APPENDIX C

WASTE ANALYSIS PLAN

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WASTE ANALYSIS PLAN

In accordance with 40 CFR 270.14 (b)(3), the Barre Service Center has developed this waste analysis plan (WAP), which meets the requirements of 40 CFR 264.13 (b) and (c).

C – 1.0 GENERAL OVERVIEW

This waste analysis plan includes:

- Procedures for profiling, accepting, receiving, and evaluating and/or analyzing each container of "core waste" and "non-core waste" managed at the Barre Service Center (BSC)
- Annual recharacterization of core waste
- The frequency of evaluation/analysis for each waste
- The waste analyses and supplemental information that hazardous waste generators (customers) will supply to support the of generator knowledge
- The test methods to be used for each parameter
- The methods used to obtain representative samples of wastes to be evaluated/analyzed
- The analytical parameters for evaluating wastes and the rationale for selecting those parameters

Used oil, as defined in the VHWMR, is not subject to the requirements of this plan.

C – 1.1 Core Waste and Non-Core Waste

Emphasis is placed upon obtaining accurate information about the chemical and physical makeup of each waste received by the BSC. This information, which is detailed in waste-specific profiles maintained as part of the facility record, is based on annual recharacterization of core waste and either the use of "generator knowledge" or chemical and physical analyses of non-core waste. Businesses serviced by Safety-Kleen are asked to provide their current generator status and site identification number when setting up an account. A generator is also interviewed by a Safety-

Kleen Sales and Service Representative (SSR) at the time of each service to verify its status at that time.

For the purposes of this WAP, **core wastes** are waste streams subject to Safety-Kleen's annual recharacterization process; all core wastes are received by the BSC in containers. **Non-core wastes** include all waste streams received other than core wastes; these wastes are received by the BSC in containers and bulk (comingled) loads (i.e., used oil, vacuum service waste). All core wastes and non-core wastes managed by the BSC are identified in **Attachment C-3** (Waste Types).

C – 2.0 CORE WASTE

C – 2.1 Annual Recharacterization of Core Waste

The spent materials resulting from Safety-Kleen's parts washing, dry cleaning, and paint gun cleaning services are reclaimed through "closed-loop" recycling processes and, for the purposes of this plan, are considered "core wastes". These spent materials are the primary feed stocks for Safety-Kleen products and, as such, the quality of these materials must be reliably consistent to ensure that the reclamation process is safe and efficient, and the resulting products meet Safety-Kleen specification.

Generators who use the Safety-Kleen services that result in the generation of core wastes often do not generate hazardous wastes other than those resulting from the Safety-Kleen service(s) used. Since Safety-Kleen customers tend to use each service for a similar purpose (e.g., washing automotive parts, cleaning paint guns), as the names of the services imply, and as a result, the composition of the waste materials generated by customers of a service tends to be consistent and rarely deviates from Safety-Kleen specifications. This is determined and verified through Safety-Kleen's annual recharacterization process.

As an additional safeguard to ensuring the quality of some core wastes (i.e., part washing waste and immersion cleaner), Safety-Kleen Sales and Service Representatives inspect the contents of each container before accepting it for transport to the BSC (See **Section C – 2.2**, Waste Receiving Procedure for Core Waste).

Every year, Safety-Kleen representatively samples and analyzes samples of each of its core waste streams collected randomly from customers across the United States and Canada. These

samples are analyzed for hazardous waste constituents and hazardous waste characteristics, and the analytical results of those samples are then evaluated statistically (**Attachment C-1**) to assign the proper EPA and state hazardous waste codes to each waste stream. The hazardous waste codes and land disposal restriction (LDR) treatment standards assigned to each core waste stream may change from year to year depending on the results of the annual recharacterization process. Each year, hazardous waste codes are assigned to each core waste stream according to the results of the annual recharacterization process from the previous year, and those codes must be used by all customers unless the customer provides analytical data demonstrating inapplicability of a code or codes to the customer's waste. Typically, the hazardous waste codes assigned to each core waste stream do not change from year to year.

Although the BSC is not routinely included as one of the sampling facilities used to generate annual recharacterization data, this information comes from a variety of Safety-Kleen service centers across North America and is representative of the Barre facility.

The following documents discuss the basis for and summary of Safety-Kleen's annual recharacterization process:

- **Attachment C-1**, National 2021 AR Codes and SKDOTS – Safety-Kleen Summary of Annual Recharacterization Results, to be updated annually per **Permit Condition 6.12**
- **Attachment C-2**, Statistical Analysis of Annual Waste Characterization Data (Gibbons, 7/23/1998, 8/7/2018, and 3/18/2019)
- **Attachment C-7**, Summary of Annual Recharacterization Analytical Methods
- **Attachment C-10**, Waste Sampling Guidelines

C – 2.2 Waste Receiving Procedure for Core Waste

At the customer's location, a Safety-Kleen Sales and Service Representative evaluates each container of spent **parts washer** and **immersion cleaner** waste for qualitative receiving criteria prior to accepting it. This inspection process helps ensure that all accepted waste is consistent with the waste typically generated by the Safety-Kleen service being used (and with the results of the current annual recharacterization process for that waste stream). Containers of **immersion cleaner** waste are not re-opened at the BSC.

Containers of **dry-cleaning** wastes are not opened for the purpose of conducting a qualitative inspection of the contents due to the toxicity of tetrachloroethylene (typical dry-cleaning solvent) and the limited potential within the dry-cleaning industry for the introduction of contaminants not identified by Safety-Kleen's annual recharacterization process.

Containers of **paint-related wastes** and **paint gun cleaner-related wastes** are not opened for the purpose of conducting a qualitative inspection of the contents since the color and volume of this waste stream vary depending on the paint wastes introduced. Also, introduction of hazardous contaminants other than those already captured under the hazardous waste codes assigned to the waste through the annual recharacterization process is unlikely.

C – 2.2.1 Qualitative Receiving Procedure at the Customer Location (Spent Parts Washer and Immersion Cleaner Solvent)

When conducting scheduled service, Safety-Kleen Sales and Service Representatives (SSRs) shall open and inspect the contents of each container of spent parts washer and immersion cleaner solvent prior to accepting the container for transport to the BSC. The SSRs shall evaluate the quantity, odor, and appearance of all spent parts washer and immersion cleaner solvent according to the following criteria:

- The **volume** of the spent solvent must be no more than 25% greater than the volume of clean solvent originally supplied (while volume is typically evaluated using a measuring stick, experienced SSRs may rely on experience to evaluate volume).
- The **odor** of the spent solvent must be consistent with that normally observed (SSRs are instructed to passively observe odor while servicing equipment and to not intentionally "sniff" the solvent).
- The **general appearance or color** of the spent solvent must not deviate from the appearance (e.g., no emulsified material or an unusual viscosity) and usual brown to black color of spent solvent normally observed.

If a container of waste does not meet the qualitative receiving criteria identified above, the SSR will:

- Interview the customer to determine possible reasons for why the waste does not meet the established receiving criteria and document the interview findings in Safety-Kleen's Waste Information Network (WIN). If the customer provides a plausible reason for the nonconformity and the reason identified could not have resulted in the introduction of contaminants that would alter the current annual recharacterization profile for the waste stream or effect Safety-Kleen's ability to recycle the waste, the SSR will accept the waste; and
- Contact the BSC to determine if the waste stream in question had previously failed to meet Safety-Kleen's qualitative receiving criteria and was subsequently analyzed. If the waste was previously analyzed and the following additional receiving criteria (for waste that does not meet the qualitative receiving criteria) are met, the SSR will accept the waste:
  - the analytical results from the previous analysis(es) are on file with Safety-Kleen (i.e., in the WIN);
  - the results of previous analysis(es) indicate that the waste is acceptable (i.e., the results are consistent with current annual recharacterization profile for the waste stream); and
  - the waste appears (i.e., color, volume, etc.) the same as documented previously by a SSR or the BSC.

If the SSR determines that a container of waste does not meet the qualitative receiving criteria and does not meet the additional receiving criteria outlined above, the container of waste will be rejected and left with the customer. The SSR may sample the waste for analysis and profiling if requested by the customer. If laboratory testing/analysis shows that the waste does not exhibit a hazardous waste characteristic, Safety-Kleen will accept the waste. If the laboratory testing/analysis shows that the waste exhibits a hazardous waste characteristic that is inconsistent with the current annual recharacterization profile for the waste stream, the generator will be responsible for securing an alternate means of disposal, which may be through Safety-Kleen using a new profile.

