



SAFETY-KLEEN CORPORATION

**REVISED
WASTE ANALYSIS PLAN
SAFETY-KLEEN CORPORATION
NORTH CAROLINA BRANCH FACILITIES**

VOLUME I

19 JANUARY 1993



0931



15 January 1993

Ms. Martha T. Morgan
Department of Environment, Health & Natural Resources
P. O. Box 27687
Raleigh, NC 27611-7687

Federal Express Airbill
No. 2728789884

Re: Draft Waste Analysis Plan for North Carolina Branch Facilities
Response to 10-6-92 Notice Of Deficiency

Dear Ms. Morgan:

This letter will present Safety-Kleen's written response to the referenced NOD letter prepared by your office, dated 6 October 1992. The following responses address, by number, the items listed as deficiencies.

1. Safety-Kleen has changed the referenced regulation from 40 CFR 264.14 to 40 CFR 264.13 (page C-1).
2. Safety-Kleen has changed Table C-1 to include all possible permitted waste codes for each waste stream, not just the primary waste codes as you requested (page C-2). Please note that virtually none of the incoming wastes will have all of the permitted waste codes listed and the vast majority will have only three or four waste codes applicable to their waste. Safety-Kleen has included all of these TCLP codes in the event that a given generator has a process which could contaminate the solvent with a given constituent. Without the waste code listed, Safety-Kleen could not receive the waste. None of these TCLP code constituents will pose a compatibility or processing problem for Safety-Kleen.
3. Safety-Kleen has included a summary of the recycling process as Appendix C-2 to the WAP. Please note this summary is intended for informational purposes only; the processes described in this summary are not intended to be made part of the permits governing the North Carolina Branch Facilities.
4. Safety-Kleen has deleted reference to any specific branch in all portions of the WAP. Note that some facility-specific customizing will be required since not all facilities are permitted to accept all of the waste streams (e.g., spent antifreeze/glycol wastes) at this time.

- 5.a. Section 264.13(a)(3) states that "the analysis must be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis must be repeated: (i) When the owner or operator is notified or has reason to believe, that the process or operation generating the ... waste...has changed; and (ii) For off-site facilities, when the results of the inspection ... indicate that the hazardous waste received at the facility does not match the waste designated in the accompanying manifest or shipping paper".

There is no requirement for annual recharacterization in the regulations. There is also no requirement for annual recertification. With respect to the Customer Waste Information Form (Appendix C-1, Exhibit C-1-a) you will note that the generator is required to notify Safety-Kleen, in writing, whenever his generator size changes or he has reason to believe that the composition of his waste changes.

Obtaining this type of certification is very time consuming for our sales personnel and is another annoyance to our customers, particularly since it must be signed by a duly authorized representative of the company. Obtaining these certifications on an annual basis will be quite difficult.

With over 11,000 customers serviced by the North Carolina Branch Facilities this results in a large number of personnel hours just to review these Information Forms for completeness without having the added pressure of making certain that each 365 days a new Information Form is received. The volume of paperwork required (since records are to be kept a minimum of 3 years and the certification is 3 to 9 pages in length) would result in 99,000 to 300,000 additional pieces of paper with no likely useful information.

Upon reconsideration and analysis of the efforts required, Safety-Kleen has proposed that the Information Form expire every 3 years, with an annual re-certification if no pertinent information presented within the Form has changed (page C-4 and Appendix C-1, Exhibit C-1-b). This will correspond with the three year record keeping requirement under the regulations and eliminate wasteful duplication of records.

- 5.b. With respect to your comment that a person with proper authority, such as an owner, be required to sign the Information Form the wording of the Information Form has the individual certify that he is a duly authorized representative and has the knowledge required. Frequently, the owner is a non-operating party and would not be the best person to sign the Form. After further discussion, it is our understanding that the wording presented within the Form is acceptable.

6. The phrase "inspections of most waste loads generated off site are performed by Safety-Kleen" was used instead of all since Safety-Kleen does not open and inspect all containers of dry cleaning waste. The change from "most" to "all" has been made under Subsection C-1(b), with the addition of the phrase "in-so-far as such an inspection is indicated in the tiered acceptance criteria" (page C-6).
7. The Safety-Kleen representative has access to information regarding prior sampling and testing by contacting the secretarial staff in the office and having them relay this information via telephone, or by sealing the container, leaving the waste at the customer's location, checking the customer file at the office, and returning to pick up the waste at a later time. Wording clarifying this issue has been included within the WAP (Page C-6)
8. No waste analysis is required for spill cleanup wastes as all such wastes are either:
 - a. Generated by spills of product or wastes at the Safety-Kleen facility,
 - b. Generated by Safety-Kleen representatives spilling product or waste while servicing a customer,
 - c. Generated by a spill or release during transport of product or waste, where Safety-Kleen is the transporter.
 - d. Generated by discarding contaminated sampling and personal protective equipment, used at Safety-Kleen facilities or by Safety-Kleen personnel.

In all cases Safety-Kleen has accepted responsibility to clean-up and dispose of the resulting contaminated sorbant material, contaminated soils, gravel, etc (if applicable), and contaminated personal protective and sampling equipment. Safety-Kleen would in each case be fully knowledgeable as to the contaminants present since they would either be Safety-Kleen product or wastes to be received by the Safety-Kleen facility.

Safety-Kleen considers all of the above wastes as being generated by Safety-Kleen and manages them accordingly. Therefore, generator knowledge is applicable and additional waste characterization is unnecessary. Safety-Kleen will not accept spill clean-up wastes from customers as part of the permitted waste storage process. The spill wastes from customers (corn cob program) are managed on a transfer basis and are not stored in the permitted storage areas (please refer to pages C-20, C-56, and C-80).

- 9.a. Items 9, 17, 33, 41, 43, 52, address the issue of waste recharacterization, and the parameters which NCDEHNR is requesting each waste to be analyzed for. The essence of these comments is to require extensive analyses on individual drums of many of the waste streams handled by the Branch Facilities. Such a procedural requirement would provide little useful information with respect to the proper handling of the waste materials and would render Safety-Kleen's ability to perform its service in a cost effective manner virtually impossible.

As stated within the U.S. EPA's Guidance Manual for Waste Analysis Plans (EPA/530-SW-84-012), the purpose of recharacterization is presented as follows:

"Since consistent performance in a hazardous waste management process is important, hazardous wastes may {our emphasis} need to be characterized periodically in more detail than is involved in "fingerprint analysis" (analyzing for a few key parameters)."

The Guidance Manual also discusses the concept of tolerance limits. Specifically, the manual states:

"Tolerance limits represent those characteristics of a waste or waste mixture that a waste management process can handle while maintaining permit compliance. These limits can be quantitative or qualitative. The tolerance limits are generally linked to performance goals of the waste management process."

In other words, tolerance limits define the parameter boundaries which a waste must meet, so that the waste can be managed in compliance with the facility's permit. The Branch Facilities are handling wastes only for purposes of storing and bulking individual waste shipments from customers. Such activities are therefore considerably different than that of a facility which is engaged in recycling, reprocessing or disposing of wastes. The performance goals of the Branch Facilities are, in fact, quite basic:

- The wastes need to be compatible with the containers they are stored within.
- For wastes which are bulked, they need to be compatible with each other.
- Flammables must be maintained in areas which meet applicable fire code regulations.

Because the performance goals of the Branch Facilities are broad in scope, the tolerance limits for the wastes managed at these facilities will likewise be broad. Therefore, any requirement to characterize levels of waste constituents at trace levels (which Safety-Kleen has documented to be quite consistent, and thus very predictable) simply do not apply to the effective management of the wastes in terms of either safety or compliance with the Branch Facility's permit, since they will easily fall within these broad tolerance limits.

With respect to analysis of the various TCLP parameters listed within Item 17, variations in these parameters between individual containers of waste will not affect the Branch Facilities ability to properly manage said wastes. The variability of these parameters within the various waste streams is acknowledged in the Draft WAP. Further defining this variability on individual customer loads will not provide Safety-Kleen any useful information with respect to how these wastes are handled by the facility, and would place a very restrictive cost burden upon Safety-Kleen and it's North Carolina customers.

While off-site TSDs have responsibility for ensuring that the wastes it accepts meet their permit requirements, it is the generator's responsibility to properly characterize its waste. The regulatory community has routinely allowed generators to use their knowledge of the process by which a waste is generated to assist in disposal characterization for off-site TSD facilities (e.g., customer certifications stating that certain contaminants are not present in a waste stream are routinely used by states when granting disposal authorizations). Safety-Kleen's customer certification program assists both the customer by using such process-based knowledge in characterizing its waste, as well as assisting Safety-Kleen to ensure (along with the acceptance criteria) that wastes being accepted by the Branch Facility are consistent with its permit requirements. This program of integrating the generator's knowledge of it's waste stream with the information obtained through applying acceptance criteria prior to shipment pick-up provides a high level of assurance that the wastes being managed at the Branch Facilities meet the performance goals of the facility. Additionally, Safety-Kleen has established procedures for testing bulk loads of wastes at the reclamation facilities to identify waste loads which cannot be effectively processed (i.e., fall beyond the tolerance limits for wastes established pursuant to the performance goals of the facility). If such loads are identified, Safety-Kleen assumes responsibility for properly disposing of the contaminated materials, should they not meet any alternative Safety-Kleen processing standards. Processing alternatives such as fuel blending capabilities are built into the Safety-Kleen Recycle Centers' permitted options (see descriptions of recycling options).

The rationale for establishing the testing parameters for both the routine acceptance

criteria and the Quarterly Testing Program are discussed in detail within the revised draft WAP (please refer specifically to pages C-21 through C-25, and C-59 through C-63).

- 9.b. As discussed by the U.S. EPA in Chapter 1 of SW-846 and in the Federal Register, 8 February 1990, p. 4440 (attached), EPA SW-846 methods are not intended for concentrated organic wastes, and, in fact, do not work in many cases above the trace levels. Thus, Safety-Kleen has been forced to adapt EPA and ASTM methods to be able to successfully analyze the wide variety of waste streams we handle each day.

The attached table (Table 1) shows a selection of the methods for which we have generated detailed Safety-Kleen Analytical Standard Operating Procedures, along with the EPA or ASTM methods on which they were based. All Safety-Kleen laboratories use the exact same procedures on identical equipment. We send internal auditors to each lab at least once a year to make sure this is occurring. In addition, we organize quarterly blind round robin testing to document performance.

Many of these "internal" methods have been submitted to other states, as part of a laboratory certification process. In all cases decided to date, our methods have been found to be acceptable.

The question of method detection limit is very much sample matrix dependent. Further, it has no meaning for many of the methods of interest, such as pH, specific gravity, and heat content. However, we can provide some order of magnitude for our typical samples on methods of regulatory significance:

Volatile Organic Composition	EPA3820/SK9203	0.1 %(wt)
Polychlorinated Biphenyls	EPA8080/SK9202	1 ppm
Metals - ICAP	EPA7000/SK9711	5 ppm
Ion Chrom. (Halogens)	ASTM D2988/SK9601	0.1 %(wt)

Therefore, Safety-Kleen has maintained reference to it's analytical procedures throughout the WAP.

10. The first sentence on page C-20 (original draft) has been revised to read "certification by the customer" (page C-25).
11. It is Safety-Kleen's policy that in no cases is the representative to deliberately "sniff" any solvent for odor. However, should an unusual odor be detected, the rep is to interpret it as a potential sign of contamination. Wording to this effect will be added to the Tier 1 criteria throughout the document (text and tables).

12. Items 12, 20, 28, 47 are requesting that a clear drum thief be utilized by Safety-Kleen in order to visually inspect each container of spent mineral spirits (parts cleaner), spent 609 immersion cleaner, spent 699 immersion cleaner, and tankers of spent antifreeze/glycol waste, respectively.

Under the Quarterly Testing Program, Safety-Kleen will utilize a COLIWASA sampler to sample tanker loads of spent antifreeze/glycol waste received by the Branch Facility to inspect for unusual coloration, or unusual layering (typically, a small amount of floating oil is present within the spent antifreeze/glycol waste). This will allow for visual inspection.

As for the other wastes, Safety-Kleen feels that the use of a drum thief to perform a visual inspection of every container will not provide any significantly useful information, while placing a large and unnecessary burden on Safety-Kleen's operations.

The use of a clear drum thief would typically only allow for the determination of either 1) the presence of phase-separated material, and/or 2) the presence of settleable solids within containers of liquid wastes. One or both of these conditions, however, are very likely to occur in the waste materials which Safety-Kleen handles at the Branch Facilities. For example, only aqueous-base materials will typically phase-separate from these non-polar solvent materials, however, small amounts of water are often present within these wastes. Similarly, settleable solids will often be formed as the solvent removes particles of non-miscible substances (e.g., dirt, metallic fines, etc.) from the parts being cleaned. The drum thief will typically only allow Safety-Kleen to verify what are typical conditions of the waste. Again referring to the concept of facility performance goals and associated tolerance limits for wastes (refer to response 9.a.) this information is not pertinent to the performance goals of the Branch Facilities (and hence will not affect the tolerance limits for these wastes), and will not allow Safety-Kleen to enhance the existing management of wastes at these Facilities.

For those materials in which Safety-Kleen is supplying known volumes of materials, comparison of the volume of waste being picked up to the volume supplied will provide a more useful criteria for further investigating a particular waste load. The purposeful or inadvertent addition of large amounts of a foreign substance (water, other solvent materials, etc.) will cause the volume of materials within the container to change significantly. Variances outside of the limits described within the acceptance criteria will cause the Safety-Kleen representative to 1) interview the customer for reasons as to why the volume criteria has not been met, and 2) to potentially review Tier 2 acceptance criteria. At this point in time, further

knowledge of the specific container of waste could be useful in assessing the reason provided by the generator as to why a discrepancy in the volume exists (e.g., is there a considerable amount of water in the container, or is there a significant amount of sludge in the container). If this Tier 1 acceptance criteria is not met, then a sample is collected with a drum thief or COLIWASA sampler, allowing for the visible examination of the sampled material.

With respect to the drums of solvent materials, such a procedural requirement would provide little useful information with respect to the proper handling of these waste materials, and would deleteriously affect Safety-Kleen's ability to perform its service in a timely and cost effective manner.

Safety-Kleen therefore proposes to utilize drum thieves only when collecting samples during the Quarterly Testing Program, or as an alternative sampling method during routine waste acceptance procedures for Tier 2 and Tier 3 sampling efforts.

13. See response to #7.
14. See response to # 9a.
15. Due to the varying number of customers, services, and containers in any given period of time it would be an accounting nightmare to attempt to specify the number of samples obtained and tested based upon percentages of drums or even customers or waste streams. Safety-Kleen is in constant competition for providing parts washer solvent service with other companies which may or may not reclaim the waste solvents, the majority of which operate on a transfer basis for collection and transport within North Carolina. Many of these services simply sell the solvent and direct customers to dispose of the solvent in their waste oil which is then not recycled, but sent to a fuels blending facility, a lower form of recycling.

The intent of the Quarterly Testing Program is not to completely characterize the waste (to do so would entail complete sampling of each waste stream from each customer), but to serve as a spot check deterrent so that customers will not be free to violate their certifications and add unauthorized material to their waste sent to the Safety-Kleen branch. The actual characterization of the waste streams is a combination of Safety-Kleen historical data, the annual waste recharacterization profiles generated by the recycle centers, and the information provided in the customer certifications.

Where, for example, a customer has knowledge that his parts washer solvent may be contaminated by cadmium, he would have customized waste description, as would the

customer who has tested his specific waste stream, purchases virgin (as opposed to recycled) mineral spirits solvent, and claims that the waste code D039 is not applicable. In other cases where there is no reason to suspect any other than the usual contaminants are present, the data obtained from Safety-Kleen's annual recharacterization is used.

