STORAGE FACILITY

PERMIT APPLICATION

SAFETY-KLEEN CORP. SERVICE CENTER

MOKENA, ILLINOIS

ILD000665851

Prepared by: SAFETY-KLEEN CORP.
August 12, 1986
Revised: April 28, 1990

CONTENTS

Section	Page
1.0 FACILITY DESCRIPTION	1
Abstract	1
1.1 Description of Business Activity	3
1.1.1 Parts Cleaner Service	4
1.1.2 Dry Cleaner Service	5
1.1.3 Paint Waste Collection Service	6
1.2 Description of the Facility	7
1.2.1 Regional Description	7
1.3 Waste Management Practices	10
1.3.1 Requirements for Tanks	
1.3.2 Requirements for Containers	
2.0 WASTE ANALYSIS PLAN	13
Abstract	13
2.1 Description of Wastes	14
2.1.1 Wastes Resulting from the Parts Washer Service	14
2.1.2 Wastes Resulting from the Dry Cleaner Service	16
2.1.3 Paint Wastes	16
2.2 Quality Control Procedures	17
2.2.1 Parts Washer Service	18
2.2.2 Dry Cleaner and Paint Waste Collection Services	20
2.3 Waste Analysis at the Recycle Center	20
2.4 Waste Analysis Plan Update	22
3.0 PREPAREDNESS AND PREVENTION PLAN	23
Abstract	23
3.1 Security Measures	24
3.2 Inspection Procedures	25

3.3 Facility Design 28

3.3.1 Tank Storage 28
3.3.2 Drum Storage 29

3.4 Plant Operations -- Potential Spill and Fire Sources and Control Procedures 31

3.4.1 Potential Minor Spill Sources 31
3.4.2 Potential Major Spill Sources 33
3.4.3 Potential Fire Sources 34
3.4.4 Tank Evaluation and Repair Plan 35
3.4.5 External Factors 36

3.5 Internal and External Communications and Alarm System 37

4.0 CONTINGENCY PLAN 39

Abstract 39

4.1 Purpose 39

4.1.1 Description of Facility Operations 39

4.2 Emergency Coordinator Responsibilities 39

4.2.1 Responsibilities During an Emergency 40
4.2.2 Remedial Action Responsibilities 41
4.2.3 Reporting Responsibilities 42
4.2.4 Chain of Command 44
4.2.5 Government Agencies and Local Authorities to be Notified 44

4.3 Emergency Response Procedures 45

4.3.1 Minor Spills 45
4.3.2 Major Spills 47
4.3.3 Fire Control Procedures 49

4.4 Evacuation Plan 51

4.5 Arrangement with Emergency Response Contractors 51

4.6 Pollution Incident History 51

4.7 Implementation Schedule 52

4.8 Availability and Revision of the Contingency Plan 52

5.0 PERSONNEL TRAINING 54

Abstract 54

5.1 Outline of Training Program 55

5.2 Organization Structure and Job Descriptions 55

5.2.1 Branch Manager 55
5.2.2 Environment, Health and Safety Department 56

5.3 Description of the Training Program 58

5.3.1 Training of New Branch Managers 59
5.3.2 Training of New Branch Secretaries 59
5.3.3 Training of New Sales Representatives 60
5.3.4 Training of New Warehousemen 60
5.3.5 Annual Training 61

5.4 Training Records 61

6.0 CLOSURE PLAN 62

Abstract 62

6.1 Purpose 63

6.2 Underground Tank and Associated Piping 63

6.2.1 Opening of the Tank and Removal of the Waste Material 64
6.2.2 Removal of Residual Waste and Cleaning of the Tank 65
6.2.3 Removal of the Tank 69

6.3 Drum Storage Area in Warehouse 69

6.4 Solvent Return and Fill Station 70

6.5 Paint Waste Shelter 71

6.6 Soil Sampling Procedures 71

6.7 Facility Closure Schedule and Certification 71

APPENDICES

A PART A APPLICATION

B PROCESS FLOW DIAGRAMS

Safety-Kleen Solvent Use and Regeneration Loop
Unit Process for the Handling of Spent Mineral Spirits

Unit Process for the Handling of Spent Immersion Cleaner, Dry Cleaning Waste and Paint Waste

C MAPS AND FACILITY DRAWINGS

Wind Rose
USGS Topographic Map
Topographic Map-Aerial Photo with Contour Lines
100-year Flood Plain Map
Property Map Showing Sanitary Sewer Line
Zoning Map
Public Groundwater Supplies Map Showing Stratigraphic Units (2 pages)
Site Plan
Floor Plan
Container Storage Area
Paint Waste Storage

D ANALYTICAL DATA

Analyses of Spent Mineral Spirits (1 page)
Analyses of Mineral Spirits Dumpster Sediment
Analyses of Spent Immersion Cleaner (4 pages)
Analyses of Dry Cleaner Still Bottoms (3 pages)
Analyses of Dry Cleaner Filter Residue (3 pages)
Analyses of Paint Wastes (3 pages)
Mineral Spirits Specifications
Immersion Cleaner Specifications
Dry Cleaner Perchloroethylene Specifications
Lacquer Thinner Composition
Information on Analyses Performed at Recycle Centers (4 pages)

E EQUIPMENT INFORMATION

Facility Inspection Record and Procedure
Emergency Equipment List
Cleanup Material and Equipment List
Tank Fabrication Details
Tank & Shelter Plan
Process Flow Diagram
Tank Installation Details
High Level Alarm System Installation Details (D 11533)
High Level Alarm System Installation Information (D 11534)
Return and Fill Shelter Diagram (D 10351)
Concrete Construction Details (D 11322)
Steel Drum Construction Details (4 pages)
Dry Cleaning Drum Construction Details (3 pages)
Paint Waste Container Specifications
Dumpster Specifications (D 10450)
Wet/Dry Vacuum System (C 11355)
Eye Wash Fountain (C 10246)

F EMERGENCY INFORMATION

Emergency Information for Service Center
Employees' Functions During an Emergency
Evacuation Plan
Letters to Local Authorities (3 pages)
Safety-Kleen Corporate Policies on Safety and Emergency Response (14 pages)
Spill Report Telephone Log

G TRAINING INFORMATION

Organization Charts
List of Service Center Employees
Job Descriptions (5 pages)
Trainer Resumes (11 pages)
Training Plan Outlines (5 pages)
Training Record Forms (11 pages)

H FINANCIAL REQUIREMENTS

Closure Schedule
Closure Cost Estimate (4 pages)
Financial Assurance Documentation (18 pages)
Certificate of Liability Insurance
Safety-Kleen 1987 Annual Report

I TANK ASSESSMENT

FACILITY DESCRIPTION

ABSTRACT

CORPORATE HEADQUARTERS:	Safety-Kleen Corp. 777 Big Timber Road Elgin, IL 60123 708/697-8460
RESPONSIBLE OFFICIAL:	David A. Dattilo Vice President, Sales and Service Scott E. Fore Vice President, Environment, Health and Safety
FACILITY ADDRESS:	Safety-Kleen Corp. (5-034-05) 9631 W. 195th Place Mokena, Illinois 60448
TELEPHONE NUMBER:	708/479-1064
U.S. EPA I.D. NUMBER:	ILD 000665851
ILLINOIS I.D. NUMBER:	1970600001
GEOGRAPHIC LOCATION:	41° 32′ 42″ N 087° 51′ 09″ W
OWNER:	Brauvin Fund L.P.I. 40 Simborg Industrial Real Etate 2400 West Sibley Blvd. Posen, IL 60469
DATE OPERATIONS BEGAN:	October 1, 1977

DESCRIPTION OF ACTIVITIES: This facility is an accumulation point for spent solvents generated by customers of Safety-Kleen, the majority of whom are small quantity generators. All solvent wastes are ultimately shipped to a Safety-Kleen recycling facility or to a contract reclaimer and are then returned to the Company's customers as product.

PROPERTY DESCRIPTION: 0.8 acres with the following structures:

a. one building with offices and a warehouse for container storage

b. two underground storage tanks (one for product and one for spent solvent);

c. one loading dock with a solvent return and fill station; and

d. an enclosed shelter to be used for container storage (these wastes may be held on a ten day transfer basis, in accordance with 35 Ill. Adm. Code 723.112).

FACILITY TYPE: Storage in an aboveground tank (S02) and in containers (S01)

STORAGE UNIT	CAPACITY (GAL.)	SECONDARY CONTAINMENT(GAL.)	MATERIAL TO BE STORED
Tank	12,000		Spent mineral spirits solvent (D001, D006, D008)
Container Storage--Warehouse	2,080	209	Dumpster Sediment (D001, D006, D008) Spent immersion cleaner (F002, F004) Dry cleaning waste (F002)

1.0 FACILITY DESCRIPTION

1.1 DESCRIPTION OF BUSINESS ACTIVITY

Safety-Kleen Corp. is an international service-oriented company whose customers are primarily engaged in automotive repair, industrial maintenance and dry cleaning. The company has been operating since 1968 offering solvent collection and reclamation services for its 400,000 customers, more than 99% of whom generate less than 1000 kilograms (2200 pounds) per month. In 1989, Safety-Kleen reclaimed more than 40 million gallons of spent solvent.

Currently, Safety-Kleen offers five services, three of which involve the accumulation and storage of spent solvent at 164 service centers in 46 states. These wastes are shipped from the service centers to one of seven Safety-Kleen recycle centers or an independent reclaimer and then returned to customers as usable product. A description of each of these three services follows.

1.1.1 Parts Cleaner Service

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 16 or 30 gallon drum containing Safety-Kleen 105 Solvent (mineral spirits). On a regularly scheduled basis, a Safety-Kleen sales representative cleans and inspects the parts washer machine and replaces the drum of used solvent with one of clean product. Each sales representative performs about fifteen of these services per day, collecting the drums of used solvent on a route van.

At the end of each day, the solvent is transferred from the drums to a storage tank at the service center and drums 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. Two-thirds of the solvent used by Safety-Kleen customers has been reclaimed with the remainder being purchased from a vendor.

Safety-Kleen has also established a parts cleaner service for users who own their machines. This service, known as the Customer Owned Machine 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 sixteen gallon drum containing a chlorinated solvents/cresylic acid blend. The spent solvent remains in the drum 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 drums of fresh solvent and collect the drums of spent solvent for reclamation.

A unique feature of this system is that Safety-Kleen retains ownership of the parts cleaning machines and the solvent. This "closed loop" system allows the Company to maintain control of the solvent except while it is in use at the customer's place of business.

1.1.2 Dry Cleaner Service

In 1984, Safety-Kleen began offering a service for the collection of filter cartridges and still bottoms contaminated with dry cleaning solvents (usually perchloroethylene). These wastes are drummed on the customer's premises and are periodically collected by a sales representative. The drummed waste is accumulated in a contained area of the warehouse for shipment to a Safety-Kleen recycle center. About 35% of this waste is returned to dry cleaners as usable product.

1.1.3 Paint Waste Collection Service

In 1986, a paint waste reclamation program was initiated to service automobile body repair businesses. Wastes containing various thinners and paints are collected in five gallon pails and sixteen gallon drums on the customer's premises. The sales representative collects these containers and stores them in an enclosed metal shelter which is separated from the office/warehouse by 25 feet. These wastes are periodically shipped to a reclaimer and the regenerated solvent is

distributed to Safety-Kleen customers for use as product. This waste will be held on a 10-day transfer basis, in accordance with 35 Ill. Adm. Code 723.112.

1.2 DESCRIPTION OF THE FACILITY

The Mokena service center has been operating as a storage facility since October 1, 1977. The facility operates Monday through Friday, from 7:00 A.M. to 6:00 P.M. and consists of the following structures:

a. a 3,600 square foot building with offices and a warehouse for drum storage;

b. two 12,000 gallon underground storage tanks for clean and spent solvent;

c. a solvent return and fill station with a loading dock; and

d. an enclosed metal shelter for the storage of containerized paint waste.

Descriptions of the surrounding area and of waste management practices at the service center follow. Applicable maps and facility drawings are in Appendix C.

1.2.1 Regional Description

The Mokena service center is located in Will County, on 194th Place, about 1 1/4 miles south of the interchange of Route 45 and I-80. This area

is zoned for industrial use and to the best of Safety-Kleen's knowledge, no easements or title, deed or usage restrictions exist which may be in conflict with the operations at this site.

Will County has a population of about 365,000 with approximately 4900 living in Mokena. The climate is cold in the winter and warm in the summer; average daily temperatures are 27° F in the winter and 68° F in the summer. Average annual rainfall is 34 inches and average annual snowfall is 36 inches.

The service center is located in the Frankfort Series Soil Association. This association consists of nearly level to moderately sloping soils. The soils are somewhat poorly drained, dark gray and brown silty clay loam. Overburden is generally 200 feet thick. Site drainage runs to the municipal storm sewers at the facility. The elevation of the facility is 712 feet above sea level. The service center is not located in the 100-year flood plain (Flood Plain Map, Appendix C). The container storage area is located indoors, therefore, run-on will not occur.

The service center is supplied with water by the Citizens Utilities Company. A distribution map is included in Appendix C. Sanitary sewers are also provided by the Citizens Utilities Company. The village of Mokena obtains its drinking water from four wells located more than 1/4 mile west of the facility. There are no schools or municipalities using private wells within 1/4 mile of the facility. The Arbury Hills housing development directly across Route 45 from the facility also utilizes the Citizens Utilities Company. The available well logs are provided in

Appendix C. The nearest known well is greater than one half of a mile east of the facility.

The non-building areas of the facility are paved with asphalt, concrete or gravel, as noted on the site plan in Appendix C. The majority of the vehicular traffic and loading/unloading operations occur at and near the return and fill station and this area is paved with asphalt and concrete. The entrance to the facility is on 194th Place. The access road was designed in accordance with engineering criteria appropriate for sustaining commercial and industrial activities in this area. City ordinances require a 5 ton weight capacity for trucks and 194th Place meets this standard. The eleven route vans that daily travel the routes between the service center and its customers use the approach driveway. They exit the facility in fifteen minute intervals at the start of the day containing a maximum of 30-40 drums and enter in the evening with a maximum of 30-40 drums. The trucks dispatched from the recycle center to deliver and pick up fresh and used solvent perform these activities at the tank area and at the overhanging doors of the drum storage area.

The tanker truck visits the facility approximately once every two weeks. A box trailer truck picks up approximately 80 drums of dry cleaning waste once per week and a box trailer truck picks up approximately 75 drums of immersion cleaner once every three weeks. A box trailer will pick up wastes from the 10-day transfer station about once per week. The trucks generally enter the facility from Route 45 on 191st Street (north of the service center), deliver and pick up fresh and used solvent, and exit the facility on 195th St. (south of the service center) onto Route 45. The

trucks move in a counter-clockwise direction around the service center. Both 191st Street and 195th Street have traffic control lights at the intersection with Route 45.

There are no critical habitats, wetlands, parks or schools within one quarter of a mile of the facility.

1.2.2 Waste Management Practices

The Mokena service center was designed to facilitate the handling and storage of the wastes resulting from the services offered by Safety-Kleen. The underground storage tanks, drum storage area, return and fill station, and the paint waste shelter all have secondary containment and the service center has the equipment necessary for employees to safely manage wastes onsite. Appendix C contains drawings of the waste management facilities.

Spent mineral spirits from parts washers is accumulated in a 12,000 gallon underground storage tank via the return and fill station. Sixteen and thirty gallon drums containing seven and twelve gallons of spent solvent, respectively, are poured into the dumpsters in the return and fill station, and material in the dumpster is pumped into the storage tank for spent solvent. There are two 375 gallon carbon steel dumpsters used in the unloading operation. The return and fill station has secondary containment in the form of a 20′ x 16.65′ x 0.5′ (1,998 gallons) concrete curb and slab at its base. There is an automatic feed cut-off in place in the dumpsters to prevent tank overfill. The

dumpsters are left open long enough to enable the solvent and solvent residuals to be pumped to the tank. The dumpsters will then be closed and the overhead doors will be locked. The dumpsters are cleaned out at least once per month.

Loading/unloading lines are equipped with camlock valves, and check valves are installed in the lines to prevent the accidental backflow of tank contents. The hose couplings are located above the concrete slab and curb of the return and fill shelter (secondary containment volume of 1,998 gallons). The concrete slab is located below the connection of the tank fill line and tank truck hose to contain any drips that result from disconnecting the tanker hose. Each compartment of the tank truck holds a maximum of 2,500 gallons. During loading and unloading operations, the truck driver is always present. In the event that a leak occurs, the truck driver will immediately stop the flow. Personnel remove the contents of the secondary containment each day to keep them empty.

The return and fill station is grated to allow liquids to drain to the secondary containment, in the form of a 20' x 16.65' x 0.5' concrete slab and curb at its base, which can hold 1,998 gallons. Liquid which accumulates in this area can be cleaned up using the wet/dry vacuum cleaner, drummed and emptied into the wet dumpsters, and then pumped into the used solvent storage tank.

Requirements for Tanks

The underground tanks have been designed in accordance with NFPA standards and are located more than 20 feet from the property lines, as indicated on the Site Plan in Appendix C. One tank holding 12,000 gallons is for clean mineral spirits and one tank holding12,000 gallons is for used mineral spirits. The 12,000 gallon tank is 10' 6" in diameter and 18' 11 15/16" long. The tanks are constructed of carbon steel and painted white to reflect sunlight and inhibit corrosion. Each tank is equipped with a level gauge and an audiovisual high level alarm, which will alert employees when the tank is approximately 600 gallons from being full. Diagrams of the tank and piping are included in Appendix E. Tanks are provided with both normal and emergency venting.

Requirements for Containers

There are two storage areas for containers at this facility. The container storage area in the warehouse is used for the storage of immersion cleaner, dry cleaning wastes and dumpster sediment. Paint wastes are stored in the metal shelters.

The container storage area in the warehouse is used only for the storage of (1) spent immersion cleaner, (2) dry cleaning wastes and (3) dumpster sediment. It is located more than 20 feet from the property lines, as indicated on the Site Plan. A fan located on the western end of the warehouse is operated for ventilation purposes. The wastes are not mixed while on site and different wastes are segregated in

color-coded drums to indicate their contents: immersion cleaner in gray sixteen gallon drums, dry cleaning waste in blue thirty and twenty and black sixteen gallon drums with blue lock rings, and dumpster sediment in red sixteen gallon drums. While the wastes are not incompatible with one another, it is necessary to segregate them for inventory and quality control purposes. A three foot aisle space is maintained in the warehouse. Twelve inches will be maintained between pallets and six inches for an inspection aisle between the walls of the building and the containers.

The containers are stored in the configurations shown on the Container Storage Area Plan in Appendix C. Three feet of aisle space is maintained and the drums will be stored no more than two high. Containers which are not shrink wrapped will have a pallet placed between layers when stacked two high to provide additional stability. Containers are transported on pallets or individually. Palletized wastes are wrapped in plastic shrink wrap and moved using a forklift or pallet jack. Individual drums are moved within the facility using a handcart. Containers must be kept closed during storage, except when adding, removing or sampling waste.

The drum storage area has secondary containment in the form of two 7' x 1' x 2' grated trenches with a 209 gallon capacity. No more than 2,080 gallons of spent solvents will be stored in the drum storage area at any time. Thus, the secondary containment has the capacity to hold 10 percent of the wastes stored.

Ignitable wastes (paint wastes and fluid recovery wastes) are stored in five gallon metal pails, sixteen gallon drums, and 55-gallon drums in the metal shelter, which is located more than 25 feet from the property boundaries as indicated on the Site Plan. Paint wastes will be stored in black five and sixteen gallon drums and fluid recovery wastes in fifty-five gallon drums. They are unloaded from the Safety Kleen service vans using a handcart and hoist, if necessary. The containers will be palletized and stored in the enclosed Metal Shelter Plan shown in Appendix C. Three feet of aisle space will be maintained and the drums will be stored no more than two high. Twelve inches will be maintained between pallets, and six inches for an inspection aisle between the walls of the building and the containers.

The metal shelter has secondary containment in the form of a 20′ x 15′ x 0.5′ (1,122 gallons) metal pan at its base; no more than 2,184 gallons will be stored at any given time. Thus, the secondary containment has the capacity to store wastes well in excess of the required 10 percent.

WASTE ANALYSIS PLAN

ABSTRACT

Waste Description	EPA Waste Code Nos.	Facility Capacity[1]	Annual Amount[2]
Spent Mineral Spirits	D001, D006, D008	12,000	288
Bottom Sediment From the Tank	D001, D006, D008	N/A	2
Dumpster Sediment	D001, D006, D008		2
Spent Immersion Cleaner	F002, F004	2,080[3]	10
Dry Cleaning Waste	F002		20
Paint Waste	D001, D006, D007, D008, F003, F005		42

1 The facility capacity is in gallons.
2 The annual amount is in thousands of gallons.
3 The total amount of drummed waste stored in the warehouse will not exceed 2,080 gallons.

2.0 WASTE ANALYSIS PLAN

2.1 DESCRIPTION OF WASTES

Six types of waste result from the servicing of Safety-Kleen customers and the maintenance of the service center. Analytical data for the wastes and specifications for the products are in Appendix D and qualitative descriptions follow.

2.1.1 Wastes Resulting From the Parts Washer Service

Spent mineral spirits from parts washers is accumulated in a 12,000 gallon underground storage tank via the return and fill station. Sixteen and thirty gallon drums containing seven and twelve gallons of solvent, respectively, are poured into a dumpster at the return and fill station which in turn empties into the tank. This waste handling method results in three types of mineral spirits waste:

a. Spent mineral spirits solvent--The spent mineral spirits solvent is removed from the tank by a tanker truck on a scheduled basis. About 6000-7000 gallons are removed every two to three weeks. This waste is ignitable (D001) and EP Toxic (D006 and D008). In 1989, the Urbana service center shipped over 225,000 gallons of spent solvent to the Safety-Kleen recycle center in Elgin, IL.

b. Bottom sediment in the tank--Approximately once every two years, it is necessary to remove sediment and other heavy material from the bottom of the tank. A Safety-Kleen vacuum truck is used for this purpose and can collect up to 4000 gallons of this waste for reclamation. The sediment is ignitable (D001) and EP Toxic (D006 and D008).

c. Dumpster sediment--Sediment also accumulates in the bottom of the dumpsters in the return and fill station. This sediment is removed manually with a shovel, drummed and the drums are stacked two-high in the drum storage area of the warehouse. About ten gallons is stored in each sixteen gallon drum and the drum is color-coded (red) to indicate its contents. The chemical composition of this waste is analogous to that of the bottom sediment from the tank. In 1989, 2,000 gallons of this waste were shipped to Safety-Kleen's Elgin, Illinois recycle center for reclamation.

Immersion cleaner remains in the drum in which it was originally used until it is received at the recycle center. Drums containing about four and one-half gallons of spent solvents are stacked two-high in the drum storage area of the warehouse. The immersion cleaner contains chlorinated solvents (F002) and cresylic acid (F004) and the drums are color-coded gray. "The I/C Incoming Composite Analysis" in Appendix D is the immersion cleaner incoming analysis. In 1989, about 8,000 gallons of

these solvents were shipped to the Elgin, Illinois recycle center for reclamation.

2.1.2 Wastes Resulting From the Dry Cleaner Service

Dry cleaning wastes consist of spent filter cartridges, powder residue from diatomaceous or other powder filter systems and still bottoms. These wastes are packaged on the customer's premises in black sixteen and blue thirty and twenty gallon drums with blue lock rings. The drums are then palletized, stacked two-high and placed in the drum storage area of the warehouse. While approximately 80% of the dry cleaning solvent used is perchloroethylene (F002), about 17% is mineral spirits, (D001) and the remaining 3% is trichloro-trifluoroethane (F002). In 1989, about 15,000 gallons of dry cleaning wastes were shipped to the Safety-Kleen recycle center in Hebron, Ohio.

2.1.3 Paint Wastes

Paint wastes consist of various lacquer thinners (D001, F003, and F005) and paints (D006, D007 and D008). The waste is collected in black five gallon pails and sixteen gallon drums at the customer's place of business and the containers are then palletized and stored in an enclosed metal shelter. It is anticipated that this facility will ship 35,000 gallons of paint waste to a reclaimer annually. The paint wastes will be held on a ten day transfer basis in accordance with 35 Ill. Adm. Code 723.112.

2.2 QUALITY CONTROL PROCEDURES

The used 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. The service center collects spent solvents from more than 2,500 customers, most of whom are small quantity generators, and more than 25,000 drums containing recoverable solvents are returned to the service center each year for shipment to a reclaimer. With such large numbers of waste generators and waste shipments, performing detailed analyses at the service center is economically and logistically infeasible.

Furthermore, as discussed earlier in the Facility Description, all the materials collected at the service center are managed at all times in the closed loop system and 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 materials before returning them to the service centers. This mode of operation has been proven to safeguard the recycling process and maintain a quality product.

In accordance with Ill. Adm. Code 724.113, however, Safety-Kleen will 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 collected does not match that designated. 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.

2.2.1 Parts Washer Service

Prior to leasing a parts cleaning machine, the customer's business activity is reviewed. Where the possibility exists for contamination of the mineral spirits (e.g., pesticide, herbicide or pharmaceutical operations), the process is reviewed to insure that the solvent is protected from the sources of contamination.

Sales representatives are instructed to visually examine the spent solvents when the machines are serviced, noting the quantity, odor and appearance of the material recovered:

a. The quantity of used solvent in the drum--Normally the 16-gallon drum of spent mineral spirits contains approximately 7 gallons of liquid, the 30-gallon drum about 12 gallons and the 16-gallon drums of spent immersion cleaner about 4.5 gallons. When the amount of liquid is substantially different from the expected quantity, an inquiry of the customer's operation and

handling procedures is made. Contingent on the customer's responses, the solvent is left with him or accepted. Should there still be questions as to the drum's contents, an analysis is required to determine its acceptability.

b. The odor of the liquid in the drum--Should the odor of the liquid in the drum be different from that of the mineral spirits or immersion cleaner, the drum is set aside for further action as described in item a.

c. The appearance of the liquid in the drum--The used mineral spirits should always be greenish-brown in color and float on water. The immersion cleaner is a two phase system consisting of an upper moderately alkaline water layer (20% by volume) and a lower solvent layer (80% by volume). Spent immersion cleaner should have a dark brown aqueous layer on top and the solvent should also be dark brown. Liquids in the drums which deviate from the above descriptions or which contain substantial amounts of water, high density solvent and/or oil at the bottom should be set aside for further action as described in item a.

At the service center, the sales representative or the warehouseman again observes the quantity, odor and appearance of the solvent prior to emptying the solvent into the wet dumpster. Drums with questionable contents are set aside and the customer is questioned. Pending his

response, the drum is accepted, returned to the customer, or properly disposed of at the customer's expense. The immersion cleaner drums are never opened at the service center so additional verification is not possible until it reaches the recycle center.

2.2.2 Dry Cleaning and Paint Waste Collection Services

The dry cleaning and paint wastes are collected from facilities where one process is managed and the possibility of cross-contamination from other chemicals or wastes is minimal. The contents of the drums are verified by the sales representative when he services the customer and, comparable to the handling of immersion cleaner, the drums are not reopened until they reach the recycle center.

2.3 WASTE ANALYSES AT THE RECYCLE CENTER

Analyses performed at the Safety-Kleen recycle centers are undertaken to safeguard the recycling process and to assure the product quality. The following tables in Appendix D summarize a typical waste analysis plan practiced at the recycle center for the hazardous materials returned from the service center:

Table D-1	Parameters and Rationale for Hazardous Waste Selection
Table D-2	Parameters and Test Methods
Table D-3	Methods Used to Sample Hazardous Wastes
Table D-4	Frequency of Analysis

A profile of the paint waste is in Appendix D. It will be reanalyzed when the reclaimer to whom it is shipped requests reanalysis or when a change in the use of the product occurs.

An annual update analysis will be completed off-site for each waste stream. A copy of the current analyses will be kept as part of the operating record of the Urbana service center.

2.4 WASTE ANALYSIS PLAN UPDATE

This waste analysis plan will be modified when a new waste product is collected or when sampling and material management methods change. Revision of the plan is the responsibility of the Environment, Health and Safety Department at Safety-Kleen's Corporate Office in Elgin, Illinois.

PREPAREDNESS AND PREVENTION PLAN

ABSTRACT

SECURITY MEASURES--The site is secured as follows:

a. There is a chain link fence with three strands of barbed wire around the facility.

b. Warning signs are posted at all entrances.

c. Locks are on all entrances to the warehouse and on the metal shelter.

d. Remote controls for all tank operations are inside the warehouse.

e. There is twenty-four hour outdoor lighting.

INSPECTION PROCEDURES: See Appendix E for a copy of the Facility Inspection Report.

REQUIRED EQUIPMENT--The emergency equipment requirement is met with the following:

a. Internal communications will be by voice and by a paging system.

b. Telephones are available in the office, warehouse, and the return and fill station. Locations are specified on the floor plan.

c. Fire extinguishers are available next to three exits in the warehouse and at the metal shelter for paint waste storage.

d. Water is available from a municipal supply.

3.0 PREPAREDNESS AND PREVENTION PLAN

3.1 SECURITY MEASURES

The facility is secured with a six foot high chain link fence topped by three strands of barbed wire. All access gates are locked when the facility is unoccupied and warning signs stating "Danger - Unauthorized Personnel Keep Out" which are visible from twenty-five feet are posted at the entrances. In addition, outdoor lights remain on at all times.

The office/warehouse building is secured with locks on all doors and warning signs are posted at all entrances to work and waste storage areas.

The tanks are inaccessible in that material can not be added to or removed from them without activating the pumps, the controls for which are inside the warehouse. The pumps are not activated unless mineral spirits product or waste is being added to or removed from the tanks by Safety-Kleen personnel. In addition, warning signs are posted on the return and fill station.

The overhead door to the ignitable waste shelter will be closed and locked unless containers are being added to or removed from the shelter. Warning signs are also posted on the shelter.

3.2 INSPECTION PROCEDURES

The branch (i.e., service center) manager or his designate is responsible for carrying out and documenting the facility inspection (Appendix E) on a daily basis. He must note any repairs that are needed and assure that they are completed. If he can not carry out the repairs himself, he must notify the Technical Services Department at Safety-Kleen's corporate headquarters and request assistance. Completion of repairs must also be noted on the Facility Inspection Report.

The regional manager is the supervisor of several branch managers in a geographic area. He must review the Facility Inspection Reports on a quarterly basis to insure that they are properly completed and that any necessary repairs have been effected.

The facility inspection includes the following:

a. Tank inspections--At a minimum, the tanks holding the solvent product and spent solvent are inspected daily. The inspections include checks of the high level alarms and of the volume held in each tank. Sudden deviations in the solvent volumes will be investigated and their causes determined. If necessary, repairs must be initiated immediately. When the tank used to store spent solvent is 85% full, a pickup must be scheduled with the Solvent Control Department in Safety-Kleen's corporate

headquarters. The solvent must not exceed 95% of the tank volume at any time.

b. Material dispensing equipment--The solvent dispensing hoses, connections and valves must be inspected for damage (such as cracks or leaks) and proper functioning. Any material in the hoses must be drained after use. The pumps, pipes and fittings must also be checked for damage and proper functioning. Any damage to the solvent dispensing equipment must be noted and repaired.

c. Drum storage areas--Drum storage areas are inspected daily and the number and condition of the drums noted. The total volume of the spent solvent held in a drum storage area must not exceed ten times the amount that can be collected in the secondary containment system. The contents of any leaking or suspect drums must be placed in a drum of adequate integrity. Finally, the drums must be properly labeled and marked in accordance with U.S. DOT and Illinois hazardous waste regulations. The secondary containment system must be inspected for deterioration or failure. If cracks or leaks are detected, they must be repaired immediately.

d. Route vehicles--Each route vehicle must be inspected daily to insure the proper operation of its brakes, lights, turn signals, emergency flashers and wipers. In addition, the

necessary safety equipment must be on board: sorbents, fire extinguisher, eye wash, first aid kit, reflector kits, rubber gloves, plastic aprons, and safety glasses. Any missing equipment must be replaced.

e. Dumpsters--The wet dumpsters (in the return and fill station) must be inspected daily for leaks and sediment buildup. Any leaks must be noted and repaired immediately and excess sediment must be removed from the dumpster. The dry (trash) dumpster must be inspected to insure that no liquids are being placed in it.

f. Safety equipment--The fire extinguishers must be checked to insure that the units are charged and accessible. In addition, the operation of the eyewash must be confirmed and the first aid kit and sorbents must be inspected for adequate content and accessibility. A list of required emergency equipment is in Appendix E.

g. Security--The operation of each gate and lock must be checked daily. In addition, the fence must be inspected for deterioration on a weekly basis.

h. Regular cleanup procedures, include garbage pick-up, sweeping, and mopping.

3.3 FACILITY DESIGN

The Mokena service center was designed to minimize the possibility of spills or fires and to minimize the effects of any accidents which may occur. Specifications for the storage facilities, secondary containment and other equipment are in Appendix E and descriptions follow.

3.3.1 Tank Storage

The 12,000 gallon storage tank is 10' 6" in diameter and 18' 11 15/16" long. The tanks are constructed of 1/4" thick carbon steel. The tanks are constructed in accordance wtih Underwriters Laboratories Standard 142 and are located more than 20 feet from the property line, in accordance with National Fire Protection buffer zone requirements. The tank system will be leak tested annually until a system meeting the secondary containment requirements of I.A.C. 724.293 is installed.

The tanks are equipped with an aural (siren) and visual (strobe light) high level alarm system which will alert employees when the tank is approximately 600 gallons from being full.

The return and fill station is a sheet steel structure as are the dumpsters. The dumpsters are tight-piped to the tank.

Loading and unloading controls are as follows:

Mineral Spirits Loading/Unloading

According to Section 3.4.1, connections are constructed with camlock valves to provide a leakproof connection between the tank fill line and tank truck hose. The tank fill line is equipped with a check valve to eliminate the potential for backflow from the tank.

Used Mineral Spirits Loading

There is an automatic feed cutoff in place in the dumpsters to prevent tank overfill.

Tanks are designed to meet "Underwriters' Laboratories" requirements. UL 142, Sixth Edition, 1987, states that tanks provided with a manway shall also have a vent opening in the top of the tank for normal venting. The size of the opening for 12,000 gallon tank must have a minimum diameter of 2-1/2 inches. According to the Vertical Tank Fabrication Details Drawing (D11124), the tanks are provided with emergency relief venting and four 6-inch portholes for normal venting.

3.3.2 Drum Storage

The slab, curbing and collection trenches for the drum storage area in the warehouse are made of steel-reinforced concrete and the concrete was poured so that no cracks or gaps exist between them. The curbing is four inches high and six inches wide and encompasses the storage area except where there is a trench. Steel grates cover the trench to facilitate the movement of drums across it. This secondary containment

prevents any runoff to offsite areas and contamination of groundwater from occurring. Construction specifications were for a flat, level surface and the floor of the drum storage area will be coated with an epoxy-type sealant. The curb is also sealed, thus prohibiting spilled material from seeping through it. Liquids resulting from a spill in the drum storage area will generally flow toward the collection trench and any liquid not in the trench may be cleaned up using sorbent pads.

The ignitable waste shelter and its secondary containment are constructed of sheet steel and it is painted light colors (white and beige) to reflect sunlight. The secondary containment prevents runoff from travelling offsite and contamination of groundwater from occurring. An overhead door secures the shelter when drums are not being added to or removed from it. It is more than 25 feet from any of the property lines. The secondary containment at the ignitable liquids storage shed consists of a 20' x 15' x 0.5' metal pan at the base of the shelter. The paint waste shelter is inspected daily. Because the waste containers are on an elevated, steel grate, liquid in the secondary containment pans is readily observable. If liquid is noted in the secondary containment, it will be immediately removed using a sorbent, disposed into drums, and treated as hazardous waste.

The mineral spirits, immersion cleaner, dry cleaning waste and paint wastes are compatible with the containers in which they are stored; in fact, mineral spirits is sometimes used as a rust-preventive coating for steel. Dry cleaning still bottoms and powder residue are stored in blue steel and black polyethylene drums all of which are

DOT-approved containers. The polyethylene drums have been treated with fluorine gas to be resistant to dry cleaning solvents. Containers will be palletized whenever possible (5-30 or 9-16 gallon drums, 12-5 gallon pails or 16 boxes per pallet) to facilitate shipping.

1. 55-gallon drums --fluid recovery wastes--These are used to store wastes which are being transferred. They are provided by the customer. Safety-Kleen requires they meet the DOT specifications for the material within them.
2. Red 30- and 16-gallon steel drums - These are used to store mineral spirits while in transit or in storage. These containers are not required to meet DOT specifications under 49 CFR 173.118a.
3. Grey 16-gallon steel drums - These are used to store immersion cleaner and are not required to meet DOT specifications under 49 CFR 173.249(c). These containers are labeled with a "corrosive" diamond.
4. Blue 30-gallon steel drums, black 16-gallon polyethylene drums and cardboard boxes with nylon liners - These are used to store dry cleaner wastes. Under DOT regulations, "otherwise regulated materials" are not required to be constructed to a specification. Dry cleaner wastes qualify as ORM-A.
5. Black 16-gallon steel drums and 5-gallon steel pails - These containers are used for paint waste storage and must meet DOT specifications 17E and must be labeled with a "Flammable" diamond. These drums are being held on a 10 day transfer basis in accordance with I.A.C. 723.112.

The paint waste and immersion cleaner containers are labeled with "Flammable" and "Corrosive" diamonds, as required by DOT regulations. Other materials stored (i.e.,halogenated solvents and mineral spirits) do not require labels. All containers of waste are marked in accordance with 40 CFR 262.32. The customer is indicated as the generator for customer to service center shipments. Upon arrival at the Mokena facility, any drums used for storage are remarked with Safety-Kleen indicated as the generator.

Containers are transported on pallets or individually. Palletized wastes are wrapped in plastic shrink wrap and moved using a forklift or a pallet jack. When moving pallets from the service center to the recycle center, they are loaded onto a truck and moved. Individual drums are moved within the facility using a hand cart.

The sump in the service center are closed and no piping is associated with it. The sump can be emptied using a wet/dry vacuum cleaner (specifications are in Appendix C). Drums can be used as needed with this vacuum. Removal of any liquid in the sump must take place immediately. All material collected from spill cleanups will be treated as hazardous waste. The material will be sampled and analyzed at the recycle center and, depending on the percentage of recoverable solvent, the material will be recycled or properly disposed of.

3.4 PLANT OPERATIONS--POTENTIAL SPILL AND FIRE SOURCES AND CONTROL PROCEDURES

Employees must perform their duties in the safest, most efficient manner possible and the service center has been equipped to facilitate these activities. Drums will be moved using a handcart and pallets using a forklift or pallet jack. A hoist is available at the branch to assist in the lifting of heavy items. Upon arrival at the service center, containers of spent solvent must immediately be added to the storage tank or placed in the drum storage areas. Open drums of solvent must not be left unattended. Below are descriptions of situations which can result in accidents and the precautions taken to prevent their occurrences.

3.4.1 Potential Minor Spill Sources

The following is a list of activities that have the potential for a minor (one that can be remediated without assistance from a clean up contractor) pollution incident:

a. Pouring of drummed solvent into the dumpster--As the 16 and 30 gallon drums are poured into the dumpster, solvent can splash out. Employee training emphasizes the importance of taking care in emptying the drums. The return and fill station is underlain by a concrete slab and curb. This design will contain this type of spill.

b. Filling of drums with solvent product--A low pressure hose with an automatic shut-off valve, similar to those used at automotive service stations, is used to fill the drums with solvent. Leaking fittings, a damaged hose or carelessness could lead to the discharge of solvent outside of the drum. Manual emergency shut-off valves are on each hose, should the equipment not function properly. In addition, employee training emphasizes the importance of inspection, maintenance and reporting of conditions with pollution incident potential.

c. Mineral spirits loading/unloading--The potential exists for minor spills to occur during tanker truck loading/unloading activities. Safety-Kleen's facility is designed to minimize this potential. Connections are constructed with camlock valves to provide a leak proof connection between the tank fill line and the tank truck hose. The tank fill line is equipped with a check valve to eliminate the potential for backflow from the tank. A drip pan is located below the connection to contain any drips associated with disconnecting the tanker hose. Truck drivers will vacuum out the contents of the solvent drip pan each day, to keep the pan empty. A concrete containment pad is also located at the loading/unloading area, and is sloped to contain any spilled material.

d. Moving of containers--When a container is moved, a potential exists for it to tip over. To minimize the potential for spillage of solvent, all containers must be maintained in an upright

position and remain tightly covered while in storage or in transit.

e. Delivery truck transfers--The cargo should be secured in the route vehicle with straps before transport. Individual containers of solvent can tip over or be dropped when being moved on or off a delivery truck so transfers will be made using a handcart and a hoist, if necessary. Containers are unloaded either: a) over the return and fill station secondary containment, or b) inside the warehouse. If a spill does occur the amount of solvent in the containers is a quantity which can be collected with sorbent clay or pads and the spill will most probably occur on a paved surface. Any contaminated soil that does result will be removed manually, drummed and shipped to a Safety-Kleen recycle center for proper disposal.

3.4.2 Potential Major Spill Sources

The following activities have the potential for a major (one for which remedial action will require assistance) pollution incident:

a. Overfilling of storage tanks--Product and spent solvent tanks can be overfilled with a resulting discharge of solvent. A high level alarm and daily checks of tank volumes will prevent this type of incident.

b. Leaking pipelines--The pipelines and other equipment present a potential for leaks and resultant pollution. Regular inspection

of this equipment and the material inventory will detect any leaks.

3.4.3 Potential Fire Sources

The following is a list of fire prevention and minimization measures:

a. All wastes and products are kept away from ignitable sources--Personnel must confine smoking and open flames to remote areas, segregated from any solvent (e.g., the office or locker room). The mineral spirits handling area, paint waste shelter and the underground storage tanks are separated from the warehouse building area to minimize the potential for a fire to spread or injury to personnel to occur.

b. 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 mineral spirits waste is stored in a tank or in drums, none of which are near sources of extreme heat, fire, potential explosion sources or subject to violent reactions. The tanks are vented and the drums 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 mineral spirits is low (2 mm) 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.

3. produce uncontrolled fires or gases in quantities sufficient to pose a risk of fire or explosion--See 'a.' above and 'c.' below.

4. damage the structural integrity of the Safety-Kleen facility--The mineral spirits will not cause deterioration of the tank, drums or other structural components of the facility.

c. 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. An aisle space of three feet is maintained in the warehouse storage area and at least three feet in the metal shelter. Twelve inches will be maintained between pallets, and six inches for an inspection aisle between the walls of the building and the containers. Aisle space drawings are provided in Appendix C.

d. "No Smoking" signs are posted in areas where solvents are handled or stored.

e. Fire extinguishers must be checked once per month and tested by the fire extinguisher company once per year.

3.4.4 Tank Evaluation and Repair Plan

A tank from which there has been a leak or spill, or which is unfit for use, will be removed from service immediately. First, the addition of waste into the tank will be ceased, accomplished by turning off the pump which discharges into the tank. This will be followed by a visual inspection of the tank and piping to determine the cause of the release. In the event that a leak occurred in both the tank and secondary containment, refer to the section below describing secondary containment spills and leakage.

Removal of waste due to a spill or leakage must occur within twenty-four hours after detection. The procedures used for the removal of waste from the tank are the same as those described in Sections 6.2.1 and 6.2.2 of the Closure Plan. Removal of waste from the secondary containment must be equivalent to the procedures in the Contingency Plan.

If the cause of the release has not damaged the integrity of the tank, the system may be returned to service as soon as the released waste and repairs, if necessary, are made. If the repair has been extensive, the system will be returned to service only after it is certified by an Independent Qualified, Registered Professional Engineer in accordance with 35 Ill. Adm. Code 702.126(d). This certification

will be submitted to the Agency within seven days after returning the tank to use.

If the system is not capable of handling wastes without release for the intended life of the system, it will be closed according to Section 6.0 of the Closure Plan.

In the event of a spill or leak from the secondary containment, the addition of waste into the tank (and thus, into the secondary containment) must be immediately ceased to prevent further release into the environment, followed by a visual inspection of the system to determine the cause of the release.

Removal of waste must then occur within twenty-four hours after detection of the leak. Removal of waste from the secondary containment are equivalent to the procedures in the Contingency Plan. In addition, any visible contamination of the soil or surface water must be properly disposed of.

The following paragraph addresses the notifications and reports to be made after a release to the environment has occurred. Any minor release which is less than or equal to a quantity of one pound and immediately contained and cleaned up is exempt from this discussion.

Major releases to the environment must be reported to the Agency within twenty-four hours of detection. A report including the following information must be submitted to the Agency within thirty days:

a) Likely route of migration of the release;

b) Characteristics of the surrounding soil;

c) Results of any monitoring or sampling conducted in connection with the release, (if available);

d) Proximity to downgradient drinking water, surface water and population areas; and

e) Description of response actions taken or planned.

If the repair is extensive (e.g., installation of an internal liner; repair of a ruptured secondary containment vessel), the repaired system will be returned to service only after it is certified by an Independent Qualified, Registered Professional Engineer in accordance with 35 Ill. Adm. Code 702.126(d). This certification will be submitted to the Agency within seven days after returning the system to use.

If the system is not capable of handling waste without release for the intended life of the system, it will be closed according to Chapter 6.0, the Closure Plan.

3.4.5 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 drum 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 in itself 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 operations requiring electricity (e.g. filling or emptying drums) will cease.

d. Flooding - The site 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 No opportunity is foreseen to affect the facility with snow, cold weather or storm water.

3.5 INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEM

Because the facility is small, internal communication within the building and the solvent return/fill area is accomplished by voice. Telephones will be used to report a spill or a fire and to summon assistance from local and state emergency response agencies. Branch managers have emergency phone numbers of local and state emergency response teams posted by each phone located in the sales office. Included in these phone numbers is the 24-hour telephone number which can be used to contact the Environment, Health and Safety Department.

CONTINGENCY PLAN

ABSTRACT

PURPOSE: This plan describes the proper action to be taken by employees during an emergency.

RESPONSIBILITIES: The emergency coordinator or his alternate is responsible for implementing the plan during an emergency.

EMERGENCY COORDINATOR: The branch manager is the emergency coordinator. The alternate emergency coordinator is the branch secretary.

EMERGENCY NOTIFICATIONS:

Mokena Police Department	708/479-3911
Mokena Fire Department	708/479-5371
South Suburban Hospital	708/799-8000
Environment, Health and Safety Department	708/888-4660
Illinois Emergency Services and Disaster Agency	217/782-7860
Petrochem Services, Inc.	708/739-1150

4.0 CONTINGENCY PLAN

Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

4.1 PURPOSE

The contingency plan describes the actions to be taken by each employee in the event of a spill, fire or other emergency. It includes the information necessary to address emergency situations efficiently and in such a manner as to prevent or minimize hazards to human health or the environment due to fire, explosion, or any other release of hazardous materials to the air, soil, surface water, or ground water.

The contingency plan is to be carried out immediately whenever there is a release of hazardous material which could threaten human health or the environment, implementing the procedures contained in this plan.

4.1.1 Description of Facility Operations

This facility is an accumulation point for spent solvents and waste oils generated by customers of Safety-Kleen, the majority of whom are small quantity generators. All solvent wastes are ultimately

shipped to a Safety-Kleen recycling facility or to a contract reclaimer and are then returned to the Company's customers as product.

The Mokena service center has been operating as a storage facility since October 1, 1977. The facility consists of the following structures:

a. a 3,600 square foot building with offices and a warehouse for drum storage;
b. two 12,000 gallon underground storage tanks for clean and spent mineral spirits;
c. a solvent return and fill station with loading dock; and
d. an enclosed metal shelter for the storage of containerized paint waste.

Applicable maps and facility drawings are in Appendix C.

4.2 EMERGENCY COORDINATOR RESPONSIBILITIES

The emergency coordinator is responsible for implementing the contingency plan during an emergency; however, all employees must be familiar with the procedures in this plan and are responsible for proper implementation of the plan should the emergency coordinator or his alternate be unavailable. The branch manager is the emergency coordinator and the branch secretary is the alternate emergency coordinator.

The emergency coordinator and his alternate must be familiar with all aspects of this contingency plan, the 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 necessary to carry out the contingency plan. Their home addresses and telephone numbers, as well as the office telephone number, are listed in Appendix F. Also listed in Appendix F are the assigned duties of each employee during an emergency. During working hours, at least one employee will be at the facility or on call to respond to an emergency situation.

4.2.1 Responsibilities During an Emergency

Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his alternate when the emergency coordinator is not available) must immediately:

a. Activate the internal facility communication system to notify all facility personnel;

b. Notify Safety-Kleen's Environment, Health and Safety Department using the 24-hour telephone number after working hours - 708/888-4660; and

c. Notify appropriate state or local agencies with designated response roles, if necessary.

Whenever there is a release, fire, or explosion, the emergency coordinator must immediately try to identify the character, exact source, amount, and extent of any contamination. Because of the limited number of materials being handled at the facility, he or she may do this by observation or by review of facility records. If necessary, outside laboratories may be contacted to perform chemical analysis.

The released waste may also be identified by noting the type of container which it is in. All hazardous materials stored at this facility are kept in special color coded drums to distinguish one from the other. Immersion cleaner in grey sixteen gallon drums and dry cleaning waste in blue thirty and twenty gallon and black sixteen gallon drums and dumpster sediment in red sixteen gallon drums are kept in the container storage area of the warehouse. Likewise, paint wastes are stored in black five and sixteen gallon drums in the metal shelter. Paint waste and immersion cleaner containers are also labeled with "Flammable" and "Corrosive" diamonds, as required by DOT regulations.

Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that may be generated, or the effects of any hazardous run-off).

During an emergency, the emergency coordinator must take all 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.

4.2.2 Remedial Action Responsibilities

If the environment has been contaminated or there is a potential for contamination as a result of a fire, explosion, or spill, the emergency coordinator must contact the Environment, Health and Safety Department to report the incident. The treatment, storage and/or disposal of the recovered waste, contaminated soil or surface water that results must be arranged by Safety-Kleen and carried out as expeditiously as possible.

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

a. No substance that may be incompatible with the released material is brought on site 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.

4.2.3 Reporting Responsibilities

If the emergency coordinator determines that the facility has had a release 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 onsite personnel and the local fire and police authorities so that all Safety Kleen personnel and offsite personnel will be evacuated to a point at least 2000 feet from the source; and

b. The coordinator must immediately notify the Environment, Health and Safety Department. The Department will report the incident to the Illinois Emergency Services and Disaster Agency, including the:

   (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.

Safety-Kleen will notify the appropriate state and local authorities that the facility is in compliance with section 4.2.2 before operations are resumed in the affected area(s) of the facility.

The emergency coordinator must document the time, date, and details of any incident that requires the implementation of the contingency plan. Within 15 days of the incident, Safety-Kleen will submit a written report on the incident to the Illinois Emergency Services and Disaster Agency. 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 results from the incident.

4.2.4 Chain of Command

Based on the emergency response procedures described above, the chain of command during an emergency is as follows:

The person who discovers/causes the spill

reports to

the Emergency Coordinator.

He contacts

the Environment, Health and Safety Dept.

and the department reports to

Illinois Emergency Services and Disaster Agency

4.2.5 Government Agencies and Local Authorities to Be Notified

During an emergency, the following government agencies and local authorities may be contacted:

Agency or Authority	Rationale
Police Department	Notify if there is imminent danger to human health.
Fire Department	Notify if there is a fire, uncontrolled spill, or other imminent danger.
Hospital	Notify if there are any injuries.
Illinois Emergency Services and Disaster Agency	Report releases and fires.
Petrochem Services, Inc.	Call to assist with remedial action after a release.

Arrangements have been made to familiarize the police department, fire department and local emergency response teams with the layout of the facility, the properties of hazardous materials handled and associated hazards, locations where facility personnel normally work, entrances to and roads inside the facility, and possible evacuation routes. Arrangements have also been made to familiarize the local

hospital with the types of injuries or illnesses which could result from fires, explosions, or releases at the facility. Copies of the letters to the local police department, fire department and hospital are in Appendix F.

4.3 EMERGENCY RESPONSE PROCEDURES

Response actions to be taken in specific emergency situations are described in the sections which follow.

4.3.1 Minor Spills

If a spill should occur while pouring spent solvent into a dumpster or filling drums with solvent product at the return and fill station, or loading/unloading into a storage tank, and the material is contained in the secondary containment provided, remedial action will not be necessary. Should the spill occur outside the containment, different actions must be taken depending on whether the spill occurs on a paved or unpaved area:

a. If the material spills on a paved area, it must be collected with sorbent sheets and/or sorbent clay (such as "Oil Dry"). The sorbents will be collected, drummed and shipped to the Safety-Kleen recycle center for proper disposal.

b. If the material spills on an unpaved area, the free material must be collected with a sorbent. The sorbent

and any contaminated soil must be collected, drummed and shipped to a Safety-Kleen recycle center for proper disposal.

If a spill occurs while moving or delivering drums outside of the warehouse, the response actions described in a. and b. above must be followed. Spills inside the warehouse and the paint waste shelter will be prevented from contaminating the environment by the concrete floor and the secondary containment. In the event of a spill indoors, the doors and windows should be opened to improve the ventilation in the confined area. If solvent is spilled in a non-explosion rated area or is flowing in such, insure that all sources of ignition (e.g., thermostats or light switches) are left in the same position (either on or off) as at the time of the spill. Then, following the instructions of the appropriate Material Safety Data Sheet (Appendix F), the worker will enter the area wearing rubber gloves, aprons, safety glasses, and/or a respirator, collect the liquid, drum it and return it to storage.

Drum storage areas are inspected daily and the number and condition of the drums noted. The contents of any leaking or suspect drums must be placed in a drum of adequate integrity and the leaking drums properly disposed of. Any material remaining on the floor will be collected with sorbent sheets and/or sorbent clay. The sorbent will be collected, drummed and shipped to the Safety-Kleen recycle center for proper disposal.

Cleanups are completed only when the workers have cleaned themselves and the emergency equipment with soap and water. The service center manager must visually inspect the equipment used to clean up a spill before operations are resumed. All minor spills must be reported to the Environment, Health and Safety Department and the department will contact the Illinois Emergency Services and Disaster Agency, if required.

4.3.2 Major Spills

Any spill which can not be completely remediated using the methods described in a. and b. of section 4.3.1 is a major spill. A major spill is usually the result of a vehicular accident, tank overfilling, equipment failure or a fire. Spilled material which escapes collection can contaminate soil, surface water, ground water, sanitary sewer systems and storm sewer systems. Emergency response to this type of spill should be as follows:

a. Assist any injured people.

b. Stop the flow of solvent or oil, if possible.

c. Retain, contain or slow the flow of the material if it can not be stopped.

d. If solvent or oil escapes your containment efforts, immediately call the local Fire Department, and report to the emergency coordinator and the Environment, Health and Safety Department.

e. Immediately recover the spilled material to reduce property and environmental damage. Start recovery operations immediately. Material resulting from a release, fire or explosion will be stored onsite in drums or in tanks to the fullest extent possible. Material which cannot be contained using the storage facilities onsite will be contained in tanker trucks or drums provided by the recycle center or spill cleanup contractor.

The emergency coordinator shall report any incident as soon as possible to the Environment, Health and Safety Department using the 24-hour telephone number: (708) 888-4660. If the Environment, Health and Safety Department does not respond within thirty minutes, the emergency coordinator shall call an emergency cleanup response contractor, if it is deemed necessary, and report the incident to the National Response Center (telephone: (800) 424-8802) and Illinois Emergency Services and Disaster Agency (telephone: 217/782-7860 - 24 hour number). Otherwise, the Environment, Health and Safety Department will contact the proper authorities.

The person reporting a spill should be prepared to give his name, position, company name, address and telephone number. The person reporting should also describe the material spilled and, if possible, some estimate of the amount, and the containment status and specify any equipment needed.

Cleanups are completed when the released hazardous waste, including any contamination to the environment and fire control materials (if applicable), have been contained and disposed of at a properly permitted treatment or disposal facility since the quantity of waste material will probably exceed the storage capacity of the Safety-Kleen recycle center. If emergency equipment has been used in the cleanup, the service center manager must visually inspect the equipment before operations are resumed.

Every spill must be recorded on the Spill Report Telephone Log (Appendix F) and reviewed with branch personnel to prevent similar spills from occurring in the future. A copy of this report is sent to the Environment, Health and Safety Department.

4.3.3 Fire Control Procedures

If a fire occurs, personnel must act quickly with the fire extinguisher to put out the fire before it spreads. If it can not be extinguished immediately, evacuate the facility and call the fire department.

Vapors of mineral spirits exposed to a spark or open flame can flash at temperatures over 105° F. A mineral spirits fire can best be extinguished with foam. If foam is not available, sweeping the fire with water fog can cool it, directing the water spray to push the flames into a confined area, if possible. The flame should not be extinguished until the flow of the solvent has been stopped. Then attention should

be directed immediately to extinguishing the flame. Nearby tanks and container should be cooled with a water spray to prevent the spread of fire.

Immersion cleaner (which is a mixture of chlorinated solvents, cresylic acid and an alkaline solution), and dry cleaning wastes are not flammable, but can produce phosgene gas and hydrochloric acid at very high temperatures (about 1200° F.). The potential for the materials reaching a decomposition state is minimal; however, branch personnel and local authorities must be aware of the proper response, should a fire affect the drum storage areas:

a. Isolate the hazard area and deny entry to unauthorized personnel.
b. Stay upwind; keep out of low areas.
c. Ventilate closed spaces before entering them.
d. Wear positive pressure breathing apparatus and protective clothing.
e. Evacuate a 600 foot radius area endangered by the gas.

A fire in the drum storage area can best be extinguished by foam, water fog, or water spray. Nearby tanks and containers should be sprayed with water to prevent the spread of fire and explosions.

Paint wastes can generate carbon monoxide and other poisonous gases. Therefore, it is important to wear positive pressure breathing

apparatus and full protective clothing in the affected area. If a fire in or near the paint waste shelter occurs:

a. Isolate the area and deny entry to unauthorized personnel.

b. Stay upwind; keep away from low areas.

c. Wear protective clothing and self-contained breathing apparatus.

A dry chemical, carbon dioxide or foam will best extinguish the fire.

Cool the shelter and containers with water until well after the fire has been extinguished.

The procedures described in section 4.3.2 will be implemented for a post-fire cleanup. Contaminated material falling into secondary containment areas will be pumped into drums and disposed of at a properly permitted treatment or disposal facility. Sorbent material will be used for the remaining water released.

4.3.4 Flood Control Procedures

All waste management areas (drum storage, underground tanks, return and fill station and paint waste shelter) are located above the level of the flood plain (refer to Flood Plain Elevation Map in Appendix C). In the event that 194th Place becomes flooded, drivers of Safety-Kleen trucks are aware that they should not drive through large pools of

water, and that operations could resume only after the flood waters subsided.

4.4 EVACUATION PLAN

Clearly marked exits exist in the warehouse and office area and employees are trained to be aware of all potential escape routes. An evacuation route diagram is included in Appendix F.

When an uncontrolled fire or release has occurred, all personnel are to be evacuated from the area and assemble across West 194th Pl. to assure that all personnel are accounted for and out of the hazardous area. The fire department must be notified at the time of evacuation either from a safe on-site building or from a neighboring facility.

4.5 ARRANGEMENT WITH EMERGENCY RESPONSE CONTRACTORS

Potential primary and secondary emergency response contractors are identified on the Emergency Information sheet (Appendix F). These contractors will be contacted to provide emergency assistance during a release and/or cleanup.

4.6 POLLUTION INCIDENT HISTORY

There are no records of a pollution incident having occurred at this facility.

4.7 IMPLEMENTATION SCHEDULE

Any discrepancies or deficiencies found during the routine inspection must be corrected expeditiously to insure 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 branch manager has the overall responsibility for remediating any discrepancies found during the routine inspection, and will consult with the corporate environmental and engineering staffs to design an implementation schedule for the remedial action.

4.8 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 on the Emergency Information sheet (Appendix F) and they may be called upon to provide emergency services. In addition, this plan and all revisions to the plan are made readily available to employees working at the facility.

The 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) increases the potential for fires, explosions, or releases of hazardous constituents, or

   (2) changes the 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.

PERSONNEL TRAINING

ABSTRACT

OBJECTIVE: The purpose of training is to familiarize employees with environmental regulations, records and emergency procedures so they can perform their jobs in the safest and most efficient manner possible. The program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment and emergency systems.

TIME OF TRAINING

JOB TITLE	Prior to Starting Work	On the Job	Annually	When Regulations and/or Procedures Change
Branch Manager	X		X	X
Branch Secretary		X	X	X
Sales Representative	X	X	X	X
Warehouseman		X	X	X

5.0 PERSONNEL TRAINING

5.1 OUTLINE OF TRAINING PROGRAM

Each employee is trained to operate and maintain the facility safely, and to understand hazards unique to his job assignment. New branch managers must complete an introductory training program before starting their jobs, with annual review and update thereafter. Appendix G contains information on service center personnel and trainers, job descriptions, training outlines and training record forms.

5.2 ORGANIZATION STRUCTURE AND JOB DESCRIPTIONS

Environmental compliance and training of branch employees is the responsibility of the branch manager. The Environment, Health and Safety Department, in turn, provides a training program to be executed annually. Job descriptions for branch personnel are in Appendix G.

5.2.1 Branch Manager

The branch manager is ultimately responsible for the operations at the service center. The sales representatives, secretary and warehouseman report to the branch manager and he, in turn, must provide the training and materials necessary for the branch employees to execute their duties. With respect to environmental compliance, the branch manager must:

a. keep the service center clean and orderly;

b. execute or designate an employee to execute the daily inspection, keep a written log and remediate any problems;

c. know the potential hazards of the material and wastes handled on site;

d. identify potential spill and fire sources and be able to execute the contingency plan;

e. inform all employees of their environmental responsibilities;

f. act as emergency coordinator and notify the proper authorities during an emergency, remediate the situation to the best of his abilities, and submit necessary reports to the corporate office; and

g. maintain all environmental records (such as manifests, training records and spill reports) on file.

5.2.2 Environment, Health and Safety Department

Safety-Kleen's Environment, Health and Safety (EHS) Department operates out of the corporate office in Elgin, Illinois. Each regional environmental engineer who works in this department is responsible for compliance of the service centers in a given geographic area of the country. The EHS Department must:

a. provide a training program which addresses the requirements of environmental regulations and corporate policy;

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

c. assure that environmental permits are submitted and updated as required; and

d. manage any environmental compliance issues which exceed the resources available at the service center level.

5.3 DESCRIPTION OF THE TRAINING PROGRAM

Employee training is accomplished using classroom, videotape, written and on-the-job methods. The EHS Department prepares a training program for employees and they must provide documentation that the program has been executed.

An employee is trained prior to starting or as soon as he or she begins working, (depending on his or her position), and annually thereafter. Training program outlines are in Appendix G.

5.3.1 Training of New Branch Managers

New managers are trained for several weeks before they begin their new positions. This training is both in situ and classroom modes. While being trained at a designated "training facility", a new manager reviews all

environmental records and learns the recordkeeping requirements. These records include: manifests, personnel records, training records, facility inspection records, and spill reports.

The training culminates in four weeks of training at his new facility, at least one day of which is devoted to environmental training with his regional environmental engineer. At least eight hours 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. This training is outlined in Appendix G.

Additional time is spent reviewing past environmental compliance at the branch manager's facility and regulations unique to his state are discussed as well.

5.3.2 Training of New Branch Secretaries

Branch 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. It includes the items listed in the Introductory and Annual Training Topics for Branch Employees (Appendix G) which are explained in company-produced videotape presentations on emergency response, shipping documents (including manifests), drum labels and other safety and environmental compliance issues. In addition, the contingency

plan must be reviewed with the branch manager within the first two weeks of the secretary starting work.

5.3.3 Training of New Sales Representatives

New sales representatives are trained in situ for two weeks during which they are introduced to manifests, facility inspection records and training records. A sales representative may also be trained as the designate for performing the facility inspection. Additional training is in the form of videotape presentations and a review of the contingency plan. The contingency plan must be reviewed with the branch manager before the sales representative formally begins his new position and annually thereafter. All items listed in the Introductory and Annual Topics Training for Branch Employees (Appendix G) must be explained within six months of starting.

5.3.4 Training of New Warehousemen

A warehouseman is trained to maintain the service center and assist the other branch employees in their tasks. He may be a designate for the facility inspection and must be trained by the branch manager as such. Within two weeks of the warehouseman's starting, the branch manager must review the contingency plan with him, and within six months he must review the items listed in the Introductory and Annual Training Topics for Branch Employees (Appendix G).

5.3.5 Annual Training

On an annual basis, employees are trained using a program prepared and updated annually by the EHS Department. It includes updates on environmental regulations, an in-depth review of the contingency plan and a review of RCRA inspection criteria.

All service center employees must annually review the items listed in the Introductory and Annual Topics for Branch Employees. This review is in the form of videotapes and a review and discussion of the storage facility 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.

5.4 TRAINING RECORDS

All training must be documented using the record forms in Appendix G. The records must be kept on file at the facility until closure.

CLOSURE PLAN

ABSTRACT

Location Address: Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, Illinois 60448

U.S. EPA I.D. No: ILD 000665851

The closure of the facility will include closure of the following units:

a. Tank Storage - one 12,000 gallon underground storage tank for spent mineral spirits (D001, D006, D008).

b. Drum Storage - An area of about 800 square feet with a storage capacity for 2,080 gallons of spent immersion cleaner (F002, F004), dry cleaner wastes (F002) and dumpster sediment (D001, D006, D008).

c. Return and Fill Station - The location of this waste management unit is shown on the Site Plan. It can hold 750 gallons of mineral spirits waste (D001, D006, D008).

d. Paint Waste Shelter - The location of this structure is shown in the Site Plan. It has a storage capacity for 2,184 gallons of paint waste (D001, D006, D007, D008, F003, F005).

6.0 CLOSURE PLAN

6.1 PURPOSE

The Mokena service center operates as a storage facility for hazardous wastes, and Safety-Kleen believes it is required that it be closed in accordance with the closure requirements of 35 Ill. Adm. Code 724 Subpart G. Closure of the facility will be carried out in accordance with the steps outlined in this plan. At the time of closure a certification by an Independent Registered Professional Engineer will be submitted as proof of the structural integrity of all secondary containment areas, to show that the waste was contained in the containment without migration into the soil, ground or surface water. In areas which cannot be certified, soil samples will be taken. A plan showing the proposed number and location of soil samples used to determine the extent of contamination is included in Section 6.6. Proposed cleanup objectives and soil sampling locations will be submitted to the Agency for approval at least 180 days before closure is scheduled to commence. Proposed cleanup objectives and soil sampling locations will be submitted to the Agency for approval at least 180 days before closure is scheduled to commence.

Appendix H contains an estimated schedule and cost for the completion of closure. Safety-Kleen Corp. will remove all hazardous wastes and residuals from the facility, including any contamination, if

any, to soil, concrete, and/or groundwater, and will therefore eliminate the need for further maintenance and care.

6.2 UNDERGROUND TANK AND ASSOCIATED PIPING

To safely clean and decommission an underground storage tank:

a. Remove the remaining material from the tank and ship the materials to a reclaimer for reclamation.

b. Provide access to the tank.

c. Rinse, scrape and squeegee the tank interior, removing all residual waste material and rinsate.

d. Disconnect and decontaminate all appurtenant piping.

e. Disconnect and decontaminate all appurtenant pumping equipment.

f. Remove tank and appurtenant equipment and, contingent upon rinse water analysis indicating that the tanks have been completely decontaminated, reuse or sell as scrap.

g. Clean and raze the diking and slab.

h. Backfill all excavations with clean fill materials.

i. Transport and dispose of all waste material generated during the project.

6.2.1 Opening of the Tank and Removal of Waste Material

To safely open the tank and remove the waste material:

a. Pump out the waste material contents of the tank using pump, vacuum truck or similar equipment and transport to a reclaimer.

b. To gain access to underground tanks, use the manway at the top of the tank. Depending on the type of opening and the condition of the equipment, a variety of tools may be used to open the manway. Care must be exercised to minimize spark generation when working on the tank.

c. Prior to entering the tank, personnel should have full face respiratory protection and protective clothing. Once the tanks have been opened, they must be provided with positive ventilation. The tanks will then be inspected to determine the approximate quantity and physical conditions of any remaining waste material.

6.2.2 Removal of Residual Waste and Cleaning of Tank

To safely remove the residual waste and clean the tank:

a. Before removing any residual waste from the tank, all piping and appurtenant equipment will be flushed with clean mineral spirits followed by a detergent solution.

b. The method used to remove the residual 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 sediment as possible.

c. 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 a detergent solution to rinse residual material from the walls, roof, and floor of the tank. The evacuated material and the rinse solution will be collected within the tank or secondary containment, pumped into a tanker truck and shipped to a properly permitted treatment and disposal (to a sanitary sewer) facility. The rinse water will be analyzed to determine the effectiveness of the cleaning. The final rinsate will be analyzed for mineral spirits and volatile organic compounds. The quantity of wash fluid used will be kept to a minimum in order to limit the amount of waste material.

d. 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), and confined space entry requires special procedures:

1. Tanks are to be washed, neutralized and/or purged (where flammable atmosphere is present) prior to being entered.
2. Supply valves must be closed and "tagged" and bleeder valves left open; or supply piping should be disconnected.
3. 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".

4. On tanks where flammable vapors may be present, all sources of ignition must be removed.

5. 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 all tank entering situations, an oxygen deficiency test shall also be performed prior to tank entry. Both flash test and oxygen deficiency test will be performed by the supervisor of the area in which the work is being done.

   Under conditions where there exists a possibility (no matter how remote) of toxic vapors being present in the tank to be entered, the supervisor will arrange to have the air tested. The results of all tests will be displayed on site.

6. 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.

7. Workers should wear rescue harnesses if entering a tank with a large enough opening to easily affect a rescue. In tanks with small openings, only wristlets may be used. In cases where there are agitator shafts, drums or other hazards in which the

man's life-line would be entangled and the supervisor in charge feels that wearing the lifeline may entrap a man and increase the hazard, the wearing of a harness or wristlets may be eliminated.

8. A constant source of fresh air must be provided to insure 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 the use of an air mover should be considered.

9. 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.

10. Adequate illumination must be provided and a flashlight or other battery operated light must also be on hand to provide illumination for a safe exit in the event of an electrical power failure.

11. All electrical equipment to be used inside the tank must be in good repair and grounded.

12. Other people working in the immediate area will be informed of the work being done, and they must inform the watcher or supervisor immediately of any unusual occurrence which makes it necessary to evacuate the tank.

e. The Watcher or Standby Observer System:

1. Workers inside a confined space must be under the constant observation of a fully instructed watcher.

2. Before anyone enters the tank, the watcher will be instructed by the person in charge of the entry that an entry authorization must be obtained from the person in charge and a rescue harness or wristlets must be used on the job.

   The watcher must also know the location of the nearest telephone (with emergency numbers posted), eyewash and/or shower, fire extinguisher and oxygen inhalator. For all "hot work" inside a tank, the watcher must be instructed how to shut down the welding/burning equipment.

   As long as anyone is inside the vessel, the watcher must remain in continuous contact with the worker. HE IS NOT TO LEAVE THE JOB SITE EXCEPT TO REPORT AN EMERGENCY. He does not enter the tank until help is available.

3. After being instructed in his responsibilities, the watcher will sign a form indicating his understanding.

f. All welding and burning equipment must be provided with a shutoff under the control of the watcher; and the watcher must be shown 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 and standard welding and burning safety precautions will always be followed.

6.2.3 Removal of the Tank

To safely remove the tank structure:

a. Disconnect and decontaminate all appurtenant piping.

b. Disconnect and decontaminate all appurtenant pumping equipment.

c. The vessels shall be removed and reused by Safety-Kleen or cut up and sold as scrap.

d. Raze the diking and slab and inspect the excavation. Examine soil using a photoionization detector. In addition, soil samples will be taken to determine the extent of contamination with a soil study and overexcavate soils down to clean soils.

e. Backfill the excavation with clean fill materials and grade to ground level.

6.3 DRUM STORAGE AREA IN WAREHOUSE

The drum storage area is used for the storage of drums of used immersion cleaner, dumpster sediment and dry cleaning. At closure, all the drums will be removed and transported to a reclaimer after proper packaging, labeling and manifesting. The contents of the drums will be reclaimed and the drums will be cleaned for reuse.

The concrete floor and spill containment sumps will be cleaned with a detergent solution. The rinse water will drain into the secondary containment trench and be pumped into drums or the tanker truck used for the tank rinsate to be transported to a properly permitted disposal facility. The final rinsate will be analyzed for volatile organic compounds to determine the completeness of the cleaning. The rinsing will continue until analyses indicate that the decontamination has been successful. Any other wastes generated in the closure process will be reclaimed or properly disposed of.

6.4 SOLVENT RETURN AND FILL STATION

The return and fill station is used to collect and return the used mineral spirits to the waste storage tank. Closure of the return and fill station will be made prior to the cleaning and removal of the storage tank. At closure, the sediment in the dumpsters will be removed and drummed, labeled, and manifested for incineration at a properly permitted facility.

The dumpster and the dock area will be thoroughly rinsed with clean mineral spirits followed by detergent solution. The final rinsate will be analyzed for mineral spirits content and the rinsing will continue until analyses indicate that the decontamination has been successful. The rinsate is discharged through the appurtenant piping system into the storage tank, which will be subjected to a separate closure procedure as described earlier. The clean dumpster and dock structure will be reused by Safety-Kleen or scrapped, contingent upon rinse water analysis that the decontamination has been successful.

6.5 PAINT WASTE SHELTER

The paint waste shelter is used to store containers of paint waste. At closure, the drums and any residual waste will be removed from the shelter and shipped to a reclaimer. The shelter will be thoroughly cleaned with a detergent solution. The rinsate will drain into the metal pan at the base of the shelter, be pumped into drums or the tanker truck used for the tank rinsate, and transported to a properly permitted disposal facility. The final rinsate will be analyzed for volatile organic compounds to determine the completeness of the cleaning. The rinsing will continue until analyses indicate that the decontamination has been successful. The metal structure will be reused by Safety-Kleen or scrapped.

6.6 SOIL SAMPLING PLAN

Equipment

A drill rig equipped with hollow stem augers will be used to collect a split spoon sample.

Equipment Decontamination Procedures

All down hole tools and augers, as well as the drill rig, will be steam cleaned prior to and between each sampling location. A decontamination pit will be constructed to intercept steam cleaning rinsate. The rinsate will be drummed and disposed of in the proper manner as described for rinsate in the Part B Closure Plan. The split spoon soil samples will be washed with a solution of Trisodium Phosphate (TSP) and double rinsed with clean potable water between sample collection intervals as well as boring locations. The wastewater will be handled in the same fashion as the steam cleaners rinsate.

Sampling Intervals

Each boring location will be continuously sampled until a depth of 30 feet or to the depth that shows contamination, if any, has ended. Soil boring locations are indicated in Appendix C.

Sampling Procedures/Laboratory Analyses

Soil samples will be screened in the field with an HNu organic vapor detector. The HNu assists in detecting volatile organic compounds that may be present in the soil samples. Representative soil samples will be placed in new pre-cleaned glass jars, sealed and allowed to warm. The sampling probe of the HNu will be inserted into the head space of each sample jar and organic vapor readings will be recorded in parts per million. Each hand augered soil boring location will be continuously sampled.

If contamination is found, soil sampling procedures will be repeated at increased depth and number until a contamination profile can be constructed. The soil identified as contaminated will be removed and containerized for disposal as hazardous waste.

All samples will be sent to an Illinois certified laboratory qualified to perform the analyses. A Sample Analysis Table for Rinsate and Soil Samples is provided in Appendix C. The samples will be stored on ice and packed in a cooler, accompanied by a chain of custody form.

Proper Backfilling and Grouting Procedures

Each boring location will be abandoned by tremied grout. Grout will consist of 94 pounds of concrete and 3 pounds of bentonite to 5.5 gallons of water.

6.7 FACILITY CLOSURE SCHEDULE AND CERTIFICATION

Within 90 days of receiving the final volume of hazardous wastes, Safety-Kleen will remove all hazardous wastes from the site in accordance with the approved closure plan. The Illinois Emergency Services and Disaster Agency 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:

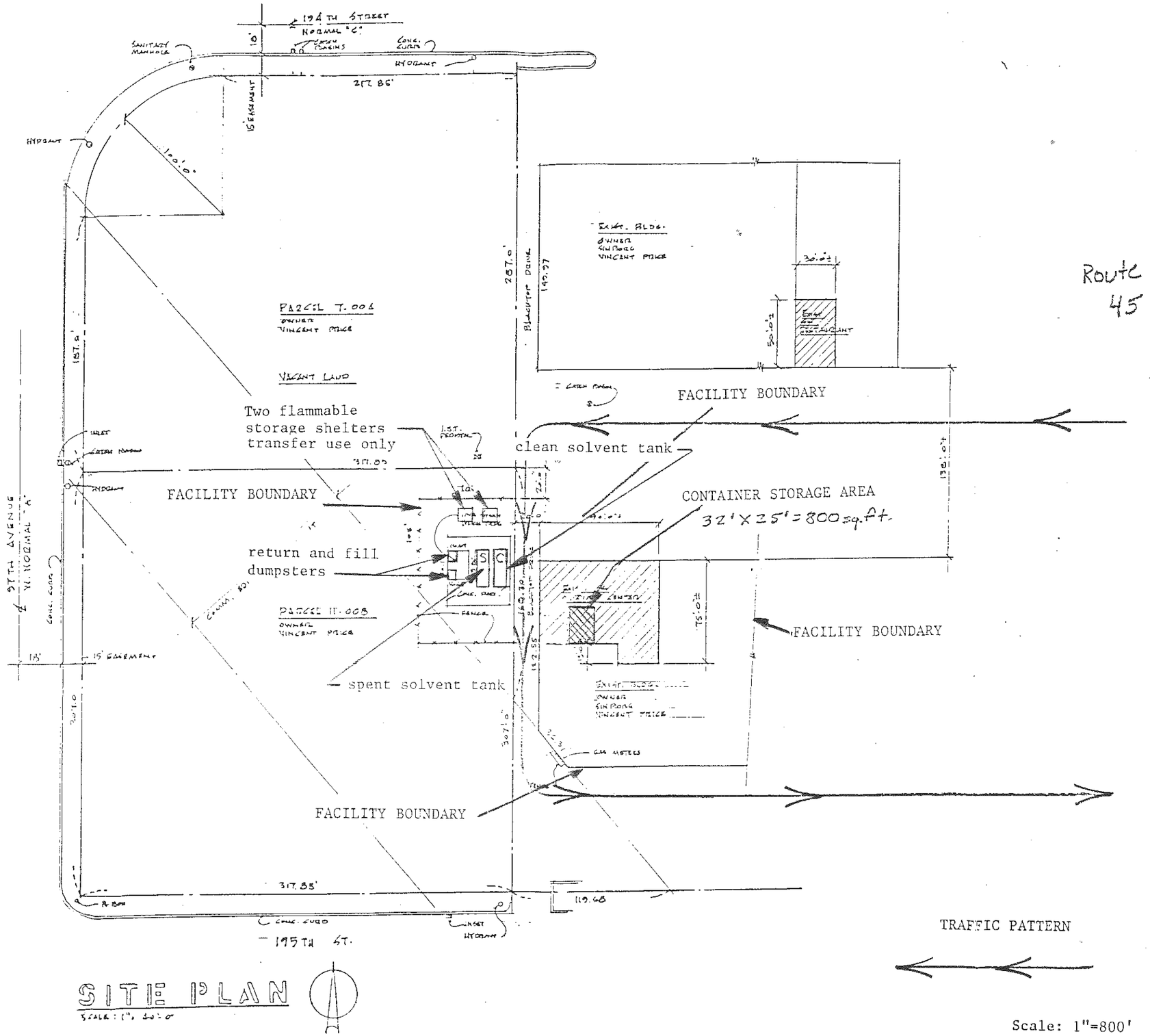
a. The facility has the capacity to receive additional wastes;

b. There is a likelihood that a person other than Safety-Kleen will recommence operation of the site;

c. Closure of the facility is incompatible with continued operation of the site. In this case, Safety-Kleen will take all steps necessary to prevent threats to human health and the environment.

Safety-Kleen will complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes.

When closure is completed, Safety-Kleen shall submit to the Illinois EPA certification, both by the operator and by an independent registered professional engineer, that the facility has been closed in accordance with the approved closure plan.



RECEIVED
MAY 10 1990
IEPA-DLPC

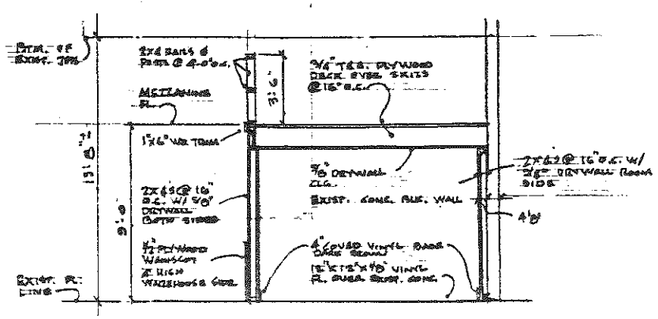
safety-kleen corp.

SITE PLAN

5/10/87

FOR SERVICE CENTER BRANCH, MODENA 2 (5-036-15 & 5-036-05)

D12574

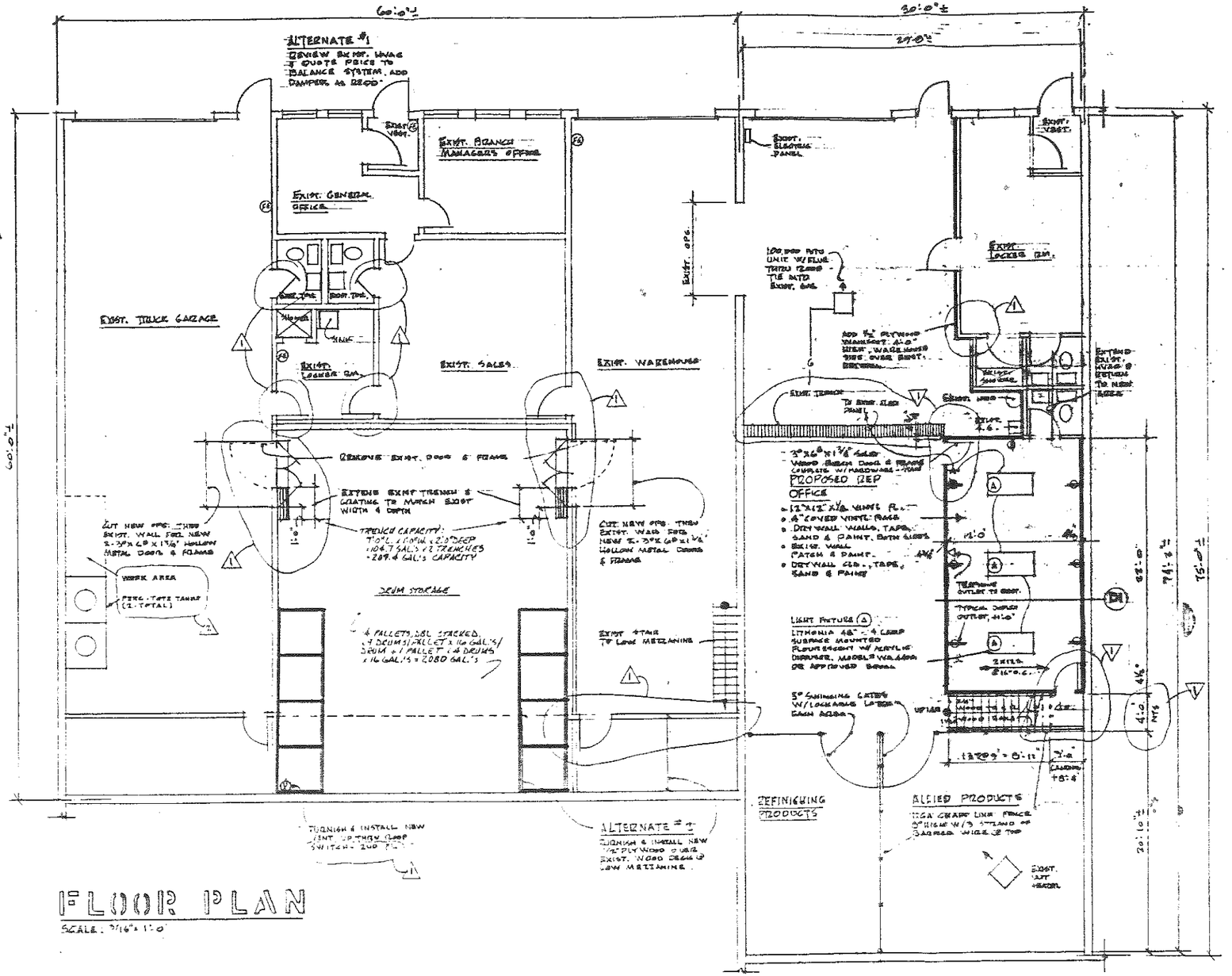


D1 SECTION THRU REP OFFICE

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. VERIFY ALL FIELD CONDITIONS
2. STATE PRICES FOR ALTERNATES #1, 2
3. FURNISH LIABILITY & WORKMANS COMP INSURANCE PER GC REQUIREMENTS
4. GC TO FURNISH BUILDERS RISK INSURANCE
5. ALL WORK TO COMPLY W/ LOCAL, STATE & OSHA CODES.
6. ALL PAINTED WALLS & CLGS. SHALL BE PRIMED & FINISH COAT - SEMI-GLOSS EGG SHELL



FLOOR PLAN

SCALE: 3/16" = 1'-0"

RECEIVED

MAY 10 1990

IEPA-DLPC

safety-kleen corp.