C – 2.2.2 Qualitative Analysis of Solvent-Based Parts Washer Solvent at the BSC

The Safety-Kleen SSR or Material Handler observes the quantity, odor, and appearance of the contents of each container prior to emptying the spent solvent into the wet dumpster. If the contents of a container do not appear to meet the qualitative analysis criteria, it is set aside and managed according to the procedure for **containers that do not meet the qualitative receiving criteria** described in **Section C – 2.2.1** above.

C – 2.2.3 Receipt Analysis of Solvent-Based Parts Washer Solvent at Safety-Kleen Recycle Centers

Receipt analysis is performed by the Safety-Kleen Recycle Centers on all inbound bulk solvent deliveries (e.g., bulk shipments from the BSC). Receipt analysis includes screening for atypical flash point, PCBs, and halogenated organics.

C – 3.0 NON-CORE WASTE

C – 3.1 Containerized and Bulk Non-Core Waste

The BSC accepts non-core waste in containers and bulk shipments for storage prior to shipment off site. For the purposes of this WAP, containerized waste is waste accepted from generators in containers that can be moved manually or with a forklift, and bulk waste is pumpable liquid and/or sludge waste (i.e., used oil, vacuum service waste) accepted from several generators and comingled in a tank truck for transport to the BSC where the waste is off-loaded to an aboveground storage tank or fractionalization tank. Vacuum service customers are categorized as "automotive," "non-automotive," and "high-risk, described as below:

- Automotive – Businesses described as vehicle-related, but not limited to, such as auto maintenance, transportation services, quick lubes, schools/colleges/universities, and petroleum distributors.
- Non-Automotive – Businesses described as industry-related, but not limited to, such as manufacturing companies, dry cleaners, agricultural production, hospitals/medical laboratories, and pharmaceutical companies.
- High-Risk – Businesses described as representing a high risk of contamination (PCBs or chlorinated solvents), but not limited to, such as sewage treatment plants, salvage/scrap

yards, prisons, and electrical service/repair/utility companies.

The BSC typically manages containerized non-core hazardous wastes on a 10-day transfer basis. This transfer waste is "in transit" (i.e., being shipped, using a uniform hazardous waste shipping document, to a designated facility other than the BSC) and not subject to this plan, but is subject to the waste analysis plan for the designated facility identified on the manifest.

C – 3.2 Waste Acceptance Procedure for Non-Core Waste

C – 3.2.1 Waste Acceptance Procedure for Non-Core Waste other than "Automotive" Vacuum Service Waste

Before a new non-core waste stream is received by the BSC, a profile is completed, signed, and submitted by the waste generator or the generator's authorized agent. For all containerized non-core wastes, and bulk non-core (vacuum service) wastes accepted from "non-automotive" and "high risk" customers, the profiles are reviewed and must be approved by Safety-Kleen's Central Profiling Group (CPG). "High risk" sources of vacuum service waste are those which may represent a high risk of contamination, such as PCBs, chlorinated solvents, or any other contaminants that Safety-Kleen is not permitted to handle through its vacuum service program (e.g., see Section 3.1). A copy of all approved profiles for wastes managed by the BSC are maintained using Safety-Kleen's Waste Information Network (WIN); upon approval of a profile, the CPG ensures that the "approved" status is documented in the WIN. A copy of the profile form used by Safety-Kleen is included as **Attachment C-4**.

Profiles for new waste streams are submitted electronically by the generator. The CPG then reviews the profile to verify that the hazardous waste determination made by the generator is accurate and the BSC is permitted to accept the waste. The CPG either approves the profile or determines that additional information is necessary prior to approval. A profile shall not be approved if any pertinent section of the profile is omitted, an inconsistency is identified on the profile (e.g., acidic solution with pH 14), the generator does not provide sufficient information about the waste generating process and/or materials used in the waste-generating process, or the CPG has any reason to suspect that a waste has not been assigned all appropriate hazardous waste codes, including Vermont hazardous waste codes.

Profiles shall document the use of generator knowledge and/or analysis in making a hazardous waste determination and include all supporting documentation used to make the determination. Safety-Kleen maintains scanned copies of all supporting documentation referenced by profiles in the WIN.

If a profile is not approved by the CPG, either the generator must provide additional information to address the deficiency, or the waste must be analyzed before the profile may be approved; SK maintains the analytical data for all profiles that require testing. Chemical and/or physical analyses shall be performed on any waste stream for which there is insufficient generator knowledge to make an accurate hazardous waste determination.

On an annual basis, each approved profile must be reviewed and certified by the generator or the generator's authorized agent (using the WIN). The generator shall either certify that the waste-generating process and the chemical and physical characteristics of the waste remain unchanged or revise the profile to reflect changes to the waste and/or the waste-generating process. If a generator fails to certify the accuracy of a waste profile, the profile is automatically inactivated, and the corresponding waste stream will not be picked up or accepted by the BSC.

For any waste that is an unused product material, a Safety Data Sheet (SDS) must accompany the profile. Laboratory analysis may be used in lieu of providing SDS in cases where an SDS is not available.

C – 3.2.2 Waste Acceptance Procedure for "Automotive" Vacuum Service Waste

For vacuum service wastes accepted from "automotive" customers, a "generic" Safety-Kleen profile (see **Attachment C-4**) is completed, signed, and submitted by the waste generator or the generator's authorized agent. Generic profiles are based on generator knowledge and identify dirt/grease/grime, and oil and water as the waste constituents. Generic profiles shall also identify specific information about the generator, the waste description, and the waste-generating process. These profiles are not reviewed or approved by the CPG.

Profiles shall document the use of generator knowledge in making a hazardous waste determination and include all supporting documentation used to make the determination.

Prior to providing vacuum waste service, the Safety-Kleen Vacuum Sales and Service Representative (VSSR) evaluates each "automotive" customer's waste stream to verify the waste stream is:

- in an oil/water separator with a visible oil layer in more than a single stage;
- in an oil/water separator, sump, pit or trench;
- from a business that is in active operation;
- in an oil/water separator with no other drainage lines, trenches, etc., from other facility operations leading into the separator;
- not a one-time pick-up; and
- not suspected to contain flammable or corrosive material

C – 3.3 Receiving Procedure for Containerized Non-Core Waste

Pick up and transport of non-core waste typically occurs on a customer call-in basis (i.e., not according to a pre-arranged schedule, like most core wastes). While containerized non-core waste is typically managed on a 10-day transfer basis (i.e., being shipped using a uniform hazardous waste shipping document, to a designated facility other than the BSC) and is therefore not subject to this plan, the following receiving procedures are followed by all wastes managed by the BSC.

C – 3.3.1 Receipt of Containerized Non-Core Waste at Generator Location

When a SSR arrives at a customer's location to pick up containerized non-core waste, the SSR:

- Compares the information on the hazardous waste manifest or other shipping paper (prepared by Safety-Kleen) with the information on the container label (e.g., hazardous waste label) applied and completed by the generator.
- If the information is consistent between the label and manifest, applies a shipping label prepared by Safety-Kleen (prepared along with the manifest) that identifies a unique drum number and waste stream-specific information (see **Attachment C-5**), that replaces the hazardous waste generator's label.
- Checks the condition of each container and verifies that it is DOT-approved.
- Verifies that each container type is consistent with the information on the manifest.

C – 3.3.2 Receipt of Containerized Non-Core Waste at the BSC

The BSC Material Handler is responsible for either receiving or rejecting waste when a shipment arrives at the BSC. When a shipment of containerized non-core waste is received (i.e., the manifest is terminated or waste managed on a 10-day transfer basis) at the BSC, the Material Handler:

- Reviews the manifest or shipping documents for consistency, accuracy and completeness
- Reviews the shipping label on each container for completeness and accuracy
- Checks the condition of each container and verifies that it is DOT-approved
- Verifies that each container type is consistent with the information on the manifest
- Moves containers to the proper hazardous waste management unit at the BSC
- Applies a bar code label (see **Attachment C-5**) to each container. The bar code label identifies the unique drum number that is also printed on the Safety-Kleen shipping label that was applied to the container at the generator location. The movement of each container is tracked from this point forward using the bar code label and hand-held bar code scanners. The bar code label is generated by the WIN at the time of waste pick-up.

C – 3.4 Receiving Procedure for Bulk Non-Core Waste (i.e., Vacuum Service Waste)

While the vacuum service program is intended for the management of non-hazardous waste, the following procedures are followed to verify the regulatory status of waste received from customers. Comingled shipments of vacuum service waste sent to the BSC are transferred directly to the on-site fractionalization tank (Tank #5).

