirators, and other personal protective equipment.

~~**Inspection of Transportation Equipment**~~

~~1. The purpose of this inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of the route trucks which travel between the customers and the Operations Center to ensure proper operation and safety of the equipment.~~

~~2. The Operations Manager or his designee is responsible for daily inspection of each route vehicle to ensure the proper operation of brakes, lights, turn signals, emergency flashers, and wipers. The Operations Manager is responsible for the Operations Center trucks. Trucks dispatched from the recycle center should also be noted for their operation.~~

~~3. Daily inspection for safety equipment such as sorbent, eyewash, fire extinguisher, first aid kit, and reflector kits on the route vehicles must be performed.~~

~~4. Any equipment that is inoperative or unavailable shall be immediately repaired or replaced.~~

Text has been edited to delete references to transportation equipment inspection which is not an environmental compliance activity.

Corrective Action

Any discrepancies or deficiencies found during the routine inspection must be corrected on a most expedient basis to ensure that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or an accident has already occurred, remedial action must be taken immediately. The Operations Manager of the Operations Center has the overall responsibility for resolving any discrepancies found during the routine inspection.

Available Equipment and Communication

Due to the small size of the facility, routine communication is accomplished by voice communication. Telephones are used in case of a spill or fire emergency to summon assistance. Emergency numbers are posted by each phone in the office. Included with these phone numbers is the 24-hour spill number for the Corporate Environmental Department at the corporate office in Elgin, Illinois. See Figure II.A.4(d)-1 for locations of telephones, fire extinguisher, the first aid kit, and the emergency eyewash. Other emergency response equipment (Table II.A.4(d)-2) is kept in two places. In the North building, emergency response equipment is kept inside the door leading to the fill/return shelter. In the South building, emergency response equipment is kept adjacent to the south wall of the South building office and between the two northernmost docks located on the eastern side of the South building. This equipment includes mops and buckets, soap, shovels, and spill sorbent pads. Rubber gloves, boots, pumps, and a wet/dry vacuum cleaner are stored in an emergency supply area near the ~~container storage~~ return/fill area. Adequate aisle space is provided in the container storage areas for movement in an emergency situation. ~~At the present time, the facility does not have an active fire sprinkler system. Plans are in place to provide the facility with fire water. Until these plans come to fruition, the facility will rely on the water carried by the fire department for~~

~~fire fighting purposes.~~ A full sprinkler system has been installed at the facility. In addition, a fire water tank and hose are available on-site for fire fighting purposes.

Text has been edited to reflect the addition of fire prevention/fire fighting equipment.

Pails, hoses, and detergent are the primary equipment that will be used for decontamination.

The equipment available at the facility for emergency situations is adequate for most cases. Large or serious emergency situations will be remediated by local emergency response teams or special emergency response or cleanup contractors. The facility is constructed and operated in accordance with National Fire Protection Association (NFPA) standards and applicable local ordinances. Applicable health and safety standards also are observed at the facility. A ~~recent~~ air quality survey conducted by an independent industrial hygienist at the Los Angeles/Operations Center has shown that air quality at a ~~typical facility~~ is within Threshold Limit Values (TLV) as specified by OSHA and local air pollution control criteria; no respirator or special protection unit is deemed mandatory.

External Factors

The design of the installation is such that a harmful spill is highly unlikely to occur from most external factors. The storage tanks are inaccessible to non-Safety-Kleen personnel. Also, the container storage areas are in buildings which are inaccessible to unauthorized personnel.

a. Vandalism - Only extreme vandalism would result in a solvent spill or fire. Responses to spills and fires are described in the contingency plan.

b. Strikes - A strike would not result in a solvent spill or fire.

c. Power Failure - A power failure would not result in a spill or fire. Should a power failure occur, all activities requiring electricity will cease.

d. Flooding - The waste management facility elevation is above the projected 100-year flood plain; therefore, a 100-year flood will not affect the facility.

e. Storms or Cold Weather - The solvent return and fill station is roofed to eliminate the possibility of rain or snow entering the dumpsters. Neither snow, cold weather, nor stormwater is expected to affect the facility.

Containment Systems

All containers are stored in the container storage areas. The current storage areas are totally contained by a concrete floor, berms, and trenches (Figure IIA.4(d)-2). The containment system is free of cracks. ~~All containers are stored on pallets.~~

The floor does not have intentional sloping. Any small spill that might occur would puddle where it was spilled. The spilled material would be cleaned up where it puddled or be manually directed to the containment trench. In the event that a large spill were to occur, some dispersion would be expected to occur based on the direction, force, and pathway obstacles presented by and to the spill. The trenches ~~protect, however,~~ would intercept and capture liquid exiting the only openings in the berms (curbing). ~~Only in the event that the spill were to exceed the containment capacity of the trenches would spilled wastes be able to extend beyond the containment areas.~~ The containment trenches in the southernmost container storage area are connected to the external containment area located south of the fire water tank. Outside the containment areas the wastes would flow onto concrete surfaces. These are the same concrete surfaces that serve to protect soils and ground water from contamination due to spills occurring during loading/unloading. The concrete areas around the loading docks have no intentional slope. Again, small spills would puddle, while large spills could be manually directed to the containment trenches.

In the containers storage area, containers are handled with a hand-truck free of sharp points and stacked by hand. Each time a container is moved, the possibility exists that it will be tipped over, dropped, or punctured. To minimize the possibility of spillage, containers are tightly covered and kept in an upright position. A small portable electric pump is available to quickly transfer the liquid from any leaking container into ~~another~~ a safe container. Each route truck is equipped with an electric hoist. This hoist is used in the loading/unloading operation to minimize the possibility of spillage and/or employee injury. Trucks used for shipping containers between the recycle center and Operations Center have lift gates for container loading/unloading. With the exception of parts washer~~, ethylene glycol,~~ and FRS wastes, all containerized wastes are loaded/unloaded at the two dock areas on the eastern side of the building (Figure II.A.4(d)-3).

All containers are covered during movement and are ~~located~~ stored within diked, concrete floored areas to contain any potential spill. The small quantities of waste onsite at any time can be cleaned up immediately through the use of hand-held electric pumps, mops, wet/dry vacuums, or sorbent materials, should a spill occur. Any spilled waste will be containerized for offsite recycling/reclamation.

All containerized waste movement is performed ~~manually~~ by propane-fueled forklift trucks or by a pallet jack. Therefore, power outages are not expected to threaten employee safety.

Fill/Return Shelters

The fill/return shelter (Figure II.A.4(d)-4) is a roofed, grated dock with concrete pads and curbing. Sloping of the containment area is essentially non-detectable. However, there is a slight slope toward the sump. Drive-over curbing is present ~~12 feet six inches~~ beyond the grating on the west and ~~12 feet five inches beyond the grating on the~~ east sides so that the delivery trucks can be positioned in a containment area during loading/unloading. Any spills which occur on the concrete are cleaned up and

the area decontaminated. The decontamination process should result in the minimum amounts of residue remaining.

All traffic areas are covered by either concrete or asphalt ~~thus preventing direct contact with soils and thereby ground water~~.

Tank Area

The tank area (Figure II.A.4(d)-5) is provided with containment. This containment area is not sloped. Any spilled material is removed by pump or wet vacuum. The tanks loading/unloading area is a concrete pad. ~~No curbing presently exists around the pad. Curbing is scheduled to be placed around the entire pad.~~ The pad is not intentionally sloped. Any spills which occur on the pad are cleaned up and the area decontaminated. This decontamination results in minimum residue remaining.

Employee training emphasizes the importance of inspection, maintenance, personal safety, and reporting of conditions with pollution incident potential. This training, coupled with Safety-Kleen's containment system and immediate cleanup of any spills, will eliminate or greatly minimize the chance of contamination of ground water and/or surface water in the vicinity of the site. In addition, a fabric cover has been installed over the tank farm to reduce the possibility of precipitation entering the containment area. Surface run-off at the site does not come in contact with stored products or wastes in the waste management area.

Ignitable Wastes

All wastes and products are kept away from ignitable sources--Personnel must confine smoking and open flames to ~~remote~~ designated areas~~, separate from any solvent (e.g., the office or locker room) areas~~. Smoking is allowed only in the front ventilated area and outside the front door. The parts washer solvent and paint waste handling areas are separated from the office area to minimize the potential for a fire to spread or injury to personnel to occur.

Text has been edited to reflect a more stringent policy on smoking.

The tank farm is more than ~~20~~ 50 feet from the property line. Likewise, the flammable storage area is 50 feet or more from the property line.

Ignitable wastes are handled so that they do not:

1. Become subject to extreme heat or pressure, fire or explosion, or a violent reaction--The parts washer solvent and paint wastes are stored in a tank or in containers, none of which are near sources of extreme heat, fire, potential explosion sources or subject to violent reactions. The tanks are vented and the containers kept at room temperature to minimize the potential for pressure build up. ~~The tanks are painted white to reflect sunlight and are vented to prevent radiant heat buildup.~~

2. Produce uncontrolled toxic mists, fumes, dusts, or gases in quantities sufficient to threaten human health--The vapor pressure of petroleum-based parts washer solvent is low (2 mm Hg) and it and the paint waste are reactive with strong oxidizers and reactive metals only. Toxic mists, fumes, dusts, or gases will not form in quantities sufficient to threaten human health since strong oxidizers are not handled at this facility and the solvent vaporization will be minimal under normal working conditions.

3. Produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion--See "1" above and "4" below.

4. Damage the structural integrity of the Safety-Kleen facility--The parts washer solvent and paint wastes will not cause deterioration of the tank, containers, or other structural components of the facility.

Incompatible Wastes

Reactive and/or incompatible waste is not handled at the facility. All waste or products are kept away from ignition sources. Employees must confine smoking ~~or open flames~~ to the designated safe area.

Materials are handled so they do not:

a. Generate extreme heat or pressure, fire or explosion, or violent reaction.

b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health.

c. Produce uncontrolled fires or gases in sufficient quantities to pose a risk of fire or explosion.

d. Damage the structural integrity of the Safety-Kleen facility.

Adequate aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of the facility operation in an emergency.

RESPONSIBILITY FOR PREPAREDNESS AND PREVENTION PLAN

The preparedness and prevention plan, as well as the training of employees for its implementation, is the responsibility of the Operations Manager with assistance from corporate staff. The detailed training program is described in the Personnel Training Plan (Attachment II.A.4(e)).

TABLE II.A.4(d)-1

INSPECTION SCHEDULE

Area/Equipment	Specific Item	Types of Problems	Frequency of Inspection
Safety Equipment	Fire Extinguishers	■ Overdue inspection ■ Inadequately charged ■ Inaccessible	Weekly
	Eye Wash	■ Disconnected/malfunctioning values ■ Pressure ■ Inaccessible	Weekly
	First-Aid Kit	■ Inadequate inventory	~~Weekly~~ As needed
	Spill Cleanup Equipment	■ Inadequate supply of sorbent, towels, shovels, mops, empty drums	Weekly
	Personal Protection Equipment	■ Inadequate supply of aprons, glasses, respirators	Weekly/Upon use
Security Equipment	Gates and Locks	■ Sticking corrosion, lack of warning signs	Weekly
	Fence	■ Broken ties, corrosion, holes, distortion	Weekly
Storage Tank System-Storage Tanks	Volume in Tank	■ Must never be more than 95 percent full	Each operating day
	Tank Exterior	■ Rusty or loose anchoring, lack of grounding, wet spots, discoloration, leaks, distortion	Each operating day
	High Level Alarms	■ Malfunctioning siren/strobe light	Each operating day
	Volume Gauges	■ Disconnected, sticking, condensation	Each operating day
Secondary Containment	Bottom and Walls	■ Cracks, debris, ponding, wet spots/stains, deterioration, displacement, leaks	Each operating day
	Self Closing Drain Valve	■ Open, leaks	Each operating day
	Rigid Piping and Supports	■ Distortion, corrosion, paint failures, leaks	~~Each operating day~~ As needed

TABLE II.A.4(d)-1

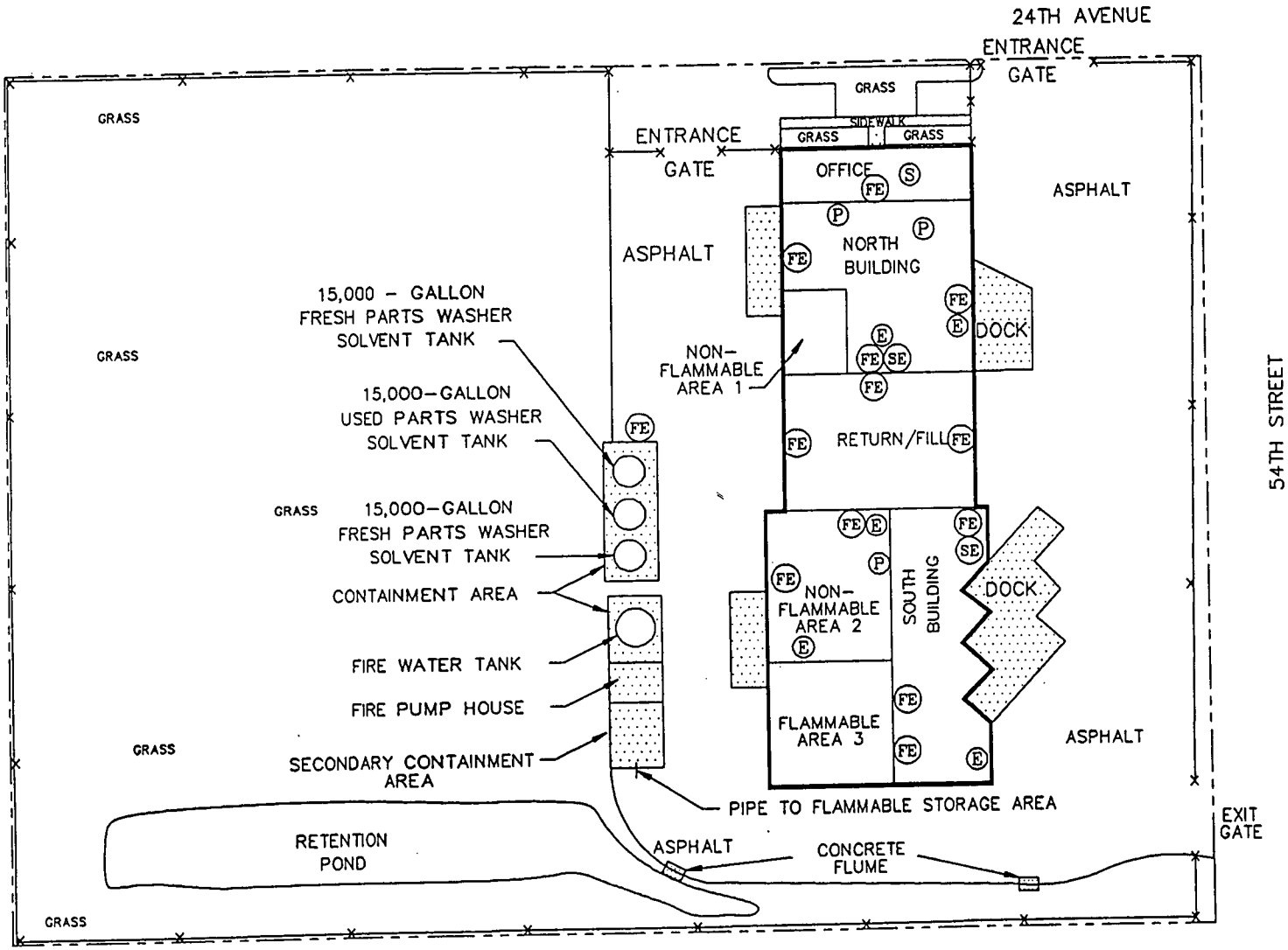
INSPECTION SCHEDULE

Area/Equipment	Specific Item	Types of Problems	Frequency of Inspection
Transfer Pumps and Hoses	Pumps Seals	■ Leaks	Each operating day
	Motors	■ Overheating	Each operating day
	Fittings	■ Leaks	Each operating day
	Valves	■ Leaks, sticking	Each operating day
	Hose Connections and Fittings	■ Cracks, loose, leaks	Each operating day
	Hose Body	■ Crushed, cracked, thin spots, leaks	Each operating day
Return and Fill Station	Wet Dumpster	■ Excess sediment build-up, leaks, rust, split seams, distortion, deterioration, excess debris	Each operating day
	Secondary Containment	■ Excess sediment/liquid, leaks, deterioration, distortion, excess debris	Each operating day
	Loading/Unloading Area	■ Cracks, pondings/wet spots	Each operating day
Container Storage Area	Total Volume in Storage	■ Exceeds permitted limit	Each operating day
	Condition of Drums	■ Missing or loose lids; labels missing, incomplete or incorrect; rust, leaks, distortion	Each operating day
	Stacking/Placement/ Aisle Space	■ Containers not on pallets, unstable stacks, inadequate aisle space	Each operating day
Secondary Containment	Curbing, Floor and Sump	■ Ponding/wet spots, deterioration, displacement, leaks, other	Each operating day
	Loading/Unloading Area	■ Cracks, deterioration, ponding/wet spots	Each operating day

TABLE II.A.4(d)-2

EMERGENCY RESPONSE EQUIPMENT

Description	Type/Capacity	Location	Quantity
Fire Extinguisher	ABC	Warehouses	10
Fire Extinguisher	ABC	Office Area	1
Fire Extinguisher	ABC	Tank Farm	1
Eyewash/Safety Shower	Fountain/Overhead	Warehouses	4
Shower		Office Area	1
First-Aid		Locker Rooms	2
Telephones	Standard	Manager's Office	Min. 2
Telephones	Standard	Secretary's Desk	Min. 1
Telephones	Standard	Warehouses	Min. 1
Gloves	Rubber	Emergency Equip. Area	Min. 3 pair
Boots (optional)	Rubber	Emergency Equip. Area	Min. 3 pair
Protective Clothing	Apron	Emergency Equip. Area	Min. 3
Eye Protection	Goggles/Safety Glasses	Emergency Equip. Area	Min. 3
Sorbent Material	Oil Absorbing	Emergency Equip. Area	Min. 1 bale
Shovel	Standard	Emergency Equip. Area	Min. 1
Mop and Bucket	Standard	Emergency Equip. Area	Min. 1
Respirator	Air Purifying	Emergency Equip. Area	Min. 2
Pump	Hand-held, Electric	Emergency Equip. Area	Min. 1
Wet/Dry Vacuum	Portable, Electric	Emergency Equip. Area	Min. 1



N

0 APPROXIMATE SCALE 60

FEET

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CONCRETE
- (FE) FIRE EXTINGUISHER
- (SE) SPILL EQUIPMENT
- (E) EYEWASH/SHOWER
- (S) SHOWER
- (P) PHONES

FIGURE II.A.4(d)-1
LOCATION OF EMERGENCY EQUIPMENT
SAFETY-KLEEN CORP. FACILITY
TAMPA, FLORIDA

PROJ. NO.	PREP. BY	DRAWN BY
8095-061		M.W.K.
DATE	REV. BY	DWG. NO.
4-25-96		002

Delta Environmental Consultants, Inc.

ATTACHMENT II.A.4(e)
PERSONNEL TRAINING

This section of the permit application describes Safety-Kleen's training program. All position descriptions referenced may not be present at this facility. Training plan outlines, job descriptions, training content, frequency and techniques are described as well as the implementation of the training program.

The purpose of Safety-Kleen's training program is to familiarize employees with environmental regulations, records, and emergency procedures so they ~~can~~ will perform their jobs in the safest and most efficient manner possible.

DESCRIPTION OF TRAINING PROGRAM

Each employee is trained to operate and maintain the service center safely, and to understand hazards unique to ~~his~~ that person's job assignment. New Branch Managers (Resource Recovery Branch Manager) and new Operation Center Supervisors must complete a formal introductory training program before starting their jobs, with annual review and update thereafter. New Sales Representatives must be trained prior to unsupervised customer visits. All other hazardous waste employees must undergo a combination of videotape and on-the-job training within six months of starting.

OUTLINE OF TRAINING PROGRAM

An outline of the training program, given both initially and annually to employees who manage or handle hazardous waste at the Operations Center is presented in Table IIA.4(e)-1.

JOB TITLE/JOB DESCRIPTION

Job descriptions for employees who would be expected to manage or handle hazardous wastes, including the Branch Manager (Resource Recovery Branch Manager), ~~Operation Center Supervisor~~, Branch Automotive Manager, Branch Industrial Manager, Branch Secretary (paperwork only), Sales Representatives, and Warehouseperson~~, Operation Center Manager, Operation Center Driver, and Operation Center Secretary~~ are provided in Tables II.A.4(e)-2 through II.A.4(e)-11.

TRAINING CONTENT, FREQUENCY, AND TECHNIQUES

Employee training is accomplished using classroom, videotape, written, and on-the-job methods. The Environment Health and Safety (EHS) and Training Departments of Safety-Kleen's Corporate Office prepares a training program for employees and they must provide documentation that the program has been executed. ~~An~~ Employees ~~is~~ are trained prior to starting or as soon as ~~he or she~~ they begin working, (depending on ~~his or her~~ their position), and ~~is~~ are trained annually thereafter.

The following presents the specific training requirements for new Safety-Kleen employees who will manage or handle hazardous waste. The training programs for accumulation center employees are the same as their counterparts in the service center.

Training of New Branch Managers: New Branch Managers are trained for several weeks before they begin their new positions. This training is given ~~both~~ on the job and in the classroom. During this training, the new manager reviews ~~all~~ environmental records and learns the recordkeeping requirements. These records include: manifests, personnel records, training records, service center inspection records, and spill reports. At

least eight hours of this initial training consists of an introduction to environmental law and a review of the Part B, including the Waste Analysis Plan, Preparedness and Prevention Plan, Contingency Plan, Training Plan, and Closure Plan.

The training culminates in four weeks of training at ~~his~~ that person's new service center, at least one day of which is devoted to environmental training with the ~~Regional Environmental Engineer~~ Environmental Health and Safety Manager. Additional time is spent reviewing past environmental compliance at the Branch Manager's service center; the regulations unique to ~~his~~ the state are discussed as well.

Training of New ~~Operation Center~~ Branch Automotive Manager and Branch Industrial Manager: The ~~Operation Center~~ Branch Automotive and Industrial Manager is responsible for administrative operations at the operations center. This training is ~~both~~ on location and in classroom modes. While being trained at the branch at which ~~he or she~~ they will be stationed, a new ~~Operation Center~~ Branch Automotive/Industrial Manager reviews ~~all~~ environmental records and learns the recordkeeping and inspection requirements. These records include: manifests, personnel records, training records, service center inspection records, and spill reports.

This training includes an introduction to environmental law (including the Resource Conservation and Recovery Act), health and safety issues, emergency response and inventory (including waste) reconciliation methods. Additional time is spent reviewing past environmental compliance at the ~~Operation Center~~ Branch Automotive/Industrial Manager's site.

~~Operations Center Supervisors, Branch Automotive Managers, and Branch Industrial Managers receive training similar to Operation Center Manager as their job descriptions warrant.~~

Training of New Branch ~~or Operation Center~~ Secretaries: Branch ~~or Operation Center~~ secretaries are trained in the proper recordkeeping procedures as soon as they begin working for Safety-Kleen. While they are not usually responsible for preparing the documentation, they must check it for accuracy and completeness and then process or file it as required. Additional training is overseen by the Branch Manager~~/Operation Center Manager~~ and is done within six months of starting. This training is often presented in company-produced videotape presentations on emergency response, shipping documents (including manifests), drum labels, and other safety and environmental compliance issues.

Training of New Sales Representatives: New Sales Representatives are trained on the job for two weeks during which they are introduced to manifests, service center inspection records, and training records. A Sales Representative may also be trained as the designee for performing a facility inspection. Additional training is in the form of videotape presentations and a review of the Contingency Plan. Within six months of starting a position, the sales representative must review the items listed in the outline presented in table II.A.4(e)-1.

Training of New Warehouseperson~~/Operation Center Driver~~: A Warehouseperson~~/Operation Center Driver~~ is trained to maintain the service center and assist the other branch employees in their tasks. ~~He~~ The warehouseperson may be a designee ~~for~~ to perform the ~~Operation Center~~ Branch inspection and must be trained by the ~~Operation Center~~ Branch Manager ~~as such~~. Within six months of starting a position, the

warehouseperson ~~or driver~~ must review the items listed in the outline presented in Table II.A.4(e)-1.

Annual Training: On an annual basis, employees are trained using a program prepared and updated annually the EHS and Training Departments which contains the topics in Table II.A.4(e)-1. This training also includes updates on environmental regulations, an in-depth review of the Contingency Plan and a review of RCRA inspection criteria. This review is in the form of videotapes and a review and discussion of the storage service center permit/application. In addition, periodic memoranda on changes in environmental regulations are issued by the EHS Department and must be read and discussed by ~~all~~ branch personnel.

Text has been edited to delete references to obsolete job titles and positions.

TRAINING DIRECTOR

The training is directed by Safety-Kleen's Training and Development, and Environment, Health and Safety (EHS) Departments which operates out of the Corporate Office in Elgin, Illinois. Each ~~regional~~ Environmental ~~engineer~~ Health and Safety Manager who works in this department is responsible for compliance of the service centers in a given geographic area of the country. The EHS Department, in coordination with the facility, must:

- Provide a training program which addresses the requirements of environmental regulations and corporate policy;

- Notify the proper authorities, oversee remedial actions, and submit a written report to the state after an emergency situation has occurred;

- Assure that environmental permits are submitted and updated as required;

- Manage any environmental compliance issues which exceed the resources available at the service center level; and

- Participate in training new Branch Managers and conducting Annual Branch Manager Training.

Qualifications for individuals ~~that are~~ staff members of the EHS Department ~~and may~~ that conduct training at the Service Center are available upon request.

RELEVANCE OF TRAINING TO JOB POSITION

Each employee is trained to operate and maintain the service center safely and to understand hazards unique to the job assignment. Safety-Kleen's training programs are designed to give employees appropriate instruction regarding the hazardous waste management procedures they will encounter in performing their respective duties. Since the handling of hazardous materials is a large part of the operations of the service center, all employees are given training in environmental regulations, transportation regulations, the Preparedness and Prevention Plan, and Contingency Plan.

TRAINING FOR HAZARDOUS WASTE MANAGEMENT

As described previously, all employees are trained in the aspects of hazardous waste management which are relevant to their position. This includes job-specific hazards and necessary precautions, emergency response, and proper recordkeeping. This training is given initially and updated annually.

TRAINING FOR CONTINGENCY PLAN IMPLEMENTATION

All employees are trained in Contingency Plan implementation, through both initial training and yearly refresher courses, as summarized in Table II.A.4(e)-1. Employees are trained on the contents of the Contingency Plan as well as criteria for implementation.

TRAINING FOR EMERGENCY RESPONSE

All employees are trained in emergency response procedures, through both initial training and yearly refresher courses, as summarized in Table II.A.4(e)-1. The emergency training involves spill and fire prevention as well as remedial action procedures. Employees are also trained to recognize when evacuation and outside assistance may be necessary.

IMPLEMENTATION OF TRAINING PROGRAM

New Branch Managers~~, Operation Center Managers, Operation Center Supervisors,~~ and Sales Representatives must complete an introductory training program discussed previously within six months of starting their jobs, with annual review and update thereafter. Branch ~~or Operation Center~~ Secretaries and Warehousepersons~~/ Accumulation Center Driver~~ are given the full hazardous waste training course, as outlined in Table II.A.4(e)-1, within six months of starting work. Warehousepersons~~/ Accumulation Center Drivers~~ involved in direct handling of hazardous waste do not work unsupervised until they have completed the entire initial hazardous waste training course.

PERSONNEL TRAINING RECORD FORMS

Table II.A.4(e)-12 is a sample personnel training record form. This form, or one similar to it, will be used to record training. All training is documented and kept on file at the service center until closure. Additional forms may be used contingent upon the specific issue being addressed. All forms will show the training received, employee name, and the date of training.

TABLE II.A.4(e)-1

INTRODUCTORY AND CONTINUING TRAINING TOPICS FOR OPERATION CENTER EMPLOYEES

- Hazard Communication Safety Training
- Hazard Communication Understanding MSDSs
- Preventing Injuring and Illnesses
- Chemistry of Safety-Kleen Products
- Hazardous Materials Regulations
- ~~Environmental Regulation Update~~
- ~~Part A Application~~
- Waste Analysis Plan
- Preparedness ~~and~~, Prevention, and Contingency Plan
- ~~Contingency Plan and Emergency Procedure~~
- ~~Training~~
- ~~Closure~~
- ~~Inspections~~
- ~~Manifesting~~
- ~~Spill Simulation and Spill Reports~~
- Day Four - Ten Day Training - Haz Mat/POT/MANFST VID QUIZ
- Completion of New Employee Orientation Program *
- Initial Contingency Plan Training (Including Part B review) *
- Respirator Fit Testing and Training

* New employees only; not a part of annual training.

TABLE II.A.4(e)-2

JOB DESCRIPTION
RESOURCE RECOVERY BRANCH MANAGER

JOB DESCRIPTION:

The Recource Recovery Branch Manager has overall responsibility for the facility operations and maintenance, and directs sales activities within a certain geographic area defined by the corporate Marketing Department. ~~He~~ The Branch Manager is responsible for the proper operations and profitability of the service center.

REPORTS TO:

Regional Manager of Sales

QUALIFICATION:

Minimum high school graduate with Safety-Kleen sales experience

PRINCIPAL RESPONSIBILITIES:

1. Plan, direct, and monitor activities of Sales Representatives.
2. Training of branch facility managers, sales representatives, and other branch personnel.
3. Assist or accompany sales representatives during their sales activities when necessary.
4. Tabulate daily sales and inventory figures and report them to the corporate offices.
5. Maintain adequate inventory of solvents, allied products, and equipment.
6. Carry out corporate policies and standards regarding facilities, equipment operation and maintenance.
7. Ensure the regular inspection of the facility and equipment and the implementation of any necessary repairs or remedial actions.
8. Represent Safety-Kleen Corp. in local community affairs and public relations activities.

9. Coordinate with corporate Technical Services and EHS Departments and implement necessary actions or plans for Regulatory compliance.
10. Be able to act as the primary emergency response coordinator.

TABLE II.A.4(e)-3

JOB DESCRIPTION
BRANCH AUTOMOTIVE MANAGER

JOB DESCRIPTION:

Develops and maintains automotive account business by presenting and providing the complete Automotive Fluid Recovery Service to customers in assigned territories. Trains, motivates, and controls the automotive sales staff within the assigned territories.

REPORTS TO:

Directly to the Resource Recovery Branch manager and indirectly to Regional Automotive Sales Manager. All Automotive and Oil Sales Representatives within assigned territories report directly to the BAM. In branches without a BFM, one or more Branch Secretaries report to the BAM, as assigned by the Resource Recovery Branch Manager.

QUALIFICATION:

Minimum high school graduate with above average Safety-Kleen route sales experience. Applicant should exhibit leadership abilities and be self-motivated, and pass Company testing.

PRINCIPAL RESPONSIBILITIES:

1. Markets and sells the total Automotive Fluid Recovery Service.
2. Signs automotive accounts to the Safety-Kleen Service Contract and Oil agreements where applicable.
3. Ensures that customers have the right kind of equipment which is properly labeled, and on the appropriate service interval, by completing machine condition reports.
4. Ensures that the Company's ethical standards are maintained.
5. Reviews weekly and period sales production summaries.
6. Ensures the timely completion of services.
7. Reviews and acts on accounts receivable standards.

8. Assures proper completion and administration of hazardous waste paperwork.

9. Assures proper management, preparation, and shipment of hazardous waste (including packaging, placarding, transportation, and storage procedures).

10. Assures DOT compliance.

11. Trains personnel following the *Corporate Training 10-Day Action Plan.*

12. Conducts sales meetings.

13. Oversees career development by conducting selling skills training meetings (in conjunction with ASM).

14. Conducts health and safety meetings.

15. Develops team contests or rewards for set period objectives.

16. Develops rewards for achieved objectives.

17. Holds monthly goal setting sessions with assigned personnel.

18. Conducts quarterly performance reviews with assigned personnel.

19. Controls all personnel within the assigned territories by daily/weekly communication in regards to branch standards and goals.

TABLE II.A.4(e)-4

JOB DESCRIPTION
BRANCH INDUSTRIAL MANAGER

JOB DESCRIPTION:

Develops and maintains industrial account business by presenting and providing the complete Industrial Fluid Recovery Service to customers in assigned territories. Trains, motivates, and controls the industrial sales staff within the assigned territories.

REPORTS TO:

Directly to the Resource Recovery Branch Manager and indirectly to Regional Industrial Sales Manager. All Industrial Sales Representatives within assigned territories report directly to the BIM. In branches without a BFM, one or more Branch Secretaries report to the BIM, as assigned by the Resource Recovery Branch Manager.

QUALIFICATION:

Minimum high school graduate with above average Safety-Kleen route sales experience. Applicant should exhibit leadership abilities, be self-motivated, and pass Company testing. Good reading and letter writing skills are also required.

PRINCIPAL RESPONSIBILITIES:

1. Ensures that customers have the right kind of equipment which is properly labeled, and on the appropriate service interval, by completing machine condition reports.

2. Ensures that the Company's ethical standards are maintained.

3. Performs the required amount of cold calls, sample processing, and machine placements.

4. Reviews weekly and period sales production summaries.

5. Ensures the timely completion of services.

6. Reviews and acts on accounts receivable standards.

7. Assures proper completion and administration of hazardous waste paperwork.

8. Assures proper management, preparation, and shipment of hazardous waste (including packaging, placarding, transportation, and storage procedures).

9. Assures DOT compliance.

10. Trains personnel following the *Corporate Training 10-Day Action Plan.*

11. Conducts sales meetings.

12. Oversees career development by conducting selling skills training meetings (in conjunction with ISM).

13. Conducts health and safety meetings.

14. Develops team contests or rewards for set period objectives.

15. Develops rewards for achieved objectives.

16. Holds monthly goal setting sessions with assigned personnel.

17. Conducts quarterly performance reviews with assigned personnel.

18. Controls all personnel within the assigned territories by daily/weekly communication in regards to branch standards and goals.

TABLE II.A.4(e)-5

JOB DESCRIPTION
BRANCH SECRETARY

JOB DESCRIPTION:

Performs duties to assist the branch manager, sales representatives, and customers with billing, scheduling, and recordkeeping. Performs secretarial duties at the branch.

REPORTS TO:

Branch Manager

QUALIFICATION:

Attended high school

PRINCIPAL RESPONSIBILITIES:

1. Maintain records in an orderly manner.
2. Assist sales representatives in scheduling services.
3. Ensure that all hazardous waste manifests are complete, and manage distribution and filing of copies.
4. Maintain Personnel Training Record files.
5. Maintain Facility Inspection Records.
6. Answer customer inquiries.
7. Manage customer billing.
8. Perform other related duties as assigned.

TABLE II.A.4(e)-6

JOB DESCRIPTION
SALES REPRESENTATIVE

JOB DESCRIPTION:

The Sales Representative is charged with the responsibility of generating new business and servicing established accounts within a certain defined geographic area.

REPORTS TO:

Branch Industrial Manager or Branch Automotive Manager

QUALIFICATION:

Minimum high school graduate

PRINCIPAL RESPONSIBILITIES:

1. Maintain ~~his~~ their route truck and replenish ~~his~~ products on the truck before beginning ~~his~~ the route sales.

2. Contact potential customers for the purpose of selling Safety-Kleen services and allied products.

3. Exchange used solvents with fresh solvent and replenish the inventory of Safety-Kleen's products for existing customers.

4. Make minor repairs of Safety-Kleen's parts washer equipment or lease new equipment to the customer.

5. Prepare the necessary paperwork for each service, and bill or credit the customer, as necessary.

6. At the end of each day, return the truck to the branch for cleaning and maintenance, and summarize the day's activities so the Branch Manager can tabulate the daily figures and forward them to the corporate office.

TABLE II.A.4(e)-7

JOB DESCRIPTION
WAREHOUSE PERSONNEL

JOB DESCRIPTION:

Perform duties to assist the sales representatives in loading and unloading the trucks. Perform janitorial duties at the Operation Center.

REPORTS TO:

Operation Center Manager

QUALIFICATIONS:

Attended high school

PRINCIPAL RESPONSIBILITIES:

1. Maintain warehouse in clean and orderly manner.
2. Assist sales representatives in loading trucks and replacing solvent.
3. Clean containers as needed.
4. Park or move trucks as needed.
5. Stock inventory.
6. Replenish trucks with inventory.
7. Perform other related duties as assigned.

ATTACHMENT II.A.5
WASTE ANALYSIS REPORT

In accordance with U.S. EPA Hazardous Waste Regulations, eight types of hazardous waste have been identified at the Operations Center:

1. The used Parts Cleaner 105 returned from customers in separate containers transferred and stored in the aboveground tank awaiting shipment to the recycle facility is considered to be an Ignitable Waste (D001). Other used ~~Actrel® and other used Premium Solvent~~ parts washer solvents are considered non-ignitable. The used ~~Parts Cleaner 105 and used Actrel® are~~ parts washer solvents may be considered characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). ~~Used parts washer solvent 105 is manifested from the customer as a hazardous waste. Used parts washer premium solvent is transported from the customer as a non-hazardous waste and only becomes hazardous once it is mixed in the used parts washer solvent tank. Used Actrel® is manifested from the customer as a hazardous waste unless a generator's hazardous waste determination indicates that it is non-hazardous, in which case it will be managed as a non-hazardous waste until it is placed in the used parts washer solvent tank at which time it will be a hazardous waste.~~ Spent parts washer solvent from customers' parts washers is accumulated in a 15,000 gallon aboveground storage tank via the return/fill station. Containers of solvent are poured into a drum washer at the return/fill station, which in turn empties into the aboveground storage tank.

Parts washer solvent dumpster mud, and tank bottom sludge accumulated in the solvent return receptacles (wet dumpsters) and in the sludge tank, ~~is~~ are considered to be an Ignitable Waste (D001) and a characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). Other parts washer solid debris, such as metal parts and filters are considered a characteristic waste only by TCLP. ~~(this paragraph was formerly listed as Item #4)~~

~~2. The used chlorinated solvent #609, returned from customers in separate containers and remaining in the same container for shipment to the recycle facility is considered to be a Listed Waste from Non-Specific sources (F002 and F004); and a characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). This waste is managed as a transfer waste.~~

~~3~~ 2. The used immersion cleaner #699, returned from customers in separate containers and remaining in the same container for shipment to the recycle facility, is considered a characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

~~5~~ 3. Dry cleaning wastes consist of spent filter cartridges, powder residue from diatomaceous or other powder filter systems and still bottoms. While approximately 80 percent of the dry cleaning solvent used is perchloroethylene (F002 and D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043), approximately 17 percent is mineral spirits (D001), and a characteristic waste by TCLP ((D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043), and the remaining 3 percent is trichlorotrifluoroethane (F002) and a characteristic waste by TCLP leaching procedure ((D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). The non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

6 4. Antifreeze waste is approximately two-thirds water, with the remaining third being antifreeze (ethylene glycol) and contaminants. The spent antifreeze may contain the following TCLP waste codes: D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043. ~~Currently hazardous antifreeze wastes are handled as transfer wastes only.~~

~~7~~ 5. Paint wastes consist of various lacquer thinners such as acetone, isopropyl alcohol, methyl ethyl ketone, methyl isobutyl ketone,

toluene, xylenes, and acetate compounds (D001, F003, and F005) and is toxic using the characteristic leaching procedure (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). The waste is collected in ~~five-gallon and 16-gallon~~ containers at the customer's place of business and the containers are then ~~palletized and~~ stored in the paint waste storage area of the Operations Center. ~~It is anticipated the Operations Center will ship 71,500 gallons of paint waste to a reclaimer annually.~~ Upon receipt of the paint wastes at the Operations Center, the generator's (Safety-Kleen's customer) manifest is terminated. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

8 6. Due to the great variability in the composition of FRS wastes, their application or use, and the source industry, Safety-Kleen characterizes each stream from each generator separately. FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program. These wastes, except characteristic waste oil, are shipped in containers and are stored on pallets. The FRS wastes are handled as transfer wastes only.

7. The aqueous parts washer solvent is primarily an aqueous solution with a small amount of organic additives (alcohols). The spent aqueous parts washer solvent is transported from the customers in containers. Spent aqueous parts washer solvent from customers' parts washers may be accumulated in a 15,000 gallon aboveground storage tank via the return and fill station. Containers of solvent are poured into a drum washer at the return and fill station, which in turn empties into the tank. The used aqueous parts washer solvent may be considered characteristic waste by toxicity characteristic leaching procedure (TCLP) (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

8. The Aqueous Brake Cleaner (ABC) is primarily an aqueous solution with approximately 10% nonorganic additives and detergents. The spent Aqueous Brake Cleaner (ABC) is transported from the customers in containers. Spent aqueous parts washer solvent from customers' parts washers may be accumulated in a 15,000 gallon aboveground storage tank via the return and fill station. Containers of solvent are poured into a drum washer at the return and fill station, which in turn empties into the tank. The used aqueous parts washer solvent may be considered characteristic waste by toxicity characteristic leaching procedure (TCLP) (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

A typical composition, and chemical physical analysis for each of the waste streams listed above (except FRS) are shown in the attached chemical analyses reports, based on existing data on these wastes generated from similar processes within Safety-Kleen's current and/or potential customers.

Text has been edited to delete references to discontinued solvent types.

USED PARTS WASHER SOLVENT

The clean parts washer solvents are ~~is~~ labeled under ~~the~~ trade names ~~of "Safety-Kleen 105 Solvent", so named because of the flash point of the solvent being 105°F (minimum). Premium Solvent has a flash point of 148°F or higher. Actrel® has a flash point of 212°F.~~ Flash points of the petroleum-based parts washer solvents range from 105°F (ignitable) to 212°F. Chemically, the solvent primarily consists of petroleum hydrocarbon fraction with boiling points between 310°F and 400°F. Impurities, such as light aromatic hydrocarbons (LAHC) and chlorinated hydrocarbons, usually constitute less than one percent of the total volume. ~~The mineral spirits constituted at least 95% of the total volume of the Parts Cleaner 105 and Premium Solvent. The Actrel® solvent consists primarily of a paraffinic compound with C_{12}-C_{14} chains.~~

The used petroleum-based parts washer solvent consists primarily of ~~mineral spirits or paraffinic compound solvent plus water (Parts Cleaner 105, Premium Solvent, and Actrel®)~~ parts washer solvent, solids, oil, and grease picked up in the various degreasing operations. In most instances, no water is associated with the used solvent; however, at times, the water content may range from one percent to as much as 50 percent. The oily bottoms may range from 2 percent to 10 percent, by volume, in the used solvent. The used parts washer ~~Premium Solvent~~ solvent is ~~non-hazardous~~

~~as received from the customer and prior to being placed in the used parts washer solvent tank~~ transported in accordance with the generator's hazardous waste determination pursuant to 40 CFR 262.11. Hazardous characteristics of the used parts washer solvents can vary and are primarily associated with constituents introduced by the customers' processes.

~~The Premium Solvent and Safety Kleen's existing parts washing solvent 105 are very similar in nature, both being predominantly mineral spirits. The Actrel® solvent is a paraffinic compound with C_{12}-C_{14} chains. However, the Premium Solvent has a flash point of 148°F and Actrel® has a flash point of 212°F and are therefore not ignitable. Our preliminary data from other facilities indicates that the used Premium Solvent is not toxicity characteristic leachating procedure (TCLP) hazardous. The Actrel® solvent is presumed to be TCLP hazardous unless a generator's hazardous waste determination indicates otherwise.~~

Chemically, the composition of the solvent fraction in the used parts washer solvent is essentially the same as the clean solvent, as shown in analyses.

USED IMMERSION CLEANER

~~The clean chlorinated solvent is labeled under the trade name of "Immersion Cleaner and Carburetor and Cold Parts Cleaner #609." It is a two phase system consisting of an upper aqueous (water) layer and lower non aqueous (solvent) layer. The water phase consists of water and Dresinate TX (a sodium soap of tall oil). The solvent phase is composed of methylene chloride, orthodichlorobenzene, cresylic acid, and an amines additive.~~

~~A new~~ "Immersion Cleaner and Carburetor and Cold Parts Cleaner #699" is also being leased. It is a heavy aromatic naphtha, N-methyl-2-pyrolidon

dipropylene glycol methyl ether, monoethanolamine and oleic acid, and may contains a maximum of 1 percent ~~total~~ chlorinated ~~solvents~~ compounds.

The used Immersion Cleaner is basically unchanged from its clean state, except oil, grease, and other solids may be picked up during the various degreasing operations. The spent solvent is non-flammable. It is regarded as ~~toxic~~ hazardous because ~~it contains~~ of the presence of various ~~solvents~~ contaminants.

~~During 1988, approximately 1,600 containers of used Immersion Cleaner were returned to the Operations Center from the customers, and were subsequently shipped to the recycle center for reclamation. Less than five gallons of solvent plus seal water is expected to be in each container. Hence, in 1988, approximately 8,000 gallons of used immersion cleaner was processed through this operation. Of these quantities, approximately 70 percent (by volume) was chlorinated solvents and cresylic acid.~~

USED PARTS WASHER SOLVENT BOTTOM SLUDGE

This is material settled from used parts washer solvent in the aboveground tanks. It may contains ~~basically~~ soils, oil and grease, and ~~some~~ water picked up in ~~the~~ degreasing operations, together with a small amount of mineral spirits. Analyses have shown that the sludge is an ignitable waste and ~~might also~~ may be considered ~~toxic using~~ "TC" hazardous with respect to TCLP standards.

The sludge is removed from the aboveground tank periodically and shipped to Safety-Kleen's facility for reclamation.

USED PARTS WASHER SOLVENT DUMPSTER MUD

This waste material is accumulated in the wet dumpsters when emptying the used parts washer solvent from the containers into the aboveground storage tanks. Filters from parts washers utilizing ~~Actrel® or Premium Solvent~~ parts washer solvents may also be added. The nature of this waste is similar to the used parts washer solvent bottom sludge, except with some small metal parts and less mineral spirits. It is regarded as an ignitable waste and often is ~~also considered~~ a characteristic waste using TCLP standards.

The sludge in the dumpsters is cleaned out frequently. The waste is containerized, stored as a permitted waste, and shipped to Safety-Kleen's facility for recycling. ~~During 1988, approximately 2,000 gallons of dumpster mud was removed from this Operations Center.~~ Permitted vs generator

DRY CLEANING WASTES

Solvent used in dry cleaning of clothing is commonly tetrachloroethylene (perchloroethylene) or mineral spirits or trichlorotrifluoroethane. Hence, waste generated from dry cleaning operations contains various concentrations of the solvent. Basically, wastes generated by dry cleaning facilities are in the following forms.

1. Cartridge Filter: In addition to the construction materials consisting of steel, paper, clay, and carbon, the used cartridge retains solvent, oil and grease, and undissolved elements such as lint and soil. Solvent retained in the filter cartridge generally amounts to less than 50 percent of the total cartridge weight.

2. Muck: At some dry cleaning facilities, a mixture of powdered materials is used as the filter medium for the dry cleaning solvent, in lieu of the cartridge filter. This filter medium normally consists of diatomaceous earth and carbon. In addition to lint, soil, oil, and grease retained by this medium, between 40 and 50 percent by weight of the "muck" is absorbed solvent.

3. Still Residue: After filtration, the dry cleaning solvent is distilled by the dry cleaning machine to remove the dissolved materials from the used solvent. The dissolved materials (still residues) are in liquid form and consist of primarily detergent, oil and grease, vinyl acetate (a sizing compound), and 20 to 30 percent of solvent.

PAINT WASTES

Paint wastes consist of various lacquer thinners and paints. The waste is collected in ~~five-gallon pails and in 16-gallon~~ containers at the customer's place of business; upon receipt at the Branch facility, the manifest is terminated. ~~and~~ The containers are then ~~palletized and~~ stored in the container storage area of the warehouse, remanifested, and shipped to a reclaimer or disposed. ~~It is anticipated that this facility will ship 14,300 gallons of paint waste to a reclaimer annually and the Operations Center will ship 57,000 gallons annually.~~

FLUID RECOVERY SERVICE WASTES

Fluid Recovery Services (FRS) is a program managed by the Safety-Kleen Operations Centers. Under this program, waste types similar to the products provided by Safety-Kleen are collected by the Operations Center and processed by the recycle centers. These products may or may not have been originally obtained from Safety-Kleen by the industrial customer.

These wastes are handled as transfer wastes at the Operations Center. Examples of the types of wastes that may be received from FRS customers include:

1. Spent hydrocarbon distillates, such as waste fuel, oil, petroleum, and naphtha, etc.

2. Lubricating, hydraulic oils, synthetic oils, and machine oils.

3. Industrial halogenated solvents such as 1,1,1-trichloroethane, tetrachloroethylene, freon, and trichloroethane.

4. Photographic and x-ray related wastes.

5. Paint and lacquer thinners and paint wastes.

6. Other hazardous and non-hazardous halogenated and non-halogenated wastes.

FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-waste codes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F-waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program.

Certain other wastes that result from the use of organic solvents are also managed through the Operations Centers. These include the solids and

sludges that settle out of the used solvent during handling and processing. Lint, paper, oils, greases, carbons, and metals are examples of materials which may settle or separate out of used solvent. In addition to the listed waste codes, these wastes may also exhibit a characteristic under the toxicity characteristic leaching procedure.

Certain solvents are not economically recoverable in their prime form. These are typically solvents of low intrinsic value (e.g., methanol), those where the user's specifications are unattainable or where the mixture cannot be efficiently separated because of the formation of azeotropes, overlapping or close boiling ranges. However, when properly blended and processed, these solvents can be a beneficial source of energy. The Safety-Kleen recycle centers are equipped to process non-recoverable solvent mixtures with still bottoms from recovery of their solvent to produce valuable solvent based fuels.

~~In each of these end use applications at facilities classified as Industrial Furnaces, the combustion conditions are orders of magnitude more destructive than those specified for incinerators. For each industrial furnace emission controls are in place and covered by existing regulations. Specifications are restrictive for PCBs, herbicides, pesticides, etc., and for other wastes that might adversely affect the operation of the unit or the properties of the finished product.~~

ANTIFREEZE COLLECTION SERVICE

The spent antifreeze (ethylene glycol) is collected from automobile service stations. ~~These wastes are deposited into a 150 gallon translucent carboy by the customer, on the customer's premises, the carboy is pumped into 30- or 55-gallon containers or a tanker truck by the sales representative.~~ Nonhazardous antifreeze is commingled with used oil in a tanker truck, and

hazardous antifreeze is ~~pumped to 30- or 55-gallon containers~~ managed as a transfer waste. ~~It should be noted that the vast majority of the antifreeze sample analyses indicated this waste is not hazardous.~~ Safety-Kleen currently is in dialogue with the FDEP on revisions to the above described waste management practice for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on this protocol/ procedure is achieved.

WASTE ANALYSIS SYMBOL KEY

LHC	Light Aliphatic Hydrocarbons
MC	Methylene Chloride
111	1,1,1-Trichloroethane
TRI	Trichloroethylene
TOL	Toluene
PERC	Perchloroethylene
MS	Mineral Spirits
~~MECL~~	~~Methylene Chloride~~
DCB	Dichlorobenzene
BEN	Benzene

ATTACHMENT II.A.6
WASTE ANALYSIS PLAN

GENERAL

Safety-Kleen provides solvent distribution, collection, and reclamation services to companies that are primarily engaged in automobile repair, industrial maintenance and dry cleaning services. Safety-Kleen operates a "closed loop" waste recovery service for the parts cleaning machines used by customers at their facilities. When the cleaning fluids become dirty and can no longer be used effectively, Safety-Kleen picks up the dirty fluids and replaces them with clean, recycled fluids. The dirty fluids are returned to Safety-Kleen where they are recycled and subsequently reused by ~~their~~ customers. Approximately two-thirds of the cleaning fluids provided as product by Safety-Kleen ~~has~~ have been used before and subsequently reclaimed. Safety-Kleen's customers are typically small quantity generators who operate businesses which generate only a few hazardous waste streams. These factors help ensure that Safety-Kleen will receive a highly predictable and homogeneous waste stream.

Spent solvents are the primary feedstocks for the generation of Safety-Kleen solvent products. As a result, quality control of the spent solvents is necessary to ensure that reclamation occurs in the safest and most efficient manner possible.

Furthermore, as discussed earlier in the Facility Description (Attachment I.D.2), the materials collected at the Operations Center are usually collected from a company with a single process. The composition and quality of these materials are known and Safety-Kleen's operating experiences have shown that the collected materials rarely deviate from company specifications. As an additional safeguard, Safety-Kleen personnel

are instructed to inspect ~~all~~ certain materials before returning them to the Operations Centers. This mode of operation has been proven to safeguard the recycling process and maintain a quality product.

It is Safety-Kleen's practice that suspected non-conforming material must not be accepted until a full analysis has been done or the material must be rejected. Procedures to verify waste characteristics occur at several check points in the management of the solvent, as described below.

Safety-Kleen controls the use and management of its solvents by:

1. Limiting the solvents stored to those compatible with one another and their containers;

2. Determining the customer's type of business (i.e., his SIC code ~~is~~ may be recorded) and the purpose for which ~~he will use the machine~~ the machine will be used;

3. Training customers to use the machines properly;

4. Training employees to inspect spent solvent and determine whether it is acceptable;

5. Indicating on the service document, every time waste is collected, whether the spent solvent meets Safety-Kleen's acceptance criteria;

6. Marking each container with the customer's name, address, and EPA I.D. number (if required). This information remains on containerized waste until it is accepted at the reclamation facility;

7. Keeping a record of each incoming and outgoing shipment in the operating log at each facility;

8. Demonstrating the chemical and physical homogeneity of the wastes by sampling and analyzing a representative portion of generator waste streams on an ongoing annual basis at the national level; and

9. Routine analysis of the wastes received at the Recycle Centers.

Safety-Kleen's customers sign a service document containing the following information:

1. The name, address, and EPA I.D. number of the facility to which the waste is being shipped;

2. The customer's name, address, and EPA I.D. number (if required); and

3. The description and amount of Safety-Kleen solvent waste generated.

Each incoming and outgoing shipment is recorded in the facility's operating log. In addition, each sales representative must complete an acceptance criteria checklist each time a waste is picked up. In accordance with Safety-Kleen's pre-printed documents, all generators sign a statement with each shipment that there has been no material added to the closed-loop products supplied by Safety-Kleen since the last shipment. Finally, selected environmental ~~activity~~ reviews may be utilized to guard against the addition of other wastes into the generator's waste.

If a waste is rejected at the time of service based on the volume or consistency discrepancies, the customer will be given a choice as to whether ~~he~~ they will dispose of the waste ~~himself~~ or will require Safety-Kleen's assistance. If ~~he~~ a customer requests Safety-Kleen's assistance, a sample will be drawn using a Coliwasa® tube and it will be analyzed for flash point, volatile organic compounds, and other parameters to adequately define the constituents (e.g., for halogenated organic solvents, PCBs, flash point, etc.). If the waste is acceptable ~~at the branch~~, it will be relabeled and manifested, ~~appropriate and~~ then managed with the other wastes. If it is not acceptable, it will either be: (a) managed on a 10-day transfer basis and manifested to a properly permitted reclamation or disposal facility, or (b) manifested and shipped directly to a properly permitted reclamation or disposal facility.

QUALITATIVE WASTE ANALYSES

General Inspection Procedures

Safety-Kleen visually inspects each container of waste parts washer solvent when it is collected at the customer's location. This inspection includes an evaluation of the waste volume, appearance, and consistency. Safety-Kleen's personnel are familiar with the characteristics of all wastes as described in Attachment II.A.5 and managed at this facility. Safety-Kleen has established specific criteria for wastes managed at their facilities based on known characteristics. These criteria, described below, are used by Safety-Kleen personnel to aid in their visual inspections. These acceptance criteria enable Safety-Kleen to help ensure that the wastes being picked-up is an acceptable waste and does not contain unacceptable contaminates.

If a particular container of waste does not meet the established acceptance criteria, the Safety-Kleen service representative will reject the container at the customer's place of business. At the customer's request, a sample may

be collected and analyzed by Safety-Kleen to determine whether it can be managed by Safety-Kleen. Depending on the source, the waste will be analyzed for parameters related to the suspected source of the waste. Alternately, the customer may choose to dispose of the material by using another (non-Safety-Kleen) facility.

If the waste is sampled for further analysis, the service representative will take a sample of the waste and then seal the container and label it as hazardous waste. The container is left with the customer pending the results of the laboratory tests. The laboratory testing involves analyzing the suspect waste for compounds related to the suspected source of the waste (e.g., volatile organics, halogenated organics, PCBs, etc.).

If the laboratory analysis reveals that the sampled waste is not contaminated, Safety-Kleen will accept the waste from the customer.

If the laboratory confirms that the waste is contaminated, the generator will be responsible for securing an alternate means of disposal. ~~and Safety-Kleen will attempt to reconcile the discrepancy with the generator (e.g., telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, Safety-Kleen will immediately submit to the department a letter describing the discrepancy and attempts to reconcile it, and it will submit a copy of the manifest or shipping paper at issue, in accordance with 40 CFR 264.72.~~

Waste-Specific Criteria

The following is a description of the specific acceptance criteria for each waste stream.

Spent Parts Washer Solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~

The amount of material needed to make the mineral spirits a listed waste would not change the volume of waste

The acceptance criteria for determining by visual inspection whether spent parts washer solvent has been contaminated are volume and color, the most significant of which is volume. Safety-Kleen places clean parts washer solvent in 5-, 16-, and 30-gallon containers with the customer which, if no additional material has been added to the container, should not hold more than the 5, 10, and 19 gallons of waste, respectively, at the time of waste pick-up since those volumes ~~are~~ were equal to the respective product amounts in the containers. If the volume of waste in a given container exceeds the specified level, the Safety-Kleen service representative ~~will~~ may sample the waste for laboratory testing as described above, or will reject the waste.

The spent parts washer solvent is also visually inspected for its color. Unused parts washer solvent (Parts Cleaner 105 and Premium Solvent) has a greenish tint or is clear. ~~The Actrel® parts cleaner is colorless~~ The aqueous parts cleaner is clear. As the solvent ~~(Parts Cleaner 105, Premium Solvent, and Actrel®)~~ is used, it ~~turns~~ changes color. The specific color which the solvent turns is dependent upon the type of equipment being cleaned. For example, solvent used at automotive shops ~~turns~~ changes to brown or black, while solvent used by silk screeners will ~~turn~~ change the color of the inks (red, blue, pink, green, etc.). If the spent solvent color does not appear to be consistent with the type of equipment being cleaned, the service representative ~~will~~ may sample the waste for possible contamination as described above, or will reject the waste.

Immersion Cleaner

The criteria for the inspection of spent immersion cleaner are volume, color, and physical state. Clean immersion cleaner is delivered to the customer in containers. These containers each contain six gallons of immersion cleaner. Spent immersion cleaner is picked up from the customer in the same containers. If no additional material has been added to the spent immersion cleaner, the containers should contain no more than six gallons. If a container contains more than six gallons of waste, a sample ~~will~~ may be collected and analyzed for contamination following the procedures described above or the waste will be rejected.

Unused immersion cleaner is amber in color. As the solvent is used, it turns brown in color. The more it is used, the darker brown it becomes, until it is almost black. Therefore, it the spent immersion cleaner does not appear to be amber, brown, or black, the service representative ~~will either~~ may sample the waste for possible contamination as described above, or reject the container of waste.

Dry Cleaner Wastes

Dry cleaner wastes consist of spent filter cartridges, powder residue, and still bottoms:

Spent Filter Cartridges

Spent filter cartridges are placed in ~~either a 15 gallon ("split 30")~~ containers which hold one to three cartridges ~~or a 16 gallon container which holds either one jumbo filter cartridge or two smaller filter cartridges~~. It is obvious to the service representative whether the items in the containers are filter cartridges. The containers may also contain approximately one inch of liquid which should be either clear or have a light brownish tint. If the amount of the liquid is greater than approximately one inch or if the

liquid is a color other than light brown, the service representative ~~will~~ may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Powder Residue

The criteria for the acceptance of powder residue are consistency and color, the former being the more significant criterion of the two. A container of powder residue should not contain more than one inch of liquid. The waste should be slightly wet, with the consistency of a paste. If there is too much liquid in the container, the waste ~~will~~ may be sampled for contamination in accordance with the procedures described above, or the waste will be rejected.

The powder residue is also inspected for color and should appear to be greyish-black. If the residue is not greyish-black in color, the service representative ~~will~~ may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Still Bottoms

The criteria for the acceptance of dry cleaning still bottoms are consistency and color. The waste should have a highly viscous, tar-like consistency. If the consistency of the waste is too thin, the waste ~~will~~ may be sampled for contamination in accordance with the procedures described above, or will be rejected.

In addition to the consistency, the still bottom waste is inspected for color. The waste should appear dark brown or black in color. If the waste is a different color, a service representative ~~will~~ may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Paint Wastes

Safety-Kleen handles both lacquer thinner waste generated from the paint gun cleaning process and paint waste:

Lacquer Thinner Waste

The significant criterion for determining whether lacquer thinner waste will be accepted is volume. The solvent is provided to customers in five-gallon pails. The paint gun cleaning machine operates as a closed system whereby there should never be a combined volume of more than 7.5 gallons of solvent in the two collection pails. The solvent is pumped from a tube in a left hand pail (facing the machine) through the machine into a right hand pail. The tube in the left hand pail extends exactly half way into the pail (i.e., to the 2.5 gallon mark). The left hand pail starts with five gallons of clean solvent which will be pumped out as the machine is used to clean the spray guns. This process will continue until the left hand pail contains 7.5 gallons of solvent. Any solvent above 7.5 gallons remaining in the left hand pail at the time of servicing will be pumped through the machine into the right hand pail by the Safety-Kleen service representative. Therefore, when the machine is serviced, the right hand pail will always contain five gallons of solvent. If a service representative discovers more than a total of 7.5 gallons of solvent in the two pails or there is an overfill from the right hand pail, the waste ~~will~~ may be sampled for contamination in accordance with the procedures described above, or the waste will be rejected.

left - right ??

Paint Waste

The significant criterion for the inspection of paint waste is consistency. The waste should contain no more than 30 percent solids. The service representative will insert a three-foot-long glass tube into the container. The tube should glide easily down to the bottom of the container. If there is resistance to the insertion of the glass tube, it is assumed that the level of

solids is in excess of 30 percent and the service representative will reject the waste.

The contents of the glass tube are also visually examined for consistency and water content. The material should be a "free flowing" liquid, but should not contain a significant amount of water. If there is more than approximately 10 inches of water in the three-foot tube (the water and paint will separate in the tube and thus can be measured), the waste will be rejected.

ONSITE ENVIRONMENTAL ACTIVITY REVIEW PROGRAM

Based on historical operating and analytical records, Safety-Kleen has determined that the characteristics of its customer's wastes (particularly the last ~~10~~ 15 years) reflect that there has, in fact, been a continuing reduction in the trace levels of characteristically toxic constituents in these wastes. Therefore, in concert with the sampling described in this waste analysis plan, Safety-Kleen may conduct reviews of customer's waste streams. This review, in addition to the analytical baseline of information, will confirm that the hazardous waste streams managed at the Operations Centers under conditions of the Part B Permit do not change from year to year. Annual process descriptions may be performed for Large Quantity Generators (LQGs) and Small Quantity Generators (SQGs) that generate these wastes.

If a review occurs, it will be performed at the customer's site by the Safety-Kleen sales representative during their regular service calls. The Safety-Kleen representative will meet with a customer representative who is knowledgeable of the Safety-Kleen services used at the facility. The Safety-Kleen representative will conduct an inspection of the facility and interview the customer. The inspection and interview will be used to generate: a

description of the customer's processes, an inventory of waste streams, the principal product(s) or service(s), and the purpose for which Safety-Kleen solvents are used. This information will be used to complete a review document which will be certified and signed by the customer's representative and the Safety-Kleen representative. A copy of the completed review document will be kept on file at the Operations Center and copy will be provided to the customer.

WASTE ANALYSES AT THE RECYCLE FACILITY

Analyses performed at the recycle facilities are undertaken to safeguard the recycling process and to assure the product quality. In addition, each waste material is sampled and analyzed upon receipt of each waste load as required by the permit and associated Waste Analysis Plan for the receiving recycle center. In order to properly and safely process waste generated by the branch, the recycle center samples and analyzes each waste load as it is received from the branch. The following tables summarize a typical waste analysis plan at the recycle facility related to the hazardous materials returned from the Operations Center:

Table II.A.6-1	Parameters and Rationale for Hazardous Waste Identification
Table II.A.6-2	Parameters and Test Methods
Table II.A.6-3	Methods Used to Sample Hazardous Wastes
Table II.A.6-4	Frequency of Analysis

In addition to the aforementioned analyses, TCLP analyses for all compounds, except pesticides, will be conducted every five years on all characteristic hazardous waste streams (example; used parts washer solvent and 699 IC). Any compounds which are positively detected in the waste stream will be added to the parameter list for that waste stream on Table II.A.6-1.

OK every five years conflicts with Table II.A.6-4 OK

TABLE II.A.6-1

PARAMETERS AND RATIONALE FOR HAZARDOUS WASTE IDENTIFICATION

Hazardous Waste	Parameter[a]	Rationale
1. Used Immersion Cleaner (699IC)	TCLP	May contain TCLP compounds.
2. Used Parts Washer Solvent	Flash Point TCLP	May exhibit ignitable characteristics (D001); may contain TCLP compounds.
3. Parts Washer Solvent Tank Bottom Sludge and Free Water	TCLP Flash Point	The sludge and free water may contain TCLP compounds and the sludge has a flash point of 105° F (D001).
4. Parts Washer Solvent Dumpster Mud	TCLP Flash Point	The sludge and free water may contain TCLP compounds and the sludge has a flash point of 105° F (D001).
5. Dry Cleaning Wastes (Perchloroethylene)	Perchloroethylene TCLP	Three separate formulas exist for dry cleaning products. Perchloroethylene formula is the only waste managed as a permitted waste. It may contain TCLP compounds.
6. Paint Wastes	Acetone Isopropyl Alcohol Methyl Ethyl Ketone Methyl Isobutyl Ketone Toluene Xylenes Acetate Compounds Flash Point TCLP	Contains ingredients of F003 and F005 wastes, and may contain TCLP compounds. May exhibit ignitable characteristics (D001).

NOTES:

[a] TCLP Waste Codes: D004-D011, D018, D019, D021-D030, D032-D043.

TABLE II.A.6-2

PARAMETERS AND TEST METHODS

Parameter	Test Method	Reference
pH	pH Meter	ASTM Standard D1293-65
Flash Point	Tag closed cup tester	ASTM Standard D56-79
TCLP	Toxicity Characteristic Leaching Procedure	40 CFR 261, Appendix II
Hydrocarbons and Volatile Organics	Gas Chromatography (GC)	Methods Based on "Test Methods for Evaluation of Solid Waste, Physical/ Chemical Methods," SW-846, USEPA and ASTM Standards. In particular 8240 and 8270.

TABLE II.A.6-3

METHODS USED TO SAMPLE HAZARDOUS WASTES

Hazardous Waste	Reference for Sampling	Sampler	Description of Sampling Method
1. Used Immersion Cleaner IC699	Sampling a drum "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA/600/2-80/018	Test Methods for the Evaluation of Solid Waste Physical/ Chemical Methods, SW-846, USEPA	Representative composite sample using drum sampler
2. Used Parts Washer Solvent	Sampling a tank "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA/600/2-80/018	Same as 1	For tanks--Bomb sampler (similar to weighted bottle sampler)
3. Parts Washer Solvent, Tank Bottom Sludge, and Free Water	Same as 2	Same as 2	Same as 2
4. Parts Washer Solvent Dumpster Mud	Same as 1	Same as 1	Same as 1
5. Dry Cleaning Wastes	Same as 1	Same as 1	Same as 1
6. Paint Wastes	Same as 1	Same as 1	Same as 1

TABLE II.A.6-4

FREQUENCY OF ANALYSIS

Hazardous Waste	Frequency[a]
1. Used Immersion Cleaner 699	Gas chromatograph annually TCLP annually
2. Used Parts Washer Solvent	Gas chromatograph annually Flash point annually TCLP annually
3. Parts Washer Solvent, Tank Bottom Sludge, and Free Water	Gas chromatograph annually TCLP annually
4. Parts Washer Solvent Dumpster Mud	Gas chromatograph annually TCLP annually
5. Dry Cleaning Wastes	Gas chromatograph annually TCLP annually
6. Paint Wastes	Gas chromatograph annually TCLP annually

NOTES:

[a] In accordance with 40 CFR 264.13(a), Safety-Kleen will also perform physical and chemical analysis of a waste stream when it is notified or has reason to believe that the process or operation generating the waste has changed, or when the result of inspection indicates that the waste to be collected does not match the waste designated.

ATTACHMENT II.B.1
CONTAINMENT SYSTEM

CONTAINMENT

The drum storage areas shown in Figure II.B.1-1 occupy portions of the building areas which have concrete floors, concrete berms, and collection trenches to form spill containment systems. The system is free of cracks. Spills are removed by a hand-held, portable electric pump (the COMS pump), wet-dry vacuum cleaner, or sorbent materials. The capacities of the containment system is designed to be greater than 10 percent of the total liquid storage capacity in each drum storage area. Since the characteristics of the stored wastes are known, no analyses are performed for the materials collected from the containment area. All collected materials are sent to a recycle facility for recycling/reclamation. The recovered materials that can not be effectively reclaimed at the recycle facility will be, in turn, sent to a licensed facility for disposal.

Liscensed facility is a vague expression as there are many types of these.

All containers are transported, moved, and stored carefully in an upright position. The route trucks are equipped with an electric hoist to assist loading/unloading. In the warehouse area, the immersion cleaner, parts washer solvent dumpster mud containers, and dry cleaning waste containers are moved with two-wheel hand trucks and stacked by hand. Containers are palletized whenever possible ~~(four 55-gallon; 10 or 15 split 30 (also known as 20 gallon); five 30-gallon; eight 16-gallon; or sixteen 5-gallon per pallet)~~ to facilitate shipping and storage. Pallets may be stacked up to six feet high, or two high (whichever is higher), while in storage. This will prevent the containers from contacting standing liquid while they are in storage. Pallets may be shipped up to three high during transportation. A two foot aisle space will be provided between containment walls and pallets, and between rows pallets.

Two feet between pallets? OK

The container storage area for the north building (Figure II.B.1-2) has a capacity of 5,197 gallons. The types and numbers of each container may vary. The flammable container storage area for the south building (Figure II.B.1-3) has a capacity of 12,749 gallons. The nonflammable south building container storage area has a capacity of 44,367 gallons. These capacities include both fresh product and used material.

Operations center has been used to indicate the facility in general. while here it is used to indicate a specific portion of the facility

The container storage areas are completely enclosed so no precipitation will enter them. There is curbing around the container storage areas in the operations center, except where the trenches are located. The north building has three trenches with a combined capacity of 519.7 gallons. The south building has three trenches. One trench provides containment for the flammable storage room. The remaining two trenches provide containment for the non-flammable wastes and product. These two trenches have a combined capacity of 4,436.7 gallons. Figure II.B.1-4 shows the containment calculations for the trenches in the operations center.

In 1993, Safety-Kleen installed a fire suppression system for the entire facility. As part of the fire code requirements, Safety-Kleen was required to provide containment for the sprinkler water from the flammable storage room. A pipe was connected to the end of the existing containment trench in the flammable storage room. The pipe runs underground along the south end of the building and flows into a previously unused tank containment area. The pipe is metal and is enclosed in a sealed high density polyethylene liner. The previously unused tank containment area has been segregated into two sections. The northern section is used to house the fire water tank and pump house. The southern section provides secondary containment for liquids from the flammable storage area in the event the fire protection sprinkler system is activated or in the eventuality that the flammable storage room containment trench capacity is exceeded. Based on the configuration and slope of the trench in the flammable

review secondary containment Calculations and storage capacities for the flammable storage room.

storage area, only in the event a spill of greater than 550 gallons (10-55 gallon drums) would solvents enter the pipe and/or additional secondary containment area. The southern portion of the containment area will be coated in chemically resistant coating in accordance with the container storage areas. The installation of this pipe and containment area has affected the secondary containment capacity of the flammable storage room. The existing trench provides 660 gallons of containment capacity, while the additional secondary containment area provides 5,064 gallons of containment capacity. The containment capacity of the pipe is 427 gallons. The new total containment capacity is 6,151 gallons which is greater than 10% of the permitted storage volume of 12,749 gallons. Figure II.B.4-1 shows the containment calculations.

The floor has no intentional sloping. Any small spill which might occur would puddle where it was spilled. The spilled material would be cleaned up where it puddled or be manually directed to the containment trench. In the event that a large spill were to occur, some dispersion would be expected to occur based on the direction, force, and pathway obstacles presented by and to the spill. The trenches protect, however, the only opening in the curbing. Only in the event that the spill were to exceed the containment capacity of the trenches would spilled wastes be able to extend beyond the containment areas. Once outside the containment area the wastes would continue to be on a concrete surfaces. These are the same concrete surfaces that serve to protect soils and ground water from contamination due to spills occurring during loading/unloading.