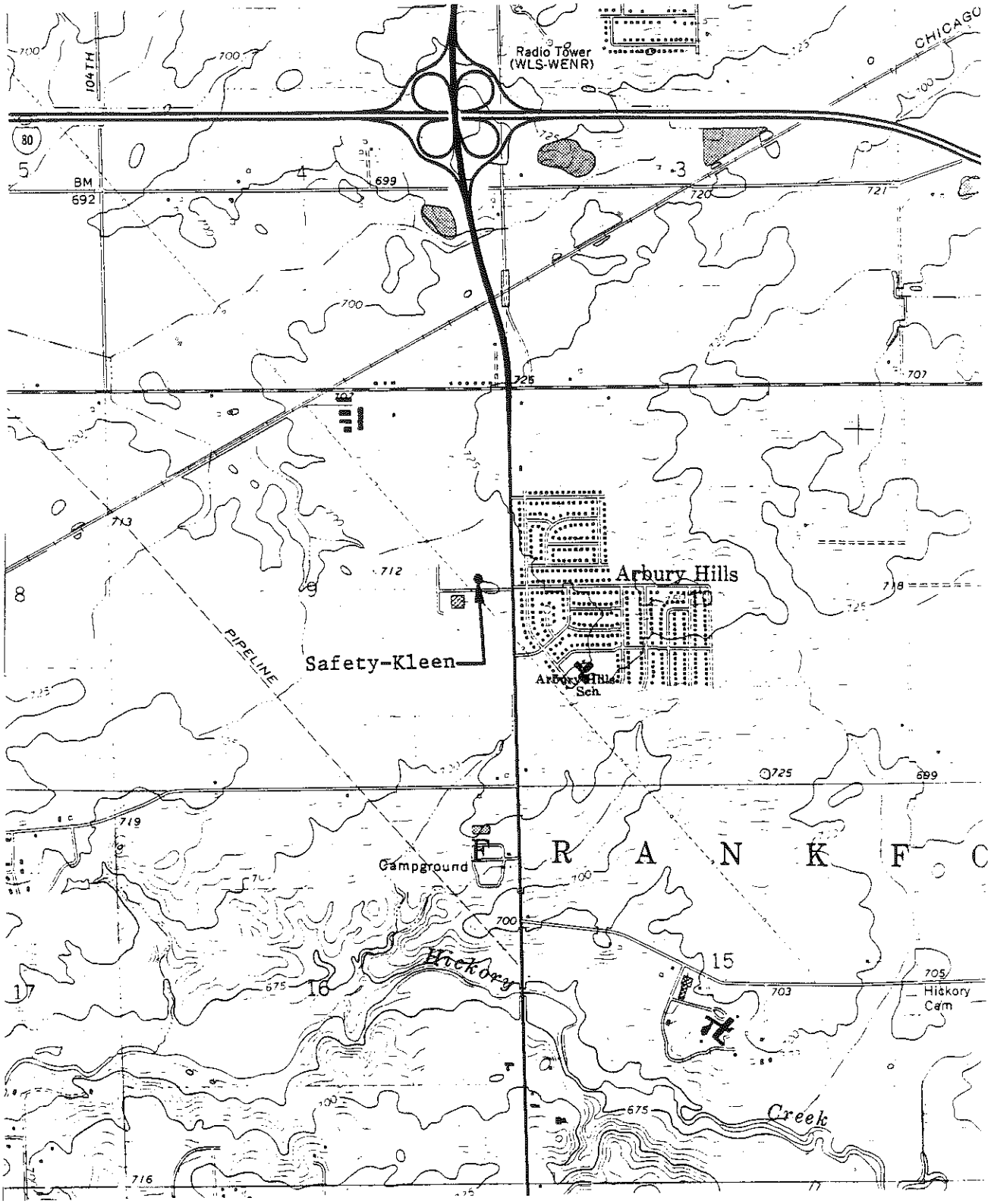
777 BIG TIMBER ROAD • ELGIN, ILLINOIS 60120

PROPOSED FLOOR PLAN

SCALE 3/16" = 1'-0"	REVISIONS	BY	DATE
DATE 2/27/86	1 AS-BUILT	CAP	4/86
DR'N ARS	2 ADDED PERC. TEST TANKS & WORK AREA	C.S.	5/86
APP'D	3 ADDED DRUM STORAGE CONFIG.	RD	7/86

TITLE FOR SERVICE CENTER BRANCH MORENA, IL. (S-086-09)

DWG. D12171



SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

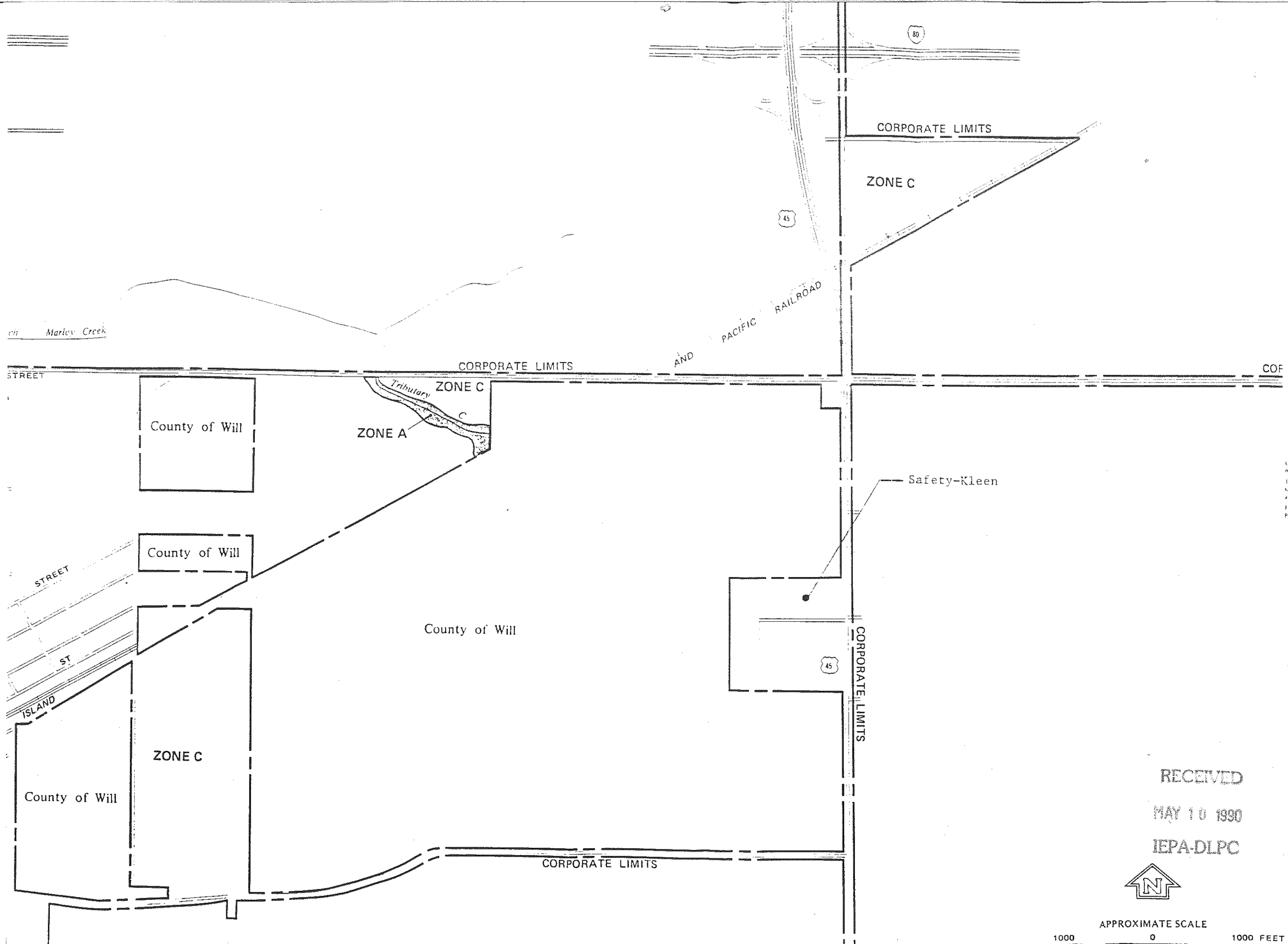
MN
GN
0°32'
9 MILS
2°
16 MILS

UTM GRID AND 1973 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

TINLEY PARK, ILL.

N4130—W8745/7.5

1963
PHOTOREVISED 1973
AMS 3467 III SE—SERIES V863



KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations* With Date of Identification e.g., 12/2/74
100-Year Flood Boundary
500-Year Flood Boundary
Base Flood Elevation Line With Elevation In Feet**
Base Flood Elevation in Feet Where Uniform Within Zone**
Elevation Reference Mark
River Mile

**Referenced to the National Geodetic Vertical Datum

*EXPLANATION OF ZONE DESIGNA

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elev flood hazard factors not determined.
AO	Areas of 100-year shallow flooding wh are between one (1) and three (3) feet; aver of inundation are shown, but no flood haz are determined.
AH	Areas of 100-year shallow flooding wh are between one (1) and three (3) feet; elevations are shown, but no flood haz are determined.
A1-A30	Areas of 100-year flood; base flood elev flood hazard factors determined.
A99	Areas of 100-year flood to be protected protection system under construction; elevations and flood hazard factors not d
B	Areas between limits of the 100-year flood year flood, or certain areas subject to 500 ing with average depths less than one (1) foo the contributing drainage area is less than mile; or areas protected by levees from the (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood
V	Areas of 100-year coastal flood with velo action); base flood elevations and flood haz not determined.
V1-V30	Areas of 100-year coastal flood with velo action); base flood elevations and flood haz determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones) may be protected by flood control structures.

This map is for flood insurance purposes only; it does n sarily show all areas subject to flooding in the comm all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index Panels.

INITIAL IDENTIFICATION:
APRIL 5, 1974
FLOOD HAZARD BOUNDARY MAP REVISION
JUNE 4, 1976

NATIONAL FLOOD INSURANCE PR

FIRM
FLOOD INSURANCE RATE

VILLAGE OF
MOKENA,
ILLINOIS
WILL COUNTY

(ONLY PANEL PRINTED)

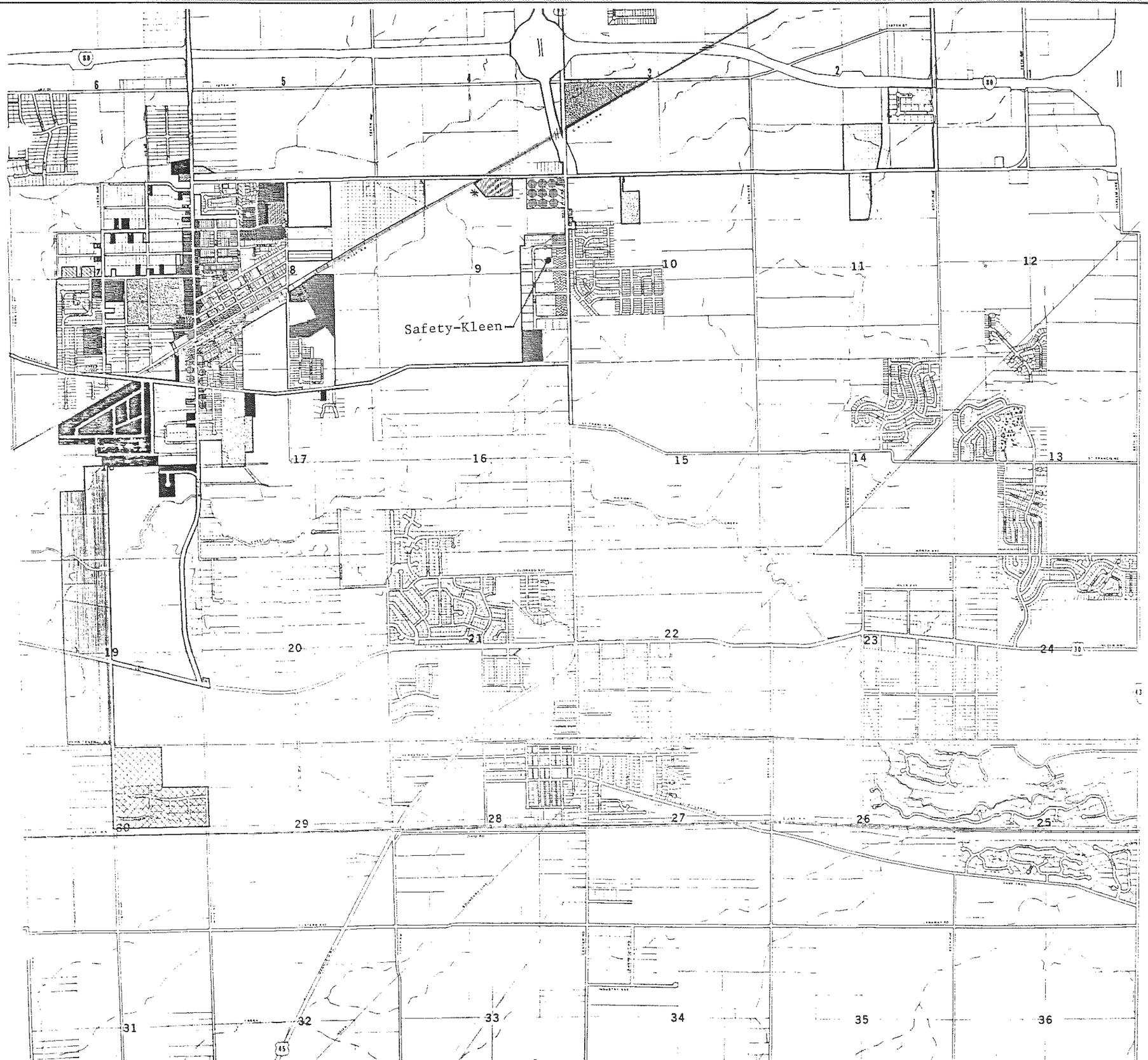
COMMUNITY-PANEL NU
170705 00

EFFECTIVE D
AUGUST 1,

U.S. DEPARTMENT OF HOUSI
AND URBAN DEVELOPMENT

RECEIVED
MAY 10 1990
IEPA-DLPC

APPROXIMATE SCALE
1000 0 1000 FEET



MOKENA ZONING MAP

RESIDENTIAL DISTRICTS

R-1	2 1/2 AC.
R-2	1 AC.
R-3	20,000 SQ.FT.
R-4	15,000 SQ.FT.
R 5	10,000 SQ.FT.
R-6	7,500 SQ.FT.
R-7	6-10 UNITS/AC.

COMMERCIAL DISTRICTS

C-1	12,000 SQ.FT.	C-6	5 AC.
C-2	12,000 SQ.FT.	C-7	5,000 SQ.FT.
C-3	20,000 SQ.FT.		
C-4	40,000 SQ.FT.		
C-5	5 AC.		

INDUSTRIAL DISTRICTS

I-1	20,000 SQ.FT.
I-2	1 AC.
I-3	5 AC.

PUBLIC - QUASI PUBLIC DISTRICT

P-1	2 1/2 AC.

* SPECIAL USE

DATE OF ADOPTION _____

ATTEST _____ VILLAGE CLERK

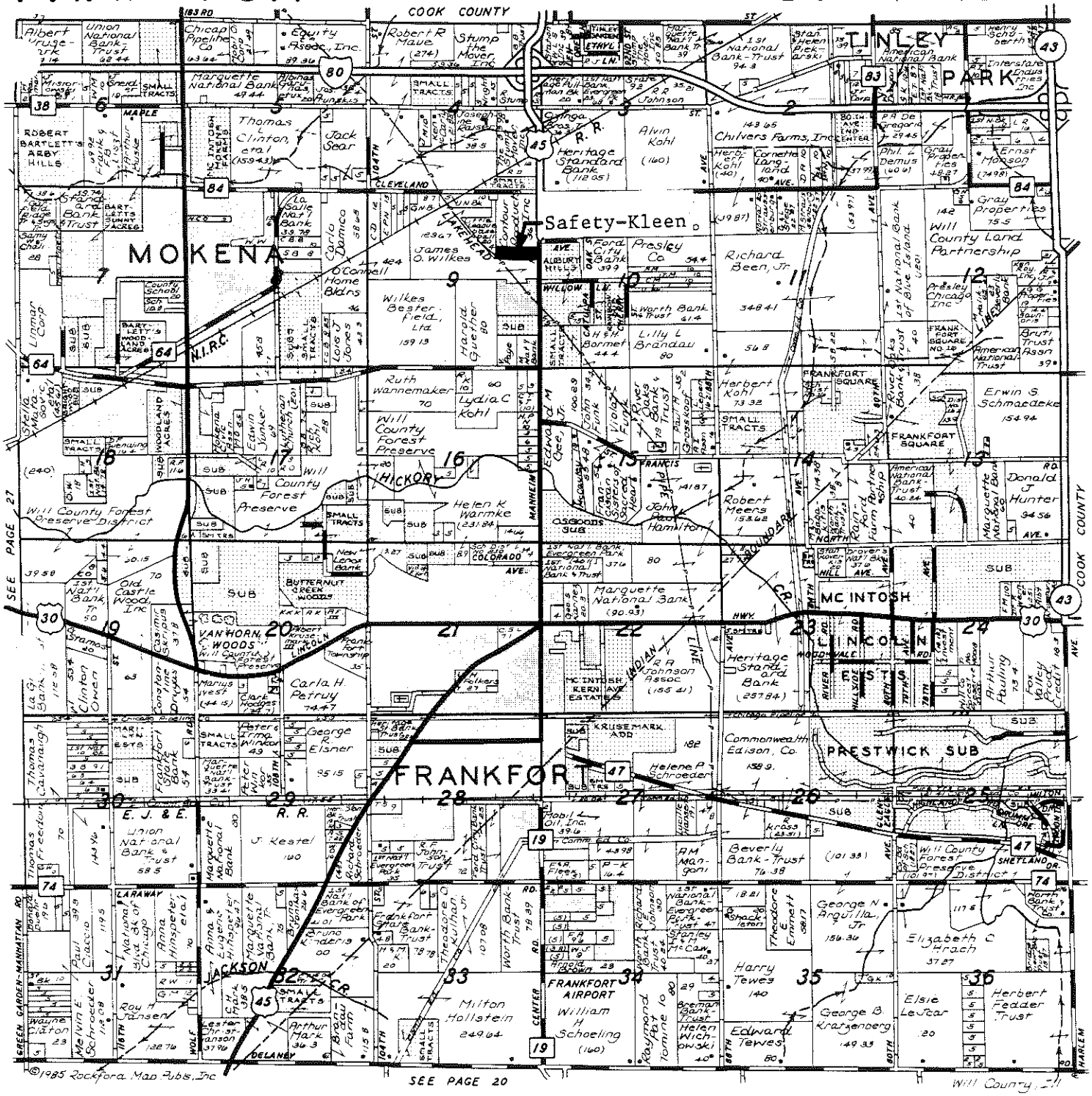
DATE OF REVISION	ZONING ADMINISTRATOR
March 21, 1984	[signature]

Safety-Kleen area is zoned I-1.

RECEIVED
MAY 10 1990
IEPA-DLPC

MCBRIDE ENGINEERING

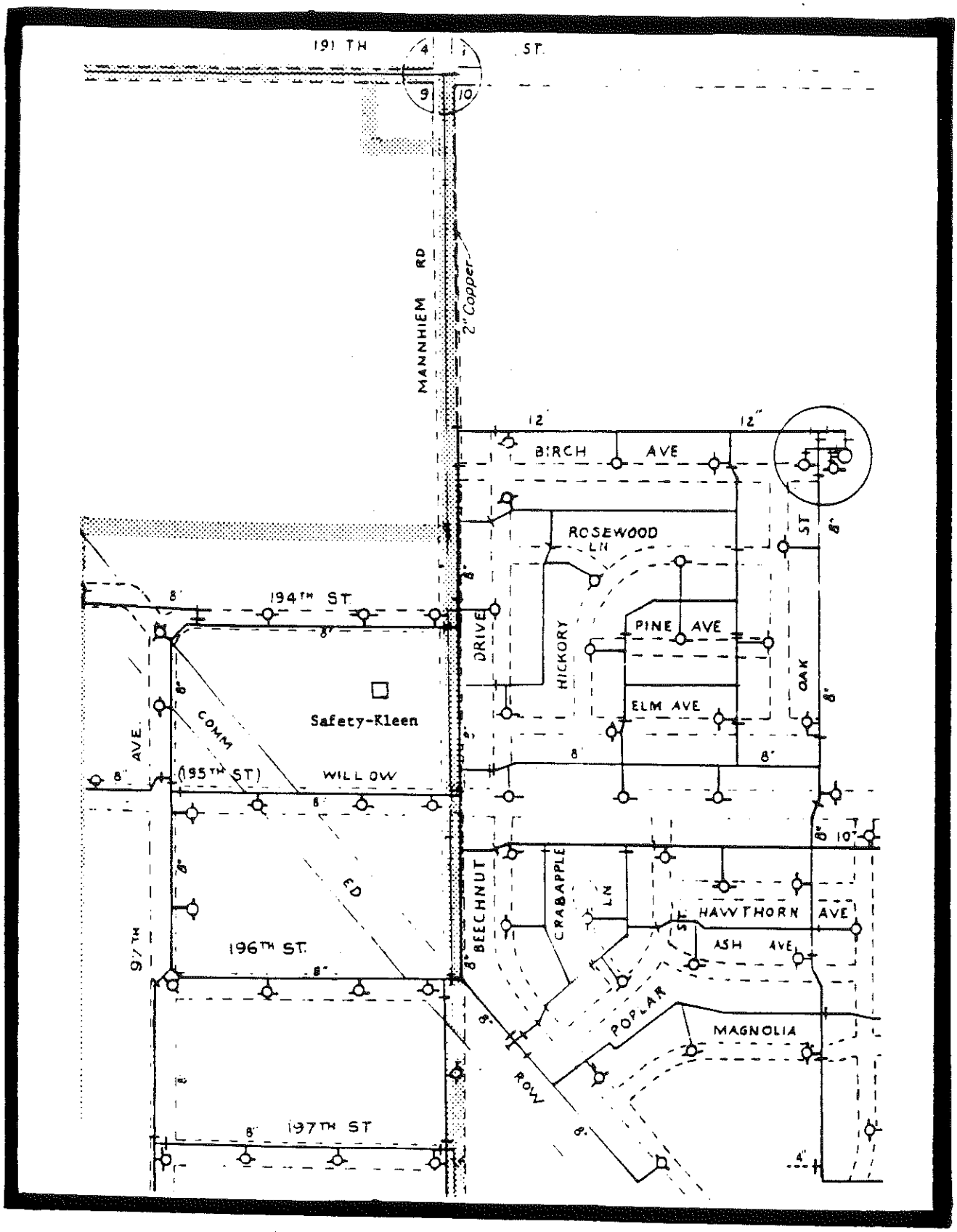
FRANKFORT T. 35N.-R.12E.



Published by Rockford Map Publishers, 1985

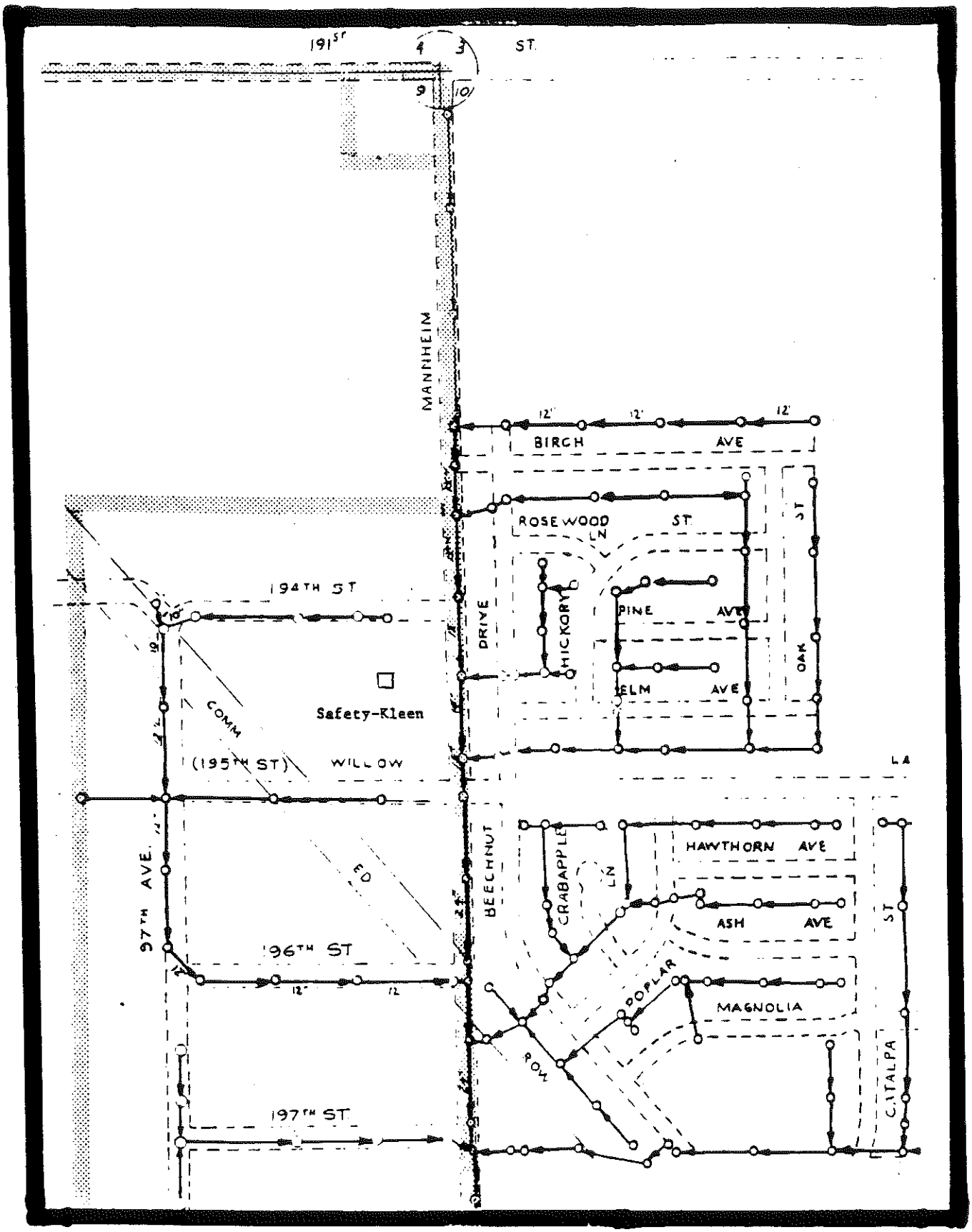
Scale: 1" is approximatley 2,300 feet.

North arrow:



City of Mokena
1986, 1"=800'

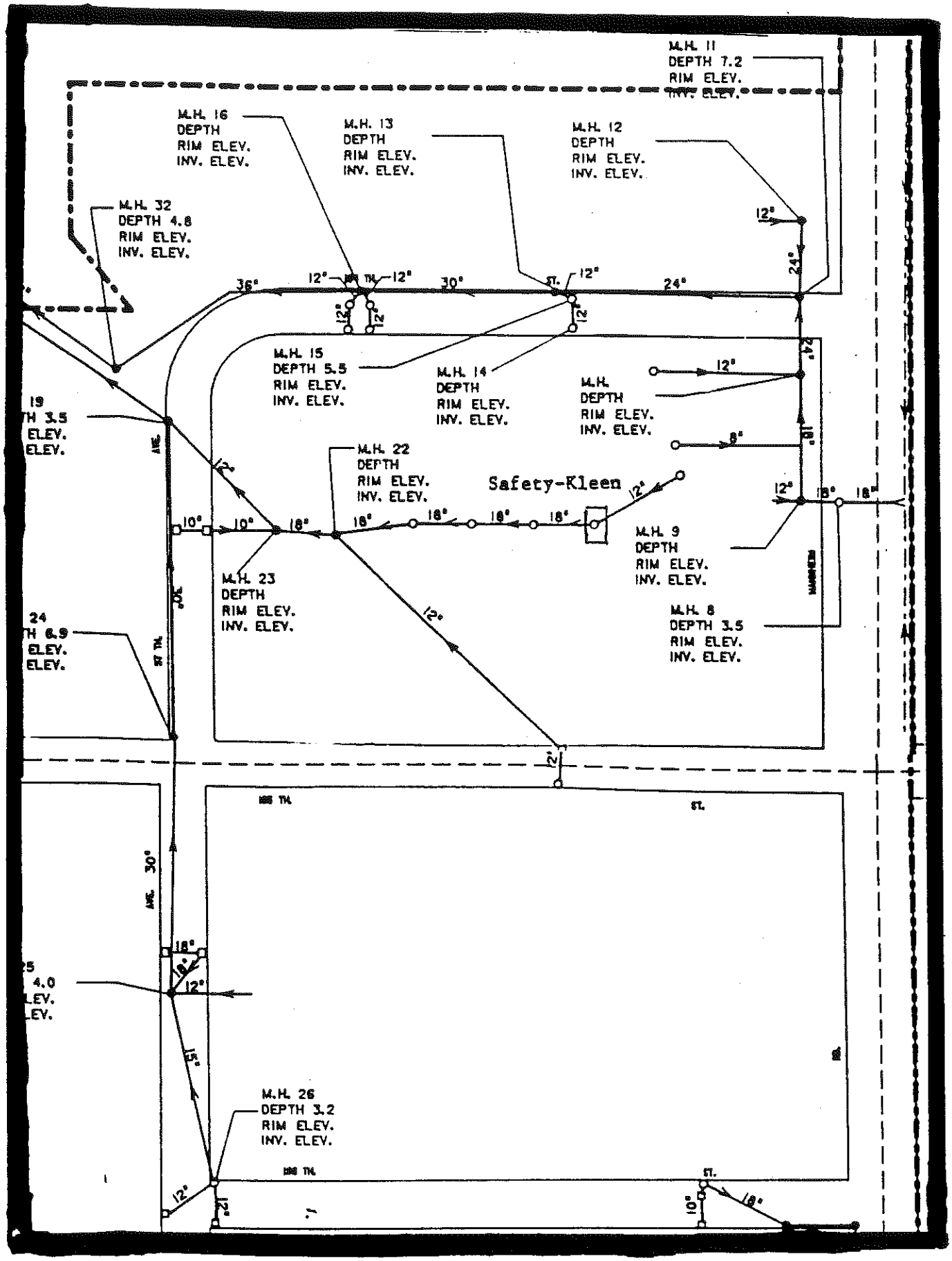
WATER DISTRIBUTION MAP
Safety-Kleen Corp.
ILD000665851



City of Mokena,
1986, 1"=800'

SANITARY SEWER MAP

Safety-Kleen Corp.
ILD000665851



City of Mokena
1986, 1"=200'

CITY OF MOKENA--STORM SEWERS
SAFETY-KLEEN CORP.
ILD000665851

EMERGENCY INFORMATION FOR SERVICE CENTER

A. Facility Emergency Coordinator

Name:	Dick Wheeler	Louise Boltz
Home Address:	3409 Blandford Joliet, IL 60432	2020 Morcambe Bay Drive New Lenox, IL 60451
Telephone:	Office: 708/479-1064 Home: 815/485-2478	708/479-1064 815/485-0299

B. Emergency Notification Phone Number

a. Internal -

Safety-Kleen Environment, Health and Safety Department
24 Hour Emergency Number: 708/888-4660

b. External -

1. National Response Center
   24 Hour Emergency Number: 800/424-8802

2. Illinois Emergency Services and Disaster Agency:
   217/333-8361

C. Emergency Team to be Notified

UNIT	TELEPHONE NUMBER
a. Fire Department Mokena Fire Dept.	708/479-2121
b. Police Department 1. Mokena Police Dept. 2. Will County Sheriff's Office	 708/479-5449 815/727-6191
c. Hospital and/or Medical Unit South Suburban Hospital	708/799-8000
d. Emergency Response Contractor Petrochem Services, Inc.	708/739-1150

safety-kleen®

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 13, 1990
PP 90-506

Director
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

Dear Director:

Safety-Kleen Corp. has obtained Letter of Credit number S228348 issued by the Northern Trust Company on April 27, 1988 to provide financial assurance for the following facilities. This letter provides updated closure costs for each facility.

FACILITY	CLOSURE AMOUNT
ILD 000805929 (5-034-03) 306 Campus Drive Arlington Heights, IL 60004	$ 50,000
ILD 000805911 Elgin Recycle Center 1500 E. Villa St. Elgin, IL 60120	$ 200,000
ILD 981097819 (5-160-02) 20 Tucker Drive Caseyville, IL 62232	$ 165,000
ILD 005450697 Chicago Recycle Center 1445 W. 42nd Street Chicago, IL 60609	$ 203,175
ILD 980613913 Safety-Kleen Envirosystems, Inc. 633 E. 138th St. Dolton, IL 60419	$ 245,425

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 312/697-8460 FAX 312/697-4295

ILD 000665869 (5-034-04) 412 Domenic Court Franklin Park, IL 60131	$ 50,000
ILD 000665851 (5-034-05) 9631 West 194th Place Mokena, IL 60448	$ 50,000
ILD 093862811 (5-136-01) RR #3 Pekin, IL 61554	$ 50,000
ILD 079749073 (5-034-01) 728 Morse Avenue Schaumburg, IL 60193	$ 55,000
ILD 981088388 (5-033-01) 500 Anthony Drive Urbana, IL 61801	$ 50,000
	$1,118,600

If you have any questions, please call me at extension 2551.

Sincerely,

Paul Pederson
Environmental Engineer
Central Region

/pw

cc: D. Chari
D. Dirst

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. National Union Fire Insurance Company (1), (the "Insurer"), of Pittsburg, PA. (2) hereby certifies that it has issued liability insurance covering bodily injury and property damage to Safety-Kleen Corporation (3), (the "insured"), of 777 Big Timber Rd., Elgin, IL. 60123 (4) in connection with the insured's obligation to demonstrate financial responsibility under 35 Illinois Administrative Code Parts 724.247 or 725.247. The coverage applies at:

	Sudden Accidental Occurrences (2)	Nonsudden Accidental Occurrences (3)	Sudden and Nonsudden Accidental Occurrences (4)
USEPA I.D. No. (1)			
Name SEE ATTACHED LISTING - ILLINOIS			
Address	X		
City			
USEPA I.D. No.			
Name			
Address			
City			

Please attach a separate page if more space is needed for all facilities.

The limits of liability are $ 2,000,000 (9) each occurrence and $ 2,000,000 (10) annual aggregate exclusive of legal defense costs. The coverage is provided under policy number RMGLA460-0041 (11) issued on 10-01-89 (12)

The effective date of said policy is 10-01-89 to 10-01-90 (13).

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 35 Illinois Administrative Code 724.247(f) or 725.247.

(c) Whenever requested by the Director of the Illinois Environmental Protection Agency (IEPA), the Insurer agrees to furnish to the Director signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the IEPA Director.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after copy of such written notice is received by the IEPA Director.

I hereby certify that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Signature Bernard M. Dunne

Typed name Bernard M. Dunne

Title Authorized Representative

Authorized Representative of National Union Fire Insurance Co.

Address of Representative 500 West Madison, Chicago, IL. 60606

This Agency is authorized to require that the Insured submit this document under Illinois Revised Statutes, 1981, Chapter 111 1/2, Section 21(f). Failure to do so may result in a civil penalty against the Insured of not to exceed $25,000 per day of violation. Falsification of this information by any person may constitute a Class 4 felony, and may also carry a fine of not to exceed $25,000 for each offense. This form has been approved by the Forms Management Center.

ILD 000805929
Safety-Kleen Corp. (5-034-03)
306 Campus Drive
Arlington Heights, IL 60004

ILD 981097819
Safety-Kleen Corp. (5-160-02)
20 Tucker Drive
Caseyville, IL 62232

ILD 005450697
Safety-Kleen Corp. (Chicago Recycle Center)
1445 W. 42nd Street
Chicago, IL 60609

ILD 005474143
Phillips Mfg. Co.
7334 N. Clark Street
Chicago, IL 60626

ILD 980613913 and
ILD 000781614
Safety-Kleen Envirosystems - Dolton
633 E. 138th Street
Dolton, IL 60419

ILD 000805911
Safety-Kleen Corp. (Elgin Recycle Center)
1500 E. Villa Street
Elgin, IL 60120

ILD 000665869
Safety-Kleen Corp. (5-034-04)
412 Domenic Court
Franklin Park, IL 60131

ILD 000665851
Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

ILD 093862811
Safety-Kleen Corp. (5-136-01)
RR #3
Pekin, IL 60448

ILD 079749073
Safety-Kleen Corp. (5-034-01)
728 Morse Avenue
Schaumburg, IL 60193

ILD 981088388
Safety-Kleen Corp. (5-033-01)
500 Anthony Drive
Urbana, IL 61801

ILD 981960610
Safety-Kleen Corp. (5-034-01
East North Ave. proposed)
Streamwood, IL 60103

LABORATORY QUALITY ASSURANCE MANUAL

SAFETY-KLEEN CORP.

O'Hare Technical Center

12555 W. Old Higgins Rd
Elk Grove Village, IL 60007

Adopted on: October 28, 1988

Revised on

Responsible Official: Dr. James Breece

General Manager, Technical Services

Quality Assurance Manager: Dr. Dennis Brinkman

SUBJECT TO REVISION

CONCURRENCES

QUALITY ASSURANCE MANAGER: Dr. Dennis Brinkman

TITLE: Manager, Technical Development

SIGNATURE: _____ DATE: 11/4/88

RESPONSIBLE OFFICIAL: DR. JAMES BREECE

TITLE: GENERAL MANAGER, TECHNICAL SERVICES

SIGNATURE: _____ DATE: [illegible]

LAB MANAGER: JOHN SCHMITZ

TITLE: CORPORATE LABORATORY MANAGER

SIGNATURE: _____ DATE: [illegible]

APPROVAL FOR COMPANY

SIGNATURE: _____ DATE: [illegible]

NAME: JOE KNOTT

TITLE: VICE PRESIDENT, STRATEGIC PLANNING & TECHNICAL SERVICES

TABLE OF CONTENTS

Chapter	Title	Page
1.	Introduction	1-1
	1.1 Quality Assurance Plan Background	1-1
	1.2 Quality Assurance Plan Purpose	1-2
	1.3 Quality Assurance Plan Scope	1-3
	1.4 Laboratory Mission	1-4
2.	Quality Assurance/Quality Control Policy	2-1
	2.1 Quality Assurance Policy	2-1
	2.2 Quality Control Policy	2-1
	2.3 Data Quality Objectives	2-2
	2.4 Data Reporting	2-4
	2.5 Corrective Actions	2-7
3.	Administrative Sample Handling Procedures	3-1
	3.1 Sampling Plan	3-1
	3.2 Chain of Custody	3-2
	3.3 Sample Log	3-3
	3.4 Sample Preservation	3-3
	3.5 Sample Retention	3-3
	3.6 Qualification Analysis	3-3
	3.7 Sample Disposal	3-4
4.	Standard Operating Procedures	4-1
	4.1 Procedure for Preparation & Approval	4-1
	4.2 Storage and Access	4-5
5.	Technical Systems and Performance Evaluation Audits	5-1
	5.1 Facilities Audit	5-1
	5.2 Performance Evaluation	5-2
6.	Facilities, Equipment, and Services	6-1
	6.1 Facilities, Equipment and Services Available	6-1
	6.2 Facilities and Equipment Maintenance	6-1
	6.3 Equipment Selection, Calibration, and Use	6-6
	6.4 Example Maintenance Log	6-11
7.	Qualification and Training	7-1
	7.1 Qualifications	7-1
	7.2 Training	7-1
8.	Quality Assurance/Quality Control Responsibilities	
	8.1 Quality Assurance Manager	8-1
	8.2 Laboratory Manager	8-1
	8.3 Analysts	8-1
	8.4 Administrators	8-2

Appendices

A Standard Operating Procedures

A.1 Introduction	A-1
A.2 Standard Operating Procedures (SOP's)	A-2
A.3 Training Procedure for New Laboratory Methodology & Proper Documentation of Training	A-6
A.4 Training & Record-keeping Requirements for Personnel Conducting Laboratory Analyses	A-8
A.5 Qualification Analysis Parameters	A-10
A.7 Documentation of Laboratory Results	A-13
A.8 Sampling Plan	

B Analytical Methods

B.1 Introduction	B-1
B.2 Writing & Updating of an Analytical Method	B-3
B.3 Quality Control Checks Summary	B-15

C Definitions	C-1
D Management Systems Audit Check	D-1
E. Corporate Policy Statements	E-1
F. Material Survey Form	F-1

SAFETY-KLEEN CORP.
LABORATORY QUALITY ASSURANCE MANUAL

1.0 INTRODUCTION

Since many Safety-Kleen business decisions are based on analytical results, a program to ensure the reliability of these results is essential. The purpose of Safety-Kleen's formal quality assurance program is to assure that all results are consistent in quality, and that the level of that quality can be defined and documented.

Safety-Kleen Corp. is committed to providing analytical results which are technically sufficient and legally defensible. The Safety-Kleen Corp. laboratories perform physical and chemical analyses of products and hazardous waste for use by Safety-Kleen Corp., its customers, and regulatory agencies (including the United States Environmental Protection Agency, each of the state environmental regulatory agencies in whose jurisdictions the company operates, and municipal authorities where appropriate).

This document provides the specific details of the quality assurance/quality control plan of Safety-Kleen Corp. and how it is implemented.

1.1 Quality Assurance Plan Background

Environmental Protection Agency regulations clearly state (40 CFR 264.13(a)(1):

"Before an owner or operator treats, stores or disposes of any hazardous waste, he must obtain a detailed chemical and physical analysis of a representative sample of the waste."

In 40 CFR 261, the EPA states what procedures are required to determine if a "solid waste" is a "hazardous waste". For "listed" wastes, Test Methods for Evaluating Solid Waste,

Physical/Chemical Methods (SW-846) ... "shall be used to determine whether a sample contains any toxic constituents".

For "characteristic wastes", a solid waste ... "is a hazardous waste if it exhibits any of the characteristics in the subpart" (261.20). The subpart goes on the define the methods that shall be used to determine if a waste exhibits each of the four characteristics. 1) Reactivity, 2) Corrosivity, 3) Leachibility, and 4) Ignitability.

The EPA developed Test Methods for Evaluating Solid Waste (SW-846, 2nd Ed.) ... "so that the regulated community can be certain that the data it provides will be acceptable to the agency". SW-846 also states:

"...contains the procedures that may be used ... to determine whether a waste is a hazardous waste..."

"...provide methods ... to support waste evaluations and listing and delisting petitions..."

"Many of the methods ... have not been fully evaluated by the agency using materials characteristic of the wastes regulated under RCRA."

Based on these references, SW-846 was not intended to provide the detailed chemical and physical analysis required to treatment, storage, and disposal (TS&D) operators. The operator is required to determine what analysis to perform and what procedures to use.

However, SW-846 states: "Only those data that are obtained when Quality Control and Quality Assurance procedures are followed by the testing organization will be accepted by the agency " The QA/QC section of SW-846 defined QA/QC as:

"Quality Assurance (QA) is the system for ensuring that all information, data and resulting decisions compiled under a specific task are technically sound, statistically valid and properly documented. Quality Control (QC) is the mechanism through which quality assurance achieves its goals."

1.2 Quality Assurance Plan Purpose

Safety-Kleen Corp. has a number of reasons for carefully formulating and pursuing a detailed quality assurance plan. These include:

- To assure that adequate analytical laboratory information gathering systems are developed to support Safety-Kleen Corp. in meeting its corporate objective: to become the world's leading specialty reclaimer of hazardous and quasi-hazardous automotive and industrial fluids with primary emphasis on the small generators through recycling, re-refining, and reclaiming.

- To provide the required analytical information to support the corporate health, safety, and environmental policy objective: to "minimize risk of harm to human health and the environment" while operating "in full compliance with all federal, state, and local laws and regulations." [See Appendix E for formal Statement of Safety-Kleen Corp. Corporate Mission and the Health, Safety, and Environmental Policy.]

- To assure that the information gathering processes provides information which adequately characterizes the materials that are being handled by Safety-Kleen Corp. Recycle Centers and Plants.

- To maintain a continuing assessment of the accuracy and precision of data generated.

- To provide a measure of the precision, accuracy, reproducibility, comparability, and completeness requirements for each of the analytical methods to be utilized and to identify weak methodology.

- To identify training needs and document the training that the staff has received and is receiving.

- To provide a record of system performance as a basis for validating data and projecting repair or replacement needs.

- To identify operations whose overall performance can be or must be upgraded.

1.3 Quality Assurance Plan Scope

This document addresses the quality assurance/quality control issues relevant to the O'Hare Technical Center of Safety-Kleen Corp. located at 12555 W. Old Higgins Road, Elk Grove Village, IL. It provides specific details of the personnel training, the generation of standard operating procedures, and auditing functions that make it possible for the laboratory to produce scientifically valid and legally defensible data.

1.4 Laboratory Mission

Safety-Kleen Corp. specializes in the business of reclaiming hazardous and quasi-hazardous material via a range of technologies that are selected on the basis of the composition and characteristics of each batch of material accepted. In order to do this in an environmentally safe manner, many analytical parameters are used to verify that material matches manifest, shipping papers (Bill of Lading), material survey, pre-qualification analysis, and/or previous shipments.

Thus, the published mission of the corporate laboratory here at the O'Hare Technical Center is:

"... to provide technical support for all Safety-Kleen business areas. This is accomplished through research and development, standardization of instrumentation and techniques, training, and analyses of waste materials by the Analytical Services Group.

The goal of this laboratory is to ensure that any material handled is properly identified. Proper identification includes determining <u>what is present</u> and <u>what is not present</u>.

In answering these two basic questions, the health and safety of Safety-Kleen employees and the communities in which we work is protected, the compatibility and safety of Safety-Kleen process operations are ensured, and Safety-Kleen can operate within its EPA permits.

A listing of the more common properties determined in part or in total by the corporate laboratory in carrying out this mission, along with examples of the application of the resultant data includes:

1. Volatile Organic Composition - ASTM D2908
   - nature and extent of hazard
   - disposition of material
2. Flash Point - TC1004 (Setaflash) and TC1005 (Tag closed cup)
   - extent of flammability hazard
3. Specific Gravity - TC1006 (Hydrometer)
   - for conversion between volume and weight
4. pH - SW-846(9040)
   - acceptability of material (2<pH<12.5)
   - need for adjustment (pH<4 or pH>10)
5. Water Content - ASTM D1364-83
   - impact on product quality and recoverability
   - usefulness as fuel
6. Non-volatile Residue - ASTM D1644-75(1981)
   - unrecoverable portion of material
7. Heat Content - (TC3001)
   - suitability for use as fuel
8. Viscosity - (Visual comparisons or ASTM 2196-81)
   - ability to be pumped
9. Phase Information - Safety-Kleen Method
   - disposition of phases
10. Ash - TC1002
    - suitability for recovery or use as fuel
11. Solids by Centrifugation - TC1003
    - suitability for recovery
13. Recoverability - Safety-Kleen Method
    - disposition of material
14. Water Reactivity - Safety-Kleen Method
    - acceptability of material
15. Chlorinated Biphenyls (PCB's) - TC4003
    - acceptability of material

16. Metals (Pb, Cr, Zn, Ti, Fe, Hg, Be, Ni, Cu, Cd, Hg)
    TC2001 - Be
    TC2002 - Cd
    TC2003 - Cr
    TC2004 - Cu
    TC2005 - Fe
    TC2006 - Pb
    TC2007 - Hg
    TC2008 - Ni
    TC2009 - Ti
    TC2010 - Microwave/acid digestion
    TC2011 - ICP/AES of acid-digested samples
    - suitability for recovery or use as fuel
17. Ion Chromatograph - TC4001
    - identification of contaminant compound types
18. Acidity/Alkalinity
19. Radioactivity
    - acceptability of material
20. APHA color in clear solvents and solutions - TC1001
    - acceptability of recycled products
    - measure of degree of contamination
21. Analysis of water in organic solvents and their admixtures - TC1007 (Fisher 392/395) and TC1008 (Fisher 450)
    - quantify recoverable solvent
    - determine solvent quality
22. Chlorinated/fluorinated solvent chromatography - TC4002
    - identify/quantitate contaminants

2.0 QUALITY ASSURANCE/QUALITY CONTROL POLICY

2.1 Quality Assurance Policy

It is the Quality Assurance Policy of Safety-Kleen to provide laboratory data which is scientifically valid, defensible, and of known precision and accuracy. By implementation of this Quality Assurance Policy Safety-Kleen insures that it's laboratory data is adequate to support the associated business activities and complies factually with the direction of the Health, Safety, and Environmental Policy. (Appendix E)

The authority and responsibility for developing this program is assigned to Technical Services, which has created the position of Manager of Quality Assurance to carry out the day-to-day management functions, technical guidance, general support, and continuous evaluation of the program effectiveness.

2.2 Quality Control Policy

Safety-Kleen Corp. Laboratories use standard Quality Control procedures as part of an overall Quality Assurance Program. These Quality Control procedures specify that the performance of the operations are to be challenged and evaluated using control samples with known characteristics and actual samples as received. Each Safety-Kleen analytical procedure uses the following QC checks, where applicable:

1. Calibration and Reagent Standardization -

Each time an instrument is calibrated or a reagent is standardized, a record must be kept of the results. The analytical methods specify the procedure and frequency required to maintain accuracy.

2. Known Standards -

If a method is not calibrated frequently, a known standard will be analyzed on a regular basis. One or the other must be done either daily or weekly, depending upon method. If more than twenty samples are analyzed before the next scheduled calibration or known standard, then one or the other must be done.

3. Blanks -

Where applicable, methods blanks will be run each analysis day and the results recorded.

4. Duplicates -

A duplicate sample will be run once a day for each type of sample analysed that day (see A.5 Appendix for list of types).

5. Spiked Samples -

Where applicable, samples will be spiked with the analyte and analyzed. Spikes will be conducted after ten (10) to twenty (20) samples, depending upon method.

6. Blind Standards -

Where available, a blind standard will be analyzed every three months. Blind standards will be prepared by the Corporate Laboratory Manager and given to each laboratory. A blind standard will contain a known compound at an concentration which is unknown to the analyst.

7. Reference Standards -

Where available, reference standards will be analyzed by each laboratory yearly. These standards must be prepared by an outside laboratory and the concentration will be unknown, until final results are submitted.

8. Round Robin Testing -

A quarterly program of sample and standard exchange will be used to compare results from individual laboratories. This program will include blind standards, reference standards, spiked samples, and real samples.

2.3 Data Quality Objectives

Data quality objectives (DQOs) are qualitative and quantitative statements which specify the quality of the data required to support decisions related to the various business ventures within the Safety-Kleen. DQOs are determined based on the end use(s) of the data to be collected. They are established prior to data collection during the formulation of standard operation procedures and are not treated as a separate consideration. Rather, the DQO development process is integrated with the project planning process that functions within the quality assurance policy outlined in section 2.1, and the results are incorporated into the sampling and analysis (S&A) plans and published standard operating procedures (SOP).

The DQO development process results in a well-thought-out sampling and analysis plan which details the chosen sampling and analysis options and statements of the confidence in decisions made using this data. Confidence statements are possible through the application of statistical techniques to the data.

DQOs are established to ensure that the data collected are sufficient and of adequate quality for their intended uses. Data collected and analyzed in conformance with the DQO process described below can be used in assessing the uncertainty associated with a given decision. The term "uncertainty" is used in a broad sense to describe the likelihood of all types of errors associated with a particular decision.

2.3.1 Data Quality Objective Development

Data quality objectives at Safety-Kleen are developed through a three-stage process:

I) <u>define the types of decisions</u> that will be made using the data to be generated. For this laboratory that includes:

a. whether to treat a material as a hazardous waste
b. the recyclability of a material
c. whether a waste could be used as a fuel
d. whether the material is approved by Safety-Kleen for handling
e. whether further analyses are required.
f. what is the proper manifest designation.

II) <u>specify the data necessary</u> to meet the objectives. This primarily involves the identification of the characteristics of the material or operations that are used to make the required decisions.

III) <u>specify the methods</u> by which data will be obtained to make decisions. This stage involves selection of the sampling approaches and analytical options. This stage involves selection of the sampling approaches and analytical options. Information on SK sampling protocol is contained in "EHS" and is outside the purview of the Corporate Laboratory. The analytical methods are contained in the Standard Operation Procedures Manual as described in Appendix B.

2.3.2 Related Issues

Adhering to approved SOPs ensures sample integrity and data comparability and reduces sampling and analytical error. Typical issues impacting data quality include the following:

- Sampling objective and approach
- Sample collection methods
- Chain of custody documentation
- Sample preservation techniques
- Sample shipment methods
- Holding times

These are all discussed in detail in Chapter 3. If limited or no information exists for a particular sample on sample collection, preservation techniques or holding times, the data is to be interpreted with caution.

The data requirements given in the various standard operating procedures and product specifications approved by Safety-Kleen management reflect all of the considerations discussed above. These are requirements are published within each SOP in the Standard Operating Procedures Manual and in associated documentation. For further details on the preparation of DQO's, see SOP 2101.

2.4 Data Reporting

Since data are the only products of the O'Hare Technical Center, as much care is taken to maintain high quality standards in terms of reporting the data as in generating it in the first place. The wide variety of reports parallels the variety of samples analyzed and purposes for performing the testing.

2.4.1 Types of Reports and Records

The following records are maintained and kept for three years.

A. <u>Receiving Papers</u> - Date, time, sample ID, customer name, stream ID, estimated volumes generated, sampling check list, sample receipt/delivery.

B. <u>Lab Information Management System</u> - For each lot of waste: date, sample ID, initials when results are completed, checklist of analysis done on each sample is maintained on our mainframe computer at Safety-Kleen's Corporate Office.

C. <u>Worksheet</u> - Raw results for each test (titers, temperature rise, sample weights, flash results, etc.), date, initials of analyst, and sample ID.

D. Instrument Use Logbook - Date, sample ID, type, initials, result, duplicates on every 10th or 20th sample, maintenance, reports of corrective action.

E. Calibration and Performance Sample Results - Initials, result, daily duplicates results for calibrations, duplicates, known standards, blanks, blind standards, and reference samples. All the QC results must be compiled and kept in one place, each set of results will be compared graphically with QC limits, records should show basis for QC limits.

F. Instrument Maintenance and Repair Record - On every analytical system.

2.4.2 Procedure for Documentation

1. Information is recorded in numbered bound notebooks with numbered pages. Specific formats exist for recording information. If a form does not exist, an example format is provided in the SOP for the method of interest.

2. Notebooks are checked out from the Librarian and checked back in with the lab manager when:

   A. Notebook is completed.
   B. Termination of employment.
   C. Notebook is seriously damaged.
   D. A lost notebook is found that has been replaced.

3. Written information is recorded in ink using a ball point pen. The information is to be legible and legibility must carry through in copies.

4. Corrections are not to obscure any previous entries. Corrections are initialed and dated with a comment as to the reason why the correction was made if the reason is not obvious.

5. Entries are to have appropriate units.

6. Entries are to be interpreted and expressed using standard scientific notation.

7. Each block of testing starts on a new page and references the study, protocols, SOP's, and/or SAP's.

8. Incomplete pages have a slash through the remainder of the page.

9. The last page of each section in the notebook has the following:
   a. Analyst's signature and date
   b. Signature and date of qualified reviewer (someone sufficiently familiar with the matters discussed to be able to comment on the notebook's sufficiency i.e., peer review).

10. In each notebook the first page includes a listing of all the initials and signatures matched with printed names for entries that appear in the notebook.

11. An index is the second section in the notebooks.

12. All originals of the following are to be submitted to the archive to support test reports:

    a. Charts
    b. Graphs
    c. Printouts
    d. Photos

    Each contains the following:

    1. Signature of analyst and date of generation.
    2. References (see 7 above) -- also included are references to appropriate notebook and page.
    3. Sufficient information to reconstruct the observation conditions.

2.5 Corrective Actions

While the goal of the Safety-Kleen QA/QC program is to provide sufficient training, equipment, facilities, technical support, and supervisory oversight to avoid inadequate measurements or data, it is recognized that data quality can fall outside our established limits for a variety of reasons. Our program provides for reporting and review procedures that permit early and effective corrective action.

Specifically,
a) all samples are tracked by a computerized system to ensure that the necessary analyses are performed. Any sample which does not complete its required testing in one weeks is flagged for the laboratory manager, who then makes a specific assignment to the leader of the group whose data is missing.

b) data generated each day are entered onto report sheets and a data summary recorded in the logbooks for each sample.

These sheets provide an opportunity for quick review of the data to see if the various results are internally consistent. Apparent discrepancies are brought to the attention of either the group leader or laboratory manager.

c) completed data sheets on all samples are reviewed daily by the designated group leader in the relevant laboratory and periodically by the Laboratory Manager. This data is then entered into the LIMS.

If problems are found, several corrective actions are considered, depending on the apparent source. These include:

a) reanalysis of the sample
b) performance audit of the analyst
c) systems audit
d) interlaboratory comparison study
e) review of SOP for error or inadequacy.

In all cases, a Corrective Action Form is to be completed for incorporation into the appropriate file(s) as indicated at the bottom of the sheet. An example is provided in Section B.2 of Appendix B. This permits ready determination of systematic problems and provides for quick compilation of actions of various types taken over any given period of time.

3.0 ADMINISTRATIVE SAMPLE HANDLING PROCEDURES

Safety-Kleen Corp. uses standard procedures for sampling hazardous waste and handling samples. These procedures were developed in accordance with the guidelines presented by the U. S. EPA Office of Solid Waste in SW-846 and by the their Office of Enforcement and Compliance Monitoring in the National Enforcement Investigations Center Policies and Procedures manual (EPA-330/9-78-001-R). Where necessary, procedures were selected that were applicable to the types of wastes and samples encountered by Safety-Kleen.

3.1 Sampling Plans

The document entitled "Data Quality Objective Development" contains the detailed sampling procedures used by SafetyKleen for incoming and outgoing shipments of wastes which may be hazardous. All shipments are sampled and composites are used. For samples of customer's waste for qualification analyses or analytical services, the customer is required to certify that the material presented for sampling and qualification is representative. For facility samples, the following guidelines are used:

3.1.1 Drums and Tankers

For both drums and tankers, a written sampling procedure is available. This procedure specifies:

1. Equipment to be used (coliwasa for liquid drums, thief for solids drums, coliwasa for tankers, bottles).

2. Safety equipment (respirator, gloves, etc.).

3. How to take the samples, including the selection of sample containers and modes of shipment.

4. How to fill out labels and receiving documents (drum sheet, etc.).

5. How to check for incompatibility (heat generation, gas evolution, etc.).

6. Inspection of drums for leaks, proper labels, etc. and counting of drums.

7. How to check material in drums for specific gravity, inches of solids, total volume, water phases, and other observable properties.

3.1.2 Field Samples

For quality control purposes, replicate field samples are generated by dividing one sample selected from each type of material received each day into two identical samples.The analysis results are used to validate the assumed relative homogeneity of the various types of samples received as well as serving as a check on the analytical procedures. Control limits are developed to determine how closely the results will agree. The results are reported immediately to the Lab Manager and QA Manager. The QA Manager's responsibilities include reviewing this data, keeping a separate file of these results, and comparing results with the control limits. The compiled results are reviewed periodically with the General Manager for Technical Services and the Vice President for Strategic Planning.

3.2 Chain of Custody

Within Safety-Kleen facilities, samples are always stored in a secure (i.e., protected from unauthorized entry) area. The samples are labeled by the sampling personnel and identified by company name, waste type, date, purchase order number and signed by the generator. The sample label information assures that samples are not confused and that analytical results apply to the hazardous waste received.

For samples received for qualification analysis, the sample label is part of the waste survey form. When the form and label are completed, the label is attached to the sample. Upon receipt, the laboratory checks the sample label against the survey form.

Intracompany samples are supplied with documentation very similar to that provided for qualification analyses. The primary difference is the requirement for more specificity as to the objective for the analysis request, since only one property may be of interest.

Blind samples and other quality control samples have special handling requirements, since their identity must be shielded from those performing the analyses. They are normally logged in as if they were a new sample, and the sample numbers and identity are passed along only to the Laboratory Manager and QA Manager.

3.3 Sample Log

Information on all samples received by the laboratory is entered into a computer logbook (LIMS). Each sample is identified by number, customer, waste type and date received. Upon completion of lab analysis, the analyst dates and initials the raw data sheets. When all analyses are done, the data is entered into the computer. In this way, all samples can be tracked through the laboratory and the current status of all samples can be determined.

3.4. Sample Preservation

For the types of hazardous waste analyses that are conducted by Safety-Kleen Corp., no sample preservation is required other than assuring container integrity and controlling the temperature to between 20° and 120°F. Addition of preservatives and sample freezing or refrigeration is not needed and may significantly alter the physical properties of the sample.

3.5. Sample Retention

All hazardous waste samples are retained for three months after the analysis is completed. They are then compiled and disposed of as a hazardous waste by incineration or used as a fuel, depending on composition (see 3.7).

3.6 Qualification Analyses

As soon as the samples have been properly logged in, a basic set of analyses is requested. The exact protocol depends on whether the material is liquid or solid. The extent of the analysis of either material is dependent upon the level of contamination found. An outline of the testing sequence is as follows:

For all liquid wastes, the following parameters are determined:

- Volatile Organic Composition
- Water Content
- Specific Gravity
- Non-volatile Residue
- Phase Information
- Compatibility (pH)
- Chlorinated Biphenyls (PCB's)
- Viscosity
- Flammability (Flash Point)

Based on these results and Survey information, the following parameters may be determined:

Water Reactivity
Recoverability
Solids by Centrifugation
Heat Content
Ash
Total Halogens
Total Sulfur
Total Chlorine, Bromine, and Fluorine
Total Phosphorus
Metals (Cr, Pb, Zn, Fe, Ti, Be, Hg)

For all solid wastes, the following parameters are determined:

Volatile Organic Composition
Chlorinated Biphenyls (PCB's)
Flammability (Flash Point)
Compatibility (pH)
Non-Volatile Residue

Based on these results and Survey information, the following parameters may be determined:

Heat Content (If applicable)
Ash
Total Halogens
Water Reactivity
Total Sulfur
Metals (Cr, Pb, Zn, Fe, Ti, Be, Hg)

Using the results of the above testing, decisions are made as to the handling and disposition of the material from which the sample in question was taken. The primary pathways are recycling, combustion, and return to generator.

3.7 Sample Disposal

All sample disposal is conducted in accordance with state and federal regulations. At the O'Hare Technical Center each container is drained of all free liquid, washed with solvent, soaked in hot soapy water, and rinsed with clean water. The cleaned bottle is disposed of with the normal commercial garbage.

The sample liquid is collected in drums and mixed with other liquid waste for incineration or burning as fuel as a hazardous waste.

4.0 STANDARD OPERATING PROCEDURES

The primary tool for quality control within the analytical laboratories at the Safety-Kleen O'Hare Technical Center is an extensive set of standard operating procedures. These have been developed and are being used in order to implement routine quality control requirements for all monitoring programs, repetitive tests and measurements, and for inspection and maintenance of facilities, equipment, and services.

The following section provides a detailed description of how each standard operating procedure was prepared, reviewed, and approved. It is written in the format of an SOP as an example of the information they contain. The second section describes how these SOP's are made readily available to those who use them.

4.1 Procedure for SOP Preparation and Approval

1. SUBJECT

1.1 This Standard Operating Procedure (SOP) outlines the contents, concepts, and philosophies to be addressed in the development and preparation of an SOP.

2. PURPOSE

2.1 The purpose of this SOP is:

- To serve as a guide in the preparation of SOP's, including concepts as well as contents
- To define the format to be used
- To describe the procedure for preparing an SOP for review.

3. SCOPE

3.1 This document is to be used by the Safety-Kleen Technical Center Laboratory in developing SOPs.

4. RESPONSIBILITIES

4.1 <u>Initiator</u> - Document preparation and coordination of the document review process.

4.2 <u>Laboratory Manager</u> - Assures timely response to draft or revised SOPs. Assures that policies are consistent with existing SOPs and departmental objectives.

4.3 General Manager of Technical Services - Assures that SOPs are consistent with existing corporate policies and technical objectives.

5. DEFINITIONS

5.1 Definitions are used to clarify key words, phrases, symbols, etc. that may not be uniformly understood or need to be created to understand and/or implement the document. Consistency must be maintained with definitions used in related documents. A word uniquely defined in a document must be enclosed in quotation marks when used. The first time an abbreviation is used, it must be preceded by the term or phrase completely written out.

Example: Facilities are the operational areas within a location.

[See Appendix C of this manual for a compilation of definitions.]

5.2 TITLE - A coherent key word abbreviation of the subject and scope to be used in manual and computer searches.

Example: "Housekeeping and Pest Control in Laboratory Facilities"

5.3 SUBJECT - A concise and complete explanation of the material covered, the procedure documented.

5.4 PURPOSE - The justification, when needed to supplement the subject, for the creation and continued use of the document. Indication of conformance with any internal or external compliance requirements must be made here.

5.5 SCOPE - States the limitations of the applicability of the procedure documented. It is to identify any materials, products, or, by title, individuals, facilities and/or locations specifically included or excluded.

5.6 RESPONSIBILITIES - A listing of the responsible groups and/or individuals, by title, to which the document (or parts of it) applies.

5.7 PROCEDURE - A clear, concise unambiguous explanation of the steps/operations to be followed. This section should be specific as to subject, operation, and responsible groups or individuals by titles. The appropriate philosophies should be evident if not delineated.

6. PROCEDURE

6.1 Be certain that the subject that you are to document is not already covered in another document.

6.2 Write down the "Subject", "Scope", and "Purpose"; then review existing SOP's for similar subject content.

6.3 If possible, revise existing documents. Otherwise, write the "Procedure" section.

6.4 Review and revise as needed. The final format for the document must be as follows:

0. TITLE
1. SUBJECT
2. PURPOSE
3. SCOPE
4. RESPONSIBILITIES
5. DEFINITIONS
6. PROCEDURE
A. ATTACHMENTS

6.5 Identify Responsibilities.

6.6 Generate a title.

6.7 Circulate a draft copy for initial reviews to:

- Peers for technical content
- Responsible individuals for impact and technical content

6.8 Create the final draft.

6.9 Revise as needed and proofread for grammar, spelling, and typographical errors.

6.10 Submit to the laboratory manager for approval process.

6.11 Use a variation of the Training Form on the following page made specific for the SOP of interest to document the training of each individual who is expected to use that procedure.

TRAINING FORM Trainee _____

Procedure _____ _____

Trainer _____ Date _____

1. The following sections of the procedure were explained by the trainer and understood by the trainee:

Trainer	Trainee

_____

Analyst certified: (by/on) _____

Additional training recommended: (by/on) _____

4.2 Storage and Access

The Standard Operating Procedures are available in both a compiled form as a notebook(s) and as individual smaller documents available for each test or operation. Hardcopy versions of the compiled document are always available from the Laboratory Manager or the Technical Library. Hardcopies of individual SOP's are placed in the laboratories routinely using those tests or operations.

In addition to this, a formal file is maintained on each SOP. This file contains the background material (such as EPA or ASTM protocols) that went into generating the SOP, a hardcopy of the SOP, and the computer disc containing the latest version (or a document providing the location of that disc, since more than one SOP might be on a disc). These files are available for inspection at anytime in the Technical Library.

5.0 TECHNICAL SYSTEMS AND PERFORMANCE EVALUATION AUDITS

No quality assurance/quality control program can operate without monitoring and interactive feedback. Thus, a formal program of regular reviews of laboratory equipment, procedures, and personnel are conducted and documented.

5.1 Facilities Audit

A facilities audit is a broad review of the current status of quality assurance/quality control within one laboratory or an entire facility. This audit can be carried out either by in-house personnel trained to perform such audits, or by outside contractors, preferably someone having no other connections to Safety-Kleen.

Issues that might be addressed within this audit include:

a. Procedures for establishing and current status of data quality objectives

b. Procedures for establishing and current status of standard operating procedures

c. Status of tracking system for quality assurance program

d. Degree of management, financial, and personnel support for quality assurance program

e. Responsibilities and authorities of the various line management and quality assurance officer for carrying out the quality assurance program

f. Status of calibration records, general laboratory cleanliness, equipment maintenance, and other support systems

The results of such an audit are to be provided in written form to all management staff and copies are made available to all personnel by placement in the Technical Library. In addition, an oral overview is provided by the Laboratory Manager and Quality Assurance Officer with equal emphasis on the areas of strength and weakness. Examples of forms that are used during the audits are presented as Appendix D.

5.2 Performance Evaluations

A performance evaluation is the means of documenting the quality of work generated by an individual, usually in reference to an established job description. This evaluation is prepared by each individual's direct supervisor every February. An oral discussion of the written evaluation is an important part of the process aimed at improved performance.

One variation on this performance evaluation that is used on selective occasions is a formal review of laboratory personnel on the instrumentation or analytical system on which they work. In this case the audit involves providing samples of known composition to the analyst to determine whether he can meet the data quality objectives for that method. At Safety-Kleen, this is most often used with relatively new employees or with personnel just learning a new procedure.

6.0 FACILITIES, EQUIPMENT, AND SERVICES

It is impossible to produce quality data if the laboratory facilities are inadequate or improperly maintained. In this section we provide detailed descriptions of our approach to the selection, evaluation, and maintenance of our equipment, facilities, and services. Both routine and corrective actions are covered.

6.1 Facilities, Equipment, and Services Available

The Safety-Kleen Corp. O'Hare Technical Center is a modern research laboratory that has just completed a major renovation in 1988. With over 60,000 square feet of laboratory and office space, nearly 100 technical and support personnel are housed in this building. A diagram of the general lay-out of the laboratory is provided as Figure 6.1.

While a detailed listing of all equipment would be too extensive to include here, some of the more major analytical instrumentation includes:

GC	AA
GC/MS	Ion Chromatograph
ICP	KF Auto Titrimeter

Trained service personnel are available during working hours. Two staff members devote fulltime to facilities and equipment maintenance. In addition, many of the major equipment manufacturers have service centers nearby, which expedites repairs.

Services provided to at least some of the laboratories include:

a) hot and cold municipal water
b) electricity (110 and 220 V)
c) temperature controlled atmosphere
d) air tempering for hood make-up air
e) deionized water
f) compressed gases

6.2 Facilities and Equipment Maintenance

It is the responsibility of the Analytical Laboratory (AL) Manager, Supervisors, and other designated personnel to see that each laboratory within AL shall maintain adequate, safe facilities and equipment for the performance of the function for which it has responsibility.

6.2.1 Facilities

1. It is the responsibility of all AL personnel to report to one's supervisor or other designated personnel any part of the laboratory facilities needing repairs.

2. All supervisory and other designated personnel shall make out a work order as outlined below (see Figure 6.2).

3. The work order shall then be submitted to the materials services coordinator who reviews the work order and obtains the required signature(s) of the manager or other personnel authorized to sign for the cost center and submits the completed work order to the designated maintenance personnel.

4. All work orders for repair of safety hazards and/or violations are to be submitted to the Environment, Health, & Safety Department by materials services coordinator. The materials services coordinator shall notify the manager or designee of all such requests.

5. The materials services coordinator shall keep a record of all work orders submitted and processed. This record shall include:

   Work order #
   Short description of work to be done
   Requestor
   Date submitted
   Date work performed
   Date work completed

6. The supervisor in charge of the area of the facility needing repair shall be responsible for seeing that proper precautions are taken in the event that safety hazard exists until repairs are made.

7. The supervisor responsible for the area where the work is to be done shall be responsible to see to it that all safety precautions are taken before any work is to be started. In the event that welding torches are to be used, the Environment, Health, & Safety Department is to be notified.

8. Upon completion of repairs, the supervisor responsible for the area shall verify that the work was satisfactorily done and notify the materials services coordinator to that effect.

9. Upon completion of all repairs of safety hazards and/or violations, the supervisor responsible for the area

shall verify the work was satisfactorily completed and notify the manager or designee and the materials services coordinator. If this work was requested by the Environment, Health, & Safety Department, the manager or designee shall notify the Environment, Health, & Safety department director that the work has been satisfactorily completed.

10. During the first five working days of each month, the materials services coordinator shall submit to the manager or designee a summary of all work orders processed for the entire previous month along with an up-to-date status report on all outstanding work orders.

6.2.2 Equipment

1. It is the responsibility of all AL personnel to report to one's supervisor or other designated person any equipment or instrumentation that requires repair or service.

2. The supervisor responsible for the equipment or instrumentation shall be responsible for notifying the materials services coordinator of all required repairs.

3. For all equipment or instrumentation under warranty service contract, or requiring repair by an outside service, the proper outside service agency shall be contacted by the responsible supervisor. The responsible supervisor shall notify the manager or designee when any outside service personnel will be working in the department.

4. The responsible supervisor shall submit a request to the materials services coordinator to have a purchase order prepared, signed by the manager or other personnel authorized to sign for the cost center, and submitted to purchasing for any chargeable repair costs.

5. The responsible supervisor shall make out a work order for all other equipment and instrumentation not covered by warranty or service contract and submit the work order to the materials services coordinator.

6. The materials services coordinator shall obtain the signature of the manager or other personnel authorized to sign for the cost center and submit the completed work order to the Maintenance Department, Real Time Systems group, Environment, Health, & Safety Department, or other appropriate departments.

7. The supervisor responsible for the equipment or instrumentation to be repaired shall verify that all repair work has been properly done.

8. All repair work performed is to be entered by the responsible supervisor in the equipment's or instrument's maintenance log book, signed, dated, and including a service report number where one is issued.

9. A copy of all repair service reports generated by an outside service agency shall be placed in the equipment's or instrument's record file that are maintained by the AL Section.

10. All repaired equipment and instrumentation shall be checked before reuse and recalibrated if required except in the cases where no such procedures exist or are required.

DATA REQUIRED ON WORK ORDER

1.	Date submitted	Month, day, year form filled out
2.	Date required	Month, day, year originator needs work performed on/or by
3.	Building ID	The letter designation for the building where work's to be performed
4.	Department name	Analytical Laboratory (AL)
5.	Lab/Area	The lab, room, floor number
6.	Phone	Phone number of material services coordinator and/or originator
7.	Division	The division number of the originator's cost center
8.	Cost Center	Cost center number of originator
9.	AFE Number	AFE (Authorization For Expenditure) number if the work to be performed is a Capital Expenditure
10.	Work type	Check appropriate box
11.	Equipment #	The Safety-Kleen Property Number
12.	Perform following work	Brief description of work required

NOTE: A separate work order for each craft is required to complete the total job. Crafts available: Machine Mechanics, Pipe Fitters, Electrical, Carpentry, Painting, Building Mechanics.

13.	Request by	Signature of the originator
14.	Department approval and General Manager	Signature of Cost Center Manager of Technical for all building modifications.

6.3 Equipment Selection, Cleaning, Calibration, and Use

6.3.1 Balance

1. An analytical balance with a sensitivity of 1 mg or less at a 10 g load should be used for weighing 2 g or less. For larger quantities, a balance with accuracy of 50 mg at a 150 g load should be used.

2. Check balance weekly with a set of certified class S weights.

3. Wipe balance and weights clean after each use.

4. Protect weights from laboratory atmosphere and corrosion.

5. Contract with a qualified expert for balance maintenance on a semi-annual basis (triple-beam balances - annually).

6.3.2 pH Meter

1. Compensate for temperature with each use.

2. Date standard buffer solutions when first opened and check monthly with another pH meter. Discard the buffer solution if the pH is more than plus or minus 0.1 pH unit from the manufacturer's stated value or if it is contaminated with microorganisms.

3. Standardize with at least two standard buffers (pH 4.0, pH 7.0, or pH 10.0) before each use.

4. Do not re-use buffer solution.

5. Check electrodes weekly. Fill if fluid low or replace if cracked.

6. Have meters inspected at least yearly as part of a maintenance contract.

6.3.3 Water Deionizer

1. Monitor water for conductance daily. Monitor trace metals (Pb, Cr, Cu, Ni, and Zn) and pH monthly.

2. Replace cartridges as indicated by analytical results (carbon filter at least every two months; final filter at least every three months).

6.3.4 Water Still

1. Drain and clean monthly according to instructions from the manufacturer.

2. Drain and clean distilled water reservoir quarterly.

3. Check distilled water continuously, using a conductance meter.

6.3.5 Centrifuge

1. Check brushes and bearings for wear every six months.

2. Check rheostat control against a tachometer at various loadings every six months to ensure proper gravitational fields.

6.3.6 Safety Cabinet (Hood)

1. Check filters monthly for plugging or obvious dirt accumulation. Clean or replace filter as needed (maximum lifetime - 12 months).

2. Check cabinet for leaks and for rate of air flow every three months.

3. Perform maintenance as directed by the manufacturer.

6.3.7 Thermometer and Temperature Recording Devices

1. Check the accuracy of thermometers and temperature recording instruments, in the monitoring range, at least annually against a certified thermometer or one of equivalent accuracy. Thermometer graduations should not exceed the 0.2 or 0.5 C deviation permitted in the analytical method. Check mercury columns for breaks.

2. Record calibration checks in quality control (QC) record. Mark NBS calibration correction on each thermometer or on the outside of the incubator, refrigerator, or freezer containing the thermometer.

3. Record daily temperature checks on charts and keep for at least three years. A simple, one-year chart is shown in Figure IV-A-1.

6.3.8 Water Bath

1. Check and record temperature daily. Bath must remain the uniform temperature needed for the test in use.

2. Maintain accurate thermometer completely immersed in water bath.

3. A recording thermometer and alarm system are recommended.

4. Clean monthly.

5. Use only stainless steel, rubber, plastic-coated, or other corrosion-proof racks.

6.3.9 Refrigerator (4°C)

1. Check and record temperature weekly.

2. Clean monthly.

3. Require identification (sample # and any special precautions) and dating of material.

4. Defrost unit and discard outdated materials in refrigerator and freezer compartments every three months.

6.3.10 Hot Air Oven

1. Check temperature and record daily.

2. Use of recording thermometer and alarm system recommended.

3. Require identification (sample # and any special precautions) and dating of all materials.

6.3.11 Freezers

1. Check temperature and record daily.

2. Use of recording thermometer and alarm system recommended.

3. Require identification and dating of all materials.

4. Clean and defrost freezer every six months. Discard outdated materials.

6.3.12 Atomic Absorption Spectrophotometers

1. Clean lenses, burner, and nebulizer daily.

2. Measure sensitivity and calibrate with each use.

3. Contract for general maintenance check and service at least once a year.

6.3.13 Gas, Liquid, and Ion Chromatographs

1. Run background check and calibration run to confirm resolution, sensitivity, and retention times with each use or once every 20th sample, whichever is more frequent.

2. Check oven temperature every three months.

3. Contract for general maintenance check and service at least once a year.

4. Perform ECD wipe test every 6 months and file documentation.

6.3.14 Inductively-coupled Plasma Atomic Emission Spectrometer (ICP)

1. Calibrate with appropriate standards daily.

2. Flush torch daily.

3. Replace tubing and clean torch weekly, if used daily.

4. Change air and water filters weekly, if used daily.

5. Change oil and water in pumps every three months.

6.4 Example Maintenance Log

The following is an example of a maintenance log that should be kept for all of the equipment described above. In this particular case, the log is for monitoring daily temperature for equipment such as an oven, constant-temperature bath, or refrigerator.

(NOTE: Actual form should include 12 months of year and 31 lines within each month)

Year _____

Instrument_____Temperature____ Room_____

Read daily.
Record temperature in space provided.

Date	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Date
1											1
2											2
3											3

Figure 6.1

Safety-Kleen Corp.
Technical Center
12555 W. Old Higgins Rd.
(Chicago)
Elk Grove Village

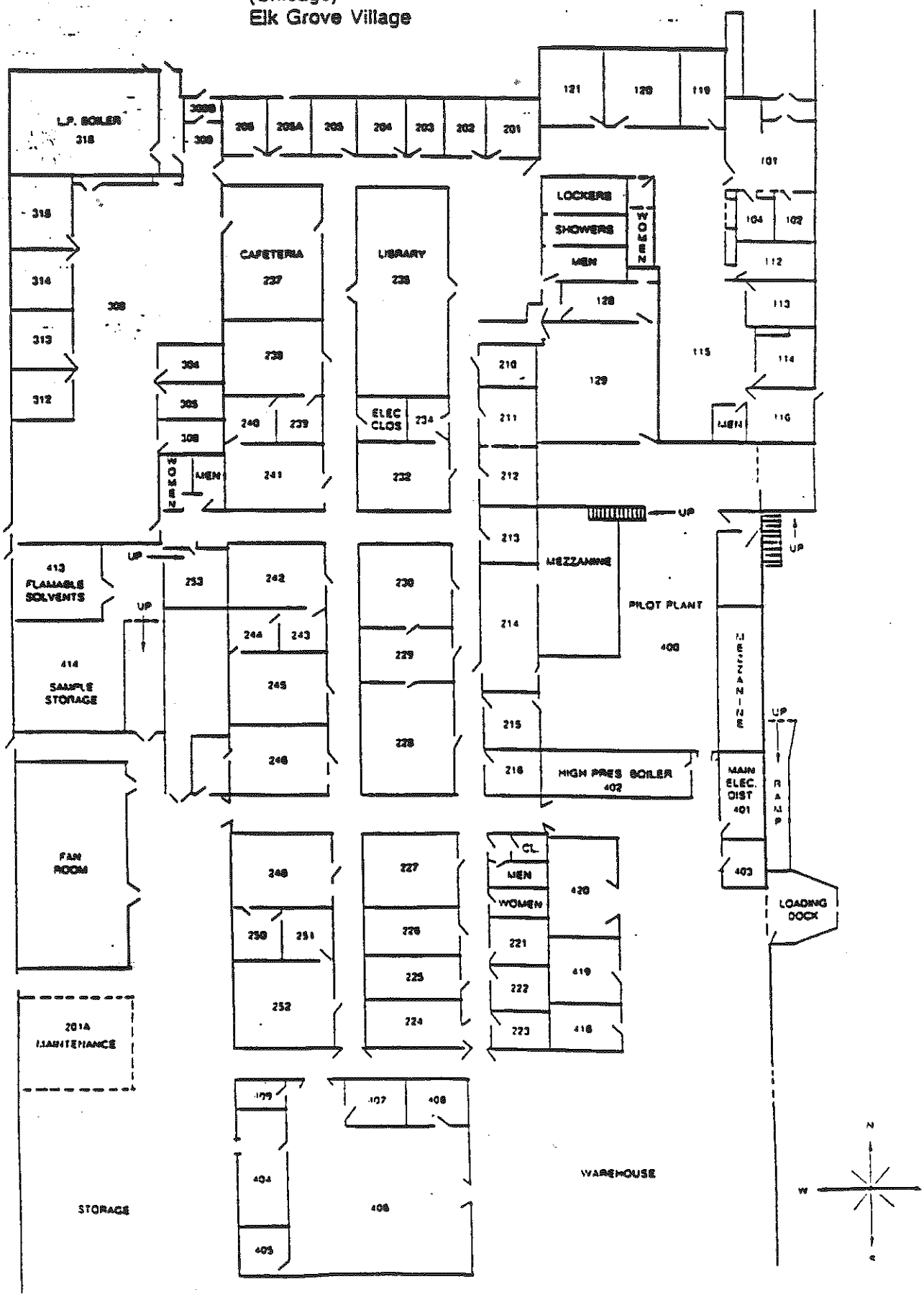


Figure 6.2

Specialty Products Unit

WORK ORDER REQUEST

NO 3406

PRIORITY	ACCEPTED BY	DATE / /	DATE OF REQUEST / /	REQUESTED BY	PHONE
SAFETY					
REPAIR	REQUIRED COMPLETION BY / /	RFE NUMBER		LOCATION	
IMPROVEMENT					

PLEASE PERFORM THE FOLLOWING:

WORK PERFORMED BY	HRS.	MATERIAL ORDERED / /	COMPLETED ON / /	
		MAT'L USED —	MATERIAL	
			LABOR	
			TOTAL	

FORM 4984 10-80

7.0 PERSONNEL QUALIFICATIONS AND TRAINING

7.1 Qualifications

Safety-Kleen Corp. employs only highly trained and qualified personnel to perform analysis of hazardous waste. Each plant must develop a training program for all sampling personnel and analysts. This must be a written program including documentation and performance evaluation. After training and yearly, thereafter, personnel must demonstrate that they can analyze standards and duplicates within QC limits. Also, all sampling personnel must demonstrate ability to take representative samples.

Safety-Kleen does not have minimum educational and experience requirements for hiring personnel. However, whenever possible, the goal is to hire personnel who meet the following criteria:

Laboratory Manager: (1) Possess a baccalaureate or higher degree or equivalent in chemistry, biochemistry, or a natural or physical science from an accredited institution of higher education, and (2) Have at least three years experience in the analysis of water, wastewater, solid waste, hazardous waste or other environmental samples. Master's and doctor's degrees will count as one and two years experience, respectively.

Analyst: Possess a baccalaureate or higher degree or an equivalent in chemistry, biochemistry, biology, or a natural or physical science from an accredited institution of higher education.

The current structure for the Technical Services Group is shown as Figure 7-1. Dr. Breece reports to the Vice President for Strategic Planning and Technical Services. The primary area under Dr. Breece covered by this manual is the Corporate Laboratory. John Schmitz is the Laboratory Manager. An organizational chart for his group is shown as Figure 7-2. QA/QC oversight is provided by Dr. Dennis Brinkman and the Technical Development staff. As can be seen in Figure 7-1, they are totally independent from the Corporate Laboratory group.

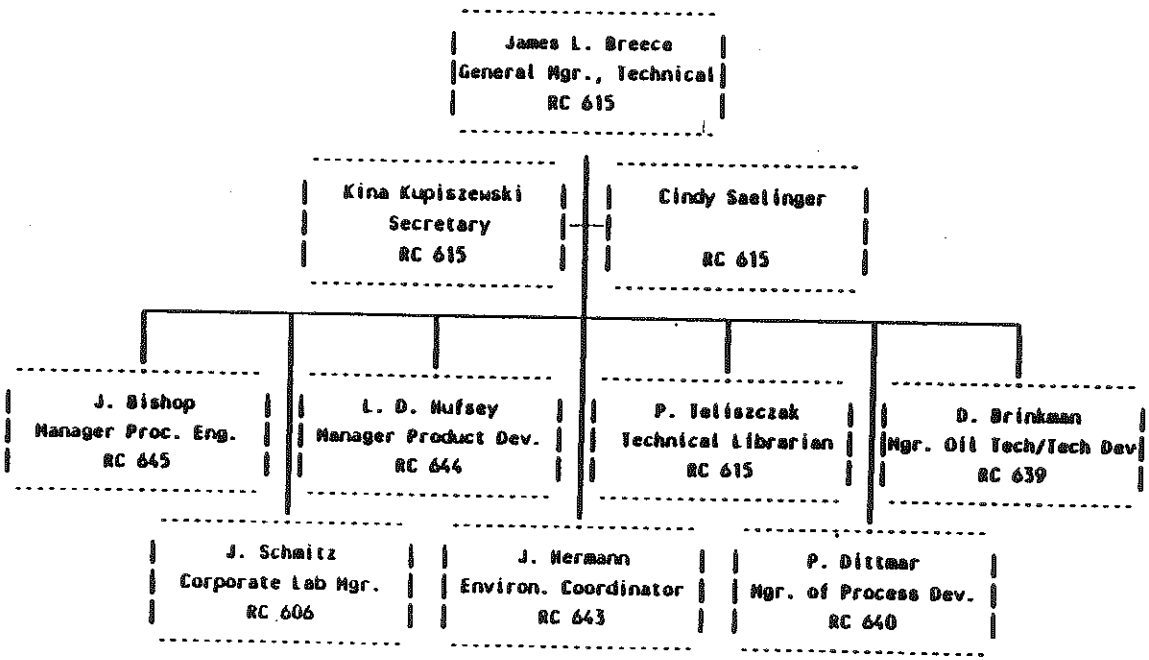
7.2 Training

QA/QC qualifications are formally considered in the hiring and training of every technician, professional researcher, project leader, and line manager. The most detailed attention is given to those actually working in the laboratory, but general familiarity and understanding of the QA/QC policy and procedures is a requirement of all Safety-Kleen management.