C – 3.4.1 Receipt of Vacuum Service Waste at Customer Locations

The pick-up of vacuum service waste is typically scheduled upon request by the customer. When a VSSR arrives at a customer location to pick-up vacuum service waste, the VSSR completes the following steps:

- The customer approves pick-up of the waste by signing the shipping paper electronically
- The VSSR prints a copy of the shipping paper for the customer to review and for the customer's records (see **Attachment C-6**)
- The customer directs the VSSR to the waste to be collected
- The VSSR screens the waste for pH (using pH paper strips) and total halogens over 1,000 ppm (using a TIF automated halogen leak detector) and documents the screening results electronically
- The VSSR typically collects a representative "retain" sample of the waste being received (using a COLIWASSA if a sample can be taken from the generator's waste storage vessel) prior to transferring the waste to the vacuum service truck. If a sample cannot be taken from the generator's vessel, the sample is taken from the sample port located on the truck's transfer pump before the waste is comingled with waste already received from other customers
- If the customer is scheduled to have their waste analyzed/tested according **to Section C – 4.1** below, the VSSR collects a representative sample of the aqueous phase(s) of each waste being received
- The VSSR then either proceeds to another vacuum service customer or returns to the BSC where the comingled waste received from all customers visited that day is off-loaded to the on-site fractionalization tank (Tank #5).

C – 4.0 ANALYSIS OF VACUUM SERVICE WASTE

C – 4.1 Analysis of "Non-Automotive" and "High-Risk" Vacuum Service Wastes

Vacuum service waste received from customers shall be analyzed/tested according to the following procedure:

- Identify the total number of "non-automotive" and "high-risk" vacuum service customers
- During each quarter of the calendar year, sample all vacuum service waste streams from approximately 25% of the customer list each quarter such that all customer waste streams are sampled by the end of the year
- Samples are to be representative of the aqueous phase of waste

- Samples shall be analyzed for metals (either by Total RCRA 8 or by Toxicity Characteristic Leaching Procedure - TCLP); VOCs (with the results compared to toxicity characteristic regulatory levels for those compounds); and to determine if the waste exhibits the characteristics of ignitability or corrosivity.
- Analysis shall be conducted by an independent third-party laboratory
- The analytical/testing results are compared to the waste profile

C – 4.2 Analysis of Vacuum Service Waste Sent from the Barre Service Center

Shipments of vacuum service waste from the BSC shall be analyzed/tested according to the following procedure:

- One outgoing shipment per quarter shall be sampled for metals (either by Total RCRA 8 or by Toxicity Characteristic Leaching Procedure - TCLP), and to determine if the waste exhibits the characteristic of corrosivity.
- Analysis shall be conducted by an independent third-party laboratory.
- The analytical/testing results are compared to the waste profile

C – 4.3 Annual Review of the Vacuum Service Waste Analysis Procedures

On an annual basis, the BSC shall review the Vacuum Service Waste Analysis procedures and the previous year's analysis/testing results (i.e., testing data). This annual review will be documented in the facility operating record. Any potential changes to the procedure that are identified by the BSC based on this review shall be documented in the facility operating record. Before implementing any changes to the procedure, the BSC shall obtain VTDEC approval through modification of this WAP.

Analysis/testing of vacuum service waste shall be subcontracted to an independent state-certified or NELAC laboratory that will use ASTM and SW-846 analytical and test methods.

A record of all analyses/testing of vacuum service waste shall be maintained by the BSC as part of the facility operating record. The record shall include:

- A copy of the chain of custody document

- Copies of all applicable analytical and test results and lab reports
- A copy of the original (incoming) manifest or shipping paper, if applicable
- A copy of the original waste profile
- Documentation of any profile discrepancies identified by the analysis/testing
- If applicable, a copy of any written correspondence with the generator related to resolving a profile discrepancy and documentation of relevant conversations with the generator regarding the same
- If applicable, copies of any written correspondence with the generator and the Agency related to resolving a manifest or shipping paper discrepancy and documentation of relevant conversations with the generator or the Agency regarding the same.
- If applicable, a copy of the revised waste profile

C – 5.0 MANIFEST DISCREPANCIES

When a significant discrepancy is discovered for a shipment received by the BSC, the BSC shall attempt to resolve the discrepancy with the generator. If the discrepancy is not resolved within 15 days, the BSC shall submit a letter to the Agency in accordance with Section 7-704(i)(3) of the VHWMR.

C – 6.0 WASTE SAMPLING

Collected samples will be consolidated with compatible materials prior to shipment off site for proper disposal.

The methods and equipment used for sampling waste vary with the form and consistency of the waste to be sampled. The BSC will select the most appropriate representative sampling methods, techniques, devices, and containers from those included/described in either the EPA document "Test Methods for Evaluating Solid Wastes" (SW-846) or the "American Society for Testing and Materials" (ASTM) standards. A representative sample is defined as a sample exhibiting average properties of the whole waste.

All sampling will be documented utilizing the "Sample Record" log included in **Attachment C-9**. Chain of custody forms (**Attachment C-8**) are used for tracking samples sent for off-site laboratory analyses and testing. Sampling is performed by properly trained BSC personnel.

When samples are taken, labels are affixed to each sample container prior to, or at the time of sampling. At a minimum, the labels include the following information, if applicable:

- Generator name
- Common name of waste
- Name of sample collector
- Date of collection
- Unique waste shipment number
- Profile/waste stream number

C – 7.0 PARAMETERS AND RATIONALE

Table C-1 summarizes the analytical parameters and selection rationales used to determine the general and specific characteristics of a core waste stream for annual recharacterization. ASTM and SW-846 are used as guidelines in developing the following analytical methods:

Table C-1

PARAMETER	RATIONALE FOR SELECTION
pH Screen	Required of Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams to determine the corrosivity of the waste.
Ignitability	Indicates the fire-producing potential of the waste and determines whether the waste is RCRA-ignitable. This test will be applied to Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams.
Specific Gravity (screening)	Required of Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams.
Herbicides	Required of Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, and gun cleaner related waste streams.
Semivolatile Organic Compounds	Required of Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams.
Total RCRA 8 Metals	Determines if the concentration of arsenic, barium, cadmium, chromium, lead, mercury, silver and selenium exceeds the limits in 40 CFR 261.24 in Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams.
Volatile Organics	Required of Premium parts washer solvent, dry-cleaning perchloroethylene bottoms, immersion cleaner (petroleum), paint-related wastes (paint waste only), and gun cleaner related waste streams.

C – 8.0 TEST METHODS

The test methods used to confirm that core waste received by the BSC conforms to the corresponding waste profile are included as **Attachment C-7**.

ATTACHMENTS

ATTACHMENT C-1

2021 AR CODES AND SKDOTS – NATIONAL

2021 AR Codes and SKDOTS - National

Waste Stream	Description Subcategory	2020 National Waste Codes	2020 NATIONAL Profile	Changes from 2020 to 2021	2021 National Waste Codes	2021 NATIONAL Profile
Branch Contaminated Debris (Solid would not carry D001)	N/A	F002, F003, F005, D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043	Refer to CH Outbound	No Change	F002, F003, F005, D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043	Refer to CH Outbound
Immersion Cleaner	N/A	D006, D018, D027, D039, D040	157627	No Change	D006, D018, D027, D039, D040	157627
Parts Washer Solvent 105 Virgin	under 100 lbs	D001, D018, D039, D040	150045	No Change	D001, D018, D039, D040	150045
	over 100 lbs (RQ)		150085			150085
	Non-RQ DF container (no DOT SP)		157045			157045
Bulk MS Solvent	N/A	D001, D018, D039, D040	Refer to CH Outbound	No Change	D001, D018, D039, D040	Refer to CH Outbound
Parts Washer Solvent Sludge/Dumpster Mud	N/A	D001, D018, D039, D040	Refer to CH Outbound	No Change	D001, D018, D039, D040	Refer to CH Outbound
Parts Washer Solvent Tank Bottoms (bulk)	N/A	D001, D018, D039, D040	Refer to CH Outbound	No Change	D001, D018, D039, D040	Refer to CH Outbound
Premium (150) / PRF / PDF Mil Spec Solvent	N/A	D039	150055	No Change	D039	150055
	DF container (no DOT SP)		157055			157055
Paint Gun Cleaner	under 100 lbs	F003, F005, D001, D018, D035, D039, D040	150380	No Change	F003, F005, D001, D018, D035, D039, D040	150380
	over 100 lbs (RQ)		150425			150425
Paint Gun Cleaner (Premium Thinner)	under 100 lbs	F003, F005, D001, D018, D035, D039, D040	158380	No Change	F003, F005, D001, D018, D035, D039, D040	158380
	over 100 lbs (RQ)		158381			158381
Clear Choice Paint Gun Cleaner	under 100 lbs	F003, D001, D018, D035, D039, D040	150426	No Change	F003, D001, D018, D035, D039, D040	150426
	over 100 lbs (RQ)		150427			150427
Paint Waste Other	Any size container	F003, F005, D001, D018, D035, D039, D040	150375	No Change	F003, F005, D001, D018, D035, D039, D040	150375
Universal Paint Gun Cleaner	N/A	D001, D018, D035, D039, D040	403901294		D001, D018, D035, D039	403901294
Dry Cleaner (Perc) Bottoms	N/A	F002, D007, D039, D040	150589	**Add D029**	F002, D007, D029, D039, D040	**154589**
Dry Cleaner (Perc) Filters	N/A	F002, D007, D039, D040	150621	**Add D029**	F002, D007, D029, D039, D040	**154621**
Dry Cleaner (Perc) Separator Water	N/A	F002, D039, D040	150520	**Add D029**	F002, D029, D039, D040	**154520**
Dry Cleaning Naphtha Bottoms	N/A	D001, D007, D039, D040	150422	No Change	D001, D007, D039, D040	150422
Dry Cleaning Naphtha Filters	N/A	D001, D007, D039, D040	150424	No Change	D001, D007, D039, D040	150424
Dry Cleaning Naphtha Separator Water	N/A	D001, D039, D040	150423	No Change	D001, D039, D040	150423