Therefore, since one of the primary purposes of the quarterly sampling is as a deterrent, and it is not possible to base the number of samples upon a percentage of drums or customers, Safety-Kleen based the decision on a combination of analytical costs, personnel sampling time, waste storage capacities, and record keeping difficulties. Since all containers are to be stored at the facility until the analytical results are received, storage capacity is a major issue. Safety-Kleen would, for personnel efficiency purposes, be sampling these containers on a given day, thereby necessitating storage of 15 drums (spent mineral spirits only) for a two week period until the results of the sampling are compiled. For facilities which have container storage areas which approach capacity, and for those which do not double stack pallets, this lost storage space is an economic hardship requiring even more frequent pickup of smaller, less efficient loads from the facilities.

Simply sampling one drum at a time would be too difficult to keep track of with all of the other record keeping, training, and inspection requirements.

The internal analytical costs alone for the sampling as already proposed for mineral spirits alone (15 samples per branch per quarter) would cost Safety-Kleen \$42,000, (not including sampling equipment, additional person hours for sampling, and packaging/shipping costs). Nor does this include the routine costs of testing when a container fails the Tier I acceptance criteria and must be tested due to some suspicious characteristic. The \$42,000 cost is money to be spent by Safety-Kleen per year just to "police" customers.

In North Carolina the customer breakdown is roughly 65% CESQG, 29% SQG, 6% LQG across all permitted waste streams. Under North Carolina regulations CESQGs need not even dispose of their wastes at a permitted facility and can blend their wastes with solid wastes provided the mixture does not exhibit a characteristic. Dry Cleaning filters from CESQGs could be landfilled in non-hazardous waste landfills, solvents could be blended with used oil and not recycled, other solvents could be disposed of through the sewer system in lieu of being recovered. In view of the LEGAL options available to the CESQG customer for disposing of his waste, We find that it is to our customer's credit that they choose an often more expensive, though more environmentally protective, means to manage their wastes by using the Safety-Kleen recycling system. By making that choice they have already

demonstrated a concern for the environment beyond legal requirements and should not be viewed as organizations requiring constant "policing" to keep them honest.

Increasing the number of samples and the complexity of the sampling (TCLP) would only serve to increase the service cost to the customer and may deter them from the more environmentally protective option of reclamation versus disposal via other means. Therefore, CESQG's have not been included in the Quarterly Testing Program (see pages C-62 and C-63). Also, TCLP analyses have not been included in the Quarterly Testing Program.

16. Filling sample containers to the top is unnecessary as the materials being tested are concentrated organics (greater than 1%) and losses of trace levels of volatiles are of no consequence. A more practical reason for Safety-Kleen filling containers to the 90% level is to allow for expansion due to potential freezing of the samples during UPS transport to the lab. Should completely full samples freeze, there is a potential for rupture of the container. Therefore, Safety-Kleen has not included a stipulation within the WAP to require elimination of sample headspace.
17. See response to 9a.
18. The confusion here is a result of mixing the Quarterly Testing Program with the Acceptance Criteria and associated tiered sampling. As a matter of routine the Tier 1 testing will be performed at each waste pickup. Should a container fail Tier 1 testing it would be left with the customer until such time as Tier 2 or Tier 3 testing results showed that it was acceptable to receive.

Since quarterly testing is performed once the waste has been received by the facility, should it fail the Tier 1, Tier 2, and Tier 3 testing, or at any time prior to that be determined as not meeting the facility's acceptance criteria, it would then be returned to the customer.

In order to clarify this, we have reformatted Subsection C-3 of the original draft into two separate subsections; Subsection C-3 addressing the Acceptance Criteria and associated sampling, and Subsection C-4 addressing the Quarterly Testing Program.

19 - 26.

We are eliminating IC 609 from the permitted waste stream as we will no longer be accepting it other than on a transfer basis.

27. See response to #11.
28. See response to #12.
29. See response to #13.
30. See response to #9a.
31. See response to #15.
32. See response to #16.
33. See response to #9a.
34. See response to #18.
35. See response to #11.
36. Table C-7, Tier 1 acceptance criteria has been changed to read "No unusual odors" (Page C-44).
37. See response to #13.
38. See response to #9a.
39. See response to #15.
40. See response to #16.
41. See response to #9a.
42. See response to #18.
43. See responses to #'s 11 through 18.
44. As described in the response to Item 3, the dry cleaner waste streams are primarily solids, which must be partially processed before any practical sampling and analysis is feasible. Since the filters, distillation bottoms, and filter media have minimal liquid content, and since the typical contaminants for these industry-specific streams are dirt, body oils, and hair, analytical data is usually not enlightening. The only volatile component found is the dry cleaning solvent.

Once we have concentrated the liquid separate from the solids, we can then do meaningful analyses, which are usually centered around volatiles composition and PCBs.

Therefore, Safety-Kleen has not included chemical analyses of this waste stream during either the routine acceptance procedures (pages C-48 and C-49), nor the Quarterly Testing Program (C-75 through C-77).

45. The last item on page C-42 (original draft) has been changed to read "Descriptions of deviation from the expected visual description." (Page C-77).
46. Volume should not be a criteria for acceptance under the Tier 1 acceptance criteria for waste antifreeze/glycol. This has been eliminated (Page C-51).
47. See response to #12.
48. See response to #13.
49. See response to #9a.
50. A COLIWASA will be used to sample the spent antifreeze/glycol waste tanker truck. We will revise the text accordingly (Page C-79).
- 51 & 52. The tanker shipments are bulked waste collected from several or many customers. Each tanker truck of spent antifreeze/glycol waste will be sampled using a COLIWASA and subjected to Tier 1 testing. One tanker per quarter per branch will receive Tier 2 testing in addition to the Tier 1 testing. In the past, NCDEHNR was inclined to deny that used antifreeze had any characteristics of a hazardous waste. Upon extensive testing performed by Safety-Kleen, it has been shown that roughly half of the waste antifreeze generated exhibits a characteristic. This data is updated annually through our annual recharacterization program. No benefit is served by requiring more than fingerprint analysis (visual) coupled with customer certifications for analysis of this waste stream. Note, again in many areas it is perfectly legal to dispose of waste antifreeze into the sewer system. The customers who opt to pay for the more environmentally protective process of making their glycol wastes available to reclamation facilities should not be further penalized for having to bear unnecessary analytical costs when the regulations clearly allow generator knowledge to be used when characterizing a waste stream. Therefore, specific gravity (field method) is the only parameter which has been included for this waste in the Quarterly Testing Program (C-79). This testing will be performed on tankers of

bulked waste as they arrive at the Facility.

53. Storage tank bottoms and drum washer sediments are identical wastes generated by Safety-Kleen during tank cleanouts and subject to characterization based upon generator knowledge. Safety-Kleen includes this waste stream in its annual recharacterization program. The annual recharacterization program consists of samples of waste streams obtained from various locations across the nation and compiled into a data base for review to verify that proper waste codes are being assigned. Since similar processes are generating the wastes at each location, data from one facility can be used as representative of data from another facility. Cost of the annual recharacterization program is roughly \$100,000 each year. Thus additional sampling of this waste on a routine or quarterly basis is not necessary (refer to pages C-56 and C-80).
54. See response to #11.
55. You must have received a defective copy of the WAP as exhibits C-4E and C-4F are in their proper orientation in other copies. We apologize for the inconvenience.
56. All reference to IC 609 has been removed from the WAP.

If you have any questions or require further clarification of any of the above items, please feel free to call Ms. Della Ridley at (404) 434-1572.

Sincerely,



(Roy F. Wilcox, Inc.) for

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SSW:ssw

**REVISED DRAFT
WASTE ANALYSIS PLAN
SAFETY-KLEEN CORPORATION
NORTH CAROLINA BRANCH
FACILITIES**

VOLUME I

Prepared for

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January 1993

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SECTION C

WASTE CHARACTERISTICS/WASTE ANALYSIS PLAN

This section provides an overview of the hazardous waste types stored at each North Carolina Safety-Kleen Branch Facility; a description of the chemical and physical characteristics of the wastes stored at the Facility; the Waste Analysis Plan for routine waste acceptance procedures and associated waste sampling, testing, and evaluation; and the Waste Analysis Plan for quarterly waste sampling, testing, and evaluation, to ensure that sufficient information is available for their safe and proper management of these wastes.

Wastes accepted at the Facility are stored in containers and/or bulk aboveground storage tanks, as described within Section D. The information submitted within this Section is presented in accordance with the applicable requirements identified in 40 CFR 264.13 and 270, and companion North Carolina regulations relating to waste analysis and waste analysis plans.

C-1 OVERVIEW OF WASTE TYPES

C-1(a) Sources of Waste Types

Wastes stored at the Facility include those directly related to the various services provided by the Facility, as well as any resulting cleanup wastes. The specific service-related waste types stored at the Facility on a normal and routine basis are presented within Table C-1. Wastes resulting from the spillage and cleanup of service-related materials or wastes may be generated occasionally and stored on site [refer to Subsection C-2(g)(2)].

Table C-2 summarizes the sources of the various waste types stored at the Facility. Several waste types are generated by customers who receive raw solvent materials from Safety-Kleen. These wastes are part of the closed-loop waste recovery system in which a customer

TABLE C-1

SUMMARY OF SERVICE-RELATED HAZARDOUS
WASTE STREAMS STORED AT THE
SAFETY-KLEEN CORPORATION
NORTH CAROLINA FACILITIES

Mineral Spirits-Based Washer Solvent Parts Cleaner Service:

- Mineral spirits-based spent parts washer solvent/(D001)*.
- Storage tank bottom sediment/(D001)*.
- Drum washer return and fill bottom sediment/storage tank bottom sediment/(D001)*.

Immersion Cleaner Service:

- Spent 699 immersion cleaner (single-phase solvent)*.

Dry Cleaner Service:

- Dry cleaner spent filter cartridges (F002/D001/D039).
- Dry cleaner powder residue (F002/D001/D039).
- Dry cleaner still bottoms (F002/D001/D039).

Paint Waste Collection Service:

- Paint spray gun cleaner waste (D001/F003/F005)*.
- Paint waste (D001/F003/F005)*.

Waste Glycol Collection Service:

- Spent antifreeze/glycol waste*.

Primary U.S. EPA waste codes are listed in parentheses. Those waste codes flagged by a * may also be toxic by TCLP for one or more of the following waste codes; D004 - D011, D018, D019, D021, D022 - D030, D032 - D042.

TABLE C-2

ORIGIN OF HAZARDOUS WASTE
STREAMS STORED AT
SAFETY-KLEEN CORPORATION
NORTH CAROLINA FACILITIES

Wastes generated by customers who receive the raw material from Safety-Kleen (closed-loop system wastes):

- Mineral spirits-based spent parts washer solvent.
- Spent 699 immersion cleaner solvent.
- Paint spray gun cleaner.

Wastes generated by customers who have not received the raw materials from Safety-Kleen:

- Paint waste.
- Spent antifreeze/glycol waste.
- Dry cleaner wastes.

Wastes generated by the Safety-Kleen facility:

- Storage tank bottom sediment.
- Drum washer bottom sediment.
- Spill clean-up residues from spill of both wastes and products.

leases solvent from Safety-Kleen and then returns the solvent to Safety-Kleen for recycle and re-use. This closed-loop system results in a high degree of waste type homogeneity and predictability.

Other waste types, such as paint waste, dry cleaning waste, and spent antifreeze/glycol waste, are generated by customers who have not received the raw materials from Safety-Kleen. These wastes types, however, are generated from very similar operations, using materials of a compatible nature. The similarity of these practices also enhances the predictable nature and homogeneity of these waste streams.

Other waste streams are generated by the Facility; in such circumstances, the type and characteristics of the waste are known.

The closed-loop waste system is an important factor in ensuring that the Waste Analysis Plan provides the information required to properly and safely manage these wastes. A key factor of the closed-loop waste system is that solvent products of known characteristics are supplied to the customer. Although these solvents have been recycled by Safety-Kleen, extensive analyses of the products have consistently revealed a very low degree of variation in the physical and chemical characteristics of these product materials. The following additional factors are applicable to all of the wastes accepted by Safety-Kleen:

- The operations conducted by Safety-Kleen customers are known to Safety-Kleen. Customers are required to complete a Customer Waste Information Form that provides Safety-Kleen with specific customer information, including the process generating the waste, additional contaminants that may be present, generator size, and other relevant information. The form also provides certification from the customer that wastes or materials foreign to the intended use of the Safety-Kleen product have not been introduced into that product, and that the customer will notify Safety-Kleen if the process by which they generate their waste changes, or if their generator status changes. Safety-Kleen requires that this Customer Waste Information Form be re-

issued on a tri-annual (every third year) basis for customers who are small-quantity generators (SQGs) and large-quantity generators (LQGs), with an annual certification if the generator status has not changed. A copy of the Safety-Kleen Customer Waste Information Form and the Annual Certification Form are presented in Appendix C-1 (Exhibits C-1-a and C-1-b, respectively).

- The various solvent products are used in similar fashion by the customers, resulting in a predictable and homogeneous waste type.
- Customers are informed by Safety-Kleen of the proper use of the solvent product and associated equipment.

The Customer Waste Information Form (Appendix C-1, Exhibit C-1-a) will be completed for each customer that is an SQG or an LQG, as defined within 40 CFR 262.44. The form will be completed at a minimum when the customer initially enters into a contractual relationship with Safety-Kleen to use Safety-Kleen services entailing the storage of the waste types discussed within the Waste Analysis Plan at a Safety-Kleen North Carolina Branch Facility, and every three years thereafter.

In addition, these customers will be required to provide annual certification (Appendix C-1, Exhibit C-1-b) that the information provided on the latest Customer Waste Information Form has not changed. If it has, then a new form will be submitted.

Customers who are conditionally exempt small quantity generators (CESQGs), as defined under 40 CFR 261.5, generate small quantities of hazardous wastes at facilities where the quantities of hazardous substances in use are likewise typically small and well defined. Often, the waste managed by Safety-Kleen are the only hazardous wastes that they generate. Safety-Kleen will require CESQGs to provide a CESQG Certification (Appendix C-1, Exhibit C-1-c) to document that they meet the definition of a CESQG. The CESQG Certification will be completed on a one-time basis by the CESQG customer; however, if

their status changes and the customer becomes a SQG or LQG, the customer will be required to notify Safety-Kleen in writing and submit a Customer Waste Information Form.

C-1(b) Acceptance of Off-Site Wastes

Pursuant to 40 CFR 264.13(a)(4), inspections of all waste loads generated off site are performed by Safety-Kleen, to the extent that an inspection is indicated in the tiered acceptance program described with Subsection C-3. Acceptance criteria have been developed for each type of waste generated at a customer's facility. The Safety-Kleen representative utilizes these criteria during the inspection to determine whether the waste should be accepted [See Section C-3(a)]. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to determine the reason and document this information on a Waste Acceptance Form (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility via the telephone for information regarding prior sampling results of the customer's waste. Alternatively, the container will be sealed and left at the customer's location. The representative will check the customer file upon return to the Facility, and, if accepted, pick up the waste at a later date. If this waste stream from the customer has been sampled in the past and:

- 1) the Tier 1 acceptance criteria results (color, volume, etc.) are the same as documented for the previous sampling;
- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable; and,
- 3) the prior sampling results are on file at the Branch Facility,

then the representative will then accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria and the above three conditions, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will

remain with the customer. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

The acceptance criteria and the associated sampling and analysis protocols for each waste stream stored at the North Carolina Branch facilities are detailed within Subsection C-3. These criteria and protocols are based upon extensive sampling performed by Safety-Kleen of both composited waste loads that are sent to Safety-Kleen Recycle Centers from Branch Facilities and waste loads received from individual customers. This database has demonstrated that the acceptance criteria are able to identify the rare problem-waste stream, as well as demonstrating that there is a very predictable degree and type of contamination within the closed-loop waste streams studied (refer to Appendix C-4). The data generated from selected studies conducted by Safety-Kleen are detailed within the discussions of the acceptance criteria and associated testing for individual waste streams presented within Subsection C-3.