Two standard operating procedures specific to qualification and training are provided as a part of Appendix A. The first ("Training Procedure for New Laboratory Methodology and Proper Documentation of Training") covers the steps involved in becoming proficient in the use of a method or instrument not previously used at Safety-Kleen. The second SOP, entitled "Training and Record-keeping Requirements for Personnel Conducting Laboratory Analyses," outlines specific procedures for documenting that an individual is trained and qualified to run a particular analysis. This assumes that a trained person (trainer) already exists within the staff, and that this trainer provides whatever assistance is necessary to bring the trainee to the level of understanding required by the quality control limits.

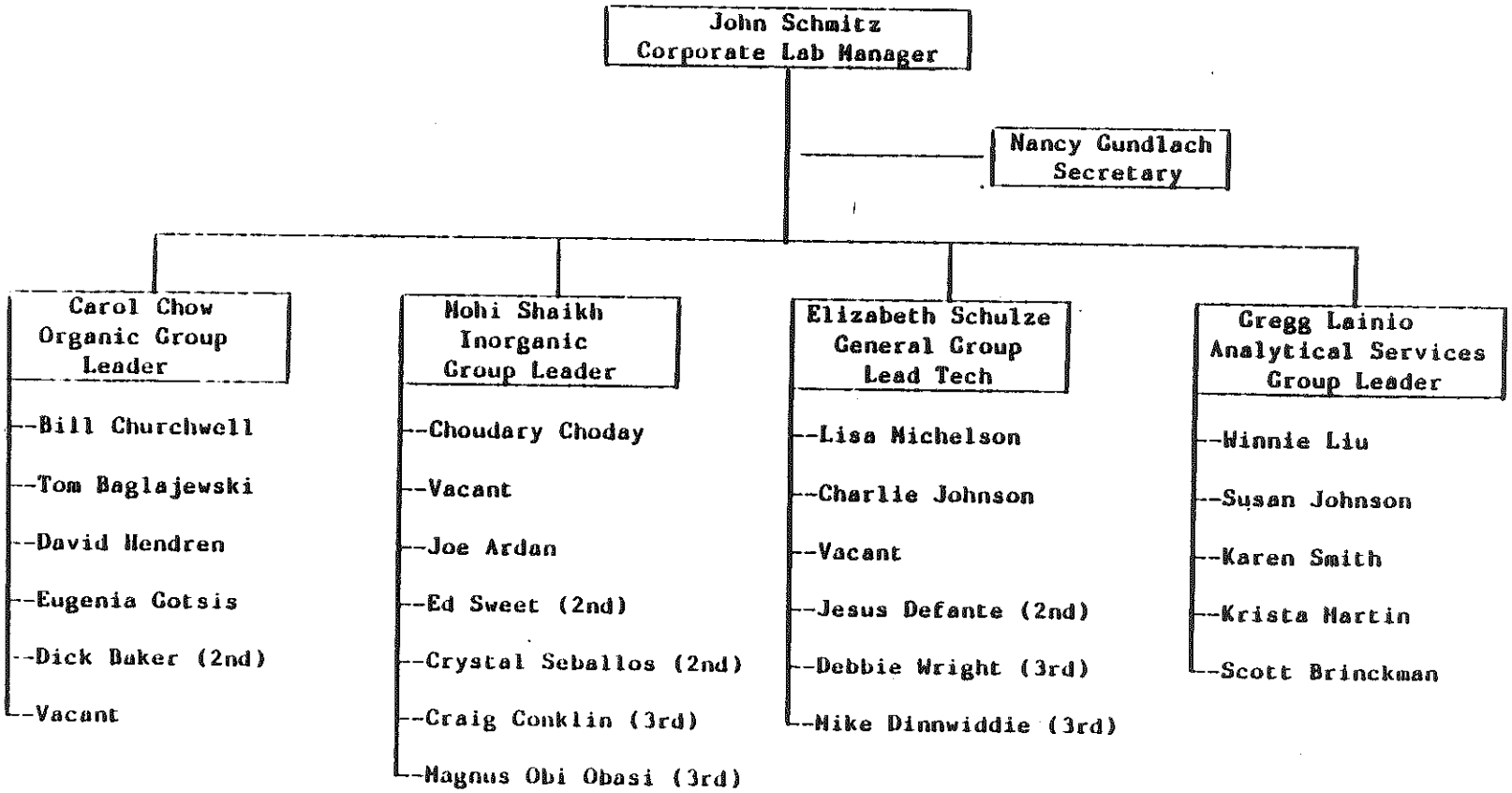
In addition to individual training on specific analytical instruments, special seminars on issues related to health, safety, and quality control are provided to the technical staff. Attendance sheets are maintained by the Laboratory Manager to determine who has participated and who requires such training.

Safety-Kleen Organizational Chart
Technical Services/James L. Breece
October 28, 1988



7-2

Corporate Lab
Proposed Organizational Structure
November 4, 1988



8.0 QUALITY ASSURANCE/QUALITY CONTROL RESPONSIBILITIES

Safety-Kleen Corp. has laboratories in twelve locations. Each laboratory is operated independently under the direction of a Laboratory Manager. The analysts at each facility are either degreed chemists or trained technicians and report directly to the Laboratory Manager. At each facility the Lab Manager reports to the Facility Manager. Within the context of quality assurance/quality control, the following is a breakdown of the responsibilities:

8.1 Quality Assurance Manager

The Laboratory Quality Assurance Manager at the O'Hare Technical Center is responsible for the following:

1. Review of Quality Control data and generation of QC limits and charts.
2. Development and updating of QA Manual and SOP's.
3. Development and updating of standard methods.
4. Auditing of individual laboratories.
5. Making recommendations to management or other appropriate party to ensure that appropriate corrective actions are taken.

8.2 Laboratory Manager

The Laboratory Manager is responsible for the following:

1. Reviewing work of analysts to assure quality and completeness.
2. Maintenance of QC records and charts.
3. Training of analysts including documentation and performance review.
4. Investigating any quality assurance irregularities.
5. Reporting QC results to the QA Manager.

8.3 Analysts

Each analyst is responsible for the following:

1. Performing analyses according to the standard methods and SOP's.
2. Maintaining instruments and equipment.
3. Performing quality control (QC) checks and calibrations.
4. Informing the Lab Manager when QC limits have been exceeded.

5. Keeping required records of analyses, log books and maintenance.

8.4 Administrators

The General Manager for Technical Services and the Vice President for Strategic Planning are given periodic reviews of the compiled quality control data, training completed, and other quality assurance issues. It is their responsiblity to make sure the overall QA/QC policies of Safety-Kleen Corp. are being implemented.

APPENDIX A

STANDARD OPERATING PROCEDURES

A.1 Introduction

Every routine procedure used within the Safety-Kleen laboratories is the potential subject of a formal written Standard Operating Procedure (SOP). These documents are prepared in such a way that any outside person should be able to accurately determine the adequacy of what was done in relationship to project or regulatory requirements. The quantity of SOP's generated at Safety-Kleen is so large that we have divided discussion into two parts. More generic and administrative issues are covered in this appendix, while procedures specifically related to analytical methods are discussed in Appendix B.

The general operations of a laboratory require many functions other than just analysis. Training, auditing, and reporting are just some of the topics covered briefly in the body of this manual, but laid out more explicitly for laboratory personnel in SOP's. A few of the more general ones that are particularly relevant to the evaluation of our quality assurance/quality control program are included here. These include the SOP on how to prepare SOP's and the guidelines for training. A listing of all approved non-analysis SOPs is provided as Table A-1. These are available in the Technical Library and from the Laboratory Manager.

TABLE A-1 APPROVED NON-ANALYTICAL STANDARD OPERATING PROCEDURES

NUMBER	TITLE
A.2	Standard Operating Procedures (SOP's)
A.3	Training Procedure for New Laboratory Methodology and Proper Documentation of Training.
A.4	Training and Record-keeping Requirements for Personnel Conducting Laboratory Analyses
A.5	Qualification Analysis Parameters
A.6	
A.7	Documentation of Laboratory Results
A.8	Sampling Plan

A.2 STANDARD OPERATING PROCEDURE FOR THE WRITING OF A STANDARD OPERATING PROCEDURE

1. SUBJECT

1.1 This Standard Operating Procedure (SOP) outlines the contents, concepts, and philosophies to be addressed in the development and preparation of an SOP.

2. PURPOSE

2.1 The purpose of this SOP is:

- To serve as a guide in the preparation of SOP's, including concepts as well as contents
- To define the format to be used
- To describe the procedure for preparing an SOP for review.

3. SCOPE

3.1 This document is to be used by the Safety-Kleen Technical Center Laboratories in developing SOPs.

4. RESPONSIBILITIES

4.1 Initiator - Document preparation and coordination of the document review process.

4.2 Laboratory Manager - Assures timely response to draft or revised SOPs. Assures that policies are consistent with existing SOPs and departmental objectives.

4.3 General Manager of Technical Services - Assures that SOPs are consistent with existing corporate policies and objectives.

5. DEFINITIONS

5.1 Definitions are used to clarify key words, phrases, symbols, etc. that may not be uniformly understood or need to be created to understand and/or implement the document. Consistency must be maintained with definitions used in related documents. A word uniquely defined in a document must be enclosed in quotation marks when used. The first time an abbreviation is used, it must be preceded by the term or phrase completely written out.

Example: Facilities are the operational areas within a location.

5.2 TITLE - A coherent key word abbreviation of the subject and scope to be used in manual and computer searches.

Example: "Housekeeping and Pest Control in Laboratory Facilities"

5.3 SUBJECT - A concise and complete explanation of the material covered, the procedure documented.

5.4 PURPOSE - The justification, when needed to supplement the subject, for the creation and continued use of the document. Indication of conformance with any internal or external compliance requirements must be made here.

5.5 SCOPE - States the limitations of the applicability of the procedure documented. It is to identify any materials, products, or, by title, individuals, facilities and/or locations specifically included or excluded.

5.6 RESPONSIBILITIES - A listing of the responsible groups and/or individuals, by title, to which the document (or parts of it) applies.

5.7 PROCEDURE - A clear, concise unambiguous explanation of the steps/operations to be followed. This section should be specific as to subject, operation, and responsible groups or individuals by titles. The appropriate philosophies should be evident if not delineated.

6. PROCEDURE

6.1 Be certain that the subject that you are to document is not already covered in another document.

6.2 Write down the "Subject", "Scope", and "Purpose"; then review existing SOP's for similar subject content.

6.3 If possible, revise existing documents. Otherwise, write the "Procedure" section.

6.4 Review and revise as needed. The final format for the document must be as follows:

0. TITLE
1. SUBJECT
2. PURPOSE
3. SCOPE
4. RESPONSIBILITIES
5. DEFINITIONS
6. PROCEDURE
A. ATTACHMENTS

6.5 Identify Responsibilities.

6.6 Generate a title.

6.7 Circulate a draft copy for initial reviews to:

- Peers for technical content
- Responsible individuals for impact and technical content

6.8 Create the final draft.

6.9 Revise as needed and proofread for grammar, spelling, and typographical errors.

6.10 Submit to the laboratory manager for approval process.

6.11 Use a variation of the Training Form on the following page made specific for the SOP of interest to document the training of each individual who is expected to use that procedure.

TRAINING FORM Trainee _____

Procedure _____

Trainer _____ Date _____

1. The following sections of the procedure were explained by the trainer and understood by the trainee:

Trainer	Trainee

_____

Analyst certified: (by/on) _____

Additional training recommended: (by/on) _____

A.3 TRAINING PROCEDURE FOR NEW LABORATORY METHODOLOGY AND PROPER DOCUMENTATION OF TRAINING.

1. SUBJECT

1.1 This standard operating procedure (SOP) outlines how training of new methodology to analysts is performed and how to document this training.

2. PURPOSE

2.1 The purpose of this SOP is to provide a standard means of training an individual on new methodology and provide a means of documenting this training.

3. SCOPE

3.1 This SOP is applicable to any Safety-Kleen employee conducting or receiving training on methodology not previously performed by a Safety-Kleen employee.

4. RESPONSIBILITIES

4.1 LAB MANAGER - Ensure that employees are being trained properly and that documentation is correct. Decide if the employee is properly trained to perform the method independently.

4.2 TRAINER - Ensure that the trainee understands and can perform the method. Make sure documentation is complete.

4.3 TRAINEE - Ensure that method is understood and able to perform method on own. Make sure documentation is complete.

5. DEFINITIONS

5.1 TRAINER - Individual experienced in performing method who will provide training to inexperienced individual.

5.2 TRAINEE - Individual inexperienced in performing method who will receive training.

6. PROCEDURE

6.1 The lab manager assigns a trainer experienced on a particular method to train the trainee.

6.2 The trainer explains each section of the method to the trainee until both are confident that the intent of the method is understood.

6.3 The trainer and trainee document this understanding in Section 1 of the training form (attached to the method; an example is attached to section A.2). Both should initial and date each section that is gone over. If a section does not exist in the method, write "not applicable" in the space.

6.4 The trainee should then observe the method being performed by the trainer, and this should be documented in Section 2.

6.5 The trainee should repeat the method, and the results of the trainee and trainer should be recorded in Section 3.

6.6. The Analyst Training Form is forwarded to the lab manager for review. The lab manager either certifies that the trainee is capable of performing the method alone or schedules additional training.

6.7 Results of additional training are attached to the Analyst Training Form.

6.8 Steps 6.6 and 6.7 are repeated until the trainee has been certified on the method.

A.4 TRAINING AND RECORD-KEEPING REQUIREMENTS FOR PERSONNEL CONDUCTING LABORATORY ANALYSES

1. SUBJECT

1.1 This standard operating procedure outlines the training and record-keeping requirements for personnel engaged in laboratory analyses.

2. PURPOSE

2.1 The purpose of this SOP is to assure that adequate records of the training and qualifications of personnel involved in the conduct of laboratory analyses are consistently kept.

3. SCOPE

3.1 This SOP is applicable to any Safety-Kleen employee conducting laboratory analyses at the Technical Center laboratory or at a contract laboratory.

4. RESPONSIBLE DEPARTMENTS AND INDIVIDUALS

This SOP affects the following departments and individuals:

4.1 LABORATORY MANAGER - Assures that individuals conducting laboratory analyses have the proper training and that the proper documentation of the training is on file.

4.2 All individuals engaged in the conduct of laboratory analyses must assure that they have received the proper training and that the proper documentation is on file.

5. DEFINITIONS

5.1 CONTRACT LABORATORY - A laboratory which is not part of Safety-Kleen Corporation and which performs a service on a for-fee basis or under a grant from Safety-Kleen Corporation.

6.1 JOB DESCRIPTION

6.1.1 Each individual involved in the conduct of laboratory analyses will have a current job description.

6.1.2 The job description will be on file with the laboratory manager.

6.2 TRAINING AND EXPERIENCE SUMMARIES

6.2.1 Each individual engaged in the conduct of laboratory analyses will provide the laboratory manager a summary of qualifying training and experience. An example of an acceptable training and experience summary is included in SOP A.2.

6.3 CONTINUING EDUCATION AND TRAINING

6.3.1 Each individual engaged in the conduct of laboratory analyses will provide the laboratory manager with copies of transcripts, seminar attendance certificates, etc., which apply to continuing technical training or education in their career field.

6.4 INHOUSE TRAINING

6.4.1 All individuals engaged in the conduct of laboratory analyses will receive an indoctrination in the areas of Safety-Kleen policies/procedures which are applicable to their job descriptions.

6.4.2 Newly hired employees engaged in the conduct of laboratory analyses will receive the indoctrination training within 15 working days of their date of hire.

6.4.3 The indoctrination training will be documented in the individual's training file maintained by the laboratory manager.

6.5 RECORD RETENTION

6.5.1 Training records, job descriptions, as well as training and experience summaries of all individuals engaged in the conduct of laboratory analyses will be retained for a period of at least three (3) years following the date on which the employee left the laboratory.

A.5 Standard Operating Procedure for Qualification Analysis Parameters

Purpose: Characterize each sample sufficiently to permit decisions as to acceptability, recoverability, use as fuel, and any special handling requirements.

Scope: This SOP covers all samples received at the Corporate Laboratory from field operations with a request for approval for acceptance.

Procedures:

1. Before shaking the sample bottle, check sample for multiple phases and record phase information. If there are multiple phases, then indicate on report relative quantities and how the phases were analyzed.

A. If the multiple phases readily stay in suspension after shaking the sample bottle, then run all analyses on the suspension.

B. If a separate phase is less than 25% of the sample volume, then run analyses on the major phase only.

C. If G.C. or water analysis of a separate phase shows that the material is greater than 90 vol% water, then report just those results for that phase. For example, if a sample has two phases, 70 vol% water and 30 vol% oil, the water phase may show 92 vol% water and would not require any further analyses.

D. Otherwise, run a complete analysis on each phase and issue a separate report on each phase. If there is insufficient sample of a phase, then request more sample.

2. Check sample to determine if material is liquid or solid. If a liquid is extremely thick (>2,000cps) and cannot be pipetted, the material shall be considered a solid. If uncertain, determine the viscosity of the sample.

3. Determine the following parameters for each sample received:

Proposed Use	SR	F	WT	SR	F	F	F
Phases	1	1	1	M	M	M	M
Solid/Liquid	L	L	L	L	L	S	L/S
Property							
Visual Characteristics	x	x	x	x	x	x	x
Radioactivity	x	x	x	x	x	x	x
Miscibility	n	n	n	n	n	n	n
Specific Gravity	x	x	x	x	x	x	x
pH	x	x	x	x	x	x	x
Neutralization	n	n	n	n	n	n	n
Viscosity	x	x	x	x	x		
Distillation	x			x			
Nonvolatile Residue	n	x	x	n	x	x	x
Water Content	x	x	n	n	x	x	
Volatile Organics (GC)	x	x	x	x	x	x	x
Heat (BTU) Content	n	x	n	n	x	n	n
Ash		x	n		x	n	n
Anion Composition		x	n		x	n	n
Metals		n	n		n	n	n
PCB's	x	x	x	x	x	x	x
Flashpoint	n	n	n	n	n	n	n

Legend:
Proposed Uses: SR - Solvent Recovery; F - Fuel; WT - Water Treatment.
Phases: 1 - Single phase after agitation; M - multiple phases.
Solid/Liquid: Primarily solid (S), liquid (L), or non-suspendable liquid (S/L).
x - test required; n - if needed, based on other data.

Based on these results, a decision is made as to whether the material is recoverable as Safety-Kleen product, is to be burned as a fuel, or is not to be accepted. Sometimes this is a difficult determination. Designated experienced personnel review the data reports. Questions are referred to successively higher levels of management until a decision is made. This is then communicated along with a summary of the findings to the submitting entity.

Field personnel and potential customers have the opportunity to submit further information that might justify reconsideration of the decision. The Laboratory Manager reviews this input and decides whether further analyses are needed and which tests are to be performed. The results are again communicated to the submitting entity.

A.7 Standard Operating Procedure for Documentation of Laboratory Results

A.7.1 Subject: This SOP describes the protocol for recording all data and information relating to the receipt, inspection, testing, and disposition of samples handled by the Safety Kleen Corporation Technical Center.

A.7.2 Purpose: The purpose of this SOP is to ensure that all data and information are recorded properly for subsequent compilation, documentation, and review.

A.7.3 Scope: This SOP covers all technical data and information covering any sample received within the analytical laboratories at the Safety-Kleen Corporation Technical Center. It does not deal with administrative communications or other functions which co-exist at the O'Hare Technical Center.

A.7.4 Responsibilities: It is the responsibility of the person generating the data to make sure the results are entered properly onto the record sheets or into a notebook. The designated Group Leader will perform periodic checks to make sure that all requirements listed below are being fulfilled.

A.7.5 Procedure:

1. Information is recorded onto record sheets or in numbered bound notebooks with numbered pages unless some other special form exists for recording specific information.

2. Notebooks are checked out from the Librarian and checked back in with the lab manager when:

   A. Notebook is completed.
   B. Termination of employment.
   C. Notebook is seriously damaged.
   D. A lost notebook is found that has been replaced.

3. Written information recorded in ink. The information must be legible and legibility must carry through in copies.

4. Corrections must not obscure any previous entries. Corrections are initialed and dated with a comment as to the reason why the correction was made if the reason is not obvious.

   Examples requiring no explanation and in acceptable form:

   2 g + 2 g = ~~5~~ 4 g ~~0.0123~~ x 23.3 mL = 2.86 meq
   0.123 N

Unacceptable Form:

2 + 2 = 4 No units--correction obscured

Needs Explanation:

~~0.223~~ x 23.3 mL = 5.31 meq.
0.228 N [reason for change not obvious]

5. Entries must have appropriate units.

6. Entries must be interpreted and expressed using standard scientific notation.

7. Each block of testing starts on a new page and references the study, protocols, and/or SOP's.

8. Incomplete pages must have a slash through the remainder of the page.

9. The last page of each section in the notebook must have the following:
   A. Analyst's signature and date
   B. Signature and date of qualified reviewer.

10. In each notebook the first page includes a listing of all the initials and signatures matched with printed names for entries that appear in the notebook.

11. An index must be the second section in the notebooks.

12. All originals of the following are submitted to the archive to support test reports:

    A. Charts
    B. Graphs
    C. Printouts
    D. Photos (If available)
    E. Computer discs/tapes

    Each must contain the following:

    A. Signature of analyst and date of generation.
    B. References (see 7 above) -- also included are references to appropriate notebook and page.
    C. Sufficient information to reconstruct the observation conditions.

    Copies of the originals must contain the same information as the originals and be placed in the notebook.

APPENDIX B

ANALYTICAL METHODS

B.1 INTRODUCTION

Each analytical method used by Safety Kleen Corp. must be a formal written procedure based on methods from an authoritative source. Our methods are based on ASTM or EPA methods, with adaptations so that they apply to the analysis of hazardous waste solvents and oils. Any technically-significant deviations from the source method is noted in the method. In addition, each method contains the following information, where applicable:

1. References
2. Scope
3. Summary
4. Significance
5. Safety
6. Apparatus
7. Reagents
8. Interferences
9. Preparation of Apparatus
10. Procedure
11. Calculations
12. Reporting
13. Quality Control
14. Deviations for Referenced Methods

The Standard Operating Procedures Manual contains the following analytical methods used by Safety Kleen in the above format:

1. Volatile Organic Composition
2. Flash Point
3. Specific Gravity
4. pH
5. Water Content
6. Non-volatile Residue
7. Heat Content
8. Total Halogens
9. Viscosity
10. Phase Information
11. Ash
12. Solids by Centrifugation
13. Total Sulfur
14. Recoverability
15. Water Reactivity
16. Chlorinated Biphenyls (PCB's)
17. Metals (Pb, Cr, Zn, Fe, Ti, Hg, Be)
18. Calibration & Maintenance of Analytical Balances

19. Analytical Method Documentation and Control Policy
20. Analytical Method Transfer Guidelines

This manual is on file in the Technical Library at the O'Hare Technical Center. Individual copies of specific methods are located near the equipment for performing that laboratory function.

B.2 STANDARD OPERATING PROCEDURE FOR THE WRITING AND UPDATING OF AN ANALYTICAL METHOD

1.0 SUBJECT

This SOP describes the analytical method documentation and control policy for Safety-Kleen.

2.0 PURPOSE

This document is to provide the guidance for anyone wishing to develop a new analytical procedure for use within a Safety-Kleen laboratory or modify an existing method.

3.0 SCOPE

This document describes in detail both the philosophy and the mechanics by which Safety-Kleen develops and maintains its analytical methods. All routine analyses performed in any SK laboratory are to be covered by a standard operating procedure (SOP) developed and maintained under these guidelines.

3.1 Background

Safety-Kleen's laboratory standards for analytical methods have been established to assure the integrity of Safety-Kleen's operations. It is essential that all of the analytical systems be effectively controlled. The policy will help in accomplishing the following:

a. Assure the timely development of well-documented analytical methods that will meet the needs of the data users while remaining dynamic and flexible in a controlled manner.

b. Assure that the appropriate review and acceptance of the methods occurs in a timely fashion during development and the early stages of implementation.

c. Assure that an adequate history of Safety Kleen's operations is maintained to objectively demonstrate how Safety Kleen has carried out daily operations and evolved in a timely and controlled manner.

The development and maintenance of routine analytical methods used by the laboratory are documented through the use of "method files". A method file is intended to capture significant information about an analytical system in a central location. The files are a resource for the analysts, laboratory management and external users of the laboratory's services. The files serve as an archives and are located in Safety Kleen Technical Center Library. Each

section of a method file is structured to the extent necessary to assure that adequate information is presented in an efficient manner. Each method file must contain the following sections, which are described in more detail in the sections that follow:

1. A Method Capability Statement.
2. The Analytical Method Standard Operating Procedure.
3. Management Support System.
4. A Method Performance Statement.
5. A copy of the source method and reference materials.
6. Supporting data.

4. RESPONSIBILITIES

4.1 Initiator - Document preparation and coordination of the document review process.

4.2 Laboratory Manager - Assures timely response to draft or revised SOPs. Assures that policies are consistent with existing SOPs and departmental objectives.

4.3 General Manager of Technical Services - Assures that SOPs are consistent with existing corporate policies and objectives.

5.0 DEFINITIONS

6.0 PROCEDURE

6.1 Be certain that the subject that you are to document is not already covered in another document.

6.2 Write down the "Subject", "Scope", and "Purpose"; then review existing SOP's for similar subject content.

6.3 If no SOP exists, begin assembling information for the Method File. If possible, identify an existing method, such as an ASTM or EPA procedure, which can be modified for SK use.

6.3.1 Method Capability Statements

Method capability statements are a communication tool to rapidly disseminate information about routine methods to users and potential users of Safety Kleen's services. Capability statements are automatically distributed to the Analytical Coordinator. This method is then disseminated to all Safety-Kleen Laboratory Managers. The information allows them to evaluate whether or not the routine method is capable of providing information that will meet their data quality objectives or whether the analysis will need to be optimized for their purposes. The information also allows them to rapidly communicate to secondary data users, for example the

regulatory agencies, and customers, the information needed to judge the data's limitations. Capability statements must be prepared as part of the planning process for any analysis that is not covered by a current statement or that requires special handling, with the understanding that the statement reflects the identified requirements that must be met and the anticipated goals of the investigation.

6.3.1.1 Content of a method capability statement

A method capability statement is structured as follows:

1. Revision.
2. Parameter.
3. Matrix.
4. Method identifier.
5. Working range without dilution.
6. Method detection limit in a defined matrix.
7. Sample handling requirements including: container, preservation procedures, and holding time limits from the date of sampling.
8. Regulatory, permit or consent decree limits.
9. Analytical system controls.

6.3.2 Analytical method standard operating procedures

Analytical method standard operating procedures explicitly document the technical details of Safety Kleen's analytical process for methods that are routinely requested. For most methods, there are several acceptable configurations of the instrumental conditions, reagents, working range and management support systems. The standard operating procedures may include sample preparation and analysis together or separately. Detailed instrument operating procedures may be included in the standard operating procedure or in a general standard operating procedure for the instrument.

As resources permit, non-routine methods are documented in a similar manner. Non-routine analyses may be documented by way of a memo to the data file indicating that a routine method was followed with changes or the routine method may be marked up to indicate the changes that were made. The modifications should be approved during the planning process, prior to sampling and analysis. All significant problems that are encountered with a method must be documented with a memo to the method's file. This does not include maintenance of the analytical systems unless the system failure is a result of the method or the protocol for use of an instrument that is dedicated to that particular method.

To assure that the information is communicated in an efficient manner, use the "Notification of an Observation Concerning Laboratory Operations" form attached to this

document. At the bottom of the form are the headings for the major sections of Safety Kleen's Quality Assurance Facility Plan. The forms will be filed under one of these headings so that they can be used to quickly summarize Safety Kleen's performance.

6.3.2.1 Method Identification

Safety-Kleen supports methods from diverse sources aimed at performing specific tasks. It is essential that the analytical services requirements are clearly communicated. Analytical method standard operating procedures are identified by specific nomenclature and designations which are described in the SOP entitled "Assignment of Analytical Method Numbers."

6.3.2.2 Format for an Analytical Method Standard Operating Procedure

An analytical method standard operating procedure is structured as follows:

1. Cover page.
2. Table of contents.
3. The SOP containing;
   - 3.1 Scope and Application
   - 3.2 Safety and Waste Handling
   - 3.3 Summary of Method
   - 3.4 Sample Handling and Preservation
   - 3.5 Interferences
   - 3.6 Apparatus
   - 3.7 Reagents
   - 3.8 Procedure
   - 3.9 Calculations
   - 3.10 Quality Control
   - 3.11 Preventative Maintenance
   - 3.12 Trouble Shooting/Corrective Action
   - 3.13 References
4. Attachments

A brief summary of each sections of an SOP follows:

"Scope and Application" - Operations that the method is applicable to, with reference to any regulatory limits. sample matrices, working range, and method detection limit.

"Safety and Waste Handling" - A concise statement about safety and waste disposal requirements. This must include both sample wastes and waste reagents/standards or effluents generated by the analytical system.

"Summary of Method" - A brief abstract of the procedure.

"Sample Handling and Preservation" - Requirements for collection, preservation, storage, and holding times.

"Interferences" - Chemical and physical adjustments to the procedure needed for problem sample types.

"Apparatus" - List of instrumentation used (model number and manufacturer); glassware (size/number). Unless a particular piece of equipment is indicated as mandatory, it is understood that equivalent items may be substituted. References to a supplier is provided to aid in obtaining supplies and in determining comparability between suppliers

"Reagents" - Grade, preparation, holding times. Unless a particular reagent is indicated as mandatory, it is understood that equivalent reagent may be substituted, with the exception of standards, control samples and standards/control sample preparation. References to a supplier is provided to aid in obtaining supplies and in determining comparability between suppliers

"Preventative Maintenance" - Describe the schedule of preventative maintenance or refer to an Instrument SOP (must also cover repair documentation procedures).

"Trouble Shooting/Corrective Action" - Significant hints or considerations that could affect the system performance.

"Quality Control" - Type and frequency of method and instrument audits, and limits. The controls must be designed to objectively demonstrate the performance of the analytical system. The controls must also account for the qualification requirements for new equipment and the qualification of analysts. Record keeping requirements and responsibilities must be spelled out. Monitoring of the analytical system must accomplish at least the following:

Monitor reagents and standards condition.
Monitor instrument and facilities performance.
Monitor analyst performance.
Monitor for interferences that can be discounted or overcome.
Monitor for samples that are not appropriate for analysis using the method chosen.

"Procedure" - A Step-by-step "recipe" format from pretreatment through analysis with reference to any instrument operating manuals or a description of the

instrument operation, including operating parameters and frequency of calibration.

"Calculations" - A summary of the significant equations or computer programs. Include an example of all bench sheets, run sheets, computer programs (raw data) and reports (including reporting units) as an attachment.

"References" - List significant references related to the SOP.

"Attachments" (OPTIONAL)

1. Flowchart - cover all activities from signing out the samples through submitting the data for review. For samples with a 24 hour or less holding time, include the sample delivery and receiving process.

2. List of Chemicals - Include all reagents plus a gross estimate of the annual consumption.

3. For approved alternate test procedures, a copy of the approval letter and the original method must be on file.

6.3.3 Management Support Systems

Laboratory management support systems are essential to objectively demonstrating the defensibility of the Safety Kleen's data.

Laboratory management support systems include:

1 Quality control systems documents.
2 Equipment maintenance documents.
3 Reference materials control documents.
4 Personnel qualification and training documents.
5 Facilities maintenance documents.

The management support systems are defined in other SOP's. They include a description of related documentation and examples of the basic structure of the data bases generated which must be available in the file for auditing purposes. Data bases are the most expensive records used by the laboratory. The resources used in creating and maintaining a data base is a substantial cost. The facility and data processing systems requirements for data bases can be extensive. To assure that the data bases are maintained and used as effectively as possible, the following information must be documented:

1. How the data will be entered.

2. Storage procedures.
3. Users of the data and reporting policies.

6.3.4 Method Performance Statements

Every analytical run performed at Safety Kleen is expected to conform to the standards outlined in the Method Capability Statement, the Analytical Method Standard Operating Procedure and any special handling requirements that have been established. The Method Performance Statement is an integral part of the data report and certifies that the results reported were carried out by the method indicated on the report form and that all of the standards that were set for the investigation were met unless unless a memo indicating that a significant deviation was used in the handling or analysis of the samples. Deviations and informational observations must be communicated to the data users so that it is clearly distinguished that the what is being communicated is documentation of a deviation or for informational purposes only. Data evaluation and documentation must begin at the bench level and may ultimately require the Lab Manager's concurrence.

6.5. Analytical Systems Control

All methods must have built into them control systems to monitor for short term biases, reproducibility, and operational characteristics that indicate that the system may require maintenance or preventative maintenance. The statistical tools used to manage the laboratory operations are chosen from the large array available. It is the Methods Development Group's responsibility to work with the laboratories to develop and implement appropriate analytical control systems to assure that the control systems are implemented in a consistent manner assuring that the data is easily understood by those who review the laboratory's operations, both internally and externally. This standardization does not preclude the optimization of the controls where there is a significant advantage to using a non-standard management technique.

In addition to the ongoing control systems, each method must be evaluated periodically for long term precision and inherent system biases. The evaluation for the long term characteristics is done when a method is initially implemented and periodically after implementation. The primary mechanism for initiating a re-evaluation of the analytical system's characteristics is based upon the periodic evaluation of the results of the control systems that are collected as part of the routine analysis. If the routine controls indicate that a non-maintenance shift in the system may be occurring, then the system must be

re-evaluated. A secondary mechanism is a management decision that the system has gone for too long without a re-evaluation or that the system has not been run on a routine basis and its performance may be sensitive to "setup" characteristics.

Infrequently run methods are of concern, because the limited amount of information available is often inadequate to statistically and objectively evaluate the system's performance. Special controls must be designed into non-routine analyses so that adequate information is collected to objectively demonstrate the data's validity and defensibility. This may be accomplished by special control samples bracketing any regulatory limits and the use of appropriate reference materials to approximate the sample performance. All of the data generated for non-routine samples must be part of an all inclusive data package that does not rely, primarily, on information from previous runs. Routinely run methods that can show a reasonable relationship from run to run can be set up to statistically show that the system is operating in "statistical control", thereby greatly reducing the amount of supporting data that must be generated within each analytical run. These general concepts must be optimized to the objectives of the analyses and implemented in a manner that recognizes that a routine method can quickly become non-routine and a non-routine method may have a period of time in which it will be requested heavily and become routine or settle back as a non-routine method again. The management systems for the analytical methods must recognize the dynamic nature of the laboratory's operations and respond to changes in a timely and controlled manner.

6.6 Method and Method File Control

Requests to modify a method or a portion of a method file must be requested on a "Request for a Change or Deviation to a Safety Kleen Policy/Procedure" form. A copy of the request form is attached a the end of this document. A request for a change must be approved before the change occurs.

Problems arise in the daily operation of the laboratory that range from annoyances to operations threatening. Even moderate annoyances can, if they occur with any frequency, indicate a weakness in the laboratory operations. Awareness is also a difficulty that must be over come if the whole management team is to effectively contribute and assure that the systems are operating as intended. It is important that the management systems assure openness and objectivity. Differing opinions help assure that the issues are receiving the appropriate attention.

Safety Kleen's goal is to identify a problem before it becomes serious enough to potentially comprimise data quality, productivity, or safety. A document that, if properly used, can help provide a better picture of laboratory operations is titled "SAFETY KLEEN CORRECTIVE ACTION DOCUMENTATION." The following management system will be used record operational observations and problems:

1. Initiation of the documentation form.
2. Distribution - Responsible Person
   (usually the team leader)
   - Sections Chief
   - Quality Assurance Manager
   - Laboratory Manager
3. Tracking - Logged into _____
4. Follow-up - Update _____
5. File - File the reports under one of six of the eight Quality Assurance Facility Plan subject headings:
   Policy
   Sample Handling
   SOPs
   Audits
   Training
   Facilities/Equipment/Services
6. Quarterly summaries by each of the sections from their perspective.
7. An annual summary by Laboratory Manager. [Not necessarily based on a fiscal year. Mid-year or third quarter would allow time for budgeting for the next fiscal year].

NOTIFICATION OF AN OBSERVATION CONCERNING LABORATORY OPERATIONS

DATE:

COPIES TO:

DESCRIPTION OF PROBLEM AND WHEN IDENTIFIED:

SUSPECTED OR KNOWN CAUSE:

FOLLOW-UP (INCLUDE DATES AND RESPONSIBLE PERSON):

FILE: __ POLICY __ SAMPLE HANDLING __ SOPs __ AUDITS
__ FACILITIES/EQUIPMENT/SERVICES __ TRAINING

DATE:

SUBJECT: This memo is to document a change to or deviation from a Safety Kleen procedure or policy.

PROCEDURE/POLICY:

EFFECTIVE DATE:

___ This is a change to a standard operating policy/procedure.

___ This is a temporary deviation : The deviation will be for the following data sets or time period:

CHANGE/DEVIATION :

APPROVALS:

_____

_____

_____

_____

PAGE 1 of ___

JUSTIFICATION:

PAGE 2 of ___

B.3 QUALITY CONTROL CHECKS SUMMARY

Within each analytical method is a section for quality control. To a large extent, these are very similar from method to method, as shown in a brief summary from some of the more frequently used methods.

QUALITY CONTROL CHECKS

METHOD	CALIBRATION	KNOWN STANDARDS[1]	BLANKS	DUPL
(1) ORGANIC COMPOSITION	yearly	daily or 5%	daily	5%
(2) FLASHPOINT	none	weekly or 2%	none	5%
(3) SPECIFIC GRAVITY	none	weekly or 2%	none	5%
(4) pH	daily	none	none	5%
(5) WATER CONTENT	weekly	daily or 5%	none	5%
(6) NON-VOLATILE RESIDUE	none	none	none	5%
(7) HEAT CONTENT	monthly	weekly or 2%	none	5
(8) TOTAL HALOGENS	none	weekly or 2%	none	5%
(9) CHLORINATED BIPHENYLS	weekly	daily or 5%	daily	5%
(10) METALS	each batch or 5%	none	each batch or 5%	5%

[1] Multiple frequency - use frequency resulting in greater number o

METHOD	BLIND STANDARDS	REFERENCE SAMPLES	ROUND-ROBIN TESTING	STD CONTROL LIMITS
(1) ORGANIC COMPOSITION	quarterly	yearly	quarterly	within 15%
(2) FLASHPOINT	none	none	quarterly	calculated
(3) SPECIFIC GRAVITY	none	none	quarterly	calculated
(4) pH	none	none	quarterly	calculated
(5) WATER CONTENT	none	none	quarterly	calculated
(6) NON-VOLATILE RESIDUE	none	none	quarterly	calculated
(7) HEAT CONTENT	none	none	quarterly	calculated
(8) TOTAL HALOGENS	none	none	quarterly	calculated
(9) CHLORINATED BIPHENYLS	quarterly	yearly	quarterly	within 15%
(10) METALS	quarterly	yearly	quarterly	within 10%

Appendix C

DEFINITIONS

ACCURACY - means the nearness of a result or the mean ( ) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries.

ANALYTICAL BATCH - the basic unit for analytical quality control. The analytical batch is defined as samples which are analyzed together with the same method sequence and the same lots of reagents and with the manipulations common to each sample within the same time period or in continuous sequential time periods. Samples in each batch should be of similar composition.

AUDIT - A systematic check to determine the quality of operation of some function or activity. Audits are of two basic types: (1) performance audits in which quantitative and qualitative data are independently obtained for comparison with routinely obtained data in a measurement system, o9r (2) systems audits of a qualitative nature that consist of an onsite review of a laboratory's quality assurance system and physical facilities for sampling, calibration, and measurement.

BLANK - A blank is an artificial sample designed to monitor the introduction of artifacts into the process. For aqueous samples, reagent water is used as a blank matrix; however, a universal blank matrix does not exist for solid samples and, therefore, no matrix is used. The blank is taken through the appropriate steps of the process.
A REAGENT BLANK is an aliquot of analyte-free water or solvent analyzed with the analytical batch. FIELD BLANKS are aliquots of analyte-free water or solvents brought to the field in sealed containers and transported back to the laboratory with the sample containers. TRIP BLANKS and EQUIPMENT BLANKS are two specific types of field blanks. TRIP BLANKS are not opened in the field. They are a check on sample contamination originating from sample transport, shipping and from site conditions. EQUIPMENT BLANKS are opened in the field and the contents are poured appropriately over and through the sample collection device, collected in a sample container, and returned to the laboratory as a sample. Equipment blanks are a check on sampling device cleanliness.

CALIBRATION CHECK - Verification of the ratio of instrument response to analyte amount, a CALIBRATION CHECK is done by analyzing for analyte standards in an appropriate solvent. Calibration check solutions are made from a stock solution which is different from the stock used to prepare standards.

CHECK SAMPLE - A blank which has been spiked with the analyte(s) from an independent source in order to monitor the execution of the analytical method is called a CHECK SAMPLE. The level of the spike shall be at the regulatory action level when applicable. Otherwise, the spike shall be at 5 times the estimate of the quantification limit. The matrix used shall be phase matched with the samples and well characterized: for an example, reagent grade water is appropriate for an aqueous sample.

ENVIRONMENTAL SAMPLE - An ENVIRONMENT SAMPLE or FIELD SAMPLE is a representative sample of any material (aqueous, nonaqueous, or multimedia) collected from any source for which determination of composition or contamination is requested or required. For the purposes of this manual, environmental samples shall be classified as follows:

Surface water and ground water;

Drinking water -- delivered (treated or untreated) water designated as potable water;

Water/Wastewater -- raw source waters for public drinking water supplies, ground waters, municipal influents/effluents, and industrial influents/effluents;

Sludge -- municipal sludges and industrial sludges;

Waste -- aqueous and nonaqueous liquid wastes, chemical solids, contaminated soils, and industrial liquid and solid wastes.

MATERIAL SURVEY FORM - A standard Safety-Kleen form which must accompany all Prequalification Samples. (See Appendix F)

MATRIX/SPIKE DUPLICATE ANALYSIS - In matrix/spike duplicate analysis, predetermined quantities of stock solutions of certain analytes are added to a sample matrix prior to sample extraction/digestion and analysis. Samples are split into duplicates, spiked and analyzed. Percent recoveries are calculated for each of the analytes detected. The relative percent difference between the samples is calculated and used to assess analytical precision. The concentration of the spike should be at the regulatory standard level or the estimated or actual method quantification limit. When the concentration of the analyte in the sample is greater than 0.1%, no spike of the analyte is necessary.

MQL - The method quantification limit (MQL) is the minimum concentration of a substance that can be measured and reported.

PRECISION - means the measurement of agreement of a set of replicate results among themselves without assumption of any

prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analysis.

PREQUALIFICATION SAMPLE - A waste sample collected by a Safety-Kleen sales representative or submitted directly by a potential customer. This sample is analyzed for compatability to a Safety-Kleen recycling program, energy recovery, or waste treatment.

PQL - The practical quantitation limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

QUALITY ASSURANCE - The total integrated program fro

RCRA - The Resource Conservation and Recovery Act. Passed by U. S. Congress in 1976. Amended in 1980 (Used Oil Recycling Act) and 1984 (Hazardous and Solid Wastes Amendments, HSWA).

REAGENT GRADE - Analytical reagent (AR) grade, ACS reagent grade, and reagent grade are synonymous terms for reagents which conform to the correct specifications of the Committee on Analytical Reagents of the American Chemical Society.

REPLICATE SAMPLE - is a sample prepared by dividing a sample into two or more separate aliquots. Duplicate samples are considered to be two replicates.

STANDARD CURVE - is a curve which plots concentrations of known analyte standard versus the instrument response to the analyte.

SURROGATES - organic compounds which are similar to analytes of interest in chemical composition, extraction, and chromatography, but which are not normally found in environmental samples. These compounds are spiked into all blanks, standards, samples, and spiked samples prior to analysis. Percent recoveries are calculated for each surrogate.

WATER - Reagent, analyte-free, or laboratory pure WATER means distilled or deionized water or Type II reagent water which is free of contaminants that may interfere with the analytical test in question.

APPENDIX D

Standard Operating Procedure for Auditing of Laboratory Quality Assurance Programs

A.6.1 Purpose: Describe how to conduct an audit of a QA program

A.6.2 Scope: All Safety-Kleen laboratories

A.6.3 Procedures:

1. Check that QA Manual is complete and available in Technical Library, with relevant portions available in each laboratory.

2. Check Master Sample Log and make sure that samples are being logged with date, sample identification, and date completed. Determine what kinds are samples are being logged.

3. Check Instrument Logs and make sure that samples are being logged by date with run number, sample ID, and analyst. Make sure that QC checks are being run and recorded in log. Check that maintenance is being performed and logged. Check that each log contains a record of service and repair.

4. From the Master Sample Log, select several samples at random that were completed in different weeks. Ask for these retains to be pulled and request that the worksheets, reports, and other documents be provided.

A. Check the paperwork against the sample bottle label to verify that the information matches.

B. Check the worksheet against the report to verify that all analyses were run. Some analyses may not require entries on the worksheet. Check the report to insure that all required analyses were conducted.

C. Based on the date on the worksheet, find the entry in the instrument log for each analysis performed. Verify that the QC checks for that instrument were conducted within the required frequency. Check that the QC check results were within the required limits. Check that the maintenance was performed on that instrument when the sample was run.

5. Check Standards to make suer they are properly prepared, labeled and stored.

6. Observe analyses to determine that the SOP's are being followed.

7. Record all deviations from standard QA program and report to QA Manager. Checklists and other aids in performing field and system audits are provided on the following pages. (NOTE: Pages 3 and 4 of the Field Audit Checklist are for field sampling points, and are not relevant to this laboratory. However, they are included for completeness, in case issues relating to the samples received at this laboratory become important.)

QC/QA PROGRAM AUDIT

AUDIT IDENTIFICATION INFORMATION

Plant: _____

Date: _____

Audit Scope: _____

Primary Site Contact:

Others Contacted:

GENERAL OBSERVATIONS:

Master Sample Log: _____

Worksheets: _____

Chain of Custody: _____

Instruments:	Logbooks	Maintenance	QC Checks
Vol. Organics/GC			
PCB/GC			
Metals/AA			
Flashpoint			
Sp. Gr.			
pH			
Water by KF			
Total Halogens			
Non-vol. Residue			
Heat Content			
Balances	XXXXXXXXXXXXXX		XXXXXXXXXXXXXXX

COMMENTS: _____

_____

_____

_____

AUDITOR: _____ DATE: _____

MANAGEMENT SYSTEMS AUDIT CHECKLIST

1. Program Name/Element: _____

2. Organizational Unit: _____

_____

_____

3. Date of Audit: _____

4. Participants:

	Name	Title
a. Audited Entity:	_____	_____
	_____	_____
b. Audit Team	_____	_____
	_____	_____

5. Verification of Program Activities

a. Listing of Activities:

Activity Name	Regulatory Cite	Responsible Manager	QA Required Yes	QA Required No
_____	_____	_____	__	__
_____	_____	_____	__	__
_____	_____	_____	__	__
_____	_____	_____	__	__
_____	_____	_____	__	__

b. Have all activities involving environmental data collection been properly identified as requiring QA?___Y___N

If no, explain. _____

_____

_____

6. Is documentation available to verify the existence of the following items relating to implementation and operation of QA?

a. Commitment to QA/QC _____Yes_____No

b. QA Program Plan (State/local agencies, etc.)

_____Yes____No

(1) Approved by:_____

(2) Dated: _____

c. Policies and procedures for

(1) Implementing QA Program ____Yes____No

(2) Assigning responsibilities for QA/QC ___Yes___No

(3) Incorporating QA/QC into monitoring activities Y/N

(4) Allocating resources for QA/QC Y/N

(5) Determining need for environmental data = Y/N

(6) Establishing Data Quality Objectives (DQOs)-Y/N

(7) Preparing, reviewing, and approving QA Project Plans Y/N

(8) Ensuring data collection activities are performed in accordance with approved QA Project Plants (QAPjPs) Y/N

(9) Assessing and reporting data quality = Y/N

(10) Preparing, reviewing, and approving Standard Operating Procedures (SOPs) - Y/N

(11) Overviewing external projects - Y/N

(12) Providing QA/QC training - Y/N

7. Evaluation of Management Systems

Rating Scheme:

A = Acceptable
M = Marginal (acceptable with needed improvements)
U = Unacceptable
N/A = Not applicable

a. Conformance to QA Program

1. Incorporation of QA into all data collection activities ____
2. Assignment of responsibilities ____
3. Allocation of resources ____
4. Opportunities for QA/QC training ____

b. Internal Activities

1. Specification of responsibilities ____
2. Determination of need for data collection ____
3. Establishment of DQOs ____
4. Development of Qapjps ____
5. Development of SOPs ____
6. Incorporation of QC procedures ____
7. Overview of data collection activities ____
8. Assessment of data quality ____
9. Reporting of data and data quality ____
10. Corrective actions ____

c. External Activities

1. Establishment of responsibilities ____
2. Incorporation of QA/QC requirements ____
3. Review/approval process for activities ____
4. Overview of data collection activities ____
5. Overview of products ____
6. Assessment of data quality ____

8. ASSESSMENT OF DATA QUALITY

a. Is the quality of data generated and reported assessed on a routine basis? Yes____ No____

b. How is the quality of the data assessed and reported?

_____

_____

c. Based on available reports, what is the quality of the data generated?

_____

_____

d. Does the quality of the data generated meet the DQOs?

Yes_____ No_____

_____

_____

e. Does the quality of the data meet the needs of the ultimate data user? Yes____ No____

_____

_____

SAFETY-KLEEN CORP.

"CORPORATE MISSION"

To maximize the value of our unique marketing/distribution/recycling organization by becoming the world's leading specialty reclaimer of hazardous and quasi-hazardous automotive and industrial fluids with primary emphasis on the small generators through:

I. <u>Recycling and Re-refining</u>

A. In-house Recycling

(1) Hydrocarbons

(2) Chlorinates

(3) Fluorinates

(4) Flammables

B. In-house Re-refining

(1) Motor oils and lubricants

(2) Industrial lubricants

C. On-site Recycling

(1) Coolants

(2) Industrial oils

II. <u>Reclaiming</u>

A. In-house Blending of Chemical Fuels

(1) Hydrocarbons

(2) Mixed chlorinated streams

(3) Flammables

B. In-house Processing of Waste Oils for use as Supplemental Fuel Oil

III. <u>Incineration</u>

In-house incineration of a variety of hazardous waste by-products.

01/032

safety-kleen corp.

Corporate Policy

Policy #: 600-615

Date: November 9, 1987

Dept.:

Corporate Approval

Policy Title: HEALTH, SAFETY AND ENVIRONMENTAL POLICY

Safety-Kleen is Safety First

It is the policy of Safety-Kleen Corp. that in the operation of its business the Company and all of its employees shall endeavor to minimize risk of harm to human health and the environment. Each employee shall place the highest importance and priority on the protection of health and safety, and preservation of the environment.

To implement this policy:

1. The Company's business operations shall be conducted in full compliance with all federal, state and local laws and regulations.

2. The Company shall develop guidances for the implementation of laws and regulations, and may adopt additional standards where laws and regulations may not be adequately protective. The Company's business operations shall be conducted in compliance with all such guidances and standards.

3. The Company shall establish and maintain training and compliance programs to assure that all laws and regulations, and all Company guidances and standards are known, understood and obeyed by all employees.

4. The Company shall establish and maintain accident prevention, product safety and integrity, occupational health, and pollution control programs to safeguard employees, customers and the public from injuries or health hazards, to protect the environment and to protect the corporation's assets and continuity of operations.

5. The Company shall cease any operations that cannot be conducted in a manner consistent with this policy.

It is the responsibility of each and every employee, at all levels, to adhere to the spirit as well as the letter of this policy. All employees shall have a responsibility to keep informed about health, safety and environmental matters, and to promptly advise their immediate superior of any adverse situation that comes to their attention.

SK Sample No: 31473

BRANCH	ENVIROSYSTEMS
☐ FRS ☐ DC	☐ FUEL
☐ PC ☐ PR	☐ RECYCLE
☐ IC ☐ QC	☐ TOLLING
☐ BRESLUBE	☐ QC

OTHER _____

SK USE ONLY
SK Control No: _____
Date Received: _____

MATERIAL SURVEY

EPA ID No. (Federal) _____ County _____

A. Company Name _____
Billing Address
Street _____
City _____ State _____ Zip _____

Facility Address
Street _____
City _____ State _____ Zip _____

Nature of Business _____ S.I.C. Number _____
State ID Numbers: Illinois ID _____ Missouri ID _____ State _____ ID _____
Manifest Address: ☐ Billing Address ☐ Facility Address Manifest to: ☐ Safety-Kleen ☐ Other _____

B. Material Description _____

Process Description _____

Volume (gal.) _____ / ☐ Wk ☐ Mth ☐ Qtr ☐ Yr ☐ Once
Volume on Hand (gal.) _____
Storage Capacity (gal.) _____ In ☐ Drums ☐ Bulk
Shipping Frequency _____ In ☐ Drums ☐ Bulk

C. Physical Description Color _____
Layers ☐ One ☐ Two ☐ Three
Physical State ☐ Liquid ☐ Semisolid ☐ Solid
Liquid Viscosity ☐ Low ☐ Medium ☐ High

D. Material Composition (vol%)

	Min	Max	Typical
Water			
Non-volatile Material			
Settled Solids			

E. Attach material safety data sheets for material components requiring employee communication under OSHA (Ref. 29 CFR 1910.1200
Attach any current analysis of the material. ☐ MSDS attached ☐ Analysis attached ☐ No attachments

F. Check all of the following substances which may be in the material.

	Identify if present	Amount	Units
☐ DOT Corrosives, Poisons, Forbiddens, Radioactives, Explosives, or Gases.			
☐ TSCA regulated materials (PCB, PBB, Chlorinated dibenzodioxins or furans).			
☐ Materials used exclusively as pesticides, herbicides, insecticides, etc.			
☐ OSHA carcinogens above exclusion levels (Ref. 29 CFR 1910.1001-).			
☐ Toxic components with OSHA PEL or ACGIH TLV less than 2 ppm or 8 mg/m³.			
☐ Toxic metals (Arsenic, Beryllium, Cadmium, Mercury, Selenium).			
☐ Reactive components (Sulfides, Cyanides, Shock Sensitives, Pyrophorics, etc.).			
☐ Water reactive components (Isocyanates, Acid Chlorides, Anhydrides, etc.).			
☐ Biological hazards (Pathogenics, Infectious agents, Etiologic agents, etc.).			

☐ None of the above ☐ Special Handling Required _____

G. DOT Hazardous Material Description (Ref. 49 CFR 172.101)
Proper Shipping Name _____
Hazard Class _____ Number _____
☐ Not DOT Hazardous Material ☐ Need assistance to determine

H. EPA Hazardous Waste Description (Ref. 40 CFR 261)
Waste Number(s) ☐ D001 ☐ D002 ☐ F001 ☐ F002 ☐ F003 ☐ F004 ☐ F005 _____
Hazard Code(s) ☐ I ☐ T ☐ C ☐ R ☐ E ☐ H
☐ Not EPA Hazardous Waste ☐ Need assistance to determine

I. Safety-Kleen requires a sample and charges a fee for the qualification of all new material. Purchase Order No. _____
Type of sample: ☐ grab ☐ tank ☐ composite of ____ #drums Sample taken by ☐ Customer ☐ Safety-Kleen Representative

J. To the best of my knowledge, this is an accurate material description and the sample submitted is representative of the material.

Name _____ Title _____
Signature _____ Date _____ Phone ( ) _____
Comments _____
Sales Representative Name _____ Representative # _____ Branch # _____

LAB

FORM 200-02-10 REV 2-2-88 © 1988 Printed in U.S.A.

UNDERGROUND TANK

INTEGRITY ASSESSMENT

SAFETY-KLEEN CORP. SERVICE CENTER

MOKENA, ILLINOIS

NOVEMBER 14, 1988

Prepared by:

GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC.
Consulting Engineers
345 North 95th Street
Milwaukee, Wisconsin 53226
(414) 259-1500

CERTIFICATION STATEMENT

Safety-Kleen, Inc. Service Center
9631 West 194th Place, P.O. Box 818, Mokena, Illinois 60448

I, Gerald L. DeMers, am personally responsible for the preparation of this document, as required by the Resource Conservation and Recovery Act (RCRA) regulations, namely, 40 CFR 264.191.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information 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: Gerald DeMers
Wisconsin P.E. License No.: #21773
Date: 12/1/88

I, John Dellaport, was present to observe the testing of the existing underground tank system located at the above address. My duties were to assess the existing system, conduct the leak test, and advise the Owner of any necessary action.

Signature: John C. Dellaport
Title: Hydrogeologist
Date: 11/30/88

I, Jerome S. Chudzik, certify under penalty of law that I have personally examined this document and all its attachments. Based on my inquiry of Gerald L. DeMers, my associate who is immediately responsible for this report, I believe that the information 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: Jerome S. Chudzik P.E.
Illinois P.E. License No.: #062-041587
Date: 11/30/88

GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC.
345 North 95th Street
Milwaukee, Wisconsin 53226

CONTENTS

SECTION PAGE

A. Facility Description Abstract.....1

B. Introduction.....2

C. Assessment of Existing Tank System's Integrity.....2

1. Design Standards.....2

a. Tank
b. Ancillary Equipment

2. Hazardous Characteristics of the Waste.....2

3. Existing Corrosion Protection Measures.....4

4. Documented Age of Tank System.....4

5. Results of Leak Test.....4

D. Modifications to Tank System.....4

E. Recommendations 5

Appendix

1. Safety-Kleen Records

2. Graef, Anhalt, Schloemer Test Results Summary

3. Temperature Graphs

4. GAS Field Inspection Checklist

5. Construction Photographs

A. FACILITY DESCRIPTION ABSTRACT

CORPORATE HEADQUARTERS:	Safety-Kleen Corp. 777 Big Timber Road Elgin, Illinois 60123 312-697-8460
FACILITY ADDRESS:	Safety-Kleen Corp. 9631 West 194th Place P.O. Box 818 Mokena, Illinois 60448
TELEPHONE NUMBER:	(312) 479-1064
U.S. EPA I.D. NUMBER:	ILD000665851
OWNER:	Simborg Development Inc. 2400 W. Sibley Blvd. Posen, Illinois 60469
NUMBER OF UNDERGROUND TANKS STORING HAZARDOUS WASTE IN USE	One
ESTIMATED AGE OF TANK	11 years
TANK SIZE	12,000 gallons
CONTRACTOR	Family Plumbing P.O. Box 326 Frankfort, Illinois 60423

B. INTRODUCTION

The Code of Federal Regulations, 40 CFR Section 265.191, requires that for each existing underground hazardous waste tank system that does not have secondary containment meeting the requirements of Section 265.193, the owner or operator must obtain and keep on file at the facility a written assessment of the tank system's integrity. A qualified tank tester performed a leak test on the underground portions of the tank system at the Mokena, Illinois Safety-Kleen. This report provides the results of that tank testing and an integrity assessment of the system.

C. ASSESSMENT OF EXISTING TANK SYSTEM'S INTEGRITY

1. Design Standards

The tank and piping were designed and constructed in accordance with the applicable Underwriters' Laboratory Standards at that time (1977). Design drawings showed that the underground galvanized 3-inch piping was specified with 45-degree elbows to prevent clogging. All tank related piping was underground except for the dumpster piping which was contained by the concrete containment area beneath the return/fill shed. In 1977, a 1,300-gallon sludge tank was also installed with the original system, but was subsequently disconnected and filled with sand at a later date (Appendix 2).

The ancillary equipment of the tank consists of the tank piping from the dumpster, the vent pipe, a sump and drain pipe in the containment area, and the standpipe. The 4-inch standpipe is used for the "sticking" of the tank and to withdraw the waste solvent.

2. Hazardous Characteristics of the Waste

The three hazardous characteristics of the used mineral spirits waste, as defined by 40 CFR 261, are:

A. Ignitability (D001) - A waste is considered ignitable, and therefore hazardous, if its flash point is below 140° F.

The used mineral spirits to be stored in this tank has a typical flash point in the range of 100° F. to 110° F., and therefore is ignitable (D001).

B. EP Toxicity due to Cadmium Content (D006) - A waste is considered to be EP toxic due to cadmium content if its concentration exceeds 1.0 ppm (parts per million).

A typical value for cadmium concentration is 0.93 ppm. Since this value is close to 1.0 ppm , it may be considered to be EP toxic due to cadmium content.

C. EP Toxicity due to Lead Content (D008) - A waste is considered to be EP toxic due to lead content if concentration exceeds 5.0 ppm.

A typical value for lead concentration is 5.0 ppm. Therefore, the used mineral spirits is considered to be EP toxic due to lead content.

Of those three hazardous waste characteristics, none would affect the compatibility of the mineral spirits waste with the carbon steel tank material. The ignitability quality of its own would not affect the steel tank. Also, the presence of cadmium and lead, in concentrations as indicated in B and C above, would not have an adverse affect on the tank material. In fact, mineral spirits is often used as a light hydrocarbon coating to prevent rusting of metal parts, and therefore acts to preserve the carbon steel.

The National Fire Protection Agency identifies three types of fire hazards by degree. These ratings for the spent mineral spirits are below.

A. Health Hazards - 0. Includes "materials which on exposure under fire conditions would offer no hazard beyond that of normal combustible material."

B. Flammability Hazards - 2. Includes "materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur... (and) should include liquids having a flash point above 100° F., but not exceeding 200° F." It can be pointed out that, although the flash point falls in this category, the vapor pressure, which reflects the amount of ignitable gases given off by the liquid, of mineral spirits is very low (2mm). Ignitability is therefore not nearly as great as that of other liquids with similar flash points.

C. Reactivity (instability) Hazards - 0. Includes "materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water."

Finally, the Material Safety Data Sheet for fresh mineral spirits, which has mostly the same characteristics as spent mineral spirits, describes the material as stable and combustible, and incompatible only with

strong oxidizing agents. Warnings include avoiding heat, sparks and flame. Oxidizers are not handled at the service center, and operating procedures are such that they minimize the possibility of ignition sources near the tank farm.

It therefore can be concluded that the tank is compatible with the hazardous waste being stored.

3. Existing Corrosion Protection Measures

Safety-Kleen records indicated that the waste tank was installed with cathodic protection in 1977 (Appendix 1). Since no anode test station was observed, it could not be determined if the corrosion protection system was functioning.

The buried remote fill line was encased with a plastic coating. It is expected that this coating has served to reduce the rate of corrosion of the buried piping.

4. Documented Age of Tank System

The tank was installed in November 1977 (Appendix 1).

5. Results of Leak Test

On November 1, 1988, GAS was retained to test the integrity of the 12,000-gallon underground waste mineral spirits tank. At 8:30 a.m. the tank was completely filled with solvent; however, the piping was not filled at this time due to a one-half inch hole which was spotted on top of the two-inch tee connection located in the containment area of the return/fill shed (see photo, Appendix 5). In addition, the branch manager indicated that the two (2) flexible two-inch hoses from the dumpsters had been known to leak in the past. By 9:30 a.m., new flexible hoses and a new tee were installed. The total system (tank and piping) was then filled with solvent through a 42-inch high standpipe which was threaded into a bushing on the manhole cover. An eight-hour resting period was required in order to allow the temperature of the added solvent to equilibrate with the surrounding ground temperatures.

At 5:00 p.m., the temperature fluctuations had sufficiently minimized and a leak test was performed. A leak rate of 0.04 gallons per hour (gph) was calculated (Appendix 2). This leak rate is less than the allowable leak rate of 0.05 gph as specified by the NFPA 329 Standard; therefore, the waste tank passed the specified integrity test and no corrective action is necessary.

D. MODIFICATIONS TO TANK SYSTEM

No modifications to the tank system were necessary.

E. RECOMMENDATIONS

By November 9, 1992, the waste tank must be taken out of service or upgraded to the new tank standards as required by 40 CFR 265.193(a)(3).

GAS recommends that the waste tank system at the Mokena, Illinois Safety-Kleen branch be retested on an annual basis. The leak test must meet the requirements of 40 CFR Part 265.191 or other tank integrity method, as approved or required by the Regional Administrator of the U.S. Environmental Protection Agency. Other recommendations include the following:

1. Install an audio/visual high level alarm.

2. Install a monitoring well point in tank backfill. The location of the water table within the tank backfill should be identified prior to any future tank test.

3. Install a waste pump in return and fill shelter with automatic shutoff linked to high level alarm.

JCD:jmm

APPENDIX 1

BRANCH # 5-034-05
LOCATION MOKENA IL

GARY ZAMBO
BRANCH MANAGER

HAZARDOUS WASTE TANK SYSTEM
INTEGRITY ASSESSMENT

Tank # 1

Tank 1 - 12,000 gallon
Tank 2 - _____ gallon

sludge
4 years ago -

I. Description of Tank and Piping

Tank	Piping
___ Bare steel	___ Aboveground
✓ Coated steel	✓ Underground
___ Cathodic protection	✓ Galvanized
✓ Manway (describe) 20"	___ Black
Tank dimensions:	✓ Threaded
Diameter: ___	___ Welded
Length: ___	___ Cathodic protection
Thickness: ___	___ Underground pressurized lines (dirty tank only)

Attach available documentation (invoice, drawings, etc.)

II. Documentation of Tank Age (must attach copy)

Tank age: 10 years Installation date: 9/77

Type of documentation attached:
✓ Invoice for tank system installation
✓ Property lease record
✓ Real estate index card
___ Lease agreement (lessor-owned tanks)
___ Other _____

III. Waste Material and Hazardous Characteristics

✓ Waste mineral spirits (D001/D008)
___ Waste mineral spirits sludge (D001/D008)
___ Other _____

IV. Independent Professional Engineer

GAS

Scheduled test/inspection date 6-29-88
Test method AINLAY
Results PASS
Report due 12/1/88

safety-kleen corp.

INTER - OFFICE COMMUNICATION

Subject: MOKENA, ILLINOIS
5-034-05

ELGIN
Branch/Office

September 30, 1987
LWS 87-419

To: GERRY HOKE

cc: B. Heyn

You have been paying rental in the amount of $1870 per month through 9/30/87. for the properties at 9627/9631 W. 194th Place, Mokena, Illinois
The Leases are in the process of being renewed and you are to pay rental as follows:

PAY TO:

BRAUWIN REALTY SERVICES, INC.
11 S. LaSalle
Suite 2500
Chicago, Illinois 60603

PAY:

$1910 per month from 10/1/87 to 9/30/89
$2030 per month from 10/1/89 to 9/30/90
$2150 per month from 10/1/90 to 9/30/91
$2268 per month from 10/1/91 to 9/30/92

LWS:ms

L. W. SCHWEIK

ADDRESS 9631 W. 194th Place #9626

CITY Mokena STATE Illinois 60448

LESSOR

AGENT

BROKER American National Bank & Trust Co. as Trustee under Trust No. 38921

COMPANY c/o Simborg Development, Inc.

ADDRESS 2400 W. Sibley Blvd.

CITY Posen, STATE Illinois 60469

LESSEE

COMPANY Safety-Kleen Corp.

ADDRESS 655 Big Timber Road

CITY Elgin STATE Illinois 60120

LEASE TERM

10-1-82 9-30-87

FROM ~~10-1-77~~ TO ~~9-30-82~~ YEARS 5

* ~~1-15-80 9-30-87~~

RENTAL

ANNUAL $9,000

MONTHLY * $450 ~~$750~~ Sec. Dep. $450 ~~Sec. Dep. $750~~

1 mo. pd. on this bldg. for Jan. '80

TERM $45,000

CHECK PAYABLE TO: American National Bank & Trust Co. of Chicago

Mokena Building #1
2400 W. Sibley Blvd.
Posen, Illinois 60469

P.O. Box 72283
Chicago, Ill
60678-2283

CC: J. Weber
K. Kelly
K. Jennings
P. McMahon
~~XXXXXXX~~ M. Markee
Regional Manager

LESSEE'S RESPONSIBILITIES

LIGHT X HEAT X POWER X

PHONES X

OTHERS Water rents

PROPERTY USAGE

Service center, warehouse, office and solvent storage.

TANK INSTALLATION

Two 12,000 gallon and one 1300 gallon (settling) tanks underground. Two 12's $6,422.50 and one 1300 $1,390 installed approximately latter part o September, 1977. Installation charges $15,700.

appr. 3,528 sq. ft.

PROPERTY DESCRIPTION

4.9% of a 72,000 square foot brick building and certain vacant land adjacent thereto, all as show in Exhibit "A". Building located on the premises described as follows: Lot 1 in Normal Towers Industrial Park Unit No. 2, being a Subdivision o part of the East one-half of Section 9, Township North, Range 12 East of the Third Principal Meridian, in Will County, Illinois.

* 2.1% of bldg, - 1,500 sq. ft.

HOLDOVER PENALTY

$50.00 per day, but this provision shall not be held as a waiver by Lessor of any right of re-ent as set forth in other clauses of this lease.

REMARKS

Option to renew for two, five-year periods with 6 mos. prior notice by certified mail. Rent to b based on Bureau of Labor statistics index (see Par. 23). Lessee to pay 4.9% of any increase in real estate taxes on entire property over $18,000 Also 4.9% of the amount by which insurance premiu annually exceed $3,750.

NOTE: Lessor requires Certificate of Liability Insurance.

5-034-05 . Chicago

9631 W. 194th Place #9626 eff. 1-15-80 Expir. ~~9-30-82~~ 9-30-87
Mokena, Illinois 60448 Effec. ~~10-1-77~~ 10-1-82
~~Rent on addition $450 Sec. Dep. $450~~
Rent ~~$750~~ Sec. Dep. $750 Rent below
~~Total Rent $1,200~~ Sec. 1,200

Two 12,000 gallon underground tanks and one 1300 gal. settling tank. Two 12's $6,422.50. One 1300 $1,390 Purchased Sept. 1977. Installation charges $15,700. Closed & fed with sand

Option for 2 five year periods with 6 mos. prior notice by certified mail. Rent to be based on Bureau of Labor statistics index.

Rent 9626 W. 194th Pl. $475 Eff. 10-1-83 $500 Eff. 10-1-84 $525
Eff 10-1-85 $560 Eff 10-1-86 $620
9631 W. 194th $870 (10-1-83 $920) (10-1-84 $990) (10-1-85 $1,040)
10-1-86 $1,110

ORIGINAL INVOICE

"Red Head" TANKS

CHICAGO BOILER COMPANY

"Red Head" MILLS

1965 CLYBOURN AVENUE • (312) 348-8250

CHICAGO, ILLINOIS 60614

FOR CUSTOMER'S USE

QUALITY PRODUCTS SINCE 1891

CUSTOMER'S ORDER NO.

REQUISITION NO. 9/2/77

INVOICE NO. 773405

INVOICE DATE 10/18/77

SHOP NO. 4246 BLACK

SOLD TO
SAFETY KLEEN CORP.
655 BIG TIMBER RD.
ELGIN, IL. 60120

DATE SHIPPED 10/13, 10/14/77

B/L NO. 17618, 17620 F.O.B. CHGO

XX PREPAID OR ☐ COLLECT

SHIPPED VIA O.D.

TERMS: 1/2% 10 NET 30 DAYS INVOICES DATED 1ST TO 15TH PAYABLE ON THE 25TH THOSE DATED 16TH TO 31ST PAYABLE ON THE 10TH

SHIPPED TO W/A TAG: MOKENA

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT	TOTAL
2	12000 GAL. HORIZ. U/G TANKS	$2,975.00		
	8'0" DIA. x 32'0" LONG 1/4" HRS		$5,950.00	
	U/L LABEL. FLOGGED CONSTRUCTION 5% TAX		297.50	
	PLUS CARTAGE - OUR TRUCK		175.00	
				$6,422.5
			Disc	32.1
				6 390.3

Received / Tom Martin
Fed Mueller 10/28/77

RECEIVED ... CORP.

NOV 7 2011

NORMAL PLUMBING CO., INC.

19500 SOUTH MANNHEIM ROAD MOKENA, ILLINOIS 60448

Telephone: 479-2424

Safety Kleen

273 Mayfair B-2

Schaumburg, Il. 60193

Inv. # 5032

November 10, 1977

RE: Industrial Park, Mokena

REQUEST		$9,820.00
William E. King (out of pocket)		
Tank installation cost	$15,700.00	
~~Normal Plumbing Co., Inc.~~		
~~Overhead 10%~~	~~1,570.00~~	
~~Profit~~	-0-	
	$17,270.00	
Previously requested	-7,450.00	
+ ANODES	800.00	
Amount this request	~~9,820.00~~	
	$8,250.00	

APPROVED 0-0-01680

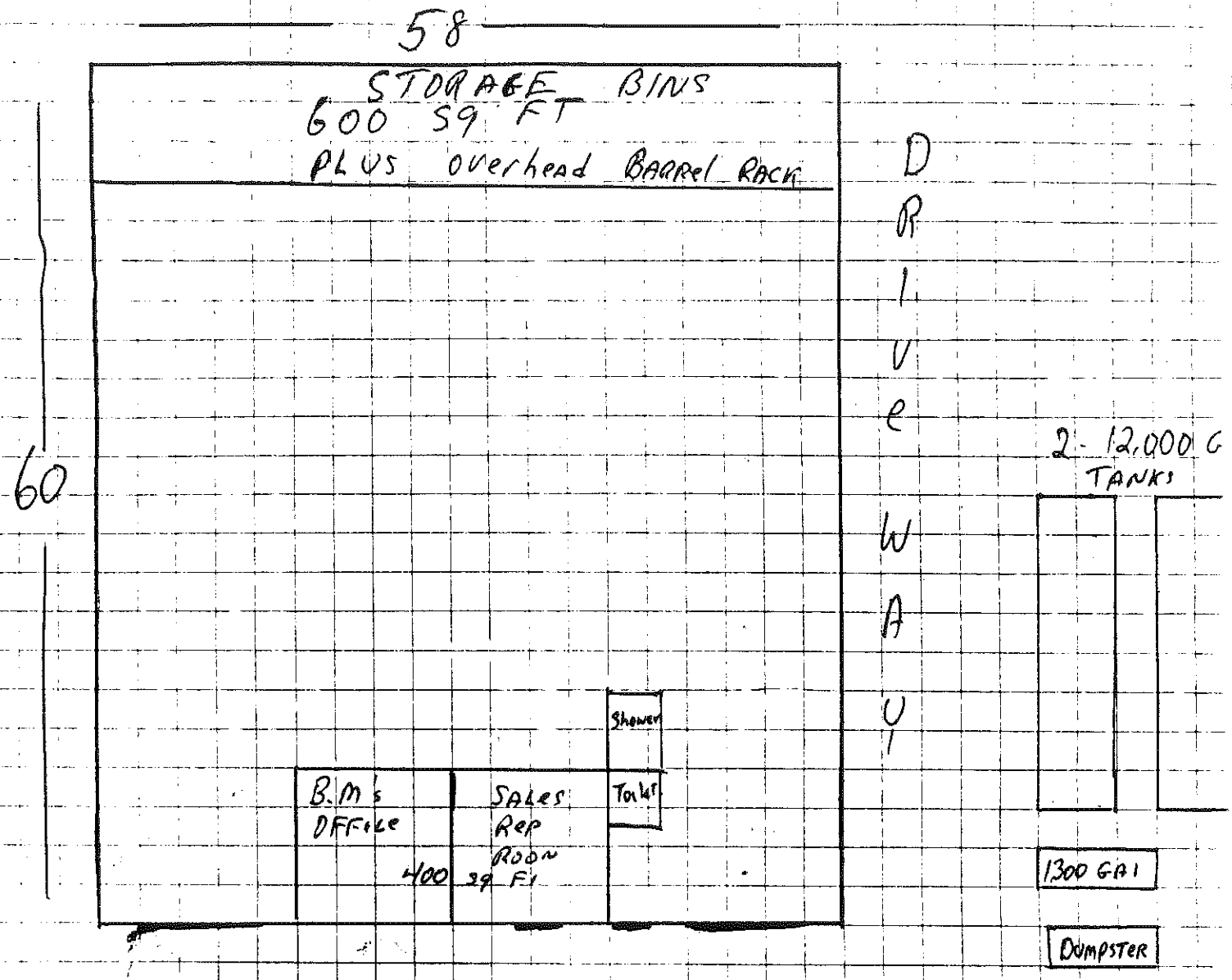
NOV 16 1977

Dave Ethnel

z

Completed 11/9/77

BUILDING 3500 sq Ft
(end unit - Multi Tenant
Lot Approx. 6000 sq F



MOKENA 5-034-05

APPENDIX 2

SOILTEST®

AINLAY TANK 'TEGRITY TESTER™ FIELD TEST DATA

1 TANK OPERATOR

NAME: SAFETY-KLEEN
ADDRESS: 96 31 W. 194
PHONE: (312) 479-1064
MORENA, ILLINOIS

2 TANKS TO BE TESTED

IDENTIFICATION	CAPACITY—GALS.	MANUFACTURER	STEEL/FIBRGLS.	AGE—YRS.
WASTE M.S. TANK	12,000	UNKNOWN	STEEL	11

3 WATER TABLE

DISTANCE FROM GRADE TO WATER UNKNOWN INS. (ASSUMED WATER LEVEL AT GRADE

4 TANK FILL-UP

TANK ~~WILL BE~~ WAS FILLED 9:00 AM (TIME) ON 11/1/88
EXTRA 5 GALS PRODUCT AVAILABLE FROM TANKER TRUCK
FILL UP TO BE ARRANGED BY MR. RAY KARASS PHONE (312) 694-2700
CONTACT AT STORAGE TERMINAL IS MR. GARY ZAMBO PHONE (312) 479-1064

5 OUTSIDE CONTRACTORS

NAME: FAMILY PLUMBING
ADDRESS: P.O. BOX 326, FRANKFORT, ILLINOIS 60423
PHONE:

6 OFFICIALS TO BE CONTACTED

NAME: TIM TAYLOR
AUTHORITY: TECHNICAL SERVICES
SAFETY-KLEEN CORP.
PHONE: (312) 694-2700

7 SPECIAL NOTES OR PRECAUTIONS

REPAIRS MADE PRIOR TO TEST:
1) REPLACED "T" FITTING ON 2 INCH DRAIN LINE TO TANK
2) REPLACED TWO FLEXIBLE DRAIN HOSES FROM DUMPSTERS
3) PLUMBER HIRED TO FREE 4 INCH ROSTER CAP ON STANWAY

8 TEST RESULTS

ALL TESTS WERE PERFORMED IN ACCORDANCE WITH PROCEDURES DESCRIBED IN SOILTEST'S INSTRUCTION BOOK. CRITERIA FOR TIGHTNESS IS ESTABLISHED BY NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN. N.F.P.A. 329.

TANK IDENT	TANK IS TIGHT	TANK IS NOT TIGHT	LEAK RATE G. P. H.	TEST DATE
12,000 GAL WASTE M.S. TANK	YES		+0.041	11/1/88

9 CERTIFICATION

THIS CERTIFIES THAT THE TANKS DESCRIBED WERE TESTED BY THE UNDERSIGNED AND THAT THE STATED RESULTS REPRESENT THE TRUE STATE OF THE TANKS ON THIS DATE TO THE BEST OF MY KNOWLEDGE.

SIGNED: John C. Dellafort
CERTIFICATE NO. WI-32
ISSUE DATE 04/26/88
FOR (TEST COMPANY) GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC.
ADDRESS 345 N. 95TH STREET
MILWAUKEE, WI 53226
STATE ZIP

ST-6 (REV. 2/87)

AINLAY TANK TIGHTNESS TEST No. _____

JOB SAFETY KLEEN CORP DATE 11/1/92
ADDRESS ALGONQUIN, ILLINOIS

TANK I.D.

INCLUDE ENOUGH INFO. TO ACCURATELY IDENTIFY TANK. (NUMBER/CONTENTS/POSITION, ETC.)

TANK DIAMETER 96 INS FILL PIPE LENGTH 86 (42" MANWAY) INS

11 WATER IN TANK

(a) START WATER IN TANK 1.0 INS (c) END WATER IN TANK 1.0 INS
(b) START WATER IN TANK 22 GALS (d) END WATER IN TANK 22 GALS

12 PRODUCT VOLUME

(a) NOMINAL CAPACITY 12,000 GALS (c) DEDUCT WATER IN TANK 22 GALS
(b) ACTUAL CAPACITY 12,000 GALS (d) TOTAL PRODUCT VOL. 11978 GALS
(FROM TANK CHART)

13 FILL PIPE EXTENSION

(a) HEIGHT OF WATER TABLE ABOVE TANK BOTTOM = UNKNOWN (h) INS
(b) DENSITY OF TANK PRODUCT = - (w) LB/CU. IN. (FROM TABLES)
DENSITY OF EXTERNAL WATER = 0.036 LB/CU. IN.
(c) ADDITIONAL HEAD REQUIRED = (h) x 0.036 / (w) = x 0.036 = _____ INS

NOTE:
TO AVOID POSSIBLE TANK DAMAGE THE ADDED PRESSURE FROM A FILL PIPE EXTENSION MUST NEVER EXCEED 5 P.S.I. AT THE WATER LEVEL.

14 PRELIM TEST DATA

(a) START TEMP CHECK 9:55 AM/PM (d) A.P.I. GRAVITY 45.5 AT 48 °F
(b) END TEMP CHECK 6:00 AM/PM (e) A.P.I. GRAVITY 46.6 AT 60°F
(c) TIME SINCE LAST LIQ. ADDED — HRS (f) COEFF. OF EXPANSION 0.00052429

15 TEST DATA

(a) START TEST 5:00 AM/PM END TEST 6:00 AM/PM TEST TIME 60 MINS.

TIME	TEMP 1	TEMP 2	TEMP 3	WTD. AVG.	TIME	TEMP 1	TEMP 2	TEMP 3	WTD. AVG.
17:00	53.855	54.010	54.704	54.137					
17:05	53.873	54.100	54.717	54.197					
17:10	53.875	54.095	54.720	54.198					
17:15	53.895	54.113	54.725	54.213					
17:20	53.909	54.119	54.698	54.212					
17:25	53.919	54.138	54.703	54.224					
17:30	53.935	54.151	54.713	54.240					
17:35	53.939	54.178	54.717	54.257					
17:40	53.969	54.178	54.712	54.260					
17:45	53.964	54.170	54.721	54.268					
17:50	53.982	54.194	54.726	54.275					
17:55									
18:00				54.241					

(b) TOTAL TEMP. CHANGE (AVG END TEMP. — AVG START TEMP.) = 54.2404 − 54.1840 = +0.1014 °F.

(c) VOL. CHANGE DUE TO TEMP = PRODUCT VOL × TEMP. CHANGE × COEFF. EXP.
= 11978 (12d) × 0.1014 (15b) × 0.00052429 (14f) = +0.6398 GALS.

(d) TOTAL LIQUID VOL. ADDED/SUBTRACTED AT END OF TEST ..... = +0.5990 GALS.

(e) VOL. CHANGE NOT DUE TO TEMP [(c) + (d)] ..... = 0.6398 + −0.5990 = +0.041 GALS.

(f) LEAK RATE = (e) ~~× 60~~ / TIME OF TEST (MINS) = ~~× 60~~ (15a) = 0.041 G.P.H.

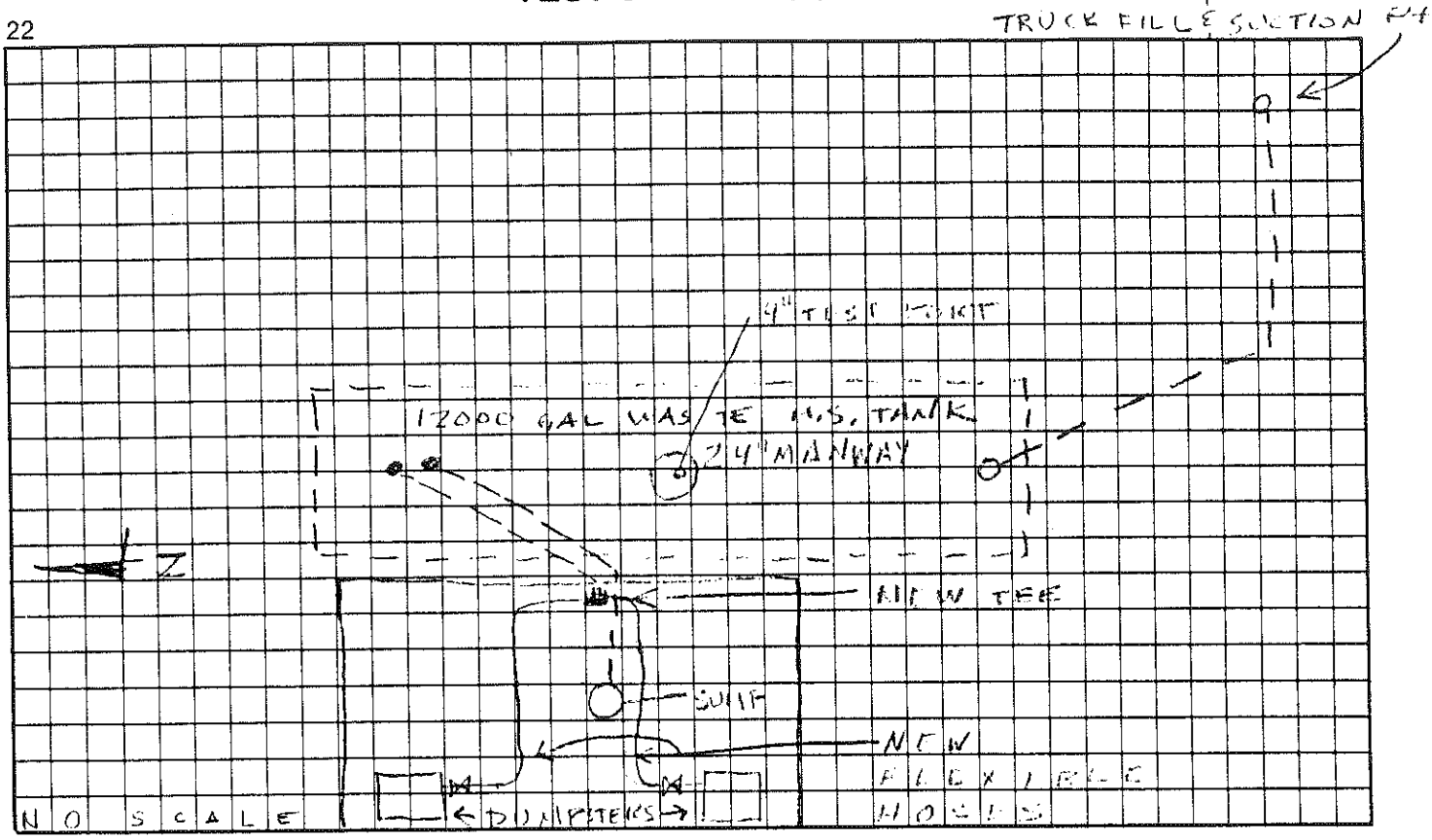
THIS LEAK RATE DOES/DOES NOT EXCEED THE STANDARD OF 0.050 G.P.H. DESCRIBED IN NATIONAL FIRE PROTECTION ASSOC., BULLETIN N.F.P.A. 329.

