




MIDWEST
Environmental Services, Inc.

**PART B PERMIT
RENEWAL
APPLICATION**

**Klor Kleen Facility
3118 Spring Grove Avenue
Cincinnati, OH 45225
OHD 980 821 862**

SEND COMPLETED FORM TO: The Appropriate State or Regional Office.	United States Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION FORM		
1. Reason for Submittal MARK ALL BOX(ES) THAT APPLY	Reason for Submittal: <input type="checkbox"/> To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location) <input checked="" type="checkbox"/> To provide a Subsequent Notification (to update site identification information for this location) <input type="checkbox"/> As a component of a First RCRA Hazardous Waste Part A Permit Application <input type="checkbox"/> As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # _____) <input type="checkbox"/> As a component of the Hazardous Waste Report (If marked, see sub-bullet below) <input type="checkbox"/> Site was a TSD facility and/or generator of >1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)		
2. Site EPA ID Number	EPA ID Number <u> O H D 9 8 0 8 2 1 8 6 2 </u>		
3. Site Name	Name: Klor Kleen		
4. Site Location Information	Street Address: 3118 Spring Grove Avenue		
	City, Town, or Village: Cincinnati		County: Hamilton
	State: Ohio	Country: USA	Zip Code: 45225
5. Site Land Type	<input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other		
6. NAICS Code(s) for the Site (at least 5-digit codes)	A. <u> 5 6 2 2 1 1 </u>		C. <u> 5 6 2 9 2 </u>
	B. <u> 5 6 2 2 1 9 </u>		D. <u> </u>
7. Site Mailing Address	Street or P.O. Box: P.O. Box 14029		
	City, Town, or Village: Cincinnati		
	State: Ohio	Country: USA	Zip Code: 45250
8. Site Contact Person	First Name: Ray MI: H Last: Boyle		
	Title: Vice President, Operations		
	Street or P.O. Box: 3118 Spring Grove Avenue		
	City, Town or Village: Cincinnati		
	State: Ohio	Country: USA	Zip Code: 45225
	Email: rboyle@midwestenvironmentalservices.com		
	Phone: (513) 681-9990	Ext.:	Fax: (513) 681-1185
9. Legal Owner and Operator of the Site	A. Name of Site's Legal Owner: Midwest Environmental Services, Inc.		
	Date Became Owner: 11/23/1987		
	Owner Type: <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other		
	Street or P.O. Box: P.O. Box 218		
	City, Town, or Village: Brownstown		Phone: (812) 358-5166
	State: Indiana	Country: USA	Zip Code: 47220
	B. Name of Site's Operator: Midwest Environmental Services, Inc.		
	Date Became Operator: 12/21/2001		
	Operator Type: <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other		

10. Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities; Complete all parts 1-10.Y ☒ N ☐**1. Generator of Hazardous Waste**

If "Yes," mark only one of the following – a, b, or c.

- ☒ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs/mo.) or more of hazardous waste; or Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs/mo) of acute hazardous waste; or Generates, in any calendar month, or accumulates at any time, more than 100 kg/mo (220 lbs/mo) of acute hazardous spill cleanup material.

- ☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs/mo) of non-acute hazardous waste.

- ☐ c. CESQG: Less than 100 kg/mo (220 lbs/mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities in 2-10.

Y ☐ N ☒

- 2. Short-Term Generator** (generate from a short-term or one-time event and not from on-going processes). If "Yes," provide an explanation in the Comments section.

Y ☐ N ☒

- 3. United States Importer of Hazardous Waste**

Y ☐ N ☒

- 4. Mixed Waste (hazardous and radioactive) Generator**

Y ☐ N ☒**5. Transporter of Hazardous Waste**

If "Yes," mark all that apply.

- ☐ a. Transporter
☐ b. Transfer Facility (at your site)

Y ☒ N ☐**6. Treater, Storer, or Disposer of Hazardous Waste**

Note: A hazardous waste Part B permit is required for these activities.

Y ☐ N ☒**7. Recycler of Hazardous Waste**Y ☐ N ☒**8. Exempt Boiler and/or Industrial Furnace**

If "Yes," mark all that apply.

- ☐ a. Small Quantity On-site Burner Exemption
☐ b. Smelting, Melting, and Refining Furnace Exemption

Y ☐ N ☒**9. Underground Injection Control**Y ☒ N ☐**10. Receives Hazardous Waste from Off-site****B. Universal Waste Activities; Complete all parts 1-2.**Y ☒ N ☐

- 1. Large Quantity Handler of Universal Waste** (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes," mark all that apply.

- a. Batteries ☒
b. Pesticides ☐
c. Mercury containing equipment ☒
d. Lamps ☒
e. Other (specify) _____ ☐
f. Other (specify) _____ ☐
g. Other (specify) _____ ☐

Y ☐ N ☒**2. Destination Facility for Universal Waste**

Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities; Complete all parts 1-4.Y ☐ N ☒**1. Used Oil Transporter**

If "Yes," mark all that apply.

- ☐ a. Transporter
☒ b. Transfer Facility (at your site)

Y ☒ N ☐**2. Used Oil Processor and/or Re-refiner**

If "Yes," mark all that apply.

- ☒ a. Processor
☐ b. Re-refiner

Y ☐ N ☒**3. Off-Specification Used Oil Burner**Y ☒ N ☐**4. Used Oil Fuel Marketer**

If "Yes," mark all that apply.

- ☒ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

D. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

❖ You can ONLY Opt into Subpart K if:

- you are at least one of the following: a college or university; a teaching hospital that is owned by or has a formal affiliation agreement with a college or university; or a non-profit research institute that is owned by or has a formal affiliation agreement with a college or university; AND
- you have checked with your State to determine if 40 CFR Part 262 Subpart K is effective in your state

Y ☐ N ☒ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories
See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:☐ a. College or University☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or universityY ☐ N ☒ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories**11. Description of Hazardous Waste****A. Waste Codes for Federally Regulated Hazardous Wastes.** Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

D002	D004	D005	D006	D007	D008	D009
D010	D011	D019	D022	D039	D040	F001
F002	F006	U080	U121	U210	U226	U228

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

12. Notification of Hazardous Secondary Material (HSM) Activity


Y ☐ N ☒ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes," you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

FACILITY COORDINATES: 39.138015 degrees N LATITUDE -84.541533 degrees W LONGITUDE

14. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
	Ray Bolye, V.P. Operations	05/27/2016

ADDENDUM TO THE SITE IDENTIFICATION FORM: NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY



ONLY fill out this form if:

- ❖ You are located in a State that allows you to manage excluded hazardous secondary material (HSM) under 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent). See <http://www.epa.gov/epawaste/hazard/dsw/statespf.htm> for a list of eligible states; **AND**
- ❖ You are or will be managing excluded HSM in compliance with 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent) or you have stopped managing excluded HSM in compliance with the exclusion(s) and do not expect to manage any amount of excluded HSM under the exclusion(s) for at least one year. Do not include any information regarding your hazardous waste activities in this section.

1. Indicate reason for notification. Include dates where requested.

- ☐ Facility will begin managing excluded HSM as of _____ (mm/dd/yyyy).
- ☐ Facility is still managing excluded HSM/re-notifying as required by March 1 of each even-numbered year.
- ☐ Facility has stopped managing excluded HSM as of _____ (mm/dd/yyyy) and is notifying as required.

2. Description of excluded HSM activity. Please list the appropriate codes and quantities in **short tons** to describe your excluded HSM activity ONLY (do not include any information regarding your hazardous wastes). Use additional pages if more space is needed.

a. Facility code (answer using codes listed in the Code List section of the instructions)	b. Waste code(s) for HSM	c. Estimated short tons of excluded HSM to be managed annually	d. Actual short tons of excluded HSM that was managed during the most recent odd-numbered year	e. Land-based unit code (answer using codes listed in the Code List section of the instructions)

3. Facility has financial assurance pursuant to 40 CFR 261.4(a)(24)(vi). (Financial assurance is required for reclaimers and intermediate facilities managing excluded HSM under 40 CFR 261.4(a)(24) and (25))

Y ☐ N ☐ Does this facility have financial assurance pursuant to 40 CFR 261.4(a)(24)(vi)?

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United States Environmental Protection Agency
HAZARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact	First Name: Ray		MI: H	Last Name: Boyle								
	Contact Title: Vice President, Operations											
	Phone: (513) 681-9990		Ext.:	Email: rboyle@midwestenvironmental.com								
2. Facility Permit Contact Mailing Address	Street or P.O. Box: P.O. 14029											
	City, Town, or Village: Cincinnati											
	State: Ohio											
	Country: USA		Zip Code: 45250									
3. Operator Mailing Address and Telephone Number	Street or P.O. Box: 27 Kiesland Court											
	City, Town, or Village: Cincinnati											
	State: Ohio		Phone: (513) 681-9990									
	Country: USA		Zip Code: 45015									
4. Facility Existence Date	Facility Existence Date (mm/dd/yyyy): 05/14/1984											
5. Other Environmental Permits												
A. Facility Type (Enter code)	B. Permit Number										C. Description	
6. Nature of Business:												
Klor Kleen is a commercial TSD Facility. Hazardous and non-hazardous wastes are accepted from off-site generators. These wastes are stored on-site for less than one year and are subsequently shipped to an alternate TSD Facility for processing and final disposal.												

7. Process Codes and Design Capacities – Enter information in the Section on Form Page 3

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. If more lines are needed, attach a separate sheet of paper with the additional information. For “other” processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 8.

B. PROCESS DESIGN CAPACITY – For each code entered in Item 7.A; enter the capacity of the process.

- 1. AMOUNT** – Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.
- 2. UNIT OF MEASURE** – For each amount entered in Item 7.B(1), enter the code in Item 7.B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.

C. PROCESS TOTAL NUMBER OF UNITS – Enter the total number of units for each corresponding process code.

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity	Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
Disposal			Treatment (Continued) (for T81 – T94)		
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day	T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; Liters Per Hour; Kilograms Per Hour; or Million BTU Per Hour
D80	Landfill	Acre-feet; Hectares-meter; Acres; Cubic Meters; Hectares; Cubic Yards	T82	Lime Kiln	
D81	Land Treatment	Acres or Hectares	T83	Aggregate Kiln	
D82	Ocean Disposal	Gallons Per Day or Liters Per Day	T84	Phosphate Kiln	
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards	T85	Coke Oven	
D99	Other Disposal	Any Unit of Measure Listed Below	T86	Blast Furnace	
Storage			T87	Smelting, Melting, or Refining Furnace	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards	T88	Titanium Dioxide Chloride Oxidation Reactor	
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards	T89	Methane Reforming Furnace	
S03	Waste Pile	Cubic Yards or Cubic Meters	T90	Pulping Liquor Recovery Furnace	
S04	Surface Impoundment	Gallons; Liters; Cubic Meters; or Cubic Yards	T91	Combustion Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid	
S05	Drip Pad	Gallons; Liters; Cubic Meters; Hectares; or Cubic Yards	T92	Halogen Acid Furnaces	
S06	Containment Building Storage	Cubic Yards or Cubic Meters	T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
S99	Other Storage	Any Unit of Measure Listed Below	T94	Containment Building Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTU Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million BTU Per Hour
Treatment			Miscellaneous (Subpart X)		
T01	Tank Treatment	Gallons Per Day; Liters Per Day	X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
T02	Surface Impoundment	Gallons Per Day; Liters Per Day	X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour	X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; or Million BTU Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Short Tons Per Day; BTUs Per Hour; Gallons Per Day; Liters Per Hour; or Million BTU Per Hour	X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; or Million BTU Per Hour	X99	Other Subpart X	Any Unit of Measure Listed Below

Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code
Gallons	G	Short Tons Per Hour	D	Cubic Yards	Y
Gallons Per Hour	E	Short Tons Per Day	N	Cubic Meters	C
Gallons Per Day	U	Metric Tons Per Hour	W	Acres	B
Liters	L	Metric Tons Per Day	S	Acre-feet	A
Liters Per Hour	H	Pounds Per Hour	J	Hectares	Q
Liters Per Day	V	Kilograms Per Hour	X	Hectare-meter	F
		Million BTU Per Hour	X	BTU Per Hour	I

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number	A. Process Code (From list above)				B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only					
					(1) Amount (Specify)	(2) Unit of Measure							
X	1	S	0	2	533.788	G	001						
	1	S	0	1	11,000	G	001						
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

Line Number (Enter #s in sequence with Item 7)	A. Process Code (From list above)				B. PROCESS DESIGN CAPACITY		C. Process Total Number of Units	For Official Use Only					
					(1) Amount (Specify)	(2) Unit of Measure							
X	2	T	0	4	100.00	U	001						

9. Description of Hazardous Wastes - Enter Information in the Sections on Form Page 5

- A. EPA HAZARDOUS WASTE NUMBER** – Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.
- B. ESTIMATED ANNUAL QUANTITY** – For each listed waste entered in Item 9.A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in Item 9.A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.
- C. UNIT OF MEASURE** – For each quantity entered in Item 9.B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES**1. PROCESS CODES:**

For listed hazardous waste: For each listed hazardous waste entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all listed hazardous wastes.

For non-listed waste: For each characteristic or toxic contaminant entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

- Enter the first two as described above.
 - Enter "000" in the extreme right box of Item 9.D(1).
 - Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 9.E.
- 2. PROCESS DESCRIPTION:** If code is not listed for a process that will be used, describe the process in Item 9.D(2) or in Item 9.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

- Select one of the EPA Hazardous Waste Numbers and enter it in Item 9.A. On the same line complete Items 9.B, 9.C, and 9.D by estimating the total annual quantity of the waste and describing all the processes to be used to store, treat, and/or dispose of the waste.
- In Item 9.A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In Item 9.D.2 on that line enter "included with above" and make no other entries on that line.
- Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING Item 9 (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES											
								(1) PROCESS CODES (Enter Code)								(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))			
X	1	K	0	5	4	900	P	T	0	3	D	8	0						
X	2	D	0	0	2	400	P	T	0	3	D	8	0						
X	3	D	0	0	1	100	P	T	0	3	D	8	0						
X	4	D	0	0	2												Included With Above		

9. Description of Hazardous Wastes (Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)					B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES										
								(1) PROCESS CODES (Enter Code)										(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
	1	D	0	0	2	1500	T	S	0	1								
	2	D	0	0	4	50	T	S	0	1								
	3	D	0	0	5	50	T	S	0	1								
	4	D	0	0	6	95	T	S	0	1								
	5	D	0	0	7	1500	T	S	0	1								
	6	D	0	0	8	1500	T	S	0	1								
	7	D	0	0	9	5	T	S	0	1								
	8	D	0	1	0	25	T	S	0	1								
	9	D	0	1	1	25	T	S	0	1								
1	0	D	0	1	9	50	T	S	0	1								
1	1	D	0	2	2	50	T	S	0	1								
1	2	D	0	3	9	50	T	S	0	1								
1	3	D	0	4	0	50	T	S	0	1								
1	4	F	0	0	1	10	T	S	0	1								
1	5	F	0	0	2	10	T	S	0	1								
1	6	F	0	0	6	175	T	S	0	1								
1	7	U	0	8	0	50	T	S	0	1								
1	8	U	1	2	1	5	T	S	0	1								
1	9	U	2	1	0	5	T	S	0	1								
2	0	U	2	2	6	10	T	S	0	1								
2	1	U	2	2	8	5	T	S	0	1								
2	2																	
2	3																	
2	4																	
2	5																	
2	6																	
2	7																	
2	8																	
2	9																	
3	0																	
3	1																	
3	2																	
3	3																	
3	4																	
3	5																	
3	6																	

10. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

11. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

12. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas (see instructions for more detail).

13. Comments

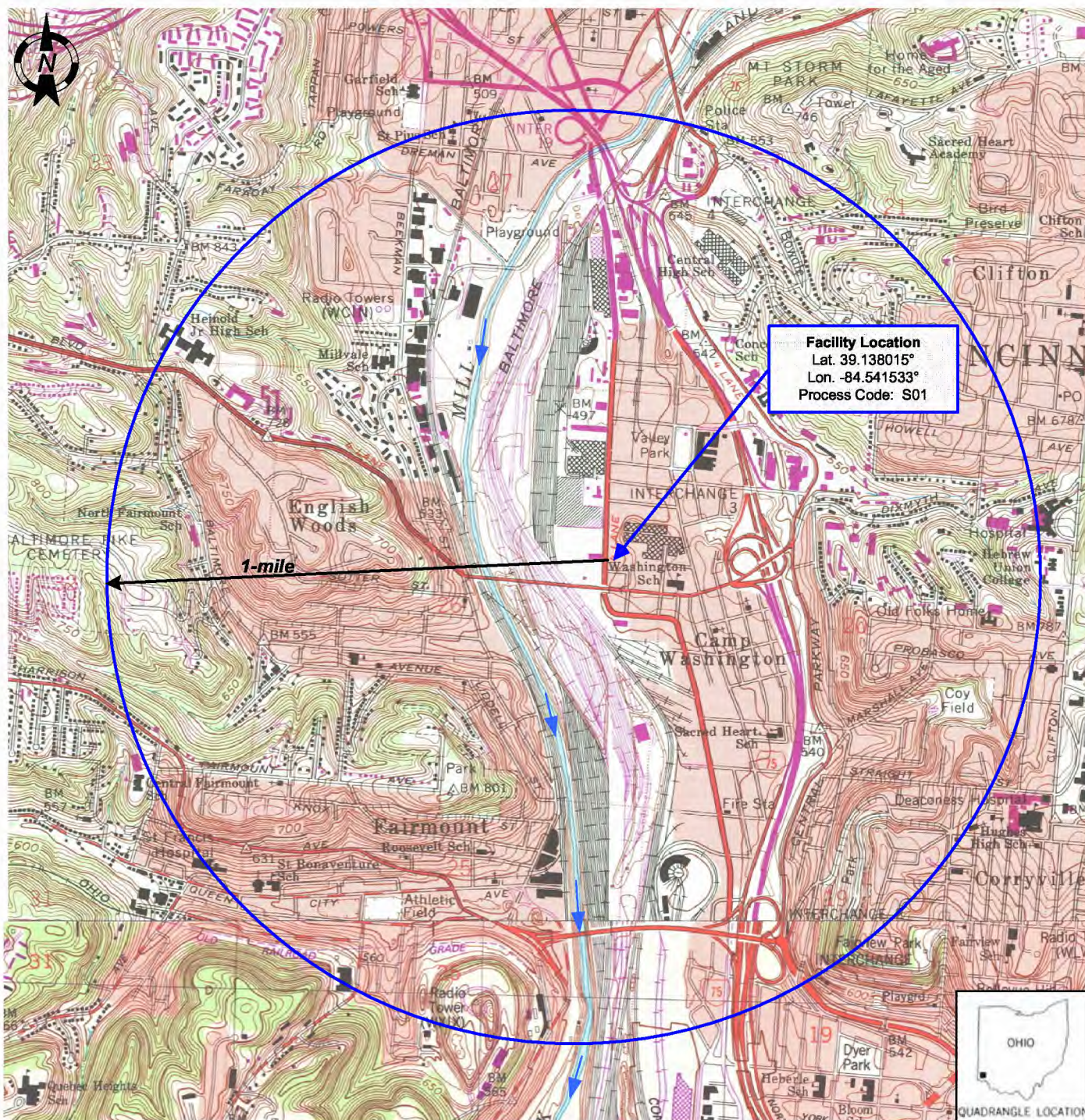
See the following appended figures:

Figure A-1a: Topographic Map

Figure A-2: Facility Diagram

Figure A-3: Photograph of Facility as viewed from Spring Grove Avenue Photographs (July 2015)

Figure A-4: Photographs of Hazardous Waste Container Storage Area (August 2015)



Source: U.S. Geological Survey, http://store.usgs.gov/b2c_usgs/usgs/

USGS 7.5' Topographic Quadrangle Maps
 Cincinnati West, Ohio Quadrangle (1986)
 Covington, KY-Ohio Quadrangle (1987)

SCALE

1-Inch = 2,000-feet



Consulting Services Division
 1400 Envoy Circle, Suite 1400
 Louisville, Kentucky 40299
 502.491.0991

Addendum to Part A Application (Sec. 10)

Prepared by: C. Jones

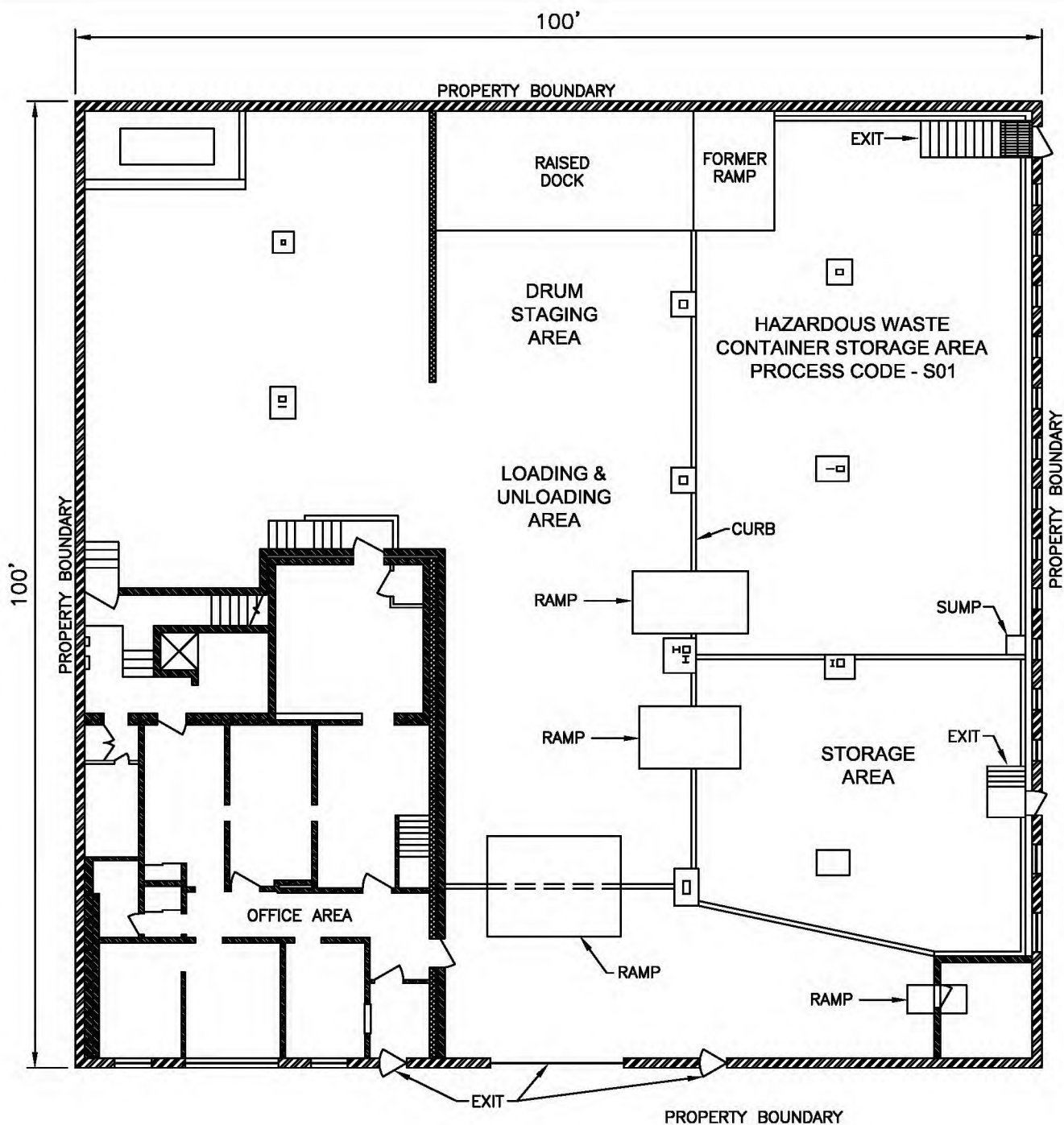
Rev. May 27, 2016

FIGURE A-1a

TOPOGRAPHIC MAP FACILITY LOCATION

3118 Spring Grove Avenue
 Cincinnati, Ohio 45225

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	5/23/16	RB	AM	BI	---	2005 40-04



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



Midwest Environmental Services, Inc.
27 Kiesland Ct, Hamilton, OH 45015
Permit Application

FIGURE A-2

FACILITY DRAWING

Klor Kleen Facility
3118 Spring Grove Avenue



View: Klor Kleen; 3118 Spring Grove Avenue; Cincinnati, 45225
View looking east from Spring Grove Avenue at Avon Place (east)
Source: Google Maps; July 2015



KLOR KLEEN
3118 SPRING GROVE AVENUE
CINCINNATI, OH 45225
TELEPHONE: 531..681.0060

Klor Kleen
Part B Permit Renewal Application

September 24, 2015

By: CLJ

FIGURE A-3
PHOTO OF FACILITY



MIDWEST
Environmental Services, Inc.

27 Kiesland Court
Hamilton, Ohio 45015
(513) 681-9990

**Klor Kleen
Part B Permit
Renewal Application**

**3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

**FIGURE A-4
HAZARDOUS WASTE CONTAINER
STORAGE AREA
Process Code: S01**

Drawn By: C. Jones
Revised: May 27, 2016

Klor Kleen
Part B Renewal Application
Section B - Facility Description

This section provides a general description of the Hazardous Waste Storage facility as required by OAC 3745-50-44 and 40 CFR 270.14(b)(1). This description is intended to acquaint the permit application reviewer with an overview of the facility. Complete details of various features of the facility can be found in other parts of this permit renewal application.

B-1 General Description

Midwest Environmental Services, Inc., d/b/a Klor Kleen and will hereinafter be referred to as “Klor Kleen,” is located within the Cincinnati city limits in the Camp Washington Neighborhood area. The street and mailing address are:

<u>Street</u>	<u>Mailing</u>
Klor Kleen	Klor Kleen
3118 Spring Grove Ave.	PO Box 14029
Cincinnati, Ohio 45225	Cincinnati, OH 45250

Klor Kleen is a RCRA hazardous waste storage facility. Klor Kleen does not accept or process any flammable, biological or regulated-PCB waste streams. Klor Kleen accepts those wastes listed in the Part A Permit application for temporary storage and later shipment off-site to another RCRA-permitted Treatment, Storage or Disposal Facility (TSDF).

Certain other non-hazardous wastes are received and stored at the facility. Additionally, Klor Kleen is a registered RCRA used oil processor and small quantity Universal Waste handler. Some of these non-hazardous solid wastes are consolidated or bulked and shipped to an approved off-site RCRA Subtitle D landfill or wastewater treatment facility.

Klor Kleen maintains its own laboratory. The primary function of the laboratory is to allow Klor Kleen to perform the fingerprint analysis as specified in the *Waste Analysis Plan* (refer Section C-2). Sample analyses from Sales personnel related to potential incoming material is also performed, but is secondary to fingerprint testing of material received and compatibility verification when commingling material. At a minimum, the laboratory is capable of examining material which may pose immediate hazards such as ignitability, corrositivity, and reactivity. Additional testing performed is noted in the *Laboratory Procedures*, Section C, Appendix C-3. As the testing capabilities of the facility evolve or change, the *Laboratory Procedures* section is updated. Outside lab services are utilized for additional testing or confirmation analyses as needed.

Hazardous wastes are transported from the generator to the Klor Kleen facility for storage and possible consolidation. Transportation for Klor Kleen is handled by a properly-licensed hazardous waste transporter. All transported hazardous wastes are manifested as required in OAC 3745-54-70 and 40 CFR 264.70.

The facility consists of one building approximately 10,000 square feet in size. Klor Kleen stores hazardous waste primarily in 55 gallon drums. Occasionally Klor Kleen stores waste in 5 gallon pails, 30 gallon drums, cubic yard boxes, and liquid totes, or other DOT approved containers. The wastes are stored inside the building in a storage area designed to contain any free liquids in the event a container fails. The construction details are described in Section D of this application. For more detail see General Site Plans, Figure D-1 in Section D and also Figures D-2 and D-4 in Section D. A description of the wastes and their associated hazards are contained in Table C-1 in Section C.

The contact and party responsible for the hazardous waste activities at Klor Kleen is as follows:

RAY H. BOYLE
VICE PRESIDENT OF OPERATIONS
MIDWEST ENVIRONMENTAL SERVICES, INC
(513) 681-9990

B-1a Types of Industries Served

Examples of industries served by Klor Kleen include: metal working industries; manufacturers and users of paints, special coatings, and adhesives which may exhibit toxicity characteristics wastes (D004 - D011, D019, D022, D039 and D040); printing industries with photo-polymer printing plates and related printing inks; various consumer- product manufacturers including the electronics industry, automotive industry, plating industry, and chemical industries; other commercial and industrial users of chemical products; solvents and lab reagents resulting characteristically-corrosive wastes (D002) and listed wastes (F001, F002); and industries generating electroplating wastewater treatment sludge (F006).

B-2a Traffic Information

Traffic Patterns

Figure B-1 in this section shows movement of waste material to the facility from the nearest major highway and the traffic control signals encountered along the route.

Access from Interstate 75 at the Hopple Street exit, west on Hopple Street approximately 2-miles to Meeker Street, left on Meeker to Spring Grove Avenue, right on Spring Grove Avenue, and the Klor Kleen facility entrance is on the right approximately 0.10-mile from the Hopple Street overpass.

Access from the north via Interstate 74 is at Beekman Street, left onto Elmore Street, right onto Colerain Avenue, to right on Spring Grove Avenue and south approximately one-mile to the Klor Kleen facility. All of the above mentioned roads are commercial.

Traffic Volume

The estimated volume of hazardous waste traffic for the Klor Kleen facility is as follows: Straight trucks (Van) entering and leaving the facility two (2) to three (3) times per week, tractor trailer (Tanker or Van) entering and leaving the facility two (2) times per week.

Traffic Control Signs, Signals, and Procedures

Access to the facility building is through a man door to the office area, a man door to Spring Grove Avenue and a 14-ft. x 14-ft. overhead drive in door to the loading and unloading area. These doors exit to the Spring Grove side. There are two Emergency Exit Only doors and a walk in door on the Avon Place side of the building. The overhead door will be open when trucks are entering or leaving the facility, at other times access through this doorway may be restricted by a gate across the opening. All doors will be securely locked when the plant is closed. Internal traffic control signals are not applicable.

Truck traffic by transporters of hazardous waste will not be intentionally scheduled between 7:00 a.m. – 9:00 a.m. or between 3:00 p.m. – 6:00 p.m. Monday through Friday in order to avoid backing into the facility during rush hour traffic. In the event of an emergency, or if the transporter cannot conform to the schedule based on other conflicts, this restriction may be waived by the Facility Manager. When trucks are backing in or out, plant personnel will assist in traffic control on Spring Grove Avenue. Midwest Environmental Services driver dedicated to Klor Kleen operations will not be restricted to these hours; their normal work day is 7:00 a.m. - 3:30 p.m.

Access Road Surfacing

All access roads are constructed of concrete or bituminous pavement (blacktop) and are maintained by the City of Cincinnati or Ohio Department of Transportation.

Access Load-Bearing Capacity

The roads are capable of bearing the legal load weights of all vehicles.

B-2b Seismic Information

The state of Ohio is not listed in Appendix VI of 40 CFR 264 on the list of political jurisdictions with which compliance with this standard must be demonstrated. Therefore, further information is not required.

B- 2c Flood Plain

The Klor Kleen Facility is located outside the 100 year floodplain. Figure B-5 in this section is a portion of a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) showing floodplain mapping outside the facility boundary and the 100 -year floodplain in the surrounding area.

B-3 Certain Waste Placement Prohibitions

Klor Kleen does not propose to place any non-containerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine, or cave.

B-4 Topographic Map

Figure B-6 in this section is a topographic map showing the facility boundary and surrounding area. The scale of the map is 1-inch equals 200-feet. Contour intervals of elevation of two (2) feet are shown. The map shows an area of more than 1,000 feet from the property boundary.

Facility Map

Figure B-2 in this section shows facility location, Hazardous Drum Storage Area, loading and unloading area, and storm, process and sanitary sewer systems. Since the entire facility consists of a building 100-ft. x 100-ft., there are no internal roads. The facility is located on the northeast corner of the intersection of Spring Grove Avenue and Avon Place.

Wind Rose

Figure B-3 in this section shows an annual wind rose of meteorological data collected in the Cincinnati area.

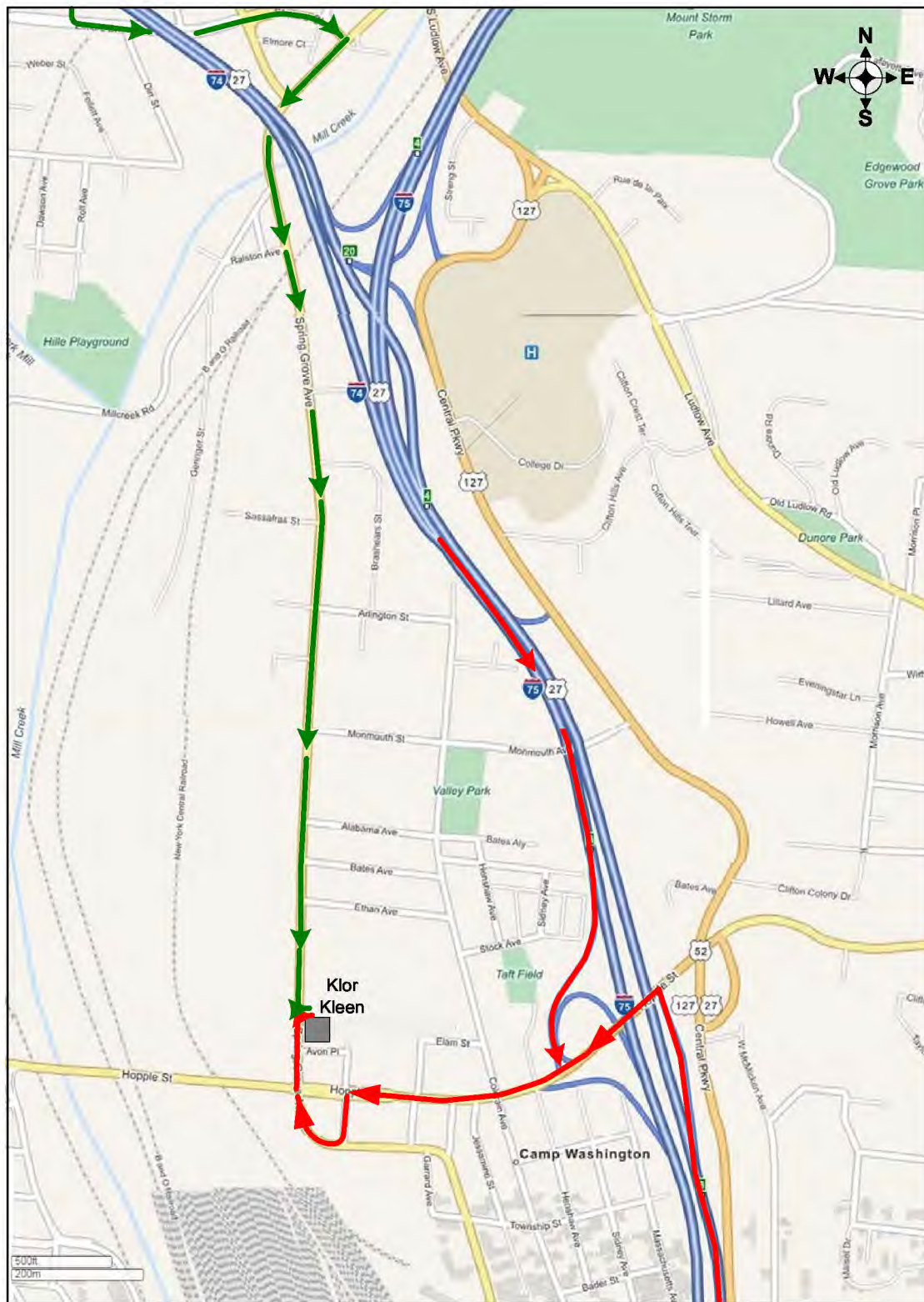
Surrounding Land Use

The Klor Kleen facility is located in an primarily industrial-use area, but includes a residential-use area east along Avon Place. The City of Cincinnati Zoning is M-3, Heavy Industry, for the Klor Kleen facility. Figure B-4 in this section shows land use in the area immediately surrounding the facility.

Withdrawal Wells

Water is supplied to the entire surrounding area by the Cincinnati Water Works. There are no withdrawal wells on the Facility property.

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27 Kiesland Court
Hamilton, Ohio 45015
(513) 681-9990

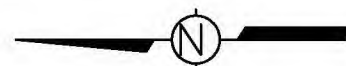
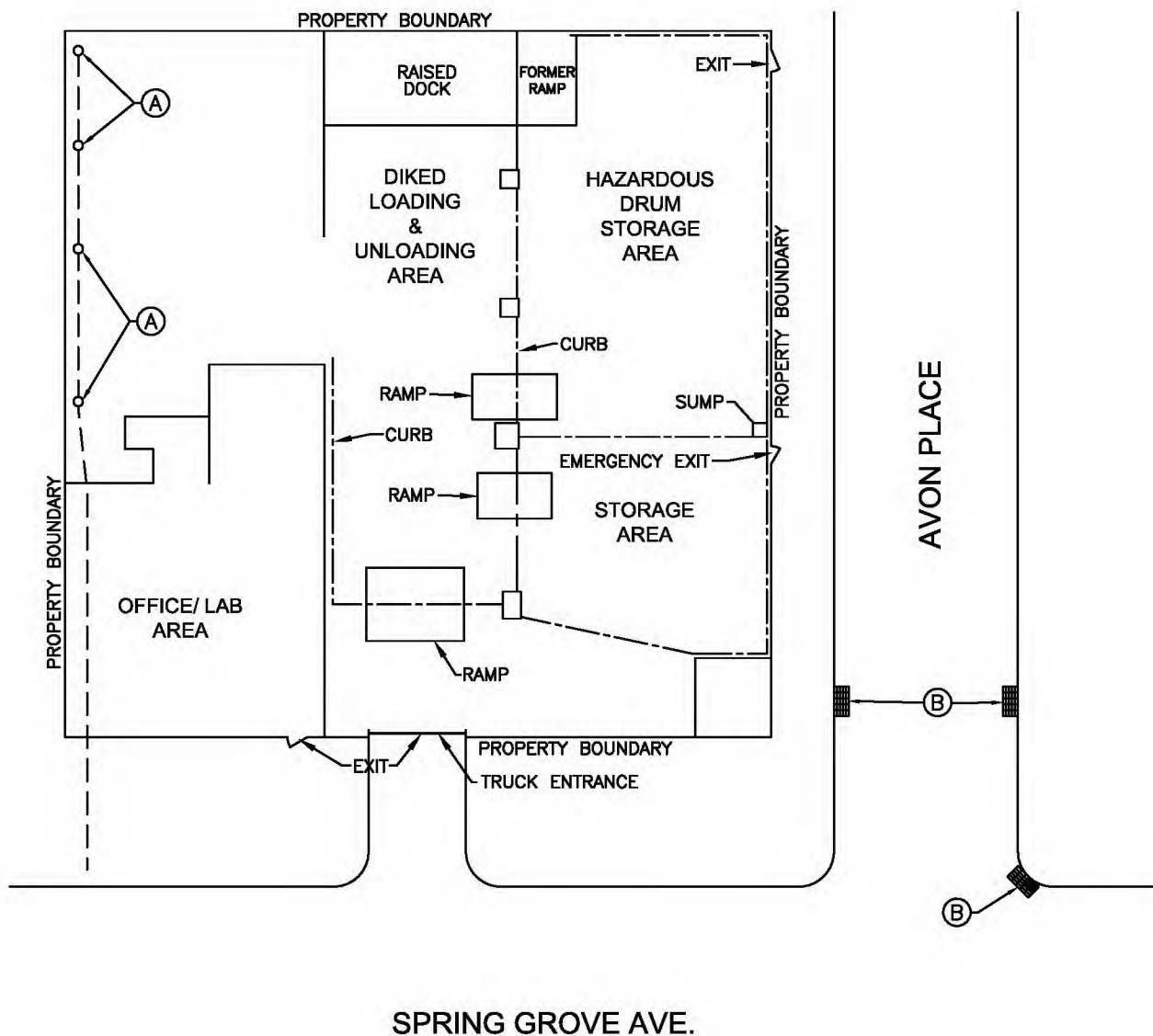
Klor Kleen Part B Permit Renewal Application

3118 Spring Grove Avenue
Cincinnati, Ohio 45225

FIGURE B - 1 TRAFFIC PATTERNS

Drawn By: C. Jones
Source: MapQuest
Date: September 2015

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	9/24/15	RB	AM	BT	---	2005 40-05



SCALE: 1"=25'
MAP DATE: 5-16-83

LEGEND:

- (A) FORMER INDUSTRIAL WASTE WATER DRAIN (SEALED WITH CONCRETE)
- (B) STORM SEWER



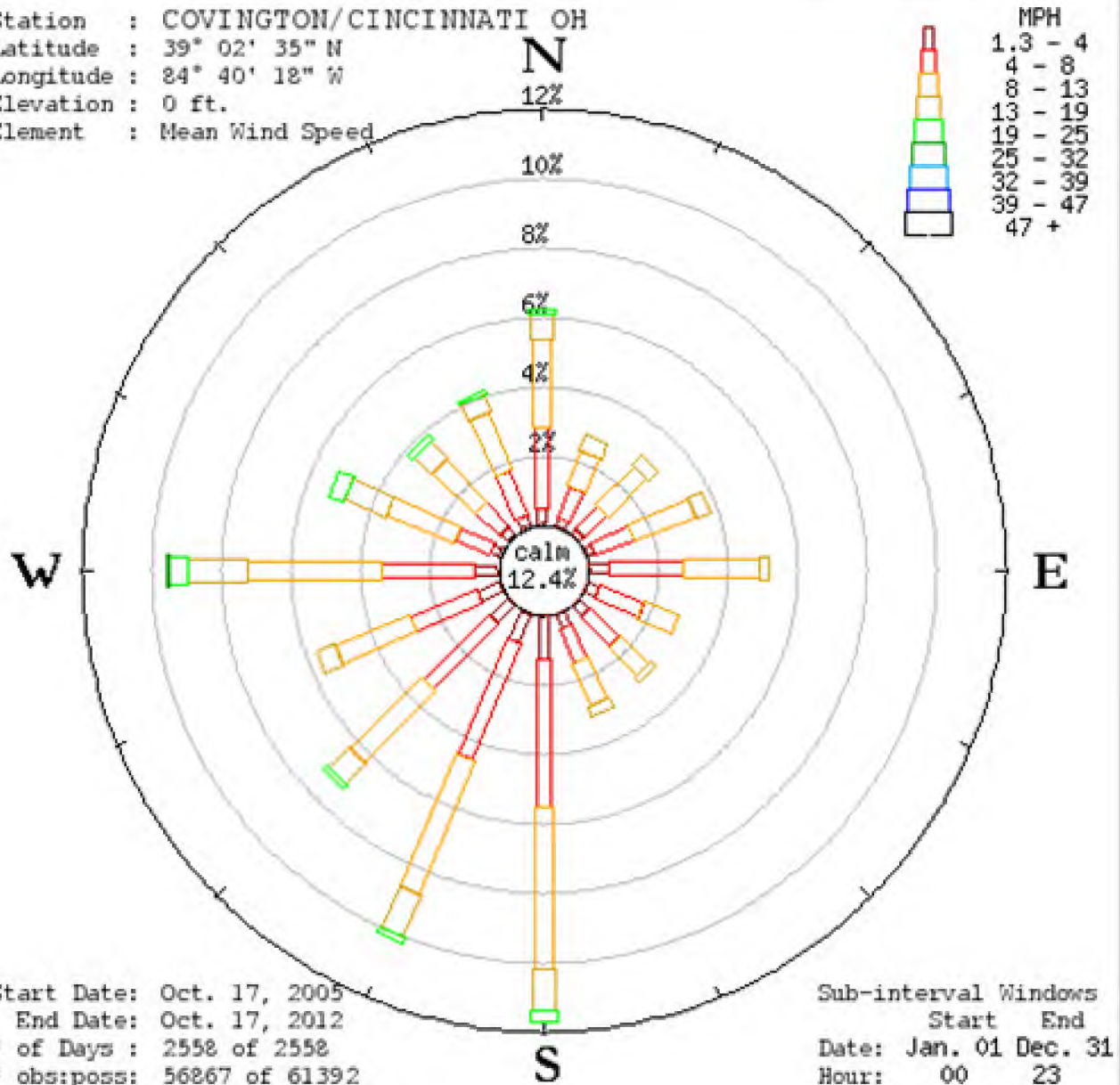
Midwest Environmental Services, Inc.
27 Kiesland Ct, Hamilton, OH 45015
Permit Application

FIGURE B-2

FACILITY MAP OF KLOR KLEEN

Klor Kleen Facility
3118 Spring Grove Avenue

Station : COVINGTON/CINCINNATI OH
 Latitude : 39° 02' 35" N
 Longitude : 84° 40' 18" W
 Elevation : 0 ft.
 Element : Mean Wind Speed



Source: Western Regional Climate Center
<http://www.wrcc.dri.edu/>



27 Kiesland Court
 Hamilton, Ohio 45015
 (513) 681-9990

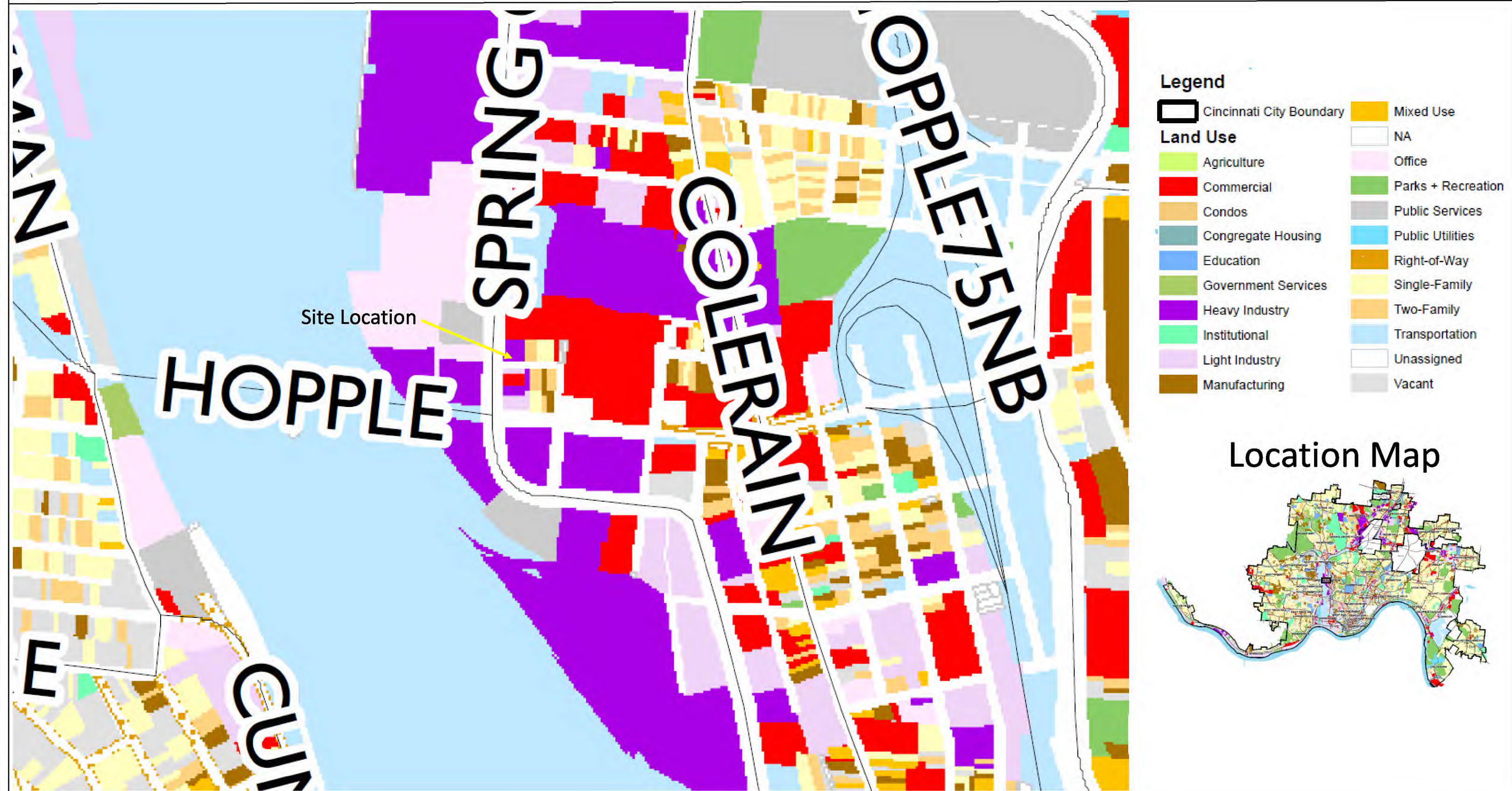
**Klor Kleen
 Part B Permit
 Renewal Application**

3118 Spring Grove Avenue
 Cincinnati, Ohio 45225

**FIGURE B - 3
 WIND ROSE**
 October 2005 – October 2012

Drawn By: C. Jones
 Date: September 2015

Figure B-4: Land Use Map



1/4 Mile

1/2 Mile





National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'

50 0 500 1000 FEET

NFIP

PANEL 0218F

FIRM

FLOOD INSURANCE RATE MAP
HAMILTON COUNTY,
OHIO

AND INCORPORATED AREAS

PANEL 218 OF 390

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0218	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER

39061C0218F

MAP REVISED

FEBRUARY 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MIDWEST
Environmental Services, Inc.

KLOR KLEEN
3118 SPRING GROVE AVENUE
CINCINNATI, OH 45225
TELEPHONE: 531.681.0060

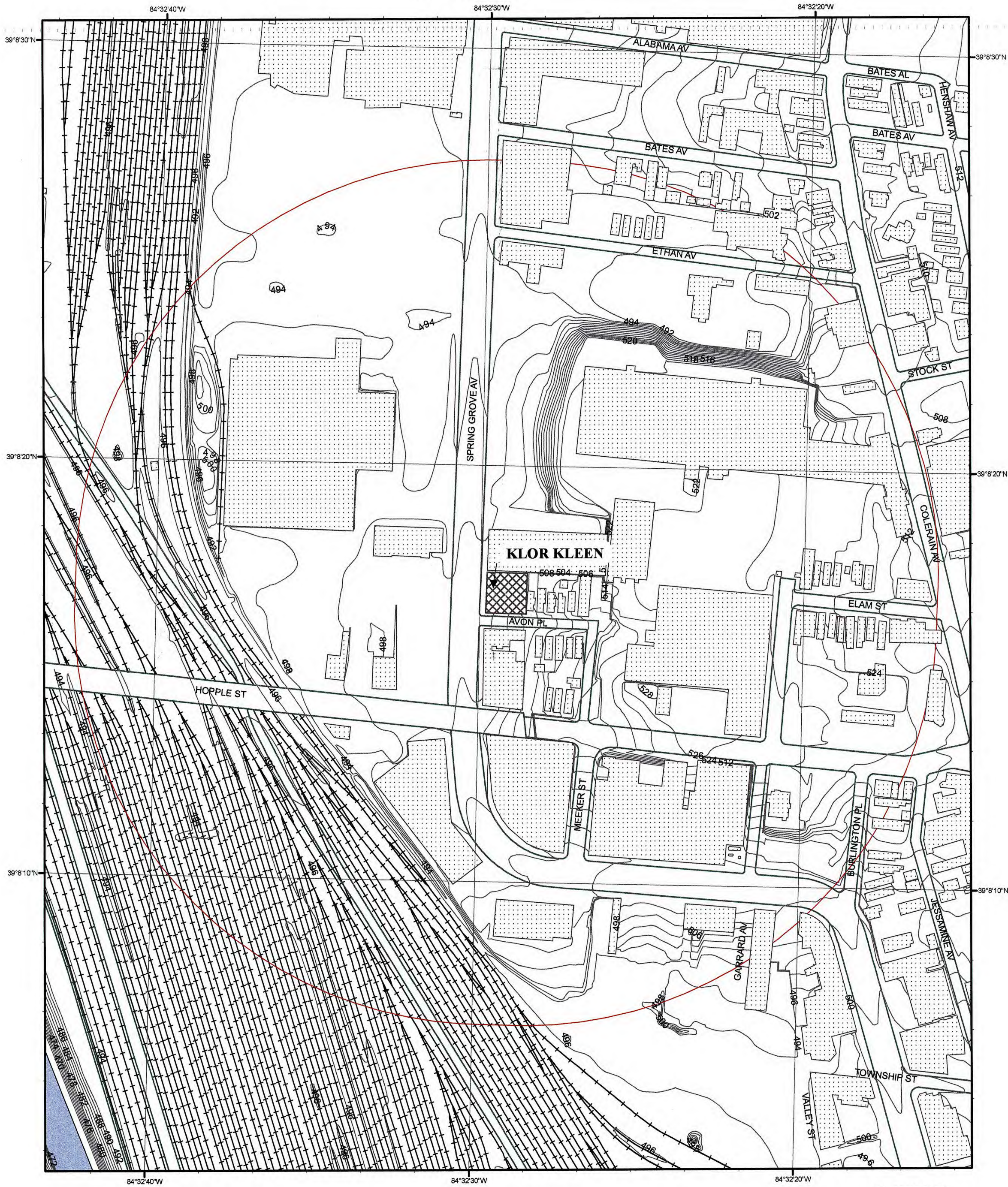
Klor Kleen
Part B Permit Renewal

September 21, 2015

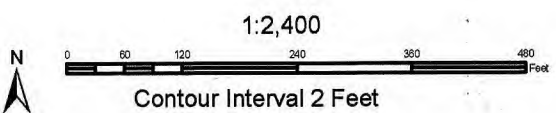
By: CLJ

FIGURE B-5
FEMA FIRM FLOOD INSURANCE
RATE MAP

TOPOGRAPHIC MAP FIGURE B-6



NAD 1983 StatePlane Ohio South FIPS 3402 Feet
 Projection: Lambert Conformal Conic
 False Easting: 1968500.000000
 False Northing: 0.000000
 Central Meridian: -82.500000
 Standard Parallel 1: 38.733333
 Standard Parallel 2: 40.033333
 Latitude Of Origin: 38.000000



- building
- railroad
- river
- 1000ft buffer
- cont2001
- pavement
- klor_building

**CINCINNATI
 HAMILTON COUNTY
 OHIO
 METROPOLITAN AREA**

Prepared 6-2-05
 Hamilton County Regional Planning Commission

Klor Kleen

Part B Application

Section C - Waste Characteristics

This section describes the chemical and physical nature of the hazardous wastes stored at the Klor Kleen facility. This section also includes the Waste Analysis Plan (WAP) for sampling, testing, and evaluating the wastes to ensure that sufficient information is available for their safe handling.

C-1 Chemical and Physical Analysis

Klor Kleen is permitted for the storage of hazardous waste. This allows Klor Kleen the ability to service off-site generators by accepting wastes for storage, followed by shipment to alternate facilities for final treatment and disposal. Klor Kleen maintains a variety of alternate approvals with other facilities. The waste types stored and shipped at this facility include chlorinated solvents, heavy metal, corrosive, and electroplating wastewater sludge wastes. These wastes are listed as hazardous waste due to their toxicity and characteristic hazards.

An overview of the Waste Analysis Plan is provided in Figure C-5. This review will be based upon the information in the Waste Profile Form (WPF) Figure C-1 and pre-acceptance analysis and/or other information provided by the generator. An annual review of each waste stream will occur. This annual review will include an analysis of selected parameters. Copies of analytical results for waste currently managed by the facility are available in the facility operating records. Complete details on waste analysis are provided in section C-2 Waste Analysis Plan.

After a waste has met all the requirements for acceptance as previously stated, the generator will

manifest a shipment to the facility. Prior to any offloading of containers or sampling activities, the plant supervisor will review the manifest to ensure it is properly completed, all line items have approval codes and that all waste codes associated with the shipment are acceptable at Klor Kleen. If a waste code is discovered that is not permitted to be accepted, the plant supervisor will immediately contact the Facility Manager and initiate rejection procedures as outlined in Section C-2e, Page C-17 thru C-18. After this review is completed, the manifest data is entered into our computer database where a unique job number is automatically generated for each line item for tracking purposes. The manifest page is then uploaded to our server where it will be electronically stored as part of the operating record.

Then the approved containers are unloaded in the diked unloading and loading area. Any containers not permitted to be accepted will be placed in the In-Transit Storage area (non-ignitable only) or remain on the truck until rejection procedures are completed. The containers are counted, dated, numbered and checked for proper labeling. Of these containers, 10% will be selected using a random number table or 100% of the containers in a lot will be sampled. The selected containers will then be opened, visually checked for content, and then sampled for fingerprint analysis. Bulk shipments will receive fingerprint analysis before off-loading the material into appropriate DOT containers, which are then properly labeled. Following completion of fingerprint analysis all, containers are then moved to the diked storage area to await shipment to alternate facilities. Some wastes will be consolidated prior to being shipped off-site. Containers which are to be stored on-site for less than 10 days as a transporter/transfer station will not be opened; however, a piece count will be performed upon arrival of the material at the facility. Table C-3 is a list of unacceptable in-transit waste types.