~~The containment area has been coated with Sikagard® 62 or equivalent. The manufacturer's statement and information regarding this product are provided in Sub-Attachment II.B.1(a). The manufacturer states that this product, when properly applied, is capable of withstanding the products handled by Safety-Kleen.~~

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Text has beed edited to delete references to product descriptions which are not an environmental compliance activity. 264.175(b)(1)

CONTAINER MOVEMENT

In the drum storage areas, containers are handled with a hand-truck or forklift that is free of sharp points and stacked by hand. Every time a drum is moved, a chance exists that it will be tipped over, dropped, or punctured. To minimize the possibility of spillage, containers are tightly covered and kept in an upright position. A small portable electric pump is available to quickly transfer the liquid from any leaking container into another safe drum. Each route truck is equipped with an electric hoist. This hoist is used in the loading/unloading operation to minimize chances for spillage and/or employee injury. Trucks used for shipping containers between the recycle center and operations center have lift gates for drum loading/unloading. With the exception of mineral spirits, all drummed wastes are loaded/unloaded from the trucks at the docks located on the eastern side of the south and the north buildings. Wastes may be transferred from the south to the south building using hand carts or forklifts. This transfer process will utilize the garage doors on the western side of the north and south buildings. The parts washer solvent is loaded/unloaded at the fill/return shelter, which is described in the Tank Section, Part II C.

ATTACHMENT II.B.3
WASTE ~~SEGREGATION~~ MANAGEMENT

PROCEDURE FOR ~~SEGREGATING~~ MANAGING WASTE TYPES

The used solvents are compatible with each other and with other materials handled at this facility, with respect to reactivity, and therefore do not require special segregation procedures. ~~However, they are the primary source of feed stock for regenerating the clean solvents. For ease of inventory control and product integrity, separation and grouping of both used and fresh solvents is a standard practice at the facility. Safety Kleen uses a container color scheme as a part of its waste management system. Eight five gallon salvage~~ Overpack containers are used to manage containers whose integrity has been compromised.

All materials are managed in accordance with the local fire protection code and fire department recommendations. A separate flammable storage room has been constructed and is located at least 50 feet from the property line. ~~This room is equipped with explosion blow out panels.~~

The immersion cleaner is always contained in partially filled, ~~16 gallon,~~ covered containers before, during, and after its use. Until received at the recycle facility, the immersion cleaner is never transferred to another container. The containers containing the used immersion cleaner are returned to the facility and stored in the designated container storage areas before shipment to the recycle center. ~~Immersion cleaner #609 is managed as a transfer waste.~~

The dry cleaning wastes are ~~contained in 16-, split 30 (also known as 20-gallon), and 30 gallon~~ stored in containers ~~and nylon lined cardboard boxes.~~ These containers are managed similar to the used immersion cleaner

containers and contents within the containers will not be removed or processed at the facility. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

The parts washer solvent is collected in ~~5-, 16-, and 30-gallon~~ containers. These containers are then emptied into the dumpsters in the return/fill shelter. ~~Hazardous spent antifreeze is packaged either in bulk 30- or 55-gallon steel containers, and the containers are not opened at the facility.~~

Paint wastes consist of various lacquer thinners and paints. The waste is collected in ~~5-gallon pails and in 16-gallon~~ containers at the customer's place of business and the containers are then ~~palletized and~~ stored in the container storage area of the warehouse. ~~It is anticipated that this facility will ship 14,300 gallons of paint waste to a reclaimer annually and the Operations Center will ship 57,000 gallons annually.~~ The paint waste manifests are terminated at that point. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

Text has been edited to delete references to obsolete waste management practices, discontinued solvent types, and obsolete business statistics.

FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility as transfer wastes under the FRS program.

Review Table II.A.5-1

The containers are designed and constructed to be compatible with the stored material and to minimize the possibility of breakage and leaking, in accordance with DOT shipping container specifications. ~~It should be noted the DOT specifications for packaging are currently undergoing revision.~~ The new specifications will be U.N. performance-oriented packaging criteria. ~~DOT will no longer specify package construction such as gauge of steel, type of weld, etc. Because there are no longer any specifications, there will no longer be the specification numbers such as 17E or 17H on the containers. The new U.N. criteria only specify a performance standard~~ that the package must meet to become acceptable for transport of a hazardous material/waste. ~~Tables II.B.3-1 through II.B.3-7 provide typical construction specifications of the containers. These specifications will no longer be applicable once the DOT rule changes are effective (October 1993).~~

Text has been edited to reflect current DOT specifications and to delete references to obsolete specifications. Tables II.B.3-1 through II.B.3-7 are hereby deleted from the permit.

Wastes are stored primarily in polyethylene and steel containers. Since none of the waste handled by Safety-Kleen reacts with metal or polyethylene, compatibility is assured.

Immersion cleaner and dry cleaning waste containers are never opened at the branch, and none of the wastes are incompatible.

POTENTIAL FIRE SOURCES

The following is a list of fire prevention and minimization measures:

are the designated areas shown on the map? How will inspectors know where they are?

1. All wastes and products are kept away from ignitable sources--Personnel must confine smoking and open flames to ~~remote areas (e.g., the office or locker room), separate from any solvent~~ designated areas. The parts washer solvent handling area and the aboveground storage tanks are separate from the warehouse building area to minimize the potential for a fire to spread or injury to personnel to occur.

2. Ignitable wastes are handled so that they do not:

   a. become subject to extreme heat or pressure, fire or explosion, or a violent reaction--The parts washer solvent waste is stored in a tank or in containers, none of which are near sources of extreme heat, fire, potential explosion sources, or subject to violent reactions. The tanks are vented and the containers kept at room temperature to minimize the potential for pressure build-up.

   b. produce uncontrolled toxic mists, fumes, dusts or gases in quantities sufficient to threaten human health--The vapor pressure of petroleum-based parts washer solvent is low (2 mm Hg) and it is reactive with strong oxidizers only. Toxic mists, fumes, dusts, or gases will not form in quantities sufficient to threaten human health since strong oxidizers are not handled at this facility and the solvent vaporization will be minimal under normal working conditions.

   c. produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion--See "a" above and "d" below.

d. damage the structural integrity of the Safety-Kleen facility--The solvents stored at this facility will not cause deterioration of the tank, containers, or other structural components of the facility.

3. Adequate aisle space is maintained to allow the unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of the facility operation in an emergency.

4. "NO SMOKING" signs are posted in areas where solvents are handled or stored.

5. Fire extinguishers ~~must be~~ are checked ~~once per week~~ periodically by branch personnel and ~~tested~~ inspected by the fire extinguisher company once per year.

EXTERNAL FACTORS

The design of the installation is such that a harmful spill is highly unlikely to occur from most external factors. The storage tanks are inaccessible to non-Safety-Kleen personnel and the pump switches are located inside. Also, the container storage area is in a building which is inaccessible to unauthorized personnel.

1. Vandalism--Only extreme vandalism would result in a solvent spill or fire. Responses to spills and fires are described in the contingency plan.

2. Strikes--A strike would not result in a solvent spill or fire.

3. Power failure--A power failure would not result in a spill or fire. Should a power failure occur, all activities requiring electricity will cease.

4. Flooding--The site elevation is above the projected 100-year floodplain.

5. Storms or Cold Weather--The solvent return and fill station is roofed to eliminate the possibility of rain or snow entering the dumpsters. No opportunity is foreseen to affect the facility with snow, cold weather, or stormwater.

ATTACHMENT II.B.4
CONTAINER MANAGEMENT

The immersion cleaner is always contained in partially filled~~, 16-gallon,~~ covered containers before, during, and after its use. Until received at the recycle facility, the immersion cleaner is never transferred to another container. The containers containing the used immersion cleaner are returned to the facility and stored in the designated container storage areas before shipment to the recycle facility.

The dry cleaning wastes are contained in ~~16-, split 30 (also known as 20-gallon), and 30-gallon~~ steel or polyethylene containers. The perchloroethylene, mineral spirits, or trichlorotrifluoroethane, from dry cleaning operations is collected in ~~16-gallon~~ steel or polyethylene containers. The dry cleaning filters are in ~~split 30 (also known as 20-gallon) or 30-gallon~~ steel containers. These containers are managed similarly to the used immersion cleaner containers, and contents within the containers will not be removed or processed at the facility.

~~Spent antifreeze is packaged either in bulk or in 30- or 55-gallon steel or polyethylene containers which are not opened at the facility.~~

The parts washer solvent is collected in ~~5-, 16-, and 30-gallon~~ containers. The containers are designed and constructed to be compatible with the stored material and to minimize the possibility of breakage and leaking, in accordance with DOT shipping container specifications.

Paint wastes consist of various lacquer thinners and paints. The waste is collected in ~~5-gallon pails and in 16-gallon~~ containers at the customer's place of business and the containers are then ~~palletized and~~ stored in the

container storage area of the warehouse. The paint wastes manifests are terminated at that point. The paint wastes are then re-manifested and sent to the Recycle Center.

FRS wastes are stored in ~~30- or 55-gallon~~ steel or polyethylene containers. FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program. The FRS wastes will be managed as transfer waste. The manifest will not be terminated at the Operations Center. The management of FRS wastes as transfer wastes includes the provision to conduct truck-to-truck transfer of the FRS wastes. Truck-to-truck transfers are accomplished within two hours.

Wastes are stored primarily in polyethylene and steel containers. Since none of the wastes handled by Safety-Kleen react with metal or polyethylene, compatibility is assured. Immersion cleaner and dry cleaning waste containers are never opened at the branch, and none of the wastes are incompatible. ~~Safety-Kleen uses a container color scheme as a part of its waste management system. Eight five-gallon salvage~~ Overpack containers are used for the management of containers whose integrity has been compromised.

Text has been edited to delete references to outdated container specifications and obsolete management practices.

ATTACHMENT II.B.5
CONTAINER INSPECTION

The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance.

The Operations Manager or ~~his~~ that person's designee is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

(re: similar) - acceptable only with the qualification that new forms will contain current info.

The Operations Manager or designee, using the inspection log (Figure II.B.5-1 or similar), inspects the facility ~~daily~~ weekly for security (gates and locks) and any evidence of sticking, corrosion, or ~~uncommon~~ unusual activity. The facility fence is checked weekly for deterioration, gaps under the fence, and broken wire ties. ~~The~~ An example Weekly Inspection log is shown in Figure II.B.5-1.

Figure II.B.5-2 ~~presents the Daily~~ shows an example Inspection log for the Container Storage Area. ~~Daily~~ Inspections of containers consist of the following:

- Physically examine the Container Storage Area to verify that no leaks have occurred since the last inspection.
- Verify that containers have not been damaged or rusted to the point of near leakage.
- Replace or adjust damaged, missing, or loose fasteners.

- Examine and verify that all container identification, dates, loading data, and hazardous waste labels are attached and current.

~~Daily~~ Inspection of the containment area may consist of the following:

- Containment areas are inspected to detect signs of deterioration and failure of the containment system such as cracks, breakage, settling, and spillage.

- Inspection of container placement and stacking such as aisle space, height, and stability of stacks.

- Daily inspection of solvent return receptacle (wet dumpster) consists of the inspection for leaks and excess dumpster mud build-up.

ATTACHMENT II.B.6
CONTAINER CLOSURE PLAN

The Safety-Kleen Corp. has constructed an Operations Center with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any ~~plant~~ location and hence there is no disposal capacity to be exhausted that will necessitate closure of a facility. Based on current business and facility conditions, this facility is expected to remain in operation until the year of 2025.

In the event that some presently unforeseen circumstance(s) results in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, container storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate the need for maintenance after closure and the possibility of escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up of spills and repairing/decontamination of the facility or equipment.

An anticipated closure schedule is presented in Figure II.B.6-1. An anticipated maximum waste inventory for the container storage portion of the facility is presented in the following section.

FACILITY DATA

Container Storage Areas

The north building storage area has a 40' x 30' area with 6" wide by 4" high continuous curbing and three collector trenches. The maximum volume of product and waste stored is 5,197 gallons. The wastes consist of dry cleaner wastes, spent immersion cleaner ~~(IC609 and IC699)~~, and/or antifreeze.

The curb in the north area is not continuous OK

The south building storage area has two areas. One is an 60' x 45' area with 6" wide by 4" high concrete curbing, collection trenches, and a sump. It has a capacity to hold 44,367 gallons of product and waste. Various halogenated and nonhalogenated solvents will be stored in this area including dry cleaner wastes, spent immersion cleaner ~~(IC609 and IC699)~~, FRS wastes and/or antifreeze. The flammable storage area has the capacity for 12,749 gallons of flammable product or waste. The area measures 45' x 45' with 6" wide by 4" high concrete curbing, collection trenches ~~and~~, a sump, and external secondary containment. Paint wastes, FRS wastes, tank and dumpster mud will be housed in this area.

Again the external secondary containment. Review calculations vs capacity. Should we consider external secondary containment?

Maximum Inventory of Wastes

Containerized Waste: 49,564 gallons non-flammable and 12,749 gallons flammable.

This amount includes any combination of ~~five-gallon pails~~, five-gallon containers, 16-gallon containers, 30-gallon containers, split 30-gallon containers (also known as 20-gallon containers), 55-gallon containers, and/or 85-gallon salvage containers.

CLOSURE PROCEDURE

Container Storage Areas

- The container storage area may houses containers of used immersion cleaner, parts washer dumpster mud, dry cleaning wastes, paint wastes, antifreeze, and FRS wastes.

- At closure, all containers will be removed and transported to the recycle center, with proper packaging, labeling, and manifesting; the contents in the containers will be reclaimed and the containers will be cleaned for reuse.

- The concrete floor and spill containment areas will be cleaned with detergent solution and the rinsate will be analyzed for ~~mineral spirits,~~ volatile organic compounds, lead, and cadmium using SW-846 methods to determine the effectiveness of decontamination. The area will continue to be washed and rinsed until levels are below ~~maximum contaminant levels (MCLs), or if MCLs are not available, practical quantitation limits (PQLs) as specified in Appendix IX of 40 CFR 264~~ action limits established in the formal closure plan and closure permit.

- If the wash water or other wastes generated in the closure process are determined to be hazardous, they will be properly disposed of as a hazardous waste; otherwise the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to ~~the waterway~~ surface waters. It is anticipated that approximately 350 gallons of rinsate will require RCRA disposal.

- The equipment used to clean this area includes mops, pails, scrub brushes, a wet/dry vacuum, and containers. The mops, pails, and scrub brushes will be containerized and disposed of as hazardous waste. The wet/dry vacuum hose will be washed with a detergent solution to decontaminate it. The containers will be used to store the wastewater.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the closure plan or whenever there is a change in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Safety-Kleen shall notify the state authority at least 180 days prior to the date closure is expected to begin, except in cases where the facility's permit is terminated or if the facility is otherwise ordered by judicial decree or compliance order to cease receiving wastes or to close. The date when Safety-Kleen "expects to begin closure" should be within 90 days after the date on which Safety-Kleen expects to receive the final volume of wastes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

The following requirements are met:

- The facility has the capacity to receive additional wastes;
- There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;
- Closure of the facility would be incompatible with continued operation of the site; and Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

ATTACHMENT II.C.2
TANK SYSTEM SPECIFICATIONS

The facility includes three aboveground steel tanks (Figure II.C.2-1). Used parts washer solvent contained in containers returned by the customers are transferred via the wet dumpster into a 15,000-gallon tank, ~~awaiting~~ prior to bulk shipment to the recycle center. The other two tanks, a 15,000-gallon tank and a 15,000-gallon tank, are used to store fresh parts washer solvent and are, therefore, not considered RCRA tanks.

MATERIAL COMPATIBILITY

Product stored in the tanks at this facility is parts washer solvent. The material is compatible with the mild steel tank structure; in fact, petroleum products are often used as a light hydrocarbon coating to prevent rusting of metal parts. ~~Parts washer 105 and premium solvent consist primarily of mineral spirits (petroleum naphtha). The Actrel® solvent consists primarily of a paraffinic compound with C_{12}-C_{14} chains.~~ As with all petroleum storage vessels, water will accumulate over time due to condensation and the addition of aqueous parts washer solvent. The parts washer solvent has a specific gravity less than water and the water will accumulate in the bottom of the tank. ~~There is the potential for corrosion of the tank at the petroleum naphtha/water interface. Experience, however, has shown that the corrosion potential at the interface is minimal when compared to the potential for corrosion from soil conditions.~~ The mild steel material used in constructing the tanks is compatible with the parts washer solvent mixture.

Text has been edited to delete references to discontinued solvent types.

TANK DESIGN AND OPERATION PROCEDURES

Spent parts washer solvent from parts washers is accumulated in the 15,000-gallon aboveground storage tank by transfer through the return and

fill station. ~~Five-, sixteen- and thirty-gallon~~ Containers ~~containing five, seven, and twelve gallons of spent solvent, respectively,~~ of used solvent are poured into the dumpsters (barrel washers) in the return and fill station, and material in the dumpster is pumped into the storage tank ~~for spent solvent~~. The return and fill station has secondary containment.

The barrel washers are located within the parts washer return and fill shelters. The drawings (Figures II.C.2-2(a) through II.C.2-2(j)) provide detail information on the barrel washers.

Used solvent is returned from customers via containers and poured into the barrel washers. The ~~barrel~~ container is then placed on roller brushes ~~contained~~ within the barrel washer. As the machine is turned on, the ~~barrel~~ container rotates on the brush and the outside of the ~~barrel~~ container is cleaned. There is also a nozzle that sprays a stream of solvent into the bottom of the ~~barrel~~ container to clean the inside of the ~~barrel~~ container. The machine is turned off and the ~~barrel~~ container is removed. The procedure takes ~~approximately five~~ several seconds per ~~barrel~~ container. The ~~barrel~~ container is then refilled using a pump and nozzle (Figure II.C.2-3) similar to a gasoline pump.

The used solvent goes to a sump in the bottom of the barrel washer and is automatically pumped to the used parts washer solvent storage tank. There is a basket in the sump that collects sludge. ~~Approximately twice a day~~ Periodically, this basket is removed and sludge is removed and placed into a sludge drum for recycle.

The barrel washer is a totally enclosed unit. A small amount of mist is generated while operating the unit. This is controlled by adjusting the flow.

The tanks are designed and constructed to be compatible with the materials stored in them. Typical construction and installation standards for the aboveground tanks are shown in Figure II.C.2-4. All tanks are vented in accordance with National Fire Protection Association (NFPA) standards, and the tanks are equipped with high-level alarms. The design and installation of the tank alarm system is shown in Figures II.C.2-5(a) and II.C.2-5(b). The tank seams are lapped with full fillet welds. The weld is done with an E70 electrode and can withstand a 4-psi air pressure test (which is performed by the manufacturer). The tanks were installed new in June 1985.

Attachment II.C.1 provides an independent assessment of the tank system. This assessment by Tera, Inc. includes a detailed description of the tank system components and operation. The following is a concise description of the main features of the tank system.

All tanks are aboveground, are supported on a six-inch thick skid, and are underlain by a six-inch thick concrete slab, and surrounded by a 47" high concrete dike. Therefore, no surface run-off would be in contact with the wastes stored at the site and no run-off collection and management system is deemed necessary. To minimize the amount of precipitation that may collect inside the diked area, a fabric cover has been installed over the tank farm. The canopy framework consists of galvanized steel tubes that sleeve together and are quickly fastened with pins to form structural arches. The arches are connected with purlins that attach to the arches at integral spring loaded pin connections. The entire shelter affixes to a hot-dip galvanized base angle foundation frame that is anchored to the ground by simple hold down methods. The canopy is made of high-strength PVC-coated polyester membrane which is tensioned over the frame and attached and sealed to the structure's foundation.

Equipment used in the operation of the aboveground tanks for used parts washer solvent include gauges for measuring liquid levels in tanks and automatic high level alarms. The high level alarm will sound when the tank is 95 percent of capacity. Filling of the tank must cease when the alarm sounds to prevent overfilling of the tank. In addition, the gauges of the tank must be read before filling and before and during the filling of a tanker truck (the available volume of which must be noted prior to emptying the tank) to prevent overfilling of the truck. A suction pump equipped with the tanker truck is used to withdraw the content from the tank. No other equipment or standby equipment is used in the operation of the aboveground tanks. The tank may be operated at a maximum volume of 14,250 gallons (95 percent).

A fabric cover is present over the tank farm and rainwater is not expected to accumulate in this area; however, if rainwater does accumulate in the tank farm area, it will be placed into the facility's used parts washer solvent tank.

hazwaste would ~~be~~ have been in this area if a spill had occured in the flammable storage room. see II.C.9-3

Rainwater which may accumulates in the south containment area ~~should~~ does not have ~~had any~~ contact with hazardous materials and ~~whatever~~ rainwater which does not evaporate in a reasonable time frame will be discharged directly to the ground surface. In the unlikely event the building's sprinkler system is activated and overflow from the buildings secondary containment is discharged to the southern portion of the south containment area, the overflow, which may have come in contact with hazardous materials, will be containerized and handled appropriately.

ATTACHMENT II.C.7
TANK SYSTEM SECONDARY CONTAINMENT

TANK CONTAINMENT

All tanks are aboveground, underlain by a 49' x 18.5' (length and width) concrete slab, surrounded by a 3.9-foot high concrete dike. ~~The dike has been sealed with Sikagard® 62 or equivalent, a chemical resistant coating.~~ No surface run-on or precipitation would be in contact with the wastes stored in the tank, and no run-off collection and management system is deemed necessary. A fabric cover installed over the tank farm ~~should~~ eliminates any chance of precipitation accumulation inside the containment area. The layout of the tank farm is provided in Figure II.C.7-1. Containment calculations are in Figure II.C.7-2.

RETURN/FILL CONTAINMENT

The return/fill shelter is a 50' x 80' structure located between the operations center and warehouse (Figure II.C.7-3). It contains two dumpsters which ~~facilitate~~ handle the flow of solvent to the tank. These dumpsters are not intended for storage but can hold a maximum of 1,008 gallons (504 gallons per dumpster).

The area is designed such that the route trucks can be backed into the containment area. The roof extends over the truck unloading area so that no precipitation can get into the return/fill shelter containment area. The containment for the return/fill area is provided by four areas. The south dumpster area has a capacity of 1,325 gallons which exceeds the storage capacity of the two dumpsters (504 gallons per dumpster) located in the area. The containment calculations are presented in Figure II.C.7-4.

ATTACHMENT II.C.9
CONTROLS AND SPILL PREVENTION

The facility utilizes three aboveground steel tanks. Used parts washer solvent contained in containers returned by the customers ~~are~~ is transferred via the wet dumpster ~~into a~~ to the 15,000-gallon tank, awaiting bulk shipment to the recycle center. The other two tanks, a 15,000-gallon tank and a 15,000-gallon tank, are used to store fresh parts washer solvent and are, therefore, not considered a RCRA tank.

Product stored in the tanks at this facility is parts washer solvent. The material is compatible with the mild steel tank structure. In fact, petroleum products are often used as a light hydrocarbon coating to prevent rusting of metal parts. ~~Parts washer 105 and premium solvent consist primarily of mineral spirits (petroleum naphtha). The Actrel® solvent consists primarily of a paraffinic compound with C_{12}-C_{14} chains.~~ As with all petroleum storage vessels, water will accumulate over time due to condensation and the addition of aqueous parts washer solvent. The parts washer solvent has a specific gravity less than water and the water will accumulate in the bottom of the tank. ~~There is the potential for corrosion of the tank at the petroleum naphtha/water interface.~~ The mild steel material used in constructing the tanks is compatible with the parts washer solvent mixture.

Text has been edited to delete references to discontinued solvent types.

The tanks are designed and constructed to be compatible with the materials stored in them. Typical construction and installation standards for the aboveground tanks are shown in Figure II.C.2-4. All tanks are vented in accordance with National Fire Protection Association (NFPA) standards, and the tanks are equipped with high level-alarms. The design and installation of the tank alarm system is shown in Figure II.C.2-5(a) and

II.C.2-5(b). The tank seams are lapped with full fillet welds. The weld is done with an E70 electrode and can withstand a 4-psi air pressure test (which is performed by the manufacturer). The 15,000-gallon tanks were installed in June 1985.

Attachment II.C.1 provides an independent assessment of the tank system. This assessment by Tera, Inc. includes a detailed description of the tank system components and operation. The return/fill assessment was conducted by ERM-EnviroClean-South, Inc. The following is a concise description of the main features of the tank system.

All tanks are aboveground, supported on a six-inch thick skid, and are underlain by a six-inch thick concrete slab, and surrounded by a 47" high concrete dike. Therefore, no surface run-off would be in contact with the wastes stored at the site and no run-off collection and management system is deemed necessary. To minimize the amount of precipitation that may collect inside the containment area, a fabric cover has been installed over the tanks farm. Equipment used in the operation of the aboveground tanks for used parts washer solvent include gauges for measuring liquid levels in tanks and automatic high level alarms. The high level alarm will sound when the tank is 95 percent of capacity. Filling of the tank must cease when the alarm sounds to prevent overfilling of the tank. In addition, the gauges of the tank must be read before filling it and before and during the filling of a tanker truck (the available volume of which must be noted prior to emptying the tank) to prevent overfilling of the truck. A suction pump equipped with the tanker truck is used to withdraw the content from the tank. No other equipment or standby equipment is used in the operation of the aboveground tanks. The tank may be operated at a maximum volume of 14,250 gallons (95 percent).

A fabric cover is present over the tank farm and rainwater is not expected to accumulate in this area; however, if rainwater does accumulate in the tank farm area, it will be placed into the facility's used parts washer solvent tank.

Rainwater which may accumulates ~~should~~ does not have ~~had any~~ contact with hazardous materials and ~~whatever~~ rainwater which does not evaporate in a reasonable time frame will be discharged directly to the ground surface. In the unlikely event the building's sprinkler system is activated and overflow from the buildings secondary containment is discharged to the southern portion of the south containment area, the overflow, which may have come in contact with hazardous materials, will be containerized and handled appropriately.

ATTACHMENT II.C.11
TANK SYSTEM INSPECTIONS

The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance.

The Operations Manager or ~~his~~ that person's designate is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

The Operations Manager or designee inspects the facility ~~daily~~ weekly for security (gates and locks) using ~~the~~ an inspection log (Figure II.C.11-1), and any evidence of sticking, corrosion, or ~~uncommon~~ unusual activity. The facility fence is checked weekly for deterioration, gaps under the fence, and broken wire ties. ~~The Weekly~~ An example Inspection log is shown in Figure II.C.11-1.

Figure II.C.11-2 presents ~~the~~ an example daily inspection log for the tank system. Daily inspections of tanks and dumpsters may consist of the following:

- Physically examine the tank area to verify that no leaks have occurred since the last inspection.
- Verify that no tanks that have been damaged and rusted to the point of near leakage.
- Examine and verify that all tank identification, dates, loading data, hazardous waste labels are attached and current.

Daily inspections of containment may consist of the following:

- Physically examine containment areas to detect signs of deterioration and failure of the containment system such as cracks, breakage, settling, and spillage.

~~In addition to daily inspections, the tank will be inspected once every five years by a Professional Engineer registered in Florida. A general structural inspection, hydraulic test of the tank, internal inspection, and wall thickness will be made.~~

~~This inspection and testing will involve withdrawal of contents, a squeegee cleaning, visual inspection and performance of Kent Moore®, or other leak detection tests. Frequency and method of future inspection and testing will be determined based upon results of prior evaluations.~~

Text has been edited to modify inspection schedule to comply with regulatory requirements and to delete references to a five-year tank integrity assessment which is not required by the regulations.

ATTACHMENT II.C.12(a)
TANK SYSTEM CLOSURE PLAN

CLOSURE INTRODUCTION

The Safety-Kleen Corp. has constructed an operations center with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any ~~plant~~ facility and hence no disposal capacity will be exhausted that will necessitate closure ~~of a facility~~. Based on current business and facility conditions, this facility is expected to remain in operation until the year 2025.

In the event that presently unforeseen circumstance(s) results in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, drum storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate the need for maintenance after closure and the possibility of the escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up spills and repairing/decontamination of the facility or equipment.

An anticipated closure schedule is presented can be seen in Figure II.C.12(a)-1. An anticipated maximum waste inventory for the tank system of the facility is presented in the following section.

FACILITY DATA

Waste Management Facility Descriptions

The 15,000-gallon waste parts washer solvent tank is 10'6" in diameter by 23'3" high, in a 47" high concrete containment area.

Solvent Return/Fill Shelter Area

The Solvent Return/Fill Shelter is a 50' x 80' structure between the north and south buildings. It contains two dumpsters which facilitate the flow of solvent to the tank. These dumpsters are not intended for storage, but can hold a maximum of 1,008 gallons (504 gallons per dumpster).

MAXIMUM INVENTORY OF WASTE

The maximum amount of waste parts washer solvent in the tank is 15,000 gallons.

The maximum amount of solvent waste in the dumpsters is 1,008 gallons (two 504-gallon dumpsters).

PHASE I--~~OPEN~~ PREPARING THE TANK

- At closure, the contents of the tank will be removed and transported to the recycle center.

- Access to aboveground tanks is obtained by removing manways.

- Prior to opening the tanks, the personnel should have full face respiratory protection and protective clothing. Once the tanks have

been opened, they will be provided with positive ventilation. The tanks will then be inspected to determine the approximate quantity and physical conditions of the remaining material.

PHASE II--REMOVING WASTE AND CLEANING TANK

- Before removing the waste from the tank, all piping and ~~appurtenant~~ related equipment will be flushed first with clean parts washer solvent followed by a detergent solution.

- The method to remove the waste material from the tanks will depend on the physical properties and quantities of that material. Prior to any person entering the tank, an effort will be made to remove as much liquid and sludge as possible.

- Subsequent to vacuuming the majority of the material from the tank, it may be necessary to use a high pressure wash system using a clean solvent and detergent solution to rinse residual material from the walls and bottom of the tanks. The evacuated material and the rinse solution will be returned to the recycle center for reclamation. The quantity of wash fluid used will be kept to a minimum in order to limit the amount of unnecessary material. The final rinsate will be analyzed for ~~mineral spirits,~~ volatile organic compounds, lead, and cadmium, using SW-846 to determine the effectiveness of decontamination. ~~The tank will continue to be washed and rinsed until levels are below MCLs, or PQLs if MCLs are not available.~~ The analytical results of the final rinsate will be used to determine if the tank will be managed as a hazardous or non-hazardous material. Rinsate will be removed using a vacuum tanker truck and will be disposed of as hazardous waste. It is anticipated that approximately 2,000 gallons of rinsate will require RCRA disposal.

- Storage tanks are considered confined spaces, i.e., spaces open or closed having a limited means of egress in which poisonous gases or flammable vapors might accumulate or an oxygen deficiency might occur.

- Confined space entry requires special operating procedures:

  - Tanks are to be washed, neutralized and/or purged (where flammable atmosphere is present) prior to being entered.

  - Supply valves must be closed and "tagged" and bleeder valves left open, or supply piping should be disconnected.

  - Pumps or motors normally activated by automatic controls shall be operated manually to be sure they have been disconnected. Instrument power switches should be tagged "OFF." Implement lockout/tagout procedure.

  - On tanks where flammable vapors may be present, all sources of ignition must be removed.

  - All tanks must be tested for flammable vapors, toxic gases, or oxygen deficiency in that order, as applicable. The results of such tests should be displayed on the job site.

    - In all tank entering situations, an Oxygen Deficiency Test shall be performed prior to tank entry.

    - Under circumstances where "hot work" (welding, burning, grinding, etc.) is to be performed in or on the vessel, a test for

combustible gases shall be performed. This is referred to as a "flash test."

- In most circumstances, flash tests and oxygen deficiency tests will be performed by the supervisor of the area in which the work is being performed.

- Under any conditions where a possibility exists (no matter how remote) of the presence of toxic vapors in the tank to be entered, the supervisor will arrange to have the air tested.

► There must be a set of wristlets or a rescue harness and sufficient rope at the job site to effect a rescue. Any other rescue equipment considered necessary must also be on the job site.

► Workers should wear a rescue harness if entering a tank with a large enough opening to easily effect a rescue. In tanks with small openings, only wristlets may be used. However, in cases where there are agitator shafts, containers, or other hazards in which the ~~man's~~ person's life-line would be entangled and the supervisor in charge feels that wearing the life-line may entrap a ~~man~~ worker and increase the hazard, the wearing of a harness or wristlets may be eliminated.

► A constant source of fresh air must be provided to ensure a complete change of air every few minutes. In cases of short-term entry for inspection or removal of objects, an air mask is recommended. In cases of long-term entry (generally for repair) the use of an air mover ~~should~~ must be considered.

- When a ladder is required to enter a tank, the ladder must be secured and not removed while anyone is in the vessel. In cases where a rigid ladder could become an obstacle, a chain ladder may be used.

- Adequate illumination must be provided.

  - A flashlight or other battery-operated light must also be available to provide illumination for the safety exit in the event of an electrical power failure.

  - Explosion-proof lighting must be used in any tank used to store flammable liquids.

- All electrical equipment to be used inside the tank must be in good repair and grounded.

- Others working in the immediate area shall be informed of the work being done and they shall inform the watcher or supervisor immediately of any unusual occurrence which may make it necessary to evacuate the tank.

■ The "buddy" (standby observer) system:

- ~~Men~~ Persons working inside a confined space must be under the constant observation of a fully-instructed standby observer.

- Before anyone enters the tank, the standby observer will be instructed by the person in charge of the entry that:

- An entry authorization must be obtained from the person in charge by anyone entering the tank.

- A rescue harness or wristlets must be worn on the job.

- The standby observer must know the location of the nearest telephone (with emergency numbers posted); safety eyewash/shower; fire extinguisher; and oxygen inhalator.

- For all "hot work" inside a tank, the standby observer must be instructed how to shut down welding/burning equipment.

- As long as personnel are inside the vessel, the standby observer must remain in continuous contact with the worker. ~~HE IS~~ THAT PERSON MUST NOT ~~TO~~ LEAVE THE JOB SITE EXCEPT TO REPORT AN EMERGENCY.

- UNDER NO CIRCUMSTANCES SHOULD THE STANDBY OBSERVER ENTER THE VESSEL. If the worker(s) in the tank becomes ill or injured, the watcher is to put in effect the emergency plan described in the attached Standard Operating Procedure.

- The standby observer still DOES NOT ENTER THE TANK until additional help is available.

- After being instructed in ~~his~~ the responsibilities, the standby observer will sign an instruction form indicating ~~his~~ an understanding of its content.

■ Welding and burning within a tank:

- All welding and burning equipment must be provided with a shutoff device under the control of the standby observer; and the standby observer must know how to shut off the equipment if it becomes necessary.

- Welding and burning equipment will only be taken into a tank immediately prior to its use and must be removed from the tank immediately after the job is finished.

- For all "hot work" inside a tank, a properly executed flame permit, if needed, must be displayed at the job site.

- Standard welding and burning safety precautions will always be followed.

PHASE III--REMOVE TANK

- Disconnect and cap all ~~appurtenant~~ associated piping.

- Disconnect and decontaminate all ~~appurtenant~~ associated pumping equipment.

- The vessels shall be removed and reused by Safety-Kleen or cut up and ~~sold~~ disposed as scrap.

- The surface soil beneath the fill pipes and beneath each tank will be sampled and analyzed for volatile organic compounds, ~~mineral spirits,~~ lead, and cadmium.

- The secondary containment system will be disassembled. The construction materials will be tested with TCLP ~~(pertinent constituents~~

~~only)~~ procedures. If the construction materials are classified as non-hazardous using TCLP, then they will be disposed of as a solid waste in a sanitary landfill. In the event the construction materials are identified as hazardous using TCLP, then the construction materials will be disposed of as a hazardous waste in accordance with RCRA regulations.

- Contaminated soil, if it exists, shall be removed and properly disposed of. An additional work plan to determine the extent of contamination and remediation procedures will be submitted in this case.

PHASE IV--BACKFILLING AND REGRADING

- Backfill any excavation with previously excavated material with proper compaction.

- Add additional backfill with proper compaction if necessary. The material must be clean and easily compacted in place.

- Regrade the site to proper topography.

- Remove and dispose of nonusable debris.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. The active life of the facility is that period during which wastes are periodically received. Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the closure plan or whenever a change occurs in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

  The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

  The following requirements are met:

  - The facility has the capacity to receive additional wastes;

  - There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;

  - Closure of the facility would be incompatible with continued operation of the site; and

  - Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

ATTACHMENT II.C.13

RESPONSE TO LEAKS AND DISPOSITION OF UNFIT-FOR-USE TANK SYSTEMS

In the event that a leak or spill were to occur from a tank system or secondary containment system, the actions identified herein will be undertaken.

IMMEDIATE RESPONSE

All waste flow to the tank system in question will be ceased immediately. An inspection will be undertaken to identify the cause of the release. Waste flow to the tank system will not be reinstituted until the tank system has been inspected, repaired, and declared fit for use.

In order to prevent further releases, or to allow inspection and a repair of the system, it may be necessary to remove the waste from the tank system. This waste removal will occur within 24 hours after detection of the leak, or at the earliest practicable time.

All material released to the secondary containment area will be removed within 24 hours, or in as timely a manner as possible, to prevent harm to human health and the environment. Every reasonable effort will be made to prevent migration of the release to soils or surface water.

If necessary, visible contamination of surface water and soil will be removed and properly disposed of.

MODIFICATIONS

If a spill is less than one pound and is immediately contained and cleaned up, no notifications are required. All other releases require notification to

the Regional Administrator and Florida Department of Environmental ~~Regulation~~ Protection (FDER~~R~~P). The reporting requirements identified in the Contingency Plan will satisfy this requirement.

SUBSEQUENT REPORTING

Within 30 days of detection of a release to the environment, a report must be submitted to the Regional Administrator and FDEP. The report must contain the following information:

1. Likely route of migration of the release;

2. Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

3. Results of any monitoring or sampling conducted in connection with the release. If sampling has occurred and is not available within 30 days, it must be submitted as soon as available.

4. Proximity to downgradient drinking water, surface water, and populated areas; and

5. Description of response actions taken or planned.

REPAIR OR CLOSURE

If the integrity of the containment system has not been damaged, then the system may be returned to service as soon as the released waste is removed and repairs, if necessary, are made.

If the tank was the source of the release, then the tank must be repaired prior to returning the tank system to service.

If the release was from a tank system component which did not have secondary containment, then secondary containment must provide for this component before the system can be returned to service. The exception to this is if the component can be visually inspected. In this instance, the component may be repaired and returned to service. If a component is replaced, then the component must satisfy the requirements for new tank systems and components.

All major repairs must be certified by an independent, ~~qualified,~~ registered, professional engineer in accordance with 40 CFR 270.11(d). The engineer must certify that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This report must be filed with the Agency within seven days after returning the tank system to use.

If repairs that meet these requirements cannot be performed, then the tank system must be closed in accordance with the Closure Plan.

ATTACHMENT II.K.1
CLOSURE PLAN

CLOSURE INTRODUCTION

The Safety-Kleen Corp. has constructed an Operations Center with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any ~~plant~~ facility and, hence, no disposal capacity will be exhausted that will necessitate closure of a facility. Based on current business and facility conditions, this facility is expected to remain in operation until the year of 2025.

In the event that some presently unforeseen circumstance(s) would result in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, container storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate need for maintenance after closure and chance of escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up of spills and repairing/decontamination of facility or equipment.

FACILITY DATA

1. Waste Management Facility Descriptions

   a. Aboveground Storage Tanks

   A 15,000-gallon steel tank, 10'6" diameter x 23'3" high, for used parts washer solvent storage.

   b. Container Storage Areas: The north building storage area has a 40' x 30' area with 6" wide by 4" high continuous curbing and three collector trenches. The maximum volume of product and waste stored is 5,197 gallons. The wastes consist of dry cleaner wastes, spent immersion cleaner ~~(IC609 and IC699)~~, and/or antifreeze.

   The south building storage area has two areas. One is a 60' x 45' area with 6" wide by 4" high concrete curbing, collection trenches, and a sump. It has a capacity to hold 44,367 gallons of product and waste. Various halogenated and nonhalogenated solvents will be stored in this area including but not limited to dry cleaner wastes, spent immersion cleaner ~~(IC609 and IC699)~~, FRS wastes, and/or antifreeze. The flammable storage area has the capacity for 12,749 gallons of flammable product or waste. The area measures 45' x 45' with 6" wide by 4" high concrete curbing, collection trenches, a sump, and overflow pipe and containment (discussed below). Paint wastes, FRS wastes, tank and dumpster mud will be ~~housed~~ stored in this area.

   c. Solvent Return/Fill Shelter: The solvent center/fill shelter is a 50' x 80' structure between the north building storage area and the south building storage area. It contains two dumpsters which facilitate the flow of solvent to the tank. These dumpsters are not intended for storage but can hold a maximum of 1,008 gallons.

~~d. Transfer Areas: Truck-to-truck and tanker truck-to-tanker truck transfer of hazardous waste including permitted waste streams and FRS and spent ethylene glycol on any manmade surface at the facility.~~

~~e~~d. Overflow Pipe and Containment: One end of a 10" pipe is connected to the collection trench in the flammable storage area. The other end of the pipe discharges into a containment area which is approximately 19' wide x 30' long x 2' high. The containment area and pipe have an approximate capacity of 5,491 gallons. The primary purpose of this containment is for sprinkler water; however, this containment area also accounts for a portion of the containment capacity for the flammable storage area.

2. Maximum Inventory of Wastes

   a. Used Parts Washer Solvent: 15,000 gallons;

   b. Containerized Waste: 49,564 gallons nonflammable and 12,749 gallons flammable

      This amount includes any combination of 5-gallon pails, 5-gallon containers, 16-gallon containers, split 30 (also known as 20-gallon containers) 30-gallon containers, 55-gallon containers, and/or 85-gallon salvage containers.

   c. Dumpsters: 1,008 gallons.

CLOSURE PROCEDURE

Container Storage Areas

- The container storage area houses containers of used immersion cleaner, parts washer solvent, dumpster mud, FRS wastes, and dry cleaning wastes.

- At closure, all containers will be removed and transported to the recycle center with proper packaging, labeling, and manifesting, where the contents in the containers will be reclaimed and the containers cleaned for reuse.

- The concrete floor and spill containment areas will be cleaned with detergent solution and the rinsate will be analyzed for ~~mineral spirits,~~ volatile organic compounds, lead, and cadmium, using SW-846 methods, to determine the effectiveness of decontamination. The area will continue to be washed and rinsed until levels are below ~~MCLs, or if MCLs are not available, PQLs as specified in Appendix IX of 40 CFR 264~~ action limits established in the formal closure plan and closure permit.

- If the wash water or other wastes generated in the closure process are determined to be hazardous, they will be disposed of properly as a hazardous waste; otherwise, the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to the ~~waterway~~ surface waters. It is anticipated that approximately 350 gallons of rinsate will require RCRA disposal.

- The equipment used to clean this area includes mops, pails, scrub brushes, a wet/dry vacuum, and containers. The mops, pails, and scrub brushes will be containerized and disposed of as hazardous waste. The

wet/dry vacuum hose will be washed with a detergent solution to decontaminate it. The containers will be used to store the wastewater.

South Overflow Pipe and Containment

Due to the design of this system, it is very unlikely that the pipe or containment area will have had any contact with hazardous materials. Therefore, at the time of closure if sufficient documentation exists to demonstrate that no hazardous materials have entered this area, the containment area will require no decontamination. If sufficient documentation is not present or if hazardous materials have been introduced into this containment area, then the area will be decontaminated in a manner consistent with the container storage area.

Solvent Return/Fill Shelter Area

- This area is used to return the used parts washer solvent to the storage tank ~~and for the temporary storage (up to 10 days) of ethylene glycol wastes in tanker trucks~~.

- Closure of the solvent return receptacles (wet dumpster) will be made prior to the cleaning and removal of the storage tank.

- At closure, the sludge in the dumpsters ("dumpster mud") will be cleaned out and containerized, labeled, and manifested for proper disposal at permitted facilities.

- The dumpsters and the dock area will be cleaned with detergent solution and the rinsate analyzed for ~~mineral spirits~~, volatile organic compounds, lead, and cadmium to determine the effectiveness of the decontamination. The area will continue to be washed and rinsed until

levels are below ~~detectable MCLs, or PQLs if MCLs are not available~~ action limits established by the formal closure plan and closure permit.

- The rinsing fluids will be discharged through the ~~appurtenant~~ associated piping system into the storage tank, which will be subjected to a separate closure procedure as described herein.

- The cleansed dumpster and dock structure will be reused by Safety-Kleen, or scrapped.

- The cleanup equipment and solutions disposal are the same as those listed earlier.

~~Transfer Areas~~

~~The transfer areas will be closed as a part of the container storage area, solvent, return/fill shelter, or tank area, as appropriate.~~

PHASE I--~~OPEN~~ PREPARING THE TANK

- At closure, the contents of the tank will be removed and transported to the recycle center.

- Access to aboveground tanks is obtained by removing manways.

- Prior to opening the tanks, the personnel should have full-face respiratory protection and protective clothing. Once the tanks have been opened they will be provided with positive ventilation. The tanks will then be inspected to determine the approximate quantity and physical conditions of the remaining material.

PHASE II--REMOVING WASTE AND CLEANING TANK

- Before removing the waste from the tank, all piping and appurtenant equipment will be flushed first with clean parts washer solvent followed by detergent solution.

- The method to remove the waste material from the tanks will depend on the physical properties and quantities of that material. Prior to any person entering the tank, an effort will be made to remove as much liquid and sludge as possible.

- Subsequent to vacuuming the majority of the material from the tanks, it may be necessary to use a high pressure wash system using clean solvent and detergent solution to rinse residual material from the walls and bottom of the tanks. The evacuated material and the rinse solution will be returned to the recycle center for reclamation. The quantity of wash fluid used will be kept to a minimum in order to limit the amount of unnecessary material. The final rinsate will be analyzed for ~~mineral spirits,~~ volatile organic compounds, lead, and cadmium, using SW-846, to determine the effectiveness of decontamination. ~~The tank will continue to be washed and rinsed until levels are below MCLs, or PQLs if MCLs are not available. Rinsate will be removed using a vacuum tanker truck and will be disposed of as hazardous waste. It is anticipated that approximately 2,000 gallons of rinsate will require RCRA disposal.~~ The analytical results of the final rinsate will be used to determine if the tank material will be handled as hazardous or non-hazardous material. The total rinsate will analyzed, and the results used to determine the method of disposal of the rinsate.

- Storage tanks are considered confined spaces, i.e., spaces open or closed having a limited means of egress in which poisonous gases or

flammable vapors might accumulate or an oxygen deficiency might occur.

- Confined space entry requires special operating procedures:

  - Tanks are to be washed, neutralized and/or purged (where flammable atmosphere is present) prior to being entered.

  - Supply valves must be closed and "tagged" and bleeder valves left open, or supply piping should be disconnected.

  - Pumps or motors normally activated by automatic controls shall be operated manually to be sure they have been disconnected. Instrument power switches should be tagged "OFF."

  - On tanks where flammable vapors may be present, all sources of ignition must be removed.

  - All tanks must be tested for flammable vapors, toxic gases or oxygen deficiency, in that order, as applicable. The results of such tests should be displayed on the job site.

    - In all tank entering situations, an Oxygen Deficiency Test shall be performed prior to tank entry.

    - Under circumstances where "hot work" (welding, burning, grinding, etc.) is to be performed in or on the vessel, a test for combustible gases shall be taken. This is referred to as a "flash test."

- In most circumstances, flash tests and oxygen deficiency tests will be performed by the supervisor of the area in which the work is being performed.

- Under any conditions where a possibility (no matter how remote) of toxic vapors being present in the tank to be entered exits, the supervisor will arrange to have the air tested.

- A set of wristlets or a rescue harness and sufficient rope must be present at the job site to effect a rescue. Any other rescue equipment considered necessary must also be on the job site.

- Workers should wear a rescue harness if entering a tank with a large enough opening to easily effect a rescue. In tanks with small openings, only wristlets may be used. However, in cases where there are agitator shafts, containers, or other hazards in which the ~~man's~~ individual worker's life-line would be entangled and the supervisor in charge feels that wearing the life-line may entrap a ~~man~~ person and increase the hazard, the wearing of a harness or wristlets may be eliminated.

- A constant source of fresh air must be provided to ensure a complete change of air every few minutes. In cases of short-term entry for inspection or removal of objects, an air mask is recommended. In cases of long-term entry (generally for repair) the use of an air mover should be considered.

- When a ladder is required to enter a tank, the ladder must be secured and not removed while anyone is in the vessel. In cases

where a rigid ladder could become an obstacle, a chain ladder may be used.

- ▸ Adequate illumination must be provided.
  - A flashlight or other battery operated light must also be available to provide illumination for a safe exit in the event of an electrical power failure.
  - In any tank used to store flammable liquids, explosion-proof lighting must be used.
- ▸ All electrical equipment to be used inside the tank must be in good repair and grounded.
- ▸ Others working in the immediate area shall be informed of the work being done and they shall inform the watcher or supervisor immediately of any unusual occurrence which may make it necessary to evacuate the tank.

■ The "buddy" (standby observer) system:

- ▸ ~~Men~~ Personnel working inside a confined space must be under the constant observation of a fully-instructed standby observer.
- ▸ Before anyone enters the tank, the standby observer will be instructed by the person in charge of the entry that:
  - An entry authorization must be obtained from the person in charge by anyone entering the tank.

- A rescue harness or wristlets must be on the job.

- The standby observer must know the location of the nearest telephone (with emergency numbers posted); safety eyewash/shower; fire extinguisher; and oxygen inhalator.

- For all "hot work" inside a tank, the standby observer must be instructed how to shut down welding/burning equipment.

- As long as personnel are inside the vessel, the standby observer must remain in continuous contact with the worker. ~~HE~~ THE OBSERVER IS NOT TO LEAVE THE JOB SITE EXCEPT TO REPORT AN EMERGENCY.

- UNDER NO CIRCUMSTANCES SHOULD THE STANDBY OBSERVER ENTER THE VESSEL. If the worker(s) in the tank becomes ill or injured, the watcher is to put in effect the emergency plan described in the attached Standard Operating Procedure.

- The standby observer still DOES NOT ENTER THE TANK until help is available.

- After being instructed in ~~his~~ their responsibilities, the standby observer will sign an instruction form indicating ~~his~~ an understanding of its content.

■ Welding and burning within a tank:

- All welding and burning equipment must be provided with a shutoff device under the control of the standby observer, and the standby observer must know how to shut off the equipment if it becomes necessary.

- Welding and burning equipment will only be taken into a tank immediately prior to its use and must be removed from the tank immediately after the job is finished.

- For all "hot work" inside a tank, a properly executed flame permit, if needed, must be displayed at the job site.

- Standard welding and burning safety precautions will always be followed.

PHASE III--REMOVE TANK

- Disconnect and cap all ~~appurtenant~~ associated piping.

- Disconnect and decontaminate all ~~appurtenant~~ associated pumping equipment.

- The vessels shall be removed and reused by Safety-Kleen or cut up and sold as scrap.

- If cracks or gaps are evident in the secondary containment, then the surface soil beneath the ~~fill pipes and beneath each tank~~ cracks will be sampled and analyzed for volatile organic compounds, mineral spirits, lead, and cadmium.

- Contaminated soil, if it exists, shall be removed and properly disposed of. An additional work plan to determine the extent of contamination and remediation procedures will be submitted in this case.

- The secondary containment system will be disassembled. The construction materials will be tested with TCLP ~~(pertinent constituents only)~~ procedures. If the construction materials are classified as non-hazardous using TCLP, then they will be disposed of as a solid waste in a sanitary landfill. In the event the construction materials are identified as hazardous using TCLP, then the construction materials will be disposed of as a hazardous waste in accordance with RCRA regulations.

PHASE IV--BACKFILLING AND REGRADING

- Backfill any excavation with previously excavated material with proper compaction.

- Add additional backfill with proper compaction if necessary. The material must be clean and easily compacted in place.

- Regrade the site to proper topography.

- Remove and dispose of nonusable debris.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. The active life of the facility is that period during which wastes are periodically received. Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the

closure plan or whenever a change occurs in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

  The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

  The following requirements are met:

  - The facility has the capacity to receive additional wastes;
  - There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;
  - Closure of the facility would be incompatible with continued operation of the site; and
  - Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

P. Information Regarding Potential Releases From Solid Waste Management Units

Facility name: Safety-Kleen Corp., Tampa Service Center

EPA I.D. Number: FLD 980847271

Location: City Tampa

State Florida

1. Are there any of the following solid waste management units (existing or closed) at your facility? A Solid Waste Management Unit (SWMU) is a discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include all areas at a facility where solid wastes have been routinely and systematically released, as described in the July 27, 1990 Federal Register (55 FR 30798).

NOTE: DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART B APPLICATION

	YES	NO
■ Landfill	____	X
■ Surface impoundment	____	X
■ Land farm	____	X
■ Waste pile	____	X
■ Incinerator	____	X
■ Storage tank	____	X
■ Container storage area	____	X
■ Injection wells	____	X
■ Wastewater treatment units	____	X
■ Transfer stations	____	X
■ Waste recycling operations	____	X
■ Land treatment facility	____	X
■ Boiler/industrial furnace	____	X
■ Other (any units not listed above)	____	X

2. If there are "Yes" answers to any of the items in 1. above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volumes of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, and location at facility. Provide a site plan if available.

N/A

NOTE: HAZARDOUS WASTES ARE THOSE IDENTIFIED IN 40 CFR PART 261. HAZARDOUS CONSTITUENTS ARE THOSE LISTED IN APPENDIX VIII OF 40 CFR PART 261.

3. For the units noted in 1. above and also for those hazardous waste units in your Part B application, please describe for each unit all data available on all prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or still be occurring.

Please provide the following information:

a. Date of release
b. Type of waste released
c. Quantity or volume of waste released
d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

See Attachment #3 Response

ATTACHMENT #3 RESPONSE

Date		Amount (gal)	
06/30/86	Mineral Spirits Solvent	50	Tank leaked into its secondary containment due to a worn gasket.
10/02/86	Percholoroethylene Waste	10	Drum fell off pallet and drained into the secondary containment.
12/02/87	Mineral Spirits Solvent	10	Hose used to fill drums with product failed to turn off and over filled drum.
04/13/87	Trichloroethylene	2	Punctured drum with a handtruck. Solvent leaked into secondary containment.
08/24/88	Spent Carburetor Cleaner (F002, F004) discharge associated with unloading a product tank. late 93 DF	10	Pallet hooked onto containers of product and pulled them over when the pallet was moved; solvent spilled into secondary containment.

Revision_____
Date_____
Page_____of_____

4. In regard to the prior releases described in 3. above, please provide (for each unit) all analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or ground water.

_____

_____

_____

_____

Signature and Certification

The following certification must be included with the submittal of this information. The certification must be signed by a principal executive officer of at least the level of Vice President or by a duly authorized representative of that person.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments. Based on my inquiry of those individuals immediately responsible for obtaining the information, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____
Signature

AL SEYFER - REGIONAL MGR.
Name and Title (typed)

_____
Facility Name

Date: 6-4-96 Telephone: (941) 682-2094

PART II.R

PROCESS VENTS - SUBPART AA

Subpart AA does not apply to the Tampa facility since the Tampa facility is strictly a storage facility. No process vents associated with distillation, fractionation, thin film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw are present at the facility.

Emissions of volatile organic compounds (VOC) associated with storage, handling, container cleaning and container filling operations are permitted under the provisions of Florida Department of Environmental Protection operating permit AO29-252873. The Tampa facility if classified as a minor source of VOC emissions.

APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT
CERTIFICATION
TO BE COMPLETED BY ALL APPLICANTS

Facility Name: Safety-Kleen Corp., Tampa Service Center EPA ID# FLD 980847271

1. Operator

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 gathered and evaluated 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. Further, I agree to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department of Environmental Protection. It is understood that the permit is only transferable in accordance with Chapter 62-730, F.A.C., and, if granted a permit, the Department of Environmental Protection will be notified prior to the sale or legal transfer of the permitted facility.

Signature of the Operator or Authorized Representative*

Al Seiffer - Regional Mgr.

Name and Title (Please type or print)

Date: 6-4-96 Telephone: (941) 682-8094

2. Facility Owner

This is to certify that I understand this application is submitted for the purpose of obtaining a permit to construct, operate, or close a hazardous waste management facility on the property as described. As owner of the facility, I understand fully that the facility operator and I are jointly responsible for compliance with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department of Environmental Protection.

_____
Signature of the Facility Owner or Authorized Representative*

_____
Name and Title (Please type or print)

Date:_____ Telephone:(____)_____

*Attach a letter of authorization

3. Land Owner

This is to certify that I, as land owner, understand that this application is submitted for the purpose of obtaining a permit to construct, operate, or close a hazardous waste management facility on the property as described. For hazardous waste disposal facilities, I further understand that I am responsible for providing the notice in the deed to the property required by 40 CFR §264.119 and §265.119, as adopted by reference in Chapter 62-730, F.A.C.

_____
Signature of the Land Owner or Authorized Representative*

AL SEYFER - REGIONAL MGR.
Name and Title (Please type or print)

Date: 6-4-96 Telephone:(941) 682-8094

*Attach a letter of authorization

4. **Professional Engineer Registered in Florida** [Complete when required by Chapter 471, F.S. or not exempted by Rule 62-730.220(7), F.A.C.]

This is to certify that the engineering features of this hazardous waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly constructed, maintained and operated, or closed, will comply with all applicable statutes of the State of Florida and rules of the Department of Environmental Protection.

Signature

W.D. Phelps
Name (please type)

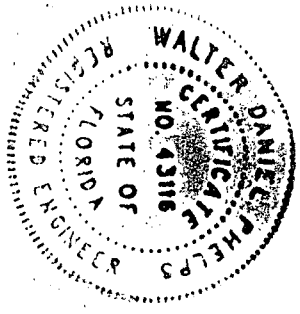
Florida Registration Number: 43116

Mailing Address: 5401 West Kennedy Blvd., Suite 400
Street or P.O. Box

Tampa FL 33609
City State Zip

Date: 6/7/96 Telephone(813) 289-5218

[PLEASE AFFIX SEAL]



Delta
Environmental
Consultants, Inc.

5401 W. Kennedy Blvd., Suite 400
Tampa, Florida 33609
813 / 289-5218
FAX: 813 / 289-6950

October 18, 1996

RECEIVED
OCT 18 1996
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

Mr. Roger Evans, Permitting Engineer
Hazardous Waste Section, Division of Waste Management
Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Safety-Kleen Corporation, FLD 980 847 271
Permit Application HO29-290949
Response to First Notice of Deficiency

Dear Mr. Evans:

Delta Environmental Consultants, Inc, (Delta) on behalf of Safety Kleen Corporation has prepared the attached revisions to the Part B RCRA Permit Renewal Application for its Tampa Branch Operations unit. I trust that you will find that we have addressed all of your comments in the manner discussed and agreed during the September 5, 1996 meeting between yourself, Mr. Bill Crawford, Mr. John Ercole of Safety-Kleen, and myself.

This document has also been edited for clarity. In addition to providing Safety-Kleen's text revised to reflect the August 10, 1996 FDEP comments, the attached pages have been further edited to remove all of the highlighting of additions and deletions that were shown in our last draft. This resulted in a reduction of the total number of pages in most sections. All pages of each revised section are enclosed in this package. An Index of this submittal is attached to this letter.

Specific Response to the questions posed by FDEP follow:

Part 1 General

The revision block located...

FDEP forms submitted in this package now are labeled Revision No." 2"

FDEP Form 62-730.900(2)(a)...

Item A10 & A12

The telephone number -8460 is correct; form changed to reflect this.

Item A19

This line has been filled in with Delta Environmental Consultants, Inc.

Item A21

Transporter notification number removed. Florida air operating permit number inserted.

OK Item B1

Section, Township, Range and UTM supplied from USGS Topographic Map

Attachment I.B.3

p. IB3-2 spent ethylene glycol

references to management of spent ethylene glycol have been revised with the latest agreements and reflecting current management practices in sections I.B.3 and II.A.4

OK p.IB3-2 Paragraph 2 states that ...

Wastes from the Tampa facility are not shipped to a non Safety Kleen location.

Attachment I.D.2

p.ID2-3 The first sentence of paragraph 2 ...

Paragraph revised for clarity.

OK p.ID2-5 The last sentence of the first paragraph ...

The last two sentences have been stricken.

OK Table I.D.3-1 indicates ... inconsistency ...

Language in footnote to table is changed per discussions with FDEP.

Attachment II.A.1(c)

OK p.IIA1(c)-2 The first paragraph makes reference to Area D...

"Area D" is not a current designation used by Safety-Kleen. Text reference removed.

Attachment II.A.2

Worksheet TS-4 Protection Level

Worksheet has been recalculated using Level C personal protection rates. No confined space entry is needed to perform this task.

Worksheet DC-2 (p.1 of 2) Item 1

This calculation was revised. Calculation sheets provided.

Worksheet DC-2 (p.1 of 2) Item 6 appears to be incorrect.

The entire worksheet was revised with the changes in Item 1.

Worksheet TR-1 (p.1 of 1) Item 1A

Worksheet revised with inclusion of the North Building container storage capacity.

Worksheet TD-3 (p. 1 of 2) Item 10

Worksheet revised with larger decontamination areas reflecting changes in previous worksheets (above). In addition, Safety-Kleen submits attachment 1 to this letter which describes the results of sampling of the identical operations at Altamonte Springs, Florida. We trust that this documentation will support Safety-Kleen's position for this identical situation at Tampa.

Attachment II.A.4(b)

p.IIA4(b)-2 In paragraph 2 it stated that "Used parts washer solvent ... flows ..."

"Flows" is imprecise and misleading because it flows only when pumped. Text is changed to reflect that the solvent must be pumped from the wet dumpster.

p.IIA4(b)-2 Paragraph 2 indicates that sludge generated at the facility ...

Text has been changed to reflect that sludge in the wet dumpster is regularly cleaned out, containerized and stored as a permitted waste in the container storage area for later shipment to the recycle facility for reclaim or disposal.

p.IIA4(b)-3 Paragraph 2 states that used oil and nonhazardous antifreeze ..

The method of transporting the used oil and antifreeze mixture is described in the revised text here.

p.IIA4(b)-4 Table IIA4(b)-1 was not found ...

Figure II.A.4(b)-1 is being submitted. Revision involves clarification that the third proposed AST handles new material, not wastes.

p.IIA4(b)-8 The 24-hour emergency telephone number ...

The relationship between Safety-Kleen and InfoTrack is described in the revised text.

Attachment II.A.4(d)

p.IIA4(d)-2 Do facility personnel physically ...

Facility personnel read and record the volume of used solvent.

p.IIA4(d)-5 Paragraph 1 states that discrepancies ...

The text has been changed to amplify and clarify the meaning of this section.

p.IIA4(d)-5 The second paragraph outlines ...

The text has been changed to reflect that each phone in the facility has the emergency numbers posted.

p.IIA4(d)-6 Please explain what is meant by a "typical facility" ...

Safety-Kleen's facilities are "branch operations". This has been addressed globally in the documents.

Table IIA4(d)-2 This table indicates the presence of four eyewash/safety showers ...

Table II.A 4(b)-1 has been corrected to reflect the four eyewash/safety showers.

Attachment II.A.5

OK p.IIA5-9 See comments for page IIA4(b)-2.

Clarified above. Section is correct as it currently reads.

Attachment II.A.6

p.IIA6-6 The amount of material needed ...

Safety -Kleen understands DEP's concern and comments regarding volume as a selection criteria for accepting spent solvent as a waste. It should be pointed out that this procedure is not a quantitative or qualitative procedure but a visual screening tool which gives a sales representative additional information when evaluating spent solvents. Safety-Kleen is aware and understands that a small amount of hazardous waste when added to the spent solvent will not change the volume. Safety-Kleen treats all spent solvent when delivered to the Branch as hazardous waste. As such it is a branch generated waste and manifested prior to shipment to a recycle center.

p.IIA6-9 Paragraph 2 is confusing. ...

For clarity, it must be remembered that the system contains a volume of 7.5 gallons of thinner. Five gallons in the left container and 2.5 gallons in the right container, which has a capacity of 5 gallons. The mechanics of the system are as stated except for the middle sentence which must read ... "any solvent above 7.5 gallons (change this to 2.5 gallons) remaining in the left hand container ..." Also remember that 5 gallons are replaced during servicing, and 2.5 gallons always remain.

OK p.IIA6-11 The last paragraph indicates ...

The bottom paragraph is changed to include annual TCLP analyses for all compounds except pesticides

OK ***Attachment II.B.1***

p.IIB1-1 Paragraph 1 makes reference to a "licensed" facility ...

Last sentence of this paragraph deleted.

p.IIB1-1 Paragraph 2 indicates that there is a two-foot aisle ...

The last sentence is changed to reflect the two foot aisle provided between containment walls. No spacing is provided for pallets placed in east-west rows. There are two foot aisle spaces located in the north-south parallel rows.

p.IIB 1-3 Safety-Kleen should demonstrate ...

Safety-Kleen has provided an attachment in the submittal demonstrating their point about concrete coatings. Nothing in this attachment is inconsistent with the FDEP requirements for proper maintenance of the facility.

Attachment II.B.3

p.IIB3-4 Where are the designated smoking areas ...

The only designated smoking area at the Tampa Service Center is outside the front door.

p.IIB3-5 Your text indicates that fire extinguishers are checked ...

Fire extinguishers are checked weekly. Text is so changed.

Attachment II.B.5

p.IIB5-1 Safety-Kleen has stated that the inspection logs ...

Additional relevant information will be added to the inspection logs as appropriate.

Attachment II.B.6

p.IIB6-2 Paragraph 1 states "the north building ..."

The curbing is continuous, except for the area designed to be an interception spill sump at the entrance to the area. Continuous is dropped from the text.

p.IIB6-2 Does Safety-Kleen have specific policies ...

The term Container is substituted for Pail.

Attachment II.C.2

p.IIC2-4 The ~~first~~ paragraph describes the management ...

The section is moved. Unless a spill is observed, the area will be considered clean for purposes of releasing rain water.

P.II.C9-3 The comments for pIIC2-4 ...

Same resolution as for IIC2-4 above.

Miscellaneous

p.iii The correct address for the Southwest ...

Address is corrected.

Are the terms identified below interchangeable? ...

All terms globally replaced with "Branch Operations" for clarity and consistency.

A discharge associated with unloading a product ....

The discharge is included in the revised Attachment #3 Response. A copy of the full report is included with this letter.

DEP Form 62-730.900(2)(d) was not complete. ...

Completed forms are included.

DEP Form 62-730.900(2)(d) must be completed by a corporate officer ...
Completed forms are included, along with the required letter from the corporate officer.

Comments of the pages of the existing operating permit application.

p.IB4-2 Item 6: Figure IB4-4 has not been revised...
Text has been revised to reflect that there is no revision expected.

p.IB4-2 Item 8: The inventory of wells ...
Tables I.B.4-2 and II.A.1(a)-2 have been updated to October 1996 with the addition of six new well permits.

PIIA7-1 Procedures for Record Keeping ...
Safety-Kleen does not remove spent solvent with the use of invoices. Safety-Kleen services three types of customers in Florida; CESQGs, SQGs and LQGs. CESQGs spent solvent is removed via a tolling agreement which means that there is no manifest or LDR used. Appropriate records are kept at the Branch as to the date of waste pick-up, quantity, and other data on the service document. SQGs spent solvent is also tolled in Florida, which means that a manifest is not used. An LDR is completed for each SQG. LQGs spent solvent is always manifested (if hazardous) and an LDR is completed. Spent solvent from each customer, regardless of size is brought back to the Branch and dumped in the return and fill container and pumped tot he waste solvent tank. This tank contains the spent solvent of many customers and is hazardous. The contents are regularly sent via truck tanker to the recycle center is Lexington, South Carolina. The loads are always manifested and accompanied with the LDR.

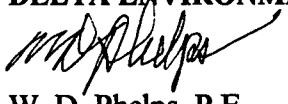
pIIA7-2 62-730.180(7) requires the submittal of a biennial report. ...
Biennial reports will be issued. Text is so changed.

Also included with the four copies of Safety-Kleen's NOD response are the tab dividers you requested for the Part B permit document.

Delta and Safety-Kleen believe this submittal is complete and addresses all of the points contained in your August 10th letter as well as the those issues raised at our September 5th meeting. Should there be any questions concerning this material, please contact Mr. Jon Ercole or myself.

Very truly yours,

DELTA ENVIRONMENTAL CONSULTANTS, INC.



W. D. Phelps, P.E.
Project Manager

cc: Mr. Jon Ercole, Safety-Kleen Corp.

INDEX TO NOD SUBMITTAL
SAFETY-KLEEN CORP
TAMPA BRANCH OPERATION
PART B PERMIT RENEWAL APPLICATION NOD RESPONSE

SAFETY-KLEEN CORPORATION
TAMPA, FLORIDA SERVICE CENTER
RCRA PART B PERMIT RENEWAL APPLICATION NOD RESPONSE

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B. Facility and Landowner certifications, page 2 of 4

C. Professional Engineer certification, page 3 of 4

ATTACHMENT 1

ANALYTICAL RESULTS
WELL PURGE WATER AND EQUIPMENT
DECONTAMINATION WATERS

RCRA CLOSURE
SAFETY-KLEEN CORP.
BRANCH OPERATION, ALTAMONTE SPRINGS, FLORIDA

COPY

Delta
Environmental
Consultants, Inc.

5401 W. Kennedy Blvd., Suite 400
Tampa, Florida 33609
813 / 289-5218
FAX: 813 / 289-6950

September 12, 1996

Mr. Glenn E. Forrest, P.E.
City Engineer
City of Altamonte Springs
225 Newburyport Avenue
Altamonte Springs, Florida 32701

Subject: Waste Water Treatment and Disposal
RCRA Facility Closure
Safety-Kleen Corporation
505 Plumosa Avenue
Altamonte Springs, Florida
Delta Project No. B096-008

Dear Mr. Forrest:

In follow-up to our September 12, 1996, conversation with Mr. Roger Densberger of the City of Altamonte Springs (the City), the purpose of this correspondence is to provide you with information to support the request of Delta Environmental Consultants, Inc. (Delta), on behalf of Safety-Kleen Corp., to treat stored waste water at the site and discharge the treated water to the City's sanitary sewer. The waste water is divided into two groups: well purge water and decontamination water.

The well purge water has been generated by the three quarterly groundwater sampling events at the site. Before sampling the monitoring wells, the wells are purged of several volumes of water. This water is stored in 55-gallon drums on-site. As we discussed with Mr. Densberger, this groundwater is essentially the same as that which is currently being extracted by the recovery wells, treated, and discharged to the City's sanitary sewer.

The decontamination water was generated during the facility closure activities as a result of rinsing the above surface structures (e.g. secondary containment concrete, aboveground storage tank, etc.). This water is currently being stored on-site in two 1,000-gallon tankers. A representative sample from each tanker was collected and submitted to Progress Environmental Laboratories for analyses. A copy of the analytical results is enclosed.

Additionally, Safety-Kleen Corp. requested the authorization of the Florida Department of Environmental Protection to dispose of the decontamination water through the on-site treatment system. The FDEP stated in a September 12, 1996, letter (attached) that this best management

practice would be acceptable if allowed by the City. As noted in the FDEP's letter, the analyses indicate that all constituents except cadmium and lead meet the Groundwater Protection Standards listed in the FDEP permit, and would in Delta's opinion meet your pretreatment or sewer use standards.

The removal of this water is necessary to complete the facility closure activities and issue the required Closure Report before October 14, 1996. Therefore, we respectfully request your approval for management of the above specified waste water at the existing treatment system with discharge to the City's sanitary sewer. Also, please provide Delta with a copy of the applicable sewer use/pretreatment requirements of City Code Chapter 26-18 for our reference.

Thank you for your consideration of this matter. If you have any questions or comments, please contact me at (813) 289-5218.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

W. Daniel Phelps, P.E.
Project Manager

WDP/kla

Attachments

cc: Mr. John G. Hodges, Jr., CHMM, Safety-Kleen Corp.
Mr. Rick Hosier, City of Altamonte Springs
Mr. Carl Edquist, P.E., Boyle Engineering Corporation

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 12, 1996

Mr. John G. Hodges, Jr.
Safety-Kleen Corporation
5309 24th Avenue South
Tampa, Florida 33619

RE: **Safety-Kleen Corp., Altamonte Springs**
FLD 097 837 983; Permit No. HF02-236952
Disposal of Wash Water

Dear Mr. Hodges:

The Department has reviewed the above letter dated August 15, 1996 concerning the proposed best management practice for discharging the wash water through the on-site treatment system to the sanitary sewer. The Department does not object provided the City of Altamonte Springs allows the discharge of wash water to the sanitary sewer containing cadmium and lead concentrations detected above the Groundwater Protection Standards listed in the FDEP permit.

If you have questions, please contact Harbhajan Singh of my staff at (904) 488-0300.