THE TANK IS TIGHT ☒ / THE TANK IS NOT TIGHT ☐

TESTER JOHN C. DELANDER, REN GAGE
TEST COMPANY JOSEPH, AMHAIT SCHAEFER

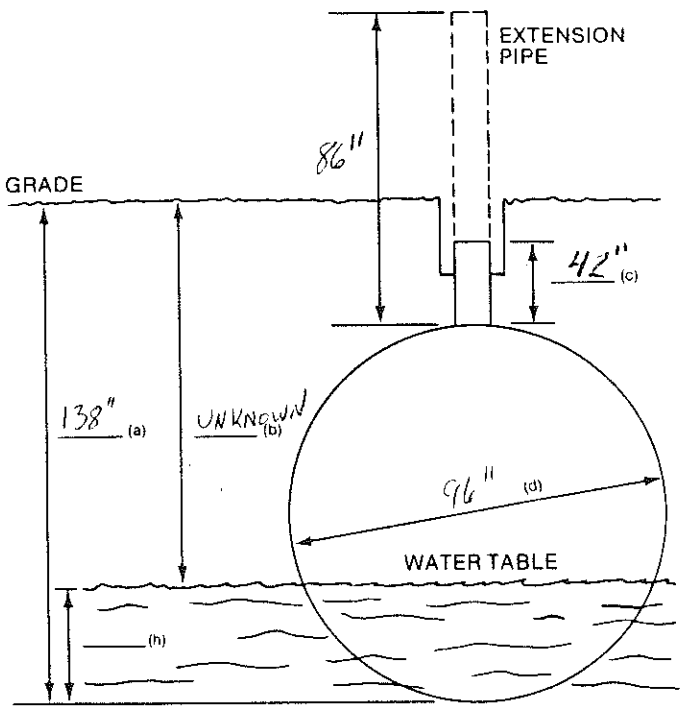
TEST SITE LAYOUT

22



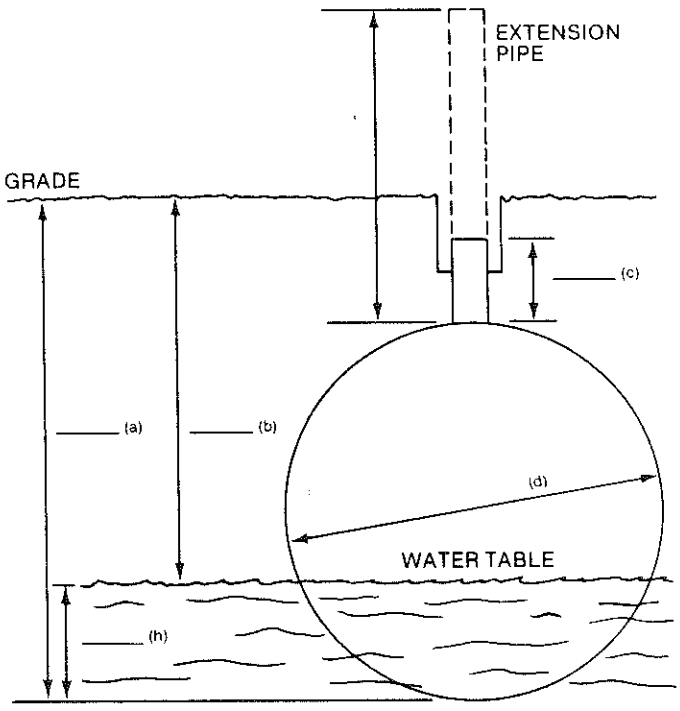
23

TEST 1: TANK DIMENSIONS



TANK IDENT. WASTE MINERAL SPIRITS TANK

TEST 2: TANK DIMENSIONS



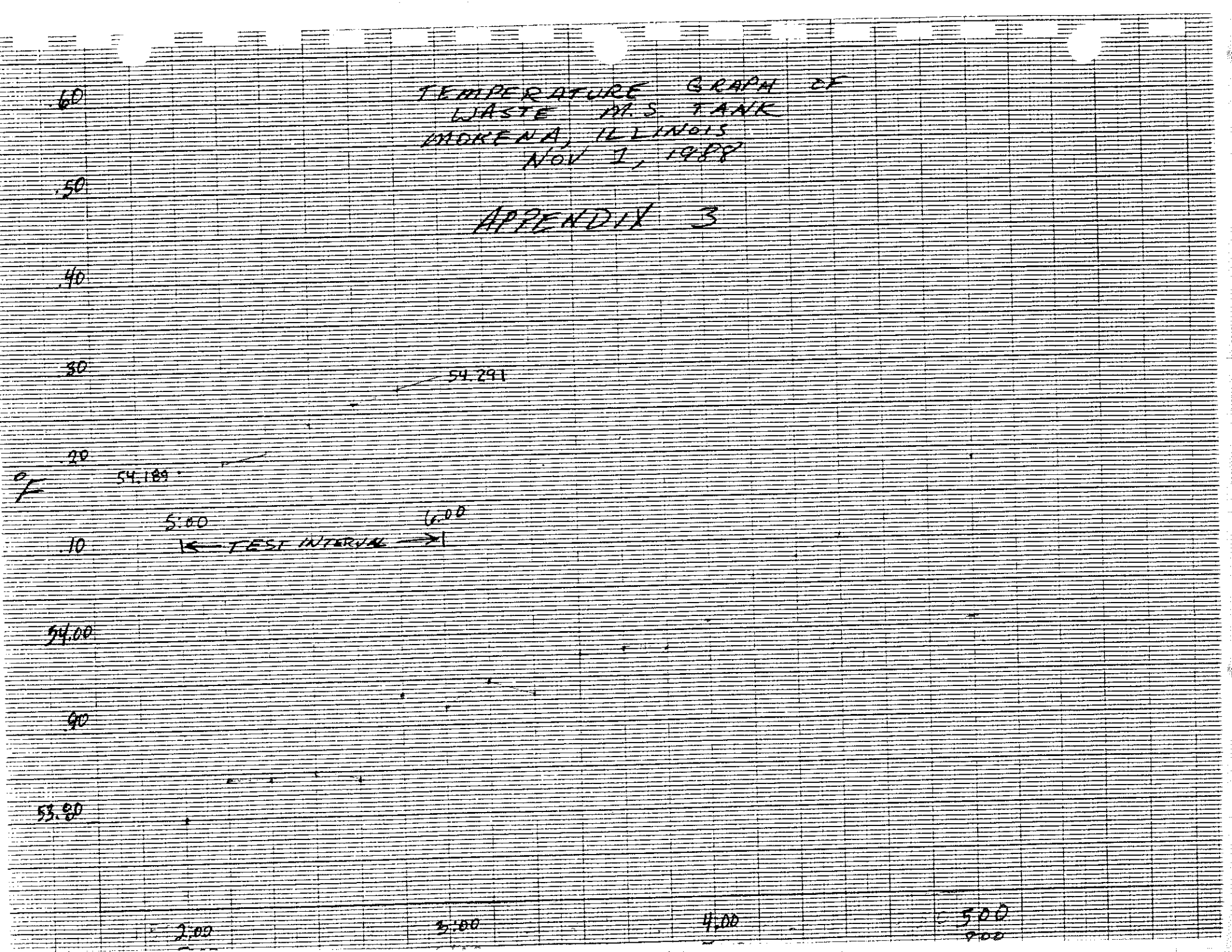
TANK IDENT. _____

TESTER
TEST COMPANY
DATE / /
JOB
ADDRESS

APPENDIX 3

TEMPERATURE GRAPH OF
WASTE M.S. TANK
MORENA, ILLINOIS
NOV 1, 1988

APPENDIX 3



APPENDIX 4

Bill P+K construction 474-3344
NPT

UNDERGROUND TANK FIELD INSPECTION CHECKLIST

DATE: 6-23-88 WEATHER: 80°

PERSONNEL: G.A.S. - Kevin Cooper
SAFETY-KLEEN - Gary Zambo Branch Man.
HUNTER ENVIRON. -

FACILITY ADDRESS: 9631 W 194 Mokena, Ill.
TELEPHONE: 312-479-1064

I. TANK SPECIFICATIONS

a. Tank Location closest to R+F shed

b. Age 11 years

c. Capacity 12K gallons

d. Dimensions _____ Long 96" Diameter

e. Construction Material steel-coated

f. Contents in Storage Used Mineral Spirits

g. Product or Waste Waste.

h. Protective Coating yes

i. Submersible or Suction Pump no pump

j. SLUDGE TANK filled with sand to within 24" bgs. Water present in tank from 24" bgs to pad level.

II. SITE CHARACTERISTICS

a. Soil type and drainage characteristics CLAYS

b. Surface Drainage (Standing Water?) No standing water

c. Water table elevation and fluctuation (High Water Table?)

d. Suspected groundwater flow direction E towards Lake N.

e. Type of backfill used UNKNOWN

f. Dimensions of concrete or asphalt pad 45' E→W / 40' N→S

g. Concrete ends at rtf sheds w. wall

SLUDGE TANK Removed 4yrs. ago
by PetroChem
P+K const. will replace manway gaskets
474-3344

III. CORROSION PROTECTION DEVICES

a. Sacrifical anode None

b. Impressed current None

c. Electrical isolation devices None

d. Protective coating or wrap yes - tank

e. Internal corrosion rate Unknown

f. Location of buried electrical lines unknown

IV. VENTS, CONNECTION AND ASSOCIATES PIPING (NFPA)

a. Piping properly supported yes

b. Pipe painted no

c. Joints liquid-tight yes

d. Vents unobstructed and proper height (12 ft.)

yes

e. Vent pipe I.D. no less than 1-1/4 inch yes

f. Filling, emptying, and recovery connections located greater than 5 ft. from building opening yes

g. All connections are vapor tight yes

h. Recent digging, driveway repair no

i. Frost heave None

j. Soft spots in asphalt none

V. UNDERGROUND TANK TESTING

Date: 11/1/88

Time Set up: 9 : 55 AM

Start Test: 5 : 00 PM

Stop Test: 6 : 00 PM

TANK TESTED:

Method Used: AINLAY TANK 'TEGRITY

Calibration Method: Known GAS PRESSURE

Comments: SEE Appendix 2

TEST RESULTS: No Leak X

Leak ____

Leak In ____, Leak Out ____

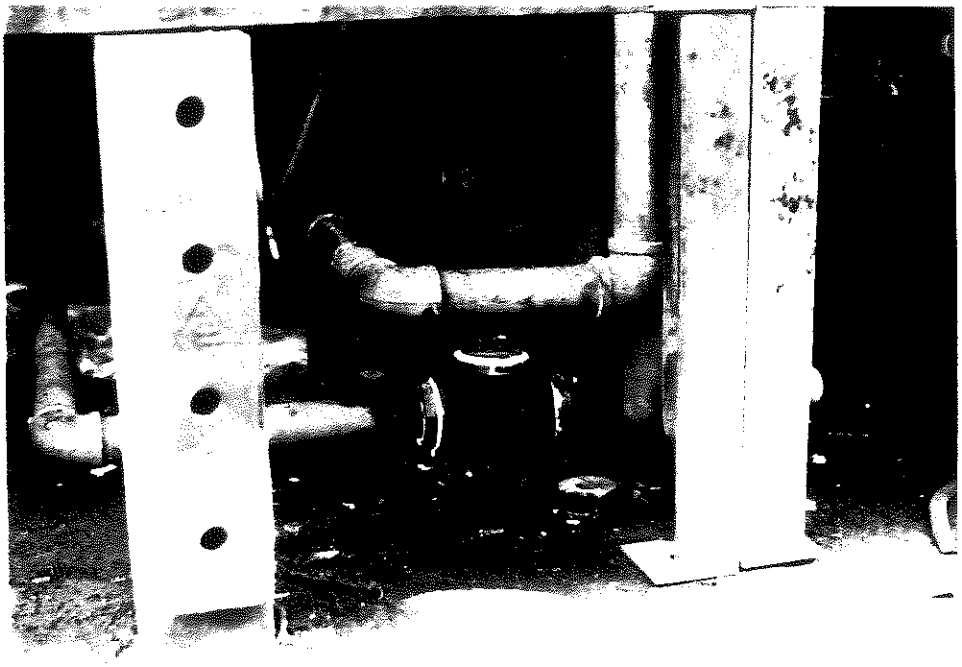
Tank Leak ____, Piping Leak ____

Leak Rate +0.041 gallons per hour

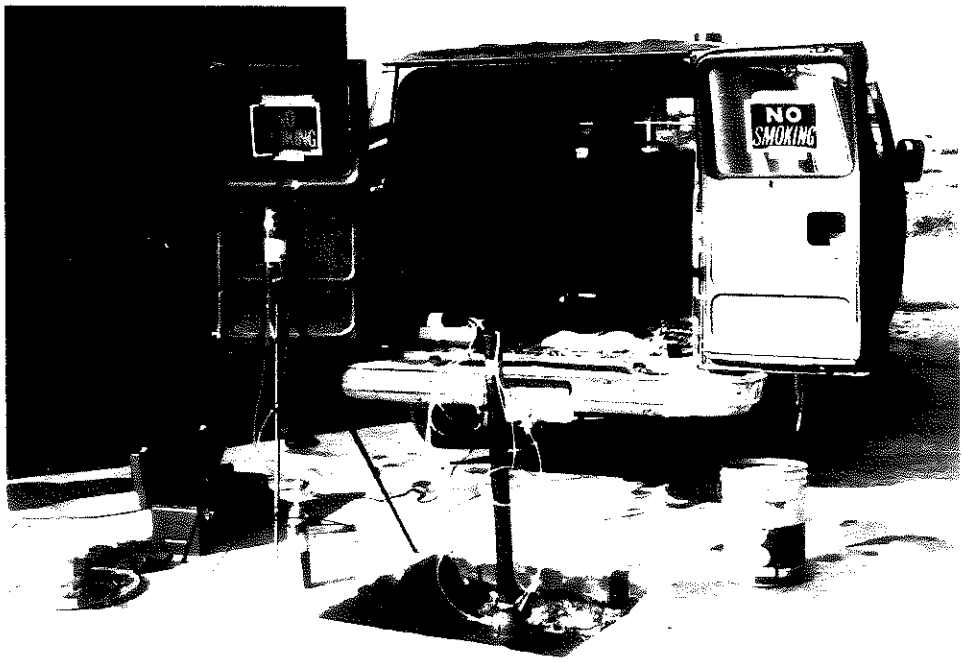
RECOMMENDATIONS: SEE TEXT page 5

APPENDIX 5

APPENDIX 5
CONSTRUCTION PHOTOGRAPHS



1) NOVEMBER 1, 1988: NEW "TEE" INSTALLED IN CONTAINMENT AREA



2) NOVEMBER 1, 1988: TANK TESTING APPARATUS INSTALLED ON WASTE MINERAL SPIRITS TANK

APPENDIX A

PART A APPLICATION

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F I L D 0 0 0 6 6 5 8 5 1 D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area*(s)* below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may effect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may effect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP SAFETY-KLEEN CORP. 5-034-05

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 RYAN, SUE - REG. ENV. ENGR	312 697 8460

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX	B. CITY OR TOWN	C. STATE	D. ZIP CODE
3 777 BIG TIMBER ROAD	4 ELGIN	IL	60120

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME
5 9631 W 194TH PLACE	WILL

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 MOKENA	IL	60448	

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7399 (specify) Business Services N.E.C.	5172 (specify) Petroleum Product Wholesalers
C. THIRD	**D. FOURTH**
5084 (specify) Industrial Machinery & Equipment	5013 (specify) Automotive Parts and Supplies

VIII. OPERATOR INFORMATION

A. NAME: SAFETY-KLEEN CORP. ELGIN IL

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other", specify.)*
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*
Answer: P (specify)

D. PHONE *(area code & no.)*: A 312 697 8460

E. STREET OR P.O. BOX: 777 BIG TIMBER ROAD

F. CITY OR TOWN: ELGIN

G. STATE: IL

H. ZIP CODE: 60120

IX. INDIAN LAND
Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: 9N	D. PSD *(Air Emissions from Proposed Sources)*: 9P
B. UIC *(Underground Injection of Fluids)*: 9U	E. OTHER *(specify)*: 9 (specify)
C. RCRA *(Hazardous Wastes)*: 9R	E. OTHER *(specify)*: 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

This location is primarily a local sales/service office and warehouse for Safety-Kleen products consisting of small parts cleaning equipment, solvent and allied products such as hand cleaner, floor cleaner, parts washing brushes, etc. Safety-Kleen collects used solvents from the customer (primarily SQG & VSQG's) for temporary storage at this facility. Once a sufficient quantity of materials is collected, the materials are moved off-site in a semi trailer or tanker quantity to a Safety-Kleen Recycling Center.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Burton E. Ericson Vice President/General Counsel	[signature]	6/4/85

COMMENTS FOR OFFICIAL USE ONLY

C

EPA Form 3510-1 (6-80) REVERSE

REVISED 1/5/88 : SCOTT E. FORE
VICE PRESIDENT

88-010

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F I L D 0 0 0 6 6 5 8 5 1 — T/A 1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*: YR. 77 MO. 10 DAY 01

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN: YR. MO. DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code*(s)* in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.
1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP T/A 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G	
X-2	T03	20	E	
1	S01	2080	G	
2	S02	12,000	G	
3				
4				
5				
6				
7				
8				
9				
10				

CONTINUE ON REVERSE

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

CONTINUE ON PAGE 3

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W I L D 0 0 0 6 6 5 8 5 1 — T/A C: 1	W DUP — T/A C: 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D001	806 ~~[illegible]~~	T	S02 S01	
2	D006 D008				Included with above
3	F002	40 ~~[illegible]~~	T	S01	
4	F004				Included with above
5	F007	128 ~~[illegible]~~	T	S01	
6	~~F003~~	~~50~~	~~T~~	~~S01~~	
7	~~F005~~				~~Included with above~~
8	~~D001~~	~~10~~	~~T~~	~~S01~~	
9	~~D008~~				
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F I L D 0 0 0 6 6 5 8 5 1 T/A C 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 32 42N	087 51 09W

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E MOKENA BLDG. #1 AMERICAN NAT. BANK OF CHICAGO	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F 2400 W. SIBLEY BLVD.	G POSEN	IL	60469

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
Donald L. Shapiro Vice President	X [signature] Vice President Branch Realty Services	6-17-85

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
Burton E. Ericson Vice President/General Counsel	[signature]	6/4/85

EPA Form 3510-3 (6-80)

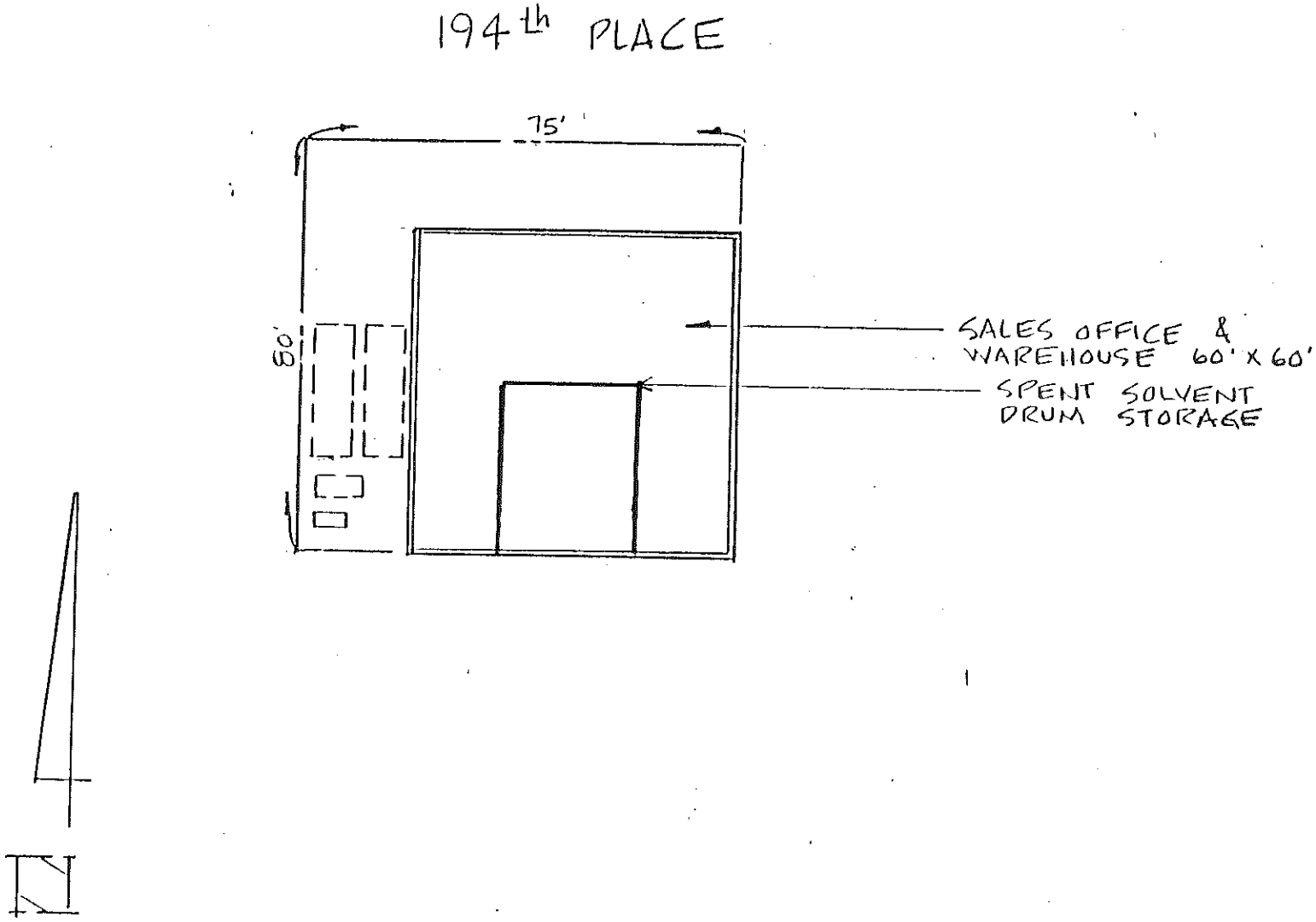
CONTINUE ON PAGE 5

REVISED 1/5/88 : [signature]
SCOTT E. FORE
VICE PRESIDENT, ENVIRONMENT ...

88-010

Continued from page 4

V. FACILITY DRAWING (see page 4)



safety-kleen corp.
655 BIG TIMBER ROAD • ELGIN, ILLINOIS 60120
PHONE 312/697-8460

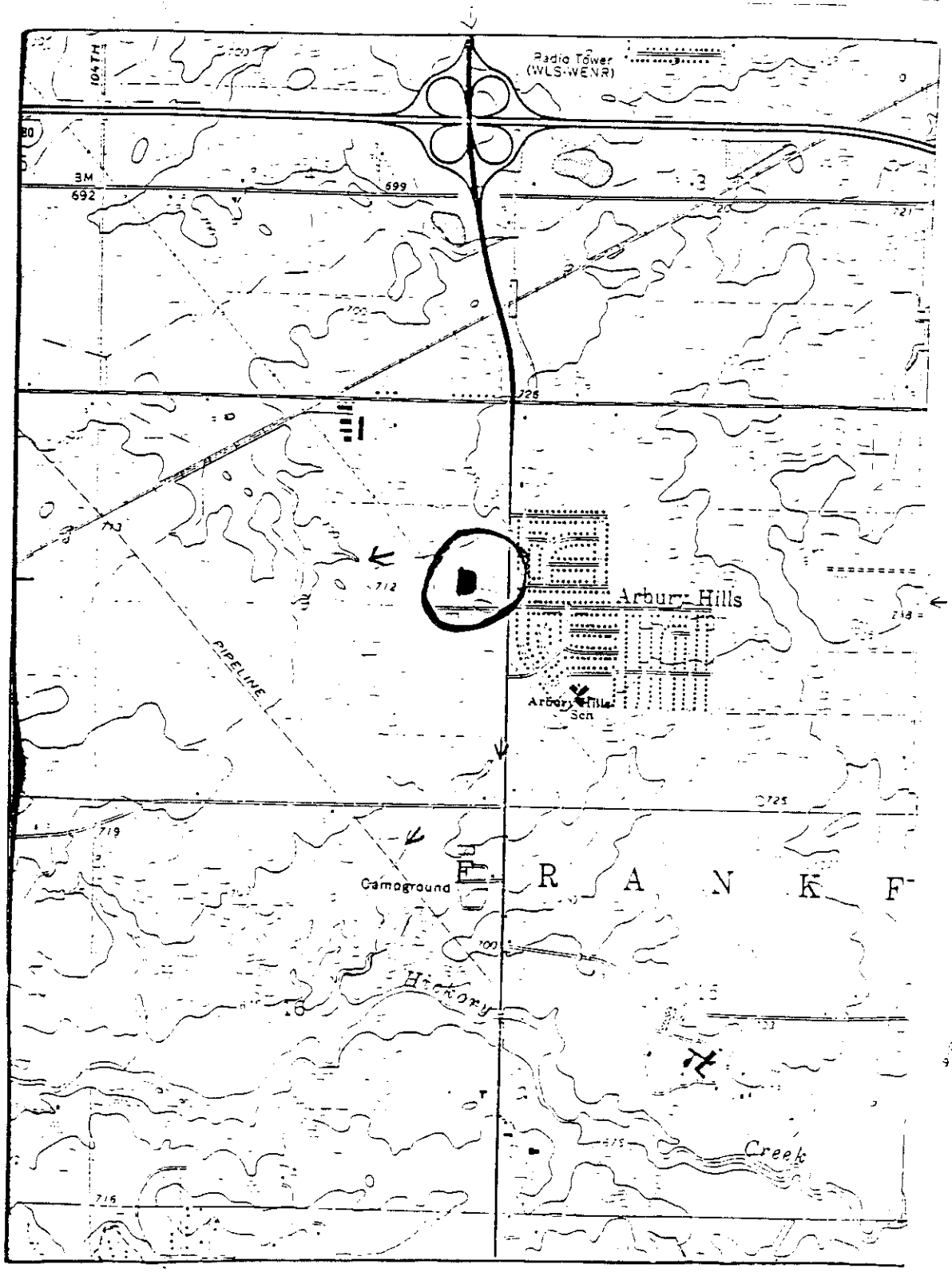
9631 W. 194th PLACE, MOKENA IL., 60448 (5·034·94)

SCALE 1" = 30'-0"
DWN WLJ
DATE 11·13·80

RECEIVED
FEB 16 1988
IEPA-DLPC

TINLEY PARK, ILL.
N4130—W8745/7.5

1963
PHOTOREVISED 1973
AMS 3467 III SE—SERIES V863



SCALE 1:24000

1 MILE

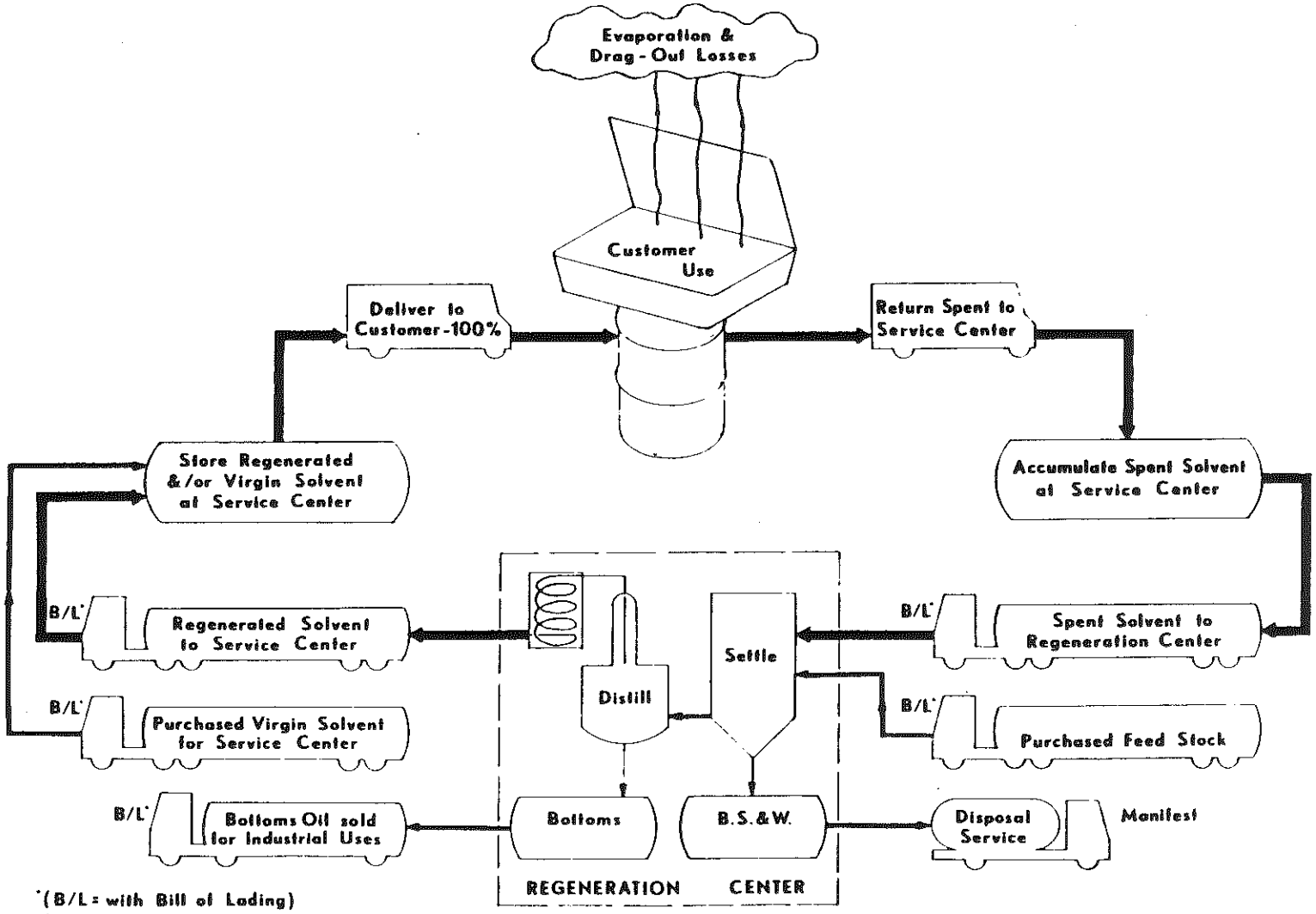
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

APPENDIX B

PROCESS FLOW DIAGRAMS

SAFETY-KLEEN SOLVENT USE & REGENERATION LOOP

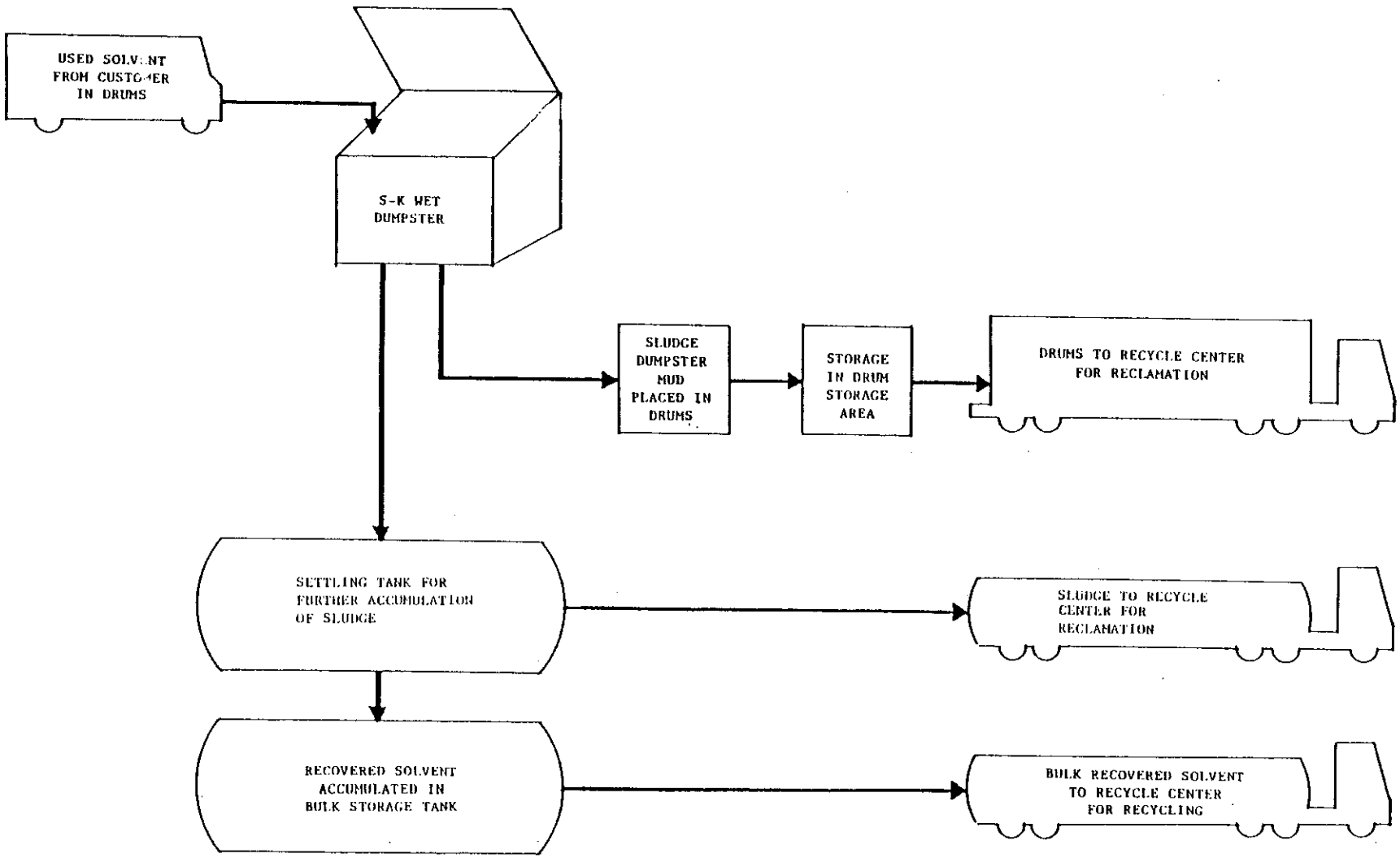


*(B/L = with Bill of Lading)

RECEIVED
FEB 1 1988
IEPA-DLPC

UNIT PROCESS FOR THE HANDLING OF

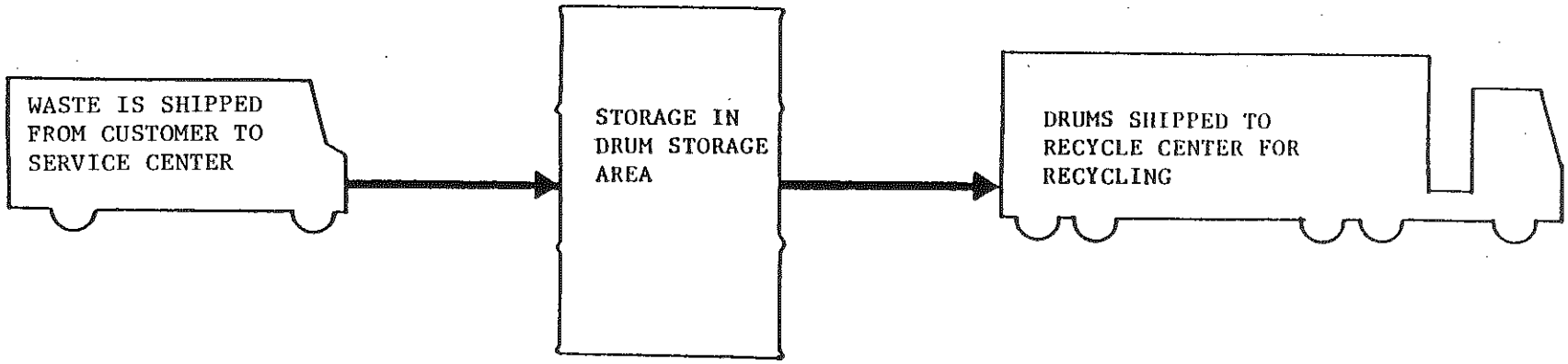
SPENT MINERAL SPIRITS



UNIT PROCESS FOR THE HANDLING OF SPENT

IMMERSION CLEANER, DRY CLEANING WASTE

AND PAINT WASTE



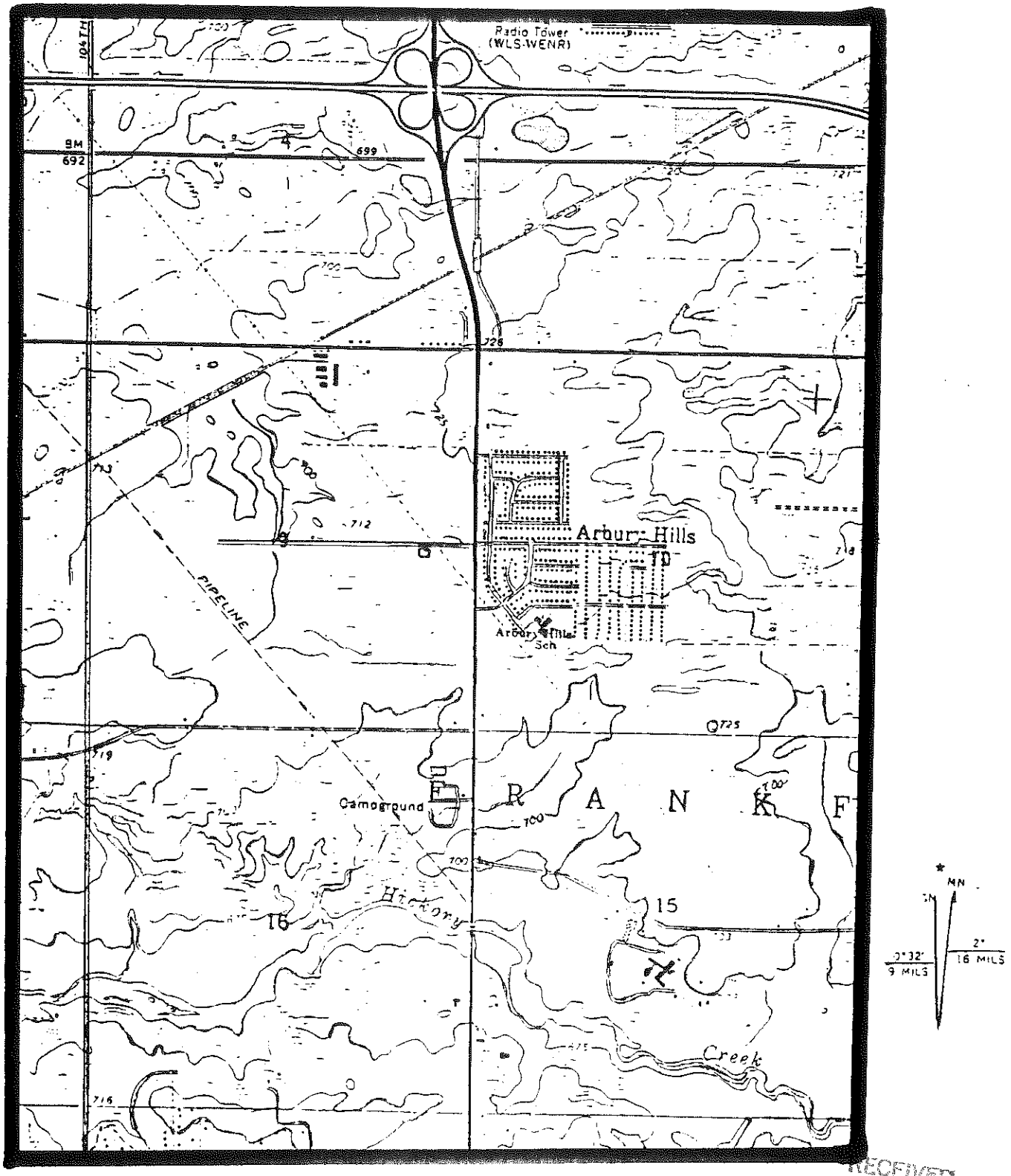
RECEIVED
OCT 21 1988
IEPA/DLPC

APPENDIX C

MAPS AND FACILITY DRAWINGS

TINLEY PARK, ILL.
N4130—W8745/7.5

1963
PHOTOREVISED 1973
AMS 3467 III SE—SERIES V863



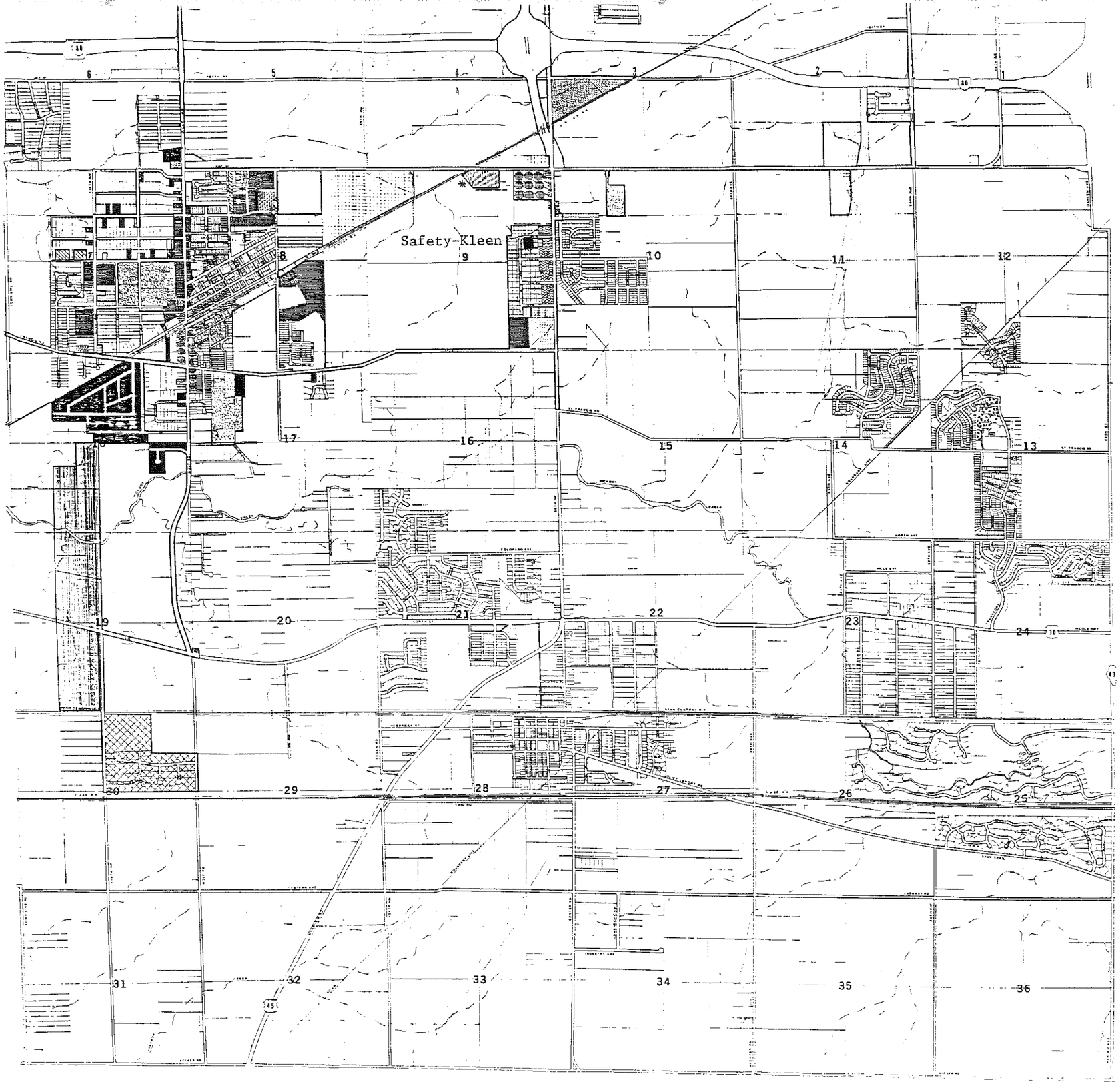
SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

RECEIVED
FEB 16 1988
IEPA-DLPC



MOKENA ZONING MAP

RESIDENTIAL DISTRICTS

R-1	2 1/2 AC.
R-2	1 AC.
R-3	20,000 SQ.FT.
R-4	15,000 SQ.FT.
R 5	10,000 SQ.FT.
R-6	7,500 SQ.FT.
R-7	6-10 UNITS/AC.

COMMERCIAL DISTRICTS

C-1	12,000 SQ. FT.	C-6	5 AC.
C-2	12,000 SQ. FT.	C-7	5,000 SQ.FT.
C-3	20,000 SQ. FT.		
C-4	40,000 SQ.FT.		
C-5	5 AC.		

INDUSTRIAL DISTRICTS

I-1	20,000 SQ. FT.
I-2	1 AC.
I-3	5 AC.

PUBLIC - QUASI PUBLIC DISTRICT

P-1	2 1/2 AC.

* SPECIAL USE

N
1"=800'

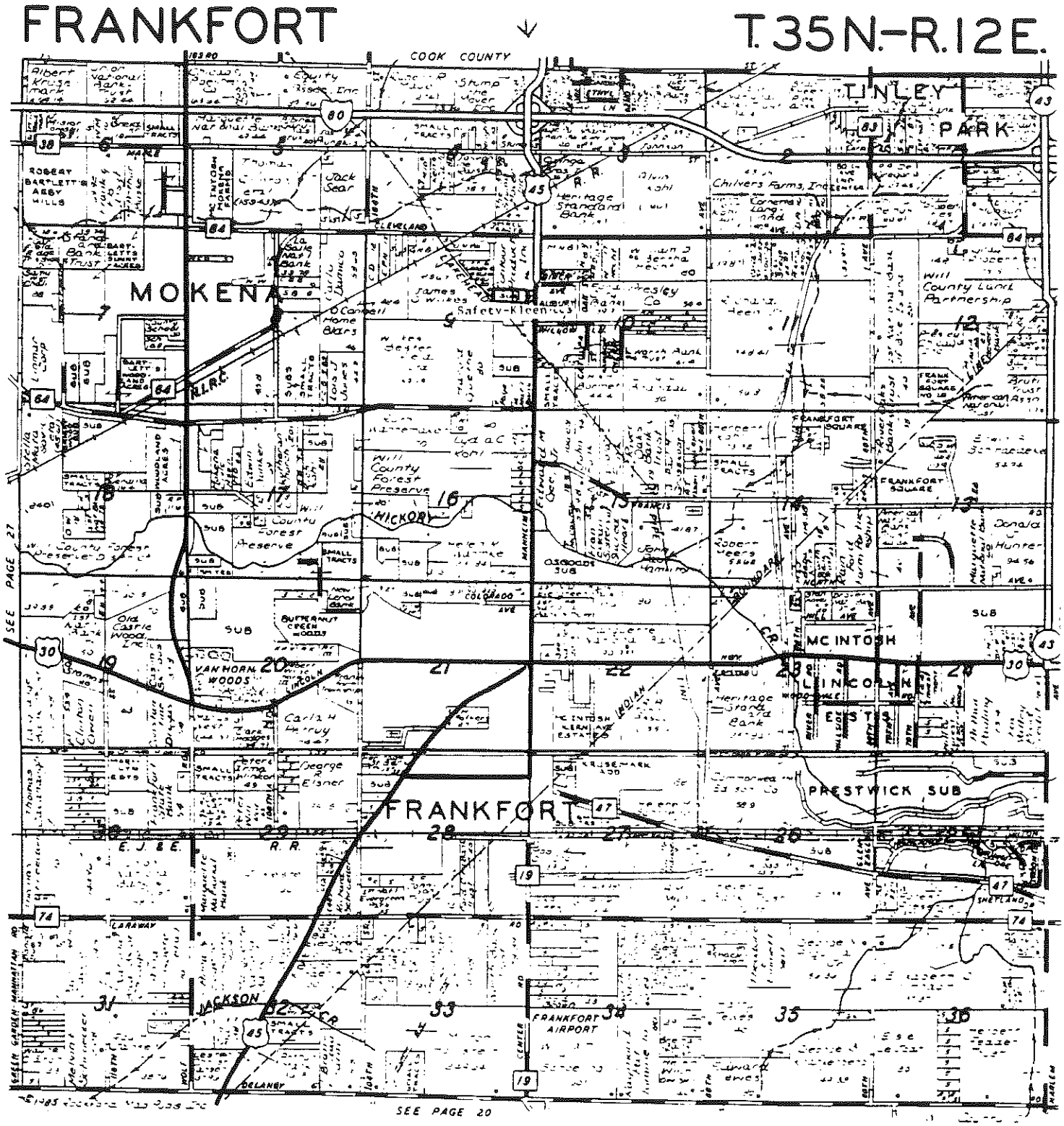
DATE OF ADOPTION _____
ATTEST _____ VILLAGE CLERK

DATE OF REVISION March 21, 1984 — ZONING ADMINISTRATOR

RECEIVED
FEB 16 1988
IEPA-DLPC

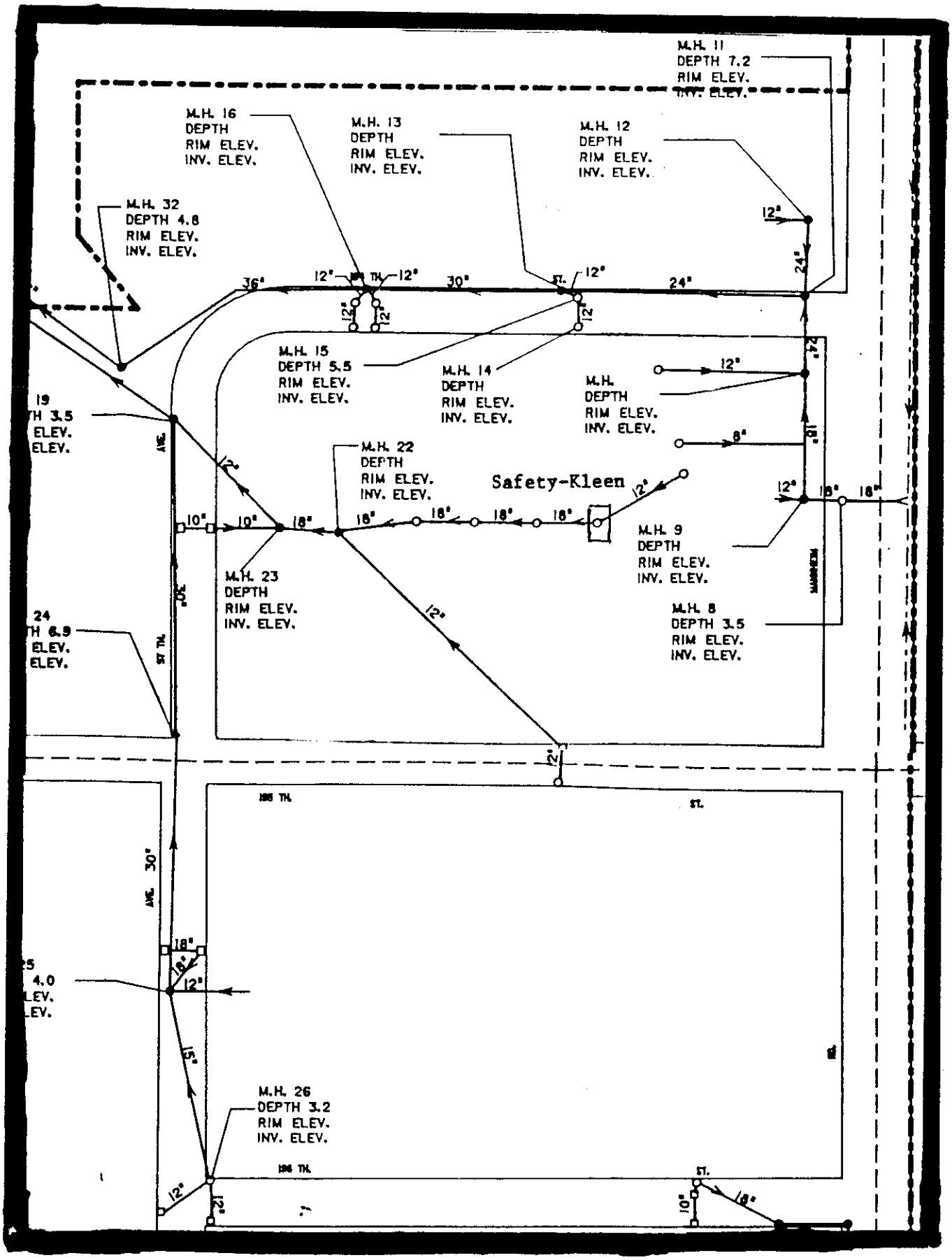
McBRIDE ENGINEERING
CIVIL ENGINEERS
1649 WEST 183RD STREET
HAZEL CREST, ILLINOIS 60429
312/798-1920

Job # 763

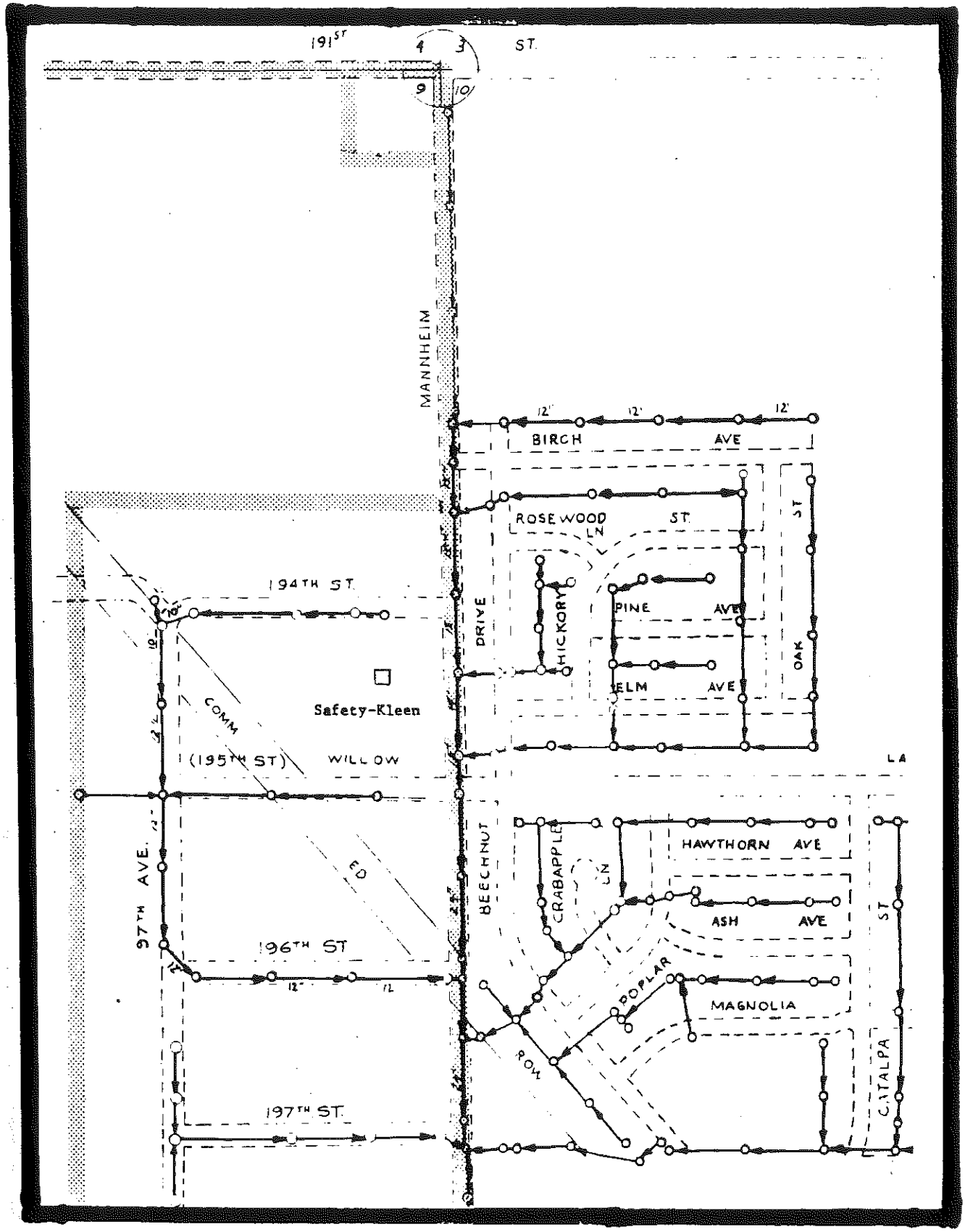


Safety-Kleen Corp.
ILD000665851

RECEIVED
FEB 16 1988
IEPA-DLPC



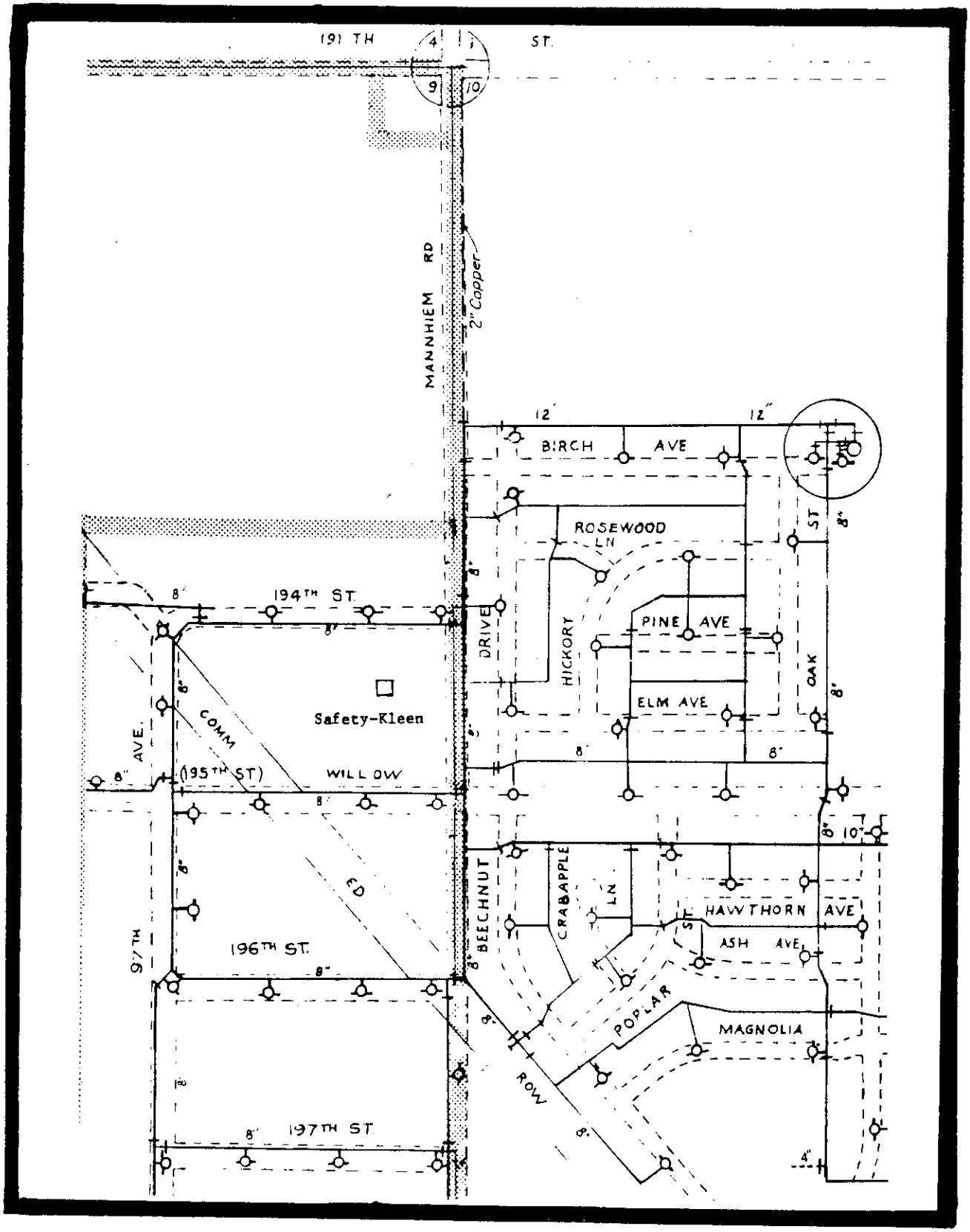
CITY OF MOKENA--STORM SEWERS
SAFETY-KLEEN CORP.
ILD000665851



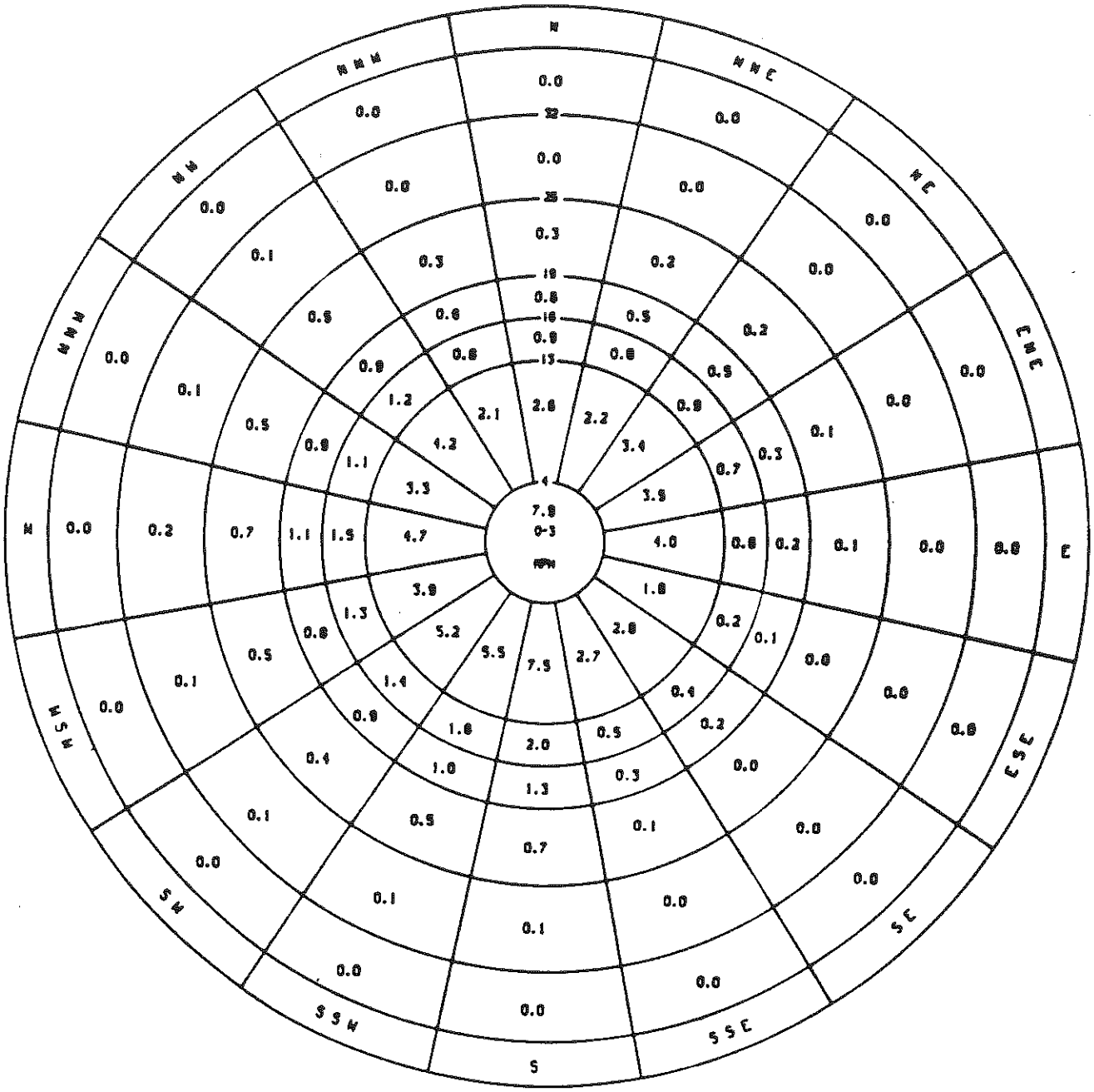
SANITARY SEWER MAP

Safety-Kleen Corp.
ILD000665851

RECEIVED
FEB 19 1988
IEPA-DLPC



WATER DISTRIBUTION MAP
Safety-Kleen Corp.
ILD000665851



WIND ROSE

Chicago, Il. (Midway Airport)
ILD000665851

RECEIVED
FEB 16 1988
IEPA-DLPC

, STATE OFFIC' ,DING, SPRINGFIELD,
AL / WATER SUR' SECTION. BE SURE TO

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9/24/75

10. Property owner [redacted] Well No. _____
Address [redacted]
Driller K & S License No. 102-29
11. Permit No. 41478 Date Sept. 23, 1975
12. Water from Rock Formation 13. County Will
at depth 45 to 200 ft. Sec. 9
14. Screen: Diam. _____ in. Twp. 35N
Length: _____ ft. Slot _____ Rge. 12E
Elev. _____

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	P.V.C.	0	120

SHOW LOCATION IN SECTION PLAT
NE SW NE
(permit)

16. Size Hole below casing: 5 in.
17. Static level 45 ft. below casing top which is 2 ft. above ground level. Pumping level 84 ft. when pumping at 20 gpm for 4 hours. Sub. pump set

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Overburden	0	120
Rock formation	120	200

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Paul Knierim DATE 9/25/75

WILL COUNTY No. 25214 9-35N-12E

(66600—60M—10-67)

Page 1 ILLINOIS GEOLOGICAL SURVEY, URBANA

Strata	Thickness	Top	Bottom
Black dirt drift		0	5
Clay yellow drift		5	20
Clay brown drift		20	45
Clay and gravel drift		45	110
Clay Gravel, Sand and lime		110	115
Lime to 450' Shale to 457' TD		115	450
Shale and squeeze rock streaks 240-245', 275-280', 310-330', 410-415'			
Total depth			457
Finished in shale at 450-457'			
GEOLOGICAL TOPS			
Niagran Lime		112	450
Maquoketa shale		450	457
Cased with 20" OD 3/8 wall from 0-121'			
Size hole below casing 19¼"			
Static level from surface 55'			
Tested capactiy 253 gallons per minute			
Water lowered to 220' in 4 hours			
Length of test 16 hours			
S.S. # 43424			

COMPANY Wehling Well Works
FARM [redacted] NO.
DATE DRILLED March 1960 COUNTY NO. 560
AUTHORITY Wehling Well Works
ELEVATION
LOCATION 60' N line, 1306' W line SW NW
COUNTY WILL

10-35N-12E

SUMER HEA ... RO... TION, ... WE...
1. DO NOT DE... GEOLOGICAL/WATER
PROPER ... ATI...

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 9/5/75

10. Property owner [redacted] Well No. _____
Address [redacted]
Driller K&K License No. 102-29
11. Permit No. 40776 Date 9/4/75
12. Water from Rock (Formation) 13. County Will
at depth 64 to 180 ft. Sec. 9
14. Screen: Diam. — in. Twp. 35N
Length: — ft. Slot _____ Rge. 12E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	P.V.C.	0	80

SHOW LOCATION IN SECTION PLAT
NW NW NW
(permit)

16. Size Hole below casing: 5 in.
17. Static level 64 ft. below casing top which is 2 ft. above ground level. Pumping level 84 ft. when pumping at 20 gpm for 4 hours. Sub. pump set at 84'

18. FORMATIONS PASSED THROUGH	~~THICKNESS~~	DEPTH OF BOTTOM
Overburden	0	80
Rock formation	80	180

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Paul Knierim DATE 9/17/75

WILL COUNTY No. 25213. 9-35N-12E

TEST ... NDM ... TRIG ...
UMER HEALTH PROTECTION, 535 WEST
. DO NOT ATTACH GEOLOGICAL/WATER
PROPER W... LOCATION

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 10-20-75

10. Property owner [redacted] Well No. _____
Address [redacted]
Driller K&K License No. 102-29
11. Permit No. 37123 Date 4-21-75
12. Water from Rock (Formation) 13. County Will
at depth 35 to 160 ft. Sec. 9
14. Screen: Diam. _____ in. Twp. 35N
Length: _____ ft. Slot _____ Rge. 12E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Comp Sch 40	0	80

SHOW LOCATION IN SECTION PLAT
NW SW NW
(permit)

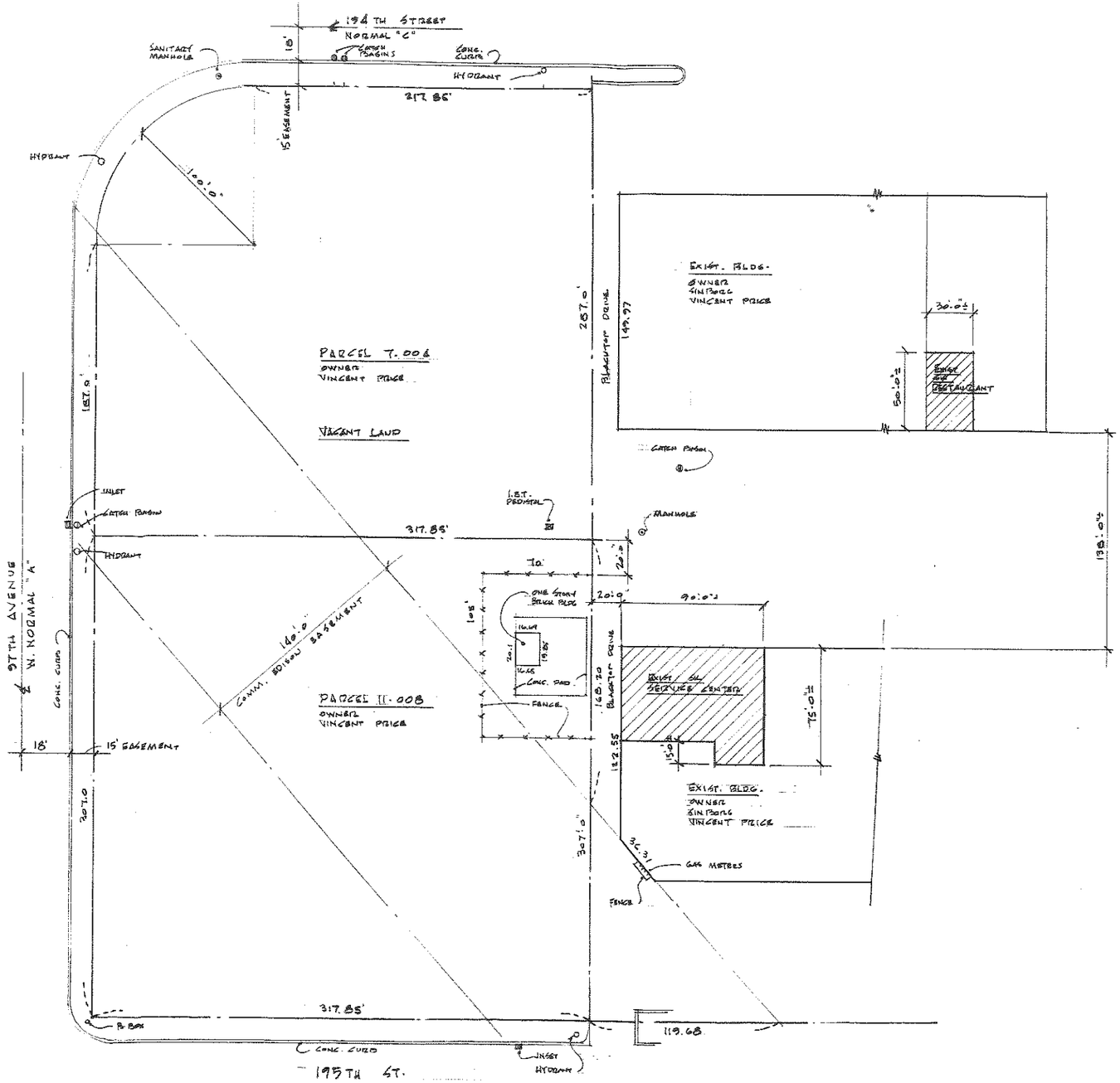
16. Size Hole below casing: 5 in.
17. Static level 35 ft. below casing top which is 1 ft. above ground level. Pumping level 63 ft. when pumping at 10 gpm for 4 hours. Sub. pump set at 63' TOP

18. FORMATIONS PASSED THROUGH	~~THICKNESS~~	DEPTH OF BOTTOM
overburden	0	80
rock formation	80	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Paul Knierim DATE 6-19-76

WILL COUNTY No. 25728... 9-35N-12E



SITE PLAN

SCALE: 1" = 40'-0"

GENERAL NOTES

1. THIS IS NOT AN OFFICIAL SURVEY. INFORMATION BASED ON PARTIAL SURVEY & REVIEW OF MOKENA INDUSTRIAL PARK

RECEIVED
FEB 16 1988
IEPA-DLPC

safety-kleen corp.
777 BIG TIMBER ROAD • ELGIN, ILLINOIS 60120 PHONE 312/697-8460

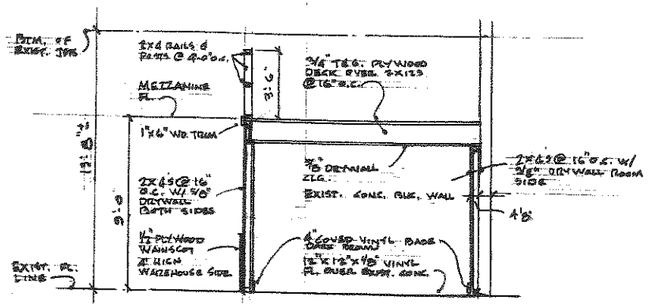
SITE PLAN

SCALE 1" = 40'-0"	REVISIONS	BY	DATE
DATE 5/10/87			
DR'N	CKD		
AP'VD			

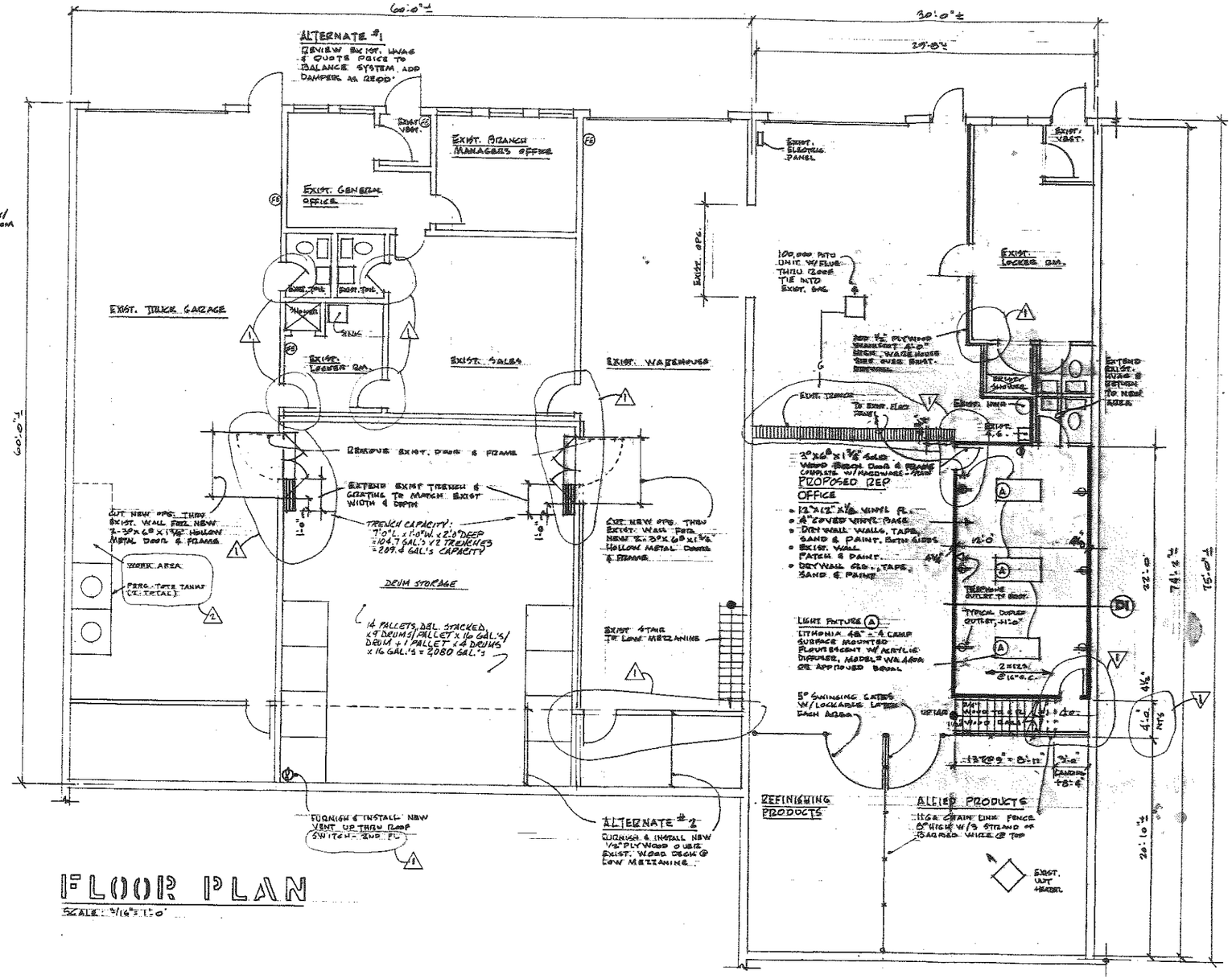
TITLE FOR SERVICE CENTER BRANCH MOKENA (S-034.35 & S-034.05)

NO. D12574

BRUNING 40 5000



D1 SECTION THRU REP OFFICE
SCALE: 1/4" = 1'-0"



FLOOR PLAN
SCALE: 3/16" = 1'-0"

GENERAL NOTES

1. VERIFY ALL FIELD CONDITIONS
2. STATE PRICES FOR ALTERATES #1, 2.
3. FURNISH LIABILITY & WORKMANS COMP INSURANCE PER GK REQUIREMENTS
4. GK TO FURNISH BUILDER'S RISK INSURANCE
5. ALL WORK TO COMPLY W/ LOCAL, STATE & OSHA CODES.
6. ALL PAINTED WALLS & CLGS. SHALL BE PRIMED & FINISH COAT - SEMI-GLOSS EGG SHELL

RECEIVED
FEB 16 1988
IEPA-DLPC

safety-kleen corp.
777 BIG TIMBER ROAD • ELGIN, ILLINOIS 60120 PHONE 312/697-6450

PROPOSED FLOOR PLAN

SCALE 3/16" = 1'-0"	REVISIONS	BY	DATE
DATE 2/27/86	1 AS-BUILT	[illegible]	[illegible]
DR'N ARS CKD.	2 ADDED PERC.-TOTE TANKS & WORK AREA	C.S.	5/14/87
APP'D.	3 ADDED DRUM STORAGE CONFIG.	RD	7-8-87

TITLE FOR SERVICE CENTER BRANCH MOKENA, IL. (5-034-05)
NO. D12171

BRUNING 40-105

APPENDIX D

ANALYTICAL DATA

ELGIN RECYCLE CENTER

MOKENA 5-034-05 (94)

Incoming Mineral Spirits

1987 Period Date	ER & RC Sample No.	Gallons	Solv.	Water	Bot.	°F. FP	% Volume LAHC	MC	1,1,1	TRI	TOL	PERC	MS
1													
1-19	0148	7063	89	-	11	-	.100	-	.046	.052	.125	-	99.676
2													
2-25	0463	6186	-	-	8	-	.293	-	.072	.194	.169	-	99.271
3													
3-2	0483	-	-	-	7	-	.212	.003	.082	.059	.134	-	99.510
3-13	0604	4091	-	-	8	-	.201	.007	.055	-	.166	-	99.571
3-23	0629	5458	-	-	7	-	.168	-	.085	.005	.150	-	99.591
4													
4-3	0788	-	-	-	9	-	.228	-	.059	.008	.109	.112	99.484
4-10	0941	-	-	-	6	-	.304	.007	.093	.075	.128	.112	99.283
4-20	0952	5839	-	-	7	-	.209	.002	.056	.052	.098	.098	99.485
5													
5-14	1080	4257	5	-	4.5	-	.232	.013	.057	.055	.120	.106	99.417
4-29	1043	-	10	-	7	-	.013	-	.105	-	.161	-	99.720
6													
5-26	1220	-	4.3	-	1.9	-	.284	.086	.116	.090	.138	.112	99.174
6-10	1384	-	6	-	.08	-	.393	-	.093	.009	.119	.141	99.244
6-16	1421	6723	2	-	.5	-	.681	-	.104	.012	.142	.138	98.923
7													
6-29	1543	6938	5	-	.25	-	.127	-	-	-	.119	.085	99.670
7-9	1614	6600	6	-	.15	-	.718	.261	.077	.009	.149	.129	98.657
7-16	1667	7000	-	-	-	-	.378	.040	.054	.012	.099	.097	99.320
7-16	1716	4947	5	-	1	-	.321	.007	.040	.005	.093	.108	99.426
8													
7-30	1829	-	5	-	5	-	.884	.006	.178	.012	.121	.120	98.678
8-13	1972	7027	6	-	.25	-	.582	-	.045	.038	.102	.109	99.123
9													
8-25	2060	6655	17.5	-	1.2	-	.399	-	.037	.006	.103	.088	99.367
9-8	2123	-	6.25	-	6.3	-	.759	-	.130	.043	.091	.079	98.899

Outgoing Mineral Spirits

1987 Period Date	ER & RC Sample No.	Gallons	°F. FP	% Volume LAHC	MC	1,1,1	TRI	TOL	PERC	MS
1										
1-19	0096	2500	-	.187	.078	.041	.040	.107	-	99.547
1-29	0214	7000	-	.157	.011	.057	.043	.109	-	99.623
2										
2-9	0289	7000	-	.186	.024	.055	-	.104	-	99.630
2-19	0398	7000	-	.161	.020	.054	.088	.128	-	99.549
2-25	0459	2500	-	.124	-	.064	-	.083	-	99.729
3										
3-2	0470	3500	-	.123	.017	.093	.097	.123	.127	99.421
3-12	0580	7000	-	.198	.025	.102	.067	.131	-	99.477
3-20	0633	6000	-	.124	.021	.083	.052	.121	-	99.599
4										
4-2	0782	7000	-	.182	-	.061	.019	.150	.085	99.504
4-10	0851	7000	-	.159	.010	.071	.049	.133	.119	99.458
4-20	0928	4000	-	.191	.012	.048	.045	.084	.078	99.543
5										
4-28	1082	7000	-	.211	.012	.064	.028	.100	.120	99.465
5-13	1167	6000	-	.162	.009	.066	.018	.097	.083	99.564
5-6	1138	6000	-	.188	.020	.065	.055	.100	-	99.572
6										
5-26	1212	7000	-	.319	.027	.073	.063	.150	.119	99.248
6-16	1414	7000	-	.521	.018	.094	.014	.306	.108	99.939
6-24	1489	7000	-	.465	-	.074	.013	.127	.127	99.195
8										
7-30	1822	4000	-	.518	.024	.054	.014	.120	.123	99.146
8-13	1965	3000	-	.313	-	.064	.029	.079	.088	99.426
10										
9-15	2159	5500	-	.246	-	.028	.007	.054	.076	99.590
9-24	2213	6000	-	.113	-	.067	.028	.041	.059	99.692
10-1	2262	7000	-	.337	.017	.120	.016	.137	.092	99.282
10-8	2295	7000	-	.330	-	.087	.007	.076	.091	99.409

ELGIN RECYCLE CENTER

MOKENA 5-034-05 (94)

Incoming Mineral Spirits

1987 Period Date	ER & RC Sample No.	Gallons	Solv.	Water	Bot.	°F. FP	% Volume LAHC	MC	1,1,1	TRI	TOL	PERC	MS
10													
9-15	2162	6907	1.25	-	2.9	-	.582	-	.083	.004	.079	.071	99.181
9-24	2216	-	7.5	-	1.6	-	.320	.039	.041	.043	.045	.037	99.475
10-2	2252	6640	2.5	-	1.5	-	.540	-	.091	.005	.085	.075	99.203
10-8	2291	-	5	-	.90	-	.714	-	.094	.007	.136	.121	98.929
11													
10-19	2347	-	5	-	3.6	102	.553	.017	.109	.010	.092	.110	99.109
11-2	2424	7023	5	-	1.8	102	.122	-	.067	-	.115	.096	99.601
12													
11-10	2471	-	6.25	-	1.2	102	.082	-	.071	-	.090	.089	99.668
11-18	2515	-	8.75	-	1	102	.004	-	.102	-	.052	.041	99.801
12-2	2590	6921	6.25	-	2.2	102	.069	-	.095	-	.081	.070	99.684
13													
12-23	2703	6541	6.25	-	8.5	102	.188	-	.094	-	.170	.144	99.404

Outgoing Mineral Spirits

1987 Period Date	ER & RC Sample No.	Gallons	°F. FP	% Volume LAHC	MC	1,1,1	TRI	TOL	PERC	MS
11										
10-19	2349	7000	-	.307	.006	.086	.022	.153	.157	99.269
10-19	2356	7000	-	.350	.008	.081	.017	.111	.137	99.297
11-2	2422	5000	-	.099	-	.073	-	.106	.118	99.604
12										
11-10	2472	5000	102	.029	-	.048	-	.064	.058	99.801
11-18	2519	7000	102	.006	-	.034	.047	.036	.036	99.841
13										
12-23	2701	7000	102	.221	-	.086	-	.172	.149	99.372

Solv. = solvent
Bot. = bottoms oil
FP = flash point
LAHC = light aromatic hydrocarbons
MC = methylene chloride
1,1,1 = 1,1,1-trichloroethane
Tri. = trichloroethylene
Perc. = perchloroethylene
MS = [illegible]eral spirits

RESIDUALS MANAGEMENT TECHNOLOGY, INC.

LABORATORY REPORT

CLIENT: Safety Klean - DO Corporation

DATE: 8-17-81

PROJECT #: 1038-L

P.O. #: Verbal

SAMPLE #: 1376

SAMPLE DESCRIPTION: None available

Mineral Spirits Dumpster Mud

EP TOXICITY TEST

WEIGHT USED: 100.2 gms FINAL PH: 4.8 ACID USED: 45 mls

PARAMETER	RESULT	HAZARDOUS WASTE LIMITS
ARSENIC	0.008	5.0 mg/l
BARIUM	0.6	100.0 mg/l
CADMIUM	0.93	1.0 mg/l
CHROMIUM-TOTAL	<0.05	5.0 mg/l
LEAD	5.0	5.0 mg/l
MERCURY	0.0035	0.2 mg/l
SELENIUM	0.002	1.0 mg/l
SILVER	<0.02	5.0 mg/l
FLASH POINT	120°	140° F
pH	8.1	

Paul E. Duranceau

Paul E. Duranceau, Laboratory Director

All leaching tests and leachate analysis meet Environmental Protection Agency requirements as outlined in the May 19, 1980, Federal Register, 40 CFR 261.

safety-klean corp.