C-1(c) Quarterly Sampling

In addition to the criteria and testing protocols followed for the routine acceptance of wastes, the North Carolina Branch Facilities will also conduct quarterly sampling of waste streams that are stored at these facilities. This sampling will provide additional information regarding pertinent chemical composition of these wastes. The quarterly sampling program protocols are detailed within Subsection C-4.

C-1(d) Disposition of Wastes

The Safety-Kleen Branch Facilities serve as waste storage and, with respect to some waste types, waste bulking facilities that support Safety-Kleen's solvent and waste recycling services. Typically, all wastes that are stored at the Branch Facilities are ultimately sent to

a regional Safety-Kleen Recycle Center, where the recoverable portions of the waste streams are recycled. Appendix C-2 presents a summary of the current means by which the various waste streams are recycled by Safety-Kleen Recycle Centers. This summary is intended for informational purposes only; the means by which Safety-Kleen recycles wastes at the Recycle Centers is subject solely to the permits governing these facilities, and are subject to change within the confines of said permits. The recycling procedures described in Appendix C-2 should not be considered part of the permits that govern the operations of the North Carolina Branch Facilities, and changes in these procedures do not constitute a change in the Branch Facility permits.

It should be noted that in the unlikely event that Safety-Kleen was to accept or generate a waste that possesses no recoverable materials, Safety-Kleen will assume all responsibility for ensuring the proper shipment and disposal of the waste at a permitted disposal facility.

C-2 PHYSICAL AND CHEMICAL CHARACTERISTICS

Pursuant to 40 CFR 264.13(a)(1), this subsection describes the physical and chemical characteristics of the hazardous waste streams stored at the Facility.

Table C-3 summarizes the primary components of the waste types and their incompatibilities. The various hazardous wastes stored at the Facility are compatible with each other, as well as with the raw products and nonhazardous wastes (e.g., waste oils) that may also be stored within the same regulated unit containment area.

Appendix C-3 presents Material Safety Data Sheets (MSDSs) for certain closed-loop solvents that are supplied by Safety-Kleen to its customers. Appendix C-4 presents the results of various sampling studies performed by Safety-Kleen of wastes and recycled product, including:

TABLE C-3

INCOMPATIBILITIES OF WASTE STREAM COMPONENTS
 SAFETY-KLEEN CORPORATION
 NORTH CAROLINA BRANCH FACILITIES

Material	Waste Type	Incompatibilities
Acetate Compounds	Paint Spray Gun Cleaner; Waste Paint	Strong oxidizers; Nitrates; Alkalies; Acids
Acetone	Paint Spray Gun Cleaner; Waste Paint	Oxidizers; Acids
Ethylene Glycol	Spent Antifreeze/Glycol Waste	Chlorosulfonic acid; Oleum; H ₂ SO ₄ ; HClO ₄ ; P ₂ S ₅
Freon	Dry Cleaner Wastes	(Inert)
Isopropyl Alcohol	Paint Spray Gun Cleaner; Waste Paint	Strong oxidizers; Acetaldehyde; Chlorine; Ethylene oxide; Acids; Isocyanates
Methyl Ethyl Ketone	Paint Spray Gun Cleaner; Waste Paint	Very strong oxidizers
Methyl Isobutyl Ketone	Paint Spray Gun Cleaner; Waste Paint	Strong oxidizers; Potassium tert- butoxide
Mineral Spirits (aliphatic/ aromatic hydrocarbons)	Mineral Spirits Based Spent Parts Washer Solvent; Dry Cleaning Wastes; Spent 699 Immersion Cleaner	Strong oxidizers
Naphthalene	Spent 699 Immersion Cleaner	Strong oxidizers; Chromic anhydride
Perchloroethylene (tetra- chloroethylene)	Dry Cleaning Wastes	Strong oxidizers; Chemically active metals; Alkalies
Propylene glycol	Spent antifreeze/glycol waste	Oxidizing materials
Toluene	Paint Spray Gun Cleaner; Waste Paint	Strong oxidizers
1,1,1 - Trichloroethane	Dry Cleaning Wastes	Strong caustics; strong oxidizers; Chemically active metals
Xylenes	Paint Spray Gun Cleaner; Waste Paint	Strong oxidizers

Sources of Information: NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health & Human Services, COC/NIOSH, 1990.
 Dangerous Properties of Industrial Materials, N. Irving Sax, 1984.

- 1990 and 1991 Waste Characterization Studies of bulk loads of wastes received at various Safety-Kleen Recycle Centers (Exhibit C-4-a).
- A 1990 - 1991 tiered acceptance study of 800 randomly-selected individual drums of mineral spirits-based spent parts washer solvent received at Safety-Kleen Branch Facilities in Wisconsin (Exhibit C-4-b).
- A 1991 study of bulk loads of spent and recycled mineral spirits-based parts washer solvent, and spent and recycled 699 Immersion Cleaner received at the Safety-Kleen Recycle Center in Lexington, South Carolina (Exhibit C-4-c).
- A 1992 study entailing the constituent-specific analyses of randomly-selected individual drums of wastes received by Safety-Kleen Branch Facilities in Indiana. This study includes TCLP organics and heavy metals analyses results (Exhibit C-4-d).

C-2(a) Mineral Spirits-Based Spent Parts Washer Solvent

The recycled mineral spirits-based parts washer solvent product is a stoddard-type petroleum distillate solvent consisting predominantly of C-9 through C-13 saturated aliphatic hydrocarbons. A copy of the MSDS for this material as supplied to the customer is presented with Appendix C-3, Exhibit C-3-a.

Various constituents may be present within an individual customer's mineral spirits-based spent parts washer solvent, based upon the specific use for which the customer employs the solvent. For customers generating significant quantities of hazardous wastes (SQGs and LQGs), this information is documented within the Customer Waste Information Form.

Analyses of mineral spirits-based spent parts washer solvent typically show trace (part per million [ppm] range) to low (less than 1.0%) concentrations of polycyclic (e.g., naphthalene), chlorinated and methylated aromatics, and chlorinated aliphatics. Analyses of bulk loads of mineral spirits-based spent parts washer solvent revealed concentrations of total organic halogens ranging from 0.003 to 0.830%. Analyses of recycled mineral spirits-based parts

washer solvent showed a similar range (0.100 to 0.747%) of total organic halogens (Appendix C-4, Exhibit C-4-c).

Analyses of bulk loads of mineral spirits-based spent parts washer solvent revealed detectable levels of benzene, methyl ethyl ketone, perchloroethylene, trichloroethylene, 1,4-dichlorobenzene, chloroform, cresol, and 2,4-nitrotoluene (Appendix C-4, Exhibit C-4-a). In another Safety-Kleen study, TCLP Organic Constituent analyses of randomly-selected individual drums of mineral spirits-based parts washer solvent did not reveal any detected constituents exceeding TCLP limits as defined within 40 CFR 261.24 (Appendix C-4, Exhibit C-4-d). It should be noted that detection limits for such analyses are typically raised due to the dilution necessary for concentrated organic analyses.

Analyses of the mineral spirits-based spent parts washer solvent typically show the consistent presence of lead, as well as detectable levels of barium, cadmium, chromium and mercury.

The recycled mineral spirits-based parts washer solvent delivered to a customer typically possess a green color, which grades to a brown or blackish color as it is used. Virgin (non-recycled) mineral spirits-based parts washer solvent may be clear. The mineral spirits-based spent parts washer solvent generally retains the characteristic odor of the recycled mineral spirits-based parts washer solvent that is delivered to the customer.

Mineral spirits-based spent parts washer solvent typically have a flash point ranging between 102° and 140° F. Sampling of bulk loads revealed a flash point range of 78° to 151° F, with a mean flash point of 112° F (Appendix C-4, Exhibit C-4-a). Safety-Kleen notes that recharacterization studies are performed by contract laboratories. Historically, these laboratories have had difficulties in obtaining accurate (i.e., repeatable) flash point results on concentrated organic samples submitted by Safety-Kleen. The reliability of the low flash points in this database are considered suspect. Sampling of 800 individual drums of mineral

spirits-based spent parts washer solvent revealed that 96.4% possessed a flash point within this typical range (refer to Appendix C-4, Exhibit C-4-b). Sampling of randomly-selected drums revealed a flash point range of 120° to 134° F, with a mean flash point of 126°F (Appendix C-4, Exhibit C-4-d). Since Safety-Kleen may supply high flash parts washer solvent (140° to 150° F flash point), flash points of mineral spirits-based spent parts washer solvent may be obtained on occasion. This situation will be documented on the sales/service document, and waste with a flash point under 160° F will be accepted.

The specific gravity of mineral spirits-based spent parts washer solvent typically ranges from 0.7 to 0.9. Sampling of bulk loads of mineral spirits-based spent parts washer solvent reveal specific gravities ranging from 0.780 to 0.800, with an average of 0.787 (Appendix C-4, Exhibit C-4-a). Sampling of randomly-selected drums of mineral spirits-based spent parts washer solvent revealed a specific gravity range of 0.792 to 0.810, and a mean specific gravity of 0.796 (Appendix C-4, Exhibit C-4-d). Sampling of bulk loads of recycled mineral spirits-based parts washer solvent reveal very consistent specific gravity readings, with averages of bulk loads ranging from 0.780 to 0.782. (Appendix C-4, Exhibit C-4-c).

Due to the low flash point, mineral spirits-based spent parts washer solvent is an ignitable waste (D001). Recognizing that various constituents may be present within the spent mineral solvent depending on its use, this waste stream may also be toxic by the Characteristic Leaching Procedure for one or more of the following waste codes: D004 through D011, D018, D019, D021 through D030, D032 through D043.

C-2(b) Spent 699 Immersion Cleaner

The 699 immersion cleaner is a single-phased heavy aromatic naphtha-based formulation. A copy of the MSDS for this material as supplied to the customer is presented with Appendix C-3 (Exhibit C-3-b).

Sampling of this waste shows that trace to low levels of ketones, chlorinated aliphatics, chlorinated and certain semi-volatile organics (i.e., naphthalene) are typically present within this waste stream. Methylated aromatics are typically present in trace concentrations (Appendix C-4, Exhibits C-4-a, C-4-c and C-4-d).

TCLP Organic Constituent analyses of individual drums and bulk loads of spent 699 immersion cleaner consistently revealed concentrations of 1,4-dichlorobenzene, methyl ethyl ketone, and perchloroethylene. Other TCLP organic materials were found infrequently (Appendix C-4, Exhibits C-4-a and C-4-d).

The recycled 699 immersion cleaner delivered to a customer possesses an amber color, which grades to a brown or blackish color as it is used. The minimum flash point of the product is 140°F. Analysis of bulked loads of spent 699 immersion cleaner have also revealed a typical flash point in excess of 160°F.

The specific gravity of the spent solvent ranges from 0.90 to 1.20. Analysis of bulked 699 immersion cleaner revealed specific gravities ranging from 0.930 to 1.200, with a mean value of 1.046 (Appendix C-4, Exhibit C-4-a). Analyses of randomly-selected individual drums yielded specific gravities ranging from 0.938 to 0.945, with a mean value of 0.943 (Appendix C-4, Exhibit C-4-d).

Recognizing that various constituents may be present within the spent 699 immersion cleaner dependent upon its use, this waste stream may be toxic by the Characteristic Leaching Procedure for one or more of the following waste codes: D004 through D011, D018, D019, D021, D022 through D030, and D032 through D043.

C-2(c) Paint Spray Gun Cleaner

Paint spray gun cleaner is a lacquer thinner material containing a mixture of various ketones, methylated aromatics, alcohols and acetates. A copy of the MSDS for this material as supplied to the customer is presented with Appendix C-3 (Exhibit C-3-c).

Analyses of spent paint gun spray cleaner reveal that percentage concentrations of acetone, methyl ethyl ketone, ethyl benzene, toluene and xylene are typically present. Analyses also revealed trace to low concentrations of chlorinated organics, which may be expected considering the general lack of chlorinated organics in paint formulations and the specialized use of this cleaner (designed specifically to clean paint from spray guns). TCLP Organic analyses of individual drums have revealed consistently elevated concentrations of methyl ethyl ketone, which is present with the original formulation of this material (Appendix C-4, Exhibits C-4-a and C-4-d).

Concentrations of semi-volatile organics are generally nondetectable. Analyses typically reveal concentrations of arsenic, barium, cadmium, chromium, lead and mercury, which are likely derived from the paints being removed by the cleaner (Appendix C-4, Exhibits C-4-a and C-4-d).

The physical characteristics of the spent paint spray gun cleaner (i.e., odor, color, viscosity) will vary according to the type of solvent used and the types of paints that are cleaned from the guns. Typically, this waste type will possess a relatively light viscosity, with an odor characteristic of the original lacquer thinner.

The product (i.e., recycled cleaner) has a low flash point, less than 20° F (as shown in the MSDS). The flash point of the waste may be considerably higher, depending upon the type

of paint being cleaned from the gun. Analysis of bulk and individual loads of spent paint spray gun cleaner have revealed flash points ranging from below 40°F to 75°F.

Spent paint spray gun cleaner has a typical specific gravity range of 0.75 to 0.95; however, this can vary on an individual drum basis according to the percentage and type of paint present. Sampling of bulk loads revealed a specific gravities of 0.851 and 0.937 (Appendix C-4, Exhibit C-4-a). Sampling of randomly-selected individual drums of spent paint spray gun cleaner revealed a specific gravity range of 0.792 to 0.849, with a mean value of 0.832 (Appendix C-4, Exhibit C-4-d).

Spent paint spray gun cleaner is an ignitable waste (D001), due to the presence of xylene, methyl isobutyl ketone, acetone and methanol (F003), and toluene and methyl ethyl ketone (F005). Recognizing that various constituents will be present within the spent paint spray gun cleaner as a result of its usage, the waste may also be toxic by the Characteristic Leaching Procedure for one or more of the following waste codes: D004 through D011, D018, D019, D021 through D030, D032, D033 through D043.

C-2(d) Paint Waste

Paint waste may include materials associated with the original paint formulations as well as any thinners and spent solvent used in cleanup operations by the customer. These materials may include a variety of organic solvent-type and metal-bearing compounds.

Analyses of randomly-selected drums of paint waste reveal percentage concentrations of acetone, methyl ethyl ketone, toluene and xylene. The analyses also revealed trace to low concentrations of chlorinated organics, which may be expected considering the general lack of chlorinated organics in paint formulations. TCLP organic analyses of waste paint revealed consistently elevated concentrations of methyl ethyl ketone. Analyses typically

reveal concentrations of arsenic, barium, cadmium, chromium, lead and mercury, which are commonly present within paint formulations (Appendix C-4, Exhibits C-4-a and C-4-d).

The physical characteristics of the paint waste (odor, color, viscosity) will vary according to the types of paints and any associated thinners and solvents that were used. Typically, the waste possesses a heavy viscosity and is likely to contain solid chunks of old paint. Characteristic odors, depending on the type of paint (i.e., oil-based, acrylic, latex), will be evident.

The flash point of waste paint will also vary accordingly to its compositions. Analyses of bulk loads of waste paint typically show a flash point of less than 40°F; however, this will vary considerably based upon the type of paint formulations constituting the waste. For purposes of on-site management, it will be assumed that all paint waste is flammable.

Analyses of the liquid portion of waste paint reveals a typical specific gravity range of 0.7 to 0.9, which is indicative of the light solvents used in paint formulations and the typical lack of chlorinated organics.

Due to the typically low flash point, waste paint is classified as ignitable (D001). Recognizing that various constituents will be present in waste paint resulting from the original paint formulations, as well as any added thinners or solvent cleaners, this waste may be toxic by the Characteristic Leaching Procedure for one or more of the following waste codes: D004 through D011, D018, D019, D021 through D030, D032 through D043. The waste is characterized as a listed waste (F003 and F005) when it contains spent solvents (i.e., spray gun cleaner waste or similar cleaning solvents).