Sincerely,

Satish N. Kastury
Environmental Administrator
Hazardous Waste Regulation

cc: Kim Alderman, Delta, Tampa
Robert Snyder, FDEP, Orlando
Kent Williams, EPA Region IV

Progress Environmental Laboratories
4420 Pendola Point Road
Tampa, Florida 33619
(813) 247-2805
FAX: (813) 248-1537

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306G)

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

Report Date: 5/16/96
Page: 1 of 6

PEL Lab # : 9605-00093-1
Client ID : DT-1
Project ID : B096-008-9.0001
Location : Safety Kleen
Matrix : Liquid

Collection Information:
Sample Date: 5/06/96
Sample Time: 12:00
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Volatiles by GCMS	EPA 8240			
Acetone	EPA 8240	ND	ug/l	1.74
Benzene	EPA 8240	ND	ug/l	0.39
Carbon Tetrachloride	EPA 8240	ND	ug/l	0.28
Chlorobenzene	EPA 8240	ND	ug/l	0.33
Chloroform	EPA 8240	ND	ug/l	1.0
Cyclohexane	EPA 8240	ND	ug/l	3.4
Dibromochloromethane	EPA 8240	ND	ug/l	0.31
1,2-Dichlorobenzene	EPA 8240	ND	ug/l	0.14
1,3-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,4-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,1-Dichloroethane	EPA 8240	ND	ug/l	0.34
1,1 Dichloroethene	EPA 8240	ND	ug/l	0.37
Ethylbenzene	EPA 8240	ND	ug/l	0.30
2-Butanone (MEK)	EPA 8240	ND	ug/l	2.21
4-Methyl-2-Pentanone	EPA 8240	3.98	ug/l	2.07
Methylene Chloride	EPA 8240	ND	ug/l	1.0
1,1,2,2-Tetrachloroethane	EPA 8240	ND	ug/l	0.90
Tetrachloroethene	EPA 8240	ND	ug/l	0.20
Toluene	EPA 8240	ND	ug/l	0.29
1,1,1-Trichloroethane	EPA 8240	ND	ug/l	0.73
1,1,2-Trichloroethane	EPA 8240	ND	ug/l	0.67
Trichloroethene	EPA 8240	ND	ug/l	0.40
Trichlorofluoromethane	EPA 8240	ND	ug/l	0.73
Vinyl Chloride	EPA 8240	ND	ug/l	0.20
m,p-xylene	EPA 8240	ND	ug/l	0.20
o-xylene	EPA 8240	ND	ug/l	0.20
Volatiles by GCMS	EPA 8260			

- CONTINUED ON NEXT PAGE -

Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306G)

Report Date: 5/16/96

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

PEL Lab # : 9605-00093-1 (Continued ...)
Client ID : DT-1

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Bromochloromethane	EPA 8260	ND	ug/l	0.34
cis-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.71
trans-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.45
Semi-volatiles by GCMS	EPA 8270			
2-Chlorophenol	EPA 8270	ND	ug/l	2.72
2,4-Dichlorophenol	EPA 8270	ND	ug/l	0.90
2,6-dichlorophenol	EPA 8270	ND	ug/l	4.9
2,4-Dimethylphenol	EPA 8270	ND	ug/l	0.87
Di-n-Butylphthalate	EPA 8270	ND	ug/l	1.66
Isophorone	EPA 8270	ND	ug/l	0.88
2-Methyl-4,6-Dinitrophenol	EPA 8270	ND	ug/l	2.30
o-cresol	EPA 8270	ND	ug/l	0.50
m&p-cresol	EPA 8270	ND	ug/l	0.98
Naphthalene	EPA 8270	ND	ug/l	1.32
2-Nitrophenol	EPA 8270	ND	ug/l	1.47
4-Nitrophenol	EPA 8270	ND	ug/l	1.22
Pentachlorophenol	EPA 8270	ND	ug/l	2.26
Phenol	EPA 8270	ND	ug/l	2.13
1,2,4-Trichlorobenzene	EPA 8270	ND	ug/l	0.95
2,4,6-Trichlorophenol	EPA 8270	ND	ug/l	1.39
Chlorinated Herbicides	EPA 8150			
Dinoseb	EPA 8150	ND	ug/l	0.90
METALS	EPA 6010			
Cadmium	EPA 6010	6.40	ug/l	1.00
Chromium	EPA 6010	3.10	ug/l	1.20
Copper	EPA 6010	69.8	ug/l	2.50
Lead	EPA 6010	37.3	ug/l	3.28
Mercury	EPA 7470	ND	ug/l	0.2
Nickel	EPA 6010	4.90	ug/l	2.00
Zinc	EPA 6010	564	ug/l	2.00
Isopropyl alcohol	EPA 8015M	ND	ug/l	2.54

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306G)

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

Report Date: 5/16/96
Page: 3 of 6

PEL Lab # : 9605-00093-2
Client ID : DT-2
Project ID : B096-008-9.0001
Location : Safety Kleen
Matrix : Liquid

Collection Information:
Sample Date: 5/06/96
Sample Time: 12:20
Sampled By : Client
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Volatiles by GCMS	EPA 8240			
Acetone	EPA 8240	ND	ug/l	1.74
Benzene	EPA 8240	ND	ug/l	0.39
Carbon Tetrachloride	EPA 8240	ND	ug/l	0.28
Chlorobenzene	EPA 8240	ND	ug/l	0.33
Chloroform	EPA 8240	ND	ug/l	1.0
Cyclohexane	EPA 8240	ND	ug/l	3.4
Dibromochloromethane	EPA 8240	ND	ug/l	0.31
1,2-Dichlorobenzene	EPA 8240	ND	ug/l	0.14
1,3-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,4-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,1-Dichloroethane	EPA 8240	ND	ug/l	0.34
1,1 Dichloroethene	EPA 8240	ND	ug/l	0.37
Ethylbenzene	EPA 8240	ND	ug/l	0.30
2-Butanone(MEK)	EPA 8240	4.43	ug/l	2.21
4-Methyl-2-Pentanone	EPA 8240	32.6	ug/l	2.07
Methylene Chloride	EPA 8240	ND	ug/l	1.0
1,1,2,2-Tetrachloroethane	EPA 8240	ND	ug/l	0.90
Tetrachloroethene	EPA 8240	0.25	ug/l	0.20
Toluene	EPA 8240	ND	ug/l	0.29
1,1,1-Trichloroethane	EPA 8240	ND	ug/l	0.73
1,1,2-Trichloroethane	EPA 8240	ND	ug/l	0.67
Trichloroethene	EPA 8240	ND	ug/l	0.40
Trichlorofluoromethane	EPA 8240	ND	ug/l	0.73
Vinyl Chloride	EPA 8240	ND	ug/l	0.20
m,p-xylene	EPA 8240	0.39	ug/l	0.20
o-xylene	EPA 8240	ND	ug/l	0.20
Volatiles by GCMS	EPA 8260			

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Progress Environmental Laboratories

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(HRS #E84207 and FDER CompQap #900306G)

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

Report Date: 5/16/96
Page: 4 of 6

PEL Lab # : 9605-00093-2 (Continued ...)
Client ID : DT-2

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Bromochloromethane	EPA 8260	ND	ug/l	0.34
cis-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.71
trans-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.45
Semi-volatiles by GCMS	EPA 8270			
2-Chlorophenol	EPA 8270	ND	ug/l	2.72
2,4-Dichlorophenol	EPA 8270	ND	ug/l	0.90
2,6-dichlorophenol	EPA 8270	ND	ug/l	4.9
2,4-Dimethylphenol	EPA 8270	ND	ug/l	0.87
Di-n-Butylphthalate	EPA 8270	ND	ug/l	1.66
Isophorone	EPA 8270	ND	ug/l	0.88
2-Methyl-4,6-Dinitrophenol	EPA 8270	ND	ug/l	2.30
o-cresol	EPA 8270	ND	ug/l	0.50
m&p-cresol	EPA 8270	ND	ug/l	0.98
Naphthalene	EPA 8270	ND	ug/l	1.32
2-Nitrophenol	EPA 8270	ND	ug/l	1.47
4-Nitrophenol	EPA 8270	ND	ug/l	1.22
Pentachlorophenol	EPA 8270	ND	ug/l	2.26
Phenol	EPA 8270	ND	ug/l	2.13
1,2,4-Trichlorobenzene	EPA 8270	ND	ug/l	0.95
2,4,6-Trichlorophenol	EPA 8270	ND	ug/l	1.39
Chlorinated Herbicides	EPA 8150			
Dinoseb	EPA 8150	ND	ug/l	0.90
METALS	EPA 6010			
Cadmium	EPA 6010	15.7	ug/l	1.00
Chromium	EPA 6010	2.90	ug/l	1.20
Copper	EPA 6010	185	ug/l	2.50
Lead	EPA 6010	38.0	ug/l	3.28
Mercury	EPA 7470	ND	ug/l	0.2
Nickel	EPA 6010	23.9	ug/l	2.00
Zinc	EPA 6010	755	ug/l	2.00
Isopropyl alcohol	EPA 8015M	ND	ug/l	2.54

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306G)

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

Report Date: 5/16/96
Page: 5 of 6

PEL Lab # : 9605-00093-3
Client ID : Trip Blank
Project ID : B096-008-9.0001
Location : Safety Kleen
Matrix : Liquid

Collection Information:
Sample Date: 4/24/96
Sample Time: 0:00
Sampled By : PEL
Sample Quality:

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Volatiles by GCMS	EPA 8240			
Acetone	EPA 8240	ND	ug/l	1.74
Benzene	EPA 8240	ND	ug/l	0.39
Carbon Tetrachloride	EPA 8240	ND	ug/l	0.28
Chlorobenzene	EPA 8240	ND	ug/l	0.33
Chloroform	EPA 8240	ND	ug/l	1.0
Cyclohexane	EPA 8240	ND	ug/l	3.4
Dibromochloromethane	EPA 8240	ND	ug/l	0.31
1,2-Dichlorobenzene	EPA 8240	ND	ug/l	0.14
1,3-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,4-Dichlorobenzene	EPA 8240	ND	ug/l	0.20
1,1-Dichloroethane	EPA 8240	ND	ug/l	0.34
1,1 Dichloroethene	EPA 8240	ND	ug/l	0.37
Ethylbenzene	EPA 8240	ND	ug/l	0.30
2-Butanone (MEK)	EPA 8240	ND	ug/l	2.21
4-Methyl-2-Pentanone	EPA 8240	3.98	ug/l	2.07
Methylene Chloride	EPA 8240	ND	ug/l	1.0
1,1,2,2-Tetrachloroethane	EPA 8240	ND	ug/l	0.90
Tetrachloroethene	EPA 8240	ND	ug/l	0.20
Toluene	EPA 8240	ND	ug/l	0.29
1,1,1-Trichloroethane	EPA 8240	ND	ug/l	0.73
1,1,2-Trichloroethane	EPA 8240	ND	ug/l	0.67
Trichloroethene	EPA 8240	ND	ug/l	0.40
Trichlorofluoromethane	EPA 8240	ND	ug/l	0.73
Vinyl Chloride	EPA 8240	ND	ug/l	0.20
m,p-xylene	EPA 8240	ND	ug/l	0.20
o-xylene	EPA 8240	ND	ug/l	0.20
Volatiles by GCMS	EPA 8260			

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Progress Environmental Laboratories

- CERTIFICATE OF ANALYSIS -
(HRS #E84207 and FDER CompQap #900306G)

To: Delta Environmental
Consultants, Inc.
5401 W. Kennedy Blvd. Ste. 400
Tampa, FL 33609

Attn: Bruce Clark

Report Date: 5/16/96
Page: 6 of 6

PEL Lab # : 9605-00093-3 (Continued ...)
Client ID : Trip Blank

ND = Less than MDL

Parameter	Method	Results	Units	MDL
Bromochloromethane	EPA 8260	ND	ug/l	0.34
cis-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.71
rans-1,2-Dichloroethene	EPA 8260	ND	ug/l	0.45
opropyl alcohol	EPA 8015M	ND	ug/l	2.54

Respectfully submitted, Vineet M Ginja for
Charles R. Ingram, Quality Assurance Officer.

Progress Environmental Laboratories

4420 Pendola Point Road
Tampa, Florida 33619
(813) 247-2805
FAX: (813) 248-1537

№ 11998

MAY-17-96 FRI 04:19 AM

Client: Safety-Kleen / DELTA	Due Date(TAT): Standard
Project Mgr: Bruce Clark	Fax Reports to:( ) -
Project : Safety-Kleen	Bill to:
Project #: 6016-008-9.0001	
PO #:	Sampler's Initials:

(245)

Station ID	Date	Time	PEL Lab #	# of Bttls	Pres	8270	8150	8240	Metals					Remarks
								HCl	HNO_3					9605-93
DT-1	5-6-96	1200	1	6		X	X	X	X					Table-1
DT-2	5-6-96	1200	2	6		X	X	X	X					Table-2
Equipblank	4/24/96		3											

Relinquished By:	Received By:	Date	Time
Relinquished By:	Received By:	Date	Time
		5/7/96	16:15
Relinquished By:	Received By:	Date	Time
Relinquished By:	Received By:	Date	Time

Project Notes

COPY OF JULY 6, 1993 SPILL INCIDENT REPORT
SAFETY-KLEEN CORP.
TAMPA BRANCH OPERATION

HAND Delivered
7-9-93
HW Comp

#43

safety-kleen®

July 7, 1993

RECEIVED
JUL 09 1993
Department of Environmental Regulation
SOUTH WEST DISTRICT
BY BB

Division of Waste Management
Florida Department of Environmental
Regulation Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33919-8218

Attn: Bill Kutash

Re: 15 Gallons Spill July 6, 1993
Tampa, Florida (Hillsborough Cty)
FLD 980 847 271

Dear Mr. Kutash,

The following information is submitted for an incident at the referenced facility pursuant to 40 CFR 263.30

Facility Operator: Saftey-Kleen Corp.
1000 North Randell Road
Elgin, IL 60123

Facility Location: Saftey-Kleen Corp.
5309 24th Avenue South
Tampa, Florida 33619

Location of Incident: Saftey-Kleen Corp.
5309 24th Avenue South
Tampa, Florida 33619

EPA I.D. Number: FLD 980 847 271

1. Report Date: July 7, 1993

2. Person Making Report: James A. Davis

3. Date and Time of Incident: July 6, 1993 At 10:40 A.M.

4. Decription of Incident: A Redwing Tanker Truck Was Delivering Virgin 105 Solvent. The Driver hooked up the hoses, poured 1 qt. of green dye into the empty hose, hooked up to his pump and attempted to pump into the tank. When I heard the pump start I realized they had not opened

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 708/697-8460 FAX 708/697-4295

the valve going to the tank. Between 5 and 10 seconds after the pump started, the hose swelled up and blew apart. This sent the dye and solvent (under pressure) out the hose and onto the side of our Tank, Tank Farm, Asphalt and a small area of Soil.

5. Extent of Personnel Injuries: Jim Davis was hit by the Spray of Solvent. He went to the shower ASAP and Removed the majority of the solvent. However a bit of solvent got into the right eye. He was treated at the Walk in Clinic and Released.

6. Extent of Property Damage: A 10' x 20' section of Asphalt plus the need to Clean Dye off Tank & Walls and repaint.

7. Description and Estimated Quantity of Any Materials Released: Approximately 15 Gallons of Clean 105 Solvent. with 1qt. of Green Liquid Dye.

8. Human Health and Environmental Impact Assessment: None

9. Remedial Action Taken: Oil Dry and Absorbent pads were used. Soil was dug up and put into 30 Gal. drums. Approx. 10' x 20' area of Asphalt needs to be excavated and put into drums for proper disposal.

10. Estimated Quantity of Clean-Up Residue for Treatment of Disposal: Approx. 15 - 30 Gal. drums of soil, absorbent, and clean up materials were accumalated plus 6 to 8, 55 Gal. Drums of Asphalt will be added to that. All soil drums and clean up materials will be shipped to Safety Kleen Hebron, Ohio for proper treatment.

11. Since there are outside Company Liabilities involved, Bill Crawford has discussed with Lynne Milanian at F.D.E.P Tampa, the possibility of some delay in Repainting the Tanks and Tank Farm.

This letter also serves as notification that the spill has been cleaned up, and that all emergency equipment is again ready for use. Please contact me at (813-621-5457) if you have any questions.

Sincerely,

James A. Davis
Safety Kleen Corp.
Tampa Operation Center

SAFETY-KLEEN CORPORATION
TAMPA, FLORIDA SERVICE CENTER
RCRA PART B PERMIT RENEWAL APPLICATION NOD RESPONSE

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A. Operator certification, page 1 of 4

B. Facility and Landowner certifications, page 2 of 4

C. Professional Engineer certification, page 3 of 4

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revision block has only the revision number.

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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	[ ]		
landfill	[ ]	land treatment	[ ]
surface impoundment	[ ]	miscellaneous units	[ ]
Storage	[X]		
containers	[X]	tanks	[X]
piles	[ ]	surface impoundment	[ ]
miscellaneous units	[ ]	containment building	[ ]
Treatment	[ ]		
tanks	[ ]	piles	[ ]
incineration	[ ]	surface impoundment	[ ]
miscellaneous units	[ ]	boiler/industrial furnace	[ ]
type of unit _____		type of unit _____	
		containment building	[ ]

2. Type of application: [ ] TOP [ ] construction [X] operation [ ] closure [ ] RD&D
[ ] construction/operation

3. Revision Number: 10

4. Date current operation began (or is expected to begin): June 28,1985

5. Facility name: Safety-Kleen Corp. (3-163-01)

6. EPA/DEP I.D. No.: FLD 980847271

7. Facility location or street address: 5309 24th Avenue South, Tampa, Florida 33619

8. Facility mailing address: 1000 North Randall Road Elgin IL 60123
Street or P.O. Box City State Zip

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9. Contact person: Jon Ercole Telephone: (407)734-2560

Title: Manager Environmental Safety & Health

Mailing Address: 5610 Alpha Drive (Street or P.O. Box) Boynton Beach (City) FL (State) 33426 (Zip)

10. Operator's name: Safety-Kleen Corp. Telephone: (708)697-8460

11. Operator's address: 1000 North Randall (Street or P.O. Box) Elgin (City) IL (State) 60123-7857 (Zip)

12. Facility owner's name: Safety-Kleen Corp. Telephone: (708)697-8460

13. Facility owner's address: 1000 North Randall (Street or P.O. Box) Elgin (City) IL (State) 60123-7857 (Zip)

14. Legal structure: [X] Corporation [ ] Non-profit Corporation [ ] Partnership [ ] Individual
[ ] Local Government [ ] State Government [ ] Federal Government [ ] Other

15. If an individual, partnership, or business is operating under an assumed name, specify the county and state where the name is registered.

County: N/A State: N/A

16. If the legal structure is a corporation, indicate the state of incorporation.

State of incorporation: Wisconsin

17. If the legal structure is an individual or partnership, list the owners.

Name: N/A

Address: (Street or P.O. Box) (City) (State) (Zip)

Name: N/A

Address: (Street or P.O. Box) (City) (State) (Zip)

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Name: N/A

Address: _____
Street or P.O. Box City State Zip

18. Site ownership status: [X] 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: _____
Street or P.O. Box City State Zip

19. Name of engineer: W.D. Phelps Registration no.: 43116

Address: 5401 West Kennedy Blvd., Suite 400 Tampa FL 33609
Street or P.O. Box City State Zip

Associated with: Delta Environmental Consultants, Inc.

20. Facility located on Indian land: [ ] yes [X] no

21. Existing or pending environmental permits: (attach a separate sheet if necessary) Existing RCRA Permit - AST Permit #

NAME OF PERMIT	AGENCY	PERMIT NUMBER	DATE ISSUED	EXPIRATION DATE
Air Operating Permit - Storage Tanks	FDEP	A029-252873	10/93	10/99

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B. Site Information

1. Facility location County: Hillsborough Nearest Community: Tampa

Latitude: 27° 55' 21" North Longitude: 082° 23' 4" West

Section: 27 Township: 295 Range: 19E

UTM #: 3,089,500N 363,000E

2. Area of facility site (acres): 3

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.

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

5. Is the site located in a 100-year flood plain? [ ] yes [X] no

C. Land Use Information

1 Present zoning of the site LI (Light 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? [X] yes [ ] no

List the SIC codes (4-digit)

7399 5172 5084 5013 _____ _____ _____

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

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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	Please see Attachment I.D.3-1		
S02	Please see Attachment I.D.3-1		

The application is a presentation of factual statements. Editorial or explanatory statements does not belong in the application

ATTACHMENT I.B.3
FACILITY LAYOUT AND PHOTOGRAPHS

The facility layout is shown in Figure I.B.3-1. The traffic patterns are illustrated in Figure I.B.3-2. Site photographs follow Figure I.B.3-2. Approximately 18 trucks will leave and return to the site daily. Two to four semi-tractor trucks transport wastes to the recycle center weekly The vans and trucks enter and exit through the mechanically operated gate openings at 24th Avenue. Two additional manually operated gates are available for use. One provides access to 24th Avenue and the other to 54th Street.

Fresh parts washer solvent and spent parts washer solvent arrive and leave, respectively, at the Branch Operation in tanker trucks. Fresh parts washer solvent may also be delivered to the Branch Operation in containers. The unloading and loading of the fresh parts washer solvent and spent parts washer solvent from the tanker trucks occurs at Area C, as shown on Figure I.B.3-2. The spent parts washer solvent arrives from customers in containers, the containers are poured into the dumpsters in the return and fill station between the two buildings (Area A). The spent solvent is pumped from the dumpsters to the waste tank. A tanker truck removes the waste on a periodic basis and transports it to a Safety-Kleen recycle center.

Non-perchloroethylene dry cleaning wastes and Fluid Recovery Service (FRS) wastes are transfer wastes and can be stored up to a maximum of 10 days onsite. These wastes are transferred and stored in containers in the flammable storage room or in the non-flammable storage areas in the south building.

Practices and procedures regarding the handling of spent anti-freeze were developed after the submittal of this application. The initial documents were developed jointly between Safety-Kleen and the Tallahassee Department of Environmental Protection. In these documents, Safety-Kleen has committed to handle spent anti-freeze in an environmentally safe method. All anti-freeze collected and managed int he State of Florida will be recycled. This recycling activity involves the mixing of used oil and

anti-freeze in vehicles owned by Safety-Kleen. Shipment is then by rail to Safety-Kleen's East Chicago, Indiana recycle center. Safety-Kleen will advise DEP in writing via permit mods to any exception in procedures.

Fresh solvents and wastes that are transported in containers arrive either at the north building, the south docks, or the return/fill shelter. From there, they may be placed in the container storage areas. Containerized wastes from the north building can be moved to the south building. On a regular basis, the containerized wastes are shipped to a Safety-Kleen recycle center. Wastes from the Tampa facility are not shipped to a non Safety-Kleen location.

ATTACHMENT I.B.4
TOPOGRAPHIC MAP OF THE SITE

A USGS topographic map is supplied in this section to provide information requested (Figure I.B.4-1). However, due to the small size of the site, all of the information requested under I.B.4 of the application form cannot be placed on one map. Therefore, additional maps are referenced that provide information requested.

1. Map scale and dates:
   Supplied on all maps.

2. 100-year floodplain area:
   Based on information available (Figure II.B.4-2), the facility does not lie within the 100-year floodplain. The site is located in a Zone B, which is an area lying between the limits of a 100-year flood and 500-year flood; or an area subject to 100-year flooding with an average depth of less than one foot or where the contributing drainage is less than one square mile; or an area protected by levees from the base flood. Therefore, the site does not require any special flood management procedures.

3. Orientation of map:
   Supplied on all maps.

4. Surface water bodies within one-quarter mile of the facility property boundary (e.g., intermittent streams and springs):
   With the exception of the onsite retention pond, there are no surface water bodies within a one-quarter-mile radius of the facility, as shown in Figure I.B.4-1.

5. Surrounding land uses:
   See Figure I.B.4-3.

6. Legal boundaries of the facility:
   Figure I.B.4-4 shows the property boundaries and building structures prior to the recent roof extension in the return/fill shelter. The property boundaries have not changed.

7. Injection wells:
   No injection wells are used by the facility.

8. Drinking water wells listed in public records or otherwise known to the applicant within one-quarter mile of the facility property boundary:
   The well survey is presented in Tables I.B.4-1 and I.B.4.-2.

9. Intake and discharge structures within one mile:
   There are no known intake or discharge structures within one mile.

10. Run-off control system:
    The facility's paved areas are sloped such that rainwater run-off will be directed to the ditch on the southern part of the site, which is connected to the retention pond. The retention pond and southern drainage ditch direct stormwater to the east where the system connects with a roadside drainage ditch. Figure I.B.4-4 illustrates the contours and anticipated surface water run-off direction.

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	R. Rodriguez	Irrigation	135	4	46	308682
272919	General Telephone	Irrigation	100	4	37	434162
272919	GTE Mobilnet	Irrigation	170	4	68	488390
272919	G.L. Anderson	Irrigation	140	4	60	494100
272919	Aoki Plant Nursery	Irrigation	200	6	63	414498
272919	Aoki Plant Nursery	Irrigation	235	6	139	422106
272919	Shop & Go	Public Supply	75	3	45	315978
272919	O. Mills	Public Supply	90	3	62	333207
272919	Richards Fuel	Public Supply	123	4	63	376079
272919	Key Construction	Public Supply	139	4	85	383081
272919	Joel & Mary Maggi	Public Supply	100	4	60	408551
272919	Causeway Med Clinic	Public Supply	95	4	38	425788
272919	Sunbelt Refrigeration	Public Supply	NA	4	NA	430518
272919	John Jacobson	Public Supply	120	4	60	472119
272919	Safety-Kleen	Public Supply	121	5	81	407715
272919	John Manfhin	Domestic	85	NA	42	349653

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Dusty Lillard	Domestic	172	2	111	349408
272919	Tom Goldtrap	Domestic	212	2	155	352823
272919	Esteban Perez	Domestic	67	2	31	379322
272919	Hernando Pellicer	Domestic	80	2	65	381011
272919	Beverly Johnson	Domestic	40	2	40	422333
272919	Nick Capitano	Domestic	65	3	51	304993
272919	Ruth Kelley	Domestic	61	3	28	305608
272919	A. Paiz	Domestic	63	3	42	306444
272919	J.M. Martine	Domestic	90	3	42	306445
272919	G. Tew	Domestic	85	3	42	306959
272919	P.W. Kenney	Domestic	80	3	62	307235
272919	G.G. Moroles	Domestic	NA	NA	NA	308335
272919	A.D. Smith	Domestic	70	3	40	308501
272919	T.R. Hunzike	Domestic	65	3	30	310652
272919	S.L. Whitt	Domestic	65	3	31	310824
272919	Carl Sumner	Domestic	115	3	42	312912
272919	A. Losa	Domestic	70	3	37	316464

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	J. Serrallas	Domestic	70	3	46	316465
272919	J.A. Hauser	Domestic	80	3	42	318570
272919	R. Alvarez	Domestic	64	3	38	322909
272919	Sears	Domestic	83	3	62	328299
272919	G. Lillard	Domestic	70	3	53	337189
272919	J.F. Murray	Domestic	120	3	42	337799
272919	A. Mulion	Domestic	NA	3	NA	341884
272919	Fred Wright	Domlestic	76	3	45	347993
272919	Ulysses Perez	Domestic	57	3	42	373042
272919	Lester Scott	Domestic	60	4	49	304873
272919	W.P. Cummins	Domestic	91	4	51	313556
272919	H. Pate	Domestic	82	4	61	319713
272919	L. Segueira	Domestic	60	4	45	330077
272919	A. Perez	Domestic	57	4	31	339352
272919	Mary J. Capaz	Domestic	90	4	52	351808
272919	Shawver Const.	Domestic	114	4	NA	352239
272919	Shawver Const.	Domestic	118	4	52	352240

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Glenda Gilmore	Domestic	135	4	63	354041
272919	Gene Kelley	Domestic	142	4	52	356628
272919	Frank Reynolds	Domestic	48	4	32	358801
272919	Shawver Const.	Domestic	128	4	55	359266
272919	Phyllis G. Ansley	Domestic	161	4	62	370814
272919	Shawver Const.	Domestic	140	4	52	371165
272919	Manuel Pintado	Domestic	137	4	80	373114
272919	Shawver Const.	Domestic	131	4	52	376071
272919	Shawver Const.	Domestic	130	4	63	376072
272919	Michael Anderson	Domestic	100	4	50	381082
272919	William Waycasser	Domestic	85	4	50	402304
272919	Allstate Homes	Domestic	80	4	52	402655
272919	Roger Gregory	Domestic	90	4	52	404161
272919	David Falcon	Domestic	90	4	42	406184
272919	Sarah Clouts	Domestic	60	4	50	417511
272919	Wallace Sheppard	Domestic	70	4	52	419985
272919	Eugene Folson	Domestic	70	4	52	420437

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Allstate Homes	Domestic	120	4	42	428968
272919	Jose Hernandez	Domestic	100	4	56	440412
272919	Antonio Perez	Domestic	63	4	42	442615
272919	Lawrence White	Domestic	90	4	56	458853
272919	Joseph A. Kzawczyk	Domestic	75	4	42	470066
272919	Richard Crouch	Domestic	140	4	42	471666
272919	James L. Jackson	Domestic	80	4	52	472141
272919	J.J.L. Development	Domestic	115	4	10	473839
272919	Larry Meadows	Domestic	75	4	44	482392
272919	Jose Puerto	Domestic	NA	4	NA	505647
272919	H. Pate	Mining	75	4	41	318680
272919	Chevron USA, Inc.	Monitoring	15	2	3	436565
272919	Circle K	Monitoring	15	2	13	462925
272919	Circle K	Monitoring	15	2	13	462926
272919	Circle K	Monitoring	15	2	13	462927
272919	Circle K	Monitoring	15	2	13	462968
272919	Karpay Company	Monitoring	15	2	5	464901

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Karpay Company	Monitoring	15	2	5	464902
272919	Chevron	Monitoring	28	2	23	474833
272919	Kelly Electric	Monitoring	NA	2	NA	507270
272919	Kelly Electric	Monitoring	NA	2	NA	507271
272919	Kelly Electric	Monitoring	NA	2	NA	507272
272919	Kelly Electric	Monitoring	NA	2	NA	507273
272919	Kelly Electric	Monitoring	NA	2	NA	507274
342919	Felipe L. Pineiro	Irrigation	70	2	50	376413
342919	Pefersonal Electric Co.	Irrigation	120	4	84	398892
342919	Roberta Nos	Public Supply	115	4	65	313993
342919	Engineered Chemicals	Public Supply	90	4	52	396686
342919	Richards Fuel	Public Supply	120	4	61	39972
342919	Fasco, Inc.	Public Supply	60	4	47	421192
342919	Key Construction	Public Supply	180	4	94	427356
342919	Tampa Amalgamated Steel	Public Supply	90	4	64	434502
342919	Isabel Arcia	Domestic	81	2	25	350227
342919	Carmen J. Cannella	Domestic	132	2	107	352470

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Manuel Carbo	Domestic	98	2	45	370802
342919	Isabel Arcia	Domestic	85	2	40	371148
342919	Luis F. Safoxit	Domestic	97	2	45	418760
342919	Luis Gonzalez	Domestic	65	2	48	421522
342919	Esteban Perez	Domestic	60	2	45	427513
342919	Isabel Arcia	Domestic	70	2	42	458645
342919	Carlos Greidinger	Domestic	64	2	42	482952
342919	Dewane B. Bennett	Domestic	63	2	36	483308
342919	M. Trejo	Domestic	60	3	32	307804
342919	C.T. Davidso	Domestic	90	3	42	312382
342919	Steel Crete	Domestic	76	3	38	313765
342919	S. Freind	Domestic	115	3	63	333507
342919	L.E. Horton	Domestic	75	3	54	339939
342919	T. Horton	Domestic	82	3	54	343852
342919	Rebecca H. Collins	Domestic	100	3	40	395662
342919	John A. Demmi	Domestic	125	4	53	306095
342919	J. Barber	Domestic	200	4	56	309419

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	P.W. Nichols	Domestic	115	4	51	319021
342919	T. Nunn	Domestic	158	4	123	325618
342919	D.E. Connell	Domestic	135	4	42	333331
342919	R.J. Mikols	Domestic	63	4	41	333752
342919	J. Joyce	Domestic	123	4	36	336366
342919	R. Manring	Domestic	90	4	57	336801
342919	T.A. Gower	Domestic	59	4	41	348028
342919	Ray D. Wilson	Domestic	101	4	49	348032
342919	K.B. Scull	Domestic	90	4	63	358640
342919	Daniel Richert	Domestic	105	4	42	359283
342919	Henry Valdez	Domestic	67	4	31	374875
342919	Erwin Leiss	Domestic	63	4	47	385865
342919	Allstate Homes	Domestic	100	4	51	389809
342919	James R. Brown	Domestic	85	4	52	394257
342919	George Beachum	Domestic	73	4	73	401874
342919	William Dennis	Domestic	NA	4	NA	407098
342919	John Windel	Domestic	62	4	62	410052

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Rudolph Chavez	Domestic	72	4	63	412500
342919	Jerry Fernandez	Domestic	100	4	42	412755
342919	Rex Chivers	Domestic	80	4	52	440651
342919	All State Manufactured Homes, Inc.	Domestic	80	4	32	443714
342919	R.C. Anderson	Domestic	102	4	88	483126
342919	Nitram, Inc.	Repair	0	8	80	404710
342919	Tampa Bay Trucking	Industrial	90	4	63	379718
342919	Plantain Products Co.	Industrial	86	6	63	407983
342919	Nitram, Inc.	Industrial	350	8	80	413273
342919	Nitran Chemical, Inc.	Industrial	503	12	75	315554
342919	Nitram, Inc.	Monitoring	14	2	14	402617
342919	Nitram, Inc.	Monitoring	20	2	15	402618
342919	Nitram, Inc.	Monitoring	19	2	19	402619
342919	Nitram, Inc.	Monitoring	18	2	18	402620
342919	Nitram, Inc.	Monitoring	18	2	18	402621
342919	Southern Mill Creek Products	Monitoring	45	2	31	412122
342919	Southern Mill Creek Products	Monitoring	43	2	29	412123

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Southern Mill Creek Products	Monitoring	40	2	28	412124
342919	Radiant Oil Co.	Monitoring	8	2	2	419233
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422143
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422144
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422145
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422146
342919	Star Oil Co.	Monitoring	25	2	15	424787
342919	Star Oil Co.	Monitoring	25	2	15	424788
342919	Star Oil Co.	Monitoring	25	2	15	424789
342919	Star Oil Co.	Monitoring	25	2	15	424790
342919	Star Oil Co.	Monitoring	25	2	15	424791
342919	Star Oil Co.	Monitoring	25	2	15	424792
342919	Southern Mill Creek Products	Monitoring	41	2	29	433361
342919	Southern Mill Creek Products	Monitoring	41	2	29	433362
342919	Southern Mill Creek Products	Monitoring	62	2	48	433363
342919	Chemco Elec. Company	Monitoring	15	2	15	465814
342919	Chemco Elec. Company	Monitoring	15	2	15	465815

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Chemco Elec. Company	Monitoring	15	2	15	465816
342919	Chemco Elec. Company	Monitoring	15	2	15	465817
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466851
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466851
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466852
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466853
342919	Nitram, Inc.	Monitoring	18	2	18	472365
342919	Nitram, Inc.	Monitoring	12	2	11	472366
342919	Nitram, Inc.	Monitoring	12	2	11	472367
342919	Mariani Asphalt Company	Monitoring	16	2	2	474071
342919	Mariani Asphalt Company	Monitoring	15	2	15	474073
342919	Mariani Asphalt Company	Monitoring	15	2	15	474074
342919	Carl A. Larson	Monitoring	15	2	4	496860
342919	Carl A. Larson	Monitoring	15	2	4	496861
342919	Carl A. Larson	Monitoring	15	2	4	496862
342919	Carl A. Larson	Monitoring	15	2	4	496863
342919	Nitran, Inc.	Monitoring	300	4	59	325775

TABLE I.B.4-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Chloride Metals	Monitoring	65	4	50	361895
342919	Chloride Metals	Monitoring	15	4	10	374087
342919	Chloride Metals	Monitoring	15	4	10	374088
342919	Chloride Metals	Monitoring	15	4	10	374089
342919	Chloride Metals	Monitoring	15	4	10	374090
342919	Nitram, Inc.	Monitoring	19	4	4	401197
342919	Tom Anderson	Monitoring	86	4	42	474483
272919	Robert Thomas	Domestic	140	4	80	537605.01
272919	Richard Guagliardo	Domestic	101	4	60	547581.01
272919	Jorge Gourrie	Domestic	100	4	63	557586.01
272919	Patricia M. Shafer	Public Supply	120	4	60	572177.01
272919	Roberto Nunez	Domestic	not listed	4	not listed	584028.01
342919	Vatche Naljayan	Domestic	95	4	63	566121.01

ATTACHMENT I.D.2
DESCRIPTION OF FACILITY OPERATION

DESCRIPTION OF THE BUSINESS

Safety-Kleen Corp. of Elgin, Illinois is an international, service-oriented company whose customers are primarily engaged in automotive repair and industrial maintenance. Since 1968, Safety-Kleen has been offering a leasing service for petroleum-based hydrocarbon solvents and small parts washing equipment. A unique feature of this business concept is that the solvent is produced through recycling the used solvent that is leased to the customers. Approximately two-thirds of the clean solvent leased has been previously used by the customers.

The Safety-Kleen parts washing equipment, together with the solvents, are leased to customers; the leasing charge includes regularly scheduled solvent changes and machine maintenance. The business is conducted from local Branch Operations (sales branches) located in 45 states domestically that warehouse the products and equipment required to service the customers in their sales areas. On a contractual basis, service representatives furnish clean solvent to the customers, pick up the used solvent, and ensure that the leased equipment is in good working order. In 1979, Safety-Kleen expanded their scope of operations to make their solvent leasing service available to owners of parts cleaning equipment, regardless of manufacturer, using Safety-Kleen's solvents.

Basically, Safety-Kleen handles two types of parts washers. The original service offered by the company in 1968 was the parts cleaner service and it remains the primary business activity. This service involves the leasing of a small parts degreasing unit which consists of a sink affixed to a container of parts washer solvent. On a regularly scheduled basis, a Safety-Kleen sales representative cleans and inspects the parts washer machine and replaces the container of used solvent with one of clean product.

The spent solvent is transferred from the containers to a storage tank at the Branch Operation, and containers of product are prepared for the next day's services. Periodically, a tanker truck is dispatched from one of the recycle centers to deliver a load of clean solvent and collect the spent solvent at the Branch Operation.

Safety-Kleen has also established a parts cleaner service for users who own their machines. This service provides a solvent reclamation service to these customers regardless of machine model.

A second type of parts washer, the immersion cleaner, is available for the removal of varnish and gum from such things as carburetors and transmissions. This machine consists of an immersible basket with an agitator affixed to a container of the immersion cleaner. The spent solvent remains in the container after delivery to the Branch Operation, where it is stored in a contained area of the warehouse. Periodically, a box trailer truck is dispatched from a recycle center to deliver containers of fresh solvent and collect the containers of spent solvent for reclamation.

The solvents are distributed and collected by service representatives. Containers are transported in specially-equipped, enclosed route trucks. Clean solvents are distributed from and used solvents returned to the Branch Operation. At the Branch Operation, clean parts washer solvent and used parts washer solvent are stored in separate tanks. Used parts washer solvent 105 is manifested from the customer as hazardous waste. Other used parts washer solvent is transported from the customer in accordance with the customer's hazardous waste determination pursuant to 40 CFR 262.11.

Warehouse space is dedicated for the storage of clean and used immersion cleaner; no warehouse space is used for clean or dirty solvent. Clean and used immersion cleaner is always stored in containers; clean and dirty solvent is never stored in containers.

Clean and used parts washer solvents also may be stored in the permitted storage area. Safety-Kleen leases parts washing equipment, with partially filled containers, which double as the solvent reservoir of the parts washer. During servicing, the quantity of

IP # 5 - no warehouse space is dedicated to clean or spdirty solvent

IP # 6 Clean and used parts washer solvent also may be stored in the permitted storage area

used solvent removed from each machine ranges from 5 to 20 gallons. The spent parts washer solvent is then collected in containers.

Periodically, a company truck is dispatched from one of Safety-Kleen's nationwide solvent recycle facilities to the Branch Operation to deliver a load of clean solvent and pick up a load of used solvent. Parts washer solvents (used and fresh) are transported in bulk tank trucks between the Branch Operation and the recycle facilities. Clean parts washer solvents may be transported in containers or in bulk tank trucks. Used parts washer solvent is transported in containers from the customer to the Branch Operation, where it is added to the used parts washer solvent tank. The Immersion Cleaner remains in the original covered containers during transfer between the Branch Operation and the recycle facilities.

Safety-Kleen's solvent cycle is essentially a closed loop, moving from the Branch Operation to the customer, from the customer to the Branch Operation, from the Branch Operation to the recycle facility and then from the recycle center back to the Branch Operation for redistribution to customers.

This closed loop supplies Safety-Kleen with most of its solvent requirements; the resultant stabilized cost benefits are passed on to its customers. Ownership of the solvent remains with Safety-Kleen; the Branch Operation personnel are accountable for the quantities of clean and used solvents handled by their branch operations. The Branch Operation is basically a temporary storage and transfer facility.

Safety-Kleen also provides a dry cleaning waste reclamation service where containers of dry cleaning wastes are collected and stored temporarily at the Branch Operation before shipment to the recycle centers for reclamation and residue disposal. Perchloroethylene dry cleaning solvent is managed as a permitted waste. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

In addition, Safety-Kleen provides a paint waste reclamation service. Wastes containing various thinners and paints are collected in containers and are stored at the south building permitted storage area. Paint wastes are received at the Branch

Operation on manifests which are terminated at that point. These wastes are then re-manifested and shipped to a reclaimer, and the regenerated solvent may be distributed to Safety-Kleen customers for use as a product.

Fluid Recovery Services (FRS) is a program managed by the Safety-Kleen Branch Operation. Under this program, other types of waste are collected by the Branch Operation and sent to the recycle centers. The FRS wastes are managed as transfer wastes. Manifests are not terminated at the Branch Operation. These wastes may or may not have originally been obtained from Safety-Kleen by the industrial customer. Examples of the types of waste that may be received from FRS customers include:

1. Spent hydrocarbon distillates, such as waste fuel, oil, petroleum, naphtha, etc.

2. Lubricating, hydraulic oils, synthetic oils, and machine oils.

3. Industrial halogenated solvents such as 1,1,1-trichloroethane, tetrachloroethylene, freon, and trichloroethane.

4. Photographic and x-ray related wastes.

5. Paint and lacquer thinners.

6. Other hazardous and non-hazardous halogenated and non-halogenated wastes.

In 1990, Safety-Kleen began offering a service for the collection of spent antifreeze (ethylene glycol) from automobile service stations. These wastes are pumped into a 3,500-gallon tanker truck and combined with used oil. Hazardous spent antifreeze is handled as a transfer waste. Safety-Kleen currently is in dialogue with the FDEP on revisions to the above described waste management practice for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on this protocol/procedure is achieved.

unacceptable

TABLE I.D.3-1
SAFETY-KLEEN CORP.
24TH AVENUE FLORIDA BRANCH OPERATION
PART 1 ATTACHMENT
PERMITTED AND TRANSFER WASTES

Waste Type	Process Code(s)	Estimated Annual Amount (Tons)	Waste Codes
Spent Parts Washer Solvent*	S01** S02***	2,007	D001 and D-Codes listed in Note below
Spent Ethylene Glycol	S01*****	5,000	D-Codes listed in Note below.
Spent Immersion Cleaner	S01****	268	F002, F004, and D-Codes listed in Note below
Dry Cleaning Waste	S01**	2,495	F002, F004, and D-Codes listed in Note below
Paint Waste	S01**	531	D001 or F002 and D-Codes listed in Note below
Fluid Recovery Service (FRS) Waste	S01****	Included above	D001, F003, and D-Codes listed in Note below
Dumpster Mud and Tank Bottom	S01**	Included above	D001, D002, and D-Codes, F-Codes, K-Codes, U-Codes listed in Note below

NOTE: D-Codes: D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043

F-Codes: F001, F002, F003, F004, F005, F006, F019, F024, F039

K-Codes: K006, K016, K019, K022, K029, K030, K031, K048, K049, K050, K051, K052, K085, K086, K095, K096, K009, K010, K011, K013, K014, K015, K002, K003, K004, K005

U-Codes: U001, U002, U003, U009, U019, U031, U037, U043, U044, U051, U052, U055, U056, U057, U068, U069, U070, U071, U072, U075, U077, U078, U079, U080, U083, U084, U107, U108, U110, U112, U113, U117, U118, U121, U125, U140, U154, U159, U161, U162, U165, U169, U171, U188, U191, U196, U210, U211, U213, U220, U226, U227, U228, U239, U359

* Spent parts washer solvents are transported from the customer to the Branch Operation in accordance with the customer's hazardous waste determination.

** This waste will be stored in containers in the north or south building container storage area. The maximum capacity in the north area is 5,197 gallons. The maximum capacity in the south area is 12,749 gallons of flammables and 44,367 gallons of nonflammables.

*** The used parts washer solvent storage tank has a maximum storage capacity of 15,000 gallons and may be filled up to a maximum of 14,250 gallons.

**** This waste will be held for transfer in containers in the transfer area.

***** Spent Ethylene Glycol is managed as a non-hazardous waste in conjunction with used oil unless the generator's hazardous waste determination indicates that it is hazardous. If the waste is hazardous, it is managed as a transfer waste.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center REV NUMBER 10

EPA ID NUMBER FLD 980847271 TYPE OF APPLICATION Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Part II-A. General 62-730		
	A-1. TOPOGRAPHIC MAP A topographic map showing the facility and a distance of 1000 feet around it. The following information is required: • Scale 1 in.-200 ft. • Contours sufficient to show surface waters flow • Extend 1000 ft. beyond property • Map scale • Map date • 100 Yr. floodplain • Surface waters • Surrounding land use • Map orientation • Legal boundaries • Location of access control • Injection and withdrawal wells - on-site - off-site • Building • Structures • Sewers • Loading and unloading areas • Fire control facilities • Flood control or drainage barriers • Run-off control systems • Location of hazardous waste units • Location of solid waste Access and internal roads For large facilities, the use of other scales may be acceptable on a case-by-case basis.	270.14(b)(19)	No changes to information submitted in the original application.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	A.1a. ADDITIONAL TOPOGRAPHIC REQUIREMENTS FOR LAND STORAGE, TREATMENT, AND DISPOSAL FACILITIES (See Section Topographic Map Requirements)	270.14(c)(3)&(4), 264.95 and 264.97	No changes to information submitted in the original application.
	A-1b. WIND ROSE • Wind speed • Direction • Legend • Date		No changes to information submitted in the original application.
II.A.1(c)-1 to II.A.1(c)-2	A.1C. TRAFFIC INFORMATION A description of the means of transporting hazardous wastes. All facilities should describe movement of waste on the facility. Description must include: • Estimated volume • Traffic pattern • Access road(s) surfacing and load-bearing capacity Off-site facilities (only) should also describe movement of waste to the facility from the point where it leaves nearest major highway.	270.14(b)(10)	Sheets II.A.1(c)-1 through II.A.1(c)-2 are enclosed as revised Traffic Information. Minor edits have been made to delete references to discontinued products and to reflect current management practices regarding spent ethylene glycol.
II.A.2-1 and Closure Cost Estimate Worksheets	A-2. FINANCIAL RESPONSIBILITY. A-2a. CLOSURE COST ESTIMATES. • Copy of Financial Mechanism Financial Assurance DEP Form 62-730.900(2) Part II 2. Contact Financial Assurance Section in Tallahassee.	264.142, 264.143, and 270.14(b)(15)	Upon completion of the application review process, including a review of the revised estimated closure costs of Safety Kleen's Tampa facility, financial assurance/responsibility will be submitted to FDEP Hazardous Waste Financial Responsibility Coordinator in Tallahassee, Florida. Following Sheet II.A.2-1 are revised Closure Cost estimates worksheets.
	A-2b. POST-CLOSURE CARE COST ESTIMATE • Copy of Financial Mechanism Financial Assurance DEP Form 62-730.900(2) Part II 2. Contact Financial Assurance Section in Tallahassee.	264.144, 264.145, 264.146, and 270.14(b)(16)	Not applicable; Clean Closure is planned.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center REV NUMBER 10

EPA ID NUMBER FLD 980847271 TYPE OF APPLICATION Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	A-2c. CORRECTIVE ACTION COST ESTIMATES. • Copy of Financial Mechanism Financial Assurance DEP Form 62-730.900(2) Part II 2. Contact Financial Assurance Section in Tallahassee.	264.100, 264.101 and 62-730.180(6)	Not applicable; no Corrective Action ongoing at this facility.
	A-2d. LIABILITY COVERAGE • Copy of Policy	264.147 and 270.14(b)(17)	FDEP Form 62.730.900(4)(b) has been sent to the FDEP Hazardous Waste Financial Responsibility Coordinator in Tallahassee, Florida.
	A-3. FLOODPLAIN STANDARD. Documentation of whether or not the facility is located within a 100-yr. floodplain including the source of data (Federal Insurance Administration Map or other maps and calculations). If map other than FLA map is used, demonstration of equivalent mapping technique should be provided. If located in 100-yr. floodplain included: • 100-yr. floodplain level • Other special flooding factors (e.g., wave action) that must be considered to prevent washout.	270.14(B)(11)(iii) and 264.18(b)	No changes to information submitted in original application.
	A-3b(1). DEMONSTRATION OF COMPLIANCE. For facilities located within the 100-yr. floodplain, a description of how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste during a flood. Either of the following may be used.	270.14(b)(11)(iv) and 264.18(b)	Not Applicable
	A-3b(1)(a). FLOOD PROOFING AND FLOOD PROTECTION. A structural or other engineering study showing how design of the tanks, containers, or waste piles and the flood proofing and protection devices at the facility will prevent washout including: • Engineering analysis of hydrodynamic and hydrostatic forces • Structural or other engineering studies of hazardous waste units and flood protection devices.	270.14(b)(11)(iv)(A)&(B)	Not Applicable

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center REV NUMBER 10

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	A-3b(1)(b). FLOOD PLAN. Description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. The plan must address the following: • Timing related to flood levels. • Estimated time to move the waste. • Description of the location to which the waste will be moved and proof of the receiving facility's eligibility to receive hazardous waste. • Procedures, equipment, and personnel to be used and the means to ensure that these resources will be available. • Potential for accidental discharge of the waste.	270.14(b)(11)(iv)(C)and 264.18(b)(1)(i)	Not Applicable
	A-3b(2). PLAN FOR FUTURE COMPLIANCE WITH FLOODPLAIN STANDARD. For facilities located within the 100-yr. floodplain that do not comply with the floodplain standard, a plan showing how and when the facility will be brought into compliance. A compliance schedule must be included.	270.14(b)(11)(v)	Not Applicable

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	A-3b(3). WAIVER FOR LAND STORAGE AND DISPOSAL FACILITIES (EXISTING FACILITIES ONLY). If a waiver from the Floodplain Standard is requested, the owner or operator must demonstrate that there will be no adverse effects on human health or the environment if washout occurs. The following factors must be considered in this demonstration. • Volume and physical and chemical characteristics of the waste. • Concentration of hazardous constituents that would potentially affect surface waters. • Impact of such concentration on the current or potential uses of and water quality standards established for the affected surface waters. • Impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-yr. floodplain.	264.18(b)(1)(ii)	Not Applicable
	A-4. FACILITY INFORMATION. A-4a. SECURITY Security Procedures and Equipment. Unless a waiver is granted, the application must include a description of the security procedures and equipment required by 264.14:	264.14 and 270.14(b)(4)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	24-Hour Surveillance System. A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) that continuously monitors and controls entry onto the active portion of the facility: • Procedures and personnel to be used • Location and description of equipment.	264.14(b)(1)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	Barrier and Means to Control Entry. (In lieu of a 24-hour surveillance system, the applicant may elect to use a barrier and other means to control entry.)	264.14(b)(2)(i)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.

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	Barrier. An artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff) that completely surrounds the active portion of the facility: • Height • Material of construction	264.14(b)(2)(i)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	Means to Control Entry. A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility): • Procedure and personnel to be used. • Location and description of equipment.	264.14(b)(2)(ii)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	Warning Sign. The facility must have a sign with the legend, "Danger - Unauthorized Personnel Keep Out," which must: • Be posted at each entrance to the active portion of the facility. • Be in sufficient numbers to be seen from any approach to the active portion of the facility. • Legend must be in English and any other language predominated in the area. • Be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion and that entry onto the active portion can be dangerous.	264.14(c)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	Waiver. If a waiver of these requirements is requested, the owner or operator must demonstrate the following:	264.14(a)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.

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	Injury to Intruder Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure unknowing or authorized persons or livestock that may enter the active portion of a facility; and	264.14(a)(1)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	Violation Caused by Intruder. Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of 264.	264.14(a)(2)	No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
	NOTE: To address the above, the application should include: • Nature and duration of hazard potential from Waste, • Equipment and structures to minimum potential for an intruder to; 1) cause a spill; 2) mix incompatible wastes; 3) ignite ignitable or reactive wastes; 4) damage containment or monitoring systems. • Feature that prevent contact with waste.		No changes to security procedures and equipment subsequent to the most recent approved modification of the permit.
II.A.4(b)-1 to II.A.4(b)-20	A-4b. CONTINGENCY PLAN. A copy of the contingency plan required in Part 264, Subpart D. Include, where applicable, specific requirements in 264.227 and 264.225.	270.14(b)(7) (264.50 through 264.56)	Sheets II.A.4(b)-1 through II.A.4(b)-20 are enclosed as a revised Contingency Plan. Minor changes have been made to the text and such changes have been highlighted.
	An existing spill prevention control plan can be amended to incorporate hazardous waste management provisions sufficient to comply with 264, Subpart D requirements. General Information. • Facility name and location and owner or operator name. • Site plan. • Description of facility operations.	264.52(b)	Not Applicable

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II.A.4 page iii	Emergency Coordinators. • Names, addresses, office and home phone numbers, and duties of primary and alternate coordinators in sequences as alternates. • A statement authorizing designated coordinators to commit the necessary resources to implement the contingency plan. • Can reach facility in short period of time.	264.52(d) and 264.55	The emergency coordinator information has been updated
	Implementation. Criteria for implementation of contingency plan for any potential emergency: • Fires/explosions. • Unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.	264.52(a) and 264.56(d)	No changes to contingency plan implementation criteria subsequent to the most recent approved modification of the permit.
	Emergency Response Procedures. Notification. • Methodology for immediate notification of facility personnel and necessary state or local agencies.	264.56(a)	No changes to Emergency response procedures subsequent to the most recent approved modification of the permit.
II.A.4(b), Appendix A	Identification of Hazardous Materials. Available data and/or procedures for identification of hazardous materials involved in the emergency and quantity and areal extent of release. Include information on: • Characteristics of waste. • Exact source. • Amount. • Aerial extent of release.	264.56(b)	Material Safety Data Sheets for Aqueous Brake Cleaner (ABC) and aqueous parts cleaner have been added to the permit material.
	Hazard Assessment. • Procedure for assessment of possible hazards to the environment and human health. • Procedures for determining the need for evacuation and notification of authorities. The authorities to be notified must include the on-scene-coordinator for that area or the	264.56(c) and 264.56(d)	No changes to Hazard Assessment subsequent to the most recent approved modification of the permit.

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	Control Procedures. • Specific responses and control procedures to be taken in the event of a fire, explosion, or release of hazardous waste to air, land, or water.	264.52(a)	No changes to Control Procedures subsequent to the most recent approved modification of the permit.
	Prevention of Recurrence or Spread of Fires, Explosions or Releases: • During an emergency situation, a description of the necessary steps to be taken to ensure that fires, explosions, or releases do not occur, reoccur, or spread to other hazardous waste at the facility. Steps must include, where applicable: - Shut-down of processes and continued monitoring of them - Collecting, containing, and treating released wastes - Removing and isolating containers - Proper use of fire control structures (e.g., fire doors), systems (e.g., sprinkler systems), and equipment (e.g., extinguishers).	264.56(e)	No changes to Prevention of Recurrence of Spread of Fires, Explosions or Releases subsequent to the most recent approved modification of the permit.
	Storage and Treatment of Released Material • Provisions to monitor for leaks, pressure buildup, gas generation, or ruptures, as appropriate, if operations at the facility are stopped in response to a release, fire or explosion. • Provisions for treatment, storage, or disposal of any hazardous waste resulting from a release, fire, or explosion at the facility. • Equipment available. • Procedures for deployment of these resources. • Methods to contain, treat, and clean up a hazardous release and decontaminate the affected area.	264.56(f) and 264.56(g)	No changes to Storage and Treatment of Released Material subsequent to the most recent approved modification of the permit.
	Incompatible Waste. Provisions for preventing waste which is incompatible with the released material from being treated, stored, or located in the affected areas until cleanup procedures are completed.	264.56(h)(1)	No changes to Incompatible Wastes subsequent to the most recent approved modification of the permit.

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	Post-Emergency Equipment Maintenance. Procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed. (This includes advising authorities.)	264.56(h)(2) and 264.56(i)	No changes to Post-Emergency Equipment Maintenance subsequent to the most recent approved modification of the permit.
	Container Spills and Leakage Procedures for responding to container spills or leakage including removal of spilled waste and repair or replacement of containers.	264.171	No changes to Container Spills and Leakage subsequent to the most recent approved modification of the permit.
	Tank Spills and Leakage. • Procedures for responding to tank spills or leakage, including removal of spilled waste and repair of tank. • Procedures for responding to leaks or spills from containing hazardous wastes F020, F021, F022, F023, F026, and F027; and procedures for immediate removal of these wastes from the contaminant system and replacement or repair of the leaking tank.	264.194(c) and 264.200(a)(2)	No changes to Tank Spills and Leakage subsequent to the most recent approved modification of the permit.
	Surface Impoundment Spills, Leakage, and Sudden Drops. • Procedures for stopping waste additions. • Procedures for containing any leakage. • Procedures for stopping leaks and preventing sudden drops and preventing catastrophic failure. • Procedures and criteria for emptying impoundment. • Procedures for installing a liner in existing portions of the impoundment or procedures for certification of the liner in other than existing portions when the impoundment is removed from service as the result of a sudden drop in liquid level. • Obtain qualified engineers certification of repairs and probability of leakage or failure.	270,14(b)(7), 264.227, 264.227(b)(1), 264.227(b)(2), 264.227(b)(3) and 264.227(b)(4) 264.227(b)(5) 264.227(d)(2)	Not Applicable

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	Emergency Equipment. Location, description, and capabilities of emergency equipment. This should include: • Spill control equipment. • Fire control equipment. • Personnel protective items such as respirators and protective clothing, • First aid and medical supplies. • Emergency decontamination equipment. • Emergency communication and alarm systems.	264.52(e)	No changes to Emergency Equipment subsequent to the most recent approved modification of the permit.
	Coordination Agreements. • A description of coordination agreement existing police and fire departments, hospitals. contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency. • A statement indicating that a copy of the contingency plan has been submitted to these organizations. • If applicable, document of refusal to enter into a coordination agreement.	264.37 & 264.52 (c) 264.53(b) 264.37(b)	No changes to Coordination Agreements subsequent to the most recent approved modification of the permit.
	Evacuation Plan. The plan must include: • Criteria for evacuation. • A description of signal(s) to be used to begin evacuation. • Primary and alternate evacuation routes.	264.52(f)	No changes to Evacuation Plan subsequent to the most recent approved modification of the permit.
	Required Reports. • Provisions for submission of reports of emergency incidents within 15 days of occurrence. • Notation of such incidents in the operating record identifying the time, date, and details of these emergency incidents.	264.56(u)	No changes to Required Reports subsequent to the most recent approved modification of the permit.

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	A4c. PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT. A description of procedures, structures, or equipment used at the facility for the following must be included:	270.14(b)(8)	No changes to prevention or mitigation procedures, structures or equipment have been made subsequent to the most recent approved modification of the permit.
	Unloading Operations. Prevention of hazards in unloading operations (e.g., use of ramps or special forklifts).	270.14(b)(8)(i)	No changes to Unloading Operations subsequent to the most recent approved modification of the permit.
	Run-Off. Prevention of runoff from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding, (e.g., berms, dikes, trenches).	270.14(b)(8)(ii)	No changes to Run-Off subsequent to the most recent approved modification of the permit.
	Water Supplies. Prevention of contamination of water supplies.	270.14(b)(8)(iii)	No changes to Water Supplies subsequent to the most recent approved modification of the permit.
	Equipment and Power Failure. Mitigation of effects of equipment failure and power outages.	270.14(b)(8)(iv)	No changes to Equipment and Power Failure subsequent to the most recent approved modification of the permit.
	Personal Protection Equipment. Prevention of undue exposure of personnel to hazardous waste (e.g., protective clothing).	270.14(b)(8)(v)	No changes to Personal Protection Equipment subsequent to the most recent approved modification of the permit.

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	Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes A description of the precautions taken by a facility that handles ignitable, reactive or incompatible waste to demonstrate compliance with 264.17 including documentation demonstrating compliance with 264.17(c). Precautions to prevent actual ignition, including separation from sources of ignition such as: • Open flames. • Smoking. • Cutting and welding. • Hot surfaces. • Frictional heat. • Spark (static, electrical, or mechanical). • Spontaneous, ignition (heat producing chemical reactions). • Radiant heat. Demonstration that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations. "No Smoking" signs must be conspicuously placed wherever a hazard exists for ignitable or reactive waste.	270.14(b)(9) and 264.17(a) and (c)	No changes to Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes subsequent to the most recent approved modification of the permit.
	General Precautions for Handling Ignitable or Reactive Waste and mixing of Incompatible Waste A description of the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible waste or incompatible waste or other materials, to prevent reactions which: (1) generate extreme heat or pressure, fire or explosions or violent reactions; (2) produce uncontrolled flammable 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 explosions (4) damage the structural integrity of the device or facility; (5) by similar means threaten human health or the environment.	270.14(b)(9)and 264.17(b) and (c)	No changes to General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste subsequent to the most recent approved modification of the permit.

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	Documentation to meet requirements of 264.17(c) or (b) may be based on references to published scientific or engineering literature, data from trial tests, waste analyses, or results of treatment of similar wastes by similar treatment processes and under similar operating conditions.	264.17(c)	No changes subsequent to the most recent approved modification of the permit.
	Management of Ignitable or Reactive Waste in Containers. Sketches, drawings, or data demonstrating that containers of ignitable or reactive waste are located at least 15 meters (50 feet) from the facilities property line.	270.15(c) and 264.176	No changes to Management of Ignitable or Reactive Waste in Containers subsequent to the most recent approved modification of the permit.
	Management of Incompatible Wastes in Containers. A description of procedures to demonstrate compliance with 264.177(a) and (b), and 264.17(b) and (c): • The procedures used to ensure that incompatible wastes and materials are not placed in the same container (unless 264.17(b) is complied with) or in an unwashed container that previously held incompatible waste. • Dikes, berms, walls or other devices used to separate containers, holding wastes which are incompatible with wastes or materials stored nearby.	270.15(d) and 264.177 264.177(a) and 264.177(b) 264.177(c)	No changes to Management of Incompatible Wastes in Containers subsequent to the most recent approved modification of the permit.
	Management of Ignitable or Reactive Wastes in Tanks. A description of the operational procedures for handling incompatible, ignitable, or reactive wastes, including the use of buffer zones. Requirements of 264 include: • Waste must be treated, rendered, or mixed before or immediately after placement in the tank so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; or the tank is used solely for emergencies. • Facilities that treat or store ignitable or reactive waste in covered tanks must comply with the National Fire Protection Associations buffer zone requirements for tanks.	270.16(f) and 264.198	No changes to Management of Ignitable or Reactive Wastes in Tanks subsequent to the most recent approved modification of the permit.

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	Incompatible Wastes in Tanks. A statement that incompatible wastes and materials are not stored in the same tank or in an unwashed tank that previously held an incompatible waste or material (unless 264.17(b) is complied with).	270.16(f) and 264.199	No changes to Incompatible Wastes in Tanks subsequent to the most recent approved modification of the permit.
	Ignitable or Reactive Wastes in Waste Piles. The application must include a description of the procedures for handling ignitable, or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the waste pile so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite.	270.18(f) and 264.256	Not Applicable
	Incompatible Wastes in Waste Piles. The application must include: • A statement that incompatible wastes and materials are not stored in the same waste pile or on the same base that previously held an incompatible waste or material unless 264.17(b) is complied with. • A description of the procedures (dikes, berms, walls, distances) utilized to separate a waste pile of hazardous waste that is incompatible with any waste or other material stored nearby.	270.18(g) and 264.257	Not Applicable

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	Ignitable or Reactive Wastes in Surface Impoundment. • A description of the procedures for handling ignitable, or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the surface impoundment so that it is no longer considered ignitable and complies with 264.17(b); or • The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; • The impoundment is used only for emergencies.	270.17(g) and 264.229	Not Applicable
	Incompatible Waste in Surface Impoundment. The application must include: • A statement that incompatible wastes and materials are not stored in the same surface impoundment or in the impoundment that previously held an incompatible waste or material unless 264.17(b) is complied with.	270.17(h) and 264.230	Not Applicable
	Ignitable or Reactive Wastes in Landfills, Documentation of procedures for: • Rendering wastes non reactive prior to or immediately after placement in the landfill. • Preventing reactions. • Protecting ignitable wastes in containers from materials or conditions that may cause them to ignite.	270.21(f) and 264.312	Not Applicable
	Incompatible Wastes in Landfills. Applicant must provide procedures for ensuring that incompatible wastes will not be disposed of in the same landfill cell, unless 264.17(b) is complied with.	270.21(g) and 264.313	Not Applicable

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	Ignitable or Reactive Wastes in Land Treatment. A description of the management of ignitable or reactive wastes which will be placed in or on the treatment zone, if applicable, and an explanation of how the following requirements will be complied with: • The waste is immediately incorporated into the soil so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste and the requirements of 264.17(b) are complied with; or • The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.	270.20(g) and 264.281	Not Applicable
	Incompatible Wastes in Land Treatment. A description of the management of incompatible wastes must be submitted if incompatible wastes, or incompatible wastes and materials, will be placed in or on the same treatment zone, including an explanation of how the requirements of 264.17(b) are complied with.	270.20(h) and 264.243	Not Applicable
II.A.4(d)-1 to II.A.4(d)-12	A-4d. PREPAREDNESS AND PREVENTION REQUIREMENTS. A justification of any request for a waiver of preparedness and prevention requirements of Part 264, Subpart C.	270.14(b)(6)	Sheets II.A.4(d)-1 through II.A.4(d)-12 are enclosed as revised Preparedness and Prevention Procedures. Procedures have been modified to incorporate a minor change in container handling capability (addition of powered forklift), a more restrictive facility rule on smoking, the addition of a sprinkler system, and improved spill containment.
	Equipment Requirements. Unless it can be demonstrated that none of the hazards posed by waste handled at the facility would require a particular kind of equipment specified below, the facility must have the following equipment: (these requirements are not specifically listed in 270.14-270.29 for inclusion in a Part B).	264.32	No changes to Equipment Requirements subsequent to the most recent approved modification of the permit.

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	Internal Communications. An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.	264.32(a)	No changes to Internal Communications subsequent to the most recent approved modification of the permit.
	External Communications. A device such as telephone (immediately available at the scene of operations) or a handheld two-way radio, for summoning emergency assistance from local police departments, or state or local emergency response teams.	264.32(b)	No changes to External Communications subsequent to the most recent approved modification of the permit.
Table II.A.4(d)-1 and Figure II.A.4(d)-1	Emergency Equipment. • Fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals and portable fire extinguishers). • Soil control equipment. • Decontamination equipment.	264.32(c)	The inspection schedule has been edited to comply with regulatory requirements, and a new figure has been provided to accurately depict current location of emergency equipment.
	Water for Fire Control. One of the following: • Water at adequate volume and pressure to supply water hose streams; or • Foam-producing equipment; or • Automatic sprinklers or water spray systems.	264.32(d)	No changes to Water for Fire Control subsequent to the most recent approved modification of the permit.
	Aisle Space Requirement. Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle space is not needed to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency.	264.35	No changes to Aisle Space Requirement subsequent to the most recent approved modification of the permit.

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II.A.4(e)-1 to II.A.4(e)-8; Tables II.A.4(e)-1 through -7	A4e. PERSONNEL TRAINING Outline of Training Program. An outline of both the introductory and continuing training programs by owners or operators to prepare the personnel to operate and maintain the facility in a safe manner as required to demonstrate compliance with 264.16. Include a brief description of how training will be designed to meet actual job tasks in accordance with requirements in 264.16(a)(3). (Note: on-the-job training may be used to comply with these requirements)	270.14(b)(12) and 264.16	Sheets II.A.4(e)-1 through II.A.4(e)-8 and Tables II.A.4(e)-1 through -7 are enclosed as revised descriptions of positions and duties of personnel. This description has been revised to reflect those organizational changes made by Safety Kleen to the Staff at the Tampa service center.
II.A.4(e)-1 to II.A.4(e)-8	Job Titles and Duties. For each employee whose position at the facility is related to hazardous waste management, the following must be maintained at the facility: • Job title. • Job duties. • Job description.	264.16(d)(1) and 264.16(d)(2)	The positions of Operation Center Supervisor, Operation Center Manager, Operation Center Driver, and Operation Center Secretary have been eliminated and the duties and titles of other personnel have been modified (included in revised Sheets II.A.4(e)-1 through II.A.4(e)-8 above).
	Training Content, Frequency, and Techniques. In both introductory and continuing training (including an annual review of the initial training) for each employee describe: • Training content. • Frequency of training. • Technique(s) used in training.	264.16(a)(3), 264.16(c) and 264.16(d)(3)	No changes to Training Content, Frequency, and Techniques subsequent to the most recent approved modification of the permit.
	Training Director. Demonstration that the program is directed by a person trained in hazardous waste management: • Credentials of training director.	264.16(a)(2)	No changes to Training Director subsequent to the most recent approved modification of the permit.
	Relevance of Training to Job Position. A brief description of how instructions of facility personnel in hazardous waste management procedures (including contingency plan implementation) is relevant to their positions. [To demonstrate compliance with 264.16(a)(2).]	264.16(a)(2)	No changes to Relevance of Training to Job Position subsequent to the most recent approved modification of the permit.

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	Training for Emergency Response. Documentation that the training program trains facility personnel to respond effectively to emergencies and trains them to be familiar with emergency procedures, emergency equipment, and emergency systems, include where applicable: • Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment. • Key parameters for automatic waste feed cut-off system. • Communications or alarm systems. • Response to fires or explosions. • Response to groundwater contamination incidents. • Shutdown of operations.	264.16(a)(3) 264.16(a)(3)(i) 264.16(a)(3)(ii) 264.16(a)(3)(iii) 264.16(a)(3)(iv) 264.16(a)(3)(v) 264.16(a)(3)(vi)	No changes to Training for Emergency Response subsequent to the most recent approved modification of the permit.
	Implementation of Training Program. • Indication that training has been and will be successfully completed by facility personnel within 6 months of their employment or assignment to a facility, or transfer to a new position at a facility, whichever is later. (NOTE: Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements). • Records documenting that the required training has been given to and completed by facility personnel must be maintained.	264.16(d)(4) 264.16(b)	No changes to Implementation of Training Program subsequent to the most recent approved modification of the permit.

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II.A.5-1 to II.A.5-14	A-5. CHEMICAL AND PHYSICAL ANALYSIS. For each hazardous waste treated, stored or disposed at the facility, the following information should be provided: • General description of the waste • Hazardous characteristics. • Basis for hazard designation. • Laboratory report on analyses results. • Existing published or documented data on hazardous waste or hazardous waste from a similar process (new facilities only). At a minimum, the analyses should include all the information which must be known to treat, store, or dispose of the waste in accordance with Part 264 and 268 requirements or conditions of a permit issued under Part 270.	270.14(b)(2) 264.13(a)	Sheets II.A.5-1 through II.A.5-14 are enclosed as a revised Waste Analysis Report. The report has been revised to delete the used chlorinated solvent #609 which is no longer in use by Safety Kleen's customers served by the Tampa center. All text references to this solvent have been deleted. The part of the report discussing spent ethylene glycol has been edited to reflect current management practices. Text has been added to describe aqueous brake cleaner and aqueous parts cleaner streams.
	Containers. • Compatibility of waste with container. • For containers of wastes without a secondary containment system test procedures and results or other documentation or information which show that wastes do not contain free liquids. A suggested test for free liquids is the Paint Filter Liquids (Test Method 9095 in SW-846). • Waste specific parameters based on hazardous designation. • Other information required for safe operation.	264.172, 270.15(d) 264.177 and 270.15(b)(1)	No changes to Containers subsequent to the most recent approved modification of the permit.
	Tanks. • Specific gravity. • Waste specific parameters based on hazardous designation. • Other information required for safe operation.	264.191(a)	No changes to Tanks subsequent to the most recent approved modification of the permit.