Date 6/15/84

Solvent Sample Analysis - Summary Report

SK Sample # 4-1820 Industrial Solvents Sales Sample #____

Material Submitted as: I C Feed 6/84

Source or Origin: Clayton R/C

(Plant#, Site or Complete Address)

Submitted by: J. Breece

Sample Size 1 gal Represents_____Gallons, in ☐ Drum ☐ Bulk

☐ On Hand
☐ Per Year
☐ Other_____
(Per week, month quarter, etc.)

Tests
API or Sp. Gr. @ 60°F. _____
Flash Point (ASTM D-56) _____
Boiling Point (ASTM D-86)_____
IBP_____°F.
5_____
10_____
20_____
30_____
40_____
50_____
60_____
70_____
80_____
90_____
95_____
EP_____

ODOR

FIA

Aromatics _____

Saturates _____

Olefins _____

K-B _____

Other (Specify)_____

Solids_____

(Centrifuge, distillation, "Green Sheet" definition, other) - specify:

*Type of Residue -

Distillate_____ vol %
Residue* _____ vol %
Water _____ vol %

COMPOSITION. (VOL. %)

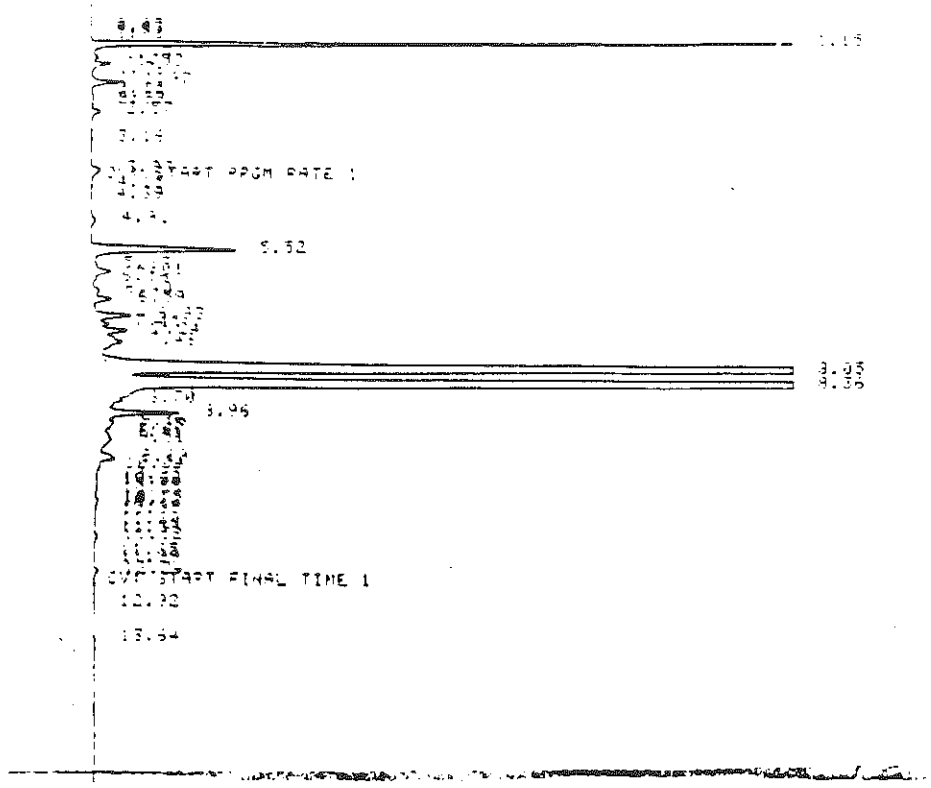
of total sample submitted (by distillation)		of solvent portion of distillate (by G.C.)
Bottoms	12.0	
cresol	15.0	
water	6.0	
* chlorinated + MS	62.0	

Comments: * See attached G.C. Possible yield 77% vol

RECOMMENDED DISPOSITION:

Accept ☐ Reject ☐
Distribution: J. Breece
M. Levy

Report by: B. Blair
Rev. 10/82



093

[illegible] 5980A SAMPLER INJECTION @ 17:04 JUN 14, 1984
SAMPLE # : ID CODE :
39 1820

NORM %

RT	EXP RT	AREA	TYPE	WIDTH	CAL	AMOUNT	NAME
0.00			BASELINE @ START RUN = 2.83				
0.00			THRESHOLD @ START RUN = 4				
0.00			PEAK WIDTH @ START RUN = 0.04				
0.00			RP: REJECT + 3000				
1.15	1.15	263420.00 +	VV	+0.044	1	29.298	MC
1.45		4402.11	VV	+-----		0.131	
1.58		7913.97	VV	-----+		0.235	
1.97	1.97	12436.00	VV	+-----	2	0.979	111
2.57	2.59	5396.02	VB	0.10 +	3	0.361	TRI
3.83	3.88	7558.50	PV	+0.146	4	0.175	TOL
4.91	4.99	4139.03	VV	+-----	5	0.322	PER
5.52	5.55	32446.50	VV	0.107	6	1.961	MONOCHLOR
5.80			RP: AREA SUM + ON				
6.80			RP: AREA SUM + OFF				
6.80	6.81	32912.10	++	-----	7	0.375	MS
6.93	6.94	24567.20	VV	+-----	8	0.584	MCTOLUENE
7.11		8616.59	VV	-----		0.256	
7.24		19092.90	VV	-----		0.568	
7.43		38666.20	VV	+-----+		1.150	
7.70			RP: AREA SUM + ON				
8.80			RP: AREA SUM + OFF				
8.80	8.80	2496280.00 +	++	-----	9	59.390	OMP DCB
8.81			RP: AREA SUM + ON				
16.80			RP: AREA SUM + OFF				
16.80	16.80	121595.00	++	-----	10	3.616	MS

MULTIPLIER = 1

I/C INCOMING C OSITE ANALYSIS

Period 12, 1985

CLAYTON, NEW JERSEY

DEC 05 1985

Date	Service Center	RC No.	MC	ODB	Tri 1,1,1	CA	MS	Water	Residue	Misc.	Canada
11-5-85	Mineola NY Niagra Falls NY Avon NY Waverly NY Erie PA	I.C. #277	27.41%	25.00%	0.76%	24.00%	2.46%	0	17.00%	3.37%	N/A
	Barre PA										
11-8-85	Tulleytown PA New Kingston PA Chester VA Chesapeake VA Silver Springs MD	I.C. #282	30.32%	23.68%	0.75%	25.00%	2.08%	0	15.00%	3.17%	N/A
11-13-85	Branford CT West Hartford CT Barre VT Latham NY	I.C. #288	25.91%	23.86%	0.65%	26.00%	2.57%	0	18.00%	3.01%	N/A
11-14-85	Congers NY Thornwood NY North Amityville NY	I.C. #289	17.51%	25.11%	0.58%	26.00%	2.87%	0	25.00%	2.93%	N/A
11-20-85	West Chester PA Malvern PA Tulleytown PA Waverly NY Mattydale NY	I.C. #290	29.23%	23.12%	1.83%	24.00%	2.00%	0	17.00%	2.82%	N/A
11-21-85	Baltimore MD Silver Springs MD Glen Burnie MD Chester VA Chesapeake VA	I.C. #291	28.34%	23.88%	1.86%	24.00%	2.09%	0	17.00%	2.83%	N/A
11-2	Vincentown NJ Boundbrook NJ Bridgewater MASS Marlboro MASS	I.C. #292	26.91%	23.56%	0.69%	28.00%	2.71%	0	15.00%	3.13%	N/A

I/C INC COMPOSITE ANALYSIS

Period 12 , 1985

CLAYTON, NEW JERSEY

Date	Service Center	RC No.	MC	ODB	Tri 1,1,1	CA	MS	Water	Residue	Misc.	Ca
11-27-85	Woodside NY Ancaster ONTARIO * Pickering ONTARIO * Concord ONTARIO * Nepean ONTARIO *	I.C. #293	31.58%	24.43%	0.10%	24.00%	2.48%	0	14.00%	3.41%	

Date 5/10/82

TYPICAL CHEMICAL AND PHYSICAL ANALYSES FOR STILL RESIDUE

Solvent Sample Analysis - Summary Report

SK Sample # 3-955 Industrial Solvents Sales Sample # ____

Material Submitted as: Still Bottoms (Dry Cleaning)

Source or Origin: Miracle Drive Cleaners

(Plant#, Site or Complete Address)

Submitted by: W. Borchardt

Sample Size 1 pt Represents 0.625 Gallons, in

unkn
☐ Drum
☐ Bulk

☐ On Hand
☐ Per Year
☒ Other wth
(Per week, mo
quarter, etc

Tests
API or Sp. Gr. @ 60°F. ____
Flash Point (ASTM D-56) ____
Boiling Point (ASTM D-86) ____

IBP ____ °F.
5 ____
10 ____
20 ____
30 ____
40 ____
50 ____
60 ____
70 ____
80 ____
90 ____
95 ____
EP 260

Distillate 40 vol %
Residue* 58 vol %
Water 2

ODOR

FIA

Aromatics ____

Saturates ____

Olefins ____

K-B ____

Other (Specify) ____

Solids ____

(Centrifuge, distillatio
"Green Sheet" definitio
other) - specify:

*Type of Residue -

oil

COMPOSITION. (VOL. %)

of total sample submitted (by distillation)		of solvent portion of distillate (by G.C.)	
Perc	39.4	Perc	98.6
MS	0.6	MS	1.4
Bottoms	58.0		
Water	2.0		

Comments:

Above material is water soluble

RECOMMENDED DISPOSITION:

Accept ☐ Reject ☐
Distribution:

Report by: B. Bla...
Rev. 10/82

safety-kleen corp.
655 BIG TIMBER ROAD • ELGIN, ILLINOIS 60120
PHONE 312/697-6460

TECHNICAL SERVICE LABORATORY WORK REQUEST

(Complete All Applicable Blanks)

3-955

Date: May 9, 83

Project No.:

SUBMITTED BY: Wayne Bachardt

MATERIAL SUBMITTED: (Identify the sample or item and indicate its source or origin)
Still Bottoms from Miracle Drive In Cleaners (Perc)

Sample Size _____ Represents — ☐ Drum ☐ Bulk .625 Gallons ☒ Per Month ☐ Per Year

SPECIFIC INFORMATION REQUESTED:

☐ SAFETY-KLEEN PRODUCT: (Explain, in detail - customer complaint, etc.)

☒ MISC. SOLVENTS: (NEW — Determine suitability for S-K use. SPENT or contaminated solvent or fuel — Determine suitability for S-K reclamation).

☒ OTHER MATERIALS: (New or Competitive product, or Miscellaneous items — tests to be performed or work to be done — List, in detail, information requested, i.e., performance evaluation, analyses, cost to duplicate, etc.)
Identify Contaminants. Determine amount (%) of "Perc" that SK could recover.

500-08-01

2.61

OV: START PRGM RATE 1

5.23

[illegible]

OV: START FINAL TIME 1

[illegible]

13.93

14.71

15.59
15.94

16.79

RT: STOP RUN

```
[illegible] 5880A  SAMPLER INJECTION @ 10:35  MAY 10, 1983
  SAMPLE # :  ID CODE   :
        27          3955

NORM %

   RT     EXP RT            AREA   TYPE  WIDTH  CAL    AMOUNT  NAME

  0.00                          BASELINE @ START RUN = 6.10
  0.00                          THRESHOLD @ START RUN =  4
  0.00                          PEAK WIDTH @ START RUN = 0.04
  0.00                          RP: REJECT - 500
  5.23     5.23      1751250.00 -  BV  -------   5    39.444  PERC
  5.60                          RP: AREA SUM - ON
 16.30                          RP: AREA SUM - OFF
 16.80    17.03        61165.00    --   -----    6     0.556  MS

MULTIPLIER = 0.4

DISTILLATE CONC OF SAMPLE LISTED BELOW
ID CODE          3955
[illegible] 5880A  SAMPLER INJECTION @ 10:35  MAY 10, 1983
  SAMPLE # :  ID CODE   :
        27

NORM %

   RT              AREA   TYPE CAL    AMOUNT  NAME

  5.23      1751250.00 -  BV    5    99.610  PERC
 16.80        61165.00    --    6     1.390  MS

MULTIPLIER = 1
```

safety-kleen corp.

Date 10/24/83

(3 Pages)

Solvent Sample Analysis - Summary Report

SK Sample # 3186

Industrial Solvents Sales Sample # _____

Material Submitted as: Dry Cleaning Filter Powder (Muck)

Source or Origin: T Mueller

(Plant#, Site or Complete Address)

Submitted by: T Mueller

Sample Size 2 qt Represents 4 Gallons, in

☒ Drum
☐ Bulk

☐ On Hand
☐ Per Year
☐ Other _____
(Per week, mon quarter, etc.

Tests

API or Sp. Gr. @ 60°F. _____
Flash Point (ASTM D-56) _____
Boiling Point (ASTM D-86) _____

IBP _____ °F.
5 _____
10 _____
20 _____
30 _____
40 _____
50 _____
60 _____
70 _____
80 _____
90 _____
95 _____
EP _____

Distillate _____ vol %
Residue* _____ vol %
Water _____ vol %

ODOR

FIA

Aromatics _____

Saturates _____

Olefins _____

K-B _____

Other (Specify) _____

Solids _____

(Centrifuge, distillation, "Green Sheet" definition, other) - specify:

*Type of Residue -

COMPOSITION. (VOL. %)

of total sample submitted (by distillation)	%wt	of solvent portion of distillate (by G.C.)
water	4.0	
HC	0.14	
HH	0.13	
Tol	0.54	
Tol	0.13	
Per	13.92	
Xylene	0.21	
LAS	1.55	
Unknowns LAS	0.44	
Bottoms	78.04	

Comments:

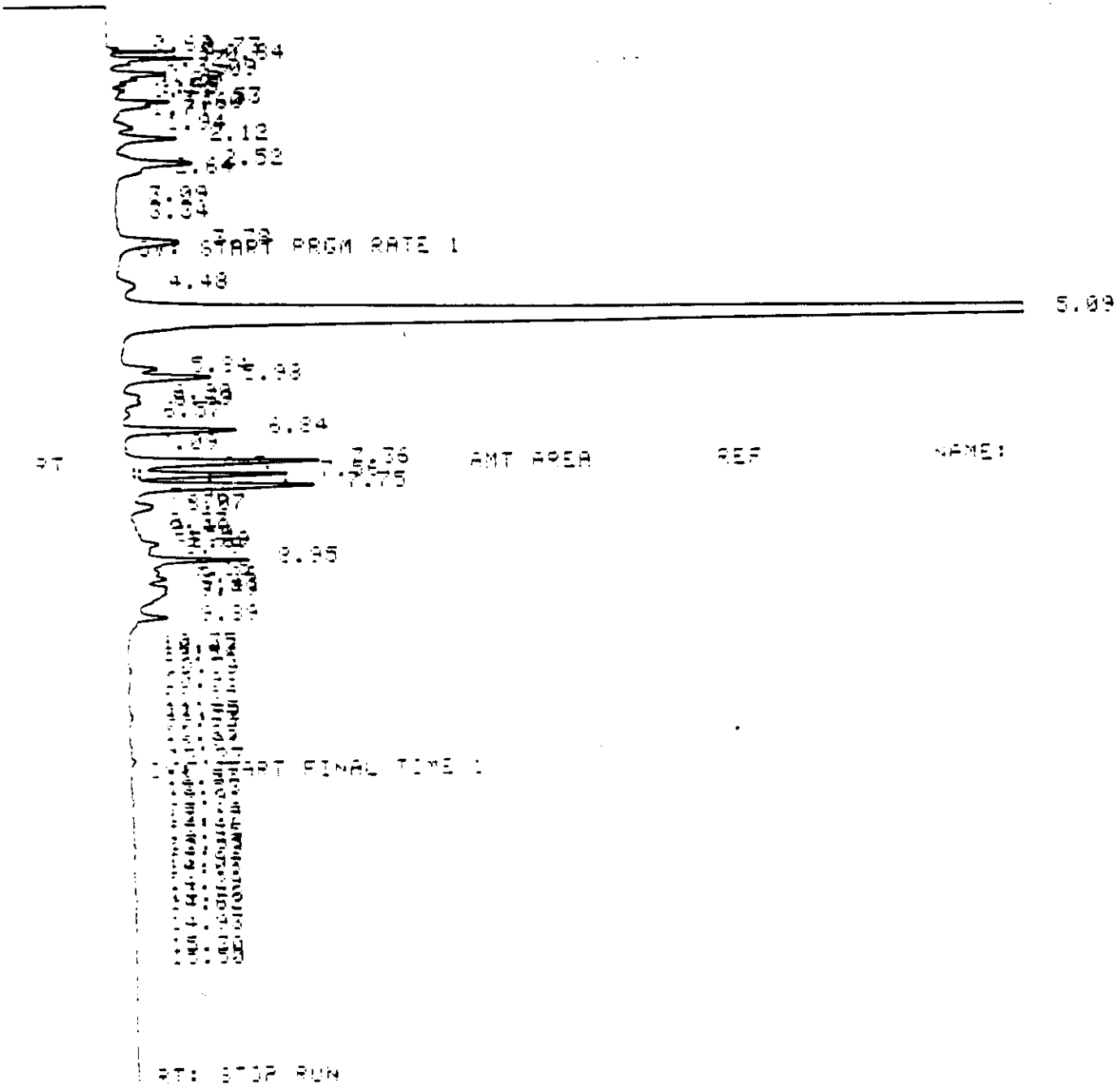
RECOMMENDED DISPOSITION:

Accept ☐ Reject ☐

Distribution: T. Mueller, M. Levy

Report by: R Blair
Rev. 10/82

SAFETY-KLEEN CORP.



REPORT
5890A SAMPLER INJECTION @ 13:31 OCT 24, 1984
E # : ID CODE :
30 3186

% COMPENSATED ANALYSIS

EXP RT	AREA	TYP	WIDTH	CAL	AMOUNT	NAME
	BASELINE @ START RUN = 2.68					
	THRESHOLD @ START RUN = 4					
	PEAK WIDTH @ START RUN = 0.04					
	RP: REJECT + 500					
	1339.52	BV	-----		2.453E-03	
	6427.94	VV	0.025		1.177E-02	
	14479.70	VV	------		2.651E-02	
	4492.74	VP	-----		8.227E-03	
	16956.00	PV	-----		3.105E-02	
1.16	5315.12	VV	-----	1	5.440E-02	MC
	2715.13	VP	-----		4.972E-03	
	2225.60	PV	-----		4.075E-03	
	635.25	VV	-----		1.163E-03	
	11682.40	BV	-----		2.139E-02	
	9766.30	VV	-----		1.788E-02	
	1391.06	VP	-----		2.547E-03	
1.96	8129.70	PV	------	2	5.200E-02	111
	23457.30	VV	0.093		4.295E-02	
2.57	35808.00	VV	------	3	0.185	TRI
	8795.83	VB	-----		1.611E-02	
	544.93	BP	-----		9.979E-04	
	1141.43	PV	-----		2.090E-03	
3.82	42268.30	VV	*0.159*	4	7.440E-02	TOL
	13710.60	VV	-----		2.511E-02	
5.09	1160210.00 +	VV	0.175*	5	4.304	PER
	RP: AREA SUM - ON					
	RP: AREA SUM - OFF					
6.49	74219.50	++	-----	7	0.120	XLENE
	RP: AREA SUM - ON					
	RP: AREA SUM - OFF					
16.73	526315.00	++	-----	6	0.991	MS

LIER = 0.06

TEL NORM%
E # : ID CODE : MULTIPLIER :

195

RECORDING CHARTS GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK

SAFETY-KLEEN CORP. MATERIAL ACCEPTANCE SPECFICIATION	S-K Part No. 661
	Original Date April 8, 7
	Revision Date
Material: Safety-Kleen Solvent #105(MS)	Supersedes Ne
	Written by L. Dean Hufse
	Approved by A. A. Manteuffe

SCOPE

This specification covers a high flash, hydrocarbon solvent suitable for use in a degreasir application.

REQUIREMENTS

The solvent shall conform to the following requirements:

	Typical Values	Control Values	Test Method
API Gravity, 60° F.	46-51	-	ASTM D-287-67
Specific Gravity 60/60° F.	0.775-0.797	-	-
Pounds/Gallon	6.46 -6.64	-	-
Initial Boiling Point, ° F.	310-320	310 Min.	ASTM D-86-67
50% recovered, ° F.	340	-	-
End Point, ° F.	380-400	400 Max.	ASTM D-86-67
Kauri Butanol Value	34	-	-
Aniline Cloud Point, ° F.	144	150 Max.	ASTM D-1012-69
Flash Point, ° F., TCC	109	105 Min.	ASTM D-56-70
Saturates, %	90	-	-
Olefins, %	1	-	-
Aromatics, %	9-12	17.0 Max.	ASTM D-1319-70
Odor	Clean - Mild	Must be acceptable	-

All lots or deliveries with properties outside the maximum or minimum "control values" will be considered of unsuitable quality.

The solvent shall contain the following additives:

1. Approximately 0.0028 Wt. % of Liquid Oil Green Dye (7.9 fluid ounces per 1,000 gallons of solvent). (May be purchased from DuPont, Petroleum Chemicals Division.)

2. Anti-Static Additive to be added by supplier. Any one of the following:

   A. Shell ASA-3 - One part per million (1 ppm) minimum (Shell Chemical Company)
   B. Ashland AC-5 - Five parts per million (5 ppm) minimum (Ashland Chemical Company)
   C. Ethyl 48 - Five parts per million (5 ppm) minimum (Ethyl Corporation)

SAFETY-KLEEN CORP. MATERIAL ACCEPTANCE SPECIFICATION	S-K Part No. 6631
	Original Date June 24, 1977
	Revision Date April 26, 1985
Material: Immersion Cleaner & Cold Parts Cleaner 609	Supersedes August 20, 1979
	Written by L. Dean Hufsey
	Approved by

SCOPE

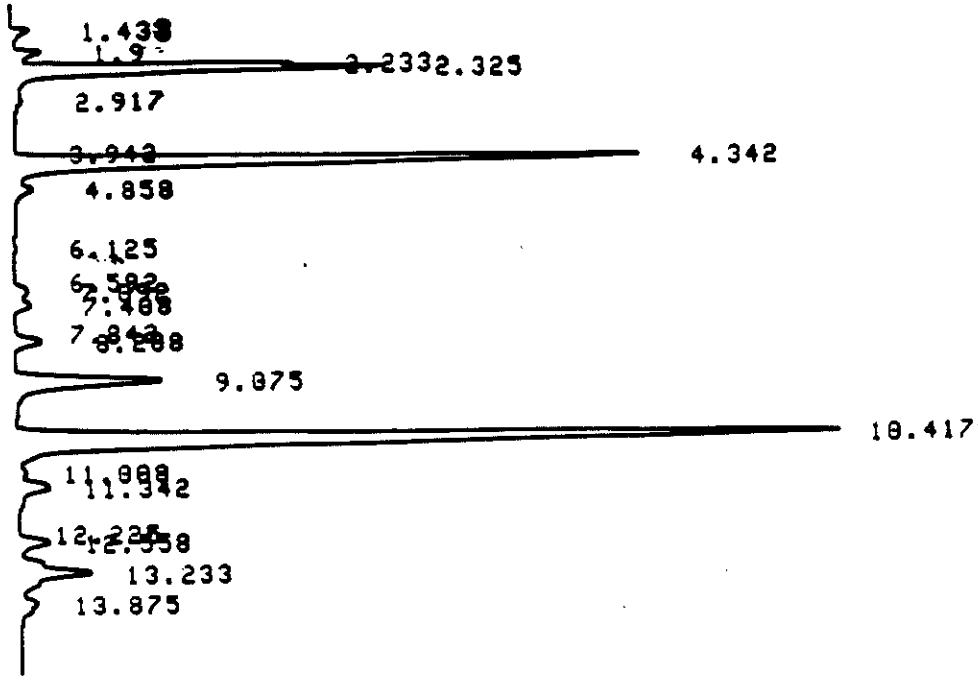
The specification covers a two-phase liquid product consisting of an aqueous layer on top and a chlorinated solvent, cresylic acid layer on the bottom for cleaning carburetors and metal parts. The ratio of the two liquids that are combined to for the cleaning product is 1.0 parts by volume of the aqueous layer and 4.0 parts by volume solvent layer.

COMPOSITION

Immersion Cleaner and Carburetor and Cold Parts Cleaner #609 products consist of the following materials:

WATER PHASE		
Water	16.840 Wt.%	20.00 Vol.%
SOLVENT PHASE		
Inhibitor 60S	0.389 Wt.%	0.5 Vol.%
Triethanolamine	0.474 Wt.%	0.5 Vol.%
Petroleum Sulfonate	7.389 Wt.%	8.5 Vol.%
Methylene Chloride	31.691 Wt.%	28.5 Vol.%
Orthodichlorobenzene	31.345 Wt.%	28.5 Vol.%
Cresylic Acid	11.872 Wt.%	13.5 Vol.%
	100.000 Wt.%	100.0 Vol.%

ANAL
SPEED(8)=6
ANAL 5
85/12/19 16:11:07



PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	2.233	41639	V		4.9381	ACETONE
2	2.325	86866	V		10.1985	ISOPROPYL ALCOHOL
3	4.342	228038			27.0004	METHYL ETHYL KETONE
4	9.075	64574			7.6457	METHYL ISOBUTYL KETONE
5	10.417	364216			43.1243	TOLUENE
6	11.342	14047			1.6632	n-BUTYL ACETATE
7	12.558	10277			1.2169	o-XYLENE
8	13.233	35716			4.2299	m- and p-XYLENE
	TOTAL	844573			100	

LACQUER THINNER COMPOSITION
Safety-Kleen Corp.

SAFETY-KLEEN CORP.

Recycled Perchloroethylene for Dry Cleaning

Specifications

Physical Test	Specification
Specific Gravity 20°C/20°C	1.61 - 1.63
Pounds Per Gallon	13.4
Appearance	Clear, Free of Sediment Suspended Material
Color, APHA	25 maximum
Water, PPM	50 maximum
Purity: Perchloroethylene by Volume % G.C.	99.5 minimum
Impurities: Other halogenated	.5% maximum
Other hydrocarbon	.5% maximum
Odor	Characteristic; no residual
Spot Test	No Spot or Stain
Nonvolatile Residue, ppm	50 maximum
Acid Acceptance	.02 maximum

TABLE D-1

PARAMETERS AND RATIONALE
FOR HAZARDOUS WASTE ANALYSES

Hazardous Waste	Parameter	Rationale
Used Mineral Spirits	Flash Point EP Toxicity (Lead)	Ignitable characteristic (D001). Lead content = 5 ppm (D008).
Mineral Spirits Tank Bottom Sediment and Free Water	Flash Point EP Toxicity (Cadmium, Lead)	The sediment has a flash point of less then 140° F (D001) and the sediment and free water may contain cadmium and lead at greater than EP Toxic levels (D006, D008).
Mineral Spirits Dumpster Sediment	Same as number 2.	Same as number 2.
Used Immersion Cleaner	Methylene Chloride Orthodichlorobenzene Cresylic Acid	Formula contains these ingredients: F002 and F004.
Dry Cleaning Wastes	Perchloroethylene	Contain this ingredient (F002).

TABLE D-2

PARAMETERS AND TEST METHODS

Parameter	Test Method	Reference
Flash Point	Tag closed cup tester	ASTM Standard D56-79
Boiling Range (to determine % water, mineral spirits and other solvents)	Dilstillation of Petroleum	ASTM Standard D-86-78
API Gravity	Hydrometer method	ASTM Standard D287-67
EP Toxicity	EP Toxicity test procedure	40 CFR 261, Appendix II
Hydrocarbons and Volatile Organics	Gas Chromatograhpy (GC) Flame Ionization Detector (FID)	"Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA

TABLE D-3

METHODS USED TO SAMPLE HAZARDOUS WASTES

Hazardous Waste	Description of Sampling Method	Sampler	Reference for Sampling
Used Mineral Spirits	Sampling a tank "Samples & Sampling procedures for Hazardous Waste Streams" EPA-600/2-80-018	Test Methods for the Evaluation of Solid Waste Physical/Chemical Methods, SW846, U.S. EPA	For tanks-Bomb sampler (similar to weighted bottle sampler)
Mineral Spirits Tank Bottom Sediment and free water	Same as number 1	Same as number 1	Same as number 1
Mineral Spirits Dumpster Sediment	Sampling a drum "Samplers & Sampling Procedures for Hazardous Waste Streams" EPA-600/2-80-018	Same as number 1	Representative composite sample using drum sampler
Used Immersion Cleaner	Same as number 3	Same as number 1	Same as number 3
Dry Cleaning Wastes	Same as number 3	Same as number 1	Same as number 3

TABLE D-4

FREQUENCY OF ANALYSIS

Hazardous Waste	Analysis	Frequency
Used Mineral Spirits	Flash Point EP Toxicity (Lead)	Annually or as required
Mineral Spirits Tank Bottom Sludge and Free Water	Flash Point EP Toxicity (Cadmium and Lead)	Annually or as required
Mineral Spirits Dumpster Mud	Flash Point EP Toxicity (Cadmium and Lead)	Annually or as required
Used Immersion Cleaner	Methylene Chloride Orthodichlorobenzene Cresylic Acid	Annually or as required
Dry Cleaning Wastes	Perchloroethylene	Annually or as required

APPENDIX E

EQUIPMENT INFORMATION

FACILITY INSPECTION RECORD AND PROCEDURE

PERIOD _____ WEEK _____ BEGINNING DATE OF WEEK _____

Item*		Mon	Tue	Wed	Thur	Fri	Remarks/Corrective Action (Attach additional sheet, if necessary)
	M.S. Solvent Tank Readings						
#1	Clean (inches	____					
#2	Clean (gallons)	____					
#1	Used (inches)	____	____	____	____	____	
#2	Used (gallons)	____	____	____	____	____	
#3	Used - Sludge (inches)	____					
#4	Used - Water (inches)	____					
#5	Solvent Dispensing Hose	____	____	____	____	____	
#6	Pump Valves and Pipe Fittings	____					
#7	Tank Inspection	____	____	____	____	____	
#8	Drum Storage	____	____	____	____	____	
#9	Clean	____					
#9	Used	____	____	____	____	____	
#10	Storage & Containment Systems	____					
#11	Loading/Unloading Area	____	____	____	____	____	
#12	Used - Labeling & Damages	____	____	____	____	____	
#13	Route Vehicle Check	____	____	____	____	____	
#14	Safety Equipment	____	____	____	____	____	
#15	Wet Dumpster	____					
#16	Dry Dumpster	____					
#17	Fire Extinguishers	____					
#18	Eye Wash & First Aid Kit	____					
#19	Absorbent	____					
#20	Security Gates and Locks	____	____	____	____	____	
#21	Security Fence	____					
#22	Certification of Inspector	____	____	____	____	____	

*See instructions on reverse side of form.

500-08-05
R/12/85

B4270-RH1

Item #1 Check high level alarm, if available. Measure depth of solvent in inches. Record reading in inches. Contents not to exceed 95% of tank capacity.

Item #2 — Convert tank readings from inches to gallons using an outage table.

Item #3 — Measure sludge depth and record reading in inches.

Item #4 — Measure depth of water and record reading in inches. Use water finding paste (S-K Part No. 3339, New Berlin).

Item #5 — Inspect solvent dispensing hose, connections and valves for any leaks or damage that could cause a leak to develop. All hose should be drained and the contents discharged into the storage tank.

Item #6 — Check pump, pipe and fittings for leakage.

Item #7 — Underground tanks should be checked to prevent overflow and to detect evidence of leaks such as unexpected deviation in tank measuring data or excess water. Aboveground tanks should be checked for damage (such as rust) and the containment should be checked for deterioration. Excess water in the clean solvent tank should be transferred to the used solvent tank.

Item #8 — Inspect the drum storage area for damage to the containment and/or drums.

Item #9 — Record the number of drums on hand.

Item #10 — Inspect for deterioration and failure of the containment system and container placement and stacking.

Item #11 — Inspect loading/unloading area for spillage.

Item #12 — Check to make sure all used drums are properly labeled and marked. Drums shall be inspected for damages or rust to the point of near leakage. Damaged, missing, or loose fasteners shall be replaced and adjusted.

Item #13 — Each route vehicle at the facility must be inspected daily to insure the proper operation of brakes, lights, turn signals, emergency flashers, and wipers.

Item #14 — Route vehicle safety equipment check, including absorbent, eyewash, fire extinguisher, first aid kit and reflector kits. Any equipment that is inoperative or unavailable shall be immediately replaced or repaired.

Item #15 — Inspect wet dumpster and its containment for leaks and excess dumpster mud built up.

Item #16 — Inspect dry dumpster to insure that no liquids are being placed in the unit.

Item #17 — Fire extinguishers must be checked to insure that the tag date has not expired and that the units are properly charged and accessible. Must be inspected by a fire service supplier on a yearly basis.

Item #18 — The eyewash stand shall be inspected for accessibility weekly. Check its operation as well. Check inventory of first aid kit.

Item #19 — Check absorbent supply in Service Center (S-K Part No. 8890).

Item #20 — Security gates and locks must be checked for sticking, corrosion, or other damage.

Item #21 — Security fence must be checked for deterioration, gaps under fence, and broken wire ties.

Item #22 — Inspector must certify that he has completely inspected facility.

EMERGENCY EQUIPMENT LIST

The following equipment shall be located in the locker room area and the supply checked monthly:

Gloves - The rubber or plastisol gloves sold by Safety-Kleen are to be used when handling the solvents.

Safety Glasses or Face Mask - Whichever the worker prefers, is to be worn when loading or unloading the solvent.

Plastic Aprons - Are available for the situations where a solvent may get on the worker's clothing.

Decontamination of all equipment is accomplished by washing with soap and water.

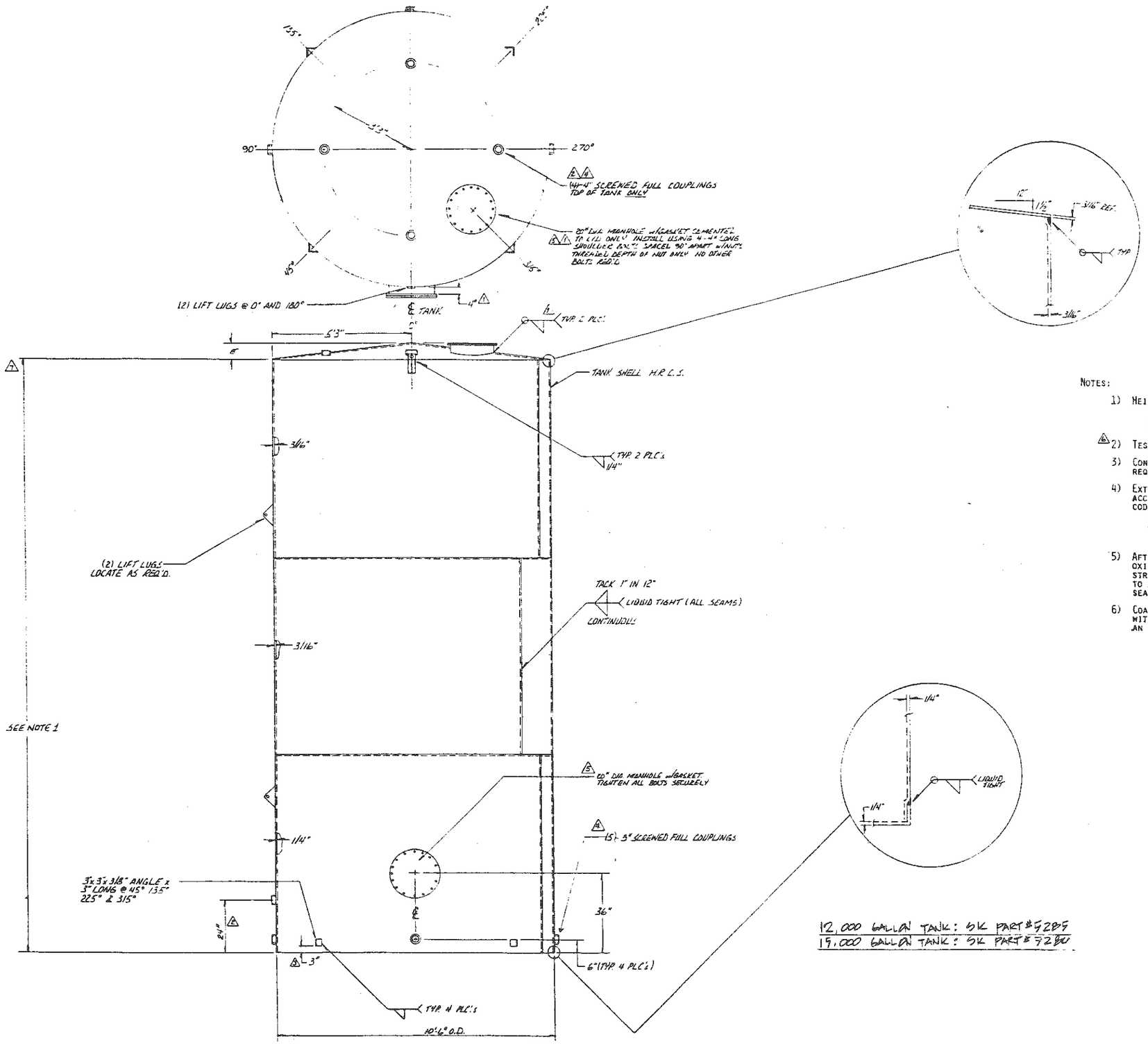
Eye Wash Stand---Normally the eye wash is located centrally at the Service Center. At larger centers, several eye wash stands are provided. The workers should try the stand and be familiar with its operation. The eye wash stand should be checked once a week for operation.

Showers---Should be checked periodically to ascertain that they are operational. Located in locker room area.

Ventilation---Any area that is closed and collects vapors should be avoided or equipped with proper fans to insure adequate ventilation.

Fire Extinguisher---Each center should have a minimum of two 10-pound ABC extinguishers, located at the points where solvents are transferred. An ABC extinguisher is a universal system used on paper, wood and electrical, as well as solvent fires. The extinguishers must be full and carry an inspection tag. The accepted extinguisher is available as S-K part no. 4009.

Absorbent Material---An adequate supply (200 sheets, 2 bales) should be on hand to handle small spills. Located in the loading and unloading area and warehouse. S-K Part No. 8890.



12,000 GALLON TANK: SK PART #5285
15,000 GALLON TANK: SK PART #5280

NOTES:

1) HEIGHT OF TANK WILL DEPEND ON GALLONAGE

   A) 12,000 GAL. - 18'7"
   B) 15,000 GAL. - 23'3"

2) TEST PRESSURE TO BE 2 P.S.I. AIR MIN. & 5 P.S.I. MAX.

3) CONSTRUCTION TO MEET "UNDERWRITERS LABORATORIES" REQUIREMENTS AND SO LABELED.

4) EXTERIOR OF TANK SURFACE ONLY TO BE PREPARED IN ACCORDANCE WITH "STEEL STRUCTURE PAINTING COUNCIL" CODE #SSPC-SP3-63T.

   A) REMOVE LOOSE RUST & MILL SCALE BY SANDBLASTING & POWER TOOL WIRE BRUSHING AND GRINDING.

5) AFTER SURFACE PREPARATION, APPLY (1) COAT OF WHITE OXIDE PAINT AND (2) COATS OF ALKYD BASE GLOSS WHITE STRUCTURAL ENAMEL, E.G. MOBIL 12-W-4. ALLOW PAINT TO DRY 16-24 HOURS BETWEEN COATS TO INSURE PROPER SEALING.

6) COAT BOTTOM OF TANK (EXTERIOR ONLY) ADD 4" UP SIDES WITH BUFFHIDE OR MOBIL GILSO-MASTIC #55-J-8 OR AN EQUIVALENT.

RECEIVED
FEB 16 1988
IEPA-DLPC

REV.	DESCRIPTION	BY	DATE
4	MOVED DIMENSION	C.S.	11-22-86
3	TANK TEST PRESSURES WERE 5 MIN. & 7 MAX.	RD	4-11-85
2	CHECKED MANHOLE NOTE FOR TYP. MANHOLE, ADDED NOTE FOR FROM LIQUID MANHOLE	RD	4-10-85
1	NUMBER OF COUPLINGS WAS 8; CHANGED COUPLINGS AT BOTTOM OF TANK TO 3" INSTEAD OF 4" & ADD BUFFS	RD	3-4-83

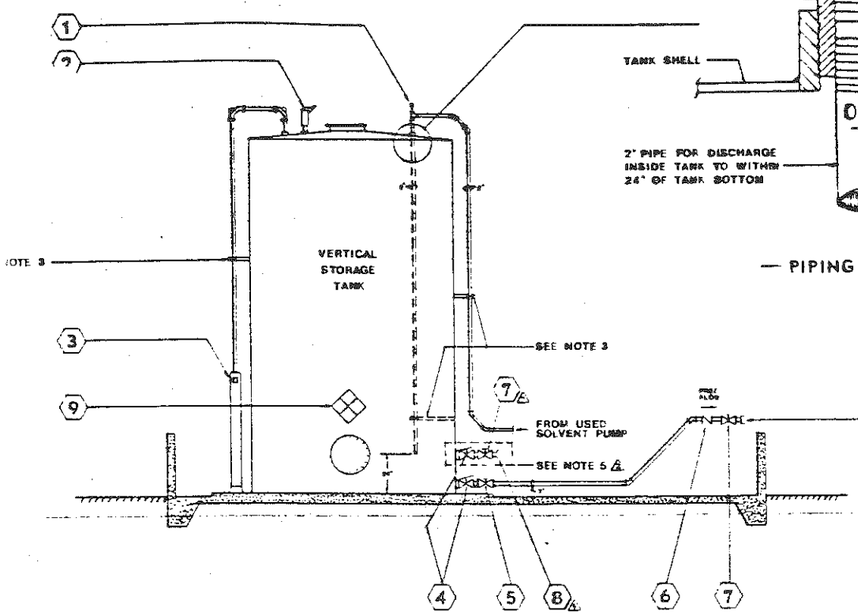
safety-kleen corp.
855 BIG TIMBER ROAD • ELGIN ILLINOIS 60120 PHONE 312/697-8460

12,000 OR 15,000 GAL ABOVEGROUND VERTICAL TANK FABRICATION DETAILS

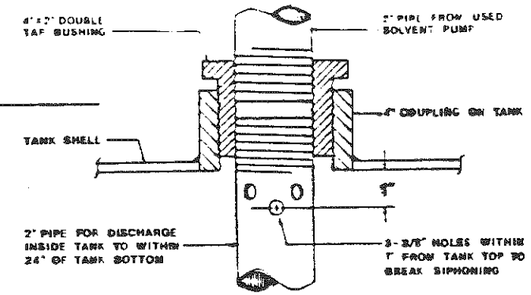
SCALE 1/2" = 1'-0"	REVISIONS	BY	DATE
DATE 4-12-82	1 ADDED LIQUID TIGHT & CLEANOUT	RD	7-8-82
DR. RD CHKD	2 ADDED 90° BUFFS	RD	7-6-82
APVD	3 DIM WAS 16 3/4"	RD	12-8-82

TITLE SERVICE CENTER UPGRADE & TOR CONSTRUCTION

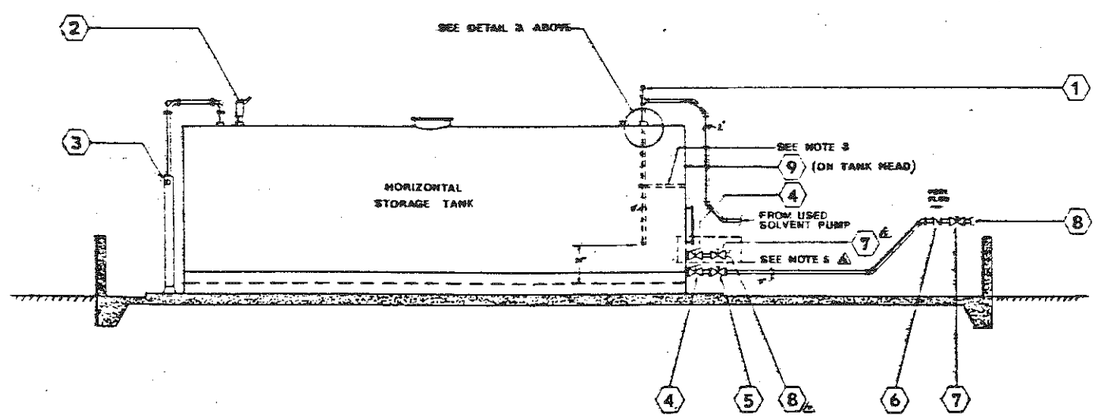
NO. D105716



— VERTICAL INSTALLATION —



— PIPING DETAIL 'A' —



— HORIZONTAL INSTALLATION —

— EQUIPMENT / FIXTURE SCHEDULE —

MARK	SIZE	DESCRIPTION	SK PART NO.	REMARKS
1	3/8"	3/8" AUTOMATIC VACUUM BREAKERS MORRISON BROS. FIG. 134-A	5274	—
2	2"	2" SCREWED PRESSURE/VACUUM VENT MORRISON BROS. FIG. 546 (2 OZ. PRESSURE - 1 OZ. VACUUM)	5273	—
3		TANK GAUGE - MOORMAN BROS. MODEL NO. 7-S	5277	SEE INSTALLATION DETAILS ON SAFETY-KLEEN DWG. A10240
4	3"	3" INTERNAL EMERGENCY VALVE MORRISON BROS. FIG. 273-HC W/220°F FUSIBLE LINK	5267	SEE INSTALLATION DETAILS ON SAFETY-KLEEN DWG. C11302 △4
5	3"	3" DUCTILE IRON GATE VALVE W/ROUND FLANGED ENDS - MORRISON BROS. FIG. 234-DI	5276	SEE INSTALLATION DETAILS ON SAFETY-KLEEN DWG C11302 △4
6	3"	3" BRONZE CHECK VALVE - MORRISON BROS. FIG. 248-A	5266	—
7	3"	3" BRONZE GATE VALVE - MORRISON BROS. FIG. 235-B LOCKING TYPE	5265	—
8	3"	3" ALUMINUM CAMLOCK QUICK COUPLING - MORRISON BROS. MALE ADAPTER PART F W/DUST CAP & CHAIN	5264	COUPLING TO BE INSTALLED SIX (6) INCHES ABOVE & SIX (6) INCHES INSIDE TOP OF DIKE WALL
△4 9	—	NFPA MATERIAL IDENTIFICATION PLACARD	2450	DISPLAY IN PLAIN SIGHT ABOVE DIKE WALL

— GENERAL NOTES —

1. THIS DRAWING SUPERCEDES SAFETY-KLEEN CORP. DRAWINGS C10235 & C10236.
2. SEE INDIVIDUAL SERVICE CENTER SITE PLANS FOR DIKE DIMENSIONS AND RELATED INFORMATION AND ALSO LOCATION AND ARRANGEMENT OF THESE PIPING DETAILS.
3. ALL PIPING TO BE SCHEDULE 40 GALVANIZED AND BE SUPPORTED EVERY EIGHT (8) RUNNING FEET - CONTRACTOR TO SUPPLY ALL BRACKETS, CLAMPS, ETC. AS REQUIRED FOR SUPPORTING PIPE - ALL EXPOSED THREADS AT JOINTS TO BE PAINTED WITH A RUST RESISTANT EXTERIOR GRADE PAINT. PIPING SUPPORT HARDWARE TO BE UNISTRUT BRAND OF APPROVED EQUIVALENT.
4. ALL DIRECTION CHANGES IN DIRTY SOLVENT LINES TO BE MADE USING A COMBINATION OF 45° ELBOWS OR LONG SWEEP 90° ELBOWS.
5. △5△1 THIS INSTALLATION TO BE MADE WHERE NEW TANKS ARE TO BE INSTALLED AT ANY LOCATIONS PRONE TO FREEZING. SEE INSTALLATION DETAILS ON SAFETY-KLEEN DWG. C11302
6. △3 ALL ITEMS WITH SAFETY-KLEEN PART NO. REFERENCES WILL BE SUPPLIED TO CONTRACTOR.

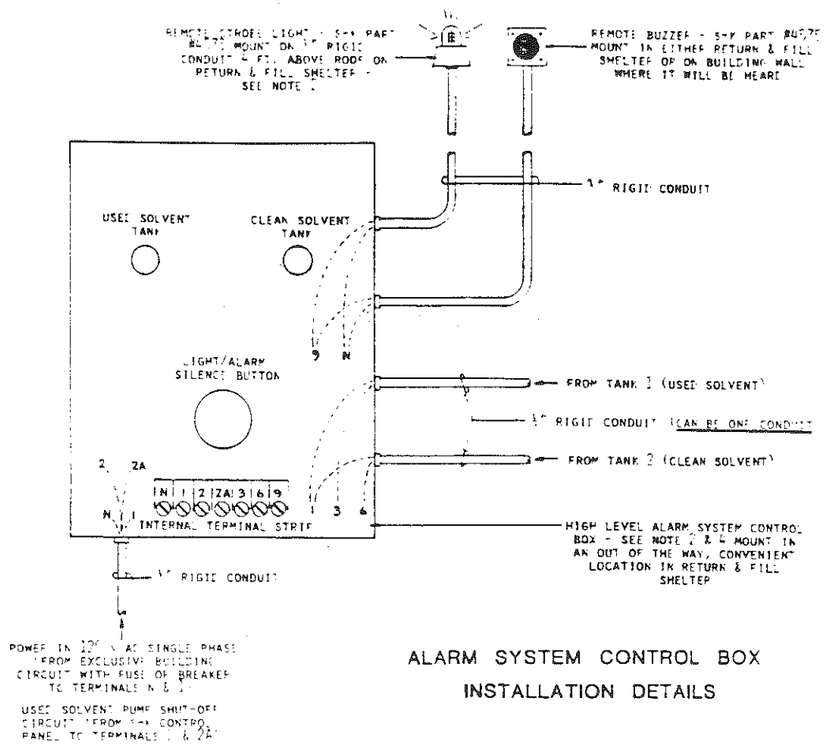
RECEIVED
FEB 16 1988
IEPA-DLPC

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO SAFETY-KLEEN CORP. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED EXCEPT BY SAFETY-KLEEN OR AS SAFETY-KLEEN MAY AGREE IN WRITING.

NO.	REVISION DESCRIPTION	BY	DATE
4	REMOVED 3" PLUG - ADDED VALVE/CAMLOCK	WLJ	[illegible]
4	ADDED ITEM 9 TO SCHEDULE & DRAWING	WLJ	11 5 84
4	ADDED NOTE 5	WLJ	10 25 84
4	REVISED DETAIL IN NOTE 5 SHOWN ON DWG	WLJ	[illegible]
4	ADDED NOTE 6 TO NOTES & TO DRAWING	WLJ	[illegible]

SAFETY-KLEEN CORP. EXHIBIT 2-7

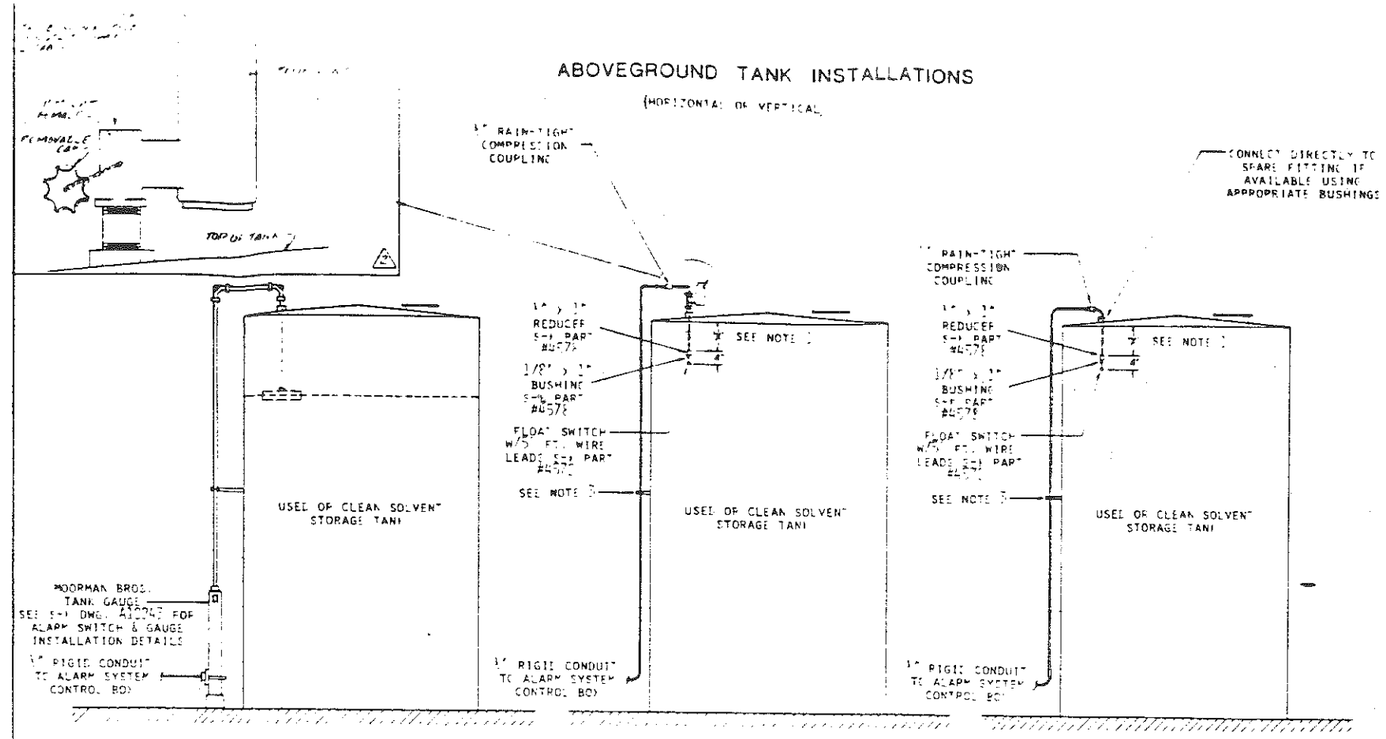
USED SOLVENT STORAGE TANK INSTALLATION DTL'S — NO SCALE — WLJ 8 31 83



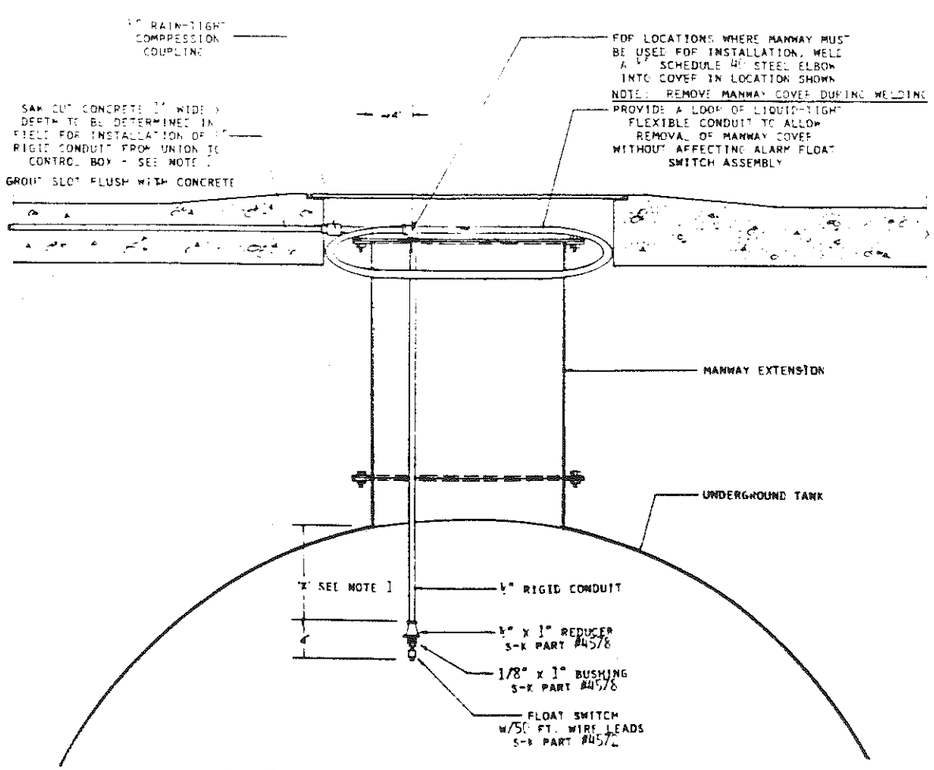
ALARM SYSTEM CONTROL BOX
INSTALLATION DETAILS

ABOVEGROUND TANK INSTALLATIONS

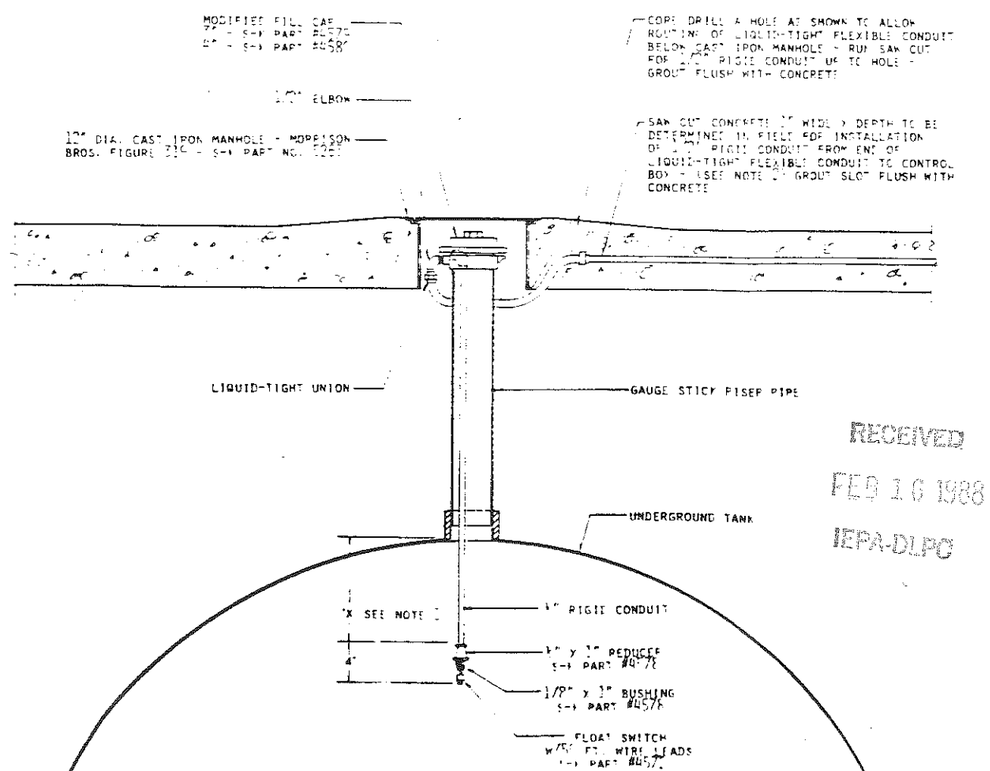
(HORIZONTAL OR VERTICAL)



-OPTION 1- -OPTION 2- -OPTION 3-



UNDERGROUND TANK MANWAY INSTALLATION



RECEIVED
FEB 16 1988
IEPA-DLPC

— GENERAL NOTES —

1. THE "X" DIMENSION SHOWN IS VARIABLE & IS DIFFERENT FOR VARIOUS TANK TYPES & SIZES. FOR TABLE OF THESE VALUES REFER TO SAFETY-KLEEN DWG. [illegible]
2. SEE INDIVIDUAL SERVICE CENTER SITE PLANS FOR RELATIVE LOCATIONS OF THESE DETAILS.
3. CONTRACTOR TO SUPPLY & INSTALL CONDUIT SUPPORTS &/OR BRACKETS AS REQUIRED.
4. KITS FOR INITIAL INSTALLATION OF HIGH LEVEL ALARM SYSTEMS ARE AVAILABLE FROM NEW BERLIN THROUGH THE TECHNICAL SERVICES DEPT. AS FOLLOWS:

   TANK KIT S-K PART #4577
   - FLOAT SWITCHES W/COUPLING & BUSHING
   - CONTROL BOX (1 TANK SIZE)
   - STROBE LIGHT
   - BUZZER

   TANK KIT S-K PART #4577
   - FLOAT SWITCHES W/COUPLING & BUSHING
   - CONTROL BOX (2 TANK SIZE)
   - STROBE LIGHT
   - BUZZER
5. THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO SAFETY-KLEEN CORP. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED BY SAFETY-KLEEN OR AS SAFETY-KLEEN MAY AGREE IN WRITING.
6. ALL ITEMS SHOWN WITH A SAFETY-KLEEN PART NUMBER WILL BE SUPPLIED BY SAFETY-KLEEN CORP.
7. IF INDIVIDUAL SERVICE CENTER CONDITIONS ARE NOT COVERED BY DETAILS SHOWN HERE, PLEASE CONTACT TECHNICAL SERVICES AT THE CORPORATE OFFICE FOR ASSISTANCE.

REV	DESCRIPTION	BY	DATE
1	REVISED U.G. TANK RISER INSTALL'N	WLJ	[illegible]

safety-kleen corp.

HIGH LEVEL ALARM SYSTEM INSTALLATION DETAILS

NO SCALE

WLJ

—TABLE OF VARIABLE 'X' DIMENSION—

ABOVEGROUND HORIZONTAL CLEAN SOLVENT TANKS OR UNDERGROUND HORIZONTAL CLEAN & USED SOLVENT TANKS

CAPACITY (GAL.)	DIAMETER (FT.)												
	4'	5'	6'	7'	8'	9'	10'	10'6"	11'	12'	13'	14'	15'
1000	20"	26"											
2000		14"											
3000		10"	11"										
4000		8"	9"	12"									
5000				10"	12"								
6000				8"	10"								
7000													
8000				6"	6"		18"						
9000													
10000					3"	6"	14"	14"					
11000													
12000					4"	4"	12"	10"					
13000													
14000							6"						
15000							8"	6"	4"				

ABOVEGROUND VERTICAL CLEAN SOLVENT TANKS

'X' DIMENSION (REGARDLESS OF CAPACITY)	DIAMETER (FT.)												
	4'	5'	6'	7'	8'	9'	10'	10'6"	11'	12'	13'	14'	15'
					12"	8½"	6"	5"	4½"	3"	2"	1"	½"

ABOVEGROUND VERTICAL OR HORIZONTAL USED SOLVENT TANKS

NOTE: THE 'X' DIMENSION SHOWN ON S-K DRAWING D11533 FOR ALL ABOVEGROUND VERTICAL OR HORIZONTAL USED SOLVENT TANKS WILL BE ½".

— GENERAL NOTES —

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING DRAWINGS & SCOPE OF WORK TO INSURE COMPLIANCE WITH ALL LOCAL, STATE & NATIONAL CODES - ANY ALTERATIONS &/OR ADDITIONS MUST BE RELAYED TO & APPROVED BY TECHNICAL SERVICES AT CORPORATE OFFICE PRIOR TO &/OR DURING INSTALLATION. FAILURE TO COMPLY WITH THE ABOVE WILL RELIEVE SAFETY-KLEEN CORP. OF ANY & ALL RESPONSIBILITIES.

2. WORK THIS DRAWING WITH SAFETY-KLEEN DRAWING D11533 FOR TYPICAL INSTALLATION DETAILS - IF INDIVIDUAL SERVICE CENTER CONDITIONS ARE NOT COVERED HEREIN OR ON DRAWING D11533 PLEASE CONTACT TECHNICAL SERVICES AT THE CORPORATE OFFICE FOR ASSISTANCE.

3. WORK THIS DRAWING WITH SAFETY-KLEEN DRAWINGS BELOW FOR ELECTRICAL SCHEMATICS OF VARIOUS SYSTEMS AS FOLLOWS:

   D11529 - ALARM SYSTEM ELECTRICAL SCHEMATIC FOR TWO TANKS
   D11536 - ALARM SYSTEM ELECTRICAL SCHEMATIC FOR FOUR TANKS

4. LIQUID-TIGHT COMPRESSION OR FLEXIBLE CONDUIT COUPLINGS ARE USED AT CONDUIT CONNECTION TO TANK - TYPICAL - SEE S-K DWG. D11533. THESE ARE REQUIRED FOR SERVICING &/OR REPLACEMENT OF FLOAT SWITCH UNITS AFTER INITIAL INSTALLATION.

   TO REPLACE A FLOAT SWITCH, THE CONTRACTOR SHOULD DISCONNECT THE CONDUIT COUPLING & CUT THE 2 WIRE LEADS. THIS WILL ALLOW REMOVAL OF MANWAY COVER, MODIFIED FILL CAP, COUPLING ADAPTER, ETC. (DEPENDING ON THE TYPE OF INSTALLATION) IN ORDER TO REMOVE OLD FLOAT SWITCH & INSTALL NEW SWITCH. THE NEW 50 FT. LEADS WILL BE PULLED THROUGH TO THE COUPLING AT THIS TIME & UNIT REINSTALLED ON TANK. IT IS AT THIS POINT THAT OLD WIRE LEADS FROM THE COUPLING BACK TO THE CONTROL BOX SHOULD BE TIED TO THE ENDS OF THE NEW WIRE LEADS - THE OLD WIRES WILL SERVE AS PULL WIRES FOR PULLING THE NEW LEADS THROUGH THE CONDUIT TO THE BOX WHERE THEY WILL BE ATTACHED TO THE APPROPRIATE TERMINALS.

5. TESTING OF THE FLOAT SWITCH & SYSTEM IS MANDATORY FOLLOWING INSTALLATION. ACTIVATING THE FLOAT SWITCH DEVICE MAY BE ACCOMPLISHED AS FOLLOWS:

   UNDERGROUND TANKS
   A) PRIOR TO INSTALLING MANWAY COVER ON MANWAY INSTALLATIONS.
   B) BY DRIVING A NAIL OF APPROPRIATE LENGTH CROSSWISE THROUGH THE END OF THE GAUGE STICK OR SIMILAR PROBE AND REACHING DOWN UNDER FLOAT SWITCH ON RISER PIPE INSTALLATIONS.

   ABOVEGROUND TANKS
   A) REACH IN THROUGH MANWAY ON TOP OF TANKS. OTHER METHODS MAY BE USED AT THE DISCRETION OF THE ELECTRICAL CONTRACTOR.

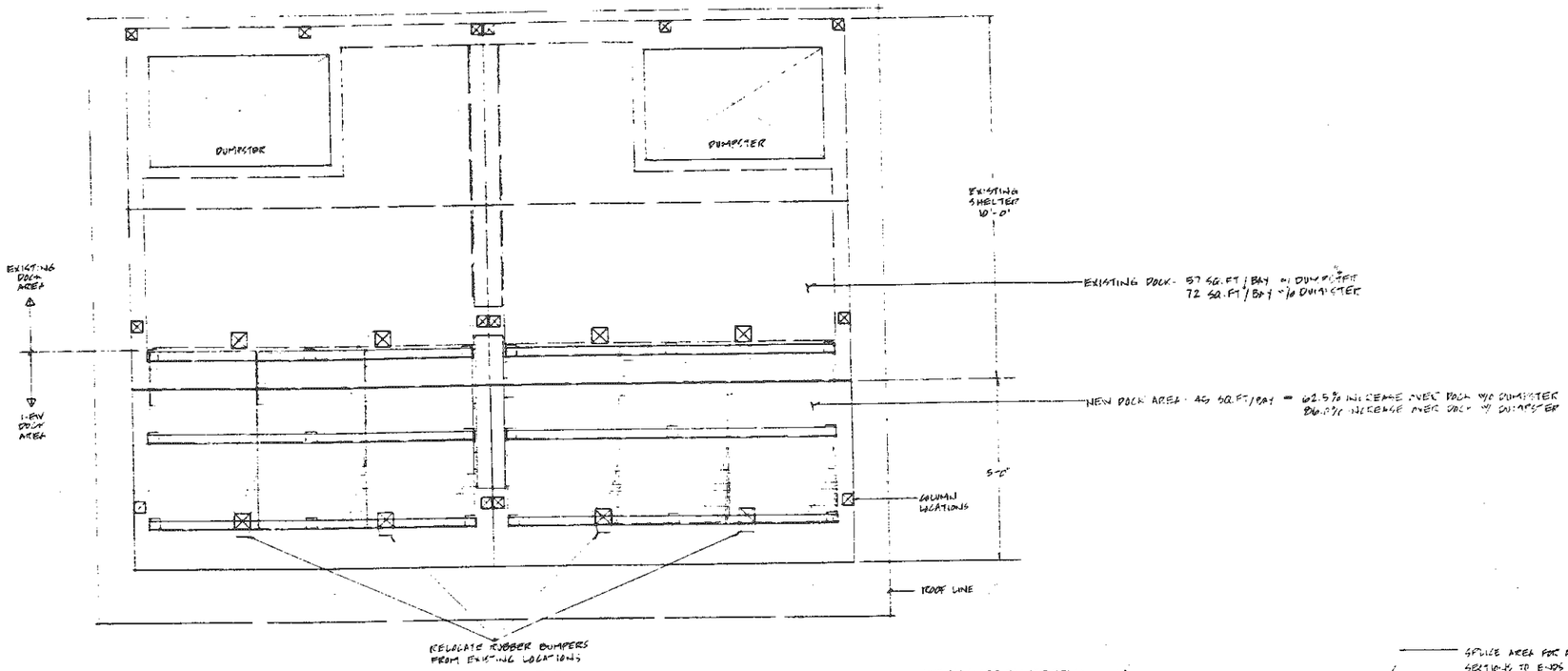
6. THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO SAFETY-KLEEN CORP. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED BY SAFETY-KLEEN OR AS SAFETY-KLEEN MAY AGREE IN WRITING.

RECEIVED
FEB 16 1988
IEPA-DLPC

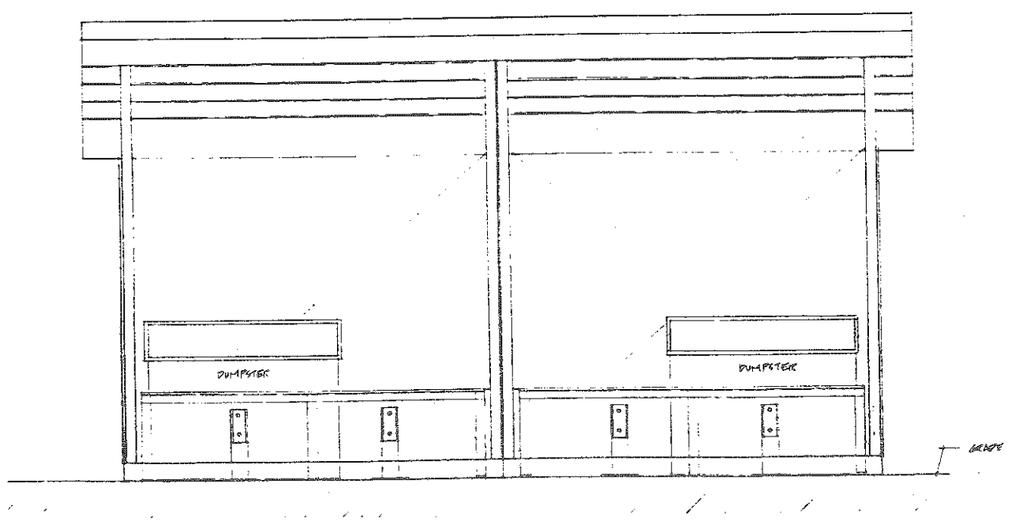
safety-kleen corp.

HIGH LEVEL ALARM SYSTEM INSTALLATION INFORMATION — NO SCALE — WLJ 9-11-..

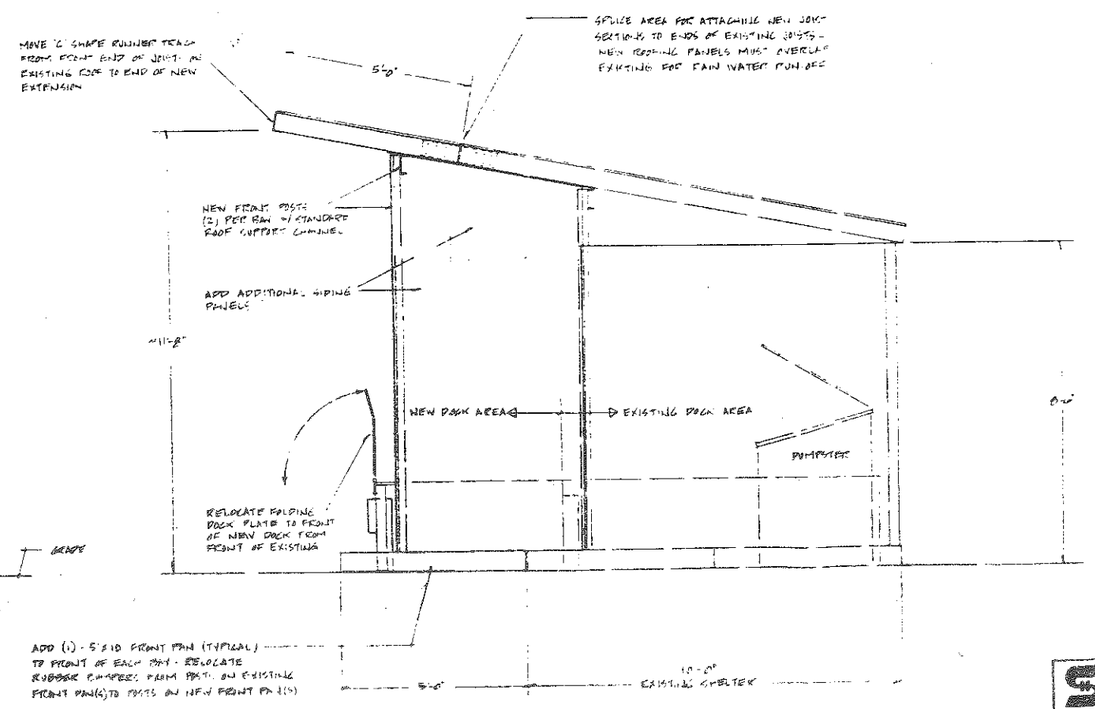
FOR: SERVICE CENTER BRANCH IMPROVEMENT — D11534



- PLAN -



- FRONT VIEW -



- R·SIDE -

RECEIVED
FEB 16 1988
IEPA-DLPC

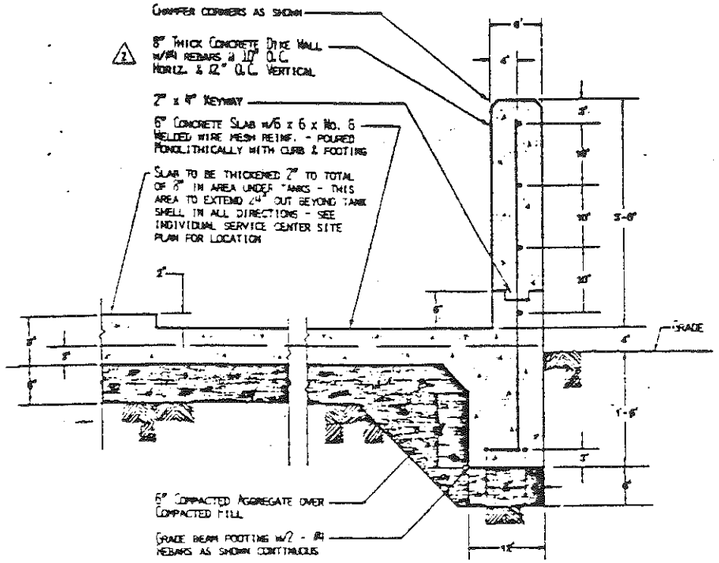
safety-kleen corp.
605 ENG TIMBER ROAD • ELGIN, ILLINOIS 60120 PHONE 312/697-6450

SERVICE CENTER RETURN & FILL SHELTER FORWARD EXPANS ON CONCEPT

SCALE 1/2" = 1'-0"	DESCRIPTION	BY	DATE
DATE 3-15-85			
REV'D WW			
APP'D			

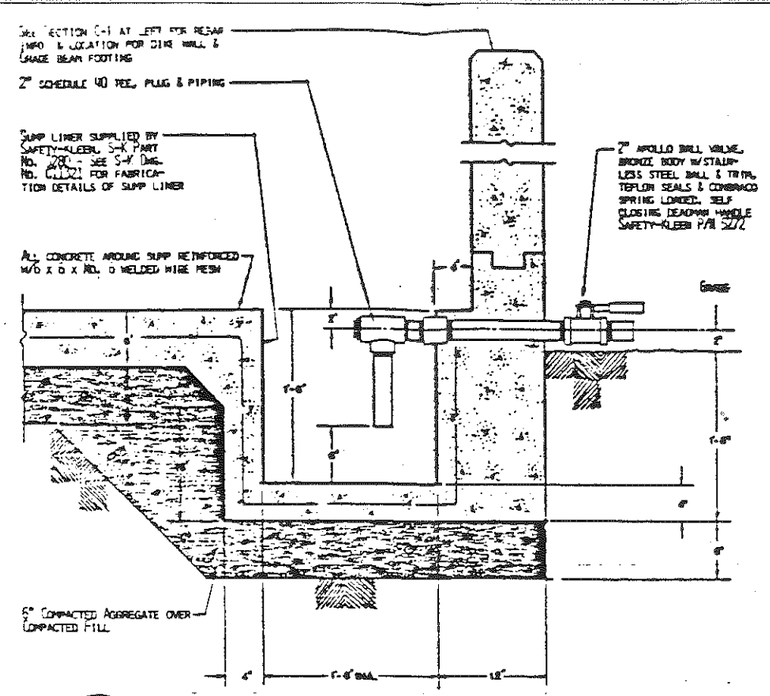
TITLE FOR SERVICE CNTR. BRANCH CONSTRUCTION &/OR IMPROVEMENT

D11784



C1 SECTION C-1 : TANK SLAB & DIKE WALL CONSTRUCTION DETAIL

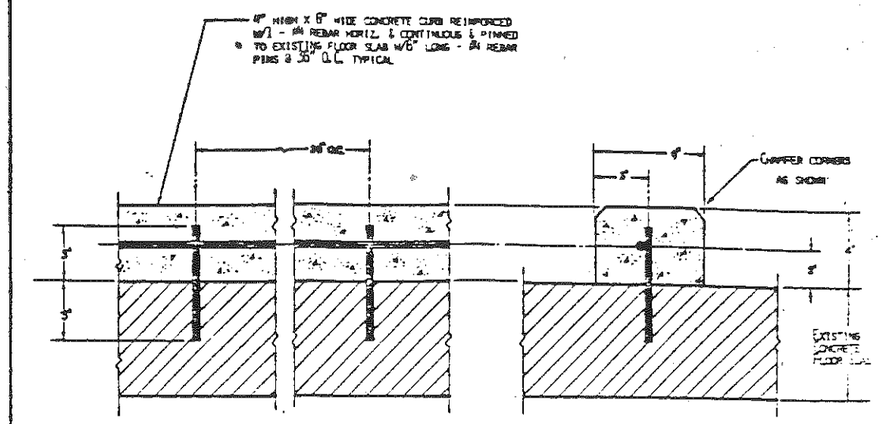
SCALE: 1"=1'-0"



C3 SECTION C-3 : TANK FARM SUMP CONSTRUCTION DETAIL

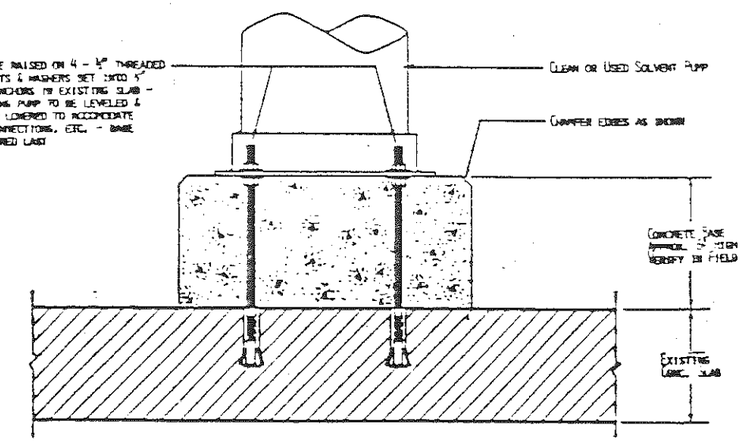
SCALE: 1½"=1'-0"

NOTE: FOR AREAS WHERE CURBING IS TO BE INSTALLED FLOOR SURFACE TO BE CLEANED & SCRUB W/ 3-5% ACID SOLUTION IN PREPARATION FOR EPOXY BONDING AGENT. BONDING AGENT TO BE N.A. MEADOWS INTRALOK ACRYLIC LATEX OR APPROVED EQUAL AND TO BE APPLIED PRIOR TO POURING CURB.



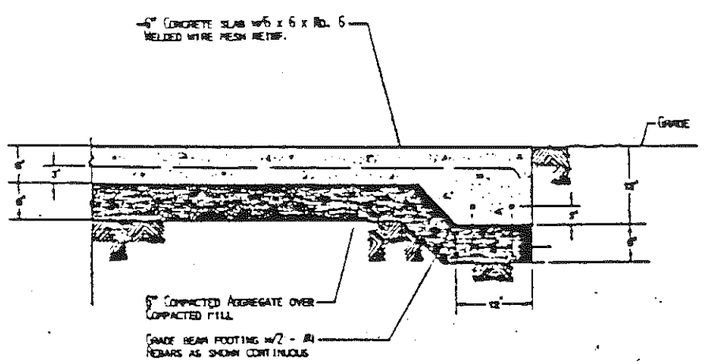
D1 DETAIL D-1 : CURB CONSTRUCTION

SCALE: 3"=1'-0"



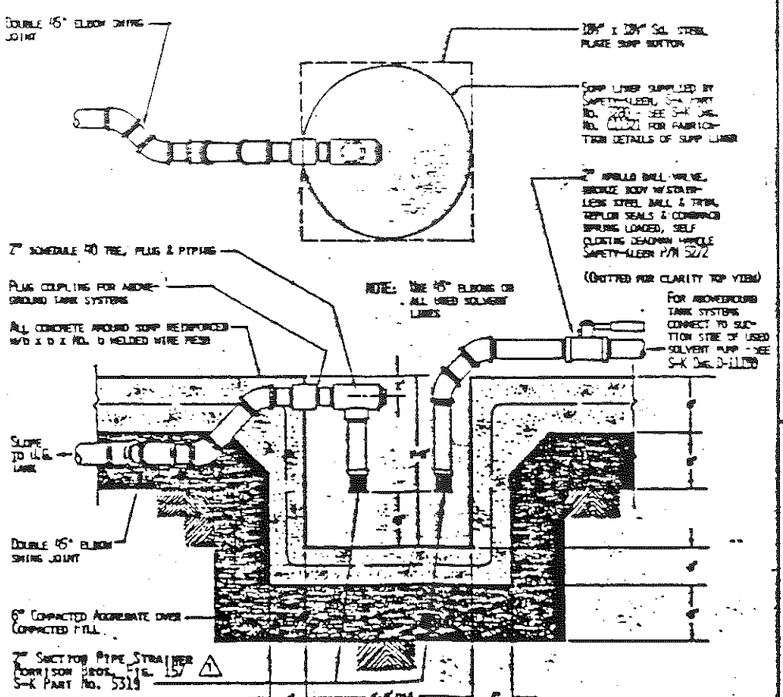
D2 DETAIL D-2 : PUMP BASE CONSTRUCTION

SCALE: 3"=1'-0"



C2 SECTION C-2 : SLAB CONSTRUCTION DETAIL

SCALE: 1"=1'-0"



C4 SECTION C-4 : RETURN & FILL AREA SUMP CONSTRUCTION DETAIL

SCALE: 1½"=1'-0"

GENERAL NOTES

1. THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO SAFETY-KLEEN CORP. ANY REPRODUCTION DISCLOSURE OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED EXCEPT BY SAFETY-KLEEN OR AS SAFETY-KLEEN MAY AGREE IN WRITING.
2. THIS DRAWING SUPERCEDES SAFETY-KLEEN DRAWINGS C10240, C10362, C10507 AND C10365
3. SEE INDIVIDUAL SERVICE CENTER PLANS FOR LOCATIONS OF THESE DETAILS
4. CONCRETE TO OBTAIN 3,000 PSI STRENGTH IN 28 DAYS
5. ALL ITEMS WITH SAFETY-KLEEN PART NO. REFERENCES WILL BE SUPPLIED TO CONTRACTOR.

RECEIVED
FEB 16 1988
IEPA-DLPC

REV	DESCRIPTION	BY	DATE
2	VERT. BAR SPACING WAS 48"	WLJ	[illegible]
1	ADDED NOTE 5 & PIPE STRAINER	WLJ	[illegible]

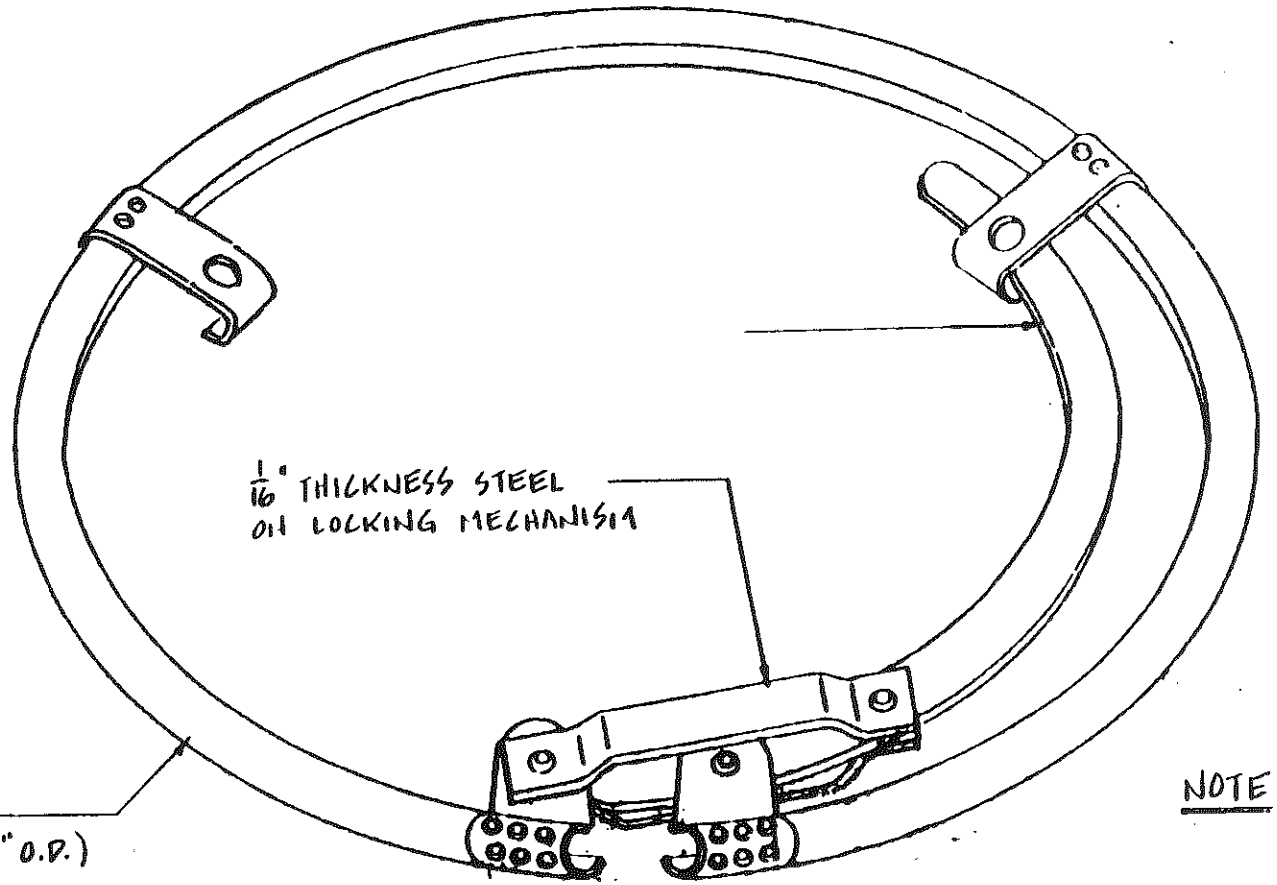
Safety-Kleen Corp.