C-2(e) Dry Cleaner Wastes

Three types of dry cleaner wastes handled by the Facility are:

- Spent dry cleaner filter cartridges.
- Dry cleaner residue powder.
- Dry cleaner still bottoms.

A copy of the MSDS for perchloroethylene, as supplied to the customer, is presented within Appendix C-3 (Exhibit C-3-d). It should be noted that customers use suppliers or sources of perchloroethylene other than Safety-Kleen and that this is not a closed-loop waste. The solvent used by Safety-Kleen customers is primarily perchloroethylene; however, 1,1,1-trichloroethylene, freon, and mineral spirits are also used.

Chlorinated-based dry-cleaner wastes typically exhibit a wide variation in the percentage of perchloroethylene, as well as other associated chlorinated aliphatics. This is entirely dependent upon the amount of liquid solvent left within the waste material. Analyses of these wastes have also revealed trace to low concentrations of methylene chloride, acetone, methyl ethyl ketone, phenolics, chlorinated aromatics, polynuclear aromatics and phthalates and metals including barium, chromium, cadmium, mercury and lead (Appendix C-4, Exhibits C-4-a and C-4-d).

Naphtha-based dry cleaner wastes have also revealed perchloroethylene, as well as low to trace concentrations of methyl ethyl ketone, toluene and xylene, and metals including barium, chromium, cadmium, and lead, and (Appendix C-4, Exhibits C-4-a and C-4-d).

Spent dry cleaner filter cartridges consist of cartridge units with a filter medium that will contain spent solvent. Some free liquids may be present, depending upon the level of

saturation. The physical appearance of the cartridges will vary depending upon the manufacturer of the unit.

Dry cleaner powder residue consists of a filter medium containing spent solvent. This material is typically fluffy and powder-like, has the appearance of dryer lint, and possesses the odor of the solvent that it contains. Some level of free liquids may be present, depending upon the efficiency of the customer's dry cleaning solvent recovery system.

Dry cleaner still bottoms consist of sludges generated from recovery stills operated by the customer. This waste material typically possesses a dark, viscous, tar-like appearance; however, some level of free liquids (with reduced viscosity) may be present, depending upon the efficiency of the still. Again, the waste will possess an odor characteristic of the solvent that it contains.

Those wastes containing perchloroethylene, 1,1,1-trichloroethylene and/or freon are listed wastes (F002). Those wastes containing mineral spirits are ignitable (D001), and may contain trace levels of perchloroethylene (D039).

C-2(f) Spent Antifreeze/Glycol Waste

Spent antifreeze/glycol waste includes spent antifreeze and used de-icing formulations generated by the airline industry, as well as spent glycol-based materials generated from various industrial applications. Spent antifreeze/glycol waste typically contains ethylene glycol, propylene glycol, water, and contaminants, most notably waste oil. The percentage of oil contained within this waste will vary, depending upon customer operations.

Analysis reveals that this waste stream typically will contain trace concentrations of ketones, chlorinated aliphatics and methylated aromatics. Metals typically found within this waste

stream include trace concentrations of barium and lead (Appendix C-4, Exhibits C-4-a and C-4-d).

Spent antifreeze/glycol waste typically possesses a yellow green color, although the color may vary depending upon the formulation and the amount of oil present.

The specific gravity of spent antifreeze/glycol waste typically ranges from 0.90 to 1.15. Analysis of bulk loads of spent antifreeze/glycol waste revealed gravity ranges from 1.04 to 1.13 (Appendix C-4, Exhibit C-4-a). Analyses of randomly-selected drums revealed a specific gravity range of 1.065 to 1.085, with a mean value of 1.078 (Appendix C-4, Exhibit C-4-d). This waste is not combustible, and does not possess a flash point (i.e., flash point is greater than 200°F).

Recognizing that various constituents will be present within the spent antifreeze/glycol waste as a result of its usage, the waste may be toxic by Characteristic Leaching Procedure standards for any one or more of the following: D004 through D011, D018, D019, D021, D023, through D030, D032 through D043.

C-2-(g) Waste Generated by Safety-Kleen

Certain waste streams are routinely or intermittently generated by the Safety-Kleen Branch Facilities. These waste streams include:

- Storage tank bottom and drum washer sediments.
- Spill cleanup wastes.
- Safety-Kleen terminated wastes (wastes received from a different Branch Facility, with the waste manifest being terminated at the subject Branch Facility).

C-2(g)(1) Storage Tank Bottom and Drum Washer Sediments

Storage tank bottom sediment consists of sludge-like materials that accumulate in the bottom of the aboveground storage tank used to store spent and clean mineral spirits-based parts washer solvent. Drum washer sediments consist of heavy solid materials saturated with mineral spirits-based parts washer solvent that periodically accumulate within the drum washer units.

Both waste streams are generated from Safety-Kleen Facility operations entailing the handling and storage of a closed-loop waste stream. This waste exhibits a high degree of homogeneity and predictability with respect to physical and chemical characteristics, and is considered to be one waste stream. Analyses of bulk loads of this waste typically show low concentrations of naphthalene and related compounds (present in the mineral spirits-based formulation), varying concentrations of chlorinated and non-chlorinated volatile organics, and heavy metals present in the original recycled material formulation or resulting from its normal use (Appendix C-4, Exhibits C-4-a and C-4-d).

Both of these materials are considered ignitable (D001), and may be toxic by Characteristic Leaching Procedure for any one of the following: D004 through D011, D018, D019, D021 through D030, D032, D033 through D043.

C-2(g)(2) Spill Cleanup Wastes

Spill cleanup wastes will result from cleanup operations conducted by Safety-Kleen. These cleanups could occur at the Facility or at a customer's place of operation as a result of releases of hazardous materials that are supplied by Safety-Kleen (i.e., fresh mineral spirits-based parts washer solvent) or hazardous wastes generated from the materials supplied by

Safety-Kleen (e.g., mineral spirits-based spent parts washer solvent). The spill cleanup wastes are thus materials that are of known identity and may include:

- Contaminated soils.
- Contaminated waters, including decontamination rinses.
- Contaminated materials used for spill control and cleanup (e.g., absorbent, spill pigs, and blankets).
- Disposable personnel protection equipment (PPE).

Safety-Kleen accepts these wastes from off site when the spill occurred in a Safety-Kleen employee's presence. Spill cleanup wastes from customer's facilities where Safety-Kleen personnel did not participate in the cleanup are not accepted into permitted storage.

C-2(g)(3) Safety-Kleen Terminated Wastes

These wastes consists of shipments received from other Safety-Kleen Branch Facilities (in-state and out-of-state) wherein the manifest is terminated at the subject Branch Facilities. Wastes contained within these shipments are of the same types as described in the preceding subsections.

C-3 WASTE ANALYSIS PLAN - PROTOCOLS FOR WASTE ACCEPTANCE AND ASSOCIATED SAMPLING AND ANALYSIS

This Subsection outlines the acceptance criteria used by Safety-Kleen representatives who pick up used solvents and other wastes to be stored at North Carolina Safety-Kleen Branch Facilities, as well as the protocols that will be utilized for associated sampling and analysis to support these acceptance procedures. The initial portion of this Subsection presents a discussion of the rationale for the waste acceptance protocols and associated testing of each of the wastes stored by the Facility. The remaining portions of this Subsection describes the parameters, test methods, sampling methods and frequency of analysis for the various waste types stored by the Facility.

The analytical methods used by Safety-Kleen in performing Tier 2 and Tier 3 analyses are cross-referenced in Tables C-4 through C-8. Method descriptions and protocol are presented within the exhibits contained within Appendix C-5. These methods are routinely updated by Safety-Kleen when improvements in analytical technology become available. Therefore, this Waste Analysis Plan incorporates by reference the analytical protocol being used by Safety-Kleen at any given time pursuant to the given method number, rather than the specific analytical procedures and equipment described in Appendix C-5.

Each waste stream outlined in Subsection C-2 will be addressed individually within this Subsection.

C-3(a) Rationale

The primary function of the Acceptance Protocol is to identify wastes that the Branch Facility may be unable to handle (based upon the permit defined performance goals of the facility) before shipment of the waste is made from the customer. The performance goals

of the Branch Facilities define the tolerance limits for the wastes that can be accepted, and form the basis for the acceptance and testing procedures outlined herein. Tolerance limits define the parameter boundaries that a waste must meet so that it can be managed in compliance with the facility's permit.

The Branch Facilities handle wastes only for purposes of storing and bulking individual waste shipments from customers. The performance goals of the Branch Facilities can be summarized as follows:

- Wastes need to be compatible with the containers they are stored in.
- Wastes that are bulked need to be compatible with each other.
- Flammable waste must be maintained in areas that meet applicable fire code regulations.
- Any incompatible materials that are present must be segregated.

Because the performance goals of the Branch Facilities are broad in scope, the tolerance limits for the wastes managed at these facilities are likewise broad. Therefore, the acceptance criteria and associated testing have been designed to address characteristics of wastes being accepted by a Branch Facility that could affect the performance goal of the facility (i.e., ensure the waste meets its tolerance limits). The acceptance criteria and associated testing protocols reflect the fact that various contaminants can be present within these wastes. Specifically, the following should be noted:

- These contaminants are reflected within the regulatory classifications assigned to each of the wastes streams, as discussed in the preceding Subsection.
- The presence of these contaminants does not affect the manner in which the wastes are handled by the Branch Facility.

- The presence of these contaminants does not affect the performance goals of the Safety-Kleen Recycle Center receiving the waste (which, by the nature of the recycling operations, are more restrictive than those of the Branch Facilities).

The introduction of a flammable material into nonflammable waste could affect the flammability of the waste. Therefore, flash point has been included as a test parameter to support the waste acceptance protocol for each waste stream that is not handled as a flammable material.

As discussed within Subsection C-2, the wastes handled by the Branch Facilities are compatible with each other, and with the containers/tanks in which they are stored. As indicated in Table C-3, materials commonly utilized by Safety-Kleen customers that could be incompatible with the waste streams managed by the Branch Facilities include strong oxidizers, caustics and mineral acids. The introduction of such incompatible material into these wastes by a customer will be clearly evident at the customer location. The resulting undesirable chemical reaction would in most instances warn the customer not to further introduce such materials into the waste. Furthermore, the resulting reaction would either be complete, or if performed just prior to pickup by Safety-Kleen, would be clearly evident to the Safety-Kleen representative. The unlikely complete replacement of a container of waste destined for a Safety-Kleen Branch Facility with an incompatible material would also be clearly evident to the Safety-Kleen representative. In either event, the waste would not pass the Tier 1 acceptance criteria assigned for the waste, as discussed below.

The Waste Analysis Plan entails the use of a tiered acceptance and testing approach for most of the service-related waste streams, particularly those waste streams listed within Subsection C-1 that are generated by the customer. This tiered approach uses an initial tier (Tier 1) of visual screening for most waste streams to determine if the waste meets certain initial acceptance criteria before it is picked up. The Tier 1 inspections are performed at

the customer's facility. If the waste does not meet the acceptance criteria, the customer is interviewed to determine whether an acceptable reason exists for the non-conforming criteria. For example, the discoloration of mineral spirits solvents may be the result of cleaning paint brushes; the waste could still be accepted for recycling under such conditions. Tier 2 and Tier 3 analytical criteria have been selected to address the presence of significant and unusual contamination that is not expected, based upon the normal manner in which the wastes are generated. The presence of this unusual contamination could potentially affect the Branch Facilities performance goals, as well as the performance goals of the receiving Safety-Kleen Recycle Facility. In most instances, such significant and unusual contamination will not result in conditions that would affect either the Branch Facility's or Recycle Center's ability to safely, properly and effectively manage the waste, and serves solely to alert Safety-Kleen that a customer is not utilizing a solvent in the manner in which it is intended. Additionally, the acceptance criteria addresses contamination indicative of the possible misuse of Safety-Kleen products and/or the inadvertent disposal of unacceptable waste materials. Thus, the acceptance criteria are considered conservative, and have been designed recognizing that the activities conducted by the Branch Facilities are an integral part of waste generation, storage and eventual recycling process which is the basis of the services provided by Safety-Kleen.

Tier 2 analytical criteria may be employed when the waste does not meet the acceptance criteria and a decision is made by Safety-Kleen to sample the wastes. If the waste fails any of these Tier 2 criteria, additional Tier 3 testing may be performed to further characterize the waste. Tier 3 testing is performed to determine quantitative levels of contamination where the Tier 1 and Tier 2 testing suggests that they may exceed acceptable levels. Sometimes, based upon customer interviews or Tier 1 or Tier 2 testing, it may be determined that the waste is unacceptable without proceeding to Tier 3 testing.

The Customer Waste Certification Form provides certification by the customer that no process changes have taken place that could affect the nature of the waste, and that no foreign materials have been introduced into the described waste generations process. This practice will continue to ensure that a waste stream of known characteristics and uniformity is accepted.

DRAFT

C-3(b) Mineral Spirits-Based Spent Parts Washer Solvent

Parameters, Test Methods and Rationale

Parameters, inspection and test methods, and acceptance criteria used to characterize mineral spirits-based spent parts washer solvent are summarized within Table C-4. This protocol includes Tier 2 testing for flash point/flame color and specific gravity. Tier 3 analyses will include total volatile organics and total organic halogens. This protocol provides a check for significant, unusual contamination by halogenated or nonhalogenated organic volatile substances. Additionally, by reviewing specific gravity and flash point/flame color data, the potential for aqueous-based contamination can also be assessed.

Analyses has demonstrated that this waste stream will typically contain low concentrations of halogenated and nonhalogenated volatile organics as well as metals. The presence of these materials within the waste will not impair the Branch facility's ability to properly manage said wastes, except in those instances where flammable organics may significantly lower the flash point. In addition to this latter situation, significant and unusual contamination by halogenated or nonhalogenated volatile organics suggests the improper use of the solvent by the customer. Although unlikely, this may have the potential for impairing the Recycle Centers ability to manage such wastes. Tier 3 acceptance criteria for total volatile organics and total halogenated volatile organics have been established in consideration of these factors.

To support the basis for a tiered acceptance approach, Safety-Kleen has conducted a study of 800 individual drums of mineral spirits-based spent parts washer solvent collected by Branch Facilities in Wisconsin (Appendix C-4, Exhibit C-4-b). Samples of these drums were subjected to an initial tier of specific gravity and flash point testing utilizing the same acceptance criteria described below. Those drums that failed these acceptance criteria underwent more complete analysis. Of the 800 drums, 36 (95.5%) failed to meet the initial

TABLE C-4

SUMMARY OF TEST METHODS AND ACCEPTANCE CRITERIA
 FOR MINERAL SPIRITS-BASED SPENT PARTS WASHER SOLVENT

ANALYSES	TEST METHOD ^{1/}	ACCEPTANCE CRITERIA
<u>TIER 1^{2/}</u>		
Volume in Container	Inspection	No greater than 2/3 full.
Color/appearance	Inspection	Green, grading to brown or black.
Odor	If noted	Characteristic minerals spirits odor. ^{3/}
<u>TIER 2</u>		
Flash Point / Flame Color	S-K Method 9401	100 - 140° F. Absence of green flame coloration (If Service Document indicates high flash solvent [140° - 150°] was supplied, then an acceptable flash point range of 100 to 160° will be utilized.)
Specific Gravity	S-K Method 9903/9934	0.70 - 0.90
<u>TIER 3</u>		
Halogenated Organic Volatiles	S-K Method 9209	< 10 percent total
Volatile Organic Compounds	S-K Method 9203	< 10 percent total

^{1/} Refer to Appendix C-5, Exhibit C-5-a for cross-reference of S-K methods to U.S. EPA (SW846)/ASTM methods.