C-1a Containerized Waste

Klor Kleen will not be storing containerized waste without secondary appropriate containment. In addition, the loading and unloading area, in-transit area, and fire resistant room as noted on Figure D-1 in Section D have secondary containment. The construction of the container storage area is fully described in Section D - Process Information.

C-1b Waste in Tank Systems

Klor Kleen is not requesting a permit for the storage of RCRA hazardous wastes in tanks.

C-1c Landfilled Waste

Klor Kleen is not operating a Hazardous Waste Landfill, therefore this section is not applicable.

C-1d Wastes Incinerated and Wastes Used in Performance Tests

Klor Kleen is not operating a Hazardous Waste Incinerator, therefore this section is not applicable.

C-1e Wastes to be Land Treated

Klor Kleen is not performing Land Treatment, therefore this section is not applicable.

C-1f Waste in Miscellaneous Treatment Units

Klor Kleen is not performing Treatment of Hazardous Waste in a Miscellaneous Treatment Unit, therefore this section is not applicable.

C-1g(1) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-1g(2) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-1g(3) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-1g(4) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-1g(5) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-1g(6) Waste in Boilers and Industrial Furnaces

Klor Kleen is not operating a Burner and Industrial Furnace, therefore this section is not applicable.

C-2 Waste Analysis Plan

The following are methods used to evaluate the waste streams received for storage at this facility as outlined in OAC 3745-54-13 and 40 CFR 264.13. Initially, Klor Kleen investigates the circumstances associated with the generation of each waste stream to determine if it meets the definition of a waste under OAC 3745-51-02, which is not excluded from regulations under OAC 3745-51-04. A hazardous waste determination is made by process generation, characterization and or chemical sole active ingredient. This information along with analysis, generator knowledge and supporting documentation allow for proper determination to be made. The methodologies for conducting the analysis required to properly treat, store, and dispose of hazardous waste is described as follows. The Waste Analysis Plan is divided into four major steps: Pre-acceptance, Acceptance (Fingerprint Analysis), In Process (Consolidation), and Off-site Shipment (Alternate Approval) Analysis. The major steps of the Waste Analysis Plan are shown in Figure C-5. A complete discussion on the different steps of the Waste Analysis

Plan can be found in Section C-2e.

C-2a Parameters and Rational

Klor Kleen intends to accept wastes for storage prior to shipment off-site for treatment and disposal. The off-site shipments have been categorized into programs based on material types and characteristics. The analytical parameters and justification for each waste is based on requirements associated with the disposal program chosen. The analysis performed during Pre-acceptance evaluation and the Acceptance (Fingerprint) evaluation for each of these programs is provided in Appendix C-4. The following material types are examples of off-site (alternate) waste disposal programs:

Chlorinated Solvents for Recovery

Corrosive (Acid or Base)

Fuel Blending

F006 Wastewater Treatment Sludge

Organic Solids and Debris

Inorganic Solids and Debris

Metal Containing Dusts and Solids

Wastewater

Lab Pack and Small Quantities of Off-Specification Chemicals

All wastes are evaluated according to the parameters provided in Appendix C-4, prior to acceptance at the facility. Upon receipt, an Acceptance (Fingerprint) analysis will be

performed to confirm that a waste conforms to the original classification, prior to the waste being placed in storage.

C-2b Test Methods

Klor Kleen has prepared an "Analytical Test Methods" Manual for use by the onsite lab personnel. All lab personnel will be trained in Laboratory Procedures in addition to training covered in Section H. A copy of this manual is provided as Appendix C-3. This manual summarizes the procedures used by Klor Kleen in the analysis of hazardous wastes and laboratory QA/QC procedures. The procedures are based on methods in EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition; Standard Methods for the Examination of Waste and Wastewater, 16th ed. 1985; or ASTM Standards. The reference method is indicated in each procedure. The Quality Control for each procedure is included. If the quality of performance indicates any problems, that testing measure will be immediately corrected and no data will be used until integrity of results is restored.

Any analysis performed off-site must be conducted by a lab meeting the Quality Controls requirements of SW-846. A statement of qualification for QA/QC will be maintained at Klor Kleen for all labs selected for use by Klor Kleen. The analytical data provided by generators as a part of their submittal should include a statement of QA/QC on each lab report.

C-2c Sampling Method

The sampling method is dependent upon the physical state of the waste, as well as the container size and type. Samples will be taken using the representative sample procedures specified in the "Sampling Methods Manual" Appendix C-2. Examples of the primary sampling method (reference) and the different types of equipment used for different waste materials are as follows:

<u>MATERIAL</u>	<u>REFERENCE</u>	<u>EQUIPMENT</u>
Containerized liquids	SW-846 and USEPA Sampling Guide	Coliwasa or Tubing
Sludges, Solids, Dusts	SW-846 and USEPA Sampling Guide	Tubing, Shovel, or Scoop

Personnel will be trained in the proper selection and use of sampling equipment.

All samples will be placed in containers and properly labeled with the following information: generator name, manifest number, waste stream approval number and date sample was taken. The TPS will serve as chain of custody for samples taken for onsite analysis. Samples taken to be sent to an offsite lab will be attached to a chain of custody (or equivalent provided by offsite lab) as referenced in Appendix C-2.

C-2d Frequency of Analysis

All waste streams generated by Klor Kleen will be analyzed at least yearly as part of the alternate approval process. Klor Kleen's computerized system ensures that each waste

stream is reviewed annually by automatically changing the status in the database from current to needs recertification. Prior to expiration, generators are sent a recertification form to complete to determine if any changes are required. For waste streams not current or recertified, status is changed to dead and will no longer be accepted without recertification. Additionally, Klor Kleen's unique approval code assigned to each waste stream contains year and month to help identify active age waste. Additional analysis will be performed if significant changes in a waste stream should affect the hazardous characteristics of a waste. Generators are required to inform Klor Kleen of any changes in a waste stream and are notified of this obligation. Klor Kleen notifies the generator of this at the same time the generator is informed that Klor Kleen has the necessary permits and capacity to manage their waste. Determination of the analyses to be conducted is at the direction of the Plant Manager or Approvals Manager.

Analysis will be performed and repeated for wastes to be received from off-site generators under the following conditions:

1. Before the first shipment, and at least yearly thereafter.
2. Whenever the process generating the waste changes.
3. When fingerprinting results do not match the manifested waste pre-acceptance ranges and this cannot be resolved with generator.

C-2e Additional Requirements for Waste Generated Off-Site

Pre-acceptance Analysis

Figure C-6 depicts the steps of the pre-acceptance analysis process. Before any waste is accepted from a customer, a Waste Profile Form (WPF), Figure C-1, and a representative pre-acceptance sample, when required, is obtained for each waste stream. The Waste Profile Form is to be completed according to the instructions attached to Figure C-1. Generators will be questioned on their waste generation, which will include but not limited to; process generation, chemical composition and the use of biodegradable sorbent, to accurately represent their WPF. The WPF doubles as a chain of custody for pre-acceptance samples when a representative sample is indicated in Section J. Under the following circumstances Klor Kleen may not require a sample for pre-acceptance analysis if there is an inability to test (ex., hermetically sealed item) or chemical composition can be verified and process generation can be ascertained to properly make a hazardous waste determination. The following table identifies those groups in which a sample would not be required and the information which must be provided by the generator in order to approve the waste stream without a sample. In all other situations a pre-acceptance sample is required in order to approve the waste for receipt at the facility.

PRE-ACCEPTANCE SAMPLE NOT REQUIRED	
WASTE GROUP	INFORMATION PROVIDED BY GENERATOR
Lab Packs	Inventory list
Universal Waste	Inventory
Unused Products	Safety Data Sheet (SDS)
Debris	Generator knowledge
Used/Spent Materials	Current analysis
Unknown Waste	Complete analysis as specified in Appendix C-4

The WPF is reviewed for completeness and a tentative alternate disposal category is made by the Approval Manager. A request is placed with the generator if any additional information is required from the generator. If the generator cannot provide this information, Klor Kleen will arrange to have a sample analyzed in our on-site or an off-site laboratory. All required information on the WPF will be completed before approval is given to the generator.

Upon receipt of the WPF and sample at the facility, a unique control number is assigned. The pre-acceptance sample is then submitted to the laboratory, for analysis. The analysis parameters are selected according to the Alternate Waste Management Category from

Appendix C-4. Generators that are submitting current analysis instead of a pre-acceptance sample, must at a minimum provide analytical data for the parameters specified in Appendix C-4.

Following completion of the pre-acceptance analysis, the WPF and laboratory data are reviewed for acceptance by Klor Kleen. If there is any discrepancy between that data and the WPF, resolution with the generator is necessary prior to waste approval into the facility. Once all information is reviewed and requirements satisfied, the waste is then given an Approval Code Number by the Approval Manager which is noted on top of WPF. Fingerprint acceptance ranges will be determined using the requirements outlined for each Alternate Approvals Category Appendix C-4 and Table C-2 WAP Ranges. A record of the selected tests and ranges and compatibility group selected from Section C-2f will be made in the approval file and in the Klor Kleen computer tracking system. Before the approval code is given to the generator, the WPF and all associated lab work will go through final review from the Compliance Manager. This review is conducted to ensure the quality and integrity of WAP.

A copy of the WPF and associated analysis data will be kept on file at the facility the entire time the waste stream remains active, and an additional 3 years after it becomes inactive, unless extended by other actions. Additionally, all profiles and supporting documents will be uploaded to our server where it will be electronically stored as part of the operating record. All approvals will expire one year from approval date unless

renewed. To renew an approval for an additional year, the generator must submit a Recertification of Generator's Waste Profile Form. This form plus any lab data will be evaluated by the Approvals Manager and Compliance Manager for continued acceptance by Klor Kleen.

Acceptance (Fingerprint) Analysis

A chart depicting the flow of this section is provided as Figure C-7.

When a waste arrives at Klor Kleen, a Treatment Procedure Sheet (TPS), Figure C-8, is produced for each waste stream. The TPS is generated by the Klor Kleen computer tracking system. In the event the computer is not working, a manual TPS can be made using the information found in the approval file. The TPS contains pertinent information on the waste stream including Generator Information, Waste Approval Information, Waste Disposal Information, and the lab work and acceptance ranges for the particular waste. Plant and lab personnel use the information on the TPS as quality control to verify the manifest and fingerprint results with the approval information. The Laboratory Technician will review the waste codes on the manifest to verify the codes are permitted prior to entering the data into the computer tracking system and creating the TPS. If a non permitted waste code is discovered, the Laboratory Technician will immediately contact the Plant Supervisor and Facility Manager to initiate rejection procedures as outlined in Section C-2e, page C-17 thru C-18. The TPS is also used as a chain of custody for sampling activities within the facility. The number of samples and the initials of the

sampler are completed in the Plant Acceptance section of the TPS after sampling. Similarly, the Laboratory Technician initials and dates the TPS when accepted at the laboratory.

After lab analysis are recorded on TPS, plant supervisor will review lab data against the approval data section of TPS to ensure waste meets parameters and is not off specification. Once that review is completed the plant supervisor will initial TPS Final Review line to confirm verified acceptance. Tracking data detailing physical movement of waste stream will be recorded in tracking information section on completed TPS report.

Shipments of labpacks are verified by randomly selecting 10% of the labpack containers received from a generator. The individual contents of the containers selected are compared to the contents appearing on the individual drum inventory which accompanies the shipment. When this verification process results in identifying material that either is not in the container or in excess of the items on the individual drum inventory list, 100% of the containers will be verified. If the label on an individual item within a labpack container is not present or not legible, the generator will be notified and further testing to determine what the materials characteristics are will be conducted prior to accepting or rejecting the material. Items found in excess of the individual drum inventory list may be repacked into additional containers, or rejected back to the generator at the Compliance Manager's discretion. These drums will be repackaged and properly labeled for rejection

back to the generator following guidelines noted later in this section under Rejection of Material. Additional containers which carry waste codes not on the Part A permit will automatically be rejected. All labpack verification shall be performed within three days of receipt excluding weekends and holidays.

All bulk shipments in tankers are sampled before unloading. All containers in a drum shipment are consecutively numbered. No less than 10% of the containers are randomly sampled, using a random number table. Instead of numbering each container and using a random number table to determine which containers are sampled, Klor Kleen can elect to sample 100% of the containers. Container samples from the same generator and waste stream are composited into one sample, which is checked to ensure that the waste matches the description on the manifest and waste profile form. Before compositing, each sample is visually examined to determine uniformity of the shipment. If any sample appears visually different from the remainder of the shipment samples, that sample(s) will be analyzed separately. Appendix C-4 lists the fingerprint analysis parameters which will be performed. Analytical results from incoming shipments will be recorded and kept on file with the manifest at Klor Kleen. Results of these tests will be used to determine when a shipment will be accepted or rejected.

If Klor Kleen's lab equipment should break down and a sample cannot be immediately analyzed, samples for organic analysis will be stored in the lab refrigerator until the analysis is performed or the sample is submitted to an off-site laboratory. All samples

will be analyzed within the holding times specified in the Laboratory Procedures Manual, Appendix C-3. When a sample is shipped to an off-site laboratory for analysis, a Chain of Custody form will be used to document the delivery of the sample. Each sample will be properly labeled and sealed prior to being shipped to the laboratory.

Criteria to make the waste acceptance determination are as follows: Test results will be compared to the Generator's WPF. Wastes will be automatically rejected if the manifest contains EPA Waste Codes not permitted by the facility, the shipment was not scheduled into the facility, or if the material has a Flash Point less than 140°F. All fingerprinting parameters must be within acceptable ranges as determined in the pre-acceptance evaluation. These ranges are outlined in Table C-2. If fingerprint analysis results are outside of the acceptable ranges specified in Table C-2, the generator will be immediately notified of the discrepancy. If this off specification waste is within the permit limits of Klor Kleen, the discrepancy will be resolved before the shipment is accepted. If the off specification waste is outside the acceptable facility permit limits, the waste will be rejected. If during the fingerprint analysis of container shipments, the waste is found to be off specification, all containers will be sampled and analyzed individually to determine which container(s) are off specification. When fingerprint analysis indicates the waste cannot be accepted by Klor Kleen, the customer will be notified that either a portion or the entire shipment will be rejected and returned to the customer. If the customer prefers, Klor Kleen can make arrangements to ship the waste to alternate TSD Facility that is permitted to accept the off specification waste instead of rejecting it back to the customer. Wastes rejected will be shipped within 35 days to allow Klor Kleen time to coordinate &

schedule shipping arrangements and to setup a new profile at an authorized alternate TSD Facility. Situations which cannot be resolved with the generator (customer) will negate any contractual agreement.

A Land Disposal Restrictions Notification must accompany initial shipment of land disposal restricted waste received by Klor Kleen. A one-time notification will be sent for land disposal restricted waste Klor Kleen ships offsite to each treatment, storage or disposal facility. The notification must be signed and dated by the Generator and a copy will be kept on file at Klor Kleen for a minimum of five (5) years. This Notification Form is shown in Figure C-2.

Rejection of Material

In the event an unauthorized delivery to Klor Kleen is attempted, the facility will reject the load prior to receipt. The generator will be notified the load is being returned and the transporter should be contacting them for further delivery instructions. Klor Kleen will note in Item 18a (Discrepancy Indication Space), Full rejection and attach an Off-Spec Report detailing date, reason for rejection, profile information, authorized generator contact and manifest tracking information. Klor Kleen will enter in Item 18b (Alternated Facility or Generator) name, address, phone number and EPA Identification number of generator site. Klor Kleen will not sign Item 20 which certifies receipt of material. A photocopy of the manifest will be retained for the facilities records. Transporter will be given original manifest intact and Off-Spec Report to retain custody of the load.

In the event Klor Kleen signs Item 20 indicating receipt of the material and through the waste verification/analysis process identifies that a portion of the load needs to be rejected, the generator will be contacted. If generator does not give permission to return a partial portion of the load, Klor Kleen will reject the entire load as stated in above paragraph. For partial rejections, the date, reason, profile information, quantity rejected, name of the person representing the generator and manifest tracking information will be detailed in Off-Spec Report and noted in Section 18a as Partial Rejection. Sections 10 thru 12 will be adjusted as necessary to reflect the actual quantity of material retained at the facility. When rejecting a partial load a new manifest will be prepared for subsequent shipment to an alternate TSDF. The original manifest number and line item will be referenced in section 14 (Special Handling Instructions and Additional Information) of the new manifest. Changes in the description and waste numbers will be allowed to properly identify the characteristic hazards (ignitability, corrosivity, and reactivity) posed by the material during the rejection shipment also to provide matching shipping and profile information.

New Land Disposal Restriction notification forms will not be provided for material which has been rejected after receipt at the facility. Klor Kleen, accepts no responsibility for ensuring the proper identification of characteristic and listed waste for management under the Land Disposal Restrictions for rejected material. Wastes rejected will be returned to original generator or shipped to alternate TSDF within 35 days after generator is notified. Situations which cannot be resolved with the generator will result in the Ohio EPA being contacted for assistance in reaching resolution.

In Process Analysis (Commingling/Consolidation)

Klor Kleen may on occasion combine partially full containers from the same waste stream to produce a full container. This is referred to as Consolidation. Being that Klor Kleen is not mixing different wastes, no compatibility analysis is performed. The same waste stream refers to material received under the same approval code. Approval codes issued are specific to a generator and a waste process.

If Klor Kleen is combining waste from different waste streams or Generators, this is referred to as Commingling of wastes. Before any wastes are commingled a Compatibility test will be performed and the Plant Supervisor will refer to the Compatibility Chart Figure C-4. This procedure is provided in the Analytical Test Methods Manual Appendix C-3. The compatibility test will utilize an aliquot proportional to the wastes which will be commingled. The results of this test will be recorded on a Batch Sheet used to document this operation.

Consolidation and commingling of wastes is performed to maximize the amount of material in a single container. Consolidation and commingling are not used as a form of treatment. Klor Kleen, can only aggregate material or perform incidental processing (settling or water separation) which occurs within a container. Klor Kleen may not perform neutralization which would change the treatment subcategory of a waste. The resultant material shall carry all waste codes from material consolidated and commingled.

Alternate Approval

For each waste stream generated by Klor Kleen, an Alternate Approval with a treatment facility which the waste is going to be shipped to is maintained at the facility. The Alternate Approval files will be maintained for a period of 3 years after they are no longer used. A Waste Profile Form used will be provided by the Alternate Facility, however, if they do not supply a form, the standard Klor Kleen WPF will be used. This Alternate Approval file will contain all the test results performed on the waste, the contract for service from the facility and a list of parameters for the approval. These files will be used to match an incoming waste to an outgoing facility.

C-2f Additional Requirements for Ignitable, Reactive or Incompatible Wastes

Ignitable or reactive wastes are not accepted by Klor Kleen. All wastes received at the facility are marked with the Klor Kleen compatibility group. The compatibility group for a waste is determined by using the information provided on the Waste Profile Form and through pre-shipment analysis. Incoming fingerprint analysis is used to verify this determination. These markings along with Compatibility Chart Figure C-4 will be used by personnel to determine if it is safe to store or mix different waste materials.

In addition, the mixing of potentially incompatible wastes is further minimized by performing a compatibility check prior to mixing different waste streams. The compatibility test involves the mixing of a small portion of each of the wastes to be

mixed in a small container. The mixture is then observed for indications of heat generation, reaction, generation of a gas, and/or other reaction. If personnel observe any positive reaction during the compatibility test, the wastes will not be mixed. The Compatibility Procedure is included in the Lab Methods Manual, Appendix C-3.

The following are Compatibility Groups into which wastes will be assigned and the possible reactions that may occur:

Chlorinated solvents Group "CS"	Will react with strong acids and bases under certain conditions. It is possible for a Chlorinated solvent to also be an Acid or Base Waste. They may react under certain conditions with metallic powders.
Electroplating F006 Group "F"	May react with acids to release cyanide gases. Klor Kleen will not accept high cyanide (>250 mg/l) waste.
Acid Group "A"	Will react with all other materials and are segregated.
Base Group "B"	Will react with acids and chlorinated solvents under certain conditions. They may also react with metallic powder waste.
Metallic Powder Group "MP"	Will react with Acids and Bases and under certain conditions may react with Chlorinated Solvents to liberate toxic gases and heat.
Metal containing Debris or Solids Group "MS"	Will react with Acid and Bases. Due to the relatively low concentration of free metals normally present it is not considered a problem with chlorinated solvents.
Metal Containing Liquids, Sludges and Oils. Group "ML"	Will react with Acids and Bases. The metal constituents within these wastes do not react with chlorinated solvents.

C-3 Waste Analysis Requirements Pertaining to Land Disposal Restrictions

C-3a Applicability of Treatment Standards

All hazardous wastes received by Klor Kleen are subject to the Land Disposal Restrictions (LDR) regulations OAC 3745-270-01 to 3745-270-50 and 40 CFR 268 and will not be land disposed unless applicable treatment standards are met. Klor Kleen will commonly use process knowledge the majority of the time to determine which LDR prohibitions are applicable. The notification and certification information provided by the generator with initial shipment of waste along with the information provided on the Waste Profile Form will be used in the process knowledge determination.

C-3a(1) Waste Characteristics

Each hazardous waste stream stored at the facility will be subject LDR Regulations. Analytical data, process generation, profile information and all supporting documentation based on generator knowledge will be maintained as part of the operating record.

C-3b Prohibitions

C-3b(1) Dilution Prohibited As A Substitute For Treatment

Klor Kleen does not have the on-site ability to treat any hazardous wastes. Klor Kleen will not use dilution as a method to treat wastes and treatment residues.

C-3b(2) Waste That Are Prohibited From Combustion

Klor Kleen does not have the on-site ability to treat any hazardous wastes. For off-site disposal, combustion of the wastes listed in the Appendix to OAC 3745-270-03 is prohibited unless the waste meets the following criteria at the point of generation or after bona fide treatment:

- (1) The waste contains hazardous organic constituents or cyanide at levels exceeding the constituent specific treatment standard in OAC 3745-270-48, or
- (2) The waste consists of organic debris-like materials contaminated with an inorganic metal-bearing hazardous waste, or
- (3) The waste at the point of generation has reasonable heating value such as greater than or equal to 5,000 BTU per pound, or
- (4) The waste is co-generated with wastes for which combustion is a required method of treatment, or
- (5) The waste is subject to federal and/or state requirement necessitating reduction of organics, or
- (6) The waste contains greater than 1% of total organic carbon.

C-3b(3) Dilution Prohibition For Lead Containing Wastes

Klor Kleen does not have the on-site ability to treat any hazardous wastes. Klor Kleen will not add iron filings or other metallic forms of iron to lead-containing hazardous wastes to achieve land disposal standards. This includes D008 wastes, all characteristic wastes containing lead as an underlying constituent, and hazardous media containing any of the aforementioned lead-containing wastes.

C-3b(4) Waste Specific Prohibitions: Wood Preserving Wastes

Klor Kleen is not seeking permit authority to accept F032, F034, and F035 wood preserving wastes, soil and debris contaminated with F032, F034, and F035 wastes, and F032, F034, and F035 mixed with radioactive mixed wastes, which are prohibited from land disposal.

C-3b(5) Waste Specific Prohibitions: Dioxin-Containing Wastes

Klor Kleen is not seeking permit authority to accept F020, F021, F022, F023, F027 and F028, which are prohibited from land disposal.

C-3b(6) Waste Specific Prohibitions: Chlorinated Aliphatic Wastes

Klor Kleen is not seeking permit authority to accept K174 and K175 wastes, soil and debris contaminated with these wastes, radioactive wastes mixed with these wastes, and soil and debris contaminated with radioactive waste mixed with these wastes which are prohibited from land disposal.

C-3b(7) Waste Specific Prohibitions: Toxicity Characteristic Metal Wastes

The following toxicity characteristic metal wastes are prohibited from land disposal:

- (1) D004 to D011 wastes, soil, or debris identified as hazardous by TCLP, but not extraction procedure;
- (2) waste, soil or debris from mineral processing operations identified as hazardous by OAC 3645-51;
- (3) slag from secondary lead smelting which exhibits the toxicity characteristic for one or more metals
- (4) and radioactive wastes mixed with D004 to D011 wastes; or characteristic waste, soil, or debris from mineral processing operations
- (5) newly identified characteristic wastes from elemental phosphorus processing

Unless the following conditions have been met:

- (1) the wastes meet the applicable treatment standards of OAC 3745-270-40 to 49, or
- (2) an exemption has been granted under OAC 3745-270-06, or
- (3) the waste meet the standards pursuant to a petition granted under OAC 3745-270-44, or

- (4) a case-by-case extension has been granted pursuant to OAC 3745-270-05

Lab analysis or generator supporting documentation will be used to determine if restricted waste meets or exceeds the treatment standard.

C-3b(8) Waste Specific Prohibitions: Petroleum Refining Wastes

Klor Kleen is not seeking permit authority to accept K169, K170, K171 and K172 hazardous wastes, soils and debris contaminated with these wastes, radioactive wastes mixed with these hazardous wastes, and soils and debris contaminated with these radioactive mixed wastes, which are prohibited from land disposal.

C-3b(9) Waste Specific Prohibitions: Inorganic Chemical Wastes

Klor Kleen is not seeking permit authority to accept K174 and K175 wastes, soil and debris contaminated with these wastes, radioactive wastes mixed with these wastes, and soil and debris contaminated with radioactive waste mixed with these wastes which are prohibited from land disposal.

C-3b(10) Waste Specific Prohibitions: Waste with Ignitable and Corrosive Characteristics:

Ignitable D001 wastes as specified in OAC 3745-51-21 (but not in the high TOC ignitable liquids subcategory), and D002 wastes as specified in OAC 3745-51-22 are prohibited from land disposal:

- (1) whose discharge is not regulated by the Clean Water Act (CWA), or

- (2) that inject in Class I deep wells regulated by the Safe Drinking Water Act (SDWA), or
- (3) that are zero dischargers that engage in CWA-equivalent treatment before land disposal, or
- (4) that are managed in systems defined in 40 CFR 144.6(e) as Class V injection wells that do not engage in CWA-equivalent treatment before injection.

Klor Kleen is not seeking permit authority to accept D001 ignitable hazardous waste.

C-3b(11) Waste Specific Prohibitions: Organic Toxicity Wastes, Coke By-Product Wastes, and Chlorotoluene Production Wastes:

Klor Kleen is not seeking permit authority to accept the following wastes, which are prohibited from land disposal:

- (1) K141 to K145 and K147 to K151, or
- (2) Debris contaminated with F037, F038, K107 to K112, K117, K118, K123 to K126, K131, K132, K136, U328, U353, U359, or
- (3) Soil and debris contaminated with D012 to D043, K141 to K145, and K147 and K151, or
- (4) D012 to D043 that are not radioactive, or are managed in systems whose discharges are not regulated by the CWA, or that are zero dischargers that

do not engage in CWA-equivalent treatment (as defined in OAC 3745-270-38(A)(3)) before land disposal, or are injected in Class I deep wells regulated by SDWA, or

- (5) Radioactive wastes that are mixed with D018-D043 wastes that are managed in systems whose discharges are not regulated by the CWA (as defined in OAC 3745-270-38(A)(3)), or that are zero discharges that engage in CWA-equivalent treatment before land disposal, or are injected in Class I deep wells regulated by SDWA, or
- (6) Radioactive wastes mixed with K141 to K145 and K147 to K151 wastes, or
- (7) Soil and debris that is contaminated with radioactive wastes as specified in (5) and (6).

C-3b(12) Waste Specific Prohibitions: Spent Aluminum Pot Liners, Reactive Wastes, and Carbamate Wastes:

Klor Kleen is not seeking permit authority to accept the following wastes, which are prohibited from land disposal:

- (1) K156 to K159, and K161, or
- (2) P127, P128, P185, P188 to P192, P194, P196 to P199, P201 to P205, U271, U278 to U280, U364, U367, U372, U373, U387, U389, U394, U395, U404, and U409 to U411, or
- (3) D003 wastes (except unexploded ordnance and other explosive devices which have been the subject of an emergency response) that are managed in systems whose discharges are not regulated by the CWA, or that are zero

dischargers that engage in CWA-equivalent treatment before land disposal, or are injected in Class I deep wells regulated by SDWA, or

- (4) K088 wastes and soil and debris contaminated with K088 wastes, or
- (5) Radioactive wastes mixed with K088, K156 to K159, K161, P127, P128, P185, P188 to P192, P194, P196 to P199, P201 to P205, U271, U278 to U280, U364, U367, U372, U373, U387, U389, U394, U395, U404, and U409 to U411.

C-3c Sampling and Analytical Requirements for Treatment Residues:

C-3c(1) Sampling and Analytical Procedures:

Klor Kleen does not have the on-site ability to treat hazardous wastes, therefore, sampling and analytical procedures for treatment residue is non applicable.

C-3c(2) Wastes or Contaminated Soils with Treatment Standards Expressed as Concentrations in the Waste Extract.

Klor Kleen does not have the on-site ability to treat hazardous wastes. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3c(3) Wastes or Contaminated Soils with Treatment Standards Expressed as Concentrations of the Waste:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval

process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3c(4) Frequency of Analysis:

Klor Kleen does not have the on-site ability to treat hazardous wastes, therefore, the frequency at which analysis of treatment residues will be repeated is non applicable.

C-3d Notification and Certification Requirements:

C-3d(1) Retention of Generator Notices and Certifications:

Klor Kleen manages all hazardous waste as restricted from land disposal. Klor Kleen requires that the appropriate land disposal restriction notification/certification is provided during the initial shipment of each waste stream. All land disposal restriction notifications/certifications submitted by the initial generator of the wastes will be maintained in the operating record for 3 years. The 3 year retention period is automatically extended during the course of any unresolved enforcement action.

C-3d(2) Notification and Certification Requirements for Treatment Residues Shipped to Land Disposal Facilities:

Klor Kleen is not a Land Disposal Facility and therefore these standards are non-applicable.

C-3d(3) Notification and Certification Requirements for Waste with Organic Constituents:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3d(4) Notification and Certification Requirements for Characteristic Wastes:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3d(5) Notification and Certification for Wastes to be Further Managed:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3d(6) Notification and Certification Requirements for Land Disposal Facilities:

Klor Kleen is not a Land Disposal Facility and therefore these standards are non-applicable.

C-3d(7) Notification and Certification Requirements for Facilities Treating Hazardous Debris:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3d(8) Notification and Certification Requirements for Facilities Treating Contaminated Soil:

Klor Kleen does not have the on-site ability to treat hazardous waste. Klor Kleen will use all information and data provided as part of the waste stream approval process to complete and certify the shipment of restricted wastes to off-site treatment and disposal facilities.

C-3d(9) Notification and Certification Requirements for Recyclable Materials Used in a Manner Constituting Disposal:

For wastes which are recyclable materials used in a manner constituting disposal as per OAC 3745-58-30, Klor Kleen will submit a notice and certification to the Director in accordance with OAC 3745-279-07 (B)(6).

C-3e Additional Requirements Pertaining to Storage of Restricted Wastes:

(1) Klor Kleen will store restricted hazardous wastes for no longer than one year solely for the purpose of accumulating sufficient quantities of waste to facilitate proper treatment, recovery or disposal.

(1)(a) Klor Kleen marks each container received off-site or generated on-site for

content and the date each period of accumulation begins. Accumulation dates are reviewed through daily inspections and logically managed through our computerized database.

(1)(b) Klor Kleen is not seeking permit authority to store restricted waste in tanks.

The one year storage of restricted wastes does not apply if:

- (2) Treatment standards as specified in OAC-3745-270-42 have been met, or
- (3) Treatment standards as specified in a variance granted under OAC 3745-270-44 have been met, or
- (4) Where treatment standards have not been specified, the hazardous waste is in compliance with the applicable prohibitions specified in section 3004 of RCRA, or
- (5) That for liquid hazardous waste containing polychlorinated biphenyls at concentrations greater than or equal to 50 ppm, the facility meets the requirements of 40 CFR 761.65(b) under the Toxic Substance Control Act (TSCA). Klor Kleen is not seeking permit authority to store PCB wastes at concentration levels equal to or greater than 50 ppm PCB's, or
- (6) The waste is a hazardous remediation waste stored in a staging pile approved pursuant to OAC-3745-57-74.

C-3f Additional Requirements for Treatment Surface Impoundment Exemptions:

C-3f(1) Treatment of Wastes in Surface Impoundments:

Klor Kleen does not have a hazardous waste Surface Impoundment, therefore, this section does not apply.

C-3f(2) Subsequent Management of Residues in Surface Impoundment:

Klor Kleen does not have a hazardous waste Surface Impoundment, therefore, this section does not apply.

C-3f(3) Record keeping for Surface Impoundments:

Klor Kleen does not have a hazardous waste Surface Impoundment, therefore, this section does not apply.

C-3f(4) Design Requirements for Surface Impoundments:

Klor Kleen does not have a hazardous waste Surface Impoundment, therefore, this section does not apply.

C-3f(5) Sampling and Testing for Surface Impoundments:

Klor Kleen does not have a hazardous waste Surface Impoundment, therefore, this section does not apply.

C-3g Extensions, Exemptions, and Variances:

C-3g(1) Case-by-Case Extensions to an Effective Date:

Klor Kleen has not requested an extension to the effective date of any restriction in Subpart C of 40 CFR 268 and OAC3745-270-05

C-3g(2) Exemption from Prohibition:

Klor Kleen has not requested an exemption from a prohibition for the disposal of any restricted wastes.

C-3g(3) Variance from a Treatment Standard:

Klor Kleen has not petitioned the Regional Administrator, U.S. EPA, for a site-specific variance from the treatment standard of any waste.

C-3g(4) Requirements for Land Disposal Facilities with an Approved Exemption, Extension or Variance:

Klor Kleen is not a Land Disposal Facility and therefore these standards are non-applicable.

C-4 Waste Analysis Requirements for Air Emission Standards

C-4a Air Emission Standards Process Vents (Subpart AA)

Klor Kleen has no equipment subject to the Subpart AA Process Emission Standards.

C-4b Air Emission Standards for Equipment Leaks (Subpart BB)

Klor Kleen has no equipment subject to the Subpart BB Equipment Leak Standards.

**C-4c Air Emission Standards for Tanks, Surface Impoundments, and containers
(Subpart CC)**

Klor Kleen has no Tanks or Surface Impoundments subject to these regulations. To comply with the Subpart CC Air Emission Standards for Containers, all hazardous waste is managed in DOT approved containers only, which are visually inspected when received. All other inspections will be performed as described in section F-2.

If any defects or emission release is detected, the waste will be immediately transferred into an authorized DOT container then marked and labeled accordingly. All filling of containers or tank trucks is accomplished through the use of submerged fill.



MIDWEST
Environmental Services, Inc.

WASTE PROFILE FORM

Approval Number

PART A: GENERATOR IDENTIFICATION

Site Address	Billing Address
Generator Name:	Customer Name:
Address:	Address:
City, State, Zip:	City, State, Zip:
Contact Name:	Contact Name:
Phone: Fax:	Phone: Fax:
EPA ID:	Email Address:
Email Address:	Forward Return Manifest Copy To:

PART B: WASTE CHARACTERISTICS

Common Name of Waste:
Process Generating Waste:

PART C: PHYSICAL PROPERTIES

Color: _____	<input type="checkbox"/> Liquid Phases _____ <input type="checkbox"/> Solid <input type="checkbox"/> Single <input type="checkbox"/> Sludge <input type="checkbox"/> Double <input type="checkbox"/> Powder <input type="checkbox"/> Multi	pH _____ <input type="checkbox"/> < 2 <input type="checkbox"/> 9 - 12 <input type="checkbox"/> 2 - 5 <input type="checkbox"/> > 12.5 <input type="checkbox"/> 5 - 9	Flash Point _____ <input type="checkbox"/> < 140 F <input type="checkbox"/> 140 - 200 F <input type="checkbox"/> > 200	Phenols BSW Cn Other	% Acid % Alk Sulfide Other
Odor: _____ <input type="checkbox"/> Mild <input type="checkbox"/> Strong	Specific Gravity: _____ <input type="checkbox"/> < 0.8 <input type="checkbox"/> 1 - 1.2 <input type="checkbox"/> 1.4 - 1.6 <input type="checkbox"/> 0.8 - 1 <input type="checkbox"/> 1.2 - 1.4 <input type="checkbox"/> > 1.6	Total Solids: _____ <input type="checkbox"/> < 0.5 <input type="checkbox"/> 2 - 5 <input type="checkbox"/> 10 - 20 <input type="checkbox"/> 0.5 - 2 <input type="checkbox"/> 5 - 10 <input type="checkbox"/> > 20	BTU/# _____ <input type="checkbox"/> None <input type="checkbox"/> 5 - 10,000 <input type="checkbox"/> < 5,000 <input type="checkbox"/> > 10,000	% Halogen: _____ <input type="checkbox"/> < 0.1 <input type="checkbox"/> 1 - 3 <input type="checkbox"/> 5 - 10 <input type="checkbox"/> 0.1 - 1 <input type="checkbox"/> 3 - 5 <input type="checkbox"/> > 10	

PART D: CHEMICAL COMPOSITION

PART E: TOXICITY CHARACTERISTIC

Component	Actual	Units	Range	Metals <input type="checkbox"/> Total <input type="checkbox"/> TCLP
				Arsenic ppm
				Barium ppm
				Cadmium ppm
				Chromium ppm
				Lead ppm
				Mercury ppm
				<input type="checkbox"/> All levels below Toxic Limits 40 CFR 261.24
				Selenium ppm
				Silver ppm
				Copper ppm
				Nickel ppm
				Thallium ppm
				Zinc ppm
				Other ppm

PART F: HAZARDOUS CHARACTERISTICS

<input type="checkbox"/> EPA Hazardous Waste	<input type="checkbox"/> TSCA Regulated Waste	<input type="checkbox"/> Lab pack	<input type="checkbox"/> Commercial Chemical Product
<input type="checkbox"/> DOT Hazardous Material	<input type="checkbox"/> Does Waste Contain UHC's	<input type="checkbox"/> Universal Waste	<input type="checkbox"/> Household Hazardous Waste
<input type="checkbox"/> Land Band Restricted Waste	<input type="checkbox"/> Used Oil	<input type="checkbox"/> E-Waste	<input type="checkbox"/> EPA Form Code: _____
<input type="checkbox"/> Contains Spent Solvents (F001-F005)	<input type="checkbox"/> Contains HOC's > 1000 ppm	<input type="checkbox"/> Product for Use/Reuse	<input type="checkbox"/> EPA Source Code: _____

PART G: EPA HAZARDOUS WASTE NUMBER

Waste Code(s):

PART H: DOT SHIPPING DESCRIPTION

DOT Shipping Description:
Technical Name NOS:

PART I: SHIPPING INFORMATION

Anticipated Volume:	Container Size:	Frequency:	Attachments
Gallons:	Bulk: Totes:	One Time <input type="checkbox"/> Weekly <input type="checkbox"/>	Sample Submitted <input type="checkbox"/> Flow Chart <input type="checkbox"/>
Containers:	Non Bulk:	Monthly <input type="checkbox"/> Yearly <input type="checkbox"/>	Analysis Attached <input type="checkbox"/> SDS Attached <input type="checkbox"/>
Cubic Yards:	Boxes:	Other	Packing Slip(s) <input type="checkbox"/> Other Documents <input type="checkbox"/>

Generator Name:	Common Name:	Profile:
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PART J: USED OIL CERTIFICATION

Rebuttable Presumption Certification Does this apply? Yes ☐ No ☐

This Used Oil Stream has not been mixed with hazardous waste listed in Subpart D of part 261. The Halogen content > 1000 ppm does not contain Significant Concentrations of Halogenated constituents listed in Appendix VIII of CFR Part 261 and Rule 3745-51-11 of the Administrative Code. *Safety Data Sheets, Analytical and/or Scientific Data are required to be submitted to certify rebuttable presumption.*

Signature of Authorized Representative	Name	Date
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PART K: LAND DISPOSAL RESTRICTION

Restriction Notification Check Box That Applies

- ☐ The untreated waste identified above must be treated to the appropriate treatment standards specified in 40 CFR 268 Subpart D.
- ☐ The waste identified above has been treated in compliance with applicable treatment standards specified in 40 CFR 268 Subpart D.
- ☐ The waste identified above meets all applicable treatment standards without treatment.
- ☐ No EPA mandated treatment standards apply to this waste stream.

At the point of generation, if you generate a characteristic hazardous waste, other than those exempted, you must determine if any Underlying Hazardous Constituents (UHC) are present, listed above the constituent level specified in the Universal Treatment Standard found in 40 CFR 268.48. If UHC's are present please list as attachment.

Basis for hazardous waste determination ☐ Knowledge of Waste Stream ☐ Lab Data
Explain:

Certification Signature and Date

Signature	Name	Title	Date
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I certify that I have personally examined the information submitted, including all attached documents, and that all information contained herein is complete and accurate to the best of my knowledge and that all known or suspected hazards have been identified. I understand that a unique approval number will be assigned which should be used to identify this stream.

For Midwest (Klor Kleen) Use Only

Facility Information: ☐ Klor Kleen ☐ Midwest – Kiesland ☐ MRRC ☐ Alt Facility – Alt Facility Code

Salesmen:	Disposal/Bill Code:	Special Handling:
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WASTE PROFILE FORM (WPF) INSTRUCTIONS

Part A	Site Address:	Generator Name; Address; City, State, Zip, Contact Name, Phone, Fax, EPA ID, Email Address	All blanks are required to be completed by the generator or Klor Kleen. If generator is Conditionally Exempt "CESQG", is placed in the EPA ID section. If generator only generates non-hazardous waste, section is left blank.
	Billing Address	Customer Name; Address; City, State, Zip, Contact Name, Phone, Fax, Email Address	Completion of all blanks is optional. The information contained is for accounting purposed only.
Part B	Waste Characterization	Common Name; Process generating waste	Completion of all blanks is required. A detailed process description may continue on additional sheets to be attached to the profile as necessary.
Part C	Physical Properties	Color; Order	Completion of all blanks is required. Color and order are used to indicate possible change in the waste generation process. If an odor is present then odor range box is required to be marked. All possible colors of waste typically generated are indicated.
	Phases	Distinctive form of matter	Required to be completed. If information is not known Klor Kleen will provide the appropriate analytical documentation.
	pH	Actual pH, or range box marked	An actual value or box is required to be completed. If the pH is noted to be greater than 2 and less than 12.5, the generator or Klor Kleen will provide the appropriate analytical documentation.
	Flash Point	Actual flash point or range box marked. In degrees Fahrenheit	Required to be completed. If information is not known Klor Kleen will provide the appropriate analytical documentation.
	Specific Gravity	Actual specific gravity, or range box marked	Required to be completed. If information is not known Klor Kleen will provide the appropriate analytical documentation.
	Total Solids	Actual percentage, or range box marked	Required to be completed to determine if material is to be recovered or sent for wastewater treatment. If information is not known Klor Kleen will provide the appropriate analytical documentation.
	BTU/#	Actual BTU value, or range box marked	Required to be completed if waste is fuel blend or incinerated in Subpart O unit. Generator or Klor Kleen will provide appropriated analytical documentation.
	% Halogens	Actual % halogen, or range box marked	Required to be completed by generator or Klor Kleen. Halogen content will be used to provide an indicator for recovery, fuels blending, used oil and land ban parameters.
	Other Components	Phenols, Cyanides, Sulfides, BSW, %Acid, %Alkalinity, Others	Required to be completed by the generator, Klor Kleen will accept generator knowledge, however, the Plant/Approval Manager may require supporting documentation.
Part D	Chemical Composition	Components % and/or range	Required to be completed by generator or Klor Kleen. Total must add up to 100% or higher.
Part E	Toxicity Characteristic	Total or TCLP box marked, actual level or range indicated in blank line. Generator may optionally check box for all level below limits	Required to be completed by generator or Klor Kleen. Appropriate analytical to be provided by generator if waste is indicated to be non- hazardous. Any volatile organic, semi-volatile organic, or herbicides/pesticides should be listed as ppm in other section. Copper, Nickel, Zinc and Thallium are optional. Information on remaining metals is to be completed by generator or Klor Kleen with analytical documentation to maintain compliance with hazardous waste laws in applicable states.
Part F	Hazardous Characteristics	General characterization of waste stream by type. Mark box which would be applicable	Required to be completed by generator or Klor Kleen if applicable.
Part G	EPA Hazardous Waste Number	Hazardous Waste Number	Required to be completed by generator or Klor Kleen to proper classification and land ban restrictions. This section may also include any applicable state waste numbers.
Part H	DOT Shipping Description	Complete basic shipping description	Required to be completed by generator or Klor Kleen with proper DOT shipping information.
Part I	Shipping Information	Estimated quantity and container type to be shipped within specified period of time along with any supporting attachments	This information is required to be completed by the generator.
Part J	Used Oil Certification	Rebuttal presumption for halogen content greater than 1000 ppm	For used oil streams if generator or Klor Kleen is contesting hazardous waste determination due to halogens > 1000 ppm.
Part K	Land Disposal Restrictions	Land ban waste information box mark	To be completed by generator or Klor Kleen to identify land disposal restriction.

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

NOTE: THE TREATMENT STANDARDS THAT PREVIOUSLY APPEARED IN TABLES IN RULES 3745-59-41, 3745-59-42, AND 3745-59-43 OF THE ADMINISTRATIVE CODE HAVE BEEN CONSOLIDATED INTO THIS TABLE FOUND IN 3745-270-40.

WASTE CODE	WASTE DESCRIPTION AND TREATMENT/REGULATORY SUBCATEGORY ¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
D002 ⁹	CORROSIVE CHARACTERISTIC WASTES.	NA	NA	DEACT AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	DEACT AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D004 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR ARSENIC BASED ON THE TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) IN SW-846.	ARSENIC	7440-38-2	1.4 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	5.0 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D005 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR BARIUM BASED ON THE EXTRACTION PROCEDURE (EP) IN SW-846 METHOD 1310.	BARIUM	7440-39-3	1.2 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	21 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D006 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR CADMIUM BASED ON THE TCLP IN SW-846.	CADMIUM	7440-43-9	0.69 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	0.11 MG/L TCLP AND MEET STANDARDS IN RULE 3745-70-48 OF THE ADMINISTRATIVE CODE ⁸

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND TREATMENT/REGULATORY SUBCATEGORY ¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
	CADMIUM CONTAINING BATTERIES SUBCATEGORY. (NOTE: THIS SUBCATEGORY CONSISTS OF NONWASTEWATERS ONLY.)	CADMIUM	7440-43-9	NA	RTHRM
D007 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR CHROMIUM BASED ON THE TCLP) IN SW-846.	CHROMIUM (TOTAL)	7440-47-3	2.77 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	0.6 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D008 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR LEAD BASED ON THE TCLP IN SW-846.	LEAD	7439-92-1	0.69 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	0.75 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
	LEAD ACID BATTERIES SUBCATEGORY. [NOTE: THIS STANDARD ONLY APPLIES TO LEAD ACID BATTERIES THAT ARE IDENTIFIED AS RCRA HAZARDOUS WASTES AND THAT ARE NOT EXCLUDED ELSEWHERE FROM REGULATION UNDER CHAPTER 3745-270 OF THE ADMINISTRATIVE CODE OR EXEMPTED UNDER OTHER U.S. EPA RULES (SEE 40 CFR 266.80). THIS SUBCATEGORY CONSISTS OF NONWASTEWATERS	LEAD	7439-92-1	NA	RLEAD

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
	TREATMENT/REGULATORY SUBCATEGORY ¹	COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
	ONLY.]				
D009 ⁹	NONWASTEWATERS THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR MERCURY BASED ON THE TCLP IN SW-846; AND CONTAIN GREATER THAN OR EQUAL TO 260 MG/KG TOTAL MERCURY THAT ALSO CONTAIN ORGANICS AND ARE NOT INCINERATOR RESIDUES. (HIGH MERCURY- ORGANIC SUBCATEGORY)	MERCURY	7439-97-6	NA	IMERC; OR RMERC
	NONWASTEWATERS THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR MERCURY BASED ON THE TCLP IN SW-846; AND CONTAIN GREATER THAN OR EQUAL TO 260 MG/KG TOTAL MERCURY THAT ARE INORGANIC, INCLUDING INCINERATOR RESIDUES AND RESIDUES FROM RMERC. (HIGH MERCURY- INORGANIC SUBCATEGORY)	MERCURY	7439-97-6	NA	RMERC
	NONWASTEWATERS THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR MERCURY	MERCURY	7439-97-6	NA	0.2 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
	TREATMENT/REGULATORY SUBCATEGORY ¹	COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
	BASED ON THE TCLP IN SW-846; AND CONTAIN LESS THAN 260 MG/KG TOTAL MERCURY AND THAT ARE RESIDUES FROM RMERC ONLY. (LOW MERCURY SUBCATEGORY)				
	ALL OTHER NONWASTEWATERS THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR MERCURY BASED ON THE TCLP IN SW-846; AND CONTAIN LESS THAN 260 MG/KG TOTAL MERCURY AND THAT ARE NOT RESIDUES FROM RMERC. (LOW MERCURY SUBCATEGORY)	MERCURY	7439-97-6	NA	0.25 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
	ALL D009 WASTEWATERS	MERCURY	7439-97-6	0.15 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	NA
D010 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR SELENIUM BASED ON THE TCLP IN SW-846.	SELENIUM	7782-49-2	0.82 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	5.7 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D011 ⁹	WASTES THAT EXHIBIT, OR ARE EXPECTED TO EXHIBIT, THE CHARACTERISTIC OF TOXICITY FOR SILVER BASED ON THE TCLP IN SW-846.	SILVER	7440-22-4	0.43 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	0.14 MG/L TCLP AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND TREATMENT/REGULATORY SUBCATEGORY ¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
D019 ⁹	WASTES THAT ARE TC FOR CARBON TETRACHLORIDE BASED ON THE TCLP IN SW-846 METHOD 1311.	CARBON TETRACHLORIDE	56-23-5	0.057 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	6.0 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D022 ⁹	WASTES THAT ARE TC FOR CHLOROFORM BASED ON THE TCLP IN SW-846 METHOD 1311.	CHLOROFORM	67-66-3	0.046 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	6.0 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D039 ⁹	WASTES THAT ARE TC FOR TETRACHLOROETHYLENE BASED ON THE TCLP IN SW-846 METHOD 1311.	TETRACHLOROETHYLENE	127-18-4	0.056 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	6.0 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
D040 ⁹	WASTES THAT ARE TC FOR TRICHLOROETHYLENE BASED ON THE TCLP IN SW-846 METHOD 1311.	TRICHLOROETHYLENE	79-01-6	0.054 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸	6.0 AND MEET STANDARDS IN RULE 3745-270-48 OF THE ADMINISTRATIVE CODE ⁸
F001, F002, F003, F004, AND F005	F001, F002, F003, F004, AND/OR F005 SOLVENT WASTES THAT CONTAIN ANY COMBINATION OF ONE OR MORE OF THE FOLLOWING SPENT SOLVENTS: ACETONE, BENZENE, N-BUTYL ALCOHOL, CARBON DISULFIDE, CARBON TETRACHLORIDE, CHLORINATED FLUOROCARBONS, CHLOROBENZENE, O-CRESOL, M-CRESOL, P-CRESOL, CYCLOHEXANONE, O-DICHLOROBENZENE,	ACETONE	67-64-1	0.28	160.0
		BENZENE	71-43-2	0.14	10.0
		N-BUTYL ALCOHOL	71-36-3	5.6	2.6
		CARBON DISULFIDE	75-15-0	3.8	NA
		CARBON TETRACHLORIDE	56-23-5	0.057	6.0
		CHLOROBENZENE	108-90-7	0.057	6.0
		O-CRESOL	95-48-7	0.11	5.6
		M-CRESOL (DIFFICULT TO DISTINGUISH FROM P-CRESOL)	108-39-4	0.77	5.6
		P-CRESOL (DIFFICULT TO DISTINGUISH FROM	106-44-5	0.77	5.6

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND TREATMENT/REGULATORY SUBCATEGORY ¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
F001, F002, F003, F004, AND F005	-2ETHOXYETHANOL, ETHYL ACETATE, ETHYLY BENZENE, ETHYL ETHER, ISOBUTYL ALCOHOL, METHANOL, METHYLENE CHLORIDE, METHYL ETHYL KETONE, METHYL ISOBUTYL KETONE, NITROBENZENE, 2-NITROPANE, PYRIDINE, TETRACHLOROETHYLENE, TOLUENE	M-CRESOL)			
		CRESOL- MIXED ISOMERS (CRESYLIC ACID) (SUM OF 0-, M-, AND P- CRESOL CONCENTRATIONS)	1319-77-3	0.88	11.2
		CYCLOHEXANONE	108-94-1	0.36	NA
		O-DICHLOROBENZENE	95-50-1	0.088	6.0
		ETHYL ACETATE	141-78-6	0.34	33.0
		ETHYLY BENZENE	100-41-4	0.057	10.0
		ETHYL ETHER	60-29-7	0.12	160.0
		ISOBUTYL ALCOHOL	78-83-1	5.6	170.0
		METHANOL	67-56-1	5.6	NA
		METHYLENE CHLORIDE	75-9-2	0.089	30.0
		METHYL ETHYL KETONE	78-93-3	0.28	36.0
		METHYL ISOBUTYL KETONE	108-10-1	0.14	33.0
		NITROBENZENE	98-95-3	0.068	14.0
		PYRIDINE	110-86-1	0.014	16.0
		TETRACHLOROETHYLENE	127-18-4	0.056	6.0
		TOLUENE	108-88-3	0.08	10.0
		1,1,1-TRICHLOROETHANE	71-55-6	0.054	6.0
		1,1,2-TRICHLOROETHANE	79-00-5	0.054	6.0
		1,1,2-TRICHLORO-1,2,2-TRIF	76-13-1	0.057	30.0

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
	TREATMENT/REGULATORY SUBCATEGORY ¹	COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
Con't		TRICHLOROETHYLENE	79-01-6	0.054	6.0
		TRICHLOROMONO-	75-69-4	0.02	30.0
		XYLENES- MIXED ISOMERS	1330-20-7	0.32	30.0
	F003 AND/OR F005 SOLVENT WASTES THAT CONTAIN ANY COMBINATION OF ONE OR MORE OF THE FOLLOWING THREE SOLVENTS AS THE ONLY LISTED F001 TO F005 SOLVENTS: CARBON DISULFIDE, CYCLOHEXANONE, AND/OR METHANOL.	CARBON DISULFIDE	75-15-0	3.8	4.8 MG/L TCLP
		CYCLOHEXANONE	108-94-1	0.36	0.75 MG/L TCLP
		METHANOL	67-56-1	5.6	0.75 MG/L TCLP
	F005 SOLVENT WASTE CONTAINING 2-NITROPROPANE AS THE ONLY LISTED F001 TO F005 SOLVENT. F005 SOLVENT WASTE CONTAINING 2-ETHOXYETHANOL AS THE ONLY LISTED F001 TO F005 SOLVENT.	2-NITROPROPANE	79-46-9	(WETOX OR CHOXD) FB CARBN; OR CMBST	CMBST
		2-ETHOXYETHANOL	110-80-5	BIOGD; OR CMBST	CMBST
	F006 WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON	CADMIUM	7440-43-9	0.69	0.11 MG/L TCLP
		CHROMIUM (TOTAL)	7440-47-3	2.77	0.6 MG/L TCLP
		CYANIDES (TOTAL) ⁷	57-12-5	1.2	590.0
		CYANIDES (AMENABLE) ⁷	57-12-5	0.86	30.0
		LEAD	7439-92-1	0.69	0.75 MG/L TCLP
		NICKEL	7440-02-0	3.98	11.0 MG/L TCLP

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
	TREATMENT/REGULATORY SUBCATEGORY ¹	COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
	STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM	SILVER	7440-22-4	NA	0.14 MG/L TCLP
U080	METHYLENE CHLORIDE	METHYLENE CHLORIDE	75-09-2	0.089	30.0
U121	TRICHLOROMONO FLUOROMETHANE	TRICHLOROMONO FLUOROMETHANE	75-69-4	0.02	30.0
U210	TETRACHLOROETHYLENE	TETRACHLOROETHYLENE	127-18-4	0.056	6.0
U226	1,1,1-TRICHLOROETHANE	1,1,1-TRICHLOROETHANE	71-55-6	0.054	6.0
U228	TRICHLOROETHYLENE	TRICHLOROETHYLENE	79-01-6	0.054	6.0

FOOTNOTES:

NA NA MEANS NOT APPLICABLE.

- 1 THE WASTE DESCRIPTIONS PROVIDED IN THIS TABLE DO NOT REPLACE WASTE DESCRIPTIONS IN CHAPTER 3745-51 OF THE ADMINISTRATIVE CODE. DESCRIPTIONS OF TREATMENT/REGULATORY SUBCATEGORIES ARE PROVIDED, AS NEEDED, TO DISTINGUISH BETWEEN APPLICABILITY OF DIFFERENT STANDARDS.
- 2 CAS MEANS CHEMICAL ABSTRACT SERVICES. WHEN THE WASTE CODE AND/OR REGULATED CONSTITUENTS ARE DESCRIBED AS A COMBINATION OF A CHEMICAL WITH IT'S SALTS AND/OR ESTERS, THE CAS NUMBER IS GIVEN FOR THE PARENT COMPOUND ONLY.
- 3 CONCENTRATION STANDARDS FOR WASTEWATERS ARE EXPRESSED IN MG/L AND ARE BASED ON ANALYSIS OF COMPOSITE SAMPLES.