TYPICAL CONCRETE CONSTRUCTION DETAILS

SCALE: AS SHOWN

FOR: SERVICE CENTER SERVICE REPRESENTATIVE & WEB CONSTRUCTION

D11322



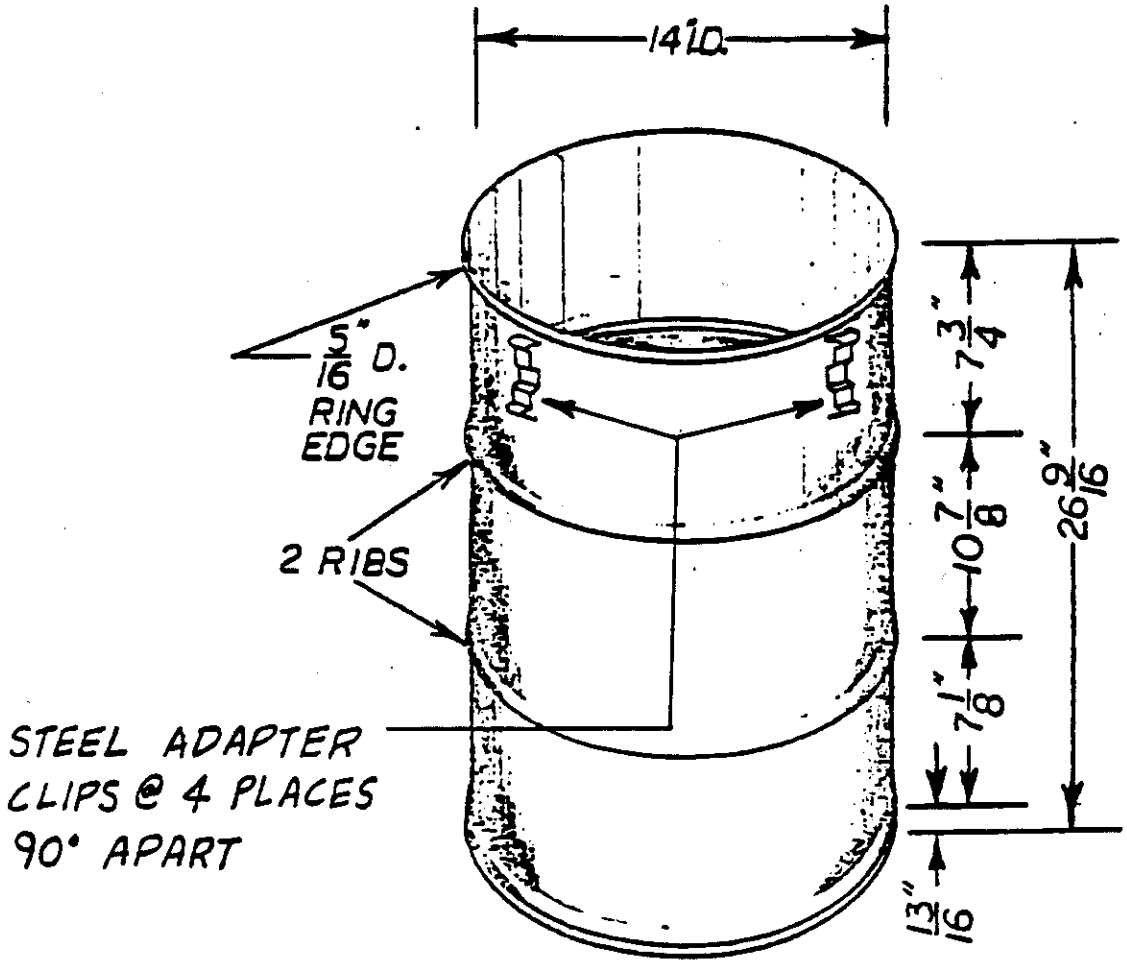
NOTE: ONE SHOP COAT OF SILVER PAINT

RECEIVED
FEB 10 1988
IEPA-DLPC

• CLAMP RING FOR 16 GALLON DRUM DETAILS •

SAFETY-KLEEN PART NO. 3319

CONSTRUCTION SPECIFICATIONS
16 GALLON STEEL BARREL
PART NO. 3317

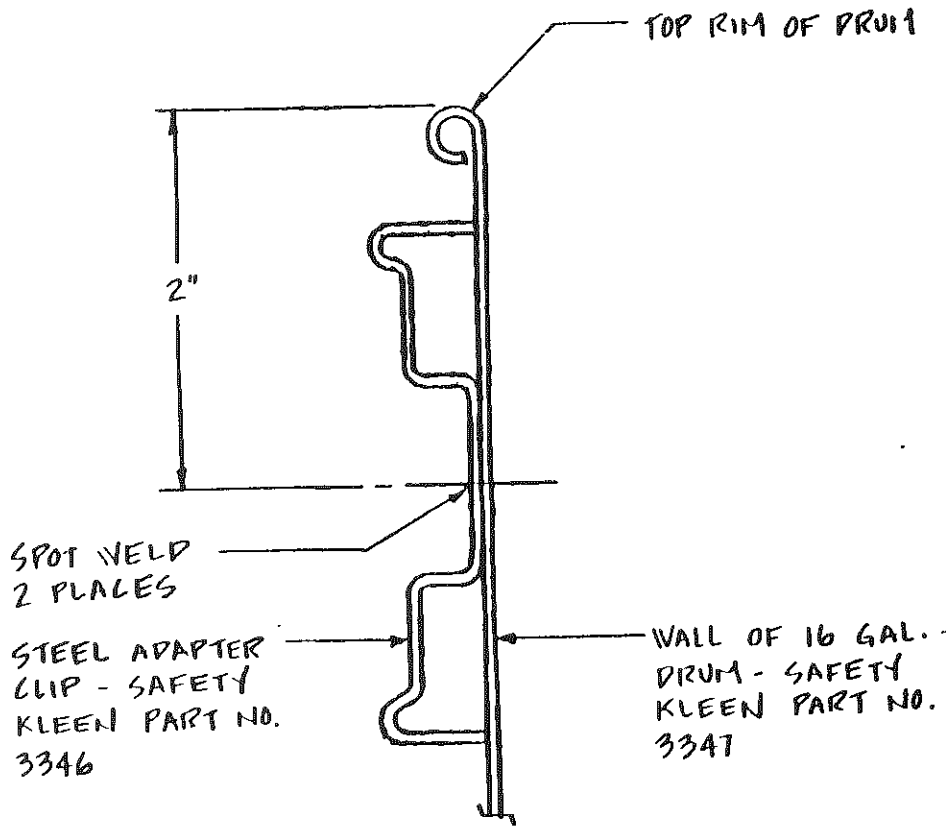


ADDITIONAL SPECIFICATIONS

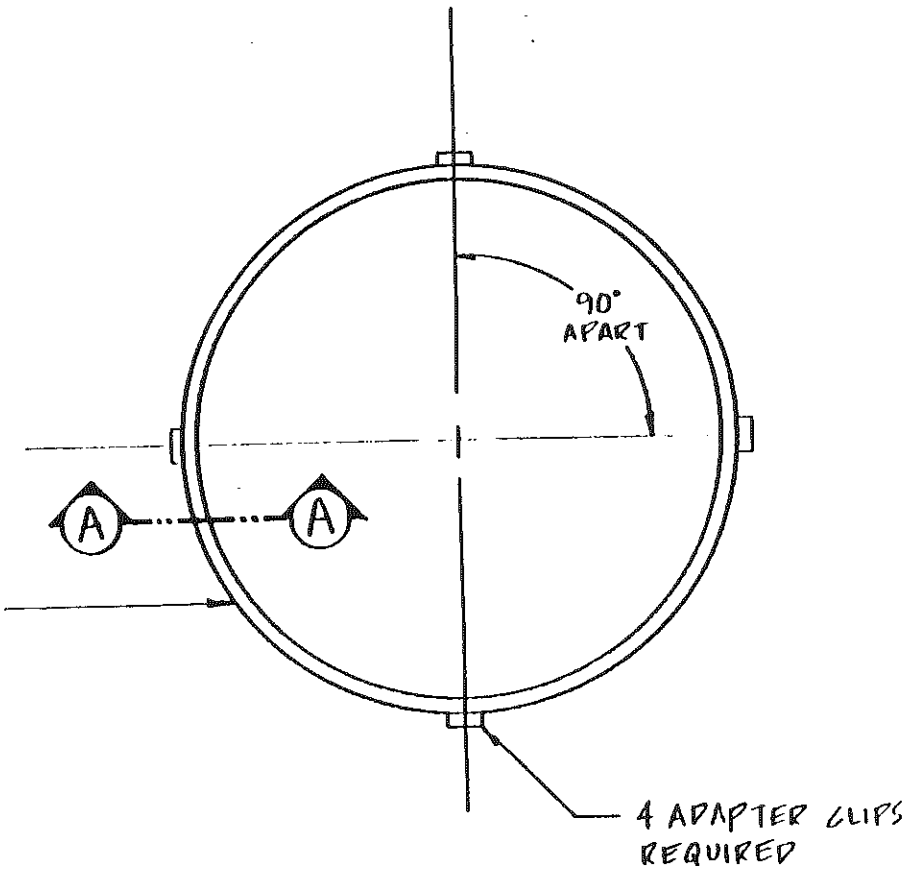
1. No Bungs or Bungholes
2. Rust Preventive Coating Interior
3. Without Top Cover or Locking Ring
4. Open Head Top
5. Leak Proof - Airtest (7 Lb. pressure)
6. 20 Gauge Steel

2-23-71
100-11-07

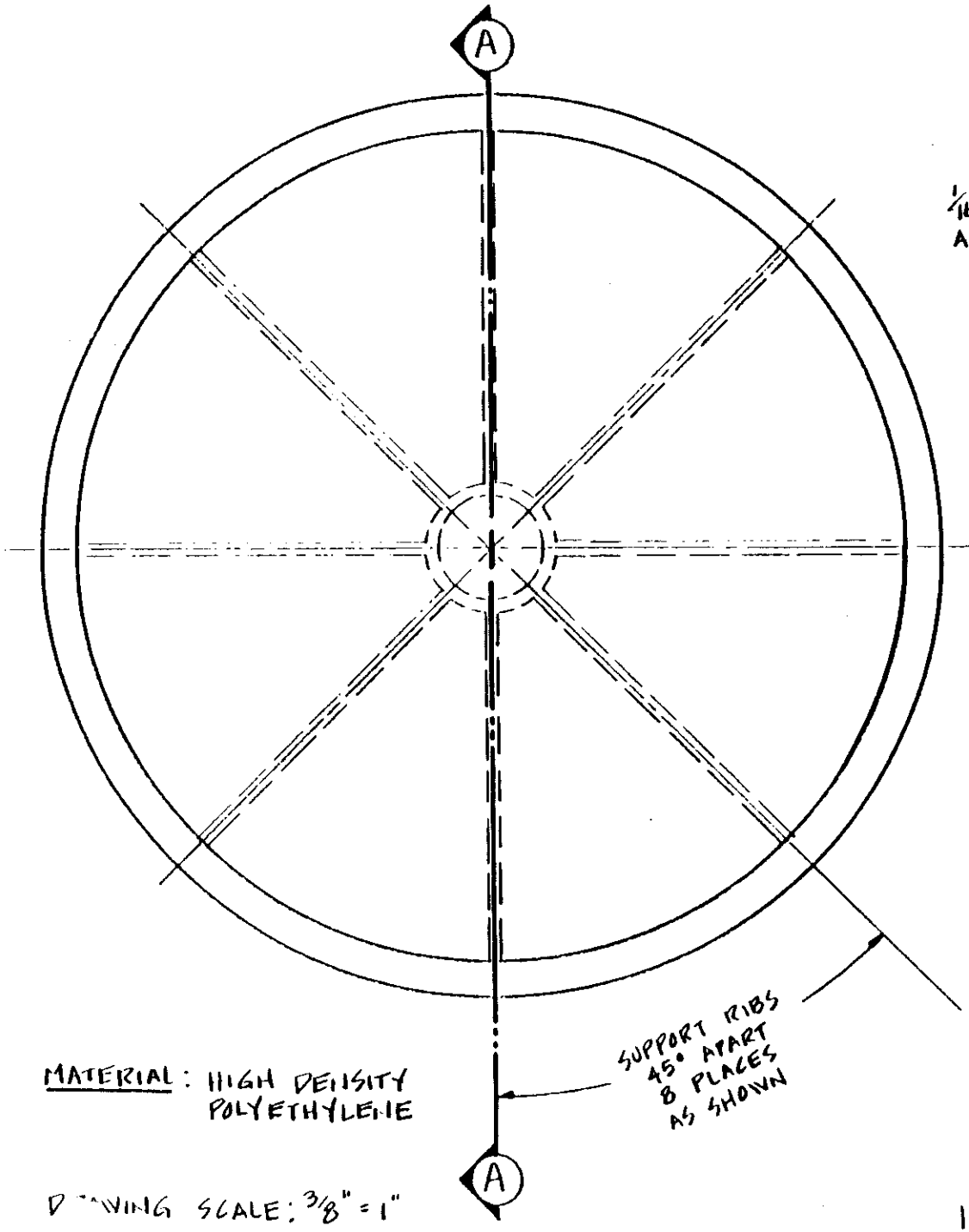
RECEIVED
FEB 16 1988
IEPA-DLPC

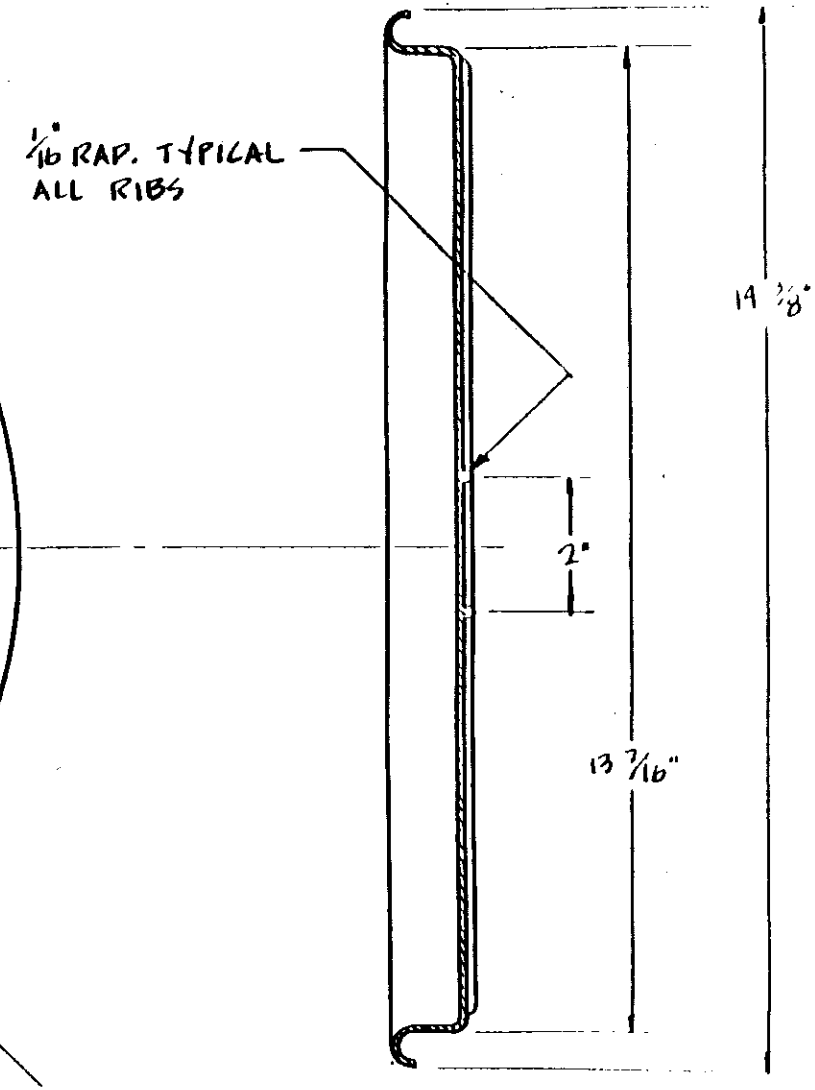


-SECTION A·A-
FULL SCALE



-TOP VIEW OF DRUM-



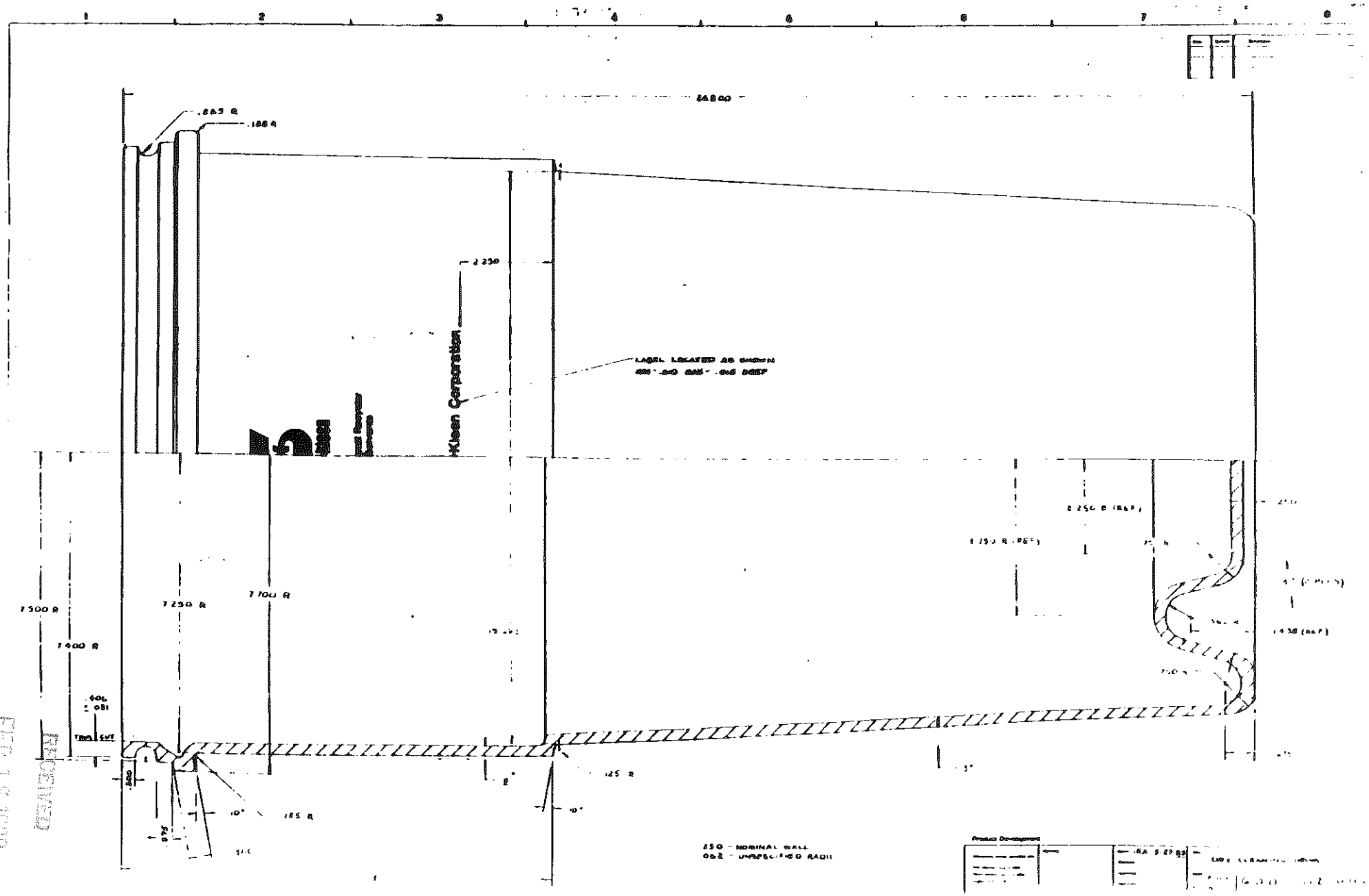


- SECTION A·A -

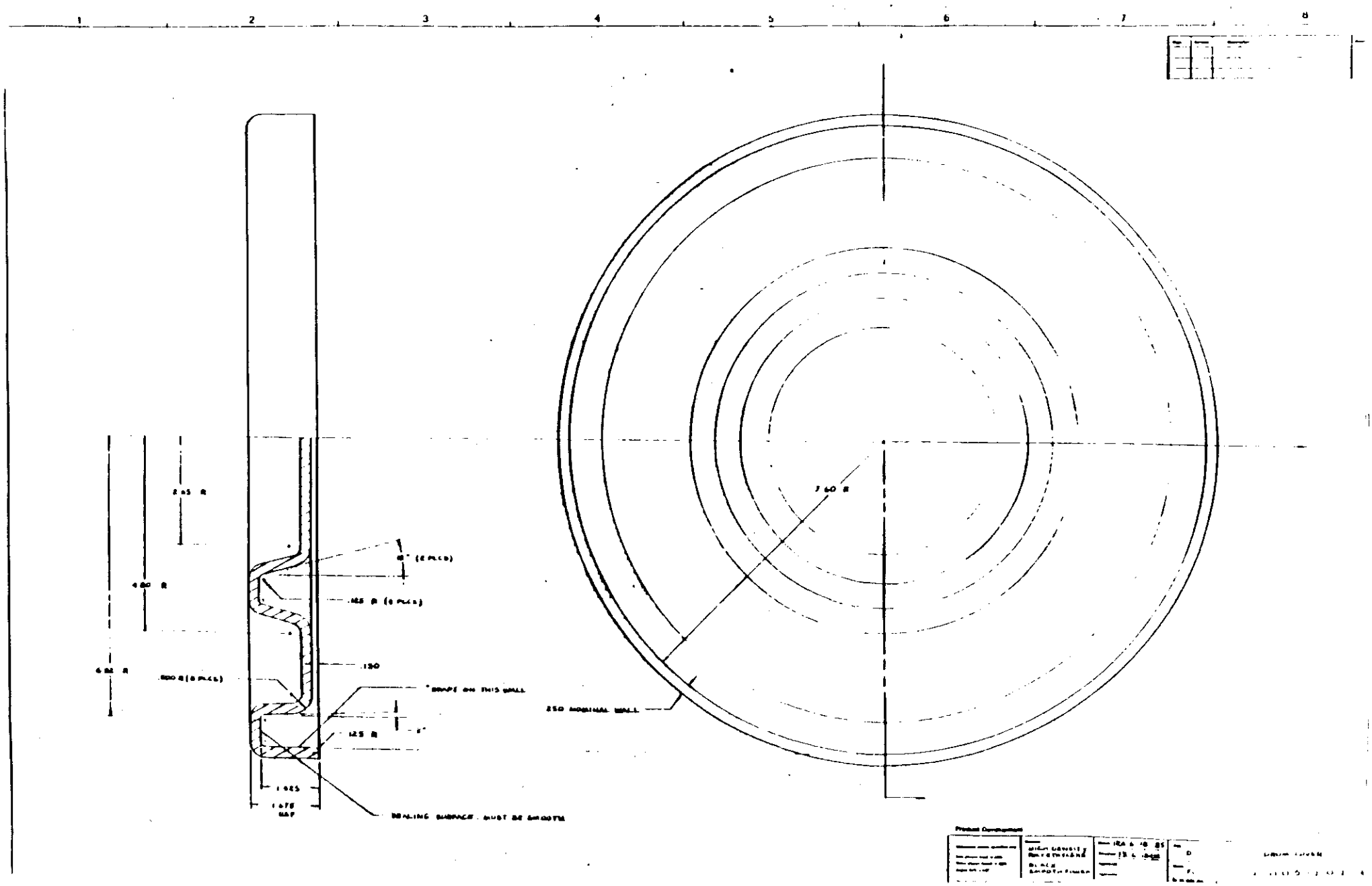
MATERIAL: HIGH DENSITY POLYETHYLENE

DRAWING SCALE: 3/8" = 1"

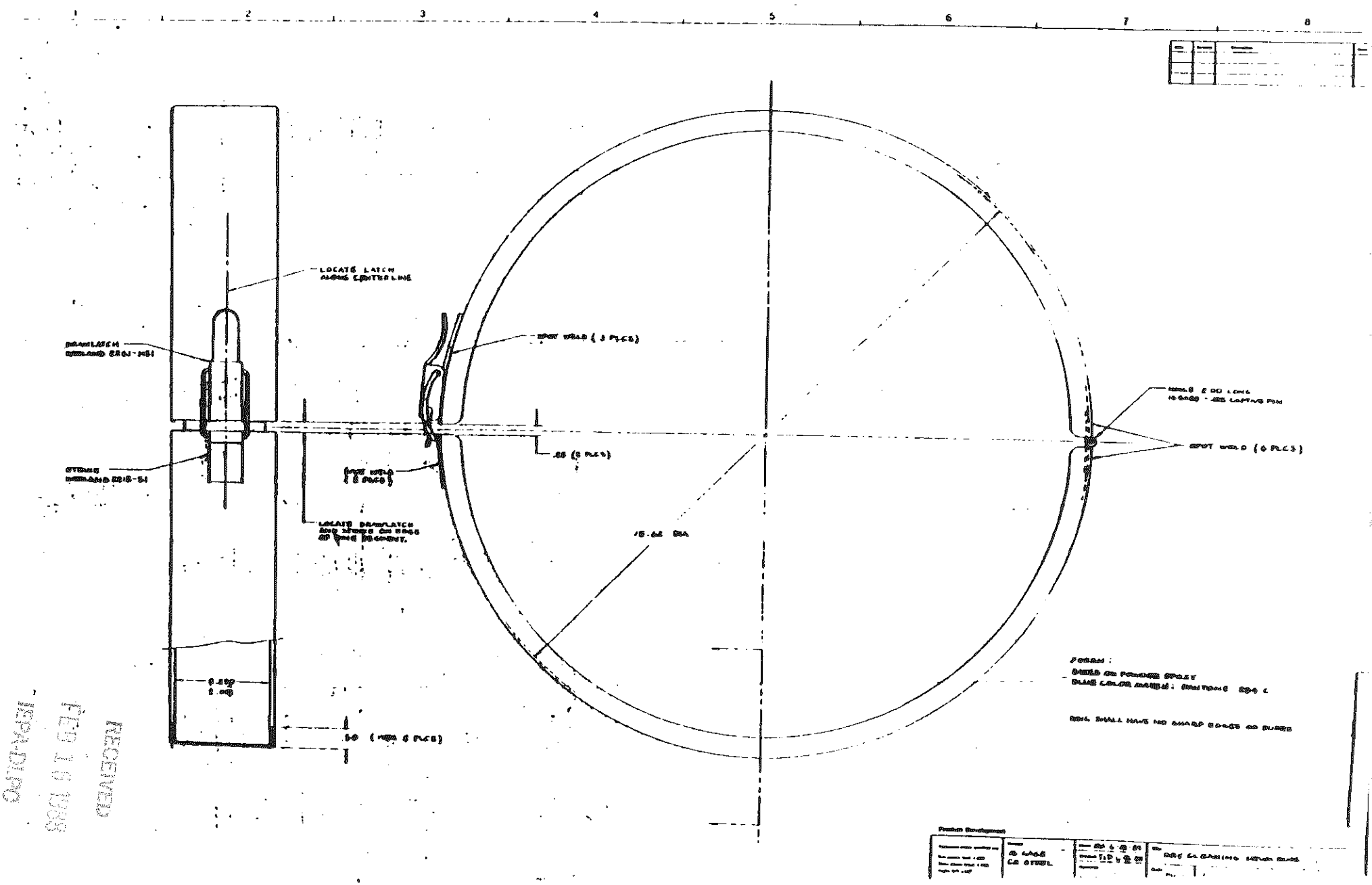
16 GAL. DRUM LID DETAIL
SAFETY-KLEEN PART NO. 3344



RECEIVED
FEB 16 1998
IEPA-DLPC



1
2
3
4
5
6
7
8
2.65 R
4.80 R
6.82 R
.500 R (8 PLCS)
.125 R (8 PLCS)
.150
DRAFT ON THIS WALL
.125 R
1.625
1.675 REF
SEALING SURFACE. MUST BE SMOOTH
7.60 R
.250 NOMINAL WALL
Product Development
HIGH DENSITY POLYETHYLENE
BLACK SMOOTH FINISH
DRUM COVER



RECEIVED
FEB 16 1988
IEPA-DLPC

SAFETY KLEEN CORP.

ENGINEERING CHANGE ORDER

E.C.O. NO: 402

DATE: 4/18/86

PAGE: 1 OF 11

CHANGE: ☐ **RELEASE:** ☒

REQUESTED BY:		
John Lucks	John Paul Kusz	John Paul Kusz

REASON FOR REQUEST:

New product to replace steel drum

DISTRIBUTION CHART

DESTINATION	E.C.O.	B.O.M.	DWG.	C.N.
PRODUCTION	X	X	X	X
INVENTORY CONT.	X	X		X
Q.C.	X			X
PRODUCT DEV.	X	X	X	X
PURCHASING	X		X	X
MARKETING	X			X
PRODUCT. SUPPORT	X			X

DESCRIPTION:

3302	R	603-001-100-11	Box, Std DC Filt	sheet 1 of 3
		603-001-100-32	Printing Layout	sheet 2 of 3
		603-001-100-33	Assembly Instructions	sheet 3 of 3
3303	R	603-002-100-1	Bag, Std DC Filt Bx	
3307	R	603-003-100-1	Tray, Std DC Filt Bx	
3305	R	603-004-100-1	Tape, Std DC Filt Bx	
3310	R	603-005-100-1	Disp. Filt Bx Tape	

Date	Symbol	Description	Drawn	Checked
4/18/86	--	Released ECO 402	SRT	JPK

BOX -- STANDARD DRY-CLEANING FILTER

Configuration: Die-cut, turkey-fold lock container requiring no taping.

Material: 275-pound-test, double-wall craft glued cartons with Michelman coating for water resistancy.

Size: Inside dimensions to be 16 9/16" x 16 9/16" x 15" deep.

Other Required Features: Container to have instructions for proper assembly on two upper flaps as indicated in Safety-Kleen drawing # 603-001-100-32 (sheet 2) and # 603-001-100-33 (sheet 3).

Qualified Vendor(s): Mack Chicago Container Corp., Chicago, Illinois.

RECEIVED
FEB 10 1986
IEPA-DLPC

Product Development

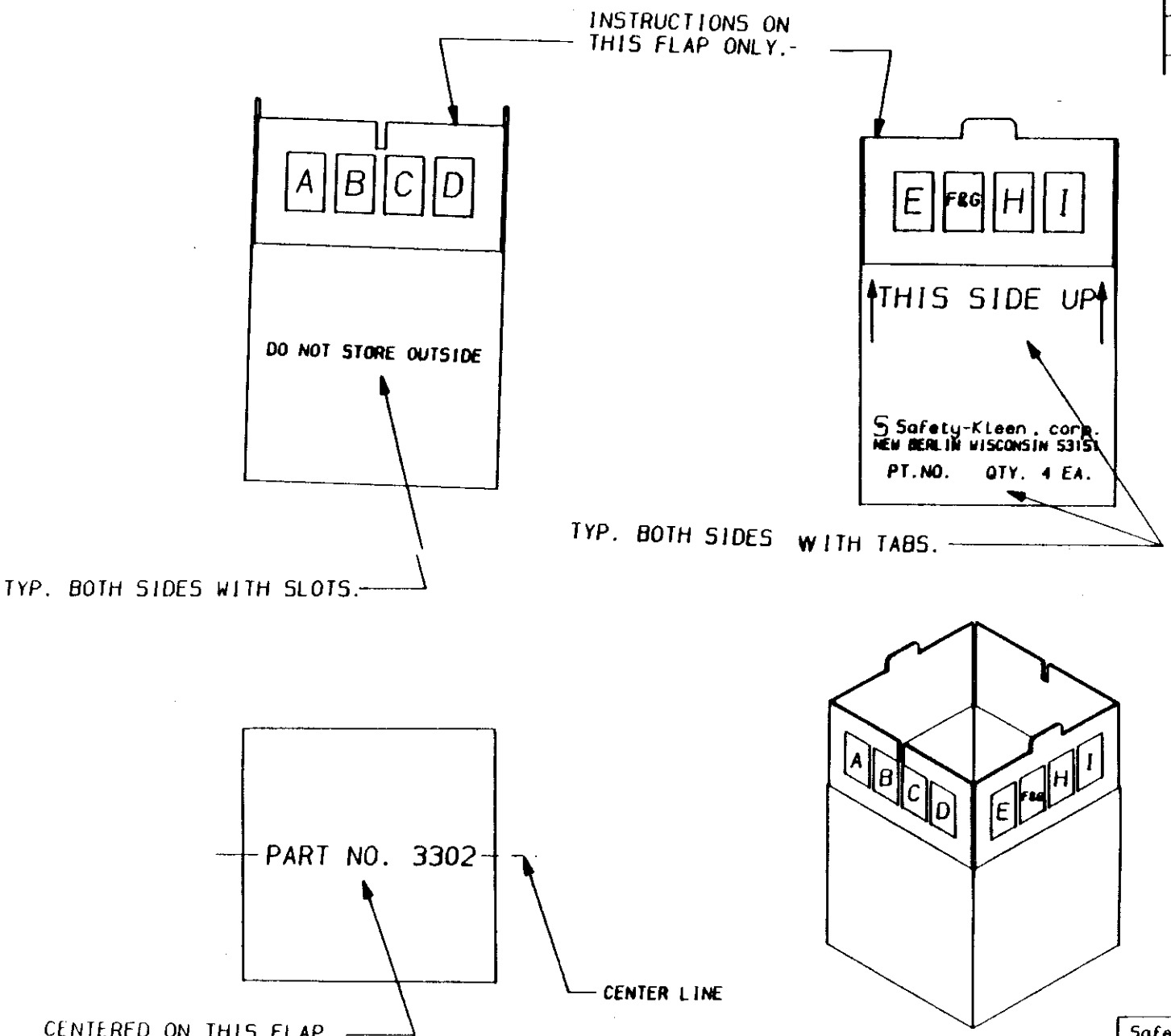
Tolerances unless specified are: Two places (xx) ±.020 Three places (xxx) ±.005 Angles (x°) ±1/2°	Material:	Drawn: SRT Checked: JPK Approved: JPK Approved:	Title: Box, Std DC Filt Scale: 603 - 001 - 100 - 1 Do not scale print

This drawing contains information proprietory to Safety-Kleen Corporation
Any disclosure or reproduction in part or in whole is expressly prohibited except by a written agreement from Safety-Kleen

Sheet 1 of 3 | Revision: | P/N 3302

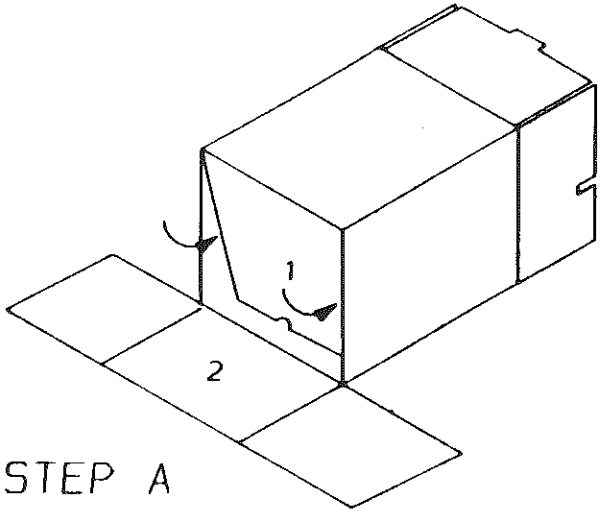
Safety-Kleen Corporation, 777 Big Timber Road, Elgin, Illinois 60120

REVISIONS				
ECO	REV	DESCRIPTION	DATE	APPROVED
402	-	RELEASED	4-18-86	VPK



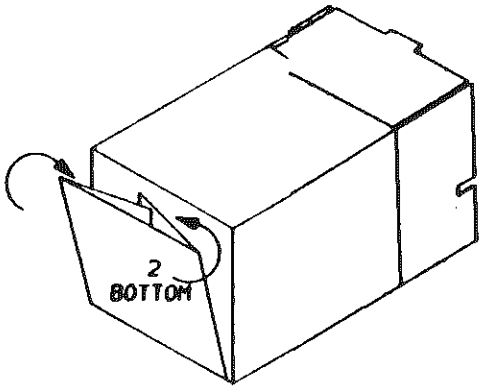
Safety-Kleen Corporation 777 Big Timber Rd. Elgin Il. 60120 (312) 697-8460	Product Development
T. Donovan	BOX, STD. N.C. FILT.
	C 603

REVISIONS				
ECO	REV	DESCRIPTION	DATE	APPROVED
402	-	RELEASED	4-18-86	JPE



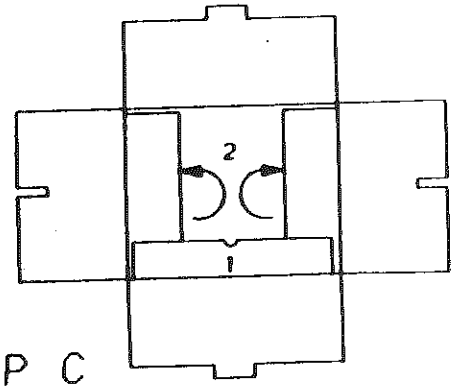
STEP A

SQUARE UP BOX ON ITS SIDE.
FOLD FLAP 1 INSIDE.



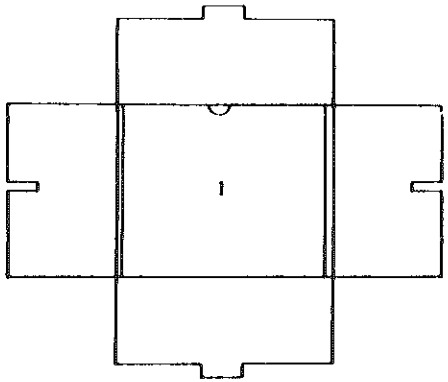
STEP B

FOLD OVER FLAPS ON BOTTOM 2
AND FOLD TO CLOSED POSITION.



STEP C

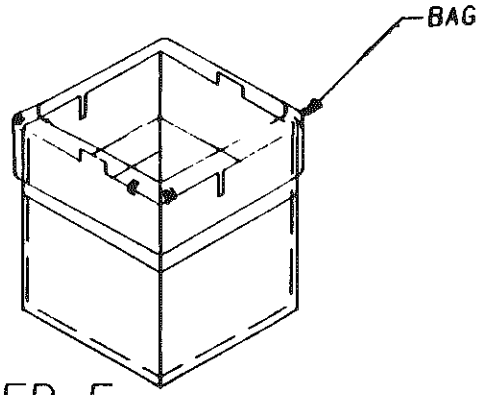
LIFT FLAP 1 TO UPRIGHT POSITION
THEN PUSH FLAPS ON BOTTOM 2
AGAINST SIDES OF BOX.



STEP D

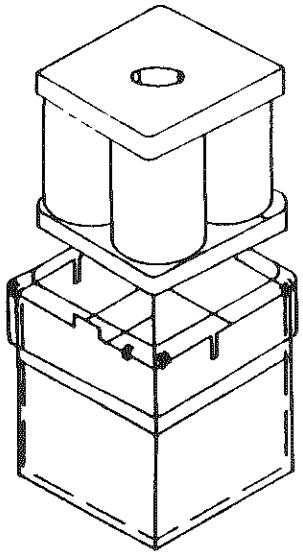
PUSH FLAP 1 TO BOTTOM OF BOX.

EPA-DUPC
FEB 10 1988
RECEIVED



STEP E

STAND BOX WITH FLAPS UP
AND INSERT BAG DRAPING
OVER FLAPS.

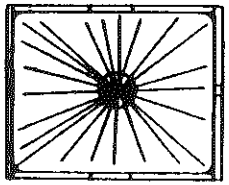


STEP F

INSERT TRAY INTO BOTTOM OF
BOX WITH TRAY SIDES
FOLDED UP.

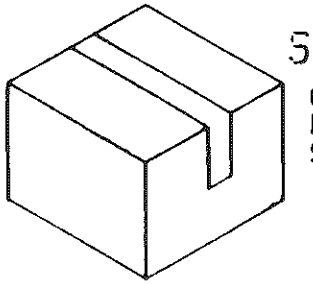
STEP G

DRAIN FILTERS.
PLACE FILTERS INTO TRAY
AND COVER WITH SECOND
TRAY SIDES FOLDED DOWN.



STEP H

LIFT SIDES OF BAG, TWIST
AND INSERT INTO CENTER
HOLE OF TOP TRAY
TO SEAL.



STEP I

CLOSE BOX AND SEAL SEAM
WITH TAPE. OVERLAPPING
SIDE AT LEAST 6 INCHES.

Safety-Kleen Corporation 777 Big Timber Rd. Elgin Il. 60120 (312) 697-8460	Product Development		
	BOX, STD. D.C. FILT.		
T. DANOWSKI 2-18-86	C	603	603-001-100-33

603-001-100-33 3

Date	Symbol	Description	Drawn	Checked
4/18/86	--	Released ECO 402	SRT	JPK

BAG -- STANDARD DRY CLEANING FILTER BOX

Configuration: Bags to be made of extruded material with seamless sides. Bottom of bag is to be triple-seamed with heat sealing.

Material: Tri-extruded polyethylene-nylon-polyethylene. 1 3/4 mill polyethylene and 1 mill nylon and 1 3/4 mill polyethylene.

Size: Outside dimensions of the bag shall be 35" wide x 45" long.

Other Required Features: Seaming in the bottom of the bag should be in an area covering the last 1¼" of the bag. There shall be three bar seals in this space covering the entire width of the bag.

Qualified Vendor(s): Vonco Products, Lake Villa, Illinois.

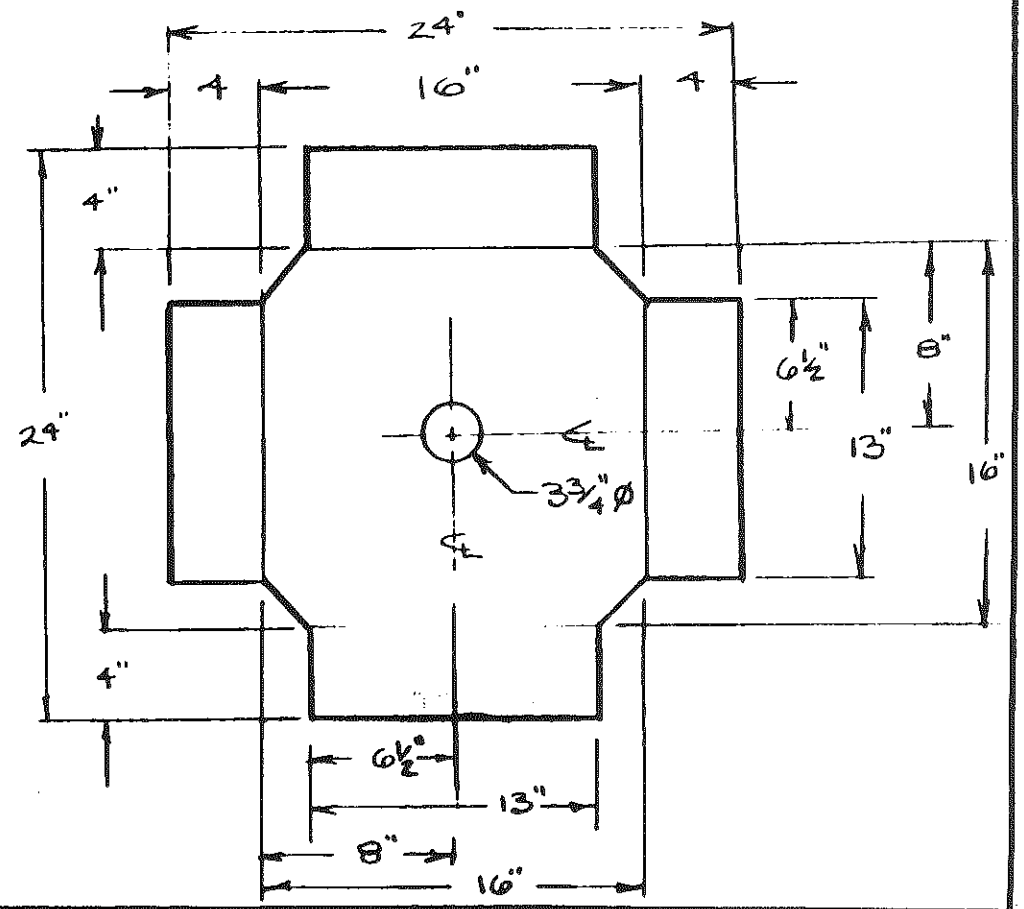
Product Development

Tolerances unless specified are: Two places (xx) ±.020; Three places (xxx) ±.005; Angles (x°) ±1/2°	Material:	Drawn: SRT; Checked: JPK; Approved: JPK; Approved:	Title: Bag, Std DC Filt Bx
			Scale: Do not scale print
			603 — 002 — 100 — 1
			Sheet 1 of 1 · Revision: · P/N 3303

This drawing contains information proprietary to Safety-Kleen Corporation.
Any disclosure or reproduction in part or in whole is expressly prohibited except by a written agreement from Safety-Kleen.

Date	Symbol	Description	Drawn	Checked
4/18/86	--	Released ECO 402	JPK	DAL

TRAY -- STANDARD DRY CLEANING FILTER BOX



Configuration: A flat scored tray with broken corners when folded into position, with a 3/34" diameter hole in the center of the tray.

Material: 275-pound-test, C-fluted corrugated.

Size: 16" x 16" x 4" deep.

Other Required Features: Corners of the tray shall be broken so as not to tear the poly-nylon-poly bag into which the tray is inserted.

Qualified Vendor(s): Mack Chicago Container Corp., Chicago, Illinois.

RECEIVED
FEB 16 1988
IEPA DLPC

Product Development

Tolerances unless specified are: Two places (xx) ±.020 Three places (xxx) ±.005 Angles (x°) ±1/2°	Material: SEE ABOVE	Drawn: [signature] Checked: DHL Approved: [signature] Approved:	Title: Tray, Std DC Filt Bx Scale: Do not scale print 603 – 003 – 100 – 1

This drawing contains information proprietary to Safety-Kleen Corporation.
Any disclosure or reproduction in part or in whole is expressly prohibited except by a written agreement from Safety-Kleen.

Sheet 1 of 1 | Revision: | P/N 3307

Safety-Kleen Corporation, 777 Big Timber Road, Elgin, Illinois 60120

Date	Symbol	Description	Drawn	Checked
4/18/86	--	Released ECO 402	SRT	JPK

TAPE -- STANDARD DRY CLEANER FILTER BOX

Materials: Filament tape

Size: 2" wide x 110 yards long/roll, 2.1 mil. thick.

Qualified Vendor(s): Elgin Paper Co., Elgin, Illinois. (Vendor's product # 701)

Product Development

Tolerances unless specified are: Two places (xx) ±.020 Three places (xxx) ±.005 Angles (x°) ±1/2°	Material:	Drawn: SRT Checked: JPK Approved: JPK Approved:	Title: Tape, Std DC Filt Bx Scale: Do not scale print
			603 — 004 — 100 — 1
			Sheet 1 of 1 · Revision: · P/N 3305

This drawing contains information proprietary to Safety-Kleen Corporation.
Any disclosure or reproduction in part or in whole is expressly prohibited except by a written agreement from Safety-Kleen

Date	Symbol	Description	Drawn	Checked
4/18/86	--	Released ECO 402	SRT	JPK

DISPENSER -- FOR TAPE FOR STANDARD DRY CLEANER BOX

Configuration: 2" tape dispenser

Qualified Vendor(s): Elgin Paper Co., Elgin, Illinois. (Vendor's product # H180)

RECEIVED
FEB 16 1988
IEPA DLPC

Product Development

Tolerances unless specified are: Two places (xx) ±.020 Three places (xxx) ±.005 Angles (x°) ±1/2°	Material:	Drawn: SRT Checked: JPK Approved: JPK Approved:	Title: Disp, Filt Bx Tape Scale: Do not scale print	603 — 005 — 100 — 1
This drawing contains information proprietary to Safety-Kleen Corporation Any disclosure or reproduction in part or in whole is expressly prohibited except by a written agreement from Safety-Kleen			Sheet of	Revision: P/N 3310

Safety-Kleen Corporation, 777 Big Timber Road, Elgin, Illinois 60120

GAYNES TESTING LABORATORIES, INC.
1642-52 West Fulton Street • Chicago, Illinois 60612 • Area Code 312/421-5257
Member: American Council of Independent Laboratories

March 7, 1986

Safety-Kleen Corporation
777 Big Tiber Road
Elgin, Illinois 60120

Attention: Mr. J.P. Kusz
RE: Transporation Tests on Shipping Container
Our Job No. 86211

Dear Mr. Kusz:

This is to verify the results of Drop and Vibration Tests conducted on Shipping Containers used for Metal Filters.

MATERIAL SUBMITTED:

Six (6) corrugated fibreboard shipping containers, with inside top and bottom trays, and "Plastic" bags.

CONTAINER INFORMATION -

All six (6) identical containers were marked from 1 thru 6.

Size (approximately)	- 17 1/2 x 17 x 15 3/4 inches
Style	- Special Designed type of container, with a interlocking & reinforcing type of bottom flaps, and locking top flaps.
Manufacturer's Joint	- Glued
Closures	- Top Flaps Taped
Inner Packing	- Corrugated Fibreboard Material top and bottom trays, and a "Plastic" bag.
Contents	- Four (4) Metal Filters

GAYNES TESTING LABORATORIES, INC.

Container Set-Up:

1. Four (4) Filters drained for 1 hour
2. One (1) assemble container
3. One (1) Plastic Bag placed in the container
4. A bottom tray was placed in the plastic bag
5. The four (4) filters were placed in the bag and in the tray
6. The top tray was placed over the four (4) filters
7. The plastic bag was closed and the twisted end was stuffed in a center hole of the top tray
8. The top flaps of the container were closed and taped with 2" plastic tape.

Test Procedure & Results:

Drop Test -

Using a Gaynes Free Fall Drop Tester, each container was subjected to three (3) drops from a height of 12 inches as follows:
1st. Drop flat on the Bottom, 2nd. Drop on a Bottom edge and 3rd. Drop on a Bottom corner.

Results - All containers ok; no immediate indication of leakage.

All six (6) containers were stored for 48 hours to determine if leaking would develop during that period.

Inspection after 48 hours indicated that containers no. 4 and no. 5 were leaking. This leakage in each package was caused by a small tear in the plastic bag. (See Photo no. 1).

Rotary Motion Vibration -

The four (4) remaining containers were placed in their normal upright shipping positions on the table of a Gaynes Rotary Motion Vibration Tester having a table displacement of 1.0 inch (See Photo no. 2). With the containers side by side and one end against the back stop, the machine was activated and the speed was increased until it was possible to move a 1/16 inch steel shim about 4 inches between the bottom of the container and the table surface. This occurred at a frequency of 220 rpm. After 15 minutes, the machine was stopped and the packages were inspected, and then were rotated 90° for a 2nd. 15 minutes of vibration at 220 rpm.

Results - All containers ok; no indication of leaking.

GAYNES TESTING LABORATORIES, INC.

Vertical Linear Vibration-High Displacement

The four (4) containers were placed in their normal up-right shipping positions on the table of a Gaynes Vertical Linear Vibration Machine having a table displacement of 1.0 inch (See Photo No. 3). The machine was activated and the speed was increased until it was possible to move a 1/16 inch thick steel shim 4 inches between the bottom of the container and the table surface. This occurred at 278 rpm. The containers were vibrated for 30 minutes.

Results - All containers ok; no indication of leaking.

Vertical Linear Vibration - Low Displacement

The containers were moved to a L.A.B. Vibration machine and were positioned in their normal upright positions on the table. The table displacement was set for 0.1 inch. (See Photo no. 4). The machine was activated and the speed was increased until a resonant frequency was reached. This occurred at 840 rpm (14 Hz.) The containers were vibrated for 30 minutes at this speed.

Results - All containers ok; no indication of leaking

Drop Test -

The containers were moved to the Drop Tester and subjected to six (6) additional drops from a height of 12 inches in the following order: (See Photos no. 5,6, & 7).

1st. Drop on a Top Corner, 2nd. Drop on a edge radiating from the dropped corner, 3rd. on a 2nd. edge radiating from the dropped corner, 4th. drop on a end, 5th. on a side, and 6th. on the top.

Results - All containers ok; no indication of leaking

It should be noted that video tape recordings were made of the entire test and the tapes were submitted to Safety-Kleen, Inc.

Should you have any questions regarding the testing conducted, please contact us.

Very truly yours,

GAYNES TESTING LABORATORIES, I

F.T. Wittenrood

F.T. Wittenrood

APPENDIX F

EMERGENCY INFORMATION

EMERGENCY INFORMATION FOR SERVICE CENTER

A. Facility Emergency Coordinator

Name:	Gary Zambo	Louise Boltz
Home Address:	9650 W. 191st Street Mokena, IL 60448	2020 Morcambe Bay Drive New Lenox, IL 60451
Telephone:	Office: 312/479-1064 Home: 312/479-1073	312/479-1064 815/485-0299

B. Emergency Notification Phone Number

a. Internal -

Safety-Kleen Environmental Engineering Department
Technical Services
24 Hour Emergency Number: 312/888-4660

b. External -

1. National Response Center
   24 Hour Emergency Number: 800/424-8802

2. Illinois Emergency Services and Disaster Agency:
   217/333-8361

C. Emergency Team to be Notified

UNIT	TELEPHONE NUMBER
a. Fire Department	
Mokena Fire Dept.	312/479-2121
b. Police Department	
1. Mokena Police Dept.	312/479-5449
2. Will County Sheriff's Office	815/727-6191
c. Hospital and/or Medical Unit	
South Suburban Hospital	312/799-8000

D. Emergency Response Contractor

Petrochem Services, Inc.	312/739-1150

EMPLOYEES' FUNCTIONS DURING AN EMERGENCY

Employee	Title	Emergency Function
Gary Zambo	Branch Manager	Emergency Coordinator Notify Environmental Engineering Department Apply First Aid Notify Emergency Agencies, if necessary.
Louise Boltz	Branch Secretary	Alternate Emergency Coordinator Supervise Evacuation
Ralph Vanderhei	Sales Representative	
Dennis Morrison	" "	
Tom Stephenson	" "	Retain, contain or slow the flow of solvent
Stu Crivokapich	" "	Shut off electricity
Jeff Beagle	" "	
Sherry Boltz	" "	
Dan Jennings, Sr.	" "	
Dan Jennings, Jr.	" "	
J. Eisermann, Sr.	" "	
J. Eisermann, Jr.	Warehouseman	

Certified Mail-Return Receipt Requested

December 28, 1987

Fire Chief
Mokena Fire Department
10907 Front St.
Mokena, IL 60448

Subject: Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

Dear Sir:

Under terms of U.S. EPA Regulations 40 CFR 265, Safety-Kleen Corp. must make arrangements to familiarize local authorities with the layout of the facility, places where facility personnel work, entrances to the facility and possible evacuation routes.

A copy of the Contingency Plan is enclosed for your files. It includes Material Safety Data Sheets for the solvents handled at the subject site: mineral spirits, carburetor cleaner and dry cleaning solvents. These documents describe the properties and associated hazards of the materials at the facility. A facility layout plan is also included to show where facility personnel normally work, entrances to the facility and possible evacuation routes.

The Illinois Environmental Protection Agency requires that the Mokena Fire Department respond to Safety-Kleen Corp. indicating that the information has been received and that, in the event of an emergency, the Fire Department can respond accordingly.

If you have any questions or desire to visit our facility, please contact Mr. Gary Zambo at 312/479-1064.

Sincerely,

Paula M. Ventura

Paula M. Ventura
Environmental Permit Writer

PMV:dfs

cc: G. Zambo, Br. Mgr. (5-034-05)

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 312/697-8460 TELEX 910 251 4479

Certified Mail-Return Receipt R

Safety-Kleen®

December 28, 1987

Chief of Police
Mokena Police Department
11006 Carpenter
Mokena, IL 60448

Subject: Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

Dear Sir:

Under terms of U.S. EPA Regulations 40 CFR 265, Safety-Kleen Corp. must make arrangements to familiarize local authorities with the layout of the facility, places where facility personnel work, entrances to the facility and possible evacuation routes.

A copy of the Contingency Plan is enclosed for your files. It includes Material Safety Data Sheets for the solvents handled at the subject site: mineral spirits, carburetor cleaner and dry cleaning solvents. These documents describe the properties and associated hazards of the materials at the facility. A facility layout plan is also included to show where facility personnel normally work, entrances to the facility and possible evacuation routes.

The Illinois Environmental Protection Agency requires that the Mokena Police Department respond to Safety-Kleen Corp. indicating that the information has been received and that, in the event of an emergency, the Police Department can respond accordingly.

If you have any questions or desire to visit our facility, please contact Mr. Gary Zambo at 312/479-1064.

Sincerely,

Paula M. Ventura

Paula M. Ventura
Environmental Permit Writer

PMV:dfs

cc: G. Zambo, Br. Mgr. (5-034-05)

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 312/697-8460 TELEX 910 251 4479

Certified Mail-Return Receipt Requested

Safety-Kleen

December 28, 1987

Hospital Administrator
South Suburban Hospital
17800 S. Kedzie
Hazelcrest, IL 60429

Subject: Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

Dear Sir:

Under terms of U.S. EPA Regulations 40 CFR 265, Safety-Kleen Corp. must make arrangements to familiarize local authorities with the layout of the facility, places where facility personnel work, entrances to the facility and possible evacuation routes.

A copy of the Contingency Plan is enclosed for your files. It includes Material Safety Data Sheets for the solvents handled at the subject site: mineral spirits, carburetor cleaner and dry cleaning solvents. These documents describe the properties and associated hazards of the materials at the facility. A facility layout plan is also included to show where facility personnel normally work, entrances to the facility and possible evacuation routes.

The Illinois Environmental Protection Agency requires that the South Suburban Hospital respond to Safety-Kleen Corp. indicating that the information has been received and that, in the event of an emergency, South Suburban Hospital can respond accordingly.

If you have any questions or desire to visit our facility, please contact Mr. Gary Zambo at 312/479-1064.

Sincerely,

Paula M. Ventura

Paula M. Ventura
Environmental Permit Writer

PMV:dfs

cc: G. Zambo, Br. Mgr. (5-034-05)

777 BIG TIMBER ROAD ELGIN, ILLINOIS 60123 PHONE 312/697-8460 TELEX 910 251 4479

safety-kleen corp.

Corporate Policy

Policy #: 600-608

Date: 7/2/81

Dept.: Technical Servic

Corporate Approval

Policy Title: O.S.H.A. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

I. OBJECTIVE

This section is prepared to protect our workers and to comply with the Occupational Safety and Health Administration requirements that the employees have available, a chemical description, and a Material Safety Data Sheet (OSHA Form 20) for the solvents they are handling. The information on these sheets is also necessary in the case of a spill or a disaster/fire and is referred to in Section 600-609 and 600-610.

II. SYSTEM

The two solvents in the Safety-Kleen regeneration loop (see the diagram) are 105 parts cleaner, and the proprietary blend 609 solvent for the immersion cleaners.

Being neat is most important! Slovenly use of either solvent can cause injury to the worker.

As additional solvents and chemicals are added at specific centers, Product Bulletins and Material Safety Data Sheets will be available from the Technical Service Department and must be added.

III. INSPECTION

A. GLOVES - The rubber or plastisol gloves sold by Safety-Kleen are good and should be worn when handling the solvents.

B. GLASSES OR FACE MASK - Whichever the worker prefers should be worn when loading or unloading the solvent.

C. PLASTIC APRONS - Should be available for the situations where a major cleanup will be getting solvent on the worker's clothing.

D. EYE WASH STAND - Normally the eye wash stand is located centrally at the Center. At the larger Centers, several stands are provided. The workers should try the stand and be familiar with its operation.

E. SHOWERS - Should be checked periodically to ascertain that they are operational.

F. VENTILATION - Any area that is closed and collects vapors should be avoided or equipped with proper fans to insure adequate ventilation

MATERIAL SAFETY DATA SHEET

SAFETY-KLEEN CORP.
777 Big Timber Rd.
Elgin, IL 60120

safety-kleen corp.

IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
Safety-Kleen 105 Solvent-MS	

Section I Part #6617

Manufacturer's Name Safety-Kleen Corp.	Emergency Telephone Number 312/697-8460
Address (Number, Street, City, State, and ZIP Code) 777 Big Timber Road	Telephone Number for Information 312/697-8460
Elgin, Illinois 60120	Date Prepared 11/6/85
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Mineral Spirits	500 ppm	100 ppm	-	99.9+
Dye	Unk.	Unk.	-	0.003
Anti-Static Agent	Unk.	Unk.	100 est.	1 ppm

Section III — Physical/Chemical Characteristics

Boiling Point	310-400°F	Specific Gravity (H_2O = 1)	0.775-0.795
Vapor Pressure (mm Hg.) @ 68°F	2	Melting Point	N/A
Vapor Density (AIR = 1)	4.9	Evaporation Rate (Toluene = 1)	0.2

Solubility in Water
Negligible.

Appearance and Odor
Clear green liquid with characteristic hydrocarbon odor.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) 105°F TCC	Flammable Limits	LEL 0.7	UEL 6.0

Extinguishing Media
CO_2, foam, dry chemical, water (mist only)

Special Fire Fighting Procedures
None.

Unusual Fire and Explosion Hazards
None.

MATERIAL SAFETY DATA SHEET

SAFETY-KLEEN CORP.
777 Big Timber Rd.
Elgin, IL 60120

safety-kleen corp.

IDENTITY (As Used on Label and List) Immersion Cleaner and Carburetor and Cold Parts Cleaner 609	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I Part #6631

Manufacturer's Name Safety-Kleen Corp.	Emergency Telephone Number 312/697-8460
Address (Number, Street, City, State, and ZIP Code) 777 Big Timber Road	Telephone Number for Information 312/697-8460
Elgin, Illinois 60120	Date Prepared 11/6/85
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Cresylic Acids	5 ppm	5 ppm (skin)		11.9
Petroleum Sulfonate	Unk.	Unk.		7.4
Methylene Chloride	500 ppm	100 ppm	-	31.7
Ortho-di-chlorobenzene	50 ppm	50 ppm	-	31.3
Complex Amines	Unk.	Unk.	-	0.4
Triethanolamine	-	-	-	0.4
Water	-	-	-	16.8

Section III — Physical/Chemical Characteristics

Boiling Point	102-395°F	Specific Gravity (H_2O = 1)	1.19
Vapor Pressure (mm Hg.)	~ water	Melting Point	N/A
Vapor Density (AIR = 1)	~ water	Evaporation Rate (water = 1)	~ water

Solubility in Water
Completely miscible in all proportions.

Appearance and Odor
Clear, dark amber liquid-aromatic odor. Two distinct layers comprise the product.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) Non-flammable	Flammable Limits N/A	LEL -	UEL -

Extinguishing Media
N/A

Special Fire Fighting Procedures
Although product is non-flammable, flames, welding arcs or other high temperature sourc can cause decomposition. This decomposition can yield corrosive and toxic fumes.

Unusual Fire and Explosion Hazards

MATERIAL SAFETY DATA SHEET

SAFETY-KLEEN CORP.
777 Big Timber Rd.
Elgin, IL 60120

safety-kleen corp.

IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
Safety-Kleen Perchloroethylene	

Section I Dry Cleaning Grade Part #778

Manufacturer's Name Safety-Kleen Corp.	Emergency Telephone Number 312/697-8460
Address (Number, Street, City, State, and ZIP Code) 777 Big Timber Road	Telephone Number for Information 312/697-8460
Elgin, Illinois 60120	Date Prepared 11/25/85
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Perchloroethylene	100 ppm	50 ppm		

Section III — Physical/Chemical Characteristics

Boiling Point	250°F.	Specific Gravity (H_2O = 1)	1.6
Vapor Pressure (mm Hg.) @ 20°C.	13	Melting Point	N/A
Vapor Density (AIR = 1)	5.8	Evaporation Rate (toluene = 1)	0.09

Solubility in Water
Negligible.

Appearance and Odor
Colorless, clear liquid, mildly sweet.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
None (tag closed cup)	N/A	N/A	N/A

Extinguishing Media
N/A

Special Fire Fighting Procedures
Self-contained breathing equipment should be used by firemen in building where perchloroethylene is stored. Keep container cool.

Unusual Fire and Explosion Hazards
Vapors can be ignited by high energy ignition source. Decomposes with fire or hot surfaces to acidic gases and other highly toxic substance.

MATERIAL SAFETY DATA SHEET

SAFETY-KLEEN CORP.
777 Big Timber Rd.
Elgin, IL 60120

safety-kleen corp.

IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
Safety-Kleen Lacquer Thinner	

Section I Part #6782

Manufacturer's Name Safety-Kleen Corp.	Emergency Telephone Number 312/697-8460
Address (Number, Street, City, State, and ZIP Code) 777 Big Timber Road	Telephone Number for Information 312/697-8460
Elgin, Illinois 60120	Date Prepared 12/13/85
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Toluene	200 ppm	100 ppm	-	-
Xylene	100 ppm	100 ppm	-	
Methyl Ethyl Ketone	200 ppm	200 ppm	-	
Methyl Iso Butyl Ketone	100 ppm	50 ppm	-	
Acetone	1000 ppm	750 ppm	-	
Isopropanol	400 ppm	400 ppm	-	
Methanol	200 ppm	200 ppm	-	
Ethanol	1000 ppm	1000 ppm	-	
Normal Butyl Acetate	150 ppm	150 ppm	-	
Iso Butyl Acetate	200 ppm	200 ppm	-	

Section III — Physical/Chemical Characteristics

Boiling Point	131-347°F.	Specific Gravity (H_2O = 1)	~0.840
Vapor Pressure (mm Hg.) @ 68°F.	185	Melting Point	N/A
Vapor Density (AIR = 1)	2.0	Evaporation Rate (Ether = 1)	slower than ether

Solubility in Water
Appreciable.

Appearance and Odor
Clear colorless liquid with characteristic solvent odor.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) <20°F. TCC	Flammable Limits	LEL 1.1	UEL 12.8

Extinguishing Media
CO_2, foam, dry chemical, water (mist only)

Special Fire Fighting Procedures
Liquid water may be used to cool containers and firefighters. However, due to differences in specific gravity, water could cause the free solvent to spread and a fire to spread.

Unusual Fire and Explosion Hazards
Extremely flammable.

Page 1 (Continued on Reverse Side)

safety-kleen corp.

Corporate Policy

Policy #: 600-609

Date: 7/2/81

Dept.: Technical Service

Corporate Approval

Policy Title: SPILL PREVENTION, NOTIFICATION AND CLEANUP PLAN

I. OBJECTIVE

The purpose of this policy is to familiarize the operating personnel of Safety-Kleen Corp. with the essence of Federal and State laws that apply to our operation and to outline the company response and approach to these laws.

A. Discharge of Solvents Prohibited

The first thing a spilled solvent comes in contact with is the soil around the pad at the center. It is a violation at this point and must be recovered. The solvent will seep through the soil until it reaches the ground water system surrounding the center. The speed at which a spill spreads increases as it gets into the ground water, and it is more difficult to recover.

B. Quantities of Solvent

The quantity of solvent that constitutes a reportable spill varies with the hazard classification of the material and the state where it occurs. Generally the operator should think of the material as being spilled when he cannot contain it on the pad of concrete or asphalt.

C. Cleanup

The sooner the cleanup beings, the lower will be the final cost. The guide lines established by law assist the discharger who voluntarily proceeds with the proper containment, removal, treatment and disposal of the discharged material.

D. Statutory Requirements

This policy incorporates the Spill Prevention Control and Countermeasure Plans (SPCC Plan) that are required for all of the Safety-Kleen Centers under penalty of heavy fines.

E. Reporting

Any person in charge of a facility must notify the Environmental Section the Safety-Kleen Elgin office as soon as he has knowledge of a spill so that the spills may be reported to the National Response Center. This Center is manned by the Coast Guard and the duty officer will relay the information to local authorities. The reporting obligation is satisfied by reporting to the National

SPILL PREVENTION, NOTIFICATION, AND CLEANUP (continued)

E. Reporting (continued)

Response Center. The law is specific on this point and any person who fails to notify immediately is subject upon conviction to a fine and/or imprisonment.

II. SAFETY-KLEEN PROGRAM

The development of a sound program for spill prevention and control is not only a legal obligation of the company but a projection of the very image of our corporate name. Each employee must be aware of his responsibilities to the company and to understand that he is instrumental to the success of this program.

A. Planning

Preparedness is a state of awareness of potential spill causes combined with the capability to effectively respond to spills when they occur to prevent them from becoming violations. Preparedness is preventive in nature and from this viewpoint is regarded as most effective. "An ounce of prevention is worth a pound of cure."

B. Prevention

The emphasis must be on PREVENTION, first and foremost.

Obviously if solvent is never spilled, we never have a problem with a violation. S-K facilities, trucks and handling devices are designed to reduce the chance of spills. Personnel training in the correct usage of equipment and procedures should be of a continuing nature.

A spill on the pad is not a violation until the solvent reaches the soil around the pad. Prevention also includes retaining spilled solvent and collecting it for disposal or recycling.

Examples:

1. If the drain fitting on a dirty solvent tank freezes and breaks, letting all the solvent run out, it is not a violation of the FWPC Act if the solvent is retained by a dike.

2. If a service representative tips a drum of solvent at a customer's shop, it is most probably a violation to flush it down the floor drain. The effects can be greatly reduced by containing the spill with absorbent pads for later disposal. absorbent pads and cleanup tools should be carried on all service vans.

SPILL PREVENTION, NOTIFICATION AND CLEANUP (continued)

C. EMERGENCY PROCEDURES

If a spill occurs, contain the solvent to prevent it from becoming a harmful discharge to waters or soil--a violation.

If a harmful discharge does happen:

1. Stop the flow of solvent if possible.

2. Retain, contain or slow the flow of the solvent as much as possible.

3. If immediate recovery of the spilled solvent will reduce the quantity reaching waters or ground, then start recovery operation.

4. Report incident to Safety-Kleen Environmental, Technical Service on the 24-hour telephone: (312) 888-4660.

5. It is the responsibility of the Technical Service Group to respond to the National Response Center within one hour.

6. The State Response Team is required by some states. They also will be contacted by the Technical Service Group.

When a person reports a spill he should be prepared to give his name, position, company name, address, and telephone number. Also, a location of the spill by mileage and direction from a city, town or other well known permanent structure or facility. The person reporting should also give the nature of the material spilled (i.e. Kerosene) and if possible, some estimate of the amount, whether it is near a stream or could enter a stream by flowing through ditches or storm sewers. When reporting a spill, record the date and the time of the call and the name of the person taking the call at the above number.

Spill prevention plans must be reviewed with the Service Center personnel every year and records of the training kept at the Center.*

*See Page 1 of 3 on Policy #600-610

SPILL PREVENTION, NOTIFICATION AND CLEANUP (continued)

III. INSPECTION

1. Valves - should be inspected for proper seat. Stem leaks from worn glands and warped valve bodies, should be repaired or replaced.

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

3. Tanks - should be inspected for corrosion leaks, minimum 5% head space, and excess bottom water drawn off.

4. Hose and Unloading Pipe - should be drained and stored so that all of the solvent is caught and returned to storage.

5. Signs - Display at each entrance and on perimeter fence "DANGER - Unauthorized Personnel Keep Out." (Use foreign languages if applicable).

6. Transport Drivers - will be instructed by the Transportation Manager in handling the trucks unloading line and valves without spills, which will coordinate with the Service Center's effort to avoid all spills.

7. Tank Out Flow Valve - must be locked.

IV. SPILL PROCEDURE

A. Interior Diked Area for Drums

The interior diked area has enough containment for a drum of solvent to be spilled without an overflow. In the event of a spill, the doors and windows should be opened to improve the ventilation in the confined area. Then following the instructions of the Material Safety Data Sheet, the worker would enter the area wearing rubber gloves, aprons, glasses or a face shield and mop up the liquid and return it to dirty storage.

If the vapors are heavy, the worker should come out after 15 minutes for a break.

The clean up is completed only when the workers have cleaned themselves, washing with soap and water.

B. Spills in the Secondary Containment Area Around the Bulk Storage Tank

The dikes are equipped with automatic closing valves and rain water must be kept drained. In this way if a spill occurs, the material will be collected and can be returned to dirty storage. The recovery should start immediately to prevent the solvent from soaking into the ground. Any soil that remains saturated after the solvent has been pumped off must be removed and treated as hazardous waste.

SPILL PREVENTION, NOTIFICATION AND CLEANUP (continued)

C. Spills Outside the Diked Areas

The plan and plat map of each Service Center when it is sent to the Branch Manager should be marked with arrows to show the direction of flow from the plant and possible containment areas. A copy of that map should be kept with this policy.

The absorbent pads and other equipment used in cleaning up the spill should be replenished.

Every spill must be recorded on the attached form with a contingency plan to prevent similar spills in the future. A copy of this report is sent to the Environment section of Technical Service so they can respond at any hearings that may come from the incident.

D. Hazardous Material Storage

The storage area for hazardous material must be diked in concrete with a catchment capable of holding a minimum of 110 gallons.

SPILL HISTORY

(Complete this form for any reportable spill(s) which has occurred from this facility.)

1. Date _____ Volume _____ Cause: _____

Corrective action taken: _____

Plans for preventing recurrence: _____

2. Date _____ Volume _____ Cause: _____

Corrective action taken: _____

Plans for preventing recurrence: _____

3. Date _____ Volume _____ Cause: _____

Corrective action taken: _____

Plans for preventing recurrence: _____

Name of facility _____

Operator _____

safety-kleen corp.

Corporate Policy

Policy #: 600-610

Date: 7-2-81

Dept.: Technical Service

Corporate Approval

Policy Title: DISASTER AND FIRE PLAN

I. OBJECTIVE

The objective of this plan is to prepare the Centers for a disaster by having the proper equipment and procedures in place to prevent injuries and property losses. The plan is designed to keep our workers thinking in terms of prevention rather than reaction.

If a fire or disaster occurs, the prearranged procedures will eliminate much of the confusion. The workers at the Centers must be instructed in their responsibilities and retrained on an annual basis. This training in prevention is important and for inspection the employer is required to keep records.

II. DISASTER AND FIRE BRIEFING

List the workers as they receive this instruction or refresher training.

	Center Personnel	Date	Job Function
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

PERSN5L1

III. INSPECTION

A. Leaks

Leaks should be eliminated immediately whenever they occur, by repair or replacing the equipment. Keeping all the solvents contained will eliminate the source of a fire.

B. Trucks

Trucks should be grounded before they are loaded or unloaded.

C. Fire Extinguishers

Each center should have a minimum of two 10-pound ABC extinguishers, located at the points where solvents are transferred. An ABC extinguisher is a universal system effective on paper, wood and electrical, as well as on solvent. The extinguishers must be full and carry an inspection tag. The accepted extinguisher is available as S-K part No. 4009.

D. Fire Plackards

The proper NFPA diamond should be in place on the storage tanks.

		0		
Immersion Cleaner Chlorinated	2		1	S-K Part No. 2422
		2		
Mineral Spirits or 140 Solvent	0		0	S-K Part No. 1270

E. "No Smoking" Signs

"No Smoking" signs should be posted in non-smoking areas.

F. Aisles

Aisles must be available through the Center to permit a fireman to pass with firefighting equipment.

G. List of Support Contacts (Attached)

The attached list of support contacts must be filled out with the Hospital, Fire and Police Departments telephone numbers.

H. Material Safety Data Sheets

Material Safety Data Sheets for all the material handled at the Center must be in place under S-K OSHA policy and with the local Fire Department.

IV. FIRE PROCEDURE

(1) STOP THE FLOW.

(2) ACT QUICKLY WITH THE FIRE EXTINGUISHER TO PUT OUT THE FIRE BEFORE IT SPREADS.

(3) CALL FOR THE FIRE DEPARTMENT.

Chlorinated solvents are initially not flammable, but produce toxic gasses and Hydrochloric Acid at elevated temperatures, which would require contained breathing equipment.

Vapors of mineral spirits exposed to a spark or open flame can flash at temperatures over 105°F. A mineral spirits fire can best be extinguished with foam. If foam is not available, sweeping the fire with water can cool it. Directing the water to push the flames into a confined area is possible. The flame should not be extinguished until the flow of the solvent has been stopped. In case of any fire, the flow of solvent should be stopped first. Then attention should be directed immediately to extinguishing the flame.

V. EMERGENCY INFORMATION

OWNER: SAFETY-KLEEN CORP.
655 Big Timber Road
Elgin, Illinois 60120
Tel. (312) 697-8460

_____ LOCAL FIRE DEPT: _____ (phone number)

_____ LOCAL POLICE: _____

_____ STATE POLICE: _____

_____ (Hospital) _____ (phone number)

Branch # _____

Branch Manager _____

Home Address _____

Telephone _____

NOTE: All centers please send a copy of this completed page to Technical Service, Elgin.

safety-kleen corp.

SAFETY-KLEEN CORP. LOG NO: _____

Spill Report Telephone Log

1) Time Report: Date _____ Time _____ A.M. P.M.

2) Report From: Name _____ Title _____

3) Location of Incident: _____

4) Time of Incident: Date _____ Time _____ A.M. P.M.

5) Type of Materials Spilled: _____

6) Estimated Quantity: _____ Gallons

7) Any Injury or Property Damaged: Yes or No : If Yes, Please Elaborate:

_____

_____

_____

8) The Cause of the Spill: _____

_____

_____

_____

9) Was the Spilled Material Contained? Yes or No : If Yes: How? If No: Describe the Scene in Detail:

_____

_____

_____

_____

Item 10 Through 13 Shall be Completed When the Incident has Occurred on the Highway.

10) Vehicle Information:

Type of Vehicle: _____ Series No.: _____

Driver Name (If Different from Item No. 2): _____

11) Weather Conditions:

Temperature: _____°F Rain or Snow: _____ Wind Direction: _____

12) Any Agency or Emergency Personnel at Scene: _____. If Yes, what departments?

_____

13) Residential or Commercial Areas Nearby: _____

Report Taken By: _____

Notifications and Clean Up Actions Taken.

National Response Center 800-424- 8802

Time Notified: _____

Person Receiving Report: _____

Comments Received _____

_____

State

Time Notified: _____

Person Receiving Report: _____

Comments Received _____

_____

Clean Up Action

_____

_____

_____

_____

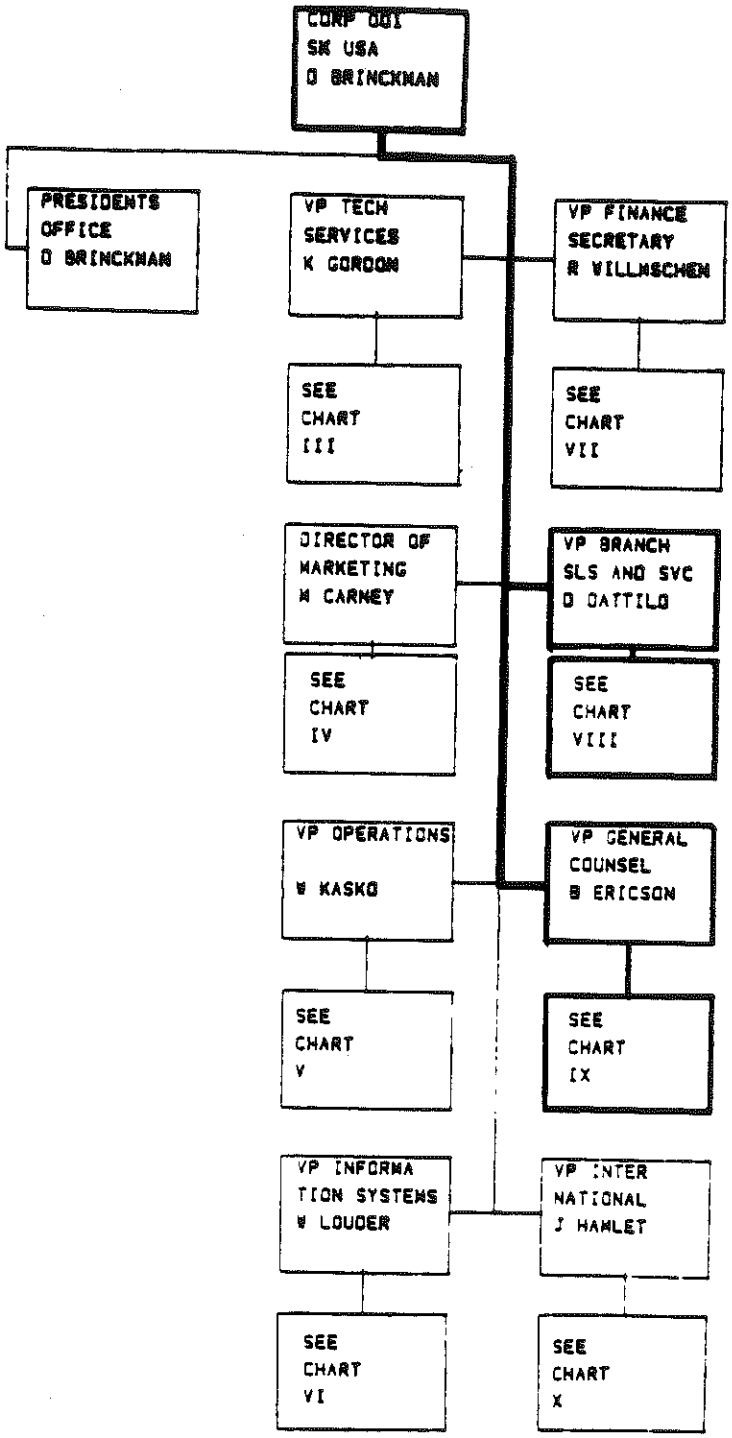
BY: _____

APPENDIX G

TRAINING INFORMATION

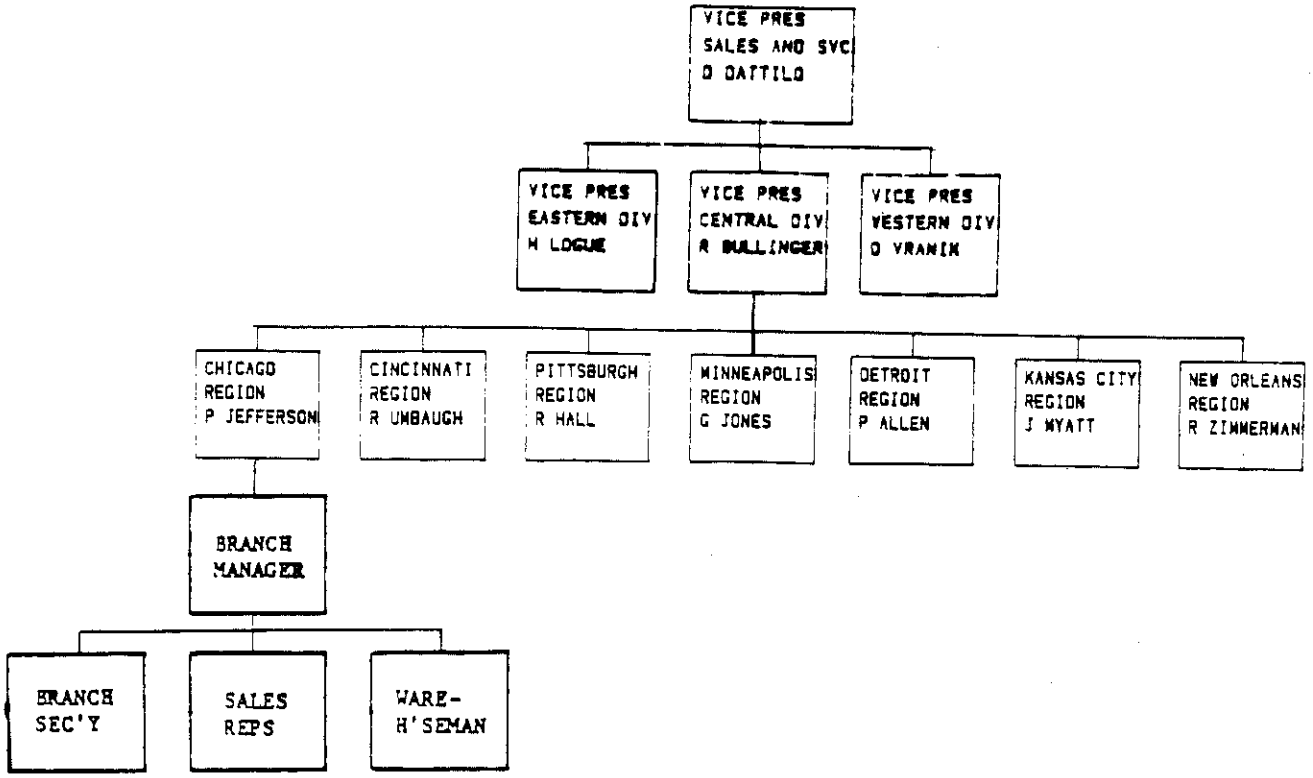
ORGANIZATION CHART

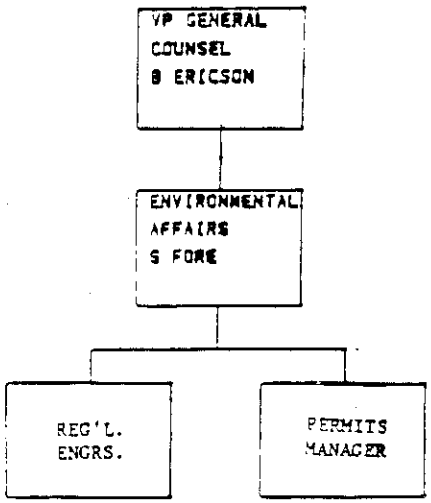
Safety-Kleen Corp.