^{2/} Tier 1 acceptance criteria are utilized by Safety-Kleen when picking up each container of mineral spirits-based spent parts washer solvent at a customer's facility.

^{3/} For health and safety reasons wastes are not to be sniffed deliberately. If unusual odors are detected incidentally, this information will be incorporated into the acceptance procedure.

tier acceptance criteria. Of these 36 drums, 17 underwent further testing for total volatile organics and total organic halogens. Only 3 of the 800 drums (4.5%) failed both tiers of acceptance criteria. Of these 3 drums, one failed due to excessive water, one due to high oil content, and one due to gasoline contamination. Thus, 1 of the 800 drums failed due to regulatory (not processing) concerns. This study indicates that a tiered acceptance approach is capable of isolating potentially problematic individual drums of waste.

Sampling Methods and Frequency

Tier 1

Every drum of mineral spirits-based spent parts washer solvent is inspected by the Safety-Kleen representative for color, volume, and any unusual odors suggesting the addition of a foreign substance. (For health and safety purposes, Safety-Kleen representatives are instructed not to purposefully sniff any waste materials. However, if unusual odors are noticed during the routine handling of these materials, this information is not to be ignored and will be utilized as part of the waste acceptance procedure.) If these criteria are met, the representative will accept the waste. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to attempt to determine the reason and will document this information on the Waste Acceptance Form if this is the first time this condition was observed (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility for information regarding prior sampling results of the customer's waste and will have the information relayed via the telephone. Alternatively, the container will be sealed and left at the customer's location. The customer file will be checked upon return to the Facility, and, if acceptable, the waste will be picked up at a later date. If this waste stream from the customer has been sampled in the past and:

- 1) The Tier 1 acceptance criteria results (color, volume, etc.) are the same as documented for the previous sampling;

- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable; and,
- 3) the prior sampling results are on file at the Facility,

then the representative will accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria or the three conditions above, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will remain with the customer until sufficient testing has been performed to either pass Tier 2 or Tier 3 criteria, or to dispose of the waste by other means. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

Tier 2

Mineral spirits-based spent parts washer solvent waste will undergo Tier 2 testing if the waste does not meet Tier 1 acceptance criteria. A trained Safety-Kleen representative will utilize a drum thief or COLIWASA sampler to extract a representative sample of the drum contents. The sample will be placed in a sample jar, and the following information will be documented on the label of the sample jar:

- Customer name.
- Waste stream (i.e., mineral spirits-based spent parts washer solvent).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the Tier 2 analyses indicated within Table C-4.

Tier 2 parameters include flash point and specific gravity, which are intended to identify potential significant and unusual contamination by halogenated and nonhalogenated organic materials, and can be used to assess the potential presence of significant aqueous-based contamination.

The acceptable flash point range (100° to 140°F, or 100° to 160° F if, pursuant to the Service Document, high flash solvent was supplied) has been established as a typical range of this parameter in the reclaimed solvent supplied to the Customer, allowing for subsequent alterations likely to occur from the normal and accepted use of the solvent. Excursions of flash point outside this acceptance range may indicate the following conditions:

- If the flash point is lower than 100° F, significant amounts of a flammable organic may have been introduced.
- If the flash point is above 140° F [or 160° F (see preceding paragraph)], significant amounts of a noncombustible organic (e.g., chlorinated solvent) or aqueous-based material may have been introduced. The presence or absence of a green flame color will be used to assist in determining which may have occurred.

The acceptable specific gravity range (0.70 to 0.90) has been established as a typical range of this parameter in the reclaimed solvent supplied to the Customer, allowing for subsequent alterations likely to occur from the normal and accepted use of the solvent. Similarly, excursions of specific gravity outside the acceptance range indicated in Table C-4 may indicate the following conditions:

- If the specific gravity is lower than 0.70, significant amounts of potentially flammable organics could have been introduced.
- If the specific gravity is higher than 0.90, significant amounts of a heavy organic (e.g., chlorinated solvent) or aqueous-based material may have been introduced.

The results of both Tier 2 tests will assist Safety-Kleen in assessing whether further testing (Tier 3) is necessary, or if the waste should be rejected.

Tier 3

The Tier 3 acceptance criteria have been established, recognizing that organic contaminants will normally be present in this waste stream. Significant amounts of such materials can be added to the waste stream without affecting the Branch Facility's or the Recycle Facility's ability to properly manage the waste.

Analyses of the sample for Tier 3 parameters will be dependent upon the results of the Tier 2 analyses, as indicated in Figure C-1. If the flash point is lower than 100° F, volatile organic compound analysis will be conducted. If the flash point is higher than 140° F, (or 160° F if, pursuant to the Service Document, high flash solvent was supplied), halogenated organic volatiles analysis will be conducted. If a green flame is present during the flash point test, halogenated organic volatiles analysis will be conducted, regardless of the flash point results. If the specific gravity is lower than 0.70, volatile compound analysis will be conducted. If the specific gravity exceeds 0.90, halogenated organic volatiles analysis will be conducted. If the sample fails any of the Tier 3 acceptance criteria, the container will not be accepted into permitted storage at the Safety-Kleen facility. (This can be done at any prior stage, at the discretion of Safety-Kleen.)

It should be noted that if an individual drum of mineral spirits-based spent parts washer solvent tests with a flash point lower than 100° F, it is a flammable liquid by National Fire Protection Association (NFPA) standards. If such a drum is subsequently accepted by the Branch Facility, it will be marked with a flammable sticker. In the event the drum contents are not immediately processed in a drum washer and composited, the drum will be stored only in a container storage area designated and permitted for flammable liquid storage.

FIGURE C-1

TIER 2 RESULTS AND RESULTING TIER 3 ANALYSES
DECISION DIAGRAM FOR
MINERAL SPIRITS-BASED SPENT PARTS WASHER SOLVENT

TIER 2 ANALYTICAL RESULTS

SUBSEQUENT TIER 3 ANALYSIS

FLASH POINT

< 100° F	----->	VOLATILE ORGANIC COMPOUNDS
100° F - 140° F	----->	ACCEPTABLE
> 140° F	----->	HALOGENATED ORGANIC VOLATILES
> 160° F if high flash solvent supplied	----->	HALOGENATED ORGANIC VOLATILES

FLAME COLOR

GREEN COLOR PRESENT	----->	HALOGENATED ORGANIC VOLATILES
GREEN COLOR ABSENT	----->	ACCEPTABLE

SPECIFIC GRAVITY

< 0.7	----->	VOLATILE ORGANIC COMPOUNDS
0.7 - 0.9	----->	ACCEPTABLE
> 0.9	----->	HALOGENATED ORGANIC VOLATILES

TIER 3 ANALYTICAL RESULTS

Acceptable Range Volatile Organic Compounds	<10% Total
Acceptable Range Halogenated Organic Volatiles	<10% Total

C-3(c) Spent 699 Immersion Cleaner

Parameters, Test Methods and Rationale

Parameters, inspection and test methods, and acceptance criteria utilized in characterizing Spent 699 immersion cleaner are summarized within Table C-5. This protocol includes Tier 2 testing for flash point/flash color and specific gravity. Tier 3 analyses will include total volatile organics and total organic halogens. This protocol provides a check for significant, unusual contamination by halogenated or nonhalogenated volatile organic-based wastes. Additionally, by reviewing specific gravity and flash point data, the potential for aqueous-based contamination can be assessed.

Analyses has demonstrated that this waste stream will typically contain volatile organic constituents, including chlorinated volatiles. The presence of these materials within the waste will not impair the Branch facility's ability to properly manage said wastes, except in those instances where flammable organics may significantly lower the flash point. In addition to this latter situation, significant and unusual contamination by halogenated or nonhalogenated organics (and conceivably by aqueous-based substances) suggests the improper use of the solvent by the customer. Although unlikely, this may have the potential for impairing the Recycle Center's ability to manage such wastes. Tier 3 acceptance criteria for total volatile organics and total halogenated organics have been established in consideration of these factors.

Sampling Methods and Frequency

Tier 1

Every drum of spent 699 immersion cleaner is inspected by the Safety-Kleen representative for color, volume, and unusual odors suggesting the addition of a foreign substance. (For health and safety purposes, Safety-Kleen representatives are instructed not to purposefully

TABLE C-5
SUMMARY OF TEST METHODS AND ACCEPTANCE CRITERIA
FOR SPENT 699 IMMERSION CLEANER

ANALYSES	TEST METHOD ^{1/}	ACCEPTANCE CRITERIA
<u>TIER 1^{2/}</u>		
Volume in Container	Inspection	Not greater than 40 percent of drum or greater than 85% of a pail.
Color/Appearance	Inspection	Amber, grading to brown or black.
Odor	If noted	Characteristic naphtha odor ^{3/}
<u>TIER 2</u>		
Flash Point/Flame Color	S-K Method 9401	> 140° F. Absence of green flame color.
Specific Gravity	S-K Methods 9903/9934	0.90 - 1.20
<u>TIER 3</u>		
Volatile Organic Compounds	S-K Method 9203	< 10% of total contaminants foreign to product formulation; and/or not > 10% over any single component within product.

^{1/} Refer to Appendix C-5, Exhibit C-5-a for cross-reference of S-K methods to U.S. EPA (SW846)/ASTM methods.

^{2/} Tier 1 acceptance criteria are utilized by Safety-Kleen when picking up each container of spent 699 immersion cleaner at a customers facility.

^{3/} For health and safety reasons wastes are not to be sniffed deliberately. If unusual odors are detected incidentally, this information will be incorporated into the acceptance procedure.

sniff any waste materials. However, if unusual odors are noticed during the routine handling of these materials, this information will not be ignored, and will be utilized as part of the waste acceptance procedure.) If these criteria are met, the representative will accept the waste. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to attempt to determine the reason and will document this information on the Waste Acceptance Form the first time the condition is observed (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility for information regarding prior sampling results of the customer's waste, and will have the information relayed via the telephone. Alternatively, the container will be sealed and left at the customer's location. The customer file will be checked upon return to the Facility, and, if acceptable, the waste will be picked up at a later date. If this waste stream from the customer has been sampled in the past and:

- 1) the Tier 1 acceptance criteria results (color, volume, etc.) are the same as documented for the previous sampling;
- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable, and,
- 3) the prior sampling results are on file at the Facility,

the representative will then accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria or the three conditions above, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will remain with the customer until sufficient testing has been performed to either pass Tier 2 or Tier 3 criteria or to dispose of the waste through other means. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

Tier 2

Spent 699 immersion cleaner will undergo Tier 2 testing if the waste does not meet Tier 1 acceptance criteria. Trained Safety-Kleen personnel will use a drum thief or COLIWASA sampler to extract a representative sample of the drum contents. The sample will be placed in a sample jar. The following information will be documented on the label of the sample jar:

- Customer name.
- Waste (i.e., spent 699 immersion cleaner)
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the Tier 2 analyses indicated within Table C-5.

Tier 2 parameters include flash point and specific gravity, which are intended to identify potential significant and unusual contamination by halogenated and nonhalogenated volatile organic materials, and can be used to assess the potential presence of significant aqueous-based contamination.

The acceptable flash point (greater than 140°F) has been established as a typical minimum point for this parameter in the reclaimed solvent supplied to the Customer. A flash point below this acceptance level indicates that significant amounts of a flammable organic may have been introduced. The presence or absence of a green flame color will be used to assist in assessing whether chlorinated solvents have been added to the solvent.

The acceptable specific gravity range (0.90 to 1.20) has been established as a typical range of this parameter in the reclaimed solvent supplied to the Customer, and subsequent alterations likely to occur from the normal and accepted use of the solvent. Similarly, excursions of specific gravity outside the acceptance range indicated in Table C-4 may indicate the following conditions:

- If the specific gravity is lower than 0.90, significant amounts of potentially flammable organics could have been introduced.
- If the specific gravity is higher than 1.20, significant amounts of a heavy organic (e.g., chlorinated solvent) may have been introduced.

The results of both Tier 2 tests will assist Safety-Kleen in assessing whether further testing (Tier 3) is necessary, or if the waste should be rejected.

Tier 3

The Tier 3 acceptance criteria have been established recognizing that significant amounts of organic materials can be added to the waste stream without affecting the Branch Facility's or the Recycle Facility's ability to properly manage the waste.

Analysis of the sample for the Tier 3 parameters will be dependent upon the results of the Tier 2 analysis. If any Tier 2 criteria are not met, the sample will be analyzed for the Tier 3 parameters. If the flash point is lower than 140° F, volatile organic compound analysis will be conducted. If a green flame is present during the flash point test, halogenated organic volatiles analysis will be conducted, regardless of the flash point results. If the specific gravity is lower than 0.90, volatile organic compound analysis will be conducted. If the specific gravity exceeds 1.20, halogenated organic volatiles analysis will be conducted. If the sample fails the Tier 3 acceptance criteria, the container will not be accepted into

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permitted storage at the Safety-Kleen facility. (This can be done at any prior stage, at the discretion of Safety-Kleen.)

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C-3(d) Spent Paint Spray Gun Cleaner

Parameters, Test Methods and Rationale

Parameters, inspection and test methods, and acceptance criteria utilized in characterizing spent paint spray gun cleaner are summarized within Table C-6. This protocol includes Tier 2 testing for flash point/flame color and specific gravity. Tier 3 analyses will include total organic halogens. This protocol provides a spot check for significant, unusual contamination by halogenated organic-based wastes.

Analyses has demonstrated that this waste stream will typically contain volatile organic constituents. Based upon the formulation of the solvent, certain nonhalogenated organics can be anticipated to be present in high concentrations. Typical concentrations of chlorinated organics are relatively low. The presence of these materials within the waste will not impair the Branch facility's ability to properly manage said wastes. Regardless of the actual flash point, all spent paint spray gun cleaner is assumed to be a flammable material and is managed accordingly. Significant and unusual contamination by halogenated organics suggests the improper use of the solvent by the customer. Although unlikely, this may have the potential for impairing the Recycle Center's ability to manage such wastes. Thus, Tier 3 acceptance criteria for total halogenated organics have been established in consideration of these factors.

Sampling Methods and Frequency

Tier 1

Every drum of spent paint spray gun cleaner is inspected by the Safety-Kleen representative for visual appearance, volume, and unusual odors suggesting the addition of a foreign substance. (For health and safety purposes, Safety-Kleen representatives are instructed not to purposefully sniff any waste materials. However, if unusual odors are noticed during the

TABLE C-6

SUMMARY OF TEST METHODS AND ACCEPTANCE CRITERIA
 FOR SPENT PAINT SPRAY GUN CLEANER

ANALYSES	TEST METHOD ^{1/}	ACCEPTANCE CRITERIA
<u>TIER 1</u> ^{2/}		
Appearance	Inspection	Solvent/paint appearance; no greasy or oily materials. No unusual odors. ^{3/}
Volume in Container	Inspection	< 7 1/2 gallons between (2) 5-gallon pails (clean and dirty), combined.
<u>TIER 2</u>		
Flash Point / Flame Color	S-K Method 9401	< 100° F. Absence of green flame coloration
Specific Gravity	S-K Methods 9903/9934	< 1.10
<u>TIER 3</u>		
Halogenated Organic Volatiles	S-K Method 9209	< 5 percent total

^{1/} Refer to Appendix C-5, Exhibit C-5-a for cross-reference of S-K methods to U.S. EPA (SW846)/ASTM methods.

^{2/} Tier 1 acceptance criteria are utilized by Safety-Kleen when picking up each container of spent paint spray gun cleaner at a customers facility.