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND TREATMENT/REGULATORY SUBCATEGORY ¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
4	ALL TREATMENT STANDARDS EXPRESSED AS A TECHNOLOGY CODE OR COMBINATION OF TECHNOLOGY CODES ARE EXPLAINED IN DETAIL IN <u>TABLE 1</u> OF RULE 3745-270-42 OF THE <u>ADMINISTRATIVE CODE</u> .				
5	EXCEPT FOR <u>METALS</u> (<u>EP</u> OR <u>TCLP</u>) AND <u>CYANIDES</u> (TOTAL AND AMENABLE) THE NONWASTEWATER TREATMENT STANDARDS EXPRESSED AS A CONCENTRATION WERE ESTABLISHED, IN PART, BASED UPON INCINERATION IN UNITS OPERATED IN ACCORDANCE WITH THE TECHNICAL REQUIREMENTS OF RULES 3745-57-40 TO 3745-57-51 OR 3745-68-40 TO 3745-68-52 OF THE <u>ADMINISTRATIVE CODE</u> , OR BASED UPON COMBUSTION IN FUEL SUBSTITUTION UNITS OPERATING IN ACCORDANCE WITH APPLICABLE TECHNICAL REQUIREMENTS. A FACILITY MAY COMPLY WITH THESE TREATMENT STANDARDS ACCORDING TO PROVISIONS IN PARAGRAPH (D) OF THIS RULE. ALL CONCENTRATION STANDARDS FOR NONWASTEWATERS ARE BASED ON ANALYSIS OF GRAB SAMPLES.				
6	WHERE AN ALTERNATE TREATMENT STANDARD OR SET OF ALTERNATE STANDARDS HAS BEEN INDICATED, A FACILITY MAY COMPLY WITH THIS ALTERNATE STANDARD, BUT ONLY FOR THE " <u>TREATMENT/REGULATORY SUBCATEGORY</u> " OR PHYSICAL FORM (I.E., WASTEWATER AND/OR NONWASTEWATER) SPECIFIED FOR THAT ALTERNATE STANDARD.				
7	BOTH <u>CYANIDES</u> (TOTAL) AND <u>CYANIDES</u> (AMENABLE) FOR NONWASTEWATERS ARE TO BE ANALYZED USING METHOD 9010 OR METHOD 9012 FOUND IN " <u>TEST METHODS FOR EVALUATING SOLID WASTE, PHYSICAL/CHEMICAL METHODS</u> ", U.S. EPA PUBLICATION <u>SW-846</u> , AS INCORPORATED BY REFERENCE IN RULE 3745-50-11 OF THE <u>ADMINISTRATIVE CODE</u> , WITH A SAMPLE SIZE OF TEN GRAMS AND A DISTILLATION TIME OF ONE HOUR AND FIFTEEN MINUTES.				
8	THESE WASTES, WHEN RENDERED NONHAZARDOUS AND THEN SUBSEQUENTLY MANAGED IN CLEAN WATER ACT (<u>CWA</u>), OR <u>CWA-EQUIVALENT</u> SYSTEMS, ARE NOT SUBJECT TO TREATMENT STANDARDS. [SEE PARAGRAPHS (C)(3) AND (C)(4) OF RULE 3745-270-01 OF THE <u>ADMINISTRATIVE CODE</u> .]				
9	THESE WASTES, WHEN RENDERED NONHAZARDOUS AND THEN SUBSEQUENTLY INJECTED IN A <u>CLASS I SDWA</u> WELL ARE NOT SUBJECT TO TREATMENT STANDARDS. [SEE 40 <u>CFR</u> SECTION 148.1(d).]				
10	THE TREATMENT STANDARD FOR THIS WASTE MAY BE SATISFIED BY EITHER MEETING THE CONSTITUENT CONCENTRATIONS IN THIS TABLE, OR BY TREATING THE WASTE BY THE SPECIFIED TECHNOLOGIES: COMBUSTION, AS DEFINED BY THE TECHNOLOGY CODE <u>CMBST</u> IN <u>TABLE 1</u> OF RULE 3745-270-42 OF THE <u>ADMINISTRATIVE CODE</u> , FOR NONWASTEWATERS; AND, BIODEGRADATION AS DEFINED BY THE TECHNOLOGY CODE <u>BIOGD</u> , CARBON ADSORPTION AS DEFINED BY THE TECHNOLOGY CODE <u>CARBN</u> , CHEMICAL OXIDATION AS DEFINED BY THE TECHNOLOGY CODE <u>CHOXD</u> , OR COMBUSTION AS DEFINED BY THE TECHNOLOGY CODE <u>CMBST</u> IN <u>TABLE 1</u> OF RULE 3745-270-42 OF THE <u>ADMINISTRATIVE CODE</u> , FOR WASTEWATERS.				
11	FOR THESE WASTES, THE DEFINITION OF <u>CMBST</u> IS LIMITED TO: (1) COMBUSTION UNITS OPERATING UNDER <u>CHAPTER 3745-58</u> OF THE <u>ADMINISTRATIVE CODE</u> , (2) COMBUSTION UNITS PERMITTED UNDER RULES 3745-57-40 TO 3745-57-51 OF THE <u>ADMINISTRATIVE CODE</u> , OR (3)				

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

WASTE CODE	WASTE DESCRIPTION AND	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
	TREATMENT/REGULATORY SUBCATEGORY ¹	COMMON NAME	CAS ² NUMBER	CONCENTRATION IN MG/L ³ ; OR TECHNOLOGY CODE ⁴	CONCENTRATION IN MG/KG ⁵ UNLESS NOTED AS "MG/L TCLP"; OR TECHNOLOGY CODE ⁴
COMBUSTION UNITS OPERATING UNDER RULES 3745-68-40 TO 3745-68-52 OF THE <u>ADMINISTRATIVE CODE</u> , WHICH HAVE OBTAINED A DETERMINATION OF EQUIVALENT TREATMENT UNDER PARAGRAPH (B) OF RULE 3745-270-42 OF THE <u>ADMINISTRATIVE CODE</u> .					

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

3745-270-42 <u>TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-BASED STANDARDS</u>	
<u>TECHNOLOGY CODE</u>	<u>DESCRIPTION OF TECHNOLOGY-BASED STANDARDS</u>
<u>BIODG</u>	BIODEGRADATION OF ORGANICS OR NON-METALLIC INORGANICS (I.E., DEGRADABLE INORGANICS THAT CONTAIN THE ELEMENTS OF PHOSPHORUS, NITROGEN, AND SULFUR) IN UNITS OPERATED UNDER EITHER AEROBIC OR ANAEROBIC CONDITIONS SUCH THAT A SURROGATE COMPOUND OR INDICATOR PARAMETER HAS BEEN SUBSTANTIALLY REDUCED IN CONCENTRATION IN THE RESIDUALS (E.G., TOTAL ORGANIC CARBON CAN OFTEN BE USED AS AN INDICATOR PARAMETER FOR THE BIODEGRADATION OF MANY ORGANIC CONSTITUENTS THAT CANNOT BE DIRECTLY ANALYZED IN WASTEWATER RESIDUES).
<u>CARBN</u>	CARBON ADSORPTION (GRANULATED OR POWDERED) OF NON-METALLIC INORGANICS, ORGANO-METALLICS, AND/OR ORGANIC CONSTITUENTS, OPERATED SUCH THAT A SURROGATE COMPOUND OR INDICATOR PARAMETER HAS NOT UNDERGONE BREAKTHROUGH (E.G., TOTAL ORGANIC CARBON CAN OFTEN BE USED AS AN INDICATOR PARAMETER FOR THE ADSORPTION OF MANY ORGANIC CONSTITUENTS THAT CANNOT BE DIRECTLY ANALYZED IN WASTEWATER RESIDUES). BREAKTHROUGH OCCURS WHEN THE CARBON HAS BECOME SATURATED WITH THE CONSTITUENT (OR INDICATOR PARAMETER) AND SUBSTANTIAL CHANGE IN ADSORPTION RATE ASSOCIATED WITH THAT CONSTITUENT OCCURS.
<u>CHOXD</u>	CHEMICAL OR ELECTROLYTIC OXIDATION UTILIZING THE FOLLOWING OXIDATION REAGENTS (OR WASTE REAGENTS) OR COMBINATIONS OF REAGENTS: (1) HYPOCHLORITE (E.G., BLEACH); (2) CHLORINE; (3) CHLORINE DIOXIDE; (4) OZONE OR ULTRAVIOLET LIGHT ASSISTED OZONE; (5) PEROXIDES; (6) PERSULFATES; (7) PERCHLORATES; (8) PERMANGANTES; AND/OR (9) OTHER OXIDIZING REAGENTS OF EQUIVALENT EFFICIENCY, PERFORMED IN UNITS OPERATED SUCH THAT A SURROGATE COMPOUND OR INDICATOR PARAMETER HAS BEEN SUBSTANTIALLY REDUCED IN CONCENTRATION IN THE RESIDUALS (E.G., TOTAL ORGANIC CARBON CAN OFTEN BE USED AS AN INDICATOR PARAMETER FOR THE OXIDATION OF MANY ORGANIC CONSTITUENTS THAT CANNOT BE DIRECTLY ANALYZED IN WASTEWATER RESIDUES). CHEMICAL OXIDATION SPECIFICALLY INCLUDES WHAT IS COMMONLY REFERRED TO AS ALKALINE CHLORINATION.
<u>CMBST</u>	HIGH TEMPERATURE ORGANIC DESTRUCTION TECHNOLOGIES, SUCH AS COMBUSTION IN INCINERATORS, BOILERS, OR INDUSTRIAL FURNACES OPERATED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF RULES 3745-57-40 TO 3745-57-51 OR 3745-68-40 TO 3745-68-52 OF THE <u>ADMINISTRATIVE CODE</u> , OR 40 CFR PART 266 SUBPART H, AND IN OTHER UNITS OPERATED IN ACCORDANCE WITH APPLICABLE TECHNICAL OPERATING REQUIREMENTS; AND CERTAIN NON-COMBUSTIVE TECHNOLOGIES, SUCH AS THE CATALYTIC EXTRACTION PROCESS.
<u>IMERC</u>	INCINERATION OF WASTES CONTAINING ORGANICS AND MERCURY IN UNITS OPERATED IN ACCORDANCE WITH THE TECHNICAL OPERATING REQUIREMENTS OF RULES 3745-57-40 TO 3745-57-51 AND 3745-68-40 TO 3745-68-52 OF THE <u>ADMINISTRATIVE CODE</u> . ALL WASTEWATER AND NONWASTEWATER RESIDUES DERIVED FROM THIS PROCESS SHALL THEN COMPLY WITH THE

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

3745-270-42 <u>TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-BASED STANDARDS</u>	
<u>TECHNOLOGY CODE</u>	<u>DESCRIPTION OF TECHNOLOGY-BASED STANDARDS</u>
	CORRESPONDING TREATMENT STANDARDS PER WASTE CODE WITH CONSIDERATION OF ANY APPLICABLE SUBCATEGORIES (E.G., HIGH OR LOW MERCURY SUBCATEGORIES).
<u>RLEAD</u>	<u>THERMAL RECOVERY OF LEAD IN SECONDARY LEAD SMELTERS.</u>
<u>RMERC</u>	<u>RETORTING OR ROASTING IN A THERMAL PROCESSING UNIT CAPABLE OF VOLATILIZING MERCURY AND SUBSEQUENTLY CONDENSING THE VOLATILIZED MERCURY FOR RECOVERY. THE RETORTING OR ROASTING UNIT (OR FACILITY) MUST BE SUBJECT TO ONE OR MORE OF THE FOLLOWING: (A) A NATIONAL EMISSIONS STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) FOR MERCURY; (B) A BEST AVAILABLE CONTROL TECHNOLOGY (BACT) OR A LOWEST ACHIEVABLE EMISSION RATE (LAER) STANDARD FOR MERCURY IMPOSED PURSUANT TO A PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT; OR (C) A STATE PERMIT THAT ESTABLISHES EMISSION LIMITATIONS (WITHIN MEANING OF SECTION 302 OF THE CLEAN AIR ACT) FOR MERCURY. ALL WASTEWATER AND NONWASTEWATER RESIDUES DERIVED FROM THIS PROCESS SHALL THEN COMPLY WITH THE CORRESPONDING TREATMENT STANDARDS PER WASTE CODE WITH CONSIDERATION OF ANY APPLICABLE SUBCATEGORIES (E.G., HIGH OR LOW MERCURY SUBCATEGORIES).</u>
<u>RTHRM</u>	<u>THERMAL RECOVERY OF METALS OR INORGANICS FROM NONWASTEWATERS IN UNITS IDENTIFIED AS "INDUSTRIAL FURNACES" ACCORDING TO THE DEFINITION OF THAT TERM IN RULE 3745-50-10 OF THE ADMINISTRATIVE CODE, IN THE SUBPARAGRAPHS FOR CEMENT KILNS; BLAST FURNACES; SMELTING, MELTING, AND REFINING FURNACES; COMBUSTION DEVICES USED IN THE RECOVERY OF SULFUR VALUES FROM SPENT SULFURIC ACID; AND IN HALOGEN ACID FURNACES AS DEFINED IN 40 CFR 260.10</u>
<u>WETOX</u>	<u>WET AIR OXIDATION PERFORMED IN UNITS OPERATED SUCH THAT A SURROGATE COMPOUND OR INDICATOR PARAMETER HAS BEEN SUBSTANTIALLY REDUCED IN CONCENTRATION IN THE RESIDUALS (E.G., TOTAL ORGANIC CARBON CAN OFTEN BE USED AS AN INDICATOR PARAMETER FOR THE OXIDATION OF MANY ORGANIC CONSTITUENTS THAT CANNOT BE DIRECTLY ANALYZED IN WASTEWATER RESIDUES).</u>
NOTES: 1 RESERVED. 2 WHEN MORE THAN ONE TECHNOLOGY (OR TREATMENT TRAIN) IS SPECIFIED AS ALTERNATIVE TREATMENT STANDARDS, THE FIVE LETTER TECHNOLOGY CODES (OR THE TREATMENT TRAINS) ARE SEPARATED BY A SEMICOLON WITH THE LAST TECHNOLOGY PRECEDED BY THE WORD "OR". THIS INDICATES THAT ANY ONE OF THESE <u>BDAT</u> TECHNOLOGIES OR TREATMENT TRAINS CAN BE USED FOR COMPLIANCE WITH THE STANDARD.	

LAND DISPOSAL RESTRICTIONS - TREATMENT STANDARDS FOR HAZARDOUS WASTES

Sample # _____

Sales Sample Analysis Form

Generator: _____

Date: _____

Waste Stream: _____

Analyst: _____

Physical State: ☐ Liquid ☐ Solid ☐ Sludge ☐ Powder ☐ Other: _____

Phases: ☐ 1 ☐ 2 ☐ 3 % of each Phase: (1) _____ % (2) _____ % (3) _____ %

General Description: _____

	Phase 1	Phase 2	Phase 3
Color			
Odor			
Specific Gravity			
pH (paper &/or meter)			
Flash Point			
BTU's (gallon or pound)			
% Chlorides			
% Solids			
Reactivity			
Water			
HCN - screen			
Sulfide - screen			
Oxidizer - screen			
Solubility in water			
Paint Filter			
Pilot Study			
Initial Boiling Point			
% Recovery			
Recovered SP Gravity			
Boiling Range			

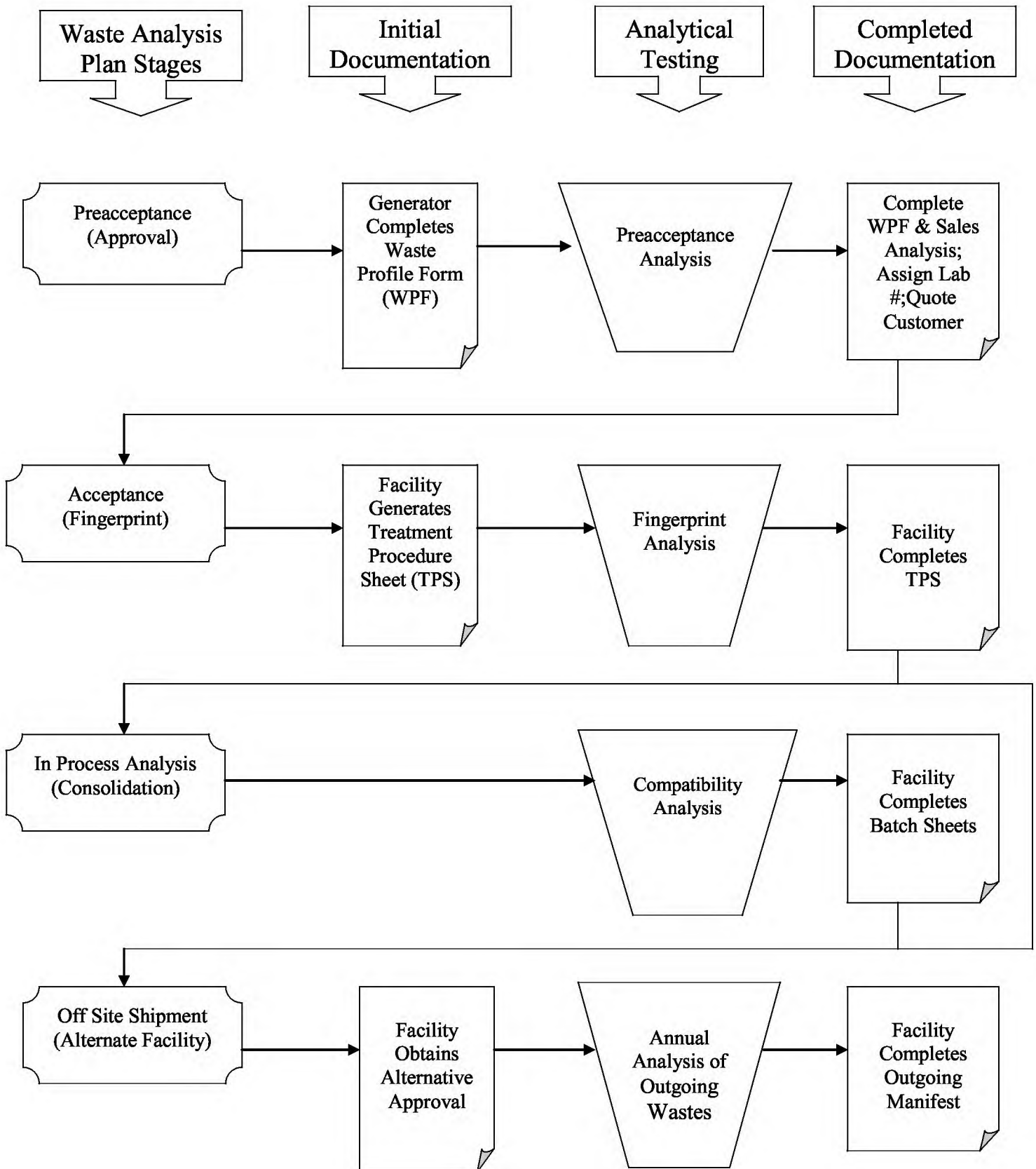
KLOR KLEEN COMPATIBILITY CHART

Chlorinated Solvents	CS	CS					
F006 Electroplating Treatment Sludge	F	O	F				
Acid (Concentrated)	A	X	X	A			
Base (Concentrated)	B	X	O	X	B		
Metallic Powders	MP	X	O	X	X	MP	
Metal containing Solids and Debris	MS	O	O	X	O	O	MS
Metal containing Liquids and Oils	ML	O	O	X	O	O	O

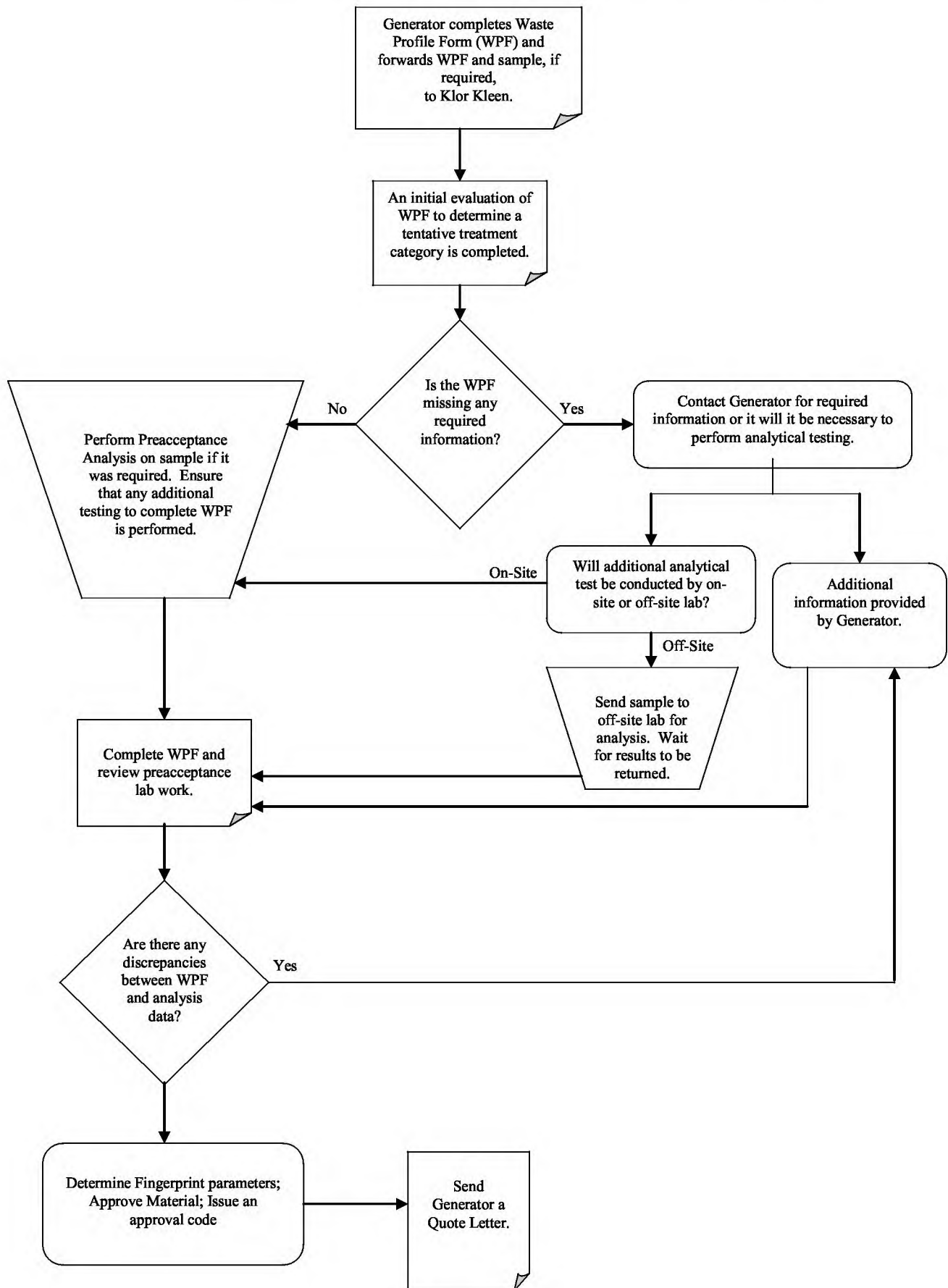
X = Incompatible Waste

O = Compatible Waste

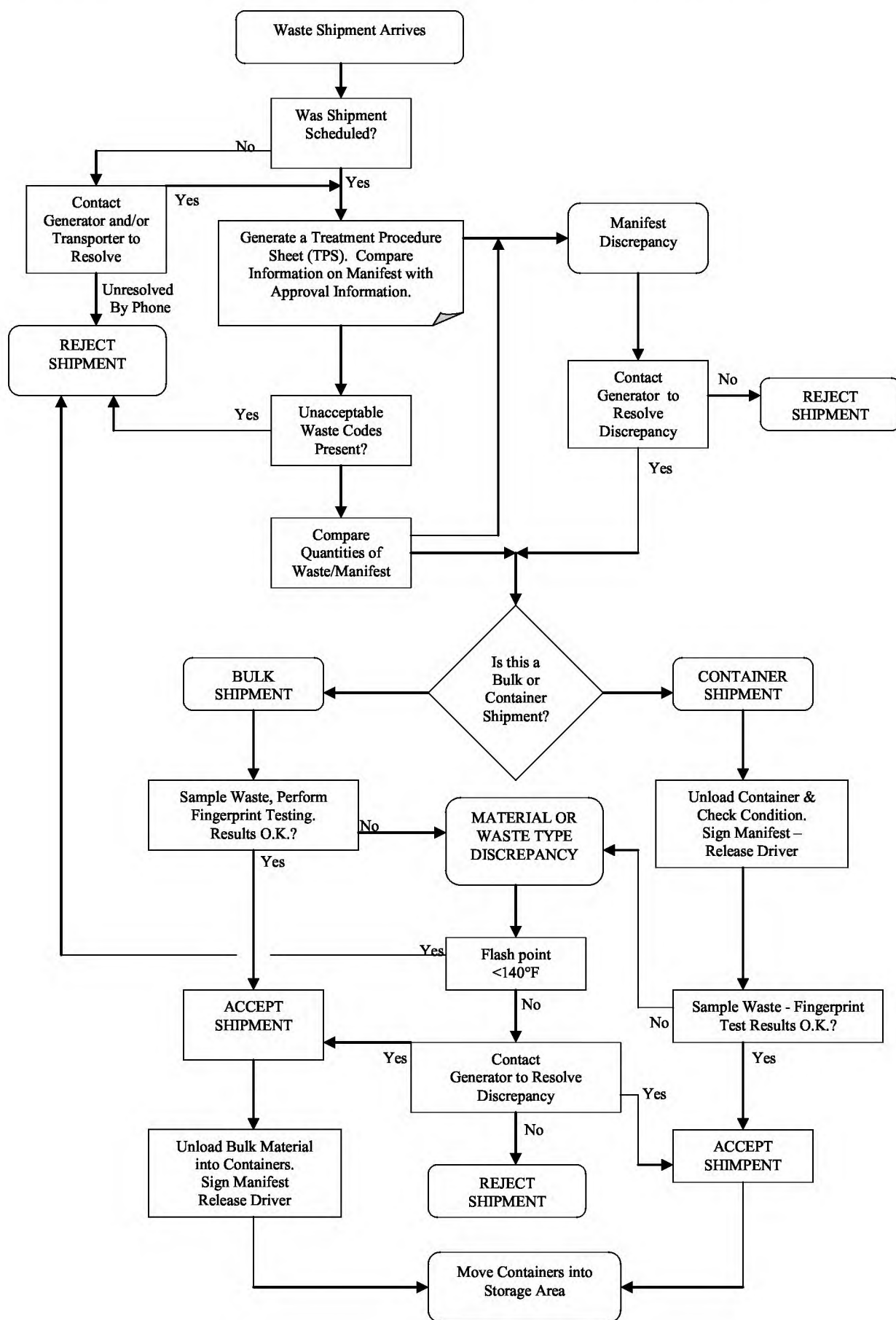
WASTE ANALYSIS PLAN OVERVIEW



PREACCEPTANCE WASTE ANALYSIS



WASTE ACCEPTANCE AND FINGERPRINT ANALYSIS



TPS FINAL REVIEW:

TABLE C-1**WASTES, HAZARD CHARACTERISTIC AND
BASIS FOR HAZARD DESIGNATION**

CHEMICAL	HAZARD	BASIS FOR HAZARD DESIGNATION	
1,1,1 Trichlorethane	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U226
Trichlorethylene	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U228
		TCLP Organic Waste	D040
Perchloroethylene	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U210
		TCLP Organic Waste	D039
Methylene Chloride	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U080
Trichlorotrifluoroethane (Freon)	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
Carbon Tetrachloride	Toxic	Spent Solvent Waste	F001
		TCLP Organic Waste	D019

**TABLE C-1
(Continued)
WASTES, HAZARD CHARACTERISTIC AND
BASIS FOR HAZARD DESIGNATION**

CHEMICAL	HAZARD	BASIS FOR HAZARD DESIGNATION	
Acids and Bases	Corrosive	Characteristic Waste	D002
Chloroform	Toxic	TCLP Organic Waste	D022
Arsenic	Toxic	Characteristic Metal	D004
Barium	Toxic	Characteristic Metal	D005
Cadmium	Toxic	Characteristic Metal	D006
Chromium	Toxic	Characteristic Metal	D007
Lead	Toxic	Characteristic Metal	D008
Mercury	Toxic	Characteristic Metal	D009
Selenium	Toxic	Characteristic Metal	D010
Silver	Toxic	Characteristic Metal	D011
Electroplating Wastewater Treatment Sludge	Toxic	Electroplating Waste	F006
<u>The following are TCLP waste codes:</u>	Toxic	TCLP Organic Waste Spent Solvent Waste	D019 F001
Carbon Tetrachloride			
Chloroform	Toxic	TCLP Organic Waste	D022
Tetrachloroethylene	Toxic	TCLP Organic Waste Spent Solvent Waste Spent Solvent Waste	D039 F001 F002
Trichloroethylene	Toxic	TCLP Organic Waste Spent Solvent Waste Spent Solvent Waste	D040 F001 F002

Pre-acceptance / Fingerprint Analysis Ranges

Standard Ranges	Alternative Ranges	Comments
pH		
≤2.0		Less than or equal to 2.0 is EPA D002 Waste
>2.0 to ≤5.0		
	>3.5 to <6.5	Used when pH is near 5.0
>5.0 to <9.0		
	>6.5 to <10.5	Used when pH is near 9.0
≥9.0 to <12.5		
≥12.5		Greater than or equal to 12.5 is EPA D002 Waste
Flash Point		
≤100°f		Less than or equal to 140°f is DOT Flammable Liquid
	>80°f to <120°f	Used when Flash Point is near 100°f
>100 to ≤140°f		Greater than 100°f and less than is 140°f a DOT Flammable Liquid but can be shipped as Combustible Liquid for Domestic Shipments Only.
		Less than or equal to is EPA D001 Waste
>141 to ≤200°f		Greater than 100°f and less than or equal to 200°f is DOT Combustible
Liquid		
>200		
Phases		
Single		The presence of a minor phase less than 5% will not be considered.
Double		
Multi		For more than 2 phases.

Pre-acceptance / Fingerprint Analysis Ranges

Standard Ranges	Alternative Ranges	Comments
Specific Gravity		
< 0.8		
0.8 to 1.0		
1.0 to 1.2		
	1.0 to 1.30	Range for Methylene Chloride suitable for recovery
	1.0 to 1.32	Range for 1,1,1-Trichloroethane suitable for recovery
	1.1 to 1.42	Range for Tricholoroethylene suitable for recovery
1.2 to 1.4		
	1.2 to 1.60	Range for Tetrachloroethylene suitable for recovery
	1.3 to 1.60	Range for Freon suitable for recovery
1.4 to 1.6		
>1.6		
State		
Liquid		Multi phase materials may have 2 or more states marked to indicate the characteristics of the phases present.
Solid		
Sludge		
Powder		
Total Solids		
<0.5		This information is primarily used to determine disposal cost when shipping off-site for wastewater treatment.
0.5 to 2		
2 to 5		
5 to 10		It is also used to determine when a material for recovery contains solids to high for recovery.
10 to 20		
>20		

Pre-acceptance / Fingerprint Analysis Ranges

Standard Ranges	Alternative Ranges	Comments
BTU's per pound		
None		Materials with no BTU' are not suitable for Fuels Program
<5,000		Materials <5,000 are acceptable to Certified BIF Fuel Programs Only
	5-7,000	Additional Range for disposal cost control
	7-10,000	Additional Range for disposal cost control
5-10,000		This information is also used to determine charges for material being shipped to a Subpart O Incinerator
>10,000		
% Halogen (Cl)		
<0.1		These ranges are used to determine cost of disposal for % halogen charges all of these ranges are acceptable for fuel blended at high costs.
0.1 - 1		
1 - 3		
3 - 5		
5 - 10		This information is also used to determine charges for material being shipped to a Subpart O Incinerator
>10		
% Ash		
<1		This information is only used to determine charges for material being shipped to a Subpart O Incinerator
1 - 3		
3 - 6		
6 - 10		
10 -20		
>20		

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives.
F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta- or hexachlorobenzenes under alkaline conditions.
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri-, and tetrachlorophenols.
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.
F025	Light Ends Subcategory
F026	Wastes (except wastewater and spent carbon from hydrogen purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.
F027	Discarded unused formulations containing tri-, tetra-, or pentachloro- phenol or discarded unused formulations containing components derived from these chlorophenols. (This listing does not include formulations containing Hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.).
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.
K037	Wastewater treatment sludges from the production of disulfoton.
K042	Heavy ends or distillation residues from the distillation of tetra- chlorobenzene in the production of 2,4,5-T.
K044	Wastewater treatment sludges from the manufacturing and processing of explosives
K045	Spent carbon from the treatment of wastewater containing explosives
K046	Wastewater treatment sludges from the manufacturing and processing of explosives.
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo- arsenic compounds.
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides
K108	Condensed column overheads from product separation and condensed reactor vent gases from production of UDMH from carboxylic acid hydrazides
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene.
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts
K126	Baghouse dust & floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.
P001	Warfarin (>0.3%)
P008	4-Aminopyridine
P011	Arsenic oxide
P014	Thiophenol (Benzene thiol)
P016	Bis(chloromethyl)ether
P020	2-sec-Butyl-4,6-dinitrophenol
P023	Chloroacetaldehyde
P024	p-Chloroaniline
P026	1-(o-chlorophenyl)thiourea
P027	3-Chloropropionitrile
P028	Benzyl chloride
P031	Cyanogen
P033	Cyanogen chloride
P034	2-Cyclohexyl-4,6-dinitrophenol
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	Disulfoton
P040	O,O-Diethyl O-pyrazinyl phosphorothioate
P041	Diethyl-p-nitrophenyl phosphate

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
P042	Epinephrine
P043	Diisopropyl fluorophosphate (DFP)
P044	Dimethoate
P045	Thiofanox
P046	alpha, alpha-Dimethylphenethylamine
P047	4,6-Dinitro-o-cresol
P048	2,4-Dinitrophenol
P049	2,4-Dithiobiuret
P050	Endosulfan sulfate
P051	Endrin aldehyde
P054	Aziridine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P059	Heptachlor epoxide
P060	Isodrin
P062	Hexaethyltetraphosphate
P063	Hydrocyanic acid
P064	Isocyanic acid, ethyl ester
P065	Mercury fulminate: All wastewaters that are not incinerator or RMERC residues, regardless of mercury content
P066	Methomyl
P067	2-Methylaziridine
P068	Methyl hydrazine
P069	Methyl lactonitrile
P070	Aldicarb

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
P071	Methyl parathion
P072	1-Naphthyl-2-thiourea
P073	Nickel carbonyl
P076	Nitric oxide
P077	p-Nitroaniline
P078	Nitrogen dioxide
P081	Nitroglycerin
P082	N-Nitrosodimethylamine
P084	N-Nitrosomethylvinylamine
P085	Octamethylpyrophosphoramidate
P087	Osmium tetroxide
P088	Endothall
P089	Parathion
P092	Phenylmercury acetate; All nonwastewaters that are not incinerator or RMERC residues, regardless of mercury content
P093	N-Phenylthiourea
P094	Phorate
P095	Phosgene
P096	Phosphine
P097	Famphur
P099	Potassium silver Cyanide
P101	Ethyl cyanide
P103	Selenium
P108	Strychnine and salts
P110	Tetraethyl Lead

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
P112	Tetranitromethane
P116	Thiosemicarbazide
P118	Trichloromethanethiol
P122	Zinc phosphide (<10%)
U006	Acetyl Chloride
U010	Mitomycin C
U014	Auramine
U016	Benz(c)acridine
U020	Benzenesulfonyl chloride
U021	Benzidine
U022	Benzo(a)pyrene
U023	Benzotrichloride
U028	Bis(2-ethylhexyl)-phthalate
U033	Carbonyl fluoride
U036	Chlordane (alpha and gamma)
U038	Chlorobenzilate
U049	4-Chloro-o-toluidine hydrochloride
U059	Daunomycin
U062	Diallate
U064	1,2,7,8-Dibenzopyrene
U069	Di-n-butyl phthalate
U073	3,3'-Dichlorobenzidine
U085	1,2,3,4-Diepoxybutane
U088	Diethyl phthalate
U091	3,3'-Dimethoxybenzidine

TABLE C-3
(excluded in-transit waste types)

EPA #	Description
U093	p-Dimethylaminoazobenzene
U094	7,12-Dimethyl benz(a)anthracene
U095	3,3'-Dimethylbenzidine
U096	a,a-Dimethyl benzyl hydroperoxide
U102	Dimethyl phthalate
U107	Di-n-octyl phthalate
U133	Hydrazine
U142	Kepone
U143	Lasiocarpine
U157	3-Methylcholanthrene
U158	4,4-Methylene-bis-(2-chloroaniline)
U160	Methyl ethyl ketone peroxide
U181	5-Nitro-o-toluidine
U185	Pentachloronitrobenzene
U189	Phosphorus sulfide
U205	Selenium sulfide
U206	Streptozatocin
U207	1,2,4,5-Tetrachlorobenzene
U222	o-Toluidine hydrochloride
U234	sym-Trinitrobenzene
U237	Uracil mustard
U246	Cyanogen bromide
U248	Warfarin (0.3% or less)

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**Lab ID:** 0506102-001
Client Sample ID: Trichloroethylene**Collection Date:** 5/31/2005 3:00:00 PM
Matrix: SOLVENT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC ANALYSIS		SW8260B				Analyst: MG
n-Hexane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Dichlorodifluoromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Chloromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Vinyl chloride	BDL	2400000		µg/L	2400000	6/8/2005 12:50:00 PM
Bromomethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Chloroethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Acrolein	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
Acetonitrile	BDL	96000000		µg/L	2400000	6/8/2005 12:50:00 PM
Trichlorofluoromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Acetone	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,1-Dichloroethene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Acrylonitrile	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
Iodomethane	BDL	24000000		µg/L	2400000	6/8/2005 12:50:00 PM
Methylene chloride	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Carbon disulfide	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
trans-1,2-Dichloroethene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Methyl tert-butyl ether	BDL	24000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,1-Dichloroethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Vinyl acetate	BDL	24000000		µg/L	2400000	6/8/2005 12:50:00 PM
2-Butanone	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
cis-1,2-Dichloroethene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Bromochloromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Chloroform	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
2,2-Dichloropropane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,2-Dichloroethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,1,1-Trichloroethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,1-Dichloropropene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Carbon tetrachloride	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Benzene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Dibromomethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,2-Dichloropropane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Trichloroethene	230000000	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Bromodichloromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
2-Chloroethyl vinyl ether	BDL	24000000		µg/L	2400000	6/8/2005 12:50:00 PM
cis-1,3-Dichloropropene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
4-Methyl-2-pentanone	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
trans-1,3-Dichloropropene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,1,2-Trichloroethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
Toluene	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,3-Dichloropropane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
2-Hexanone	BDL	48000000		µg/L	2400000	6/8/2005 12:50:00 PM
Dibromochloromethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM
1,2-Dibromoethane	BDL	12000000		µg/L	2400000	6/8/2005 12:50:00 PM

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**VOLATILE ORGANIC ANALYSIS****SW8260B**Analyst: **MG**

Tetrachloroethene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
1,1,1,2-Tetrachloroethane	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
Chlorobenzene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
Ethylbenzene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
m,p-Xylene	BDL	24000000	µg/L	2400000	6/8/2005 12:50:00 PM
Bromoform	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
Styrene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
1,1,2,2-Tetrachloroethane	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
o-Xylene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
Bromobenzene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
2-Chlorotoluene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
4-Chlorotoluene	BDL	12000000	µg/L	2400000	6/8/2005 12:50:00 PM
Surr: Dibromofluoromethane	105	62-120	%REC	2400000	6/8/2005 12:50:00 PM
Surr: 1,2-Dichloroethane-d4	99.2	60-124	%REC	2400000	6/8/2005 12:50:00 PM
Surr: Toluene-d8	99.5	64-136	%REC	2400000	6/8/2005 12:50:00 PM
Surr: 4-Bromofluorobenzene	85.9	41-112	%REC	2400000	6/8/2005 12:50:00 PM

PH**E150.1**Analyst: **BR**

pH	7.00	S.U.	1	6/2/2005
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SPECIFIC GRAVITY**D1429**Analyst: **ML**

Specific Gravity	1.46	0.00200	1	6/7/2005
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Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**Lab ID:** 0506102-002**Collection Date:** 5/31/2005 3:00:00 PM**Client Sample ID:** 1,1,1-Trichloroethane**Matrix:** SOLVENT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC ANALYSIS		SW8260B		Analyst: MG		
n-Hexane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Dichlorodifluoromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Chloromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Vinyl chloride	BDL	830000		µg/L	826000	6/8/2005 12:16:00 PM
Bromomethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Chloroethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Acrolein	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
Acetonitrile	BDL	33000000		µg/L	826000	6/8/2005 12:16:00 PM
Trichlorofluoromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Acetone	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
1,1-Dichloroethene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Acrylonitrile	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
Iodomethane	BDL	8300000		µg/L	826000	6/8/2005 12:16:00 PM
Methylene chloride	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Carbon disulfide	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
trans-1,2-Dichloroethene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Methyl tert-butyl ether	BDL	8300000		µg/L	826000	6/8/2005 12:16:00 PM
1,1-Dichloroethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Vinyl acetate	BDL	8300000		µg/L	826000	6/8/2005 12:16:00 PM
2-Butanone	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
cis-1,2-Dichloroethene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Bromochloromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Chloroform	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
2,2-Dichloropropane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,2-Dichloroethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,1,1-Trichloroethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,1-Dichloropropene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Carbon tetrachloride	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Benzene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Dibromomethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,2-Dichloropropane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Trichloroethene	41000000	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Bromodichloromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
2-Chloroethyl vinyl ether	BDL	8300000		µg/L	826000	6/8/2005 12:16:00 PM
cis-1,3-Dichloropropene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
4-Methyl-2-pentanone	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
trans-1,3-Dichloropropene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,1,2-Trichloroethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
Toluene	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,3-Dichloropropane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
2-Hexanone	BDL	17000000		µg/L	826000	6/8/2005 12:16:00 PM
Dibromochloromethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM
1,2-Dibromoethane	BDL	4100000		µg/L	826000	6/8/2005 12:16:00 PM

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**VOLATILE ORGANIC ANALYSIS****SW8260B**Analyst: **MG**

Tetrachloroethene	97000000	4100000	µg/L	826000	6/8/2005 12:16:00 PM
1,1,1,2-Tetrachloroethane	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
Chlorobenzene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
Ethylbenzene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
m,p-Xylene	BDL	8300000	µg/L	826000	6/8/2005 12:16:00 PM
Bromoform	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
Styrene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
1,1,2,2-Tetrachloroethane	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
o-Xylene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
Bromobenzene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
2-Chlorotoluene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
4-Chlorotoluene	BDL	4100000	µg/L	826000	6/8/2005 12:16:00 PM
Surr: Dibromofluoromethane	104	62-120	%REC	826000	6/8/2005 12:16:00 PM
Surr: 1,2-Dichloroethane-d4	103	60-124	%REC	826000	6/8/2005 12:16:00 PM
Surr: Toluene-d8	99.1	64-136	%REC	826000	6/8/2005 12:16:00 PM
Surr: 4-Bromofluorobenzene	86.2	41-112	%REC	826000	6/8/2005 12:16:00 PM

PH**E150.1**Analyst: **BR**

pH	7.00	S.U.	1	6/2/2005
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SPECIFIC GRAVITY**D1429**Analyst: **ML**

Specific Gravity	1.39	0.00200	1	6/7/2005
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Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant

Lab Order: 0506102

Lab ID: 0506102-003

Collection Date: 5/31/2005 3:00:00 PM

Client Sample ID: Tetrachloroethylene

Matrix: SOLVENT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC ANALYSIS		SW8260B		Analyst: MG		
n-Hexane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Dichlorodifluoromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Chloromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Vinyl chloride	BDL	2500000		µg/L	2500000	6/8/2005 1:23:00 PM
Bromomethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Chloroethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Acrolein	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
Acetonitrile	BDL	100000000		µg/L	2500000	6/8/2005 1:23:00 PM
Trichlorofluoromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Acetone	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,1-Dichloroethene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Acrylonitrile	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
Iodomethane	BDL	25000000		µg/L	2500000	6/8/2005 1:23:00 PM
Methylene chloride	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Carbon disulfide	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
trans-1,2-Dichloroethene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Methyl tert-butyl ether	BDL	25000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,1-Dichloroethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Vinyl acetate	BDL	25000000		µg/L	2500000	6/8/2005 1:23:00 PM
2-Butanone	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
cis-1,2-Dichloroethene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Bromochloromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Chloroform	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
2,2-Dichloropropane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,2-Dichloroethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,1,1-Trichloroethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,1-Dichloropropene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Carbon tetrachloride	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Benzene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Dibromomethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,2-Dichloropropane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Trichloroethene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Bromodichloromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
2-Chloroethyl vinyl ether	BDL	25000000		µg/L	2500000	6/8/2005 1:23:00 PM
cis-1,3-Dichloropropene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
4-Methyl-2-pentanone	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
trans-1,3-Dichloropropene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,1,2-Trichloroethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
Toluene	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,3-Dichloropropane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
2-Hexanone	BDL	50000000		µg/L	2500000	6/8/2005 1:23:00 PM
Dibromochloromethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM
1,2-Dibromoethane	BDL	12000000		µg/L	2500000	6/8/2005 1:23:00 PM

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**VOLATILE ORGANIC ANALYSIS****SW8260B**Analyst: **MG**

Tetrachloroethene	310000000	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
1,1,1,2-Tetrachloroethane	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
Chlorobenzene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
Ethylbenzene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
m,p-Xylene	BDL	25000000	µg/L	2500000	6/8/2005 1:23:00 PM
Bromoform	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
Styrene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
1,1,2,2-Tetrachloroethane	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
o-Xylene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
Bromobenzene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
2-Chlorotoluene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
4-Chlorotoluene	BDL	12000000	µg/L	2500000	6/8/2005 1:23:00 PM
Surr: Dibromofluoromethane	102	62-120	%REC	2500000	6/8/2005 1:23:00 PM
Surr: 1,2-Dichloroethane-d4	99.3	60-124	%REC	2500000	6/8/2005 1:23:00 PM
Surr: Toluene-d8	98.9	64-136	%REC	2500000	6/8/2005 1:23:00 PM
Surr: 4-Bromofluorobenzene	84.5	41-112	%REC	2500000	6/8/2005 1:23:00 PM

PH**E150.1**Analyst: **BR**

pH	7.00	S.U.	1	6/2/2005
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SPECIFIC GRAVITY**D1429**Analyst: **ML**

Specific Gravity	1.40	0.00200	1	6/7/2005
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Lab ID: 0506102-004**Collection Date:** 5/31/2005 3:00:00 PM**Client Sample ID:** Acid Composite**Matrix:** WASTE WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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MERCURY, TCLP**SW7470**Analyst: **KC**

TCLP Mercury	BDL	0.0020		mg/L	1	6/7/2005
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ICP METALS, TCLP**SW1311/6010B**Analyst: **KC**

TCLP Silver	BDL	0.010		mg/L	1	6/7/2005 5:37:42 PM
TCLP Arsenic	BDL	0.10		mg/L	1	6/7/2005 5:37:42 PM
TCLP Barium	0.068	0.010		mg/L	1	6/7/2005 5:37:42 PM
TCLP Cadmium	BDL	0.010		mg/L	1	6/7/2005 5:37:42 PM
TCLP Chromium	0.11	0.010		mg/L	1	6/7/2005 5:37:42 PM
TCLP Lead	BDL	0.050		mg/L	1	6/7/2005 5:37:42 PM
TCLP Selenium	BDL	0.10		mg/L	1	6/7/2005 5:37:42 PM

IGNITABILITY**SW1010**Analyst: **KAC**

Ignitability	>150			°F	1	6/7/2005
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PH**E150.1**Analyst: **BR**

pH	<2.0	S.U.	1	6/2/2005
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SPECIFIC GRAVITY**D1429**Analyst: **ML**

Specific Gravity	1.44	0.00200	1	6/7/2005
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Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**Lab ID:** 0506102-005
Client Sample ID: Caustic Composite**Collection Date:** 5/31/2005 3:00:00 PM
Matrix: WASTE WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP		SW7470				Analyst: KC
TCLP Mercury	BDL	0.0020		mg/L	1	6/7/2005
ICP METALS, TCLP		SW1311/6010B				Analyst: KC
TCLP Silver	BDL	0.010		mg/L	1	6/7/2005 5:47:54 PM
TCLP Arsenic	BDL	0.10		mg/L	1	6/7/2005 5:47:54 PM
TCLP Barium	0.90	0.010		mg/L	1	6/7/2005 5:47:54 PM
TCLP Cadmium	0.020	0.010		mg/L	1	6/7/2005 5:47:54 PM
TCLP Chromium	0.27	0.010		mg/L	1	6/7/2005 5:47:54 PM
TCLP Lead	2.0	0.050		mg/L	1	6/7/2005 5:47:54 PM
TCLP Selenium	BDL	0.10		mg/L	1	6/7/2005 5:47:54 PM
IGNITABILITY		SW1010				Analyst: KAC
Ignitability	>150			°F	1	6/7/2005
PH		E150.1				Analyst: BR
pH	13.1		E	S.U.	1	6/2/2005
SPECIFIC GRAVITY		D1429				Analyst: ML
Specific Gravity	1.35	0.00200			1	6/7/2005

Lab ID: 0506102-006
Client Sample ID: Heavy metal liquid**Collection Date:** 5/31/2005 3:00:00 PM
Matrix: WASTE WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP		SW7470				Analyst: KC
TCLP Mercury	BDL	0.0020		mg/L	1	6/7/2005
ICP METALS, TCLP		SW1311/6010B				Analyst: KC
TCLP Silver	0.38	0.010		mg/L	1	6/7/2005 6:12:18 PM
TCLP Arsenic	BDL	0.10		mg/L	1	6/7/2005 6:12:18 PM
TCLP Barium	0.12	0.010		mg/L	1	6/7/2005 6:12:18 PM
TCLP Cadmium	810	1.0	*	mg/L	100	6/8/2005 4:25:00 PM
TCLP Chromium	31	0.010	*	mg/L	1	6/7/2005 6:12:18 PM
TCLP Lead	0.057	0.050		mg/L	1	6/7/2005 6:12:18 PM
TCLP Selenium	BDL	0.10		mg/L	1	6/7/2005 6:12:18 PM
IGNITABILITY		SW1010				Analyst: KAC
Ignitability	>150			°F	1	6/7/2005
PH		E150.1				Analyst: BR
pH	8.00			S.U.	1	6/2/2005
SPECIFIC GRAVITY		D1429				Analyst: ML
Specific Gravity	1.11	0.00200			1	6/7/2005

Belmont Labs**Date:** 17-Jun-05**CLIENT:** Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**Lab ID:** 0506102-007**Collection Date:** 5/31/2005 3:00:00 PM**Client Sample ID:** Heavy metal solid**Matrix:** SLUDGE

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP		SW7470				Analyst: KC
TCLP Mercury	BDL	0.0020		mg/L	1	6/7/2005
ICP METALS, TCLP		SW1311/6010B				Analyst: KC
TCLP Silver	BDL	0.010		mg/L	1	6/7/2005 6:17:24 PM
TCLP Arsenic	BDL	0.10		mg/L	1	6/7/2005 6:17:24 PM
TCLP Barium	0.13	0.010		mg/L	1	6/7/2005 6:17:24 PM
TCLP Cadmium	0.029	0.010		mg/L	1	6/7/2005 6:17:24 PM
TCLP Chromium	70	1.0	*	mg/L	100	6/8/2005 4:30:08 PM
TCLP Lead	BDL	0.050		mg/L	1	6/7/2005 6:17:24 PM
TCLP Selenium	BDL	0.10		mg/L	1	6/7/2005 6:17:24 PM
IGNITABILITY		SW1010				Analyst: KAC
Ignitability	>150			°F	1	6/7/2005
PH		SW9045B				Analyst: BR
pH	11.00			S.U.	1	6/2/2005
SPECIFIC GRAVITY		D1429				Analyst: ML
Specific Gravity	1.50	0.00200			1	6/7/2005

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant**Lab Order:** 0506102**Lab ID:** 0506102-008
Client Sample ID: FOO6 Presscake**Collection Date:** 5/31/2005 3:00:00 PM
Matrix: SOLVENT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP		SW7470				Analyst: KC
TCLP Mercury	BDL	0.0020		mg/L	1	6/7/2005
ICP METALS, TCLP		SW1311/6010B				Analyst: KC
TCLP Silver	BDL	0.010		mg/L	1	6/7/2005 6:22:29 PM
TCLP Arsenic	BDL	0.10		mg/L	1	6/7/2005 6:22:29 PM
TCLP Barium	0.20	0.010		mg/L	1	6/7/2005 6:22:29 PM
TCLP Cadmium	BDL	0.010		mg/L	1	6/7/2005 6:22:29 PM
TCLP Chromium	0.017	0.010		mg/L	1	6/7/2005 6:22:29 PM
TCLP Lead	BDL	0.050		mg/L	1	6/7/2005 6:22:29 PM
TCLP Selenium	BDL	0.10		mg/L	1	6/7/2005 6:22:29 PM
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: CLM
Reactive Cyanide	BDL	1.0		mg/Kg	1	6/7/2005
CYANIDE, TOTAL		SW9012				Analyst: CLM
Cyanide	28	1.0		mg/Kg	100.2	6/7/2005
IGNITABILITY		SW1010				Analyst: KAC
Ignitability	>150			°F	1	6/7/2005
PH		SW9045B				Analyst: BR
pH	7.00			S.U.	1	6/2/2005
SPECIFIC GRAVITY		D1429				Analyst: ML
Specific Gravity	1.40	0.00200			1	6/7/2005

Belmont Labs

Date: 17-Jun-05

CLIENT: Midwest Environmental Service
Project: Plant

Lab Order: 0506102

Data Qualifiers (Flags)

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- BDL Below Detection limit
- C Sample result confirmed
- E Value above quantitation range
- F Unable to obtain a reliable result due to matrix interference
- H Analysis completed outside holding times
- J Analyte detected below quantitation limits, estimated concentration for TICs
- K Result from method of standard additions
- N Presumptive evidence of analyte present
- P Percent difference between primary and secondary column concentrations exceeded acceptance limit
- PQL Practical Quantitation Limit or surrogate
- S Surrogate recovery outside acceptance limits
- V Calibration criteria exceeded, but acceptable by method

SAMPLING CONTAINERS OF LIQUID WASTES

PURPOSE

To obtain a representative sample for accuracy in lab testing to ensure personnel safety and appropriate waste processing.

FREQUENCY

SAMPLES WILL BE TAKEN FOR EVERY INCOMING LOAD BEFORE ACCEPTANCE IN THE FACILITY. SAMPLES MAY BE TAKEN FOR PREACCEPTANCE ANALYSIS, EVALUATION, AND CHANGES TO WASTE STREAM GENERATION.

SAFETY EQUIPMENT

Hard hat and face shield, respirator, rubber gloves, steel toed boots and safety glasses are mandatory. When working with corrosive material or other material that may be hazardous when in contact with skin, it will be mandatory to wear acid resistant suits.

EQUIPMENT

Manifest(s), non sparking tools including speed wrench and bung wrench, paint pen, clean 16-ounce plastic sample bottles and Coliwasa Sampler.

PROCEDURE

- A) Confirm the Coliwasa Sampler is clean. If needed, refer to "Cleaning and Decontamination of Sampling Equipment" Procedure.
- B) Check the CONTAINER labels against the manifest(s) and approval numbers. Ensure all CONTAINERS are accounted for and sort the CONTAINERS by manifest and line item. Using a paint pen, stencil the top or side of the CONTAINER with the assigned job number and received date.
- C) Wearing the proper safety equipment, including hard hat with face shield and safety glasses, rubber gloves, steel toed rubber boots, and a P.V.C. acid suit if material is manifested as a corrosive or skin reactive material, carefully open the CONTAINER. FOR DRUMS a few observable conditions are indicators for the contents of the drum to be under pressure. If the top or bottom of the drum is bulging or when loosening bungs or rings you hear air hissing out of the drum or look for bubbling liquid. When any of these conditions occur or are observed, do not attempt to loosen the bung any further. Wait for the pressure to equalize and then remove the bung. It is also common to find bungs that are corroded or rusted shut. If this occurs consult your supervisor as to how the drum should be opened so that it may be resealed after sampling.