ATTACHMENT C-2

STATISTICAL ANALYSIS OF ANNUAL WASTE CHARACTERIZATION DATA (GIBBONS, 7/23/1998, 8/7/2018, AND 3/18/2019)

Statistical Analysis of Annual Waste Characterization Data

Prepared by
Robert D. Gibbons Ph.D.

for

Safety Kleen
July 23, 1998

1 Introduction

Since 1990, Safety-Kleen has undertaken a major analytical study each year to document the contaminants in some of its most common waste streams to determine which TCLP waste codes should appear on the manifest for that waste. This Annual Waste Recharacterization Program is both expensive and extensive. Upon review, it appeared that regulatory agency instructions for how to interpret the data might not have been in line with current policy, as reflected in SW846. The general approach is based on development of an upper 90% confidence limit[1] for the true concentration of each constituent, which can in turn be directly compared to regulatory standards to determine if the waste code should or should not be added to a particular waste stream (e.g., Premium Gold Parts Washer Solvent 150). The regulatory basis for this type of comparison stems from U.S. EPA SW846 Chapter 9 (September 1986) guidance on determining if a waste stream is hazardous.[2] The primary complicating feature is the presence of large numbers of nondetects which raises serious question regarding the use of the parametric approach. In light of this concern, nonparametric methods are used throughout.[3] Specifically, following U.S. EPA SW846, we construct a nonparametric 90% upper confidence limit (UCL) for the 50th percentile of the distribution (i.e., median), which is equivalent to the 90% UCL for the mean in the case of a symmetric distribution such as the normal distribution.

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[1]"Consequently, the CI employed to evaluate solid wastes is, for all practical purposes, a 90% interval." U.S. EPA SW846 (1986) chapter 9 page 6.

[2]"The upper limit of the CI for μ is compared with the applicable regulatory threshold (RT) to determine if a solid waste contains the variable (chemical contaminant) of concern at a hazardous level. The contaminant of concern is not considered to be present in the waste at a hazardous level if the upper limit of the CI is less than the applicable RT. Otherwise the opposite conclusion is reached. "U.S. EPA SW846 (1986) chapter 9 page 3

[3]"If the data do not adequately follow the normal distribution even after logarithm transformation, a nonparametric confidence interval can be constructed. This interval is for the median concentration (which equals the mean if the distribution is symmetric)." U.S. EPA Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, April 1989, page 6-8

2 Method

Following Chapter 9 of SW846, the 90% UCL for the mean concentration obtained from a series of *n* representative samples is to be compared to the appropriate regulatory standard to determine if the waste stream is hazardous. If the UCL exceeds the standard, the waste stream is considered hazardous. The applicant must compute the UCL that is appropriate for the specific distributional form of the data. Given the large number of nondetects for many of the constituents, it is difficult if not impossible to clearly identify the underlying distributional form of the data. In this case, the U.S. EPA guidance indicates that a nonparametric alternative should be used.[4]

Nonparametric confidence limits are derived as follows. Given an unknown *P* x 100th percentile of interest (e.g. the 50th percentile or median),[5] where *P* is between 0 and 1, and *n* concentration measurements, the probability that any randomly selected concentration measurements being less than the *P* x 100th percentile is simply *P* and the probability of exceeding the *P* x 100th percentile is 1 - *P*. In light of this, the number of sample values falling below the *P* x 100th percentile out of a set of *n* measurements follows a Binomial distribution with parameters *n* and *P*.

The connection with the Binomial distribution can be used to determine an interval formed by a given pair of order statistics (i.e. ranked values) that will contain the percentile of interest, in this case the 50th percentile. Similarly, the Binomial distribution can also be used in constructing an upper limit (i.e. one-sided) for the percentile (e.g. a 90% upper confidence limit for the 50th percentile of the distribution). The computational formula for the cumulative binomial distribution $B(x;n,p)$, representing the probability of getting *x* or fewer successes in *n* trials with success probability *p* is given by

$$Bin(x;n,p) \equiv \sum_{i=0}^{x} \binom{n}{i} p^{i} (1-p)^{n-i}$$

To draw inference regarding the *P* = 50th percentile, we set *p* = .5 in the previous equation. For a one-sided UCL we compute

$$1-\alpha = 1 - Bin(U-1;n,.5)$$

beginning from the sample median. We then increase *U* by one until in this case 1 - α is equal to at least .90. The smallest value of *U* that provides 1 - α ≥ .9 is then the order statistic (i.e., ranked value) that is the nonparametric 90% UCL for the 50th percentile of the distribution.

---

[4] "If the data do not adequately follow the normal distribution even after logarithm transformation, a nonparametric confidence interval can be constructed." U.S. EPA, 1989

[5] "This interval is for the median concentration (which equals the mean if the distribution is symmetric)." U.S. EPA (1989), page 6-8

3 Illustration

Consider the following most recent 50 data values for PCE (D039) obtained from Premium Gold Parts Washer Solvent-150.

Table 1
Premium Gold Parts Washer Solvent - 150
50 most recent samples in order of increasing concentration
in ppm

<50.000	<1.000	<0.100	<0.100	<0.100
<0.100	<0.100	<0.100	<0.100	<0.100
<0.100	0.110	0.200	0.200	0.220
0.230	0.260	0.510	0.870	0.880
1.000	1.300	1.500	1.800	2.000
2.700	2.700	3.300	5.400	7.000
7.100	12.000	12.300	17.200	19.700
20.000	20.000	21.200	23.600	32.300
51.100	52.500	136.000	211.000	286.000
508.000	635.000	771.000	940.000	2810.000

For n =50, p =.5 and 1 - α = .9, we find that U = 31 is the smallest order statistic that provides 90% confidence or more (1 - α = .941). As such, we select the 31st largest value in Table 1 which is 7.1 ppm as our UCL. Since 7.1 ppm is larger than the standard of 0.7 ppm, then the D039 waste code is required for this waste stream.

4 Conclusion

The data in the following package have been interpreted using the methodology described. The waste codes for each stream were determined as those parameters for which the 90% UCL for the median concentration was above the regulatory limit, based on review of the last two years of samples or the most recent 50 samples, whichever yielded the larger number of samples to consider.

THE UNIVERSITY OF CHICAGO
BIOLOGICAL SCIENCES

DEPARTMENTS OF MEDICINE, PUBLIC SCIENCES, PSYCHIATRY, COMPARATIVE HUMAN DEVELOPMENT

5841 S. Maryland Ave., MC 2007 office W260, Chicago, IL 60637
Phone 773-834-8692; Fax 773-702-1979

Robert D. Gibbons, PhD
Blum-Riese Professor of Biostatistics
Committee on Quantitative Methods in Social, Behavioral and Health Sciences
Director, Center for Health Statistics
rdg@uchicago.edu

August 7, 2018

A Review of the Safety Kleen Statistical Waste Characterization Plan

In 1998, I prepared an annual statistical waste characterization plan for Safety Kleen based on a fully nonparametric approach to computing the 90% upper confidence limit for the 50th percentile of the distribution of analytic measurements. The motivation for the nonparametric approach was based on the non-normality of the distribution of analytic measurements observed at that time and even more importantly, the large proportion of measurements that did not detect the analyte in the sample; so called "non-detects." Motivation for this methodology was laid out in U.S. EPA SW846 (1986) and more recently in the U.S. EPA Unified Statistical Guidance Document (2009) see section 21.2. As noted in the Unified Guidance, "The advantage of a nonparametric interval around the median is its greater flexibility to define confidence intervals on non-normal data sets."