ORGANIZATION CHART

Safety-Kleen Corp.





LIST OF BRANCH EMPLOYEES

EMPLOYEE	POSITION
Gary Zambo	Branch Manager
Louise Boltz	Branch Secretary
Ralph Vanderhei	Sales Representative
Dennis Morrison	Sales Representative
Tom Stephenson	Sales Representative
Stu Crivokapich	Sales Representative
Jeff Beagle	Sales Representative
Sherry Boltz	Sales Representative
Dan Jennings, Sr.	Sales Representative
Dan Jennings, Jr.	Sales Representative
J. Eisermann, Sr.	Sales Representative
J. Eisermann, Jr.	Warehouseman

JOB DESCRIPTIONS

REGIONAL MANAGER

JOB DESCRIPTION

The Regional Manager has overall responsibility for the branch operations within a certain geographic area defined by the Corporate Marketing Department. He is responsible for the proper operations and profitability of several (six to eight) service centers in his region.

REPORTS TO:

Divisional Vice President of Sales

QUALIFICATION:

Minimum high school graduate with Safety-Kleen management experience.

PRINCIPAL RESPONSIBILITIES:

1. Plan, direct, and monitor activities of branch managers.

2. Training of branch managers and branch secretaries.

3. Assist branch managers with their administrative and sales activities, when necessary.

4. Monitor sales and inventory figures and report them to the corporate offices.

5. Insure that the facility and equipment are inspected regularly, and necessary repairs or remedial actions are implemented.

6. Represent Safety-Kleen Corp. in local community affairs and public relation activities.

7. Coordinate with corporate Technical Services and Environmental Engineering Departments and implement necessary actions or plans for regulatory compliance.

BRANCH MANAGER

JOB DESCRIPTION

The 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 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 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. Inspect facility and equipment regularly, and implement necessary repairs or initiate remedial actions.

8. Represent Safety-Kleen Corp. in local community affairs and public relation activities.

9. Coordinate with corporate Technical Services and Environmental Engineering Departments and implement necessary actions or plans for regulatory compliance.

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. Insure 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.

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 Manager

QUALIFICATION:

Minimum high school graduate

PRINCIPAL RESPONSIBILITIES:

1. Maintain his route truck and replenish his products on the truck before beginning his 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 paper work 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.

WAREHOUSEMAN

JOB DESCRIPTION

Performs duties to assist the sales representatives in loading and unloading the trucks. Performs janitorial duties at the warehouse.

REPORTS TO:

Branch Manager

QUALIFICATION:

Attended high school.

PRINCIPAL RESPONSIBILITIES:

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

RESUME

ELLEN J. JURCZAK

Position: Environmental Engineer - Permits Manager
Safety-Kleen Corp.

Education: Master of Business Administration, Loyola University (1984)

B.S. Environmental Engineering, Northwestern University (1979)

Employment Experience:

Environmental Engineer
Safety-Kleen Corp.
July, 1984 - Present

Senior Project Engineer
Ecology and Environment, Inc., Chicago
September, 1980 - July, 1984

Assistant Project Engineer
U.S. EPA National Enforcement Investigation Center
Denver, Colorado July, 1979 - September, 1980

Student-In-Training
U.S. EPA, Chicago
August, 1977 - July 7, 1979

Professional Affiliations:

Professional Engineer, Registered in the State of Illinois

Member of the American Chemical Society

Member of the American Society of Civil Engineers

Additional Training:

Attended the National Conference on Environmental Engineering in 1982 and 1983

Completed an ASCE course on Hazardous Waste Management, 1982

Trained in methods of air, surface water, groundwater and soil sampling

Attended various seminars on RCRA and Superfund

Conducted training of branch personnel:
Kansas City Region, Chicago Region, Detroit Region, and San Francisco Region in September - October, 1985

Participated in training of regional managers, May 1985

Conducted training of Minnesota branch personnel, July 1985

Conducted training of Missouri branch personnel, February, 1985

Conducted training of Hebron Recycle Center personnel, March, 1985

Conducted training of Elgin Recycle Center personnel, November, 1984

RESUME

SUZANNE A. RYAN

Position: Regional Environmental Engineer - Central Region
Safety-Kleen Corp.

Education: B.S. Chemical Engineering, University of Michigan (1981)

Employment Experience:

Environmental Engineer
Safety-Kleen Corp.
December 1985 - Present

Project Engineer
Ecology and Environment, Inc., Chicago
August, 1981 - December 1985

Associate Chemist
Atlantic Richfield Co., Harvey, Illinois
Summer 1979 and Summer 1980

Professional Affiliations:

Member of the American Institute of Chemical Engineers

Engineer-in-Training; in the State of Illinois

Additional Training:

Attended annual meeting of the American Institute of Chemical Engineers

Attended seminars on underground storage tank regulations in 1984 and 1986

Trained in methods of air, surface water, groundwater, and soil sampling

Attended various EPA seminars on Superfund programs

Conducted training of Regional Managers, August, 1986

RESUME

JEFFREY E. SIMPSON

Position: Regional Environmental Engineer - New England Region
Safety-Kleen Corp.

Education: B.S. Engineering and Public Policy (B.S. EPP)
Washington University, St. Louis, Missouri, School of Engineering and Applied Science. (May, 1980)
Curriculum Focus: Environmental Engineering and Policy Analysis.

Employment Experience:

Environmental Engineer
Safety-Kleen Corp., May, 1980 - Present

Employed as an Environmental Engineer with responsibility for handling Environmental Affairs in 8 states. Includes training of employees, preparation of contingency plans and regulatory affairs.

Professional Organizations:

Government Refuse Collection and Disposal Association

Additional Training:

Conducted training of Regional Managers, August, 1986

Hazardous Waste Incineration Today, sponsored by Georgia Institute of Technology, February 13-14, 1986

1984 Hazardous Material Spills Conference, sponsored by Association of American Railroads/Bureau of Explosives, Chemical Manufacturers Association, U.S. Coast Guard, U.S. EPA, April 9-12, 1984

1983 Source Reduction Conference, sponsored by Massachusetts Department of Environmental Management, October 13, 1983

1983 Hazmat Conference, sponsored by Pollution Engineering Magazine, July 12-14, 1983

Northeast Conference on Hazardous Waste, sponsored by Environmental Hazards Management Institute, November 9-12, 1982

1982 Hazardous Material Spills Conference, sponsored by Bureau of Explosives, Chemical Manufacturers Association,

U.S. Coast Guard, U.S. EPA, April 19-22, 1982

Hazardous Waste Management Technologies and Practices, sponsored by Government Refuse Collection and Disposal Association, March 29-31, 1982

A Review of the Resource Conservation and Recovery Act, sponsored by DOW Chemical Company, October, 1980

Research Experience:

Trash-to-Energy Project - Bi-State Development Agency, St. Louis, Missouri (1979-1980). Involved with project to prepare and implement a trash-to-energy plan for the Bi-State area of Illinois and Missouri.

Center for Technology Assessment and Policy Studies - Rose-Hulman Institute of Technology, Terre Haute, Indiana (1978). Awarded a fellowship to participate in a summer program in Technology Assessment. Studied the tools and methods of technology assessment. A Technology Assessment entitled, "The Impact of the Surface Mining Control and Reclamation Act of 1977 Upon the State of Indiana: An Assessment", was prepared and presented to coal company officials and state and federal officials.

Public Policy Decision-making Under the Delaney Amendment (1978). Compiled and analyzed data relating incidence of carcinogenesis to treatment of laboratory animals with saccarin. Estimated probabilities of carcinogenesis using techniques of Bayesian statistics.

St. Louis County Ambulance Study (1978). Responsible for collecting and analyzing data for a cost-effectiveness study of ambulance service in St. Louis County for the Greater St. Louis Health Systems Agency.

Publications:

The Impact of the Surface Mining Control and Reclamation Act of 1977 Upon the State of Indiana: An Assessment, Center for Technology Assessment and Policy Studies, August 11, 1978. Co-author.

RESUME

ROBERT WACHSMUTH

Position: Regional Environmental Engineer - Western Region
Safety-Kleen Corp.

Education: B.S. Civil Environmental Engineering,
Michigan Technological University (1976)

Employment Experience:

Environmental Engineer,
Safety-Kleen Corp., January 18, 1982 - Present

Senior Environmental Engineer, Ecology and Environment
June 1, 1980 - January 15, 1982

Project Engineer, Aquatechnics, Inc.
September, 1978 - June, 1980

Project Engineer, RJN Environmental Associates, Inc.
March, 1978 - September, 1978

Designer, Illinois Central Gulf Railroad
November, 1976 - March, 1978

Junior Engineer, Dames & Moore
April, 1976 - November, 1976

Registrations and Memberships:

American Society of Civil Engineers
Water Pollution Control Federation

Training Experience:

Underground Tank Storage of Hazardous Materials
Sacramento, California in August, 1984

Seminar on Hazardous Waste Management in Phoenix, Arizona
February, 1983

Hazardous Materials Workshop & Exposition, Cincinnati, Ohio
October, 1982

Hazardous Materials Spill Conference, Milwaukee, Wisconsin
April, 1982

RCRA Training Course, U.S. EPA Region V, Chicago, Illinois
February, 1981

Generators & Transporters Training Course (New England Research), Chicago, Illinois, February, 1981

EPA Field Investigation Team Training Program Ecology and Environment, Chicago, Illinois, July, 1980

Safety and Health in EPA Field Activities, U.S. EPA Region V (Norman Steare and Assoc.), June, 1980

Conducted Recycle Center Manager Training, April, 1986

Conducted Branch Manager and Secretary Hazardous Waste Training in Western Division, September, 1985

Conducted Branch Personnel Training at three (3) branches in Southern California, March, 1984

Conducted Branch Personnel Training in Oregon and Washington, October, 1983

Conducted training of Regional Managers, August, 1986

RESUME

STANLEY A. WALCZYNSKI

Position: Regional Environmental Engineer - Atlantic Region
Safety-Kleen Corp.

Education: Masters in Business Administration, University of Chicago
B.S. Civil Engineering, Bradley University

Employment Experience:

Environmental Engineer,
Safety-Kleen Corp., July, 1985 - Present

Regional Engineer - Environmental Management
Waste Management, Inc., 1982 - July, 1985

Project Engineer
Donohue & Associates, Inc./Warren & Van Praag, 1978 - 1982

Project Engineer/Associate Engineer
PRC - Consoer Townsend, 1974 - 1978

Professional Affiliations:

Registered Professional Engineer in Illinois, Indiana and Kansas

American Society of Civil Engineers (Education Committee Chairman)

American Public Works Association

Additional Training/Seminars:

Hazardous Waste Regulations Course, Government Institutes, 1983

Wetlands Preservation & Conservation Planning, 1980

Hazardous Materials Conference, 1984

Alternate Hazardous Waste Management Conference, 1985

Training Experience:

Conducted training of Branch Managers and Secretaries - Safety-Kleen Corp., August-October, 1985

Conducted environmental training of compliance officers - Waste Management, Inc., 1983 - 1984

Conducted training in public works engineering including emergency response management, 1982 - 1984

Conducted training of Regional Managers, August, 1986

TRAINING PLAN OUTLINE

ANNUAL ENVIRONMENTAL COMPLIANCE COURSE
FOR REGIONAL MANAGERS, BRANCH MANAGERS AND SECRETARIES

I. Opening Remarks

II. Environmental Laws - National

A. Introduction

B. The National Environmental Policy Act (NEPA)

1. Purpose

2. Procedure: The Environmental Impact Statement

C. The Clean Air Act (CAA)

1. Purpose

2. How the Act Works

D. The Clean Water Act (CWA)

1. Purpose

2. Effluent Limitations for Direct Discharges

3. Pretreatment Standards for Indirect Discharges to Publically Owned Treatment Works (POTW)

4. Permit Program

E. The Resource, Conservation and Recovery Act (RCRA)

1. Purpose

F. The Toxic Substances Control Act (TSCA)

1. Purpose

2. How TSCA Works

G. The Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or "Superfund")

1. Purpose

2. Superfund clean-up

III. Resource, Conservation and Recovery Act (RCRA)

A. Overview and Scope

B. Hazardous Waste Management

1. Implementation

2. Identification and Listing of Hazardous Waste

a. Listed Wastes

b. Characteristic Wastes

c. Waste Mixtures

3. Generator Regulation

a. General requirements

b. Generator categories: 100-1000 kg./mo. generators

4. Transporter Regulation

a. General requirements

b. Discharges of hazardous waste during transportation

5. Treatment, Storage or Disposal Facility Regulation

a. General requirements

b. Interim status facilities

c. Permitted facilities

6. Enforcement

a. Inspections

b. Compliance Orders

c. Criminal Violations

d. Knowing Endangerment

e. Enforcement activity

C. New RCRA Programs

1. Leaking Underground Storage Tanks

a. The requirements

b. New Tank Ban

c. Notifications

IV. Facility Operation: Interim Status

A. Part A Application

B. Waste Analysis Plan

C. Preparedness and Prevention Plan

D. Contingency Plan and Emergency Procedure

E. Training

F. Closure

G. Inspections

H. Transportation Licensing

V. Manifesting

A. Overview

B Manifesting: Branch-Specific Instruction

VI. Certification Examination

VII. Sales Application of Environmental Compliance

VIII. Adjourn

TRAINING PLAN OUTLINE

FOR

BRANCH EMPLOYEES

I. Purpose of Training and a Review of the Training Plan Outline

II. Environmental Regulations and Customer Responsibilities

- a. Small Quantity Generator vs. Generator
- b. Manifesting - How to Complete and Distribute a Manifest
- c. EPA Identification Numbers

III. Transportation Regulations

- a. Permits
- b. Vehicle Inspections and Records

IV. Waste Analysis Plan - Analyzing Incoming Shipments

V. Preparedness and Prevention Plan

- a. Performing and Recording a Facility Inspection
- b. Proper Maintenance of Storage Facilities and Associated Equipment
- c. Emergency Equipment - Availability and Use

VI. Contingency Plan

- a. Implementation of the Contingency Plan - Personnel and Emergency Functions
  - 1. Spills and Fires and Proper Response Actions
    - a. On Site Accidents
    - b. Transportation Accidents
  - 2. Reporting Requirements
    - a. Safety-Kleen Corp.
    - b. State Emergency Response System
    - c. National Response Center
- b. Emergency Information
- c. Corporate Policies 600-608, 609 and 610
  - 1. Review of Material Safety Data Sheets
- d. Recordkeeping - Spill Report Telephone Log

PROTECTING YOU AND THE ENVIRONMENT

Training Record for New Employees

Branch Number __/____/__

Branch Manager _____

New Sales Representative _____ Date Hired _____

Module Title	Initials	Date Seen
1. Accidental Product Releases-Transportation & Customer Related	_____	_____
2. Accidental Product Releases at the Branch	_____	_____
3. Material Safety Data Sheets - Overview	_____	_____
4. Material Safety Data Sheets - Safety & Health Related Information	_____	_____
5. The Manifest	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Certification by the employee that training has been received obligates the employee to discharge his duties in accordance with the training provided. Failure to comply with the requirements established during the training program may result in civil or criminal penalties against the employee.

White Copy - Branch Files
Yellow Copy - Regional Files
Pink Copy - Sales Training and Development

Printed in U.S.A. ©1986

Form ST101

safety-kleen

PROTECTING YOU AND THE ENVIRONMENT

Training Record

Module _____ Title _____

Branch Number __/__ __ __/__ __

Branch Manager _____

Sales Representative

Print Name Clearly	Initials	Date Seen

White Copy - Branch Files
Yellow Copy - Regional Files
Pink Copy - Sales Training and Development

Printed in U.S.A. ©1985

Certification by the employee that training has been received obligates the employee to discharge his duties in accordance with the training provided. Failure to comply with the requirements established during the training program may result in civil or criminal penalties against the employee.

RECORD OF PERSONNEL TRAINING

Certification by the employee that training has been received obligates the employee to discharge his duties in accordance with the training provided. Failure to comply with the requirements established during the training program may result in civil or criminal penalties against the employee.

DATE	DESCRIPTION OF TRAINING	JOB TITLE	EMPLOYEE NAME	EMPLOYEE SIGNATURE

APPENDIX H

FINANCIAL REQUIREMENTS

APPENDIX H

FINANCIAL REQUIREMENTS

safety-kleen

PROTECTING YOU AND THE ENVIRONMENT

Training Record

Module _____ Title _____

Branch Number __/__ __ __/__ __

Branch Manager _____

Sales Representative

Print Name Clearly	Initials	Date Seen

White Copy - Branch Files
Yellow Copy - Regional Files
Pink Copy - Sales Training and Development

Printed in U.S.A. ©1985

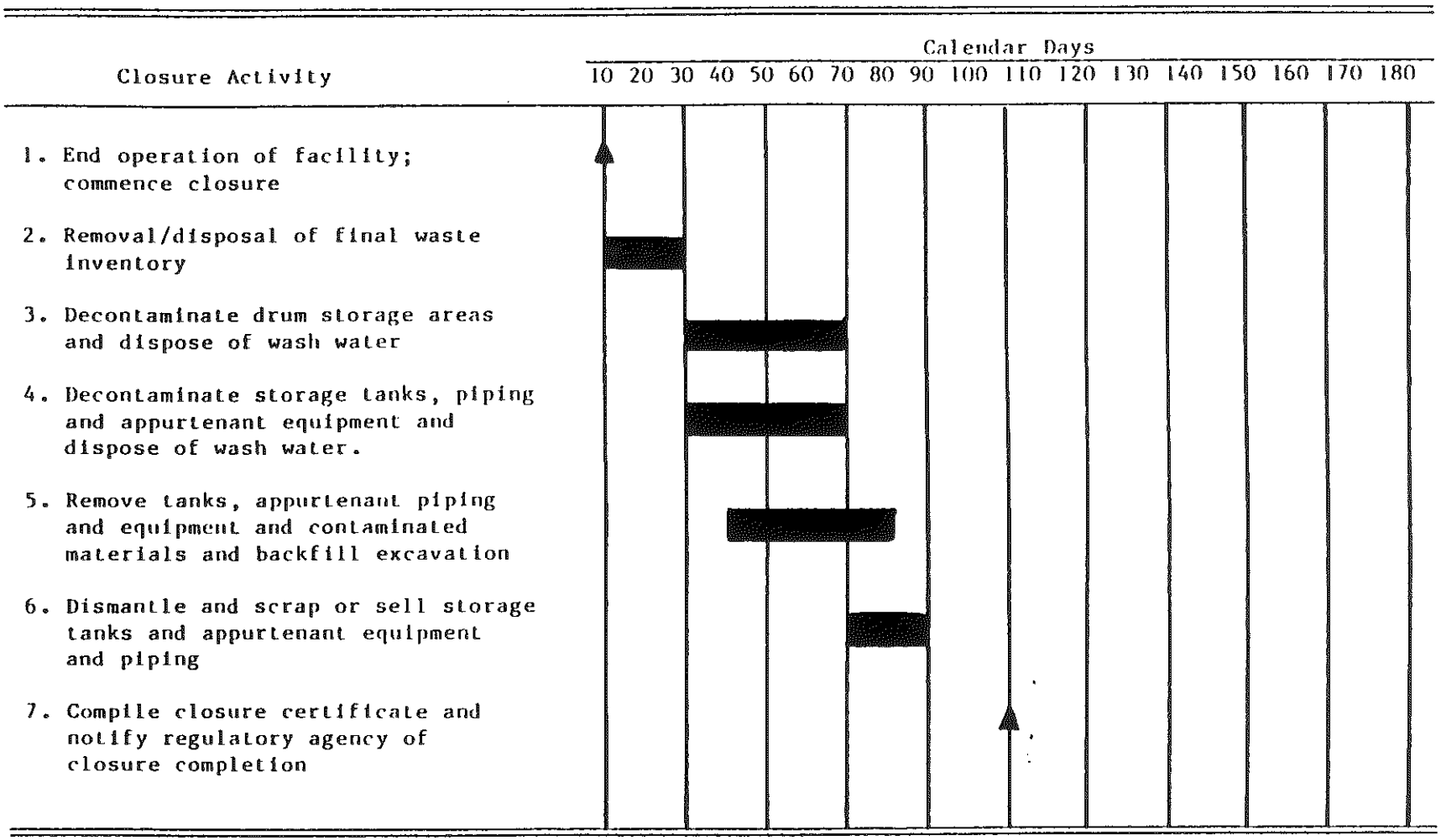
Certification by the employee that training has been received obligates the employee to discharge his duties in accordance with the training provided. Failure to comply with the requirements established during the training program may result in civil or criminal penalties against the employee.

RECORD OF PERSONNEL TRAINING

Certification by the employee that training has been received obligates the employee to discharge his duties in accordance with the training provided. Failure to comply with the requirements established during the training program may result in civil or criminal penalties against the employee.

DATE	DESCRIPTION OF TRAINING	JOB TITLE	EMPLOYEE NAME	EMPLOYEE SIGNATURE

CLOSURE SCHEDULE



CLOSURE COST ESTIMATE
MOKENA, ILLINOIS SERVICE CENTER

TANK CLOSURE - Open, remove contents of, clean, remove, and dispose of tank, and backfill and regrade the site.

Opening of Tank and Removal of Waste Material

12,000-gallon tank assumed containing 11,000 gallons of material (20% water, 1% bottoms oil, and 79% mineral spirits):

a.	Water 20% x 11,000 x $0.15/gal. =	330
b.	Bottoms Oil 1% x 11,000 x $0.50/gal. =	55
c.	Mineral Spirits 79% x 11,000 x $0.30/gal. =	2,607
Total		$2,992

Removal of Residual Waste and Cleaning of Tank

Removal of Heavy Material (1000 gal. x $0.75/gal.) =	$ 750
Squeegie Clean Tank	600
Dispose of Wash Water (500 gallons x $0.15/gal.)	75
Total	$1,425

Removal of the Tank

Disconnect and remove appurtenant equipment 2.0 man-days @ $15/hour =	$ 240
Cut up the tank with a blow torch, 8 hours @ $20/hour =	160
Remove tank	250
Demolition of concrete slab	4,000

Removal and disposal of concrete 40 cy @ $4.50/cy =	180
Backfilling Replace any previously excavated material 60 cy @ $5/cy (estimate) =	300
Regrading	100
Debris Disposal	100
Total	$5,330

Summary of Closure Cost for the 12,000-gallon tank:

Opening of Tank and Removal of Waste Material	$2,992
Removal of Residual Waste and Cleaning of Tank	1,425
Removal of the Tank	5,330
Total	$9,747

Closure of Drum Storage Area in Warehouse

Remove and return drums to a reclaimer, clean the drum storage areas, and dispose of the wash water generated:

Remove and return drums to a reclaimer 130 16-gallon drums x $30/drum =	$4,800
Clean the storage areas 10 man-hours @ $15.00/hour =	150
Cost to determine effectiveness of cleaning	500
Dispose of the wash water 100 gallons @ $0.15/gal. =	15
Total	$5,465

Solvent Return and Fill Station - Remove, package and dispose of waste, clean the dumpster and dock area, remove dumpster and dock structure for reuse.

Remove, package and dispose of solids 8 55-gallon drums x $300/drum =	$2,400

Remove, package and dispose of liquids 110 gallons x $0.30/gallon =	33
Clean dumpster and dock area 16 man-hours @ $15.00/hour =	240
Remove dumpster and dock 16 man-hours @ $20.00/hour =	320
Total	$2,993

Total Closure Costs

Storage Tanks	$9,747
Drum Storage Area	5,465
Return and Fill Station	2,993
TOTAL	$18,205

The remaining $1,795 is available for any additional expenses such as analysis and disposal of contaminated soil. The extent of contamination, if any, can not be determined at this time so an accurate cost estimate for this work can not be calculated.

LETTER FROM CHIEF FINANCIAL OFFICER

(Assurance of closure and/or post-closure care)

Director
Illinois Environmental Protection Agency
2200 Churchill Road
ngfield, Illinois 62706

.r Sir or Madam:

I am the chief financial officer of Safety-Kleen Corp., 777 Big Timber Road, Elgin, IL 60123 (1)

This letter is in support of this firm's use of the financial test to demonstrate financial assurance, as specified in Subpart H of 40 CFR Parts 264 and 265 and/or Subpart H of 35 Illinois Administrative Code Parts 724 and 725.

See Instruction (2)

1. This firm is the owner or operator of the following facilities for which financial assurance for closure and/or post-closure care is demonstrated through the financial test specified in Subpart H of 35 Ill. Adm. Code Parts 724 and 725. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: (LIST ALL THE ILLINOIS FACILITIES USING THE FINANCIAL TEST)

See Attached List - Total Closure Costs $745,000.

USEPA I.D. No. (3)	Closure Amount (4)	Post-Closure Amount (5)	Closure and Post-Closure Amounts (6)
Name			
Address			
City			
USEPA I.D. No.			
Name			
'ss			
-			

Please attach a separate page if more space is needed for all facilities.

2. This firm guarantees, through the corporate guarantee specified in Subpart H of 35 Ill. Adm. Code Parts Parts 724 and 725, the closure and/or post-closure care of the following facilities owned or operated by subsidiaries of this firm. The current cost estimates for closure and/or post-closure care so guaranteed are shown for each facility: (LIST ALL THE ILLINOIS FACILITIES USING THE CORPORATE GUARANTEE)

USEPA I.D. No. (3)	Closure Amount (4)	Post-Closure Amount (5)	Closure and Post-Closure Amounts (6)
USEPA I.D. No. ILD005474143			
Name Phillips Manufacturing Co.	$ 10,000	- 0 -	$ 10,000
Address 7334 N. Clark St.			
City Chicago, IL 60626			
USEPA I.D. No. ILD980613913 and ILD000781614			
Name Safety-Kleen Envirosystems, Inc. - Dolton			
Address 633 E. 138th Street	$138,000	- 0 -	$138,000
City Dolton, IL 60419			

2 attach a separate page if more space is needed for all facilities.

This Agency is authorized to require this information under Illinois Revised Statutes, 1981, Chapter 111 1/2, Section 21(f). Disclosure of this information is required. Failure to do so may result in a civil penalty not to exceed $25,000 per day of violation. Falsification of this information may constitute a Class 4 felony, which also carries a fine of up to $25,000 per day of violation for the first offense. This form has been approved by the Forms Management Center.

IL 532-1204 LPC 152 2/84

3. For states other than Illinois this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure and/or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility: (LIST ALL FACILITIES WHICH ARE NOT IN ILLINOIS BUT ARE SUBJECT TO A STATE OR FEDERAL FINANCIAL ASSURANCE REQUIREMENT THAT ARE ASSURED BY A FINANCIAL TEST OR CORPORATE GUARANTEE)

See attached list - Total closure costs - $5,697,000

	Closure Amount (4)	Post-Closure Amount (5)	Closure a Post-Clo Amou (6)
EPA I.D. No. (3)			
Name			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

Please attach a separate page if more space is needed for all facilities.

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is *NOT* demonstrated either to IEPA, USEPA or a State through the financial test or any other financial assurance mechanism specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent state mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: (LIST FACILITIES IN RCRA AUTHORIZED STATES WHERE THERE IS NO STATE FINANCIAL ASSURANCE REQUIREMENT)

NONE - 0 -

	Closure Amount (4)	Post-Closure Amount (5)	Closure and Post-Closu Amour (6)
EPA I.D. No. (3)			
Name			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

Please attach a separate page if more space is needed for all facilities.

This firm is required (7) to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on the Saturday closest to December 31 (8) *. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended January 3, 1987 (9).

See Instruction (10) (Letter From Chief Financial Officer)

Alternative I

1.	Sum of current closure and post-closure cost estimates (total of all cost estimates shown in the four paragraphs above)	$ 6,590,000
	Total liabilities (if any portion of the closure or post-closure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4)	$ 75,317,000
*3.	Tangible net worth	$ 134,451,000
*4.	Net worth	$ 137,445,000
*5.	Current assets	$ 79,085,000
*6.	Current liabilities	$ 37,097,000
7.	Net working capital (line 5 minus line 6)	$ 41,988,000
*8.	The sum of net income plus depreciation, depletion, and amortization	$ 43,016,000
*9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	$ 195,029,000

		Yes	No
10.	Is line 3 at least $10 million?	X	
11.	Is line 3 at least 6 times line 1?	X	
12.	Is line 7 at least 6 times line 1?	X	
*13.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 14.	X	
14.	Is line 9 at least 6 times line 1?	X	
15.	Is line 2 divided by line 4 less than 2.0?	X	
16.	Is line 8 divided by line 2 greater than 0.1?	X	
17.	Is line 5 divided by line 6 greater than 1.5?	X	

Signature Robert W. Willmschen

Typed name Robert W. Willmschen

Title Vice President - Finance

Date March 20, 1987

(Revised May 27, 1987)

See Instruction (10) (Letter From Chief Financial Officer)

Alternative II

1. Sum of current closure and post-closure cost estimates (total of all cost estimates shown in the four paragraphs above) ..... $_____

2. Current bond rating of most recent issuance of this firm and name of rating service ..... _____

3. Date of issuance of bond ..... _____

4. Date of maturity of bond ..... _____

*5. Tangible net worth (if any portion of the closure and post-closure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line) ..... $_____

*6. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.) ..... $_____

		Yes	No
7.	Is line 5 at least $10 million?	_____	_____
8.	Is line 5 at least 6 times line 1?	_____	_____
*9.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 10.	_____	_____
10.	Is line 6 at least 6 times line 1?	_____	_____

Signature

_____

Typed name

_____

Title

_____

Date

_____

CORPORATE GUARANTEE FOR CLOSURE AND/OR POST-CLOSURE CARE

Guarantee made this May 8, 1987 (1) by Safety-Kleen Corp. (2), a business corporation organized under the laws of the State of Wisconsin, herein referred to as guarantor, to the Illinois Environmental Protection Agency (IEPA), obligee, on behalf of our subsidiary Safety-Kleen Envirosystems, Inc. (3) of 777 Big Timber Road, Elgin, IL 60123 (4) (5).

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in 35 Illinois Administrative Code 724.243(f), 724.245(f), 725.243, and 725.245.

2. Safety-Kleen Envirosystems, INc. (6) owns or operates the following hazardous waste management facility(ies) covered by this guarantee:

	Closure Amount (8)	Post-Closure Amount (9)	Closure and Post-Closure Amounts (10)
USEPA I.D. No. (7) ILD980613913 and ILD000781614 Name Safety-Kleen Envirosystems, Inc. - Dolton Address 633 E. 138th Street (P.O. Box 100) City Dolton, IL 60419	$138,000	- 0	$138,000
USEPA I.D. No. (7) Name Address City			

Please attach a separate page if more space is needed for all facilities.

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by Subpart G of 35 Illinois Administrative Code Parts 724 and 725 for the closure and/or post-closure care of facilities as identified above.

4. For value received from Safety-Kleen Envirosystems, Inc., guarantor guarantees to IEPA that in the event that Safety-Kleen Envirosystems, Inc. (11) fails to perform Closure (12) of the above facility(ies) in accordance with the closure and/or post-closure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, in the name of Safety-Kleen Envirosystems, Inc. (13) in the amount of the current closure and/or post-closure cost estimates as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725.

This Agency is authorized to require this information under Illinois Revised Statutes, 1981, Chapter 111 1/2, Section 21(f). Disclosure of this information is required. Failure to do so may result in a civil penalty not to exceed $25,000 per day of violation. Falsification of this information may constitute a Class 4 felony, which also carries a fine of up to $25,000 per day of violation for the first offense. This form has been approved by the Forms Management Center.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the IEPA Director and to Safety-Kleen Envirosystems, Inc. (15) that he intends to provide alternate financial assurance as specified in Subpart H of 35 Illinois Administrati Code Parts 724 and 725, as applicable, in the name of Safety-Kleen Envirosystems, Inc. (16) Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless Safety-Kleen Envirosystems, Inc. (17) has done so.

6. The guarantor agrees to notify the IEPA Director by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the IEPA Director of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure and/or post-closure care, he shall establish alternate financial assurance as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, in the name of Safety-Kleen Envirosystems, Inc. (18) unless Safety-Kleen Envirosystems, Inc. (19) has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure and/or post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure and/or post-closure, or any other modification or alteration of an obligation of the owner or operator pursuant to 35 Illinois Administrative Code Parts 724 and 725.

9. Guarantor agrees to remain bound under this guarantee for so long as Safety-Kleen Envirosystems, Inc. (20) must comply with the applicable financial assurance requirements of Subpart H of 35 Illinois Administrative Code Parts 724 and 725 for the above listed facilities, except that guarantor may cancel this guarantee by sending notice by certified mail to the IEPA Director, such cancellation to become effective no earlier than 120 days after receipt of such notice by both IEPA and Safety-Kleen Envirosystems, Inc. (21) as evidenced by the return receipts.

10. Guarantor agrees that if Safety-Kleen Envirosystems, Inc. (22) fails to provide alt e financial assurance as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, and obtain written approval of such assurance from the IEPA Director within 90 days after a notice of cancellation by the guarantor is received by the IEPA Director from guarantor, guarantor shall provide such alternative financial assurance in the name of Safety-Kleen Envirosystems, Inc. (23).

11. Guarantor expressly waives notice of acceptance of this guarantee by the IEPA Director or by Safety-Kleen Envirosystems, Ir (24). Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plan and of amendments or modifications of the facility permit(s).

Effective date: May 8, 1987

Name of guarantor: Safety-Kleen Corp.

Authorized signature for guarantor: Robert W. Willmschen

Typed Name: ~~Robert W. Willmschen~~

Title: Vice President - Finance

Signature of witness or notary: Sue Ryan

CORPORATE GUARANTEE FOR CLOSURE AND/OR POST-CLOSURE CARE

Guarantee made this April 3, 1987 (1) by Safety-Kleen Corp. (2), a business corporation organized under the laws of the State of Wisconsin (3), herein referred to as guarantor, to the Illinois Environmental :tion Agency (IEPA), obligee, on behalf of our subsidiary Phillips Manufacturing Co. (4)

c 7334 North Clark Street Chicago, Illinois 60626 (5)

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in 35 Illinois Administrative Code 724.243(f), 724.245(f), 725.243, and 725.245.

2. Phillips Manufacturing Co. (6) owns or operates the following hazardous waste management facility(ies) covered by this guarantee:

		Closure Amount (8)	Post-Closure Amount (9)	Closure and Post-Closure Amounts (10)
USEPA I.D. No. (7)	ILD 005 474 143			
Name	Phillips Manufacturing Co.	$10,000	-0-	$10,000
Address	7334 North Clark Street			
City	Chicago, Illinois 60626			
USEPA I.D. No. (7)				
Name				
es				
C				

Please attach a separate page if more space is needed for all facilities.

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by Subpart G of 35 Illinois Administrative Code Parts 724 and 725 for the closure and/or post-closure care of facilities as identified above.

4. For value received from Phillips Manufacturing Co. (11), guarantor guarantees to IEPA that in the event that Phillips Manufacturing Co. fails to perform closure (12) of the above facility(ies) in accordance with the closure and/or post-closure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, in the name of Phillips Manufacturing Co. (14) in the amount of the current closure and/or post-closure cost estimates as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725.

This Agency is authorized to require this information under Illinois Revised Statutes, 1981, Chapter 111 1/2, Section 21(f). Disclosure of this information is required. Failure to do so may result in a civil penalty not to exceed $25,000 per day of violation. Falsification of this information may constitute a Class 4 felony, which also carries a fine of up to $25,000 per day of violation for the first offense. This form has been approved by the Forms Management Center.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the IEPA Director and to Phillips Manufacturing Co. (15) that he intends to provide alternate financial assurance as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, in the name of Phillips Manufacturing Co. (16) Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless Phillips Manufacturing Co. (17) has done so.

6. The guarantor agrees to notify the IEPA Director by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the IEPA Director of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure and/or post-closure care, he shall establish alternate financial assurance as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, in the name of Phillips Manufacturing Co. (18) unless Phillips Manufacturing Co. (19) has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure and/or post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure and/or post-closure, or any other modification or alteration of an obligation of the owner or operator pursuant to 35 Illinois Administrative Code Parts 724 and 725.

9. Guarantor agrees to remain bound under this guarantee for so long as Phillips Manufacturing Co. (20) must comply with the applicable financial assurance requirements of Subpart H of 35 Illinois Administrative Code Parts 724 and 725 for the above listed facilities, except that guarantor may cancel this guarantee by sending notice by certified mail to the IEPA Director, such cancellation to become effective no earlier than 120 days after receipt of such notice by both IEPA and Phillips Manufacturing Co. (21) as evidenced by the return receipts.

10. uarantor agrees that if Phillips Manufacturing Co. (22) fails to provide alterna financial assurance as specified in Subpart H of 35 Illinois Administrative Code Parts 724 and 725, as applicable, and obtain written approval of such assurance from the IEPA Director within 90 days after a notice of cancellation by the guarantor is received by the IEPA Director from guarantor, guarantor shall provide such alternative financial assurance in the name of Phillips Manufacturing Co. (23).

11. Guarantor expressly waives notice of acceptance of this guarantee by the IEPA Director or by Phillips Manufacturing Co. (24). Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plan and of amendments or modifications of the facility permit(s).

Effective date:	April 3, 1987
Name of guarantor	Safety-Kleen Corp.
Authorized signature for guarantor	Robert W. Willmschen
Typed Name	Robert W. Willmschen
Title	Vice President-Finance
Signature of witness or notary:	Patricia S. Johnson

CLOSURE ASSURANCE - FINANCIAL TEST

ıRAGRAPH #1 (See Transmittal Letter for Description of Safety-Kleen Facilities)

STATE OF ILLINOIS	CLOSURE AMOUNT	POST CLOSURE AMOUNT
ILD 000805929 (5-034-03) 306 Campus Drive Arlington Heights, IL 60004	$ 20,000	-0-
ILD 000805911 Elgin Recycle Center 1500 E. Villa Street Elgin, IL 60120	$300,000	-0-
ILD 981097819 (5-160-02) 20 Tucker Drive Caseyville, IL 62232	$ 50,000	-0-
ILD 005450697 Chicago Plant 1445 W. 42nd Street Chicago, IL 60609	$275,000	-0-
ıD 00665869 5-034-04) 412 Domenic Court Franklin Park, IL 60131	$ 20,000	-0-
ILD 000665851 (5-034-05) 9631 West 194th Place Mokena, IL 60448	$ 20,000	-0-
ILD 093862811 (5-136-01) RR #3 Pekin, IL 61554	$ 20,000	-0-
ILD 079749073 (5-034-01) 728 Morse Avenue Schaumburg, IL 60193	$ 20,000	-0-
ILD 981088388 (5-033-01) 500 Anthony Drive Urbana, IL 61801	$ 20,000	-0-
	$745,000	

PARAGRAPH #3 (See Transmittal Letter for Description of Safety-Kleen Facilities)

STATE OF ALABAMA	CLOSURE AMOUNT	POST CLOSURE AMOUNT
ALD 077640001 (3-019-01) 1002 Hoke Avenue Dolomite, AL 35061	$ 20,000	-0-
ALD 000776807 (3-019-02) 201 Section Line Street Gurley, AL 35748	$ 20,000	-0-
ALD 981028798 (0-007-49) Colemont Ind. Site US 72 East, Huntsville, AL	$ 50,000	-0-
ALT 020010997 (3-019-21) 4815 N. Birmingham Montgomery, AL 36308	$ 20,000	-0-
ALD 071951628 (6-133-01) 3023 Dials Street Whistler, AL 36612	$ 20,000	-0-

STATE OF ARIZONA		
AZD 089308803 (7-142-01) 4401 E. University Phoenix, AZ 85034	$ 20,000	-0-
AZD 980892897 (7-142-02) 4161 E. Tennessee Tucson, AZ 85714	$ 20,000	-0-

STATE OF ARKANSAS		
ARD 054575238 (6-086-01) 11727 Arch St. Pike Little Rock, AR 72206	$ 20,000	-0-
ARD 000709733 (6-063-01) 2511 Johnson Street Fort Smith, AR 72904	$ 20,000	-0-
ARD 056855232 (3-094-01) 309 Mound City Road Between I 55 and 40 West Memphis, AR 72301	$ 20,000	-0-

STATE OF CALIFORNIA (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
CAT 000613968 (7-185-01) 5050 Salida Blvd. Salida, CA 95368	$ 20,000	-0-
CAD 980892475 (7-175-01) 499 Raven Street San Diego, CA 92114	$ 20,000	-0-
CAD 080916968 (7-175-01) 6306 Federal Blvd. San Diego, CA 92114	$ 20,000	-0-
CAT 000613976 (7-088-07) 2120 South Yale Street Santa Ana, CA 92704	$ 20,000	-0-
CAT 00613984 (7-177-01) 214 E. Montecito Street Santa Barbara, CA 93103	$ 20,000	-0-
CAD 981374077 (7-177-01) 5310 Overpass Road Goleta, CA 93103	$ 20,000	-0-
CAD 980817159 (7-178-02) 1147 N. 10th Street San Jose, CA 95112	$ 20,000	-0-
CAT 000613992 (7-088-01) 13024 Bradley Avenue Sylmar, CA 91342	$ 20,000	-0-
STATE OF COLORADO		
COD 000716613 (6-052-01) 4980 Locust Street Commerce City, CO 80022	$ 20,000	-0-
COD 000716621 (6-052-02) 2801 S. Tejon Englewood, CO 80110	$ 20,000	-0-
COT 090010851 (6-052-21) 368 Bonny Grand Junction, CO 81501	$ 20,000	-0-

STATE OF CALIFORNIA	CLOSURE AMOUNT	POST CLOSURE AMOUNT
CAT 000613893 (7-088-06) 10625 Hickson Street it A El Monte, CA 91731	$ 20,000	-0-
CAD 066113465 (7-015-01) 3561 S. Maple Street Fresno, CA 93725	$ 20,000	-0-
CAT 000613919 (7-088-04) 139 E. 157th Street Gardena, CA 90248	$ 20,000	-0-
CAT 000613927 (7-172-01) 7979 Palm Ave., Unit E Highland, CA 92346	$ 20,000	-0-
CAD 066177783 (7-088-05) 3876 Florista Street Los Alamitos, CA 90270	$ 20,000	-0-
CAT 000613935 (7-088-02) 18 Worthen Avenue Los Angeles, CA 90039	$ 20,000	-0-
CAD 053044053 (7-178-01) 404 Market Street Oakland, CA 94607	$ 20,000	-0-
CAD 980894562 2750 Thompson Creek Rd. Pomona, CA 91767	$ 10,000	-0-
CAD 093459485 Reedley Recycle Center 1000 South I Street Reedley, CA 93654	$100,000	-0-
CAT 000613943 (7-178-03) 5750 Commerce Blvd. Rohnert Park, CA 94928	$ 20,000	-0-
CAT 000613950 (7-157-01) 2576 Mercantile Drive Rancho Cordova, CA 95670	$ 20,000	-0-

STATE OF FLORIDA (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
FLD 980847271 (0-007-50) 5309 24th Avenue South ampa, FL 33619	$ 50,000	-0-
STATE OF GEORGIA		
GAD 000823096 (3-106-01) 5920 Coca Cola Blvd. Columbus, GA 31909	$ 20,000	-0-
GAD 000776781 (3-179-01) 5217 Augusta Road P.O. Box 7036 Garden City, GA 31408	$ 20,000	-0-
GAD 000823070 (3-013-01) 3440 Lang Avenue Hapeville, GA 30354	$ 20,000	-0-
GAD 980709257 (3-106-21) 6850 Hawkinsville Road Macon, GA 31207	$ 20,000	-0-
AD 980842777 (3-013-02) 480 S. Old Peachtree Road Norcross, GA 30071	$ 50,000	-0-
GAD 980842835 (3-019-22) RR #5, Dietz Road Ringgold, GA 30736	$ 20,000	-0-
STATE OF IDAHO		
IDD 000712026 (1-183-08) 514 E. 45th Street Boise, ID 83704	$ 20,000	-0-
IDD 991281270 (1-183-28) 2610 Garrettway Pocatello, ID 83201	$ 20,000	-0-

STATE OF COLORADO (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
COD 000716639 (6-052-04) 2841 East Fourth Street ɜblo, CO 81001	$ 20,000	-0-

STATE OF CONNECTICUT

CTD 980667927 (2-112-01) 11 Tipping Drive Branford, CT 06405	$ 20,000	-0-
CTD 000845982 (2-070-01) 24 Brixton Street West Hartford, CT 06110	$ 20,000	-0-

STATE OF FLORIDA

FLD 097837983 (3-130-01) 464 A Pulmosa Drive Casselberry, FL 32707	$ 20,000	-0-
FLD 000776757 (3-097-01) '086 SW 4th Ave., Bldg. B .lray Beach, FL 33444	$ 20,000	-0-
FLD 980847214 (3-079-01) 161 Industrual Loop South Orange Park, FL 32073	$ 20,000	-0-
FLD 980840086 (3-097-02) 7875 NW 54th Street Miami, FL 33166	$ 20,000	-0-
FLD 000776716 (3-163-02) 19200 Peachland Blvd. Bachman Blvd. Port Charlotte, FL 33949	$ 20,000	-0-
FLD 000776773 (3-079-02) 3082 West Tharpe Street (Rear) Tallahassee, FL 32303	$ 20,000	-0-
FLD 049557408 -163-01) 01 North Manhattan Tampa, FL 33614	$ 20,000	-0-

STATE OF KANSAS (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
KSD 000809723 (6-195-01) 1311 South Anna chita, KS 67209	$ 20,000	-0-
SD 980973515 (5-085-01) 9317 Woodend Road Edwardsville, KS 66022	$ 20,000	-0-

STATE OF KENTUCKY

KYD 000776724 (4-075-01) 1592 Wolohan Drive Ashland, KY 41101	$ 20,000	-0-
KYD 981027451 (4-075-01) West Virginia & Kevin Aves. Ashland, KY 41105	$ 20,000	-0-
KYD 020440459 (4-090-01) 264 Big Run Road Lexington, KY 40503	$ 20,000	-0-
D 981027469 -090-01) 0 Blue Sky Parkway Lexington, KY 40509	$ 20,000	-0-
KYD 091514653 (4-091-01) 751 Grade Lane Louisville, KY 40213	$ 20,000	-0-
KYD 053348108 Safety-Kleen Envirosystems, Inc.- New Castle State Hwy. 146 P.O. Box 387 New Castle, KY 40050	$258,000	-0-

STATE OF LOUISIANA

LAD 000757708 (6-073-04) 4200 Shreveport Highway Pineville, LA 71360	$ 20,000	-0-
D 981057441 -073-04) 18 Ryder Drive Pineville, LA 71360	$ 50,000	-0-

STATE OF INDIANA	CLOSURE AMOUNT	POST CLOSURE AMOUNT
IND 000815894 (5-060-01) 4417 St. Joe Street ansville, IN 47712	$ 20,000	-0-
IND 00715466 (5-068-01) 2112 Production Road Ft. Wayne, IN 46808	$ 20,000	-0-
IND 000815886 (4-076-02) 8418-26 Brookville Road Indianapolis, IN 46239	$ 20,000	-0-
IND 000714428 (5-034-06) 6050 Eagle Drive Portage, IN 46368	$ 20,000	-0-
IND 000715474 (5-082-01) 2217 Western Avenue South Bend, IN 46628	$ 20,000	-0-

STATE OF IOWA		
D 098027592 -047-01) 3035 West 73rd Street Davenport, IA 52806	$ 20,000	-0-
IAD 083489773 (5-053-01) 5318 NW 111 Drive, RR #2 Grimes, IA 50111	$ 20,000	-0-
IAD 000678326 (5-093-01) 16 SW 11th Street Mason City, IA 50401	$ 20,000	-0-

STATE OF KANSAS		
KSD 000687681 (5-085-01) 11565 K-32 Highway Kansas City, KS 66111	$ 20,000	-0-
KSD 980686844 (6-195-21)) East Trail dge City, KS 67801	$ 20,000	-0-

STATE OF MISSISSIPPI	CLOSURE AMOUNT	POST CLOSURE AMOUNT
MSD 000776765 (6-078-01) 120 Richardson Drive ıckson, MS 39209	$ 20,000	-0-
ɔD 981030894 (0-007-44) 7217 Airways Avenue Southhaven, MS 38671	$ 50,000	-0-
STATE OF MISSOURI		
MOD 000669077 (5-085-02) 24016 East 40 Highway Blue Springs, MO 64015	$ 20,000	-0-
MOD 000669051 (5-030-01) Route 2, Box 549-D Cape Girardeau, MO 63701	$ 20,000	-0-
MOD 000669085 (5-042-01) 2405 Highway 63 North Columbia, MO 65201	$ 20,000	-0-
ʼD 095486312 ʼ-160-03) 26 Towne Court, Lot #22 Harvestowne Industrial Park St. Charles, MO 63301	$ 20,000	-0-
MOD 000669069 (6-193-02) 734 Northwest Bypass 66 Springfield, MO 65802	$ 20,000	-0-
MOD 980973564 (5-085-02) 901 Yuma Independence, MO 64056	$ 50,000	-0-
MOD 029729688 Safety-Kleen Envirosystems, Inc. Clarksville Hwy. 79 North P.O. Box 456 Clarksville, MO 63336	$ 76,000	-0-
STATE OF NEBRASKA		
) 000687178 ʼ-052-03) RR 1, Box 15E Gering, NB 69341	$ 20,000	-0-

STATE OF LOUISIANA (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
LAD 089841902 (6-115-01) 26th Street Kenner, LA 70062	$ 20,000	-0-

STATE OF MAINE		
MED 980667810 (2-011-01) Route 202, RFD 3, Box 1990 Leeds, ME 04263	$ 20,000	-0-

STATE OF MARYLAND		
MDD 981034291 (2-016-01) 1448 Desoto Road Baltimore, MD 21230	$ 20,000	-0-
MDD 000737106 (2-016-02) 150 Penrod Court Section G & H Glen Burnie, MD 21061	$ 20,000	-0-
D 000737395 (2-058-01) 12164 Tech Road Silver Springs, MD 20904-1980	$ 20,000	-0-

STATE OF MINNESOTA		
MND 000686188 (5-103-02) 1401 Cliff Road Burnsville, MN 55337	$ 20,000	-0-
MND 000686170 (5-050-01) 1302 18th Street Cloquet, MN 55720	$ 20,000	-0-
MND 000823823 (5-103-01) 180 Ryan Drive St. Paul, MN 55117	$ 20,000	-0-
MND 871097884 (5-103-02) 7 Terminal Drive agan, MN 55121	$ 50,000	-0-

STATE OF NEW YORK (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
NYD 000708198 (2-118-08) 80 Seabro No. Amityville, NY 11701	$ 20,000	-0-
NYD 000708206 (2-004-01) 72 Sicker Road Latham, NY 12110	$ 20,000	-0-
NYD 000824581 (2-187-01) Factory & Mitchell P.O. Box 56 Mattydale, NY 13211	$ 20,000	-0-
NYD 981556541 (2-028-01) 75 N. Gates Avenue P.O. Box A Lackawanna, NY 14218	$ 20,000	-0-
NYD 000708172 (2-118-05) 9 Walnut Place Thornwood, NY 10594	$ 20,000	-0-
NYD 000708156 2-074-01) oute 34 North Road #1 Waverly, NY 14892	$ 20,000	-0-
NYD 980785760 (2-118-06) 58-05 52nd Avenue Woodside, NY 11377	$ 20,000	-0-
STATE OF NORTH CAROLINA		
NCD 079060059 (3-031-01) 2320 Yadkin Avenue Charlotte, NC 28205	$ 20,000	-0-
NCD 000776740 (3-171-01) Sommerville Industrial Building Route 3, 6225 Old State Road Raleigh, NC 27603	$ 20,000	-0-
NCD 077840148 (3-064-01) igh Point Building, Inc. endenhall Road High Point, NC 27263	$ 50,000	-0-

STATE OF NEBRASKA (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
MED 000687186 (5-065-01) 'ghway 281 South .hind Grand Island Dodge Grand Island, NB 68801	$ 20,000	-0-
NED 020185138 (5-127-01) 14564 Grover Street Omaha, NB 68144	$ 20,000	-0-
NED 981495724 (5-127-01) Lamont & 139th St. Omaha, NB 68144	$ 50,000	-0-
STATE OF NEVADA		
NVD 007096761 (7-087-01) 1655 Stocker Street North Las Vegas, NV 89030	$ 20,000	-0-
STATE OF NEW MEXICO		
NMD 000804294 '-008-01) 2720 Girard NE Albuquerque, NM 87107	$ 20,000	-0-
NMD 980698849 (7-008-21) 4200A Hawkins Road Farmington, NM 87401	$ 20,000	-0-
STATE OF NEW YORK		
NYHD 980753784 (2-028-02) 1525 West Henrietta Road Avon, NY 14414	$ 20,000	-0-
Applied For (2-004-01) Green Mountain Drive Colonie, NY 12110	$ 20,000	-0-
NYD 000708164 (2-118-01) 68 North Harrison Avenue ongers, NY 10920	$ 20,000	-0-

STATE OF OHIO (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
OHD 000720995 (4-046-01) 6400 North Taylor Road SW Reynoldsburg, OH 43068	$ 20,000	-0-
HD 000720136 -040-03) 2929 Mogadore Road Tallmadge, OH 44278	$ 20,000	-0-
OHD 000810275 (4-040-01) 26309 Miles Road, Unit M1 Warrensville Heights, OH 44128	$ 20,000	-0-
OHD 980683155 (4-037-02) 4205 Lisa Drive Tipp City, OH 45371	$ 20,000	-0-
OHD 981097876 (4-190-01) 5148 Tractor Road Toledo, OH 43616	$ 20,000	-0-
OHD 980990162 (4-196-01) 1171-1/2 N. Meridian Road Youngstown, OH 44509	$ 20,000	-0-
D 981187313 -037-01) 11919 Tramway Drive Sharonville, OH 45241	$ 20,000	-0-

STATE OF OKLAHOMA

OKD 980878474 (6-124-01) 7825 State Hwy. 152 Wheatland, OK 73097-0128	$ 20,000	-0-
OKD 000763821 (6-193-01) 16215 East Marshall Street Tulsa, OK 74138	$ 20,000	-0-
OKD 018115469 2 NE 9th Street Oklahoma City, OK 73104	$ 10,000	-0-

STATE OF NORTH CAROLINA (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
NCD 980846935 (3-031-02) Hwy. 301 North :. Pauls, NC 28384	$ 20,000	-0-
STATE OF NORTH DAKOTA		
NDD 000716738 (1-183-03) 1537-1/2 First Avenue South Fargo, ND 58103	$ 20,000	
NDD 980957070 (1-183-23) 3704 Saratoga Bismarck, ND 58501	$ 20,000	-0-
STATE OF OHIO		
OHD 981099401 (4-040-03) 4341 Mogadore Road Kent, OH 44240	$ 50,000	-0-
OHD 000720987 (4-040-02) ''69 Industrial Parkway ınswick, OH 44212	$ 20,000	-0-
OHD 084750579 (4-037-01) 4579 Port Union Road Hamilton, OH 45011	$ 20,000	-0-
OHD 981188840 Heath 2041 James Parkway Heath, OH 43056	$ 10,000	-0-
OHD 980587364 Hebron Recycle Center 581 Milliken Drive SE Hebron, OH 43025	$270,000	-0-
OHD 981000664 (4-046-01) 4465 Marketing Place Groveport, OH 43125	$ 20,000	-0-
OHD 000721001 (4-190-01) ''' North Lallendorf gon, OH 43616	$ 20,000	-0-

STATE OF SOUTH DAKOTA	CLOSURE AMOUNT	POST CLOSURE AMOUNT
SDD 000716696 (1-183-05) 2000 North Westport Avenue oux Falls, SD 57107	$ 20,000	-0-
STATE OF TENNESSEE		
TND 981027410 (6-051-01) 2010 Brewer Rd. Dyersburg, TN 38024	$ 20,000	-0-
TND 079025698 (3-080-01) 826 Stewart Knoxville, TN 37917	$ 20,000	-0-
TND 981474125 (3-109-01) 215 Whitsett Road Nashville, TN 37210	$ 20,000	-0-
STATE OF TEXAS		
TXD 062287883 (6-002-01) `34 Oil Belt Lane ilene, TX 79605	$ 20,000	-0-
TXD 000747410 (6-009-02) 3811 Interstate 40 East Amarillo, TX 79104	$ 20,000	-0-
TXD 077603371 (6-048-01) 3820 Bratton Road Corpus Christi, TX 78415	$ 20,000	-0-
TXD 077603371 Denton Recycle Center 1722 Cooper Creek Road Denton, TX 76201	$520,000	-0-
TXD 000747394 (6-056-01) 900A Hawkins Blvd. El Paso, TX 79905	$ 20,000	-0-
TXD 981053416 (6-049-02) `29 Midway Road .tom City, TX 76117	$ 20,000	-0-

STATE OF OREGON	CLOSURE AMOUNT	POST CLOSURE AMOUNT
ORD 000712067 (7-054-01) 550 Shelley Street ice C & D Springfield, OR 97477	$ 20,000	-0-
ORD 092895481 (7-148-01) 11843 SE Highway 212 Clackamas, OR 97015	$ 20,000	-0-
Applied Ford (7-148-01) 16540 S.E. 130th Street Clackamas, OR 97015	$ 50,000	-0-
COMMONWEALTH OF PUERTO RICO		
PRD 090399718 Safety-Kleen Envirosystems of Puerto Rico, Inc. - Manati Km 51, Hwy 2 P.O. Box 1098 Monati, Puerto Rico 00701	$287,000	-0-
PRD 981182421 Safety-Kleen Envirosystems of Puerto Rico .. - Dorado m 26.7, Hwy 2 Dorado, Puerto Rico 00646	$ 76,000	-0-
STATE OF SOUTH CAROLINA		
SCD 981031040 (3-066-01) Old Gilreath Road Greer, SC 29651	$ 20,000	-0-
SCD 077995488 Lexington Recycle Center & Branch Route 5, Box 319 A Lexington, SC 29072	$300,000	-0-
SCD 980842785 (3-043-21) Highway 301 South Florence, SC 29501	$ 20,000	-0-
SCD 980709299 (3-179-21) P.O. Box 2053 17 A South ummerville, SC 29483	$ 20,000	-0-

STATE OF UTAH	CLOSURE AMOUNT	POST CLOSURE AMOUNT
UTD 052430741 (7-166-01) 394 Ironwood Drive alt Lake City, UT 84115	$ 20,000	
UTD 980957088 (7-166-01) 1066 Pioneer Road Salt Lake City, UT 84104	$ 20,000	-0-
STATE OF VERMONT		
VTD 000791699 (2-105-01) 23 West Second Street Barre, VT 05641	$ 20,000	-0-
STATE OF VIRGINIA		
VAD 981042955 (3-026-01) 2146 King Mill Road Bristol, VA 24201	$ 20,000	-0-
VAD 000737346 (3-121-01) 545 Bainbridge Blvd. hesapeake, VA 23320	$ 20,000	-0-
VAD 981043011 (3-154-01) 1200 West 100 Road Chester, VA 23831	$ 20,000	-0-
VAD 000737361 (3-155-01) Route 24 East of Vinton at O'Neal Drive Vinton, VA 24179	$ 20,000	-0-
STATE OF WASHINGTON		
WAD 000712059 (1-181-01) 3210 C Street NE, Unit G Auburn, WA 98002	$ 20,000	-0-
WAD 000712042 (7-092-01) 6303 212th Street SW, Suite C nwood, WA 98036	$ 20,000	-0-

STATE OF TEXAS (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
TXD 981052061 (6-049-01) 2130A East Grauwyler T-ving, TX 75061	$ 20,000	-0-
TXD 000747378 (6-194-01) 202 Michael Place Longview, TX 75602	$ 20,000	-0-
TXD 00747436 (6-009-01) 1 Mile East of Loop 289 On Highway 62 & 82 Lubbock, TX 79408	$ 50,000	-0-
TXD 083145656 (6-048-02) 1/4 Mile North Jackson Road 1/8 Mile West International McAllen, TX 78501	$ 20,000	-0-
TXD 981054617 (6-002-02) 10043-B County Rd. 125-W Midland, TX 79711	$ 20,000	-0-
TXD 010803203 (6-073-02) :0 Industrial Road .issouri City, TX 77459	$ 70,000	-0-
TXD 061290276 (6-073-03) 3304 Womack Road Orange, TX 77630	$ 20,000	-0-
TXD 000747386 (6-073-01) 3333 Federal Road Pasadena, TX 77504	$ 20,000	-0-
TXD 000729400 (6-169-01) 5243 Sinclair Road San Antonio, TX 78222	$ 20,000	-0-
TXD 980876015 (6-049-03) Rt. 12, Box 911 Highway 84 West Waco, TX 76710	$ 20,000	-0-
TXD 000747428 049-04) .06 Missile Road Wichita Falls, TX 76306	$ 20,000	-0-

STATE OF WISCONSIN (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
WID 981187297 (5-176-01) Kaukauna Ind. Park Kaukauna, WI 54130	$ 20,000	-0-
WID 981097769 (5-100-01) 2200 S. West Avenue Waukesha, WI 53186	$ 20,000	-0-
	$5,697,000	

STATE OF WASHINGTON (CONT)	CLOSURE AMOUNT	POST CLOSURE AMOUNT
WAD 980978746 (1-183-02) 814 E. Ainsworth Pasco, WA 99301	$ 20,000	-0-
WAD 000712034 (1-183-01) 9516 East Montgomery, Unit 16 Spokane, WA 99206	$ 20,000	-0-
STATE OF WEST VIRGINIA		
WVD 000737387 (4-075-02) Rock Branch Industrial Park Nitro, WV 25143	$ 20,000	-0-
WVD 980510895 (4-145-23) 345 Locust Fairmont, WV 26554	$ 20,000	-0-
WVD 981034101 (4-145-03) 10 Industrial Park Dr. Wheeling, WV 26003	$ 20,000	-0-
ATE OF WISCONSIN		
WID 980896641 (5-150-01) 2109-1/2 Ward Avenue La Crosse, WI 54601	$ 20,000	-0-
WID 045130713 (5-100-01) 113 Oakridge Drive, Lot 7 North Prairie, WI 53153	$ 20,000	-0-
WID 000668822 (5-176-01) P.O. Box 266 Shawano, WI 54166	$ 20,000	-0-
WID 980896633 (5-197-01) 2325 Daniels Street Madison, WI 53704	$ 20,000	-0-
WID 066869751 New Berlin 16675 W. Glendale Road Berlin, WI 53151	$ 10,000	-0-

ARTHUR ANDERSEN & CO.

CHICAGO, ILLINOIS

To Safety-Kleen Corp.:

We have examined the consolidated balance sheets of SAFETY-KLEEN CORP. and SUBSIDIARIES (the "Company") as of January 3, 1987, and December 28, 1985, and the related consolidated statements of earnings and changes in financial position for the years then ended and expressed an unqualified opinion on those statements in our report dated February 6, 1987. We have not performed any auditing procedures since that date. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

At your request, we have read the letter dated March 20, 1987, from your chief financial officer to the various administrators of the Federal and state Environmental Protection Agencies to demonstrate both liability coverage and assurance of closure care required by EPA regulations and have compared the data therein that are specified as having been derived from the audited financial statements for the years ended January 3, 1987, and December 28, 1985, referred to above with the corresponding amounts in those financial statements. In connection with this procedure, no matters came to our attention that caused us to believe that the specified data should be adjusted.

This report relates only to the data specified above and does not extend to the financial statements of the Company, taken as a whole, for the fiscal years ended January 3, 1987 and December 28, 1985. It is furnished solely for the use of the Company and the Company's distribution to the various administrators of the Federal and state Environmental Protection Agencies and is not to be used for any other purpose.

Arthur Andersen & Co.

Chicago, Illinois,
March 6, 1987.

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

To Safety-Kleen Corp.:

We have examined the consolidated balance sheets of Safety-Kleen Corp (a Wisconsin corporation) and Subsidiaries as of January 3, 1987 and December 28, 1985, and the related consolidated statements of earnings, changes in financial position and shareholders' equity for each of the three fiscal years in the period ended January 3, 1987. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Safety-Kleen Corp. and Subsidiaries as of January 3, 1987, and December 28, 1985, and the results of their operations and the changes in their financial position for each of the three fiscal years in the period ended January 3, 1987, in conformity with generally accepted accounting principles which, except for the change (with which we concur) in fiscal 1985 in the method of accounting for investment tax credits as discussed in Note 1, were applied on a consistent basis.

Our examinations were made for the purpose of forming an opinion on the basic consolidated financial statements taken as a whole. The supplemental schedules I, V, VI, VIII, and X are presented for purposes of complying with the Securities and Exchange Commission's rules and are not part of the basic consolidated financial statements. The supplemental schedules have been subjected to the auditing procedures applied in the examinations of the basic consolidated financial statements and, in our opinion, fairly state in all material respects the financial data required to be set forth therein in relation to the basic consolidated financial statements taken as a whole.

ARTHUR ANDERSEN & CO.

Chicago, Illinois,
February 6, 1987.

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. National Union Fire Insurance Company (1), (the "Insurer"), of Pittsburgh, Pennsylvania (2) hereby certifies that it has issued liability insurance covering bodily injury and property damag

to Safety-Kleen Corp. (3), (the "insured"), of 777 Big Timber Road, Elgin, IL 60123 (4) in connection with the insured's obligation to demonstrate financial responsibility under 35 Illino: Administrative Code Parts 724.247 or 725.247. The coverage applies at: SEE ATTACHED LIST.

	Sudden Accidental Occurrences (2)	~~Nonsudden Accidental Occurrences (3)~~	~~Sudden and Nonsudden Accidental Occurrences (4)~~
USEPA I.D. No. (1)			
Name			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

Please attach a separate page if more space is needed for all facilities.

The limits of liability are $ 2 million (9) each occurrence and $ 2 million (10) annual aggregate exclusive of ;al defense costs. The coverage is provided under policy number GLA5813574 (11) issued on October 1, 1987 (12) .he effective date of said policy is October 1, 1987 (13).

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by tl insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for whic coverage is demonstrated as specified in 35 Illinois Administrative Code 724.247(f) or 725.247.

(c) Whenever requested by the Director of the Illinois Environmental Protection Agency (IEPA), the Insurer agrees to furnish to the Director signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiratic of sixty (60) days after a copy of such written notice is received by the IEPA Director.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after copy of such written notice is received by the IEPA Director.

I hereby certify that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, one or more States.

Signature Bernard M. Dunne

Typed name Bernard M. Dunne

Title Vice President

'horized Representative of National Union Fire Insurance Company

.dress of Representative 222 South Riverside Plaza, Chicago, IL 60606

This Agency is authorized to require that the Insured submit this document under Illinois Revised Statutes, 1981, Chapter 111 1/2, Section 21(f). Failure to do so may result in a civil penalty against tl Insured of not to exceed $25,000 per day of violation. Falsification of this information by any person may constitute a Class 4 felony, and may also carry a fine of not to exceed $25,000 per day for the fir offense. This form has been approved by the Forms Management Center.

IL 532-1205 LPC 153 2/84

ILD 000805929
Safety-Kleen Corp. (5-034-03)
306 Campus Drive
Arlington Hts., IL 60004

ILD 981097819
Safety-Kleen Corp. (5-160-02)
20 Tucker Drive
Caseyville, IL 62232

ILD 005450697
Safety-Kleen Corp. (Chicago Recycle Center)
1445 W. 42nd Street
Chicago, IL 60609

ILD 005474143
Phillips Mfg. Co.
7334 N. Clark Street
Chicago, IL 60626

ILD 980613913 and
ILD 000781614
Safety-Kleen Envirosystems - Dolton
633 E. 138th Street
Dolton, IL 60419

ILD 000805911
Safety-Kleen Corp. (Elgin Recycle Center)
1500 E. Villa Street
Elgin, IL 60120

ILD 000665869
Safety-Kleen Corp. (5-034-04)
412 Domenic Court
Franklin Park, IL 60131

ILD 000665851
Safety-Kleen Corp. (5-034-05)
9631 W. 194th Place
Mokena, IL 60448

ILD 093862811
Safety-Kleen Corp. (5-136-01)
RR #3
Pekin, IL 61554

ILD 079749073
Safety-Kleen Corp. (5-034-01)
728 Morse Avenue
Schaumburg, IL 60193

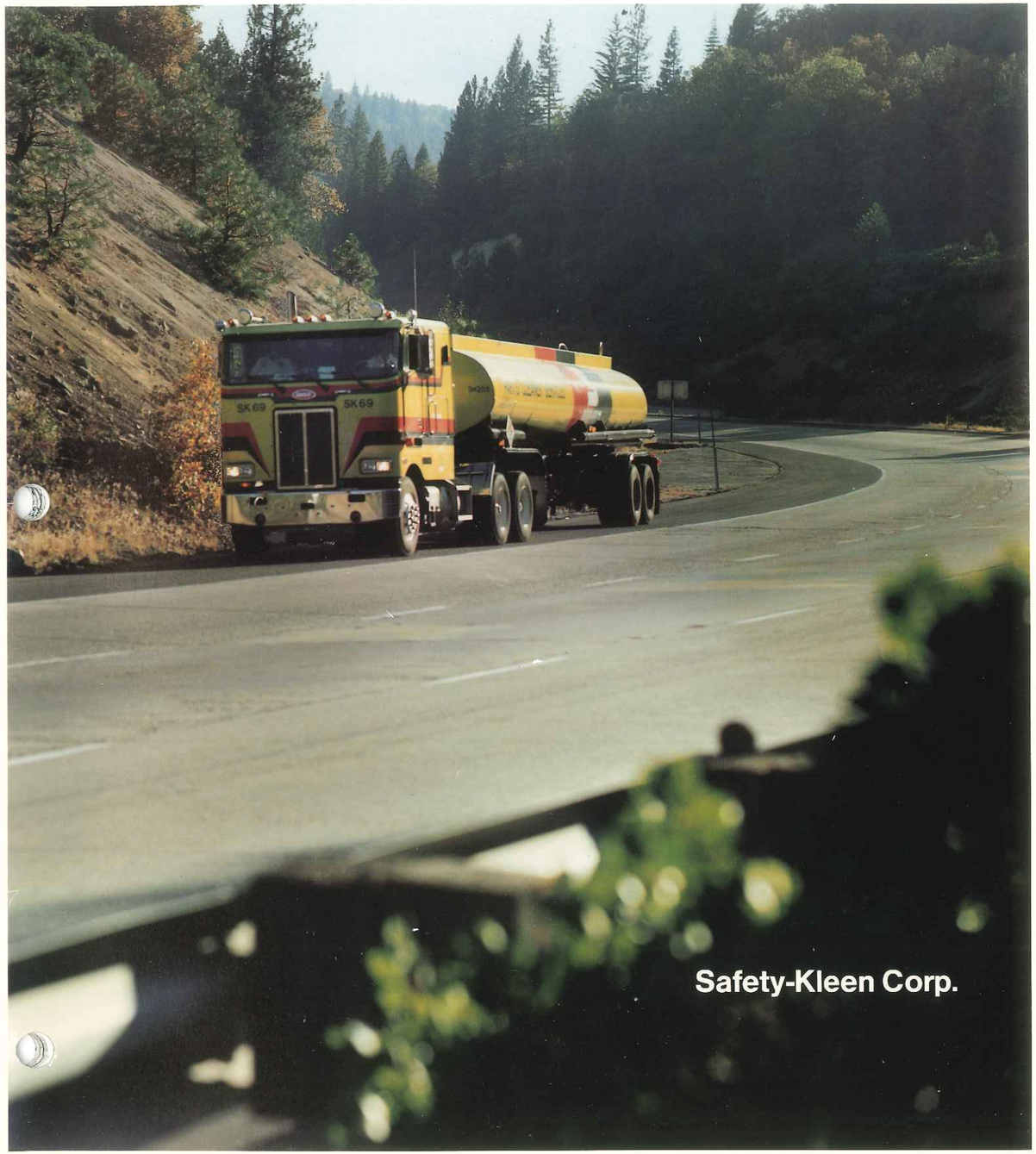
ILD 981088388
Safety-Kleen Corp. (5-033-01)
500 Anthony Drive
Urbana, IL 61801

Safety-Kleen Corp.
777 Big Timber Road, Elgin, Illinois 60123 • 312/697-8460

safety-kleen®

©1987 Printed in U.S.A.

Annual Report 1986



Safety-Kleen Corp.

Company Profile

In October 1968, Chicago Rawhide Manufacturing Company purchased Safety-Kleen, a small regional provider of parts cleaner services. The Milwaukee based company had tremendous potential, but until that purchase, had neither profit nor future. During the next six years, that potential was exploited and a healthy, rapidly growing Safety-Kleen was separated from Chicago Rawhide and reorganized into an independent company in 1974. Since that year, Safety-Kleen Corp. has continued to grow from total revenues of $29 million in 1974 to over $255 million in 1986. Today, the Company offers a variety of services to a large spectrum of businesses that include auto repair outlets, restaurants, dry cleaners and industrial plants.

The original, and still largest, Safety-Kleen service is its parts cleaner service. Considered by the Company to be its core business, this operation is concerned with providing the means for safe, convenient, economical cleaning of parts and components for the vehicular and industrial markets. As part of this service the Company provides equipment, solvent and certain allied products to its customers, while at the same time collecting spent solvent for transport to Company-owned recycle centers in a manner which meets environmental regulations.

Safety-Kleen is today the world's largest provider of parts cleaner services with Company-owned operations in the U.S., Canada and the United Kingdom, and licensed or joint venture operations in Australia, New Zealand, West Germany, France, Spain, Japan, Hawaii and Puerto Rico. In 1986, Safety-Kleen personnel performed over three million such services. In the process, more than 32 million gallons of spent solvent were recycled into 30 million gallons of reusable material.

In four newer service areas which utilize common facilities or systems, Safety-Kleen provides grease filters, cleaning equipment and related supplies to restaurants; offers materials and services to the automotive body repair and paint refinishing market; provides chlorinated and other cleaning solvents to larger industrial users, and reclaims those solvents for continued use; and collects filter cartridges and distillation residue from dry cleaners for recycling and solvent recovery while selling new filters and recycled dry cleaning solvent back to these businesses.

More information about the Company's activities begins on page 7, with "Distribution: Dedicated to Service and Responsibility."

Contents

Financial Highlights	1
Market and Dividend Information	1
History of Growth	2
Interim Results of Operations	3
Message to Shareholders	5
Distribution: Dedicated to Service and Responsibility	7
Financial Reports	29
Directors and Officers	46
Corporate Data	47

On the cover: *Safety-Kleen's fleet of vehicles link all facets of the distribution system together to form a "closed-loop" that is dedicated to service and responsibility.*

Financial Highlights

Fiscal Year Ended	January 3, 1987	December 28, 1985
Service revenues and sales	$255,356,000	$221,080,000
Earnings before cumulative effect of change in accounting principle	$28,254,000	$23,479,000
Percent of revenues and sales	11.1%	10.6%
Percent of beginning shareholders' equity	24.9%	26.3%
Net earnings	$ 28,254,000	$ 27,185,000[1]
Working capital	$ 41,988,000	$ 46,182,000
Total assets	$212,762,000	$176,885,000
Shareholders' equity	$137,445,000	$113,643,000
Number of common shares outstanding at year-end	32,433,518[2]	21,441,528
Current ratio	2.1 to 1	2.5 to 1
Number of Employees	3,300	2,898
Per Common Share[2]		
Net earnings	$.86	$.84[1]
Cash dividends	$.21	$.19

[1] 1985 net earnings include $3,706,000 ($.11 per share) for the cumulative effect of change in accounting for investment tax credits.

[2] All per share data has been restated for three-for-two stock splits on December 9, 1985 and March 5, 1987.

Market and Dividend Information

The Company's common stock is traded on the New York Stock Exchange. The approximate number of record holders of the Company's common stock at January 3, 1987 was 3,330.

The following table shows the range of common stock prices and cash dividends for the calendar quarters indicated. The quotations represent the high and low prices on the New York Stock Exchange as reported by The Wall Street Journal. All data has been restated for the December 9, 1985, and March 5, 1987 three-for-two stock splits, more fully described in Note 7 to the Consolidated Financial Statements.

Calendar Quarter Ended	1986 Prices High	1986 Prices Low	1986 Cash Dividends Paid	1985 Prices High	1985 Prices Low	1985 Cash Dividends Paid
March 31	$23.92	$17.17	$.053	$14.89	$10.78	$.044
June 30	25.83	22.17	.053	15.89	13.67	.045
September 30	25.50	19.00	.053	17.05	14.28	.045
December 31	23.67	18.59	.054	18.16	14.25	.053
			$.213			$.187

The Company has continuously paid quarterly cash dividends since March, 1979. The Company expects to continue its policy of paying regular cash dividends, although there is no assurance as to future dividends, as they are dependent upon future earnings, capital requirements, financial condition of the Company and other factors. The payment of dividends is subject to the restrictions described in Note 6 to the Consolidated Financial Statements.

History of Growth[1] (Amounts, except per share amounts, expressed in thousands)

	Service Revenues and Sales	Earnings (loss) before extraordinary items and cumulative effect of change in accounting principle: Amount	Increase	Per Share	Shareholders' Equity (end of year)	Return on Equity (beginning of year)
1986	$255,356	$28,254	20.3%	$.86	$137,445	24.9%
1985	221,080	23,479[2]	20.9%	.73[2]	113,643	26.3%
1984	185,630	19,428	23.3%	.62	89,230	27.6%
1983	162,771	15,759	21.0%	.51	70,302	28.2%
1982	149,244	13,024	30.2%	.43	55,946	29.5%
1981	134,887	10,002[3]	26.5%	.33[3]	44,120	29.0%
1980	115,648	7,906	27.9%	.26	34,529	28.8%
1979	89,471	6,180	37.8%	.21	27,428	36.2%
1978	70,185	4,486	30.8%	.17	17,061	36.7%
1977	56,066	3,430	25.7%	.13	12,228	39.0%
1976	47,495	2,728	26.0%	.11	8,799	44.4%
1975	36,998	2,165	21.2%	.09	6,143	55.1%
1974	29,037	1,786	21.0%	.07	3,930	83.6%
1973	21,137	1,476	58.9%	.06	2,136	210.3%
1972	13,436	929	163.2%	.04	702	—[5]
1971	7,592	353	—[5]	.01	(232)	—[4]
1970	3,978	(219)	—[4]	(.01)	(536)	—[4]
1969	1,199	(400)	—[4]	(.02)	(318)	—[4]

[1]All data has been restated to reflect a three-for-two stock split on March 5, 1987.

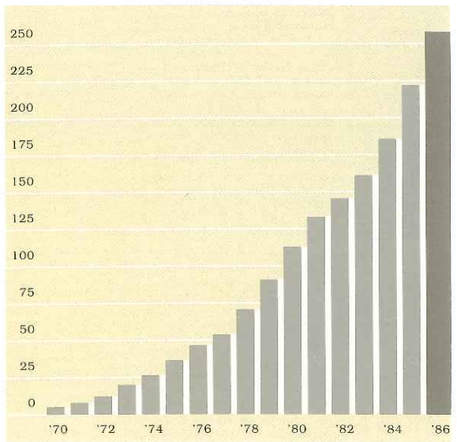
[2]1985 earnings excludes $3,706,000 ($.11 per share) for the cumulative effect of change in accounting for investment tax credits.

[3]1981 earnings excludes $975,000 ($.03 per share) for U.S. income tax benefits resulting from the sale of the Company's West German subsidiary.

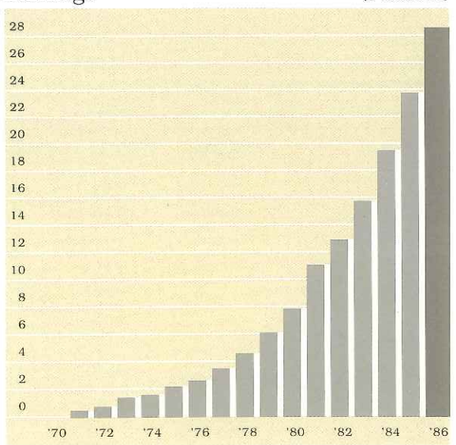
[4]Negative amount.

[5]Not measurable.

Service Revenues and Sales ($ Millions)



Earnings[2,3] ($ Millions)



Interim Results of Operations (Unaudited)

(Expressed in thousands, except per share amounts)

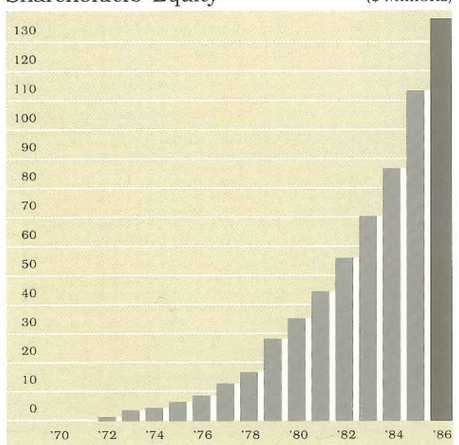
Interim Period	Revenues and Sales 1986	Revenues and Sales 1985	Gross Profit 1986	Gross Profit 1985	Net Earnings 1986	Net Earnings 1985	Per Share[2] 1986	Per Share[2] 1985
First (12 weeks)	$ 54,357	$ 47,610	$18,538	$15,615	$ 5,640	$ 8,625[1]	$.17	$.27[1]
Second (12 weeks)	58,336	50,898	20,730	16,994	6,479	5,474	.20	.17
Third (12 weeks)	58,980	52,117	20,616	17,142	6,534	5,596	.20	.17
Fourth (17 weeks in 1986/ 16 weeks in 1985)	83,683	70,455	28,061	24,007	9,601[3]	7,490	.29	.23
Total	$255,356	$221,080	$87,945	$73,758	$28,254[3]	$27,185[1]	$.86	$.84[1]

[1]Includes net earnings of $3,706,000 or $.11 per share for the cumulative effect of change in accounting for investment tax credits as more fully described in Note 1 to the Consolidated Financial Statements.

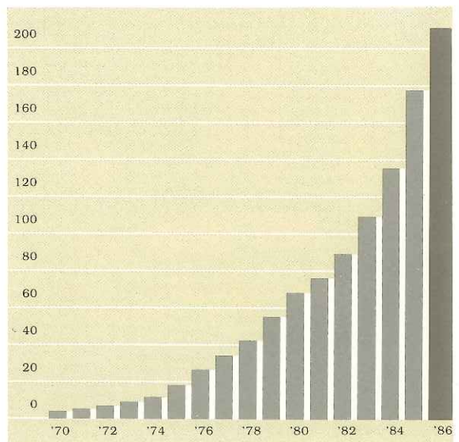
[2]Restated for three-for-two stock split on March 5, 1987 and December 9, 1985, effected in the form of 50 percent stock dividends, as described in Note 7 to the Consolidated Financial Statements.

[3]As a result of the Tax Reform Act of 1986, net earnings for the final seventeen weeks of 1986 includes certain adjustments, which are described in Note 9 to the Consolidated Financial Statements.

Shareholders' Equity ($ Millions)



Total Assets ($ Millions)



Russell A. Gwillim, Chairman of the Board (left), and Donald W. Brinckman, President and Chief Executive Officer.

Message to Shareholders

We are pleased to report that Safety-Kleen achieved record sales in 1986, and net earnings growth in excess of 20% for the sixteenth consecutive year.

Sales in 1986 were $255,356,000, an increase of $34,276,000 or 15.5% over year ago levels. Net earnings for the year were $28,254,000, an increase of 20.3% over 1985, before the cumulative effect of the change in accounting for investment tax credits in 1985. On this basis, earnings per share in 1986 were $.86 as compared to $.73 in 1985. The cumulative prior years' effect of the change in accounting for investment tax credits added $3,706,000 ($.11 per share) to 1985 net earnings. All per share amounts have been restated to reflect the three-for-two stock split issued March 5, 1987, to shareholders of record February 19, 1987.

Parts cleaner revenues and related allied product sales increased approximately 12% in 1986 and accounted for approximately 74% of consolidated revenues. The annualized number of parts cleaner services being performed at the end of 1986 was up by 5.1% from the start of the year. This represents an acceleration in the reported rate growth from the earlier interim periods of 1986. The great majority of this growth has been accomplished in the industrial sector of the parts cleaner market.

Revenues and sales in our newer service areas, primarily restaurant services, automotive paint refinishing services, dry cleaner services and the exchange and recycling of industrial solvents, totaled $65,310,000 in 1986. This represents an increase of 27% over 1985. Excluding revenues of the map distribution business, sold in October, 1985, revenues increased 32%.

The dry cleaner service, begun as a test market in 1984, has continued to expand rapidly. By the end of 1986, over 16,900 dry cleaners had subscribed to Safety-Kleen's service, up from 9,400 at the end of 1985.

New Opportunities. In last year's Annual Report, we discussed potential new opportunities for Safety-Kleen as a result of new regulations affecting small quantity generators of hazardous wastes. The dry cleaner service was the first new service developed as a result of these new regulations. We also noted that the Company was test marketing a service for auto body repair shops and car dealers. These businesses generate contaminated paint thinners from cleaning paint spray guns and waste paints.

The test market was successful and this service is now being rolled-out to Safety-Kleen branches nationwide. As part of the service, the customer is provided a machine designed to clean paint spray guns. During servicing, the machine is checked for proper operation, dirty solvent generated during the cleaning process is removed and clean solvent is supplied. We also provide a waste paint pick up service that compliments our machine service and thus affords our paint refinishing customers a complete hazardous waste removal service. Through a recycling process, usable gun cleaner solvent is generated from the dirty solvent and waste paint.

We believe the Company will be able to develop additional services and products aimed at other groups of small quantity generators. We are currently studying a potential disposal service for industrial firms that generate a broader spectrum of liquid waste than Safety-Kleen has handled in the past. Among these wastes are industrial oils, coolants and flammable solvents.

We recently reached agreement in principle to acquire McKesson Envirosystems, a subsidiary of McKesson Corp. The company has solvent recycling plants in Illinois, Kentucky and Puerto Rico. This acquisition will enhance our Industrial Solvents business by adding additional recycling plants and sales people. In addition, McKesson Envirosystems has contracts with cement companies in St. Louis, Missouri and Puerto Rico whereby spent flammable solvents are used as fuel in cement kilns that are properly equipped to destroy any contaminants without creating air pollution. The company collects flammable solvents from its industrial customers for a fee. It then analyzes and processes the solvents to the extent necessary before burning. Having the capability to dispose of flammable solvents will provide additional opportunities for serving the liquid waste disposal needs of a much larger universe of small quantity generators. McKesson Envirosystems' current annual sales volume is approximately $14 million.