- D) Place an opened sample bottle inside a 5 gallon bucket to contain any spilled material from sampling.
- E) Insert the opened Coliwasa Sampler into the CONTAINER slowly to cut a core sample of the contents. Close the Coliwasa Sampler and remove from the CONTAINER while wiping down the outside of the Sampler with a disposable rag or absorbent material. Transfer the contents from the Sampler tube to the sample bottle.
- F) While performing steps C through E take notice of any solids encountered in the CONTAINER. Notify your supervisor if material in the CONTAINER does not match description on the manifest.
- G) Continue to sample all CONTAINERS within one particular Line item, composite the samples in one bottle (If more than one bottle is needed do not dump out samples to make room for more, simply use another bottle and turn them into the lab together). When sample is obtained, place Coliwasa in a five gallon bucket to contain material before decontamination procedures can be completed.
- H) Completely label all sample bottles by using pre-printed labels obtained from the lab. If these are not available label the bottle with at least the following information:
- Name of Sampler
 - Date and time samples were taken
 - Name of Generator
 - Job Number
 - Waste number and sample Identification number
- I) When sampling is completed all CONTAINERS must be closed AND bungs or rings OR CAPS securely tightened.
- J) Using the paint pen write the date received on the CONTAINER (month, day and year).
- K) Turn all samples and completed paperwork into the lab for testing. Paperwork to include manifest copies and Treatment Procedure Sheets that have been initialed in Plant Acceptance Section by the sampler.

NOTES

- 1) When sampling by line item you may encounter CONTAINERS in the same line item with different Approval numbers, when this occurs, separate CONTAINER samples by Approval number into different bottles, one per Approval number.
- 2) No materials can be processed until lab results are obtained and your supervisor or foreman approves processing.

- 3) Guidelines for sampling procedures and additional information, refer to "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018.

REFERENCE METHOD

USEPA Guidance "Sampling of Hazardous Materials", SW-846

SAMPLING CONTAINERS OF SOLID WASTES

PURPOSE

To obtain a representative sample of drums, boxes or bags which contain solid waste for laboratory testing to ensure personnel safety and appropriate waste processing techniques.

FREQUENCY

SAMPLES WILL BE TAKEN FOR EVERY INCOMING LOAD BEFORE ACCEPTANCE INTO THE FACILITY. SAMPLES MAY BE TAKEN FOR PREACCEPTANCE ANALYSIS, EVALUATION, AND CHANGES TO WASTE STREAM GENERATION.

SAFETY EQUIPMENT

Hard hat and face shield, respirator, rubber gloves, steel toed boots and safety glasses are mandatory. When working with corrosive material or other material that may be hazardous when in contact with skin, it will be mandatory to wear acid resistant suits.

EQUIPMENT

Manifest(s), non sparking tools including speed wrench and bung wrench, paint pen, clean 16-ounce plastic sample bottles and Sampling Trier, Trowel or Scoop.

PROCEDURE

- A) Confirm the Sampling Trier or Trowel/Scoop is clean. If needed, refer to "Cleaning and Decontamination of Sampling Equipment" Procedure.
- B) Check the container labels against the manifest(s) and approval numbers. Ensure all containers are accounted for and sort the pieces by manifest and line item. Using a paint pen, stencil the top or side of the container with the assigned job number and received date.
- C) Wearing the proper safety equipment, including hard hat with face shield and safety glasses, rubber gloves, steel toed rubber boots, and a P.V.C. acid suit if material is manifested as a corrosive or skin reactive material, carefully open the container. A few observable conditions are indicators for the contents of the drum to be under pressure, such as, if the top or bottom of the drum is bulging or when loosening bungs or rings you hear air hissing out. When any of these conditions occur or are observed, do not attempt to loosen the bung any further. Wait for the pressure to equalize and then remove the bung. It is also common to find bungs that are corroded or rusted shut. If this occurs consult your supervisor as to how the drum should be opened so that it may be resealed after sampling.

- D) Place open sample bottle inside a 5-gallon bucket to contain any spills during the sampling procedure. Using a Trier sampler (or similar type solid waste sampler), obtain a representative sample by inserting the sampler to the bottom of the container and withdrawing a cross section sample. Withdraw the sampler slowly from the container, wiping down the outside of the sampler with a disposable rag or

absorbent pad. If the container has less than three inches of sample material, a trowel or scoop can be used to obtain a sample. Again, insert the trowel to the bottom of the container to obtain a representative sample and collect material from several different locations.

- E) Place the sample into a clean sample container.

- F) Continue to sample all containers within one particular line item, composite the samples in one bottle (If more than one bottle is needed do not dump out samples to make room for more, simply use another bottle and turn them into the lab together).

After sample is obtained, place sampling device in a five gallon bucket for later decontamination procedures.

- G) Completely label all sample bottles by using pre-printed labels obtained from the lab. If these are not available label the bottle with a least the following information:

Name of Sampler
Date and time samples were taken
Name of Generator
Job Number
Waste number and sample Identification number

- H) When sampling is completed all containers must be closed.
- I) Using the paint pen write the date received on the container (month, day and year).
- J) Turn all samples and completed paperwork into the lab for testing. Paperwork to include manifest copies and Treatment Procedure Sheets that have been initialed in Plant Acceptance Section by the sampler.

NOTES

- 1) When sampling by line item you may encounter containers in the same line item with different Approval numbers, when this occurs, separate samples by Approval number into different bottles.
- 2) No materials can be processed until lab results are obtained and your supervisor

or foreman approves processing.

- 3) Guidelines for sampling procedures and additional information, refer to "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018.

REFERENCE METHOD

SW-846, ASTM, 40 CFR 261 Appendix I

SAMPLING OF BULK LIQUID TRAILER

PURPOSE

To collect a representative sample from a bulk tanker waste stream to obtain accurate laboratory testing for personnel safety and appropriate material handling.

SAFETY EQUIPMENT

Hard hat and face shield with safety glasses, steel toed boots and rubber gloves, organic/acid gas half-mask respirator.

EQUIPMENT NEEDED

Manifest, Coliwasa (tube sampler), 5 gallon bucket and a clean 16-ounce plastic sample container. For solid a ladle or scoop on a long pole will be needed.

PROCEDURE

- A) Ensure the truck is located in the Loading/Unloading area to be sampled. Never sample a truck that is not located in this area.
- B) Confirm the sampling equipment is clean. If needed, refer to "Cleaning and Decontamination of Sampling Equipment" procedure.
- C) Place an opened clean sample bottle inside a 5-gallon bucket to collect any spilled material during the sampling process.
- D) Wearing the proper safety equipment, including hard hat with face shield and safety glasses, rubber gloves, steel toed rubber boots, respirator, and a P.V.C. acid suit if material is manifested as a corrosive or skin reactive material, carefully open the hatch. Some trailers may be pressurized or have some vacuum left from loading. Therefore, it is necessary to open the hatch bolts furthest from you first and let the pressure equalize. Start with the bolts furthest away and work around the hatch towards you, loosening the bolt nearest you but not disconnecting it. Gently lift the lid to be sure pressure has equalized. Then disconnect the bolt and open hatch. Use a measuring stick to determine the volume of waste in tanker. This is accomplished utilizing a conversion chart provided by the transporter to identify the volume of material present. Once calculated, compare the waste volume in the tanker to that on the manifest, if volume difference exceeds 10%, a discrepancy is present, consult your supervisor.
- E) Slowly insert the tube sampler into the trailer with the stopper open, until you reach the bottom of the trailer. Pull the valve shut, closing off the tube and lift out the sampler. Empty the contents into the sample bottle. You may need to repeat

this process to fill the sample bottle to capacity. Return any spilled liquid in the bucket to the trailer.

- F) If significant solids are noted (greater than 5%) during the liquid sampling event, determine the relative portion of liquid and solid by measuring the inches of each in the trailer and obtaining the gallon conversion from a ullage chart for the tank. A sample of the solids is to be taken using a scoop or ladle attached to a long pole. Insert the scoop or ladle into the solid layer removing a sample of the solids from different levels and/or locations and combining them into a separate sample container. A composite sample is to be prepared in the lab by recombining proportional amounts of the liquid and solid samples before analysis.
- G) Close the hatch and seal hatch bolts alternately around the hatch as you would lug nuts on a tire to ensure a good seal on the hatch. Never leave the hatch open. Deliver the sample to the lab along with a copy of the manifest and the Treatment Procedure Sheet that has been initialed in Plant Acceptance Section by the sampler for analysis.

NOTES

- 1) All sampling will be done by qualified Klor Kleen personnel. If an independent hauler requests to sample his load, this will only take place under the direct supervision of a qualified Klor Kleen employee. Independent haulers must wear safety equipment.
- 2) Guidelines for sampling procedures and additional information, refer to "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018

REFERENCE METHOD

SW-846, Appendix I

CLEANING AND DECONTAMINATION OF SAMPLING EQUIPMENT

PURPOSE

To confirm the equipment being used to obtain waste stream sample are free of all contaminants which may diminish the testing results used for treatment confirmation. You must do this only for sampling equipment that has been used in the past or if there is visual contamination on the equipment.

SAFETY EQUIPMENT

Hard hat and face shield with safety glasses, steel toed boots and rubber gloves, organic/acid gas half-mask respirator. When working with corrosive material or other material that may be hazardous when in contact with skin, it will be mandatory to wear acid resistant suits.

EQUIPMENT

Plastic sheeting, Liquinox or Alconox (or comparable detergent solution), source for tap water, Distilled Water, clean absorbent material, 5-gallon bucket(s), bottle brush attached to a dowel with a length greater than a Coliwasa sampler.

PROCEDURE

- A) Place plastic on a level surface. Ensure it is a large enough area to secure all of the contaminated equipment.
- B) If the sampling equipment has any gross contamination, wipe as much excess off with the absorbent material. Collect all decontamination debris in a 5-gallon bucket for later disposal.
- C) Wash the sampling equipment with Liquinox, a warm detergent solution, or similar product. If you are cleaning a Coliwasa, Sampling Trier, or similar sampler, a bottle brush matching the diameter of the tubing is preferred. With absorbent material placed over the brush and a dowel attached to achieve the length of the tubing, ram the brush through several times.
- D) Rinse equipment with tap water several times to remove all remains of the detergent.
- E) A final rinse of equipment should be made using distilled water.
- F) Drain any excess water. Allow to air dry or wipe dry with clean absorbent material.
- G) Repeat steps above until all equipment has been cleaned.
- H) Gather all decontamination debris, including all safety equipment, into a bucket for determination of disposal options.

NOTES

- 1) Guidelines and additional information are available in "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018.
- 2) Samplers are affordable commodities. If the contamination is too great, or if the contaminate is something that may require more than soap and water to decontaminate, disposal of the equipment may be the best option. Check with the supervisor.

PROCEDURE FOR OFFLOADING A BULK LIQUID TRAILER

PURPOSE

To ensure safety of plant personnel during the waste stream acceptance process and confirm compliance with Part B Permit for the facility.

SAFETY EQUIPMENT

Goggles or hard hat and face shield, steel toed boots, rubber gloves, and half mask respirator with organic cartridges.

EQUIPMENT NEEDED

Coliwas sampler, sample bottle, sufficient length of 3 inch hose, submerged fill apparatus, DOT approved container, forklift with drum handler attachment, manual drum dolly and/or pallet jack.

PROCEDURE

- C) Confirm quantity on the trailer matches the amount indicated on the manifest. Any discrepancies must be reported immediately to the foreman or supervisor.
- D) Use coliwasa and sample bottle to obtain a representative sample and submit sample to the laboratory (see procedure for Sampling a Bulk Liquid Trailer)
- E) When analysis is completed, confirm material is within established specifications based on the original Treatment and Procedure Sheet. If material is not acceptable, notify the foreman or supervisor immediately.
- F) Connect one end of the 3 inch hose to the tank truck and, after attaching the opposite end of hose to the submersible fill apparatus, place into the approved DOT container.
- G) Ensure hose length allows for the fill apparatus to reach the bottom of the container. With a person holding the hose in place, open valve to begin filling the container.
- H) Fill container to within three inches from the top and close valve to stop liquid flow.
- I) Repeat steps D-F until tank truck is completely empty. Dome should be opened to confirm truck has been off-loaded.
- J) Remove hose and submerged fill apparatus from the tank truck.
- K) Properly close and label all containers with appropriate hazardous waste and DOT labels.

- L) Using the forklift or manual container movers, place containers in hazardous waste storage area.

NOTES

- 1) Drum levels must be monitored to be certain that no overflows occur. Opaque totes and open-head drums allow for viewing of liquid/sludge levels in the containers.
- 2) Never offload a material whose compatibility with the container is questionable.
- 3) Always wear your respirator and hard hat with face shield while off-loading trailers
- 4) All hose quick connect couplings must have the ears velco wrapped or wired shut to avoid accidental disconnection.

PROCEDURE FOR OFFLOADING OF CONTAINERS

PURPOSE

To ensure safety of plant personnel during the waste stream acceptance process and confirm compliance with Part B Permit for the facility.

SAFETY EQUIPMENT

Hard hat with face shield, rubber gloves, steel toed rubber boots, and safety glasses are mandatory. When working with corrosive material, acid resistant suits must be worn.

EQUIPMENT NEEDED

Forklift with drum handler, manual drum dolly, and pallet jack.

PROCEDURE

- A) Before starting the unloading of the trailer, a piece count must be made to determine the number of containers present on the trailer. The count should be checked against the number present on the manifest(s). Any discrepancies must be reported immediately to your foreman or supervisor.
- B) Containers are moved to the rear doors of the trailer with a drum dolly or pallet jack, ensuring labels are facing the outer sides of the trailer. Do not attempt to roll drums on edge. This may result in the drum tipping over and/or injury such as back strain. When moving containers, if any leaking, corroded, or damaged containers are detected, stop unloading and report this to your foreman immediately. Any containers received in damaged condition, leaking, corroded, dented or deformed must be overpacked or repacked before unloading can continue. In the case of leaking drums it may be that the bungs or ring must be tightened to stop the leak.
- C) If the container is a tote, yard box, or drums loaded onto a pallet, the forklift should be used to pick up the waste and place in the staging area. If the waste is in drums not palleted, two drums staged at the rear of the trailer should be picked up using the forklift with "drum grabber" attachment and placed in the staging area.
- D) Make sure that all containers have the labels facing outward so that anyone walking between aisles can read all labels on each and every container.
- E) Continue to move containers to the rear of the trailer and offload them into aisles until the trailer is empty.
- F) When the trailer is empty, the drum labels must be checked against the manifest(s) to insure the proper number of drums has been received for each different manifest line item, and to be sure labels are complete with proper generator, manifest number, line item and approval number.

- G) Inspect the trailer for spilled material. Any spilled material must be cleaned up before allowing the trailer to depart.

NOTES

- 1) Make sure any spill response equipment that was on the trailer when it arrived is left on the trailer.

REMINDERS

Containers accepted at Klor Kleen must:

- a) Be labeled properly, with all erroneous labels obscured.
- b) Not be dented and/or rusted to the point of affecting the integrity of the container.
- c) Not be covered with spilled waste.

If they are mislabeled, dented, rusted, or covered with waste, you have two choices:

- a) Correct the problem by relabeling, repacking, or overpacking the container.
- b) Reject the container as specified in Rejection Procedures - Section C.

APPENDIX C-3

KLOR KLEEN LABORATORY PROCEDURES

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Pilot / % Recovery

The Pilot test determines the percentage of recoverable solvent (i.e. trichloroethylene, 1,1,1 trichloroethylene, etc.) in a given waste stream. For additional information on recoverable solvents see Appendix 1 at the conclusion of the laboratory procedures.

Procedure:

1. Determine the specific gravity of the sample. Record this before distillation of the sample.
2. Measure 100 ml of sample in a graduated cylinder.
3. Place the sample into the pilot apparatus. Turn on the water source and the pilot heater. The heater setting ranges from 0 to 8. Set the heater according to the material that is being distilled, a good general setting is between 3 - 4.
4. Record the temperature at which the solvent initially flows through the distillation tubes. This is the Initial Boiling point. Record the final temperature at which the solvent has all been distilled. The initial boiling point and the final temperature the solvents boil are considered the Boiling Range. Record this data on Pre-Acceptance Analysis form.
5. Take the distilled solvent and pour it into the 100 ml graduated cylinder. This is the percent recovery of the given sample.
6. Determine the specific gravity of the recoverable solvent.

Safety:

1. Use all precautions when handling industrial solvents. Use all laboratory safety wear and precautions.

QA/QC:

1. Run a duplicate recovery rate 15 samples. The % recoverable should be within 5%.

pH by Electrode

The pH of a sample is the numerical value that represents the concentration of hydrogen ions in the sample. A sample with a low pH is considered acidic, while an alkaline sample would have a high pH.

Reference: SW 846, Method 9040

Procedure:

1. Plug in pH meter, connect the pH electrode and allow to warm up for 5 minutes.
2. The pH meter will be calibrated at a minimum of two points that bracket expected pH. Calibration will be conducted using a pH buffer of 4, 7, Or 10.
3. Place the electrode into sample and stir until a stable pH reading is achieved. To determine if meter is calibrated in the appropriate low or high pH range, a pH paper test may be run.
4. If sample pH reading is below 7.0, if required recalibrate meter with buffer solution pH 4. If sample pH is above 7.0, if required recalibrate with buffer solution pH 10. Place probe into sample and record reading after meter has stabilized.
5. If pH is above 12.0, the sample temperature must be checked to verify that it is between 24°C and 26°C. If not the sample must be warmed or cooled to this required temperature and sample retested.

Rinse electrode off with deionized water and replace into probe storage solution.

QA/QC:

1. On a regular basis run a duplicate sample. Record value in the duplicate notebook. The pH should be within ± 0.5 standard units.
2. Make sure electrode is free from any oils or film that may cause the electrode to register faulty pH readings.

Maintenance:

1. Do not keep pH meter in deionized water, this will decrease the life expectancy of the probe. If probe is not used for an extended period of time (2-3 days) place probe in pH buffer solution. For extended periods of storage or non-use replace original cap on probe.

pH by Paper

This method determines the pH of a sample with the use of pH paper.

Reference: ASTM, method D 4980

Procedure:

1. For aqueous liquids, introduce the sample directly onto the pH paper. Compare the color of the paper with a color chart (provided with pH strips) to determine the pH of the sample.
2. For samples that are: solids, sludges, or non aqueous liquids. Place 10 ml of deionized water into a beaker. Add about 1 ml of sample to the water. Agitate for approximately 10 seconds or until thoroughly mixed. Introduce pH paper to the solution. Note the color of the pH paper and compare to color chart for proper pH.

QA\QC:

1. Check each new shipment of pH paper with buffer solution standards (i.e. pH buffers 4,7, and 10).
2. Run duplicate pH analysis every 15 samples to insure proper readings. The pH should be observed within ± 1 standard units.

Determining Physical Characteristics

Color and odor are two physical characteristics that are included within the analytical parameters of the incoming waste analysis report. Other physical characteristics include: number and percentage of phases, and physical state.

Reference: ASTM, method D 4979

Procedure:

1. Observe each sample to determine the basic color of the sample.
2. If noticeable, record the odor of the sample. DO NOT directly smell the sample. Record odor as being light, medium or strong accompanied by its general odor (i.e., organic, septic, paint, solvent, etc.). If no odor is noticed, record none noticed.
3. Record the number and percentage of each phase in a given sample. Each phase of a sample must be analyzed separately in order to properly represent the sample.
4. Record the physical state of the sample (i.e., solid, liquid, sludge).

Safety:

1. Always wear proper safety clothing when handling samples.
2. Read sample manifest or Waste Profile Form before analysis. Be aware of any danger before starting analysis. Carefully read all warning labels that may be attached to samples.
3. After analysis properly store materials with other compatible samples until properly disposed.

Specific Gravity

The specific gravity of a substance is defined as the ratio of its density to the density of a reference substance (usually water). For liquids and solids, specific gravity is numerically equal to its density.

Reference: ASTM, method D 5057

Procedure:

Determine specific gravity of a sample by either of there (3) methods.

1. By use of a hydrometer:

- a. Place hydrometer for correct range into sample and read the specific gravity directly off the scale.

2. By use of graduated cylinder:

Liquids:

- a. Tare an empty 10.0 ml graduated cylinder and add 10.0 ml of sample to it.
- b. Divide sample weight by 10 to obtain specific gravity.

Solids:

- a. Tare a 100 ml graduated cylinder containing 90 ml of water.
- b. Add enough solid sample to displace the water to the 100 ml mark.
- c. Divide the weight of this by 10 to determine the specific gravity of the solid sample.

specific gravity procedures continued:

3. By use of a graduated beaker (for extremely viscous samples and bulky solids):
 - a. Take an empty graduated beaker.
 - b. Place an amount of sample into the beaker and record its weight.
 - c. Cover the sample with deionized water. Record the weight of sample and water. Record volume of water and sample (This may vary from sample used).
 - d. Calculate specific gravity. Assume in this calculation that weight of water equals volume of water used.

$$\text{SG} = \frac{\text{sample wt.}}{\text{Total volume} - (\text{Total wt.} - \text{sample wt.})}$$

QA/AC:

1. Run duplicate every 15 samples The Specific Gravity should be within ± 0.5 standard units.
2. Keep glassware clean from contaminants that may altar results.

Reactivity Screening for Water Compatibility

An incoming waste is considered reactive if it exhibits any of the following characteristics:

- a. It reacts violently with water
- b. It generates toxic gas, vapors, or fumes when exposed to water.

Reference: 40 CFR 261.23
ASTM, method D 5058

Procedure:

1. Place a homogeneous sample of approximately 25 grams into a disposable beaker.
2. Introduce 25 ml of deionized water into the beaker and observe for any reaction.
3. If no reactions occur and no significant temperature changes take place within 5-10 minutes the sample has passed the water compatibility test.

Hazards:

1. In case of reaction (i.e. vapor or fumes) avoid inhalation of gases. The gases released may be toxic.
2. Keep the amount of sample used small. The smaller the sample the less hazardous the reaction.

Reactivity Screening for Polymerization

This test is used to determine the potential for hazardous polymerization occurring when a sample comes in contact with an incompatible waste stream

Reference: ASTM, method 5058

Procedure:

1. Mix together approximately 1 ml of triethylamine to 1 ml of sample.
2. Observe mixture for about 1 minute. Take note of any reactions taking place (i.e. gas evolution, fuming, charring, precipitation, gelling or burning).
3. If any of the above mentioned reactions take place the sample fails the polymerization test and should be handled with caution.

Hazards:

1. Any reaction that does occur can be severe. Handle material with extreme caution.
2. Using a small amount of sample will cause a less severe reaction. Always use small sample sizes when checking for hazardous reactions.

QA\QC:

1. If a reaction occurs, repeat the test. Record any reactions observed

Reactivity Screen for Cyanides

This test determines the reactivity of a sample for the release of cyanide gases.

Reference: ASTM, method 5049

Procedure:

1. Check sample for presence of cyanide:
 - a. Lower pH of a 10 gram sample to less than 2.00 by adding 10 grams of 1.0 N HCl.
 - b. Use a Drager Hydrogen Cyanide detector tube incorporated with a Drager Sampler Pump.
 - c. Expose detector tube to 200 cc of air (2 pump-strokes) directly over acidified sample.
 - d. If cyanide is present, indicator crystals will turn from yellow to blue.
 - e. Determine ppm cyanide from calibration on detector tube.
2. All samples that screen positive for cyanide must be analyzed for cyanide according to SW 846 method 9010

QA/QC:

1. If a sample reacts in the aforementioned manner repeat the test to insure the results.
2. Always work with small samples. Small samples will react less violently and be significantly less dangerous.

Reactivity Screen for Sulfides

This test will determine the reaction and release of Sulfide gases from a waste stream.

Reference: ASTM, method 5049

Procedure:

1. Check sample for presence of sulfide:
 - a. Use lead acetate test paper to test for sulfide.
 - b. Moisten lead acetate test strip with 1.0 N HCl.
 - c. Place moistened strip into sample.
 - d. A color change from white to black indicates the presence of a sulfide in the sample.
2. All samples which screen positive for sulfides must be further analyzed by SW 846 Method 9030.

Safety:

1. When working with corrosives and possible reactives, exercise all necessary laboratory safety precautions.
2. If a sample exhibits reactivity, place the sample in the fume hood as safely as possible. Handle any further analysis with extreme caution. Do not expose the sample to any conditions that may create a health hazard.

QA/QC:

1. If any sample shows signs of reactivity, carefully repeat the process for duplicate analysis.

Flash Point

Scope and Application:

This method makes use of the Pensky Martin and/or Setaflash Closed-Cup tester to determine the flash point of paints, enamels, lacquers, varnishes, and other products that have flash points between 0° and 110° C (32° and 230° F). Tests at higher or lower temperatures are also possible. The procedures may be used to determine whether a material will or will not flash at a specified temperature or to determine the finite temperature at which a material will flash.

Reference: SW846 Method 1010 (Pensky-Martens Closed-Cup Method)

Procedure:

1. Pour the sample into the container cup up to the mark on the inside of the cup.
2. Assemble the Pensky Martin apparatus and turn the flash point tester to the on position. Light flame and apply necessary heat to the vessel.
3. As a flash/no flash test, the expected flash point temperature may be a specification (e.g., 60° C). For specification testing, the temperature of the apparatus is raised to the precise temperature of the expected flash point by slight adjustment of the temperature dial. After 1 minute, a test flame is applied inside the cup, note whether the test sample flashes or not. If a repeat test is necessary, a fresh sample should be used.
4. For a finite flash measurement, the temperature is sequentially increased to the anticipated range at 5° C (9° F) intervals until a flash is observed. Once a flash has been detected repeat the procedure. Begin with a fresh sample starting the temperature 5° C lower than were the flash was detected. Increase the temperature at the same interval until a flash is detected. Record the flash point.

Reference: SW846 Method 1020 (Setaflash Closed-Cup Method)

Procedure:

1. Add sample to the apparatus cup using a clean, disposable pipette.
2. Apply the gas to the system and light the flame. With the system at room temperature, direct the flame into the sample cup and note whether the test sample flashes or not.
3. The tested temperature range is from 70° to 140° F. The temperature is sequentially increased at 10° F intervals through this range until a flash is observed. This gives an approximate flash point value.

flash point procedure continued:

4. A repeat determination is then made using a fresh sample and starting the test at the temperature of the last interval before the approximate flash point and testing at 1 degree F intervals.

Interferences for the above procedures:

Ambient pressure, sample homogeneity, drafts, and operator bias can affect flash point values.

Safety:

1. Always perform flash point determination in the hood.
2. Keep any questionable ignitable materials adequately away from any flame of the flash point tester. Do not leave open sample containers near the flash point tester while in operation.
3. While working with possible flammables use any necessary laboratory safety techniques.

QA/QC:

1. Make certain the container cup is clean and free from any possible contamination.
2. Xylene is used as the Quality Control check for the flash point tester. Flash point of Xylene is approximately 84° F. The flash point should be observed within ± 5 degrees.
3. Run a duplicate sample every 15 samples.

Heat of Combustion

The heat of combustion value is determined for incoming wastes to measure their fuel value in either BTU/Pound or BTU/Gallon.

Reference: Parr Instrument Company Operating Manual

Procedure:

1. Measure out 2000 grams of deionized water into a water bath bucket.
2. Weigh out a well shaken sample into a clean stainless steel cup. Use a sample size ranging between .50 and .80 grams.
3. Place weighed cup into support apparatus attached to bomb top.
4. Place 10 cm of Ni-chrome wire into holes in support electrodes and lock into place with slip fittings.
5. Position ni-chrome wire over the liquid sample so that it just touches the liquid. Do not allow the wire to touch the sides of the stainless steel cup.
6. Introduce 10 ml of deionized water into bottom of bomb.
7. Carefully fit bomb top into bomb bottom and screw closure until tight.
8. Charge bomb with 30 atmospheres of pure oxygen.
9. Use tongs to place bomb into water bath. Insert the ignition wires into the bomb top. Place top jacket cover on top of unit. Check the top of the bomb for any leakage. This can be easily detected by the presence of bubbles.
10. Stir approximately 5 minutes to allow temperature to stabilize.
11. Read temperature (T_1), record, and fire bomb. Read the temperature to $\pm .01^\circ\text{F}$.
12. After 7 minutes, the temperature will reach its peak. Read the temperature (T_2), and record.

heat of combustion continued:

13. Determine BTU/Gallon of sample by using the following equation:

$$\text{BTU/Pound} = \frac{(T_2 - T_1)}{\text{sample wt.}} \times 2417 \times 1.8$$

$$\text{BTU/Gallon} = \frac{(T_2 - T_1)}{\text{sample wt.}} \times 2417 \times 1.8 \times 8.337 \times (\text{Specific Gravity})$$

Safety:

1. When working with compressed gases be aware of any necessary safety techniques. Do not pressurize the copper line above 900 psi.
2. Do not pressurize the bomb above 30 atmospheres.
3. Do not use a damaged bomb.

QA/QC:

1. Every 15 samples run a duplicate analysis. The results should be within $\pm 5\%$
2. A minimum of one time per week run Quality Control sample for the calorimeter bomb (benzoic acid). Record the value in cal/g in Quality Control book.
3. Clean bomb well after each use. A dirty bomb may contaminate the next sample.

Maintenance:

1. Do not let water accumulate in the bottom of the bomb - this may affect results.
2. Keep the deionized water clean - dirty water will affect results.
3. After heavy use, send bomb back to Parr instrument for reconditioning.

heat of combustion continued:

Troubleshooting Notes for the Calorimeter Bomb:

Reference: Parr Operation Manual - Model 1341 Oxygen Bomb Calorimeter.

Possible Problems:

Air (Oxygen) Leaks:

1. Tighten area around leak if possible. Check underside of bomb head for loose parts.
2. Replace necessary 'O' Rings and/or valve seats, refer to manual.
3. Replace worn parts.

Misfires:

1. Look for loose parts or wires, also worn out parts. Tighten or replace as needed.
2. Spike sample with known amount of benzoic acid tablet if necessary. Some samples may not burn on their own.
3. Refer to manual for additional causes and solutions.

Percent (%) Chlorides

Purpose: Determine the amount of organic halogens present in a sample and report as percent chlorides.

Reference: Standard Methods for the Examination of Waste and Wastewater, 16th ed. 1985

Procedure:

1. After BTU burn is complete, remove bomb from water bath.
2. Discharge excess gas from bomb into the hood.
3. Rinse down inside of bomb with deionized water.
4. Plug Ag⁺ and reference electrodes into pH/Mv meter.
5. Place electrodes into deionized water and turn meter to the millivolt setting. The deionized water will register 250 +/- 25.
6. Replace beaker of deionized water with the beaker containing bomb washings. The Mv reading will be less than that of the deionized water.
7. While stirring, titrate slowly with 0.14N AgNO₃ solution.
8. The endpoint of the titration is reached when one drop of AgNO₃ creates a sharp change in readings and is higher or equal to the initial reading of the deionized water.
9. Percent (%) Chlorides is found using the following equation:

$$\% \text{ Cl}^- = \frac{\text{mls AgNO}_3 \text{ titrated}}{\text{Sample wt.}} \times .4962$$

Safety:

1. Calorimeter bomb may be under 30 atmospheres of pressure, use necessary caution.
2. When working with the Parr calorimeter bomb, use any necessary laboratory safety techniques.

percentage of chlorides continued:

Maintenance:

1. Refer to maintenance of pH meter and calorimeter bomb. See Orion Electrode manual

QA/QC:

1. Check electrode reading with deionized water if initial reading is not within the normal range make any necessary corrections. The results should be within $\pm 1\%$
2. Run a duplicate sample every 15 samples.

Chloride Mv reading erratic (Constantly moving rapidly):

1. Reference electrode problem - check connection into meter.

Higher than normal Mv readings:

1. Carefully clean underneath side of electrode. If still high, proceed to number 2.
2. Replace inner and outer filling solutions. Unscrew the white cap and slide it up the wire. Pull the outer body of the electrode up the wire.
3. Empty and refill the inner solution of the electrode. Slide the outer body of the electrode back into place. Refill outer filling solution and check with meter.

Percent (%) Acidity

Purpose: To determine the percent acidity of a sample that has been characterized as corrosive due to a $\text{pH} \leq 2$.

Reference: Standard Methods for the Examination of Waste and Wastewater, 16th ed. 1985

Reagent: 1.0 N Sodium Hydroxide

Procedure:

1. Weigh out a known amount of sample into a small beaker (250 ml), approximately 5.00 grams.
2. Add enough deionized water to sample to obtain a mixable solution.
3. Fill a 50 ml buret with 1.0 N NaOH.
4. Place sample in buffered pH electrode system and set sample mixing on magnetic stirrer; not pH.
5. Titrate sample dropwise with NaOH until pH just reaches 8.30, the endpoint, record volume of titrant used.

percent acidity continued:

6. Calculate % acidity:

$$\% \text{ Acidity} = \frac{V \times f}{g}$$

Where: V = Volume of 1.0 N NaOH

f = Milliequivalent weight * 100 for specific acid

g = sample weight in grams

% acid should be determined based on the major acidic species in the sample as follows:

<u>ACIDIC SPECIES</u>	<u>(F)</u>	<u>ACIDIC SPECIES</u>	<u>(F)</u>
H ₂ SO ₄	4.9	HF/HNO ₃	6.302
H ₂ CrO ₄	4.9	FeCl ₃	3.647
HCl	3.647	HOAc or CH ₃ COOH	6.0
HNO ₃	6.301	Dodecylbenzene H ₂ SO ₄	2.90
HF	2.0	H ₃ PO ₄	3.267

Safety:

1. When working with corrosives, exercise necessary and routine laboratory safety.

QA/QC:

1. When running % Alkalinity, run one duplicate for every group of samples run. Record in duplicate book. Duplicate results should be within $\pm 3\%$
2. Run any necessary QC for the pH meter. Check deionized H₂O for pH.

Percent (%) Alkalinity

Purpose:

To calculate the % Alkalinity in a sample.

Reference: Standard Methods for the Examination of Waste and Wastewater, 16th ed. 1985

Reagents: 1N HCl

Procedure:

1. Add Approximately 5 mls sample to 50 mls deionized H₂O in a beaker with a stir bar.
2. While stirring, titrate sample with 1N HCl until the pH of the sample is 8.30.
3. Calculate % Alkalinity with the following equation:

$$\% \text{ Alkalinity} = \frac{(\text{Volume 1N HCl}) \times (4.0)}{\text{mls of sample}}$$

Safety:

1. When working with corrosives, exercise necessary and routine laboratory safety.

QA/QC:

1. When running % Alkalinity, run one duplicate for every group of samples run. Record in duplicate book. Duplicate results should be within $\pm 3\%$
2. Run any necessary QC for the pH meter. Check deionized H₂O for pH.

Compatibility Test for Mixing Wastes

Purpose

The compatibility test is performed before any two different wastes are mixed together in the facility.

Reference Method

ASTM 5058

Procedure

- 1) Place in a 500 ml beaker, approx. 150 ml of one of the wastestreams to be commingled.
- 2) Measure and record the temperature with a thermometer capable of displaying to 0.5°F increments.
- 3) Slowly and carefully add approx. 150 ml of the second wastestream to the beaker.
- 4) Observe for any adverse reaction, during the addition.
- 5) After the addition is complete, mix well and measure the temperature.
- 6) Compare the temperature after mixing the temperature of the initial waste. Any change in temperature or an observed adverse reaction will be considered a positive reaction.
- 7) If a reaction is not observed, the waste passes the compatibility test and can be commingled.
- 8) Record and report results of the test on the Batch Sheet being used to record this operation.

Adverse Reaction

While mixing observe the sample for any of the following reactions: production of gas, mists, fumes or dusts; polymerization; bubbling; foaming; splattering or solidification or sample. Any observation of the above is considered a positive reaction.

Halide Detection using Benz-O-Matic

Purpose: To screen for the presence of halides (chlorides) in a sample before running BTU's and Cl^- .

Reference: Benz-O-Matic Instruction Guide

Equipment: Benz-O-Matic halide detection unit.

Reagents: 1,000 ppm chloride standard using 100 ml virgin hydraulic oil and 1 ml 1,1,1-Trichloroethane.

Procedure:

1. Light the Benz-O-Matic propane tank and turn flame on high enough to reach the copper plate on detection apparatus.
2. Once the copper plate is bright red the unit is ready to detect halides.
3. Check the standard first by placing the detection tube about $\frac{1}{2}$ inch above the halogenated oil standard. With the presence of halides the flame should turn a green/blue color and intensify as it passes through the copper plate. This shows the presence of about 1000 ppm chlorides.
4. Take the detection hose away from the standard and let it remain in clean air until the flame returns to its initial color and intensity until the chlorides from the standard burn off.
5. Place the detection hose about on inch above the sample solution and determine if the flame intensifies and/or changes color. If the flame resembles the standard, then the sample has >1000 ppm halides. BTU's/ Cl^- should be run on this sample to determine the exact percent.
6. If the flame does not change color or intensify, then the sample can be recorded as having less than 1000 ppm chlorides.

Oxidizer Screen

Purpose: To screen for the presence of oxidizing properties in a sample.

Reference: ASTM D4981; Screen of Oxidizers in Waste

Reagents: 1N Hydrochloric Acid (HCl)
Manganese Chloride Tetrahydrate

Equipment: Starch Iodide Test Paper

Procedure:

1. Place between 5-10 grams of sample (or ml if sample is liquid) on a clean watch glass and lower the pH by adding an equal amount of 1N HCl.
2. Moisten the Starch Iodide test strip in 1N HCl and place the moistened strip into the sample.
3. If the test strip remains white or turns any other color than purple, the sample can be recorded negative for oxidizing properties.
4. If the strip turns lavender to purple, the sample must be tested further using the Manganese chloride, Tetrahydrate.
 - a. Place 5-10 grams of sample (5-10 ml if liquid) on a clean watch glass.
 - b. If the sample is solid add an equal amount of distilled water to the sample. If the sample is liquid, nothing should be added.
 - c. Mix an equal amount of Manganese chloride Tetrahydrate with the sample and let stand for at least 5 minutes.
 - d. If the solution turns black the sample is a positive oxidizer, if the solution does not change color then original test was a false positive and the sample may be recorded as negative for oxidizer.

Appendix 1 Recoverable Solvents

COMPOUND: 1,1,1 Trichloroethane
HAZARD CLASS: 6.1
ID#: UN2831

Packing Group III

CHEMICAL FORMULA: $C_2H_3Cl_3$ MOLECULAR WEIGHT: 133.40

PHYSICAL PROPERTIES: Specific Gravity - 1.325; Boiling Point - 74.1° C / 167° F

HAZARDOUS HEALTH EFFECTS: Moderately toxic by ingestion, inhalation, skin contact, subcutaneous and intraperitoneal routes. May cause conjunctive irritation, hallucination, or distorted perceptions, motor activity changes, irritability, aggression, diarrhea, nausea or vomiting and other gastrointestinal changes.

COMPOUND: Trichloroethylene
HAZARD CLASS: 6.1
ID#: UN1710

Packing Group III

CHEMICAL FORMULA: C_2HCl_3 MOLECULAR WEIGHT: 131.38

PHYSICAL PROPERTIES: Specific Gravity - 1.464; Boiling Point - 86.7° C / 188° F

HAZARDOUS HEALTH EFFECTS: Mildly toxic by ingestion and inhalation. Can cause eye and skin irritation. Inhalation of high concentrations cause narcosis and anesthesia.

COMPOUND: Tetrachloroethylene (Perchloroethylene)
HAZARD CLASS: 6.1
ID#: UN1897

Packing Group III

CHEMICAL FORMULA: C_2Cl_4 MOLECULAR WEIGHT: 165.82

PHYSICAL PROPERTIES: Specific Gravity - 1.625; Boiling Point - 120° C / 249° F

HAZARDOUS HEALTH EFFECTS: Moderately toxic by inhalation. Causes severe eye and skin irritation. Can cause dermatitis with prolonged exposure. Irritates the gastrointestinal tract upon ingestion.

COMPOUND: Dichloromethane (Methylene Chloride)
HAZARD CLASS: 6.1
ID#: UN1593

Packing Group III

CHEMICAL FORMULA: CH_2Cl_2

PHYSICAL PROPERTIES: Specific Gravity - 1.335; Boiling Point - 104° F

HAZARDOUS HEALTH EFFECTS: Methylene Chloride is a carcinogenic and narcotic.

COMPOUND: Freon TF 113; 1,1,2-Trichloro 1,2,2-Trifluoroethane
HAZARD CLASS: N/A
ID#: N/A

CHEMICAL FORMULA: CCl_2FCClF_2

PHYSICAL PROPERTIES: Specific Gravity - 1.42; Boiling Point - 117° F

Appendix 2 Laboratory QA/QC

1. Objectives

This QA/QC plan has been developed to ensure that accurate data is obtained and reported

2. Detection Limits

Limits for each test are discussed in the individual lab procedures

3. Description of handling and storage of sampling and analysis records

Records of analysis are maintained at the facility on the Treatment Procedure Sheets, Lab reports and individual procedure logs for each analysis. These records are maintained at the facility as part of the facility operating record for three years.

4. Organizational structure, functional responsibilities, and lines of communications.

The Lab Technician reports to the Lab Manager, who reports to the Approvals Manager, who reports to the Facility Manager. At times the Lab and Approvals Manager positions may be the same person. The Facility Manager is ultimately responsible for all activities.

The Technician performs the analysis and reports results to Lab Manager. The Lab Manager reviews data and reports information to Approvals Manager or for plant samples to Plant Manager. Any problems or questions are reported to Facility Manager.

5. Training

Technicians receive supervised hands on training in all procedures before being allowed to perform testing on their own. In addition, they receive training on this QA/QC program

6. Performance Evaluation

Each procedure contains information pertinent to QA/QC requirements. This includes the frequency required. If a problem is noted during the QA/QC check, it will be noted in the lab procedure notebook, the Laboratory and Facility Managers will be notified and reevaluation of samples as needed will be completed.

7. Sampling QA/QC

Samples will only be accepted from personnel who have received supervised training. This training will be observed by the laboratory technician, Lab, Approvals or Facility Manager. A list with the date and signature of the trainer, will be maintained in the lab. All sampling personnel must be observed at least once a year.

8. SAMPLING REPRESENTATIVENESS

- a. Representativeness is a qualitative term that describes the extent to which a sampling design adequately reflects the conditions and the state of the waste. It also reflects the ability of the sampler to collect samples and laboratory personnel to analyze those sample in such manners that the data generated accurately and precisely reflect the waste being managed.**
- b. In order to ensure samples are accurately representing waste, the samples will be assessed by reviewing the results of any field notes, TPS parameters, safety data sheets, or other relevant documentation to establish overall representativeness. If review indicates significant variation, then this may trigger additional scoping meetings and subsequent resampling in order to collect more data representative of the waste. Overall sample representative will be considered acceptable if the results of the approved sampling methods or alternative sampling methods were used to collect the samples that are consistent for waste type and reviewed data.**

9. QA/QC Lab Activities

10.

- a. a check for completeness of records

The lab notebooks will be checked monthly by the Lab Manager to verify that QA/QC testing, as defined for each laboratory procedure, is being performed. The review will be stated as being completed in monthly report.

- b. evaluation of data with respect to detection and quantitation limits

Individual results will be evaluated against established regulatory limits, every month to Facility Manager.

- c. evaluation of data with respect to control limits

If a control sample is determined to be out of range, the results reported since the last successful QA sample will be evaluated and rerun if the variance noted could potentially affect the proper classification and handling of the waste represented by the sample.

- d. review of holding time data

Holding times will be evaluated before each sample is tested. The sample may still be tested and the results reported with a note that the holding time was exceeded. The results cannot be used for TCLP waste classification, if being used to report negative classification.

- e. correlation of lab data with related tests.

Lab data will be compared to expected results on TPS the following operational business day.

- f. calibration of equipment

pH by Electrode will be calibrated once a week.

g. quality control methods

Duplicate analysis are run periodically based on defined QA/QC lab procedures. Method blanks, matrix spikes, matrix spike duplicates and surrogate spikes do not apply to the testing methods and capabilities employed at Klor Kleen.

11. QA/QC Reports

A Monthly Report will be prepared by the Lab Manager which tabulates the quantity of samples tested by each procedure, the quantity of QA/QC checks performed and the results of any problems and corrections noted during the previous month. If any problems are discovered, corrective measures will be initiated including; review of sampling protocol, sample preservation & holding time, equipment calibration, duplicate sampling review and obtaining a new representative sample. Facility manager may also choose to send sample to an outside laboratory for testing verification. This report will be completed by the 15th of the following month and submitted to the Facility Manager for review. The Facility Manager will return a signed a copy of the report to the Laboratory Manager to be maintained in the operating records.

Inorganic Parameters									
		Water				Soil/Sludge			
Parameters	Method	Preservative	Holding Time	Container	Min. Vol.*	Preservative	Holding Time	Container	Min. Vol.*
Acidity	E305.1, SM2310B	≤6°C	14 Days	250 mL/P,G	50 mL	≤6°C	N/A	4 oz WMG	20g
Alkalinity	E310.1, SM2320B	≤6°C	14 Days	250 mL/P,G	50 mL	N/A	N/A	N/A	20g
Ammonia	SM4500NH3 B, F, & D	≤6°C, H2SO4 to pH <2	28 Days	250 mL/P,G	50 mL	≤6°C	28 Days	4 oz WMG	20g
Anions – Sulfate, Bromide, Chloride, Fluoride	E300, SW9056 A	≤6°C	28 Days	125 mL/P,G	10 mL	≤6°C	28 Days**	4 oz WMG	10g
Anions – Nitrate, Nitrite, Phosphate, Ortho	E300.0, SW9056A	≤6°C	48 Hours	125 mL/P,G	10 mL	≤6°C	48 Hours**	2 oz WMG	20g
Anions – Nitrate-Nitrite	E300.0, SW9056A	≤6°C, H2SO4 to pH <2	28 Days	125 mL/P,G	10 mL	≤6°C	28 Days**	2 oz WMG	20g
Biochemical Oxygen Demand (BOD)/ Carbonaceous BOD (CBOD)	E405.1, SM5210B	≤6°C	48 Hours	1000 mL/P,G	500 mL	N/A	N/A	N/A	N/A
Burn Rate	SW1030	N/A	N/A	N/A	N/A	≤6°C	28 Days	4 oz WMG	30g
Chemical Oxygen Demand (COD)	E410.4, HACH8000	≤6°C, H2SO4 to pH <2	28 Days	125 mL/P,G	10 mL	N/A	N/A	N/A	N/A
Chlorine, Residual	SM4500-Cl F	≤6°C	15 Minutes	125 mL/P,G	100 mL	N/A	N/A	N/A	N/A
Chromium VI (Hexavalent Cr)	SM3500-Cr, SW7196	≤6°C	24 Hours	250 mL/P,G	50 mL	≤6°C	24 H from Pr	4 oz WMG	20g
Color	E110.2, SM2120 B	≤6°C	48 Hours	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
Cyanide, Total & Cyanide, Amenable	E335.2, E335.3, E335.4, SW9010, SW9012, SW9014	≤6°C, H2SO4 to pH <2, Ascorbic Acid	14 Days	250 mL/P,G	50 mL	≤6°C	14 Days	4 oz WMG	20g
Dissolved Oxygen	E360.1, SM5210B	≤6°C	15 Minutes	1000 mL/P,G	500 mL	N/A	N/A	N/A	N/A
Ferrous Iron	SM3500FE B	≤6°C, HCL	48 Hours	250 mL/P,G	50 mL	≤6°C	14 Days	4 oz WMG	20g
Flashpoint	SW1010A	≤6°C	28 Days	500 mL/P,G	80 mL	N/A	N/A	N/A	N/A
Fluoride	E 4500-F BC	≤6°C	28 Days	125 mL/P,G	10 mL	≤6°C	28 Days**	4 oz WMG	20g
Hardness	SM2340 B	≤6°C, HNO3 to pH <2	6 Months	250 mL/P,G	100 mL	≤6°C	6 Months	2 oz WMG	N/A
Metals	E200.8, SW6020A	HNO3 to pH <2	6 Months	250 mL/P,G	100 mL	≤6°C	6 Months	2 oz WMG	20g
Metals (Dissolved - not field filtered)	E200.8, SW6020A	HNO3 to pH <2	2 Days to Filter	250 mL/P,G	100 mL	N/A	N/A	N/A	N/A
Mercury	E245.1, SW7470A, SW7471B	HNO3 to pH <2	28 Days	250 mL/P,G	40 mL	≤6°C	28 Days	2 oz WMG	20g
Nitrogen, Kjeldahl (TKN)	E351.3, SM4500-NH3 D	≤6°C, H2SO4 to pH <2	28 Days	250 mL/P,G	25 mL	≤6°C	28 Days	2 oz WMG	20g
Oil and Grease	E1664A, E1664B, SW9070A, SW9071B	≤6°C, H2SO4/HCL to pH <2	28 Days	1000 mL/WMG	1000 mL***	≤6°C	28 Days	2 oz WMG	20g
Phenolics	E420.1, E420.4, SW9065, SW9066	≤6°C, H2SO4 to pH <2	28 Days	250 mL/G, Amber	50 mL	≤6°C	28 Days**	2 oz WMG	20g
Phosphorous, Total	E365.3	≤6°C, H2SO4 to pH <2	28 Days	250 mL/P,G	50 mL	≤6°C	28 Days	2 oz WMG	20g
Phosphate, Ortho	E365.3	≤6°C	48 Hours	250 mL/P,G	50 mL	≤6°C	48 Hours**	2 oz WMG	20g
pH	E150.1, SM4500-H+B SW9040C, SW9045D	≤6°C	15 Minutes	125 mL/P,G	25 mL	≤6°C	48 Hours**	2 oz WMG	20g
Silica	SM4500-SiD	≤6°C	28 Days	100 mL/P	50 mL	≤6°C	28 Days**	2 oz WMG	20g
Solids, Dissolved (TDS)	E160.1, SM2540 C	≤6°C	7 Days	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
Solids, Suspended (TSS)	E160.2, SM2540 D	≤6°C	7 Days	1000 mL/P,G	1000 mL	N/A	N/A	N/A	N/A
Solids, Volatile (TVS)	E160.4	≤6°C	7 Days	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
Solids, Total (TS)	E160.3, SM2540 B	≤6°C	7 Days	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
Specific Conductance	E120.1, SM9050	≤6°C	28 Days	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
Sulfide	E376.1, SM4500 S F, WS 9030	≤6°C, ZnAc, NaOH to pH <9	7 Days	500 mL/P,G	200 mL	≤6°C, ZnAc to Moist	7 Days	2 oz WMG	20g
Sulfite	377.1, 4500SO3B	≤6°C	15 Minutes	250 mL/P,G	100 mL	≤6°C	48 Hours**	2 oz WMG	20g
Surfactants (MBAS)	425.1, 5540C	≤6°C	48 Hours	500 mL/P,G	400 mL	N/A	N/A	N/A	N/A
Total Organic Carbon (TOC)	E415.1, SW9060, Walkley Black(S)	≤6°C, H2SO4 to pH <2	28 Days	2 x 40 mL vials	40 mL	≤6°C	28 Days	2 oz WMG	20g
Turbidity	E180.1	≤6°C	48 Hours	250 mL/P,G	50 mL	N/A	N/A	N/A	N/A
LA29B	N/A	N/A	N/A	N/A	N/A	≤6°C	N/A	32 oz WMG	500g

* Please note the minimum volume should be used only in limited sample situations. ** Soil/Sludge holding time for anions is based upon aqueous HT and the time of preparation of aqueous deionized water leachate (10x typical) from the submitted soil/sludge.

Organic Parameters									
		Water				Soil/Sludge			
Parameters	Method	Preservative	Holding Time	Container	Min. Volume	Preservative	Holding Time	Container	Min. Vol.
TPH – Texas Method	TX1005 and TX1006	≤6°C, HCl to pH <2	14 / 14 Days	3 x 40 mL	3 x 40 mL VOA	≤6°C or ≤-10°C	14 / 14 Days	2 oz WMG or Terra Core Kit	10g
Total Petroleum Hydrocarbons***	SW8015C	≤6°C	7 / 40 Days	2 x 1000 mL – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	8 oz WMG	30g
DRO, ORO Low Volume***	SW8015C	≤6°C	7 / 40 Days	3 x 40 mL / G – Amb	1 x 40 mL / G – Amb	N/A	N/A	N/A	N/A
DRO, ORO***	SW8015C	≤6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
GRO**	SW8015C	≤6°C, HCl to pH <2	7 / 14 Days	3 x 40 mL VOA	1 x 40 mL VOA	≤6°C	14 Days	4 oz WMG	5g
GRO**	SW8015C/SW5035A	N/A	N/A	N/A	N/A	≤-10°C	14 Days	Terra Core Kit / 3 - Encore	5g
Methane, Ethane, Ethene	RSK-175	6°C, HCl to pH <2	7 / 14 Days	3 x 40 mL VOA	1 x 40 mL VOA	N/A	N/A	N/A	N/A
Glycols	SW8015C	≤6°C	14 Days	3 x 40 mL VOA	1 x 40 mL VOA	≤6°C	14 Days	4 oz WMG	30g
Explosives***	SW8330A/B	≤6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
BTEX / MTBE**	SW8021B	6°C, HCl to pH <2	7 / 14 Days	3 x 40 mL VOA	1 x 40 mL VOA	≤6°C	14 Days	2 oz WMG	5g
BTEX / MTBE	SW8021B, SW5035A	N/A	N/A	N/A	N/A	≤-10°C	14 Days	Terra Core Kit / 3 - Encore	5g
Volatile Organics**	E624, SW8260C	4°C, H2SO4/HCl to pH <2	7 / 14 Days	3 x 40 mL VOA	1 x 40 mL VOA	≤6°C	14 Days	2 oz WMG	5g
Volatile Organics	8260C/SW5035A	N/A	N/A	N/A	N/A	≤-10°C	14 Days (5035A)*	Terra Core Kit / 3 - Encore	5g
Organochlorine Pesticides****	E608, 8081B	6°C, pH 5-8	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days or 1 year	4 oz WMG	30g
PCB*****	E608, SW8082	6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days or 1 year	4 oz WMG	30g
PCB Wipe	40CFR Part 761/8082	N/A	N/A	N/A	N/A	C6 (Hexane)	7 / 40 Days	250 mL or 500 mL G Jar	N/A
Organophosphorous Pesticides****	SW8270D	6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
EDB, DBCP****	8011	6°C, H2SO4/HCl to pH <2	7 / 14 Days	3 x 40 mL VOA	1 x 40 mL / G – TLS	N/A	N/A	N/A	N/A
Chlorinated Herbicides****	8151A	≤6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
Polynuclear Aromatic Hydrocarbons****	8270D	≤6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
SVOC (Base/Neutrals/Acids)****	E625, 8270D	≤6°C	7 / 40 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
Formaldehyde	SW8315	≤6°C	3 Days	1000 mL / G	500 mL	≤6°C	3 Days	4 oz WMG	20g
Dioxins and Furans	E1613, SW8280, SW8290	≤6°C	30 / 45 Days	2 x 1000 mL / G – Amb	1000 mL or calc on avail	≤6°C	14 / 40 Days	4 oz WMG	30g
Reactive Sulfide and Cyanide ¹	SW-846, Caphater 7	≤6°C	28 Days	125 mL / P,G	5 g	≤6°C	28 Days	2 oz WMG	5g

*Must be frozen or preserved within 48 hours of collection; **Holding Time – 7/14 days - not preserved/ preserved; *** Holding Time – 7/14/14 days - not preserved/preserved/after extracted; **** Holding Time – 7/40 days - not preserved/after extracted
*****Holding Time – 7/40 days or 1 year (check state reg); ¹ Samples analyzed by ALS Holland

TCLP Parameters					
Parameters	Holding Time from Collection to TCLP Extraction	Preservative	Holding Time from TCLP Extraction to Preparative Extraction	Holding Time from TCLP/Preparative Extraction to Analysis	Total Elapsed Time
Volatiles	14 Days	≤6°C	Not Applicable	14 Days	28 Days
Semivolatiles	14 Days	≤6°C	7	40 Days	61 Days
Organochlorine Pesticides and PCBs	14 Days	≤6°C	7	40 Days	61 Days
Chlorinated Herbicides	14 Days	≤6°C	7	40 Days	61 Days
Organophosphorous Pesticides	14 Days	≤6°C	7	40 Days	61 Days
Mercury	28 Days	≤6°C	Not Applicable	28 Days	56 Days
Metals	180 Days	≤6°C	Not Applicable	180 Days	360 Days

Acronym Definitions		Preservative
CLP - Contract Laboratory Program	H - Hours	H2SO4 - Sulfuric Acid
G - Glass	D - Days	HNO3 - Nitric Acid
V-TLC - Glass Vial Teflon-lined Cap	M - Months	HCl - Hydrochloric acid
V-TLS - Glass Vial Teflon-lined Septum	T - TCLP	NaOH - Sodium Hydroxide
P - Polyethylene	Pr - Prep. Extraction	ZnAc - Zinc Acetate
Amb - Amber	A - Analysis	Asca - Ascorbic Acid
WMG - Wide Mouth Glass Jar	C - CLP	NaHSO4 - Sodium Bisulfate

SOLVENT RECOVERY REQUIREMENTS

Material Requirements

Must be one of the following Chlorinated Solvents with Stabilizers:

Methylene Chloride
1,1,1-Trichloroethane (TCA, 1,1,1)
Trichloroethylene (TCE, Trichlor)
Tetrachloroethylene (Perchloroethylene, PERC)
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon TF)
Freon Mixtures

- Mixture with water and non-volatile organics such as oil.
- Must contain a minimum of 30% recoverable solvent.
- Must not solidify under heated conditions.
- Must not have a pH < 5.0 for Trichloroethylene, 1,1,1-Trichloroethane or Perchloroethylene.
- Must not have a pH < 2.0 for Freon.
- Low pH is acceptable for Methylene Chloride.
- Must not have a pH > 12.5 for Trichloroethylene or Perchloroethylene.
- Total Solids must be < 10%.
- May contain minor amounts of contaminants, generally < 2%.