Recently, IL EPA has suggested that based on the OSWER 2002 Guidance, the nonparametric UCL that has been in use over the past 20 years should be replaced by the Chebyshev Inequality Method, which is a distribution free method. Using this method, the computed UCL for tetrachloroethylene (PCE) exceeded the regulatory standard whereas the nonparametric UCL did not. In the following, I try to shed light on this discrepancy.

To begin, nonparametric UCLs and distribution-free UCLs are in fact quite different. While neither method assumes a specific parametric form for the analyte distribution, the distribution free methods (e.g., Chebyshev Inequality Method) rely upon having a known population variance or standard deviation. Of course we never know the true standard deviation for the population, so practitioners typically substitute the observed standard deviation. As such, they are incorrect from the start. As noted in this guidance document, these distribution free methods break down when the detection frequency is low as is the case here. For PCE, only 8 of 31 measurements were detected (25.8%), and the largest measurement is an order of magnitude larger than the second largest measurement (51.72 vs. 5.8) suggesting the possibility that it is an outlier. As noted in the OSWER guidance, "If the proportion of non-detects is high (75%) or the number of samples is small (n<5), no method will work well." This is true for the parametric or distribution free methods described in the document, but this is not true for the nonparametric methods (with n>20) that have been used by Safety Kleen for the past 20 years. In fact, the nonparametric methods are based only on the rank ordering of the data and do not require either known or estimated values of the mean and variance as the distribution-free methods do and which break down in the presence of large numbers of non-detects and/or extreme skewness "As skewness increases further, the Chebyshev method is not recommended". The skewness of the PCE data produced by the large number of non-detects for which IEPA imputed DL/2 and the presence of a single extreme value is an example of extreme skewness. Non-detects and skewness have no effect on the nonparametric UCL used by Safety Kleen for the past 20 years and there are no distributional assumptions or summary statistics required to compute the UCL.

Sincerely yours,

Robert D. Gibbons Ph.D.

THE UNIVERSITY OF CHICAGO
BIOLOGICAL SCIENCES

DEPARTMENT OF PUBLIC HEALTH SCIENCES

5841 S. Maryland Ave., MC 2007 office W260, Chicago, IL 60637
Phone 773-834-8692; Fax 773-702-1979

Robert D. Gibbons, PhD
Blum-Riese Professor of Statistics
Director, Center for Health Statistics
rdg@uchicago.edu

March 18, 2019

Mori Sorenson
Vice President of Environmental Compliance
Safety-Kleen Systems, Inc. / A Clean Harbors Company
Des Moines, IA

Dear Mori,

In 1998, I prepared an annual statistical waste characterization plan for Safety Kleen based on a fully nonparametric approach to computing the 90% upper confidence limit for the 50th percentile of the distribution of analytic measurements. The motivation for the nonparametric approach was based on the non-normality of the distribution of analytic measurements observed at that time and even more importantly, the large proportion of measurements that did not detect the analyte in the sample; so called “non-detects.”

Since 1990, Safety-Kleen has used this methodology to conduct a major analytical study each year to document the contaminants in some of its most common waste streams to determine which TCLP waste codes should appear on the manifest for that waste. This Annual Waste Recharacterization Program is both expensive and extensive.

Motivation for this methodology was originally laid out in U.S. EPA SW846 (1986). As stated by U.S. EPA, ``The upper limit of the CI for *u* is compared with the applicable regulatory threshold (RT) to determine if a solid waste contains the variable (chemical contaminant) of concern at a hazardous level. The chemical contaminant of concern is not considered to be present in the waste at a hazardous level if the upper limit of the CI is less than the applicable RT. Otherwise the opposite conclusion is reached'' (U.S. EPA SW846 (1986) chapter 9 page 3). More recently there is continued support for the nonparametric confidence intervals that we have used here in the U.S. EPA Unified Statistical Guidance Document (2009) see section 21.2. As noted in the Unified Guidance, “The advantage of a nonparametric interval around the median is its greater flexibility to define confidence intervals on non-normal data sets.” Finally, even more recent support for the use of the upper confidence limit approach can be found in the 2015 U.S. EPA Guidance Manual “Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes – Final Guidance Manual,” (TSDF WAP) in section 2.7 entitled “Quantifying Data Uncertainty.” The guidance illustrates the problem with comparing individual measurements to a regulatory standard and instead recommends the use of the upper confidence limit (UCL) for the “true” concentration instead. “For example, suppose you analyze a waste for organic halogens to determine if it is a candidate for a particular waste management

method that you have tentatively selected. In addition, suppose this method can be used only if the waste contains an organic halogen concentration below 500 ppm. The decision you need to make is whether to manage the waste using this method and this is dependent on the organic halogen concentration. At first glance, it would make sense to use 500 ppm as your action level. An action level is simply a value that causes the decision maker to choose between different alternatives. That is, you would decide to use the management method if the organic halogen result is less than 500 ppm but would not if the result is 500 ppm or greater. The problem with this approach is that you rarely have complete confidence that your analytical data are correct due to the non-homogeneity of most wastes and slight differences in how you handle, sample, and analyze the waste. This creates a degree of uncertainty in what seems like a simple yes or no decision. Even when your analytical result is lower than an action level, the uncertainty may result in some possibility that the true concentration in the waste is actually higher than the action level, especially if the analytical result is nearing the action level. This will vary by situation and may need to be determined by considering the consequences of making a wrong decision (e.g., determine a waste is not hazardous when it is hazardous). … Due to the significance of the consequences, you will likely want to minimize uncertainty that the true mean organic halogen concentration is greater than 500 ppm to justify a decision to use the management method even when the analytical results are less than 500 ppm. This may be accomplished by establishing a confidence level for the mean. A confidence level indicates the degree of certainty in the data in terms of a percent. For example, data meeting a 90% confidence level can be interpreted that it is 90% certain (10% uncertain) that the true organic halogen concentration is below 500 ppm. To apply a specific confidence level to your data, you need to determine confidence limits statistically. … **If you do not have normally distributed results, you may still determine confidence limits for your data but you will need to use a different statistical method.**"

Returning to the application of this methodology to the Safety Kleen Annual Recharacterization program, the primary complicating feature is the presence of large numbers of nondetects which raises serious question regarding the use of the parametric approach. In light of this concern, nonparametric methods are used throughout this analysis. Again, as stated by U.S. EPA, ``If the data do not adequately follow the normal distribution even after logarithm transformation, a nonparametric confidence interval can be constructed. This interval is for the median concentration (which equals the mean if the distribution is symmetric)'' (U.S. EPA *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities*, April 1989, page 6-8).

Specifically, following U.S. EPA SW846, the Unified Statistical Guidance Document, and the TSDF WAP, Safety Kleen constructs a nonparametric 90% UCL for the 50th percentile of the distribution (i.e. median), which is equivalent to the 90% UCL for the mean in the case of a symmetric distribution such as the normal distribution.

Despite the long term use of this approach throughout the U.S. and its scientific support in EPA Guidance, the State of California has indicated that even a single individual measurement that exceeds the regulatory threshold should require listing the waste stream as a hazardous material. For example, for the aqueous immersion cleaner there were 63 samples analyzed for benzene and only 1 of the 63 samples exceeded the regulatory threshold. In terms of a nonparametric upper confidence limit, this is essentially defining the UCL as the 62nd largest value, which has a corresponding confidence level of 99.999999999999% which greatly exceeds the required confidence level of 90% per U.S. EPA guidance. The same is true for the single flash point value less than the regulatory threshold of 140 (i.e. 134), which the state of California is defining as the 99.999999999999% lower nonparametric confidence limit, which is the 2nd smallest value. For DC Perc Bottoms, selenium concentrations exceeded the regulatory

threshold in a single sample out pf 49 samples. This is equivalent to a 99.99999999998% nonparametric UCL. Finally, for APW Bulk Tank, tetrachloroethylene exceeded the regulatory threshold for 6 out of 63 samples. Setting the nonparametric UCL at the 57th largest sample would provide a confidence level of 99.9999999992%, again greatly exceeding the required 90% confidence level.