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	Waste Piles. • For waste piles that are inside or under a structure when an exemption from 264.251 is requested, test procedures and results, or other documentation or information which show that the wastes do not contain free liquids when placed on the pile. A suggested test for free liquids is the Paint Filter Liquids Test (Method 9095 in SW-846). • Demonstration that the wastes will not generate leachate through decomposition or other reactions while being stored.	264.250(c)(1) 264.250(c)(4)	Not Applicable
	Incinerators. Trial Burn. If a trial burn is proposed (or has been conducted already), an analysis of each waste or waste mixture to be burned during the trial burn (or burned during the previous trial burn) and after the trial burn is complete, which includes: • Heat value. • Viscosity (liquids). • Physical form (non-liquids). • Identification of hazardous organic constituents listed in Appendix VIII: [Note: The applicant need not analyze for Appendix VIII constituents which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified, and the basis for exclusion stated.] - Approximate quantification of hazardous constituents - Chlorine content - Ash content.	270.62(b)(2)(i)	Not Applicable

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	Data in Lieu of Trial Burn. Data may be supplied in lieu of the results of a trial burn. The data must include an analysis of each waste or waste mixture to be burned. including: • Heat value. • Viscosity (if applicable) or description of physical form of the waste. • Identification of hazardous organic constituents listed in Appendix VIII: [Note: The applicant need not analyze for Appendix VIII constituents which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified, and the basis for exclusion stated.] • Approximate quantification of hazardous constituents • Quantification of hazardous constituents which may be designated as POHC's based on data submitted from other trial or operational bums which demonstrate compliance with the performance standard in 264.343. • Comparison of waste for which permit data submitted in lieu of a trial burn, including identified POHC'S.	270.19(c)(i)	Not Applicable
	Landfills. • Results of the Paint Filter Liquids Test (Method 9095 in SW-846) showing that containerized or bulk wastes do not contain free liquids.	264.314	Not Applicable

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	Land Treatment. • Demonstrate that waste can be completely degraded, transformed, or immobilized in treatment zone: - Percent moisture - Specific gravity or bulk density - Conductivity - Acidity or Alkalinity - TOC - Appendix VIII constituents - Concentration and identification or volition hazardous constituents - Cadmium concentration (when foodchain crops are grown in the treatment zone).	264.272(a) 264.276(b)	Not Applicable
II.A.6-1 to II.A.6-11	A-6. WASTE ANALYSIS PLAN. A copy of the waste analysis plan required by 264.13(b) and, if applicable, 264.13(c). The Waste Analysis Plan should describe the procedures used to obtain chemical and physical information and data on the wastes to ensure proper storage, treatment, and disposal and compliance with the land disposal restriction program. Minimum requirements include:	270.14(b)(3), 264.13(b) & (c) and 268.7	Sheets II.A.6-1 through II.A.6-11 are enclosed as a revised Waste Analysis Plan. The plan has undergone minor editing.
	Parameters and Rationale. A list of parameters chosen for analysis and an explanation of the rationale for their selection.	264.13(b)(1)	No changes to Parameters and Rationale subsequent to the most recent approved modification of the permit.
	Test Methods. A description of the best methods used to test for parameters chosen.	264.13(b)(2)	No changes to Test Methods subsequent to the most recent approved modification of the permit.
	Sampling Methods. A list of the sampling methods used to obtain a representative sample of each waste to be analyzed.	264.13(b)(3) Part 261, Appendix I	No changes to Sampling Methods subsequent to the most recent approved modification of the permit.

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	Frequency of Analysis. A description of the frequency at which the analyses will be repeated. The frequency must be sufficient to ensure that the analysis is accurate and up-to-date. (For an on-site facility, this will be whenever there is a process change. For an incinerator, this will be as often as required to verify consistency of the waste feed.)	264.13(b)(4)	No changes to Frequency of Analysis subsequent to the most recent approved modification of the permit.
	Additional Requirements for Wastes Generated Off-Site. A description of the procedures used to inspect and/or analyze waste generated off-site that includes: • Procedures to determine waste identity. • Sampling frequency. • Sampling methods. • Waste analysis information supplied by generator,	264.73(a) & (b), 264.13(b)(5) and 264.13(c)	No changes to Additional Requirements for Wastes Generated Off-Site subsequent to the most recent approved modification of the permit.
	Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Waste. If the facility stores or treats ignitable, reactive, or incompatible waste, a description of methods which will be used to meet the additional waste analysis requirements necessary for complying with the regulatory requirement specified in Section F-5.	264.13(b)(6) 264.17	No changes to Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Waste subsequent to the most recent approved modification of the permit.
	Additional Waste Analysis Requirements Pertaining to Land Disposal Restrictions.	270.14(b)(3), 264.13(a)(1), 264.13(b)(6) and 268.7	Not Applicable
	Waste Characteristics. Analytical data must be submitted by the generator to the owner/operator for each waste stored, treated, or disposed at the facility, or information from knowledge of the waste can be used, to determine if the waste is restricted under 268. If generator knowledge is used, all supporting data must be maintained in the operating record.	264.13(a)(1) and 268.7	No changes to Waste Characteristics subsequent to the most recent approved modification of the permit.

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	Waste Characteristics: Solvent Wastes and Dioxin-Containing Wastes. FOO1-FOO5 spent solvent wastes are restricted from land disposal under 268.30 and F020-FO23 and F026-FO28 dioxin-containing wastes are prohibited under 268.31 unless: • Wastes meet applicable standards in Subpart D, or • An exemption has been granted pursuant to 268.6, or • An exemption has been granted pursuant to 268.5. To determine if a waste is restricted, you must: • Test waste, or an extract developed using the Toxicity Characteristic Leaching Procedure (TCLP), or • Use information from knowledge of chemical and physical characteristics.	264.13(a)(1) and 268.7(a) 268.30, 268.31 and Part 268, Appendix I	Not Applicable

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	Waste Characteristics: California List Wastes. The following wastes are prohibited from land disposal under 268.32: • Liquid hazardous wastes with a pH less than or equal to 2.O. • Liquid wastes containing PCB's at concentrations greater than or equal to 50 ppm • Liquid hazardous wastes that are primarily water and contain HOCs in total concentration greater than or equal to 1,000 mg/l. • Non-liquid hazardous wastes containing HOCs in total concentrations greater than or equal to 1,000 mg/kg. Unless: • An exemption has been granted pursuant to 268.6, or • A case-by-case extension of the effective date has been granted pursuant to 268.5, or • Wastes meet applicable standards in Subpart D or, • Where treatment standards are not specified, wastes are in compliance with applicable prohibitions in 268 or RCRA Section 3004(d). To make the determinations: • Use Method 9095 (Paint Filter Liquids Test) in SW-846 to determine if waste is a liquid. • Initial generator must test waste (not extract or filtrate) in accordance with 261.22(a)(1), or use knowledge of the waste to determine if pH is less than or equal to 2.0. • Initial generator of liquid hazardous waste containing PCBs or a liquid or non-liquid hazardous waste containing HOCs must test waste (not extract or filtrate), or use knowledge of waste, to determine if concentration levels meet the prohibitions above.	264.13(a)(1), 268.7(a) and 268.32	Not Applicable

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	Waste Characteristics: First Third. Initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, to determine whether a waste listed in 266.10 meets treatment standards set in 268.41 and 268.43, respectively. If the waste contains constituents exceeding applicable Subpart D levels, waste is prohibited from land disposal unless: • An exemption has been granted pursuant to 268.6, or • A case-by-case extension has been granted pursuant to 268.5.	264.13(a)(1), 268.7(a) and 268.33	No changes to Waste Characteristics: First Third subsequent to the most recent approved modification of the permit.
	Additional Requirements for Treatment Facilities. Treatment facilities must conduct the following testing: • For wastes with treatment standards expressed as concentrations of waste extract (268.41), test treatment residues, or an extract of such residues developed using the TCLP, to assure treatment standards are meet. • For wastes with treatment standards expressed as concentrations in the waste (268.43), test treatment residues, not an extract of such residues, to assure residues meet applicable standards. • For California List Wastes (268.32) not subject to Subtitle D treatment standards, test treatment residues according to procedures in C-3(a)(2) to assure residues comply with applicable prohibitions.	264.13(a)(1) and 268.7(b)	Not Applicable
	Not applicable to wastes for which treatment technologies have been specified. If wastes received from an off-site generator, need procedures to assure that treatment is not conducted until required data is provide by the generator.		Not Applicable

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	Additional Requirements for Disposal Facilities. If wastes or treatment residues are received from an off-site generator or treatment facility, assure wastes will not be disposed without receipt of proper notice and certification as specified in 268.7(a) & (b). Owner/operator of land disposal facility must: • Test waste, or an extract of the waste or treatment residue developed using TCLP, or • Use methods required by generators under 268.32 [C-3a(2)] to assure waste or treatment residues comply with applicable Subpart D treatment standards and all applicable prohibitions in 268.32.	264.13(a)(1) and 268.7(c)	Not Applicable
	Additional Requirements for Surface impoundments Exempted from Land Disposal Restrictions. For surface impoundments exempted from land disposal restrictions under 268.4(a), address the following: Sampling and Analysis of Impoundment Contents. • Procedures and schedule to be followed to sample and test treatment residues to demonstrate compliance with treatment standards or prohibitions. Note that representative samples of the sludge and the supernatant must be tested separately rather than mixed to form homogeneous samples.	264.13(b)(7) and 268.4(a) 264.13(b)(7)(i) and (ii), and 268.4(a)(2)	Not Applicable
	Annual Removal of Residues. Procedures and schedule for removing residues which do not meet applicable treatment standards or prohibitions, do not exhibit a characteristic of hazardous waste, and are not delisted under Part 260.22. These residues must be removed at least annually. Note that residues may not be placed in any other surface impoundment for subsequent management.	264.13(b)(7)(iii), and 268.4(a)(2)	Not Applicable

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	Requirements for Land Disposal Facilities With An Approved Exemption or Extension. If a case-by-case extension has been approved under 268.5 or a petition has been approved under 268.6, provide a copy of the Notice of Approval.	270.14(b)(21)	Not Applicable
	A-7. MANIFEST SYSTEM, RECORD KEEPING, AND REPORTING. • Required Notices. • Manifest System. • Operating Records. • Biannual Reports. • Unmanifested Waste Reports. • Waste Minimization. • Addition Reports.	264.12 264.71 264.72 264.73 264.74 264.75 264.76 264.77	No changes have been made to Manifest System, Record Keeping, and Reporting subsequent to the most recent approved modification to the permit.
	Inspection Schedule. A copy of the general inspection schedule required by 264,15(b) including, where applicable, specific requirements of 264.174, 264.194, 264.226, 264.254, 264.273, 264.303, and 264.347.	270.14(b)(5) and 264.15	No changes to Inspection Schedule subsequent to the most recent approved modification to the permit.
	General inspection Requirements. A description of the facility inspection schedule (schedule must be kept at the facility) for the following equipment: • Monitoring equipment. • Emergency and safety equipment. • Security devices. • Operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. • Testing as necessary of communications or alarm systems, fire protection equipment and decontamination equipment.	270.14(b)(5) and 264.15(a) & (b) 264.15(a) & (b)	No changes to General Inspection Requirements subsequent to the most recent approved modification to the permit.

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	Examples of Monitoring Equipment That Should be Inspected at Treatment, Storage, and Disposal Facilities Are: • Scales. • Flow and liquid level monitors. • Hazardous gas detectors. • pH monitors. • Leachate monitors. • Pressure sensors. • Temperature gauges.	264.33	No changes to subsequent to the most recent approved modification to the permit.
	Examples of Monitoring Equipment That Should Be Inspected at Facilities With Incinerators Are: • Waste flow monitors and recorders. • Auxiliary air flow monitors. • Combustion air flow monitors. • Temperature monitors. • Flame sensors. • CO monitors and recorders. • Pressure differential indicators. • Pressure sensors. • pH monitors. • Ammeters for measuring blower current draw.		Not Applicable
	Examples of Safety and Emergency Equipment to Be Inspected at TSD Facilities are: • Respirators. • Communication systems. • Alarm System. • Emergency lighting and power systems. • Smoke detectors. • Fire protection equipment. • First aid equipment and supplies. • Decontamination equipment. • Protective clothing.		No changes subsequent to the most recent approved modification to the permit.

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	Examples of Security Devices to Be Inspected at TSD Facilities Are: • Surveillance system. • Barrier surrounding facility. • Locking devices.		No changes subsequent to the most recent approved modification to the permit.
	Examples of Operating and Structural Equipment at TSD Facilities Are: • Spill detection devices. • Spill control and collection equipment. • Fire and explosion barriers. • Ventilation equipment. • Sump pumps. • Dikes, bases, and foundations.		No changes subsequent to the most recent approved modification to the permit.
	In addition; areas such as waste storage, mixing, loading, and unloading areas which are subject to spills; must be inspected.		No changes subsequent to the most recent approved modification to the permit.
	Types of Problems. The schedule must identify the types of problems to look for during the inspection (e.g., leaks, deterioration, readings out of specified range, missing items or materials, inoperative equipment, etc.).	264.15(b)(3)	No changes to Types of Problems subsequent to the most recent approved modification to the permit.
	Frequency of Inspection. A description of the inspection frequency must be provided for items on the schedule. The frequency of inspection should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.	264.15(b)(4)	No changes to Frequency of Inspection subsequent to the most recent approved modification to the permit.
	All emergency waste feed cut-off valves must be inspected at least weekly to verify proper operation. All system alarms must also be tested weekly.	264.347(c) (Incinerators only)	Not Applicable

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	Specific Process Inspection Requirements. At a minimum, the inspection schedule must include the terms and frequencies called for in 264.174, 264.194, 264.226, 265.253, 264.254, 264.303, and 264.347, where applicable.	270.14(b)(5) and 264.15(b)(4)	No changes to Specific Process Inspection Schedule Requirements subsequent to the most recent approved modification to the permit.
	Container inspection. A description of the weekly inspection of containers and container storage areas for leaks in containers or deterioration of containers and the containment system caused by corrosion or other factors.	264.174	No changes to Container Inspection subsequent to the most recent approved modification to the permit.
	Tank System Inspection. • A description of the inspection each operating day of overfilling control equipment, monitoring equipment, and levels of waste in uncovered tanks. • A description of the daily inspection of tank construction materials and the area surrounding the tank, including secondary containment system (e.g., dike). • A schedule describing the monitoring of each operating day of monitoring equipment (e.g., pressure and temperature gauges), where present, to ensure that the tank is operated according to design specifications. • A schedule showing the level of waste in uncovered tanks that is inspected each operating day. • A schedule and procedure for assessing the condition of the tank, including detection of leaks, cracks, or wall thinning to less than minishell thickness. • A procedure for emptying a tank to allow entry and inspection when necessary to detect corrosion or erosion of the tank sides and bottom. • Confirm proper operation of cathodic protection system (if present) within six months after installation and at least annually thereafter. • Schedule showing all sources of impressed current are inspected and/or tested at least bimonthly.	264.195	No changes to Tank System Inspection subsequent to the most recent approved modification to the permit.

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	Waste Pile Inspection. The application must provide a description of the procedures to: • Inspect liners and covers during construction and immediately after installation for: - uniformity, damage and imperfections, holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability and compaction • Remove the waste pile and periodically inspect liners for deterioration, cracks and other imperfections. • Perform weekly inspections and, after storms, to detect: - deterioration, malfunctions, or improper operation - of run-on and run-off control systems, the presence of liquids in leak detection systems, where installed, - proper functioning of wind dispersal control systems, where present, - the presence of leachate in and proper functioning of leachate collection and removal systems, where present.	270.14(b)(5), 270.18(d) and 264.254	Not Applicable
	Surface Impoundment Inspection. The application must provide a description of how each surface impoundment, including the liner and cover systems and appurtenances for control of over-topping, will be inspected weekly and after storms to detect evidence of any of the following: • Deterioration, malfunctions, or improper operation of overtopping topping control systems. • Sudden drops in the level of the impoundments contents. • The presence of liquids in leak detection systems, where installed. • Severe erosion or other sign of deterioration in dikes or other containment devices.	270.14(b)(5), 264.226(b) and 270.17(c)	Not Applicable

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	For new facilities, a description of how the liners will be inspected during construction and immediately after installation to detect non-uniformity, damages and imperfections (holes, cracks, thin seams, bulges, root holes, tight seams and joints, permeability, and compaction). See Item D-4b(2) concerning inspection of dikes for structural integrity.	264.226(a)	Not Applicable
	Incinerator Inspection. • Incinerator and associated equipment must be inspected visually at least daily for leaks, spills, fugitive emissions, and signs of tampering. • Emergency waste feed cut-off system and associated alarms must be tested weekly unless the applicant demonstrates that weekly frequency is unduly restrictive and that less frequent inspection will be adequate. At a minimum, operational testing must be conducted monthly.	264.347	Not Applicable
	Landfill Inspection. Landfill owners or operators must provide a description of procedures for: • For new facilities, inspection of liners/covers during and immediately after installation. • Inspections weekly and after storms for: - operation of run-on/run-off controls, - liquids in leak detection systems, - proper functioning of wind dispersal controls, - leachate in and proper operation of leachate collection/removal systems.	270.21(d), 264.15(a) and 264.303	Not Applicable

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	Land Treatment Inspection. A description of the inspection procedures. Specifically the unit must be inspected weekly and after storms for: • Deterioration, malfunctions, or improper operation of run-on and run-off control systems. • Improper functioning of wind dispersal control measures. • The presence of liquids in leak detection systems, where installed. • Proper functioning of wind dispersal control systems, where present. • The presence of leachate in and proper functioning of leachate collection and removal systems, where present.	270.20(c)(5) and 264.273(g)	Not Applicable
	Surface Impoundment Inspection. The application must provide a description of how each surface impoundment, including the liner and cover systems and appurtenances for control of overtopping, will be inspected weekly and after storms to detect evidence of any of the following: • Deterioration, malfunctions, or improper operation of overtopping topping control systems. • Sudden drops in the level of the impoundment's contents. • The presence of liquids in leak detection systems, where installed. • Severe erosion or other signs of deterioration in dikes or other containment devices.	270.14(b)(5), 270.17(c) and 264.226(b)	Not Applicable
	For new facilities, a description of how the liners will be inspected during construction and immediately after installation to detect non-uniformity, damages and imperfections (holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability, and compaction). See Item D4b(2) concerning inspection of dikes for structural integrity.	264.226(a)	Not Applicable

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	Incinerator Actions • Incinerator and associated equipment must be inspected visually at least daily for leaks, spills, fugitive emissions and signs of tampering. • Emergency waste feed cut-off system and associated alarms must be tested weekly unless the applicant demonstrates that weekly frequency is unduly restrictive and that less frequent inspection will be adequate. At a minimum, operational testing must be conducted monthly.	264.347	Not Applicable
	Landfill Inspection. Landfill owners or operators must provide a description of procedures for: • For new facilities, inspection of liners/covers during and immediately after installation • Inspections weekly and after storms for: - Operation of run-on/run-off controls, - Liquids in leak detection system, - Proper functioning of wind dispersal controls, Leachate in and proper operation of leachate collection/removal system.	270.21(d), 264.303 and 264.15(a)	Not Applicable
	Land Treatment Inspection. A description or the inspection procedures. Specifically the unit must be inspected weekly and after storms for: • Deterioration, malfunctions, or improper operation of run-on and run-off control systems. • Improper functioning of wind dispersal control measures.	270.20(c)(5) and 264.273(g)	Not Applicable
	Miscellaneous Unit Inspections. Provide an inspection program which ensures compliance with the standards specified in other units, where applicable.	270.14(b)(5) and 264.602	Not Applicable

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	Remedial Action. A description of procedures for taking remedial actions when inspections reveal problems or when problems are imminent. These may alternately be described in the contingency plan [See 264.194(c), 264.227, 264.1711.	264.15(c)	No changes subsequent to the most recent approved modification to the permit.
	Inspection Log. A copy or description of the inspection log or summary form including the following: • Dates and times of inspections. • Name(s) and inspectors. • Observations made. • Date and nature of repairs or remedial actions taken.	264.73(b)(5) and 264.15(d)	No changes to Inspection Log subsequent to the most recent approved modification to the permit.

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	R. Rodriguez	Irrigation	135	4	46	308682
272919	General Telephone	Irrigation	100	4	37	434162
272919	GTE Mobilnet	Irrigation	170	4	68	488390
272919	G.L. Anderson	Irrigation	140	4	60	494100
272919	Aoki Plant Nursery	Irrigation	200	6	63	414498
272919	Aoki Plant Nursery	Irrigation	235	6	139	422106
272919	Shop & Go	Public Supply	75	3	45	315978
272919	O. Mills	Public Supply	90	3	62	333207
272919	Richards Fuel	Public Supply	123	4	63	376079
272919	Key Construction	Public Supply	139	4	85	383081
272919	Joel & Mary Maggi	Public Supply	100	4	60	408551
272919	Causeway Med Clinic	Public Supply	95	4	38	425788
272919	Sunbelt Refrigeration	Public Supply	NA	4	NA	430518
272919	John Jacobson	Public Supply	120	4	60	472119
272919	Safety-Kleen	Public Supply	121	5	81	407715
272919	John Manfhin	Domestic	85	NA	42	349653
272919	Dusty Lillard	Domestic	172	2	111	349408

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Tom Goldtrap	Domestic	212	2	155	352823
272919	Esteban Perez	Domestic	67	2	31	379322
272919	Hernando Pellicer	Domestic	80	2	65	381011
272919	Beverly Johnson	Domestic	40	2	40	422333
272919	Nick Capitano	Domestic	65	3	51	304993
272919	Ruth Kelley	Domestic	61	3	28	305608
272919	A. Paiz	Domestic	63	3	42	306444
272919	J.M. Martine	Domestic	90	3	42	306445
272919	G. Tew	Domestic	85	3	42	306959
272919	P.W. Kenney	Domestic	80	3	62	307235
272919	G.G. Moroles	Domestic	NA	NA	NA	308335
272919	A.D. Smith	Domestic	70	3	40	308501
272919	T.R. Hunzike	Domestic	65	3	30	310652
272919	S.L. Whitt	Domestic	65	3	31	310824
272919	Carl Sumner	Domestic	115	3	42	312912
272919	A. Losa	Domestic	70	3	37	316464
272919	J. Serrallas	Domestic	70	3	46	316465

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	J.A. Hauser	Domestic	80	3	42	318570
272919	R. Alvarez	Domestic	64	3	38	322909
272919	Sears	Domestic	83	3	62	328299
272919	G. Lillard	Domestic	70	3	53	337189
272919	J.F. Murray	Domestic	120	3	42	337799
272919	A. Mulion	Domestic	NA	3	NA	341884
272919	Fred Wright	Domlestic	76	3	45	347993
272919	Ulysses Perez	Domestic	57	3	42	373042
272919	Lester Scott	Domestic	60	4	49	304873
272919	W.P. Cummins	Domestic	91	4	51	313556
272919	H. Pate	Domestic	82	4	61	319713
272919	L. Segueira	Domestic	60	4	45	330077
272919	A. Perez	Domestic	57	4	31	339352
272919	Mary J. Capaz	Domestic	90	4	52	351808
272919	Shawver Const.	Domestic	114	4	NA	352239
272919	Shawver Const.	Domestic	118	4	52	352240
272919	Glenda Gilmore	Domestic	135	4	63	354041

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Gene Kelley	Domestic	142	4	52	356628
272919	Frank Reynolds	Domestic	48	4	32	358801
272919	Shawver Const.	Domestic	128	4	55	359266
272919	Phyllis G. Ansley	Domestic	161	4	62	370814
272919	Shawver Const.	Domestic	140	4	52	371165
272919	Manuel Pintado	Domestic	137	4	80	373114
272919	Shawver Const.	Domestic	131	4	52	376071
272919	Shawver Const.	Domestic	130	4	63	376072
272919	Michael Anderson	Domestic	100	4	50	381082
272919	William Waycasser	Domestic	85	4	50	402304
272919	Allstate Homes	Domestic	80	4	52	402655
272919	Roger Gregory	Domestic	90	4	52	404161
272919	David Falcon	Domestic	90	4	42	406184
272919	Sarah Clouts	Domestic	60	4	50	417511
272919	Wallace Sheppard	Domestic	70	4	52	419985
272919	Eugene Folson	Domestic	70	4	52	420437
272919	Allstate Homes	Domestic	120	4	42	428968

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Jose Hernandez	Domestic	100	4	56	440412
272919	Antonio Perez	Domestic	63	4	42	442615
272919	Lawrence White	Domestic	90	4	56	458853
272919	Joseph A. Kzawczyk	Domestic	75	4	42	470066
272919	Richard Crouch	Domestic	140	4	42	471666
272919	James L. Jackson	Domestic	80	4	52	472141
272919	J.J.L. Development	Domestic	115	4	10	473839
272919	Larry Meadows	Domestic	75	4	44	482392
272919	Jose Puerto	Domestic	NA	4	NA	505647
272919	H. Pate	Mining	75	4	41	318680
272919	Chevron USA, Inc.	Monitoring	15	2	3	436565
272919	Circle K	Monitoring	15	2	13	462925
272919	Circle K	Monitoring	15	2	13	462926
272919	Circle K	Monitoring	15	2	13	462927
272919	Circle K	Monitoring	15	2	13	462968
272919	Karpay Company	Monitoring	15	2	5	464901
272919	Karpay Company	Monitoring	15	2	5	464902

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
272919	Chevron	Monitoring	28	2	23	474833
272919	Kelly Electric	Monitoring	NA	2	NA	507270
272919	Kelly Electric	Monitoring	NA	2	NA	507271
272919	Kelly Electric	Monitoring	NA	2	NA	507272
272919	Kelly Electric	Monitoring	NA	2	NA	507273
272919	Kelly Electric	Monitoring	NA	2	NA	507274
342919	Felipe L. Pineiro	Irrigation	70	2	50	376413
342919	Pefersonal Electric Co.	Irrigation	120	4	84	398892
342919	Roberta Nos	Public Supply	115	4	65	313993
342919	Engineered Chemicals	Public Supply	90	4	52	396686
342919	Richards Fuel	Public Supply	120	4	61	39972
342919	Fasco, Inc.	Public Supply	60	4	47	421192
342919	Key Construction	Public Supply	180	4	94	427356
342919	Tampa Amalgamated Steel	Public Supply	90	4	64	434502
342919	Isabel Arcia	Domestic	81	2	25	350227
342919	Carmen J. Cannella	Domestic	132	2	107	352470
342919	Manuel Carbo	Domestic	98	2	45	370802

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Isabel Arcia	Domestic	85	2	40	371148
342919	Luis F. Safoxit	Domestic	97	2	45	418760
342919	Luis Gonzalez	Domestic	65	2	48	421522
342919	Esteban Perez	Domestic	60	2	45	427513
342919	Isabel Arcia	Domestic	70	2	42	458645
342919	Carlos Greidinger	Domestic	64	2	42	482952
342919	Dewane B. Bennett	Domestic	63	2	36	483308
342919	M. Trejo	Domestic	60	3	32	307804
342919	C.T. Davidso	Domestic	90	3	42	312382
342919	Steel Crete	Domestic	76	3	38	313765
342919	S. Freind	Domestic	115	3	63	333507
342919	L.E. Horton	Domestic	75	3	54	339939
342919	T. Horton	Domestic	82	3	54	343852
342919	Rebecca H. Collins	Domestic	100	3	40	395662
342919	John A. Demmi	Domestic	125	4	53	306095
342919	J. Barber	Domestic	200	4	56	309419
342919	P.W. Nichols	Domestic	115	4	51	319021

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	T. Nunn	Domestic	158	4	123	325618
342919	D.E. Connell	Domestic	135	4	42	333331
342919	R.J. Mikols	Domestic	63	4	41	333752
342919	J. Joyce	Domestic	123	4	36	336366
342919	R. Manring	Domestic	90	4	57	336801
342919	T.A. Gower	Domestic	59	4	41	348028
342919	Ray D. Wilson	Domestic	101	4	49	348032
342919	K.B. Scull	Domestic	90	4	63	358640
342919	Daniel Richert	Domestic	105	4	42	359283
342919	Henry Valdez	Domestic	67	4	31	374875
342919	Erwin Leiss	Domestic	63	4	47	385865
342919	Allstate Homes	Domestic	100	4	51	389809
342919	James R. Brown	Domestic	85	4	52	394257
342919	George Beachum	Domestic	73	4	73	401874
342919	William Dennis	Domestic	NA	4	NA	407098
342919	John Windel	Domestic	62	4	62	410052
342919	Rudolph Chavez	Domestic	72	4	63	412500

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Jerry Fernandez	Domestic	100	4	42	412755
342919	Rex Chivers	Domestic	80	4	52	440651
342919	All State Manufactured Homes, Inc.	Domestic	80	4	32	443714
342919	R.C. Anderson	Domestic	102	4	88	483126
342919	Nitram, Inc.	Repair	0	8	80	404710
342919	Tampa Bay Trucking	Industrial	90	4	63	379718
342919	Plantain Products Co.	Industrial	86	6	63	407983
342919	Nitram, Inc.	Industrial	350	8	80	413273
342919	Nitran Chemical, Inc.	Industrial	503	12	75	315554
342919	Nitram, Inc.	Monitoring	14	2	14	402617
342919	Nitram, Inc.	Monitoring	20	2	15	402618
342919	Nitram, Inc.	Monitoring	19	2	19	402619
342919	Nitram, Inc.	Monitoring	18	2	18	402620
342919	Nitram, Inc.	Monitoring	18	2	18	402621
342919	Southern Mill Creek Products	Monitoring	45	2	31	412122
342919	Southern Mill Creek Products	Monitoring	43	2	29	412123
342919	Southern Mill Creek Products	Monitoring	40	2	28	412124

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Radiant Oil Co.	Monitoring	8	2	2	419233
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422143
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422144
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422145
342919	J.H. Williams Oil Co.	Monitoring	10	2	10	422146
342919	Star Oil Co.	Monitoring	25	2	15	424787
342919	Star Oil Co.	Monitoring	25	2	15	424788
342919	Star Oil Co.	Monitoring	25	2	15	424789
342919	Star Oil Co.	Monitoring	25	2	15	424790
342919	Star Oil Co.	Monitoring	25	2	15	424791
342919	Star Oil Co.	Monitoring	25	2	15	424792
342919	Southern Mill Creek Products	Monitoring	41	2	29	433361
342919	Southern Mill Creek Products	Monitoring	41	2	29	433362
342919	Southern Mill Creek Products	Monitoring	62	2	48	433363
342919	Chemco Elec. Company	Monitoring	15	2	15	465814
342919	Chemco Elec. Company	Monitoring	15	2	15	465815
342919	Chemco Elec. Company	Monitoring	15	2	15	465816

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Chemco Elec. Company	Monitoring	15	2	15	465817
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466851
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466851
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466852
342919	Combustion Equipment, Inc.	Monitoring	15	2	15	466853
342919	Nitram, Inc.	Monitoring	18	2	18	472365
342919	Nitram, Inc.	Monitoring	12	2	11	472366
342919	Nitram, Inc.	Monitoring	12	2	11	472367
342919	Mariani Asphalt Company	Monitoring	16	2	2	474071
342919	Mariani Asphalt Company	Monitoring	15	2	15	474073
342919	Mariani Asphalt Company	Monitoring	15	2	15	474074
342919	Carl A. Larson	Monitoring	15	2	4	496860
342919	Carl A. Larson	Monitoring	15	2	4	496861
342919	Carl A. Larson	Monitoring	15	2	4	496862
342919	Carl A. Larson	Monitoring	15	2	4	496863
342919	Nitran, Inc.	Monitoring	300	4	59	325775
342919	Chloride Metals	Monitoring	65	4	50	361895

TABLE II.A.1(a)-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL CONSTRUCTION PERMITTING
SAFETY-KLEEN FACILITY - 24TH AVENUE
TAMPA, FLORIDA

Location S T R	Owner Name	Well Type	Well Depth (Feet)	Well Diameter (Inches)	Case Depth (Feet)	Permit No.
342919	Chloride Metals	Monitoring	15	4	10	374087
342919	Chloride Metals	Monitoring	15	4	10	374088
342919	Chloride Metals	Monitoring	15	4	10	374089
342919	Chloride Metals	Monitoring	15	4	10	374090
342919	Nitram, Inc.	Monitoring	19	4	4	401197
342919	Tom Anderson	Monitoring	86	4	42	474483
272919	Robert Thomas	Domestic	140	4	80	537605.01
272919	Richard Guagliardo	Domestic	101	4	60	547581.01
272919	Jorge Gourrie	Domestic	100	4	63	557586.01
272919	Patricia M. Shafer	Public Supply	120	4	60	572177.01
272919	Roberto Nunez	Domestic	not listed	4	not listed	584028.01
342919	Vatche Naljayan	Domestic	95	4	63	566121.01

ATTACHMENT II.A.1(c)
TRAFFIC INFORMATION

The traffic patterns are illustrated in Figure II A.1(c)-1. Approximately 18 trucks will leave and return to the site daily. Two to four semi-tractor trucks transport wastes to the recycle center weekly. The vans and trucks enter and exit through the mechanically operated gate opening at 24th Avenue. Two additional manually operated gates are available. One provides access to 24th Avenue and the other to 54th Street.

Fresh parts washer solvent and spent parts washer solvent arrive and leave, respectively, at the Branch Operation in tanker trucks. Fresh parts washer solvent may also be delivered to the Operations Center in containers. The unloading and loading of the fresh bulk parts washer solvent and the spent parts washer solvent from the tanker trucks occurs at Area C, as shown on Figure II.A.1(c)-1. The spent parts washer solvent arrives from customers in containers, the containers are poured into the dumpsters in the return and fill station between the two buildings (Area A). The spent solvent is pumped from the dumpsters to the storage tank. A tanker truck removes the waste on a periodic basis and transports it to a Safety-Kleen recycle center.

II.A.1(c)-1 paragraph 3 - return/fill - A
II.A.1(c)-2 paragraph 2 - " /fill - B

Fluid Recovery Service (FRS) wastes are transfer wastes and can be stored up to a maximum of 10 days onsite. These wastes are transferred and stored in containers in the flammable storage or in the non-flammable storage areas in the south building.

Ethylene glycol wastes arrive at the Branch Operation in either containers or tanker trucks and are considered non-hazardous unless the generator's hazardous waste determination indicates that it is hazardous. If it is hazardous, it is managed as a transfer waste. Transfer wastes can be stored onsite up to a maximum of 10 days.

Ethylene glycol in containers of 55 gallons or less is stored in the permitted storage areas.

not acceptable

Safety-Kleen is currently in dialogue with the FDEP on revisions to the above waste management practices for spent ethylene glycol. The Safety-Kleen Tampa facility will comply with the resulting revised procedure when final agreement on the protocol/procedures is achieved.

Fresh solvents and wastes that are stored in containers arrive either at the north building, south building docks, or return/fill shelter (area B), where they are placed in the container storage areas. Containerized wastes from the north building may be moved to the south building periodically. On a regular basis, the containerized wastes are shipped to a Safety-Kleen recycle center.

Numeric values with respect to load bearing capacity of the roads leading to the facility are not available. However, the roads have been constructed as "local roads." According to the Florida Department of Transportation, this indicates that there are no bridges and no restrictions. Trucks must fall under Florida's legal limits on loads. The facility and adjacent facilities have been in operation since at least 1985. The roads have been able to sustain the loads being transported over them.

16

ATTACHMENT II.A.2
FINANCIAL ASSURANCE FOR CLOSURE

Safety-Kleen Corp. is the operator of the Tampa, Florida Branch Operation. The cost for closure of the facility, as estimated above, is assured through the use of the financial test specified in Subpart H of 40 CFR Part 264. The letter from the Chief Financial Officer of Safety-Kleen Corp. to demonstrate the financial responsibility for revised closure costs through the financial test will be submitted to the FDEP upon completion of the application review process by the FDEP.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the costs of closure activities. If the design characteristics of the container storage area being evaluated do not conform to the format of the worksheet below, alternative methods should be used to accurately determine the maximum permitted capacity of the unit, the area of all structures to be decontaminated and demolished, and the volume of all structures and soils to be removed. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 MAXIMUM PERMITTED CAPACITY

Determine the maximum permitted capacity of waste in the unit to calculate transportation, treatment, and disposal costs.

1.A	Volume of Waste	63,321	gal
1.B	Supplemental Information on Waste Inventory (In the additional space provided, denote any supplemental information regarding waste characteristics, treatment and disposal methods, and sampling and analysis methods):		

2 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the surface area of the secondary containment system pad to calculate decontamination and demolition costs. Demolition of the secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated or if the owner or operator elects to demolish the pad.

2.A	Length (excluding any curbs or berm)	See calculation	ft	
2.B	Width (excluding any curbs berm)	sheets attached	ft	
2.C	Surface Area of Containment System Pad (Multiply line 2.A by line 2.B)		9,925	ft^2
2.D	Surface Area of Containment System Pad in yd^2 (Divide line 2.C by 9 ft^2/yd^2)		1,103	yd^2

3 VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD Assume effective decon; No removal required

Calculate the volume of materials constituting the secondary containment system pad to determine removal costs. Removal of secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated.

3.A	Thickness		yd	
3.B	Volume of Containment System Pad (Multiply line 2.D by line 3.A)		0	yd^3

4 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the inside surface area of the secondary containment system berm, or curbing, to determine decontamination and demolition costs. Demolition of the secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated or if the owner or operator elects to demolish the berm.

4.A	Inside perimeter (multiply the sum of lines 2.A and 2.B by 2)	530 ft	
4.B	Height	.33 ft	
4.C	**Surface Area of Containment System Berm (Multiply line 4.A by line 4.B)**		177 ft^2
4.D	**Surface Area of Containment System Berm in yd^2 (Divide line 4.C by 9 ft^2/yd^2)**		20 yd^2

5 VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM Assume effective decon

Calculate the volume of materials constituting the secondary containment system berm, or curbing, to determine the removal costs. Removal of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated.

5.A	Thickness	yd	
5.B	**Volume of Containment System Berm (Multiply line 4.D by line 5.A)**		0 yd^3

6 SURFACE AREA OF OTHER STRUCTURES

Calculate the surface area of additional structures that will be decontaminated or demolished, for example, ramps or sumps. Demolition of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated or if the owner or operator elects to demolish the structures.

6.A	Surface Area of Other Structures		ft^2
6.B	**Surface Area of Other Structures in yd^2 (Divide line 6.A by 9 ft^2/yd^2)**		0 yd^2

7 VOLUME OF OTHER STRUCTURES

Calculate the volume of materials constituting the other structures to be removed.

7	**Volume of Other Structures**		0 yd^3

8 VOLUME OF CONTAMINATED SOIL TO BE REMOVED Assume no contaminated soil

Calculate the volume of contaminated soil to be removed. Removal of contaminated soil is an additional activity that might be conducted if soil contamination is identified or if removal of contaminated soil is indicated in the closure plan.

8.A	Length	ft	
8.B	Width	ft	
8.C	Depth	ft	
8.D	**Volume of Contaminated Soil to be Removed (Multiply line 8.A by line 8.B by line 8.C)**		ft
8.E	**Volume of Contaminated Soil to be Removed in yd^3 (Divide line 8.D by 27 ft^3/yd^3)**		0 yd^3

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	*Demolition and Removal of Containment System*	CS-3	$ 0
2.	*Removal of Soil*	CS-4	$ 0
3.	*Backfill*	CS-5	$ 0
4.	Decontamination[a]	DC-1	$ 12,543
5.	Sampling and Analysis[b]	SA-2	$ 7,108
6.	*Monitoring Well Installation*[c]	MW-1	$ 0
7.	Transportation[d]	TR-1	$ 18,063
8.	Treatment and Disposal[e]	TD-1	$ 132,863
9.	**Subtotal of Closure Costs (Add lines 1 through 8)**		$ 170,577
10.	Engineering Expenses (Approximately 10% of closure costs, excluding certification of closure (Multiply line 9 by 0.10))		$ 17,058
11.	Certification of Closure	CS-6	$ 2,700
12.	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs (Add lines 9, 10, and 11))**		$ 190,335
13.	Contingency Allowance (Allow 20% of closure costs, engineering expenses, and cost of certification of closure (Multiply line 12 by 0.20))		$ 38,067
14.	*Landfill Closure*[f]	LF-2	$ 0
	TOTAL COST OF CLOSURE ***(Add lines 12, 13, and 14)***		$ 228,402

Notes:

[a] Decontamination Worksheets are found in Chapter 12.

[b] Sampling and Analysis Worksheets are found in Chapter 13.

[c] Monitoring Well Installation Worksheets are found in Chapter 14.

[d] Transportation Worksheets are found in Chapter 15.

[e] Treatment and Disposal Worksheets are found in Chapter 16.

[f] Landfill Worksheets are found in Chapter 7. Costs of post-closure care are included in this total.

1	Number of units requiring certification of closure[a]	1	
2	Cost of certification of closure per unit[b]	$ 2,700	
TOTAL COST OF CERTIFICATION OF CLOSURE (Multiply line 1 by line 2) (Enter total on worksheet CS-2, line 11)			$ 2,700

Notes:

[a] Facilities closing multiple container storage areas in the same manner at the same time should incur cost of certification of closure only once.

[b] Assumes performance of the following tasks by an independent registered professional engineer at $56.50/hr: 1) 8 hrs for initial review of closure plan, 2) 16 hrs to perform final closure inspections, and 3) 16 hrs to prepare a certification of closure report [(8 hrs + 16 hrs + 16 hrs) x $56.50/hr = $2,260]. The estimate also includes 20 clerical hrs at a rate of $22/hr (20 hrs x $22/hr = $440). The total cost is $2,260 + $440 = $2,700.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the cost of closure activities. If the design characteristics of the tank system being evaluated do not conform to the format of the worksheet below, alternative methods should be used to accurately determine the maximum permitted capacity of the unit, the area of all structures to be decontaminated and demolished, and the volume of all structures and soils to be removed. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Describe the unit to determine the activities to be conducted to close it.

1.A	Type of tank system (aboveground, on-ground, in-ground, or underground)	Above ground	
1.B	Maximum permitted capacity of the tank	15,000 gal	
1.C	Maximum capacity of ancillary piping	62 gal	
1.D	Maximum capacity of tank and ancillary piping (Add lines 1.B and 1.C)	15,062 gal	
1.E	Total length of ancillary piping	94 ft	
1.F	Type of secondary containment system	____ Double-wall tank ____ Vault _X_ Lined containment system (external to tank) ____ Other (explain)	
1.G	Supplemental Information on Waste Inventory (In the additional space provided, denote any supplemental information regarding waste characteristics, treatment and disposal methods, and sampling and analysis methods):		

2 SURFACE AREA OF TANK SYSTEM Diameter = 10.5'
Height = 23.25'

Determine the surface area of the tank system to determine decontamination costs.

2.A	Tank	940 ft^2	
2.B	Ancillary piping	99 ft^2	
2.C	Surface Area of Tank System (Add lines 2.A and 2.B)		1,039 ft^2
2.D	Surface Area of Tank System in yd^2 (Divide line 2.C by 9 ft^2/yd^2)		115 yd^2

3 VOLUME OF TANK SYSTEM TO BE REMOVED No inground/underground tanks

Determine the volume of in-ground or underground materials constituting components of the tank system to be removed to determine volume of soil needed to backfill. Complete this section only if tank is in-ground or underground.

3.A	**Volume of Tank System to be Removed (Divide line 1.B by 7.48 gal/ft³)**	**ft³**
3.B	**Volume of Tank System to be Removed in yd³ (Divide line 3.A by 27 ft³/yd³)**	0 **yd³**

4 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the area of the secondary containment system pad for an aboveground or on-ground tank to calculate decontamination and demolition costs. Demolition of containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated or if the owner or operator elects to demolish the pad.

4.A	Length	49 ft	
4.B	Width	18.5 ft	
4.C	**Surface Area of Secondary Containment System Pad (Multiply line 4.A by line 4.B)**		906.5 **ft²**
4.D	**Surface Area of Secondary Containment System Pad in yd² (Divide line 4.C by 9 ft²/yd²)**		101 **yd²**

5 VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

Calculate the volume of the secondary containment system pad to determine removal costs. Removal of secondary containment system pad is an additional activity that might be conducted if the pad cannot be effectively decontaminated.

5.A	Thickness	.166 yd	
5.B	**Volume of Secondary Containment System Pad (Multiply line 4.D by line 5.A)**		17 **yd³**

6 SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the area of the secondary containment system berm, or curbing, to determine the cost of decontamination and demolition costs. Demolition of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated or if the owner or operator elects to demolish the berm.

6.A	Total Length	118.5 ft	
6.B	Height	3.9 ft	
6.C	**Surface Area of Secondary Containment System Berm (Multiply line 6.A by line 6.B)**		464 **ft²**
6.D	**Surface Area of Secondary Containment System Berm in yd² (Divide line 6.C by 9 ft²/yd²)**		52 **yd²**

7 VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

Calculate the volume of the secondary containment system berm, or curbing, to determine the removal costs. Removal of secondary containment system berm is an additional activity that might be conducted if the berm cannot be effectively decontaminated.

7.A	Thickness	.166 yd	
7.B	**Volume of Secondary Containment System Berm (Multiply line 6.D by line 7.A)**		9 yd^3

8 SURFACE AREA OF OTHER STRUCTURES IN SECONDARY CONTAINMENT SYSTEM

Calculate the surface area of additional structures that will be decontaminated or demolished, for example, ramps or sumps. Demolition of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated or if the owner or operator elects to demolish the structures.

8.A	Surface Area of Other Structures		ft^2
8.B	**Surface Area of Other Structures in yd^2 (Divide line 8.A by 9 ft^2/yd^2**		0 yd^2

9 VOLUME OF OTHER STRUCTURES IN SECONDARY CONTAINMENT SYSTEM

Calculate the volume of materials constituting other structures to determine removal costs. Removal of other structures is an additional activity that might be conducted if the structures cannot be effectively decontaminated.

9	Volume of Other Structures		0 yd^3

10 VOLUME OF CONTAMINATED SOIL TO BE REMOVED Assume no contaminated soil

Calculate the volume of contaminated soil to be removed. Removal of contaminated soil is an additional activity that might be conducted if soil contamination is identified or if removal of contaminated soil is indicated in the closure plan.

10.A	Length	ft	
10.B	Width	ft	
10.C	Depth	ft	
10.D	**Volume of Contaminated Soil to be Removed (Multiply line 10.A by line 10.B by line 10.C)**		ft^3
10.E	**Volume of Contaminated Soil to be Removed in yd^3 (Divide line 10.D by 27 ft^3/yd^3**		yd^3

Surface Areas for Various Tank Capacities
Reference for Line 2.A

Capacity (gal)	Approximate Diameter (ft)	Approximate Height or Length (ft)	Surface Area[a] (ft^2)
TYPICAL VERTICAL TANK DIMENSIONS			
5,000	9	10.5	424
10,000	11.5	13	575
15,000	13	15	745
20,000	15	15	884
25,000	16	17	1,055
30,000	17	18	1,188
TYPICAL HORIZONTAL TANK DIMENSIONS			
5,000	6	23	490
10,000	8	26	750
15,000	8	29	1,080
20,000	10	34	1,225
25,000	10	38	1,350
30,000	11	42	1,640

Standard Equations for Calculating Surface Area of a Tank System
Reference for Line 2.A

Shape	Equation[b]
Cylinder	$2\pi rh$
Circle	πr^2
Cone	$\pi r\sqrt{r^2 + h^2}$

Notes:

[a] Includes top and bottom.

[b] r = radius
h = height

Properties of Standard Wall Steel Pipe[a]
Reference for Lines 1.C and 2.B

Nominal Size (inches)	Inside Diameter (inches)	Inside Volume (gal/ft)[b]	Inside Surface Area (ft^2/ft)[c]
.75	0.824	0.0276	0.217
1	1.049	0.0448	0.274
1.25	1.380	0.0776	0.362
1.5	1.610	0.106	0.421
2	2.067	0.174	0.540
2.5	2.469	0.248	0.646
3	3.068	0.384	0.802
4	4.026	0.661	1.06
6	6.065	1.500	1.59
8	7.981	2.59	2.09
10	10.020	4.09	2.62
12	12.090	5.95	3.17
14	13.250	7.17	3.46
16	15.250	9.48	3.99
18	17.250	12.09	4.52
20	19.250	15.19	5.04
24	23.250	22.13	6.08

Notes:

[a] Modified from Carrier Air Conditioning Company, Inc., *Carrier System Design Manual*, 1973, Chapter 1, page 3-2

[b] Gallons per linear foot of straight pipe

[c] Square foot per linear foot of straight pipe

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	Removal of Waste	TS-3	$ 306
2.	Tank System Purging (ignitable wastes *only*)	TS-4	$ 290
3.	*Flushing the Tank and Piping*	TS-5	$ 560
4.	*Excavation, Disassembly, and Loading*	TS-6	$ 1,203
5.	*Demolition and Removal of Containment System*	TS-7	$ 3,043
6.	*Removal of Soil*	TS-8	$ 0
7.	*Backfill*	TS-9	$ 0
8.	Decontamination[a]	DC-1	$ *
9.	Sampling and Analysis[b]	SA-2	$ *
10.	*Monitoring Well Installation*[c]	MW-1	$ 0
11.	Transportation[d]	TR-1	$ *
12.	Treatment and Disposal[e]	TD-1	$ *
13.	Subtotal of Closure Costs (Add lines 1 through 12)		$ 5,402
14.	Engineering Expenses (Approximately 10% of closure costs, excluding certification of closure [Multiply line 13 by 0.10])		$ 541
15.	Certification of Closure	TS-10	$ *
16.	Subtotal (Add engineering expenses and cost of certification of closure to closure costs [Add lines 13, 14, and 15])		$ 5,943
17.	Contingency Allowance (Allow 20% of closure costs, engineering expenses, and cost of certification of closure [Multiply line 16 by 0.20])		$ 1,189
18.	*Landfill Closure*[f]	LF-2	$ 0
	TOTAL COST OF CLOSURE *(add lines 16, 17, and 18)*		$ 7,132

351

* = Included with container costs

Notes:

[a] Decontamination Worksheets are found in Chapter 12.

[b] Sampling and Analysis Worksheets are found in Chapter 13.

[c] Monitoring Well Installation Worksheets are found in Chapter 14.

[d] Transportation Worksheets are found in Chapter 15.

[e] Treatment and Disposal Worksheets are found in Chapter 16.

[f] Landfill Summary Worksheets are found in Chapter 7. Costs of post-closure care are included in this total.

1	Maximum volume of waste to be removed from the tank and ancillary piping (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 101.90/work hr[b] b. Protection Level C $ 127.87/work hr[c] c. Protection Level B $ 151.45/work hr[c]	$ 101.90	
3	Work rate required to remove waste from tank and ancillary piping[d]	0.00017 work hr/ gal capacity	
4	Number of hours required to remove waste from tank and ancillary piping (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	3 work hrs	
TOTAL COST OF REMOVAL OF WASTE FROM TANK AND ANCILLARY PIPING (Multiply line 2 by line 4) (Enter total on worksheet TS-2, line 1)			$ 306

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. Activity described is removing sludge, water, and remaining waste from bottom of tank with a vacuum truck.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader. See Appendix B of this manual for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. A waste removal estimate of one hour for a one-person crew is required for one, 6,000-gallon tank.

Complete this worksheet *only* if the contents of the tank are ignitable.

1	Maximum capacity of tank system (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Amount of solid carbon dioxide (dry ice) needed per gal capacity[a]	1.5 lbs/ 100 gal capacity	
3	Amount of dry ice needed to purge tank system (Divide line 1 by 100 gal and multiply value by 1.5 lbs)	226 lbs	
4	Cost of dry ice[a]	$ 0.75/lb	
5	Cost of dry ice needed to purge tank system (Multiply line 3 by line 4)		$ 170
6	Labor cost per work hour[b]	$ 45.30	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 30.10/work hr[c]		
	b. Protection Level C $ 45.30/work hr[d]		
	c. Protection Level B $ 58.11/work hr[d]		
7	Work rate required to purge tank per gal capacity[a]	0.00024 work hr/ gal capacity	
8	Number of hours required to purge tank system (Multiply line 1 by line 7) (One hour minimum; round up to the 0.5 hour)	4 work hrs	
9	Labor cost to purge tank system (Multiply line 6 by line 8)		$ 181
TOTAL COST OF TANK SYSTEM PURGING (Add lines 5 and 9) (Enter total on worksheet TS-2, line 2)			$ 351

Notes:

[a] Material requirements derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401.

[b] Labor requirements derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401. One common laborer is specified for this activity.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 499, crew A-1. Total cost for one common laborer is $29.10/hr.

[d] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 499, crew A-1. Total cost for one common laborer is $29.10/hr. See Appendix B of this manual for details of the calculation.

[e] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 37, item no. 880-0401. The work rate was estimated assuming the work hours required per pound of dry ice as follows: 0.016 work hr/lb of dry ice x 1 ½ lbs of dry ice/100-gal capacity = 0.00024 work hr/gal capacity.

1	Maximum capacity of the tank and ancillary piping (Enter from worksheet TS-1, line 1.D)	15,062 gal	
2	Number of times tank and ancillary piping are flushed (If unknown, assume 1)	1	
3	Total volume of flushing solution (Multiply line 1 by line 2)	15,062 gal	
4	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $101.90/work hr[b] b. Protection Level C $ 127.87/work hr[c] c. Protection Level B $ 151.45/work hr[c]	$ 101.90	
5	Work rate required to flush tank and ancillary piping[d]	0.00034 work hr/ gal capacity	
6	Number of hours required to flush tank and ancillary piping (Multiply line 3 by line 5) (One hour minimum; round up to the 0.5 hour)	5.5 work hrs	
7	Subtotal of labor and equipment costs to flush tank and ancillary piping (Multiply line 4 by line 6)		$560
8	Total volume of flushing solution (Enter from line 3). (The volume of flushing solution generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be handled effectively by placement in drums, use worksheet TD-3 (for water-based flushing solution) or TR-1 and TD-2 (for a solvent solution) to calculate the transportation, treatment, and disposal cost. If the flushing solution is to be placed in drums, complete lines 9 through 11.)	15,062 gal	
9	Number of drums required to contain flushing solution (Divide line 8 by 55 gallons per drum; round up to the nearest whole number)	/ drums Containerize in Tankers	
10	Cost of one drum[a]	$ 62.95/drum	
11	Cost of drums needed to contain flushing solution (Multiply line 9 by line 10)		$ 0
TOTAL COST TO FLUSH TANK AND ANCILLARY PIPING (Add lines 7 and 11) (Enter total on worksheet TS-2, line 3)			$ 560

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. Activity described is removing sludge, water, and remaining waste from bottom of tank with a vacuum truck.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-13. Crew A-13 consists of one equipment operator and one large production vacuum loader. See Appendix B of this manual for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0310. The work rate for a 1-person crew was derived based on the waste removal rate for a 6,000-gal tank as follows: 1 hr/6,000-gal tank x 2 = 0.00034 work hr/gal capacity, because the tank must be filled and emptied to flush it.

[e] Lab Safety Supply, *General Catalog*, pg. 354, 55-gallon, lock-ring, open-head, 18-gauge steel drum.

This worksheet can be used to determine the costs of excavation and disassembly of tanks and ancillary piping for aboveground, on-ground, in-ground, and underground tanks. To determine costs for in-ground and underground tanks, complete sections 1 and 2; to determine costs for on-ground and aboveground tanks, complete sections 2 and 3.

1 EXCAVATION AND LOADING (FOR IN-GROUND AND UNDERGROUND TANKS ONLY)			
1.A	Capacity of tank (Enter from worksheet TS-1, line 1.B)	gal	
1.B	Labor and equipment cost per work hour[a]	$	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 36.16/work hr[b]		
	b. Protection Level C $ 52.27/work hr[c]		
	c. Protection Level B $ 65.99/work hr[c]		
1.C	Work rate required to remove and load tank per gallon capacity[d]	0.002 work hr/ gal capacity	
1.D	Number of hours required to excavate and load tank (Multiply line 1.A by line 1.C) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.E	**Cost to Excavate and Load Tank (Multiply line 1.B by line 1.D)**		$ 0

2 DISASSEMBLY OF ANCILLARY PIPING			
2.A	Length of ancillary piping to be disassembled (Enter from worksheet TS-1, line 1.E)	94 ft	
2.B	Labor and equipment cost per work hour[a]	$ 41.18	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 41.18/work hr[f]		
	b. Protection Level C $ 58.04/work hr[g]		
	c. Protection Level B $ 72.51/work hr[g]		
2.C	Work rate required to disassemble 1 ft of pipe[h]	0.150 work hr/ft	
2.D	Number of hours required to disassemble ancillary piping (Multiply line 2.A by line 2.C) (One hour minimum; round up to the 0.5 hour)	14 work hrs	
2.E	**Cost of disassembly of ancillary piping (Multiply line 2.B by line 2.D)**		$ 577

3 LOADING (FOR ON-GROUND AND ABOVEGROUND TANKS ONLY)			
3.A	Capacity of tank (Enter from worksheet TS-1, line 1.B)	15,000 gal	
3.B	Labor and equipment cost per work hour[j]	$41.72	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 41.72/work hr[k]		
	b. Protection Level C $ 58.66/work hr[l]		
	c. Protection Level B $ 73.22/work hr[l]		
3.C	Work rate required to load tank per gallon capacity[m]	0.001 work hr/ gal capacity	
3.D	Number of hours required to load tank (Multiply line 3.A by line 3.C) (One hour minimum; round up to the 0.5 hour)	15 work hrs	
3.E	Cost to Load Tank (Multiply line 3.B by line 3.D)		$ 626
TOTAL COST OF EXCAVATION, DISASSEMBLY, AND LOADING (Add lines 1.E, 2.E, and 3.E) (Enter total on worksheet TS-2, line 4)			$1,203

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. Activity described is excavating an underground tank and loading it into a trailer.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-14. Crew B-14 consists of one labor foreman, four building laborers, one equipment operator, and one backhoe loader.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 495, crew B-14. Crew B-14 consists of one labor foreman, four building laborers, one equipment operator, and one backhoe loader. See Appendix B for details of the calculation.

[d] Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. An excavation and loading estimate of 12 work hours for a six-person crew is required for one 6,000 gallon tank. Therefore, the per gallon work rate is 12 work hrs/6,000-gal capacity = 0.002 work hr/gal capacity.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-3200. activity described is demolition of 4-in steel pipe with welded connections.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader.

[g] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader. See Appendix B of this manual for details of the calculation.

[h] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-3200. Work rate is based on a three-person crew.

i Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. Activity described is excavating an underground tank and loading it into a trailer. Activity and crew costs are modified to exclude excavation and cost only loading of a tank.

k R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-13. Crew B-13 consists of one labor foreman, four building laborers, one crane operator, one equipment operator oiler, and one 25-ton hydraulic crane.

l Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 503, crew B-13. Crew B-13 consists of one labor foreman, four building laborers, one crane operator, one equipment operator oiler, and one 25-ton hydraulic crane. See Appendix B for details of the calculation.

m Rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 37, item no. 880-0120. An excavation and loading time of 12 hours for a six-person crew is required for one 6,000-gallon underground tank. Therefore, an estimate of 6 hours (half the time) is assumed for one 6,000-gallon aboveground tank. Calculation of the work rate of 0.001 work hour per gallon capacity was derived as follows: 6 hrs/tank x 1 tank/6,000 gal = 0.001 work hr/gal capacity.

DEMOLITION AND REMOVAL OF CONTAINMENT SYSTEM - Page 1 of 2

1 DEMOLITION OF CONTAINMENT SYSTEM			
1.A	Area of containment system (Enter from worksheet TS-1; add lines 4.C, 6.C, and 9)	1,371 ft²	
1.B	Labor and equipment cost per work hour[a]	$ 34.98	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 34.98/work hr[b]		
	b. Protection Level C $ 50.91/work hr[c]		
	c. Protection Level B $ 64.45 work hr[c]		
1.C	Work rate to demolish one ft² of containment system[d]	0.040 work hr/ft²	
1.D	Number of hours required to demolish the containment system (Multiply line 1.A by line 1.C) (One hour minimum; round up to the 0.5 hour)	55 work hrs	
1.E	Cost to Demolish the Containment System (Multiply line 1.B by line 1.D)		$ 1,924
2 REMOVAL AND LOADING OF CONTAINMENT SYSTEM			
2.A	Volume of the containment system (Enter from worksheet TS-1; add lines 5.B, 7.B, and 9)	26 yd³	
2.B	Labor and equipment cost per work hour[e]	$ 41.18	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 41.18/work hr[f]		
	b. Protection Level C $ 58.04/work hr[g]		
	c. Protection Level B $ 72.51/work hr[g]		
2.C	Work rate to remove and load one yd³[h]	0.300 work hr/yd³	
2.D	Number of hours required to remove the containment system (Multiply line 2.A by line 2.C) (One hour minimum; round up to the 0.5 hour)	8 work hrs	
2.E	Subtotal of labor and equipment costs to remove and load the containment system (Multiply line 2.B by line 2.D)		$ 330
2.F	Number of debris box containers needed to hold containment system (Divide line 2.A by 20 yd³ per container; round up to the nearest whole number)	2 containers	
2.G	Cost of one 20-yd³-capacity debris box container (Rent per week)[i]	$ 260/container	

DEMOLITION AND REMOVAL OF CONTAINMENT SYSTEM - Page 2 of 2

2.H	Cost of containers (Multiply line 2.F by line 2.G)	$ 520
2.I	Cost of mobilization and demobilization (flat rate)[k]	$ 269.00
2.J	Cost to Remove and Load Containment System (Add lines 2.E, 2.H, and 2.I)	$ 1,119
TOTAL COST OF DEMOLITION AND REMOVAL OF CONTAINMENT SYSTEM (Add lines 1.E and 2.J) (Enter total on worksheet TS-1, line 5)		$ 3,043

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994 pg. 24, item no. 554-2320. Activity described is site demolition, concrete, 6-in-thick, no reinforcing.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 506, crew B-39. Crew B-39 consists of one labor foreman, four building laborers, one light equipment operator, one air compressor (250 cubic feet per minute [cfm]), two air tools and accessories, and two 50-ft air hoses (1.5-in diameter).

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 506, crew B-39. Crew B-39 consists of one labor foreman, four building laborers, one light equipment operator, one air compressor (250 cfm), two air tools and accessories, and two 50-ft air hoses (1.5-in diameter). See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 24, item no. 554-2320. Work rate is based on a six-person crew and a 6-in-thick concrete slab without reinforcing.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25, item no. 620-3080. Activity described is loading by machine of demolition rubbish.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader.

[g] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-6. Crew B-6 consists of two building laborers, one light equipment operator, and one 48-horsepower backhoe loader. See Appendix B of this manual for details of the calculation.

[h] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25, item no. 620-3080. Work rate is based on a three-person crew.

[i] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25. Cost is determined by averaging the weekly rental rate of a 10-yd^3-capacity debris box container (item no. 620-0700) and a 30-yd^3-capacity debris box container (item no. 620-800).

[k] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

REMOVAL OF SOIL - Page 1 of 2

Assume No Contaminated Soil

1	Volume of contaminated soil to be removed (Enter from worksheet TS-1, line 10.E)	yd^3	
2	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 59.83/work hr[b] b. Protection Level C $ 79.49/work hr[c] c. Protection Level B $ 96.76/work hr[c]	$	
3	Work rate required to remove one yd^3[d]	0.030 work hr/yd^3	
4	Number of hours required to remove soil (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	work hrs	
5	Cost to remove soil (Multiply line 2 by line 4)		$
6	Number of debris box containers needed to contain soil (Divide line 1 by 20 yd^3 per container; round up to the nearest whole number)	containers	
7	Cost of one 20-yd^3-capacity debris box container (rent per week)[e]	$260/container	
8	Cost of containers (Multiply line 6 by line 7)		$
9	Cost of mobilization and demobilization (flat rate)[f]		$ 269.00
TOTAL COST OF REMOVAL OF SOIL (Add lines 5, 8, and 9) (Enter total on worksheet TS-2, line 6)			$ 0

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 43, item no. 242-2020. Activity described is excavating common earth and hauling the common earth 50 ft.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 501, crew B-10L. Crew B-10L consists of one medium equipment operator, one-half building laborer, and one 75-horsepower dozer.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 501, crew B-10L. Crew B-10L consists of one medium equipment operator, one-half building laborer, and one 75-horsepower dozer. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 43, item no. 242-2020. Work rate is based on a one-and-one-half-person crew.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 25. Cost is determined by averaging the weekly rental rate of a 10-yd^3-capacity debris box container (item no. 620-0700) and a 30-yd^3-capacity debris box container (item no. 620-800).

f Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

To calculate backfill costs, an estimate of the total volume of fill material required must be provided. Add the volumes of all materials removed to determine the total volume of fill material needed.

1	Volume of fill (Enter from worksheet TS-1; add lines 3.B, 5.B, and 10.E, as appropriate)	yd^3	
2	Compaction factor[a]	0.25	
3	Volume of additional fill required because of compaction factor (Multiply line 1 by line 2)	yd^3	
4	Total volume of fill needed (Add lines 1 and 3) (One yd^3 minimum; round up to the nearest whole number)	yd^3	
5	Labor, material, and equipment cost per yd^3[b]	$11.70/$yd^3$	
6	Subtotal of labor, material, and equipment costs to backfill (Multiply line 4 by line 5)		$
7	Cost of mobilization and demobilization (flat rate)[c]		$269.00
TOTAL COST OF BACKFILL (Add lines 6 and 7) (Enter total on worksheet TS-2, line 7)			$ 0

Notes:

[a] U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H)*, January 1987, EPA/530-SW-87-009, Volume III, pg. 7-10. Compaction factor provided is for native soil for slope and fill.

[b] R.S. Means Company, Inc. *Means Building Construction Cost Data*, 1994, pg. 42, item nos. 212-0200 and 212-0900. Cost is $8.30/$yd^3$ for common borrow plus $3.40/$yd^3$ for hauling the material a distance of 5 miles for a total cost of $11.70/$yd^3$.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 48, item no. 274-0020. Cost is based upon an average mobilization and demobilization costs for a 105-horsepower dozer or loader, 3/4-yd^3 shovel or backhoe, 1.0-yd^3 tractor shovel or front-end loader, and a 2 1/4-yd^3 tractor shovel or front-end loader from a location within a 25-mile radius of the site. The cost is added to all activities that require the use of heavy equipment. If equipment has already been mobilized for another activity, it may not be necessary to include this cost.

1	Number of units requiring certification of closure[a]	1	
2	Cost of certification of closure per unit[b]	$ 2,700	
TOTAL COST OF CERTIFICATION OF CLOSURE (Multiply line 1 by line 2) (Enter total on worksheet TS-2, line 15)			$ 2,700

Notes:

[a] Facilities closing multiple tanks in the same manner at the same time should incur cost of certification of closure only once.

[b] Assumes performance of the following tasks by an independent registered professional engineer at $56.50/hr: 1) 8 hrs for initial review of closure plan, 2) 16 hrs to perform final closure inspections, and 3) 16 hrs to prepare a certification of closure report [(8 hrs + 16 hrs + 16 hrs) x $56.50/hr = $2,260]. The estimate also includes 20 clerical hrs at a rate of $22/hr (20 hrs x $22/hr = $440). The total cost is $2,260 + $440 = $2,700.

Facility Name: _____

SUMMARY WORKSHEET

	Activity Some of the activities listed below are routine. The owner or operator might elect or be required to conduct additional activities. Italic type denotes worksheets for estimating the costs of those additional activities.	Worksheet Number	Cost
1.	Decontamination of Unit by Steam Cleaning or Pressure Washing	DC-2	$ 10,176
2.	Decontamination of Unit by Sand Blasting	DC-3	$ --
3.	Decontamination of Heavy Equipment	DC-4	$ 2,367
TOTAL COST OF DECONTAMINATION *(Add lines 1, 2, and 3)*			$ 12,543

DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING - Page 1 of 2

Use this worksheet when the proposed method of decontaminating the unit is steam cleaning or pressure washing.

1	Area of unit to be decontaminated (Enter from appropriate unit inventory worksheet)	12,477 ft²	
2	Labor and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 34.79/work hr[b] b. Protection Level C $ 50.69/work hr[c] c. Protection Level B $ 64.21/work hr[c]	$34.79	
3	Work rate to steam clean or pressure wash one ft²[,d]	0.027 work hrs/ft²	
4	Number of hours required to steam clean or pressure wash the unit (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	337 work hrs	
5	Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing (Multiply line 2 by line 4)		$ 11,720
6	Volume of decontamination fluid (Multiply line 1 by 4 gal/ft²)[e] (The volume of decontamination fluids generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be handled effectively by placement in drums, use worksheet TD-3 in Chapter 16 to calculate the transportation, treatment, and disposal cost. If the decontamination fluids are to be placed in drums, complete lines 7 through 9.)	49,908 gal	
7	Number of drums required to contain decontamination fluid for removal (Divide line 6 by 55 gallons per drum; round up to the nearest whole number)	0 drums Containerize in Tanks	
8	Cost of one drum[f]	$ 62.95/drum	
9	Cost of drums needed to contain decontamination fluid (Multiply line 7 by line 8)		$ 0 where is cost of tanker?
	TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING (For bulk liquids, obtain cost from line 5. For drummed liquids, add lines 5 and 9.) (Enter total on worksheet DC-1, line 1)		$ 11,720

TD-3 10 of 12

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Decontamination of heavy equipment typically will be conducted for equipment that will come into direct contact with hazardous waste.

1	Number of hours needed to decontaminate all heavy equipment used during closure of the unit (Enter from attachment to this worksheet)	8 work hrs	
2	Cost of steam cleaner rental per hour[a]	$ 5.98/hr	
3	Subtotal steam cleaner rental costs (Multiply line 1 by line 2)		$ 48
4	Labor cost per work hour[b] Choose the appropriate level of PPE: a. Protection Level D $ 30.10/work hr[b] b. Protection Level C $ 45.30/work hr[c] c. Protection Level B $ 58.11/work hr[c]	$ 30.10	
5	Subtotal of labor costs (Multiply line 1 by line 4)		$ 241
6	Volume of decontamination fluid (Multiply line 1 by 100 gallons per hour)[d] (The volume of decontamination fluids generated may be disposed of either in drums or as bulk liquid. If the volume is too large to be effectively handled by placement in drums, use TD-3 worksheet in Chapter 16 to calculate the transportation, treatment and disposal cost. If the decontamination fluids are to be placed in drums, complete lines 7 through 9.)	800 gal Contain in Tanks	
7	Number of drums required to contain decontamination fluid for removal (Divide line 6 by 55 gallons per drum and round up to the nearest whole number)	drums	
8	Cost of one drum[e]	$ 62.95/drum	
9	Cost of drums (Multiply line 7 by line 8)		$ --
10	Cost of construction of temporary decontamination area for heavy equipment (Include this cost if permanent decontamination area does not exist)[f] NOTE: THIS COST SHOULD ONLY BE INCURRED ONCE FOR THE CLOSURE OF ALL UNITS		$ 1,225.71

11	Cost of demolition of temporary decontamination area for heavy equipment (Include this cost if permanent decontamination area does not exist)[g] NOTE: THIS COST SHOULD ONLY BE INCURRED ONCE FOR THE CLOSURE OF ALL UNITS	$ 852.10
TOTAL COST OF DECONTAMINATION OF HEAVY EQUIPMENT (Add lines 3, 5, 9, 10, and 11) (Enter total on worksheet DC-1, line 3)		$ 2,367

Remember to calculate costs for transporting, treating, and disposing of the wastes in drums generated from this activity. Use Worksheets TR-1 and TD-2 found in Chapters 15 and 16, respectively.

Notes:

[a] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-6300. Rental cost per hour was derived by dividing the daily rental rate by hours per day and adding the hourly operating cost: ($45/day ÷ 8 hrs/day) + $0.35/hr = $5.98/hr.

[b] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-1. The cost provided is the hourly rate for one building laborer.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 499, crew A-1. The cost provided is the hourly rate for one building laborer. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-6300. Production rate of steam cleaner is 100 gal/hr.

[e] Lab Safety Supply, *General Catalog*, 1993, pg. 354, 55-gallon, lock-ring, open head, 18-gauge steel drum.

[f] Assume the temporary decontamination area is 25.5 ft by 17 ft and is constructed on a 3/4-in plywood base, with 6-in-by-8-in-by 8.5-ft railroad tie curbs and 2-in-by-8-in-by-16-in concrete blocks that hold the 6-mil polyethylene sheeting that covers the decontamination area.

Plywood - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 166, item no. 164-0200. The cost per ft^2 is $0.56. A total of 433.5 ft^2 of plywood is needed to cover the decontamination area. The cost of the plywood was calculated by multiplying the cost per ft^2, $0.56, by the number of ft^2, 433.5 = $242.76.

Railroad Ties - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 62, item no. 258-0600. The cost per ft is $2.25. A total of 10 railroad ties is needed to construct a curb around the decontamination area. The cost of the railroad ties was calculated by multiplying the cost per foot, by the length of each railroad tie, and by the number of railroad ties needed: $2.25/ft x 8.5 ft x 10 = $191.30.

Polyethylene Sheeting - Lab Safety Supply, *General Catalog*, 1993, pg. 635, 20-ft-by-100-ft roll of 6-mil polyethylene sheeting. The cost per roll is $54.95. A total of one roll is needed to cover the decontamination area.

Concrete Blocks - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 140, item no. 204-0020. The cost per block is $0.70. A total of 15 concrete blocks is needed to hold the polyethylene sheeting. The cost of the blocks was calculated by multiplying the cost of one block by the number of blocks needed: $0.70/block x 15 = $10.50.

Labor to Construct Decontamination Area - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 449, crew A-1. Assume that two building laborers at $30.10 per hour will construct the decontamination area in eight hours. The cost of the labor was calculated by multiplying the cost per

hour for one building laborer, by the number of work hours needed to construct the decontamination area: $30.10/hr x 16 = $481.60.

Equipment Rental - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1994, pg. 17, item no. 420-2020. One forklift will be needed to move the railroad ties into place. The cost of renting one forklift for one day was calculated by multiplying the operational cost per hour by 8 hours and adding the daily rental cost: (8.95/hr x 8 hrs) + $173 = $244.60.

The total cost of constructing the decontamination area is $242.76 + $191.30 + 54.95 + 10.50 + $481.60 + $244.60 = $1,225.71.

Costs for demolition of the temporary decontamination area were derived as follows:

Labor to Demolish Decontamination Area - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1993, pg. 451, crew A-1. Assume that two building laborers, at $30.10/hr, demolish the decontamination area in eight hours. The cost of the labor was calculated by multiplying the cost per hour for one building laborer, by the number of work hours needed to demolish the decontamination area: $30.10/hr x 16 hrs = $481.60.

Equipment Rental - R.S. Means Company, Inc., *Means Site Work and Landscape Cost Data*, 1993, pg. 17, item no. 420-2020. One forklift will be needed to move the railroad ties into place. The cost of renting one forklift for one day (8 hours) was calculated by multiplying the operational cost per hour by 8 hours and adding the daily rental cost: ($8.95/hr x 8 hrs) + $173 = $244.60.