Typical Waste Codes

F001, F002 (Spent Solvents)
U080, U121, U210, U226, U228 (Off-Spec Commercial Products)

Other Possible Waste Codes

D004, D005, D006, D008, D009, D010, D011 (Metal Contamination)
D039, D040 (TCLP Wastes)
D019, D022 (TCLP Chlorinated Contaminates)
D002 (See Notes Above for Acceptable pH)

PREACCEPTANCE Analysis Parameters

Screens for Cyanide, Sulfide, Water Reaction, Polymerization
Flash Point, pH, Specific Gravity, Color, Phases and Physical State
Pilot Study; Initial Boiling Point, Boiling Range and % Recovery.

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases, Physical State and % Solvent.

SOLVENT RECOVERY MATERIAL RATIONAL

ANALYTICAL TEST	PREACCEPTANCE RATIONAL	FINGERPRINT ACCEPTANCE/REJECTION
Screens for: Cyanides Sulfides Water Polymerization	These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen.	No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.
Flash Point	To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.	Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°F. Resolve any other differences with generator and amend WPF if required.
Color, Specific Gravity, Phases and Physical State.	To validate information provided on WPF. This information is used to determine disposal costs and options. For Solvent Recovery the amount of sludge and solids determines disposal cost.	Verify Ranges determined in Preacceptance. difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.
pH	To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.	Verify Range determined in Preacceptance. A difference in range may be an indication or process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.
Pilot Study: Initial Boiling Point Boiling Range % Recovery	To validate information provided on WPF and to determine if the waste is suitable for recovery.	Not repeated during Fingerprint.

CORROSIVE MATERIAL REQUIREMENTS

Material Requirements

Material may be a liquid, solid or sludge.
Must be packaged in appropriate shipping containers suitable for corrosive concentration.

Typical Waste Codes

D002 (Corrosive)
D004, D005, D006, D007, D008, D009, D010, D011 (Metal Contamination)

Other Possible Waste Codes

None Likely

PREACCEPTANCE Analysis Parameters

Screen for Cyanide, and Sulfide
Flash Point, pH, Specific Gravity, Color, Phases and Physical State
% Acidity or Alkalinity as appropriate.

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases and Physical State.

Waste Management Methods

Storage for transfer to an Alternative Disposal Facility for treatment and disposal.
Consolidation of wastes within containers to ship only full containers off-site.

Alternative Facility Type

Facility must be capable of Deactivating the Characteristic of Corrosivity.
Wastewater treatment for liquids with low organics.
Solidification/Stabilization for Solids, Sludges and Liquids not amendable to WWT.
Fuel Blending for Organic based corrosives with sufficient BTU value.

CORROSIVE MATERIAL RATIONAL

ANALYTICAL TEST

PREACCEPTANCE RATIONAL

FINGERPRINT ACCEPTANCE/REJECTION

Screens for:
Cyanides
Sulfides
Water Polymerization

These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen.

No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.

Flash Point

To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.

Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°F. Resolve any other differences with generator and amend WPF if required.

Color, Specific
Gravity, Phases and
Physical State

To validate information provided on WPF. This information is used to determine disposal costs and options.

Verify Ranges determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

pH

To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.

Verify Range determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

% Acidity
or Alkalinity

Used to determine the strength of material. This is important for disposal cost.

Not verified unless another fingerprint parameter is out of range.

FUEL RECOVERY REQUIREMENTS

Material Requirements

>5,000 BTU's per pound minimum

Material may be a liquid, sludge, or solid (additional disposal costs will be incurred based on the amount of sludge and solids present).

Additional disposal costs will be incurred for materials with a % Cl above 3%.

Typical Waste Codes

F001, F002 (Spent Solvents, paints, sludges and solids)

D004, D005, D006, D007, D008, D009, D010, D011 (Metal Contaminated organic materials)

D019, D022, D039, D040 (Organic Materials or Debris)

Other Possible Waste Codes

D002 Corrosive (acceptable in special fuel programs only)

U080, U121, U210, U226, U228 (Contaminated Organic Spill Residue or Off-spec Commercial Product not suitable for recovery).

PREACCEPTANCE Analysis Parameters

Screens for Cyanide, Sulfide, Water Reaction, Polymerization

Flash Point, pH, Specific Gravity, Color, Phases and Physical State

BTU's and % Chlorides

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases, Physical State, BTU and % CL.

Waste Managements Methods

Storage for transfer to an Alternative Disposal Facility for treatment and disposal.

Pumping of liquids into tank trucks for shipment off-site. Consolidation of remaining residues and other wastes within containers to ship only full containers off-site.

Alternative Facility Type

Shipped to a facility capable of blending liquids, solids and sludges into a fuels blending recovery program.

FUEL RECOVERY RATIONAL

ANALYTICAL TEST	PREACCEPTANCE RATIONAL	FINGERPRINT ACCEPTANCE/REJECTION
Screens for: Cyanides Sulfides Water Polymerization	These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen.	No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.
Flash Point	To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.	Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°f. Resolve any other differences with generator and amend WPF if required.
Color, Specific Gravity Phases and Physical State	To validate information provided on WPF. This information is used to determine disposal costs and options. For Fuel Recovery the amount of sludge and solids determines disposal cost.	Verify Ranges determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.
pH	To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.	Verify Range determined in Preacceptance. A difference in range may be an indication or process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.
BTU's and %Chloride	To validate information provided on WPF. Used to determine if waste has sufficient BTU value for use as a fuel. Actual BTU's and % Chloride determine Disposal cost.	Verify Range determined in Preacceptance. A difference in range may be an indication or process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

F006 WASTEWATER TREATMENT SLUDGE REQUIREMENTS

Material Requirements

- Material must be less than 250 ppm Free Cyanide (Free Cyanide ≥ 250 ppm is considered to be D003 Reactive)
- Waste should be a solid or semisolid which may contain free liquids.
- It is possible to have water, dirt and debris as the result of spills of this material.
- pH < 5.0 is not acceptable (exposure to low pH may liberate free cyanide)

Typical Waste Codes

F006 (Wastewater Treatment Sludge)

D002 Alkaline Only

D004, D005, D009, D010, D011 (Metal Contamination)

Other Possible Waste Codes

D006, D007, D008 (Cadmium, Chromium, Lead are part of F006 Treatment Standard it is not required to duplicate these waste codes when characterizing this F006 waste, but it is allowed.

PREACCEPTANCE Analysis Parameters

Screen for Sulfide, Water Reaction, Polymerization.

NO Screening for Cyanides.

Free Cyanide results are required to be supplied by generator.

Flash Point, pH, Specific Gravity, Color, Phases and Physical State.

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases and Physical State.

Waste Management Methods

Storage for shipment to an alternative treatment and disposal facility.

Accumulation of sufficient quantity for economical off-site disposal.

Alternative Facility Type

Shipped to a facility capable of cyanide reduction if required, followed by Stabilization/Solidification of metals.

F006 WASTEWATERS TREATMENT SLUDGE RATIONAL

ANALYTICAL TEST

PREACCEPTANCE RATIONAL

FINGERPRINT ACCEPTANCE/REJECTION

Screens for:
Sulfides
Water Polymerization
NO CYANIDES

These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen. Cyanide Screening is not required a separate Cyanide Test is conducted.

No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.

Total and Free Cyanides

This information must be provided by Generator. It is required to complete Land Ban form and chose appropriate treatment

Not duplicated

Flash Point

To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.

Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°F. Resolve any other differences with generator and amend WPF if required.

Color, Specific
Gravity, Phases and
Physical State

To validate information provided on WPF.

Verify Ranges determined in Preacceptance. A difference in range may be an indication or process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

pH

To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination. A pH less than 5.0 is not acceptable.

Verify Range determined in Preacceptance. A difference in range may be an indication or process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed. A pH less than 5.0 will be rejected to Generator.

ORGANIC SOLIDS AND DEBRIS REQUIREMENTS

Material Requirements

Material is less than 5,000 BTU's per pound.
Typically material is dirty gloves, tyvek suits, plastic sheeting, etc.
May include contaminated absorbent.

Typical Waste Codes

F001, F002 (Spent Solvent contaminated)
U080, U121, U210, U226, U228 (Off-spec Commercial chemical Contaminated)
D004, D005, D006, D007, D008, D009, D010, D011 (Metal Contamination)

Other Possible Waste Codes

D002 (Corrosives)
D019, D022, D039, D040 (TCLP Organic Spill Residue)

PREACCEPTANCE Analysis Parameters

Visual identification for Color, Phases, Physical State, pH and Flash Point.

Fingerprint Analysis Parameters

Visual verification of Color, Phases and Physical State.

Waste Management Methods

Storage for Shipment to an alternative facility for treatment.

Alternative Facility Type

Subpart O Incineration, followed by stabilization of metals if present.
TCLP Organic waste not subject to LDR restrictions will be sent to Subtitle C Landfill.
Stabilization/encapsulation followed by subtitle C Landfill.

ORGANIC SOLIDS AND DEBRIS RATIONAL

ANALYTICAL TEST

Color, Specific
Gravity, Phases and
Physical State,
pH and Flash Point

PREACCEPTANCE RATIONAL

To validate information provided on
WPF.
No other testing is practical or suitable
for debris and solids.

FINGERPRINT ACCEPTANCE/REJECTION

Verify Ranges determined in Preacceptance. A
difference in range may be an indication of process
change. Resolve any discrepancies with generator.
Reject shipment if process has changed or amend WPF
as needed.

INORGANIC SOLID DEBRIS REQUIREMENTS

Material Requirements

Inorganic solid debris means nonfriable inorganic solids contaminated with D004-D011 hazardous wastes that are incapable of passing through a 9.5 mm standard sieve; and that require cutting, or crushing and grinding in mechanical sizing equipment prior to stabilization; and, are limited to the following inorganic or metal materials;

- (1) Metal slags (either dross or scoria);
- (2) Glassified slag;
- (3) Glass;
- (4) Concrete (excluding cementitious or pozzolanic stabilized wastes);
- (5) Masonry and refractory bricks;
- (6) Metal cans, containers, drums, or tanks;
- (7) Metal nuts, bolts, pipes, pumps, valves, appliances, or industrial equipment;
- (8) Scrap metal as defined in 40 CFR 261.1(c)(6).

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (Metal Contamination)

Other Possible Waste Codes

None Possible

PREACCEPTANCE Analysis Parameters

Visual identification for Color, Phases and Physical State

Fingerprint Analysis Parameters

Visual verification of Color, Phases and Physical State.

Waste Management Methods

Storage for shipment to alternative facility.

Alternative Facility Type

Shipped to a facility capable of removing the characteristic and meeting treatment standard followed by landfilling.

INORGANIC SOLIDS AND DEBRIS RATIONAL

ANALYTICAL TEST

Color, Specific
Gravity, Phases and
Physical State

PREACCEPTANCE RATIONAL

To validate information provided on
WPF.
No other testing is practical or suitable
for debris and solids.

FINGERPRINT ACCEPTANCE/REJECTION

Verify Ranges determined in Preacceptance. A
difference in range may be an indication of process
change. Resolve any discrepancies with generator.
Reject shipment if process has changed or amend WPF
as needed.

METAL CONTAINING DUSTS AND SOLIDS REQUIREMENTS

Material Requirements

- Dusts, Solids, and other waste materials
- Does not contain large objects or items that would make this a debris.
- Dry Materials may be shipped in large boxes and bags.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (Metal Containing Wastes)

Other Possible Waste Codes

None Likely

PREACCEPTANCE Analysis Parameters

Screens for Cyanide, Sulfide, Water Reaction, Polymerization
Flash Point, pH, Specific Gravity, Color, Phases and Physical State

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases and Physical State.

Waste Management Methods

Storage for shipment to an alternative facility.

Alternative Facility Type

Facility should be capable of performing one or all of the following treatment methods:

Metal Stabilization, followed by landfilling in Subtitle C or D facility;
Metal Recovery (Wastes containing > 5% suitable metal)

METAL CONTAINING DUSTS AND SOLIDS RATIONAL

ANALYTICAL TEST

PREACCEPTANCE RATIONAL

FINGERPRINT ACCEPTANCE/REJECTION

Screens for:
Cyanides
Sulfides
Water Polymerization

These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen.

No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.

Flash Point

To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.

Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°F. Resolve any other differences with generator and amend WPF if required.

Color, Specific
Gravity, Phases and
Physical State

To validate information provided on WPF. This information is used to determine disposal costs and options. For Solvent Recovery the amount of sludge and solids determines disposal cost.

Verify Ranges determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

pH

To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.

Verify Range determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

BATTERY RECOVERY REQUIREMENTS

Material Requirements

- Leaking or damaged batteries not being managed as Universal Waste containing Lead, Cadmium, or Mercury.
- Terminals must be protected from making electrical contact (e.g. taped).

Typical Waste Codes

D006	Cadmium
D008	Lead
D009	Mercury
D002	Corrosive

Other Possible Waste Codes

None Likely

PREACCEPTANCE Analysis Parameters

pH

Fingerprint Analysis Parameters

pH and visual observation

Waste Management Method

Storage for shipment to an alternative treatment facility.

Alternative Facility Type

Batteries are to be shipped to authorized facilities that can recycle the metals and acid which may be present.
Otherwise meet treatment standard for landfill.

BATTERY RECOVERY RATIONAL

ANALYTICAL TEST

Physical Description,
pH

PREACCEPTANCE RATIONAL

To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.

FINGERPRINT ACCEPTANCE/REJECTION

Verify Ranges determined in Preacceptance. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

WASTEWATER REQUIREMENTS

Material Requirements

- Maximum 1% Total Organic Carbon (TOC), remainder primarily wastewater.
- Maximum 1% Total Suspended Solids (TSS), except for F001 and F002 wastes.
- F001 and F002 Wastes must be less than 1% total F solvent constituents.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (Metal Wastewaters)
F001, F002 (Wastewater from Spills and Cleanup)
D019, D022, D039, D040 (Wastewater from Spills and Cleanup)
U080, U121, U210, U226, U228 (Wastewater from Spills and Cleanup)

Other Possible Waste Codes

D002 (Dilute Corrosives)

PREACCEPTANCE Analysis Parameters

- Screens for Cyanide, Sulfide, Water Reaction, Polymerization
- Flash Point, pH, Specific Gravity, Color, Phases and Physical State
- % Solids analysis must be provided by Generator, outside lab, or alternative facility
- % Organic analysis must be provided by Generator, outside lab, or alternative facility, results can be in Total Organic Carbon (TOC) or by Volatile Organic GC Scan.

Fingerprint Analysis Parameters

Flash Point, pH, Specific Gravity, Color, Phases and Physical State.

Waste Management Methods

Storage for shipment to an Alternative Treatment Facility.

Alternative Facility Type

Wastewater treatment facility.

WASTEWATER MATERIAL RATIONAL

ANALYTICAL TEST

PREACCEPTANCE RATIONAL

FINGERPRINT ACCEPTANCE/REJECTION

Screens for:
Cyanides
Sulfides
Water Polymerization

These tests are conducted to determine if the waste is reactive and should be classified as a D003 waste. Any D003 waste is not acceptable at Klor Kleen. These tests are to ensure that these wastes are not shipped to Klor Kleen.

No duplication is performed unless one of the other tests is out of range, and then a new preacceptance test will be required.

Flash Point

To validate information provided on WPF and determine if material is Ignitable and should be classified as D001. D001 waste is not acceptable for storage at Klor Kleen. Establish fingerprint range for this test.

Verify Flash Point Range determined in Preacceptance. Reject any waste with Flash Point <140°F. Resolve any other differences with generator and amend WPF if required.

Color, Specific
Gravity, Phases and
Physical State

To validate information provided on WPF. This information is used to determine disposal costs and options.

Verify Ranges determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

pH

To validate information provided on WPF. Used to determine if the waste should be D002 Corrosive or not. This information is important for storage compatibility determination.

Verify Range determined in Preacceptance. A difference in range may be an indication of process change. Resolve any discrepancies with generator. Reject shipment if process has changed or amend WPF as needed.

% Solids

Information required to determine disposal costs.

Not Required

% Organics

Information required to see if material is suitable for Wastewater treatment. If it too high for alternative facility send to Subpart O Incineration

Not Required

LAB PACK AND SMALL QUANTITIES OF OFF-SPECIFICATION CHEMICALS REQUIREMENTS

Material Requirements

- Name of Product or Material.
- Maximum individual package size of 5 gallons.
- Must be packaged and shipped in accordance with Department of Transportation requirements for Lab Packs.
- Inventory or packaging list for content must be provided.

Typical Waste Codes

D002 (Corrosives)
U080, U121, U210, U226, U228 (Off-spec Commercial Products)
D019, D022, D039, D040 (Materials which Contain these Chemicals)

Other Possible Waste Codes

None Likely

PREACCEPTANCE Analysis Parameters

No Analysis required.
Approval will be based on available information.

Fingerprint Analysis Parameters

Verification of Lab Pack Inventory against Container Contents.

Waste Management Methods

- Consolidation smaller quantities of wastes into larger containers.
- Storage for the accumulation quantities sufficient to ship to off-site TSDF for disposal.

Alternative Facility Type

Processor of Lab Packs, some facilities have thier own repackaging operation.
Consolidated wastes can be managed as Klor Kleen generated wastes and shipped to facilities within the main process groupings.

LAB PACK AND SMALL QUANTITY RATIONAL

ANALYTICAL TEST

PREACCEPTANCE RATIONAL

FINGERPRINT ACCEPTANCE/REJECTION

Inventory Control

Use all information on these small quantities of chemicals to determine disposal method.
No other testing is practical or suitable for small quantities of KNOWN wastes.

Verify inventory against package contents. Resolve any discrepancies with generator. Reject container for any unresolved discrepancy.

UNKNOWN WASTE REVIEW

Unknown waste will be divided into two separate groups.

COMPLETE UNKNOWNNS OR ABANDONED DRUMS

Wastes falling into this category will require full analysis to determine proper classification and handling procedures. This analysis will include TCLP metals, volatiles, semi-volatiles and herbs/pests, flashpoint, pH, reactivity screen and PCB analysis.

SEMI-UNKNOWNNS

This category includes wastes which the generator can provide basic information but does not know specific constituents. Examples would include; cleaners, degreasers, oil waste, solvents, corrosives and other chemical wastes about which the generator may know hazard classes and other useful process-related information, but may not know about the specific chemical compositions. Klor Kleen approval staff using information provided by the generator would make a determination of which analysis category the waste would be subject. Wastes falling in this category would be analyzed for specific contaminant identification as outlined in the following chart.

Waste Category	Flashpoint	pH	Reactivity Screen	TCLP Metals	TCLP Volatiles	TCLP Semi-Vol	TCLP Pest	PCB	Volatiles Total
Abandoned / Unknown	✓	✓	✓	✓	✓	✓	✓	✓	
Solvent	✓	✓	✓						✓
Oils	✓	✓	✓					✓	
Corrosives	✓	✓	✓	✓					
Degreasers	✓	✓	✓	✓	✓				
Cleaners	✓	✓	✓	✓					
Lawn Treatments	✓	✓	✓				✓		
Paint Filters	✓	✓	✓	✓	✓				
Paints	✓	✓	✓	✓					✓
Inks	✓	✓	✓	✓					✓

Klor Kleen
Part B Renewal Application
Section D - Process Information

The information provided in this section is submitted in accordance with the requirements of OAC 3745-55-70 to 75 and 40 CFR 264.170 to 175. This section discusses specific Process Information for the storage of containers.

D-1 Container Storage

The maximum inventory of hazardous waste container storage at any given time will not exceed 11,000 gallons. This is equivalent to two hundred (200) - 55 gallon drums. The container storage area is located inside, in the Southeast corner of the building as shown in the general site plan in Figure D-1. The hazardous waste storage area and sump is sealed with an epoxy coating to ensure that the base is impervious to the wastes stored at Klor Kleen. This is described further in Section D-1e(1). The storage of wastes conforms to local and state building codes for the storage of hazardous material. A description of the types of wastes stored can be found in Section C - Waste Characteristics.

D-1a Description of Containers

Waste stored at the facility are primarily contained in new or reconditioned 55 gallon drums constructed of low carbon steel, stainless steel, or polyethylene (UN1A1, UN1A2, UN1H1, UN1H2). Waste may also be stored in containers ranging in size from 5 gallon pails up to IBC totes and yard boxes. All containers used for storage at this site must meet

the Department of Transportation (DOT) specifications for the type of hazardous material stored and transported in them. Containers will be marked with accumulation date, proper shipping description, generator name, address, identification number, EPA hazardous waste markings and DOT hazardous material labels. All wastes handled at this facility are compatible with the previously described containers. Further description of the types of wastes stored and the container description is provided in Table D-1. The results of storage for similar wastes under comparable operating conditions indicates that they are compatible.

D-1b Container Management Practice

Containers received at the facility are unloaded from the truck using a forklift or by a lift-gate installed on the truck. The containers are initially placed in the staging area, where they will be counted, inspected, sampled and marked with the received date. A fingerprint analysis will be completed and all containers transferred to the storage area within two working days from initial offloading. The location of the staging area is indicated in Figure D-5. All containers are inspected, reviewed against the incoming manifest, identified with a job number and compatibility group code —according to Klor Kleen procedure, as explained in Section C. Transfer to the container storage area is performed by a forklift. During times when the forklift is not available or when only a small quantity of containers needs to be moved a manual container cart or pallet jack may be used. Access to the diked storage area is provided by a ramp.

The drums are placed in rows of two (2) drums each with a minimum of 30" between rows to facilitate inspection as described in Section F-2a of the application.

As shown in Figure D-3 in this section, a primary aisle space of nine feet (9') will be maintained at all times in the storage area, except when moving containers in and out of the area. This main aisle will permit access for emergency equipment and forklifts to the containers and facilitate removal of leaking containers.

All containers will be elevated off the floor. Pallets will be used for containers that do not have built in elevation. When stacking is necessary, the containers will be stacked no more than two drums with pallets between the layers or two totes high. Prior to placement in the storage area, all containers are inspected for leaks, and to insure that all bungs and closures are in place and secure. Drums will only be opened in the storage area as necessary for additional sampling, consolidation or commingling, in which case the closure will be secured immediately after work is performed.

Containers which are to be stored on-site for less than 10 days as a transporter/transfer station are placed in the diked Product/In-transit Storage area. Location of this area is indicated in Figure D-1. These containers are inspected for drum integrity and proper labeling before being transferred to the storage area. Any containers that require overpacking or additional labeling will be not be placed in storage until the problem has been resolved. Incompatible wastes are segregated using portable containment within the diked product/in-transit storage area. All manifests for wastes temporarily stored in this area will be kept in a central location in the office. These manifests will be reviewed each day to ensure drums are not kept on site for more than 10 days.

Tanker loads of less than 3000 gallons will occasionally be accepted at Klor Kleen for

storage and later shipment off-site. The primary purpose for this activity will be to reduce the transportation costs of small shipments which require a vacuum truck for pickup at the generator's site. A detailed description of the off-loading procedure for tanker trucks can be found in Section F-4a and Attachment F-2.

Management of drums to, within, and from the storage area is accomplished by the use of a forklift equipped with a double drum handler or by the use of a hand drum truck. Drums will normally be handled by the forklift equipped with drum handler unless it is being used for other activities. Drums can be handled two at a time without damage to the drum. Under normal operating procedures, and after all conditions are met for accepting a shipment, all drums will be moved to the storage area to await shipment off-site to another TSDF for treatment. Before different waste streams are consolidated, the compatibility procedures discussed in Section F-5(b) are followed.

Containers in the storage area will be inspected to ensure container integrity is intact and is not leaking which is fully described in section F of this application.

The loading/unloading area is located next to the storage area. This area is used to load or unload containers from trucks. The primary drum staging area is also located within this area. Containers are placed in this area when received from off-site generators. To ensure that the material is compatible with other wastes in storage, the containers will remain there until sampling and review of paperwork is completed. Incoming drums may be in the area for up to 24 hours, not including weekends, holidays or non-operational days.

This area is also used for staging materials to be shipped off-site. Containers are moved

to this area from the storage area so that they can be inspected and relabeled prior to being loaded on a truck or they are placed in the area for pumping into a tank truck. This area is contained by a 6" curb to prevent any runoff that may result from loading or unloading operations. Containers that are being prepared for shipment off-site will be kept in this area for no more than 1 working day.

Klor Kleen will, on occasion, consolidate similar wastes within containers. Materials are consolidated from the same waste stream and/or from different waste streams of similar composition to maximize their capacity. This practice minimizes disposal expense associated with small quantity waste streams.

If Klor Kleen is combining waste from different waste streams or generators this is referred to as commingling of wastes. Prior to commingling waste streams of similar composition, an aliquot of representative proportions of the materials will be combined and a Compatibility test will be performed. The Compatibility Chart, Figure C-4, will be referred to following the procedure provided in the Analytical Test Methods Manual, Appendix C-3. The results of this test will be recorded on the Batch Sheet used to document this operation.

For labpack materials, individual containers of similar wastes may be consolidated together into larger containers without compatibility testing as long as the materials remain in their original containers and sufficient absorbents are used to ensure the individual containers will not break. In the event that the contents of individual labpack containers are commingled together, a Compatibility test will be performed and the Compatibility Chart Figure C-4 will be referenced. This procedure is provided in the Analytical Test Methods Manual Appendix C-3. The results of this test will be recorded

on the Batch Sheet used to document this operation. When the contents of identical material are noted (manufacturer or similar label) compatibility is not required to be verified. Labpack consolidations involving containerized contents will be monitored visually throughout the consolidation procedure.

Labpack consolidations/commingling will be performed on a temporary secondary containment station which will be set up within an area providing secondary containment. Personnel with general chemical knowledge and an understanding of the safety precautions to follow will perform consolidations/commingling. To ensure worker safety, two persons are required to perform commingling activities with one designated to be responsible for monitoring the activity. Klor Kleen has developed a Lab Pack Procedures Manual, Attachment D-1, which outlines lab packing activities including repacking/consolidation procedures.

Consolidation and commingling of wastes is performed to maximize the amount of material in a single container. Consolidation and commingling are not used as a form of treatment. Klor Kleen can only aggregate material or perform incidental processing (settling or water separation) which occurs within a container. Klor Kleen will not perform neutralization which would change the treatment subcategory of a waste. The resultant material shall carry all waste codes from material consolidated and commingled

D-1c Special Requirements for Ignitable, Reactive or Incompatible Wastes

Klor Kleen does not store ignitable or reactive wastes. Therefore the requirements for that portion of this section are not applicable.

Segregation of incompatible wastes such as corrosives, metal powders and electroplating waste will be accomplished through the use of portable secondary containment devices such as Spilltainers, overpack drums and/or containment pallets. Information on the various types of devices that will be used is provided in Attachment D-3. These devices or an equivalent will be used for the segregation of incompatible wastes. Further discussion on incompatible waste segregation and precautions can be found in Section F-5e.

D-1d Containers without Free Liquids

Klor Kleen manages all containers as if free liquids may be present. No special storage area for containers without free liquids is used at Klor Kleen. Please refer to Section D-1a - Containers with Free Liquids for information on container storage at Klor Kleen.

D-1e Containers with Free Liquids

Klor Kleen manages all containers as if free liquids may be present. No separate storage area for containers without free liquids is used at Klor Kleen.

D-1e(1) Secondary Containment System Design and Operation

Drawings showing the container storage area are included as Figures D-1, D-2, D-3, and D-4.

D-1e(1)(a) Requirement for the Base or Liner to Contain Liquids

The floor of the container storage area is constructed of concrete and is presently in good condition. The container storage area is surrounded on all four sides by a 6" high x 6" wide concrete curb. The curb has been installed inside of the exterior walls of the building on the south and east sides of the storage area. The curb is anchored to the floor by vertical steel reinforcing bars on 2' centers. This curb provides a holding capacity of 5,911 gallons, or 54% of the total volume of the maximum inventory of 11,000 gallons. This calculation including displacement for maximum permitted drums in storage.

The concrete floor of the storage area, including the loading and unloading area, and the process area was replaced in March of 1984. Materials of construction are 5,000 psi concrete poured 6" to 8" thick on a compacted base of sand and gravel. This is the industry standard for floors of this type. Similar floors used to support heavy loads, machinery and forklift traffic, demonstrate the feasibility and integrity of this type of floor. An engineer's report is included as Attachment D-1 on the suitability of the concrete floor.

The base of the hazardous waste storage area is presently in sound condition, free of any gaps, holes, or cracks. The control joints in the floor are sealed with an epoxy type sealer. The types of waste stored are chemically compatible with the epoxy coating used to seal the concrete base. Information on a suitable epoxy coating is provided in Attachment D-2. This coating has been chosen because of its ability to withstand full immersion in Methylene Chloride for seven (7) days without chemical attack. Testing performed on other wastes acceptable for storage at Klor Kleen also indicates the ability for this coating to effectively withstand deterioration. The floor in the storage area is inspected during operational days to

ensure that it remains in good condition. Any repairs that are necessary will be performed as soon as possible and only by qualified personnel utilizing the manufacturer's procedures. Areas that require repair will be diked off using sandbags or similar means until repair activities have been satisfactorily completed.

A concrete ramp provides access for fork lifts into the container storage area. This ramp is poured integral with the floor. The ramp section within the containment area is also coated with the epoxy sealer.

D-1e (1)(b) Containment System Drainage

The base is sloped towards the sump area, to promote drainage. The sump is installed monolithically with the floor and ramps. The sump is epoxy coated in the same manner as the floor. A detailed discussion of the structural integrity of the drum storage area and the amount of slope present is included in Appendix D-1. In addition, all containers will be elevated off the floor to protect them from contact with any accumulated liquids in the event of a container leak.

D-1e(1)(c) Containment System Capacity

The following are the calculations involved in determining the holding capacity of the hazardous waste storage area:

Overall capacity without displacement

$$\text{Width (33.5 ft) x length (56.5 ft) x height of dike (0.5) = 946.375 ft}^3$$

Displacement calculations

$$\text{Ramp: } 5 \times 6 \times 0.5 (1/2) = 7.5 \text{ ft}^3$$

$$\text{Former ramp area: } 8 \times 12 \times 0.5 = 48 \text{ ft}^3$$

$$\text{Support beams: } (2.6 \times 2.6 \times 0.5) + (2.6 \times 3.25 \times 0.5) = 7.6 \text{ ft}^3$$

Standard pallet (42 x 48 size)

$$\text{Top boards: } 3.5 \times 42 \times 0.75 \times 7 \text{ boards} = 771.75 \text{ cubic inches}$$

$$\text{Bottom boards: } 3 \times 42 \times 0.75 \times 4 \text{ boards} = 378 \text{ cubic inches}$$

$$\text{Cross members: } (1.5 \times 3.5 \times 48 \times 3) - (1.5 \times 1.5 \times 8.5(\text{fork cutout}) \times 3) = 698.25 \text{ cubic inches}$$

$$\text{Total cubic inches } 1,848,375 \text{ converted to cubic feet} = 1.07 \text{ ft}^3$$

$$\text{Using 5 pallets per row and 8 rows} = 40 \times 1.07 = 42.8 \text{ ft}^3$$

Displacement volume of 24" diameter drum 1 inch above standard pallet:

$$\text{Using volume of cylinder calculation } v = \pi r^2 h.$$

$$3.14 \times 1 \text{ ft} \times 0.1 \text{ ft} = 0.314 \text{ ft}^3 \times 160 \text{ drums} = 50.24 \text{ ft}^3$$

Therefore the actual capacity is the overall capacity of 946.375 cubic feet less the total displacement of 156.14 cubic feet which equals an actual capacity of 790.235 cubic feet when converted to gallons equals 5,910.96 gallons of capacity.

The 5,911 gallon calculated capacity is 54% of the permitted 11,000 gallon total container storage capacity.

D-1e(1)(d) Control of Run-on

Since the storage area is inside the building, water from rainfall and run-on is not a factor. Run-on into the building is controlled by the storm drainage system outside of the building. The 6" dike provides additional protection from run-on from rain water entering an opened overhead garage door. The emergency exit door that is accessed from the storage area is located a minimum of 4.5 inches above the grade of the sidewalk and is kept closed at all times. Rain water on the sidewalk is diverted to the storm drains located along Avon Place.

D-1e(1)(e) Removal of Liquids from Collection System

A sump is located in southwest corner of the drum storage area to facilitate removal of any leakage or spills that may occur. Spilled or leaked waste will be swept to the sump area for removal if possible. Any liquids that cannot be removed in this manner will be vacuumed into a drum vacuum. A vacuum tanker truck or removed with compatible absorbent until all free standing residue is removed. The liquid material will be pumped from the sump into drums, using a portable pump.

Any solids will manually be removed and placed into a drum designated for solids. This area is inspected daily as described in Section F-4 and leakage or material collected in the sump will be removed immediately upon discovery. The sump area as noted in Section D (Figures D-2 and D-4) illustrate that the area is capable of holding 29.92 gallons of liquids ((2ft x 2ft x 1ft)x 7.48 gal/ft³). The drummed material will be properly identified and placed in the drum storage area.

D-2 Tank Systems

Klor Kleen does not store hazardous waste in tanks, this section is not applicable.

D-3 Waste Piles

Klor Kleen does not store hazardous waste in a RCRA Waste Pile, therefore this section is not applicable.

D-4 Surface Impoundments

Klor Kleen does not store hazardous waste in a RCRA Surface Impoundment, therefore this section is not applicable.

D-5 Incinerators

Klor Kleen is not seeking a permit for a RCRA Incinerator, this section is not applicable.

D-6 Landfills

Klor Kleen is not seeking a permit for a RCRA Landfill, this section is not applicable.

D-7 Land Treatment

Klor Kleen is not seeking a permit for a Land Treatment Unit, therefore this section is not applicable.

D-8 Miscellaneous Units

Klor Kleen is not seeking a permit for a Miscellaneous Unit, therefore this section is not applicable.

D-9 Air Emission Standards Process Vents (Subpart AA)

Klor Kleen has no equipment subject to the Subpart AA Process Emission Standards.

D-10 Air Emission Standards for Equipment Leaks (Subpart BB)

Klor Kleen has no equipment subject to the Subpart BB Equipment Leak Standards.

D-11 Air Emission Standards for Tanks, Surface Impoundments, and Containers (Subpart CC)

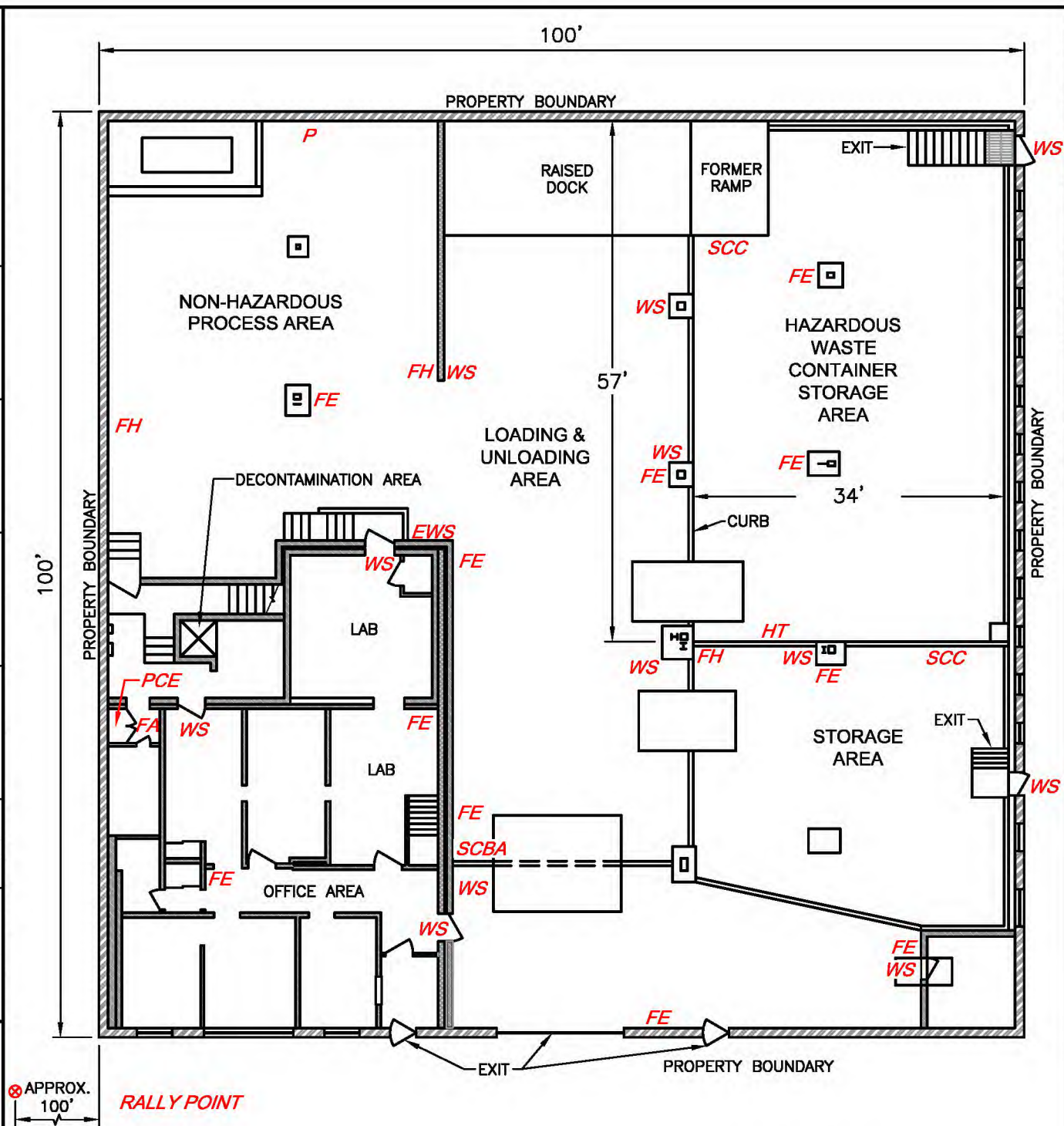
Klor Kleen has no Tanks or Surface Impoundments subject to these regulations. To comply with the Subpart CC Air Emission Standards for Containers, all hazardous waste is managed in DOT approved containers only, which is visually inspected when received. All other inspections will be performed as described in section F-2. If any defects or emission release is detected, the waste will be immediately transferred into an authorized DOT container then marked and labeled accordingly. All filling of containers or tank trucks is accomplished through the use of submerged fill.

Table D-1
Primary Container Types Received at Klor Kleen

Container Type	Material Type	Capacity	Dimensions Nominal (in)	Specifications	Amount in Storage	Types of Waste Stored	Physical State
5 Gallon Pail	Poly	5 gallons	10 x 13	UN 1H	0 to 1000	F, A, B, ML, MS, MP	L, S
5 Gallon Pail	Steel	5 gallons	10 x 13	UN 1A	0 to 1000	CS, F, B, ML, MS, MP	L, S
15 Gallon Carboy	Polyethylene	15 gallons	14 x 26	UN 4G	0 to 500	F, A, B, ML	L
30 Gallon Drum	Polyethylene	30 Gallons	18 x 30	UN 1H	0 to 300	F, A, B, ML, MS, MP	L, S
30 Gallon Drum	Steel	30 Gallons	18 x 30	UN 1A	0 to 300	CS, F, B, ML, MS, MP	L, S
55 Gallon Drum	Polyethylene	55 Gallons	23 x 35	UN 1H	0 to 200	F, A, B, ML, MS, MP	L, S
55 Gallon Drum	Steel	55 Gallons	23 x 35	UN 1A	0 to 200	CS, F, B, ML, MS, MP	L, S
85 G Poly Overpack	Polyethylene	55 Gal Drum	30 x 42	UN 1H	0 to 200	F, A, B, ML, MS, MP	L, S
85 Gallon Overpack	Steel	55 Gal Drum	26 x 39	UN 1A	0 to 200	CS, F, B, ML, MS, MP	L, S
IBC 275	Polyethylene	275 Gallons	46 x 38 x 40	UN 31HA1	0 to 40	F, B, A, ML	L
IBC 330	Polyethylene	330 Gallons	48 x 40 x 50	UN 31HA1	0 to 30	F, B, A, ML	L
Yard Box	Fiberboard	1 cubic Yard	36 x 36 x 36	UN 11G	0 to 40	MS, MP	S
Bulk Bags	Poly Woven	2,200 pounds	35 x 35 x 32	UN 13H2	0 to 40	MS, MP	S

All containers meet the Manufacturing and Testing Specification for Packaging in accordance with 49 CFR Part 178. Inner liners will range between 4 - 8 mil Low Density Polyethylene and 15 mil High Density Polyethylene as determined by manufacturer requirements for specified container.

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	10/1/15	RB	AM	BT	---	2015 36-00



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

LEGEND:

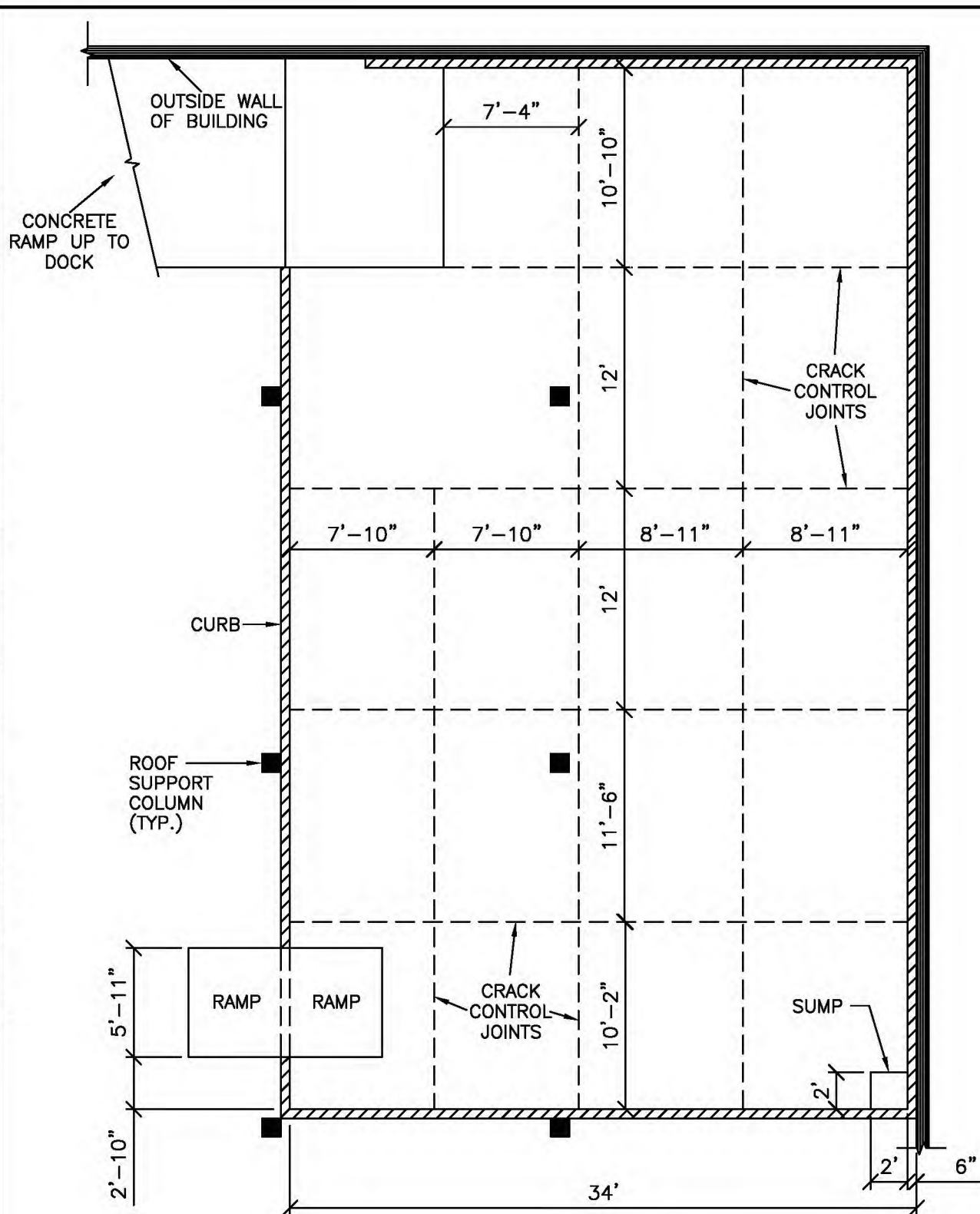
- FH** — FIRE HOSE
- FE** — FIRE EXTINGUISHER
- FA** — FIRST AID KIT
- P** — PUMPS
- HT** — HAND TOOLS
- EWS** — EYE WASH & SAFETY SHOWER
- PCE** — PROTECTIVE CLOTHING AND EQUIPMENT
- SCBA** — SELF CONTAINED BREATHING APPARATUS
- SCC** — SPILL CONTROL AND CLEANUP EQUIPMENT
- WS** — WARNING SIGN "DANGER AUTHORIZED PERSONNEL ONLY"



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27 Kiesland Ct, Hamilton, OH 45015
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FIGURE D-1
GENERAL SITE PLAN
SHOWING RALLY POINT AND
LOCATION OF EMERGENCY EQUIPMENT
Klor Kleen Facility
3118 Spring Grove Avenue

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	9/24/05	RB	AM	BI	---	2005 36-01



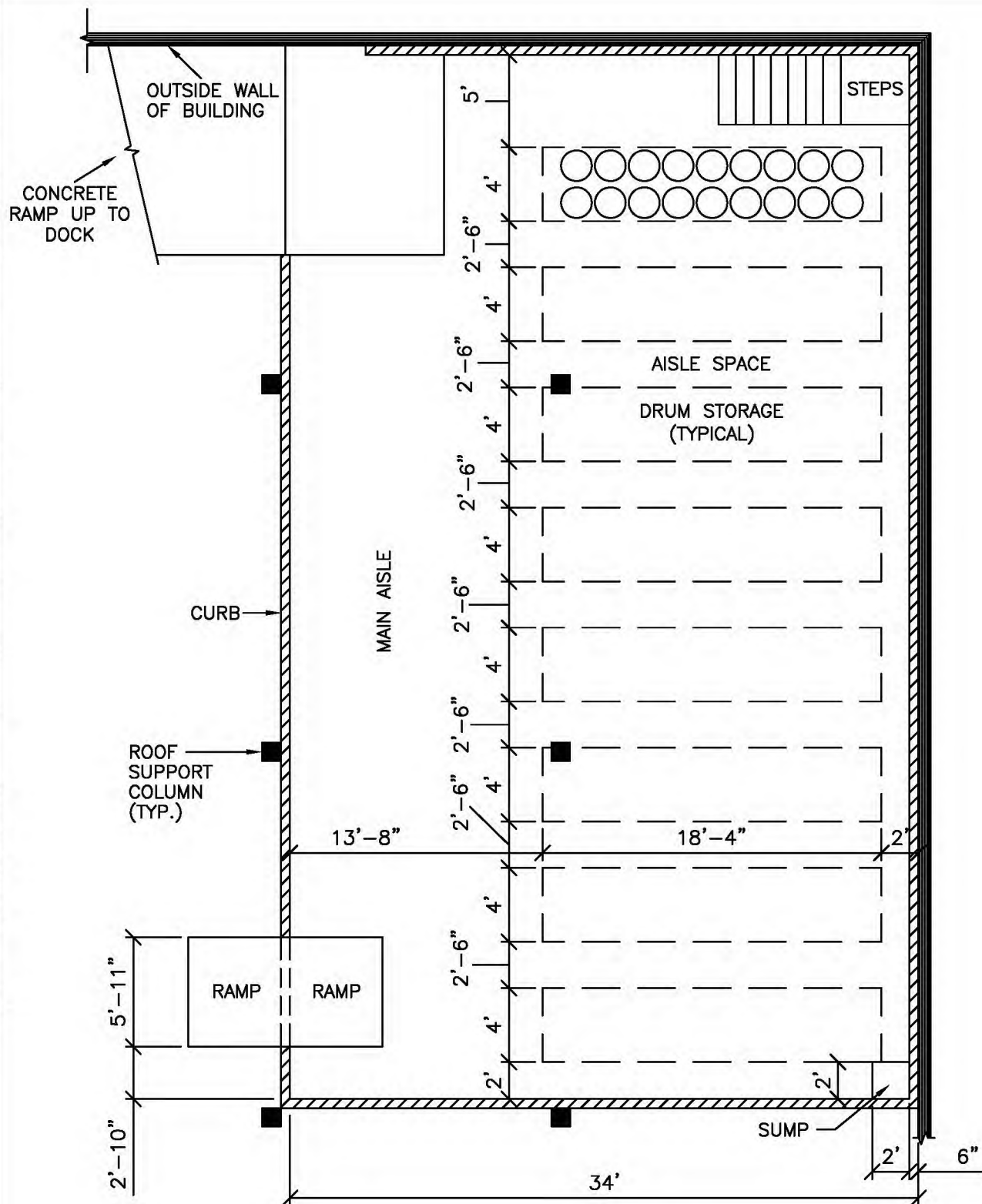
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FIGURE D-2
PLAN VIEW
HAZARDOUS DRUM STORAGE PAD
SHOWING LOCATION OF CRACK CONTROL JOINTS

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Cincinnati, OH	5/23/16	RB	AM	BI	---	2005 36-02



SCALE: 1/8"=1'-0"

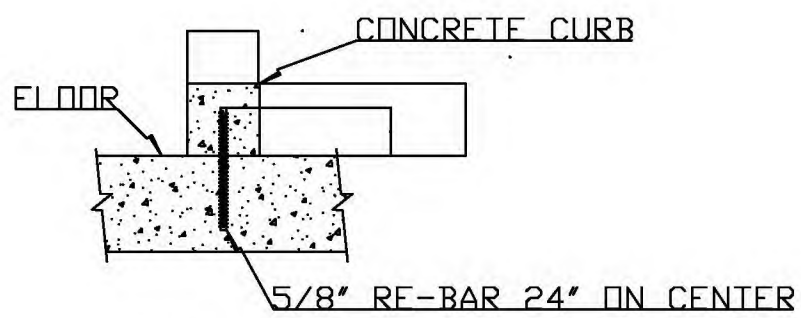


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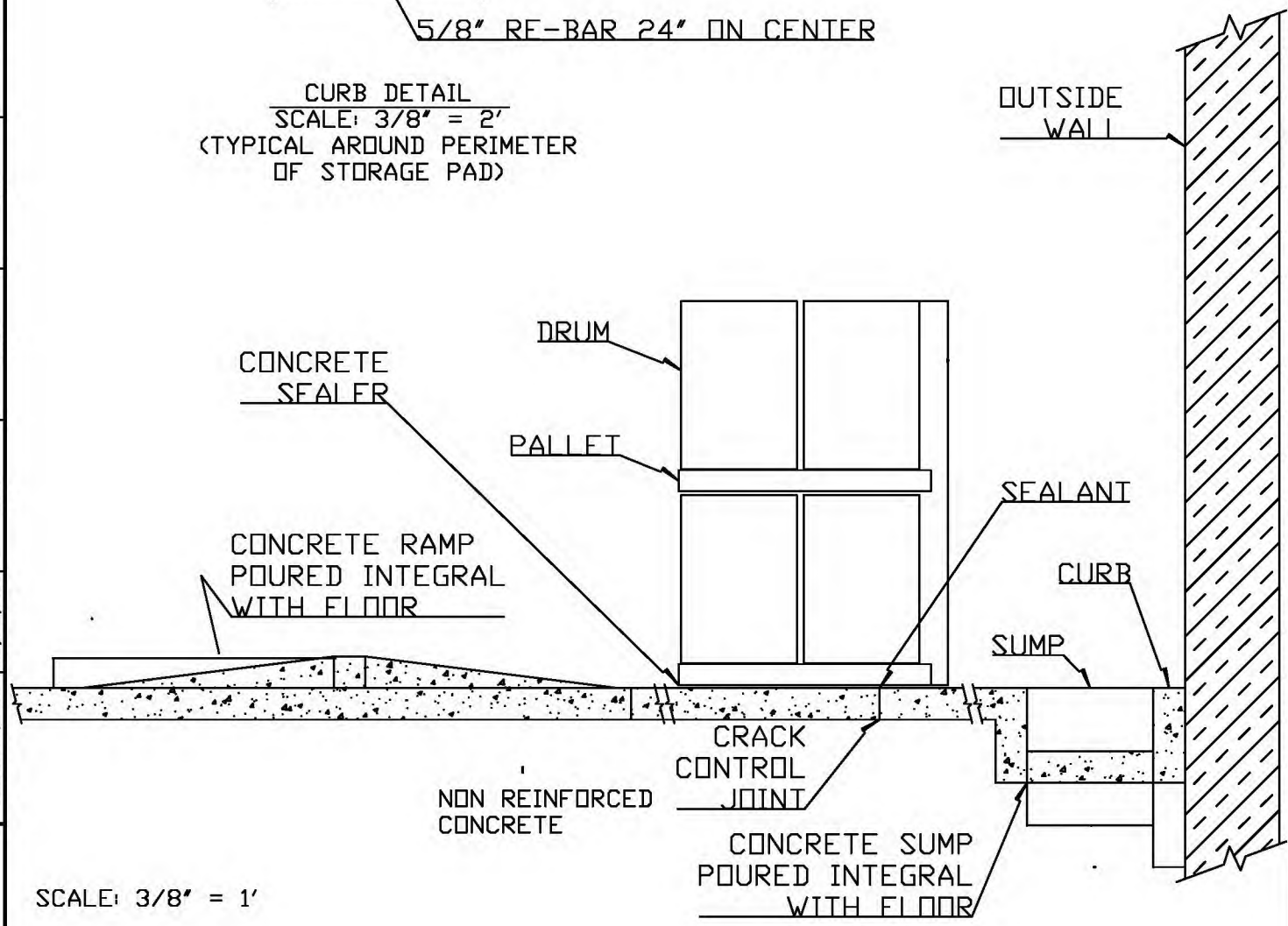
FIGURE D-3
PLAN VIEW
HAZARDOUS DRUM STORAGE PAD
SHOWING LOCATION OF DRUM
STORAGE AND AISLE SPACE

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	10/15/15	RB	AM	BI	--	2015 05

DATE: 1-04-00
 REVISION: 2



CURB DETAIL
 SCALE: 3/8" = 2'
 (TYPICAL AROUND PERIMETER OF STORAGE PAD)



SCALE: 3/8" = 1'

SCALE: 3/8"=1'-0"

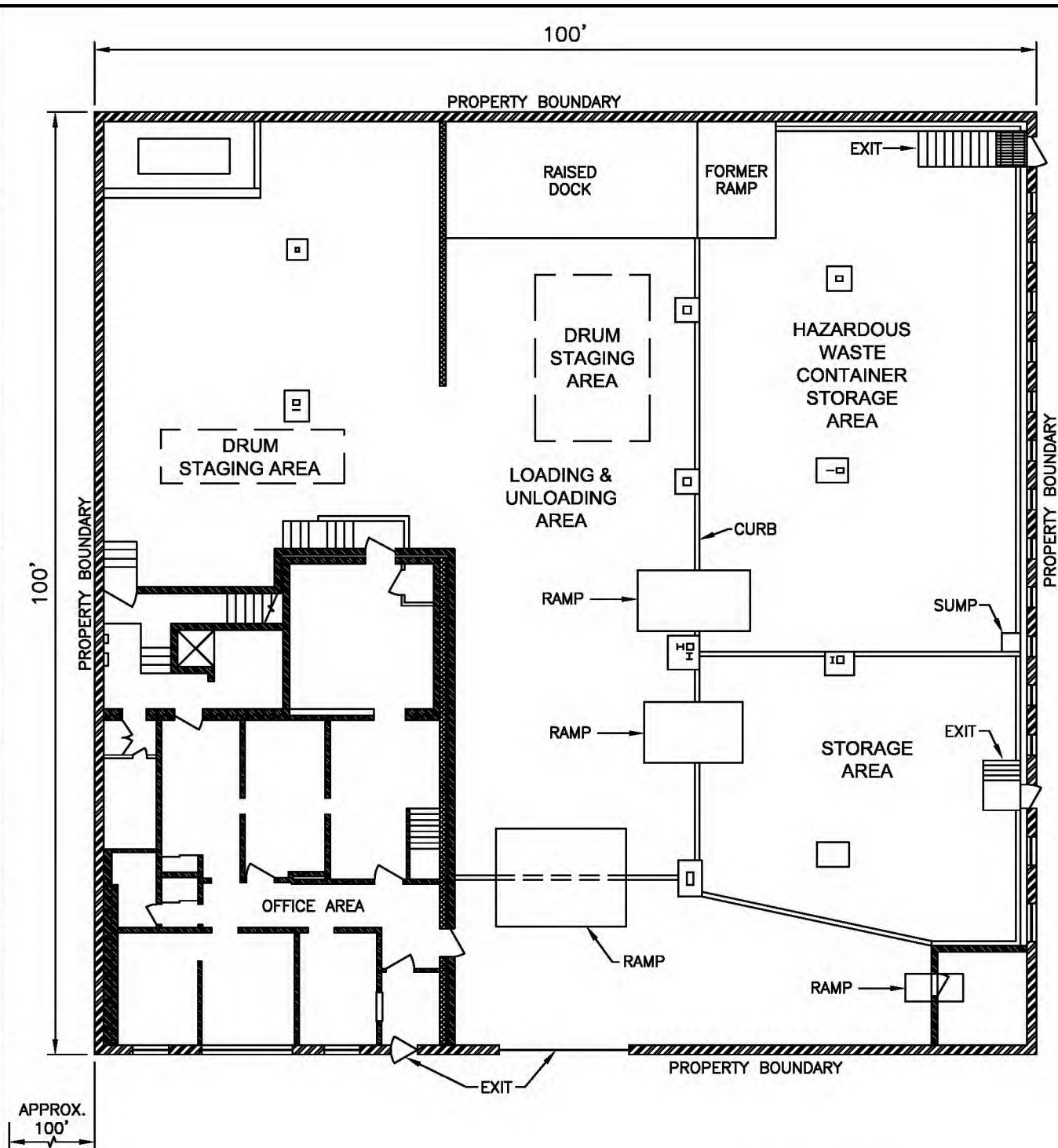


Midwest Environmental Services, Inc.
 27 Kiesland Ct, Hamilton, OH 45015
 Permit Application

FIGURE D-4
CROSS SECTION VIEW
OF HAZARDOUS STORAGE PAD
 Klor Kleen Facility
 3118 Spring Grove Avenue

M. NaJar - 2005 40-01.dwg - Friday, 8/3/07 - 9:24 AM

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	9/24/15	RB	AM	BT	---	2005 40-03



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



Midwest Environmental Services, Inc.
27 Kiesland Ct, Hamilton, OH 45015
Permit Application

FIGURE D-5

DRUM STAGING AREA

Klor Kleen Facility
3118 Spring Grove Avenue

APPENDIX D-1

ENGINEERING REVIEW DRUM STORAGE AREA

CONCRETE PAVEMENT EVALUATION
FOR
FLOR KLEEN FACILITY – PART B PERMIT
CINCINNATI, OHIO

PURPOSE

This engineering evaluation was performed in response to the following Part B comments:

Comment B-2 Demonstrate that the pavement inside the building where trucks park to unload and load hazardous waste is sufficient to bear load of the trucks.