In summary, since 1998, Safety Kleen has followed U.S. EPA guidance in their annual waste recharacterization studies. Their focus is on setting an upper bound on the true concentration based on a representative and reasonably large sample of measurements from each waste stream. This approach follows directly from EPA guidance which does not require that every measurement in the sample of measurements be less than the regulatory threshold. I have shown that this latter approach leads to confidence levels that dramatically exceed EPA's requirement of a 90% confidence level.

I am pleased to discuss this further with any interested parties.

Sincerely yours,

Robert D. Gibbons Ph.D.
Blum-Reise Professor of Statistics
University of Chicago

Comparison of Critical Values for 90% UCL of Median for Sign Test and Gibbons Model

Number of Data Points (N)	90% UCL for Sign Test*	90% UCL for Gibbons Model**
21	15	14.8
22	16	15.4
23	16	15.9
24	17	16.5
25	18	17.1
26	18	17.7
27	19	18.3
28	19	18.9
29	20	19.4
30	20	20.0
31	21	20.6
32	22	21.2
33	22	21.7
34	23	22.3
35	23	22.9
36	24	23.4
37	24	24.0
38	25	24.6
39	26	25.1
40	26	25.7
41	27	26.3
42	27	26.8
43	28	27.4
44	28	28.0
45	29	28.5
46	30	29.1
47	30	29.6
48	31	30.2
49	31	30.8
50	32	31.3
51	32	31.9
52	33	32.4
53	33	33.0
54	34	33.5
55	35	34.1
56	35	34.7
57	36	35.2
58	36	35.8
59	37	36.3
60	37	36.9

Number of Data Points (N)	90% UCL for Sign Test*	90% UCL for Gibbons Model**
61	38	37.4
62	38	38.0
63	39	38.5
64	40	39.1
65	40	39.6
66	41	40.2
67	41	40.7
68	42	41.3
69	42	41.8
70	43	42.4
71	43	42.9
72	44	43.5
73	45	44.0
74	45	44.6
75	46	45.1
76	46	45.7
77	47	46.2
78	47	46.8
79	48	47.3
80	48	47.9
81	49	48.4
82	49	48.9
83	50	49.5
84	51	50.0
85	51	50.6
86	51	51.1
87	52	51.7
88	52	52.2
89	53	52.8
90	53	53.3
91	54	53.8
92	54	54.4
93	55	54.9
94	55	55.5
95	56	56.0
96	57	56.6
97	57	57.1
98	58	57.6
99	58	58.2
100	59	58.7

Number of Data Points (N)	90% UCL for Sign Test*	90% UCL for Gibbons Model**
101	59	59.3
102	60	59.8
103	60	60.3
104	61	60.9
105	61	61.4
106	62	62.0
107	63	62.5
108	63	63.1
109	64	63.6
110	64	64.1
111	65	64.7
112	65	65.2
113	66	65.7
114	66	66.3
115	67	66.8
116	67	67.4
117	68	67.9
118	68	68.4
119	69	69.0
120	70	69.1
121	70	70.1
122	71	70.6
123	71	71.1
124	72	71.7
125	72	72.2
126	73	72.7
127	73	73.3
128	74	73.8
129	74	74.3
130	75	74.9

Calculator for Gibbons Model:	
N	21
Z (0.975)	1.645
UCL	14.8

Numbers listed for the Sign Test and Gibbons Model are the nth ranked data points corresponding to the 90% UCL for the median. For example, in a data set consieting of 44 data points, the 28th highest value will equal the 90% UCL for the median.

* Sign Test critical values for N = 21 through N = 84 were obtained from published tables at the following web site:
http://www.math.unb.ca/~knight/utility/sgntbl.htm

Sign Test critical valurs for N = 85 through N = 130 were calculated using a program available on the Washington State Department of Health web site (see Section 4.5 for binomial proprortions):
http://www.doh.wa.gov/data/guidelines/ConfIntguide.htm

** Critical values for the Gibbons Model were calculated using equation 13.22 in R.O. Gilbert (Statistical Methods for Environmental Pollution Monitoring) for estimating the upper confidence limit for the median

Conclusion: The Sign Test and Gibbons Model produce equivalent results. The ranking of the 90% UCL never differs by more than +/- 1 for the two methods.

ATTACHMENT C-3

WASTE TYPES

Attachment C-3
Waste Types
Barre Service Center

Waste Description	Waste Codes [2]	Covered Under AR Program (Y/N)
Aqueous Brake Cleaner	None	N
Aqueous Parts Washer Solvent	None	N
Dry Cleaning Perchloroethylene Bottoms	F002, D007, D039, D040	Y
Dry Cleaning Naphtha Bottoms	D001, D007, D039, D040	N
Immersion Cleaner (Petroleum)	TCLP[1]	Y
Premium Parts Washer Solvent 150	D039, VT02	Y
Parts Washer Solvent 105	D001, D018, D039, D040	N
Bulked Parts Washer Solvent	D001, D018, D039, D041	N
Paint Related Wastes (Waste Paint Only)[3]	D001, F003, F005, TCLP[1]	Y
Paint Gun Cleaner Related Waste	D001, F003, F005, TCLP[1]	Y
Universal Waste	None	N
Antifreeze	None	N
Automotive Vac Waste	None	N
Industrial Vac Waste	None	N
Used Oil	None	N
Oil Filters	None or VT02	N
Tank Bottom Sediment	D001, D018, D039, D040	N
Fractionalization Tank Bottom Sediment	VT02	N
Return and Fill Waste	D001, D018, D039, D040	Y
Contaminated gloves, rags, etc. (debris)	F002, F003, F005, D001, TCLP[1]	N
Imaging Waste, Silver Cartridges	None	N
Imaging Waste, Film	None	N
Imaging Waste, Aluminum Plate	None	N

[1] TCLP Waste Numbers D004-D011, D018, D019, D021-D030, D032-D043

[2] Subject to change as a result of laboratory analysis or field screening.

[3] Non-Paint Care Program Waste

ATTACHMENT C-4

WASTE MATERIAL PROFILE SHEET

safety-kleen
A Clean Harbors Company

WASTE MATERIAL PROFILE SHEET

Profile No. 150451

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # ***PENDING*** GENERATOR NAME: ***Clean Harbors Environmental Services, Inc.***

GENERATOR CODE (Assigned by Clean Harbors) ***CLE234*** CITY ***Norwell*** STATE/PROVINCE ***MA*** ZIP/POSTAL CODE ***02061***

ADDRESS ***42 Longwater Drive*** PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) ***CLE234*** CUSTOMER NAME: ***Clean Harbors Environmental Services, Inc.***

ADDRESS ***42 Longwater Drive*** CITY ***Norwell*** STATE/PROVINCE ***MA*** ZIP/POSTAL CODE ***02061***

B. WASTE DESCRIPTION

WASTE DESCRIPTION: ***VAC WASTE - OIL, WATER NHZW***

PROCESS GENERATING WASTE: **VAC COLLECTION**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
- % FREE LIQUID
- % SETTLED SOLID
- % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS
- [x] 1 2 3

% BY VOLUME (Approx.)

TOP	***0.00***
MIDDLE	***0.00***
BOTTOM	***0.00***

VISCOSITY (If liquid present)
- [x] 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR
varies

ODOR
- NONE
- [x] MILD
- STRONG

Describe:

BOILING POINT ºF (ºC)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT ºF (ºC)
- < 140 (<60)
- 140-200 (60-93)
- > 200 (>93)

TOTAL ORGANIC CARBON
- <= 1%
- [x] 1-9%
- >= 10%

FLASH POINT ºF (ºC)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- [x] 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- [x] Unknown

BTU/LB (MJ/kg)
- < 2,000 (<4.6)
- [x] 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
DIRT/GREASE/GRIME	0.0000000	--	80.0000000	%
MOTOR OIL	1.0000000	--	20.0000000	%
WATER	50.0000000	--	100.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES [x] NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. ***G09*** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. ***W319***

E. CONSTITUENTS

Are these values based on testing or knowledge? ☑ Knowledge Testing

If based on knowledge, please describe in detail, the rationale applied to identify and characterize the waste material. Please include reference to Material Safety Data Sheets (MSDS) when applicable. Include the chemical or trade-name represented by the MSDS, and or detailed process or operating procedures which generate the waste.

Knowledge of process chemistry or MSDS

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑
	VOLATILE COMPOUNDS					
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
	SEMI-VOLATILE COMPOUNDS					
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
	PESTICIDES AND HERBICIDES					
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

☑ NONE
< 1000 PPM
>= 1000 PPM

PCBs

☑ NONE
< 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES | EXPLOSIVE | FUMING | OSHA REGULATED CARCINOGENS
POLYMERIZABLE | RADIOACTIVE | REACTIVE MATERIAL | ☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

☑ YES NO DO ANY STATE WASTE CODES APPLY?