^{3/} For health and safety reasons wastes are not to be sniffed deliberately. If unusual odors are detected incidentally, this information will be incorporated into the acceptance procedure.

routine handling of these materials, this information will not be ignored, and will be utilized as part of the waste acceptance procedure.) If these criteria are met, the representative will accept the waste. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to attempt to determine the reason and will document this information on the Waste Acceptance Form the first time the condition is observed (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility for information regarding prior sampling results of the customer's waste and will have the information relayed via the telephone. Alternatively, the container will be sealed and left at the customer's location. The customer file will be checked upon return to the Facility, and, if acceptable, the waste will be picked up at a later date. If this waste stream from the customer has been sampled in the past and:

- 1) the Tier 1 acceptance criteria results (volume, etc.) are the same as documented for the previous sampling;
- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable, and,
- 3) the prior sampling results are on file at the Facility,

then the representative will accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria or the three conditions above, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will remain with the customer until sufficient testing has been performed to either pass Tier 2 or Tier 3 criteria or to dispose of the waste through other means. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

Tier 2

Spent paint spray gun cleaner will undergo Tier 2 testing if the waste does not meet Tier 1 acceptance criteria. Trained Safety-Kleen personnel will use a drum thief or COLIWASA sampler to extract a representative sample of the drum contents. The sample will be placed in a sample jar. The following information will be documented on the label of the sample jar:

- Customer name.
- Waste (i.e., spent paint spray gun cleaner).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the Tier 2 analyses indicated within Table C-6.

Tier 2 parameters include flash point/flame color and specific gravity, which are intended to identify potential significant and unusual contamination by halogenated volatile organic materials.

The acceptable flash point (less than 100°F) has been established as a typical maximum point for this parameter, considering the potential for significant increases in flash point over that of the reclaimed solvent supplied to the customer, based upon the type of paints being cleaned. A flash point above this acceptance level may indicate that significant amounts of a halogenated organics have been introduced. The presence or absence of a green flame color will be used to assist in determining whether chlorinated solvents have been added to the solvent.

The acceptable specific gravity (less than 1.10) has been established as a typical maximum point for this parameter, which is likely to occur from the normal and accepted use of the solvent. However, a fairly wide variation in specific gravity may occur, based upon the types of paints being cleaned. Similarly, excursions of specific gravity above the acceptable limit may indicate that significant amounts of a chlorinated solvent have been introduced.

The results of both Tier 2 tests will assist Safety-Kleen in assessing whether further testing (Tier 3) is necessary, or if the waste should be rejected.

Tier 3

Analyses of the sample for Tier 3 parameters will be dependent upon the results of the Tier 2 analysis. If any of the Tier 2 parameters, including flame color, are not met, halogenated organic volatiles analysis will be conducted. If the sample fails the Tier 3 acceptance criteria, the container will not be accepted into permitted storage at the Safety-Kleen Facility. (This can be done at any prior stage, at the discretion of Safety-Kleen.)

C-3(e) Paint Waste

Parameters, Test Methods and Rationale

Parameters, inspection and test methods, and acceptance criteria utilized in characterizing paint waste are summarized within Table C-7. This protocol includes Tier 2 testing for flash point/flash color, and Tier 3 analyses for total organic halogens. This protocol provides a spot check for significant, unusual contamination by halogenated organic-based wastes.

Analyses has demonstrated that this waste stream will typically contain volatile organic constituents. Notably, nonhalogenated volatile organics can be anticipated to be present in high concentrations. Typical concentrations of chlorinated volatile organics are relatively low. The presence of these organic materials within the waste will not impair the Branch facility's ability to properly manage said wastes. Regardless of the actual flash point, all waste paint is assumed to be a flammable material, and is managed accordingly. Significant and unusual contamination by halogenated organics suggests the improper or accidental disposal of materials other than paint into this waste stream. Although unlikely, this may have the potential for impairing the Recycle Center's ability to manage such wastes. Tier 3 acceptance criteria for halogenated organic volatiles have been established in consideration of these factors.

Sampling Methods and Frequency

Tier 1

Every drum of paint waste is inspected by the Safety-Kleen representative for visual appearance, volume of material, and any unusual odors or other conditions suggesting the addition of a foreign material. (For health and safety purposes, Safety-Kleen representatives are instructed not to purposefully sniff any waste materials. However, if unusual odors are noticed during the routine handling of these materials, this information will not be ignored

TABLE C-7
SUMMARY OF TEST METHODS AND ACCEPTANCE CRITERIA
FOR PAINT WASTE

ANALYSES	TEST METHOD ^{1/}	ACCEPTANCE CRITERIA
<u>TIER 1^{2/}</u>		
Appearance	Inspection	Paint/solvent appearance; no greasy or oily materials. No unusual odors. ^{3/}
<u>TIER 2</u>		
Flash Point (free liquids)/ Flame Color	S-K Method 9401	< 100° F. Absence of green flame coloration
<u>TIER 3</u>		
Halogenated Organic Volatiles	S-K Method 9209	< 5 percent total

^{1/} Refer to Appendix C-5, Exhibit C-5-a for cross-reference of S-K methods to U.S. EPA (SW846)/ASTM methods.

^{2/} Tier 1, acceptance criteria are utilized by Safety-Kleen when picking up each container of paint waste at a customers facility.

^{3/} For health and safety reasons wastes are not be sniffed deliberately. If unusual odors are detected incidentally, this information will be incorporated into the acceptance procedure.

and will be utilized as part of the waste acceptance procedure.) If these criteria are met, the representative will accept the waste. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to attempt to determine the reason and will document this information on the Waste Acceptance Form the first time the condition is observed (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility for information regarding prior sampling results of the customer's waste, and will have the information relayed via the telephone. Alternatively, the container will be sealed and left at the customer's location. The customer file will be checked upon return to the Facility, and if acceptable, the waste will be picked up at a later date. If this waste stream from the customer has been sampled in the past and:

- 1) the Tier 1 acceptance criteria results (color, volume, etc.) are the same as documented for the previous sampling;
- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable; and,
- 3) the prior sampling results are on file at the Facility,

then the representative will accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria or the three conditions above, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will remain with the customer until sufficient testing has been performed to either pass Tier 2 or Tier 3 criteria or to dispose of the waste through other means. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

Tier 2

Paint waste will undergo Tier 2 testing if the waste does not meet Tier 1 acceptance criteria. Trained Safety-Kleen personnel will use a drum thief or COLIWASA sampler to extract a

representative sample of the drum contents. The sample will be placed in a sample jar. The following information will be documented on the label of the sample jar:

- Customer name.
- Waste stream (i.e., paint waste).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the Tier 2 analyses indicated within Table C-7.

Tier 2 parameters include flash point/flame color, which is intended to identify potential significant and unusual contamination by halogenated organic materials. Because of the often extremely viscous nature of this waste stream, specific gravity is neither a useful nor practical parameter for establishing acceptance protocol. Additionally, many non-oil-base paints will have a significant water content, which renders the assessment of potential aqueous-based contamination pointless.

The acceptable flash point (less than 100° F) has been established as a typical maximum point for this parameter, considering that potentially wide variations in flash point can occur normally from the accumulation of various types of waste paints. Excursions of flash point above this acceptance level may indicate that significant amounts of halogenated organics have been introduced. The presence or absence of a green flame color will be used to assist in determining whether halogenated organics have been added to the waste.

Tier 3

Analyses of the sample for Tier 3 parameters will be dependent upon the results of the Tier 2 analyses. If the flash point of the waste exceeds 100° F or if a green flame is encountered, then halogenated solvent analysis will be conducted. If the sample fails the Tier 3 acceptance criteria, the container will not be accepted into permitted storage at the Safety-Kleen facility. (This can be done at any prior stage, at the discretion of Safety-Kleen.)

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C-3(f) Dry Cleaner Wastes

Parameters, Test Methods and Rationale

Safety-Kleen does not require visual verification of dry cleaner waste streams at the customer's site for the following reasons:

- Employee exposure concerns. (This is Safety-Kleen's primary reason for keeping these containers sealed.)
- The negligible risk of foreign material contaminating the waste.
- Containers are not opened at the facility, but remain closed until they are received at the Safety-Kleen Recycling Center, where containers are inspected and/or tested in accordance with the facility's operating permit.

These wastes are generated in very controlled environments, where other operations using significant amounts of other hazardous materials are not conducted. These wastes are generated within units (i.e., dry cleaning machines), which would not lend themselves to cross-contamination by other foreign materials. The processes used by the customer are well known to Safety-Kleen.

None of the dry cleaning waste containers are opened at the facility. The containers are not opened until they are received by the Safety-Kleen Recycling Center. At that time, visual inspection of the contents is made in a controlled environment to minimize the risk of employee exposure. If the inspection reveals a condition suggesting contamination of the waste by foreign material, the Recycle Center will proceed in accordance with the procedures required pursuant to its Hazardous Waste Management Facility Operating Permit.

Because of these factors, no facility-based quantitative or qualitative analyses of these wastes will be performed. During quarterly testing, selected containers of dry cleaner wastes will be opened and visually inspected to verify the presence of the waste within the container [refer to Subsection C-4(f)].

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C-3(g) Spent Antifreeze/Glycol Waste

Parameters, Test Methods and Rationale

Parameters, inspection and test methods, and acceptance criteria utilized in characterizing spent antifreeze/glycol waste are summarized within Table C-8. This protocol includes Tier 2 testing for specific gravity, and at the discretion of the Safety-Kleen representative, optional testing for flash point if significant free-phase material and the presence of unusual (e.g. solvent) odors is noted. Tier 3 analyses will include total volatile organics and total organic halogens. This protocol provides a check for significant, unusual contamination by halogenated or nonhalogenated volatile organic-based substances.

Analyses have demonstrated that this waste stream will typically contain volatile organic constituents, including chlorinated organics. The presence of these materials within the waste will not impair the Branch facility's ability to properly manage this waste, except in those instances where flammable organics may yield a flash point for the waste. In addition to this latter situation, significant and unusual contamination by halogenated or nonhalogenated organics suggests improper or accidental disposal of foreign materials into this waste. Although considered unlikely, this may have the potential to impair the Recycle Center's ability to manage such wastes. Tier 3 acceptance criteria for total volatile organics and total halogenated have been established in consideration of these factors.

Sampling Methods and Frequency

Tier 1

Spent antifreeze/glycol waste is received at the Facility in bulk fashion, with each load typically comprising wastes from several individual customers. The waste will be inspected by the Safety-Kleen representative at each customer's facility before bulking the material. The waste will be inspected utilizing either a drum thief or a COLIWASA sampler for visual

TABLE C-8

SUMMARY OF TEST METHODS AND ACCEPTANCE CRITERIA
 FOR SPENT ANTIFREEZE/GLYCOL WASTE

ANALYSES	TEST METHOD ^{1/}	ACCEPTANCE CRITERIA
<u>TIER 1^{2/}</u>		
Appearance/Color	Inspection	Green, green-brown, (from presence of oil) or pink, watery to slightly viscous liquid. Single phase or a second phase of oil may be present. No unusual odors. ^{3/}
Odors		
<u>TIER 2</u>		
Specific Gravity - Field	S-K Method 9934	0.90 - 1.15
Flash Point/Flare Color ^{4/} (discretionary)	S-K Method 9401	> 140°F
<u>TIER 3</u>		
Volatile Organic Compounds	S-K Method 9203	< 10 percent total
Halogenated Organic Volatiles	S-K Method 9209	< 10 percent total

^{1/} Refer to Appendix C-5, Exhibit C-5-a for cross-reference of S-K methods to U.S. EPA (SW846)/ASTM methods.

^{2/} Tier 1 acceptance criteria are utilized by Safety-Kleen when picking up each container of spent mineral spirits at a customers facility.

^{3/} For health and safety reasons wastes are not to be sniffed deliberately. If unusual odors are detected incidentally, this information will be incorporated into the acceptance procedure.

^{4/} Tier 2 analyses may include flash point/flame color (Safety-Kleen Method 9401) at the discretion of the Safety-Kleen representative if significant free-phase product and unusual odors are noted (see footnote No. 3).

appearance, including color and unusual phase-separated material (a floating oil layer is typically present in this waste). Additionally, the representative will make note of any unusual odors suggesting the addition of foreign materials. (For health and safety purposes, Safety-Kleen representatives are instructed not to purposefully sniff any waste materials. However, if unusual odors are noticed during the routine handling of these materials, this information will not be ignored and will be utilized as part of the waste acceptance procedure.) If the Tier 1 acceptance criteria are met, the representative will accept the waste. If the Tier 1 criteria are not met, the Safety-Kleen representative will interview the customer to attempt to determine the reason and document this information on the Waste Acceptance Form the first time the condition is observed (Appendix C-1, Exhibit C-1-d). The representative will contact the Facility for information regarding prior sampling results of the customer's waste, and will have the information relayed via the telephone. Alternatively, the waste will be left at the customer's location. Note that Safety-Kleen cannot expect the customer to seal the container pending waste analyses, as generation of additional waste is typically an ongoing process. If this waste stream from the customer has been sampled in the past and:

- 1) the Tier 1 acceptance criteria results (color, volume, etc.) are the same as documented for the previous sampling; and
- 2) the results of the Tier 2 and/or Tier 3 analyses indicate that the material is acceptable; and
- 3) the prior sampling results are on file at the Facility,

then the representative will accept the waste without further Tier 2 or Tier 3 analysis. If the waste does not meet Tier 1 criteria and the three conditions above, the waste will either be rejected or a sample will be collected for analyses. In either event, the waste will remain

with the customer. This method of inspection ensures that unacceptable wastes generated off site are not received by the Facility.

Tier 2

Individual customer loads of spent antifreeze/glycol waste will undergo Tier 2 testing if they fail to meet the Tier 1 acceptance criteria. A sample will be collected by a trained Safety-Kleen employee using a drum thief or COLIWASA sampler. The sample will then be transferred to a sample jar and the following information will be documented on the label of the jar:

- Customer name.
- Waste type (i.e., spent antifreeze).
- Sample collection date and time.

The Tier 2 testing for specific gravity will be conducted at the customer location or at the Branch Facility. In addition, discretionary testing for flash point/flash color may be performed if the Safety-Kleen representative observes significant free-phase product and detects unusual odors suggesting contamination of the waste. These parameters are intended to identify significant and unusual contamination by halogenated and nonhalogenated organic materials.

The acceptable specific gravity range (0.90 to 1.15) has been established as a typical range of this parameter in this waste stream resulting from the normal manner in which it is generated. Excursions of specific gravity outside the acceptance range indicated in Table C-4 may indicate the following conditions:

- If the specific gravity is lower than 0.90, significant amounts of potentially flammable organics could have been introduced.
- If the specific gravity is higher than 1.15, significant amounts of a heavy organic (e.g., chlorinated solvent) may have been introduced.

In addition, the inclusion of a significant amount of flammable organic material could yield a mixture with ignitable properties. Also, a significant amount of free-phase material in the base of the tank/container (separate from the glycol and any accumulated solids) could indicate significant contamination by halogenated organics. If significant free-phase material is present and odors are noticed by the Safety-Kleen representative [which raises the suspicion that an organic material (e.g., solvents) has been added to the waste], the waste will remain at the facility until such time that analysis is made available by the customer. Alternatively, discretionary testing for flash point/flame color of the free-phase material may be performed. In such an instance, a lack of green flame color and a flash point greater than 140° F (RCRA ignitable waste limit) will be used as an acceptance criteria.

The results of both Tier 2 tests will assist Safety-Kleen in determining whether further testing (Tier 3) is necessary, or if the waste should be rejected. If the waste passes Tier 2 criteria, it may be accepted by the Facility.

Tier 3

If the sample fails the Tier 2 criteria, the sample will be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the Tier 3 analyses (as indicated within Table C-8). Preservatives will not be used because the waste sample is a concentrated organic.

The Tier 3 acceptance criteria have been established recognizing that significant amounts of organic materials can be added to the waste stream without affecting the Branch Facility's or the Recycle Facility's ability to properly manage the waste.