Comment D-1 Include an engineering evaluation of the structural integrity of the floor at the drum storage area.

SITE CONDITIONS

Truck Loading Pavement:

- Type of Pavement: 10" concrete pavement (per Klor Kleen Personnel)
- Subgrade: Assume clay per field survey (Exhibit 1)
- Loading: Truck traffic
 - Type 1 – 32,000 lb., single-axle, 3 per day
 - Type 2 – 34,000 lb. (assumed), tandem-axle, 1 per week
- Condition of Pavement: Good – no significant structural cracks or failure

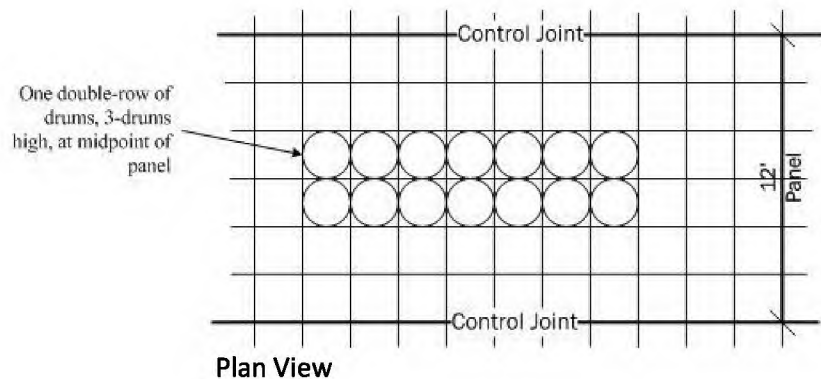
Drum Storage Floor:

- Type of Pavement: 6" concrete pvmt, joints @ 12' c/c (Exhibit 1)
- Subgrade: 3" sand base on moderately plastic clay (Exhibit 1)
- Loading:
 - Case 1 – Fork lift trucks, 5,000 lb. Single axle (includes payload of 4 drums), unknown repetitions
 - Case 2 – Stack of drums on pallets, 3-drum high, double-rows, 30-inch isles.
- Drum weight: 55-gallon drum, 13.6 lb/gallon (worse case, SG=1.63); weight of 1 drum = 55 gal x 13.6#/gal = 750# + 50# drum = 800#
- Condition of Pavement – Good – no significant structural cracks or failure

METHODS OF ANALYSIS

Truck Loading Pavement & Drum Storage (case 1) – Analyzed as a concrete pavement using “Fatigue Strength Method”

Drum Storage (case 2) – Analyze as a structural slab, unit stress method (beam action), assuming uniform soil support. Worst case loading: one double-row of drums, 3-high, midpoint of panel as shown below.



SUMMARY

Analysis of the truck loading pavement by the “Fatigue Strength Method” indicated the existing 10” thick concrete pavement is adequate to support the anticipated truck traffic over a 20-year design life. The analysis is based on a pavement thickness, axle-load and load repetitions provided by MES personnel.

Using the same method of analysis for the drum storage pad also shows that the 6” thick concrete slab is capable of supporting forklifts which move the drums. The analysis is supported by corings of the slab to determine its thickness. Axle loads are based on typical forklifts carrying up to four, fully loaded drums.

The drum pad was also analyzed as a structural concrete (non-reinforced) slab, supporting two rows of drums, stacked 3-high. For worst case conditions, the drums were located at the middle of a panel, where the panel is defined by control joints located at 12-foot centers. Calculated unit stresses indicate the slab will support drums, stacked 3-high.

The drum weights used for analysis assume each drum contains the heaviest liquid. MES personnel advises that the heaviest liquid stored on the pad has a specific gravity of about 1.63.

Allowable concrete stresses were conservatively assumed, based on a compressive strength of 3500 psi. The typical strengths for cured, concrete floors and pavements are above 4000 psi.

Allowable concrete stresses were conservatively assumed, based on a compressive strength of 3500 psi. The typical strengths for cured, concrete floors and pavements are above 4000 psi.

Analysis of Truck Loading pavement And Drum Storage by Fatigues Strength Method

<u>Analysis Parameter</u>	<u>Drum Pad</u>	<u>Truck PVMT</u>	
1. Pavement Thickness (inches)	6	10	
2. Subgrade Type	Clay	Clay	
3. Modulus of Subgrade Reaction, k (psi/m)	75	75	
4. Type of Axles	Single	Single	Tandem
5. Axle Load (Kips)	5k	32k	34k
6. Load Safety Factor	2	1	1.1
7. Design Axle Load (Kips)	10k	35k	37k
8. Load Repetitions (20 year life)	unknown	21,600	1040
9. Induced pavement Stress, f (psi) - Figure 1, 2	250	330	330
10. Modulus of Rupture, MR (psi)	550	550	550
11. Stress-to-Rupture Ration, f /MR	0.45	0.6	0.45
12. Fatigue Life (Repetitions)-Table 1	unlimited	32,000	unlimited
13. Fatigue Fraction, Load Repetitions/Fatigue Life	--	0.67	--
14. Total Fatigue Fraction, TFF	--	0.67	
15. Pavement OK if f/MR <.51 or TFF<1.1	ok	ok	

Notes:

1. Pavement thickens and subgrade for drum pad by field survey
2. Modulus of Subgrade Reaction, assumed as 75 psi/in, based on moderately plastic clay subgrade, indoor location
3. Load Safety Factor for Drum Pad based on impact loading of fork lift trucks; for Truck Pavement based on known truck traffic, minimal impact due to low speeds.
4. Modulus of Rupture – Typically minimum 550 psi
Also, $MR = f/.75$, where $F = \sqrt{Cf'c}$, $C=7-10$, $f'c$ assumed 3500 psi Thus, $F=7\sqrt{3500} = 414$ psi, $MR = 414/.75 = 550$ psi



ICO Super Guard Coating

Product Data Sheet

Product Description

ICO Super Guard Coating™ is a two part, low odor, 100% solids epoxy novolac coating. As such it is our highest chemically resistant coating for most concentrated acids, caustics and solvents. Applied by brush, roller, or spray, **ICO Super Guard Coating™** is normally applied at a coverage rate of 160 SF per gallon, yielding 10 mils DFT per coat; however, on horizontal surfaces, it can be applied in virtually any thickness in a single pass. Two, thinner coats are recommended for minimizing pinholes.

It finishes to a high gloss, easy-to-clean surface that is impervious to vapor and moisture transmission. **ICO Super Guard Coating™** can be applied on damp as well as dry concrete, concrete masonry units, tile brick and metal. For enhanced slip resistance, a suitable aggregate can be added in the base coat and for improved crack bridging characteristics, fiberglass reinforcement can be added.

Typical Application

ICO Super Guard Coating™ is particularly suitable as a secondary containment barrier inside or outside, for concrete and other porous substrates. Particular uses include coating horizontal and vertical surfaces in tank farms containing a wide variety of chemicals or a few concentrated corrosive chemicals where at least 72 hour protection against spills is required. In such tanks farms, a minimum 60 mil thick system, consisting of two coats at 80 SF/gallon per coat, interspersed with silica sand, is recommended. For moderate to heavy wear conditions, such as in drum storage or truck unloading areas, our quarter inch trowelled material, **ICO Super Guard™** is recommended as a superior, long-lasting barrier. For trenches, sumps and pits, where conditions are normally more severe than secondary containment, use of our **ICO Liner** on vertical walls is recommended.

Chemical Resistance

ICO Super Guard Coating™ generally follows the chemical resistance of "ICO Super Guard" as listed in our Chemical Resistance Chart. However, some differences will exist, so consultation with **Milamar Technical Service** is recommended for specific applications.

Physical Properties

Tensile Strength (ASTM D-638):	6800 psi	Water Absorption (D-570):	0.2% in 24 hrs.
Bond Strength to Quarry Tile:	>1000 psi	Hardness, Shore D (D-2240):	83
Tensile Elongation (D-638):	6.0%	Taber Abrasion (D-1044):	86 mg. loss
Vapor Transmission Rate (E-96):	.027 perms	Gardner Impact Strength (D-2794):	80 in. lb.
Flexural Strength (D-790):	7035 psi	60° Gloss:	100

Density, lbs./gal.	
Part A:	11
Part B:	8.9
A&B Mixed:	9.3
Viscosity @77F, cps	
Part A:	18,400
Part B:	500
A&B Mixed:	4800

Mixing Ratios	By Volume	By Weight
Part A: Part B:	2:1	2.3:1

Curing Times @:	50°F	77°F	90°F
Pot Life:	35 min.	30 min.	20 min.
Work Time:	20 min.	20 min.	15 min.
Hard, Foot Traffic:	14 hrs.	7 hrs.	3.5 hrs.

*Maximum hardness and chemical resistance are achieved after 7 days at 77°F

Color Availability

Standard colors: gray, dark gray, beige, red, green, brown, black.

Shelf Life: 1 year at 77°F in unopened containers

Packaging and Coverage Rates (for 10 mil coverage)

1 Gallon Kit	:	160 SF
4 Gallon Kit	:	640 SF
100 Gallon Kit	:	16,000 SF

Installation

Please refer to our Application Specs for detailed instructions. Particular care must be taken to follow those instructions precisely to assure proper installation.

1. New concrete should be allowed to cure a minimum of 28 days and/or be checked with a rubber mat or plastic sheet to insure adequate curing time has occurred.

2. All surfaces to be covered should be power washed, shot blasted, acid etched, scarified or sanded to present a clean, sound substrate to which to bond to. The prepared surface should have a ph. of 7.

3. Any bug holes should be filled with ICO Gel and allowed to dry before coating.

4. The two ingredients should be mixed in the prescribed ratios, using a low speed "jiffy-style" mixer, (maximum 750 rpm). Mix Part A for about 1 minute then, add Part B and mix until uniform in color and consistency (at least one additional minute.)

5. Do not mix less than the prescribed amount of any ingredient or add any solvent to the mix.

6. No priming is necessary on concrete of average porosity. On new concrete or old concrete with an open porosity and on wood surfaces apply **ICO Primer LV** or **FC** to help prevent outgassing, bubbling and pin holing from escaping entrapped air. Allow to dry.

7. Apply the mixed material with a short nap roller, a squeegee or a brush. Apply approximately 160 SF per gallon per coat to achieve 10 mils of coating.

8. Apply a second coat while the first coat is still tacky if using spike shoes or dry enough to walk on, but before 7 hours at 75°F. If more time has elapsed the first coat should be sanded before recoating..

9. A suitable aggregate may be broadcast onto the surface after backrolling to provide more anti-slip profile to the finished surface. It is advisable to test various types and sizes of aggregate to achieve the desired finish profile.

NOTE: Failure to follow the above instructions, unless expressly authorized by a Milamar Technical Service Representative, will void our material warranty.

Precautions

1. **This is a fast reacting product; immediately pour onto floor after mixing and spread with notched squeegee. Recoat window without sanding at 70°F: 8 hours.**
2. **A severe skin and eye irritant; check MSDS before use.**
3. **Do not apply below 50°F.**

Product Specification

The specified area shall receive an application of **ICO-Super Guard Coating™** as manufactured by **Milamar Coatings LLC of Oklahoma City, Oklahoma**. The material shall be installed by precisely following the manufacturer's published recommendations pertaining to surface preparation, mixing and application. The material shall be a low odor, two part, solvent free 100% solids, and high gloss flexibilized epoxy novolac system with good resilience to resist thermal and mechanical shock. It should be able to be roller applied at a minimum of 10 mils thickness per coat on vertical surfaces without sagging (at ambient conditions). The system must adhere to damp as well as dry concrete, wood, metal tile, terrazzo and sound existing

epoxy and urethane coatings. It shall have tensile elongation of at least 6.0% when tested under ASTM-638. Its bond strength to quarry tile shall exceed 1000 psi when tested with an Elcometer pull test. Its hardness shall not exceed 83, as measured on the Shore D scale. The system shall be unaffected by oils and greases and shall withstand chemical attack for at least 72 hours against 98% sulfuric, 50% hydrofluoric acid, glacial acetic acid and acrylonitrile.

The data statements and recommendations set forth in this product information sheet are based on testing, research and other development work which has been carefully conducted by us, and we believe such data. Statements and recommendations will serve as reliable guidelines. However, this product is subject to numerable uses under varying conditions over which we have no control, and accordingly we do NOT warrant that this product is suitable for any particular use. Users are advised to test the product in advance to make certain it is suitable for their particular production conditions and particular use or uses.

LIMITED WARRANTY

Milamar Coatings products are manufactured to be free of defects in material and workmanship in meeting the properties specified on its individual Product Data Sheets. Users and installers of Milamar Coatings products are solely responsible for determining the suitability of the products for specific product applications. Milamar Coatings makes no Warranty or Guarantee, express or implied, including warranties of fitness, design compatibility or merchantability, for any particular use and shall have no responsibility or liability, including direct, indirect or consequential damages, due to injury, delay or third party claims for installation or repair. Likewise, Milamar Coatings assumes no liability of any nature for products that are adjusted in the field or that do not utilize all specified Milamar Coatings components. Should any Milamar Coatings product be proved to be defective within one year from the date of shipment, Milamar Coatings will, at its sole discretion, replace the material; issue a credit to the customer's account; or provide a cash refund for the initial, paid purchase price of the material. Potential claims regarding product quality must be received in writing by Milamar Coatings within 30 days of the discovery of such potential defect. This Warranty is exclusive of all other warranties, expressed or implied, and may only be adjusted in writing, signed by an officer of Milamar Coatings, L.L.C.

Milamar Coatings, L.L.C.

311 NW 122nd St, Suite #100

Oklahoma City, OK 73114

800.459.7659

www.milamar.com

APPENDIX D - 3

Containment Devices

FOUR DRUM NESTABLE SPILL CONTAINMENT PALLET



Polyethylene construction for excellent chemical resistance, features a spill capacity of 66 gallons and gratings with 1.75" square openings which remove easily for cleaning. Forkliftable design with a 3/4" drain plug. Meets EPA requirements for secondary spill containment of hazardous materials (40 CFR 264.175).

SPILL CAPACITY: 66 gallons
WEIGHT: 65 lbs.
DIMENSIONS: 58.5" x 58.5" x 7.75"
LOAD CAPACITY: 6,000 lbs.

APPENDIX D - 3

Containment Devices

4-Drum Spill Container



These 4-Drum spill containers are specially designed to contain leaks and spills from 55-gallon drums. They effectively contain drips and spills from drum filling stations as well as during in-plant transport and storage. Meets or exceeds EPA and regulatory requirements for secondary containment.

Features Include:

- Fits on a standard pallet for portability
- Polyethylene construction resists most chemicals
- Molded-in locator ring on bottom interior assures seating of drums
- Optional polyethylene cover protects drums and is great for outside storage
- Meets 40 CFR 264.175 requirements

SUMP CAPACITY: 174 gallons

WEIGHT: 55 lbs.

DIMENSIONS: 51"L x 51"W x 18"H

APPENDIX D - 3

Containment Devices

FOUR DRUM SPILL PALLET



Polyethylene construction for excellent chemical resistance, and features a spill capacity of 90 gallons and grating with 1.75" square openings which removes easily for cleaning. Forkliftable design with a 3/4" drain plug. Meets EPA requirements for secondary spill containment of hazardous materials (40 CFR 264.175).

SPILL CAPACITY: 90 gallons
WEIGHT: 88 lbs.
DIMENSIONS: 51.5" x 51.5" x 18.5"
LOAD CAPACITY: 4,000 lbs.

APPENDIX D - 3

Containment Devices

85 Gallon Steel Salvage Drum



For the safe and secure way to store or transport a wide range of materials. These open-head primary and Overpack containers, made of high-quality carbon steel, meet UN Structural Testing requirements and feature an optional corrosion-resistant lining of epoxy-phenolic. Painted bright yellow with a red cover, these easy-to-recognize drums come in every size you need: from 8 to 110 gallon capacities and range from 1.5mm to 0.9mm metal thickness combinations. Helps you comply with 49 CFR 173.3(c).

Features Include:

1A2/X440/S, 1A2T/Y320/S
16/16/16 Gauge Steel

WEIGHT: 80 lbs.
CAPACITY: 85 gallons

APPENDIX D - 3

Containment Devices

Poly-Overpack 95



This Poly-Overpack 95 meets Group 1 packaging standards and salvage drum regulations, (unlike competitive overpacks). The Poly-Overpack 95 safely contains a wide range of hazardous materials including acids, corrosives and damaged parts in 55-gallon drums.

Features Include:

UN 1H2/X295/S, UN 1H2/Y295/S, DOT 49 CFR 173.3(c)

Can be moved with standard material handling equipment

Nestable design for efficient storage

Drum Truck Portable

WEIGHT: 48 lbs.

CAPACITY: 95 gallons

LOAD CAPACITY: 650 lbs.

APPENDIX D - 3

Containment Devices

SINGLE-DRUM CONTAINMENT UNIT



Ideal for use as a spill containment unit, a mobile pumping station or waste collection station. With the addition of the optional 1698 drum dolly you can easily move the drum for dispensing or collection.

WEIGHT: 30 lbs.
DIMENSIONS: 31"H x 33"H
CAPACITY: 65 gallons

ATTACHMENT D-1

KLOR KLEEN LAB PACK PROCEDURES MANUAL

REVIEW/APPROVAL PROCEDURES FOR LAB-PACK WASTES

PURPOSE

To properly categorize waste materials according to federal, state and local E.P.A and D.O.T. regulations. Initial review of lab-pack inventory list with the Part A permit determines the facilities ability to accept and store these wastes.

PROCEDURE

Klor Kleen accepts lab-pack materials from two sources:

- 1) Materials packed by in-house environmental technicians (Klor Kleen personnel).
 - 2) Materials packed by personnel who are not employed by Klor Kleen.
- I. Review/Approval procedures for materials to be packed by in house technicians.
- A) It is mandatory that a generator supply Klor Kleen with a Waste Profile Form. This form has all pertinent information in regards to generator and regulatory information for each specific lab-pack, see Figure C-1. Accompanying the profile form must be a chemical inventory list describing specific chemical names, type of containers, size of each container, and number of containers. A Safety Data Sheet (SDS) should be provided for all commercial products for which chemical composition is not readily known. Once this information is received it is forwarded to a Lab Pack Manger for review. Each chemical on the inventory list is categorized according to E.P.A. regulations in accordance with 40 CFR 261.
 - B) During review of materials, acceptable packing groups are assigned for each chemical. Compatible materials are grouped together in order to determine the number of containers needed for each lab-pack. Each container must only contain one class of hazardous materials. Klor Kleen only uses and accepts D.O.T. approved containers as defined in 49 CFR subpart A, § 173.12. Packaged materials must be either in glass not exceeding 4 liters (1 gallon), or metal or plastic, not exceeding 20 liters (5.3 gallons). Containers exceeding these limits are not acceptable as lab-pack materials. Materials prohibited from being lab-packed include: Division 6.1, Packing Group I, or Division 4.2, Packing Group I, and bromine pentafluoride; bromine trifluoride; chloric acid; and fuming sulfuric acid. Klor Kleen will not accept materials prohibited from being lab-packed. Note: See Table 1 for an explanation of Divisions and Packing Groups.
 - C) Once inventory lists are reviewed, the lab-pack Waste Profile Form is assigned a unique identification/approval number. This number is only acceptable for a specific inventory list. A generator may not re-use a lab-pack approval number for future lab-packs. If a generator were to

identify additional materials for disposal, a new inventory list must be submitted to Klor Kleen.

- D) After the Waste Profile Form and the inventory list are approved, an approval code is generated by the Approval Manager or Lab Pack Manager then a quotation is sent to the generator.

II. Review/Approval procedures for materials to be packed by persons not employed by Klor Kleen.

- A) Klor Kleen also accepts lab-packed materials that are pre-packaged. In order to accept these materials, Klor Kleen requires a Waste Profile Form, see Figure C-1, along with all packing information of each container's contents. Packing lists must state chemical names, type of containers, size of each container, and number of containers. If the material is a commercial product with unknown chemical composition, a Safety Data Sheet (SDS) should be submitted. Once all information is received it is forwarded to the Lab Pack Manager for review.
- B) During review of each packing list it must be determined if all materials are packed in accordance with Klor Kleen's standards. The standards for packaging are listed previously (Section I.B) in this document. The following additional criteria must also exist in order for a lab-pack to be approved/acceptable. Materials must be packaged with a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents. Klor Kleen requires that there be no less than two (2) inches of absorbent materials between individual containers. The bottom of the container used for packaging must contain a minimum of four (4) inches of absorbent materials.

If more than one layer of chemicals are packaged in a single container, there must be a minimum of two (2) inches of absorbent materials between layers. The gross weight of a packaged drum cannot exceed 205 kg or 450 pounds. Drum weights are verified in the event that a drum is suspected of being overweight due to the presence of dense solids or liquids by using a portable scale. Drums found to be overweight will be repackaged prior to shipment.

- C) Once packing lists are reviewed, the lab-pack Waste Profile Form is assigned a unique identification/approval number. This number is only acceptable for a specific set of containers as defined by packing lists. A generator may not reuse a lab-pack approval number for future lab-packs. If a generator were to identify additional materials for disposal, a new inventory/packing list must be submitted to Klor Kleen.
- D) After the Waste Profile Form and the inventory list are approved, an approval code is generated and a quotation is sent to the generator.

LAB PACK/FIELD SERVICE OFF-SITE PROCEDURES

PURPOSE

To establish a standard protocol of activity while performing work at a generator/customer site.

SAFETY

A. Clothing

1. All Lab Pack Field Service personnel must wear uniforms at all times on the site. If the material requires the use of Level A or Level B protective clothing, the company uniform may be bypassed for the comfort of the employee.
2. Tyvek suits should be worn as an additional protective measure along with the standard uniform.
3. Rubber gloves and boots should be worn at all time when handling chemicals. During a Lab Pack, there will be times when work boots and surgical gloves are permissible; however, rubber gloves and boots must be available at all times.
4. Respirators and dust masks should be worn as required.

B. Eyewear

1. Safety glasses must be worn at all times when handling chemicals, and/or Lab Packs.

C. Site Specific Safety Gear

It is essential that all on-site personnel are aware of the site specific safety gear requirements, availability and usage. Once gear is selected and distributed, it is the Lab Pack/Field Chemist's responsibility to report any malfunction of the equipment to their immediate supervisor. The following equipment should always be available during on-site operations.

1. Spare gloves, tyvek suits, safety glasses.
2. One-half (1/2) face respirator with organic/acid and ammonia cartridges.
3. Spare set of cartridges for each man.
4. One-half (1/2) face respirator dust filters.
5. Dust filter retainers.

If, at any time the Lab Pack/Field Service Chemist is unsure of the safety gear needed on-site, he should contact the Lab Pack Manager before continuing or commencing work.

D. First Aid Gear

1. A First Aid Kit must be available on-site at all times.
2. Jobs requiring work in an area where water is not available should be specifically addressed. The following gear is required in these situations.
 - a. Portable Eyewash (Full of water)
 - b. Acid/Alkaline burn solution
 - c. Fire extinguisher

E. Site Familiarization

Before starting work at a customer/generator site, completely familiarize yourself with the on-site safety apparatus, location, availability and operation.

1. Water Supply
 - a. Emergency shower
 - b. Eyewash
 - c. Sink, spigot, fresh water supply
2. Fire Fighting Equipment
 - a. Fire extinguisher
 - b. Fire hose
 - c. Fire protective blankets
3. Emergency Information
 - a. Emergency exits, routes of egress
 - b. Emergency call box, telephone
 - c. On-site generator/customer contact availability
 - d. Generators contingency plan, if applicable

NOTE: This is not a complete listing but is meant as an important reference.

F. Emergency Response Protocol

In the event of an on-site emergency: spill, fire, or explosion release of air borne contaminants.

1. Get clear of emergency area
2. Immediately contact the on-site Customer/Generator
3. Immediate Information:
 - a. Identify: Identify self, Midwest Environmental Services, Inc./Klor Kleen
 - b. Location: Specific location

- c. Activity: Specifics of emergency
 - d. Nature of Incident: What kind of situation
 - e. Wait to affirm transmittal of information to authorities
4. In the event of work at a site without a Customer/Generator contact, call local emergency 911 or the operator.

Advise - in order:

- a. Fire Department
 - b. Ambulance
 - c. Police
5. Contact Emergency Response Coordinator at Klor Kleen.

If, in the personal judgement of the Field Service/Lab Pack Chemist, an on-site incident involving a spill, emission, fire or unforeseen chemical reaction can be mitigated, then that individual may perform on-site remedial action.

However, all on-site personnel are advised to use extreme discretion when making an immediate remedial action. Document in detail all times, dates, personnel and activities involved in an emergency. An accurate written record is imperative and is to be submitted to the Lab Pack/Field Service Manager within 24 hours of an incident.

ON-SITE PROCEDURES:

A. Customer/Generator Contact

1. Immediately upon arriving at a Customer/Generator site, contact the client named on the Work Order.

NOTE: This meeting should be performed by the Lab Pack/Field Service Chemist in charge of the on-site activities. It is important that the introduction be formal and professional, as it is essential to set an immediate relationship. The customer must know exactly whom to contact on-site at any time.

B. Site Review

1. Before beginning any work on-site, establish the following guidelines with the Customer/Generator:
- a. General Safety Procedures
 - b. Designate work, packing area
 - c. Establish a loading, unloading area and thorough-fare to and from the work, packing area

2. Discuss Customer/Generator specific on-site requirements.
 - a. Limits of work area
 - b. Nature of job (Packing, consolidating) and if it can be done in work area
 - c. What equipment can be used in a given area

C. Customer/Generator Briefing

After deciding the scope of the work and how it will be done (by reviewing the site with Customer/Generator) immediately inform the Customer/Generator about the specific nature of work to be done.

- a. What type of job. Ex: Lab Pack, Overpacking. Consolidation, Tanker Pumping, Sludge Removal etc.
- b. How many men will be on-site and specifically from what companies, if brokers are used
- c. Approximate schedule of activities
 - i. How long on-site
 - ii. When shipments will be made
 - iii. Return dates, times for multi-day jobs

D. Problems

If there are any problems that will interfere with work progress related to the customer, immediately bring them to his attention. If there is any significant disagreement, immediately contact the Lab Pack Manager.

E. On-Site Activity

Once the preliminary working guidelines are set with the contact/customer/generator, setup and perform the work assignment. Keep the contact informed concerning the location of Klor Kleen members (lunch, on-off-site, etc). On-site work activities, attitudes, and efficiency is what determines our success with a customer.

- a. Safety First

The customer expects and is justified in expecting that all Klor Kleen personnel are completely trained in the use and will use the proper safety gear at all times!

- b. Conduct

All on-site activity must be performed professionally, efficiently and carefully.

F. Completion of Work

a. Work Area and Equipment

- i. Upon completion of the planned working assignment or workday all tools and equipment must be decontaminated before being replaced onto vehicles.
- ii. It is essential that the work area be left as clean as it was found. All debris from Klor Kleen operations must be cleaned. (Ex: Packing Slip paper, label paper, vermiculite, gloves, tyvek suits)

All solid waste must return with Klor Kleen personnel, unless the on-site generator/customer specifically provides a disposal option.

NEVER leave any contaminated material for the generator/customer to dispose. Klor Kleen assumes substantial liability for any oversights of this nature.

All contaminated debris **MUST** be containerized separately or with compatible waste streams.

3. Manifests, Continuation Sheets

Site supervisor must ensure the manifest is accurate with the material being removed from the client site not only in regards to quantity of the drums but also the type and weight of the containers. When client signs the manifest, make sure the correct copy is left with the generator for their records and the Land Disposal Restriction Form, if applicable.

NOTES:

- i. Document any on-site peculiarity in Memo form.
(EX: Emergency Spill, customer argument, accident, etc.)
- ii. When filling out on-site paperwork, it is helpful and efficient to follow these guidelines in order.
 - a. Fill out packing slips completely
 - b. Organize slips in order of hazard class as described in CFR 49 173.2
 - c. Transfer information to manifest
 - d. Complete Manifest and Continuation Sheets in order of hazard class

G. Customer/Generator Final Briefing

When all work on-site, (clean-up, decontamination, loading and paperwork) is done, present the necessary information to the customer contact in a neat professional manner. Have the customer sign all necessary paperwork and make

sure he understands what to do with the copies of the manifest, continuation sheets. Be thorough and concise. Often errors in paperwork are discovered and can be easily corrected at this time.

Discuss the scope of the work completed and any details the customer/generator requests.

Make sure the customer has every opportunity to ask questions regarding the work completed before departing.

H. Site Departure Checklist

- a. Equipment and material have been loaded into company vehicles
- b. All disposal material is loaded securely
- c. Waste drums/containers are properly labeled and loaded
- d. Proper truck placarding
- e. Paperwork is thoroughly completed
- f. Customer site is clean and organized

COMPLETING LAB PACK PACKING SLIP/DRUM INVENTORY

PURPOSE

The Lab Pack Packing Slip/Drum Inventory is a form that tracks all items placed in a Lab Pack container. A sample Lab Pack - Drum Inventory is located at the end of this procedure.

DESCRIPTION

All lab packs **must** have a packing slip attached and in full view at all times.

LINE ITEM DESCRIPTION

Generator:	Generator name and address <u>exactly</u> as used on the Hazardous Waste Manifest.
EPA ID#:	EPA ID# as used on manifest
Manifest #:	Corresponding manifest number
Drum #:	Drum # written on a drum as an additional means of identification ex 1,2,3, etc... or A,B,C... order can be adopted on site.
Container:	Type of Lab Pack Outer Packaging (ex UN 1A2, UN 1B2, UN 1G, UN 1D or UN 1H2)
Handling/ Disposal Code:	Lab Pack disposal code
D.O.T. Proper Shipping Name:	The <u>most</u> applicable proper shipping name for a given Lab Pack as determined in 49 CFR 172.101.
Hazard Class:	Corresponding Hazard Class to the D.O.T. proper shipping name as described in 49 CFR 172.101.
EPA Waste #(s):	All applicable EPA hazardous waste types and numbers for the Lab Pack container (corresponding to the contents) as described in 40 CFR 261.20-261.33.
UN/NA #:	Corresponding UN/NA# to the D.O.T. proper shipping name as described in 49 CFR 172.101
Packing Group:	Corresponding Packing Group (I,II, or III) as described in 49 CFR 172.101
Page:	Page #; ex: 1 of 1, 1 of 2..2 of 2, etc.
Date:	Date of Lab Pack container packing

Number of Containers:	Number of individual line items packed in container
Container Size:	Use the container size as the unit. When the container is empty note this by adding (MT) to this section.
Type:	Note the type of container. Use the abbreviations listed on the bottom of the form [G=glass, M=metal, P=poly, F=fiber]
Chemical(s):	List the proper chemical name for the substance being lab packed. Add trade names when helpful and notes on containers.
Physical State:	List the physical state of the item(s) being described by that line item of the packing slip.
EPA Waste Code:	Note the EPA Waste Code which is applicable to that line item of the packing slip.
Total Weight:	Total weight of items in the Lab Pack as determined by sum of all line item number quantities. For estimation purposes of the container weight, use the following: gallons = 8 lbs.; quarts = 2 lbs.; pints = 1 lb.

ADDITIONAL INFORMATION

If more than one packing slip is used for a given container include all heading information on all packing slips. In addition, write both the slip number and total weight on each page.

DISPERSION OF COPIES

Top Copy (white)	On Lab Pack container
2nd Copy (yellow)	Manifest
3rd Copy (pink)	Lab Pack File/Customer File

PACKING SLIP, PACKING SLIP COVER, AND LABEL ATTACHMENTS

1. Write drum # on Lab Pack container
2. Fold packing slip in 1/3 so that all heading information is visible
3. Insert packing slip into packing slip cover, so all heading information is clearly visible through window
4. Attach packing slip cover assembly onto the Lab Pack container (on drums 3/4 up in between upper ribs)
5. All heading and cover information must be visible
6. Attach appropriate hazard class label to the drum
7. Attach hazardous waste marking to the container

LAB PACK REPACK/CONSOLIDATION PROCEDURES

PURPOSE

To properly repack/consolidate lab pack waste materials accepted at Klor Kleen for the wastes to be sent off-site for treatment or disposal.

PROCEDURE

- 1) Review packing lists of each drum to confirm that all materials are compatible. Refer to Figure C-4 for compatibility of materials accepted at Klor Kleen.
- 2) Unpack each drum and place the individual containers on the portable work bench.
- 3) Begin completion of a new packing list for the consolidation drum by completing the generator and shipping information sections.
- 4) Place a 4 - 6 inch layer of vermiculite at the bottom of the container.
- 5) Complete the packing list for each individual container and place a single layer of containers in the bottom of the drum. Insure there is a free space of at least 2 inches between individual containers and the sides of the drum.
- 6) Add sufficient vermiculite to cover the containers by at least 2 inches.
- 7) Complete the repacking process by alternating layers of containers and absorbent. Enter each container on the packing list that is placed in the drum.
- 8) After, all containers are placed in the drum add an additional 4 - 6 inches of vermiculite to the drum.
- 9) Affix the drum cover, gasket, ring and closure. Attach a completed hazardous waste label and packing list to the drum.

LAB PACK PROCEDURES

CONTAINERIZATION OF MATERIALS

A. DOT Requirements

All waste chemicals for disposal must be packaged according to guidelines and requirements of CFR title 49 (U.S. Department of Transportation).

Specification packaging and containers used in processing waste must meet requirements for the safe transportation and ultimate disposal of containerized wastes.

B. Container Types

The following itemizes acceptable container types for the disposal of lab pack material Klor Kleen:

Container Type
UN 1G Fiber Drum
UN 1A2, 1B2 Metal Drum
UN 1D Plywood Drum
UN 1H2 Plastic Drum

C. Containerization of Waste for Disposal

All waste materials must be packaged according to the following lab-pack guidelines for containerized material:

- a. Only compatible materials of the same hazard class may be overpacked in the same DOT container.
- b. All drums must be packed with an absorbent material like vermiculite or appropriate packaging material for the waste stream. Drums must be packed so that inside containers can be transported without risk of breakage and with sufficient absorbent to absorb all liquid waste should breakage occur.
- c. All inside containers must be packaged in a compatible container for that waste material.

All inside containers must be compatible for that waste.

Acceptable inside container types and maximum sizes:

- i. glass - 1 gallon
- ii. metal - 5 gallon
- iii. plastic - 5 gallon

Acceptable inside container types and maximum sizes:

- i. glass - 1 gallon
- ii. metal - 1 gallon
- iii. plastic - 5.3 gallon

- d. In accordance with DOT, the maximum gross weight of any drum shall not exceed the rated capacity of that drum or 450 pounds, whichever is less.
- e. Liquids and solids may be shipped in same container however, liquid will be primary description.
- f. Reactive waste shall be packaged separately from non-reactive waste. Klor Kleen does not accept reactives. Klor Kleen does not manage reactive waste as a permitted activity. Reactive wastes are packaged separately and manifested to a designated facility permitted to manage reactive wastes.
- g. Drums with liquid waste must be packed according to the following procedures:
 - i. Place a four to six inch (4-6") layer of absorbent material on the drum bottom.
 - ii. Place a single layer of containerized waste on the absorbent, packing at least two inches (2") of absorbent between the containers and the drum sides.
 - iii. Cover the container layer with two to three (2-3") of absorbent.
 - iv. Fill the drum, alternating layers of containers and absorbent.
 - v. Top off the drum with four to six (4-6") of absorbent material to complete the packaging.
 - vi. Affix the cover, gasket, ring and closure. Attach the appropriate labels and packing slip.
- h. The maximum allowable volume per drum of liquid waste, container size and type must be restricted to meet safety requirements for the handling, transportation and ultimate disposal.

<u>Container Type</u>	<u>Maximum Volume (Liquids)</u>
55 gallon DM/DF	20 gallons
30 gallon DM/DF	11 gallons
20 gallon DM/DF	7 gallons
5 gallon DM/DF	2 gallons

APPENDIX I

PACKING PROCEDURES

PURPOSE

To establish a standard for the physical act of packing a Lab Pack.

PROCEDURE

- A. Inventory and document each item of the specific Lab Pack container (See Packing Slip S.O.P.)
- B. All Lab Pack containers must meet DOT specifications for all materials contained
- C. Pack each container with sufficient vermiculite to absorb all liquid contents and to prevent breakage of any inside container during transportation (exceptions to this may be indicated by the Lab Pack Manager for specific containers.)
- D. Lab Pack drums will comply with inner packaging rated capacities with gross weight not exceeding 450 pounds.
- E. All Lab Pack drums must be labeled as follows:
 - 1. Appropriate hazard label (s) on top and side (Flammable Corrosive, Oxidizer, etc.)
 - 2. All containers must have the appropriate "Hazardous Waste" label or "Non-Hazardous Waste" label filled out completely, legibly, and attached securely to each Lab Pack
 - 3. All Lab Packs must have an attached packing slip and correlating drum number on both the container and the packing slip.
 - 4. The assigned Klor Kleen Lab Pack Approval # must appear on each container.
 - 5. A copy of all packing slips must accompany the paperwork for the shipment.

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Packing Group Description

I	Greatest degree of danger posed by the material.
II	Medium degree of danger posed by the material.
III	Minor degree of danger posed by the material.

Division	Description	Definition
2	GASES	NON-LIQUIFIED COMPRESSED GAS- A gas, other than in a solution, which in a packaging under the charged pressure is entirely gaseous at a temperature of 20°C (68°F).
2.1	FLAMMABLE GAS	Any material which is a gas at 20°C (68°F) or less and 101.3kPa (14.7 psi) of pressure (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psi) which is ignitable at 101.3 kPa (14.7 psi) when in a mixture of 13 percent or less by volume with air) or which has a flammable range at 101.3 k a (14.7 psi) with air of at least 12 percent, regardless of lower limit, explosive prescribed test procedures: e.g. Acetylene, dissolved; Hydrogen, compressed; Propane.
2.2	NON-FLAMMABLE, NON-POISONOUS GAS	Gas which is hazardous by virtue of being under pressure (280 kPa (41 psi) at 20°C (68°F)), but which is not flammable or poisonous: e.g. Helium, compressed; Oxygen, compressed; Sulfur hexaflouride.
3	FLAMMABLE LIQUID	Any liquid which under specified test procedures, has a flashpoint of 60°C (140°F) or less: e.g. Petroleum oil; Diethyl ether; Gasoline.

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Division	Description	Definition
4.1	FLAMMABLE SOLID	Solids, including wetted explosives in the Class 1 category which are wetted with enough alcohol, water, or plasticizer to suppress explosive properties; self-reactive materials which are liable to undergo, at normal or elevated temperatures, a strongly exothermal decomposition due to high heat during transportation; or readily combustible solids which may cause a fire through friction. e.g. Celluloid; Magnesium alloys; Matches, strike anywhere.
4.2	SPONTANEOUSLY COMBUSTIBLE MATERIAL	Materials, including pyrophoric liquids or solids which, even in a small amount and without external ignition source, can ignite within 5 minutes after exposure to air; and self-heating materials which, when in contact with air and without source of ignition is liable to self-heat: e.g. Cotton, wet; Lithium alkyls.
4.3	DANGEROUS WHEN WET	Means a material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas in accordance with specified testing: e.g. Manganese aluminum phosphide; Calcium carbide.
5.1	OXIDIZER	A substance that yields oxygen readily to stimulate the combustion of certain other substances: e.g. Ammonium nitrate mixed fertilizer; Lead nitrate; Lead dioxide.
5.2	ORGANIC PEROXIDE	A derivative of hydrogen peroxide in which part of the hydrogen has been replaced by an organic material: e.g. Acetyl benzoyl peroxide; Dibenzoyl peroxide; Methyl ethyl ketone peroxides.
6.1	POISONOUS MATERIALS	Liquids or solids (including pastes and semi-solids) known to be so toxic to man as to create a health hazard during transportation; or which are presumed to be toxic to man because of the effects on laboratory animals in the categories of oral, dermal, or inhalation toxicity: e.g. Arsenic; Phenol, solid; some insecticides.
8	CORROSIVE MATERIAL	A liquid or solid that causes visible destruction or irreversible damage to skin tissue at the point of contact, or that has a severe corrosion rate on steel: e.g. Phosphorus pentachloride; Potassium hydroxide solution; Sulfuric acid.

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9	MISCELLANEOUS HAZARDOUS MATERIALS	Materials which present a hazard during transportation, but which do not fall into any other hazard class, including materials which have an anesthetic, noxious, or similar affect and materials that are not included in any other hazard class, but which meets the definition of a Hazardous Substance or a Hazardous Waste: e.g. Environmentally hazardous substances, liquid, n.o.s.
Combustible Liquid	COMBUSTIBLE LIQUID	A liquid not meeting the definition of any other hazardous materials class having a flashpoint above 60°C (200°F). A flammable liquid with a flashpoint at or above 38°C (100°F) that does not meet the definition of any other hazard class, except Class 9, may be reclasses a combustible liquid for domestic land transportation only: e.g. Petroleum oil; Fuel oil; Combustible liquid, n.o.s.
ORM-D	ORM-D	A substance which meets the definition of a consumer commodity which would ordinarily be regulated as a hazardous material but which presents a limited hazard in transportation due to its form, quantity, or packaging, and for which a "limited quantity" exception is provided in the regulations.

Klor Kleen

Part B Renewal Application

Section E - Ground Water Monitoring

The requirements for ground water monitoring are not applicable to a storage facility such as Klor Kleen which stores hazardous waste in containers only, and has no on site disposal.

Klor Kleen

Part B Renewal Application

Section F - Procedures to Prevent Hazards

The information provided in this section is submitted in accordance with the requirements of OAC 3745-54-14; 3745-54-15 and 40 CFR 264.14; 264.15. This section will address Procedures to Prevent Hazards.

F-1 Security

F-1a Waiver

F-1a (1) Injury to Intruder

Klor Kleen is not requesting a wavier on security procedures or equipment.

F-1a(2) Violation Caused By Intruder

Klor Kleen is not requesting a wavier on security procedures or equipment.

F-1b Security Procedures and Equipment

F-1b (1) 24-Hour Surveillance System

Klor Kleen is not required to have a 24 hour surveillance system. The entire Klor Kleen permitted facility is enclosed within the building at 3118 Spring Grove Avenue. Access to the building is through two man doors and one 14 ft. x 14 ft overhead drive in door, all located on the Spring Grove Avenue side of the building. All doors are normally closed during working hours, and will be locked at all other times. There are also two emergency exit only doors located on the Avon Place side of the building. These doors will be locked from the outside at all times, but remain unlocked from the inside to permit safe egress of personnel.

F-1b (2) Barrier

The entire facility of Klor Kleen is enclosed within the building at 3118 Spring Grove Avenue. Access to the building is through two man doors and one 14 ft. x 14 ft. overhead drive in door, all located on the Spring Grove Avenue side of the building.

F-1b (3) Means to Control Entry

Entry to the facility through the north entrance door is to the office area. The office area is separated from the plant area. Inside doors separating the office from the plant area will be closed at all times. Visitors are not permitted in the plant area unless accompanied by Klor Kleen personnel. Entry through the south walk in door is limited to use by plant personnel. The south walk in door is locked from the outside at all times and entry is accomplished by use of a key pad door knob. Entry through the drive in door is to the loading and unloading area. This door has an automatic opener and is controlled from the inside only. It will be controlled by plant personnel and will be opened for vehicular traffic only. The drive in door opening will be kept shut or closed to entry by a folding gate barrier.

F-1c Warning Signs

Signs which are legible from a distance of 25 feet are posted at all entrances to the active portion of the facility, and in several locations around the hazardous drum storage area. These signs are visible from all angles of approach, and bear the legend "DANGER AUTHORIZED PERSONNEL ONLY." There are a total of nine warning signs and their locations are shown on the General Site Plan in Figure D-1 in Section D.

F-2 Inspection Schedule

The following section contains the Inspection Plan written for the purpose of conducting regular inspections of the facility. Inspections will be performed by qualified personnel. The information submitted is in accordance with OAC 3745-54-15, 3745-54-74 and 40 CFR 264.15.

F-2a General Inspection Requirements

The operator will inspect the facility for any causes which may release hazardous waste constituents and pose a threat to the environment or to human health. Those investigations will be documented and performed twice per calendar week.

Inspections of the facility process equipment and loading and unloading areas for malfunctions, leaks, deterioration, and floor condition will be performed on a daily basis.

Items to be inspected daily are as follows: Hazardous waste storage area, loading and unloading area, incoming drum staging area and product/in-transit storage area. Copies of shipping documents including manifests, LDR forms and bill of lading for all wastes stored onsite will be kept in one central location in the plant office.

Emergency equipment, first aid equipment and the materials necessary for spill control and cleanup will be inspected on a weekly basis. Attachment F-1 includes the inspection forms which personnel will follow, check all items on the form, sign name, date, time of

inspection, and record all malfunctions. All malfunctions should be reported immediately to the plant manager.

F-2a (1) Types of Problems

The type of problems expected to be encountered are identified on the inspection form along with information involving clean up and repairs.

F-2a (2) Frequency of Inspections

The frequency of inspections are twice each calendar week for the Facility Inspection Form and once each calendar week for the Emergency and Safety Equipment Checklist. The rate of our investigation is based largely on spills or leaking containers which offer the biggest threat in the storage, loading and unloading areas. Those items will be inspected at a minimum of twice each calendar week. Emergency equipment and safety supplies will be inspected for inventory and functionality and will be performed once each calendar week. Those investigations will help maintain inventory and the repair or replacement of equipment as needed.

F-2a (3) Remedial Action

Repairs to correct any deterioration or malfunction found during an inspection will be made as soon as possible. For example: Leaking containers in the drum

storage area will be taken care of immediately. Inoperative equipment will be repaired as soon as replacement parts can be procured or replaced with new equipment. Cracks in the drum storage containment area will be repaired within a week or sooner if possible. The area of the drum storage area where a crack exists will be isolated through the use of sand bags or other temporary containment materials to make a temporary containment dike until the repair is completed. When repairs are complete the nature of repair and date repair is made will be recorded on the inspection form opposite the malfunction recorded.

F-2a (4) Inspection Logs

Inspection forms (Attachment F-1) will be filled out at the time of inspection. After completion the forms are filed chronologically and kept for at least three (3) years from the date of inspection. At a minimum these forms include the date and time of the inspection, the name of the inspector, a notation of the observations made and the date of any repairs or other remedial action.

F-2b Specific Process Unit Inspections

F-2b (1) Container Inspections

The hazardous waste drum storage area will be inspected every day the facility is in operation and a minimum of twice per week for the following items: Spills,

leaking drums, drums without bungs or covers, proper stacking of drums, floor cracks, cracks in the dike wall curb, cracks or separation where the dike wall adjoins the floor and outside wall, cracks or collection of material in the sump, condition of the epoxy floor coating.

F-2b (2) Tank System Inspections

Klor Kleen is not requesting any tanks be permitted for storage of hazardous wastes, therefore this section is not applicable.

F-2b (3) Surface Impoundment Inspections

Klor Kleen is not operating a Surface Impoundment, therefore this section is not applicable.

F-2b (4) Waste Pile Inspections

Klor Kleen is not operating a Waste Pile, therefore this section is not applicable.

F-2b (5) Land Treatment Unit Inspections

Klor Kleen is not operating a Land Treatment Unit, therefore this section is not applicable.

F-2b (6) Landfill Inspections

Klor Kleen is not operating a Landfill, therefore this section is not applicable.

F-2b (7) Incinerator Inspections

Klor Kleen is not operating an incinerator therefore this section is not applicable.

F-2b (8) Miscellaneous Unit Inspections

Klor Kleen is not operating any Miscellaneous Units, therefore this section is not applicable.

F-3 Exemption from or Documentation of Preparedness & Prevention Requirements

F-3a Justification for Exemption Request

Klor Kleen is not requesting exemption from any of the preparedness and prevention requirements.

F-3b Design and Operation of Facility

The entire facility is enclosed within a brick building which includes diked secondary containment in all storage areas. This will minimize release of spills as well as constrict

any fugitive emissions from being released into the environment. Klor Kleen's offices are separated from stored waste by a four (4) hour resistant fire wall and a sprinkler system throughout the facility for fire protection/suppression. The sprinkler system is designed to adequately handle NFPA Class 1B or above materials. In addition, the remainder of the facility is protected for NFPA rated materials of Class III or above. Klor Kleen is operated and inspected daily to guard against release that could harm human health or the environment.

F-3c Equipment Requirements

F-3c (1) Internal Communications

Internal communications are handled through our telephone system. The telephone system consists of 1 station in the reception office, 4 stations in the other office areas, and 1 station at the container storage area desk. The telephone system is equipped with a paging system and loudspeaker that can provide immediate emergency instruction to facility and office personnel. A message can be broadcast to all stations and thru the loudspeaker from any station. The facility size allows for verbal warning to all workers present in the operation area of the facility.

F-3c (2) External Communications

In case of fire, spill or other emergency, assistance from local fire department,

police department, or state or local response teams will be summoned by telephone. Cincinnati utilizes a 911 emergency call system. If 911 is dialed and the caller is not able to give a message the point of call is indicated and police and fire department will respond. Additionally, a Cincinnati Fire Department sub-station is located 250 yards south on Spring Grove Avenue, in the event the phone system is not functional, contact can be made directly at the Fire Department.

F-3c (3) Emergency Equipment

Eight (8) portable fire extinguishers are strategically located throughout the facility. For spill control, a minimum of (10) 40# bags of floor dry type absorbent and one 85 gallon drum of absorbent pads and booms is kept within the facility. Shovels, squeegee, and brooms are stored in two emergency spill drums, located in the drum storage area. A minimum of 10 overpack salvage drums will be on hand to immediately contain leaking drums. An emergency shower and eye wash station is located next to the loading & unloading area and adjacent to the lab entrance. The location of this equipment is shown on the General Site Plan in Figure G-3.

F-3c (4) Water for Fire Control

Water is supplied to the Klor Kleen facility by the City of Cincinnati Water department. The building is supplied with a 3/4" incoming water line at

approximately 80 PSI of pressure. Two (2) hose locations are available for use a secondary fire control water. The primary fire control water is a 1½" fire hose station located just outside the drum storage area near the northwest corner and is capable of delivering 500 gallons per minute. For a major fire, the Cincinnati Fire Department can use a fire hydrant that is directly across the street (approximately 75'). A sub-station of the Cincinnati Fire Department is located 250 yards south of the facility on Spring Grove Avenue.

F-3d Access to Communications or Alarm System

The handling of hazardous wastes, which includes; sampling, mixing, pouring, consolidating and commingling, is restricted to the storage area and staging area of the plant. Facility personnel have access to hand-held two-way radios, telephone systems as well as vocal communication to allow for immediate emergency instructions.

F-3e Aisle Space Requirement

As stated in Section D-3 "Container Management Practice", waste containers in the diked hazardous waste storage area are stacked in rows four (4) feet wide (2 drums). A minimum of 30" of aisle space between the rows is maintained to facilitate inspection for leakage. A primary aisle space of 9' is maintained in the storage area to provide emergency equipment and forklift access to the rows of drums.

Klor Kleen is not storing Ignitable or Reactive waste, therefore no additional aisle space

requirements are required.

F-3f Arrangements/Agreements with Local Authorities

F-3f (1) Arrangements with Police, Fire Departments and Emergency Response Teams

Klor Kleen has made the appropriate arrangements with the Police Department, Fire Department and local hospital as described in our Contingency Plan, Section G of this application.

F-3f (2) Primary Emergency Authority

Klor Kleen has made the appropriate arrangements with the Police Department, Fire Department and local hospital as described in our Contingency Plan, Section G of this application. Those arrangements were based on logistics and proximity to our facility. Our primary emergency authority would be the Fire Department located 250 yards South on Spring Grove Ave.

F-3f (3) Arrangements with Ohio EPA

Klor Kleen has made the appropriate arrangements with the Ohio EPA Southwest District Office as described in our Contingency Plan, Section G of this application.

F-3f (4) Arrangements with Local Hospitals

Klor Kleen has made the appropriate arrangement with local hospitals as described in our Contingency Plan, Section G of this application.

F-3f (5) Documenting Refusals

There have been no authorities to decline to enter into our emergency arrangements. If that should happen, Klor Kleen will document all information in accordance with OAC 3745-54-37 (B).

F-4 Preventive Procedures, Structures, and Equipment

F-4a Unloading Operations

Truck loading and unloading operations, including staging, will take place in the designated Loading and Unloading Area as defined in Figure D-1. In the event of an accident during loading or unloading, the spilled material will be contained within the curbed area. Absorbent is located nearby to quickly contain spills and to mitigate release. In the case of a ruptured drum, the entire drum can immediately be placed into an overpack drum to contain the leaking container. The affected area and any emergency equipment used will then be cleaned and decontaminated as outlined in the Contingency Plan. Contaminated absorbent material will be contained in drums and placed in the drum storage area for later shipped to an off-site TSDF for disposal.

Several precautions have been taken to reduce the potential for hazards during loading and unloading operations. The ramps into and out of the storage areas are designed to facilitate the smooth and accessible movement of a forklift. A primary aisle space of 9' will be maintained at all times in the drum storage area, ensuring free movement of the forklift and easy access to all rows of stored drums. Drums will be transported by forklift using a double drum handling attachment or on pallets to further reduce the possibility of spills or damaged drums.

This same area (loading/unloading) is used to off-load tank trucks into containers as well as a shipment staging area. All safety procedures will be followed for containers while in this area. Tank truck off-loading utilizes a submerged fill apparatus (Figure F-2) to transfer the contents from the truck into drums or other suitable containers. This operation is continuously monitored by plant personnel. This operation is discontinued if personnel are needed for other work. Tank trucks which are received by Klor Kleen only contain hazardous wastes listed on the Part A and are also acceptable at the facility in drum quantities. Tank truck shipments received for off-loading and acceptance will be 3000 gallons or less. All containers from tank truck off-loading procedures will be labeled and placed in the staging (loading/offloading) area immediately after the tank truck is off-loaded. Off-loading from tank trucks into containers will not be performed on wastes which are not listed on Klor Kleen's Part A application. A detailed off-loading procedure is included in Attachment F-2. Hazardous wastes which are to be stored at

Klor Kleen for less than 10 days as a transporter/transfer station will not include the waste types specified in Table C-3 excluded in-transit waste. A sprinkler system is installed to provide fire protection/suppression. The sprinkler system is designed to adequately handle NFPA Class IB or above materials in this area. In addition the remainder of the facility is protected for NFPA rated materials of Class III or above. In-transit materials will be handled by personnel trained and experienced in truck unloading procedures; see Attachment F-2.

To ensure worker safety two (2) persons are required to perform commingling and consolidation activities relating to lab packs or other material with one person designated to be responsible for monitoring the activity. The Lab Pack Procedures Manual, Attachment D-1, outlines worker safety, emergency response, and site familiarization. Klor Kleen primarily consolidates lab packs through repacking which does not involve the opening of containers but in the rare instance when comingling would be performed, a maximum of two containers may be open at one time with an additional container open receiving material being consolidated. Drums of material are transferred utilizing a fork lift to where a portable containment pallet is set up for consolidation activities. The portable containment pallet is located within an area providing secondary containment. A maximum of eight (8) containers will be involved in each of these activities at any given time. Lab pack consolidation activities are performed on a batch basis only. If these activities are discontinued or will extend beyond a work shift all containers will be placed back into the storage area immediately. During consolidation activities batch sheets will

record the removal of material from a container and its subsequent addition to another. All containers which undergo consolidation will be labeled to reflect their contents, closed then placed back into storage.