021L 7777 CR02 IL14 MA01 MA98 R015 VT99

Texas Waste Code ***TXEXEMPT***

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: ***Not subject to LDR***
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS A VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES NO IS THIS WASTE STREAM "USED OIL" WHICH IS TO BE MANAGED UNDER 40 CFR PART 279 - STANDARDS FOR THE MANAGEMENT OF USED OIL?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 76.6 KPA (11.1 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

OILY WATER NON DOT REGULATED, (VAC)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME ☑ WEEKLY MONTHLY QUARTERLY YEARLY OTHER

CONTAINERIZED

0-0 CONTAINERS/SHIPMENT

STORAGE CAPACITY:
CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX DRUM

OTHER: DRUM SIZE:

☑ **BULK LIQUID**

GALLONS/SHIPMENT: ***1.00 Min -9999.00 Max*** GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: ***0 Min - 0 Max***

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE

*40 CFR Sec. 264.12 required notice:
As required by Federal Resource Conservation and Recovery Act regulations found in 40 CFR Part 264.12(b) and all equivalent State hazardous waste regulations, notice is hereby provided that all Clean Harbors facilities that may be used to treat, store, and /or dispose of the hazardous waste described on this waste profile have the appropriate permits and the capacity to manage these wastes.

Please note this profile must be submitted for re-evaluation if there has been a change in the waste generating process or when there have been changes in the chemical composition or physical characteristics of the material.

Addendum

D. COMPOSITION

F. REGULATORY STATUS

ATTACHMENT C-5

LABELS

CleanHarbors

7 / 27 / 21

DOR

This container has been inspected and complies with 40CFR 264/265 Subpart CC

HAZARDOUS WASTE

Profile: 157627
Hazard: Toxic
Const: 1-Methyl-2-Pyrrolidinone
Dipropylene Glycol Monomethyl

96421622

Profile: 157627 AA42

96421622

Profile: 157627 AA42

96421622

Weight:

SK - Dolton, IL - RC

HH234804316	**1**	**15DM**	**AA42**

Generator Name: Brown Enterprises Inc
UN / NA: UN3267
Customer Drum #: 210722933624

UN3267 WASTE CORROSIVE LIQUID, BASIC, ORGANIC, NOS (MONOETHANOLAMINE) 8 PGIII (ERG153) 7.9#/G DOT-SP11606 D006, D018, D027, D039, D040, VX51

** TOXIC ** LIQUID

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

UN3267

IN EVENT OF EMERGENCY
1-800-468-1760 (SK)

GENERATOR INFORMATION:

ACCOUNT NO. BR30019
NAME Brown Enterprises Inc
ADDRESS 50 Smith Haven Ln
ADDRESS
CITY/STATE SOUTH LONDONDERRY VT 05155--9234
USA EPA ID NO. VTR000503722
STATE EPA ID NO.
ACCUMULATION START DATE
MANIFEST DOCUMENT NO. 234804316
GENERATOR STORAGE DATE _____
TRANSFER START DATE _____
TSDF STORAGE DATE _____

PART NO 81515 (7/97)

PREL - 157627

CONTAINER NO.	USE LABEL BY
210722933624	072222

SK DOT # 0014950

DOR

PALLET

CONT # 210722933624
GEN BR30019
SK DOT # 0014950
EXPIRES 07/22/22
DOC # 0086804229
MANF # 234804316
Brown Enterprises In
BSV
ACTUAL WT/GAL
DOR

SERVICE DOCUMENT

CONT # 210722933624
GEN BR30019
SK DOT # 0014950
EXPIRES 07/22/22
DOC # 0086804229
MANF # 234804316
Brown Enterp 157627
0001 21 2130
ACTUAL WT/GAL
DOR

ATTACHMENT C-6

HANDHELD RECEIPT (SHIPPING PAPER)

Safety – Kleen Systems, Inc.
42 Longwater Drive
Norwell, MA 02061
CORPORATE: 800 – 669 – 5740
24 HR EMERGENCY: 800 – 468 – 1760 (Safety – Kleen)
8024791200

REFERENCE NBR.

CUSTOMER#

SRVC WEEK:
SRVC DATE:

BILL TO CUSTOMER# BILL TO ADDRESS:

PURCHASE ORDER# TAX EXEMPT#

PRODUCT/SERVICES

SERVICES/ PRODUCT		QTY	UNIT PRICE	TAX	TOTAL CHARGE
10967	VAC SERVICE FEE AUTOMOTIVE	1.0		0.00	
	SERVICE TERM 52 WEEK				
66667	VACUUM LIQUID (NON – PQUAL)	150.0	0.00	0.00	0.00
	SERVICE TERM 52 WEEK				
	VAC PH TEST: 7				
	HALOGEN/ CLOR – D – TECT TEST:	PASS:PPM < 1000			
66677	VACUUM SOLID (NON – PQUAL)	75.0	0.00	0.00	0.00
	SERVICE TERM 52 WEEK				
	VAC PH TEST: 7				
	HALOGEN/ CLOR – D – TECT TEST:	PASS:PPM < 1000			
10044	EXTENDED SERVICE AREA FEE	1.0	0.00	0.00	0.00
100090	RECOVERY FEE	1.0		0.00	
10913	VAC TRUCK WASH	1.0		0.00	
10911	VAC TRENCHING/FT	20.0		0.00	
10974	FEE, VAC 40% SOLIDS	225.0		0.00	

TOTAL SERVICE/PRODUCTS 0.00

TOTAL CHARGE
CREDITS 0.00

TOTAL DUE

UNPAID BALANCE THIS RECEIPT

Per BOG M420 – 001 the halogen detecting instrument has been zeroed and validated.

GENERATOR STATUS

Customer certifies that (i) the above – named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation (ii) no material change has occurred either in the characteristics of the waste/materiel or in the process generating the waste/materiel, and (iii) the above referenced Generator Status is correct. Customer agrees to pay the above charges and to be bound by the terms and conditions (1) set forth in (a) the General Terms and Conditions provided separately to Customer or (b) any SK agreement signed by Customer and SK, and (2) incorporated herein by reference. Unless otherwise indicated in the payment received section, SK is authorized to charge Customers account for this transaction. If Customer fails to make payment when due, an amount equal to the lesser of (i) 1.5% per month (18% per annum) or (ii) the maximum amount allowed by law, will be added to all unpaid amounts outstanding. Customer certifies that the individual signing this Service Acknowledgement is duly authorized to sign and bind Customer. Customer acknowledges that it is responsible for maintaining its Generator Status and obtaining an EPA ID number if required by applicable law. The following provision is applicable to Safety – Kleens parts cleaner and paint gun cleaner services: Customer agrees that it will not introduce any substance into the solvent or aqueous cleaning solution, including without limitation any hazardous waste or hazardous waste constituent, except to the extent such introduction is incidental to the normal use of the machine. Customer further agrees that it will not clean parts/paint guns that have been contaminated with or otherwise introduce polychlorinated biphenyls (PCBs), herbicides, pesticides, dioxins or listed hazardous waste into the solvent or aqueous cleaning solution. Safety – Kleen has the capacity and is permitted to accept, store, and/or reclaim the spent parts washer solvent; paint thinners, solvents and paints generated by customer; or dry cleaning filter cartridges, powder, and still residues containing perchloroethylene, petroleum naphtha, or trifluorotrichloroethane dry cleaning solvents. Customer agrees that it is responsible for properly classifying its waste streams as Used Oil or Nonhazardous Waste in accordance with the provision of 40 CFR 262.11 and applicable state laws. Customer agrees that it will not introduce any non – conforming substance into the SK Property, including, without limitation, any hazardous waste or hazardous waste constituent, (i.e., polychlorinated biphenyls ("PCBs"), herbicides, pesticides, dioxins, or listed hazardous wastes) except to the extent such introduction is incidental to the normal use of the SK Property. In the event of the introduction of such non – conforming hazardous waste, Customer agrees that it will be responsible for all costs and remediation expenses related to or arising from the proper management and disposal of the non – conforming waste, including the cost of equipment decontamination and subsequent disposal. Final invoicing will be based on the actual services provided, which may include additional charges for off specification waste and surcharges. Final invoice amount may be more than the amount listed on the printed receipt. If any legal action is commenced because of an alleged dispute, breach, default or misrepresentation, the Customer also agrees that the prevailing party will be entitled to recover reasonable attorneys fees and costs associated with the non – conforming contamination event. Safety – Kleens failure to screen Customers material or take a retain sample, in no way constitutes a waiver of Customers obligation to properly classify its materials. Safety – Kleen relies on Customers representations and Customer is responsible for informing Safety – Kleen of any process changes that may alter the characteristics of the materials provided. In accordance with 40 CFR 263.21 (b)(3) Clean Harbors and/or Safety – Kleen, as applicable, as the current transporter is expressly given agency authority by the generator to act as the generator's agent and accordingly, Clean Harbors and/or Safety – Kleen, as applicable, may change the transporter(s) designated on the manifest, or add a new transporter, during transportation without the generator's prior, explicit approval. IN THE EVENT OF AN EMERGENCY CALL **24 – HR NUMBER** 1 – 800 – 468 – 1760 (Safety – Kleen) A variable recovery fee that fluctuates with the DOE national average diesel price may be applied to your invoice. For more information regarding our recovery fee calculation please go to http://safety – kleen.com/customer – service/environmental – fees/recovery – fees. Please note e – manifest fees applicable to this order may not be included in the total above and will be included in the final invoice or credit card statement. RECEIPT ONLY – THIS IS NOT AN INVOICE