Throughout this year's Annual Report we discuss the importance of the distribution network which Safety-Kleen has developed. The additional capabilities provided by McKesson Envirosystems, coupled with Safety-Kleen's existing network of branches, accumulation and distribution centers, and recycling plants should place Safety-Kleen in a unique position.

We have also recently reached agreement to acquire an eighty percent interest in Breslube Enterprises. Breslube, headquartered in Breslau, Ontario, Canada, is the leading rerefiner of used lubricating oils in North America. In this business, used oils are collected from auto garages, car dealers and other businesses. The oil is taken to a plant where it is rerefined removing water, dirt and other contaminants. The oil is then sold as a quality lubricant.

In its latest fiscal year ended May 31, 1986, Breslube recorded sales of approximately $17 million (U.S.) and refined approximately twenty million gallons of used oil. It has a rerefining plant in Breslau and oil collection facilities throughout Southeastern Canada, the Northeastern U.S. and parts of the Midwest. In September, 1986, Safety-Kleen purchased an oil rerefining plant located in Shippensburg, Pennsylvania. The plant, acquired out of a bankruptcy proceeding, had never operated. As part of the Breslube acquisition, ownership of this plant will be transferred to Breslube.

Oil rerefining has been marginally profitable, if at all, in recent years. Used oil had alternate value as a fuel. Therefore, rerefiners had to buy the used oil. The selling price of the rerefined oil generally was not much more than the cost of the used oil plus the rerefining costs.

Environmental authorities have become concerned about air pollution created when used oils are burned since these oils can contain heavy metals and chlorinated solvents. Certain restrictions have been placed on burning of used oils and we believe that regulations are likely to become more stringent in the future. If they do, rerefining should become more profitable as alternate means of disposal of used oils are eliminated.

International Expansion. In 1985, Safety-Kleen entered into a joint venture in France. Two branches were established, one in Paris and one in Lyon, to test market the parts cleaner service. That test proved successful and the joint venture is in the process of establishing additional branches. Currently, four branches are in operation.

In 1986, the Company began a joint venture in Spain to develop the parts cleaner service in that country. Currently, three branches are in operation.

Stock Split. On February 6, 1987, the Board of Directors declared a three-for-two stock split which was issued to shareholders on March 5, 1987, in the form of a 50% stock dividend. The Directors also declared a regular quarterly cash dividend of six cents per share, on the post-split shares, payable April 2, 1987 to shareholders of record March 19, 1987. The stock split was the Company's fifth since the initial public offering in April, 1979, following a two-for-one split in November, 1980, and three-for-two splits in December, 1982, December, 1984 and December, 1985. The cash dividend represents a 12.5% increase in the payout. The Company previously paid eight cents per share on the pre-split shares. This was the seventh dividend increase since the initial public offering.

Outlook. Our established long-range goals are to achieve average growth of 15% to 20% per year in revenues and 20% to 25% in net earnings over the next five years. Our sales and earnings growth in 1986 met these objectives. Our 1986 earnings growth tied a record that only two other American companies have ever achieved. Our research of data on all industrial companies who file reports with the Securities and Exchange Commission (some 6,500 companies) indicates that only Safety-Kleen, Automatic Data Processing, Inc. and McDonald's Corporation have ever recorded sixteen consecutive years of net earnings growth of 20% or more per year (excluding extraordinary items and the cumulative effect of changes in accounting principles). No company, however, has ever reported seventeen consecutive years of earnings growth in excess of 20%. We believe that Safety-Kleen has an excellent chance of setting such an all-time American record in 1987.

One of the key ingredients to Safety-Kleen's success is its integrated distribution system encompassing branches, solvent recycle centers, distribution and accumulation centers and manufacturing facilities. We invite you to read the following section entitled "Distribution: Dedicated to Service and Responsibility" to learn more about why we feel that Safety-Kleen has a truly unique distribution organization.

We wish to thank our customers, shareholders, employees and suppliers for their confidence in and support of our Company. We are especially pleased that we are able to fulfill our responsibilities to each of these groups and, at the same time, help preserve our environment through our unique distribution, recycling and resource recovery system.

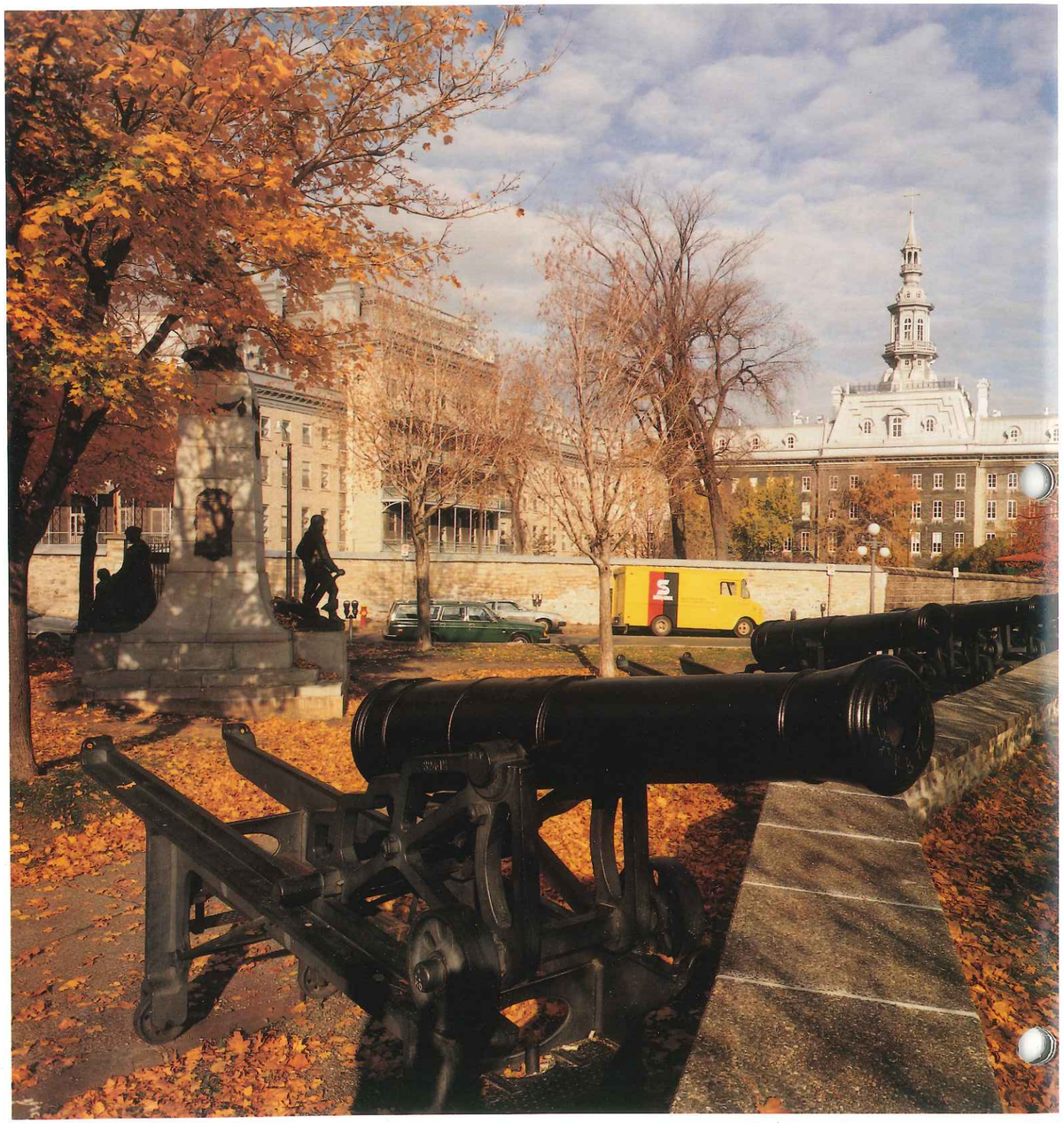
Russell A. Gwillim
Chairman of the Board

Donald W. Brinckman
President and Chief Executive Officer

Distribution: Dedicated to Service and Responsibility

All companies utilize a distribution system of one sort or another. Products are transported to warehouses, or to one or more wholesale and retail levels for ultimate movement to, and use by, the customer. The economy of operation and efficiency of these systems are vital to the profitability of these firms and the degree to which they satisfy and retain customers. Most businesses, however, must be content with channels of distribution traditional to their products or services; channels which are frequently beyond their full control. This is not the case at Safety-Kleen.

Safety-Kleen's distribution system has grown and evolved over the years as its business base has broadened and increased. More importantly however, the distribution system has adapted to the challenges and opportunities associated with the complex and ever changing environmental laws and regulations.



To the Customer . . . and Back

The difference between success and failure in virtually every business venture depends, to a significant degree, on two things: what needed product or service can the business provide to potential customers; and after the sale, how well can the business continue to deliver that product or service to the customer's satisfaction.

In 1968, as plans were being finalized to take the Safety-Kleen parts cleaner service nationwide, the Company knew that it had a service that people wanted. The service charge to the customer was relatively small and the customer valued the convenience of always having a properly maintained parts cleaner when he needed it, without the attendant inconvenience of cleaning it and getting rid of the dirty solvent.

A key question had to be answered: should the Company attempt to develop the parts cleaner service nationwide through independent distributors, or should it establish its own service organization? Using distributors would certainly result in far less start-up costs, but management would have very little control over the quality of service delivered to the customer. It was quickly decided that greatest customer satisfaction would result from the mpany owning and controlling its own distribution system, and being fully responsible for delivering its service and products. That philosophy hasn't changed.

Built into the plan to introduce the Company's service nationwide was the phased establishment of 130 branches. From these branches, each day, sales and service representatives would make their daily, prescheduled sales calls using vehicles suitable for the task.

In 1970 Safety-Kleen built its first recycle center and the unique closed-loop system came into being. Solvent delivered to customers as part of the service was returned to the branch after use where it was accumulated and sent to the recycle center for reclamation and shipment back to the branch. The cycle would start again when the customer was next serviced. Along with the branches, Safety-Kleen's recycle centers have become a key part of the distribution system.

Safety-Kleen's unique "closed-loop" concept of distribution—to the customer, back to the Company for recovery, and back again to the customer for reuse—is evident wherever the Company operates. There are Company-ned operations in the U.S., Canada and the United Kingdom; licensed operations in Australia, New Zealand, West Germany, Hawaii, Puerto Rico and Japan; and joint venture operations in France and Spain.

As the Company's business expanded and grew, distribution centers were added beginning in 1982. Prior to this, materials and products had to be shipped in less-than-truckload quantities, from outside suppliers and the Company's New Berlin, Wisconsin plant, to each of the branches. Truckload quantities of a given product are now shipped directly to distribution centers. The distribution centers service the branches on a regular schedule. Most distribution centers have facilities for cleaning buffing pads used in paint refinishing services, reducing turnaround time on pads and substantially reducing the quantities of pads required at the branch level.

With reauthorization of the Resource Conservation and Recovery Act in 1984, changes were made to regulate small quantity generators of hazardous wastes for the first time. These changes brought new opportunities for Safety-Kleen to service a broader customer base. The first such new opportunity developed by the Company was the waste disposal service for dry cleaners. Other new services have been added and more are anticipated.

In the parts cleaner service, waste solvents are transported in tanker trucks from branches to recycle centers. Given the nature of the wastes collected from dry cleaners, they must be moved in drums all the way from customer locations to the branches and eventually the recycle centers. Other new services are likely to require movement of large quantities of drums from branches to recycle centers. As a result of this, it would not be feasible to accumulate full truckload quantities of drums at each branch before being shipped to the recycle center.

Thus, in 1985, Safety-Kleen began to establish a third tier of distribution: the accumulation center. The primary purpose of the accumulation center is to accumulate drums of hazardous waste solvents from the branches it serves, for economical truckload shipments to the Company's recycle plants. Accumulation centers also function as distribution points for branches, providing additional shipping economies and efficiencies. Additionally, bales of used restaurant filters and dirty buffing pads are accumulated at these centers before they are shipped for processing.

Safety-Kleen's logistic network in the United States consists of seven solvent recycle centers, six distribution centers, 12 of 25 planned accumulation centers, and 162 sales and service branches. Linking all these entities together is a fleet of 61 tanker trailer trucks moving solvent to and from branches: 58 dry cargo trailers that operate between distribution and accumulation centers; 24 local delivery trucks that supply branches out of the accumulation centers; and over 1,750 route service trucks that are used daily by Safety-Kleen's sales and service representatives.

Serving the Customer

Safety-Kleen's strength has been its ability to identify and perform tasks for its customers that are necessary, sometimes unpleasant, and frequently not relevant to the customer's primary business. For example: parts of a vehicle or a piece of industrial equipment requiring repair must be examined. To be examined, they must first be cleaned —a nasty job made easier in a Safety-Kleen parts cleaner, and made easier still because Safety-Kleen maintains the parts cleaner and replaces the dirty solvent. Restaurants are in the business of preparing and serving food, not changing filthy grease filters. Safety-Kleen does those things. The single most important product in use by American dry cleaners is a solvent that becomes a hazardous waste after it's been used, filtered and distilled. The filters and still bottoms can no longer be thrown in the dumpster out back. Safety-Kleen takes care of them.

Doing these tasks and all they entail require a high level of logistical support which can come only from a fully controlled distribution system that supplies service materials and allied products and removes waste and recyclables in an economical and timely manner. A description of these tasks, Safety-Kleen's services, follows.

All five Company services depend on the tightly controlled distribution system that supplies service materials and allied products, and removes waste and recyclables in an economical and timely manner. This concept is most visible at the branch level where every day, over 1,600 Safety-Kleen reps worldwide make their sales and service calls to the Company's diverse customer base.

Parts Cleaner Service—In autumn 1968, Safety-Kleen began operation with a parts cleaner service in the Midwest. The concept was to offer customers a convenient, safe, economical way to clean greasy, dirty parts. Previously, parts had been cleaned for the most part using a bucket of gasoline and a brush. This method was obviously not convenient, safe or environmentally satisfactory. Safety-Kleen's approach to this problem was to offer the use of a parts cleaner machine for the task, fresh solvent, and a solvent disposal service that would greatly simplify this messy, annoying task.

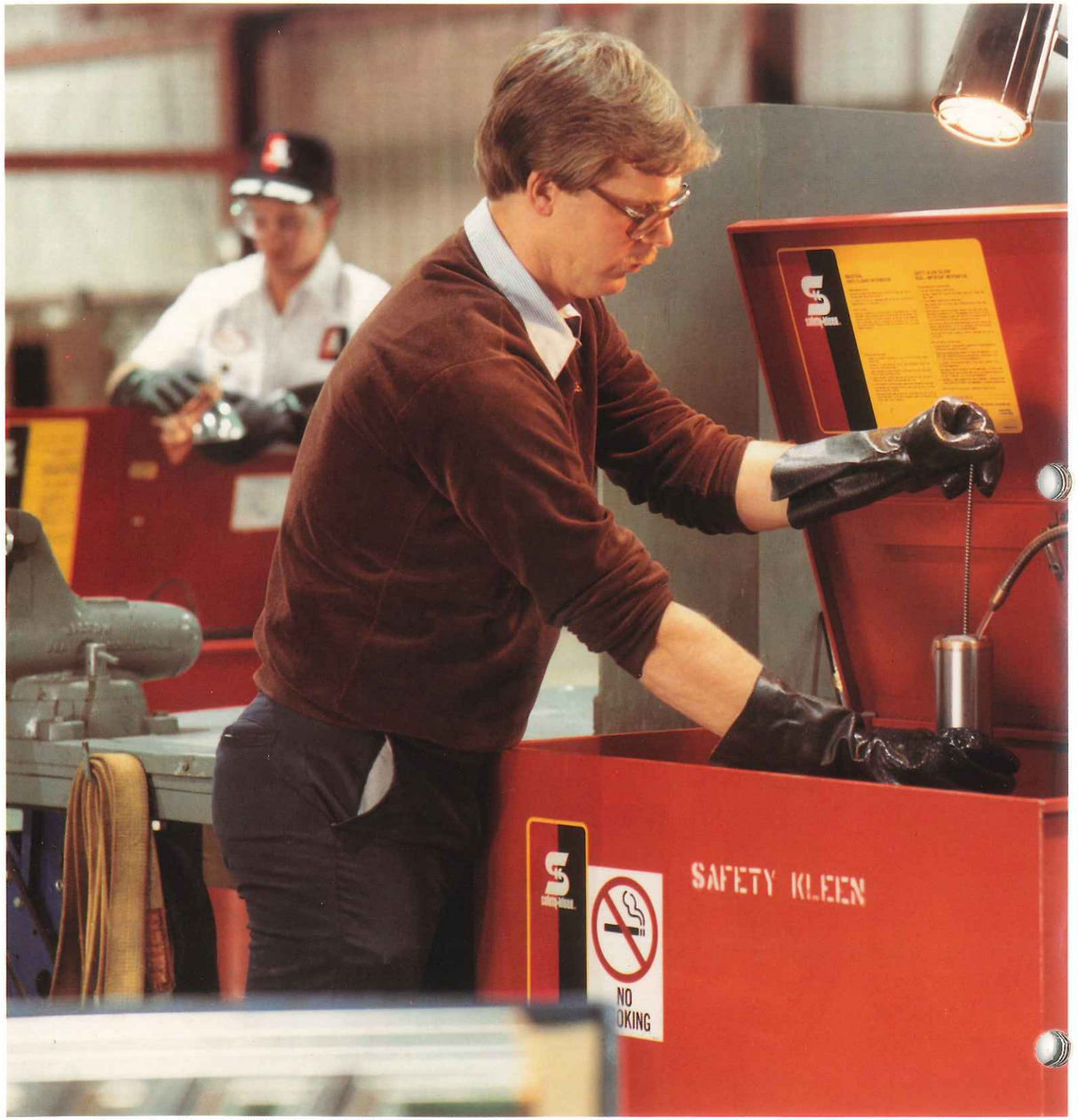
Even before the new Safety-Kleen service was available nationally, however, the Company decided to recycle the spent or dirty solvent, and the closed-loop distribution system was formed. Safety-Kleen would deliver fresh solvent to the customer, and through the distribution network, would return the spent solvent for recycling. After processing, it would be used again by the Company's customers. Today, this basic service remains the same.

In the Company's COMS (Customer Owned Machine Service) program, Safety-Kleen provides services to those who own their own machines. The Company provides these customers essentially the same services—fresh

Safety-Kleen's original service, and still the largest, is a parts cleaner service to automotive repair facilities and industrial firms who need to clean or degrease metal parts. Customers rely on the Company's fine-tuned logistical support for on-time service and the benefits it offers for them and the environment.

To clean and degrease metal parts, the Company provides a parts cleaner machine and petroleum-based solvent for the customer's use.

During each service call, the Safety-Kleen rep provides clean solvent, maintains the parts cleaner, and removes the dirty solvent.



solvent, machine cleaning, removal of the dirty solvent, and proper disposal of the dirty solvent through recycling.

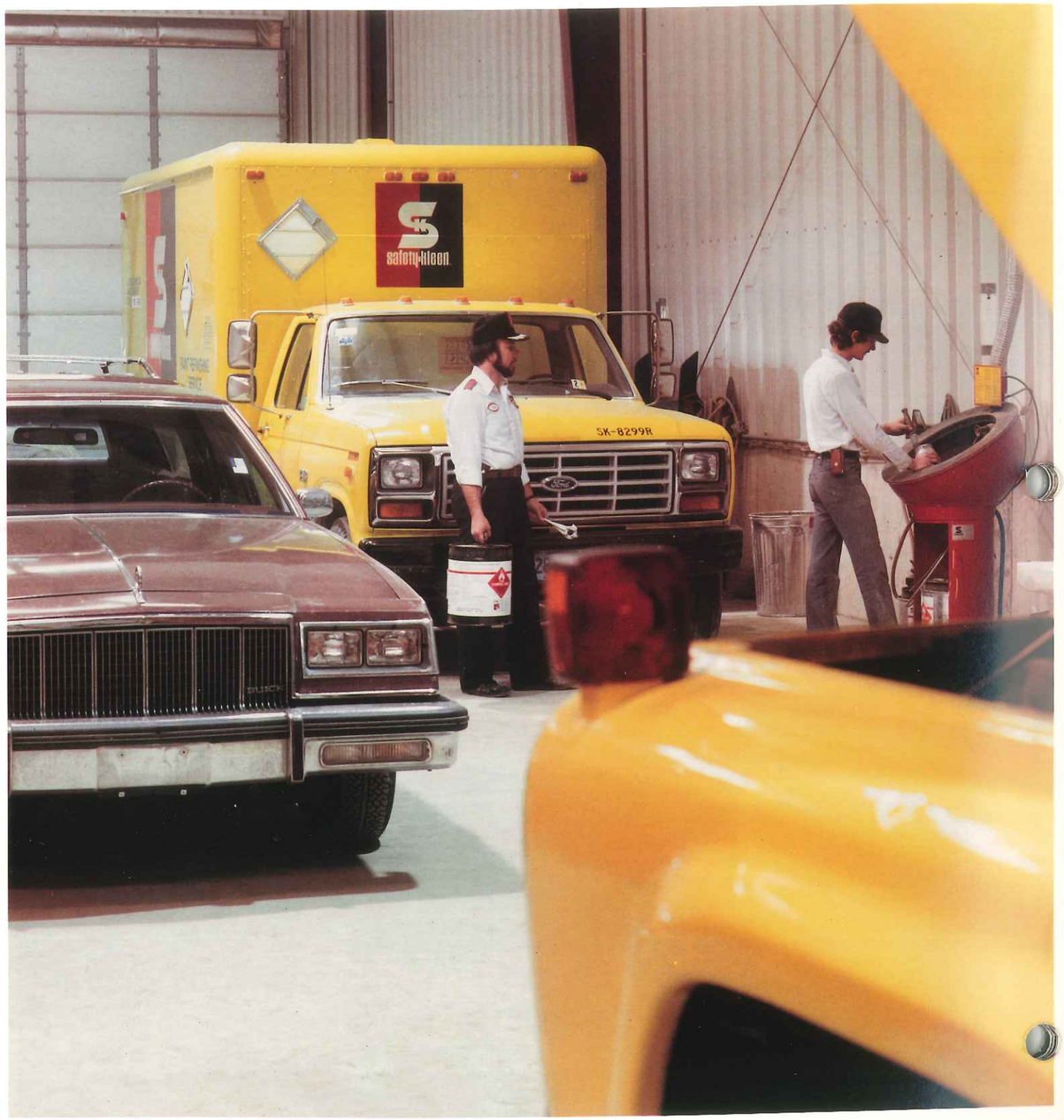
The Immersion Cleaner Service provides a special parts cleaner consisting of a sealed drum containing an air powered agitating parts basket. Parts to be cleaned, such as carburetors and auto transmission parts, are placed in the basket, to remove heavy concentrations of gum and varnish. The spent solvent used in this process is also removed from the customers' premises for recycling.

In 1986, Safety-Kleen entered into a marketing agreement with Bearings, Inc., one of the nation's largest bearing distributors. Under the agreement, Bearings, Inc., will market Safety-Kleen's parts cleaner services and COMS. For the customer who prefers to own his parts cleaner, BI will sell a recently expanded line of Safety-Kleen parts cleaners and offer COMS service. All servicing of parts cleaners is done by Safety-Kleen branches with the Company taking full responsibility for meeting customer servicing needs and state and federal EPA requirements. This agreement should enable the Company to penetrate the industrial market for parts cleaners faster than it could its own.

Safety-Kleen recently added two larger parts cleaners to the Company's service, specifically to meet the needs of industrial customers for larger capacity machines. The industrial segment of the parts cleaner service is becoming increasingly more important to Safety-Kleen, and is expected to significantly increase the customer base for this service in the years ahead.

In 1986, Safety-Kleen entered into a marketing agreement with Bearings, Inc., which sells an expanded line of Safety-Kleen parts cleaners to its industrial customers. In addition, BI markets the Company's COMS (Customer Owned Machine Service) to these customers, with Safety-Kleen's reps performing the usual COMS service.

r many customer calls each day, selling products and servicing parts cleaners, the rep returns to the branch where collected dirty solvent enters the distribution system for recovery and reuse.



Paint Refinishing—Independent auto body shops, automobile dealerships, auto manufacturing plants, fiberglass boat manufacturers, marble products companies, and other firms that require a polished finish on their products, are sources of business for Safety-Kleen's paint refinishing service.

This service supplies clean buffing pads to these businesses at regular intervals. Dirty pads are accumulated at the branch, and returned to a Safety-Kleen facility, usually a distribution center, where they are cleaned, graded for wear, and returned for additional customer use.

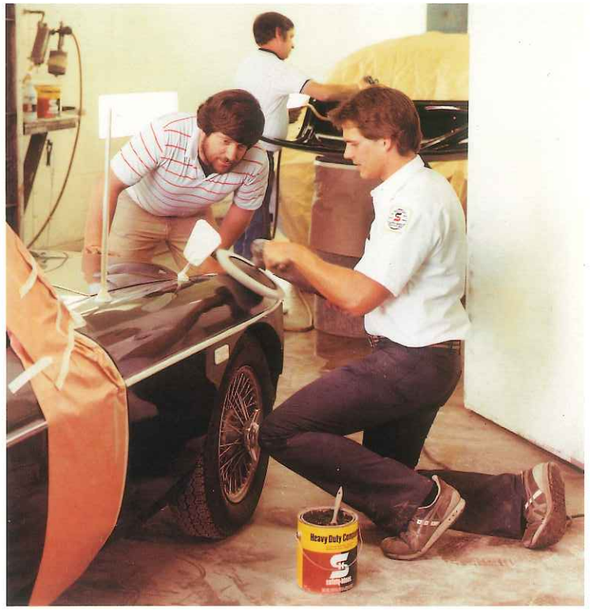
Another part of this service, introduced in 1985, is the Abrasive Blaster service. It is used primarily by auto body shops to remove old paint and rust from corners and other hard to reach metal surfaces.

The Company's newest service to the paint refinishing market includes a spray gun cleaner unit and a waste paint disposal service. A specially engineered machine, designed to assist bodyshop personnel clean dirty paint spray guns, is provided as part of the program. During servicing, this machine is checked for proper operation, dirty solvent generated by the cleaning process is removed, and clean solvent is supplied. The dirty solvent is taken to the local Safety-Kleen branch where it enters the distribution system to be recycled and returned for further use. The optional waste paint disposal service provides proper containers, labeling and disposal of waste paint generated by paint shops. The solvent contained in this paint is recovered and used again.

The Company's in-place distribution system paved the way for introducing a spray gun cleaner and waste paint disposal service for auto body paint shops in 1986. Safety-Kleen provides these shops with a cleaning machine, fresh cleaning solvent, removal of dirty solvent which is a hazardous waste, and recovery of this solvent for further use. The optional waste paint disposal service includes proper containers, labels and solvent recovery from the paint waste.

The Abrasive Blaster, used by auto body shops to remove old paint and rust from corners and other hard to reach metal surfaces, is another Safety-Kleen service to the paint refinishing market.

Safety-Kleen's wool buffing pad service is used by automobile dealers, body shops, marble product firms and auto manufacturers. The Company's paint refinishing specialist supplies clean pads for customer use, and returns dirty pads through the distribution system for cleaning, inspection and further customer use.



Dry Cleaner Service—The 1984 amendments to the Resource Conservation and Recovery Act regulated small quantity generators of hazardous wastes for the first time. Dry cleaners were affected by these amendments since, during the dry cleaning process, they generate filter cartridges and sludge contaminated with waste solvents.

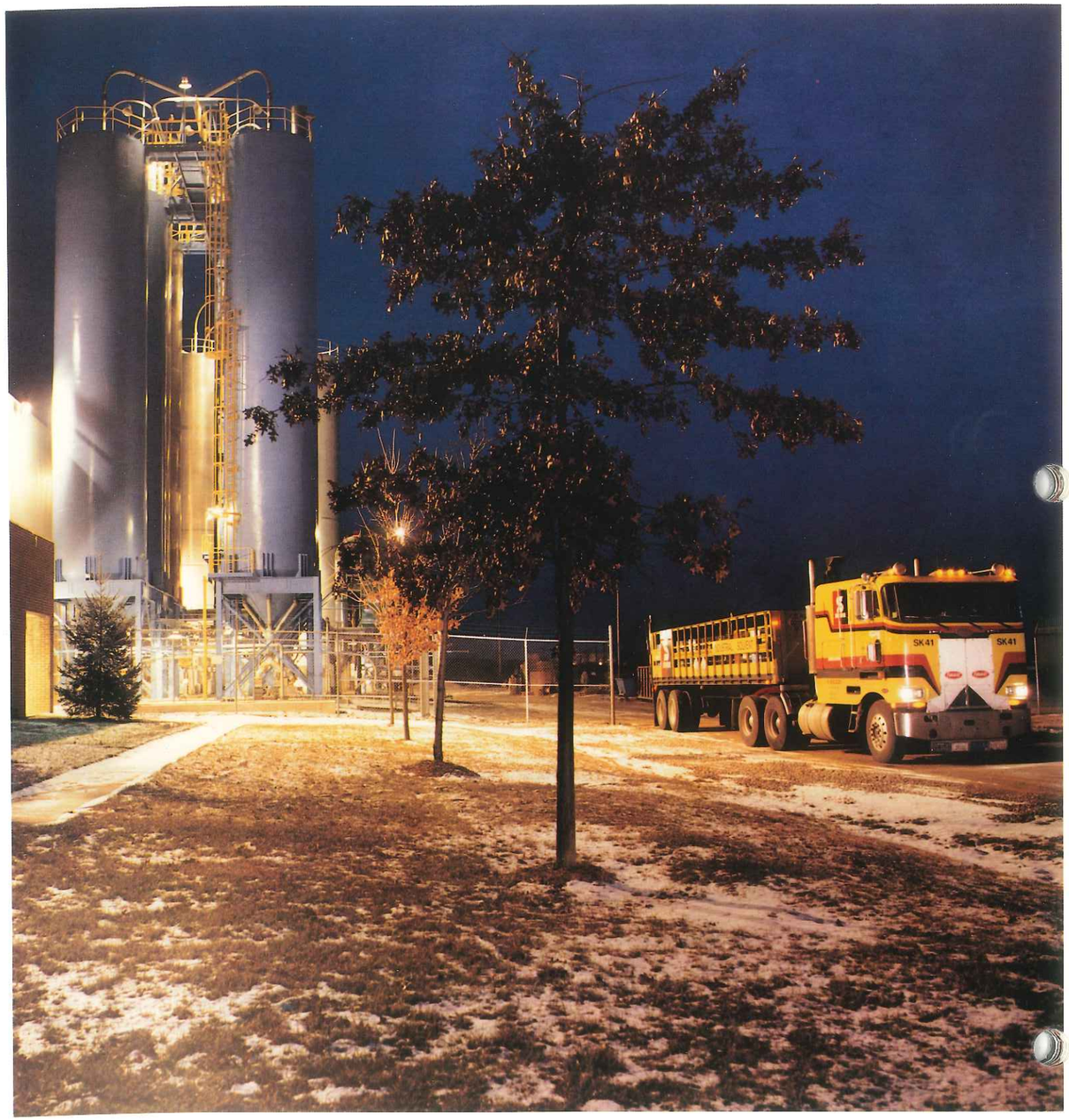
Early in 1984, Safety-Kleen began testing a possible service to this market, and was ready to help the nation's dry cleaners satisfy the new requirements for proper disposal. In this service, Safety-Kleen's representatives call upon dry cleaner customers at regular intervals. The rep removes the dirty filter cartridges and sludge and returns them to the local branch. There, they enter the distribution network to be sent to a recycle center for processing and recovery of usable material. Safety-Kleen also sells new filter cartridges and recycled perchloroethylene solvent for use in the cleaning process.

By the end of 1986, over 16,900 dry cleaners in the U.S. and Canada had subscribed to Safety-Kleen's dry cleaner service.

Small quantity generators of hazardous waste such as dry cleaners are required to properly dispose of the waste created during the cleaning process. Safety-Kleen's dry cleaner program was introduced in 1984, and at the end of 1986, over 16,900 dry cleaners in the U.S. and Canada had subscribed to this environmentally necessary program.

In addition to removing the dry cleaner's dirty filters and residue, Safety-Kleen also sells specially designed filters and dry cleaning solvent to the Company's customers.

Dry cleaning solvent filters collect dirt and other residue, along with cleaning fluid. As part of the Company's service, Safety-Kleen reps collect these filters and help complete the necessary manifests. They are then transported to the recycle center where the solvent is recovered and recycled.



Industrial Solvents—Safety-Kleen's service to large or bulk users of industrial cleaning solvents is a result of its many years of experience in collecting parts cleaner solvent, recycling the material, and returning it to use.

This service concentrates on firms engaged in metalworking, electronics, aeronautics and tool-and-die manufacturing. In the course of this work, bulk quantities of chlorinated, fluorinated and other cleaning solvents are used. Typically, these solvents remove grease and dirt prior to assembly or coating. Safety-Kleen's trained industrial sales engineers call on these firms, and help them identify hazardous materials required to be disposed of in accordance with current EPA regulations. They also train customers in segregating solvent streams to enable them to maximize recovery levels.

The sales engineer arranges for the removal of the customer's waste for recycling through the Company's distribution system, and sells virgin and recycled solvents in any quantity—from a single drum to a tanker load.

Late in 1986, Safety-Kleen acquired Phillips Manufacturing Company, a Chicago-based manufacturer of industrial degreasing and solvent recovery equipment. Phillips and Safety-Kleen's industrial sales engineers will together be able to offer industrial firms a complete package of equipment plus solvent service to satisfy the spectrum of industrial cleaning and degreasing needs.

Safety-Kleen's industrial solvents program serves firms engaged in metalworking, electronics, aeronautics and tool-and-die manufacturing who use large quantities of cleaning solvents in their fabrication processes.

Large quantities of chlorinated, flourinated and other cleaning solvents generated must be properly disposed of. The Company arranges for the removal and processing of these solvents through the distribution system.

Solvent is analyzed at the recycle centers to identify content and assure compatibility with the Company's recovery processes.

Restaurant Services—Safety-Kleen's service offered to restaurants in the United States again relies on the distribution system that the Company has in place to serve the entire branch network. Logistically supported by this network, Restaurant Services has grown throughout the country by doing small tasks that are not relevant to the primary purpose of preparing and serving food.

Safety-Kleen reps provide restaurant and other food preparation institutions with a specially-designed filter that is mounted in the hood of the kitchen exhaust system. This filter, called the Fire-Shield™ aluminum grease filter removes grease from the airstream over the cooking area, and drains it off to a collection cup—thus preventing its deposit in the ductwork of the exhaust system where it could fuel a fire.

The Company's Soaking Center, consisting of a large tank filled with a special aquaeous solvent, is another service for restaurants. It is designed for soaking kitchen pots, pans and racks, to remove encrusted or greasy buildup.

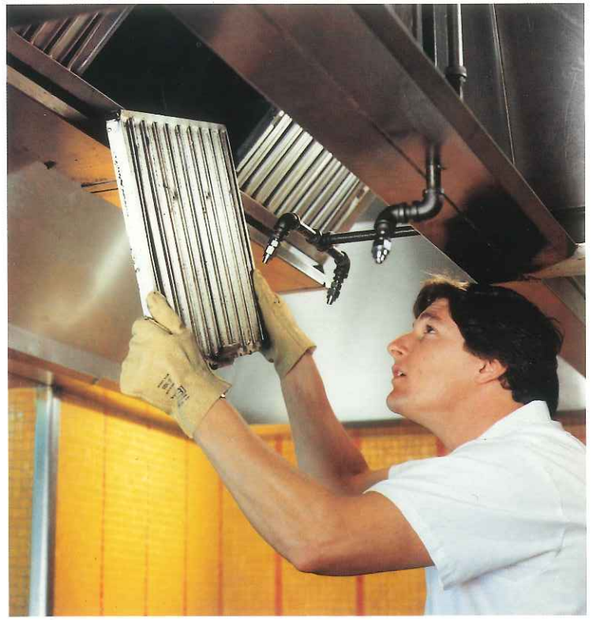
In a typical service call, the Safety-Kleen rep installs new Fire-Shield™ aluminum grease filters, and takes the old, dirty filters to the branch. He may, at the same time, clean and add fresh solution to the Soaking Center. Used filters are compacted and bailed at the branch, picked up by the Company's distribution vehicle, and taken to the area's distribution center. There, these filters are stored until a sufficient quantity is collected. They are then sold to an aluminum smelter for conversion and use again in other aluminum products.

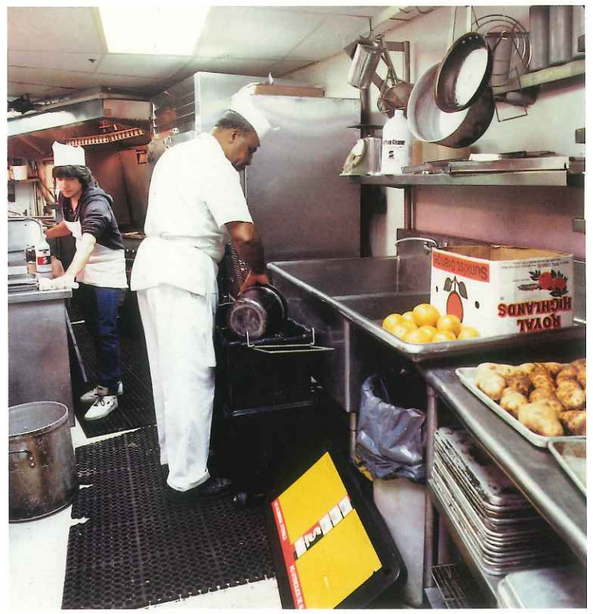
By the end of 1986, the Company was providing restaurant services to approximately 34,000 customers.

The Company's restaurant services program relies heavily on the distribution system that Safety-Kleen has in place to serve the entire branch network. In 1986, the Company was providing services to approximately 34,000 restaurant customers in the U.S.

Aluminum Fire-Shield™ grease filters are installed during periodic service calls. These filters are manufactured by the Company's New Berlin, Wisconsin plant. After use, they are compacted, transported to distribution centers, and then sold to aluminum smelters for use in other products.

The Soaking Center uses a special aquaeous solution to remove heavily encrusted material and grease from pots and other kitchenware. The Safety-Kleen rep also sells a variety of allied products to help maintain kitchen cleanliness.





The 1968 plan, laying out the development of Safety-Kleen accross the U.S., anticipated eventually having some 130 representatives serving approximately 50,000 customers. Today the Company has 241 branches worldwide, with an equivalent number of managers and over 1,600 sales representatives. In addition, Safety-Kleen offers five distinct services along with a variety of allied products targeted to hundreds of thousands of customers.

These statistics underscore the need for an efficient distribution network—one that is tightly controlled but able to respond quickly to rapidly changing conditions. Safety-Kleen's distribution network is such an organization—dedicated to serving the customer, and helping him and the Company fulfill the environmental responsibilities that are beneficial to everyone.

Since 1970, when Safety-Kleen opened its first solvent recycle center, it has been in the forefront of resource recovery. Every day, Safety-Kleen's fleet of tanker trucks is on the road between the seven recycle centers and the branches they serve, delivering fresh solvent for use in performing customer services, and picking up spent solvent for return to the recycle centers for recovery.

To some, used solvents are a waste. To the Company, they are valuable raw materials to be recycled and used again and again. These reclaimed solvents supply approximately two-thirds of the solvent used in the Company's parts cleaner service. In 1986, Safety-Kleen reclaimed

Safety-Kleen's six distribution centers inventory both service materials and allied products. These centers are located in Edgewater Park, New Jersey, Heath, Ohio, Lexington, South Carolina, New Berlin, Wisconsin, Oklahoma City, Oklahoma, and Pomona, California.

Accumulation centers have been established as two-way, intermediate collection and distribution points between branches and the recycle and distribution centers. At the end of 1986, 12 out of 25 planned accumulation centers were in operation.

The heart of solvent reclamation is Safety-Kleen's seven domestic recycle centers that process liquid cleaning waste generated by both large and small quantity generators of hazardous waste. These centers are located in Clayton, New Jersey; Lexington, South Carolina; Hebron, Ohio; Chicago and Elgin, Illinois; Denton, Texas; and Reedley, California.

some 30 million gallons of usable solvent and other petroleum by-products from the 32 million gallons of spent solvent entering the recycle process.

The Company's distribution centers keep the branches supplied with products for resale. Aluminum Fire-Shield™ grease filters and wool buffing pads, manufactured at the Company's plant in New Berlin, Wisconsin, and used in the restaurant and paint refinishing services, are examples of the necessary service materials that are stocked at the distribution centers. Allied products, such as hand cleaners, soaps, aerosol cleaners and various other products sold to customers during service calls, are also an important part of the distribution centers' inventories.

The recently established accumulation centers serve primarily as intermediate accumulation points for drums of clean and waste materials used in Safety-Kleen's services. Additionally, they are product distribution points for specifically assigned branches. Distribution centers regularly deliver material and products destined for branches to the appropriate accumulation centers, and return with the accumulated drums and skids of waste material for further processing. In turn, the accumulation centers transport the pre-packed products and material to branches, returning with the branches' collected waste material for centralized accumulation. This new tier in Safety-Kleen's distribution system adds even greater economy, efficiency and responsiveness to the Company's overall distribution network.

Through the Company's distribution network, operated and controlled solely by Safety-Kleen, those customers who are classified as generators of hazardous waste can be assured that their wastes are being handled and disposed of by the best method available—through resource recovery.

Safety-Kleen's distribution concept is part of a closed-loop cycle which sees solvents flowing to customers and back through the system to Safety-Kleen for recycling—and movement back again to customers. It is a dedicated operation: dedicated to serving the Company's customers with quality services and products, and dedicated to responsible action to help protect the environment.

Safety-Kleen's "closed-loop" distribution system is safe, efficient and economical. Solvents, material and allied products flow through the branch, to customers, and back again for recovery, recycling and reuse.

Dedicated to Service and Responsibility

In 1986, Safety-Kleen again posted record sales for the eighteenth straight year, and record earnings gains in excess of 20 percent for the sixteenth consecutive year, tying the all-time American business record achieved by only two other companies a number of years ago.

This past year was also a year of challenges for Safety-Kleen and its customers, with the Federal EPA's final regulations becoming effective as required by the congressional reauthorization of the Resource Conservation and Recovery Act of 1984. Small quantity generators are required to follow specific procedures in disposing of their hazardous wastes. The Company, through its extensive branch network, its accumulation centers and highly specialized customer services, responded to the challenges.

Important new additions to Safety-Kleen's coverage of its markets made their appearance in 1986. In the Parts Cleaner Service, the marketing agreement with Bearings, Inc. to sell Safety-Kleen parts cleaners to industrial customers, and market the Company's solvent service to these customers, is anticipated to have a positive effect by further increasing the Company's share of the industrial parts cleaner market. In the Paint Refinishing Service, the addition of a service to clean paint spray guns, recycle the solvent used in this cleaning process, and assist auto body shops by removing their waste paint for solvent recovery, is expected to prove quite beneficial to the user in complying with environmental regulations—and to the Company's growth in the years ahead.

The Company's consistent growth would not be possible without a far-reaching and finely-tuned distribution organization that meets the changes posed by the Company's markets and environmental requirements. As a result, Safety-Kleen's distribution organization accurately mirrors the goals of the Company. It is truly dedicated to *service and responsibility.*

Financial Reports

Contents

Selected Financial Data	29
Management's Discussion and Analysis of Financial Condition and Results of Operations	30
Report of Independent Public Accountants Consolidated Statements of Earnings	33
Consolidated Statements of Shareholders' Equity	34
Consolidated Balance Sheets	35
Consolidated Statements of Changes in Financial Position	36
Notes to Consolidated Financial Statements	37

Selected Financial Data

(Expressed in thousands, except per share amounts)

					Fiscal Year[1]
	1986[3]	1985	1984	1983	1982
Income Statement Data					
Service revenues and sales	$255,356	$221,080	$185,630	$162,771	$149,244
Net earnings	28,254	27,185[2]	19,428	15,759	13,024
Earnings per share	.86	.84[2]	.62	.51	.43
Cash dividends per share	.213	.187	.133	.089	.067
Balance Sheet Data					
Current assets	79,085	77,047	63,493	58,214	46,695
Current liabilities	37,097	30,865	26,572	20,714	18,349
Working capital	41,988	46,182	36,921	37,500	28,346
Total assets	212,762	176,885	140,537	109,548	91,451
Long-term debt	9,900	11,700	7,103	8,023	9,000
Shareholders' equity	137,445	113,643	89,230	70,302	55,946

[1] The above data has been restated to reflect three-for-two stock splits on December 6, 1982, December 10, 1984, December 9, 1985 and March 5, 1987, more fully described in Note 7 to the Consolidated Financial Statements.

[2] 1985 net earnings include $3,706,000 ($.11 per share) for the cumulative effect of a change in accounting for investment tax credits as more fully described in Note 1 to the Consolidated Financial Statements.

[3] Fiscal year 1986 has fifty-three weeks, all other fiscal years presented have fifty-two weeks.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Summary

The following table sets forth for the periods indicated (i) percentages which certain items reflected in the financial data bear to consolidated revenues and sales of the Company and (ii) the percentage increase of such items as compared to the indicated prior period:

	Relationship to Consolidated Revenues and Sales			Period to Period Increase (Decrease)	
		Fiscal Years		Fiscal Years	
	1986*	1985	1984	1985-86*	1984-85
Revenues and Sales					
Service revenues	85.8%	84.2%	83.5%	17.7%	20.0%
Sales (primarily allied products)	14.2	15.8	16.5	3.9	14.5
	100.0	100.0	100.0	15.5	19.1
Costs and Expenses					
Branch operating costs and expenses and cost of sales	65.6	66.6	66.9	13.6	18.6
Selling and administrative expenses	16.3	15.5	15.9	21.3	16.1
Interest, net	(1.6)	(.8)	(1.7)	117.2	(41.1)
	80.3	81.3	81.1	14.0	19.4
Earnings Before Income Taxes and Cumulative Effect of Change in Accounting Principle	19.7	18.7	18.9	22.0	17.9
Income Taxes	8.6	8.1	8.4	24.2	14.2
Earnings Before Cumulative Effect of Change in Accounting Principle	11.1	10.6	10.5	20.3	20.9
Cumulative Effect of Change in Accounting for Investment Tax Credits	–	1.7	–	N/A	N/A
Net Earnings	11.1%	12.3%	10.5%	3.9	39.9

*1986 is a fifty-three week fiscal year.

Trends

During the five fiscal years ended January 3, 1987, the Company's revenues and earnings grew at compounded rates of 13.6 percent and 20.8 percent, respectively. This was largely attributable to growth in service revenue in the Company's parts cleaner, restaurant, paint refinishing, dry cleaner and industrial solvents services, as well as allied product sales growth in the parts cleaner and paint refinishing markets.

Inflation and Changes in Prices

The Company uses a substantial volume of petroleum-based solvents in its parts cleaner service. The cost of solvents rose significantly from 1974 through 1980. In 1981, price increases moderated and prices declined in subsequent years. Approximately two-thirds of the Company's solvent requirements are met by recycling, leaving one-third to be purchased.

Throughout this time period the Company has been able to raise prices in its parts cleaner service. Management expects to be able to raise prices in the future to compensate for cost increases.

Liquidity and Capital Resources

The Company's working capital declined from $46,182,000 at December 28, 1985 to $41,988,000 at January 3, 1987.

Capital additions in 1986 totaled $50 million. Commitments for capital expenditures as of January 3, 1987 were approximately $3 million.

In December, 1986, the Company contributed $6.3 million to a Voluntary Employee Beneficiary Association (VEBA) trust fund as discussed in Note 8 to the Consolidated Financial Statements appearing on page 41. The VEBA trust fund balance of $7,412,000 at the end of 1986 is included in prepaid expenses in the January 3, 1987 Consolidated Balance Sheet. These funds are expected to be paid out during 1987 for covered employee benefits.

As a result of the Tax Reform Act of 1986, the Company anticipates lower cash flow in 1987 and higher cash flow in 1988 and future years. These projections take into account (among other factors) the Company's projected earnings, capital spending, the scheduled decline in statutory Federal income tax rates and elimination of the investment tax credit. The Company believes any changes in cash flows as a result of the Act will not materially affect liquidity.

The Company expects to be able to finance growth in its existing service areas through internally generated funds for the foreseeable future.

Results of Operations

Revenues and Sales. Total service revenues and sales derived from the Company's parts cleaner service amounted to $190,046,000 in 1986, $169,782,000 in 1985 and $155,127,000 in 1984. Total service revenues and sales derived from the newer service areas, primarily restaurant services, automotive paint refinishing services, dry cleaner services and the exchange and recycling of industrial solvents amounted to $65,310,000 in 1986, $51,298,000 (including revenues of Custom Organics, Inc., acquired on August 6, 1985) in 1985 and $30,503,000 in 1984.

Service revenues and sales from the Company's parts cleaner service increased $20,264,000 or twelve percent in 1986 over 1985. Of this increase, ninety-six percent was derived from service revenues while four percent was due to growth in allied product sales. Parts cleaners in service increased 5.0 percent in 1986. In addition, the average time interval between services shortened slightly from the end of 1985 to the end of 1986. The combination of more machines in service and the shorter average service interval resulted in 5.8 percent additional services performed in 1986 over 1985. The average price per service in 1986 was 6.7 percent higher than in 1985. Service revenues and sales from the Company's parts cleaner service increased $14,655,000 or nine percent in 1985 over 1984. Of this increase, ninety-three percent was derived from service revenues while seven percent was due to growth in allied product sales. Parts cleaners in service increased 4.4 percent in 1985. In addition, the average time interval between services shortened slightly from the end of 1984 to the end of 1985. The combination of more machines in service and the shorter average service interval resulted in 5.9 percent additional services performed in 1985 over 1984. The average price per service in 1985 was four percent higher than in 1984. Service revenues and sales from the Company's parts cleaner service increased $13,051,000, or nine percent, in 1984 over 1983. Of this increase, eighty-two percent was derived from service revenues, while eighteen percent was due to growth in allied product sales. Parts cleaners in service increased 4.2 percent in 1984. In addition, the average time interval between services shortened slightly from the end of 1983 to the end of 1984. The combination of more machines in service and the shorter average service interval resulted in 6.5 percent additional services performed in 1984 over 1983. The average price per service in 1984 was two percent higher than in 1983.

Management's Discussion and Analysis of Financial Condition and Results of Operations

(continued)

The combined revenues of the Company's newer service areas increased twenty-seven percent in 1986, sixty-eight percent in 1985, and forty-seven percent in 1984. Excluding revenues of the map distribution business, sold in October, 1985, the combined revenues of the Company's newer service areas increased thirty-two percent in 1986.

Branch Operating Costs and Expenses and Cost of Sales. Branch operating costs and expenses and cost of sales improved to 65.6 percent of sales in 1986 as compared to 66.6 percent of sales in 1985. This improvement in overall margins is due to higher gross margins in the parts cleaner service and an improvement in the newer service areas. The improvement in gross margins in the parts cleaner service is primarily due to the higher unit volume of services, price increases and lower cost of virgin solvents. The continuing trend of improving combined gross profit in the newer service areas is primarily due to additional revenues derived from higher unit volume sales and the favorable effects of spreading the fixed and semi-variable cost components over a larger revenue base.

Branch operating costs and expenses and cost of sales improved slightly to 66.6 percent of sales in 1985 as compared to 66.9 percent of sales in 1984.

Branch operating costs and expenses and cost of sales represented 66.9 percent of sales in 1984 as compared to 67.9 percent of sales in 1983. This improvement in overall margins is due to higher gross margins in the parts cleaner service and an improvement in the newer service areas from a combined loss at the gross profit level in 1983 to a combined profit in 1984. The improvement in gross margins in the parts cleaner service is primarily due to the higher unit volume of services, price increases and lower cost of virgin solvents. The improvement in the combined gross profit in the newer service areas is primarily due to additional revenues derived from higher unit volume sales and the favorable effects of spreading the fixed and semi-variable cost components over a larger revenue base.

Selling and Administrative Expenses. Selling and administrative expenses rose at a faster rate than revenues in 1986 and at a lesser rate than revenues in 1985. The increases in both years were primarily due to higher insurance costs, additional employees and employee expenses, increases in salaries and benefits, and increases in other compensation based upon sales and consolidated earnings. The acquisition of Custom Organics, Inc., also contributed to the 1985 increase.

Interest, net. In 1986, 1985 and 1984, respectively, $2,351,000, $380,000 and $1,437,000 of income is included in Interest, net in connection with the purchase of Federal income tax benefits as discussed in Note 9 to the Consolidated Financial Statements appearing on page 43. As a result of the Tax Reform Act of 1986, Interest, net in 1986 includes $2,689,000 of non-recurring additional income recorded in connection with the purchase of these Federal income tax benefits. These amounts are included in Interest, net with no corresponding income tax effect. Exclusive of amounts recorded in connection with tax benefits, Interest, net increased $220,000 from 1985 to 1986 due to higher average investment balances during 1986. Exclusive of amounts recorded in connection with tax benefits, Interest, net declined by $247,000 from 1984 to 1985 primarily due to lower interest rates.

Income Taxes. The effective income tax rate was forty-four percent in 1986, forty-three percent in 1985 and forty-four percent in 1984. The effective 1986 rate is higher than 1985 primarily due to the effects of the Tax Reform Act of 1986. If the Act had not repealed the investment tax credit, the Company would have reported approximately $1,538,000 lower income tax expense for the full year 1986. Exclusive of the effects of the Act, the effective 1986 income tax rate would have been approximately forty-three percent, which is comparable to the 1985 rate. The effective 1985 rate is lower than in 1984 primarily due to the favorable effects of the change to the flow-through accounting method for investment tax credits (as more fully described in Note 1 to the Consolidated Financial Statements appearing on page 37) and a lower statutory tax rate in the United Kingdom, partly offset by lower Interest, net recorded in connection with the purchase of tax benefits.

Report of Independent Public Accountants

To the Board of Directors and Shareholders of Safety-Kleen Corp.:

We have examined the consolidated balance sheets of Safety-Kleen Corp. (a Wisconsin corporation) and Subsidiaries as of January 3, 1987, and December 28, 1985 and the related consolidated statements of earnings, shareholders' equity and changes in financial position for each of the three fiscal years in the period ended January 3, 1987. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the consolidated financial statements referred to above present fairly the financial position of Safety-Kleen Corp. and Subsidiaries as of January 3, 1987, and December 28, 1985, and the results of their operations and the changes in their financial position for each of the three fiscal years in the period ended January 3, 1987, in conformity with generally accepted accounting principles which, except for the change (with which we concur) in accounting for investment tax credits as discussed in Note 1, were applied on a consistent basis.

Arthur Andersen & Co.

Chicago, Illinois,
February 6, 1987.

Consolidated Statements of Earnings

Safety-Kleen Corp. and Subsidiaries

(Expressed in thousands, except per share amounts)

Fiscal Year Ended	Jan. 3, 1987*	Dec. 28, 1985	Dec. 29, 1984
Revenues and Sales			
Service revenues	$219,000	$186,081	$155,065
Sales (primarily allied products)	36,356	34,999	30,565
	255,356	221,080	185,630
Costs and Expenses			
Branch operating costs and expenses and cost of sales	167,411	147,322	124,228
Selling and administrative expenses	41,658	34,356	29,579
Interest, net (Note 9)	(4,060)	(1,869)	(3,173)
	205,009	179,809	150,634
Earnings Before Income Taxes and Cumulative Effect of Change in Accounting Principle	50,347	41,271	34,996
Income Taxes (Note 9)	22,093	17,792	15,568
Earnings Before Cumulative Effect of Change in Accounting Principle	28,254	23,479	19,428
Cumulative Effect of Change in Accounting for Investment Tax Credits (Note 1)	–	3,706	–
Net Earnings	$ 28,254	$ 27,185	$ 19,428
Per Share (Note 1)			
Earnings before cumulative effect of change in accounting principle	$ .86	$ .73	$ .62
Cumulative effect of change in accounting for investment tax credits (Note 1)	–	.11	–
Net Earnings	$ .86	$ .84	$ .62

*Fifty-three week fiscal year

The accompanying notes are an integral part of these financial statements.

Consolidated Statements of Shareholders' Equity

Safety-Kleen Corp. and Subsidiaries

(Amounts expressed in thousands)

Common Shares Outstanding		Total Shareholders' Equity	Common Stock	Paid-In Surplus	Retained Earnings	Cumulative Translation Adjustments
9,111,929	Balance at January 1, 1984	$ 70,302	$ 911	$ 7,742	$ 62,937	$(1,288)
–	Net earnings	19,428	–	–	19,428	–
4,601,670	Stock issued as a result of a split-up effected in the form of a 50% stock dividend (Note 7)	–	461	(461)	–	–
–	Cash dividends–$.30 per share	(4,136)	–	–	(4,136)	–
102,184	Stock options exercised	1,611	10	1,601	–	–
–	Tax benefits arising from stock option transactions	172	–	172	–	–
–	Change in cumulative translation adjustments (Note 4)	(970)	–	–	–	(970)
13,815,783	Balance at December 29, 1984	86,407	1,382	9,054	78,229	(2,258)
298,228	Adjustment for the pooling of interest of Custom Organics, Inc. (Note 2)	2,823	30	39	2,754	–
14,114,011	Restated balance at Dec. 29, 1984	89,230	1,412	9,093	80,983	(2,258)
–	Net earnings (Note 1)	27,185	–	–	27,185	–
7,140,316	Stock issued as a result of a split-up effected in the form of a 50% stock dividend (Note 7)	–	714	(714)	–	–
–	Cash dividends–$.28 per share	(5,937)	–	–	(5,937)	–
187,201	Stock options exercised	1,841	18	1,823	–	–
–	Tax benefits arising from stock option transactions	174	–	174	–	–
–	Change in cumulative translation adjustments (Note 4)	1,150	–	–	–	1,150
21,441,528	Balance at December 28, 1985	113,643	2,144	10,376	102,231	(1,108)
–	Net earnings	28,254	–	–	28,254	–
–	Cash dividends–$.32 per share	(6,898)	–	–	(6,898)	–
180,817	Stock options exercised	1,915	18	1,897	–	–
–	Tax benefits arising from stock option transactions	278	–	278	–	–
–	Change in cumulative translation adjustments (Note 4)	253	–	–	–	253
21,622,345	Balance at January 3, 1987	137,445	2,162	12,551	123,587	(855)
10,811,173	Retroactive effect of stock issued as a result of a March 5, 1987 split-up effected in the form of a 50% stock dividend (Note 7)	–	1,081	(1,081)	–	–
32,433,518	Restated balance at Jan. 3, 1987	$137,445	$3,243	$11,470	$123,587	$ (855)

The accompanying notes are an integral part of these financial statements.

Consolidated Balance Sheets

Safety-Kleen Corp. and Subsidiaries

(Expressed in thousands)

	January 3, 1987	December 28, 1985
Assets		
Current Assets		
Cash	$ 6,669	$ 3,645
Short-term investments, at cost (approximates market)	11,995	17,947
Trade accounts receivable, less allowances of $2,069,000 and $1,996,000 respectively	29,596	25,298
Refundable taxes	61	753
Inventories (Note 5)	18,934	16,617
Prepaid expenses (Note 8)	11,649	8,831
Other	181	3,956
	79,085	77,047
Equipment at Customers and Components, at Cost, Less Accumulated Depreciation of $21,575,000 and $18,512,000 respectively	21,887	19,654
Property, at Cost		
Land	5,500	3,396
Buildings and improvements	29,087	19,695
Leasehold improvements	15,364	14,525
Machinery and equipment	53,366	37,771
Autos and trucks	42,558	27,723
	145,875	103,110
Less accumulated depreciation and amortization	38,826	29,173
Property, net	107,049	73,937
Other Assets	4,741	6,247
	$212,762	$176,885
Liabilities and Shareholders' Equity		
Current Liabilities		
Dividends payable	$ –	$ 1,715
Notes payable	135	135
Current portion of long-term debt	1,000	1,000
Trade accounts payable	13,364	9,974
Accrued salaries, wages and employee benefits	8,943	6,461
Other accrued expenses	6,736	5,172
Income taxes payable (Note 9)	6,919	6,408
	37,097	30,865
Long-Term Debt, Less Current Portion (Note 6)	9,900	11,700
Deferred Income Taxes (Note 9)	28,320	20,677
Commitments and Contingent Liabilities (Note 10)		
Shareholders' Equity		
Common stock ($.10 par value; authorized 75,000,000 shares and 25,000,000 shares, respectively; issued and outstanding 32,433,518 shares and 21,441,528 shares, respectively) (Note 7)	3,243	2,144
Paid-in surplus	11,470	10,376
Retained earnings (Note 6)	123,587	102,231
Cumulative translation adjustments (Note 4)	(855)	(1,108)
	137,445	113,643
	$212,762	$176,885

The accompanying notes are an integral part of these balance sheets.

Consolidated Statements of Changes in Financial Position

Safety-Kleen Corp. and Subsidiaries

(Expressed in thousands)

Fiscal Year Ended	Jan. 3, 1987*	Dec. 28, 1985	Dec. 29, 1984
Sources of Funds			
Operations			
Net earnings (Note 1)	$28,254	$27,185	$19,428
Items not requiring funds			
Depreciation of equipment at customers	3,555	3,170	2,771
Other depreciation and amortization	11,207	8,611	5,835
Deferred investment tax credits (Notes 1 and 9)	–	(4,260)	753
Deferred income taxes (Note 9)	7,555	7,517	6,458
Other	227	1	(282)
Total funds from operations	50,798	42,224	34,963
Other Sources			
Issuance of Industrial Development Revenue Bonds	–	5,700	–
Draw down of Industrial Revenue Bond Trust Funds	3,676	–	–
Recovery of investment in tax benefits (Note 9)	–	528	1,970
Net book value of equipment at customers, plant and equipment retired	410	2,447	193
Stock options exercised and related tax benefits (Note 7)	2,193	2,015	1,783
Total other sources	6,279	10,690	3,946
Total sources	57,077	52,914	38,909
Application of Funds			
Equipment at customers and component additions	5,692	6,329	3,487
Property, plant and equipment additions	44,314	26,571	29,405
Cash dividends declared	6,898	5,937	4,136
Establishment of Industrial Revenue Bond Trust Funds	–	3,623	–
Reduction of long-term debt	1,800	1,103	964
Cumulative translation adjustments (Note 4)	(172)	(979)	743
Other, net	2,739	1,069	360
Total application	61,271	43,653	39,095
Increase (Decrease) in Working Capital	$ (4,194)	$ 9,261	$ (186)
Details of Increase (Decrease) in Working Capital			
Increase (Decrease) in current assets			
Cash	$ 3,024	$ 2,613	$ (1,093)
Short-term investments	(5,952)	1,463	(363)
Trade accounts receivable	4,298	3,750	2,810
Refundable taxes	(692)	(2,652)	(1,602)
Inventories	2,317	3,449	1,112
Prepaid expenses	2,818	2,945	4,224
Other	(3,775)	1,986	(1,266)
Total increase in current assets	2,038	13,554	3,822
Decrease (Increase) in current liabilities			
Dividends payable	1,715	(334)	(1,381)
Notes payable	–	1,261	142
Current portion of long-term debt	–	65	230
Trade accounts payable	(3,390)	(1,350)	(1,229)
Accrued expenses	(4,046)	(1,140)	(1,313)
Income taxes payable	(511)	(2,795)	(457)
Total (increase) in current liabilities	(6,232)	(4,293)	(4,008)
Increase (Decrease) in Working Capital	$ (4,194)	$ 9,261	$ (186)

*Fifty-three week fiscal year

The accompanying notes are an integral part of these financial statements.

Notes to Consolidated Financial Statements

Safety-Kleen Corp. and Subsidiaries

1. Summary of Significant Accounting Policies

Principles of Consolidation

The Consolidated Financial Statements include the accounts of the Company and its subsidiaries, after elimination of all significant intercompany balances and transactions. The Company's fiscal year ends on the Saturday closest to December 31. As a result, the Consolidated Financial Statements include fifty-three weeks in the fiscal year ended January 3, 1987, and fifty-two weeks in the two preceding fiscal years.

Inventories

Substantially all domestic allied product and solvent inventories are stated at last-in, first-out cost (LIFO). All other inventories are priced at the lower of first-in, first-out cost (FIFO) or market. Inventory costs include material, labor and manufacturing overhead.

Equipment at Customers and Related Depreciation

Equipment at customers is capitalized at manufactured or purchased cost. Depreciation is computed using the straight-line method commencing when the units are placed in service.

Property, Plant and Equipment and Related Depreciation

Land, buildings and improvements, leasehold improvements, machinery and equipment, and autos and trucks are capitalized at cost. Depreciation and amortization are computed principally using the straight-line method, except for autos and trucks which are depreciated using the straight-line and sum-of-the-years-digits methods.

International License and Joint Venture Agreements

Safety-Kleen licensees operate parts cleaner service businesses in Australia, Hawaii, Japan, New Zealand, Puerto Rico and West Germany. License fees received by the Company are included in service revenues in the Consolidated Statements of Earnings. The Company has options to purchase the Australia and New Zealand operations on or after December 31, 1989 and the West German operation on or after August 30, 1991.

During 1985, the Company entered into joint venture agreements to engage in the parts cleaner service business in France and Spain. The Company owns fifty percent of these joint venture companies. These investments are accounted for by the equity method. The French joint venture began operations in the fourth quarter of 1985, and the Spanish joint venture began operations during the first quarter of 1986. The joint venture companies are licensees of the Company.

Income Taxes

The Company provides for income taxes on items included in the Consolidated Statements of Earnings regardless of the period when such taxes are payable. Deferred income taxes arise primarily from the excess of accelerated depreciation used for tax purposes over depreciation recorded for financial statement purposes, and from tax lease agreements more fully described in Note 9.

In 1985, the Company changed its method of accounting for investment tax credits from the deferral to the flow-through method. The effect of the change was to increase earnings before cumulative effect of change in accounting principle by $673,000 or $.02 per share for the fiscal year ended December 28, 1985. The cumulative prior years' effect of the change increased net earnings by $3,706,000 or $.11 per share. If the flow-through method of accounting for investment tax credits had been used in prior years, 1984 net earnings would have been $440,000 or $.01 per share, higher than as reported.

Earnings Per Share

Earnings per share amounts are based on the average shares of common stock outstanding during each year and common stock equivalents of dilutive stock options. Earnings per share amounts have been restated to give effect to the three-for-two stock splits in March, 1987 (retroactive effect—see Note 7), December, 1985, and December, 1984, all effected in the form of 50 percent stock dividends.

Notes to Consolidated Financial Statements

(continued)

2. Acquisition of Custom Organics, Inc.

Effective August 6, 1985, the Company acquired all of the outstanding shares of Custom Organics, Inc. in exchange for 686,250 shares of the Company's common stock (adjusted for the three-for-two stock splits on March 5, 1987 and December 9, 1985). The acquisition was accounted for as a pooling of interests, and accordingly, the Consolidated Financial Statements were restated to include the accounts of Custom Organics, Inc. for the twenty-four weeks ended June 15, 1985 (the interim period prior to the acquisition). The effect of the restatement was to increase sales and net earnings by $2,953,000 and $259,000, respectively, for the twenty-four weeks ended June 15, 1985. Earnings per share for that period remain unchanged. The Consolidated Balance Sheet as of December 29, 1984, was restated to include the accounts of Custom Organics, Inc. The Consolidated Balance Sheet, Statements of Earnings, Changes in Financial Position and Shareholders' Equity for periods prior to December 29, 1984, have not been restated because the effect was not material.

3. Segment Information

The Company and its subsidiaries operate in three countries: the United States, Canada and the United Kingdom. Principally, the same services and products are provided in each country. A summary of certain data with respect to these operations for the fiscal years ended January 3, 1987, December 28, 1985 and December 29, 1984 is as follows:

	(Expressed in thousands)		
	1986*	1985	1984
Service Revenues and Sales			
United States	$236,029	$206,400	$172,161
Canada and United Kingdom	19,327	14,680	13,469
Consolidated	$255,356	$221,080	$185,630
Total Assets			
United States	$195,029	$164,288	$131,566
Canada and United Kingdom	17,733	12,597	8,971
Consolidated	$212,762	$176,885	$140,537
Net Earnings (Note 1)			
United States	$ 25,849	$ 25,609	$ 18,074
Canada and United Kingdom	2,405	1,576	1,354
Consolidated	$ 28,254	$ 27,185	$ 19,428

*1986 is a fifty-week fiscal year.

The Company operates primarily in one business segment—providing services and products for degreasing and metal preparation. Total revenues, assets and earnings/losses of other segments are less than ten percent of the respective consolidated totals.

4. Foreign Currency Translation

The Company applies the provisions of Statement of Financial Accounting Standards No. 52 in translating the financial statements of its consolidated foreign subsidiaries.

An exchange gain of $21,000 in 1986, and exchange losses of $87,000 in 1985 and $128,000 in 1984 are included in selling and administrative expenses.

5. Inventories

LIFO inventories at January 3, 1987, and December 28, 1985, were $7,435,000 and $7,206,000, respectively. Under the FIFO method of accounting (which approximates current or replacement cost), inventories would have been $1,781,000 and $2,983,000 higher, respectively.

Major classes of inventory are:

	(Expressed in thousands)	
	January 3, 1987	December 28, 1985
Allied products and related items	$ 7,252	$ 8,071
Solvent	4,765	3,856
Other	6,917	4,690
Total inventories	$18,934	$16,617

6. Financial Arrangements and Long-Term Debt

Long-term debt at January 3, 1987, and December 28, 1985 consisted of the following:

	(Expressed in thousands)	
	January 3, 1987	December 28, 1985
9¼% Senior Notes payable to an insurance company, due in annual installments of $800,000 from 1987 to 1991	$ 4,000	$ 5,600
Obligations under Licking County, Ohio 8% Industrial Development Revenue Bonds, Series 1980, due $200,000 annually from 1987 to 1992	1,200	1,400
Obligations under Lexington County, South Carolina Industrial Development Revenue Bonds, Series 1985, interest of 70.0% of floating prime rate, due $300,000 annually from 1991 to 2000	3,000	3,000
Obligations under City of Denton, Texas Industrial Development Authority, Industrial Development Revenue Bonds, Series 1985, interest of 68.3% of floating prime rate, due $270,000 annually from 1991 to 2000	2,700	2,700
	10,900	12,700
Less current portion	1,000	1,000
Total long-term debt	$ 9,900	$11,700

Maturities of long-term debt are $1,000,000 in each of the four fiscal years succeeding January 3, 1987, and $1,570,000 in fiscal year 1991. The Company has the option to prepay up to $800,000 annually, without penalty, of the 9¼% Senior Notes and elected to do so in 1986.

The interest rates on the Lexington County, SC and City of Denton, TX Industrial Development Revenue Bonds are subject to change if changes in the Federal income tax laws affect the taxability of the interest income to the holder of these bonds. Accordingly, these rates have been revised to reflect the effect of the Tax Reform Act of 1986.

The 9¼ percent Senior Notes and the Industrial Development Revenue Bonds include provisions, among others, relative to additional borrowings, maintenance of working capital, and restrictions on the amount of retained earnings available for dividends. Under the most restrictive of these covenants, the Company must maintain a current ratio, as defined, of 1.5 to 1.0. At January 3, 1987, the current ratio, as defined, was 2.1 to 1.0. At that date, $87,917,000 of retained earnings were restricted as to payment of cash dividends.

The Company has established with a U.S. bank an unsecured line of credit totaling $2,500,000 at the prime interest rate with compensating balances equal to 2.5 percent of the line of credit. The Company intends to continue this line of credit during fiscal 1987.

7. Capital Stock

Stock Splits

In March, 1987 (subsequent to the end of fiscal year 1986), December, 1985, and December, 1984, three-for-two stock splits were effected in the form of stock dividends by issuance of an additional share of $.10 par value common stock for each two shares then outstanding. The Consolidated Balance Sheet at January 3, 1987 reflects the March, 1987 stock split (declared by the Company's Board of Directors on February 6, 1987) applied on a retroactive basis. The par value of the shares issued was transferred from paid-in surplus to common stock. The number of shares and per share amounts below have been restated to reflect such distributions.

1985 Stock Option Plan

On May 10, 1985, shareholders approved the 1985 Stock Option Plan (the Plan). Under the Plan, options to purchase up to 1,125,000 shares of the Company's common stock may be granted to officers and other key employees at a price of 100 percent of the quoted market price at date of grant. Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Stock appreciation rights (SARs) may be granted in conjunction with Non-Qualified Stock Options whereby the grantee may surrender exercisable Non-Qualified Options and receive a cash payment equal to the difference between the option price and the market value of the common stock on the exercise date. Incentive Options, Non-Qualified Options and SARs become exercisable at such time or times, and are subject to such conditions, as determined at the time of grant by the Compensation Committee of the Board of Directors.

At January 3, 1987, there were no outstanding options with SARs. Other option plan data for the two fiscal years ended January 3, 1987 are presented below.

1985 Stock Option Plan Data	1986	1985
Options outstanding at end of year		
Number of options	309,820	238,143
Average price per share	$17.96	$16.27
Options exercised during the year		
Number of options	3,580	–
Average price per share	$15.90	–
Number of options exercisable at end of year	36,662	–
Options available for grant at end of year	811,600	886,857

1980 Stock Option Plan

Under the Company's 1980 Stock Option Plan, as amended, options for 2,025,000 common shares were available for grant to officers and other key employees at a price of 100 percent of the quoted market price at date of grant. Options are exercisable 25 percent annually, on a cumulative basis, starting one year from date of grant and terminating five years after the grant date.

At January 3, 1987, there were no outstanding options with SARs. Other option plan data for the three fiscal years ended January 3, 1987 are presented below.

1980 Stock Option Plan Data	1986	1985	1984
Options outstanding at end of year			
Number of options	387,730	602,572	1,035,735
Average price per share	$ 8.21	$ 7.49	$ 7.21
Options exercised during the year			
Number of options	194,891	379,122	306,900
Average price per share	$ 5.85	$ 3.87	$ 3.41
Number of options exercisable at end of year	188,070	130,290	334,350
Options available for grant at end of year	–	–	–

No additional options may be granted under the plan after December 31, 1984.

Stock Purchase Plans

Under the Employee Stock Purchase Plan, approved by the shareholders on May 10, 1985, a total of 562,500 shares of the Company's common stock may be purchased by employees of the Company and designated subsidiaries, through payroll deductions, at 90 percent of the quoted market price for the date preceding the date of grant. Employees with less than one year of service or who hold options under either the 1980 or 1985 Stock Option Plans are not eligible to participate in this Plan. Under the predecessor plan, approved by shareholders in 1980, 1,012,500 shares of the Company's common stock were available for purchase. The provisions of the predecessor plan were substantially identical to the 1985 plan. Data for the Stock Purchase Plan and predecessor plan for the three years ended January 3, 1987 are presented below.

Stock Purchase Plan Data	1986	1985	1984
Options outstanding at end of year			
Number of options	63,690	76,132	87,075
Average price per share	$21.30	$13.00	$ 8.60
Options exercised during the fiscal year			
Number of options	70,578	81,700	56,025
Average price per share	$13.00	$ 8.63	$ 8.72
Number of options exercisable at end of year	–	–	–
Options available for grant at end of year	427,510	485,644	–

Shareholders Rights Plan

In August, 1986, the Company declared a dividend distribution of one common share purchase right on each outstanding share of common stock. When exercisable, each right will entitle its holder to buy one share of the Company's common stock at a price of $83.33 per share until August, 1996. The rights will become exercisable if a person acquires 20 percent of the Company's common stock or makes an offer that would result in such person owning 30 percent of the Company's stock. In the event the Company is acquired in a merger in which its shares are exchanged, each right entitles the holder to purchase common stock of the surviving company having a market value of twice the exercise price of the right. In the event the Company is the surviving company in a merger with a 20 percent holder and the shares of the Company are not exchanged, each right not owned by the 20 percent holder will entitle the holder to purchase common stock of the Company having a market value of twice the exercise price. The rights may be redeemed by the Company, at a price of five cents per right, at any time prior to the rights becoming exercisable.

8. Pension and Employee Benefit Plans

The Company has noncontributory pension plans covering substantially all full time employees in the United States. In addition, the Company's foreign subsidiaries have pension plans. Domestic pension costs are funded in compliance with ERISA requirements as employees become eligible to participate, generally, after completing one year of service.

During 1986, the Company adopted Statement of Financial Accounting Standards (SFAS) No. 87, "Employers Accounting for Pensions," as the basis of accounting for its domestic pension plans. In accordance with the provisions of SFAS No. 87, pension cost for prior periods has not been restated. This change in accounting is not material. The Company's Consolidated pension cost for the fiscal years 1986, 1985 and 1984 was approximately $1,066,000, $784,000 and $718,000, respectively.

The following table sets forth the domestic plans combined funded status at January 3, 1987.

	(Expressed in thousands)
Actuarial Present Value of Benefit Obligation:	
Vested Benefits	$ 5,026
Nonvested Benefits	1,743
Accumulated Benefit Obligation	6,769
Effect of projected future compensation levels	3,011
Projected Benefit Obligation	9,780
Plan Assets at fair Value	10,079
Projected benefit obligation less than plan assets	299
Unrecognized loss	174
Unrecognized net (assets) at January 3, 1987 to be amortized over 16 to 20 years	(1,299)
Unfunded accrued pension cost recognized in the January 3, 1987 Consolidated Balance Sheet	$ (826)

The plan's assets consist of equity funds, pooled funds of real estate and corporate bonds, and a group annuity contract.

Net periodic pension cost for the Company's domestic plans in 1986 includes the following components:

	(Expressed in thousands)
Service cost-benefits earned during the year	$966
Net amortization of unrecognized net assets	(72)
Interest on projected benefit obligation	601
Interest on plan assets	(669)
Net periodic pension cost	$826

The projected benefit obligation as of December 31, 1986 was determined using an assumed discount rate of 8%, and rates of compensation increase of 7%. The expected long-term rate of return on assets used in determining net periodic pension cost was 8%.

The Company also has defined contribution pension plans covering employees of its foreign subsidiaries. Those plans are funded by purchase of insurance contracts and vested benefits are fully funded. The Company's foreign subsidiaries are not required to report under ERISA and do not otherwise determine the actuarial value of accumulated plan benefits or net assets available for benefits as disclosed above for the Company's domestic pension plans.

During 1984, the Company established a Voluntary Employee Beneficiary Association (VEBA). The VEBA is an irrevocable trust created to fund employee medical and life insurance benefits. VEBA trust balances of $7,412,000 and $5,484,000, respectively, are included in Prepaid expenses in the January 3, 1987 and December 28, 1985 Consolidated Balance Sheets.

Beginning in 1985, the Company offered a postretirement medical insurance plan to its domestic employees retiring prior to the normal retirement age of 65. Retirees are eligible to continue this medical coverage until age 65. Retirees electing this coverage are required to pay premiums for the insurance. Claims paid under the provisions of this plan are paid by the Company's employee medical plan which is funded by the VEBA trust. The number of participants in the plan and related costs are not material.

9. Income Taxes

The components of earnings before income taxes and cumulative effect of change in accounting principle, consisted of the following for each of the last three fiscal years:

	(Expressed in thousands)		
	1986	1985	1984
Domestic	$46,419	$38,644	$32,581
Foreign	3,928	2,627	2,415
	$50,347	$41,271	$34,996

The provisions for income taxes are comprised of the following:

	(Expressed in thousands)		
	1986	1985	1984
U.S. Federal			
Current	$10,144	$ 6,919	$ 5,324
Deferred			
Related to tax depreciation in excess of book depreciation	5,896	2,659	2,329
Investment tax credits (Note 1)	–	–	753
Related to tax lease agreements	1,669	4,173	2,081
Related to contributions to VEBA Trust (Note 8)	–	413	1,886
Decrease in prepaid taxes	–	93	108
Foreign			
Current	1,524	1,051	1,097
Deferred, primarily related to book depreciation in excess of tax depreciation	–	–	(36)
State	2,860	2,484	2,026
	$22,093	$17,792	$15,568

The following table reconciles the statutory U.S. Federal income tax rate to the Company's effective tax rate:

	1986	1985	1984
Statutory U.S. Federal income tax rate	46.0%	46.0%	46.0%
Increase (Decrease) resulting from–			
Provision for state income taxes, net of Federal income tax benefit	3.2	3.3	3.1
Amortization of deferred investment tax credits (Note 1)	–	–	(2.5)
Flow through of investment tax credits (Note 1)	(2.2)	(4.4)	–
Tax lease agreements and other	(3.1)	(1.8)	(2.2)
Effective tax rate	43.9%	43.1%	44.4%

As a result of the Tax Reform Act of 1986, signed into law on October 22, 1986, the investment tax credit has been repealed. During the final interim period of 1986, the provision for income taxes includes $991,000 of additional expense to reverse investment tax credit benefits recorded in previous 1986 interim periods but no longer available as a result of the Act. If the Act had not repealed the investment tax credit, the Company would have reported approximately $1,538,000 lower income tax expense for the full year 1986.

In 1983, 1982 and 1981, the Company entered into several "tax lease" agreements to purchase tax benefits. The total cash price paid by the Company was approximately $21.1 million.

Under these agreements, which vary in length from nine to twenty-two and one-half years, the Company purchased the tax benefits, including investment tax credits, related to equipment with a cost of approximately $74.5 million. This equipment was simultaneously leased back to the original owners, who continue to have legal title to the assets and bear all risks of ownership. At the end of the lease agreements, "tax ownership" reverts to the original owners for a nominal price.

For financial statement purposes, the cash payment of $21.1 million was treated as an investment. The investment has been reduced as a result of a reduction in taxes which otherwise would have been payable, net of income recognized on the investment. Investment tax credits were utilized to reduce Federal income taxes payable in the year of equipment purchase. Depreciation and other items related to the agreements were used to reduce taxes under the Company's normal tax accounting methods.

The investment tax credits and depreciation deductions the Company has taken on its tax return as a result of these transactions have generated a tax deferral in excess of the cash price paid. This deferral will ultimately be paid by the Company as net lease income is reported for tax purposes. The enactment of the Tax Reform Act of 1986 lowers the statutory corporate Federal income tax rate, which results in a reduction in the estimated taxes that ultimately will be paid under these transactions. The Company has included in its final 1986 interim period this benefit of $2,689,000 in Interest, net, with an offsetting reduction in Deferred income taxes on the accompanying Consolidated Balance Sheet. The Company will be in a favorable cash flow position for most of the life of each lease.

Interest income is recorded at a constant rate during the time period when the investment exceeds the tax savings. Interest expense is recorded at a constant rate on the deferred income taxes in the time period after the investment is fully recovered. Income and expense recorded for these agreements is included in Interest, net with no corresponding income tax effect. In 1986, 1985 and 1984, the Company recorded $2,351,000 (including the $2,689,000 discussed above), $380,000 and $1,437,000, respectively, of interest, net in connection with these agreements.

The transactions also include notes to the sellers for the difference between the cash price of $21.1 million and the asset cost of $74.5 million. Payments on these notes, including interest, are due in amounts and at times exactly equal to the sellers' obligations to make lease payments to the Company. Since these amounts completely offset one another, there will be no actual payment or receipt of cash and therefore, the notes and lease obligations are not reported in the Company's Consolidated Financial Statements.

10. Commitments and Contingent Liabilities

The Company leases the majority of its branches over initial periods of five to ten years, with options for renewal for one similar period. These leases generally provide that the Company pay operating maintenance expenses and tax increases and do not contain provisions for the Company to purchase the leased properties. The Company leases substantially all pre-1982 additions to its domestic service truck fleet under terms that are noncancelable during the first year and are on a year-to-year rental basis thereafter. These leases provide that the Company pay all operating expenses and taxes and also that the Company be responsible for most of the gain or loss on disposition of the trucks upon termination or cancellation of the leases. Since 1982, the Company has purchased substantially all additions and replacements to the service truck fleet.

Lease rental expenses for all operating leases were $6,680,000 in 1986, $5,713,000 in 1985 and $6,235,000 in 1984.

Aggregate minimum future rentals are payable as follows:

Periods	(Expressed in thousands)
1987	$ 5,064
1988	4,105
1989	3,166
1990	2,472
1991	1,779
Future Years	7,607
Total	$24,193

The Company is not able currently to purchase liability insurance in amounts or upon terms that have been available to it traditionally. This development is not unique to the Company or its industry. In addition, on October 1, 1985, the Company's existing policy of environmental impairment liability (EIL) insurance coverage expired. In order to meet existing governmental requirements, the Company has been able to secure EIL insurance coverage in amounts which the Company believes are in compliance with the amounts required by Federal law. Under this policy, the Company must reimburse the carrier for losses. Except for this coverage, the Company has not been able to obtain comprehensive EIL insurance coverage on any terms.

Directors

Russell A. Gwillim, Chairman of the Board, Safety-Kleen Corp.
Kenneth L. Block, Chairman, A. T. Kearney, Inc.
Donald W. Brinckman, President and Chief Executive Officer, Safety-Kleen Corp.
Richard T. Farmer, Chairman and Chief Executive Officer, Cintas Corporation
Edgar D. Jannotta, Managing Partner, William Blair & Company
Karl G. Otzen, President, Gerhard & Company
Paul D. Schrage, Senior Executive Vice President, McDonald's Corporation
W. Gordon Wood, Marketing Consultant

Officers and Divisional Vice Presidents

Donald W. Brinckman, President, Chief Executive Officer and Director
Robert J. Burian, Vice President Personnel
David A. Dattilo, Vice President Corporate Branch Sales and Service
Burton E. Ericson, Vice President General Counsel
Kenneth R. Gordon, Vice President Technical Services
Joseph F. Hamlet, Vice President International
William P. Kasko, Vice President Operations
Wallace K. Louder, Vice President Information Systems
Robert W. Willmschen, Jr., Vice President Finance/Administration and Secretary
Leonard F. Martinez, Jr., Controller and Assistant Secretary
Laurence M. Rudnick, Treasurer
Roy D. Bullinger, Vice President Branch Sales and Service, Central Division
Harry A. Logue, Vice President Branch Sales and Service, Eastern Division
Dale T. Vranik, Vice President Branch Sales and Service, Western Division
Clyde R. Phillips, Vice President Restaurant Services

Corporate Data

Corporate Office
Safety-Kleen Corp., 777 Big Timber Road, Elgin, Illinois 60123
Telephone: 312/697-8460

Auditors
Arthur Andersen & Co., 33 W. Monroe Street, Chicago, Illinois 60603

Registrar and Transfer Agent
The First National Bank of Chicago, One First National Plaza, Chicago, Illinois 60670

Annual Meeting
The Annual Meeting of Shareholders of Safety-Kleen Corp. will be held at 10:00 a.m., Friday, May 8, 1987, at The Northern Trust Company, 50 S. LaSalle Street, Chicago, Illinois 60675.

Stock Listing
Safety-Kleen stock is traded on the New York Stock Exchange.

Stock Symbol
SK

Form 10-K
Safety-Kleen's Annual Report to the Securities and Exchange Commission on Form 10-K is available, on request, from Safety-Kleen's Corporate Secretary, 777 Big Timber Road, Elgin, Illinois 60123.