F-4b Runoff

All hazardous waste material is stored in closed containers. Runoff will only occur during a leak or accidental spill. Spills will be contained with absorbent material, unless the spill occurs directly adjacent to the floor sump, in which case the waste may be swept into the sump. The container storage area is contained by a dike. Runoff from large spills will be collected in the sump. This material will then be pumped into a suitable container and returned to storage. The loading/unloading area is also contained by a dike. Runoff in the loading/unloading area will be transferred to a suitable container by use of a portable pump.

F-4c Water Supplies

Ground water contamination is prevented by eliminating the discharge of hazardous materials onto the unprotected ground. The entire facility is constructed on a concrete base. The container storage area is protected by a dike and sump. All floor drains in the facility are connected to a sump for collection of hazardous materials. Klor Kleen does not discharge any industrial waste water to the sanitary sewer.

F-4d Equipment and Power Failure

If a power outage occurs at the facility any operations being performed would be discontinued until power is restored. A power outage would affect laboratory equipment and lighting (with the exception of emergency lighting) in the facility. The forklift is the main equipment used for the management of drums in the facility and it is propane operated and therefore not affected by power outages. There is no electrical equipment associated with the hazardous waste operations in the plant area other than lighting needed to safely perform duties. The telephone system and fire alarm system have a battery backup that allows their operation to continue if a power outage occurs. Temporary lighting would be used to allow for inspection of the facility if the power outage lasted for several days.

F-4e Personnel Protection Equipment

General information on the major chemical components of wastes handled at this facility is provided in the general description in Section B. Hazardous characteristics of wastes are described in Section C of this application. Available protective equipment is presented in Section G-5, Emergency Equipment. The use of protective equipment is covered in the Personnel Training Program in Section H of the application.

F-5 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes

F-5a Precautions to Prevent Ignition of Reaction of Ignitable or Reactive Waste

Ignitable or reactive wastes are not accepted at Klor Kleen.

F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

Ignitable or reactive wastes are not accepted by Klor Kleen. All wastes received at the facility are marked with the Klor Kleen compatibility group marking as discussed in Section C, Waste Analysis. These markings along with Compatibility Chart will be used by personnel to determine if it is safe to mix two waste materials. To further ensure that incompatible wastes are not mixed, a compatibility check is performed before mixing two different wastes. Compatibility testing is done in conformance with the procedure which is included in the Lab Methods Manual Appendix C-3. Klor Kleen has indicated that any change in temperature and evolution of any type of gas bubbles to be considered a positive reaction. Personnel always perform the compatibility test at ambient conditions to assure accuracy. The compatibility test is performed in the lab, by personnel trained in the procedure. If personnel observe any positive reaction during the compatibility test the wastes will not be mixed.

F-5c Documenting Compliance with General Requirements for Ignitable, Reactive or Incompatible Waste

Ignitable or reactive wastes are not accepted or managed at Klor Kleen. All facility personnel are trained in handling the permitted hazardous waste as described in the training manual, Section H of this application. All hazardous waste is subject to our Compatibility Chart referenced in Figure F-1. Before mixing or commingling of waste, a compatibility test is performed as referenced in Section C of this application and documented on batch sheets and TPS forms, which contains all relevant waste analysis data along with disposal instructions.

F-5d Management of Ignitable or Reactive Wastes in Containers

Klor Kleen does not accept or manage ignitable or reactive wastes.

F-5e Management of Incompatible Wastes in Containers

The procedures described in Section F-5b will ensure that incompatible wastes are not placed in the same container. Waste materials will not be added to empty containers unless they have been first washed or reconditioned and/or it is determined that the container held the same type of waste immediately prior to it being emptied. This can be determined from markings on the container, which include the Klor Kleen compatibility group designation and the Job number. The segregation of D002 corrosive acid wastes will be made using portable spill containers designed to hold the contents of 1-4 drums.

These portable containment devices will be made of plastics compatible with the corrosive wastes. The portable containment devices will include the use of overpack drums (with no liquids in the outer drum), and single or multiple drum, spill containers and/or containment pallets. Acids and incompatible wastes will not be stored within the same containment.

The facility is permitted to store characteristic wastes, specifically the waste codes D002, D004, D005, D006, D007, D008, D009, D010, D011. Additionally, the facility is permitted to store F006 electroplating wastewater sludge. A small portion of these characteristic wastes will be in powdered metal form. These wastes will be segregated from the chlorinated solvents using portable spill containers designed to hold the contents of 1-4 drums or 1 large box or bag. These portable containment devices will be made of materials compatible with the metal wastes. The portable containment devices will include the use of overpack drums (with no wastes in the outer drum), and single or multiple drum spill containers and/or containment pallets.

F-5f Management of Ignitable or Reactive Wastes in Tank Systems

Klor Kleen is not operating a Hazardous Waste Tank System therefore this section is not applicable

F-5g Management of Incompatible Waste in Tank Systems

Klor Kleen is not operating a Hazardous Waste Tank System therefore this section is not applicable.

F-5h Management of Ignitable or Reactive Wastes in Surface Impoundments

Klor Kleen is not operating a Surface Impoundment therefore this section is not applicable.

F-5i Management of Incompatible Wastes in Surface Impoundments

Klor Kleen is not operating a Surface Impoundment therefore this section is not applicable.

F-5j Management of Ignitable or Reactive Wastes in Waste Piles

Klor Kleen is not operating a Waste Pile therefore this section is not applicable.

F-5k Management of Incompatible Wastes in Waste Piles

Klor Kleen is not operating a Waste Pile therefore this section is not applicable.

F-5l Management of Ignitable or Reactive Wastes Placed in Land Treatment Units

Klor Kleen is not operating a Land Treatment Unit therefore this section is not applicable.

F-5m Management of Incompatible Wastes Placed in Land Treatment Units

Klor Kleen is not operating a Land Treatment Unit therefore this section is not applicable.

F-5n Management of Ignitable or Reactive Wastes Placed in Landfills

Klor Kleen is not operating a Landfill therefore this section is not applicable.

F-5o Management of Incompatible Wastes Placed in Landfills

Klor Kleen is not operating a Landfill therefore this section is not applicable.

KLOR KLEEN COMPATIBILITY CHART

Chlorinated Solvents	CS	CS					
F006 Electroplating Treatment Sludge	F	O	F				
Acid (Concentrated)	A	X	X	A			
Base (Concentrated)	B	X	O	X	B		
Metallic Powders	MP	X	O	X	X	MP	
Metal containing Solids and Debris	MS	O	O	X	O	O	MS
Metal containing Liquids and Oils	ML	O	O	X	O	O	O

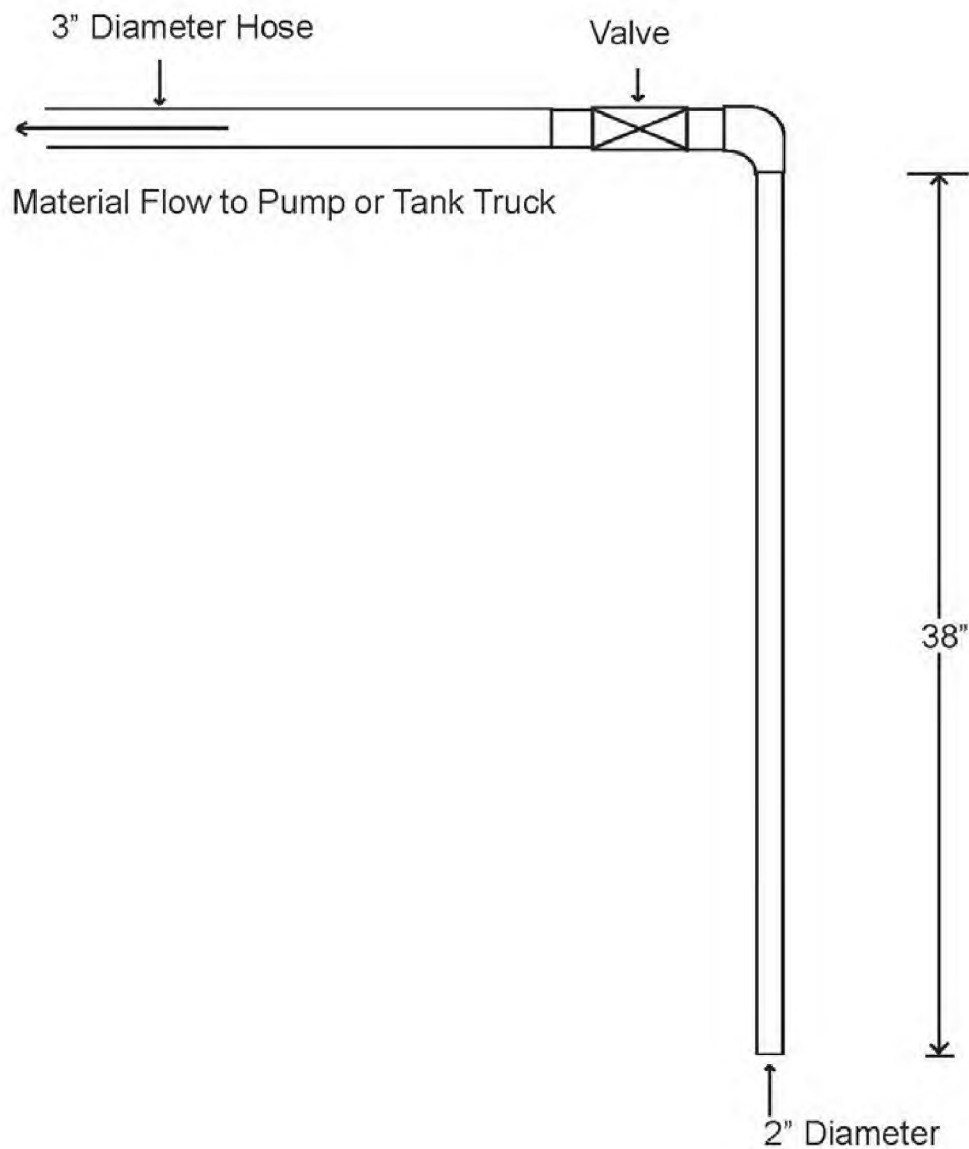
X = Incompatible Waste

O = Compatible Waste



MIDWEST
Environmental Services, Inc.

DATE: 09-29-15
REVISION 1



Scale 1" = 8"

FIGURE F-2
SUBMERGED FILL APPARATUS

ATTACHMENT F-1

INSPECTION CHECKLISTS

MIDWEST ENVIRONMENTAL SERVICES, INC.
KLOR KLEEN FACILITY INSPECTION FORM

The following items are to be inspected each day the facility is in operation. Inspector should sign name, date and time of inspection, note if item is acceptable and record the problem if not acceptable. Report problems immediately to Facility Manager.

Inspector Name _____ Date _____ Time of Inspection _____

UNLOADING AND LOADING AREA

Inspection Item	ACCEPTABLE		OBSERVED PROBLEM	RESOLUTION OF PROBLEM	DATE OF REPAIR
	Yes	NO			
Containers are Upright and Void of Leaks.					
Containers are all in Acceptable Condition.					

GENERAL STORAGE AREA

Inspection Item	ACCEPTABLE		OBSERVED PROBLEM	RESOLUTION OF PROBLEM	DATE OF REPAIR
	Yes	NO			
Containers are Properly Staged.					
Containers are Void of Leaks and have Secured Bungs and/or Covers.					
Area is Void of any Spills.					
Floor, Curb, Outside Wall and Dike are free of cracks.					

MIDWEST ENVIRONMENTAL SERVICES, INC.
EMERGENCY AND SAFETY EQUIPMENT
WEEKLY CHECKLIST

Inspector Name _____

Date _____

Inspector Signature _____

Time _____

Acceptable		Inspection Item	Comments
Yes	NO		
		Overpack Drums (10)	
		Fire Extinguishers (8)	
		<i>Hand Tools:</i>	
		Shovels (5)	
		Squeegees (3)	
		Scrapers (3)	
		Brooms (4)	
		Hoses (3)	
		Five-Gallon Buckets (5)	
		Floor Dry (10)	
		Sorbent Booms (4)	
		Sorbent Pads (100)	
		Rubber Gloves	
		<i>Respirators/SCBA:</i>	
		Clean	
		Operational	
		Cartridges/Filters/Canisters	
		Acceptable Level in SCBA Tanks	
		Wipe Pads	
		<i>Decontamination Room:</i>	
		Clean	
		Shower Operational	
		<i>Portable Pumps:</i>	
		Clean	
		Operational	
		First Aid Kit	

ATTACHMENT F-2

**TRUCK UNLOADING
PROCEDURES**

PROCEDURE FOR OFFLOADING A BULK LIQUID TRAILER

PURPOSE

To ensure safety of plant personnel during the waste stream acceptance process and confirm compliance with Part B Permit for the facility.

SAFETY EQUIPMENT

Goggles or hard hat and face shield, steel toed boots, rubber gloves, and respirator with appropriate cartridges if required.

EQUIPMENT NEEDED

Coliwsa sampler or other core type sampler, sample bottle, sufficient length of 3 inch hose, submerged fill apparatus, DOT approved container, forklift with drum handler attachment, manual drum dolly and/or pallet jack.

PROCEDURE

- A) Confirm quantity on the trailer matches the amount indicated on the manifest. Any discrepancies must be reported immediately to the foreman or supervisor.
- B) Use coliwsa and sample bottle to obtain a representative sample and submit sample to the laboratory (see procedure for Sampling a Bulk Liquid Trailer)
- C) When analysis is completed, confirm material is within established specifications based on the original Treatment and Procedure Sheet. If material is not acceptable, notify the foreman or supervisor immediately.
- D) Connect one end of the 2 inch hose to the tank truck and, after attaching the opposite end of hose to the submersible fill apparatus, place into the approved DOT container.
- E) Ensure hose length allows for the fill apparatus to reach the bottom of the container. With a person holding the hose in place, open valve to begin filling the container.
- F) Fill container to within three inches from the top and close valve to stop liquid flow.
- G) Repeat steps D-F until tank truck is completely empty. Dome should be opened to confirm truck has been off-loaded.
- H) Remove hose and submerged fill apparatus from the tank truck.

- I) Properly close and label all containers with appropriate hazardous waste and DOT labels.
- J) Using the forklift or manual container movers, place containers in hazardous waste storage area.

NOTES

- 1) Drum levels must be monitored to be certain that no overflows occur. Opaque totes and open-head drums allow for viewing of liquid/sludge levels in the containers.
- 2) Never offload a material whose compatibility with the container is questionable.
- 3) Always wear your respirator and hard hat with face shield while off-loading tankers.
- 4) All hose quick connect couplings must have the ears velco wrapped or wired shut to avoid accidental disconnection.

PROCEDURE FOR OFFLOADING OF CONTAINERS

PURPOSE

To ensure safety of plant personnel during the waste stream acceptance process and confirm compliance with Part B Permit for the facility.

SAFETY EQUIPMENT

Rubber gloves, steel toed rubber boots, and safety glasses are mandatory. When working with corrosive material, acid resistant PPE and hard hat with face shield must be worn.

EQUIPMENT NEEDED

Forklift with drum handler, manual drum dolly, and pallet jack.

PROCEDURE

- A) Before starting the unloading of the trailer, a piece count must be made to determine the number of containers present on the trailer. The count should be checked against the number present on the manifest(s). Any discrepancies must be reported immediately to your foreman or supervisor.
- B) Containers are moved to the rear doors of the trailer with a drum dolly or pallet jack, ensuring labels are facing the outer sides of the trailer. Do not attempt to roll drums on edge. This may result in the drum tipping over and/or injury such as back strain. When moving containers, if any leaking, corroded, or damaged containers are detected, stop unloading and report this to your foreman immediately. Any containers received in damaged condition, leaking, corroded, dented or deformed must be overpacked or repacked immediately. In the case of leaking drums it may be that the bungs or ring must be tightened to stop the leak.
- C) If the container is a tote, yard box, or drums loaded onto a pallet, the forklift should be used to pick up the waste and place in the staging area. If the waste is in drums not palletted, two drums staged at the rear of the trailer should be picked up using the forklift with "drum grabber" attachment and placed in the staging area.
- D) Make sure that all containers have the labels facing outward so that anyone walking between aisles can read all labels on each and every container.
- E) Continue to move containers to the rear of the trailer and offload them into aisles until the trailer is empty.

- F) When the trailer is empty, the drum labels must be checked against the manifest(s) to insure the proper number of drums has been received for each different manifest line item, and to be sure labels are complete with proper generator, manifest number, line item and approval number.
- G) Inspect the trailer for spilled material. Any spilled material must be cleaned up before allowing the trailer to depart.

NOTES

Containers accepted at Klor Kleen must:

- a) Be labeled properly, with all erroneous labels obscured.
- b) Not be dented and/or rusted to the point of affecting the integrity of the container.
- c) Not be covered with spilled waste.

If containers are mislabeled, dented, rusted, or covered with waste, you have two choices:

- a) Correct the problem by relabeling, repacking, or overpacking the container.
- b) Reject the container as specified in Rejection Procedures - Section C.

Klor Kleen

Part B Renewal Application

Section G - Contingency Plan

G-1a Floodplains

Based upon Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 39061C0218F, summarized in **Figure B-5** of Section B, the facility is located outside of the 100-year flood plain.

G-1b General Information

Klor Kleen, a Resource Conservation and Recovery Act (RCRA) hazardous waste storage facility, is located at 3118 Spring Grove Avenue, Cincinnati, Ohio 45225. Klor Kleen accepts for storage and later shipment off-site to another permitted Treatment, Storage or Disposal Facility (TSDF), hazardous wastes specified in its Part A Permit Application. This list of hazardous wastes does not include hazardous wastes meeting the Ignitibility characteristic or flammable wastes.

Other specific RCRA-regulated wastes are received and stored at the facility. Some of these non-RCRA wastes are consolidated and shipped to approved off-site facilities. A limited quantity of containers are stored on-site for less than 10 days in the general storage area as a transporter/transfer station. A sprinkler system is installed to provide fire protection/suppression.

The sprinkler system is designed to adequately handle NFPA Class IB or above materials in this area. In addition, the remainder of the facility is protected for NFPA rated materials of Class III or above. A list of unacceptable waste types for the Klor Kleen facility is noted in **Table C-3** (Section C). A weekly inventory log is maintained for hazardous wastes stored at the facility. Klor Kleen does not accept for storage or process, biological, radioactive or wastes that contain herbicides, pesticides or polychlorinated biphenyls (PCBs).

Klor Kleen is owned by Midwest Environmental Services, Inc. Ray Boyle is the Primary Emergency Coordinator at the facility and may be reached at (513) 681-0060 from 8:00 AM to 5:00 PM on weekdays. Alternate Emergency Coordinators may be reached at this telephone extension during normal operating hours. During other hours, Emergency Coordinators can be reached at their home or may be paged.

Klor Kleen stores hazardous waste in 55-gallon steel and polyethylene drums in only one centralized storage location inside the facility. This storage location is a diked area approximately 34 feet by 57 feet. This area has a total storage capacity limitation of 11,000-gallons or 200 drums. No more than 11,000-gallons (200 drums) of hazardous waste will be stored in this area at any one time. An overview of the Klor Kleen Emergency Plan Of Action is summarized in **Figure G-1**, and is depicted in detail in **Figure G-2**. A general Site Plan showing rally point, location of emergency equipment, adjacent land features and uses is provided in **Figures G-3 and G-4** of this section. A description of the waste and their associated hazards is contained in **Table G-3**. **Figure G-5** is a topographic map showing the facility boundaries, building, and immediate surroundings.

G-2 Emergency Coordinators

If an emergency situation develops at the facility, the discoverer should contact an Emergency Coordinator listed in **Table G-1**. The Primary Emergency Coordinator, should be contacted first. If he is not available, the others should be called (in the order listed) until someone is reached. Midwest possesses a 24-hour Emergency telephone number, 1-877-999-7745, for spill incidents or other emergencies. The response line is staffed by an answering service that contacts Midwest's on-call Supervisor.

At all times, at least one employee, either on the facility premises or on-call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This Emergency Coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person shall have the authority to commit the resources needed to carry out the contingency plan.

The Primary Emergency Coordinator and alternates have complete authority to commit all resources of the company in the event of an emergency. **Table G-2** in this section lists organizations that could possibly be contacted by the Emergency Coordinator in the event of an emergency.

The following job descriptions will have the responsibilities assigned below in this contingency plan:

1. The Primary Emergency Coordinator is Midwest's Emergency Response Services Manager.
2. The Vice-President, Operations, is the first alternate Emergency Coordinator.
3. The Compliance Manager is the second alternate Emergency Coordinator.
4. The Klor Kleen facility Foreman is a back-up Emergency Coordinator and will assist the Emergency Coordinators in their duties when needed.
5. Laborer(s) will assist the Emergency Coordinators in their duties when needed.

G-3 Implementation of the Contingency Plan

The decision to implement the contingency plan depends upon whether or not an imminent or actual incident could threaten human health or the environment. The purpose of this section is to provide guidance to the Emergency Coordinator in making this decision by providing decision-making criteria. The Contingency Plan will be implemented in the following situations:

1. Fire and/or explosion

The following conditions require implementation of the Contingency Plan:

- A. A fire that causes the release of toxic fumes.
- B. The fire spreads and to threaten to or actually ignite materials at other locations onsite or cause heat-induced explosions.

- C. The fire threatens to or spreads to offsite areas.
- D. Use of water, or water and chemical-fire suppressants could result in contaminated runoff.
- E. An imminent danger exists that an explosion could result in release of toxic material.
- F. An explosion has occurred.

2. Spills or Material Release - if greater than 55 gallons

- A. The spill could cause the release of toxic liquids or fumes.
- B. The spill can be contained onsite, but the potential exists for ground water contamination.
- C. The spill cannot be contained onsite, resulting in offsite soil contamination and/or ground or surface water pollution.

Whenever this is an imminent or actual emergency situation, the Primary Emergency Coordinator must immediately:

- 1. Activate facility alarms or communication systems to notify personnel;
- 2. Notify local emergency response agencies, Fire Department, and also Police Department and EMS if needed.

3. Notify Ohio EPA at 1-800-282-9378, if the hazardous substance released threatens human health or the environment.
4. Notify the Local Emergency Planning Committee response coordinator for Hamilton County, at phone number provided in **Figure G-2** or **Table G-2**.
5. Notify the U.S. EPA National Response Center if the release will impact human health or the environment (see telephone number list in **Table G-2**).

Whenever a release, emission, discharge, spill, fire or explosion occurs, the Emergency Coordinator must immediately identify the character, exact source, amount and extent of the affected area. Concurrently, the Emergency Coordinator must assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment must consider both direct and indirect effect if the release, fire or explosion (i.e. the effects of any toxic, irritating or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

If the Emergency Coordinator determines that the installation has had a release, emission, discharge, spill, fire or explosion which would threaten human health or the environment, he must immediately notify the applicable local authorities (see **Table G-2**). If the facility stops operations in response to a fire, explosion or release, the Emergency Coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes or other equipment, wherever this is appropriate.

The Emergency Coordinator(s) shall use standard reporting procedures in accordance with the Ohio State Emergency Response Commission's *Facility Reporting Compliance Manual*, December 2013:

1. Name and phone number of the person reporting incident;
2. Exact location of the source of the release or discharge;
3. Chemical name or identity of any substance(s) involved in the release or discharge;
4. The information about the substance(s) released must identify whether or not the substance is an Extremely Hazardous Substance;
5. Estimate of the quantity (gallons or pounds) discharged or released into the environment;
6. Date, time and duration of the release or discharge;
7. Description of the environmental medium or media into which the substance(s) was/were released or discharged;
8. The potential health effects associated with the release or discharge of the substance(s); and,
9. A summary of the precautions taken, including evacuation, remediation or other proposed response actions.

During the emergency, the Emergency Coordinator must take all reasonable measures necessary to ensure that further discharge, fire or explosion do not occur, or spread to other materials or wastes at the installation. These measures shall include the following steps where applicable:

1. Stopping all processes and operations;
2. Containing and/or recovering released materials or wastes; and,
3. Moving or isolating containers.

The alternate Emergency Coordinator(s) shall assist the Primary Emergency Coordinator, during any reportable release.

G-4 Emergency Response Procedures

G-4A Notification

In the event of an emergency situation, the Emergency Coordinator will be notified first. Subsequently, available facility personnel will be notified followed by appropriate federal, state, or local agencies including Fire and/or Police departments. See **Figure G-1** and **Figure G-2**.

The Emergency Procedures for the Emergency Coordinator are to:

1. Notify all facility personnel.
2. Notify local agencies, Cincinnati Fire Department at 911, and Cincinnati Police Department (911 or 569-8500).
3. Identify the characteristics, exact source, amount and areal extent of any released substances;
4. Assess possible hazards to human health or environment, taking into consideration direct and/or indirect effects of the release;
5. Notify Ohio EPA at 1-800-282-9378 and report the following:

- Caller's name and telephone number(s);
 - Facility name and location and source(s) of the release or discharge;
 - Chemical name/identity of the hazardous substance(s), and whether or not the substance is classified as an *Extremely Hazardous Substance* as listed in Appendices A & B of 40 CFR Part 355;
 - Estimate of the quantity (pounds or gallons) released into the environment;
 - Date, time and duration of the release;
 - Media or medium that the material was released into;
 - Potential health effects associated with the release;
 - Report the precautions taken including evacuations, remedial responses, and any proposed response actions.
 - Extent of injuries, if any.
6. If the release will impact human health or environment, or the material released exceeds its assigned RQ listed in 40 CFR Table 302.4, then the Emergency Coordinator shall notify the U.S.EPA's *National Response Center* at (800) 424-8802 with the nearly the identical information provided in paragraph (5):
- Caller's name, location, organization, and telephone number;
 - Name and address of the party responsible for the incident;
 - Date and time of the incident;

- Location of the incident;
 - Source and cause of the release or spill;
 - Types of material(s) released or spilled;
 - Quantity of materials released or spilled;
 - Medium (e.g. land, water) affected by release or spill;
 - Danger or threat posed by the release or spill;
 - Number and types of injuries or fatalities (if any);
 - Weather conditions at the incident location;
 - Name of the carrier or vessel, the railcar/truck number, or other identifying information;
 - Whether an evacuation has occurred;
 - Other agencies notified or about to be notified; and
 - Any other information that may help emergency personnel respond to the incident.
7. The Emergency Coordinator must also notify local authorities, with the *Local Emergency Planning Committee* (LEPC) in Hamilton County at (513) 263-8010 (refer to **Table G-2**).

G-4b Identification of Hazardous Wastes

The types of wastes that may be encountered at the facility can be found in **Table G-5**. They include chlorinated solvents, metal bearing wastes, corrosive wastes, and

electroplating wastewater treatment sludges.

The hazards associated with exposure to the hazardous wastes stored at Klor Kleen are dependent upon the type of material released and the duration of exposure to the substance(s). The following paragraphs provide considerations of the potential impact to human health in the event of a release:

- Skin contact with affects ranging from mild irritation to severe skin damage (i.e., burns) depending upon the substance and exposure
- Eye contact with irritation and corneal injury possible;
- Ingestion with toxicity ranging from low to high;
- Skin absorption with toxicity ranging from low to high; and
- Inhalation with anesthetic effects from breathing concentrated vapors in the range of 1,000 ppm for specific solvents, and potentially damaging vapors from corrosive materials.

An Immediately Dangerous to Life and Health (IDLH) atmosphere may occur if large amounts of vapors or gases are released. Although none of the solvents are flammable, secondary hazards occur when solvents are exposed to open flames, open electric elements, electric arcs, or temperatures above 700° C (1300° F) under which conditions decomposition occurs to give off toxic and corrosive gases including hydrogen chloride (HCl) and possible traces of phosgene.

In the event of an emergency condition, the Emergency Coordinator will immediately

identify the character, exact source, amount of the release and the area effected. The initial identification method will be to utilize visual analysis of the material and location of the release. The containers are marked as to their contents. If for some reason, the released material cannot be identified, the Operating Record should be consulted as a means of identifying the material involved. Any entry by personnel into an unknown release condition, shall assume an IDLH atmosphere until such time, as air monitoring provides evidence of alternative conditions.

Hazards from the presence of corrosive wastes may present a chemical-burn hazard. The metal-bearing wastes may present a significant hazard if any released acid and chlorinated solvents are mixed, whereby the reaction could create toxic gases. The markings and labels on each container of waste in storage provide information on the nature and type of each waste. Particular attention should be made to the compatibility group marking, as this will indicate when a potential incompatible situation may exist. See Section G-4g for additional discussion on incompatible wastes.

G-4c Assessment

The Emergency Coordinator will assess possible hazards, both direct and indirect, to human health or the environment in accordance with the procedures outlined in Section G-4d. In the event that a fire is not controlled through the use of portable fire extinguishers, the Contingency Plan will be implemented and the plant evacuated.

G-4d Control Procedure

Potential hazardous waste incidents fall under two general classifications.

1. Spills or material release/discharge; and
2. Fire and/or explosion.

The following steps outline the procedure to be followed for each type of accident:

Spill or Material Release

1. If the spilled substance released beyond the facility boundary or if the hazardous waste threatens human health or the environment, Ohio EPA must be notified;
2. Evacuate building. Retrieve if possible, personal protective equipment (PPE) as leaving.
3. Don personal protective equipment (PPE) and initiate action to contain and clean up spill. If it not accessible, use equipment on service trucks or in storage. Responses to large spills will be supported by personnel and equipment from Midwest's Emergency Response Services Division.

If substance spilled does not affect environmental media or threaten human health or the environment:

1. Notify Emergency Coordinator.
2. Don proper PPE and clean up spill.

Fire or Explosion

1. Assure that all non-essential personnel are evacuated from the building;
2. Call the Fire Department at 911;
3. If safe to do so, attempt to eliminate fire unless any of the following is true:
 - The fire may ignite other nearby material and cause an explosion;
 - The fire could block your escape route;
 - The fire is spreading beyond the immediate area where it started or it is already a large fire;
 - You are untrained in the proper operation of the extinguisher; or
 - You are in doubt about whether the extinguisher is designed for the type of fire at hand or is large enough to fight the fire.

Natural disasters such as earthquakes, floods, tornadoes, or hurricanes could cause either of the two classifications of incidents or both. An overview of the Emergency Plan Of Action is outlined in **Figure G-1** in this section. **Figure G-2** in this section provides detailed Emergency Plan Of Action, including Emergency Coordinator and emergency agency contact phone numbers.

Fire and/or explosion

The storage area and the building area can be easily accessed by fire-fighting and other emergency vehicles and equipment. If a fire should break out, concentration will be

placed on preventing the fire from spreading to nearby areas. The fire-fighting effort will be carried out by the emergency coordinators that are present when such an accident occurs. The following actions will be taken in the areas affected by the fire or explosion:

1. The gas service lines, and main electrical services will be shut down immediately if possible;
2. The Emergency Coordinator will be contacted as shown in **Table G-1**;
3. The facility will be cleared of all personnel not actively involved in fighting the fire. These persons are to report to the designated rally point for accountability; and
4. Any and all injured persons will be removed and given first aid by a person designated by the Emergency Coordinator.

Notification procedures are summarized in **Figure G-2** and **Table G-2** in this section. Area or plant evacuation will be necessary in case of major fire or explosions. Specifics are outlined under general evacuation procedures. All personnel have been instructed in evacuation procedures and means of exit from their respective work area(s). Until evacuation is signaled, personnel who are not in the affected area will stay in their respective work areas. All emergency equipment used in the emergency will be cleaned, recharged, and fit for use prior to resumption of plant operations in the affected areas.

Spills or Material Release

In the event of a major emergency involving a chemical spill, the following general procedures will be used for rapid and safe response and control of the incident. In the

event of a major spill, the emergency contacts in **Table G-2** shall be referred to for a single source of information related to emergency contacts.

If an employee discovers a chemical spill or process upset resulting in a liquid or vapor release, he or she will immediately report it to the first available Emergency Coordinator.

The responding Emergency Coordinator will subsequently determine the following:

- The identity and characteristics of the material spilled or released;
- Locations of the release or spillage of the hazardous material;
- An estimate of quantity released and the rate at which it is being released.;
- The direction in which the spill or vapor or smoke release is heading;
- Any injuries involved; and,
- Fire and/or explosion potential related to the incident.

If the accident is determined to lie within the company emergency response capabilities, the Emergency Coordinator will contact and deploy the necessary in-plant personnel. If the accident is beyond plant capabilities, the Emergency Coordinator will contact the appropriate agencies and Midwest's Emergency Response Services Division.

The initial response to any emergency shall be focused on the protection of human health and safety, and then the environment. Any efforts related to the identification, containment, treatment and disposal assessment will be performed as a secondary response to the emergency. As soon as an emergency has been reported or upon re-entry

to the facility from an initial evacuation, a visual inspection will be performed. The visual inspection will document any of the following conditions:

- Leaks from containers, process equipment or piping;
- Whether or not existing containment has retained the material within building;
- Potential for pressure buildup in containers from heat; and,
- Potential for more severe impact from the release including heat generation, or fire to facility equipment and other stored materials.

Cleanup personnel will perform the following steps:

1. Make sure all unnecessary personnel are removed from the area.
2. Don appropriate PPE for the anticipated hazards.
3. Attempt to stop or plug the leak, if possible.
4. Determine the hazardous substance(s) in the waste at the time of the spill.
5. Use diatomaceous earth, sand, absorbent material and other inert materials to contain, divert and clean up a spill if it has not been contained by a dike or sump. Overpack a leaking drum with a larger container if this can be done quickly and effectively. If fluids are contained in a sump and are pumpable, pump as much of the contained material as possible into an appropriate drum. Cover the remaining liquid with enough absorbent material to completely dry the area. If water is mixed with spilled solvent (from fighting fire), pump the mixture into containers, properly label and put in storage area.

6. Place all contaminated absorbent and other materials in drums for removal to an approved hazardous waste treatment facility.

Should a container develop a leak during handling, the contents will be immediately transferred to a suitable container. In the event of a more serious leak or, rupture, the entire drum may be placed into an 85-gallon capacity Overpack Drum for containment.

G-4e Prevention of Recurrence or Spread of Fires Explosions or Releases

During an emergency, the Primary Emergency Coordinator shall take all safe and reasonable measures necessary to ensure that further discharge, fire or explosion do not occur, or spread to other materials or wastes at the installation. These measures shall include the following steps where applicable:

1. Monitor for leaks, pressure buildup, gas generation or ruptures;
2. Stopping all processes and operations;
3. Collecting and containing released materials or wastes; and
4. Moving or isolating containers.

The sprinkler system installed at Klor Kleen provides fire protection and suppression. This sprinkler system is designed to adequately handle NFPA Class IB or above materials and will aide in preventing the spreading of a fire at the facility.

G-4f Storage and Treatment of Released Material

Immediately after an emergency, the Facility Manager or Emergency Coordinator will make arrangements for treatment, storage, or disposal of recovered waste, contaminated soil, surface water, or any other contaminated material. Collected surface water or recovered waste contaminated with water will be put in suitable drums and returned to the storage area. If the quantity of contaminated wastewater collected during response actions exceeds facility storage limitations, then material will be transported to an approved waste treatment facility for disposal. Any contaminated soil, absorbent, or other contaminated material will be placed into proper containers, and shipped to an approved off-site waste treatment facility. The emergency coordinator will ensure that no incompatible waste will be treated or stored in any areas affected by the spill until cleanup procedures have been completed.

G-4g Incompatible Waste

All containers before being placed in storage will be marked with the Klor Kleen compatibility group. The application of compatibility group is discussed in detail in the *Waste Analysis Plan* in Section C of this permit renewal application. A *Compatibility Group Chart* for wastes handled and stored at Klor Kleen is presented in **Figure G-7**. Incompatible wastes are segregated within the container storage area by keeping corrosives within portable secondary containment devices. Special caution should be taken to avoid exceeding capacity of these devices. Before any spilled material is

removed from one of these devices a pH reading will be recorded. This will be accomplished by obtaining a representative sample of the material using appropriate sampling techniques as discussed in Section C. The sample will be submitted to the laboratory for analysis utilizing SW-846 Method 9040.

The second method of segregation is to elevate potentially incompatible metal wastes 8-inches off the floor. These metal powder wastes may react with some chlorinated solvents and will react with acids. Being elevated 8-inches within a 6-inch high containment system ensures that the metal wastes do not contact any free standing liquids. Caution should be taken during cleanup activities to ensure that no metal powder wastes are comingled with any free liquid.

G-4h Post-Emergency Equipment Maintenance

After an emergency incident, all emergency equipment that was used for the cleanup will be decontaminated so that it is fit for use, or it will be replaced. Emergency equipment such as shovels, brooms, pumps, and hoses will be decontaminated and returned to service. All residues from decontamination will be stored until these wastes are shipped off-site for appropriated treatment and/or disposal. Decontamination will be considered complete when no oily or visible residues are present. An inspection of all safety equipment and restocking of expended items will be performed by the Facility Manager or his designee before operations are resumed. As necessary, federal, state, and local authorities will be notified that Post-emergency Equipment Maintenance has been performed and that facility operations will be resumed.

G-4i Container Spills and Leakage

Container spills and leaks will be handled in one or a combination of the following methods depending on the severity of the leak and the volume of waste spilled. The Emergency Coordinator will assess the situation and determine the appropriate course of action.

- Transfer of container contents to a replacement container;
- Placing entire container into an Overpack;
- Pumping of spilled liquids into a suitable container;
- Use of absorbent media to contain and cleanup spilled waste; and/or
- Placement of contaminated absorbent media and PPE into a suitable container for disposal at an appropriate off-site facility.

Specific areas of the facility affected by a spill will be decontaminated through the use of absorbent media and/or high-pressure wash. All wastes or wastewaters generated during decontamination procedures will be managed as a hazardous waste unless laboratory testing confirms the material is classified as non- hazardous waste.

G-4j Tank Spills and Leakage

Klor Kleen does not operate any hazardous waste storage tanks. Five tanks for the storage of non-hazardous wastewaters are located within the facility.

G-4k Surface Impoundment Spills and Leakage

No Surface Impoundment is associated with Klor Kleen.

G-5 Emergency Equipment

The location of emergency equipment listed in **Table G-3** is shown in **Figure G-3** in this section. Plant personnel have been trained to handle emergencies and in the use of the emergency equipment. There are two (2) hose bibs located in the facility each has a 50 foot section of 5/8" water hose connected to it. One is located on the north wall near the former process area sump. The other is located on the opposite wall. They are rated at 750 gallons per hour (GPH) at 40 pounds per square inch (PSI). The fire suppression system includes a one and half inch fire hose station capable of providing 500 gallons a minute (GPM) located on a structural support near the northwest corner of the drum storage area. The building is protected by a passive sprinkler system which will self-activate in the event of a large fire. Notification to the Fire Department is provided automatically by the security system monitoring company upon activation of the sprinkler, use of the fire hose, or through the use on manual pull stations located at each exit door.

There are eight (8) portable type ABC Dry Chemical fire extinguishers located in critical areas throughout the facility. One is located on a column in the middle of the process area, one on the wall in the loading and unloading area; one in the lab, one near the fire-resistant room and four located throughout the hazardous waste storage area. These units comply with National Fire Code standards for a portable fire extinguisher, are inspected yearly and recharged if necessary.

All fire extinguishers will be used on fires involving Class A (ordinary combustible materials), Class B (flammable liquids) and Class C (live electrical). The placement locations of the fire extinguishers were based on the following factors:

1. Provide uniform distribution;
2. Provide easy accessibility;
3. Be relatively free from blocking by storage and equipment or both;
4. Be near entrance and exit doors;
5. Be free from the potential of physical damage; and
6. Be readily visible.

Other considerations for locating these extinguishers include:

1. Seventy-five (75) foot travel distance for Class A fires;
2. Fifty (50) feet travel distance for Class B;
3. Extinguisher must hang no higher than 5-feet.

These requirements are based on the National Fire Protection Association (NFPA) publication number 10 (NFPA 10), portable fire extinguisher 2013 edition.

The following equipment will be stored at the facility for use in containing and cleaning up spilled hazardous waste. One "Overpack", 85-gallon drum full of absorbent pads, socks, and booms. A minimum of ten (10) empty "Overpack" salvage drums to immediately contain leaking drums. At least ten (10), 40-pound bags of floor dry, earthen/clay absorbent. Two pumps are available for use. One is a pneumatic diaphragm pump capable of pumping 50-gpm.

The other is an electric drum type, pump with a capacity of 25-gpm. Other clean-up equipment includes: shovels, brooms, floor scrapers and squeegees, and empty 5-gallon pails.

An emergency shower and eyewash station is located in the Process area adjacent to the loading and unloading area. PPE is provided to protect employees during normal and emergency operations. Tyvek™ coveralls, rubber aprons, rubber gloves and safety glasses are provide for use during cleanup and recovery operations. Each employee is issued his own NIOSH- approved personal full-face respirator equipped with proper NIOSH-approved dust or chemical cartridges. Each employee is responsible for the cleaning and readiness of his own respirator.

First Aid supplies include band aids, gauze pads, adhesive tape, anti-bacterial ointment, aspirin, eyewash bottle and solution. A decontamination room for personnel is located at the west end of the process area. This room is equipped with lockers for plant personnel to keep personal property, safety equipment and uniforms. It also contains a shower and provides an area to change clothes. All materials generated by decontamination will be managed as hazardous waste until reclassified as non-hazardous waste.

G-6 Coordination Agreements

The following organizations listed in **Table G-4** have been previously sent copies of the Contingency Plan by certified mail. The Cincinnati Fire Department visits the facility annually for fire inspections. **Table G-4** lists the services that each agency would provide in the response.

G-7 Evacuation Plan

All emergencies require prompt and deliberate action. In the event of any major emergency, it will be necessary to follow the procedures detailed in this Contingency Plan. The Emergency Coordinator is responsible for determining which emergency situations require plant evacuation. In the event plant evacuation is called for by the Emergency Coordinator, the following actions will be taken:

1. A verbal command for plant evacuation will be given and conveyed to and repeated by all personnel.
2. All personnel, visitors and employees will immediately leave through the nearest exit and go to the predetermined Rally Point for accountability.
3. No persons shall remain in or re-enter the location unless given permission by the Emergency Coordinator.
4. All persons will be accounted for by their immediate supervisors.
5. A final tally of persons will be made by the Emergency Coordinator.
6. Re-entry into the area will be made only after clearance is given by the Emergency Coordinator. At his direction a verbal command or other notification will be given for re-entry into the plant.

G-8 Required Reports

As required by Ohio Administrative Code (OAC) 3745-54-56, any emergency event (i.e., fire, explosion) that requires implementing the Contingency Plan will be reported in writing within

15-days to the EPA Regional Administrator and Ohio EPA Director. A report form for emergency events is provided in **Figure G-6** in this section. The Facility Manager will note in the Operating Record the time, date, and details of any incident that requires implementation of the Contingency Plan.

As required by Ohio Revised Code (ORC) 3750.06(D) and OAC 3750-25-25 (A) (2), within 30-days of any reportable release to OEPA, a written follow-up emergency notice will be submitted to Ohio State Emergency Response Commission (SERC) and to the Local Emergency Planning Committee (LEPC). This written notice will include the following information:

- Facility identity, location and contact information;
- Time, date and duration of the release; immediate actions taken include Ohio EPA Spill No.;
- Location of the release: county, township, and city; longitude and latitude; distance, and direction of spill migration;
- Identity of the material released; CAS numbers; estimate quantity in pounds or gallons;
- Environmental impact from release including environmental media affected; length of surface waters affected; ground surface area; any damage to wildlife or vegetation; and human health impact;
- Monitoring and detection activities performed; air-speed and wind direction if release was airborne; and any notification to public of release;
- Mitigation and containment actions performed; how the material was recovered or neutralized; whether or not containment booms or absorbents were used;

- Prevention measures implemented to help prevent recurrence;
- Any acute or chronic health risks of exposure from the release;
- Applicable permit numbers;
- Chronology of events, including communications with state and local authorities;
- Documentation generated, including waste manifests, laboratory analytical reports;
- Causes of the release; and
- Summary of economic impact including cost of the damages or cleanup costs (voluntary).

G-9 Copies of the Contingency Plan

An updated copy of the Contingency Plan is maintained at the facility in several locations to ensure it is readily available to facility and emergency personnel. These locations include, the Plant Supervisor's office, Facility Manager's office, hazardous waste storage area, administrative office and main entrance waiting area. Copies of the contingency plan are also provided to all parties listed in **Table G-4**.

G-10 Amendments to the Contingency Plan

As required by OAC 3745-54-54 and 40 CFR Part 264.54, the contingency plan will be reviewed and immediately amended, if necessary, whenever:

1. The facility permit is revised;

2. The contingency plan fails in an emergency;
3. The facility changes in its design, construction, operations, maintenance or other circumstances in a way that materially-increases the potential for fires, explosions releases of hazardous waste or hazardous waste constituents or changes in the response necessary in any emergency;
4. The list of Emergency Coordinators is changed; or
5. The list of emergency equipment is changed.
6. Required by the director.

Revisions made to the contingency plan will be mailed to all parties listed in **Table G-4** within 30-days of any change.

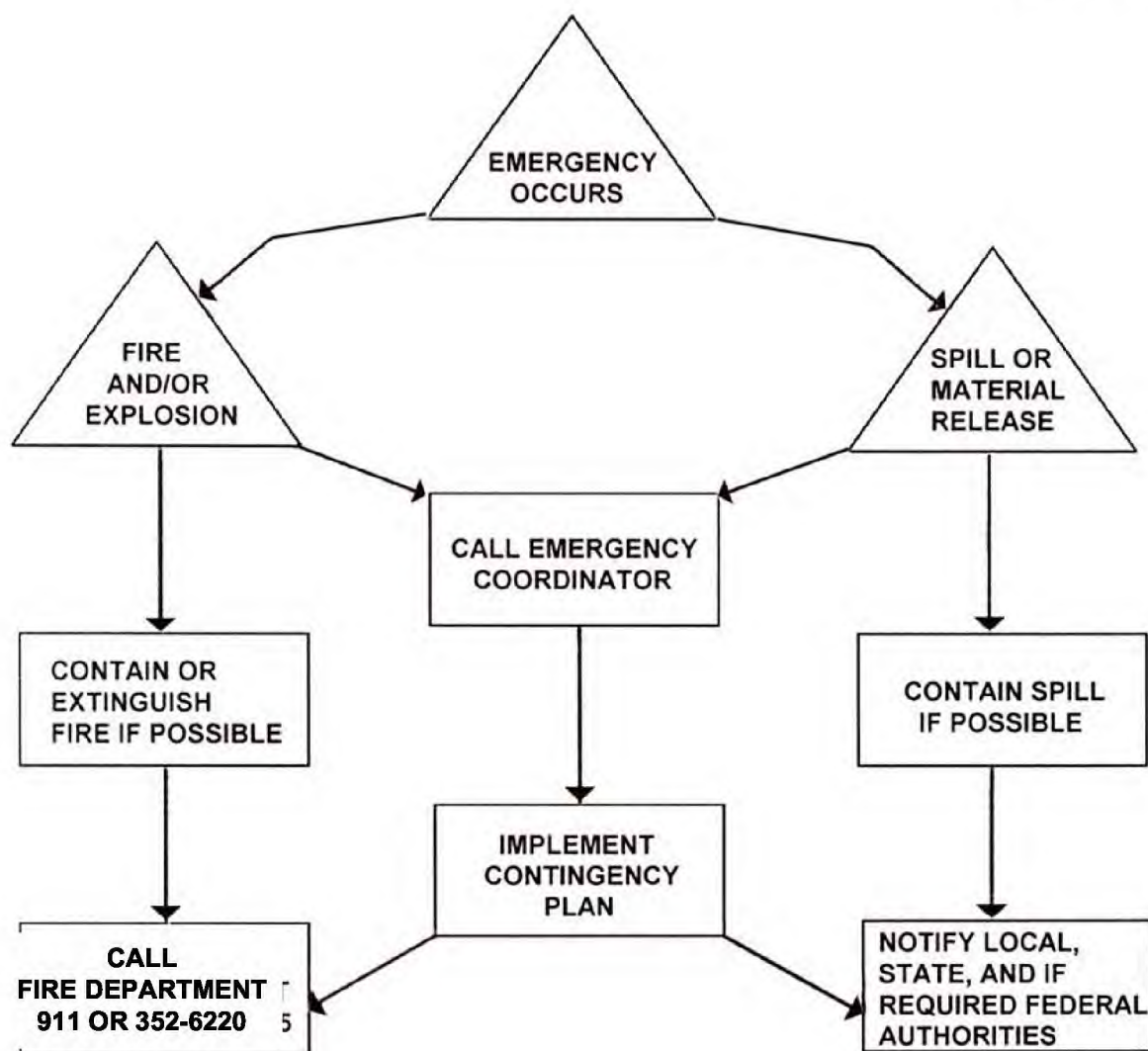
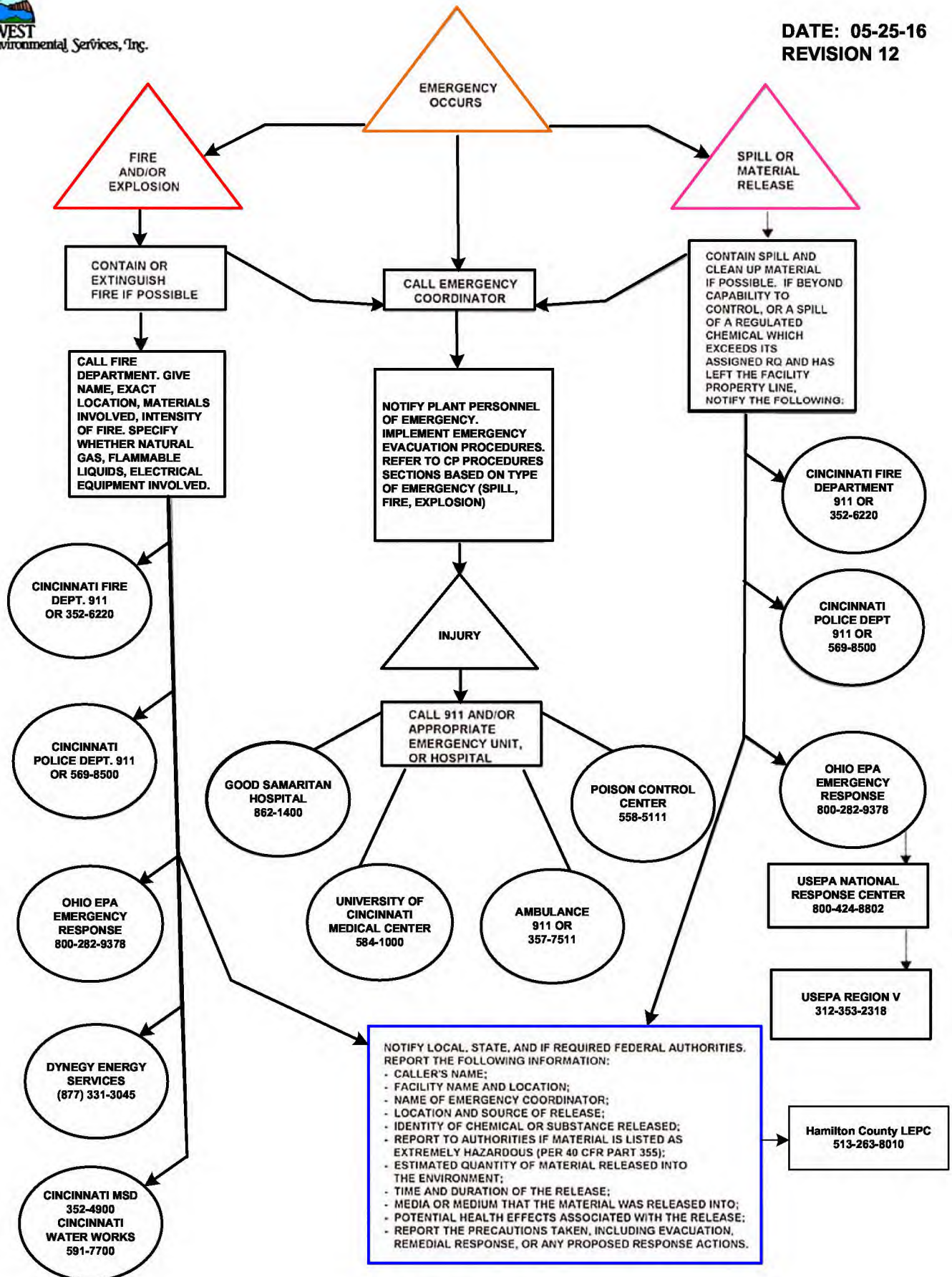
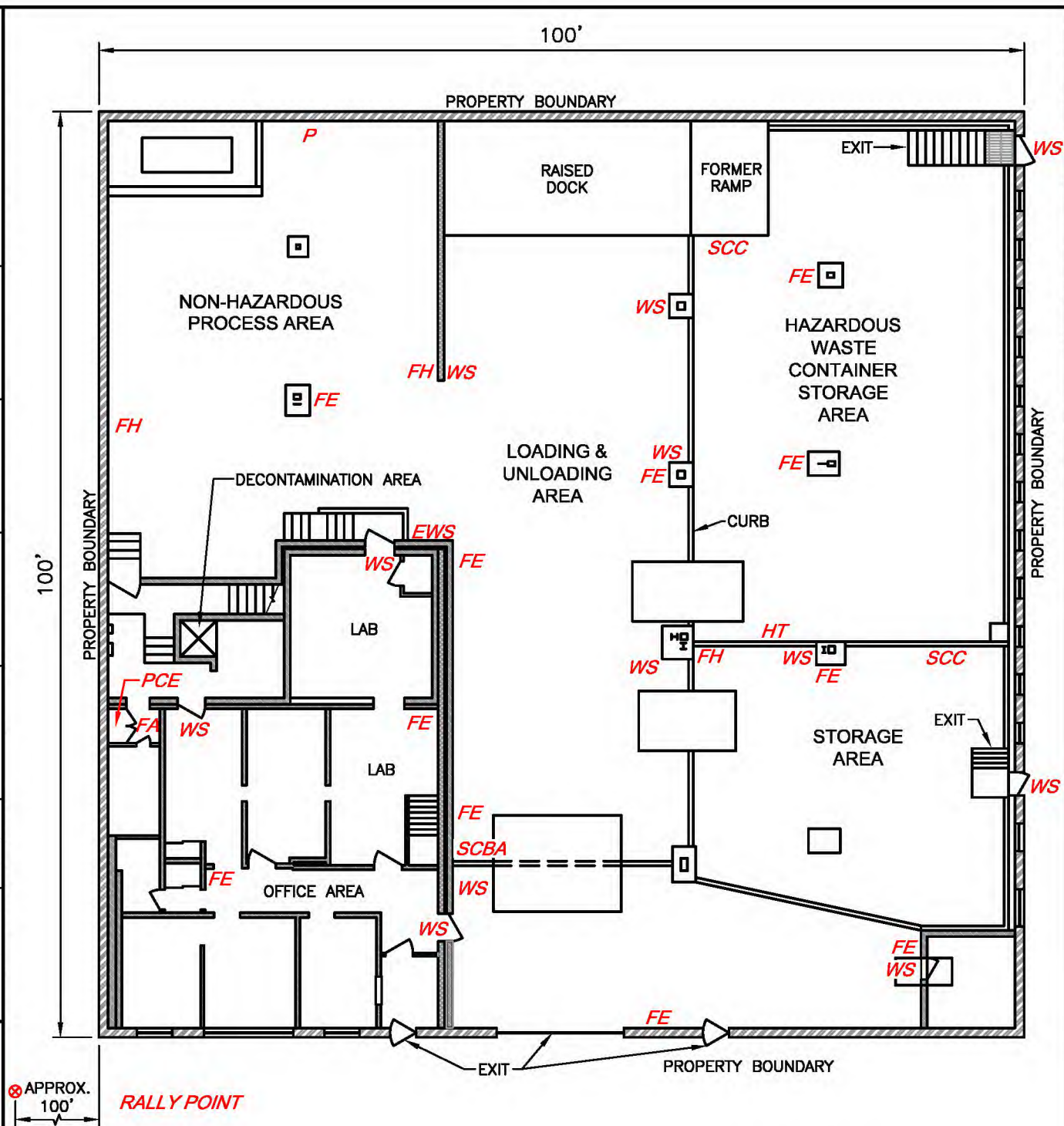


FIGURE G-1
OVERVIEW OF EMERGENCY PLAN OF ACTION



**FIGURE G-2
EMERGENCY PLAN OF ACTION**

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	9/24/15	RB	AM	BI	---	2005 40-01



LEGEND:

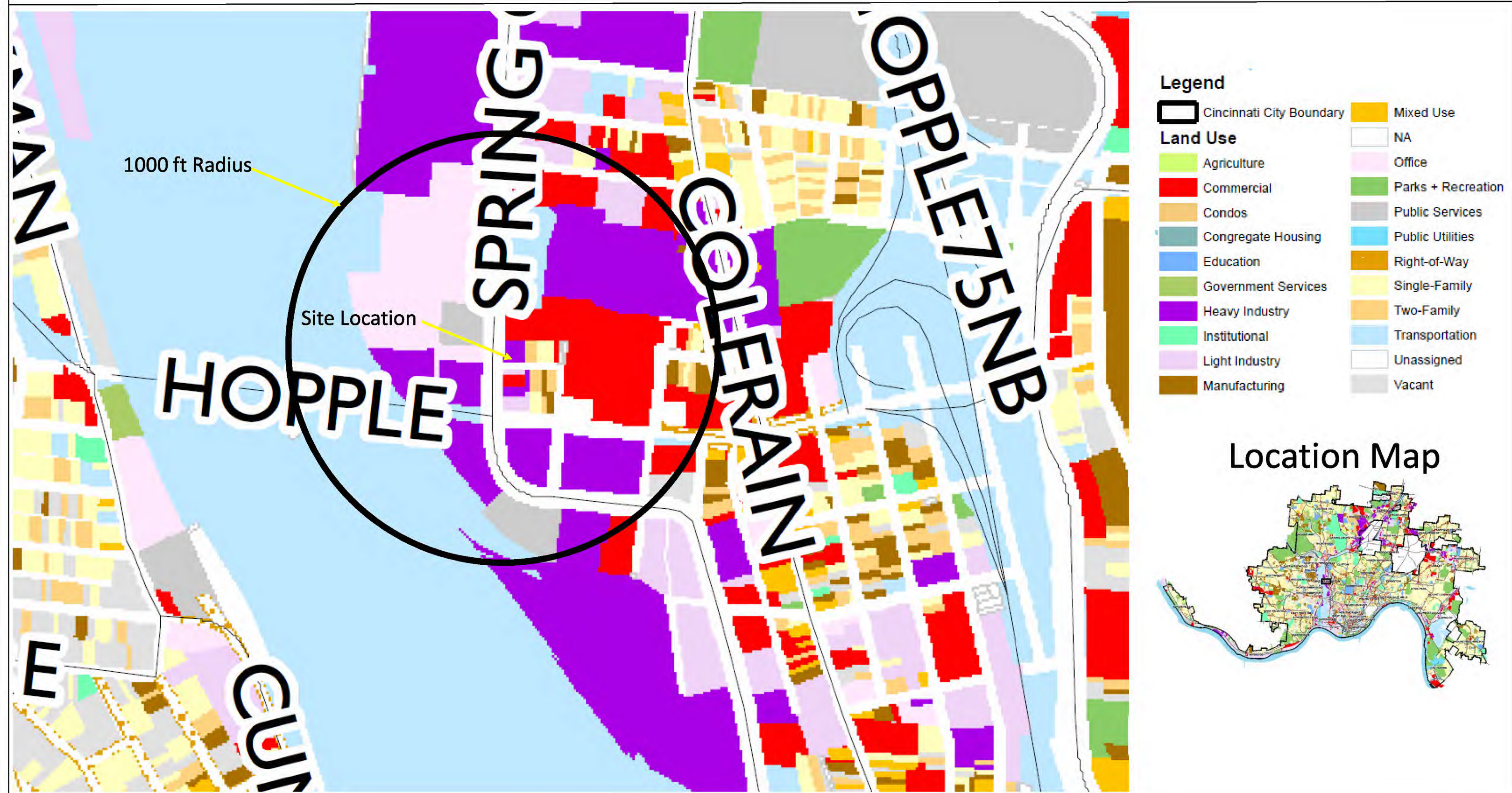
- FH** - FIRE HOSE
- FE** - FIRE EXTINGUISHER
- FA** - FIRST AID KIT
- P** - PUMPS
- HT** - HAND TOOLS
- EWS** - EYE WASH & SAFETY SHOWER
- PCE** - PROTECTIVE CLOTHING AND EQUIPMENT
- SCBA** - SELF CONTAINED BREATHING APPARATUS
- SCC** - SPILL CONTROL AND CLEANUP EQUIPMENT
- WS** - WARNING SIGN "DANGER AUTHORIZED PERSONNEL ONLY"



Midwest Environmental Services, Inc.
27 Kiesland Ct, Hamilton, OH 45015
Permit Application

FIGURE G-3
GENERAL SITE PLAN
SHOWING RALLY POINT AND
LOCATION OF EMERGENCY EQUIPMENT
Klor Kleen Facility
3118 Spring Grove Avenue

Figure G-4: Surrounding Land Use



1/4 Mile


1/2 Mile



This topographic map depicts a residential neighborhood with various streets and building footprints. The map includes contour lines representing elevation, with labels such as 494, 496, 498, 500, 502, 504, 506, and 508. Key streets shown are Hopple St, Spring Grove Av, Meeker St, Garrard Av, Burlington Pl, Elam St, Avon Pl, Klor Kleen, Bates Av, Ethan Av, and Colerain Av. Building footprints are indicated by shaded areas, and a specific lot is highlighted with a cross-hatch pattern. The map also shows a river or stream flowing through the area, and a large, irregularly shaped building footprint in the upper right quadrant.