CUSTOMER / GENERATOR:

TRANSPORTER:

CSG SK-BSV-VAC-41 McGowan,Chad 07-23-2021 07:38

SHIPPING DOCUMENT

IN THE EVENT OF AN EMERGENCY CALL **24-Hr-Number** 1-800-468-1760 (SAFETY-KLEEN SYSTEMS, INC.)

REFERENCE NBR.

CUSTOMER / GENERATOR:

GENERATOR USEPA ID.
GENERATOR STATE:
MANIFEST#: FORM CD : NR SHIP#

TRANSPORTER 1 TXR000081205 Safety Kleen
TRANSPORTER 2
US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)
OILY WATER
(NOT USDOT OR USEPA REGULATED)(VAC)
FEDERAL WASTE CODES NONE
STATE WASTE CODES: VT99
TOTAL CONT 2 TYPE: TT WT/VOL G SKDOT 7008471
CNT# 210715802590 SZ: BULK VOLUME CONTAINER QTY: 150 PROF# 150451
CNT# 210715802591 SZ: BULK VOLUME CONTAINER QTY: 75 PROF# 150451

DESIGNATED FACILITY NAME/ADDRESS:
SAFETY-KLEEN SYSTEMS INC
23 WEST SECOND STREET
BARRE,
VT 05641
TSD PHONE: 802-479-1200

FACILITY USEPA ID NO VTD000791699
FACILITY STATE ID NO

GENERATOR STATUS CESQG: Vehicle

CUSTOMER / GENERATOR:

TRANSPORTER:

TRANSPORTER 2:

LAST PAGE

ATTACHMENT C-7

ANNUAL RECHARACTERIZATION PROGRAM - ANALYTICAL METHOD SUMMARY

Attachment C-7
Annual Recharacterization Program - Analytical Method Summary
Barre Service Center
23 West 2nd Street
Barre, VT 05641

Analytical Protocol	Analytical Method	Analytical Method Description	Core Waste					
			PWS Premium	Dry Cleaning Perchloroethylene Bottoms	Immersion Cleaner (Petroleum)	Paint Related Wastes (Paint Waste Only)	Return and Fill Waste	Paint Gun Cleaner Related Waste
SW846	8260B	Volatile Organics (GC/MS)	x	x	x	x	x	x
SW846	8270D	Semivolatile Organic Compounds by GC/MS - Low Level	x	x	x	x	x	x
SW846	8151A	Herbicides (GC)	x	x				x
SW846	6010C	Metals (ICP)	x	x	x	x	x	x
SW846	7470A	Mercury (CVAA)	x	x	x	x	x	x
ASTM	D5057-90	Specific Gravity and Bulk Density (Screening)	x	x	x	x	x	x
SW846	1010A	Ignitability, Pensky-Martens Closed-Cup Method	x	x	x	x		x
SW846	1020B	Ignitability, Small Scale Closed-Cup Method					x	
SW846	9045D	pH	x	x	x	x	x	x
SW846	1311	TCLP Extraction	x	x	x	x	x	x
SW846	3010A	Preparation, Total Metals			x	x	x	
SW846	3050B	Preparation, Metals	x	x				x
SW846	5030C	Purge and Trap				x	x	
SW846	3510C	Liquid-Liquid Extraction (Separatory Funnel)				x	x	
SW846	3580A	Waste Dilution	x	x	x			x
SW846	3620B	Florisil Cleanup	x	x				x
SW846	7470A	Preparation, Mercury	x	x	x	x	x	x
None	8151 SK	Extraction, Organic Analytes	x	x				x

ATTACHMENT C-8

SAMPLE CHAIN OF CUSTODY FORM

SAMPLE CHAIN OF CUSTODY

Ship Samples to: TestAmerica Laboratory, 301 Alpha Drive, RIDC Park, Pittsburgh PA 15238
TELEPHONE: 412.963.2445

COLLECTION INFORMATION

SAMPLE ID # (SHIPMENT #)	CUSTOMER NAME	DATE	TIME	DESCRIPTION OF SAMPLE	NO. OF CONTAINERS	DEPARTMENT ID
						77BVT
						COLLECTOR NAME/PHONE NUMBER:

ANALYSIS REQUEST

FINAL RESULTS REQUEST

Results to: **Address:** **E-mail address:** Phone :	**AND:**	**Results to:** **Address:** **E-mail address:** Phone :

SAMPLE TRANSFER RECORD

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
SIGNATURE OF COLLECTOR:					

Was sample kept chilled until relinquished for shipment to lab? Yes__ No__
If no, explain:

Airbill Number:

LAB USE ONLY

TEMPERATURE WHEN RECEIVED_____°C

SAMPLE KIT OPENED AND CHECKED IN BY_____ TIME _____ DATE _____

C.O.C. SEALS SIGNED, DATED, AND INTACT ON ALL SAMPLE JARS? YES_____ NO_____ IF NO, EXPLAIN _____

SHIPPING NOTES/LAB COMMENTS: _____

ATTACHMENT C-9

VACUUM SERVICES SAMPLE RECORD LOG

Attachment C-9
Vacuum Services Sample Record Log
Barre Service Center
23 West 2nd Street
Barre, VT 05641

Sample Collection Date	Generator Name	Common Name of Waste	Name of Sample Collector	Shipment Number	Waste Profile Number

ATTACHMENT C-10

WASTE SAMPLING GUIDELINES

Waste Sampling Guidelines

The majority of facilities' WAPs require "grab samples". A select few, however, require composite samples. See section below on how to obtain a composite sample.

The following table summarizes how samples are typically taken. Keep in mind, the waste streams required for sampling are permit specific (i.e., not every facility will be required to sample every stream outlined in the below table).

Sampling Methods/Practices to be used:

- ASTM D5495 - *Standard Practice for Sampling with a Composite Liquid Waste Sampler (COLIWASA)*
- ASTM D5633 - *Standard Practice for Sampling with a Scoop*

-

Sample Type	Sampling Location	Sample Size/Kit	Homogenization Technique	Sampling Device
Aqueous Brake Cleaner	5 gallon poly carboy	1 quart TCLP kit	Grab sample using multiple COLIWASA pulls or pour contents into a new bucket Stir/mix contents before sampling.	COLIWASA
Dry Cleaner Naphtha/PERC Bottoms/Filters	Drum	1 quart DOT SP-9168 Exemption Packaging	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA or Scoop
Immersion Cleaner	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
Paint Gun Cleaner Paint Waste	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
Parts Washer Solvent Bulk Tank	Tank	1 quart TCLP kit	Grab sample	Tank valve or from tanker using a COLIWASA during annual draw down
Dumpster Sludge (APW and PWS)	Return and Fill	1 quart TCLP kit	Grab sample Stir/mix up Return and Fill bottoms with scoop before sampling	Scoop
Sample Type	Sampling Location	Sample Size/Kit	Homogenization Technique	Sampling Device
Tank Bottoms (APW and PWS)	Tank	1 quart TCLP kit	Grab sample during tank clean out Stir/mix up tank bottoms with scoop before sampling	Scoop
PWS 105	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
PWS Premium	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
APW	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
Antifreeze	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA
Used Oil	Drum	1 quart TCLP kit	Grab sample Stir/mix content of drum with COLIWASA before sampling	COLIWASA

Revised 9/17/2019
Rick Haskins