Drums to Contain Contaminated Polyethylene Sheeting - Lab Safety Supply, *General Catalog*, 1993, pg. 354, 55-gallon, lock-ring, open head, 18-gauge steel drum. The cost of one drum is $62.95. Two drums are needed to contain the polyethylene sheeting. The cost of purchasing drums was calculated as follows: $62.95/drum x 2 drums = $125.90.

The total cost of demolishing the decontamination area is $481.60 + $244.60 + $125.90 = $852.10.

Decontamination Times for Heavy Equipment[a] Reference for Line 1

Use the following time estimates to calculate the total number of hours needed to decontaminate all heavy equipment. Assume that each piece of heavy equipment will be decontaminated at least once for the closure of each unit.

Equipment	Decontamination Time (Hrs)
Forklift	X 1
Rotary disc	X 1
Tractor	2
Tank wagon	2
Front-end loader	X 3
Dozer	X 3
Backhoe	3
Front shovel	3

Notes:

- U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H)*, January 1987, EPA/530-SW-87-009, Volume III, pg. 5-2.

The inventory worksheet will be used in completing the appropriate cost estimating worksheets to determine the cost of sampling and analysis during closure. Depending on the activities being conducted, it may not be necessary to complete each section of the inventory sheet.

1 NUMBER OF BORING AND SUBSURFACE SOIL SAMPLES

In the additional space below, identify the number of boring and subsurface soil samples being collected for each individual unit. Add the number of samples and record the total in the box provided.

1	**Number of Boring and Subsurface Soil Samples**	0 samples

2 NUMBER OF CONCRETE CORE SAMPLES

In the additional space below, identify the number of concrete core samples being collected for each individual unit. Add the number of samples and record the total in the box provided.

2	**Number of Concrete Core Samples**	0 samples

3 NUMBER OF WIPE SAMPLE LOCATIONS

In the additional space below, identify the number of wipe sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

3	**Number of Wipe Sample Locations**	1 sample locations

4 NUMBER OF AQUEOUS SAMPLE LOCATIONS

In the additional space below, identify the number of aqueous sample locations being collected for each individual unit. Add the number of sample locations and record the total in the box provided.

4	**Number of Aqueous Sample Locations** Decon final rinse water from 5 areas Decon (prior to disposal)	7 sample locations

5 NUMBER OF NONAQUEOUS SAMPLE LOCATIONS

In the additional space below, identify the number of nonaqueous sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

5	**Number of Nonaqueous Sample Locations** Tank Area = 2	2 sample locations

6 NUMBER OF GROUNDWATER SAMPLE LOCATIONS

In the additional space below, identify the number of groundwater sample locations for each individual unit. Add the number of sample locations and record the total in the box provided.

6	**Number of Groundwater Sample Locations**	0 sample locations

7 NUMBER OF LYSIMETERS TO BE SAMPLED

In the additional space below, identify the number of lysimeters to be sampled. Record the number in the box provided.

7	**Number of Lysimeters to be Sampled**	0 samples

8 NUMBER OF SUBSURFACE SOIL SAMPLES COLLECTED DURING MONITORING WELL INSTALLATION

In the additional space below, identify the number of subsurface soil samples collected during monitoring well installation.

8	**Number of Subsurface Soil Samples Collected During Monitoring Well Installation**	0 samples

Facility Name: _____

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Boring and Subsurface Soil Sample	SA-3	$ 0
2.	Concrete Core Sample	SA-4	$ 0
3.	Wipe Sample	SA-5	$ 466
4.	Aqueous Sample	SA-6	$ 4,779
5.	Nonaqueous Sample	SA-7	$ 1,863
6.	Groundwater Sample	SA-8	$ 0
7.	Soil-Pore Liquid Sample	SA-9	$ 0
8.	Analysis of Subsurface Soil Sample (from Monitoring Well Installation)	SA-10	$ 0
TOTAL SAMPLING AND ANALYSIS COST *(Add lines 1 through 8)*			$ 7,108

Use this worksheet when you are estimating the cost to collect soil or rock samples at depth. This worksheet estimates cost by using a drill rig or other mechanical equipment to bore or core soil and rock using various drilling methods.

No Borings

1 BORING AND SUBSURFACE SOIL SAMPLE COSTS - 2-1/2-INCH-DIAMETER HOLE			
1.A	Number of borings to be drilled (Enter from worksheet SA-1; line 1)	borings	
1.B	Enter total of bore depths (Add all depths. If the depth is not provided, use the average boring depth and multiply by line 1.A)	ft	
1.C	Labor and equipment cost per work hour (Enter costs from Attachment A to this worksheet)	$ /work hr	
1.D	Work rate to drill 2-1/2-inch-diameter hole (Enter work rates from Attachment B to this worksheet)	work hr/ft	
1.E	Number of hours required to drill 2-1/2-inch-diameter hole (Multiply line 1.B by line 1.D) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.F	**Cost to Drill 2-1/2-inch Borings (Multiply line 1.C by line 1.E)**		$
2 BORING AND SUBSURFACE SOIL SAMPLE COSTS - 4-INCH-DIAMETER HOLE			
2.A	Number of borings to be drilled (Enter from worksheet SA-1; line 1)	borings	
2.B	Enter total of bore depths (Add all depths. If depth is not provided, use the average depth and multiply by line 2.A)	ft	
2.C	Labor and equipment cost per work hour (Enter costs from Attachment A to this worksheet)	$ /work hr	
2.D	Work rate to drill 4-inch-diameter hole (Enter work rates from Attachment B to this worksheet)	work hr/ft	
2.E	Number of work hours required to drill 4-inch-diameter hole (Multiply line 2.B by line 2.D) (One hour minimum; round up to the 0.5 hour)	work hrs	
2.F	**Cost to Drill 4-inch Borings (Multiply line 2.C by line 2.E)**		$

3 ANALYSIS OF BORING SAMPLE			
3.A	Using the table in Attachment C to this worksheet, calculate the cost of analysis per sampling event for boring or soil core samples (Enter cost from Attachment C to this worksheet)	$ /event	
3.B	Enter the number of sampling events	events	
3.C	Cost to Analyze Soil Samples (Multiply line 3.A by line 3.B)		$
	TOTAL COST OF SAMPLING AND ANALYSIS OF BORING AND SOIL CORE SAMPLES (Add line 1.F, 2.F, and 3.C) (Enter total on worksheet SA-2, line 1)		$ 0

Drilling Labor and Equipment Costs Reference for Lines 1.C and 2.C

Drilling Method	Drilling Labor and Equipment Cost Per Work Hour ($) for 2-1/2-Inch and 4-Inch Diameter Boreholes		
	Level D	Level C	Level B
Hollow-Stem Auger	57.04[a]	76.28[b]	93.13[b]
Cased Borings	57.04[a]	76.28[b]	93.13[b]
BX-size Rock Core	69.41[c]	90.51[d]	109.21[d]
NX-size Rock Core	69.41[c]	90.51[d]	109.21[d]

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-55. Crew B-55 consists of two building laborers, one truck driver, one flatbed truck with auger, and one 3-ton truck.

[b] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-55. Crew B-55 consists of two building laborers, one truck driver, one flatbed truck with auger, and one 3-ton truck. See Appendix B of this manual for details of the calculation.

[c] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-56. Crew B-56 consists of one building laborer, one light equipment operator, one 4-in crawler-type drill, one 600-cfm air compressor, and one 3-in-diameter, 50-ft air hose.

[d] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 507, crew B-56. Crew B-56 consists of one building laborer, one light equipment operator, one 4-in crawler type drill, one 600 cfm air compressor, and one 3-in-diameter, 50-ft air hose. See Appendix B of this manual for details of the calculation.

Drilling Work Rate
Reference for Lines 1.D and 2.D

Drilling Method	Borehole Diameter (in)	Drilling Rate (Work Hour/Foot)
Hollow-Stem Auger (with sample collection)	2-1/2 4	0.457[a] 0.534[b]
Cased Borings (with sample collection)	2-1/2 4	0.432[c] 0.736[d]
BX-size Rock Core (with casing and sample collection)	2-1/2	0.505[e]
NX-size Rock Core (with casing and sample collection)	4	0.640[f]

Notes:

[a] Work rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0600. Work rate is based on a three-person crew. Activities include augering 2-1/2-in-diameter holes in earth. Assume a 50 percent decrease in drilling rate efficiency for collection of continuous split-spoon samples.

[b] Work rate derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0650. Work rate is based on a three-person crew. Activities include augering 4-in-diameter holes in earth. Assume a 50 percent decrease in drilling rate efficiency for collection of continuous split-spoon samples.

[c] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0800. Work rate is based on a three-person crew. Activities include cased borings in earth, with samples, 2-1/2-in-diameter.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-0850. Work rate is based on a three-person crew. Activities include cased borings in earth, with samples, 4-in-diameter.

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-1050. Work rate is based on a two-person crew. Activities include drilling a "BX" core, in rock, with casing and sampling.

[f] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 123-1250. Work rate is based on a two-person crew. Activities include drilling a "NX" core in rock, with casing and sampling.

Cost of Analysis per Sampling Event
Reference for Line 3.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF SOIL SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Coring may be necessary for collecting bulk samples from hard surfaces, such as concrete.

No Core Samples

1 COLLECTION OF CORE SAMPLE			
1.A	Number of corings to be drilled (Enter from worksheet SA-1; line 2)	coring samples	
1.B	Labor and equipment cost per work hour[a]	$	
	Choose the appropriate level of PPE:		
	a. Protection Level D $ 38.29/work hr[b]		
	b. Protection Level C $ 54.72/work hr[c]		
	c. Protection Level B $ 68.76/work hr[c]		
1.C	Work rate to drill each core sample to a 6-inch depth[d]	0.400 work hr/sample	
1.D	Number of hours required to drill 3-inch-diameter boring (Multiply line 1.A by Line 1.C) (One hour minimum; round up to the 0.5 hour)	work hrs	
1.E	**Cost to Collect Core Samples (Multiply line 1.B by line 1.D)**		$
2 ANALYSIS OF CORE SAMPLES			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for core samples (Enter cost from the attachment to this worksheet)	$ /event	
2.B	Enter the number of sampling events	events	
2.C	**Cost to Analyze Core Samples (Multiply line 2.A by line 2.B)**		$
TOTAL COST OF SAMPLING AND ANALYSIS OF CORING SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 2)			$

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 125-0300. Activities include drilling a 3-in-diameter core in a concrete slabs up to 6-in thick.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 510, crew B-89A. Crew B-89A consists of one skilled worker, one laborer, and one large-core drill.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 510, crew B-89A. Crew B-89A consists of one skilled worker, one laborer, and one large-core drill. See Appendix B of this manual for details of the calculation.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, p. 22, item no. 125-0300. Work rate is based on a two-person crew. The work rate is for coring to a 6-in depth; if the coring sample is deeper than 6 in, add 0.060 to the work rate for each additional inch.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF CORING SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Wipe samples are used to assess surface contamination of hard, relatively nonporous surfaces. Wipe sampling should be used only when the contaminant of concern has a heavy, persistent characteristic, meaning it does not easily volatilize or leave the surface being sampled. Contaminants typically sampled by wipe sampling techniques are polychlorinated biphenyls (PCB) and dioxins.

1 COLLECTION OF WIPE SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 3)	1 sample locations	
1.B	Sampling team and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 91.29/work hr[b] b. Protection Level C $ 115.67/work hr[c] c. Protection Level B $ 137.66/work hr[c]	$ 91.29	
1.C	Work hours required to collect samples from one sampling location[d]	0.5 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	.5 work hrs	
1.E	**Cost to Collect Wipe Samples (Multiply line 1.B by line 1.D)**		$ 46
2 ANALYSIS OF WIPE SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for wipe samples (Enter cost from the Attachment to this worksheet)	$ 420 /event	
2.B	Enter the number of sampling events	1 events	
2.C	**Cost to Analyze Wipe Samples (Multiply line 2.A by line 2.B)**		$ 420
	TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 3)		$ 466

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

[d] Work rate is determined by assuming two wipe samples can be collected in an hour, using the following method: saturate a piece of filter paper or gauze with appropriate solvent. Using a pair of stainless steel forceps or rubber gloves, wipe an area of 100 cm^2 with the saturated filter paper or gauze to obtain the sample. Place the filter paper or gauze in the sample jar, label the sample jar, place the sample jar in an ice chest (cool to 4° C), complete appropriate sample documentation, and move to the next sample location.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
TOTAL COST FOR ANALYSIS OF WIPE SAMPLES (Total of all costs in column 4)			$ /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Aqueous samples refer to liquid samples, including samples of rinsate and wastewater. Do not use this worksheet for estimating the cost of sampling other aqueous media, such as groundwater.

1 COLLECTION OF AQUEOUS SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 4)	7 sample locations	
1.B	Sampling team and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 91.29/work hr[b] b. Protection Level C $ 115.67/work hr[c] c. Protection Level B $ 137.66/work hr[d]	$91.29	
1.C	Work hours required to collect samples from one sampling location[d]	1 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	7 work hrs	
1.E	**Cost to Collect Aqueous Samples (Multiply line 1.B by line 1.D)**		$ 639.03
2 ANALYSIS OF AQUEOUS SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for aqueous samples (Enter cost from the Attachment to this worksheet)	$4140 /event	
2.B	Enter the number of sampling events	1 events	
2.C	**Cost to Analyze Aqueous Samples (Multiply line 2.A by line 2.B)**		$ 4140
	TOTAL COST OF SAMPLING AND ANALYSIS OF AQUEOUS SAMPLES (Add line 1.E to line 2.C) (Enter total on cost worksheet SA-2, line 4)		$ 4779

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

[4] Work rate obtained by assuming two aqueous samples can be collected in an hour using the following methods:

Rinsate Sample - Using laboratory prepared de-ionized water or an appropriate solvent, pour water over an area of the surface to be sampled. Collect the water or solvent in a precleaned sample container. Preserve the sample, label the sample jar, place the sample in an ice chest (cool to 4° C), complete the appropriate sample documentation, and move to the next sample location.

Wastewater and other aqueous samples - Various sample collection devices (bailers, kemmerer samples, Van Dorn samples, peristaltic pump, and others) can be used to collect wastewater and other aqueous samples. Samples are collected with the appropriate device and the liquid is poured into sample containers. The samples are then preserved, labeled, and placed in an ice chest (cooled to 4° C). Sample documentation is completed, the sampling equipment is decontaminated, and the samplers move to the next location.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
Metals 8150 8240/8260 8270 Specific Constituents	$460	9	$4,140
TOTAL COST FOR ANALYSIS OF AQUEOUS SAMPLES (Total of all costs in column 4)			$ 4,140 /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Nonaqueous samples refer to sludge, chip, or surface soil samples. These samples are shallow samples, that is, they are collected at depths of less than 1.5 feet below ground surface.

1 COLLECTION OF NONAQUEOUS SAMPLE			
1.A	Number of sampling locations (Enter from worksheet SA-1; line 5)	2 sample locations	
1.B	Sampling team and equipment cost per work hour[a] Choose the appropriate level of PPE: a. Protection Level D $ 91.29/work hr[b] b. Protection Level C $ 115.67/work hr[c] c. Protection Level B $ 137.66/work hr[c]	$ 91.29	
1.C	Work hours required to collect samples from one sampling location[d]	1 work hr/sample location	
1.D	Number of hours required to collect all samples (Multiply line 1.A by line 1.C)	2 work hrs	
1.E	**Cost to Collect Nonaqueous Samples (Multiply line 1.B by line 1.D)**		$ 183
2 ANALYSIS OF NONAQUEOUS SAMPLE			
2.A	Using the table in the attachment to this worksheet, calculate the cost of analysis per sampling event for nonaqueous samples (Enter costs from the attachment to this worksheet)	$ 1,680 /event	
2.B	Enter the number of sampling events	1 events	
2.C	**Cost to Analyze Nonaqueous Samples (Multiply line 2.A by line 2.B)**		$ 1,680
	TOTAL COST OF SAMPLING AND ANALYSIS OF NONAQUEOUS SAMPLES (Add line 1.E to line 2.C) (Enter total on worksheet SA-2, line 5)		$ 1,863

Notes:

[a] Includes cost of collection and handling of samples, vehicle rental, and decontamination of sampling team and sampling equipment.

[b] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians.

[c] Cost derived from price quotes provided by EPA Region 4 vendors. Crew consists of two sampling technicians. See Appendix B of this manual for details of the calculation.

[d] U.S. Environmental Protection Agency, *Final Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subpart G and H)*, January 1987, EPA/530-SW-009, Volume III, pg. 2-16.

Cost of Analysis per Sampling Event
Reference for Line 2.A

Column 1 Analytical Parameter and Method Reference[a]	Column 2 Cost of Analysis ($) per Parameter[b]	Column 3 Number of Analyses, including QC Analyses[c]	Column 4 Total Cost of Analysis ($) per Parameter per Event (Multiply Column 2 by Column 3)
Metals 8015 8150 8240/8260 8270 Specific Constituents	$420	4	$1,680
TOTAL COST FOR ANALYSIS OF NONAQUEOUS SAMPLES (Total of all costs in column 4)			$ 1,680 /event

Notes:

[a] List analytical parameter(s) and method number(s) from the sampling and analysis attachment to this chapter that correspond most closely with those specified in the work plan or permit. If a method of analysis is not specified, choose the appropriate SW-846 method from the sampling and analysis attachment to this chapter.

[b] Choose a unit analysis cost from the sampling and analysis attachment to this chapter for each parameter. Note that unit cost may differ according to the method of analysis used, the type of medium (solid or liquid) sampled, and the number of analyses performed.

[c] Identify the number of sampling locations and analyses specified in the work plan or permit. The number of quality control (QC) samples is typically 20 percent of the total number of samples to be analyzed.

Facility Name: _____

Depending on the activities being conducted, it may not be necessary to complete each section of the transportation worksheet.

1 TRANSPORTATION OF DRUMMED WASTE			
1.A	Number of drums of waste	1,153 drums	Based on South Building and Dumpsters (58,124 gal.)
1.B	Cost to transport one truckload of 55-gallon drums 250 miles[a]	$ 1,062.50/truckload	
1.C	Number of truckloads needed to transport waste in drums (Divide line 1.A by 80 drums per truckload; round up to the nearest whole number)	15 truckloads	Number should be 63321
1.D	**Cost to Transport Drummed Waste (Multiply line 1.B by line 1.C)**		$ 15,938
2 TRANSPORTATION OF BULK LIQUIDS			
2.A	Gallons of liquid waste	15,000 gal	
2.B	Cost to transport one truckload of bulk liquids 250 miles[b]	$ 1,062.50/truckload	
2.C	Number of truckloads needed to transport bulk free liquid waste (Divide line 2.A by 6,900 gallons per truckload; round up to the nearest whole number)	2 truckloads	
2.D	**Cost to Transport Bulk Liquid Waste (Multiply line 2.B by line 2.C)**		$2,125
3 TRANSPORTATION OF BULK WASTE			
3.A	Number of waste debris boxes	2 debris boxes	
3.B	Cost to transport one truckload of bulk waste 250 miles[a]	$ 1,062.50/truckload	
3.C	Number of truckloads needed to transport bulk waste (Assume one debris box can be hauled on every truck)	2 truckloads	
3.D	**Cost to Transport Bulk Solid Waste (Multiply line 3.B by line 3.C)**		$ 2,125
	TOTAL COST OF TRANSPORTATION OF WASTE (Add lines 1.D, 2.D, and 3.D) (Enter total on appropriate unit summary worksheet)		$ 20,188

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 30, item no. 717-1270. Activity described is transporting one truckload of solid waste. Maximum capacity of truck is 80 drums or 25 yd^3 and the cost per mile is $4.25. Assume a 250-mi trip to transport waste. The cost is calculated as follows: $4.25/mi x 250 mi = 1,062.50.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 30, item no. 717-3400. Activity described is transporting one truckload of bulk free liquid waste. Maximum capacity of truck is 6,900 gallons, and the cost per mile is $4.25. Assume a 250-mi trip to transport waste. The cost is calculated as follows: $4.25/mi x 250 mi = 1,062.50.

Facility Name: _____

SUMMARY WORKSHEET

	Activity	Worksheet Number	Cost
1.	Treatment and Disposal of Waste	TD-2	$109,920
2.	Transportation and Disposal of Decontamination Fluids	TD-3	$ 22,943
	TOTAL COST OF TREATMENT AND DISPOSAL *(Add lines 1 and 2)*		$132,863

1	TREATMENT AND DISPOSAL OF WASTE 1 Waste Solvent		
1.A	Volume of Waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual or conversion factors, if needed)	1057 (1153) yd^3 55-gal drums	1,057 55-gal. drums
1.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
1.C	Amount of waste to be treated as disposed of (Multiply line 1.A by line 1.B)	lb	
1.D	Amount of waste to be treated or disposed of in tons (Divide line 1.C by 2,000 lb/ton)	tons	
1.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ 60/drum /ton	
1.F	**Cost to Treat and Dispose of Waste 1 (Multiply line 1.D by line 1.E)**		$ 63,420
2	TREATMENT AND DISPOSAL OF WASTE 2 Waste Solvent		
2.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	15,000/gal yd^3	15,000 gal bulk
2.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
2.C	Amount of waste to be treated as disposed of (Multiply line 2.A by line 2.B)	lb	
2.D	Amount of waste to be treated or disposed of in tons (Divide line 2.C by 2,000 lb/ton)	tons	
2.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ 1.0/gal /ton	
2.F	**Cost to Treat and Dispose of Waste 2 (Multiply line 2.D by line 2.E)**		$ 15,000

3 TREATMENT AND DISPOSAL OF WASTE 3 Bulk Debris			
3.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	yd^3	
3.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
3.C	Amount of waste to be treated as disposed of (Multiply line 3.A by line 3.B)	lb	
3.D	Amount of waste to be treated or disposed of in tons (Divide line 3.C by 2,000 lb/ton)	tons	
3.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ /ton	
3.F	**Cost to Treat and Dispose of Waste 3 (Multiply line 3.D by line 3.E)**		$ 1,500 *
4 TREATMENT AND DISPOSAL OF WASTE 4			
4.A	Volume of waste to be treated or disposed of (in yd^3) (Refer to Appendix A of this manual for conversion factors, if needed)	yd^3	
4.B	Density of waste. Select the density of the material that most closely resembles the waste (Refer to Attachment A to this worksheet)	lb/yd^3	
4.C	Amount of waste to be treated as disposed of (Multiply line 4.A by line 4.B)	lb	
4.D	Amount of waste to be treated or disposed of in tons (Divide line 4.C by 2,000 lb/ton)	tons	
4.E	Treatment cost (Enter cost from Attachment B, C, or D to this worksheet)*	$ /ton	
4.F	**Cost to Treat and Dispose of Waste 4 (Multiply line 4.D by line 4.E)**		$
	TOTAL COST OF TREATMENT AND DISPOSAL (Add lines 1.F, 2.F, 3.F, and 4.F) (Enter total on worksheet TD-1, line 1)		$ 109,920

Notes:

* Depending on information available, treatment costs per unit may be determined by using either Attachment B (based on waste characteristics) or Attachments C and D (based on treatment and disposal technologies).

* = Based upon Altamont Springs Costs from BFI

If the amount of wastewater generated during unit closure activities exceeds a volume that can be handled effectively by placing the waste in drums, wastewater may be handled and disposed of as a bulk liquid. This worksheet may be used to determine the cost to transport and dispose of wastewater generated during closure as a bulk hazardous liquid.

1	Determine the volume of decontamination fluid generated from closure activities. Add all volumes calculated from closure activity worksheets to determine the total volume of liquid to be transported and disposed of. 15062 gal 49906 gal 900 gal _____ gal _____ gal	65,770 total gal	
2	Labor and equipment cost per work hour[a] Choose the appropriate Level of PPE: a. Protection Level D $39.24/work hr[b] b. Protection Level C $55.81/work hr[c] c. Protection Level B $69.99/work hr[c]	$ 39.24	
3	Work rate to pump decontamination fluid to a holding tank (per gallon)[d]	0.0000667 work hrs/ gallon	
4	Number of hours required to pump decontamination fluid to a holding tank (Multiply line 1 by line 3) (One hour minimum; round up to the 0.5 hour)	4.5 work hours	
5	Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank (multiply line 2 by line 4)		$ 177
6	Number of days required to rent holding tank (Round up line 4 to nearest 8 hours; divide by 8 hours per day)	1 days	
7	Holding tank rental fee (10,000 gallon capacity) (Flat rate per tank per day)[e]	$345.00/day	
8	Number of tanks required (Divide line 1 by 10,000 gallons; round up to the nearest whole number)	6 tanks	
9	Subtotal of tank rental costs (Multiply lines 6, 7, and 8)		$ 2,415
10	Removal costs for bulk liquid (Multiply line 1 by $1.05 per gallon)[f]		$ 23,020 *
TOTAL COST TO TRANSPORT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID (Add lines 5, 9, and 10) (Enter total on worksheet TD-1, line 2)			$ 25,612

*Note: This assumes decon water is non-haz. .35/gal trans & disp.

Notes:

[a] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pgs. 18 and 38, item nos. 420-4300 and 404-0900. The activity described is pumping liquid with a 3-inch centrifugal gas pump at a rate of 15,000 gallons per hour.

[b] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-10J. Crew B-10J consists of one equipment operator, 0.5 building laborers, and one 3-inch centrifugal gas pump and accessories.

[c] Cost derived from R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 500, crew B-10J. Crew B-10J consists of one equipment operator, one-half building laborer, and one 3-inch centrifugal water pump and accessories. See Appendix B of this manual for details of the calculations.

[d] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 18, item no. 420-4300. The work rate is obtained by determining the time required to pump one gallon of decontamination fluid ((1 hour ÷ 15,000 gallons).

[e] R.S. Means Company, Inc., *Means Building Construction Cost Data*, 1994, pg. 19, item no. 420-7000. The cost is based on the daily cost of renting a 10,000-gallon-capacity liquid holding tank.

[f] Cost for removal of 1 gallon of decontamination fluid is based on 1994 price quotes from several commercial hazardous waste management companies. The cost includes transport, treatment, and disposal of bulk, water-based, hazardous liquids by a third-party contractor.

Decon water should not be hazardous!

CLOSURE COST CALCULATIONS

PERMITTED WASTE CAPACITY

Above Ground Storage Tank	15,000
North Building Container Storage	5,197
South Building Non-flammable Storage	44,367
South Building Flammable Storage	12,749
Dumpsters	1,008
Container Areas	63,321
Total Facility Capacity (gallons)	78,321

CONTAINER AREAS - CONTAINMENT SURFACE AREA

North Building Storage	Area 1	40' x 30'	1,200
South Building Non-flammable	Area 2	60' x 45'	2,700
South Building Flammable	Area 3	45' x 45'	2,025
South Building Flammable Storage	return & fill	50' x 80'	4,000
	return & fill trench parking (?)	Total (ft^2)	9,925
	pipe from area 3 to outside area (?)		
	outside area (?)		

CS-1

CONTAINER BERM SURFACE AREA

North Building	2 x (40' + 30')	140
South Building Non-flammable	2 x (60' + 45')	210
South Building Flammable	2 x (45' + 45')	180
curbs for return and fill (?)	Total (feet)	530

Height = 4"
Surface Area = 530' x 4" = 177 ft^2

CS-1

AST INTERIOR SURFACE AREA

Walls:	2π (5.25') (23.25') (radius) (height)	767
Top/Bottom:	2 x π $(5.25)^2$	173
dump pan surface areas (?)	Total (ft^2)	940

CLOSURE COST CALCULATIONS

VOLUME OF AST CONTAINMENT

Surface Area:	2 x 47" x 49' (height) (length)	384
	2 x 47" x 18.5' (width)	147
Base Pad:	49' x 18.5'	906.5
	sum e(?) Total (ft^2)	1,435.5

Thickness = 6"
Volume = 717.75 ft^3

ESTIMATED ANCILLARY PIPE LENGTH

From dock to 16' height	12
From dock to tanks	50
Back to ground level	16
	78
+ 20%	15.6
Total (feet)	93.6

Capacity: 93.6' x .661 gal./ft. = 61.9 gallons
(4" pipe)

Assumptions

- No contaminated soil.
- FDEP will require only 2 samples (under AST area).
- No groundwater monitoring will be required.
- Hazardous waste transport and disposal - quoted from Laidlaw 5/9/96 (800)465-2435.
  - Disposal: $.54 - $2.5 per gallon
    $45 - $180 per 55-gallon drum
  - Transport: (to Florida facility; bulked and shipped to incinerator)
    $10 per drum
- No costs included * for south flammable area pipe to external containment.
- Decon water will be non-hazardous.
- AST area cover will be wipe-tested; no decon will be necessary.

LIST OF FIGURES

		Following Page
Figure II.A.4(b)-1	*Site Layout Map*	*II.A.4(b)-3*
Figure II.A.4(b)-2	*Container Storage Locations*	*II.A.4(b)-3*
Figure II.A.4(b)-3	*Location of Emergency Equipment*	*II.A.4(b)-10*

LIST OF TABLES

Table II.A.4(b)-1	*Telephone Notification Log*	*II.A.4(b)-4*
Table II.A.4(b)-2	*Emergency Response Equipment*	*II.A.4(b)-10*
Table II.A.4(b)-2A	*Field Spill Report Form*	*II.A.4(b)-4*
Table II.A.4(b)-3	*Description and Uses of Emergency Equipment*	*II.A.4(b)-13*

EMERGENCY PHONE NUMBERS

Emergency Coordinators

Primary:	Chad Little	Alternate:	Shannon Sink
	836 Greenbelt Circle		9228 Sunnyoak Dr.
	Brandon, FL 33510		Riverview, FL 33569
	Home: (813) 654-2189		Home: (813) 671-2721
	Office: (813) 626-1203		Office: (813) 626-1203
	Beeper: (813) 969-8203		Beeper: (813) 969-9399

Emergency Notification Phone Numbers

Safety-Kleen Environmental Department
Telephone (800) 468-1760

National Response Center
Telephone (800) 424-8802

Southwest Florida Department of the FDEP, 8407 Laurel Fair Circle
Tampa, Florida 33610-7355 (813) 744-6462 (normal business hours)

State Warning Point (904) 413-9911 (24 hours)

Emergency Team to be Notified

Hillsborough County Fire Department
715 S. 58th Street
Tampa, FL 33619
(813) 681-9927 or 911

Hillsborough County Sheriff's Office
220 Hilltop Road
Brandon, FL 33511
(813) 247-8555 or 911

Brandon Hospital
119 Oakfield Drive
Brandon, FL 33511
(813) 681-5551

O.H. Materials Company
P.O. Box 551
Findlay, OH 45840
(800) 537-9540
(Primary Cleanup Contractor)

Ryckman's Emergency Action
and Consulting Team
P.O. Box 27310
St. Louis, MO 63141
(800) 325-1398
(Secondary Cleanup Contractor)

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ATTACHMENT II.A.4(b)

CONTINGENCY PLAN AND EMERGENCY PROCEDURES FOR DAILY BUSINESS OPERATIONS

GENERAL FACILITY INFORMATION

Purpose

The contingency plan and emergency procedures are designed to ensure that Safety-Kleen is prepared to address emergency situations rapidly and in a manner to prevent or minimize hazards to human health or the environment from fire, explosion, or any unplanned sudden or non-sudden release of hazardous material constituents to the air, soil, surface water, or ground water at the facility.

The provisions of the contingency plan are to be carried out immediately if there is a fire, explosion, or release of hazardous materials occurs that could threaten human health or the environment. All contingency plan responses must conform with the procedures contained in this plan.

General Description of Activities

The business activities conducted a the Tampa Branch Operation relate to the leasing and servicing of Safety-Kleen Parts Cleaning Equipment, including the provisions of a solvent leasing service for the customers. Clean solvents are distributed from, and the used solvents are returned to, the Branch Operation, where separate storage tanks are utilized for the storage of clean and used parts washer solvent. There are two fresh parts washer solvent storage tanks at this time. These tanks may store any of the clean parts washer solvents. Warehouse space is designated for the storage of containers of both clean and used Immersion Cleaner, parts washer solvent, FRS wastes, antifreeze, paint waste, and dry cleaning wastes (chlorinated and non-chlorinated solvent). Overpack containers are used for the management of containers whose integrity has been compromised.

Parts washer solvent is transported in covered containers between the Branch Operation and customers. Upon returning to the Branch Operation, the used parts

washer solvent is transferred from the containers into a wet dumpster (solvent return receptacle) in which coarse solids in the parts washer solvent is retained. Used parts washer solvent from the wet dumpster is pumped into a 15,000-gallon aboveground tank for storage. Used parts washer solvent is picked up regularly by a bulk tank truck from the recycle facility which at the same time delivers clean parts washer solvent. The sludge in the wet dumpster is regularly cleaned out, containerized, and stored as permitted waste in the container storage area for later shipment to the recycle facility for reclamation or disposal.

The immersion cleaner remains in a covered container at all times during transportation and storage. The solvent is not transferred to another container while being used by the customers or while in storage at the Branch Operation. The immersion cleaner is managed as a transfer waste. Dry cleaning wastes are picked up at commercial dry cleaning establishments in containers and stored temporarily at the Branch Operation. The containers are picked up regularly for recycling at the recycle facility.

Dry cleaning wastes consist of spent filter cartridges, powder residue from diatomaceous or other powder filter systems, and still bottoms. The still bottoms and powder residue are packaged on the customer's premises in containers. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

Currently, all anti-freeze is mixed with used oil and sent to Safety-Kleen's East Chicago, Indiana recycle center where it is reclaimed. Anti-freeze and used oil is collected from customers in tank trucks where it is commingled. Oil and anti-freeze is generally not brought back to the branch, usually it is taken directly to the BIDs terminus for off-loading into tanker cars and shipped via rail to the recycle center.

Practices and procedures regarding the handling of spent anti-freeze were developed after the submittal of this application. The initial documents were developed jointly between Safety-Kleen and the Tallahassee Department of Enviromental Protection. In these documents, Safety-Kleen has committed to handle spent anti-freeze in an not acceptable environmentally safe method. All anti-freeze collected and managed in the State of

Florida will be recylced. This recycling activity involves the mixing of used oil and anti-freeze in vehicles owned by Safety-Kleen. The shipment is then by rail to Safety-Kleen's East Chicago, Indiana recycle center. Safety-Kleen will advise DEP in writing via permit mods to any exception in procedures.

Paint wastes consist of various lacquer thinners and paints. The waste is collected in containers at the customer's place of business and the containers are then stored in the container storage area of the warehouse. The paint wastes manifests are terminated upon receipt at the Branch Operation. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

The FRS wastes are packaged in polyethylene or steel containers which are not opened until they reach the recycle center. The FRS wastes are transfer wastes. These may be stored onsite for up to 10 days. The FRS wastes may also undergo branch-to-branch or truck-to-truck transfer. This transfer will occur at the return/fill area inside secondary containment.

The waste products exhibit essentially the same biological, physical, and chemical properties as the fresh product. Used products are basically fresh products with impurities of dirt and metals. The MSDSs provided in Appendix A represent the biological, physical, and chemical properties of the fresh and used products.

Figures II.A.4(b)-1 and II.A.4(b)-2 show the basic site and floor plans, particularly, the locations of waste management facilities and facility storage.

check on location of figure

II.A.4(b)-2

EMERGENCY NOTIFICATION

Emergency Coordinator

The Operations Manager or designee is the emergency coordinator. Page iii includes the names, home addresses, and both office and home phones of the primary emergency coordinator and alternates. At least one employee is either present on the facility premises or on call with responsibility for coordinating all emergency response measures at all times. This primary emergency coordinator and alternate emergency coordinator are thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of materials handled, the location of all records within the facility, and the facility layout. In addition, these coordinators have the authority to commit the resources needed to carry out the contingency plan.

EMERGENCY RESPONSE AGENCIES AND TEAM MEMBERS

The agencies and response team members to be notified whenever an imminent or actual emergency occurs are presented on page iii. A Telephone Notification Log is shown in Table II.A.4(b)-1.

ACTIONS OF THE EMERGENCY COORDINATOR

Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the designee when the emergency coordinator is on call) must immediately:

a. Activate internal or communication systems to notify all facility personnel. The relatively small size of this Branch Operation makes direct verbal communication the most expedient form of emergency notification. The emergency coordinator may also elect to proceed to the front of the building and repeatedly sound a car horn to notify building occupants of an emergency. A head count will be performed by the emergency coordinator.

b. Notify appropriate state or local agencies with designated response roles if their help is needed.

c. Summon the primary emergency coordinator, if that person is absent.

Whenever a release, fire, or explosion occurs, the emergency coordinator must immediately identify the character, exact source, amount, and area extent of any released materials. Because of the limited types of chemicals in storage, the identification processes can easily be performed visually.

Procedure for Assessing Possible Hazard to the Environment and Human Health:

a. After identification of the character, source, amount, and extent of a release, fire, or explosion, the emergency coordinator must decide whether the situation can be contained or cleaned up by plant personnel and equipment.

b. If a fire or explosion is determined uncontrollable by plant personnel or threatening neighboring establishments or population, assistance from a local emergency response agency shall be summoned immediately and an evacuation order be requested.

c. In case of a release outside of the containment area that is deemed immediately uncontainable or unrecoverable, the local emergency response agency and/or specialty cleanup contractor shall be called in.

d. After termination of a fire or explosion, containment and preliminary cleanup of a spill, evaluate whether residues in the form of gas or liquid have become airborne, seeped into ground water, and/or flowed into surface water bodies.

e. Expert assistance may be requested to determine whether the escaped materials are potentially harmful and whether the receiving medium ultimately will be a populated area, public water supply source, a private well, or an environmentally sensitive area.

f. Additional steps shall then be taken to mitigate the potential impact on the environment and human health, in accordance with expert recommendations.

If the emergency coordinator determines that the facility has had a release, fire, or explosion that could threaten human health, or the environment outside the facility, the coordinator must report those findings, as follows:

a. If the assessment indicates that evacuation of local areas may be advisable, the coordinator must immediately notify appropriate authorities. The coordinator must be available to help appropriate officials decide whether local areas should be evacuated.

b. The coordinator must immediately notify the Southwest Florida District of the FDEP, (813) 744-6462 during regular business hours, or the State Warning Point at (904)413-9911 outside regular business hours and holidays or the National Response Center (800) 424-8802, by telephone.

The report must include:

(1) Name and telephone number of notifier;
(2) Name and address of facility;
(3) Time and type of incident (e.g., release, fire);
(4) Name and quantity of material(s) involved, to the extent known;
(5) The extent of injuries, if any; and
(6) The possible hazards to human health or the environment outside the facility.

Immediate assistance in assessing and responding to an emergency is obtained by the emergency coordinator by calling the 24-hour emergency number of the Safety-Kleen Corporation Environmental, Health and Safety Department's Contractor InfoTrack ((800) 468-1760). The 24 hour emergency number identified as InfoTrack is a vendor contracted by Safety-Kleen to respond to all reports of spills or chemical emergencies. All Safety-Kleen facilities in the State use this contractual arrangement with

InfoTrack. This allows Safety-Kleen to respond to any emergency with a maximum of effort, thereby reducing the threat to human health or the environment.

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

The emergency coordinator must ensure that, in the affected area(s) of the facility:

a. No waste that may be incompatible with the released material is treated or stored until cleanup procedures are completed; and

b. All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

The owner or operator must notify the appropriate state and local authorities that the facility is in compliance with the requirements of the preceding paragraph, before operations are resumed in the affected area(s) of the facility.

The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, the owner must submit a written report on the incident to the Southwest

Florida District of the FDEP, 3804 Coconut Palm Drive, Tampa, Florida 33619 (813) 744-6462. The report must include: DEP District office address and Emergency Response telephone #

a. Name, address, and telephone number of the owner or operator;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (e.g., fire, explosion);

d. Name and quantity of material(s) involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

g. Estimated quantity and disposition of recovered material that resulted from the incident.

POTENTIAL SPILL SOURCES

The following is a list of activities that have the potential for a small scale (less than 55 gallons of waste) pollution incident.

a. Moving of containers.

Every time a container is moved, the possibility exists that it could tip over or be dropped. To minimize the possibility of spillage of solvent under those conditions, all container lids must be secured before the container is moved.

b. Delivery truck container transfers.

(1) Individual delivery containers contain from five to 55 gallons of waste, a quantity which can be contained by oil sorbent clay or pads, if accidentally spilled.

(2) Each vehicle is equipped with a hoist and hand cart for ease of moving clean solvent off the truck and into the customer's shop and returning the dirty solvent to the truck.

How is the operationability of the truck hoist monitored? How is use of the hoist at the customers location monitored?

(3) Clamp type lids are on containers during movement to prevent a spill.

(4) Each truck contains a complete spill kit, shovel and a quantity of sorbent material to contain minor spills.

(5) The cargo must be secured in the route vehicle before transit.

Spills Inside Buildings

In the event of a spill indoors, the doors and windows should be opened to improve the ventilation in the confined area. Following the instructions of the Material Safety Data Sheet (MSDS), the worker would enter the area wearing rubber gloves, boots, and respirator and mop up the liquid and return it to dirty storage. The cleanup is completed only when the workers have cleaned themselves and the emergency equipment with soap and water.

Spills on Concrete Pads

Concrete pads in loading and unloading areas are, in most cases, equipped with emergency containment. Under most spill conditions, product can be totally contained on the concrete surface and in the catchment system. Upon containment, arrangements must be immediately undertaken to recover the material. Any soil that may be involved must be removed and treated as a hazardous waste.

Tank Spills or Leakage

Aboveground tanks are underlain by a concrete slab and surrounded by a concrete dike wall adequate to contain any spilled or leaked solvent. The containment system

has been sized in accordance with the regulations, and the product will be totally contained under most spill conditions. Should a spill occur, arrangements must be immediately undertaken to recover the material. In the event of leakage, tank repair or replacement will be initiated. Any soil that may be involved must be removed and treated as hazardous waste.

What constitutes a "harmful" spill?

Spill Control Procedures

If a harmful discharge occurs:

a. Stop the discharge, if possible, by immediately transferring the liquid to a good container. What constitute "appropriate" personal protective equipment?

b. Retain, contain, or slow the flow of the material, if possible, by diking with sorbent pad or dirt. Appropriate personal protective equipment should be worn. Pump and mop up the liquid from the floor into a good container, and return the container to storage and then later to the recycle center for reclamation/disposal. The area and equipment that comes in contact with the spill must be decontaminated with soap and water. All residues resulting from containment and decontamination should be collected for proper disposal at a Safety-Kleen recycle center.

c. If the material escapes the containment efforts, immediately call the cleanup contractor with response time less than two hours (page iii). Record the date, time, and name of person taking the message. Call the primary emergency coordinator, if that person is absent.

d. Immediately recover spilled solvent to reduce property and environmental damage using the safety equipment stored onsite for such situations (Figure II.A.4(b)-3) and Table II.A.4(b)-2 or call in emergency response contractors (page iii). Start recovery operations immediately.

After recovery of spilled solvent, wash all contaminated impervious surfaces and equipment with soap and water. The residue of spill- or fire-contaminated soils and waste waters must be removed and disposed of at a

Safety-Kleen recycle center. In addition, the recovered solvent will be sent to a Safety-Kleen recycle center for reclamation.

e. Report any incident as soon as possible to Safety-Kleen Corporate Environmental Department on the 24-hour telephone line: (800) 468-1760. If the Environmental Department does not respond within 30 minutes, call the National Response Center (telephone: (800) 424-8802) or the State Warning Point (904) 413-9911 and Southwest Florida District of the FDEP, 3804 Coconut Palm Drive, Tampa, Florida 33619; (813) 744-6462.

FDEP district office address, E.R. telephone number.

f. The person reporting a spill should be prepared to give their name, position, company name, address, and telephone number. The person reporting also should give the nature of the material spilled (e.g., immersion cleaner, etc.) and, if possible, some estimate of the amount, and whether it is near a stream or could enter a stream by flowing through ditches or storm sewers.

If assistance is needed, the emergency coordinator should describe the containment status and specify any additional equipment needed. When reporting a spill, record the date and time of the call and the name of the person answering the call at the above number.

Spill prevention plans are reviewed with facility personnel every year, and records of the training are kept at the facility.

Every spill must be recorded on the form provided (Table II.A.4(b)-2A) with the revision of the contingency plan to prevent similar spills in the future. A copy of this report is sent to the Corporate Environment Health and Safety Department.

Reports of emergency incidents will be transmitted to the Secretary of the FDEP or designee within 15 days of occurrence. This report shall include:

a. Name, address, and telephone number of the owner of operator;

b. Name, address, and telephone number of the facility;

c. Date, time, and type of incident (e.g., fire, explosion);

d. Name and quantity of materials involved;

e. The extent of injuries, if any;

f. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

g. Estimated quantity and disposition of recovered material that resulted from the incident.

DECONTAMINATION

Once the spilled material has been cleaned-up, the spill area and equipment used during the spill clean-up must be decontaminated and/or disposed.

Concrete surfaces/containment areas:

- Concrete surfaces/containment areas will be cleaned with a detergent solution and then rinsed with hot water. The rinsate will be collected via wet vacuums and placed in containers. Visual inspection will be used to determine the success of the decontamination procedure.

- The intent of the surface decontamination is to prevent current or future releases of materials to the environment. It is believed that a vigorous cleaning with detergent is sufficient to prevent releases to the environment during normal operations. Potential for hazards from residual materials to future occupants of the facility are addressed in the Closure Plans for the facility and the decontamination procedures incorporated therein.

Equipment

The equipment used to clean the area includes mops, pails, scrub brushes, and a wet/dry vacuum. Equipment which is considered reusable (i.e., pails, wet/vac, hoses) will be washed with detergent and the wash water and rinsate collected. All non-reusable equipment and/or equipment which is not capable of being decontaminated will be containerized and disposed of as hazardous waste.

Wash Water and Rinsate

If the rinsate or other wastes generated in the clean-up process is determined to be hazardous, it will be properly disposed of as a hazardous waste; otherwise, the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to the surface waters.

EMERGENCY RESPONSE EQUIPMENT AND COMMUNICATION

Due to the small size of the facility, routine communication is accomplished by voice communication. Telephones are used in case of a spill or fire emergency to summon assistance. Emergency numbers are posted by each phone in the office. Included with these phone numbers is the 24-hour spill number for the Corporate Environmental Department at the corporate office in Elgin, Illinois. Figure II.A.4(b)-3 provides locations of telephones, fire extinguisher, the first-aid kit, and the emergency eyewash. Other emergency response equipment (Table II.A.4(b)-2) is kept in two places. In the Branch Operation, emergency response equipment is kept inside the door leading to the fill/return shelter. In the Branch Operation, emergency response equipment is kept adjacent to the south wall of the Branch Operation office and between the two northernmost docks located on the eastern side of the Branch Operation building. This equipment includes mops and buckets, soap, shovels, and spill sorbent pads. Rubber gloves, boots, pumps, and a wet/dry vacuum cleaner are stored in an emergency supply area near the container storage area. Descriptions and uses of the equipment are provided in Table II.A.4(b)-3. Adequate aisle space is provided in the container storage area for movement in an emergency situation.

telephone numbers need in warehouse

A fire suppression system is available at the facility. The system is supplied from an onsite well. The well water is pumped to a storage tank located outside the southwest corner of the warehouse building. The fire suppression system is charged via a pump which is located adjacent to the water storage tank. The suppression system utilizes both water and foam. The sprinkler water from the flammable storage area is captured in a pipe which is connected to a trench in the flammable storage room and discharges to a containment area outside the southwest corner of the warehouse.

The equipment available at the facility for emergency situations is adequate for most cases. Large or serious emergency situations will be remediated by local emergency response teams or special emergency response or cleanup contractors. The facility is constructed and operated in accordance with National Fire Protection Association (NFPA) standards and applicable local ordinances. Applicable health and safety standards also are observed at the Branch Operation. A recent air quality survey conducted by an independent industrial hygienist at the Los Angeles Branch Operation has shown that air quality at a typical Branch Operation is within Threshold Limit Values (TLV) as specified by OSHA and local air pollution control criteria; no respirator or special protection unit is deemed mandatory.

FIRE CONTROL PROCEDURES

Call the Fire Department.

a. Dry cleaning wastes are initially not flammable, but may produce toxic gases and hydrochloric acid at elevated temperatures (about 1200° F).

Center aisles are available in container storage areas to permit fire department personnel to pass with fire fighting equipment.

Act quickly with the fire extinguisher to put out the fire before it spreads.

Call the Police Department and local hospital (page iii) when injury occurs, and/or the order of on-lookers and traffic is to be maintained.

AVAILABILITY AND REVISION OF THE CONTINGENCY PLAN

This plan and all revisions to the plan are kept at the facility and regularly updated throughout the operating life of the facility.

Copies of this document are provided to local authorities and organizations listed under the Preparedness and Prevention Plan, which may be called upon to provide emergency services.

This plan and all revisions to the plan are made readily available to employees working at the facility.

This plan is reviewed and updated, if necessary, whenever:

a. The facility license is modified to allow new process wastes to be stored or treated, or applicable regulations are revised;

b. The list or location of emergency equipment changes;

c. The facility changes in its design, construction, operation maintenance, or other circumstances in a way that:

   (1) Materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or

   (2) Changes in response necessary in an emergency.

d. The names, addresses, or phone numbers of emergency coordinators change;

e. The employee assigned to each emergency task changes, or

f. The plan fails when implemented in an emergency.

ARRANGEMENTS WITH LOCAL AUTHORITIES

Arrangements have been made to familiarize the Police Department, Fire Department, and local emergency response teams with the layout of the facility, properties of hazardous materials handled (Material Safety Data Sheets) at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

Potential primary and secondary spill control contractors as well as sorbent suppliers are identified in the Contingency Plan and Emergency Procedures.

Arrangements have been made to familiarize the local hospital with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which would result from fires, explosions, or releases at the facility.

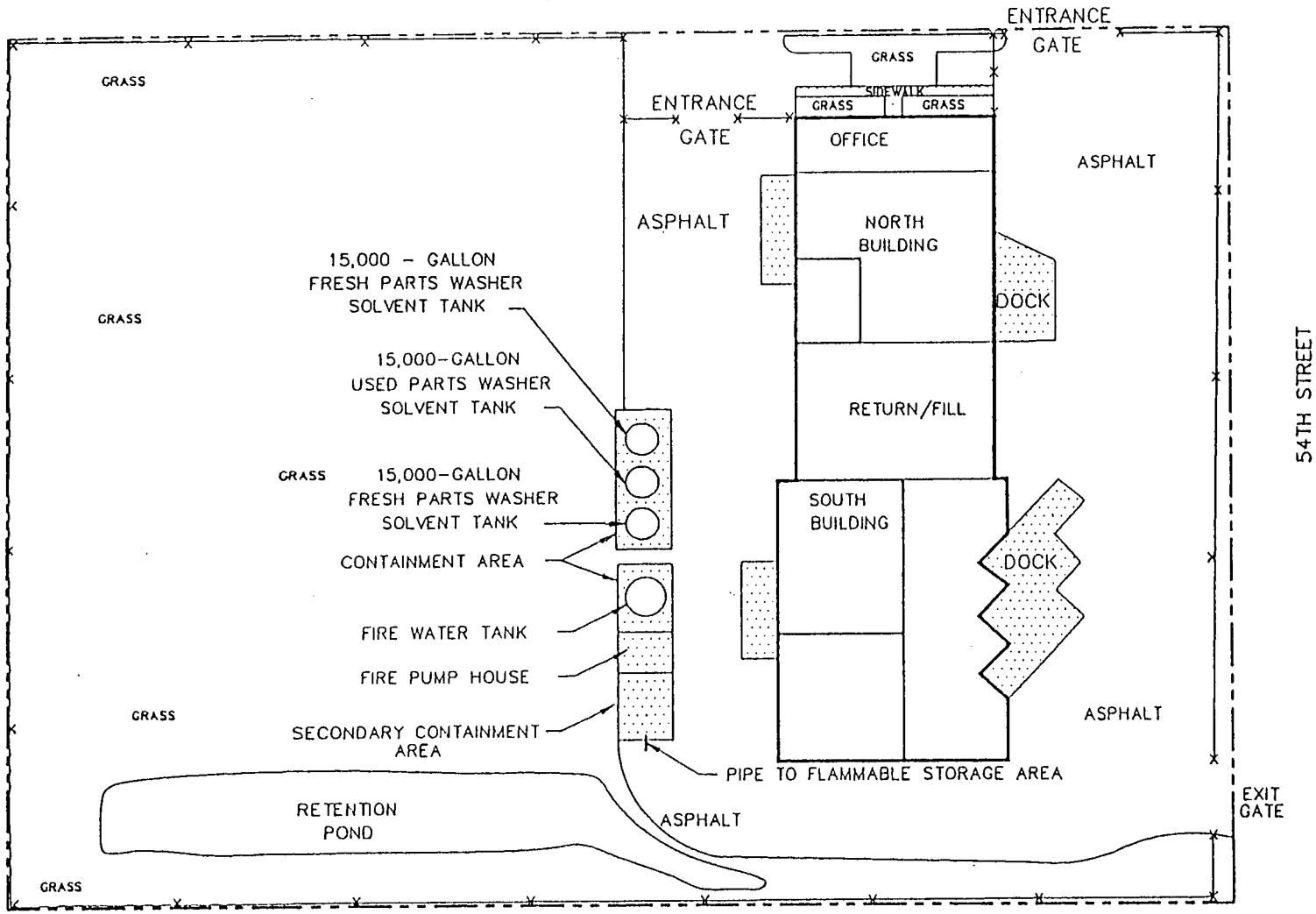
Appendix B includes copies of letters which have been transmitted to local authorities for emergency response in the event of an incident where pubic health or environment is threatened.

EVACUATION PLAN

In an uncontrolled emergency, all persons are to be evacuated from the area by means of a verbal cry and assemble across from the entrance drive to the facility. Assure that all personnel are accounted for and out of the area. The emergency coordinator may elect to use a car horn as a means of emergency notification. A head count will be performed by the emergency coordinator.

The Fire Department must be notified at the time of evacuation either from a safe onsite building or neighboring facilities.

Clearly marked exits exist in warehouse and office area.



ADAPTED FRO ERM DRAWING PTB-SPC 091793-4

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CONCRETE

N

0 APPROXIMATE SCALE 60

FEET

FIGURE II.A.4(b)-1
ACCESS CONTROL FEATURES
SAFETY KLEEN CORP. FACILITY
TAMPA, FLORIDA

PROJECT NO.	PREPARED BY	DRAWN BY
B095-061		C.B.G.
DATE	REVIEWED BY	FILE NAME
40-16-96		00-TB

Delta Environmental Consultants, Inc.

TABLE II.A.4(b)-2

EMERGENCY RESPONSE EQUIPMENT

Description	Type/Capacity	Location	Quantity
Fire Extinguisher	ABC	Warehouses	10
Fire Extinguisher	ABC	Office Area	1
Fire Extinguisher	ABC	Tank Farm	1
Eyewash/Safety Shower	Fountain/Overhead	Warehouses	4
Shower		Office Area	1
First-Aid		Locker Rooms	2
Telephones	Standard	Manager's Office	Min. 2
Telephones	Standard	Secretary's Desk	Min. 1
Telephones	Standard	Warehouses	Min. 1
Gloves	Rubber	Emergency Equip. Area	Min. 3 pair
Boots (optional)	Rubber	Emergency Equip. Area	Min. 3 pair
Protective Clothing	Apron	Emergency Equip. Area	Min. 3
Eye Protection	Goggles/Safety Glasses	Emergency Equip. Area	Min. 3
Sorbent Material	Oil Absorbing	Emergency Equip. Area	Min. 1 bale
Shovel	Standard	Emergency Equip. Area	Min. 1
Mop and Bucket	Standard	Emergency Equip. Area	Min. 1
Respirator	Air Purifying	Emergency Equip. Area	Min. 2
Pump	Hand-held, Electric	Emergency Equip. Area	Min. 1
Wet/Dry Vacuum	Portable, Electric	Emergency Equip. Area	Min. 1

Table II.A.4(b)-2A

SAFETY-KLEEN CORP.

Field Spill Report Form

Report all spills to the Safety-Kleen Environment, Health and Safety Dept. immediately.

1. Facility Number_____ Facility Location_____
2. Date of spill_____ Time_____ a.m./p.m.
3. Report from:_____ Title_____
4. Location of spill:_____
5. Material spilled:_____ Quantity_____
6. Any injuries or property damage? Yes or No If yes, explain._____
7. Cause of spill? (Explain in detail.)_____
8. Describe the scene in detail (including nearby surface water or sewer and distance, type of surface spilled on, was spill contained)._____
9. Describe clean-up action taken in detail. How much material was not recovered?_____
10. Person involved in incident._____
11. Vehicle #_____ Company_____
12. Accident resulted from activities involving (circle all that apply):

    SK Fleet Branch Personnel Outside Carrier Customer Other
13. List any emergency agencies at scene._____
14. Are there homes or businesses nearby? Yes or No Distance?_____
15. Notification:

	S-K Environment Dept. 1-800-669-5740 1-312-888-4660 (24 hr.)*	Nat'l Response Center 1-800-424-8802	State 1- - -
Date/time:			
Contact name:			
Comments rec'd:			
Report Number:			

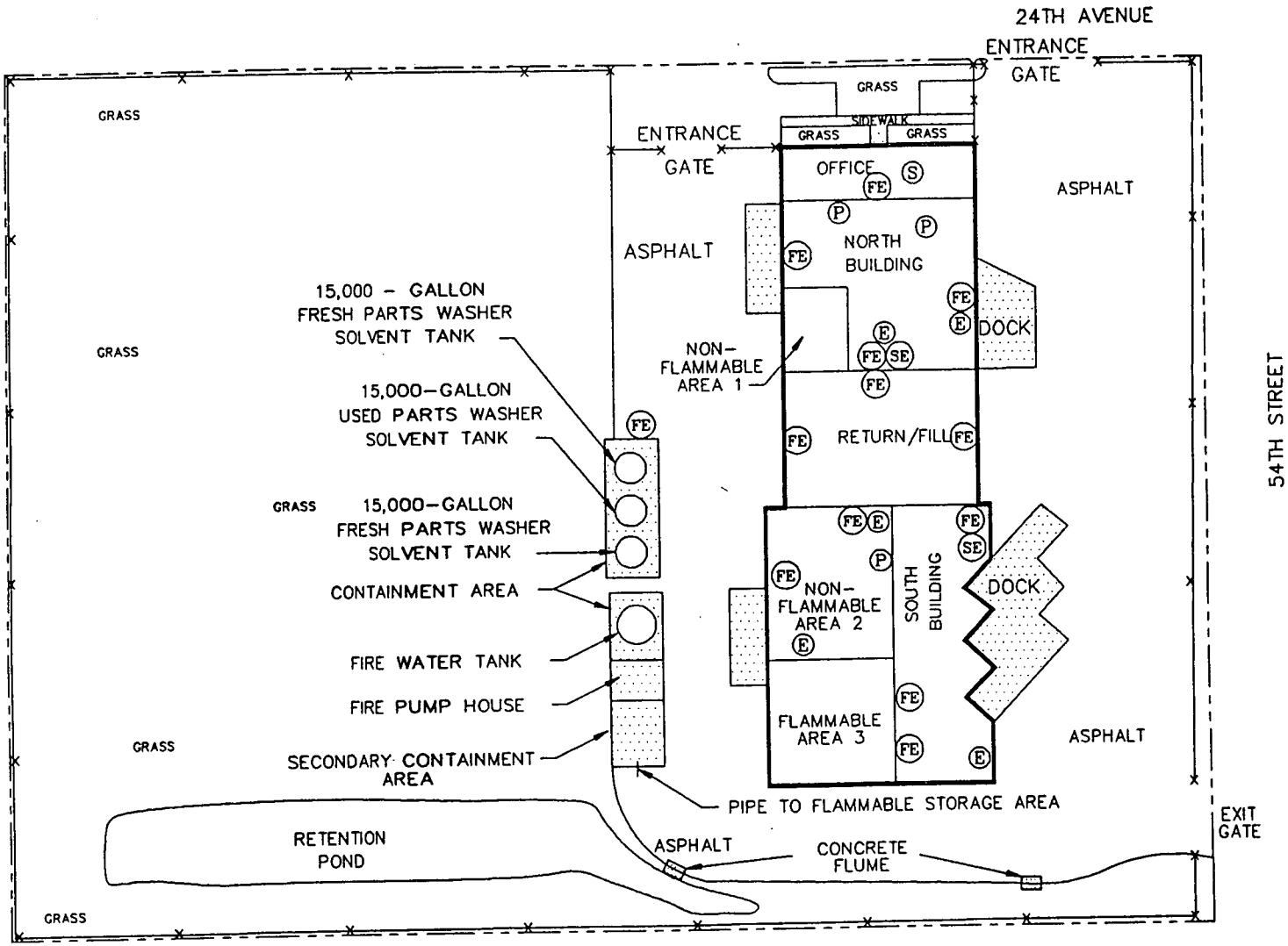
16. Action taken to prevent recurrence._____

Use back of form if additional space is needed for any item.

Signature_____

After completing this form, file copy 1 in the Spill Incident File at the branch, and send copy 2 to the SK Environment, Health and Safety Department in Elgin and copy 3 to the Regional Environmental Engineer.

*NOTE: After 11/11/89 telephone number will be (708) 888-4660



ADAPTED FROM ERM DRAWING PTB-SPC

N

0 APPROXIMATE SCALE 60

FEET

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CONCRETE
- (FE) FIRE EXTINGUISHER
- (SE) SPILL EQUIPMENT
- (E) EYEWASH/SHOWER
- (S) SHOWER
- (P) PHONES

FIGURE II.A.4(b)-3
LOCATION OF EMERGENCY EQUIPMENT
SAFETY-KLEEN CORP. FACILITY
TAMPA, FLORIDA

PROJ. NO.	PREP. BY	DRAWN BY
B095-061		M.W.K.
DATE	REV. BY	DWG. NO.
4-25-96		001

Delta Environmental Consultants, Inc.

APPENDIX A

MATERIAL SAFETY DATA SHEETS FOR KNOWN HAZARDOUS CONSTITUENTS

CHURCH & DWIGHT CO., INC.
469 NORTH HARRISON STREET
PHONE (609) 683-5900
PRINCETON, NJ 08543-5297
CABLE ADDRESS: CHURCHWIGHT
TWX 710 480 9286

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product Name

AquaWorks™ Cleaning Solution

Emergency Phone:
1-609-683-5900 (U.S.A.)

Medical Emergency Phone:
1-800-228-5635
Ext. 007 (U.S.A.)

2. COMPOSITION/INFORMATION ON INGREDIENTS

- Not hazardous under the OSHA Hazard Communication Standard 29 CFR 1910.1200.
- Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Hazy, whitish-gray liquid.
Slight/mild odor.
Not a primary skin irritant.
May cause mild eye irritation.
Not a fire hazard.
No other significant health or environmental effects known or anticipated.

HMIS Rating	
Health	0
Fire	0
Reactivity	0

Potential Health Effects

EYE: May be mildly irritating to eyes.

SKIN CONTACT: May cause slight irritation from continually repeated, prolonged, or occluded contact.

INGESTION: Considered non-toxic. Swallowing a small amount (< 1 ounce) is not likely to have an adverse effect. Ingestion of a large quantity (more than an ounce) may cause abdominal discomfort and may irritate the alimentary mucosa.

INHALATION: Considered non-toxic. Prolonged inhaling of mist may aggravate pre-existing upper respiratory disorders and cause irritation to the nose, throat and lungs.

SUBCHRONIC EFFECTS/CARCINOGENICITY: None known. The ingredients in this product are not listed as carcinogens or potential carcinogens by NTP Annual Report, IARC Group I or II, OSHA 29 CFR 1910 Subpart Z, and ACGIH Appendix A.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

4. FIRST AID MEASURES

SKIN: Remove contaminated clothing. Wash exposed areas with soap and water.

EYES: Immediately flush eyes with clean, flowing water, low pressure and luke warm if possible, occasionally lifting upper and lower eyelids. Make sure contact lenses are removed. Seek medical attention if irritation develops.

INHALATION: Move from area of exposure. Treat symptomatically. Seek medical attention if irritation develops or if person has difficulty breathing.

INGESTION: If large amounts are ingested, do not induce vomiting. If person is conscious, give two glasses of water to drink. **Do not attempt to give anything orally to an unconscious person.** Seek medical attention.

NOTE TO PHYSICIAN: Ingestion of large amounts may cause systemic alkalosis. Treatment based on judgement of physician in response to reactions of patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES	FLAMMABLE LIMITS
FLASHPOINT: Not Applicable	LFL: Not Applicable
METHOD USED: Not Applicable	UFL: Not Applicable

EXTINGUISHING MEDIA: Use extinguishing media for surrounding fire.

FIRE-FIGHTING INSTRUCTIONS: Carbon dioxide may be generated by thermal decomposition or exposure to acids. Thermal decomposition may also yield carbon monoxide and oxides of sulfur and nitrogen. Wear a self-contained breathing apparatus (SCBA) and full protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

6. ACCIDENTAL RELEASE MEASURES

Will create slippery conditions if spilled. Close off area to traffic. Exercise proper cautions during clean-up. Large spills should be contained. Absorb using clay or commercial absorbent and dispose of in suitable waste containers as regulations permit (See Section 12). Flush residues to sewer or waste water system. Prevent eye and skin contact by wearing appropriate protective equipment (See Section 8). Be sure cleaned area is dry or slip-free before reopening to traffic.

7. HANDLING AND STORAGE

Store in original containers away from incompatible materials (acids). Keep containers tightly closed. Prevent skin and eye contact during handling by wearing appropriate protective equipment (See Section 8).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: None required under normal use conditions. If mists are generated, wear a NIOSH approved respirator.

PROTECTIVE GLOVES: It is good personal and industrial hygiene to prevent skin contact with the solution. Impermeable gloves are recommended to prevent skin contact during use or for cleaning up spills.

EYE PROTECTION: Chemical splash goggles are recommended when handling or working with solution, or for cleaning up spills.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: As part of normal personal hygiene, wear an impermeable apron where splashing of solution cannot be avoided.

VENTILATION: No special requirements unless mists are generated, then use local exhaust ventilation.

PROTECTIVE WORK/HYGIENIC PRACTICES: No special requirements with respect to chemical exposure other than those noted above. Specific requirements with respect to equipment and specific applications are the responsibility of the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Hazy whitish-gray liquid
ODOR: Slight/mild
PHYSICAL STATE: Liquid
pH AS IS: 10.8
VAPOR PRESSURE: N/A
BOILING POINT: 100-110°C
FREEZING POINT: -10°C - 0°C
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY (Water = 1): Approximately 1.0 @ 25°C
APPARENT DENSITY: 8.4 lbs/gal @ 25°C
SURFACE TENSION: 35 dynes
VISCOSITY: < 100 cp
% VOLATILE: Approximately 98% as water
VOLATILE ORGANIC COMPOUNDS: None with vp $\geq$0.1 mm Hg.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

CONDITIONS TO AVOID: Acids

INCOMPATIBILITY WITH OTHER MATERIALS: Reacts with acids to release carbon dioxide.

HAZARDOUS DECOMPOSITION PRODUCTS: May produce carbon monoxide, carbon dioxide, and fumes of SO_x and NO_x.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: No specific data available. Tests on concentrated versions of similar formulations indicate that mild to moderate irritation is possible with those concentrates. These effects are minimized and reversible with immediate treatment with no corneal involvement or visual impairment expected. The 10% bath solution can be expected to have a minimal to mild effect if not treated.

SKIN EFFECTS: No specific data available. Not a primary skin irritant based on testing of a concentrated version of a similar formulation. Bath solution may be irritating to humans under conditions of repeated or prolonged contact. Any irritant effect would be expected to be minimal and fully reversible.

ACUTE ORAL EFFECTS: No specific data available. Concentrated versions of similar formulations have been shown to be non-toxic with an $LD_{50} > 5000$ mg/kg.

INHALATION EFFECTS: No data available. May cause irritation to upper respiratory tract if inhaled as a mist. Irritation would be expected to be transient with no permanent damage.

12. DISPOSAL CONSIDERATIONS

Dispose of spilled or waste product and other large amounts in accordance with all local, state and federal environmental regulations. State and local regulations may differ from Federal. Be sure to consult with appropriate agencies for specific rules.

13. TRANSPORTATION INFORMATION

D.O.T. SHIPPING NAME: Not regulated
TECHNICAL SHIPPING NAME: Aqueous Cleaning-Solution
D.O.T. HAZARD CLASS: None
U.N./N.A. NUMBER: None
HAZARDOUS SUBSTANCE/RQ: None
D.O.T. LABEL: None
D.O.T. PLACARD: None

14. REGULATORY INFORMATION

OSHA

This product has been assessed as nonhazardous under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

TSCA

The ingredients in this product are reported in the U.S. EPA TSCA Inventory.

15. MSDS REVISION SUMMARY

SUPERSEDES DATE: NEW

This Product Safety Data Sheet is offered solely for your information, consideration and investigation. Church & Dwight Co., Inc. provides no warranties, either express or implied, and assumes no responsibility for the accuracy or completeness of data contained herein. Church & Dwight Co., Inc. urges persons receiving this information to make their own determination as to the information suitability for their particular application.

ABC

MAY 17 1996

safety-kleen®

Material Safety Data Sheet

SAFETY-KLEEN AQUEOUS CLEANER

Part Number: 6300

Revision 10/94; Form No. 82470

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

MAY 17 1996

SECTION 1 – PRODUCT AND PREPARATION INFORMATION

PRODUCT INFORMATION

IDENTITY (TRADE NAME):	SAFETY-KLEEN AQUEOUS CLEANER
SYNONYMS:	Not available.
SK PART NUMBER:	6300
FAMILY/CHEMICAL NAME:	Not available.
PRODUCT USE:	Cleaning and degreasing metal parts. If this product is used in combination with other chemicals, refer to the Material Safety Data Sheets for those chemicals.

24-HOUR EMERGENCY TELEPHONE	*MEDICAL:*	*TRANSPORTATION:*
These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed below.	1-800-752-7869 (USA)	1-708-888-4660 (USA)
	1-312-942-5969 (CANADA)	1-613-996-6666 (CANADA)

MANUFACTURER/SUPPLIER: Safety-Kleen Corp. - 1000 North Randall Road - Elgin, IL, 60123-7857 USA
Telephone number: 1-800-669-5740
Safety-Kleen Canada Inc. - 300 Woolwich Street South - Breslau, ON, Canada N0B 1M0
Telephone number: 1-800-265-2792

PREPARATION INFORMATION

MSDS FORM NO.: 82470 *REVISION DATE:* October 12, 1994

ORIGINAL ISSUE DATE: March 23, 1992 *SUPERSEDES:* August 18, 1993

PREPARED BY: Product MSDS Coordinator *APPROVED BY:* MSDS Task Force

TELEPHONE NUMBER: For Product Technical Information Call 1-312-694-2700 (USA); 1-519-648-2291 (Canada)

SECTION 2 – HAZARDOUS COMPONENTS

				OSHA PEL		ACGIH TLV		OTHER DATA	
NAME	SYNONYM	CAS NO.	WT%	TWA	STEL	TWA	STEL	LD[a]	LC[b]
Alcohols, C12-14-secondary, ethoxylated	Alkyloxy polyethylene oxyethanol	84133-50-6	2	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.

N.Av. = Not Available [a]Oral-Rat LD50 [b]Inhalation LC

SECTION 3 – EMERGENCY AND FIRST AID PROCEDURES

EYES: For direct contact, flush eyes with water for 15 minutes lifting upper and lower lids occasionally. Material misting is unlikely. However, if irritation or redness from exposure to mist develops, move victim away from exposure into fresh air. Consult physician if irritation or pain persists.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

SKIN: Remove contaminated clothing and shoes. Wash skin twice with soap and water. Consult physician if irritation or pain persists.

INHALATION: (Breathing) Inhalation of material is unlikely. Nevertheless, if inhalation occurs, remove to fresh air immediately. Use oxygen if there is difficulty breathing or artificial respiration if breathing has stopped. Do not leave victim unattended. Seek immediate medical attention if necessary.

INGESTION: (Swallowing) Seek immediate medical attention. Drink two glasses of water. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below hips to avoid aspiration (breathing) into the lungs.

SPECIAL NOTE TO PHYSICIAN: No specific antidote available. Administration of gastric lavage, if warranted, should be performed by qualified medical personnel. Call emergency telephone number (see Section 1) for additional information.

SECTION 4 -- HEALTH HAZARD DATA AND TOXICOLOGICAL PROPERTIES

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact; inhalation, ingestion.

EXPOSURE LIMITS: See Section 2.

SIGNS AND SYMPTOMS OF EXPOSURE

ACUTE: *Eyes:* Contact with liquid may cause stinging, tearing, itching, swelling, or redness, with possible injury.

Skin: Contact with liquid may cause irritation. No significant skin absorption hazard.

Inhalation (Breathing): Inhalation of material is unlikely. Nevertheless, inhalation of misted material may irritate the respiratory tract.

Ingestion (Swallowing): Harmful if swallowed. May cause mouth and throat irritation, nausea, abdominal discomfort, diarrhea, vomiting, and central nervous system depression. Breathing into the lungs during ingestion or vomiting may cause lung injury and possibly death.

CHRONIC: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause drying, cracking, or dermatitis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing skin disorders may have increased susceptibility to the effects of exposure.

CARCINOGENICITY: Not applicable.

Also see Section 9.

OTHER POTENTIAL HEALTH HAZARDS: The following information is required by Canadian WHMIS regulations. Irritancy is covered in Signs and Symptoms of Exposure in Section 4. There is no known human sensitization, toxicologically synergistic product, reproductive toxicity, mutagenicity, or teratogenicity associated with this product as a whole.