Analyses of the sample for Tier 3 parameters will be dependent upon the results of the Tier 2 analyses. If the specific gravity is lower than 0.90, volatile organic compounds analysis will be conducted. If the specific gravity exceeds 1.15, halogenated organic volatiles analysis will be conducted. If discretionary flash point testing is performed and a flash point lower than 140° F is obtained, volatile organic compounds analysis will be conducted. If a flash point is conducted and a green flame is present during the test, halogenated organic volatiles analysis will be conducted. If the sample fails any of the Tier 3 acceptance criteria, the container will not be accepted into permitted storage at the Safety-Kleen facility. (This can be done at any prior stage, at the discretion of Safety-Kleen.)

C-3(h) Wastes Generated by Safety-Kleen

C-3(h)(1) Storage Tank Bottom and Drum Washer Sediments

Storage tank bottoms and drum washer sediments are generated by on-site activities involving the management of mineral spirits-based spent parts washer solvent. As the generator, Safety-Kleen possess adequate knowledge regarding the nature of these wastes to properly handle and store them until they are sent off site for recovery. Therefore, no specific Tier 1 or Tier 2 qualitative or quantitative analyses is considered necessary for these waste streams.

C-3(h)(2) Spill Cleanup Wastes

These wastes consist of materials generated by Safety-Kleen both off site (at a customer's facility) or on site (at the Branch Facility). These wastes result exclusively from the spillage of Safety-Kleen-owned products and/or wastes. No analysis is required for spill cleanup wastes, as all such wastes fall into one or more of the following categories:

1. Wastes generated by spills of product or wastes at the Safety-Kleen facility,
2. Wastes generated by Safety-Kleen representatives spilling product or waste while servicing a customer,
3. Wastes generated by a spill or release during transport of product or waste, where Safety-Kleen is the transporter.
4. Wastes generated by discarding contaminated sampling and personal protective equipment, used at Safety-Kleen facilities or by Safety-Kleen personnel.

In all cases, Safety-Kleen has accepted responsibility to clean up and dispose of the resulting contaminated sorbant material, contaminated soils, gravel, and (if applicable) contaminated

personal protective and sampling equipment. Safety-Kleen would, in each case, be fully knowledgeable as to the contaminants present since they would either be Safety-Kleen product or wastes received by the Safety-Kleen facility.

Safety-Kleen considers all of the above wastes as being generated by Safety-Kleen and manages them accordingly. Therefore, generator knowledge is applicable and additional waste characterization is unnecessary. Safety-Kleen will not accept spill cleanup wastes from customers as part of the permitted waste storage process. Spill wastes that Safety-Kleen does accept from customers (e.g., corn cob program) are managed on a transfer basis and are not stored in the permitted storage areas of the Branch Facilities.

C-3(h)(3) Waste Terminated from Other Safety-Kleen Branch Facilities

Waste terminated from other Safety-Kleen Branch Facilities consists of waste collected by other Branch Facilities (including out-of-state facilities) that are subsequently terminated at a North Carolina Safety-Kleen Branch Facility. These wastes are collected by the other Safety-Kleen facilities in the same general fashion as described within this Waste Analysis Plan for the North Carolina facilities. As these wastes have already undergone inspection by Safety-Kleen when they were collected at the individual customer locations, no further acceptance criteria need be addressed for such wastes when they are terminated at a North Carolina Branch Facility.

Customer specific files (e.g., Customer Waste Certifications Forms or CESQG Certifications) will be obtained for each shipment of waste picked up by a different Branch Facility but shipped under the individual customer's manifests to the subject North Carolina Branch Facility (where these manifests are terminated).

For shipments of waste originating from a different Branch Facility and shipped under a Safety-Kleen manifest to the subject North Carolina Branch where the Safety-Kleen manifest was terminated, the originating Branch Facility is classified as a LQG and will be treated as a another "customer facility". In this instance, the original manifests from the customers to the other Branch Facility were terminated at that facility, and a new manifest was generated for shipment of the waste to a second Safety-Kleen Branch. With the exception of such waste loads originating from another North Carolina Facility, these wastes generated by other Branch facilities will be subject to the quarterly testing program described in Subsection C-4-h.

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C-4 WASTE ANALYSIS PLAN - QUARTERLY TESTING PROGRAM

This subsection outlines the Quarterly Testing Program that will be utilized by Safety-Kleen at the North Carolina Branch Facilities. The initial portion of this Subsection presents a discussion of the rationale used for the quarterly testing of waste streams stored by the North Carolina Safety-Kleen Branch Facilities. The remaining subsections present a sampling and analytical schedule that describes the parameters, test methods, sampling methods and frequency of analysis for the quarterly testing of each of the various wastes stored by the Facility.

The analytical methods used by Safety-Kleen in performing the analyses are presented within each portion of this Subsection dealing with individual waste streams. The method descriptions and protocol are presented within Appendix C-5. These methods are routinely updated by Safety-Kleen when improvements in analytical technology become available. Therefore, the Waste Analysis Plan incorporates by reference the analytical protocol being used by Safety-Kleen at any given time pursuant to the given method number, rather than the specific analytical procedures and equipment being used.

Each waste stream outlined in Subsection C-2 will be addressed individually within the Waste Analysis Plan.

C-4(a) Rationale

The Quarterly Testing Program entails the random selection and sampling of a pre-determined number of containers for each of the waste streams listed within Subsection C-1, at each of the North Carolina Branch Facilities, on a quarterly basis. The intent of the Quarterly Testing Program is to provide additional data on a continuing basis regarding the characteristics of the wastes accepted and managed by the facility. This data is utilized to

assess whether the characteristics of these wastes have changed to such a point that they potentially impair the ability of the facility to properly manage them. The data will also be utilized to assess the efficacy of the waste acceptance protocols outlined within Subsection C-3. Along with the routine acceptance protocol, the Quarterly Testing Program also serves as a deterrent to customers who may purposely alter their wastes.

The basis for the Quarterly Testing Program (as well as the Waste Acceptance Protocols discussed in Subsection C-3) is the performance goals of the Branch Facilities. In other words, the performance goals for the Branch Facilities define the tolerance limits for the wastes that can be accepted, which in turn form the basis for the Quarterly Testing Program described herein. The tolerance limits establish the parameters that a waste must meet so that it can be managed in compliance with the facility's permit.

The Branch Facilities handle wastes only for purposes of storing and bulking individual waste shipments from customers. The performance goals of the Branch Facilities are therefore summarized as follows:

- The wastes need to be compatible with respective storage containers.
- Bulked wastes need to be compatible with each other.
- Flammable wastes must be maintained in areas that meet applicable fire code regulations.

Because the performance goals of the Branch Facilities are broad in scope, the tolerance limits for the wastes managed at these facilities may likewise be broad. The Quarterly Testing Program has been designed to address characteristics of the wastes being accepted by a Branch Facility that could affect the performance goal of the facility (i.e., ensure the waste meets its tolerance limits). Additionally, the testing also addresses contamination indicative of the possible misuse of Safety-Kleen products and/or inadvertent disposal of

unacceptable waste materials, as well as contamination that might affect the performance goals of the Safety-Kleen Recycle Centers receiving the waste. Recycle Centers maintain tolerance limits for the wastes they receive that are reflective of their specific performance goals (as dictated by their operating permits). Most of the tolerance limits (i.e., acceptance criteria) for wastes accepted by the Branch Facilities have been established in recognition of the fact that the individual wastes are bulked prior to shipment to the Recycle Centers. Thus, somewhat broader tolerance limits for individual containers of wastes may be established, but they still do not affect the manner in which the Branch Facilities manage these wastes (i.e., affect their less restrictive performance goals).

The Quarterly Testing Program has been designed recognizing that the activities conducted by the Branch Facilities are an integral part of the process of waste generation, storage and eventual recycling, which is the basis for the services provided by Safety-Kleen.

The testing protocol for the waste streams has been designed to determine quantitative levels of physical parameters and/or selected contaminant groups that could affect the manner in which these wastes are handled. As previously indicated, extensive sampling has been performed by Safety-Kleen of both composited waste loads that are sent to Safety-Kleen Recycle Centers from Branch Facilities and wastes received from individual customers. This significant database has demonstrated that there is a very predictable degree and type of contamination within the closed-loop waste streams studied. Results of analyses of various waste types stored at the North Carolina Branch Facilities are presented within Appendix C-4.

The introduction of a flammable material into nonflammable waste could affect the flammability of that waste. Therefore, flash point has been included as a test parameter for each waste stream that is not handled as a flammable material. The introduction of

incompatible wastes need not be addressed in the Quarterly Testing Program, for reasons discussed within Subsection C-3(a).

The acceptance criteria and associated testing protocols reflect the fact that various contaminants will be present within these wastes. Specifically, it should be noted that:

- These contaminants are reflected within the regulatory classifications assigned to each of the wastes streams as discussed in the preceding Subsection.
- Their presence does not affect the manner in which the wastes are handled by the Branch Facility.
- Their presence does not affect the performance goals of the Safety-Kleen Recycle Center receiving the waste (which, by the nature of the recycling operations, are more restrictive than those of the Branch Facilities).

Therefore, the analyses of individual containers of waste for specific chemical constituents, (specifically, TCLP parameters) is not required. TCLP analyses are conducted for purposes of regulatory classification. The regulatory classification of the wastes handled by the Branch Facilities (as reflected within the Facility permits) already addresses the potential for various parameters present within these wastes above the regulatory limits requiring them to be classified as hazardous. Further defining variability of TCLP concentrations on individual loads of waste will not provide Safety-Kleen with any information of greater use (with respect to proper management of the waste) than that provided by the selected analyses. Therefore, analysis of TCLP constituent concentrations will not yield any useful information with respect to the intent and purpose of the Quarterly Testing Program.

The Quarterly Testing Program will only address wastes generated by LQGs or SQGs. Waste generated by customers who have certified that they are CESQGs (as defined within 40 CFR 261.5) will be exempt from the program. CESQG typically generate a very limited number of waste streams. Often, the waste managed by Safety-Kleen are the only hazardous

waste streams that they generate. Furthermore, because the LQG and SQG provide a larger share, per customer, of wastes to a Branch Facility, focusing the Quarterly Testing Program on these generators will provide a representative view of the total amount of wastes managed by the facility. The contribution of an individual CESQGs waste to bulked loads sent to the Recycle Facility is also much less likely to potentially affect the tolerance limits of such a load. Finally, CESQGs have legally viable alternatives of handling their hazardous wastes, which are less protective of the environment, but also less costly than recycling via Safety-Kleen's services (e.g., mixing hazardous wastes with waste oil). By utilizing Safety-Kleen's services, these generators have demonstrated a willingness to manage their wastes in a safe and environmentally responsible fashion which suggests that purposeful alteration of such wastes is less likely.

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C-4(b) Mineral Spirits-Based Spent Parts Washer Solvent
Parameters, Test Methods and Rationale

Mineral spirits-based spent parts washer solvent is typically a nonflammable material, with a flash point above 100°F. However, individual containers of such waste can be accepted if they are to be bulked immediately into storage tanks, or if they are labeled as flammable and stored only in a permitted flammable container storage area. Furthermore, the waste is expected to contain low concentrations of both halogenated and nonhalogenated volatile organics, and metals. Therefore, randomly selected samples of mineral spirits-based spent parts washer solvent will be analyzed for the following parameters pursuant to the indicated analytical methods, and compared to the indicated acceptance criteria:

- Specific gravity - S-K Methods 9903 or 9934 - 0.70 to 0.90
- Flash Point/flame color - S-K Method 9401 - 100° to 140°F, lack of green flame. If high flash solvent (140° to 150° F flash point) was supplied, as noted on the sales document, an acceptable flash point range of 100° to 160° F will be utilized.
- Halogenated organic volatiles - S-K Method 9209 - < 10 percent total
- Volatile organic compounds - S-K Method 9203 - < 10 percent total

These analyses will provide data on the presence of significant, unusual contamination by both halogenated and nonhalogenated volatile organic-based wastes. Flash point has been selected as a test parameter, as it relates to the potential flammability of the waste stream, which could affect how the waste is stored. Both flash point and specific gravity have been selected as potential indicators of volatile organic-based contamination, while volatile organic compound analysis and halogenated organic volatile analysis will provide a quantified measure of such contamination. The presence of significant amounts of either nonhalogenated or halogenated organic volatiles, while not necessarily affecting the manner

in which the wastes are handled by the Branch Facility (except as it relates to potential lowering of the flash point), does suggest the potential misuse of the solvent by the customer, and could affect the performance goals of the recycling process. The resulting bulk load of solvent sent to the Safety-Kleen Recycle Center could exceed the tolerance limits required for the recycle center, due to high volatiles content. Data correlating specific gravity and flash point results to the indicated organic analyses will provide an ongoing assessment of the efficacy of the routine waste acceptance protocols.

Sampling Methods and Frequency

Each quarter, 15 containers of mineral spirits-based spent parts washer solvent will be selected from each Branch Facility for testing. Generally, all sampling will take place on one day within the quarter, although it may be conducted on multiple days. Containers will be selected on a random basis; however, if any selected drum originated from a customer whose mineral spirits-based spent parts washer solvent waste was previously analyzed within the current calendar year, an alternate drum from another generator will be selected. Those containers selected for testing will be staged in one of the permitted storage areas and marked "HOLD FOR ANALYSES." Each drum will then be opened, and trained personnel will utilize a drum thief to extract a representative sample of the drum contents. The sample will be placed in a sample jar, and the following information will be documented on the label of the jar:

- Customer name.
- Waste stream (i.e., mineral spirits-based spent parts washer solvent).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the analyses indicated above.

This sampling frequency will result in a combined total of 240 individual samples of mineral spirits-based spent parts washer solvent tested on an annual basis from the North Carolina Branch Facilities. Based upon the number of customers and the containers received by the four North Carolina Branch Facilities during the first three quarters of 1992, this will result in an estimated sample per customer frequency of 9.0%, and an estimated sample per container frequency of 0.3% (Appendix C-6). This frequency is based upon the number of SQG and LQG customers and the number of containers received from such customers.

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C-4(c) Spent 699 Immersion Cleaner

Parameters, Test Methods and Rationale

Spent 699 Immersion Cleaner is a nonflammable, non-ignitable material, with a flash point above 140°F. The Branch Facility permits currently reflect the assumption that spent 699 Immersion Cleaner is a non-ignitable waste. Furthermore, the waste is expected to contain low concentrations of both halogenated and nonhalogenated volatile organics, and metals. Therefore, randomly selected samples of spent 699 immersion cleaner will be analyzed for the following parameters, pursuant to the indicated analytical methods, and compared to the indicated acceptance criteria:

- Specific Gravity - S-K Methods 9903 or 9934 - 0.9 to 1.20.
- Flash Point/Flame Color - S-K Method 9401 - > 140°F, no green flame.
- Halogenated Organic Volatiles - S-K Method 9209 - < 10 percent total.
- Volatile Organic Compounds - S-K Method 9203 - < 10 percent total.

This protocol will provide data on the presence of significant, unusual contamination by halogenated and nonhalogenated organic-based wastes. Flash point has been selected as a test parameter as it relates to the potential ignitability of the waste stream, which will affect how the waste is stored. Both flash point and specific gravity have been selected as potential indicators of volatile organic-based contamination, while volatile organic compound and halogenated organic volatile analyses will provide quantified measures of such contamination. The presence of significant amounts of halogenated organics, while not affecting the manner in which the wastes are handled by the Branch Facility, does suggest the potential misuse of the solvent by the customer, and could affect the performance goals of the recycling process. That is, the resulting bulk load of solvent sent to the Safety-Kleen Recycle Center could exceed the tolerance limits required for the recycle center, due to high

halogenated organic content. Data correlating specific gravity and flash point results to the indicated volatile organic analyses will provide an ongoing assessment of the efficacy of the routine waste acceptance protocols.