SECTION 5 – FIRE AND EXPLOSION HAZARD DATA

EMERGENCY RESPONSE GUIDE NUMBERS: 31
Reference *DOT Emergency Response Guidebook*
49
Reference *Dangerous Goods Initial Emergency Response Guide*

FIRE AND EXPLOSION HAZARDS: This is an aqueous solution and is not expected to sustain combustion. Not sensitive to mechanical impact or static discharge.

FIRE FIGHTING PROCEDURES: Not applicable. (Combustion is not expected.)

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

EXTINGUISHING MEDIA:	Water, alcohol-resistant foam. (Combustion is not expected.)
CONDITIONS OF FLAMMABILITY:	Not applicable. (Combustion is not expected.)
FLASH POINT:	Not applicable. (Combustion is not expected.)
AUTOIGNITION TEMPERATURE:	Not applicable. (Combustion is not expected.)
FLAMMABLE LIMITS IN AIR:	***LOWER:*** Not applicable. (Combustion is not expected.) ***UPPER:*** Not applicable. (Combustion is not expected.)
HAZARDOUS COMBUSTION PRODUCTS:	Although combustion is not expected, if burning occurs, toxic compounds may be produced.

SECTION 6 -- REACTIVITY DATA

STABILITY:	Stable under normal temperatures and pressures, and not reactive with water.
INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):	None known under normal temperatures and pressures.
HAZARDOUS POLYMERIZATION:	Not known to occur under normal temperatures and pressures.
HAZARDOUS DECOMPOSITION PRODUCTS:	None under normal temperatures and pressures.

SECTION 7 -- PREVENTIVE MEASURES

PRECAUTIONS FOR SAFE USE AND HANDLING

HANDLING PRECAUTIONS:	Minimize contact with eyes, skin, clothing, or shoes. Avoid breathing mist.
PERSONAL HYGIENE:	Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned.
SHIPPING AND STORING PRECAUTIONS:	Keep container tightly closed when not in use and during transport. Empty product containers may contain product residue.
SPILL PROCEDURES:	Stop leak if you can do it without risk. Wear protective equipment specified in Section 7, CONTROL MEASURES. Contain away from surface waters and sewers. If possible, sorb with compatible sorbent material and shovel into closable container for proper disposal. See *DOT Emergency Response Guidebook* guide number 31 or *Dangerous Goods Initial Emergency Response Guide* guide number 49 for more information.
WASTE DISPOSAL METHODS:	Dispose in accordance with federal, state, provincial, and local regulations. Contact Safety-Kleen regarding recycling or proper disposal.

CONTROL MEASURES

EYE PROTECTION:	Where there is likelihood of eye contact, wear chemical goggles; use of contact lenses is not recommended.
PROTECTIVE GLOVES:	Use PVC or equivalent gloves to prevent contact with skin; use of natural rubber or equivalent gloves is not recommended.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

RESPIRATORY PROTECTION:	None required with normal use. However, if required, the selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134 or in Canada with CSA Standard Z94.4-M1982.
ENGINEERING CONTROLS:	No specific controls are needed.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, wear appropriate protective clothing. Clean water should be available in work areas for flushing the eyes and skin.

SECTION 8 -- PHYSICAL DATA

PHYSICAL STATE, APPEARANCE AND ODOR:	Liquid, clear, colorless or blue, odorless.
ODOR THRESHOLD:	Not applicable.
SPECIFIC GRAVITY:	1 (water = 1) (approximately)
DENSITY:	8.33 lb/US gal (1000 g/l) (approximately)
VAPOR DENSITY:	0.6 (air = 1) (approximately)
VAPOR PRESSURE:	17.5 mm Hg at 68°F (20°C) (approximately)
BOILING POINT:	212°F (100°C) (approximately)
FREEZING POINT:	32°F (0°C) (approximately)
pH:	greater than 7 (approximately)
VOLATILE ORGANIC COMPOUNDS: (PHOTOCHEMICALLY REACTIVE AS PER 40 CFR PART 51.100 (S))	3 WT%; 0.2 lb/US gal; 30 g/l (approximately)
EVAPORATION RATE:	less than 1 (butyl acetate = 1) (approximately)
SOLUBILITY IN WATER:	Complete.
COEFFICIENT OF WATER/OIL DISTRIBUTION:	greater than 1
MOLECULAR WEIGHT:	Not available.

SECTION 9 -- OTHER REGULATORY INFORMATION

TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Not regulated.
DOT CLASS:	Not regulated.
DOT ID NUMBER:	Not regulated.
TDG CLASSIFICATION:	Not regulated.
SARA TITLE III:	Components listed in Section 2 are not subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

SAFETY-KLEEN AQUEOUS CLEANER

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

	Product poses the following health hazard as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986: Immediate (Acute) Health Hazard
WHMIS CLASSIFICATION:	Not regulated.
TSCA:	All the components of this product are listed on, or are exempted from the requirement to be listed on, the TSCA Inventory.
CALIFORNIA:	This product is not for sale or use in the State of California.

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers. The data contained on this sheet apply to the material as supplied to the user.

Submitted in Rev 10 - 05/15/96 as Appendix A to II.A.4(b)

ATTACHMENT II.A.4(d)
PREPAREDNESS AND PREVENTION PROCEDURES

OPERATING FACILITY PROCEDURES

Inspection of Waste Management Facilities

1. The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance. Table II.A.4(d)-1 provides an Inspection Schedule.

2. The Operations Manager or that person's designee is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

3. The Operations Manager inspects the facility weekly for security (gates and locks) and any evidence of sticking, corrosion, or unusual activity. The facility fence is checked weekly for deterioration, gaps, and broken wire ties.

4. Weekly inspections include the following:

   a. Physically examine the container storage area to verify that leaks have not occurred since the last inspection.

   b. Verify that the tanks and containers have not been damaged or rusted to the point of near leakage.

   c. Replace or adjust damaged, missing, or loose equipment.

   d. Examine the tank and container storage areas to verify that all container identification, dates, loading data, hazardous waste labels are attached and current.

   e. Containment areas to detect signs of deterioration and failure of the containment system such as cracks, breakage, settlement, and spillage.

f. Container placement and stacking such as aisle space, height, and stability of stacks.

5. Daily inspections of aboveground tanks also include the following:

   a. Check the automatic high level alarm. In addition, observe and record the depth of used solvent in the tanks to confirm the proper functioning of the automatic alarm system and to determine unexpected deviations in tank measuring data, or a sudden drop in liquid level, which may indicate leakage.

   b. Inspect the solvent dispensing hose, connections, and valve for any leaks, damage, or wear that could cause a leak to develop.

   c. Drain the hose and unloading pipe so that all of the solvent is collected and returned to storage.

   d. Inspect the valves for proper seat. Stem leaks from worn glands and warped valve bodies should be repaired. If the valve cannot be repaired, replace the unit.

   e. Pumps should be inspected for packing leaks and cool, quiet operation.

6. Daily inspection of the solvent return receptacle (wet dumpster) consists of the inspection for leaks and excess dumpster mud build-up.

<u>Inspection of Emergency and Spill Control Equipment</u>

1. The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of emergency and spill control equipment to ensure proper operation and to maintain compliance.

2. The Operations Manager or designee is responsible for carrying out the inspection in accordance with the following procedure and schedule.

a. A weekly inspection of fire extinguishers must be performed to ensure that the tag date has not expired and the units are properly charged and accessible. The unit must be inspected by a fire service supplier on a yearly basis.

b. A weekly inspection of eye wash stands must be performed to assure accessibility; check for proper operation of this equipment on a monthly basis. Inventory of the first-aid kit must be checked on a weekly basis.

c. A weekly check of the supply of spill control equipment (absorbent material) must be performed.

d. A weekly check of the conditions and inventory of other emergency equipment will be made. This includes gloves, aprons, goggles, respirators, and other personal protective equipment.

Corrective Action

Any discrepancies or deficiencies found during routine inspections will be recorded in the inspection log and brought to the attention of a supervisor. At this time an evaluation of the seriousness of the problem will be noted and a decision made if the situation requires immediate action or the problem can be handled as routine maintenance. If the problem poses a threat to human health or the environment, action will be taken immediately. The Operations Manager of the Branch Operation has the overall responsibility for resolving any discrepancies found during the routine inspection.

Available Equipment and Communication

Due to the small size of the facility, routine communication is accomplished by voice communication. Telephones are used in case of a spill or fire emergency to summon assistance. Emergency numbers are posted by each phone in the facility. Included with these phone numbers is the 24-hour spill number for the Corporate Environmental Department at the corporate office in Elgin, Illinois. See Figure II.A.4(d)-1 for locations of telephones, fire extinguisher, the first aid kit, and the emergency eyewash. Other emergency response equipment (Table II.A.4(d)-2) is kept in two places. In the North building, emergency response equipment is kept inside the door leading to the fill/return shelter. In the South building, emergency response equipment is

kept adjacent to the south wall of the South building office and between the two northernmost docks located on the eastern side of the South building. This equipment includes mops and buckets, soap, shovels, and spill sorbent pads. Rubber gloves, boots, pumps, and a wet/dry vacuum cleaner are stored in an emergency supply area near the return/fill area. Adequate aisle space is provided in the container storage areas for movement in an emergency situation. A full sprinkler system has been installed at the facility. In addition, a fire water tank and hose are available on-site for fire fighting purposes.

Containers, hoses, and detergent are the primary equipment that will be used for decontamination.

The equipment available at the facility for emergency situations is adequate for most cases. Large or serious emergency situations will be remediated by local emergency response teams or special emergency response or cleanup contractors. The facility is constructed and operated in accordance with National Fire Protection Association (NFPA) standards and applicable local ordinances. Applicable health and safety standards also are observed at the facility. An air quality survey conducted by an independent industrial hygienist at the Los Angeles Branch Operation has shown that air quality at a Branch Operation is within Threshold Limit Values (TLV) as specified by OSHA and local air pollution control criteria; no respirator or special protection unit is deemed mandatory.

External Factors

The design of the installation is such that a harmful spill is highly unlikely to occur from most external factors. The storage tanks are inaccessible to non-Safety-Kleen personnel. Also, the container storage areas are in buildings which are inaccessible to unauthorized personnel.

a. Vandalism - Only extreme vandalism would result in a solvent spill or fire. Responses to spills and fires are described in the contingency plan.

b. Strikes - A strike would not result in a solvent spill or fire.

c. Power Failure - A power failure would not result in a spill or fire. Should a power failure occur, all activities requiring electricity will cease.

d. Flooding - The waste management facility elevation is above the projected 100-year flood plain; therefore, a 100-year flood will not affect the facility.

e. Storms or Cold Weather - The solvent return and fill station is roofed to eliminate the possibility of rain or snow entering the dumpsters. Neither snow, cold weather, nor stormwater is expected to affect the facility.

Containment Systems

All containers are stored in the container storage areas. The current storage areas are totally contained by a concrete floor, berms, and trenches (Figure IIA.4(d)-2). The containment system is free of cracks.

The floor does not have intentional sloping. Any small spill that might occur would puddle where it was spilled. The spilled material would be cleaned up where it puddled or be manually directed to the containment trench. In the event that a large spill were to occur, some dispersion would be expected to occur based on the direction, force, and pathway obstacles presented by and to the spill. The trenches would intercept and capture liquid exiting the only openings in the berms (curbing). The containment trenches in the southernmost container storage area are connected to the external containment area located south of the fire water tank. Outside the containment areas the wastes would flow onto concrete surfaces. These are the same concrete surfaces that serve to protect soils and ground water from contamination due to spills occurring during loading/unloading. The concrete areas around the loading docks have no intentional slope. Again, small spills would puddle, while large spills could be manually directed to the containment trenches.

In the containers storage area, containers are handled with a hand-truck free of sharp points and stacked by hand. Each time a container is moved, the possibility exists that it will be tipped over, dropped, or punctured. To minimize the possibility of spillage, containers are tightly covered and kept in an upright position. A small portable electric pump is available to quickly transfer the liquid from any leaking container into a safe container. Each route truck is equipped with an electric hoist. This hoist is used in the loading/unloading operation to minimize the possibility of spillage and/or employee injury. Trucks used for shipping containers between the recycle center and Branch Operation have lift gates for container loading/unloading. With the

exception of parts washer and FRS wastes, all containerized wastes are loaded/unloaded at the two dock areas on the eastern side of the building (Figure II.A.4(d)-3).

All containers are covered during movement and are stored within diked, concrete floored areas to contain any potential spill. The small quantities of waste onsite at any time can be cleaned up immediately through the use of hand-held electric pumps, mops, wet/dry vacuums, or sorbent materials, should a spill occur. Any spilled waste will be containerized for offsite recycling/reclamation.

All containerized waste movement is performed by propane-fueled forklift trucks or by a pallet jack. Therefore, power outages are not expected to threaten employee safety.

Fill/Return Shelters

The fill/return shelter (Figure II.A.4(d)-4) is a roofed, grated dock with concrete pads and curbing. Sloping of the containment area is essentially non-detectable. However, there is a slight slope toward the sump. Drive-over curbing is present beyond the grating on the west and east sides so that the delivery trucks can be positioned in a containment area during loading/unloading. Any spills which occur on the concrete are cleaned up and the area decontaminated. The decontamination process should result in the minimum amounts of residue remaining.

All traffic areas are covered by either concrete or asphalt.

Tank Area

The tank area (Figure II.A.4(d)-5) is provided with containment. This containment area is not sloped. Any spilled material is removed by pump or wet vacuum. The tank loading/unloading area is a concrete pad. The pad is not intentionally sloped. Any spills which occur on the pad are cleaned up and the area decontaminated. This decontamination results in minimum residue remaining.

Employee training emphasizes the importance of inspection, maintenance, personal safety, and reporting of conditions with pollution incident potential. This training, coupled with Safety-Kleen's containment system and immediate cleanup of any spills, will eliminate or greatly minimize the chance of contamination of ground water and/or surface water in the vicinity of the

The tank loading/unloading pad is not curbed. Although not sloped, any spill will flow off pavement. Additionally, the area is paved with asphalt, which is not impervious to mineral spirits

site. In addition, a fabric cover has been installed over the tank farm to reduce the possibility of precipitation entering the containment area. Surface run-off at the site does not come in contact with stored products or wastes in the waste management area.

Where is the "front ventilated" area?

Ignitable Wastes

All wastes and products are kept away from ignitable sources--Personnel must confine smoking and open flames to designated areas. Smoking is allowed only in the front ventilated area and outside the front door. The parts washer solvent and paint waste handling areas are separated from the office area to minimize the potential for a fire to spread or injury to personnel to occur.

The tank farm is more than 50 feet from the property line. Likewise, the flammable storage area is 50 feet or more from the property line.

Ignitable wastes are handled so that they do not:

1. Become subject to extreme heat or pressure, fire or explosion, or a violent reaction--The parts washer solvent and paint wastes are stored in a tank or in containers, none of which are near sources of extreme heat, fire, potential explosion sources or subject to violent reactions. The tanks are vented and the containers kept at room temperature to minimize the potential for pressure build up.

2. Produce uncontrolled toxic mists, fumes, dusts, or gases in quantities sufficient to threaten human health--The vapor pressure of petroleum-based parts washer solvent is low (2 mm Hg) and it and the paint waste are reactive with strong oxidizers and reactive metals only. Toxic mists, fumes, dusts, or gases will not form in quantities sufficient to threaten human health since strong oxidizers are not handled at this facility and the solvent vaporization will be minimal under normal working conditions.

3. Produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion--See "1" above and "4" below.

4. Damage the structural integrity of the Safety-Kleen facility--The parts washer solvent and paint wastes will not cause deterioration of the tank, containers, or other structural components of the facility.

Incompatible Wastes

Reactive and/or incompatible waste is not handled at the facility. All waste or products are kept away from ignition sources. Employees must confine smoking to the designated safe area.

Materials are handled so they do not:

a. Generate extreme heat or pressure, fire or explosion, or violent reaction.

b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health.

c. Produce uncontrolled fires or gases in sufficient quantities to pose a risk of fire or explosion.

d. Damage the structural integrity of the Safety-Kleen facility.

Adequate aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of the facility operation in an emergency.

RESPONSIBILITY FOR PREPAREDNESS AND PREVENTION PLAN

The preparedness and prevention plan, as well as the training of employees for its implementation, is the responsibility of the Operations Manager with assistance from corporate staff. The detailed training program is described in the Personnel Training Plan (Attachment II.A.4(e)).

TABLE II.A.4(d)-1

INSPECTION SCHEDULE

Area/Equipment	Specific Item	Types of Problems	Frequency of Inspection
Safety Equipment	Fire Extinguishers	■ Overdue inspection ■ Inadequately charged ■ Inaccessible	Weekly
	Eye Wash	■ Disconnected/malfunctioning values ■ Pressure ■ Inaccessible	Weekly
	First-Aid Kit	■ Inadequate inventory	As needed
	Spill Cleanup Equipment	■ Inadequate supply of sorbent, towels, shovels, mops, empty drums	Weekly
	Personal Protection Equipment	■ Inadequate supply of aprons, glasses, respirators	Weekly/Upon use
Security Equipment	Gates and Locks	■ Sticking corrosion, lack of warning signs	Weekly
	Fence	■ Broken ties, corrosion, holes, distortion	Weekly
Storage Tank System-Storage Tanks	Volume in Tank	■ Must never be more than 95 percent full	Each operating day
	Tank Exterior	■ Rusty or loose anchoring, lack of grounding, wet spots, discoloration, leaks, distortion	Each operating day
	High Level Alarms	■ Malfunctioning siren/strobe light	Each operating day
	Volume Gauges	■ Disconnected, sticking, condensation	Each operating day
Secondary Containment	Bottom and Walls	■ Cracks, debris, ponding, wet spots/stains, deterioration, displacement, leaks	Each operating day
	Self Closing Drain Valve	■ Open, leaks	Each operating day
	Rigid Piping and Supports	■ Distortion, corrosion, paint failures, leaks	As needed

TABLE II.A.4(d)-1

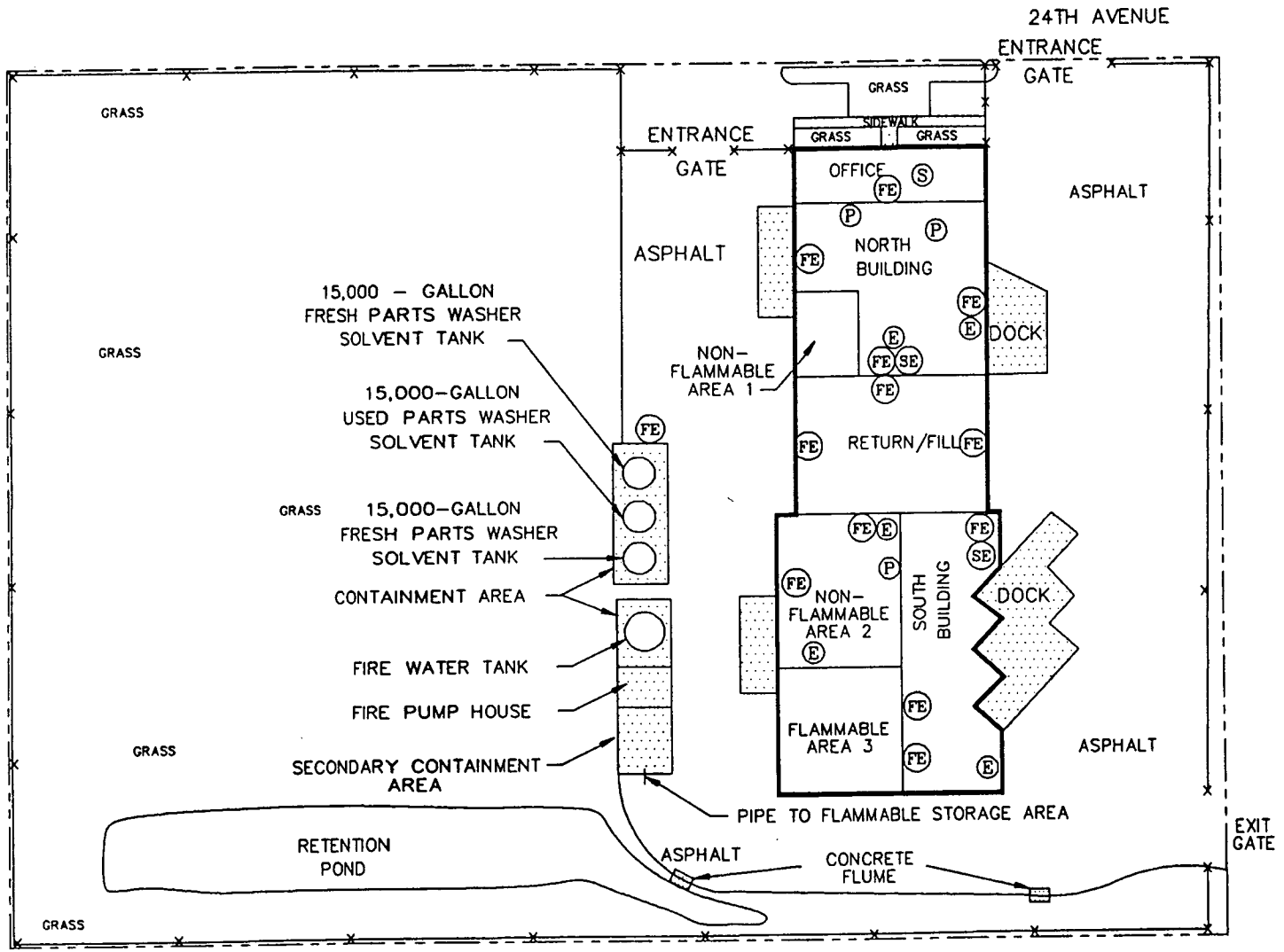
INSPECTION SCHEDULE

Area/Equipment	Specific Item	Types of Problems	Frequency of Inspection
Transfer Pumps and Hoses	Pumps Seals	■ Leaks	Each operating day
	Motors	■ Overheating	Each operating day
	Fittings	■ Leaks	Each operating day
	Valves	■ Leaks, sticking	Each operating day
	Hose Connections and Fittings	■ Cracks, loose, leaks	Each operating day
	Hose Body	■ Crushed, cracked, thin spots, leaks	Each operating day
Return and Fill Station	Wet Dumpster	■ Excess sediment build-up, leaks, rust, split seams, distortion, deterioration, excess debris	Each operating day
	Secondary Containment	■ Excess sediment/liquid, leaks, deterioration, distortion, excess debris	Each operating day
	Loading/Unloading Area	■ Cracks, pondings/wet spots	Each operating day
Container Storage Area	Total Volume in Storage	■ Exceeds permitted limit	Each operating day
	Condition of Drums	■ Missing or loose lids; labels missing, incomplete or incorrect; rust, leaks, distortion	Each operating day
	Stacking/Placement/ Aisle Space	■ Containers not on pallets, unstable stacks, inadequate aisle space	Each operating day
Secondary Containment	Curbing, Floor and Sump	■ Ponding/wet spots, deterioration, displacement, leaks, other	Each operating day
	Loading/Unloading Area	■ Cracks, deterioration, ponding/wet spots	Each operating day

TABLE II.A.4(d)-2

EMERGENCY RESPONSE EQUIPMENT

Description	Type/Capacity	Location	Quantity
Fire Extinguisher	ABC	Warehouses	10
Fire Extinguisher	ABC	Office Area	1
Fire Extinguisher	ABC	Tank Farm	1
Eyewash/Safety Shower	Fountain/Overhead	Warehouses	4
Shower		Office Area	1
First-Aid		Locker Rooms	2
Telephones	Standard	Manager's Office	Min. 2
Telephones	Standard	Secretary's Desk	Min. 1
Telephones	Standard	Warehouses	Min. 1
Gloves	Rubber	Emergency Equip. Area	Min. 3 pair
Boots (optional)	Rubber	Emergency Equip. Area	Min. 3 pair
Protective Clothing	Apron	Emergency Equip. Area	Min. 3
Eye Protection	Goggles/Safety Glasses	Emergency Equip. Area	Min. 3
Sorbent Material	Oil Absorbing	Emergency Equip. Area	Min. 1 bale
Shovel	Standard	Emergency Equip. Area	Min. 1
Mop and Bucket	Standard	Emergency Equip. Area	Min. 1
Respirator	Air Purifying	Emergency Equip. Area	Min. 2
Pump	Hand-held, Electric	Emergency Equip. Area	Min. 1
Wet/Dry Vacuum	Portable, Electric	Emergency Equip. Area	Min. 1



N

0 APPROXIMATE SCALE 60

FEET

LEGEND

- PROPERTY BOUNDARY
- FENCE
- CONCRETE
- (FE) FIRE EXTINGUISHER
- (SE) SPILL EQUIPMENT
- (E) EYEWASH/SHOWER
- (S) SHOWER
- (P) PHONES

FIGURE II.A.4(d)-1
LOCATION OF EMERGENCY EQUIPMENT
SAFETY-KLEEN CORP. FACILITY
TAMPA, FLORIDA

PROJ. NO.	PREP. BY	DRAWN BY
B095-061		M.W.K.
DATE	REV. BY	DWG. NO.
4-25-96		002

Delta Environmental Consultants, Inc.

ATTACHMENT II.A.4(e)
PERSONNEL TRAINING

This section of the permit application describes Safety-Kleen's training program. All position descriptions referenced may not be present at this facility. Training plan outlines, job descriptions, training content, frequency and techniques are described as well as the implementation of the training program.

The purpose of Safety-Kleen's training program is to familiarize employees with environmental regulations, records, and emergency procedures so they will perform their jobs in the safest and most efficient manner possible.

DESCRIPTION OF TRAINING PROGRAM

Each employee is trained to operate and maintain the service center safely, and to understand hazards unique to that person's job assignment. New Branch Managers (Resource Recovery Branch Manager) and new Branch Operation Supervisors must complete a formal introductory training program before starting their jobs, with annual review and update thereafter. New Sales Representatives must be trained prior to unsupervised customer visits. All other hazardous waste employees must undergo a combination of videotape and on-the-job training within six months of starting.

OUTLINE OF TRAINING PROGRAM

An outline of the training program, given both initially and annually to employees who manage or handle hazardous waste at the Branch Operation is presented in Table IIA.4(e)-1.

JOB TITLE/JOB DESCRIPTION

Job descriptions for employees who would be expected to manage or handle hazardous wastes, including the Branch Manager (Resource Recovery Branch Manager), Branch Automotive Manager, Branch Industrial Manager, Branch Secretary (paperwork only),

Sales Representatives, and Warehouseperson are provided in Tables II.A.4(e)-2 through II.A.4(e)-11.

TRAINING CONTENT, FREQUENCY, AND TECHNIQUES

Employee training is accomplished using classroom, videotape, written, and on-the-job methods. The Environment Health and Safety (EHS) and Training Departments of Safety-Kleen's Corporate Office prepares a training program for employees and they must provide documentation that the program has been executed. Employees are trained prior to starting or as soon as they begin working, (depending on their position), and are trained annually thereafter.

The following presents the specific training requirements for new Safety-Kleen employees who will manage or handle hazardous waste. The training programs for accumulation center employees are the same as their counterparts in the service center.

Training of New Branch Managers: New Branch Managers are trained for several weeks before they begin their new positions. This training is given on the job and in the classroom. During this training, the new manager reviews environmental records and learns the recordkeeping requirements. These records include: manifests, personnel records, training records, service center inspection records, and spill reports. At least eight hours of this initial training consists of an introduction to environmental law and a review of the Part B, including the Waste Analysis Plan, Preparedness and Prevention Plan, Contingency Plan, Training Plan, and Closure Plan.

The training culminates in four weeks of training at that person's new service center, at least one day of which is devoted to environmental training with the Environmental Health and Safety Manager. Additional time is spent reviewing past environmental compliance at the Branch Manager's service center; the regulations unique to the state are discussed as well.

Training of New Branch Operation Automotive Manager and Branch Industrial Manager: The Branch Automotive and Industrial Manager is responsible for administrative operations at the operations center. This training is on location and in classroom modes. While being trained at the branch at which they will be stationed, a new Branch Automotive/Industrial Manager reviews environmental records and learns the recordkeeping and inspection requirements. These records include: manifests, personnel records, training records, service center inspection records, and spill reports.

This training includes an introduction to environmental law (including the Resource Conservation and Recovery Act), health and safety issues, emergency response and inventory (including waste) reconciliation methods. Additional time is spent reviewing past environmental compliance at the Branch Automotive/Industrial Manager's site.

Training of New Branch Operation Secretaries: Branch Operation Secretaries are trained in the proper recordkeeping procedures as soon as they begin working for Safety-Kleen. While they are not usually responsible for preparing the documentation, they must check it for accuracy and completeness and then process or file it as required. Additional training is overseen by the Branch Manager and is done within six months of starting. This training is often presented in company-produced videotape presentations on emergency response, shipping documents (including manifests), drum labels, and other safety and environmental compliance issues.

Training of New Sales Representatives: New Sales Representatives are trained on the job for two weeks during which they are introduced to manifests, service center inspection records, and training records. A Sales Representative may also be trained as the designee for performing a facility inspection. Additional training is in the form of videotape presentations and a review of the Contingency Plan. Within six months of starting a position, the sales representative must review the items listed in the outline presented in table II.A.4(e)-1.

Training of New Warehouseperson: A Warehouseperson is trained to maintain the service center and assist the other branch employees in their tasks. The warehouseperson may be a designee to perform the Branch inspection and must be trained by the Branch Manager. Within six months of starting a position, the warehouseperson must review the items listed in the outline presented in Table II.A.4(e)-1.

Annual Training: On an annual basis, employees are trained using a program prepared and updated annually the EHS and Training Departments which contains the topics in Table II.A.4(e)-1. This training also includes updates on environmental regulations, an in-depth review of the Contingency Plan and a review of RCRA inspection criteria. This review is in the form of videotapes and a review and discussion of the storage service center permit/application. In addition, periodic memoranda on changes in environmental regulations are issued by the EHS Department and must be read and discussed by branch personnel.

TRAINING DIRECTOR

The training is directed by Safety-Kleen's Training and Development, and Environment, Health and Safety (EHS) Departments which operate out of the Corporate Office in Elgin, Illinois. Each Environmental Health and Safety Manager who works in this department is responsible for compliance of the service centers in a given geographic area of the country. The EHS Department, in coordination with the facility, must:

- Provide a training program which addresses the requirements of environmental regulations and corporate policy;
- Notify the proper authorities, oversee remedial actions, and submit a written report to the state after an emergency situation has occurred;
- Assure that environmental permits are submitted and updated as required;

- Manage any environmental compliance issues which exceed the resources available at the service center level; and

- Participate in training new Branch Managers and conducting Annual Branch Manager Training.

Qualifications for individual staff members of the EHS Department that conduct training at the Service Center are available upon request.

RELEVANCE OF TRAINING TO JOB POSITION

Each employee is trained to operate and maintain the service center safely and to understand hazards unique to the job assignment. Safety-Kleen's training programs are designed to give employees appropriate instruction regarding the hazardous waste management procedures they will encounter in performing their respective duties. Since the handling of hazardous materials is a large part of the operations of the service center, all employees are given training in environmental regulations, transportation regulations, the Preparedness and Prevention Plan, and Contingency Plan.

TRAINING FOR HAZARDOUS WASTE MANAGEMENT

As described previously, all employees are trained in the aspects of hazardous waste management which are relevant to their position. This includes job-specific hazards and necessary precautions, emergency response, and proper recordkeeping. This training is given initially and updated annually.

TRAINING FOR CONTINGENCY PLAN IMPLEMENTATION

All employees are trained in Contingency Plan implementation, through both initial training and yearly refresher courses, as summarized in Table II.A.4(e)-1. Employees are trained on the contents of the Contingency Plan as well as criteria for implementation.

TRAINING FOR EMERGENCY RESPONSE

All employees are trained in emergency response procedures, through both initial training and yearly refresher courses, as summarized in Table II.A.4(e)-1. The emergency training involves spill and fire prevention as well as remedial action procedures. Employees are also trained to recognize when evacuation and outside assistance may be necessary.

IMPLEMENTATION OF TRAINING PROGRAM

New Branch Managers and Sales Representatives must complete an introductory training program discussed previously within six months of starting their jobs, with annual review and update thereafter. Branch Secretaries and Warehousepersons are given the full hazardous waste training course, as outlined in Table II.A.4(e)-1, within six months of starting work. Warehousepersons involved in direct handling of hazardous waste do not work unsupervised until they have completed the entire initial hazardous waste training course.

PERSONNEL TRAINING RECORD FORMS

Table II.A.4(e)-12 is a sample personnel training record form. This form, or one similar to it, will be used to record training. All training is documented and kept on file at the service center until closure. Additional forms may be used contingent upon the specific issue being addressed. All forms will show the training received, employee name, and the date of training.

TABLE II.A.4(e)-1

INTRODUCTORY AND CONTINUING TRAINING TOPICS FOR OPERATION CENTER EMPLOYEES

- Hazard Communication Safety Training
- Hazard Communication Understanding MSDSs
- Preventing Injuring and Illnesses
- Chemistry of Safety-Kleen Products
- Hazardous Materials Regulations
- Waste Analysis Plan
- Preparedness, Prevention, and Contingency Plan
- Day Four - Ten Day Training - Haz Mat/POT/MANFST VID QUIZ
- Completion of New Employee Orientation Program *
- Initial Contingency Plan Training (Including Part B review) *
- Respirator Fit Testing and Training

* New employees only; not a part of annual training.

TABLE II.A.4(e)-2

JOB DESCRIPTION
RESOURCE RECOVERY BRANCH MANAGER

JOB DESCRIPTION:

The Recource Recovery Branch Manager has overall responsibility for the facility operations and maintenance, and directs sales activities within a certain geographic area defined by the corporate Marketing Department. The Branch Manager is responsible for the proper operations and profitability of the service center.

REPORTS TO:

Regional Manager of Sales

QUALIFICATION:

Minimum high school graduate with Safety-Kleen sales experience

PRINCIPAL RESPONSIBILITIES:

1. Plan, direct, and monitor activities of Sales Representatives.
2. Training of branch facility managers, sales representatives, and other branch personnel.
3. Assist or accompany sales representatives during their sales activities when necessary.
4. Tabulate daily sales and inventory figures and report them to the corporate offices.
5. Maintain adequate inventory of solvents, allied products, and equipment.
6. Carry out corporate policies and standards regarding facilities, equipment operation and maintenance.
7. Ensure the regular inspection of the facility and equipment and the implementation of any necessary repairs or remedial actions.
8. Represent Safety-Kleen Corp. in local community affairs and public relations activities.
9. Coordinate with corporate Technical Services and EHS Departments and implement necessary actions or plans for Regulatory compliance.
10. Be able to act as the primary emergency response coordinator.

TABLE II.A.4(e)-3

JOB DESCRIPTION
BRANCH AUTOMOTIVE MANAGER

JOB DESCRIPTION:

Develops and maintains automotive account business by presenting and providing the complete Automotive Fluid Recovery Service to customers in assigned territories. Trains, motivates, and controls the automotive sales staff within the assigned territories.

REPORTS TO:

Directly to the Resource Recovery Branch manager and indirectly to Regional Automotive Sales Manager. All Automotive and Oil Sales Representatives within assigned territories report directly to the BAM. In branches without a BFM, one or more Branch Secretaries report to the BAM, as assigned by the Resource Recovery Branch Manager.

QUALIFICATION:

Minimum high school graduate with above average Safety-Kleen route sales experience. Applicant should exhibit leadership abilities and be self-motivated, and pass Company testing.

PRINCIPAL RESPONSIBILITIES:

1. Markets and sells the total Automotive Fluid Recovery Service.
2. Signs automotive accounts to the Safety-Kleen Service Contract and Oil agreements where applicable.
3. Ensures that customers have the right kind of equipment which is properly labeled, and on the appropriate service interval, by completing machine condition reports.
4. Ensures that the Company's ethical standards are maintained.
5. Reviews weekly and period sales production summaries.
6. Ensures the timely completion of services.
7. Reviews and acts on accounts receivable standards.
8. Assures proper completion and administration of hazardous waste paperwork.

9. Assures proper management, preparation, and shipment of hazardous waste (including packaging, placarding, transportation, and storage procedures).

10. Assures DOT compliance.

11. Trains personnel following the *Corporate Training 10-Day Action Plan.*

12. Conducts sales meetings.

13. Oversees career development by conducting selling skills training meetings (in conjunction with ASM).

14. Conducts health and safety meetings.

15. Develops team contests or rewards for set period objectives.

16. Develops rewards for achieved objectives.

17. Holds monthly goal setting sessions with assigned personnel.

18. Conducts quarterly performance reviews with assigned personnel.

19. Controls all personnel within the assigned territories by daily/weekly communication in regards to branch standards and goals.

TABLE II.A.4(e)-4

JOB DESCRIPTION
BRANCH INDUSTRIAL MANAGER

JOB DESCRIPTION:

Develops and maintains industrial account business by presenting and providing the complete Industrial Fluid Recovery Service to customers in assigned territories. Trains, motivates, and controls the industrial sales staff within the assigned territories.

REPORTS TO:

Directly to the Resource Recovery Branch Manager and indirectly to Regional Industrial Sales Manager. All Industrial Sales Representatives within assigned territories report directly to the BIM. In branches without a BFM, one or more Branch Secretaries report to the BIM, as assigned by the Resource Recovery Branch Manager.

QUALIFICATION:

Minimum high school graduate with above average Safety-Kleen route sales experience. Applicant should exhibit leadership abilities, be self-motivated, and pass Company testing. Good reading and letter writing skills are also required.

PRINCIPAL RESPONSIBILITIES:

1. Ensures that customers have the right kind of equipment which is properly labeled, and on the appropriate service interval, by completing machine condition reports.

2. Ensures that the Company's ethical standards are maintained.

3. Performs the required amount of cold calls, sample processing, and machine placements.

4. Reviews weekly and period sales production summaries.

5. Ensures the timely completion of services.

6. Reviews and acts on accounts receivable standards.

7. Assures proper completion and administration of hazardous waste paperwork.

8. Assures proper management, preparation, and shipment of hazardous waste (including packaging, placarding, transportation, and storage procedures).

9. Assures DOT compliance.

10. Trains personnel following the *Corporate Training 10-Day Action Plan.*

11. Conducts sales meetings.

12. Oversees career development by conducting selling skills training meetings (in conjunction with ISM).

13. Conducts health and safety meetings.

14. Develops team contests or rewards for set period objectives.

15. Develops rewards for achieved objectives.

16. Holds monthly goal setting sessions with assigned personnel.

17. Conducts quarterly performance reviews with assigned personnel.

18. Controls all personnel within the assigned territories by daily/weekly communication in regards to branch standards and goals.

TABLE II.A.4(e)-5

JOB DESCRIPTION
BRANCH SECRETARY

JOB DESCRIPTION:

Performs duties to assist the branch manager, sales representatives, and customers with billing, scheduling, and recordkeeping. Performs secretarial duties at the branch.

REPORTS TO:

Branch Manager

QUALIFICATION:

Attended high school

PRINCIPAL RESPONSIBILITIES:

1. Maintain records in an orderly manner.
2. Assist sales representatives in scheduling services.
3. Ensure that all hazardous waste manifests are complete, and manage distribution and filing of copies.
4. Maintain Personnel Training Record files.
5. Maintain Facility Inspection Records.
6. Answer customer inquiries.
7. Manage customer billing.
8. Perform other related duties as assigned.

TABLE II.A.4(e)-6

JOB DESCRIPTION
SALES REPRESENTATIVE

JOB DESCRIPTION:

The Sales Representative is charged with the responsibility of generating new business and servicing established accounts within a certain defined geographic area.

REPORTS TO:

Branch Industrial Manager or Branch Automotive Manager

QUALIFICATION:

Minimum high school graduate

PRINCIPAL RESPONSIBILITIES:

1. Maintain their route truck and replenish products on the truck before beginning the route sales.

2. Contact potential customers for the purpose of selling Safety-Kleen services and allied products.

3. Exchange used solvents with fresh solvent and replenish the inventory of Safety-Kleen's products for existing customers.

4. Make minor repairs of Safety-Kleen's parts washer equipment or lease new equipment to the customer.

5. Prepare the necessary paperwork for each service, and bill or credit the customer, as necessary.

6. At the end of each day, return the truck to the branch for cleaning and maintenance, and summarize the day's activities so the Branch Manager can tabulate the daily figures and forward them to the corporate office.

TABLE II.A.4(e)-7

JOB DESCRIPTION
WAREHOUSE PERSONNEL

JOB DESCRIPTION:

Perform duties to assist the sales representatives in loading and unloading the trucks. Perform janitorial duties at the Branch Operation.

REPORTS TO:

Branch Operation Manager

QUALIFICATIONS:

Attended high school

PRINCIPAL RESPONSIBILITIES:

1. Maintain warehouse in clean and orderly manner.
2. Assist sales representatives in loading trucks and replacing solvent.
3. Clean containers as needed.
4. Park or move trucks as needed.
5. Stock inventory.
6. Replenish trucks with inventory.
7. Perform other related duties as assigned.

ATTACHMENT II.A.5
WASTE ANALYSIS REPORT

In accordance with U.S. EPA Hazardous Waste Regulations, eight types of hazardous waste have been identified at the Branch Operation:

1. The used Parts Cleaner 105 returned from customers in separate containers transferred and stored in the aboveground tank awaiting shipment to the recycle facility is considered to be an Ignitable Waste (D001). Other used parts washer solvents are considered non-ignitable. The used are parts washer solvents may be considered characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). Spent parts washer solvent from customers' parts washers is accumulated in a 15,000 gallon aboveground storage tank via the return/fill station. Containers of solvent are poured into a drum washer at the return/fill station, which in turn empties into the aboveground storage tank.

   Parts washer solvent dumpster mud, and tank bottom sludge accumulated in the solvent return receptacles (wet dumpsters) and in the sludge tank, are considered to be an Ignitable Waste (D001) and a characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). Other parts washer solid debris, such as metal parts and filters are considered a characteristic waste only by TCLP. (this paragraph was formerly listed as Item #4)

2. The used immersion cleaner #699, returned from customers in separate containers and remaining in the same container for shipment to the recycle facility, is considered a characteristic waste by TCLP (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024,

D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

3. Dry cleaning wastes consist of spent filter cartridges, powder residue from diatomaceous or other powder filter systems and still bottoms. While approximately 80 percent of the dry cleaning solvent used is perchloroethylene (F002 and D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043), approximately 17 percent is mineral spirits (D001), and a characteristic waste by TCLP ((D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043), and the remaining 3 percent is trichloro-trifluoroethane (F002) and a characteristic waste by TCLP leaching procedure ((D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). The non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

4. Antifreeze waste is approximately two-thirds water, with the remaining third being antifreeze (ethylene glycol) and contaminants. The spent antifreeze may contain the following TCLP waste codes: D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043.

5. Paint wastes consist of various lacquer thinners such as acetone, isopropyl alcohol, methyl ethyl ketone, methyl isobutyl ketone, toluene, xylenes, and acetate compounds (D001, F003, and F005) and is toxic using the characteristic leaching procedure (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027,

D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043). The waste is collected in containers at the customer's place of business and the containers are then stored in the paint waste storage area of the Branch Operation. Upon receipt of the paint wastes at the Branch Operation, the generator's (Safety-Kleen's customer) manifest is terminated. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

6. Due to the great variability in the composition of FRS wastes, their application or use, and the source industry, Safety-Kleen characterizes each stream from each generator separately. FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program. These wastes, except characteristic waste oil, are shipped in containers and are stored on pallets. The FRS wastes are handled as transfer wastes only.

7. The aqueous parts washer solvent is primarily an aqueous solution with a small amount of organic additives (alcohols). The spent aqueous parts washer solvent is transported from the customers in containers. Spent aqueous parts washer solvent from customers' parts washers may be accumulated in a 15,000 gallon aboveground storage tank via the return and fill station. Containers of solvent are poured into a drum washer at the return and fill station, which in turn empties into the tank. The used aqueous parts washer solvent may be considered characteristic waste by toxicity characteristic leaching procedure (TCLP) (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

8. The Aqueous Brake Cleaner (ABC) is primarily an aqueous solution with approximately 10% nonorganic additives and detergents. The spent Aqueous Brake Cleaner (ABC) is transported from the customers in containers. Spent aqueous parts washer solvent from customers' parts washers may be accumulated in a 15,000 gallon aboveground storage tank via the return and fill station. Containers of solvent are poured into a drum washer at the return and fill station, which in turn empties into the tank. The used aqueous parts washer solvent may be considered characteristic waste by toxicity characteristic leaching procedure (TCLP) (D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, and D043).

A typical composition, and chemical physical analysis for each of the waste streams listed above (except FRS) are shown in the attached chemical analyses reports, based on existing data on these wastes generated from similar processes within Safety-Kleen's current and/or potential customers.

USED PARTS WASHER SOLVENT

The clean parts washer solvents are labeled under trade names. Flash points of the petroleum-based parts washer solvents range from 105°F (ignitable) to 212°F. Chemically, the solvent primarily consists of petroleum hydrocarbon fraction with boiling points between 310°F and 400°F. Impurities, such as light aromatic hydrocarbons (LAHC) and chlorinated hydrocarbons, usually constitute less than one percent of the total volume.

The used petroleum-based parts washer solvent consists primarily of parts washer solvent, solids, oil, and grease picked up in the various degreasing operations. In most instances, no water is associated with the used solvent; however, at times, the water content may range from one percent to as much as 50 percent. The oily bottoms may range from 2 percent to 10 percent, by volume, in the used solvent. The used parts washer solvent is transported in accordance with the generator's

hazardous waste determination pursuant to 40 CFR 262.11. Hazardous characteristics of the used parts washer solvents can vary and are primarily associated with constituents introduced by the customers' processes.

Chemically, the composition of the solvent fraction in the used parts washer solvent is essentially the same as the clean solvent, as shown in analyses.

USED IMMERSION CLEANER

"Immersion Cleaner and Carburetor and Cold Parts Cleaner #699" is also being leased. It is a heavy aromatic naphtha, N-methyl-2-pyrolidon dipropylene glycol methyl ether, monoethanolamine and oleic acid, and may contain a maximum of 1 percent chlorinated compounds.

The used Immersion Cleaner is basically unchanged from its clean state, except oil, grease, and other solids may be picked up during the various degreasing operations. The spent solvent is non-flammable. It is regarded as hazardous because of the presence of various contaminants.

USED PARTS WASHER SOLVENT BOTTOM SLUDGE

This is material settled from used parts washer solvent in the aboveground tanks. It may contain soils, oil and grease, and water picked up in degreasing operations, together with a small amount of mineral spirits. Analyses have shown that the sludge is an ignitable waste and may be considered "TC" hazardous with respect to TCLP standards.

The sludge is removed from the aboveground tank periodically and shipped to Safety-Kleen's facility for reclamation.

USED PARTS WASHER SOLVENT DUMPSTER MUD

This waste material is accumulated in the wet dumpsters when emptying the used parts washer solvent from the containers into the aboveground storage tanks. Filters from

parts washers utilizing parts washer solvents may also be added. The nature of this waste is similar to the used parts washer solvent bottom sludge, except with some small metal parts and less mineral spirits. It is regarded as an ignitable waste and often is a characteristic waste using TCLP standards.

The sludge in the dumpsters is cleaned out frequently. The waste is containerized, stored as a permitted waste, and shipped to Safety-Kleen's facility for recycling.

DRY CLEANING WASTES

Solvent used in dry cleaning of clothing is commonly tetrachloroethylene (perchloroethylene) or mineral spirits or trichlorotrifluoroethane. Hence, waste generated from dry cleaning operations contains various concentrations of the solvent. Basically, wastes generated by dry cleaning facilities are in the following forms.

1. Cartridge Filter: In addition to the construction materials consisting of steel, paper, clay, and carbon, the used cartridge retains solvent, oil and grease, and undissolved elements such as lint and soil. Solvent retained in the filter cartridge generally amounts to less than 50 percent of the total cartridge weight.

2. Muck: At some dry cleaning facilities, a mixture of powdered materials is used as the filter medium for the dry cleaning solvent, in lieu of the cartridge filter. This filter medium normally consists of diatomaceous earth and carbon. In addition to lint, soil, oil, and grease retained by this medium, between 40 and 50 percent by weight of the "muck" is absorbed solvent.

3. Still Residue: After filtration, the dry cleaning solvent is distilled by the dry cleaning machine to remove the dissolved materials from the used solvent. The dissolved materials (still residues) are in liquid form and consist of primarily detergent, oil and grease, vinyl acetate (a sizing compound), and 20 to 30 percent of solvent.

PAINT WASTES

Paint wastes consist of various lacquer thinners and paints. The waste is collected in containers at the customer's place of business; upon receipt at the Branch facility, the manifest is terminated. The containers are then stored in the container storage area of the warehouse, remanifested, and shipped to a reclaimer or disposed.

FLUID RECOVERY SERVICE WASTES

Fluid Recovery Services (FRS) is a program managed by the Safety-Kleen Branch Operations. Under this program, waste types similar to the products provided by Safety-Kleen are collected by the Branch Operation and processed by the recycle centers. These products may or may not have been originally obtained from Safety-Kleen by the industrial customer. These wastes are handled as transfer wastes at the Branch Operation. Examples of the types of wastes that may be received from FRS customers include:

1. Spent hydrocarbon distillates, such as waste fuel, oil, petroleum, and naphtha, etc.

2. Lubricating, hydraulic oils, synthetic oils, and machine oils.

3. Industrial halogenated solvents such as 1,1,1-trichloroethane, tetrachloroethylene, freon, and trichloroethane.

4. Photographic and x-ray related wastes.

5. Paint and lacquer thinners and paint wastes.

6. Other hazardous and non-hazardous halogenated and non-halogenated wastes.

FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-waste codes), commercial chemical products, manufacturing intermediates or off-

specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program.

Certain other wastes that result from the use of organic solvents are also managed through the Branch Operations. These include the solids and sludges that settle out of the used solvent during handling and processing. Lint, paper, oils, greases, carbons, and metals are examples of materials which may settle or separate out of used solvent. In addition to the listed waste codes, these wastes may also exhibit a characteristic under the toxicity characteristic leaching procedure.

Certain solvents are not economically recoverable in their prime form. These are typically solvents of low intrinsic value (e.g., methanol), those where the user's specifications are unattainable or where the mixture cannot be efficiently separated because of the formation of azeotropes, overlapping or close boiling ranges. However, when properly blended and processed, these solvents can be a beneficial source of energy. The Safety-Kleen recycle centers are equipped to process non-recoverable solvent mixtures with still bottoms from recovery of their solvent to produce valuable solvent based fuels.

ANTIFREEZE COLLECTION SERVICE

The spent antifreeze (ethylene glycol) is collected from automobile service stations. Nonhazardous antifreeze is commingled with used oil in a tanker truck, and hazardous antifreeze is managed as a transfer waste. not acceptable

Practices and procedures regarding the handling of spent anti-freeze were developed after the submittal of this application. The initial documents were developed jointly between Safety-Kleen and the Tallahassee Department of Enviromental Protection. In these documents, Safety-Kleen has committed to handle spent anti-freeze in an environmentally safe method. All anti-freeze collected and managed in the State of Florida will be recylced. This recycling activity involves the mixing of used oil and

anti-freeze in vehicles owned by Safety-Kleen. The shipment is then by rail to Safety-Kleen's East Chicago, Indiana recycle center. Safety-Kleen will advise DEP in writing via permit mods to any exception in procedures.

WASTE ANALYSIS SYMBOL KEY

LHC	Light Aliphatic Hydrocarbons
MC	Methylene Chloride
111	1,1,1-Trichloroethane
TRI	Trichloroethylene
TOL	Toluene
PERC	Perchloroethylene
MS	Mineral Spirits
DCB	Dichlorobenzene
BEN	Benzene

ATTACHMENT II.A.6
WASTE ANALYSIS PLAN

GENERAL

Safety-Kleen provides solvent distribution, collection, and reclamation services to companies that are primarily engaged in automobile repair, industrial maintenance and dry cleaning services. Safety-Kleen operates a "closed loop" waste recovery service for the parts cleaning machines used by customers at their facilities. When the cleaning fluids become dirty and can no longer be used effectively, Safety-Kleen picks up the dirty fluids and replaces them with clean, recycled fluids. The dirty fluids are returned to Safety-Kleen where they are recycled and subsequently reused by customers. Approximately two-thirds of the cleaning fluids provided as product by Safety-Kleen have been used before and subsequently reclaimed. Safety-Kleen's customers are typically small quantity generators who operate businesses which generate only a few hazardous waste streams. These factors help ensure that Safety-Kleen will receive a highly predictable and homogeneous waste stream.

Spent solvents are the primary feedstocks for the generation of Safety-Kleen solvent products. As a result, quality control of the spent solvents is necessary to ensure that reclamation occurs in the safest and most efficient manner possible.

Furthermore, as discussed earlier in the Facility Description (Attachment I.D.2), the materials collected at the Branch Operation are usually collected from a company with a single process. The composition and quality of these materials are known and Safety-Kleen's operating experiences have shown that the collected materials rarely deviate from company specifications. As an additional safeguard, Safety-Kleen personnel are instructed to inspect certain materials before returning them to the Branch Operations. This mode of operation has been proven to safeguard the recycling process and maintain a quality product.

It is Safety-Kleen's practice that suspected non-conforming material must not be accepted until a full analysis has been done or the material must be rejected.

Procedures to verify waste characteristics occur at several check points in the management of the solvent, as described below.

Safety-Kleen controls the use and management of its solvents by:

1. Limiting the solvents stored to those compatible with one another and their containers;

2. Determining the customer's type of business (i.e., his SIC code may be recorded) and the purpose for which the machine will be used;

3. Training customers to use the machines properly;

4. Training employees to inspect spent solvent and determine whether it is acceptable;

5. Indicating on the service document, every time waste is collected, whether the spent solvent meets Safety-Kleen's acceptance criteria;

Identification tag on waste mineral spirits is removed at the Branch Operations center which is not a reclamation center

6. Marking each container with the customer's name, address, and EPA I.D. number (if required). This information remains on containerized waste until it is accepted at the reclamation facility;

Branch Operations or Consolidation

7. Keeping a record of each incoming and outgoing shipment in the operating log at each facility;

8. Demonstrating the chemical and physical homogeneity of the wastes by sampling and analyzing a representative portion of generator waste streams on an ongoing annual basis at the national level; and

9. Routine analysis of the wastes received at the Recycle Centers.

Safety-Kleen's customers sign a service document containing the following information:

1. The name, address, and EPA I.D. number of the facility to which the waste is being shipped;

2. The customer's name, address, and EPA I.D. number (if required); and

3. The description and amount of Safety-Kleen solvent waste generated.

Each incoming and outgoing shipment is recorded in the facility's operating log. In addition, each sales representative must complete an acceptance criteria checklist each time a waste is picked up. In accordance with Safety-Kleen's pre-printed documents, all generators sign a statement with each shipment that there has been no material added to the closed-loop products supplied by Safety-Kleen since the last shipment. Finally, selected environmental reviews may be utilized to guard against the addition of other wastes into the generator's waste.

If a waste is rejected at the time of service based on the volume or consistency discrepancies, the customer will be given a choice as to whether they will dispose of the waste or will require Safety-Kleen's assistance. If a customer requests Safety-Kleen's assistance, a sample will be drawn using a Coliwasa® tube and it will be analyzed for flash point, volatile organic compounds, and other parameters to adequately define the constituents (e.g., for halogenated organic solvents, PCBs, flash point, etc.). If the waste is acceptable, it will be relabeled and manifested, and then managed with the other wastes. If it is not acceptable, it will either be: (a) managed on a 10-day transfer basis and manifested to a properly permitted reclamation or disposal facility, or (b) manifested and shipped directly to a properly permitted reclamation or disposal facility.

QUALITATIVE WASTE ANALYSES

General Inspection Procedures

Safety-Kleen visually inspects each container of waste parts washer solvent when it is collected at the customer's location. This inspection includes an evaluation of the waste volume, appearance, and consistency. Safety-Kleen's personnel are familiar with the characteristics of all wastes as described in Attachment II.A.5 and managed

at this facility. Safety-Kleen has established specific criteria for wastes managed at their facilities based on known characteristics. These criteria, described below, are used by Safety-Kleen personnel to aid in their visual inspections. These acceptance criteria enable Safety-Kleen to help ensure that the wastes being picked-up is an acceptable waste and does not contain unacceptable contaminates.

If a particular container of waste does not meet the established acceptance criteria, the Safety-Kleen service representative will reject the container at the customer's place of business. At the customer's request, a sample may be collected and analyzed by Safety-Kleen to determine whether it can be managed by Safety-Kleen. Depending on the source, the waste will be analyzed for parameters related to the suspected source of the waste. Alternately, the customer may choose to dispose of the material by using another (non-Safety-Kleen) facility.

If the waste is sampled for further analysis, the service representative will take a sample of the waste and then seal the container and label it as hazardous waste. The container is left with the customer pending the results of the laboratory tests. The laboratory testing involves analyzing the suspect waste for compounds related to the suspected source of the waste (e.g., volatile organics, halogenated organics, PCBs, etc.).

If the laboratory analysis reveals that the sampled waste is not contaminated, Safety-Kleen will accept the waste from the customer.

If the laboratory confirms that the waste is contaminated, the generator will be responsible for securing an alternate means of disposal.

Waste-Specific Criteria

The following is a description of the specific acceptance criteria for each waste stream.

Spent Parts Washer Solvent

The acceptance criteria for determining by visual inspection whether spent parts washer solvent has been contaminated are volume and color, the most significant of which is volume. Safety-Kleen places clean parts washer solvent in 5-, 16-, and 30-gallon containers with the customer which, if no additional material has been added to the container, should not hold more than the 5, 10, and 19 gallons of waste, respectively, at the time of waste pick-up since those volumes were equal to the respective product amounts in the containers. If the volume of waste in a given container exceeds the specified level, the Safety-Kleen service representative may sample the waste for laboratory testing as described above, or will reject the waste.

The spent parts washer solvent is also visually inspected for its color. Unused parts washer solvent (Parts Cleaner 105 and Premium Solvent) has a greenish tint or is clear. The aqueous parts cleaner is clear. As the solvent is used, it changes color. The specific color which the solvent turns is dependent upon the type of equipment being cleaned. For example, solvent used at automotive shops changes to brown or black, while solvent used by silk screeners will change the color of the inks (red, blue, pink, green, etc.). If the spent solvent color does not appear to be consistent with the type of equipment being cleaned, the service representative may sample the waste for possible contamination as described above, or will reject the waste.

Safety-Kleen understands DEP's concern and comments regarding volume as a selection criteria for accepting spent solvent as a waste. It should be pointed out that this procedure is not a quantitative or qualitative procedure but a visual screening tool which gives a sales representative additional information when evaluating spent solvents. Safety-Kleen is aware and understands that a small amount of hazardous waste when added to the spent solvent will not change the volume. Safety-Kleen treeats all spent solvent when delivered to the Branch Operation, as hazardous waste. As such, it is a branch generated waste and manifested prior to shipment to a recycle center.

editorial and not need as regarding FDEP comments and concerns.

Immersion Cleaner

The criteria for the inspection of spent immersion cleaner are volume, color, and physical state. Clean immersion cleaner is delivered to the customer in containers. These containers each contain six gallons of immersion cleaner. Spent immersion cleaner is picked up from the customer in the same containers. If no additional material has been added to the spent immersion cleaner, the containers should contain no more than six gallons. If a container contains more than six gallons of waste, a sample may be collected and analyzed for contamination following the procedures described above or the waste will be rejected.

Unused immersion cleaner is amber in color. As the solvent is used, it turns brown in color. The more it is used, the darker brown it becomes, until it is almost black. Therefore, it the spent immersion cleaner does not appear to be amber, brown, or black, the service representative may sample the waste for possible contamination as described above, or reject the container of waste.

Dry Cleaner Wastes

Dry cleaner wastes consist of spent filter cartridges, powder residue, and still bottoms:

Spent Filter Cartridges

Spent filter cartridges are placed in containers which hold one to three cartridges. It is obvious to the service representative whether the items in the containers are filter cartridges. The containers may also contain approximately one inch of liquid which should be either clear or have a light brownish tint. If the amount of the liquid is greater than approximately one inch or if the liquid is a color other than light brown, the service representative may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Powder Residue

The criteria for the acceptance of powder residue are consistency and color, the former being the more significant criterion of the two. A container of powder residue should not contain more than one inch of liquid. The waste should be slightly wet,

with the consistency of a paste. If there is too much liquid in the container, the waste will may be sampled for contamination in accordance with the procedures described above, or the waste will be rejected.

The powder residue is also inspected for color and should appear to be greyish-black. If the residue is not greyish-black in color, the service representative will may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Still Bottoms

The criteria for the acceptance of dry cleaning still bottoms are consistency and color. The waste should have a highly viscous, tar-like consistency. If the consistency of the waste is too thin, the waste may be sampled for contamination in accordance with the procedures described above, or will be rejected.

In addition to the consistency, the still bottom waste is inspected for color. The waste should appear dark brown or black in color. If the waste is a different color, a service representative may sample the waste for contamination in accordance with the procedures described above, or will reject the waste.

Paint Wastes

Safety-Kleen handles both lacquer thinner waste generated from the paint gun cleaning process and paint waste:

Lacquer Thinner Waste

The significant criterion for determining whether lacquer thinner waste will be accepted is volume. The solvent is provided to customers in five-gallon pails. The paint gun cleaning machine operates as a closed system whereby there should never be a combined volume of more than 7.5 gallons of solvent in the two ~~collection~~ pails. The solvent is pumped from a tube in a left hand pail (facing the machine) through the machine into a right hand pail. The tube in the left hand pail extends exactly half way into the pail (i.e., to the 2.5 gallon mark). The left hand pail starts with five gallons of clean solvent which will be pumped out as the machine is used to clean the spray

guns. This process will continue until the left hand pail contains 7.5 gallons of solvent. Any solvent above 7.5 gallons remaining in the left hand pail at the time of servicing will be pumped through the machine into the right hand pail by the Safety-Kleen service representative. Therefore, when the machine is serviced, the right hand pail will always contain five gallons of solvent. If a service representative discovers more than a total of 7.5 gallons of solvent in the two pails or there is an overfill from the right hand pail, the waste may be sampled for contamination in accordance with the procedures described above, or the waste will be rejected.

Paint Waste

The significant criterion for the inspection of paint waste is consistency. The waste should contain no more than 30 percent solids. The service representative will insert a three-foot-long glass tube into the container. The tube should glide easily down to the bottom of the container. If there is resistance to the insertion of the glass tube, it is assumed that the level of solids is in excess of 30 percent and the service representative will reject the waste.

The contents of the glass tube are also visually examined for consistency and water content. The material should be a "free flowing" liquid, but should not contain a significant amount of water. If there is more than approximately 10 inches of water in the three-foot tube (the water and paint will separate in the tube and thus can be measured), the waste will be rejected.

ONSITE ENVIRONMENTAL ACTIVITY REVIEW PROGRAM

Based on historical operating and analytical records, Safety-Kleen has determined that the characteristics of its customer's wastes (particularly the last 15 years) reflect that there has, in fact, been a continuing reduction in the trace levels of characteristically toxic constituents in these wastes. Therefore, in concert with the sampling described in this waste analysis plan, Safety-Kleen may conduct reviews of customer's waste streams. This review, in addition to the analytical baseline of information, will confirm that the hazardous waste streams managed at the Branch Operations under conditions of the Part B Permit do not change from year to year. Annual process

descriptions may be performed for Large Quantity Generators (LQGs) and Small Quantity Generators (SQGs) that generate these wastes.

If a review occurs, it will be performed at the customer's site by the Safety-Kleen sales representative during their regular service calls. The Safety-Kleen representative will meet with a customer representative who is knowledgeable of the Safety-Kleen services used at the facility. The Safety-Kleen representative will conduct an inspection of the facility and interview the customer. The inspection and interview will be used to generate: a description of the customer's processes, an inventory of waste streams, the principal product(s) or service(s), and the purpose for which Safety-Kleen solvents are used. This information will be used to complete a review document which will be certified and signed by the customer's representative and the Safety-Kleen representative. A copy of the completed review document will be kept on file at the Branch Operation and copy will be provided to the customer.

WASTE ANALYSES AT THE RECYCLE FACILITY

Analyses performed at the recycle facilities are undertaken to safeguard the recycling process and to assure the product quality. In addition, each waste material is sampled and analyzed upon receipt of each waste load as required by the permit and associated Waste Analysis Plan for the receiving recycle center. In order to properly and safely process waste generated by the branch, the recycle center samples and analyzes each waste load as it is received from the branch. The following tables summarize a typical waste analysis plan at the recycle facility related to the hazardous materials returned from the Branch Operation:

Table II.A.6-1 Parameters and Rationale for Hazardous Waste Identification
Table II.A.6-2 Parameters and Test Methods
Table II.A.6-3 Methods Used to Sample Hazardous Wastes
Table II.A.6-4 Frequency of Analysis

In addition to the aforementioned analyses, TCLP analyses for all compounds, except pesticides, will be conducted every year on all characteristic hazardous waste streams (example; used parts washer solvent and 699 IC). Any compounds which are

positively detected in the waste stream will be added to the parameter list for that waste stream on Table II.A.6-1.

TABLE II.A.6-1

PARAMETERS AND RATIONALE FOR HAZARDOUS WASTE IDENTIFICATION

	Hazardous Waste	Parameter[a]	Rationale
1.	Used Immersion Cleaner (699IC)	TCLP	May contain TCLP compounds.
2.	Used Parts Washer Solvent	Flash Point TCLP	May exhibit ignitable characteristics (D001); may contain TCLP compounds.
3.	Parts Washer Solvent Tank Bottom Sludge and Free Water	TCLP Flash Point	The sludge and free water may contain TCLP compounds and the sludge has a flash point of 105° F (D001).
4.	Parts Washer Solvent Dumpster Mud	TCLP Flash Point	The sludge and free water may contain TCLP compounds and the sludge has a flash point of 105° F (D001).
5.	Dry Cleaning Wastes (Perchloroethylene)	Perchloroethylene TCLP	Three separate formulas exist for dry cleaning products. Perchloroethylene formula is the only waste managed as a permitted waste. It may contain TCLP compounds.
6.	Paint Wastes	Acetone Isopropyl Alcohol Methyl Ethyl Ketone Methyl Isobutyl Ketone Toluene Xylenes Acetate Compounds Flash Point TCLP	Contains ingredients of F003 and F005 wastes, and may contain TCLP compounds. May exhibit ignitable characteristics (D001).

NOTES:

[a] TCLP Waste Codes: D004-D011, D018, D019, D021-D030, D032-D043.

TABLE II.A.6-2

PARAMETERS AND TEST METHODS

Parameter	Test Method	Reference
pH	pH Meter	ASTM Standard D1293-65
Flash Point	Tag closed cup tester	ASTM Standard D56-79
TCLP	Toxicity Characteristic Leaching Procedure	40 CFR 261, Appendix II
Hydrocarbons and Volatile Organics	Gas Chromatography (GC)	Methods Based on "Test Methods for Evaluation of Solid Waste, Physical/ Chemical Methods," SW-846, USEPA and ASTM Standards. In particular 8240 and 8270.

TABLE II.A.6-3

METHODS USED TO SAMPLE HAZARDOUS WASTES

Hazardous Waste	Reference for Sampling	Sampler	Description of Sampling Method
1. Used Immersion Cleaner IC699	Sampling a drum "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA/600/2-80/018	Test Methods for the Evaluation of Solid Waste Physical/ Chemical Methods, SW-846, USEPA	Representative composite sample using drum sampler
2. Used Parts Washer Solvent	Sampling a tank "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA/600/2-80/018	Same as 1	For tanks--Bomb sampler (similar to weighted bottle sampler)
3. Parts Washer Solvent, Tank Bottom Sludge, and Free Water	Same as 2	Same as 2	Same as 2
4. Parts Washer Solvent Dumpster Mud	Same as 1	Same as 1	Same as 1
5. Dry Cleaning Wastes	Same as 1	Same as 1	Same as 1
6. Paint Wastes	Same as 1	Same as 1	Same as 1

TABLE II.A.6-4

FREQUENCY OF ANALYSIS

Hazardous Waste	Frequency[a]
1. Used Immersion Cleaner 699	Gas chromatograph annually TCLP annually
2. Used Parts Washer Solvent	Gas chromatograph annually Flash point annually TCLP annually
3. Parts Washer Solvent, Tank Bottom Sludge, and Free Water	Gas chromatograph annually TCLP annually
4. Parts Washer Solvent Dumpster Mud	Gas chromatograph annually TCLP annually
5. Dry Cleaning Wastes	Gas chromatograph annually TCLP annually
6. Paint Wastes	Gas chromatograph annually TCLP annually

NOTES:

[a] In accordance with 40 CFR 264.13(a), Safety-Kleen will also perform physical and chemical analysis of a waste stream when it is notified or has reason to believe that the process or operation generating the waste has changed, or when the result of inspection indicates that the waste to be collected does not match the waste designated.

ATTACHMENT II.A.7

MANIFEST SYSTEM, RECORDKEEPING, AND REPORTING

PROCEDURE FOR RECORDKEEPING

Safety-Kleen does not remove spent solvent with the use of invoices. Safety-Kleen services three types of customers in Florida, Conditionally Exempt Small Quantity Generators (CESQGs), Small Quantity Generators (SQGs) and Large Quantity Generators (LQGs). CESQGs spent solvent is removed via a tolling agreement which means there is no manifest or Land Disposal Restrictions (LDR) used. Appropriate records are kept at the Branch as to the date of waste pick-up, quantity, and other data on the service document. SQGs spent solvent is also tolled in Florida, which means that a manifest is not used. An LDR is completed for each SQG. LQGs spent solvent is always manifested (if hazardous) and an LDR is completed. Spent solvent from each customer, regardless of size is brought back to the Branch and dumped in the return and fill container and pumped to the waste solvent tank. This tank contains the spent solvent of many customers and is hazardous. The contents are regularly sent via truck tanker to the recycle center in Lexington, South Carolina. The loads are always manifested and accompanied with the LDR.

Quantities of clean solvents received from used solvents shipped to the recycle center are routinely manifested. Shipments of parts washer solvent dumpster mud are also manifested accordingly. Required records are kept at the operations center and the recycle center until closure of the facility.

REQUIRED NOTICES

If Safety-Kleen arranges to receive hazardous waste from a foreign source, the Regional Administrator must be notified in writing at least four weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required. Safety-Kleen informs its customers in writing (i.e., on each service document) that the facility has the

appropriate permit(s) for, and will accept the waste the generator is shipping. Safety-Kleen keeps a copy of this written notice as part of the operating record.

Before transferring ownership or operation of this facility during its operating life, Safety-Kleen will notify the new owner or operator in writing of the requirements of Part 264 and Part 270 of Chapter 40 in the code of Federal Regulations.

MANIFEST SYSTEM

In accordance with 40 CFR 264.71 through 77, Safety-Kleen will ensure that:

1. Customers who are required to provide a manifest do so;

2. The manifests are prepared and signed properly; and

3. Copies are distributed and kept on file, as required.

In addition, discrepancies must be remediated in accordance with 40 CFR 264.72 and unmanifested wastes will be reported as described under 40 CFR 264.76.

An operating log which contains the information required under 40 CFR 264.73 is maintained and all records and logs are available at the facility, in accordance with 40 CFR 264.74.

Biennial reports, required by 62-730.180(7) will be prepared and submitted by Safety-Kleen, and these records will also be available at the facility for review.

The following information will be maintained in writing in the operation record for the facility:

- A description and quantity of each hazardous waste received;

- The date and storage method for such hazardous waste;

- The location of each hazardous waste stored within the facility;

- Records and results of waste analyses performed;

- Summary reports and details of all incidents that require implementation of the Contingency Plan;

- Monitoring, testing, or analytical data, and corrective action where required by Subpart F and other applicable sections of 264;

- All closure cost estimates under 264.142 and all contingent post-closure cost estimates under 264.144;

- Records of quantities and date of placement for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted; and

- For any restricted waste generated that can be land disposed without further treatment, and is sent to a land disposal facility, a notice and certification will be set to the treatment, storage, or land disposal facility with the waste. The notice will state that the waste meets the applicable treatment standards set forth in Subpart D of 268 and applicable prohibitions set forth in 268.32 or RCRA section 3004(d). The notice will include the following information:

  - EPA Hazardous Waste Number; and

  - The corresponding treatment standards and all applicable prohibitions set forth in 268.32 or RCRA Section 3004(d).

Further, the certification will be signed by an authorized representative and will state the following:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

Section 264.74 requires that all records, including plans, must be furnished upon request to duly designed representative of the Regional Administrator, and this requirement will be honored. A copy of all records of waste disposal locations and quantities will be submitted to the Regional Administrator and/or FDER upon closure of the facility, if applicable.

A biennial report will be submitted to the Regional Administrator and/or FDER by March 1 during each even numbered year (1990 being the first year) on EPA form 8700-13B. The report will cover facility activities during the previous calendar years and will include:

- The EPA identification number, and address of the facility;
- The calendar year covered by the report;
- The method of treatment, storage, or disposal for each hazardous waste;
- The most recent closure cost estimate under 264.142 and the most recent contingent post-closure cost estimate under 264.144; and
- A certification signed by the owner or operator of the facility or the authorized representative.

LAND BAN NOTIFICATION/CERTIFICATION FORMS

In accordance with 40 CFR 268.7, Safety-Kleen will provide notification/certification for wastes banned from landfills as follows:

1. Printing the Notice language on the manifest such as for core-business customers to branch shipments; or

2. Special forms for each regularly handled waste types (e.g., parts washer solvent, IC, and perc); or

3. A general form that must be completed for unique or non-standard waste streams.

The Notice is required paperwork for the streams handled by Safety-Kleen. Shipments lacking the proper Notice will not be accepted by any Safety-Kleen facility. When a shipment with the proper Notice is received, the Notice is kept in the files of the receiving facility with the manifest or with the pre-print if a manifest is not used.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

EPA ID NUMBER FLD 980847271 **TYPE OF APPLICATION** Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	B-1. Container Design.		
II.B.1-1 to II.B.1-4	B-I(a). Containers Without Free Liquids or F020, F021, F022, F023, F026, and F027. Wastes for storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with 264.175(c); including 270.15(b).	270.15(b) and 264.175(c)	Text has been edited to delete references to specific container sizes and concrete coating proprietary product.
	B-la(l). Test for Free Liquids. Test procedures and results or other documentation or information to show that the wastes do not contain free liquids. Use of the Paint Filter Test, Method 9095 in SW-846, is recommended.	270.15(b)(1) and 264.175(c)	No changes have been made subsequent to the most recent approved modification to the permit.
	B-la(2). Description of Storage Area Design and Operation to Drain and Remove Liquids or How Containers Are Kept From Contact With Standing Liquids Containment System Not Required If: • Storage area sloped or otherwise designed and operated to drain and remove liquid resulting from precipitation, or • Containers elevated or otherwise protected from contact with accumulated liquid.	270.15(b)(2) 264.175(c)(1) and 264.175(c)(2)	No changes have been made subsequent to the most recent approved modification to the permit.
	B-lb. Containers with Free Liquids and/or F020, F021, F022, F023, F026, and F027 Wastes. A description of the containment system to demonstrate compliance with 264.175. Show at least the following:	270.15(a) 264.175(b) and 264.175(d)	No changes have been made subsequent to the most recent approved modification to the permit.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

EPA ID NUMBER FLD 980847271 **TYPE OF APPLICATION** Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
II.B.1-1 to II.B.1-4	B-lb(l). Basic Design Parameters, Dimensions, and Materials of Construction. Base must underlie containers which are capable of containing all liquids until the liquid is collected and removed. Information which should be provided to demonstrate this includes the following: • Statement that the base is free of cracks or gaps. • Demonstration of imperviousness of base to wastes and precipitation. • Base design and materials of construction. • Engineering evaluation of structural integrity of base. • Discussion of compatibility of base with wastes.	270.15(A)(1), and 264.175(b)(1)	Specific references to container size and concrete coating proprietary product name removed.
	B-lb(2). Description of How Design Promotes Drainage or How Containers Are Kept From Contact With Standing Liquids in Containment System. Base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or otherwise protected from contact with accumulated liquids. For this requirement, the applicant should address, where applicable: • Stacking practices. • Grading of base. • Drainage design and removal system.	270.15(A)(2) and 264.175(b)(2)	No changes have been made subsequent to the most recent approved modification to the permit.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

EPA ID NUMBER FLD 980847271 **TYPE OF APPLICATION** Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	B-lb(3). Capacity of the Containment System Relative to the Number and Volume of Containers to Be Stored. Sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater. Information that should be included to satisfy this requirement is: • Volume of largest container. • Total volume of containers. • Containment structure capacity. • Capacity of run-off collection system. • Geographic storm intensity/frequency data.	270.15(a)(3) and 264.175(b)(3)	No changes have been made subsequent to the most recent approved modification to the permit.
	B-lb(4). Provisions for preventing/managing run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to the 10 percent minimum to contain any run-on which might enter the system. The applicant should discuss structures used to control run-on such as: • Containment system ancillary structures (curbs, dikes, etc.). • Engineering grading design. • Collection and removal system design capacity. • Potential run-on.	270.15(a)(4) and 264.175(b)(4)	No changes have been made subsequent to the most recent approved modification to the permit.
	B-lb(5). How accumulated liquids can be analyzed and removed to prevent overflow spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner as is necessary to prevent overflow of the collection system. Information that must be included is: • How liquids will be analyzed. • Removal equipment and methods (sump pump design, piping specifications, location, discharge point, and capacity). • Management of accumulated liquid including prevention of overflow.	270.15(a)(5) and 264.175(b)(5)	No changes have been made subsequent to the most recent approved modification to the permit.

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

EPA ID NUMBER FLD 980847271 **TYPE OF APPLICATION** Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	B-2. Drawing of Containers With Buffer Zone and Incompatible Waste. • 15 meters (50 feet) from property line. • Means to separate from other waste and flames.	270.15(c), 264.176 and 264.177(c)	No changes have been made subsequent to the most recent approved modification to the permit.
II.B.3-1 to II.B.3-6	B-3. Description of Procedures Used to Ensure Compliance With Management of Incompatible Waste. • Placing incompatible waste in same container. Putting in unwashed containers.	270.15(d), 264.177(a) & (b) and 264.17(a) & (b)	Sheets II.B.3-1 through II.B.3-6 are enclosed as a revised procedure for segregating wastes. This material has been edited to incorporate the removal of Immersion Cleaner #609 from the scope of the permit and to reflect more restrictive rules concerning smoking at the facility.
II.B.4-1 to II.B.4-2 and II.B.5-1 to II.B.5-2	B-4. Container Management. • Type of containers and construction material should include liners manufacturer (if applicable), specifications, and dimensions. • Procedures for handling to avoid rupturing or leaking. • Weekly inspections or deterioration caused by corrosion or other factors. • Machinery, equipment, procedures used to move containers. • Adequate aisle space for machinery, inspections, and to meet applicable codes (i.e., fire). • Maximum number, height, volume, and types of containers in store. • Waste container always kept closed during storage except when adding or removing waste. • Location of ignitable, reactive and incompatible waste. • Markings and labels placed on containers.	264.171, 264.172, 264.173, 264.174 270.15(a)(1)	Text has been edited to update the permit with minor edits with respect to the specific container sizes and to the container inspection procedure.

ATTACHMENT II.B.1
CONTAINMENT SYSTEM

CONTAINMENT

The drum storage areas shown in Figure II.B.1-1 occupy portions of the building areas which have concrete floors, concrete berms, and collection trenches to form spill containment systems. The system is free of cracks. Spills are removed by a hand-held, portable electric pump (the COMS pump), wet-dry vacuum cleaner, or sorbent materials. The capacities of the containment system is designed to be greater than 10 percent of the total liquid storage capacity in each drum storage area. Since the characteristics of the stored wastes are known, no analyses are performed for the materials collected from the containment area. All collected materials are sent to a recycle facility for recycling/reclamation. RCRA recycling / reclamation facility ?

All containers are transported, moved, and stored carefully in an upright position. The route trucks are equipped with an electric hoist to assist loading/unloading. In the warehouse area, the immersion cleaner, parts washer solvent dumpster mud containers, and dry cleaning waste containers are moved with two-wheel hand trucks and stacked by hand. Containers are palletized whenever possible to facilitate shipping and storage. Pallets may be stacked up to six feet high, or two high (whichever is higher), while in storage. This will prevent the containers from contacting standing liquid while they are in storage. Pallets may be shipped up to three high during transportation. A two foot aisle space will be provided between containment walls. No spacing is provided for pallets placed in appropriately painted east-west rows. There are two foot aisle spaces located in the north-south parallel rows.

The container storage area for the north building (Figure II.B.1-2) has a capacity of 5,197 gallons. The types and numbers of each container may vary. The flammable container storage area for the south building (Figure II.B.1-3) has a capacity of 12,749 gallons. The nonflammable south building container storage area has a capacity of 44,367 gallons. These capacities include both fresh product and used material.

The container storage areas are completely enclosed so no precipitation will enter them. There is curbing around the container storage areas in the operations center, except where the trenches are located. The north building has three trenches with a combined capacity of 519.7 gallons. The south building has three trenches. One trench provides containment for the flammable storage room. The remaining two trenches provide containment for the non-flammable wastes and product. These two trenches have a combined capacity of 4,436.7 gallons. Figure II.B.1-4 shows the containment calculations for the trenches in the operations center.

In 1993, Safety-Kleen installed a fire suppression system for the entire facility. As part of the fire code requirements, Safety-Kleen was required to provide containment for the sprinkler water from the flammable storage room. A pipe was connected to the end of the existing containment trench in the flammable storage room. The pipe runs underground along the south end of the building and flows into a previously unused tank containment area.. The pipe is metal and is enclosed in a sealed high density polyethylene liner. The previously unused tank containment area has been segregated into two sections. The northern section is used to house the fire water tank and pump house. The southern section provides secondary containment for liquids from the flammable storage area in the event the fire protection sprinkler system is activated or in the eventuality that the flammable storage room containment trench capacity is exceeded. Based on the configuration and slope of the trench in the flammable storage area, only in the event a spill of greater than 550 gallons (10-55 gallon drums) would solvents enter the pipe and/or additional secondary containment area. The southern portion of the containment area will be coated in chemically resistant coating in accordance with the container storage areas. The installation of this pipe and containment area has affected the secondary containment capacity of the flammable storage room. The existing trench provides 660 gallons of containment capacity, while the additional secondary containment area provides 5,064 gallons of containment capacity. The containment capacity of the pipe is 427 gallons. The new total containment capacity is 6,151 gallons which is greater than 10% of the permitted storage volume of 12,749 gallons. Figure II.B.1-4 shows the containment calculations.

The floor has no intentional sloping. Any small spill which might occur would puddle where it was spilled. The spilled material would be cleaned up where it puddled or be manually directed to the containment trench. In the event that a large spill were to occur, some dispersion would be expected to occur based on the direction, force, and pathway obstacles presented by and to the spill. The trenches protect, however, the only opening in the curbing. Only in the event that the spill were to exceed the containment capacity of the trenches would spilled wastes be able to extend beyond the containment areas. Once outside the containment area the wastes would continue to be on a concrete surfaces. These are the same concrete surfaces that serve to protect soils and ground water from contamination due to spills occurring during loading/unloading.

Rainwater which may accumulate in the south containment area does not have contact with hazardous materials and rainwater which does not evaporate in a reasonable time frame will be discharged directly to the ground surface. In the unlikely event the building's sprinkler system is activated and overflow from the buildings secondary containment is discharged to the southern portion of the south containment area, the overflow, which may have come in contact with hazardous materials, will be containerized and handled appropriately.

In either case, if there have been any spills from containers or tanks, there is nothing present in this secondary containment area to contaminate the water. If, however, hazardous materials contact this area, it must be decontaminated before direct discharge of this water is resumed. Permit condition

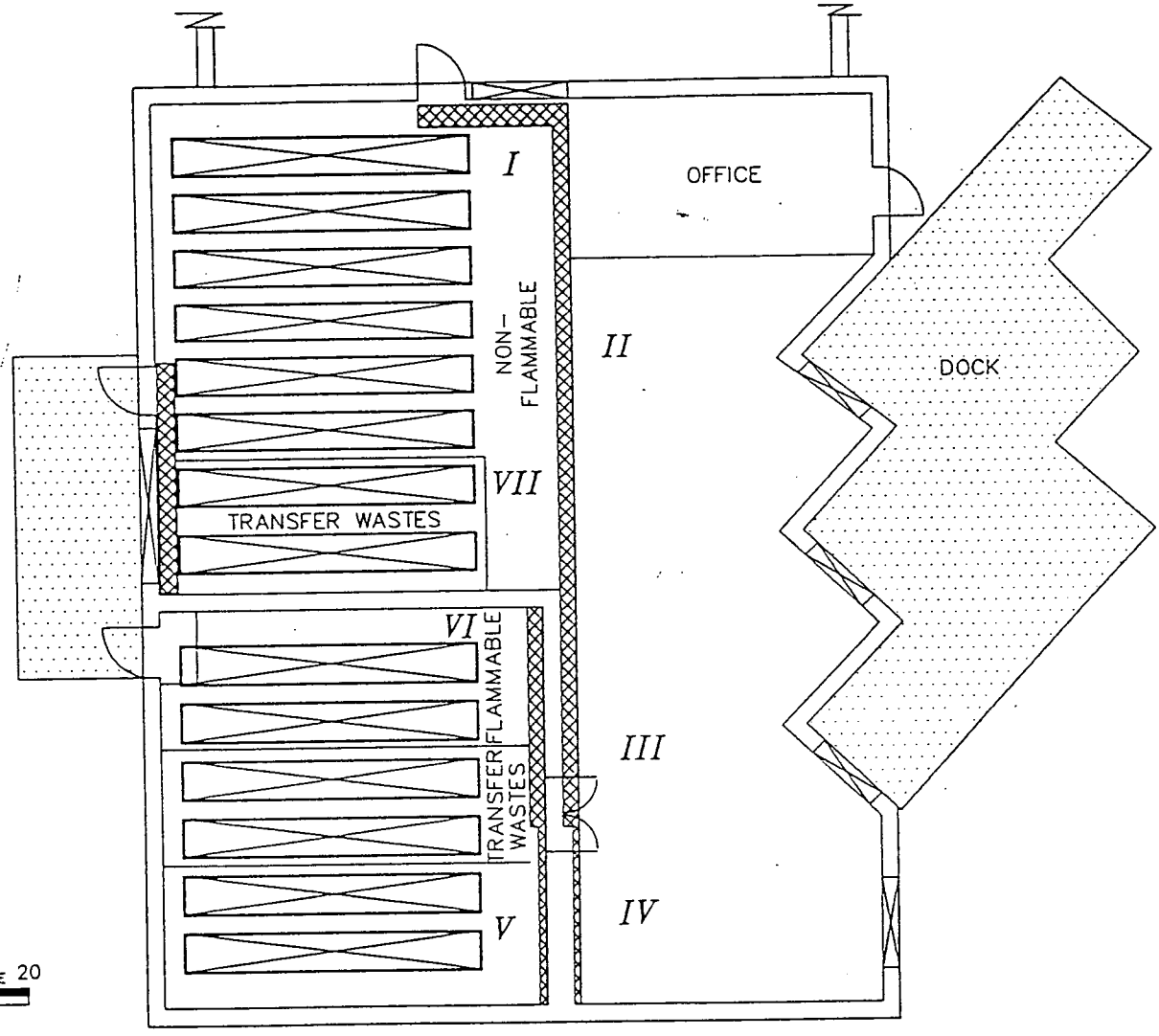
CONTAINER MOVEMENT

In the drum storage areas, containers are handled with a hand-truck or forklift that is free of sharp points and stacked by hand. Every time a drum is moved, a chance exists that it will be tipped over, dropped, or punctured. To minimize the possibility of spillage, containers are tightly covered and kept in an upright position. A small portable electric pump is available to quickly transfer the liquid from any leaking container into another safe drum. Each route truck is equipped with an electric hoist. This hoist is used in the loading/unloading operation to minimize chances for spillage

Document usage and maintenance

and/or employee injury. Trucks used for shipping containers between the recycle center and operations center have lift gates for drum loading/unloading. With the exception of mineral spirits, all drummed wastes are loaded/unloaded from the trucks at the docks located on the eastern side of the south and the north buildings. Wastes may be transferred from the south to the south building using hand carts or forklifts. This transfer process will utilize the garage doors on the western side of the north and south buildings. The parts washer solvent is loaded/unloaded at the fill/return shelter, which is described in the Tank Section, Part II C.

Figure II.B.1-3
Container Storage Area (South Building)
Safety-Kleen Corp. Facility
Tampa, Florida



LEGEND

- ROLL-UP DOOR
- TRENCH
- ROWS OF CONTAINERS

NOTE:
1) TRANSFER WASTE HOLDING AREAS MAY EXPAND DEPENDING ON THE AMOUNT OF TRANSFER WASTES ARRIVING AT THE FACILITY
2) TRANSFER WASTE VOLUMES ARE INCLUDED IN CALCULATING TOTAL ACTUAL STORAGE VOLUME FOR PURPOSE OF COMPARING WITH PERMITTED VOLUMES
3) ROMAN NUMERAL REFERS TO CONTAINMENT CALCULATION AREAS

Victor E. Hiatt 4/27/93

ERM

SAFETY-KLEEN INFORMATION ON THE LOW PERMEABILITY OF CONCRETE

Impermeability of concrete articles are presented on water and to some extent on oil. They do not discuss other materials.

safety-kleen®

ATLANTA REGION

September 27, 1996

Mr. Dan Phelps
Delta Environmental Consultants
5401 W. Kennedy Blvd., Suite 400
Tampa, FL 33609

Subject: Tampa branch NOD

Dear Dan:

The NOD from Roger Evans dated 8-10-96, item #33 (pIIB1-3), requests supporting data for removing the coating requirement for concrete. Enclosed are several studies of concrete permeability, the 9-10-92 Federal Register Preamble addressing concrete permeability, and a SK letter describing our position to another regulator. Please use this to answer the Tampa NOD. Call me at 770-449-0533 if you have any questions.

Very truly yours,

Della A. Ridley
Regional Environmental Manager

Enclosures: 3

cc: Jon Ercole
Brent Callihan

2727 PACES FERRY ROAD
2 PACES WEST, SUITE 1660
ATLANTA, GA 30339
PHONE 404/434-1572
FAX 404/434-6956

safety-kleen ®

RECEIVED
MAR 17 1995

MEMORANDUM

SUBJECT: Epoxy Coatings on Concrete Containment Systems

DEPOT/OFFICE: Breslau

TO: Dan Dowling

DATE: March 2, 1995
H:\ENG\WORD95\CR\CRMEM5.DOC

FROM: Chris Riehl CRiehl

cc: Peter Dwan
David Flahaut
Frank Wagner

Following continuous problems with the maintenance and high capital cost of epoxy coatings on the concrete containment areas in the branches, I began questioning the need to install these products.

I discussed this issue with the three regional environmental engineers and found the following. In Eastern Canada, only Québec has regulations regarding the requirements for containment areas. Québec Hazardous Waste regulations specify that containment systems have a permeability less than 1×10^{-7} cm/s. In Ontario (Central Region), there are no specific regulations regarding the specifications of containment systems. In Western Region, only B.C. has specific requirements for containment systems, which are the same as Québec. The regulation in B.C. (as attached), also states that the permeability of the containment system must be less than 1×10^{-7} cm/s. Therefore, there are no provincial regulations specifically requiring an epoxy coating system on the concrete containment. However, there are certain branches with permit conditions requiring the coatings.

Preliminary investigations with the Canadian Portland Cement Association (CPCA) revealed the average permeability of concrete is from 1×10^{-10} cm/s (see attached), or one thousand times less permeable than the quantified requirements of Québec and B.C. Following discussions with Peter Dwan, I decided to have laboratory tests done to document this for the files and provide proof for other facilities. The lab tests were done on three core samples taken from the Langley, B.C. branch, and the results are attached. The permeability of the samples ranged from 4.830×10^{-9} cm/s to 1.063×10^{-8} cm/s, falling within the range estimated by CPCA.

In an effort to reduce immediate capital costs and future maintenance cost, I am planning on using this documentation to aggressively fight any agency's requests for the epoxy coatings. I hope this information will also prove useful for the branches in the U.S.

CR/cd

BEST AVAILABLE COPY

The moisture content of thin concrete elements after drying in air with a relative humidity of 50% to 90% for several months is about 1% to 2% by weight of the concrete depending on the concrete's constituents, original water content, drying conditions, and the size of the concrete element (refer to Chapter 13 for more information).

Size and shape of a concrete member have an important bearing on the rate of drying. Concrete elements with large surface area in relation to volume (such as floor slabs) dry faster than large concrete volumes with relatively small surface areas (such as bridge piers).

Many other properties of hardened concrete also are affected by its moisture content; these include elasticity, creep, insulating value, fire resistance, abrasion resistance, electrical conductivity, and durability.

Strength

Compressive strength may be defined as the measured maximum resistance of a concrete or mortar specimen to axial loading. It is generally expressed in pounds per square inch (psi) at an age of 28 days and is designated by the symbol f'_c. To determine compressive strength, tests are made on specimens of mortar or concrete; in the United States, unless otherwise specified, compression tests of mortar are made on 2-in. cubes, while compression tests of concrete are made on cylinders 6 in. in diameter and 12 in. high (see Fig. 1-6).

Compressive strength of concrete is a primary physical property and one frequently used in design calculations for bridges, buildings, and other structures. Most general-use concrete has a compressive strength between 3000 psi and 5000 psi. High-strength concrete has a compressive strength of at least 6000 psi. Compressive strengths of 20,000 psi have been used in building applications.

In designing pavements and other slabs on ground, the flexural strength of concrete is generally used.

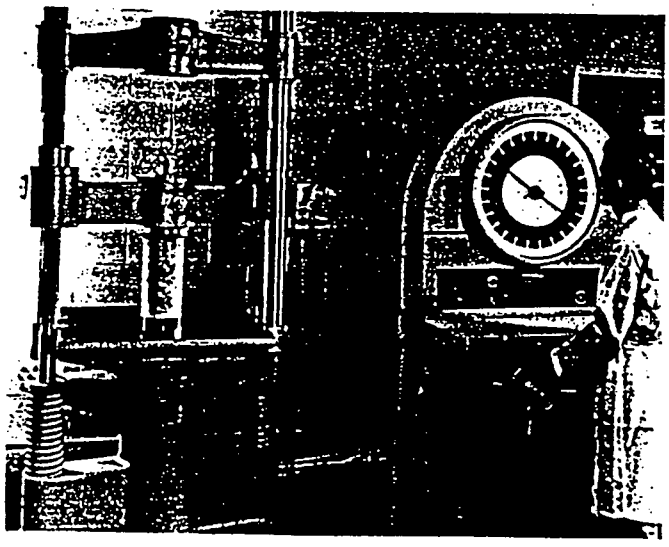


Fig. 1-6. Testing a 6x12-in. concrete cylinder in compression. The load on the test cylinder is registered on the scale.

Compressive strength can be used as an index of flexural strength, once the empirical relationship between them has been established for the materials and the size of the member involved. The flexural strength or modulus of rupture of normal-weight concrete is often approximated as 7.5 to 10 times the square root of the compressive strength.

The tensile strength of concrete is about 8% to 12% of the compressive strength and is often estimated as 5* to 7.5 times the square root of the compressive strength.**

The torsional strength for concrete is related to the modulus of rupture and the dimensions of the concrete element.†

The shear strength of concrete can vary from 35% to 80% of the compressive strength. The correlation between compressive strength and flexural, tensile, torsional, and shear strength varies with concrete ingredients and environment.

Modulus of elasticity, denoted by the symbol E, may be defined as the ratio of normal stress to corresponding strain for tensile or compressive stresses below the proportional limit of a material. For normal-weight concrete, E ranges from 2 to 6 million psi and can be approximated as 57,000 times the square root of the compressive strength.††

The principal factors affecting strength are water-cement ratio and age, or the extent to which hydration has progressed. Fig. 1-7 shows compressive strengths for a range of water-cement ratios at different ages. Tests were made on 6-in.-diameter cylinders that were 12 in. in height. Note that strengths increase with age and increase as the water-cement ratios decrease. These factors also affect flexural and tensile strengths and bond of concrete to steel.

The age-compressive strength relationships in Fig. 1-7 are for typical air-entrained and non-air-entrained concretes. When more precise values for concrete are required, curves should be developed for the specific materials and mix proportions to be used on the job.

For a given workability and a given amount of cement, air-entrained concrete requires less mixing water than non-air-entrained concrete. The lower water-cement ratio possible for air-entrained concrete tends to offset the somewhat lower strengths of air-entrained concrete, particularly in lean-to-medium cement content mixes.

Unit Weight

Conventional concrete, normally used in pavements, buildings, and other structures, has a unit weight in the range of 140 to 150 lb per cubic foot (pcf). The unit weight (density) of concrete varies, depending on the amount and relative density of the aggregate, the amount of air that is entrapped or purposely entrained, and the water and cement contents, which in turn are

*Reference 1-11.

**ACI 207.2R estimates tensile strength as $6.7\sqrt{f'_c}$.

†Torsional strength correlations are presented in Reference 1-11.

††See Section 8.5 of ACI 318.

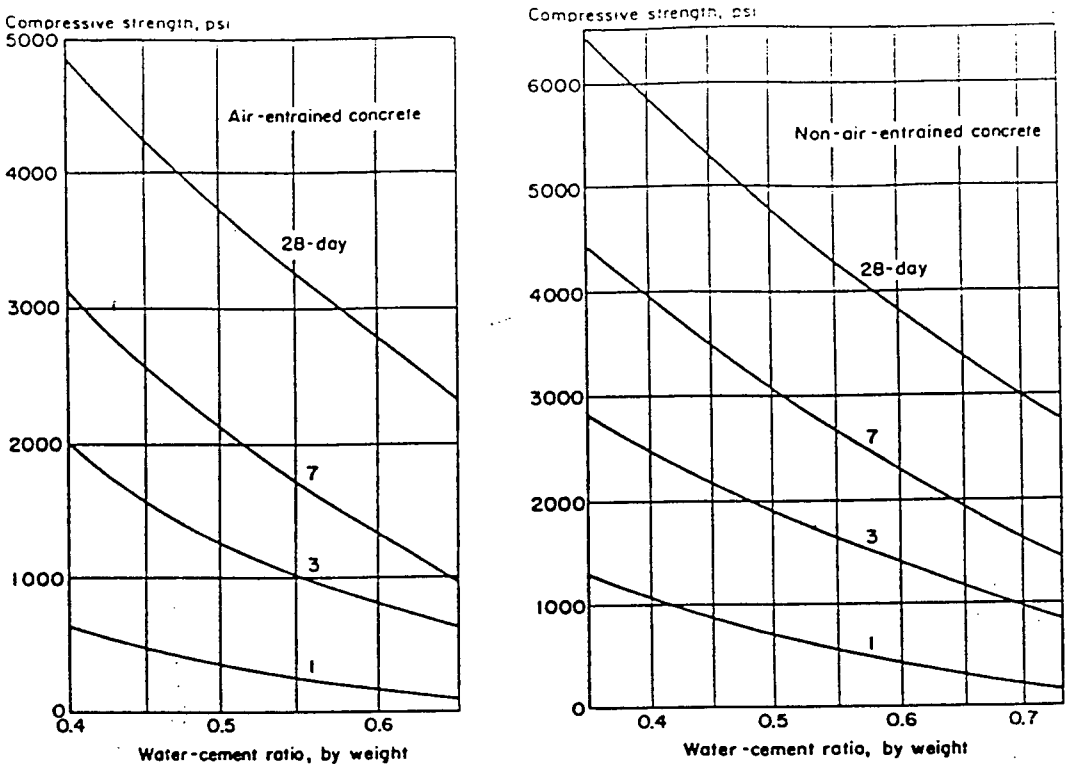


Fig. 1-7. Typical age-strength relationships of concrete based on compression tests of 6x12-in. cylinders, using Type I portland cement and moist-curing at 70°F.

influenced by the maximum-size aggregate. Values of the unit weight of fresh concrete are given in Table 1-1. In the design of reinforced concrete structures, the combination of conventional concrete and reinforcing bars is commonly assumed to weigh 150 pcf.

The weight of dry concrete equals the weight of freshly mixed concrete less the weight of evaporable water. Some of the mix water combines chemically with the cement during the hydration process, converting the cement into cement gel. Also, some of the water remains tightly held in pores and capillaries and does not evaporate under normal conditions. The amount of water that will evaporate in air at 50% relative humidity is about 2% to 3% of the concrete weight, depending on initial water content of the concrete, absorption characteristics of the aggregates, and size of the structure.

Aside from conventional concrete, there is a wide spectrum of other concretes to meet various needs, ranging from lightweight insulating concretes with a unit weight of 15 pcf to heavyweight concrete with a unit weight of up to about 400 pcf used for counterweights or radiation shielding (see Chapter 15, "Special Types of Concrete").

Resistance to Freezing and Thawing

Concrete used in structures and pavements is expected to have long life and low maintenance. It must have good durability to resist anticipated exposure conditions. The most destructive weathering factor is freezing and thawing while the concrete is wet, particularly in the presence of deicing chemicals. Deterioration is caused by the freezing of the water in the paste, the aggregate particles, or both.

With air entrainment, concrete is highly resistant to this deterioration as shown in Fig. 1-8. During freezing,

Table 1-1. Observed Average Weight of Fresh Concrete*

Maximum size of aggregate, inches	Air content, percent	Water, pounds per cubic yard	Cement, pounds per cubic yard	Unit weight, pounds per cubic foot**				
				Specific gravity of aggregate†				
				2.55	2.60	2.65	2.70	2.75
¾	6.0	283	566	137	139	141	143	145
1½	4.5	245	490	141	143	146	148	150
3	3.5	204	408	144	147	149	152	154
6	3.0	164	282	147	149	152	154	157

*Source: Reference 1-15, Table 4.
**Air-entrained concrete with indicated air content.
†On saturated surface-dry basis.

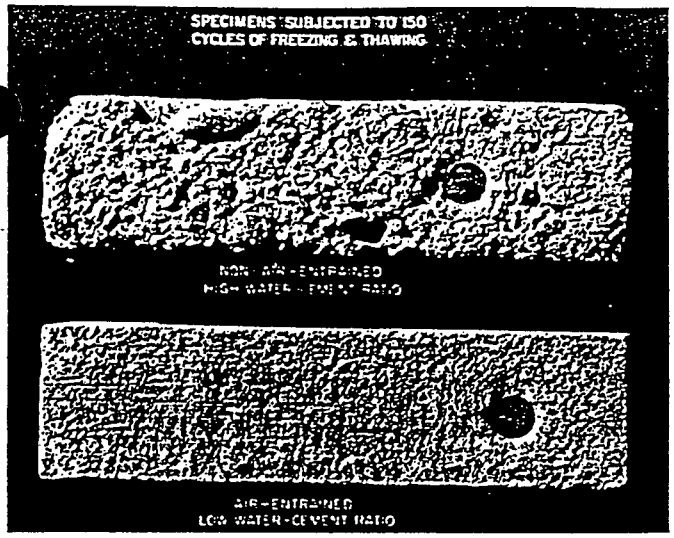


Fig. 1-8. Air-entrained concrete is highly resistant to repeated freeze-thaw cycles.

the water displaced by ice formation in the paste is accommodated so that it is not disruptive; the air bubbles in the paste provide chambers for the water to enter and thus relieve the hydraulic pressure generated.

When freezing occurs in concrete containing saturated aggregate, disruptive hydraulic pressures can also be generated within the aggregate. Water displaced from the aggregate particles during the formation of ice cannot escape fast enough to the surrounding paste to relieve pressure. However, under nearly all exposure conditions, a paste of good quality (low water-cement ratio) will prevent most aggregate particles from becoming saturated. Also, if the paste is air-entrained, it will accommodate the small amounts of excess water that may be expelled from aggregates, thus protecting the concrete from freeze-thaw damage.

Fig. 1-9 illustrates, for a range of water-cement ratios, that (1) air-entrained concrete is much more resistant to freeze-thaw cycles than non-air-entrained concrete, (2) concrete with a low water-cement ratio is more durable than concrete with a high water-cement ratio, and (3) a drying period prior to freeze-thaw exposure substantially benefits the freeze-thaw resistance of air-entrained concrete but does not significantly benefit non-air-entrained concrete.* Air-entrained concrete with a low water-cement ratio and an air content of 4% to 8% will withstand a great number of cycles of freezing and thawing without distress.

Freeze-thaw durability can be determined by laboratory test procedure ASTM C666, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing. From the test, a durability factor is calculated that reflects the number of cycles of freezing and thawing required to produce a certain amount of deterioration. Deicer-scaling resistance can be determined by ASTM C672, Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.

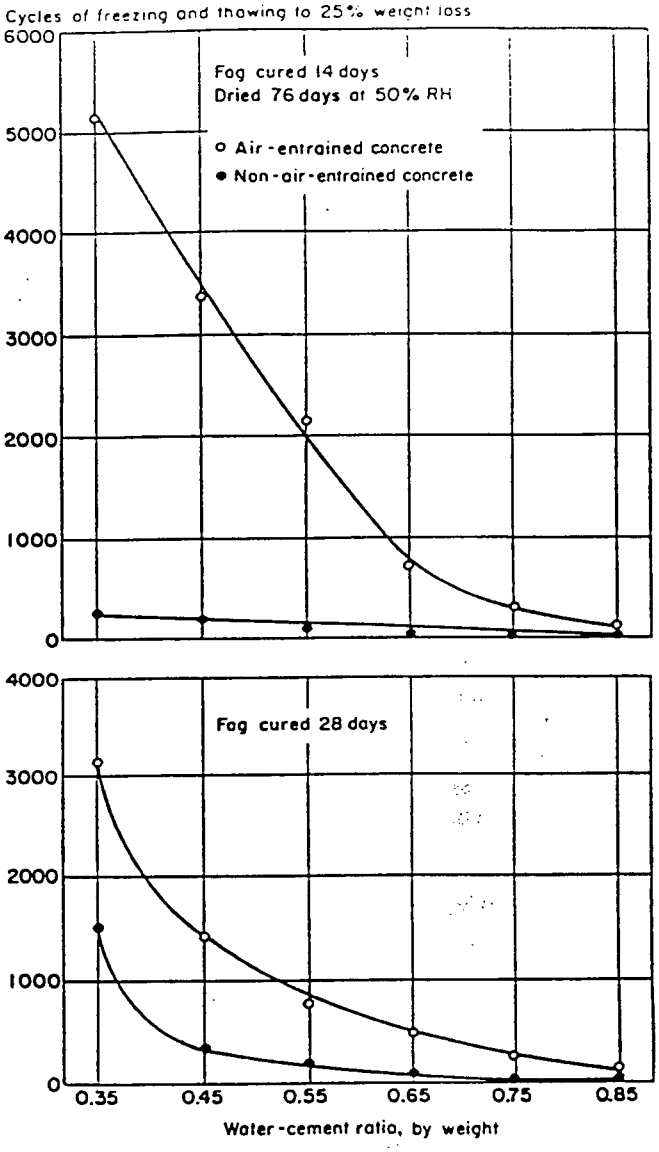


Fig. 1-9. Relationship between freeze-thaw resistance, water-cement ratio, and drying for air-entrained and non-air-entrained concretes made with Type I cement. High resistance to freezing and thawing is associated with entrained air, low water-cement ratio, and a drying period prior to freeze-thaw exposure. Reference 1-5.

Permeability and Watertightness

Concrete used in water-retaining structures or exposed to weather or other severe exposure conditions must be virtually impermeable or watertight. Watertightness is often referred to as the ability of concrete to hold back or retain water without visible leakage. Permeability refers to the amount of water migration through concrete when the water is under pressure or to the ability of concrete to resist penetration of water or other substances (liquid, gas, ions, etc.). Generally,

*See References 1-5 and 1-6.

the same properties of concrete that make concrete less permeable also make it more watertight.

The overall permeability of concrete to water is a function of the permeability of the paste, the permeability and gradation of the aggregate, and the relative proportion of paste to aggregate. Decreased permeability improves concrete's resistance to resaturation, sulfate and other chemical attack, and chloride-ion penetration.

Permeability also affects the destructiveness of saturated freezing. Here the permeability of the paste is of particular importance because the paste envelops all constituents in the concrete. Paste permeability is related to water-cement ratio and the degree of cement hydration or length of moist curing. A low-permeability concrete requires a low water-cement ratio and an adequate moist-curing period. Air entrainment aids watertightness but has little effect on permeability. Permeability increases with drying.*

The permeability of mature hardened paste kept continuously moist ranges from 0.1×10^{-12} to 120×10^{-12} cm per sec. for water-cement ratios ranging from 0.3 to 0.7.* The permeability of rock commonly used as concrete aggregate varies from approximately 1.7×10^{-9} to 3.5×10^{-13} cm per sec. The permeability of mature, good-quality concrete is aproximately 1×10^{-10} cm per sec.

The relationship between permeability, water-cement ratio, and initial curing for 4x8-in. cylindrical concrete specimens tested after 90 days of air drying and subjected to 3000 psi of water pressure is illustrated in Fig. 1-10. The test apparatus is shown in Fig. 1-11. Although permeability values would be different for other liquids and gases, the relationship between water-cement ratio, curing period, and permeability would be similar.

Test results obtained by subjecting 1-in.-thick non-air-entrained mortar disks to 20-psi water pressure are given in Fig. 1-12. In these tests, there was no water leakage through mortar disks that had a water-cement ratio of 0.50 by weight or less and were moist-cured for seven days. Where leakage occurred, it was greater in mortar disks made with high water-cement ratios. Also, for each water-cement ratio, leakage was less as the length of the moist-curing period increased. In disks with a water-cement ratio of 0.80, the mortar still

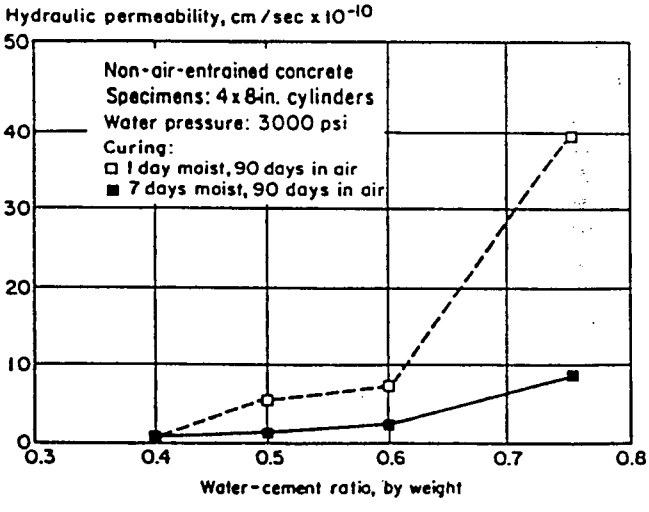


Fig. 1-10. Relationship between hydraulic (water) permeability, water-cement ratio, and initial curing on concrete specimens. Reference PCA HM1170.

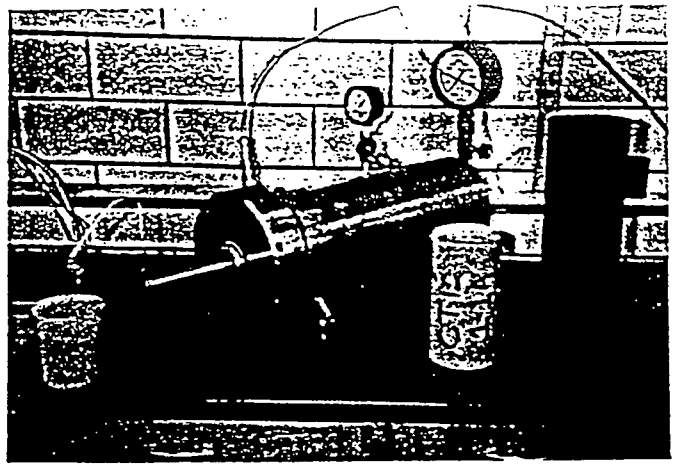


Fig. 1-11. Hydraulic permeability test apparatus used to obtain data illustrated in Fig. 1-10.

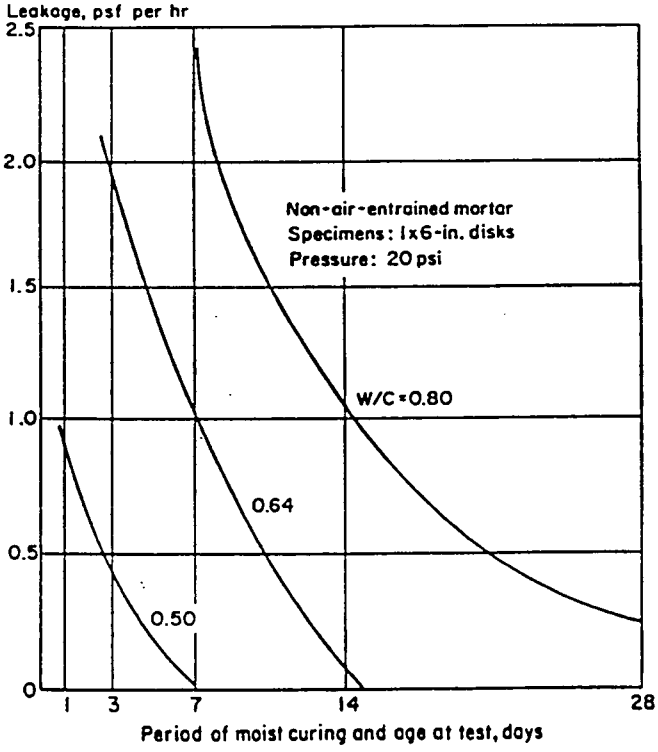


Fig. 1-12. Effect of water-cement ratio (w/c) and curing duration on permeability of mortar. Note that leakage is reduced as the water-cement ratio is decreased and the curing period increased. Reference 1-1 and PCA Major Series 227.

*Reference 1-4.

permitted leakage after being moist-cured for one month. These results clearly show that a low water-cement ratio and a period of moist curing significantly reduce permeability.

A low water-cement ratio also reduces segregation and bleeding, further contributing to watertightness. To be watertight, concrete must also be free from cracks and honeycomb.

Occasionally, porous concrete—no-fines concrete that readily allows water to flow through—is designed for special applications. In these concretes, the fine aggregate is greatly reduced or completely removed producing a high volume of air voids. Porous concrete has been used in tennis courts, pavements, parking lots, greenhouses, and drainage structures. No-fines concrete has also been used in buildings because of its thermal insulation properties. Additional information on porous concrete is given in Chapter 15, "Special Types of Concrete."

Abrasion Resistance

Floors, pavements, and hydraulic structures are subjected to abrasion; therefore, in these applications concrete must have a high abrasion resistance. Test results indicate that abrasion resistance is closely related to the compressive strength of concrete. Strong concrete has more resistance to abrasion than does weak concrete. Since compressive strength depends on water-cement ratio and curing, a low water-cement ratio and adequate curing are necessary for abrasion resistance. The type of aggregate and surface finish or treatment used also have a strong influence on abrasion resistance. Hard aggregate is more abrasion resistant than soft aggregate and a steel-troweled surface resists abrasion more than a surface that is not troweled.

Fig. 1-13 shows results of abrasion tests on concretes of different compressive strengths and aggregate types.

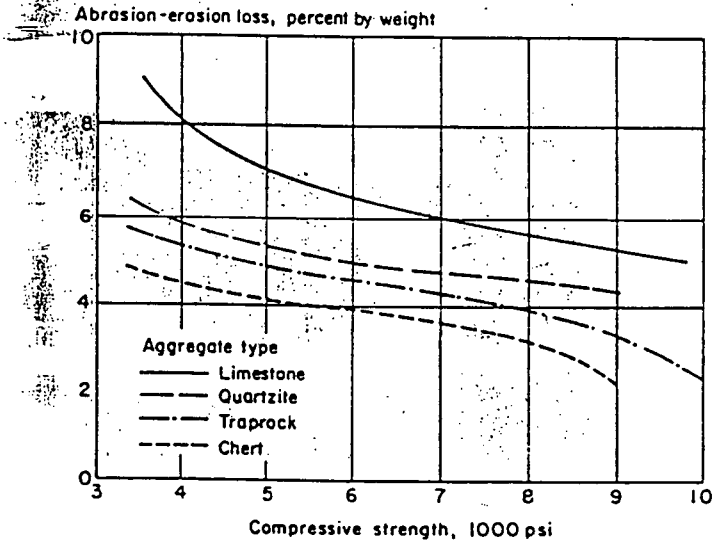


Fig. 1-13. Effect of compressive strength and aggregate type on the abrasion resistance of concrete. High-strength concrete made with a hard aggregate is highly resistant to abrasion. Reference 1-16.

Fig. 1-14 illustrates the effect hard steel troweling and surface treatments have on abrasion resistance. Abrasion tests can be conducted by rotating steel balls, dressing wheels, or disks under pressure over the surface (ASTM C 779). One type of test apparatus is pictured in Fig. 1-15. Other types of abrasion tests are also available (ASTM C 418 and C 944).

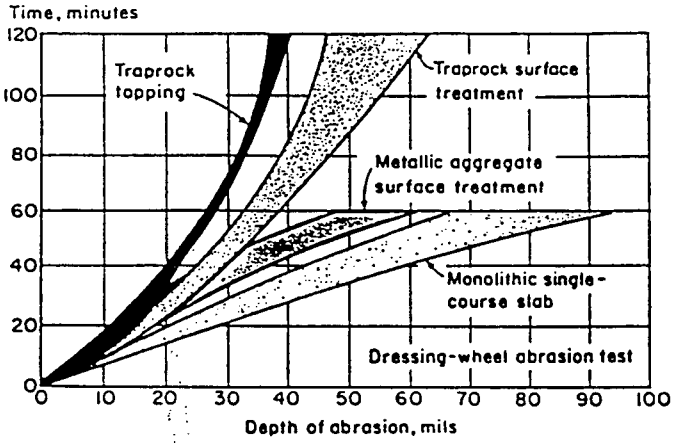


Fig. 1-14. Effect of hard steel troweling and surface treatments on the abrasion resistance of concrete. Base slab compressive strength was 6000 psi at 28 days. All slabs were steel troweled. Reference 1-12.

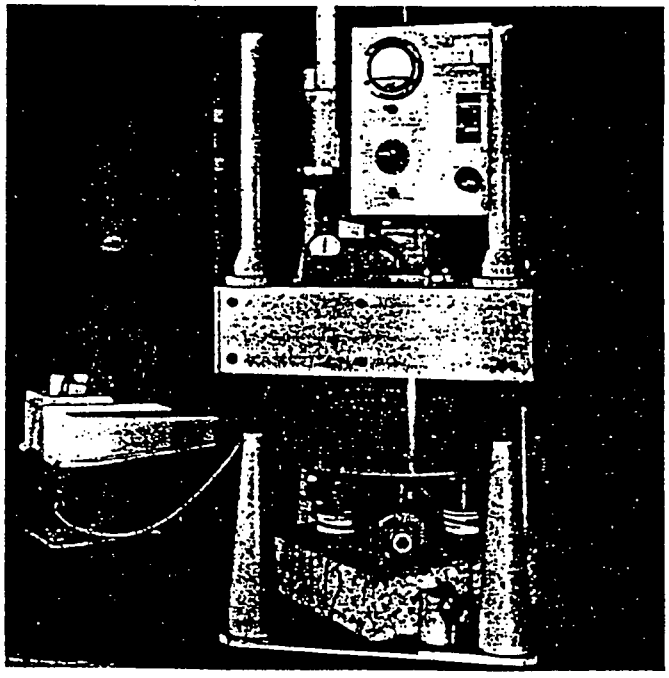


Fig. 1-15. Test apparatus for measuring abrasion resistance of concrete. The machine can be adjusted to use either revolving disks or dressing wheels. With a different machine, steel balls under pressure are rolled over the surface of the specimen. The tests are described in ASTM C 779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.

Volume Stability

Hardened concrete changes volume slightly due to changes in temperature, moisture, and stress. These volume or length changes may range from about 0.01% to 0.08%. Thermal volume changes of hardened concrete are about the same as those for steel.

Concrete kept continually moist will expand slightly. When permitted to dry, concrete will shrink. The primary factor influencing the amount of drying shrinkage is the water content of the freshly mixed concrete. Drying shrinkage increases directly with increases in this water content. The amount of shrinkage also depends upon several other factors, such as amounts of aggregate used, properties of the aggregate, size and shape of the concrete mass, relative humidity and temperature of the environment, method of curing, degree of hydration, and time. Cement content has little to no effect on shrinkage of concrete with cement contents between 5 and 8 bags per cu yd.

Concrete under stress will deform elastically. Sustained stress will result in additional deformation called creep. The rate of creep (deformation per unit of time) decreases with time.

The magnitude of volume changes and factors influencing them are discussed in Chapter 13, "Volume Changes of Concrete."

Control of Cracking

Two basic causes of cracks in concrete are (1) stress due to applied loads and (2) stress due to drying shrinkage or temperature changes in restrained conditions.

Drying shrinkage is an inherent, unavoidable property of concrete; therefore, properly positioned reinforcing steel is used to reduce crack widths, or joints (Fig. 1-16) are used to predetermine and control the location of cracks. Thermal stress due to fluctuations in temperature can cause cracking, particularly at an early age.

Concrete shrinkage cracks occur because of restraint. When shrinkage occurs and there is no restraint, the concrete does not crack. Restraint comes from several sources. Drying shrinkage is always greater near the surface of concrete; the moist inner portions restrain the concrete near the surface, which can cause cracking. Other sources of restraint are reinforcing steel embedded in concrete, the interconnected parts of a concrete structure, and the friction of the subgrade on which concrete is placed.

Joints are the most effective method of controlling unsightly cracking. If a sizable expanse of concrete (a wall, slab, or pavement) is not provided with properly spaced joints to accommodate drying shrinkage and temperature contraction, the concrete will crack in a random manner.*

Control joints are grooved, formed, or sawed into sidewalks, driveways, pavements, floors, and walls so that cracking will occur in these joints rather than in a random manner. Control joints permit movement in the plane of a slab or wall. They extend to a depth of approximately one-quarter the concrete thickness.

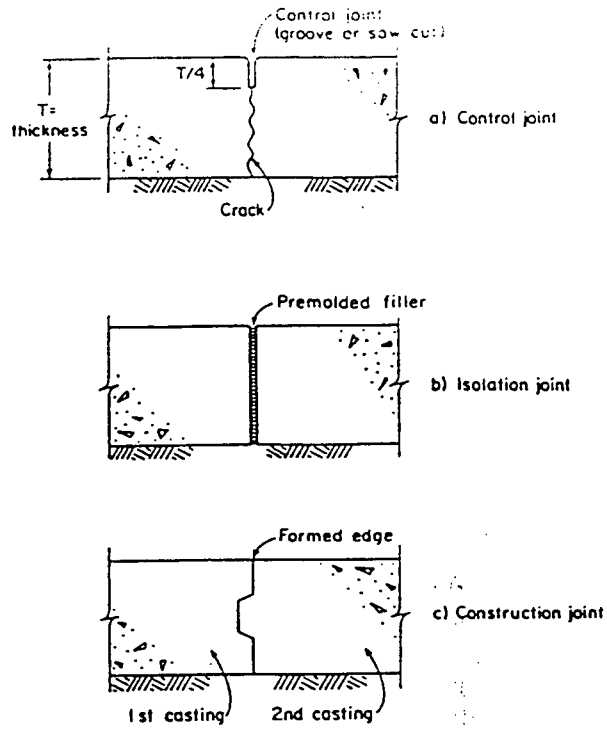


Fig. 1-16. The three basic types of joints used in concrete slab-on-ground construction.

Isolation joints separate a slab from other parts of a structure and permit horizontal and vertical movements of the slab. They are placed at the junction of floors with walls, columns, footings, and other points where restraint can occur. They extend the full depth of the slab and include a premolded joint filler.

Construction joints occur where concrete work is concluded for the day; they separate areas of concrete placed at different times. In slabs-on-ground, construction joints usually align with and function as control or isolation joints.

*Refer to Chapter 9 for more information.

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Design and Control of Concrete Mixtures

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Chapter 7 **Proportioning Normal Concrete Mixtures**
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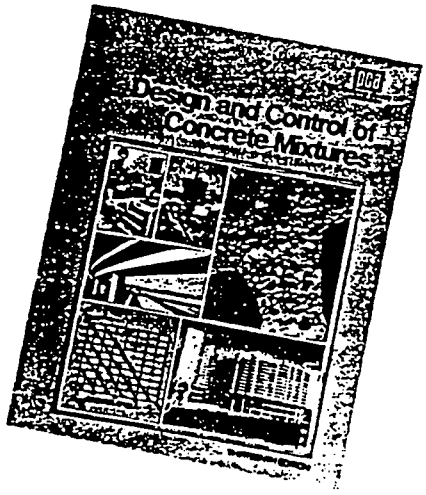
Chapter 15 **Special Types of Concrete**



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Caution: Avoid prolonged contact between unhardened (wet) cement or concrete mixtures and skin surfaces. To prevent such contact, it is advisable to wear protective clothing. Skin areas that have been exposed to wet cement or concrete, either directly or through saturated clothing, should be thoroughly washed with water.

PORTLAND CEMENT ASSOCIATION

An organization of cement manufacturers to improve and extend the uses of portland cement and concrete through market development, engineering, research, education, and public affairs work.

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CONCRETE INFORMATION

PCA

Reprinted from *Design and Control of Concrete Mixtures* (EB001.13T), Chapter 1.

Fundamentals of Concrete

Concrete is basically a mixture of two components: aggregates and paste. The paste, comprised of portland cement and water, binds the aggregates (sand and gravel or crushed stone) into a rocklike mass as the paste hardens because of the chemical reaction of the cement and water.*

Aggregates are generally divided into two groups: fine and coarse. Fine aggregates consist of natural or manufactured sand with particle sizes ranging up to ⅜ in.; coarse aggregates are those with particles retained on the No. 16 sieve and ranging up to 6 in. The most commonly used maximum aggregate size is ¾ in. or 1 in.

The paste is composed of portland cement, water, and entrapped air or purposely entrained air. Cement paste ordinarily constitutes about 25% to 40% of the total volume of concrete. Fig. 1-1 shows that the absolute volume of cement is usually between 7% and 15% and the water between 14% and 21%. Air content in air-entrained concrete ranges up to about 8% of the volume of the concrete, depending on the top size of the coarse aggregate.

Since aggregates make up about 60% to 75% of the total volume of concrete, their selection is important. Aggregates should consist of particles with adequate strength and resistance to exposure conditions and should not contain materials that will cause deterioration of the concrete. A continuous gradation of particle sizes is desirable for efficient use of the cement and water paste. Throughout this text, it will be assumed that suitable aggregates are being used, except where otherwise noted.

The quality of the concrete depends to a great extent upon the quality of the paste. In properly made concrete, each particle of aggregate is completely coated with paste and all of the spaces between aggregate particles are completely filled with paste, as illustrated in Fig. 1-2.

For any particular set of materials and conditions of curing, the quality of hardened concrete is determined

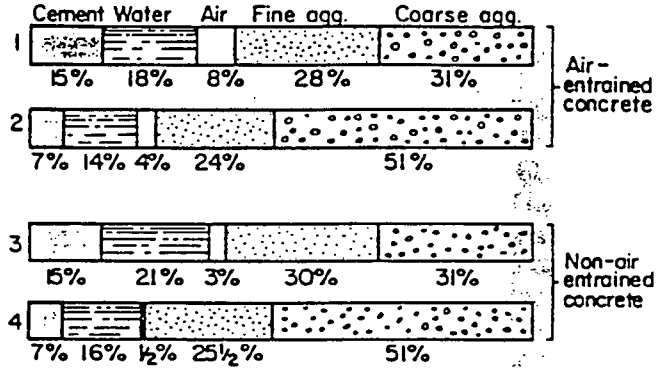

Fig. 1-1. Range in proportions of materials used in concrete, by absolute volume. Bars 1 and 3 represent rich mixes with small aggregates. Bars 2 and 4 represent lean mixes with large aggregates.

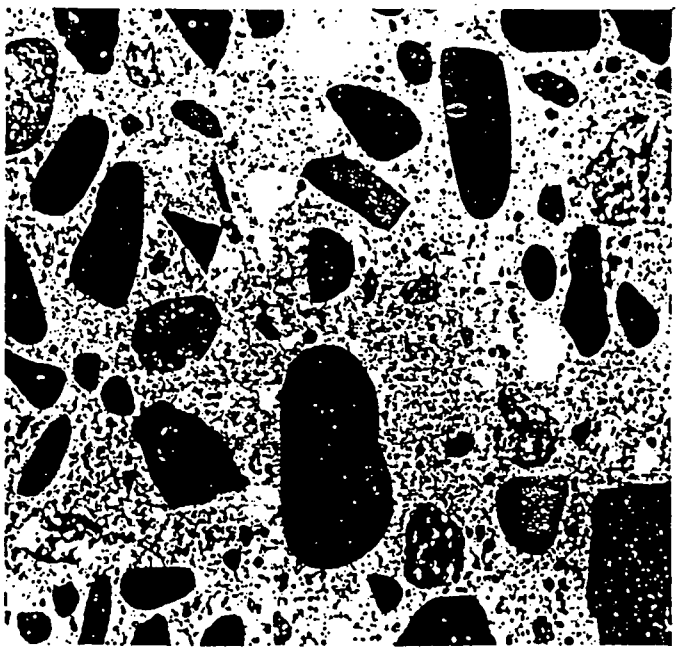

Fig. 1-2. Cross section of hardened concrete. Cement-and-water paste completely coats each aggregate particle and fills all spaces between particles.

*This text addresses the utilization of portland cement in the production of concrete. The term "portland cement" pertains to a calcareous hydraulic cement produced by heating the oxides of silicon, calcium, aluminum, and iron. The term "cement" used throughout the text pertains to portland cement unless otherwise stated.

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by the amount of water used in relation to the amount of cement. Following are some advantages of reducing water content:

Increased compressive and flexural strength

Lower permeability, thus increased watertightness and lower absorption

Increased resistance to weathering

Better bond between successive layers and between concrete and reinforcement

Less volume change from wetting and drying

Reduced shrinkage cracking tendencies

The less water used, the better the quality of the concrete—provided it can be consolidated properly. Smaller amounts of mixing water result in stiffer mixtures; but with vibration, the stiffer mixtures can be used. For a given quality of concrete, stiffer mixtures are more economical. Thus consolidation by vibration permits improvement in the quality of concrete and in economy.

The freshly mixed (plastic) and hardened properties of concrete may be changed by adding admixtures to the concrete, usually in liquid form, during batching. Admixtures are commonly used to (1) adjust setting time or hardening, (2) reduce water demand, (3) increase workability, (4) intentionally entrain air, and (5) adjust other concrete properties. Admixtures are discussed in Chapter 6.

After completion of proper proportioning, batching, mixing, placing, consolidating, finishing, and curing, hardened concrete becomes a strong, noncombustible, durable, abrasion-resistant, and practically impermeable building material that requires little or no maintenance. Concrete is also an excellent building material because it can be formed into a wide variety of shapes, colors, and textures for use in almost unlimited number of applications.

FRESHLY MIXED CONCRETE

Freshly mixed concrete should be plastic or semifluid and generally capable of being molded by hand. A very wet concrete mixture can be molded in the sense that it can be cast in a mold, but this is not within the definition of "plastic"—that which is pliable and capable of being molded or shaped like a lump of modeling clay.

In a plastic concrete mixture all grains of sand and pieces of gravel or stone are encased and held in suspension. The ingredients are not apt to segregate during transport; and when the concrete hardens, it becomes a homogeneous mixture of all the components. Concrete of plastic consistency does not crumble but flows sluggishly without segregation.

Slump is used as a measure of the consistency of concrete. A low-slump concrete has a stiff consistency.

In construction practice, thin concrete members and heavily reinforced concrete members require workable, but never soupy, mixes for ease of placement. A plastic mixture is required for strength and for maintaining homogeneity during handling and placement. While a plastic mixture is suitable for most concrete work, superplasticizing admixtures may be used to make concrete more flowable in thin or heavily reinforced concrete members.

Mixing

In Fig. 1-1, the five basic components of concrete are shown separately. To ensure that they are combined into a homogeneous mix requires effort and care. The sequence of charging ingredients into the mixer plays an important part in the uniformity of the finished product. The sequence, however, can be varied and still produce a quality concrete. Different sequences require adjustments in the time of water addition, the total number of revolutions of the mixer drum, and the speed of revolution. Other important factors in mixing are the size of the batch in relation to the size of the mixer drum, the elapsed time between batching and mixing, and the design, configuration, and condition of the mixer drum and blades. Approved mixers, correctly operated and maintained, ensure an end-to-end exchange of materials by a rolling, folding, and kneading action of the batch over itself as the concrete is mixed.

Workability

The ease of placing, consolidating, and finishing freshly mixed concrete is called workability. Concrete should be workable but should not segregate or bleed excessively. Bleeding is the migration of water to the top surface of freshly placed concrete caused by the settlement of the solid materials—cement, sand, and stone—within the mass. Settlement is a consequence of the combined effect of vibration and gravity.

Excessive bleeding increases the water-cement ratio near the top surface and a weak top layer with poor durability may result, particularly if finishing operations take place while bleed water is present. Because of the tendency of freshly mixed concrete to segregate and bleed, it is important to transport and place each load as close as possible to its final position. Entrained air improves workability and reduces the tendency of freshly mixed concrete to segregate and bleed.

Consolidation

Vibration sets into motion the particles in freshly mixed concrete, reducing friction between them and giving the mixture the mobile qualities of a thick fluid. The vibratory action permits use of a stiffer mixture containing a larger proportion of coarse and a smaller proportion of fine aggregate. The larger the maximum-size aggregate in concrete with a well-graded aggregate, the less volume there is to fill with paste and the less aggregate surface area there is to coat with paste; thus less water and cement are needed. With adequate consolidation, harsher as well as stiffer mixtures can be used, resulting in improved quality and economy.

If a concrete mixture is workable enough to be readily consolidated by hand rodding, there may not be an

(c) flammable solids, substances liable to spontaneous combustion or substances that on contact with water emit flammable gases as defined and regulated in Divisions 1, 2 and 3 of Class 4

of the Federal Regulations;

"impervious" means having a permeability not greater than 1×10^{-7} cm per second when subjected to a head of 0.305 m of water;

"incinerator" means a thermal treatment facility using controlled flame combustion;

"incompatible special waste" means a special waste which, when in contact with another special waste or substance and under normal conditions of storage or transportation, may react to produce

(a) heat,

(b) a gas,

(c) a corrosive substance, or

(d) a toxic substance;

"indoor' means enclosed and protected from precipitation and wind as in a building but does not include a shipping container used for passive storage;

"in situ management facility" means a facility used to

(a) prevent or control the movement or release of special waste contaminants, or

(b) treat or destroy special waste contaminants in soil or groundwater

at an historical special waste contaminated site in such a way that the physical location of the special waste contaminants and the soil is not substantially altered.

"labpack" means an outer packaging as defined by the Federal Regulations which has a maximum capacity of 454 ℓ and which is used to transport multiple small inside containers of special waste;

"land treatment" means the treatment of special waste by applying it to land;

"leachate" means any liquid, including suspended materials which it contains, which has percolated through or drained from a special waste facility;

"leachable toxic waste" means waste which when subjected to the Leachate Extraction Procedure described in Part 1 of Schedule 4 produces an extract with a contaminant concentration greater than those prescribed in Table 1 of Schedule 4;

"liner" means a continuous layer of synthetic or natural clay or earth materials, placed beneath and at the sides of a secure landfill, a

INTERNATIONAL HEADQUARTERS
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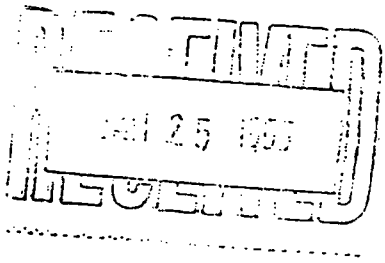
January 23, 1995



Safety-Kleen
300 Woolwich St. S
Breslau, Ontario
N0B 1M0

Attention : Mr. Chris Riehl

Re : Hydraulic Conductivity Study
Our File: 94RE1256

Dear Chris,

Enclosed please find a copy of our report entitled *Hydraulic Conductivity Study* that you requested. Also enclosed is our Invoice #67763 for the amount of $1,363.59.

If you have any questions regarding this study, please do not hesitate to contact us at (403) 299-2000.

Sincerely yours,

AGAT Laboratories

M. Pankalla

Marianna Pankalla, M.Sc.
Reservoir Analyst
Reservoir Engineering Division

299-2105

Graham McLeod,P.Geol.,B.Sc.
Manager, Special Core
Reservoir Engineering Division

AGAT Laboratories

CUSTOMER REVIEW

Company:_____ Job #:_____

Contact:_____ Date:_____Phone #:_____

1. Type of Work

____ Routine Core Analysis	____ Special Core Analysis	____ Environmental Analysis
____ Geology/Petrology	____ Routine Oil, Gas & Water	____ PVT Analysis
____ Preventive Maintenance	____ International	____ Other

2. Quality of Work

Were the following to your satisfaction? Please check one.

		Exceptional	Good	Needs Improvement
a)	Quality of Results?	_____	_____	_____
b)	Turnaround of Results?	_____	_____	_____
c)	Technical ability of AGAT personnel?	_____	_____	_____
d)	Courtesy by AGAT personnel?	_____	_____	_____
e)	AGAT facilities (ie. core viewing rooms)?	_____	_____	_____
f)	AGAT's presentation of data?	_____	_____	_____
g)	AGAT Salespeople?	_____	_____	_____

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4. Are there any suggestions as to where you think AGAT might improve their service to you?

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5. Comments.

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John Desanti
President

Please send or fax to:
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3801 - 21st Street N.E.,
Calgary, AB T2E 6T5,
Fax Number: (403) 299-2005.

AG1003

HYDRAULIC CONDUCTIVITY STUDY

Prepared for:

SAFETY - KLEEN

Prepared by:

AGAT Laboratories
3801 - 21st Street N.E.
Calgary, Alberta
T2E 6T5

Telephone: (403) 299-2000

Work Order 94RE1245
January, 1995

SUMMARY

For the current study, three (2.5 cm in diameter) cement samples from the West Wall location were subjected to hydraulic conductivity testing.

Prior to testing, samples' petrophysical properties (gas permeability, Boyle's Law porosity and grain density) were determined. The samples were then pressure-saturated with Deionized Water. Each saturated sample was placed in a coreholder and a nominal pressure was applied to the samples to prevent fluid bypass during testing. A hydraulic head of approximately 2.989 kPa (equivalent of 0.305 m of water) was applied to the samples to determine their permeability. The water permeability was calculated from the measured flowrate and hydraulic head applied to the sample. The permeability was then converted to a hydraulic conductivity using a multiplication factor of $9.66*10^{-7}$ cm/s/md.

The hydraulic conductivities of the samples were found to range from $4.830*10^{-9}$ cm/s to $1.063*10^{-8}$ cm/s (refer to Table 1).

SAFETY - KLEEN

FILE 94RE1245

3 Cement Samples - Hydraulic Conductivity Testing

TABLE 1
SAMPLE SUMMARY

Sample #	Length (cm)	Diameter (cm)	Porosity (%)	Grain Dens (kg/m3)	Gas Perm. (md)	Water Perm. (md)	Hydraulic Conductivity (cm/s)
1	4.673	2.515	22.06	2.584	0.838	0.011	1.06E-08
2	4.936	2.513	16.98	2.596	0.684	0.007	6.80E-09
3	4.711	2.518	13.88	2.712	0.610	0.005	4.83E-09

AGAT Laboratories would like to acknowledge the following employees for their contributions to this report:

Marianna Pankalla, M.Sc.
Reservoir Analyst, Reservoir Engineering Division

Graham McLeod, P.Geol., B.Sc.
Manager, Reservoir Engineering Division

and all Laboratory Technologists

PERMIT TO PRACTICE
AGAT LABORATORIES LTD.
Signature Graham McLeod
Date January 10, 1995
PERMIT NUMBER: P 3989
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

Report Prepared by : M. Pankalla

Marianna Pankalla, M.Sc.

safety-kleen

ATLANTA REGION

March 17, 1994

Ms. Patti Arms
Commercial Inspection Supervisor
North Carolina Department of
Environment, Health, and Natural Resources
P. O. Box 27687
Raleigh, NC 27611-7687

RE: St. Pauls, NC facility
EPA ID # NCD 980846935

Subject: Site Deficiency

Dear Ms. Arms:

This letter is in response to the above deficiency at the Safety-Kleen, St. Pauls, North Carolina facility. The purpose of this letter is to respond in writing to the matters set forth in the subject deficiency at the referenced facility. Our response is a good faith effort to resolve your agency's concerns. It is our intention and expectation that nothing in this letter shall be construed as an admission or used against the Company in any administrative or judicial proceeding. The Company expressly reserves any and all rights and defenses it might have to the matters set forth in your letter and does not intend to waive any of those rights and defenses by making this response.

During your inspection of the St. Pauls facility on March 14, 1994, you noted "several cracks and joints" in the floor of the containment system for the used oil tanker. Safety-Kleen has scheduled to have a contractor, Specoat Company, repair the cracks and joints during the week of March 21, 1994. An exact date for Specoat's visit to St. Pauls has not yet been determined because of Specoat's schedule and the weather. However, Specoat has assured Safety-Kleen that the repairs will be completed during the week of March 21, 1994.

Specoat will remove the cracks and joints and apply a two-part epoxy caulking to the affected areas. This material will meet the standards of 40 CFR 279.45(d)(2), which require secondary containment to be "sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, groundwater, or surface water." Safety-Kleen believes that the cement composition of the floor itself is sufficient to meet the requirements of 40 CFR 279.45(d)(2) in areas of the floor that have not been damaged by cracks. It is important to note that in its preamble to the Federal used oil regulations, the Environmental Protection Agency noted that it

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ATLANTA, GA 30339
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FAX 404/434-6956

"...has studied the permeability of some commonly used construction materials such as cement, clay, asphalt, plastic, and steel," (*Federal Register*, Vol. 57, No.176, page 41596, Thursday, September 10, 1992). The agency states that it "...believes that any of these materials can adequately prevent releases of used oil to the environment from storage units that are properly operated and maintained..."

It continues to be Safety-Kleen's policy to manage all of its facilities in full compliance with all environmental regulations. We appreciate the guidance your agency has provided and hope to continue to work together with you in promoting recycling efforts in North Carolina.

If you require any further information, please contact me at (919) 662-7539.

Sincerely,

Steven R. Church

Steven R. Church
Environmental Engineer

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aboveground storage tank technologies that may be used to provide secondary containment at SPCC-regulated facilities. The memorandum states that alternative aboveground storage tank systems that have capacities generally less than 12,000 gallons may provide protection of navigable waters substantially equivalent to that provided by the secondary containment systems listed in 40 CFR 112.7(c) of the SPCC regulation. An example of an alternative aboveground storage tank system that generally would provide substantially equivalent protection of navigable waters is a shop-fabricated doubled walled tank installed and operated with overfill prevention measures that include an overfill alarm, an automatic flow restrictor or flow shut-off, and constant monitoring of all product transfers including used oil. Used oil tanks meeting with the secondary containment equivalency discussed in the memorandum of April 29, 1992, are considered to be in compliance with the secondary containment requirements for aboveground tanks established in today's rule.

In the 1991 Supplemental Notice, EPA requested comment on the types of material that could be used to construct oil-impervious structures including berms, dikes, retaining walls, and floors. EPA did not receive any comments specific to the request. Since publication of the 1991 Notice, the Agency has studied the permeability of some commonly used construction materials such as cement, clay, asphalt, plastic, and steel. EPA concluded that the selection of a suitable material for construction depends upon the size of the storage units and the site characteristics. As stated in the cost analysis section of this preamble, most of these materials are currently used for the purpose of containing releases under other regulatory programs. EPA believes that any of these materials can adequately prevent releases of used oil to the environment from storage units that are properly operated and maintained at used oil processing and re-refining facilities, therefore, the Agency feels there is no need to specify the type of oil-impervious construction material that must be used at all facilities. For the cost analysis that accompanies today's rule, EPA used a secondary containment scenario that includes a 3-inch asphalt floor with an annual application of sealant. EPA believes that a floor of this type is adequate to contain used oil releases since there should be minimal or no vehicular traffic around the storage tanks or within the bermed, diked, or walled area. When installing new tanks, however, facility owner/operator will have to take into considerations the size of the tank that the floor will be resting upon. Depending on the size of the floor's thickness, and the type of floor installed, the appropriate construction material may change.

f. Applicable UST and SPCC requirements for used oil storage tanks. If used oil is stored in underground tanks, the owner or operator of a used oil recycling facility must comply with the requirements of 40 CFR part 280, including the corrective action and closure requirements of part 280 subparts F and G. An underground storage tank used for storage of used oil that meets the underground storage tank definition under 40 CFR 280.12 must comply with part 280 requirements. As discussed in the 1991 Supplemental Notice, technical standards for underground storage tanks (USTs) have been promulgated since publication of the 1985 proposed rule. The Agency stated in the preamble to the UST final rule (53 FR 37112: September 23, 1988) that EPA believes tht used oil, when stored in underground tanks, presents risks similar to other petroleum products stored in USTs. As a result, EPA determined that used oil USTs must comply with the tank upgrading, operation and maintenance, corrosion protection, corrective action, closure, and financial responsibility requirements promulgated under part 280 for other petroleum product USTs. The Agency believes that the subtitle I standards are sufficient to protect human health and the environment from potential releases of used oil from USTs.

In addition to all of the storage requirements discussed above, used oil processing and re-refining facilities that meet the applicability criteria for the SPCC standards contained in 40 CFR part 112 also must comply with all applicable SPCC requirements, including maintaining containment and diversionary structures to control releases of oil from aboveground storage tanks.

g. Response to releases. Upon detection of any release or spill within the secondary containment area from transfer operations or from aboveground storage units (tanks and containers), owners or operators must take steps to stop and contain the release, to remove all released used oil from the containment area, and repair or replace the damaged tank or container. Release used oil must be removed from the area and must be managed (*i.e.*, treated, recycled, disposed) in accordance with the requirements of this part and any other applicable parts of this chapter. In addition, whenever there is a catastrophic release or spill of used oil and used oil migrates beyond the containment structure and reaches the environment, corrective measures must be taken to adequately protect human health and the environment from potential damages. This requirement does not apply to past releases of used oil that occurred prior to the effective date of the used oil program within an authorized state in which the facility is located. This above requirement applies only when there is a release to the environment. Under this rule, this would not include releases within contained areas such as concrete floors or impervious containment areas, unless the releases go beyond the contained areas.