Sampling Methods and Frequency

Each quarter, one drum of 699 immersion cleaner waste will be randomly selected from each Branch Facility for testing. If the drum selected originated from a customer whose spent 699 immersion cleaner was previously analyzed within the current calendar year, an alternate drum from another generator will be selected. The container selected for testing will be staged in a permitted storage area and labelled "HOLD FOR ANALYSES." The container will then be opened, and trained personnel will use a drum thief to extract a representative sample of the drum contents. The sample will be placed in a sample jar and the following information will be documented on the label of the jar:

- Customer name.
- Waste (i.e., spent 699 immersion cleaner).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the analyses indicated above.

This sampling frequency will result in a combined total of 16 samples of individual spent 699 immersion cleaner being tested on an annual basis from the North Carolina Branch Facilities. Based upon the number of SQG and LQG customers and containers received from these customers by the four North Carolina Branch Facilities during the first three quarters of 1992, this will result in an estimated sample per customer frequency of 4.5%,

and an estimated sample per container frequency of 0.9%. These data exclude Safety-Kleen as a customer. An estimated sample per customer frequency of 4.3%, and an estimated sample per container frequency of 0.3% is obtained if Safety-Kleen is included as a customer [i.e., terminated Safety-Kleen wastes (Appendix C-6)].

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C-4(d) Spent Paint Spray Gun Cleaner
Parameters, Test Methods and Rationale

Spent Paint Spray Gun Cleaner is typically a flammable material, with a flash point below 100°F, and is always managed as such at the Branch Facilities. Furthermore, the waste is expected to contain high concentrations of nonhalogenated volatile organics, while the concentrations of halogenated volatile organics are anticipated to be relatively low. Therefore, randomly selected samples of spent paint spray gun cleaner will be analyzed for the following parameters, pursuant to the indicated analytical method, and compared to the indicated acceptance criteria:

- Specific gravity - S-K Method 9903 or 9934 - < 0.9
- Flash point/flash color - S-K Method 9401 - < 100°F., no green flame.
- Halogenated organic volatiles - S-K Method 9209 - < 5 % total.

These analyses will provide data regarding the presence of significant, unusual contamination by halogenated organic-based wastes. Both flash point/flash color and specific gravity have been selected as potential indicators of such contamination, while halogenated organic volatiles analysis will provide a quantified measure of such contamination. The presence of significant amounts of halogenated organics, while not affecting the manner in which the wastes are handled by the Branch facility, does suggest the potential misuse of the solvent by the customer, and could affect the performance goals of the recycling process. That is, the resulting bulk load of solvent sent to the Safety-Kleen Recycle Center could exceed the tolerance limits required for the recycle center, due to high halogenated organic content.

The analyses will provide data on the presence of significant, unusual contamination by halogenated organic volatiles.

Sampling Methods and Frequency

Each quarter, one container of waste paint spray gun cleaner will be randomly selected for testing at each Branch Facility. If the selected drum originated from a customer whose waste paint spray gun cleaner was previously analyzed within the current calendar year, a container from another generator will be selected. The container selected for testing will be staged in a permitted storage area and marked "HOLD FOR ANALYSES." The container will be opened and trained personnel will use a drum thief to extract a representative sample of the drum contents. The sample will be placed in a sample jar and the following information will be documented on the label of the jar:

- Customer name.
- Waste (i.e., spent paint spray gun cleaner).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the analyses indicated above.

This sampling frequency will result in a combined total of 16 samples of individual containers of spent paint spray gun cleaner tested on an annual basis from the North Carolina Branch Facilities. Data on the number of SQG and LQG customers and containers received from these customers by the four North Carolina Branch Facilities during the first three quarters of 1992 did not differentiate between spent paint spray gun waste and paint waste. Frequencies were calculated by combining the spent paint spray gun cleaner and paint waste samples; therefore, these frequencies represent an average of the true waste stream-specific frequencies. An estimated sample per customer frequency of 3.7% and an estimated sample per container frequency of 0.2% were obtained; these data

excludes include Safety-Kleen as a customer. An estimated sample per customer frequency of 3.5% and an estimated sample per container frequency of 0.1% is obtained if Safety-Kleen is included as a customer [i.e., terminated Safety-Kleen wastes (Appendix C-6)].

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C-4(e) Paint Waste

Parameters, Test Methods and Rationale

Paint waste is typically a flammable material, with a flash point below 100°F, and is always managed as such at the Branch Facilities. Furthermore, the waste is expected to contain high concentrations of nonhalogenated volatile organics and metals, while the concentrations of halogenated organics are anticipated to be relatively low. Therefore, randomly selected samples of spent paint spray gun cleaner will be analyzed for the following parameters pursuant to the indicated analytical methods, and compared to the indicated acceptance criteria:

- Flash Point/Flame Color - S-K Method 9401 - <100°F, no green flame.
- Halogenated organic volatiles - S-K Method 9209 - < 5 % total.

This protocol will provide data on the presence of significant, unusual contamination by halogenated organic-based wastes. Flash point/flame color has been selected as a potential indicator of such contamination, while analysis of halogenated organic volatiles will provide a quantified measure of such contamination. The presence of significant amounts of halogenated organics, while not affecting the manner in which the wastes are handled by the Branch Facility, does suggest the potential misuse of the solvent by the customer, and could affect the performance goals of the recycling process. That is, the resulting bulk load of solvent sent to the Safety-Kleen Recycle Center could exceed the tolerance limits required for the recycle center, due to high halogenated organic content. Data correlating flash point/flame color results to the indicated organic analysis will provide an ongoing assessment of the efficacy of the routine waste acceptance protocols.

Sampling Methods and Frequency

Each quarter, one container of paint waste will be randomly selected for testing at each North Carolina Branch Facility. If the selected container originated from a customer whose paint waste was previously analyzed within the current calendar year, an alternate container from another generator will be selected. The container selected for testing will be staged in a permitted storage area and labelled "HOLD FOR ANALYSES." The container will be opened, and trained personnel will use a drum thief to extract a representative sample of the drum contents. The sample will be placed in a sample jar, and the following information will be documented on the label of the jar:

- Customer name.
- Waste stream (i.e., paint waste).
- Sample collection date and time.

Preservatives will not be used because the waste sample is a concentrated organic. The sample will then be shipped under chain of custody to a Safety-Kleen laboratory or other laboratory selected by Safety-Kleen for the analyses indicated above.

This sampling frequency will result in a combined total of 16 samples of individual containers of paint waste being tested on an annual basis from the North Carolina Branch Facilities. Estimated sampling frequencies for paint-related waste streams are discussed at the end of the preceding subsection [C-4(d)].

C-4(f) Dry Cleaner Wastes

Parameters, Test Methods and Rationale

As described within Subsection C-2(e), the storage and handling of the dry cleaner wastes at the Facility does not entail opening the containers in which they are received. These wastes are generated in very controlled environments (i.e., dry cleaning establishments). The processes used by the customer are well known to Safety-Kleen. Furthermore, these wastes are generated within units that would not lend themselves to cross-contamination by the purposeful or inadvertent introduction of foreign waste materials. Because of these factors, no Branch Facility-based quantitative or qualitative analyses of these wastes will be performed. Selected containers of dry cleaner wastes will be opened and visually inspected to verify the presence of the waste within the container.

Sampling Methods and Frequency

On a quarterly basis, each Branch Facility will randomly select, physically open and visually inspect the following containers of dry cleaner wastes in order to verify that they contain these wastes:

- Five containers of spent filter cartridges.
- One container of dry cleaner residue powder.
- Two containers of dry cleaner still bottoms.

Table C-9 presents a summary of the physical descriptions of the wastes. The contents of the selected containers will be compared to these descriptions and the results of this inspection will be documented. This documentation will include:

TABLE C-9
ACCEPTANCE CRITERIA FOR VISUAL INSPECTION
OF DRY CLEANER WASTES

WASTE STREAM	ACCEPTANCE CRITERIA
Spent dry cleaner cartridges	Container should hold only cartridge units, no other foreign objects or materials not typically associated with dry cleaning operations. Some free liquid may be present in container; this should be single phase. May contain rags from an absorbent spill cleanup and container wipedown.
Dry cleaner residue powder	Fluffy and powder-like, may have the appearance of wet clothes dryer lint. No other foreign objects or materials not typically associated with dry cleaning operations. May contain rags from an absorbent spill cleanup and container wipedown.
Dry cleaner still bottoms	Dark, viscous, tar-like material. No other foreign objects or materials not typically associated with dry cleaning operations. May contain rags from an absorbent spill cleanup and container wipedown.

- Date of inspection.
- Type of container.
- Customer number.
- Observations of materials within container.
- Descriptions of deviation from the expected visual descriptions (Table C-9).

This information will be documented on a Dry Cleaner Waste Inspection Log, an example of which is presented in Appendix C-7. Any containers that do not meet the acceptance criteria will be rejected and returned to the customer.

This inspection frequency will result in a combined total of 128 samples of individual containers of dry cleaner waste being inspected on an annual basis from the North Carolina Branch Facilities (combined total).

Based upon the number of customers and containers received by the four North Carolina Branch Facilities during the first three quarters of 1992, this resulted in an estimated sample inspection per customer frequency of 15.9%, and an estimated sample per container frequency of 1.0%. These data exclude Safety-Kleen as a customer. An estimated sample per customer frequency of 15.4% and an estimated sample per container frequency of 0.7% is obtained if Safety-Kleen is included as a customer, [i.e., terminated Safety-Kleen wastes (Appendix C-6)].

C-4(g) Spent Antifreeze/Glycol Waste
Parameters, Test Methods and Rationale

Unlike other wastes that are picked up at a customer's facility and sent in individual containers to the Branch Facilities, most of the spent antifreeze/glycol waste received by the Branch Facilities is bulked on a tanker truck at the customer location. This procedure poses certain logistical difficulties with respect to the quarterly testing of this waste. While individual loads of waste at a customer's facility can be rejected during routine acceptance procedures if they fail Tier 1 criteria and will be held at the Customer's location pending Tier 2 or Tier 3 analyses, Safety-Kleen cannot expect a customer to hold a load of waste that passes the Tier 1 acceptance criteria while detailed waste analysis is being conducted. Additionally, attempting to sample "half-full" tanks or containers at the customer's locations in an effort to obtain analyses before the tank/container is full and ready for pickup would entail additional trips to the customer's facility, and would result in samples that are not representative of the final load eventually be picked up by Safety-Kleen. Safety-Kleen cannot hold bulk loads at the Branch Facilities due to the lack of staging/storage areas which would be required due to the time involved in turning around off-site sample analyses.

Therefore, Safety-Kleen will conduct field testing on bulk loads of spent antifreeze/glycol waste. Spent antifreeze/glycol waste is typically a noncombustible aqueous-based material, which typically will not possess a flash point below 200°F. The waste is expected to contain low concentrations of halogenated and nonhalogenated organics, and metals. Randomly selected samples of spent antifreeze/glycol waste will be analyzed for specific gravity, utilizing Safety-Kleen Method 9934. The results of this analysis will be compared to an acceptable specific gravity range of 0.90 to 1.15.

Specific gravity has been selected as potential indicator of contamination by organic-based wastes. The presence of significant amounts of nonhalogenated or halogenated organics,

while not affecting the manner in which the wastes are handled by the Branch Facility, does suggest the potential misuse of the solvent by the customer, and could affect the performance goals of the recycling process. That is, the resulting bulk load of solvent sent to the Safety-Kleen Recycle Center could exceed the tolerance limits required for the recycle center, due to high nonhalogenated or halogenated volatile organic content.

Sampling Methods and Frequency

Each quarter, one randomly selected bulk load of spent antifreeze/glycol waste received at each Branch Facility will undergo testing. The selected tanker truck will be staged temporarily within the secured area of the facility, and will be inspected daily for leaks or spillage. A sample will be collected by a trained employee by opening the top port of the tank and lowering a COLIWASA sampler into the tank. The COLIWASA sampler, which collects a sample of liquid at a specific depth, will be utilized to collect a minimum of three samples from the tank: one at the top of the liquid surface, a second from the middle of the liquid column, and a third from the base of the tank. This sampling procedure will ensure that any phase-separated contaminants will be retrieved into the sample. Each sample will be composited into a clear glass jar and visually inspected for phase-separated material. The following information will be documented on the label of the sample jar:

- Bulk shipment ticket reference. (This will allow cross-reference to the specific customers which contributed waste to the sampled load. Note that Safety-Kleen maintains samples of each customer's individual waste.)
- Waste type (i.e., spent antifreeze).
- Sample collection date and time.

If a bulk tanker exceeds the acceptance criteria for specific gravity (0.90 to 1.15), the waste will be impounded at the Branch Facility (which may include transfer to drums or tanks)

and will undergo further testing for the following parameters pursuant to the indicated analytical method and compared to the indicated acceptance criteria:

- Flash point/flare color - S-M Method 9401 - 140° F.
- Volatile organic compounds - S-M Method 9203 - < 10 percent total.
- Halogenated organic volatiles - S-M Method 9209 - < 10 percent total.

If the waste meets these criteria, it will be accepted by the Branch Facility for further processing. If it fails these criteria, Safety-Kleen will undertake efforts to dispose of the waste in a manner in compliance with applicable federal and state regulations. Safety-Kleen may also attempt to conduct analyses of individual customer samples to attempt to track the individual load or loads that caused contamination of the bulk waste load.

This sampling frequency will result in a combined total of 16 samples from bulk tanker loads of spent antifreeze/glycol waste being tested on an annual basis at the North Carolina Branch Facilities. Data was unavailable for calculating estimated sampling frequencies for this waste stream (Appendix C-6).

C-4(h) Wastes Generated by Safety-Kleen

C-4(h)(1) Storage Tank Bottom and Drum Washer Sediments

These wastes are generated by on-site activities involving the management of mineral spirits-based spent parts washer solvent. As the generator, Safety-Kleen possess adequate knowledge regarding the nature of these wastes to properly handle and store them until they are sent off site for recovery. Therefore, no specific qualitative or quantitative analyses is considered necessary to meet the needs of the Quarterly Testing Program.

C-4(h)(2) Spill Cleanup Wastes

These wastes consist of materials generated by Safety-Kleen both off site (at a customer's facility) or on site (at the Branch Facility). These wastes result exclusively from the spillage of Safety-Kleen-owned products and/or wastes. No analysis is required for spill cleanup wastes, as all such wastes fall into one or more of the following categories:

1. Wastes generated by spills of product or wastes at the Safety-Kleen facility,
2. Wastes generated by Safety-Kleen representatives spilling product or waste while servicing a customer,
3. Wastes generated by a spill or release during transport of product or waste, where Safety-Kleen is the transporter.
4. Wastes generated by discarding contaminated sampling and personal protective equipment, used at Safety-Kleen facilities or by Safety-Kleen personnel.

In all cases, Safety-Kleen has accepted responsibility to clean up and dispose of the resulting contaminated sorbant material, contaminated soils, gravel, and (if applicable) contaminated personal protective and sampling equipment. Safety-Kleen would, in each case, be fully

knowledgeable as to the contaminants present since they would either be Safety-Kleen product or wastes received by the Safety-Kleen facility. Therefore, no specific qualitative or quantitative analyses is considered necessary to meet the needs of the Quarterly Testing Program.

C-4(h)(3) Terminated Safety-Kleen Wastes

Each separate Safety-Kleen Branch Facility that originates a waste shipment which is then terminated at a North Carolina Branch Facility will be considered a unique customer (i.e., the originating facility will be listed as the generator on the waste manifest). Each such originating facility will be treated as a separate customer for purposes of the random selection of wastes described in the Quarterly Testing Program. Sampling of these wastes will follow the same protocols established under Subsection C-4(b) through C-4(g). However, such shipments that originate from another North Carolina Branch Facility (again listed as the generator on the manifest) will not be subject to further quarterly testing at the receiving Branch Facility, as such testing would be redundant.

Those customers who generate wastes that are picked up and transferred (not terminated) through another Safety-Kleen Branch Facility either in-state or out-of-state will be treated as separate customers by the receiving Branch Facility where the waste is ultimately terminated.