In addition to the provisions listed above for releases of used oil and, in addition to the corrective action requirements for releases from USTs provided in 40 CFR part 280, subpart F, owners of used oil processing and re-refining facilities are required, under CERCLA section 103, to report a release of hazardous substances to the environment when the release is equal to or in excess of the reportable quantity (RQ) for the particular substance. Used oils that are contaminated with CERCLA hazardous substances (*e.g.*, due to the presence of elevated levels of lead) are subject to CERCLA release reporting requirements. Therefore, releases of used oil containing such contaminants into the environment in quantities greater than the reportable quantity must be reported to the National Response Center. The current RQs for CERCLA hazardous substances are listed in 40 CFR 302.4. In addition, under 40 CFR part 110, any discharge of oil that violates applicable water quality standards or causes a film or sheen on a water surface must be reported to the National Response Center.

h. Analysis Plan. The owner or operator of a used oil processing or re-refining must establish analytical procedures to ensure a thorough knowledge of the contents of any used oil handled at the facility. These procedures are to be established through a written analysis plan describing the procedures to be used to comply with the analysis requirements, as required by § 279.55. Each facility must prepare an analysis plan which a facility will follow when performing sampling and analysis, keeping records, and when complying with the analytical requirements for documenting the used oil fuel specification.

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comments and commenter-submitted data, the Agency has decided not to list any used oils as hazardous wastes. Therefore, mixtures of used oils and other materials are not automatically hazardous wastes via the mixture rule. Mixtures of used oils and listed hazardous wastes will be regulated as hazardous wastes, whether they are recycled or not. Mixtures of used oil and characteristic hazardous waste that exhibit a hazardous waste characteristic also must be managed as a hazardous waste, whether they are recycled or not. However, mixtures of nonhazardous materials and used oils that exhibit a characteristic by their own nature (*i.e.*, the used oil is characteristically hazardous prior to mixing) or mixtures of used oil and characteristic hazardous waste that do not exhibit a characteristic are subject to the standards in part 279 if they are being recycled. Of course, if such a mixture cannot be recycled and the mixture exhibits a characteristic, it must be disposed in accordance with all applicable subtitle C regulations.

Mixtures of used oil and other materials generally will be regulated under part 279. However, as discussed above, EPA has exempted wastewaters contaminated with very small amounts of used oil, since such mixtures are not likely to pose a significant hazard. If mixtures of used oil and sorbent materials from which used oil can not be separated, however, are burned for energy recovery, the Agency believes that such recycling is acceptable. In addition, it is subjected to the existing used oil specification fuel requirements that are in effect since 1985 and recodified in part 279 today.

3. Controls on Disposal

Commenters supported EPA's proposal to develop guidelines for the disposal of non-hazardous used oil. The standards being promulgated today as part 279 apply to all used oils that are being recycled. Based upon the representations of commenters that most used oil is recyclable and is indeed recycled once it is collected, EPA has adopted a "recycling presumption," which means that the Agency presumes that all used oils will be recycled. A used oil handler who has used oils that cannot be recycled must dispose of the used oil properly. Hazardous used oils must be disposed in subtitle C facilities and new Federal Criteria for municipal solid waste landfills under part 258, which go into effect in October, 1993, will control nonhazardous used oils that are disposed. For these reasons, EPA believes that establishing guidelines for the disposal of used oils is unnecessary.

4. DIY-Generated Used Oils

Nearly all the commenters said that listing used oil as a hazardous waste would discourage the recycling of DIY-generated used oil. As discussed above, EPA is not listing any used oils as hazardous wastes. As a result, the major disincentive cited by commenters for used oil generators to continue accepting used oil from DIY generators has been removed. Nonetheless, in the September 1991 Supplemental Proposal, EPA put forth several non-regulatory incentive options for encouraging increased collection and recycling of DIY-generated used oils. EPA has not evaluated all of these incentive programs to date but will continue to assess the need for DIY incentives, and development of a non-regulatory scheme for DIY used oils may be part of a future used oil package.

5. Recycling Presumption Criteria

As discussed in VI.B of this preamble almost all commenters supported the concept of the recycling presumption, but few supported establishment of formal criteria of "nonrecyclability." Commenters were concerned that the criteria for rebutting the recycling presumption (*e.g.*, water content, BTU value, or any other measure) are not a meaningful measure of recyclability, since basically any used oil can be recycled and the degree of treatment prior to recycling is a function of the cost to the used oil generator. EPA has determined that it is not practical to set such criteria. Therefore, EPA is not establishing formal criteria on which to base a determination of nonrecyclability. Rather, a used oil handler who is not recycling used oils under part 279 must dispose of the used oil in compliance with applicable regulations. In other words, the used oil handler then must determine whether the used oil exhibits any characteristic of hazardous waste and manage the used oil accordingly.

6. Ban on Road Oiling

Commenters agreed that used oils are currently not widely used for road oiling and dust suppression. In fact, 41 out of 50 states prohibit the use of used oil for these purposes. The Agency is aware, however, that the other states allow this practice under certain permitting conditions and at least one commenter favored allowing road oiling under specified conditions. Today's final rule is promulgated pursuant to pre-HSWA authority; specifically, the Used Oil Recycling Act of 1980. Due to this fact, a Federal ban on road oiling will be effective only in unauthorized states on the effective date of this rule. The ban will not be effective in authorized states until the state modifies its program by adopting the ban provision and EPA approves the modification. Under the provisions being promulgated today, a state may submit a waiver to EPA to allow road oiling in that state in accordance with state laws and regulations.

7. CERCLA Liability

Most comments received in response to the 1991 Notice supported implementation of the liability exemption in CERCLA section 114(c). In addition, many commenters favored elimination of a small quantity generator category in the part 279 standards. EPA is not establishing any used oil generator cut-off based on generation rate. All used oil generators are subject to uniform standards in part 279. As a result, no change is necessary to trigger the applicability of the exemption from liability in CERCLA section 114(c). Any used oil generator who meets the statutory definition of a "service station dealer" is eligible for the liability exemption.

8. Storage

Most commenters agreed that minimum technical requirements (*e.g.*, tanks and containers kept in good condition, clean up of spills associated with used oil storage) are necessary for the storage of used oil under part 279. The regulations promulgated today require that used oil be stored in tanks and containers that are maintained in good condition, with no visible leaks or signs of deterioration. These minimum standards provide a certain level of control against leaks and releases from storage units. Additional controls, such as secondary containment for storage areas provide further assurance against migration of used oil and prevention against the contamination of soil, surface water, and ground water. EPA believes that at used oil facilities the use of continuously fed tanks for aboveground storage is limited and when such tanks are being used the owner/operator would install proper shut off valves and other controls to ensure that flow of material between the tanks is restricted in case of a tank rupture or other accidental releases.

9. Secondary Containment

Due to commenter's concerns regarding the technical and financial burden associated with the 40 CFR parts 264/265, subpart J secondary containment requirements, the Agency is not requiring full secondary

ATTACHMENT II.B.3
WASTE MANAGEMENT

PROCEDURE FOR MANAGING WASTE TYPES

The used solvents are compatible with each other and with other materials handled at this facility, with respect to reactivity, and therefore do not require special segregation procedures. Overpack containers are used to manage containers whose integrity has been compromised.

All materials are managed in accordance with the local fire protection code and fire department recommendations. A separate flammable storage room has been constructed and is located at least 50 feet from the property line.

The immersion cleaner is always contained in partially filled, covered containers before, during, and after its use. Until received at the recycle facility, the immersion cleaner is never transferred to another container. The containers containing the used immersion cleaner are returned to the facility and held in the designated transfer area before shipment to the recycle center.

similar implies some difference

The dry cleaning wastes are stored in containers. These containers are managed similar to the used immersion cleaner containers and contents within the containers will not be removed or processed at the facility. Non-perchloroethylene dry cleaning wastes are managed as transfer wastes.

return/fill shelter other ~~area~~ parts say area.

The parts washer solvent is collected in containers. These containers are then emptied into the dumpsters in the return/fill shelter.

Paint wastes consist of various lacquer thinners and paints. The waste is collected in containers at the customer's place of business and the containers are then stored in the container storage area of the warehouse. The paint waste manifests are terminated at that point. The paint wastes are then re-manifested and periodically sent to the Recycle Center.

FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility as transfer wastes under the FRS program.

The containers are designed and constructed to be compatible with the stored material and to minimize the possibility of breakage and leaking, in accordance with DOT shipping container specifications. The new specifications will be U.N. performance-oriented packaging criteria that the package must meet to become acceptable for transport of a hazardous material/waste.

Wastes are stored primarily in polyethylene and steel containers. Since none of the waste handled by Safety-Kleen reacts with metal or polyethylene, compatibility is assured.

Immersion cleaner and dry cleaning waste containers are never opened at the branch, and none of the wastes are incompatible.

POTENTIAL FIRE SOURCES

HI conflicts with II.A.4(d)-7

The following is a list of fire prevention and minimization measures:

1. All wastes and products are kept away from ignitable sources--Personnel must confine smoking and open flames to the Branch designated area which is located outside the front door. No other smoking areas are designated. The parts washer solvent handling area and the aboveground storage tanks are separate from the warehouse building area to minimize the potential for a fire to spread or injury to personnel to occur.

2. Ignitable wastes are handled so that they do not:

a. become subject to extreme heat or pressure, fire or explosion, or a violent reaction--The parts washer solvent waste is stored in a tank or in containers, none of which are near sources of extreme heat, fire, potential explosion sources, or subject to violent reactions. The tanks are vented and the containers kept at room temperature to minimize the potential for pressure build-up.

b. produce uncontrolled toxic mists, fumes, dusts or gases in quantities sufficient to threaten human health--The vapor pressure of petroleum-based parts washer solvent is low (2 mm Hg) and it is reactive with strong oxidizers only. Toxic mists, fumes, dusts, or gases will not form in quantities sufficient to threaten human health since strong oxidizers are not handled at this facility and the solvent vaporization will be minimal under normal working conditions.

c. produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion--See "a" above and "d" below.

d. damage the structural integrity of the Safety-Kleen facility--The solvents stored at this facility will not cause deterioration of the tank, containers, or other structural components of the facility.

3. Adequate aisle space is maintained to allow the unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of the facility operation in an emergency.

4. "NO SMOKING" signs are posted in areas where solvents are handled or stored.

5. Fire extinguishers are checked weekly by branch personnel and inspected by the fire extinguisher company once per year.

EXTERNAL FACTORS

The design of the installation is such that a harmful spill is highly unlikely to occur from most external factors. The storage tanks are inaccessible to non-Safety-Kleen personnel and the pump switches are located inside. Also, the container storage area is in a building which is inaccessible to unauthorized personnel.

1. Vandalism--Only extreme vandalism would result in a solvent spill or fire. Responses to spills and fires are described in the contingency plan.

2. Strikes--A strike would not result in a solvent spill or fire.

3. Power failure--A power failure would not result in a spill or fire. Should a power failure occur, all activities requiring electricity will cease.

4. Flooding--The site elevation is above the projected 100-year floodplain.
5. Storms or Cold Weather--The solvent return and fill station is roofed to eliminate the possibility of rain or snow entering the dumpsters. No opportunity is foreseen to affect the facility with snow, cold weather, or stormwater.

ATTACHMENT II.B.4
CONTAINER MANAGEMENT

The immersion cleaner is always contained in partially filled covered containers before, during, and after its use. Until received at the recycle facility, the immersion cleaner is never transferred to another container. The containers containing the used immersion cleaner are returned to the facility and stored in the designated container storage areas before shipment to the recycle facility.

The dry cleaning wastes are contained in steel or polyethylene containers. The perchloroethylene, mineral spirits, or trichlorotrifluoroethane, from dry cleaning operations is collected in steel or polyethylene containers. The dry cleaning filters are in steel containers. These containers are managed similarly to the used immersion cleaner containers, and contents within the containers will not be removed or processed at the facility.

similarly implies some differences. Please clarify.

The parts washer solvent is collected in containers. The containers are designed and constructed to be compatible with the stored material and to minimize the possibility of breakage and leaking, in accordance with DOT shipping container specifications.

Paint wastes consist of various lacquer thinners and paints. The waste is collected in containers at the customer's place of business and the containers are then stored in the container storage area of the warehouse. The paint wastes manifests are terminated at that point. The paint wastes are then re-manifested and sent to the Recycle Center.

FRS wastes are stored in steel or polyethylene containers. FRS wastes received at the facility are classified as characteristic wastes (D-waste codes), non-specific source wastes (F-waste codes), listed wastes from specific sources (K-wastes), commercial chemical products, manufacturing intermediates or off-specification chemical commercial products (U-waste codes). Most of the time, a waste stream will be some combination of specific components, and be categorized as a D- or F- waste. Table II.A.5-1 provides a list of the EPA waste codes managed at the facility under the FRS program. The FRS wastes will be managed as transfer waste. The manifest will not

be terminated at the Branch Operation. The management of FRS wastes as transfer wastes includes the provision to conduct truck-to-truck transfer of the FRS wastes. Truck-to-truck transfers are accomplished within two hours.

Wastes are stored primarily in polyethylene and steel containers. Since none of the wastes handled by Safety-Kleen react with metal or polyethylene, compatibility is assured. Immersion cleaner and dry cleaning waste containers are never opened at the branch, and none of the wastes are incompatible. Overpack containers are used for the management of containers whose integrity has been compromised.

ATTACHMENT II.B.5
CONTAINER INSPECTION

The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance.

The Operations Manager or that person's designee is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

The Operations Manager or designee, using the inspection log (Figure II.B.5-1 or similar), inspects the facility weekly for security (gates and locks) and any evidence of sticking, corrosion, or unusual activity. The facility fence is checked weekly for deterioration, gaps under the fence, and broken wire ties. An example Weekly Inspection log is shown in Figure II.B.5-1. At a minimum, this form will include all inspection log information submitted in the original Part B application and any subsequent updates to the log format.

Figure II.B.5-2 shows an example Inspection log for the Container Storage Area. Inspections of containers consist of the following:

- Physically examine the Container Storage Area to verify that no leaks have occurred since the last inspection.

- Verify that containers have not been damaged or rusted to the point of near leakage.

- Replace or adjust damaged, missing, or loose fasteners.

- Examine and verify that all container identification, dates, loading data, and hazardous waste labels are attached and current.

Inspection of the containment area may consist of the following:

- Containment areas are inspected to detect signs of deterioration and failure of the containment system such as cracks, breakage, settling, and spillage.

- Inspection of container placement and stacking such as aisle space, height, and stability of stacks.

- Daily inspection of solvent return receptacle (wet dumpster) consists of the inspection for leaks and excess dumpster mud build-up.

ATTACHMENT II.B.6
CONTAINER CLOSURE PLAN

The Safety-Kleen Corp. has constructed an Branch Operation with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any location and hence there is no disposal capacity to be exhausted that will necessitate closure of a facility. Based on current business and facility conditions, this facility is expected to remain in operation until the year of 2025.

In the event that some presently unforeseen circumstance(s) results in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, container storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate the need for maintenance after closure and the possibility of escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up of spills and repairing/decontamination of the facility or equipment.

An anticipated closure schedule is presented in Figure II.B.6-1. An anticipated maximum waste inventory for the container storage portion of the facility is presented in the following section.

FACILITY DATA

Container Storage Areas

The north building storage area has a 40' x 30' area with 6" wide by 4" high curbing and three collector trenches. The maximum volume of product and waste stored is

5,197 gallons. The wastes consist of dry cleaner wastes, spent immersion cleaner, and/or antifreeze.

The south building storage area has two areas. One is an 60' x 45' area with 6" wide by 4" high concrete curbing, collection trenches, and a sump. It has a capacity to hold 44,367 gallons of product and waste. Various halogenated and nonhalogenated solvents will be stored in this area including dry cleaner wastes, spent immersion cleaner, FRS wastes and/or antifreeze. The flammable storage area has the capacity for 12,749 gallons of flammable product or waste. The area measures 45' x 45' with 6" wide by 4" high concrete curbing, collection trenches, a sump, and external secondary containment. Paint wastes, FRS wastes, tank and dumpster mud will be housed in this area.

Maximum Inventory of Wastes

Containerized Waste: 49,564 gallons non-flammable and 12,749 gallons flammable.

This amount includes any combination of five-gallon containers, five-gallon containers, 16-gallon containers, 30-gallon containers, split 30-gallon containers (also known as 20-gallon containers), 55-gallon containers, and/or 85-gallon salvage containers.

CLOSURE PROCEDURE

Container Storage Areas

- The container storage area may house containers of used immersion cleaner, parts washer dumpster mud, dry cleaning wastes, paint wastes, antifreeze, and FRS wastes.

- At closure, all containers will be removed and transported to the recycle center, with proper packaging, labeling, and manifesting; the contents in the containers will be reclaimed and the containers will be cleaned for reuse.

- The concrete floor and spill containment areas will be cleaned with detergent solution and the rinsate will be analyzed for volatile organic compounds, lead, and cadmium using SW-846 methods to determine the effectiveness of decontamination. The area will continue to be washed and rinsed until levels are below action limits established in the formal closure plan and closure permit.

- If the wash water or other wastes generated in the closure process are determined to be hazardous, they will be properly disposed of as a hazardous waste; otherwise the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to surface waters. It is anticipated that approximately 350 gallons of rinsate will require RCRA disposal.

- The equipment used to clean this area includes mops, containers, scrub brushes, a wet/dry vacuum, and containers. The mops, containers, and scrub brushes will be containerized and disposed of as hazardous waste. The wet/dry vacuum hose will be washed with a detergent solution to decontaminate it. The containers will be used to store the wastewater.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the closure plan or whenever there is a change in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Safety-Kleen shall notify the state authority at least 180 days prior to the date closure is expected to begin, except in cases where the facility's permit is terminated or if the facility is otherwise ordered by judicial decree or compliance order to cease receiving wastes or to close. The date when

Safety-Kleen "expects to begin closure" should be within 90 days after the date on which Safety-Kleen expects to receive the final volume of wastes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

  The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

  The following requirements are met:

  - The facility has the capacity to receive additional wastes;
  - There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;
  - Closure of the facility would be incompatible with continued operation of the site; and Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
II.C.2-1 to II.C.2-4	C.Tank Systems. C-1. Existing Tank Systems. Assessment of existing tank system's integrity written assessment, reviewed and certified by an independent, qualified, registered professional engineer, on the structural integrity and suitability of each tank system for handling hazardous waste which includes: • Design standard(s) according to which the tank and ancillary equipment were constructed. • Hazardous characteristics of the wastes that have been and will be handled. • Existing corrosion protection measures. • Documented age of the tank system or an estimate. • Results of a leak test, internal inspection, or other tank integrity examination.	270.16(a) 264.191(a) and 264.191(b)	This assessment was performed as a part of the original permit application process and the professional engineer's certification of adequacy is on file in the facility records. Sheets II.C.2-1 through II.C.2-4 have been prepared to present minor edits.
	C-2. Dimensions and Capacity of Each Tank: Description of: • Types (i c. aboveground, underground etc.; material of construction), • Volume and number of tanks, • As well as specific location of each.	270.16(b)	No changes to the tank dimensions or capacities subsequent to the most recent approved modification of the permit.
	C-3. Description of Feed Systems, Safety Cutoff, Bypass Systems and Pressure Controls for Each Tank.	270.16(c)	No changes subsequent to the most recent approved modification to the permit.
	C-4. Diagram of Piping, Instrumentation and Process Flow for Each Tank System.	270.16(d)	No changes subsequent to the most recent approved modification to the permit.
	C-5. External Corrosion Protection: Specify type and, as appropriate, location of external corrosion protection measures used to ensure continued structural integrity and suitability of each tank system for handling hazardous waste.	270.16(e) 264.192(a)(3)(ii)	No changes subsequent to the most recent approved modification to the permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	C-6. New Tank System. Assessment of New Tank System's Integrity Written assessment, reviewed and certified by an independent, qualified registered professional engineer, on the structural integrity and suitability of each tank system for handling hazardous waste. Assessment must show that the foundation, structural support, seams, connections and pressure controls, if applicable, are adequately designed and that the tank system has sufficient structural strength and compatibility with the waste(s) to be stored or treated to ensure that it will not collapse, rupture, or fail. Assessment includes at a minimum: • Design standards(s) according to which tank(s) and/or the ancillary equipment are constructed. • Hazardous characteristics of the waste(s) to be handled.	270.16(a) & (f) 264.192(a)	Not Applicable
	• Corrosion assessment by a qualified expert for new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water. Include factors such as' • Soil moisture content • Soil pH • Soil sulfides level • Soil resistivity • Structure to soil potential • Influence of nearby underground metal structures (e.g., piping) • Existence of stray electric current • Existing corrosion-protection measures The type and degree of external corrosion protection should consist of one or more of the following: • Corrosion-resistant materials of construction • Corrosion-resistant coating with cathodic protection • Electrical isolation devices.	264.192(a)(3)	Not Applicable

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	• Determination of design or operation measures that will protect underground tank systems against potential damage due to vehicular traffic.	264.192(a)(4)	Not Applicable
	• Design considerations to ensure that tank foundations will maintain the load of a full tank and that tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone or is located within a seismic fault zone. Include design consideration to ensure that tank systems will withstand the effects of frost heave.	264.192(a)(5)	Not Applicable
	Description of Tank System Installation and Testing Plans and Procedures: Demonstrate that an independent, qualified installation inspector or an independent, qualified registered professional engineer will inspect each new tank system prior to covering, enclosing, or placing a new tank system or component in use. Inspection should determine the presence of: • Weld breaks • Punctures • Scrapes or protective coatings • Cracks • Corrosion • Other structural damage or inadequate construction/installation.	264.192(b) 270.16(f)	This assessment was performed as a part of the original permit application process and the professional engineer's certification of adequacy is on file in the facility's records.
	Specify how all discrepancies will be repaired. New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.	264.192(c)	No changes subsequent to the most recent approved modification to the permit.

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	New tanks and ancillary equipment will be tested for tightness prior to being covered, enclosed, or placed in use. Repair procedures must be specified if the tank system is found not to be tight.	264.192(d)	Not Applicable
	Ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.	264.192(e)	No changes subsequent to the most recent approved modification to the permit.
	External Corrosion Protection. Describe the design, construction, and operation of corrosion protection systems necessary to ensure the integrity of the system. Show that any field-fabricated corrosion protection system will be supervised by an independent corrosion expert.	264.192(f) and 270.16(e)	No changes subsequent to the most recent approved modification to the permit.
II.C.7-1, II.C.9-1 through II.C.9-3, and II.C.11-1 through II.C.11-2	C-7. Containment and Detection Releases. Plans and Description of the Design, Construction, and Operation of the Secondary Containment System: The following information must be provided for the secondary containment system: • Age of all existing tank systems. If the age of a tank system cannot be determined, indicate the reason. • Design, installation and operation to prevent any migration of waste or accumulated liquid from the tank system to the soil, groundwater, or surface water at any time during its use. • Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.	264.193(b) and 270.16(g)	Sheet II.C.7-1 has been edited to remove proprietary coating name. Sheets II.C.9-1 through II.C.9-3 are included to update permit for minor text edits. Sheets II.C.11-1 through II.C.11-2 are enclosed as minor edits on tank system inspection procedures.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Materials of construction used to construct or line the system. • Proof that the materials are compatible with the wastes in the tank system. • System has sufficient strength and thickness to prevent failure caused by any of the following: • Pressure gradients (including static head and external hydrological forces) • Physical contact with the wastes • Climatic conditions • Stress of daily operation (including stresses from nearby vehicular traffic).	264.193(c)(1)	No changes subsequent to the most recent approved modification to the permit.
	Calculations to prove that it is placed on a foundation or base that is capable of providing support, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression or uplift.	264.193(c)(2)	These calculations were performed as a part of the original permit application process and the professional engineer's certification of adequacy is on file in the facility's records.
	Description of the leak detection system, including its operating principles, design features and operating procedures.	264.193(c)(3)	No changes subsequent to the most recent approved modification to the permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Demonstration that the leak detection system will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment. • Show how the secondary containment system is sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. • Document how it will be ensured that spilled or leaked waste(s) and precipitation will be removed from the secondary containment system within 24 hours. If wastes and precipitation cannot be removed within 24 hours, then specify the earliest practical time that removal can take place. Indicate why this longer period does not pose a threat to human health and the environment.	264.193(c)(4)	No changes subsequent to the most recent approved modification to the permit.
	Requirements for External Liner, Vault, Double-Walled Tank or Equivalent Device. Secondary containment for each tank must include at least one of the following: a liner external to the tank, a vault, a double-walled tank, or an equivalent device approved by the Department. The following design and operation procedures should be given for each device:	270.16(g) 264.193(d)-(e)	No changes subsequent to the most recent approved modification to the permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	External liner system: • Calculations to show that it contains 100 percent of the capacity of the largest tank within its boundary. • Run-on or infiltration of precipitation is prevented. Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-year, 24-hour rainfall. • Free of cracks or gaps. • System surrounds the tank completely and covers all surrounding soil likely to come in contact with the wastes, if they were released from the tank(s).	264.193(e)(1)	These calculations were performed as a part of the original permit application process and the professional engineer's certification of adequacy is on file in the facility's records.
	Vault system: • Calculations to show that it contains 100 percent of the capacity of the largest tank within its boundary. • Designed or operated to prevent run-on or infiltration of precipitation. Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-year, 24-hour rainfall. • Constructed using chemical-resistant water stops in place at any joints. Specify the material used. • Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the vault material. Specify coating or lining used, and provide the manufacturer's data sheet. • Method used to protect against the formation and ignition of vapors placed in the tank(s) if the wastes are ignitable or reactive. • Exterior moisture barrier used, and provide the manufacturer's data sheet. Alternatively, describe how the vault is designed or operated to prevent the migration of moisture into the vault if the vault is subject to hydraulic pressure.	264.193(e)(2)	These calculations were performed as a part of the original permit application process and the professional engineer's certification of adequacy is on file in the facility's records.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Double-walled tank: • An integral structure so that any release from the inner tank is contained by the outer shell. • If the unit is metallic, specify the type(s) of corrosion protection used for both the internal and external shell. • Description of the leak detection system used including the principle of operation, design, and operating characteristics. It must be a continuously operating unit, capable of detecting a release within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment.	264.193(e)(3)	No changes subsequent to most recent approved modification to permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Secondary Containment and Leak Detection Requirements for Ancillary Equipment: Each tank system's ancillary equipment must be provided with secondary containment such as jacketing, double-walled piping, or a trench. Describe the containment system, and demonstrate that it has been (will be) designed, installed and operated to prevent any migration of waste or accumulated liquid to the soil, groundwater, or surface water at any time during its use. Also, demonstrate that the containment system can detect and collect releases and accumulated liquids. This demonstration must include at least the following: • Materials of construction used to construct or line the system. Show that these materials are compatible with the wastes in the tank system. • Demonstrate that the system has sufficient strength and thickness to prevent failure caused by any of the following: - Pressure gradients (including static head external hydrological forces) - Physical contact with the wastes - Climatic conditions - Stress of daily operation (including stresses from nearby vehicular traffic). • Calculations proving that the secondary containment system is placed on a foundation or base that is capable of providing support, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression, or uplift.	264.193(f) and 270.16(g)	No changes subsequent to most recent approved modification to permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	• Description of the leak detection system including its operating principle, design features and operating procedures. The leak detection system must detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release with 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment. • Secondary containment system must be sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. • Document how it will be ensured that spilled or leaked wastes and precipitation will be removed from the secondary containment system within 24 hours. If wastes and precipitation cannot be removed within 24 hours, then specify the earliest practical time that removal can take place. Indicate why this longer period does not pose a threat to human health and the environment.		No changes subsequent to most recent approved modification to permit.
	A demonstration need not be made for: • Above ground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected daily, • Welded flanges, joints, and connections that are visually inspected daily, • Seamless or magnetic coupling pumps that are visually inspected daily, and • Pressurized above ground piping systems with automatic shut-off devices that are visually inspected daily.	274.193(f)	No changes subsequent to most recent approved modification to permit.

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	Requirements for Tank Systems Until Secondary Containment is Implemented: Non-enterable underground tanks: results of a leak test (or other tank integrity test approved by the Department). Procedures to be repeated at least annually until secondary containment is provided. Other than non-enterable underground tanks: results of a leak test or present a schedule and procedures for assessing the overall condition of the tank system by an independent, qualified registered professional engineer until secondary containment is provided. Ancillary equipment: results of a leak test (or other integrity assessment measures approved by the Department). Indicate the procedures that will be used to ensure that such tests will be repeated at least annually until secondary containment is provided.	264.193(i)	Not Applicable
	C-8. Variance from Secondary Containment Is Implemented: Provide information for one of the follonving alternatives: • Technology-based variances: detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the groundwater or surface water during the life of the facility. • Risk-based variances: detailed demonstration that no substantial present or potential hazards will be posed to human health or the environment should a release enter the environment. • Demonstration that tanks used to store or treat hazardous wastes contain no free liquid as defined by the Paint Filter Test and that such tanks are situated inside a building with an impermeable floor.	264.193(g) and 270.16(h) 264.190(a)	Not Applicable

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PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	C-9. Controls and Practices to Prevent Spills and Overflows: Provide adequate information to ensure that the hazardous wastes or treatment reagents placed in a tank system will not cause any element of that system to rupture, leak, corrode or otherwise fail.	264.194(a) & (b) and 270.16(i)	No changes subsequent to most recent approved modification of the permit.
	Provide detailed description of controls and practices used to prevent spills and overflows. Include at a minimum: • Spill prevention controls (e.g., check valves, dry disconnect couplings) • Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff or bypass to a standby tank) • Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.		No changes subsequent to most recent approved modification of the permit.
	C-10. Procedures for handling incompatible, ignitable, reactive wastes. • Waste not placed in tanks unless treated, and rendered, or mixed so it does not meet the definition of ignitable, reactive or incompatible. • Tank is solely for emergencies. • Meets the National Fire Protection Associations Flammable and Combustible Liquids Code. • Decontaminated before use.	264.198, 264.199, and 270.16(j)	No changes subsequent to most recent approved modification of the permit.
II.C.12(a)-1 through II.C.12(a)-11	C-12. Closure and Post-Closure Tank systems	264.197	Sheets II.C.12(a)-1 through II.C.12(a)-11 are enclosed containing revisions to the Closure Plan to incorporate OSHA Lockout/Tagout and Confined Space procedures, and modified decon procedures.
II.C.13-1 through II.C.13-3	C-13. Response to Leaks and Disposition of Unfit-for-Use Tanks Systems	264.196	Sheets II.C.13-1 to II.C.13-3 are provided to document minor text edits.

ATTACHMENT II.C.2
TANK SYSTEM SPECIFICATIONS

The facility includes three aboveground steel tanks (Figure II.C.2-1). Used parts washer solvent contained in containers returned by the customers are transferred via the wet dumpster into a 15,000-gallon tank, prior to bulk shipment to the recycle center. The other two tanks, a 15,000-gallon tank and a 15,000-gallon tank, are used to store fresh parts washer solvent and are, therefore, not considered RCRA tanks.

MATERIAL COMPATIBILITY

Product stored in the tanks at this facility is parts washer solvent. The material is compatible with the mild steel tank structure; in fact, petroleum products are often used as a light hydrocarbon coating to prevent rusting of metal parts. As with all petroleum storage vessels, water will accumulate over time due to condensation and the addition of aqueous parts washer solvent. The parts washer solvent has a specific gravity less than water and the water will accumulate in the bottom of the tank. The mild steel material used in constructing the tanks is compatible with the parts washer solvent mixture.

TANK DESIGN AND OPERATION PROCEDURES

Spent parts washer solvent from parts washers is accumulated in the 15,000-gallon aboveground storage tank by transfer through the return and fill station. Containers of used solvent are poured into the dumpsters (barrel washers) in the return and fill station, and material in the dumpster is pumped into the storage tank. The return and fill station has secondary containment.

The barrel washers are located within the parts washer return and fill shelters. The drawings (Figures II.C.2-2(a) through II.C.2-2(j)) provide detail information on the barrel washers.

Used solvent is returned from customers via containers and poured into the barrel washers. The container is then placed on roller brushes within the barrel washer. As the machine is turned on, the container rotates on the brush and the outside of the

container is cleaned. There is also a nozzle that sprays a stream of solvent into the bottom of the container to clean the inside of the container. The machine is turned off and the container is removed. The procedure takes several seconds per container. The container is then refilled using a pump and nozzle (Figure II.C.2-3) similar to a gasoline pump.

The used solvent goes to a sump in the bottom of the barrel washer and is automatically pumped to the used parts washer solvent storage tank. There is a basket in the sump that collects sludge. Periodically, this basket is removed and sludge is removed and placed into a sludge drum for recycle.

The barrel washer is a totally enclosed unit. A small amount of mist is generated while operating the unit. This is controlled by adjusting the flow.

The tanks are designed and constructed to be compatible with the materials stored in them. Typical construction and installation standards for the aboveground tanks are shown in Figure II.C.2-4. All tanks are vented in accordance with National Fire Protection Association (NFPA) standards, and the tanks are equipped with high-level alarms. The design and installation of the tank alarm system is shown in Figures II.C.2-5(a) and II.C.2-5(b). The tank seams are lapped with full fillet welds. The weld is done with an E70 electrode and can withstand a 4-psi air pressure test (which is performed by the manufacturer). The tanks were installed new in June 1985.

Attachment II.C.1 provides an independent assessment of the tank system. This assessment by Tera, Inc. includes a detailed description of the tank system components and operation. The following is a concise description of the main features of the tank system.

All tanks are aboveground, are supported on a six-inch thick skid, and are underlain by a six-inch thick concrete slab, and surrounded by a 47" high concrete dike. Therefore, no surface run-off would be in contact with the wastes stored at the site and no run-off collection and management system is deemed necessary. To minimize the amount of precipitation that may collect inside the diked area, a fabric cover has

been installed over the tank farm. The canopy framework consists of galvanized steel tubes that sleeve together and are quickly fastened with pins to form structural arches. The arches are connected with purlins that attach to the arches at integral spring loaded pin connections. The entire shelter affixes to a hot-dip galvanized base angle foundation frame that is anchored to the ground by simple hold down methods. The canopy is made of high-strength PVC-coated polyester membrane which is tensioned over the frame and attached and sealed to the structure's foundation.

Equipment used in the operation of the aboveground tanks for used parts washer solvent include gauges for measuring liquid levels in tanks and automatic high level alarms. The high level alarm will sound when the tank is 95 percent of capacity. Filling of the tank must cease when the alarm sounds to prevent overfilling of the tank. In addition, the gauges of the tank must be read before filling and before and during the filling of a tanker truck (the available volume of which must be noted prior to emptying the tank) to prevent overfilling of the truck. A suction pump equipped with the tanker truck is used to withdraw the content from the tank. No other equipment or standby equipment is used in the operation of the aboveground tanks. The tank may be operated at a maximum volume of 14,250 gallons (95 percent).

A fabric cover is present over the tank farm and rainwater is not expected to accumulate in this area; however, if rainwater does accumulate in the tank farm area, it will be placed into the facility's used parts washer solvent tank.

ATTACHMENT II.C.7
TANK SYSTEM SECONDARY CONTAINMENT

TANK CONTAINMENT

All tanks are aboveground, underlain by a 49' x 18.5' (length and width) concrete slab, surrounded by a 3.9-foot high concrete dike. No surface run-on or precipitation would be in contact with the wastes stored in the tank, and no run-off collection and management system is deemed necessary. A fabric cover installed over the tank farm eliminates any chance of precipitation accumulation inside the containment area. The layout of the tank farm is provided in Figure II.C.7-1. Containment calculations are in Figure II.C.7-2.

RETURN/FILL CONTAINMENT

The return/fill shelter is a 50' x 80' structure located between the operations center and warehouse (Figure II.C.7-3). It contains two dumpsters which handle the flow of solvent to the tank. These dumpsters are not intended for storage but can hold a maximum of 1,008 gallons (504 gallons per dumpster).

The area is designed such that the route trucks can be backed into the containment area. The roof extends over the truck unloading area so that no precipitation can get into the return/fill shelter containment area. The containment for the return/fill area is provided by four areas. The south dumpster area has a capacity of 1,325 gallons which exceeds the storage capacity of the two dumpsters (504 gallons per dumpster) located in the area. The containment calculations are presented in Figure II.C.7-4.

ATTACHMENT II.C.9
CONTROLS AND SPILL PREVENTION

The facility utilizes three aboveground steel tanks. Used parts washer solvent contained in containers returned by the customers is transferred via the wet dumpster to the 15,000-gallon tank, awaiting bulk shipment to the recycle center. The other two tanks, a 15,000-gallon tank and a 15,000-gallon tank, are used to store fresh parts washer solvent and are, therefore, not considered a RCRA tank.

Product stored in the tanks at this facility is parts washer solvent. The material is compatible with the mild steel tank structure. In fact, petroleum products are often used as a light hydrocarbon coating to prevent rusting of metal parts. As with all petroleum storage vessels, water will accumulate over time due to condensation and the addition of aqueous parts washer solvent. The parts washer solvent has a specific gravity less than water and the water will accumulate in the bottom of the tank. The mild steel material used in constructing the tanks is compatible with the parts washer solvent mixture.

The tanks are designed and constructed to be compatible with the materials stored in them. Typical construction and installation standards for the aboveground tanks are shown in Figure II.C.2-4. All tanks are vented in accordance with National Fire Protection Association (NFPA) standards, and the tanks are equipped with high level-alarms. The design and installation of the tank alarm system is shown in Figure II.C.2-5(a) and II.C.2-5(b). The tank seams are lapped with full fillet welds. The weld is done with an E70 electrode and can withstand a 4-psi air pressure test (which is performed by the manufacturer). The 15,000-gallon tanks were installed in June 1985.

Attachment II.C.1 provides an independent assessment of the tank system. This assessment by Tera, Inc. includes a detailed description of the tank system components and operation. The return/fill assessment was conducted by ERM-EnviroClean-South, Inc. The following is a concise description of the main features of the tank system.

All tanks are aboveground, supported on a six-inch thick skid, and are underlain by a six-inch thick concrete slab, and surrounded by a 47" high concrete dike. Therefore, no surface run-off would be in contact with the wastes stored at the site and no run-off collection and management system is deemed necessary. To minimize the amount of precipitation that may collect inside the containment area, a fabric cover has been installed over the tanks farm. Equipment used in the operation of the aboveground tanks for used parts washer solvent include gauges for measuring liquid levels in tanks and automatic high level alarms. The high level alarm will sound when the tank is 95 percent of capacity. Filling of the tank must cease when the alarm sounds to prevent overfilling of the tank. In addition, the gauges of the tank must be read before filling it and before and during the filling of a tanker truck (the available volume of which must be noted prior to emptying the tank) to prevent overfilling of the truck. A suction pump equipped with the tanker truck is used to withdraw the content from the tank. No other equipment or standby equipment is used in the operation of the aboveground tanks. The tank may be operated at a maximum volume of 14,250 gallons (95 percent).

A fabric cover is present over the tank farm and rainwater is not expected to accumulate in this area; however, if rainwater does accumulate in the tank farm area, it will be placed into the facility's used parts washer solvent tank.

ATTACHMENT II.C.11

TANK SYSTEM INSPECTIONS

The purpose of the inspection plan is to establish a procedure and schedule for the systematic monitoring and inspection of hazardous waste management and other material management facilities to ensure proper operation and maintain compliance.

The Operations Manager or that person's designate is responsible for carrying out the inspections of all hazardous waste management facilities in accordance with the following procedure and schedule.

The Operations Manager or designee inspects the facility weekly for security (gates and locks) using an inspection log (Figure II.C.11-1), and any evidence of sticking, corrosion, or unusual activity. The facility fence is checked weekly for deterioration, gaps under the fence, and broken wire ties. An example Inspection log is shown in Figure II.C.11-1.

FDEP wants to know what the tank system will be inspected for.

Figure II.C.11-2 presents an example daily inspection log for the tank system. Daily inspections of tanks and dumpsters may consist of the following:

- Physically examine the tank area to verify that no leaks have occurred since the last inspection.
- Verify that no tanks that have been damaged and rusted to the point of near leakage.
- Examine and verify that all tank identification, dates, loading data, hazardous waste labels are attached and current.

Daily inspections of containment may consist of the following:

- Physically examine containment areas to detect signs of deterioration and failure of the containment system such as cracks, breakage, settling, and spillage.

ATTACHMENT II.C.12(a)
TANK SYSTEM CLOSURE PLAN

CLOSURE INTRODUCTION

The Safety-Kleen Corp. has constructed a Branch Operation with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any facility and hence no disposal capacity will be exhausted that will necessitate closure. Based on current business and facility conditions, this facility is expected to remain in operation until the year 2025.

In the event that presently unforeseen circumstance(s) results in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, drum storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate the need for maintenance after closure and the possibility of the escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up spills and repairing/decontamination of the facility or equipment.

An anticipated closure schedule is presented can be seen in Figure II.C.12(a)-1. An anticipated maximum waste inventory for the tank system of the facility is presented in the following section.

FACILITY DATA

Waste Management Facility Descriptions

The 15,000-gallon waste parts washer solvent tank is 10'6" in diameter by 23'3" high, in a 47" high concrete containment area.

Solvent Return/Fill Shelter Area

The Solvent Return/Fill Shelter is a 50' x 80' structure between the north and south buildings. It contains two dumpsters which facilitate the flow of solvent to the tank. These dumpsters are not intended for storage, but can hold a maximum of 1,008 gallons (504 gallons per dumpster).

MAXIMUM INVENTORY OF WASTE

The maximum amount of waste parts washer solvent in the tank is 15,000 gallons.

The maximum amount of solvent waste in the dumpsters is 1,008 gallons (two 504-gallon dumpsters).

PHASE I–PREPARING THE TANK

- At closure, the contents of the tank will be removed and transported to the recycle center.

- Access to aboveground tanks is obtained by removing manways.

- Prior to opening the tanks, the personnel should have full face respiratory protection and protective clothing. Once the tanks have been opened, they will be provided with positive ventilation. The tanks will then be inspected to determine the approximate quantity and physical conditions of the remaining material.

PHASE II–REMOVING WASTE AND CLEANING TANK

- Before removing the waste from the tank, all piping and related equipment will be flushed first with clean parts washer solvent followed by a detergent solution.

- The method to remove the waste material from the tanks will depend on the physical properties and quantities of that material. Prior to any person entering the tank, an effort will be made to remove as much liquid and sludge as possible.

- Subsequent to vacuuming the majority of the material from the tank, it may be necessary to use a high pressure wash system using a clean solvent and detergent solution to rinse residual material from the walls and bottom of the tanks. The evacuated material and the rinse solution will be returned to the recycle center for reclamation. The quantity of wash fluid used will be kept to a minimum in order to limit the amount of unnecessary material. The final rinsate will be analyzed for volatile organic compounds, lead, and cadmium, using SW-846 to determine the effectiveness of decontamination. The analytical results of the final rinsate will be used to determine if the tank will be managed as a hazardous or non-hazardous material. Rinsate will be removed using a vacuum tanker truck and will be disposed of as hazardous waste. It is anticipated that approximately 2,000 gallons of rinsate will require RCRA disposal.

- Storage tanks are considered confined spaces, i.e., spaces open or closed having a limited means of egress in which poisonous gases or flammable vapors might accumulate or an oxygen deficiency might occur.

- Confined space entry requires special operating procedures:

  - Tanks are to be washed, neutralized and/or purged (where flammable atmosphere is present) prior to being entered.

  - Supply valves must be closed and "tagged" and bleeder valves left open, or supply piping should be disconnected.

- Pumps or motors normally activated by automatic controls shall be operated manually to be sure they have been disconnected. Instrument power switches should be tagged "OFF." Implement lockout/tagout procedure.

- On tanks where flammable vapors may be present, all sources of ignition must be removed.

- All tanks must be tested for flammable vapors, toxic gases, or oxygen deficiency in that order, as applicable. The results of such tests should be displayed on the job site.

  - In all tank entering situations, an Oxygen Deficiency Test shall be performed prior to tank entry.

  - Under circumstances where "hot work" (welding, burning, grinding, etc.) is to be performed in or on the vessel, a test for combustible gases shall be performed. This is referred to as a "flash test."

  - In most circumstances, flash tests and oxygen deficiency tests will be performed by the supervisor of the area in which the work is being performed.

  - Under any conditions where a possibility exists (no matter how remote) of the presence of toxic vapors in the tank to be entered, the supervisor will arrange to have the air tested.

- There must be a set of wristlets or a rescue harness and sufficient rope at the job site to effect a rescue. Any other rescue equipment considered necessary must also be on the job site.

- Workers should wear a rescue harness if entering a tank with a large enough opening to easily effect a rescue. In tanks with small openings, only wristlets may be used. However, in cases where there are agitator shafts, containers,

or other hazards in which the person's life-line would be entangled and the supervisor in charge feels that wearing the life-line may entrap a worker and increase the hazard, the wearing of a harness or wristlets may be eliminated.

- A constant source of fresh air must be provided to ensure a complete change of air every few minutes. In cases of short-term entry for inspection or removal of objects, an air mask is recommended. In cases of long-term entry (generally for repair) the use of an air mover must be considered.

- When a ladder is required to enter a tank, the ladder must be secured and not removed while anyone is in the vessel. In cases where a rigid ladder could become an obstacle, a chain ladder may be used.

- Adequate illumination must be provided.

  - A flashlight or other battery-operated light must also be available to provide illumination for the safety exit in the event of an electrical power failure.

  - Explosion-proof lighting must be used in any tank used to store flammable liquids.

- All electrical equipment to be used inside the tank must be in good repair and grounded.

- Others working in the immediate area shall be informed of the work being done and they shall inform the watcher or supervisor immediately of any unusual occurrence which may make it necessary to evacuate the tank.

- The "buddy" (standby observer) system:

  - Persons working inside a confined space must be under the constant observation of a fully-instructed standby observer.

- Before anyone enters the tank, the standby observer will be instructed by the person in charge of the entry that:

  - An entry authorization must be obtained from the person in charge by anyone entering the tank.

  - A rescue harness or wristlets must be worn on the job.

  - The standby observer must know the location of the nearest telephone (with emergency numbers posted); safety eyewash/shower; fire extinguisher; and oxygen inhalator.

  - For all "hot work" inside a tank, the standby observer must be instructed how to shut down welding/burning equipment.

  - As long as personnel are inside the vessel, the standby observer must remain in continuous contact with the worker. THAT PERSON MUST NOT LEAVE THE JOB SITE EXCEPT TO REPORT AN EMERGENCY.

  - UNDER NO CIRCUMSTANCES SHOULD THE STANDBY OBSERVER ENTER THE VESSEL. If the worker(s) in the tank becomes ill or injured, the watcher is to put in effect the emergency plan described in the attached Standard Operating Procedure.

  - The standby observer still DOES NOT ENTER THE TANK until additional help is available.

  - After being instructed in the responsibilities, the standby observer will sign an instruction form indicating an understanding of its content.

- Welding and burning within a tank:

- All welding and burning equipment must be provided with a shutoff device under the control of the standby observer; and the standby observer must know how to shut off the equipment if it becomes necessary.

- Welding and burning equipment will only be taken into a tank immediately prior to its use and must be removed from the tank immediately after the job is finished.

- For all "hot work" inside a tank, a properly executed flame permit, if needed, must be displayed at the job site.

- Standard welding and burning safety precautions will always be followed.

PHASE III–REMOVE TANK

- Disconnect and cap all associated piping.

- Disconnect and decontaminate all associated pumping equipment.

- The vessels shall be removed and reused by Safety-Kleen or cut up and disposed as scrap.

- The surface soil beneath the fill pipes and beneath each tank will be sampled and analyzed for volatile organic compounds, lead, and cadmium. There are 3 tanks in the containment area.

- The secondary containment system will be disassembled. The construction materials will be tested with TCLP procedures. If the construction materials are classified as non-hazardous using TCLP, then they will be disposed of as a solid waste in a sanitary landfill. In the event the construction materials are identified as hazardous using TCLP, then the construction materials will be disposed of as a hazardous waste in accordance with RCRA regulations. How many samples will be taken? analyzed for what

- Contaminated soil, if it exists, shall be removed and properly disposed of. An additional work plan to determine the extent of contamination and remediation procedures will be submitted in this case.

PHASE IV–BACKFILLING AND REGRADING

- Backfill any excavation with previously excavated material with proper compaction. Testing the back fill material prior to use.

- Add additional backfill with proper compaction if necessary. The material must be clean and easily compacted in place.

- Regrade the site to proper topography.

- Remove and dispose of nonusable debris.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. The active life of the facility is that period during which wastes are periodically received. Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the closure plan or whenever a change occurs in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

  The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

  The following requirements are met:

- The facility has the capacity to receive additional wastes;

- There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;

- Closure of the facility would be incompatible with continued operation of the site; and

- Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

ATTACHMENT II.C.13

RESPONSE TO LEAKS AND DISPOSITION OF UNFIT-FOR-USE TANK SYSTEMS

In the event that a leak or spill were to occur from a tank system or secondary containment system, the actions identified herein will be undertaken.

IMMEDIATE RESPONSE

All waste flow to the tank system in question will be ceased immediately. An inspection will be undertaken to identify the cause of the release. Waste flow to the tank system will not be reinstituted until the tank system has been inspected, repaired, and declared fit for use.

In order to prevent further releases, or to allow inspection and a repair of the system, it may be necessary to remove the waste from the tank system. This waste removal will occur within 24 hours after detection of the leak, or at the earliest practicable time.

All material released to the secondary containment area will be removed within 24 hours, or in as timely a manner as possible, to prevent harm to human health and the environment. Every reasonable effort will be made to prevent migration of the release to soils or surface water.

If necessary, visible contamination of surface water and soil will be removed and properly disposed of.

MODIFICATIONS

If a spill is less than one pound and is immediately contained and cleaned up, no notifications are required. All other releases require notification to the Regional Administrator and Florida Department of Environmental Protection (FDEP). The reporting requirements identified in the Contingency Plan will satisfy this requirement.

SUBSEQUENT REPORTING

Within 30 days of detection of a release to the environment, a report must be submitted to the Regional Administrator and FDEP. The report must contain the following information:

1. Likely route of migration of the release;

2. Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

3. Results of any monitoring or sampling conducted in connection with the release. If sampling has occurred and is not available within 30 days, it must be submitted as soon as available.

4. Proximity to downgradient drinking water, surface water, and populated areas; and

5. Description of response actions taken or planned.

REPAIR OR CLOSURE

If the integrity of the containment system has not been damaged, then the system may be returned to service as soon as the released waste is removed and repairs, if necessary, are made.

If the tank was the source of the release, then the tank must be repaired prior to returning the tank system to service.

If the release was from a tank system component which did not have secondary containment, then secondary containment must provide for this component before the system can be returned to service. The exception to this is if the component can be visually inspected. In this instance, the component may be repaired and returned to

service. If a component is replaced, then the component must satisfy the requirements for new tank systems and components.

All major repairs must be certified by an independent, registered, professional engineer in accordance with 40 CFR 270.11(d). The engineer must certify that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This report must be filed with the Agency within seven days after returning the tank system to use.

If repairs that meet these requirements cannot be performed, then the tank system must be closed in accordance with the Closure Plan.

PART II GENERAL PERMIT APPLICATION - SECTIONS D THROUGH O
PAGE 1 OF 1

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center **REV NUMBER** 10

EPA ID NUMBER FLD 980847271 **TYPE OF APPLICATION** Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
Part II, Section D	Surface Impoundments		Not Applicable
Part II, Section E	Waste Piles		Not Applicable
Part II, Section F	Land Treatment		Not Applicable
Part II, Section G	Landfills		Not Applicable
Part II, Section H	Incinerators		Not Applicable
Part II, Section I	Miscellaneous Units		Not Applicable
Part II, Section J	(Reserved)		
Part II, Section K II.K.1-1 to II.K.1-15	Closure	264.197	Sheets II.K.1-1 through II.K.1-15 are enclosed and contain revisions to the closure plan to include OSHA Lockout/Tagout and confined space procedures, to remove transfer areas from scope of closure,and changes to the final decon of the tanks. NOTE: Sheets II.B.6-1 through II.B.6-5 (Container Closure Plan) have been included in Section B to document minor text edits made to the permit.
Part II, Section L	Compliance Schedule		Not Applicable
Part II, Section M	Groundwater Protection		Not Applicable
Part II, Section N	Research, Development and Demonstration		Not Applicable
Part II, Section O	Exposure Information		Not Applicable

ATTACHMENT II.K.1
CLOSURE PLAN

CLOSURE INTRODUCTION

The Safety-Kleen Corp. has constructed a Branch Operation with the intent that it will be a long-term facility for the distribution of Safety-Kleen products. No onsite disposal activity occurs at any facility and, hence, no disposal capacity will be exhausted that will necessitate closure of a facility. Based on current business and facility conditions, this facility is expected to remain in operation until the year of 2025.

In the event that some presently unforeseen circumstance(s) would result in the discontinuance of operations and permanent closure or sale of the facility, the following closure plan is designed to identify the steps necessary to completely close the facility at any point during its intended life, and should be used for tanks, container storage area, and equipment.

It is intended that all closures will be complete and final with removal of waste and decontamination of the facility and associated equipment, in order to eliminate need for maintenance after closure and chance of escape of hazardous waste constituents into the environment.

Procedures described in this closure plan are also applicable to cleaning up of spills and repairing/decontamination of facility or equipment.

FACILITY DATA

1. Waste Management Facility Descriptions
   a. Aboveground Storage Tanks

      A 15,000-gallon steel tank, 10'6" diameter x 23'3" high, for used parts washer solvent storage.

b. Container Storage Areas: The north building storage area has a 40' x 30' area with 6" wide by 4" high continuous curbing and three collector trenches. The maximum volume of product and waste stored is 5,197 gallons. The wastes consist of dry cleaner wastes, spent immersion cleaner, and/or antifreeze.

The south building storage area has two areas. One is a 60' x 45' area with 6" wide by 4" high concrete curbing, collection trenches, and a sump. It has a capacity to hold 44,367 gallons of product and waste. Various halogenated and nonhalogenated solvents will be stored in this area including but not limited to dry cleaner wastes, spent immersion cleaner, FRS wastes, and/or antifreeze. The flammable storage area has the capacity for 12,749 gallons of flammable product or waste. The area measures 45' x 45' with 6" wide by 4" high concrete curbing, collection trenches, a sump, and overflow pipe and containment (discussed below). Paint wastes, FRS wastes, tank and dumpster mud will be stored in this area.

c. Solvent Return/Fill Shelter: The solvent center/fill shelter is a 50' x 80' structure between the north building storage area and the south building storage area. It contains two dumpsters which facilitate the flow of solvent to the tank. These dumpsters are not intended for storage but can hold a maximum of 1,008 gallons.

d. Overflow Pipe and Containment: One end of a 10" pipe is connected to the collection trench in the flammable storage area. The other end of the pipe discharges into a containment area which is approximately 19' wide x 30' long x 2' high. The containment area and pipe have an approximate capacity of 5,491 gallons. The primary purpose of this containment is for sprinkler water; however, this containment area also accounts for a portion of the containment capacity for the flammable storage area.

2. Maximum Inventory of Wastes
   a. Used Parts Washer Solvent: 15,000 gallons;

b. Containerized Waste: 49,564 gallons nonflammable and 12,749 gallons flammable

This amount includes any combination of 5-gallon pails, 5-gallon containers, 16-gallon containers, split 30 (also known as 20-gallon containers) 30-gallon containers, 55-gallon containers, and/or 85-gallon salvage containers. 5 gallon pails ?

c. Dumpsters: 1,008 gallons.

CLOSURE PROCEDURE

Container Storage Areas

- The container storage area houses containers of used immersion cleaner, parts washer solvent, dumpster mud, FRS wastes, and dry cleaning wastes.

- At closure, all containers will be removed and transported to the recycle center with proper packaging, labeling, and manifesting, where the contents in the containers will be reclaimed and the containers cleaned for reuse.

- The concrete floor and spill containment areas will be cleaned with detergent solution and the rinsate will be analyzed for volatile organic compounds, lead, and cadmium, using SW-846 methods, to determine the effectiveness of decontamination. The area will continue to be washed and rinsed until levels are below MCLs, or action limits established in the formal closure plan and closure permit.

- If the wash water or other wastes generated in the closure process are determined to be hazardous, they will be disposed of properly as a hazardous waste; otherwise, the material will be disposed of as an industrial waste. It should be noted that wash water and rinsate will not be allowed to drain to the surface waters. It is anticipated that approximately 350 gallons of rinsate will require RCRA disposal.

containes storage areas
5925 ft sq
350 gall rinsate
= .059 gal / ft²

- The equipment used to clean this area includes mops, pails, scrub brushes, a wet/dry vacuum, and containers. The mops, pails, and scrub brushes will be

containerized and disposed of as hazardous waste. The wet/dry vacuum hose will be washed with a detergent solution to decontaminate it. The containers will be used to store the wastewater.

South Overflow Pipe and Containment

Due to the design of this system, it is very unlikely that the pipe or containment area will have had any contact with hazardous materials. Therefore, at the time of closure if sufficient documentation exists to demonstrate that no hazardous materials have entered this area, the containment area will require no decontamination. If sufficient documentation is not present or if hazardous materials have been introduced into this containment area, then the area will be decontaminated in a manner consistent with the container storage area.

Solvent Return/Fill Shelter Area

- This area is used to return the used parts washer solvent to the storage tank.

- Closure of the solvent return receptacles (wet dumpster) will be made prior to the cleaning and removal of the storage tank.

- At closure, the sludge in the dumpsters ("dumpster mud") will be cleaned out and containerized, labeled, and manifested for proper disposal at permitted facilities.

Where is this material accounted for in cost summary?

- The dumpsters and the dock area will be cleaned with detergent solution and the rinsate analyzed for, volatile organic compounds, lead, and cadmium to determine the effectiveness of the decontamination. The area will continue to be washed and rinsed until levels are below action limits established by the formal closure plan and closure permit.

- The rinsing fluids will be discharged through the associated piping system into the storage tank, which will be subjected to a separate closure procedure as described herein.

- The cleansed dumpster and dock structure will be reused by Safety-Kleen, or scrapped.

- The cleanup equipment and solutions disposal are the same as those listed earlier.

PHASE I--PREPARING THE TANK

- At closure, the contents of the tank will be removed and transported to the recycle center.

- Access to aboveground tanks is obtained by removing manways.

- Prior to opening the tanks, the personnel should have full-face respiratory protection and protective clothing. Once the tanks have been opened they will be provided with positive ventilation. The tanks will then be inspected to determine the approximate quantity and physical conditions of the remaining material.

PHASE II--REMOVING WASTE AND CLEANING TANK

- Before removing the waste from the tank, all piping and appurtenant equipment will be flushed first with clean parts washer solvent followed by detergent solution.

- The method to remove the waste material from the tanks will depend on the physical properties and quantities of that material. Prior to any person entering the tank, an effort will be made to remove as much liquid and sludge as possible.

- Subsequent to vacuuming the majority of the material from the tanks, it may be necessary to use a high pressure wash system using clean solvent and detergent solution to rinse residual material from the walls and bottom of the tanks. The evacuated material and the rinse solution will be returned to the recycle center for reclamation. The quantity of wash fluid used will be kept to a minimum in order to limit the amount of unnecessary material. The final rinsate will be

analyzed for volatile organic compounds, lead, and cadmium, using SW-846, to determine the effectiveness of decontamination. The analytical results of the final rinsate will be used to determine if the tank material will be handled as hazardous or non-hazardous material. The total rinsate will analyzed, and the results used to determine the method of disposal of the rinsate.

- Storage tanks are considered confined spaces, i.e., spaces open or closed having a limited means of egress in which poisonous gases or flammable vapors might accumulate or an oxygen deficiency might occur.

- Confined space entry requires special operating procedures:

  - Tanks are to be washed, neutralized and/or purged (where flammable atmosphere is present) prior to being entered.

  - Supply valves must be closed and "tagged" and bleeder valves left open, or supply piping should be disconnected.

  - Pumps or motors normally activated by automatic controls shall be operated manually to be sure they have been disconnected. Instrument power switches should be tagged "OFF."

  - On tanks where flammable vapors may be present, all sources of ignition must be removed.

  - All tanks must be tested for flammable vapors, toxic gases or oxygen deficiency, in that order, as applicable. The results of such tests should be displayed on the job site.

    - In all tank entering situations, an Oxygen Deficiency Test shall be performed prior to tank entry.

- Under circumstances where "hot work" (welding, burning, grinding, etc.) is to be performed in or on the vessel, a test for combustible gases shall be taken. This is referred to as a "flash test."

- In most circumstances, flash tests and oxygen deficiency tests will be performed by the supervisor of the area in which the work is being performed.

- Under any conditions where a possibility (no matter how remote) of toxic vapors being present in the tank to be entered exits, the supervisor will arrange to have the air tested.

- A set of wristlets or a rescue harness and sufficient rope must be present at the job site to effect a rescue. Any other rescue equipment considered necessary must also be on the job site.

- Workers should wear a rescue harness if entering a tank with a large enough opening to easily effect a rescue. In tanks with small openings, only wristlets may be used. However, in cases where there are agitator shafts, containers, or other hazards in which the individual worker's life-line would be entangled and the supervisor in charge feels that wearing the life-line may entrap a person and increase the hazard, the wearing of a harness or wristlets may be eliminated.

- A constant source of fresh air must be provided to ensure a complete change of air every few minutes. In cases of short-term entry for inspection or removal of objects, an air mask is recommended. In cases of long-term entry (generally for repair) the use of an air mover should be considered.

- When a ladder is required to enter a tank, the ladder must be secured and not removed while anyone is in the vessel. In cases where a rigid ladder could become an obstacle, a chain ladder may be used.

- Adequate illumination must be provided.
  - A flashlight or other battery operated light must also be available to provide illumination for a safe exit in the event of an electrical power failure.
  - In any tank used to store flammable liquids, explosion-proof lighting must be used.
- All electrical equipment to be used inside the tank must be in good repair and grounded.
- Others working in the immediate area shall be informed of the work being done and they shall inform the watcher or supervisor immediately of any unusual occurrence which may make it necessary to evacuate the tank.

- The "buddy" (standby observer) system:
  - Personnel working inside a confined space must be under the constant observation of a fully-instructed standby observer.
  - Before anyone enters the tank, the standby observer will be instructed by the person in charge of the entry that:
    - An entry authorization must be obtained from the person in charge by anyone entering the tank.
    - A rescue harness or wristlets must be on the job.
    - The standby observer must know the location of the nearest telephone (with emergency numbers posted); safety eyewash/shower; fire extinguisher; and oxygen inhalator.

- For all "hot work" inside a tank, the standby observer must be instructed how to shut down welding/burning equipment.

- As long as personnel are inside the vessel, the standby observer must remain in continuous contact with the worker. THE OBSERVER IS NOT TO LEAVE THE JOB SITE EXCEPT TO REPORT AN EMERGENCY.

- UNDER NO CIRCUMSTANCES SHOULD THE STANDBY OBSERVER ENTER THE VESSEL. If the worker(s) in the tank becomes ill or injured, the watcher is to put in effect the emergency plan described in the attached Standard Operating Procedure.

- The standby observer still DOES NOT ENTER THE TANK until help is available.

- After being instructed in their responsibilities, the standby observer will sign an instruction form indicating an understanding of its content.

■ Welding and burning within a tank:

▸ All welding and burning equipment must be provided with a shutoff device under the control of the standby observer, and the standby observer must know how to shut off the equipment if it becomes necessary.

▸ Welding and burning equipment will only be taken into a tank immediately prior to its use and must be removed from the tank immediately after the job is finished.

▸ For all "hot work" inside a tank, a properly executed flame permit, if needed, must be displayed at the job site.

- Standard welding and burning safety precautions will always be followed.

PHASE III--REMOVE TANK

- Disconnect and cap all associated piping.
- Disconnect and decontaminate all associated pumping equipment.
- The vessels shall be removed and reused by Safety-Kleen or cut up and sold as scrap.
- If cracks or gaps are evident in the secondary containment, then the surface soil beneath the cracks will be sampled and analyzed for volatile organic compounds, mineral spirits, lead, and cadmium.
- Contaminated soil, if it exists, shall be removed and properly disposed of. An additional work plan to determine the extent of contamination and remediation procedures will be submitted in this case.
- The secondary containment system will be disassembled. The construction materials will be tested with TCLP procedures. If the construction materials are classified as non-hazardous using TCLP, then they will be disposed of as a solid waste in a sanitary landfill. In the event the construction materials are identified as hazardous using TCLP, then the construction materials will be disposed of as a hazardous waste in accordance with RCRA regulations.

PHASE IV--BACKFILLING AND REGRADING

what is the source of previously excavated materials? Where is it stored? Has it been analyzed?

- Backfill any excavation with previously excavated material with proper compaction.
- Add additional backfill with proper compaction if necessary. The material must be clean and easily compacted in place.

- Regrade the site to proper topography.

- Remove and dispose of nonusable debris.

FACILITY CLOSURE SCHEDULE AND CERTIFICATION

- Safety-Kleen may amend the closure plan at any time during the active life of the facility. The active life of the facility is that period during which wastes are periodically received. Safety-Kleen shall amend the plan any time changes in operating plans or facility design affect the closure plan or whenever a change occurs in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

- Within 90 days of receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, Safety-Kleen shall remove from the site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if Safety-Kleen demonstrates that:

  The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

  The following requirements are met:

  - The facility has the capacity to receive additional wastes;

  - There is a reasonable likelihood that a person other than Safety-Kleen will recommence operation of the site;

  - Closure of the facility would be incompatible with continued operation of the site; and

- Safety-Kleen has taken and will continue to take all steps to prevent threats to human health and the environment.

- Safety-Kleen shall complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, whichever is later.

- When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

- When closure is completed, Safety-Kleen shall submit to the certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

INFORMATION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS APPLICATION

FACILITY Safety-Kleen Corporation Tampa, Florida Service Center

REV NUMBER 10

EPA ID NUMBER FLD 980847271

TYPE OF APPLICATION Part B Permit Renewal

PAGE/ PARAGRAPH	REVIEW ITEM	REFERENCE	COMMENTS
	INFORMATION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS. Description of Solid Waste Management Units: A description of each solid waste management unit at the facility including: • Location of the unit on the topographic map required under 270.14(b)(19) • Type of units • General dimensions and structural description (provide drawings, if available) • Dates of operation of the unit • Description of all wastes that have been managed at the unit.	270.14(d)(1)	No changes have been made subsequent to the most recent approved modification to the permit.
	Information Pertaining to Releases: The applicant must provide all available information pertaining to releases of hazardous wastes or hazardous constituents from solid waste management units at the facility.	270.14(d)(2)	FDEP Form 62-730.900(2)(c), pages 44, 45, and 46 are included herein.
	Sampling and Analysis: The applicant must provide the results of sampling and analysis of groundwater, land surface and subsurface strata, surface water, and air which has been conducted at the request of the Department to complete a RCRA Facility Assessment.	270.14(d)(3)	No sampling and analysis for RFA purposes has been performed.

P. Information Regarding Potential Releases From Solid Waste Management Units

Facility name: Safety-Kleen Corp., Tampa Service Center

EPA I.D. Number: FLD 980847271

Location: City Tampa

State Florida

1. Are there any of the following solid waste management units (existing or closed) at your facility? A Solid Waste Management Unit (SWMU) is a discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include all areas at a facility where solid wastes have been routinely and systematically released, as described in the July 27, 1990 Federal Register (55 FR 30798).

NOTE: DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART B APPLICATION

	YES	NO
Landfill		X
Surface impoundment		X
Land farm		X
Waste pile		X
Incinerator		X
Storage tank		X
Container storage area		X
Injection wells		X
Wastewater treatment units		X
Transfer stations		X
Waste recycling operations		X
Land treatment facility		X
Boiler/industrial furnace		X
Other (any units not listed above)		X

2. If there are "Yes" answers to any of the items in 1. above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volumes of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, and location at facility. Provide a site plan if available.

N/A

NOTE: HAZARDOUS WASTES ARE THOSE IDENTIFIED IN 40 CFR PART 261. HAZARDOUS CONSTITUENTS ARE THOSE LISTED IN APPENDIX VIII OF 40 CFR PART 261.

3. For the units noted in 1. above and also for those hazardous waste units in your Part B application, please describe for each unit all data available on all prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or still be occurring.

Please provide the following information:

a. Date of release
b. Type of waste released
c. Quantity or volume of waste released
d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

See Attachment #3 Response

4. In regard to the prior releases described in 3. above, please provide (for each unit) all analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or ground water.

Signature and Certification

The following certification must be included with the submittal of this information. The certification must be signed by a principal executive officer of at least the level of Vice President or by a duly authorized representative of that person.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments. Based on my inquiry of those individuals immediately responsible for obtaining the information, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature

Edward Genovese, Regional Sales Manager
Name and Title (typed)

Tampa Branch Operation
Facility Name

Date: 10/17/96 Telephone: (813) 682-8094

ATTACHMENT #3 RESPONSE

Date		Amount (gal)	
06/30/86	Mineral Spirits Solvent	50	Tank leaked into its secondary containment due to a worn gasket.
10/02/86	Percholoroethylene Waste	10	Drum fell off pallet and drained into the secondary containment.
12/02/87	Mineral Spirits Solvent	10	Hose used to fill drums with product failed to turn off and over filled drum.
04/13/87	Trichloroethylene	2	Punctured drum with a handtruck. Solvent leaked into secondary containment.
08/24/88	Spent Carburetor Cleaner (F002, F004)	10	Pallet hooked onto containers of product and pulled them over when the pallet was moved; solvent spilled into secondary containment.
07/06/93	105 Solvent with green dye	15	Driver failed to open valve; delivery hose burst under pressure.

PART II.R

PROCESS VENTS - SUBPART AA

Subpart AA does not apply to the Tampa facility since the Tampa facility is strictly a storage facility. No process vents associated with distillation, fractionation, thin film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw are present at the facility.

Emissions of volatile organic compounds (VOC) associated with storage, handling, container cleaning and container filling operations are permitted under the provisions of Florida Department of Environmental Protection operating permit AO29-252873. The Tampa facility if classified as a minor source of VOC emissions.

#44/45

Revision 2
Date
Page ___ of ___

APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT
CERTIFICATION
TO BE COMPLETED BY ALL APPLICANTS

Facility Name: Tampa Branch Operation EPA ID# FLD 980847271

1. Operator

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 gathered and evaluated 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. Further, I agree to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department of Environmental Protection. It is understood that the permit is only transferable in accordance with Chapter 62-730, F.A.C., and, if granted a permit, the Department of Environmental Protection will be notified prior to the sale or legal transfer of the permitted facility.

Signature of the Operator or Authorized Representative*

Edward Genovese, Regional Sales Manager
Name and Title (Please type or print)

Date: 10/17/96 Telephone : (813) 682-8094

2. Facility Owner

This is to certify that I understand this application is submitted for the purpose of obtaining a permit to construct, operate, or close a hazardous waste management facility on the property as described. As owner of the facility, I understand fully that the facility operator and I are jointly responsible for compliance with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department of Environmental Protection.

Signature of the Facility Owner or Authorized Representative*

Edward Genovese, Regional Sales Manager
Name and Title (Please type or print)

Date: 10/17/96 Telephone: (813) 682-8094

*Attach a letter of authorization

3. Land Owner

This is to certify that I, as land owner, understand that this application is submitted for the purpose of obtaining a permit to construct, operate, or close a hazardous waste management facility on the property as described. For hazardous waste disposal facilities, I further understand that I am responsible for providing the notice in the deed to the property required by 40 CFR §264.119 and §265.119, as adopted by reference in Chapter 62-730, F.A.C.

Signature of the Land Owner or Authorized Representative*

Edward Genovese, Regional Sales Manager
Name and Title (Please type or print)

Date: 10/17/96 Telephone: (813) 682-8094

*Attach a letter of authorization

DELEGATION OF AUTHORITY TO SIGN AND CERTIFY FACILITY PERMIT APPLICATIONS

I, David A. Dattilo, hereby delegate to Safety-Kleen Corp. Divisional Sales Vice Presidents and Regional Sales Managers the authority to sign and certify permit applications and to sign and certify reports for facilities under their respective management responsibility which are submitted on behalf of Safety-Kleen Corp. pursuant to the following provisions:

(1) Section 3005 of the Resource Conservation and Recovery Act (42 U.S.C. § 6925), 40 C.F.R. § 270.11, and their counterparts under state statutes and regulations;

(2) Section 402 of the Clean Water Act (33 U.S.C. § 1342), 40 C.F.R. § 122.22, and their counterparts under state statutes and regulations; and

(3) the Clean Air Act, 42 U.S.C. § 7401 et seq., 40 C.F.R. § 70.5, and their counterparts under state statutes and regulations.

Dated: 1/3/95

David A. Dattilo
Sr. Vice President-Sales and Service
Safety-Kleen Corp.
1000 North Randall Road
Elgin, Illinois 60123-7857

RECEIVED
SEP 11 1995
O.E.P. South District

4. **Professional Engineer Registered in Florida** [Complete when required by Chapter 471, F.S. or not exempted by Rule 62-730.220(7), F.A.C.]

This is to certify that the engineering features of this hazardous waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly constructed, maintained and operated, or closed, will comply with all applicable statutes of the State of Florida and rules of the Department of Environmental Protection.

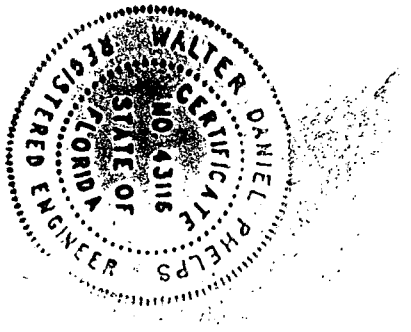
Signature

W. D. Phelps
Name (please type)

Florida Registration Number: 43116

Mailing Address: Delta Environmental Consultants, Inc.
5401 W. Kennedy Blvd, S-400
Street or P.O. Box

Tampa, FL
City State Zip

Date: 10/18/96 Telephone(813) 289-5218

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