1:2,400

Contour Interval 2 Feet



CINCINNATI
HAMILTON COUNTY
OHIO
METROPOLITAN AREA

building ——— railroad ——— river
cont2001 ——— pavement ———
Klor_building

Prepared 6-2-05
Hamilton County Regional Planning Commission

FIGURE G-6 Klor Kleen Contingency Plan Written Report

This written report must be provided within 15-days of incident, and shall include:

Name, address, and phone number of Owner/Operator:
Name, address, and phone number of Facility:
Date, time, and type of incident (e.g. fire, explosion, etc.): Duration of the incident or release: Action taken to respond or contain release:
Name and quantity of material(s) involved: Common and/or technical name of materials released & CAS Nos.: Estimated quantity/volume of release:
Summary of environmental impact, including affected media (surface water, land, air): Estimated length of waterway or area of soil affected: Damage to wildlife or vegetation: Impact to human health and safety (i.e., evacuations, exposure, etc.) Was medical advice provided? If so, specify:
If the release was monitored, indicate the method of detection and concentrations detected: If the release was air-borne, state wind direction and speed: Was public warned of the release:
Estimate amount of product or waste recovered or neutralized: Provide the method of material recovery or neutralization: Were other actions taken to reduce impact of release (containment, adsorbents, on-site treatment):

FIGURE G-6 Klor Kleen Contingency Plan Written Report

Provide plans to prevent recurrence of the release:
List extent of injuries, if any: List known or anticipated acute and/or chronic health risks of exposure to released substances:
List any air, water, or other permit numbers associated with this incident (voluntary):
Provide a chronological review of the incident. Include chronology of government agency communications (use separate additional pages as necessary):
Append any reports or other documents related to the incident (e.g., accident reports, manifests, analytical reports):
Describe any extenuating circumstances contributing to, or causing the discharge:
Voluntary: Provide any economic costs of the incident, such as cleanup costs, damages costs, etc.

Send completed report to:

Ohio EPA, DERR—ER
Lazarus Government Center
50 West Town Street, Ste. 700
P.O. Box 1049
Columbus, Ohio 43216-1049
ATTN: ER Records Mgmt.

U.S. EPA Region V
Regional Administrator
Ralph Metcalfe Federal
Building
77 West Jackson Blvd
Chicago, IL 60604-3590

Hamilton Co. LEPC EMA
Attn: Information
Coordinator
2000 Radcliff Drive
Cincinnati, OH 45204

Ohio EPA
Southwest District
Office
401 East Fifth Street
Dayton, OH 45402

FIGURE G-7
Klor Kleen
Waste Compatibility Chart

Chlorinated Solvents	CS	CS					
F006 Electroplating Treatment Sludge	F	O	F				
Acid (Concentrated)	A	X	X	A			
Base (Concentrated)	B	X	O	X	B		
Metallic Powders	MP	X	O	X	X	MP	
Metal containing Solids and Debris	MS	O	O	X	O	O	MS
Metal containing Liquids and Oils	ML	O	O	X	O	O	O

X = Incompatible Waste

O = Compatible Waste



Please Note: Pages of this application which contain facility staff personal/home phone number information have been removed from this web-available version of the document

To review redacted copies of these removed pages, please contact DMWM's record management staff at 614-644-2621.

Thank you.



TABLE G-2

Klor Kleen

Emergency Contacts

<u>EMERGENCY TYPE</u>	<u>ORGANIZATION/AGENCY</u>	<u>EMERGENCY PHONE</u>
Injury	Good Samaritan Hospital 375 Dixmyth Avenue	(513) 862-1400
	University of Cincinnati Medical Center 234 Goodman Street	(513) 584-1000
	Poison Control Center Cincinnati	(513) 558-5111
	Ambulance (Emergency Medical Services/EMS; Cincinnati Fire Dept.)	911 or (513) 357-7511
Fire/Explosion	Cincinnati Fire Department	911 or (513) 352-6220
	Cincinnati Police Department (Distr. 5)	911 or (513) 569-8500
Hazardous Material	Cincinnati Fire Department	911 or (513) 352-6220
Natural Disaster	American Red Cross Greater Cincinnati/Ohio River Valley	(513) 579-3000



TABLE G-2 (continued)

Klor Kleen

Emergency Contacts

<u>EMERGENCY TYPE</u>	<u>ORGANIZATION/AGENCY</u>	<u>EMERGENCY PHONE</u>
Spill or Release (Contact All)	Ohio EPA Emergency Response Team	(800) 282-9378 or (614) 224-0946
	National Response Center	(800) 424-8802
	Cincinnati Fire Department	911 or (513) 352-6220
Local Emergency Planning Committee	Hamilton County LEPC	(513) 263-8010
Government Agencies (information contacts during normal business hours)	Ohio EPA Southwest District Office	(513) 285-6357
Ohio State Emergency Response Commission (SERC)	50 W. Town St, Columbus, OH 43215	(614) 644-2260

TABLE G-3

KLOR KLEEN

Emergency Equipment

Emergency Equipment which may be used for SPILLS is as follows:

- Shovels (5)
- Squeegees (3)
- Scrapers (3)
- Push Brooms (4)
- Hoses (3)
- 5-Gallon buckets (5)
- Floor dry
- Solvent Absorbent pad
- Rubber gloves & aprons
- Respirators
- SCBA
- Portable pumps
- Overpack drums

Emergency equipment which may be used for FIRES is as follows:

- Fire extinguisher (A B C) (8)
- Respirators
- Self-contained Breathing Apparatus (SCBA)
- Automatic Passive Sprinkler System



TABLE G-4
Klor Kleen
Emergency Organizations

ORGANIZATION

SERVICES TO BE PROVIDED

Cincinnati Fire Department
430 Central Avenue
Cincinnati, Ohio 45214

Fire-fighting protection, rescue of trapped personnel (if possible), and emergency medical treatment. Will also aid in the containment of any spill which threatens leaving the site within the capabilities of the department.

Cincinnati Police Department
310 Ezzard Charles Drive
Cincinnati, Ohio 45214

Traffic- and crowd-control in the event of an emergency. Evacuate surrounding areas if needed.

Good Samaritan Hospital
3217 Clifton Avenue
Cincinnati, Ohio 45220

Decontamination, emergency and/or trauma and advanced medical care for injured persons.

University of Cincinnati Medical Center
234 Goodman Street
Cincinnati, Ohio 45221

Decontamination, emergency and/or trauma and advanced medical care for injured persons.

TABLE G-5

**WASTES, HAZARD CHARACTERISTIC AND
BASIS FOR HAZARD DESIGNATION**

<u>CHEMICAL/WASTE</u>	<u>HAZARD</u>	<u>BASIS FOR HAZARD DESIGNATION</u>	
1,1,1 Trichlorethane	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U226
Trichloroethylene	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U228
		TCLP Organic Waste	D040
Tetrachloroethylene	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U210
		TCLP Organic Waste	D039
Methylene Chloride	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
		Off-spec Commercial	U080
Trichlorotrifluoroethane (Freon)	Toxic	Spent Solvent Waste	F001
		Spent Solvent Waste	F002
Carbon Tetrachloride	Toxic	Spent Solvent Waste	F001
		TCLP Organic Waste	D019
Acids and Bases	Corrosive	Characteristic Corrosive	D002

**TABLE G-5
(Continued)
WASTES, HAZARD CHARACTERISTIC AND
BASIS FOR HAZARD DESIGNATION**

<u>CHEMICAL/WASTE</u>	<u>HAZARD</u>	<u>BASIS FOR HAZARD DESIGNATION</u>	
Chloroform	Toxic	TCLP Organic Waste	D022
Arsenic	Toxic	Characteristic Metal	D004
Barium	Toxic	Characteristic Metal	D005
Cadmium	Toxic	Characteristic Metal	D006
Chromium	Toxic	Characteristic Metal	D007
Lead	Toxic	Characteristic Metal	D008
Mercury	Toxic	Characteristic Metal	D009
Selenium	Toxic	Characteristic Metal	D010
Silver	Toxic	Characteristic Metal	D011
Electroplating Wastewater Treatment Sludge	Toxic	Listed Waste	F006
<u>The following are TCLP waste codes:</u>			
Carbon Tetrachloride	Toxic	TCLP Organic Waste	D019
		Spent Solvent Waste	F001
Chloroform	Toxic	TCLP Organic Waste	D022
Tetrachloroethylene	Toxic	TCLP Organic Waste	D039
		Spent Solvent Waste	F001
		Spent Solvent Waste	F002
Trichloroethylene	Toxic	TCLP Organic Waste	D040
		Spent Solvent Waste	F001
		Spent Solvent Waste	F002

SECTION H

KLOR KLEEN TRAINING CURRICULUM

REVISION 12.0

Revised May 20, 2016

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H-1a. OUTLINE OF TRAINING PROGRAM

Purpose

The Klor Kleen training program has been designed to prepare facility and support personnel to operate or maintain the facility in a safe manner, and to perform their duties in a manner that will help assure the facility's compliance with the hazardous waste facility standards.

Personnel shall be required to participate in the ongoing training program. Specific training components for personnel shall be based upon their job duties outlined in **Figure H-1, Training Components**.

Training shall be provided for new employees upon hire or when an employee changes job function requiring them to manage hazardous waste at the facility to which they have not been trained before. Personnel training will be completed by facility personnel within six months of the employment date or facility assignment date or new position transfer within the facility, whichever is later.

Employees will not work in unsupervised positions until they have completed the necessary training requirements. Refresher training shall be performed annually with the exception of the Department of Transportation (HazMat Employee) training which specifies training every 3 years.

Training Components Summary

RCRA Overview: Covers the history and basic provisions of the Resource Conservation and Recovery Act (RCRA) to include:

- History and Basic Provisions of the Act
- Hazardous Wastes - Definition
- Characteristic Wastes – Definition

- Listed Wastes - Definition
- Hazardous Waste Handling Requirements
- Land Disposal Restrictions (LDR)
- Uniform Hazardous Waste Manifest
- Record Keeping Requirements

The RCRA Overview training curriculum can be found in **Appendix H-1 / Attachment 1**.

Hazard Communication Program: The purpose of The Hazard Communication Program (HCP) is to ensure that the hazards of all chemicals products used or could be used at the facility, as well as any information concerning specific characteristic hazards of hazardous wastes is transmitted to Midwest employees. The requirements of this program are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.

This will enable the employee to:

- Understand the Hazard Communication Standard
- Know which chemicals are present at the facility
- Know the location and availability of the SDSs
- Understand how to interpret the SDS
- Understand proper labeling requirements

The HCP can be found in **Appendix H-1 / Attachment 2**.

Personal Protective Equipment Program: The purpose of the Personal Protective Equipment Program (PPEP) is to protect Midwest employees by helping to assure that PPE is provided, used, and maintained in a sanitary and reliable condition whenever it is possible due to hazards from processes or in the work environment. To the extent that is possible and feasible, Midwest will remove or eliminate hazards or exposures through engineering means to eliminate the need for PPE.

The PPEP identifies the following:

- Tasks and associated hazards involved in the scope of work;

- Engineering controls to eliminate or minimize hazards associated with the tasks related to the scope of work;
- Appropriate PPE if the elimination of hazards is not possible; and,
- Level of training that personnel must have to perform the scope of work.

Additionally, the PPEP address the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust and wear PPE;
- Limitations of PPE; and
- Proper care, maintenance, useful life, and disposal of PPE.

The PPEP can be found in **Appendix H-1 / Attachment 3**.

Respiratory Protection: The purpose of Respiratory Protection Program (RPP) is to eliminate airborne exposure that may exceed OSHA Permissible Exposure Limits (PEL). A written Respiratory Protection Program (RPP) has been implemented to help assure that facility personnel understand the specific requirements outlined, which include but are not limited to:

- Procedures for proper selection of respirators in the workplace;
- Medical evaluation protocols;
- Fit testing – tight fitting face-pieces;
- Procedures and schedules for cleaning, disinfecting, storing, inspection, repairing, discarding, and otherwise maintaining respirators;
- Training in respirator hazards to which facility personnel are potentially exposed during routine and emergency situations;
- Procedures to ensure adequate air quality, quantity, and flow of breathing air (when required) for atmosphere-supplying respirators; and

- Procedures for regularly evaluating the effectiveness of the RPP.

Personnel shall participate in an occupational medical evaluation to determine their ability to use a respirator prior to being fitted or required to use in the workplace.

Personnel must also receive training in the following areas prior to wearing respirators in the workplace:

- Why the respirator is necessary and how the improper fit, usage and maintenance can compromise the protective effect of the respirator;
- Limitations and capabilities of the respirator are including cartridges and canisters;
- How to inspect seals and gaskets, don and doff, and the proper usage of the respirator;
- How to use the respirator effectively in emergency situations, including when the respirator malfunctions;
- Procedures for maintenance and storage; and
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

The RPP can be found in **Appendix H-1 / Attachment 4.**

Contingency Plan: RCRA requires that owners and operators of hazardous waste treatment, storage, and disposal facilities develop and implement contingency plans defining effective actions to minimize unanticipated damage from any treatment, storage, or disposal of any hazardous waste.

The plan sets out an organized, planned, and coordinated course of action to be followed to minimize hazards to human health or the environment from fires, explosions, or unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents.

The following is an overview of the plan to include the implementation of actions in the event of a fire and/or explosion and a spill and/or release of a hazardous material:

- General Facility Information
- Intent and Purpose

- Internal Emergency Notification Process
- Identification of Hazardous Materials
 - Site Location and Map
 - Facility Emergency Equipment Locations
- Control Procedures
 - Fire / Explosion
 - Spills
 - Facility Evacuation Plan
- Post-Emergency Equipment Maintenance
- Coordination Agreements
- Contingency Plan Revisions / Amendments
 - Waste Characteristics Table
 - Emergency Response Coordinators
 - Emergency Telephone List
 - Reporting Form for Emergency Events
 - Emergency Report
 - Emergency Equipment
 - Emergency Response contingency Plan Distribution
 - Distribution Letter

The Contingency Plan can be found in **Section G** of this Part B Permit Renewal Application.

Chemistry of Hazardous Wastes: Understanding the chemistry of hazardous waste is important to ensure appropriate handling methods are conducted when handling hazardous wastes.

This program covers instruction in chemistry combined with “On-The-Job” training enabling facility personnel to:

- Recognize potential chemical hazards;
- Report chemical hazards to proper on-site personnel;
- Understand chemical aspects of their job including handling of hazardous wastes, sampling of waste material, use of standard operating procedures;

- Understand the behavior of flammable materials including temperature, vapor density, types and availability of ignition sources;
- Understand the behavior of corrosive materials and their handling procedures;
- Understand the behavior of reactive materials including temperature, shock sensitivity and exposure to air and water;
- Comprehend chemical aspects of the materials presented in subsequent sections, especially toxicology and health affects; personal safety and selection and use of protective clothing and equipment; operational aspects of handling, storage, treatment, and disposal of hazardous wastes; Contingency Plan training, labeling; placarding; and recordkeeping;
- Obtain and utilize additional information from available chemical data resources; and
- Safely obtain representative waste and related samples.

The training curriculum shall include the following program elements:

- Basic concepts of the chemistry of hazardous materials and wastes;
- Classification of hazardous materials based on the correlation of hazard to physical and chemical properties;
- Physical and chemical aspects for general hazard classes;
- Chemical aspects of handling, storage, treatment, and disposal of hazardous wastes; and
- Acquisition and utilization of chemical data.

Personnel conducting sampling shall be trained in proper sampling methods used at the facility. Appendix C-2 (Sampling Methods) contains the appropriate guidance. The trainee shall be made aware of the appropriate sample containers to be used, correct holding times, and preservation requirements which are required by a particular testing procedure. Chain of custody requirements shall be addressed. Additional training under the Department of Transportation (HM-126F) shall be required for those personnel responsible for the shipping of hazardous materials.

The Chemistry of Hazardous Wastes training curriculum can be found in **Appendix H-1 Training Program**.

Toxicology: The intent of this portion of the training curriculum is to provide the employee with an overview of chemicals and their potential effects on the human body, both from a direct-physical impact, and related health aspects.

The training program will enable the employee to:

- Recognize potential health hazards;
- Recognize and understand the physical and health effects of chemicals used in the workplace;
- Understand the need for following established preventive measures regarding personal protective equipment;
- Understand the human body's natural defense systems;
- Become aware of acute (immediate) and chronic (long term) health effects that chemicals pose; and
- Utilized combined information found in this training program with knowledge from other training programs to determine the hazards of chemicals or combination of chemicals and the most effective engineering controls to either eliminate or minimize hazards that might exist in the workplace.

The training program consists of many toxicological elements, which are outlined and categorized in the following manner:

- Recognizing Potential Health Hazards;
- Chemical Hazard Reporting for On-site Personnel;
- Health Effects Related Aspects;
- Operational Procedures;
- Selection and Use of Personal Protective Clothing & Equipment;
- Types of Exposure to Commonly Handled Wastes;
- Health Related Aspects of Safe Job Procedures;

- Hazards Related to Deficiency of Safe Job-Handling Procedures;
- Alertness to Odors, Emissions, and/or Leaks

The Toxicology training curriculum can be found in **Appendix H-1 Training Program**.

Release Prevention and Response: Each employee shall be trained in his or her specific role relative to the facility's Contingency Plan. In addition, training should be provided in the following areas:

- First Aid – It is recommended that all facility personnel, with the possible exception of clerical staff, complete a program of instruction in first aid;
- The locations and operations of first aid stations, emergency shower and eye-wash systems, communication systems, and fire suppression equipment; and
- Evacuation procedures and incident reporting procedures to be followed in case of emergency.

It is of vital importance that the necessity of good personal hygiene be stressed to employees of hazardous waste management facilities. Personal hygiene is a key factor in reducing incidence of personal injury caused by contamination of hazardous materials. Major items that are addressed with employees in the training program are:

- Shaving
- Long Hair
- Glasses
- Contact Lenses
- Clothing
- Break Area / Lunch Rooms

Proper decontamination procedures are essential when working with hazardous wastes. The training program will address proper procedures that will be used when decontamination is necessary.

Employees will be trained in aspects of the Contingency Plan regarding remedial activities for spill/releases of hazardous wastes. Employees shall have the knowledge necessary to remediate chemical releases to ensure that they, themselves, and others are not exposed to hazardous wastes.

The Release Prevention and Response training curriculum can be found in Appendix H-1 Training Program.

Facility Orientation: Employees will be trained in the basic layout and operation of the facility in the Contingency Plan. General safety rules shall be discussed during the training and strict adherence shall be maintained.

The Facility Orientation training curriculum can be found in Appendix H-1 Training Program.

Recordkeeping: Facility personnel with hazardous waste management and/or operational responsibilities shall receive training on proper recordkeeping and document management. Intent of this training is to educate facility personnel in the importance of proper paperwork and tracking materials. This training curriculum contains but not limited to the following:

- Facility Permit (Treatment, Storage, Disposal Facility (TSDF)) Operating Record;
- Waste analysis documentation (Waste Profiles and laboratory analysis records);
- Uniform Hazardous Waste Manifest System (How to complete correctly and how manifests are tracked through the treatment or disposal process); and
- Land-ban Notifications – Purpose and use of the notifications and how they accompany hazardous waste shipments.

40-Hour HAZARDOUS WASTE OPERATIONS (HAZWOPER - 29 CFR 1910.120):

These regulations are applicable to operations involving hazardous waste that are conducted at TSD facilities regulated under 40 CFR Parts 264 and 265 pursuant to RCRA, or by agencies under agreement with U.S. EPA to implement RCRA regulations, and emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

40 Hour HAZWOPER shall be required for all facility personnel with hazardous waste management and/or operational responsibilities to include the remediation of uncontrolled (spilled/released) hazardous waste. The training curriculum shall contain but not limited to the following:

- Regulatory Review;
- Toxicology;
- Hazardous Material Identification and Characteristics;
- Respiratory Protection;
- Personal Protective Equipment;
- Site Control and Decontamination;
- Site Safety;
- Confined Space Entry;
- Site Monitoring;
- Incident Command; and
- Hazard Communications.

H-1b. TRAINING DIRECTOR

Ray Boyle, Midwest Vice President Operations, is the designated Training Director for Klor Kleen. His responsibilities as Training Director include, but are not limited to the following:

- Ensure facility personnel receive the appropriate baseline and refresher training per their specific duties; and
- Ensure that appropriate documentation of training is retained as per the requirements.

Ray Boyle has been employed in the environmental field since January 1986. Mr. Boyle is highly experienced in laboratory management, environmental compliance, personnel training/management, plant /facility operations, and financial operations.

Ray Boyle's professional experience includes:

- *Midwest Environmental Services, Inc.* – November 1989 – Present



Mr. Boyle was hired as Director of Environmental and Regulatory Affairs. Early responsibilities included:

- Upgrading the on-site laboratories at two facilities;
- Created new and improved existing laboratory policies and procedures;
- Developed Waste Profile procedures to assist in the waste acceptance process;
- Instituted procedures for accepting and handling Lab Pack materials;
- Supervised the development of a reliable computer tracking system for waste streams;
- Specified elements of the management system to improve over-all compliance with regulatory agencies;
- Worked on improvements on medical monitoring program and company training programs; and
- Developed safety policies.

Ray Boyle was promoted to the position of Vice President of Operations in November 2000, with current responsibilities including:

- Management of daily operations at the Klor Kleen facility;
 - Assist executive team with the development and implementation of the Business Plan throughout all divisions of the company.
- *Stout Environmental, Inc.* – January 1986 – November 2000

Ray Boyle assisted the Plant Manager with daily operations including coordination of waste shipments, reviewing incoming manifests for accuracy and tracking of the waste received at the facility. Established and implanted procedures to ensure compliance with the waste analysis plan for the onsite laboratory. Hired and completed the training of the laboratory technicians to ensure the procedures were adhered to.

During a re-organization at the facility, Ray Boyle worked with the General Manager to improve the operating procedures and implement new policies for accepting incoming waste shipments and tracking of waste shipments received on-site. Ray also instituted and was responsible for performing off-site projects for the new Lab Pack department and coordinated appropriate packaging and categorization of waste at generators site for shipment into the facility.

Mr. Boyle's education and training includes but not limited to the following:

- Kutztown University of Pennsylvania – Major: Chemistry

- 40 Hour OSHA HAZWOPER – 29 CFR 1910.120
- 8 Hour OSHA HAZWOPER (Site Supervisor) – 29 CFR 1910.120
- 24-Hour Confined Space Entry – 29 CFR 1910.146
- Dot HazMat Employee – 40 CFR Part 172 / Subpart H

H-1c. TRAINING SUMMARY– PERSONNEL/POSITION RELEVANCE

All newly hired personnel or personnel that changes job functions that have hazardous waste management and/or operational responsibilities shall be required to receive the above indicated training and receive annual refresher training. This training shall address the employee's responsibilities to ensure the employee has the competency to fulfill his assignments. Additional training shall occur whenever there is evidence of inadequacies in an employee's responsibilities, new policy and/or procedures are introduced, and new equipment is introduced into the facility. The training curriculum and training period is summarized as follows:

- ***Resource Conservation and Recovery Act*** – (within 6 months of hire or change in job function and annual thereafter);
- ***Hazard Communication Program*** – (initial hire, 40-Hour HAZWOPER and annual thereafter);
- ***Personal Protective Equipment Program*** – (initial hire, 40-Hour HAZWOPER and annual thereafter);
- ***Respiratory Protection Program*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Contingency Plan – Klor Kleen*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Chemistry of Hazardous Waste*** – (within 6-months of hire or change in job function and annual thereafter);
- ***Toxicology*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Release Prevention and Response*** - (within 6-months of hire or change in job function and annual thereafter);

- **Facility Operations – Klor Kleen** - (within 6-months of hire or change in job function and annual thereafter)
- **Record Keeping – Klor Kleen** - (within 6-months of hire or change in job function and annual thereafter)
- **40-Hour HAZWOPER 29 CFR 1910.120** - (within 6-months of hire or change in job function with 8-hour refresher training annual thereafter)
- **DOT Subpart H – Part 172** – (within 90-days of hire or change in job function and every three years thereafter)

H-1d. EMERGENCY RESPONSE TRAINING

All facility personnel that have responsibilities for responding to or remediating spilled/released hazardous waste shall have 40-Hour HAZWOPER prescribed under 29 CFR 1910.120. The training curriculum shall consist of:

- Regulatory Compliance;
- Medical Surveillance Program;
- Toxicology;
- Hazardous Material Identification and Characteristics;
- Respiratory Protection 29 CFR 1910.134;
- Personal Protective Equipment 29 CFR 1910.132;
- Confined Space Entry – 29 CFR 1910.146;
- Site Control – Safety – Decontamination;
- Monitoring Instruments;
- Hazard Communication – 29 CFR 1910.1200;
- Incident Command System;

Additional training tailored to Klor Kleen operations shall consist of:

- 1) Procedures for the use, inspection, repair, and replacement of facility emergency and monitoring equipment*;

- 2) Procedures for key parameters of automatic waste feed cut-off systems (where applicable);
- 3) Procedures for communications and alarm systems;
- 4) Procedures for response to fire and explosions;
- 5) Procedures for the response to groundwater contamination incidents; and
- 6) Procedures for Operations shut-down.

**The Klor Kleen facility contains a fire suppression system that is maintained by a third party contractor in accordance with applicable requirements and code.*

Key parameters for automatic waste feed-cutoff systems

There are no automatic waste feed-cutoff systems required at the Klor Kleen facility.

Procedures for Communication or Alarm Systems

Actions related to communication and alarm systems for fire, explosion and spills are addressed in the Contingency Plan (in **Section G** of this Permit Renewal Application). Training will cover appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific "systems" in place and how to respond to them.

Procedures for Response to Fires or Explosions

Actions related to response to fire and/or explosions incidents are addressed in the Contingency Plan. Training covers appropriate actions by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with spill response to include fires and/or explosions.

Procedures for Response for Groundwater Contamination

Actions to be taken related to possible groundwater contamination incidents are addressed in the Contingency Plan. Training covers appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with spill response, including the possibility of releases to groundwater. In the event of an incident involving suspected groundwater contamination, Midwest will mobilize a consulting engineer to investigate the possibility of such contamination through the collection and analyses of groundwater samples in the area most likely to be impacted by the release.

Procedures for Emergency Shutdown Operations

Actions related to the shutdown of operations in the event of an emergency are addressed in the Contingency Plan. Training covers appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with the emergency shutdown of operations.

H-2. TRAINING PROGRAM IMPLEMENTATION

| Training Implementation Matrix

Refer to the *Training Matrix* located in **Figure H-2** for the following information:

- Training requirements (pertaining to position);
- Employee's start date or "Change in Duties" requiring training;
- Training dates (personnel); and
- Job titles (persons having hazard waste management responsibilities).

H-3. TRAINING FREQUENCY

All facility personnel shall be required to participate in a training curriculum that includes an annual review of the hazardous waste training program.

H-4. TRAINING RECORDS AND DOCUMENTS

Klor Kleen shall maintain the following documents and records at the facility:

- (1) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;
- (2) A written job description for each position and must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;
- (3) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position;

(4) Records that document that the training or job experience required have been given to, and completed by, facility personnel.

(E) Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

H-4a. JOB TITLES

Job titles of personnel with hazard waste management responsibilities are included in the Training Matrix located in **Figure H-2**. An **Organizational Chart** is provided as **Figure H-4**.

Information pertaining to job titles is kept on record at the facility.

H-4b. JOB DESCRIPTIONS

Job descriptions are located in **Figure H-3** for the following job titles:

- Facility Manager
- Compliance Manager
- Approvals Manager
- Operations Manager
- Plant Manager
- Lab Pack Manager
- Lab Technician
- Truck Driver / Operator
- Laborer
- Maintenance
- Administrative Office Staff
- Sales Staff

H-4c. TRAINING DESCRIPTIONS



A description of the type of introductory and continuing training for each employee filling a position related to hazardous waste management at the Klor Kleen facility will be kept on record at the Klor Kleen facility. Training descriptions are located in **Figure H-1**.

H-4d. TRAINING RECORDS

Training documentation shall be maintained in the Operating Record at the facility to as required to reflect that appropriate training has been provided to and/or completed by facility personnel.

Training records shall be retained for current personnel until closure of the facility. Training records for former personnel shall be retained for a period of three (3) years from the date the employee last worked at the facility.

Part B Permit Renewal Application Appendix H-1

Training Program

Prepared For

**Klor Kleen Facility
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared By



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TRAINING PROGRAM

1. RCRA Overview

The RCRA Overview training curriculum is a stand-alone training program that can viewed in **Appendix H-1 / Attachment 1**.

2. Hazard Communication Program (HCP)

The Hazard Communication Program (HCP) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 2**.

3. Personal Protective Equipment Program (PPEP)

The Personal Protective Equipment Program (PPE) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 3**.

4. Respiratory Protection Program (RPP)

The Respiratory Protection Program (RPP) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 4**.

5. Contingency Plan (Facility Specific)

The Contingency Plan training program is a stand-alone plan that corresponds with the information, procedures, and guidance in **Section G** of this permit application.

6. Chemistry of Hazardous Wastes

a. Recognizing Potential Chemical Hazards

A hazardous waste is a hazardous material (HM), there is none which is not. A hazardous material is a virgin product (unused) waiting to be used in a process. A hazardous waste is the by-product of a process. Therefore all hazardous wastes are considered hazardous materials. EPA requires the usage of the Department of Transportation's (DOT) proper shipping names in regards to hazardous waste labeling requirements.

The following are hazard classes per DOT:

- Class 1 Explosives (Divided into 6 divisions)
- Class 2 Gases (Flammable, Non-Flammable and Poisonous)
- Class 3 Flammable and Combustible Liquids
- Class 4 Flammable Solids, Spontaneous Combustibles, and Dangerous when Wet
- Class 5 Oxidizers and Organic Peroxides
- Class 6 Poisons (Materials other than a gas)
- Class 7 Radioactive Materials
- Class 8 Corrosive Materials
- Class 9 Miscellaneous Materials (Potential hazard in transport but does not meet any other hazard class)

The NFPA 704 Marking System is a system developed by the National Fire Protection Association to alert emergency personnel of the type and degree of hazards within an area enabling them to more easily decide whether to evacuate the area or to commence control procedures. ***This standard is not applicable to transportation or to use by the general public.***

NFPA 704 system helps to convey the degree of health, flammability and instability hazards of chemicals. The system also provides for the recognition of unusual water reactivity and oxidizers. The NFPA 704 ratings are displayed in markings that are commonly referred to as the “NFPA Hazard Diamond”.



The system is characterized by the ‘diamond shape’ that is actually a “square-on-point shape with 4 smaller colored diamonds within. It identifies the hazards of a material and the degree of severity of the health, flammability, and instability/reactivity. The hazard severity is indicated by a numerical rating that ranges from 0 to 4.

Blue Diamond - HEALTH HAZARD RATING CHART

- 0 Material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material (peanut oil)
- 1 Material that on exposure would cause irritation but only minor residual injury (turpentine)
- 2 Material that on intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (ammonia gas)
- 3 Material that on short exposure could cause serious temporary or residual injury (chlorine gas)
- 4 Material that on very short exposure could cause death or major residual injury (hydrogen cyanide)

Red Diamond- FLAMMABILITY HAZARD RATING CHART

- 0 Material will not burn (water)
- 1 Material must be pre-heated before ignition can occur (corn oil)
- 2 Material must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (diesel fuel oil)
- 3 Liquids and solids that can be ignited under almost all ambient temperature conditions (gasoline)
- 4 Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily(propane)

Yellow Diamond - REACTIVITY HAZARD RATING CHART

- 0 Material that in itself is normally stable, even under fire exposure conditions, and is not reactive with water (liquid nitrogen)
- 1 Material that in itself is normally stable, but which can become unstable at elevated temperatures and pressures (phosphorus [red or white])
- 2 Material that readily undergoes violent chemical change at elevated temperatures and pressures or which reacts violently with water or which may form explosive mixtures with water (calcium metal)
- 3 Material that in itself is capable of detonation or explosive decomposition or reaction but requires a strong initiating source or which must be heated under confinement before initiation or which reacts explosively with water (fluorine gas)
- 4 Material that in itself is readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures (trinitrotoluene) *TNT*

White Diamond – Special Precautions

The white diamond can have variable content, depending on who prepared the signal. The 1990 edition of the National Fire Codes (section 704, chapter 5) specifies only two symbols. Additional symbols are commonly included. The field may also be left blank if no special hazards are present.



Material shows unusual reactivity with water (i.e. don't put water on it)
(magnesium metal)

OX

Material possesses oxidizing properties (ammonia nitrate)

ACID

Material is an acid (sulfuric acid)

ALK

Material is a base/alkaline (lime)

COR

Material is a corrosive



Material is radioactive (radium 226)

Chemical hazards are generally divided into toxic, reactive, corrosive, and flammable subcategories.

Toxic

Toxic chemicals may produce responses to exposures that are either acute or chronic depending on the exposure concentrations and duration of exposure. Acutely toxic materials are usually irritants that produce an immediate effect. Acute reactions are characterized by rapid onset and short duration of symptoms. Damage to the body from acute reactions may be reversible or irreversible. A chronic toxin is one that exhibits no symptoms or mild only mild symptoms at the time of exposure, but may build up after a series of exposures. A period of latency may follow, but chronic toxins will typically produce unhealthy systematic effects some time later.

Reactive

Reactive chemicals produce a violent reaction when exposed to or mixed with another substance, sometimes even water.

Corrosive

Corrosive chemicals are materials that disintegrate body tissue. They particularly affect the water and fatty tissues of the body, and are capable of causing rapid and deep destruction of tissue. The EPA definition of a corrosive is as follows “acids or bases with a pH less than or equal to 2, or greater than or equal to 12.5.”

Flammable

Flammable substances are defined differently by the standards of various Federal agencies and industry organizations.

DOT – any liquid having a flashpoint not more than 141°F

OSHA – any liquid having a flashpoint below 100°F, except any mixture having components with flashpoints of 100°F or higher, the total volume of which makes up 99% or more of the total volume of the mixture

EPA – (ignitability) any liquid (other than a aqueous solution containing less than 24% alcohol by volume or has a flashpoint less than 140°F, as determined by the Pensky-Martens Closed Cup Tester

b. Chemical Hazard Reporting

All chemical hazards are to be reported to the proper management personnel once discovered. If you are unsure that an actual hazard exists, contact a manager anyway. The appropriate actions will be initiated to investigate, contain if applicable and remediate the hazard. Appropriate person(s) to notify include but not limited to supervisors, plant managers and the facility manager.

c. Chemical Aspects of Specific Job

Operations personnel shall perform the following duties as it pertains to handling hazardous wastes:

- Loading hazardous waste (containers) onto transport vehicles
- Unloading hazardous waste (containers) from transport vehicles
- Performing sampling of hazardous waste from containers
- Inspecting hazardous waste storage area to ensure compliance (labeling, marking, leakage, etc.)

i. Handling of Hazardous Waste

Only authorized, trained personnel may handle hazardous waste.

ii. Sampling of Waste Material

Sampling of hazardous waste shall be conducted by the qualified, competent personnel only.

iii. Use of Safe Job Procedures

At all times, when conducting operations where hazardous wastes are present, extreme care shall be taken. All specific handling procedures shall be conducted with not deviance unless permission is granted by the Facility Manager.

d. Essential Behavior of Flammable Materials

Flammable chemical hazards exist when there is the potential for one or more materials to rapidly react with an oxidant. Such reactions release energy in the form of heat and light. Several factors can play a major role in the behavior of flammable materials.

i. Temperature

At normal temperatures, flammable liquids can give off enough vapor to form burnable mixtures with air. As a result, they can be a very serious fire hazard. Flammable liquids also give off a lot of heat and often clouds of thick black toxic smoke.

ii. Vapor Density

Vapor density is a measure of a vapor's weight when compared to air. Air is assigned a value of 1. Heavier, or denser, vapors tend to sink to floor level while lighter, less dense vapors tend to rise to ceiling level. This property must be taken into account when working with flammable liquids. Most flammable liquid vapors are heavier than air. These vapors can travel some distances and encounter ignition sources remote from the workstation.

iii. Types and Availability of Ignition Sources

An ignition source is any process or event capable of causing fire and explosion. Open flames, sparks, static electricity, and hot surfaces are all possible ignition sources. These and other types of sources should be kept well away from any flammable liquids.

e. Essential Behavior of Corrosives Materials and Handling Precautions

Corrosives will destroy or irreversibly damage another substance when in contact is made. The main hazards to people include damage to eyes, skin and tissue under the skin, but inhalation and ingestion of a corrosive can damage the respiratory and gastrointestinal tracts. Additional facts regarding corrosives are:

- A low concentration of a corrosive is usually an irritant
- Corrosion of non-living surfaces such as metals is a distinct process (rust)
- Corrosives are immediately dangerous to the tissues they contact

f. Essential Behavior of Reactive Materials

Reactive materials are commonly regarded as those materials that can be hazardous when caused to react by heat, pressure, shock, friction, a catalyst, or by contact with air or water.

i. Temperature / Shock Sensitivity

Reactive materials has the tendency to breakdown (decompose) over time or when exposed to conditions such as heat, sunlight, shock, friction, or a catalyst with the resulting decomposition products often being toxic or flammable. Decomposition can be rapid enough to give an explosive energy release and can generate enough heat and gases for fires/explosions.

ii. Exposure to Air or Water

Reactive materials will react with water or moisture. Some react slowly; others violently. Heat and flammable/toxic gases may be produced.

g. Obtaining Representative Sample (Composite)-Definition

A composite sample is a non-discrete sample composed of two or more equal aliquots collected at various points and/or times. The analytical results from a composite sample provide average concentrations of the contaminants present.

h. Selection of Sample Container

Once the samples are collected, the effort turns to maintaining the integrity of the samples; that is, ensuring that the material collected continues to be representative of the point or area sampled. This is the role of the sample management program (see Appendix C-2, Section C of this permit application renewal). Beginning with the selection of the appropriate sample containers should include size/volume, material (glass, plastic, etc.), lid/cap construction material, etc. the sample containers must be cleaned according to procedures that have been

established by either the agency (U.S. EPA, state, etc.) that requires the results or the analytical laboratory utilized for the analysis. Pre-cleaned sample containers are readily available from suppliers.

i. Sample Preservation

To prevent the reduction in analyte concentration within the sample due to decomposition, vaporization, etc., samples should be preserved shortly after collection. Preservation techniques include temperature reduction (down to 4°C) and pH adjustment. Once preserved, sample containers should be placed in plastic zipper-lock bags to contain any spillage should the container leak in transport to prevent possible cross contamination, high concentration samples should not be placed in the same shipping container as low concentration samples.

j. Acquisition and Utilization of Chemical Data

Personnel should be aware of existing sources of chemical data and shall be instructed in procedures for obtaining and using the data. Available data resources include both hard copy reference sources and computer retrieval systems. Specific sources that can provide information on a hazardous material are:

- Chemical Transportation Emergency Center (CHEMTREC)
- EPA Oil and Hazardous Materials Technical Data System
- National Library of Medicine Databases CHEMLINE (Chemical Dictionary)
- Bibliography Retrieval Services databases CA CONDENSATES
- Material's Safety Data Sheets (SDS)

7. Toxicology

Toxicology is the study of the adverse effects of chemical, physical and biological agents on living organisms. Toxicity is the ability of a chemical, physical, or biological agent to cause damage to biological material.

a. Recognizing Potential Health Hazards

Klor Kleen has determined that the most effective and acceptable way to identify potential health hazards is by conducting routine safety and health inspections. By choosing to be proactive in conducting a safety and health inspection Klor Kleen knows with certainty, the conditions which are present in the workplace at all times.

b. Chemical Hazard Reporting – Onsite Personnel

All hazards and/or potential hazards are to be reported immediately upon discovery. An employee's immediate supervisor shall be notified. Personnel shall be removed from the area of concern or potential concern until an extensive hazard assessment can be conducted and a determination if any of the degree of hazard.

c. Health Effects Related Aspects

i. Operational Procedures

Those whose job duties include Administration Office Staff, Sales Staff, Approval Managers and Compliance Managers will not be handling hazardous wastes. Therefore the chances of becoming exposed above the permissible exposure limit (PEL) or published exposure levels (PEL) of wastes constituents are very unlikely. Those job duties defined as Field Service Technicians, Drivers, Supervisors may due to actually handling hazardous waste have an increased chance of being exposed but not to the level of ever exceeding any permissible exposure limits (PEL) established by OSHA.

ii. Selection and Use of Personal Protective Clothing and Equipment

As mentioned earlier in "Operational Procedures," it is highly unlikely that an encounter with hazardous waste resulting in an exposure exceeding the PEL of the wastes' respective constituents; however, whenever anyone's duties requires them to be in the operational portion of the facility, they shall adhere to the required personal protective equipment (PPE) that has been established by facility management. These include safety glasses at a minimum and depending upon the task to be performed, the following protective equipment:

- Face Shield – whenever working with corrosive constituents and a potential for a splash exists;
- Hearing protection – whenever within 25-foot of operating equipment or atmosphere containing 85dBa or greater;
- Foot protection – whenever engaged in any operational activity;
- Hand Protection – whenever engaged in any operational activity;
- Full-body Torso Protection – whenever there is a potential for splash (absorption) hazard to exist;
- Rubber Boot – whenever there is potential for a splash (absorption) hazard; and/or
- Respiratory Protection – whenever atmospheric conditions could or do exceed the hazardous constituent's PEL.

Types of Exposures to Commonly Handled Wastes

The commonly handles wastes at the Klor Kleen facility include:

- D002 Corrosives

- D004 thru D011 Toxic
- F006 Wastewaters containing cyanides

Corrosive - A corrosive material can wear away (corrode) or destroy a substance. For example, most acids are corrosives that can corrode metal, burn skin on contact, and give off vapors that burn the eyes.

Toxic - Toxic materials or substances can poison people and other life. Toxic substances can cause illness, organ damage, and even death if swallowed or absorbed through the skin. Pesticides, weed killers, and many various cleaners may be toxic.

iii. Health Related Aspects of Safe Job Procedures

Establishing responsibilities and relationships within the workplace is a critical element in helping to assure safe working practices, and promoting a culture of safety.

To secure and maintain a safe workplace, Klor Kleen assures that everyone from senior management to individual employees is aware of their responsibilities for safety, and acts accordingly.

To help create a positive safety culture, remember 'the 4 Cs':

- **Control** Everyone must accept responsibility for personal safety and demonstrate commitment;
- **Communication** A clear allocation of responsibilities is required so that everyone understands their health and safety responsibilities;
- **Co-operation** All employees have a legal duty to take reasonable care of their own health and safety and that of others who may be affected by what their actions;
- **Competence** Klor Kleen shall ensure that all employees are knowledgeable of work procedures and are capable of performing their duties in a manner that helps assure their own safety and that of other people.

iv. Hazards Related to Deficiency of Safe Job Handling Procedures

There are many hazards associated with the wastes that are commonly handled at the Klor Kleen facility if not handled according to established policy and procedures.

For chemicals to exert their toxic or harmful effects, they must contact or enter the body. There are 4 primary means of exposure:

1. Inhalation – Corrosives / Ignitables / Toxics

The movement of air from the external environment, through the airway, into the alveoli during breathing. This is typically the easiest way for hazardous materials to enter the body.

2. Absorption – Corrosives / Ignitables / Toxics

Some hazardous materials in the form of gases, or liquids will readily absorb through the skin and into the blood. Others including some solids will cause harmful effects at the point of contact.

3. Ingestion

This type of exposure occurs when a hazardous material enters the body via hand-to-mouth activities (eating, drinking, dipping, and smoking).

4. Injection

Injection of hazardous materials through the skin usually occurs accidentally by stepping on nails, cuts, splinters (physical hazards) exposed to the hazardous substance.

There are basic procedures to follow to avoid exposure:

- Avoid breathing the substance;
- DO NOT smoke, eat, chew, or put your hand in your mouth or near your face; and
- DO NOT touch anything that may have come in contact with the substance.

v. Alertness to Odors / Emissions / Leaks / etc.

Being aware of your surroundings at all times is the key to a safe working environment. This is otherwise known as “situational awareness.” If anything looks out of place, such as liquids where they should not be, a strange odor that you had not noticed before, presence of vapors and mists or any other thing that does not look right, be aware that there is the potential that a safety and health hazard exists. Always remain alert and know your working environment and the situation of that may occur if conditions change from routine.

8. Release Prevention and Response

a. First Aid Stations - Locations

Employees may access the first aid station in the event of a non-severe injury located at the entrance to the employee lavatory (bathroom). For severe injury cases, the employee may be transported to a local medical care facility or in the case of incapacitation transported by ambulance.

b. Emergency Showers and Eye-Wash Stations - Locations

Employees in the event of exposure may access emergency shower and eye wash facilities located in the Haz Plant near the entrance to the laboratory.

c. Communication Systems - Type

The hazardous waste consolidation and storage area has a telephone that can be used to notify employees and emergency response personnel of incidents that have occurred.

d. Fire Fighting Equipment - Locations

The facility is equipped with fire suppression equipment (portable fire extinguishers) located throughout the facility as provided in Figure G-3 of this permit application renewal. No employee is allowed to use the suppression equipment to put out a fire unless they have been trained in the use of the suppression equipment as per the requirements of OSHA. A list of the quantity, type and location of the equipment are as follows:

- 1 each Laboratory (10 LB – ABC)
- 1 each outside of Front Office Bath Room (10 LB – ABC)
- 1 each by Electrical Panel (10 LB – ABC)
- 1 each in Break Room (10 LB – ABC)
- 2 each Warehouse (Pillars by Tank 5 Area & Sump Area) (10 LB – ABC)
- 1 each Warehouse (Pillar by Emergency Eyewash Station) (10 LB – ABC)
- 1 each Warehouse (by SCBA / Entrance to Front Offices) (10 LB – ABC)
- 1 each Warehouse (between Garage Door and man Door) (10 LB – ABC)
- 1 each Warehouse (10-Day Storage Area on Pillar) (10 LB – ABC)
- 1 each Warehouse (Haz Storage Area on Pillar in Row #1) (10 LB – ABC)
- 1 each Warehouse (Haz Storage Area on Pillar between Rows # 6 & #7) (10 LB – ABC)
- 1 each Warehouse (Pillar near Bulk-Tank Unloading / Sludge Box Area) (10 LB – ABC)
- 1 each on Forklift (1 LB – ABC)

There are two each 50-foot sections of 5/8-inch diameter hose connected to a potable water source (No. 1 located on North wall near commingling/consolidation area, and No. 2 located on opposite wall in process area). Both are rated at 750-gallons per hour (gph) at 40-pounds per square inch (PSI) pressure.

There is one each 1.5- inch hose station rated at 500-gallons per minute (gpm) located on a structural support near North West corner of container storage area.

e. Evacuation Procedures and Incident Reporting

In the event of an emergency requiring evacuation, all personnel shall exit the building and rally for head count at the entrance to the facility's storage yard north of the main office entrant.

All incidents, accidents, injuries and releases shall be immediately reported to facility management.

f. Decontamination Procedures

Most hazardous substances have the ability to adhere to employees clothing and contaminate equipment. Workers will inadvertently come in contact with this material during normal operations. If the hazardous substances are not removed from employees and/or equipment leaving the operational areas, it could spread to areas not previously contaminated such as offices, vehicles, homes, etc.

There are many types of PPE that is worn pending type of operational objectives, constituents being handles and location of the objectives. Not all decontamination procedures will be the same. The supervisor will determine if any the proper decontamination procedures. Below is a typical decontamination procedure that should be adhered to when sufficient contamination is present and the employee is wearing impermeable clothing:

Step 1 Step under the deluge shower and flush clothing with water.

Step 2 Scrub rubber boots (if applicable) with either a decontaminant or soap (depending upon incompatibilities).

Step 3 Proceed to undressing stage and remove decontaminated PPE and place in appropriate waste containers or dispose of as appropriate. Remove the PPE in the following order:

- 1) Footwear;
- 2) Outer gloves;
- 3) Outer suit;
- 4) Inner suit (if applicable);
- 5) Inner gloves; then
- 6) Respiratory protection (if applicable).

Step 4 Shower using soap and water.

Step 5 Dress in clean work clothing or street clothing if it's the end of the shift.

Once personal decontamination is completed, protective clothing (if applicable) is sorted, decontaminated, inspected and stored for future use. It is noted that employees who are tasked with this stage shall wear appropriate PPE to ensure exposure is not warranted.

g. Personal Hygiene

It is of vital importance that good personal hygiene be adhered to by all employees of the hazardous waste management facility. Personal hygiene is a key factor in reducing the incidence of personal injury caused by contamination of hazardous materials.

i. Shaving

Employees who are required to wear respiratory protection either on a routine or emergency basis shall be clean shaven. A beard or large sideburns could interfere with the sealing capability of a respirator protection device. A large extending mustache could also prevent the face-piece from sealing. Even beard stubble could prevent a seal.

OSHA's respiratory protection standard 29 CFR 1910.134 states the following:

"The employer shall not permit respirators with tight-fitting face-pieces to be worn by employees who have facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function"

ii. Long Hair

Long hair can prevent face-pieces from sealing properly unless it is pulled back from the face. If hair is observed inside the face-piece, the employee does not have an effective seal. Therefore all long hair shall be kept pulled back and tucked when performing operational duties.

iii. Glasses

Eyewear (glasses) cannot be worn with a tight-fitting full face-piece respiratory protective device. The temple pieces would prevent a good seal of the respirator. Employees who must wear full-face respirators and who require corrective lenses should be provided with spectacles that can be mounted inside the face-piece.

iv. Contact Lens

The wearing of contact lenses while wearing tight-fitting full-face respirators shall not be allowed. This applies to both "hard" and "soft" lenses.

v. Clothing

Street clothing cannot be worn in operational areas. Employees will change from street clothing to work clothing prior to going to an operational area. Once the employee leaves the operational area, they shall go through a decontamination process that ensures which could include showering and re-dressing in their street clothing. This will prevent the possibility of contamination leaving the site on work clothing.

vi. Break Areas / Lunch Rooms

Employees shall adhere to proper hygienic practices pertaining to eating areas. This is an effort to control the spread of contamination and the possibility of exposure. At a minimum, thoroughly wash with soap and water before eating and/or drinking. If the potential for contamination is sufficiently high, employees may be required to go through complete decontamination before performing these functions.

vii. Illness Reporting

Employees are instructed to always inform their supervisor of any illness that could either interfere with their job performance or could mask symptoms caused by materials in the facility. Of vital importance are respiratory illnesses and skin disorders since these could interfere or prevent wearing of protective equipment.

h. Spill Cleanup Procedures

Employees shall be thoroughly briefed on all aspects of the Contingency Plan and shall be expected to perform required duties of responsibility during any release incident depending upon instructions from the Emergency Coordinator.

9. Facility Orientation – General Safety Rules

General Safety Rules

- Safety glasses at a minimum are required in all operational areas;
- Report any spill, leakage or other concern to immediate supervisor;
- No running or horse play allowed in any area;
- Prior to unloading or loading waste, ensure all paperwork is correct;
- Maintain disposal containers in a satisfactory condition;
- Properly trained employees only shall be allowed to operate powered industrial equipment;
- Do not remove emergency equipment from their specified locations unless it is an emergency;
- Do not block any fire suppression systems;
- Maintain a 3-foot clearance around any electrical box;
- Do not remove hazardous waste from its appropriate storage area unless a designated supervisor designates you to do so;
- Safety shoes require in all operational areas while working;
- Always have a spotter to help with backing in a vehicle; and
- Always provide proper labeling when transferring a hazardous chemical from its primary container to a secondary container.

10. Record Keeping

To keep track of hazardous waste activities, TSDF owners and operators must keep certain records and submit reports to Ohio EPA at regular intervals. Recordkeeping and reporting requirements are found at 40 CFR Part 264 Subpart E for permitted facilities, and corresponding Ohio administrative regulations.

a. TSDF Operating Record

The facility permit/application describes in detail how the waste must be managed and stored at the facility. The Operating Records includes all required documentation for facility operations and is the fundamental blueprint for conducting business by Klor Kleen. It also lists all acceptable hazardous waste codes that we are authorized to receive and their quantity limitations. Without exception, Klor Kleen must comply with the language and intent described in the permit.

b. Waste Analysis Documentation

i. Waste Profiles / Laboratory Analysis

The Waste Profile and all associated documentation communicate the hazard, chemical makeup, generating process and source information regarding each wastestream. After a review of the profile, lab analysis, or any other associate documentation submitted by the generator for accuracy, completeness, and hazardous waste determination, Klor Kleen assigns an Approval Number to each profile. This number will link the profile information with QA/QC parameters, process, and storage instructions for the Klor Kleen facility. This information is required to be retained for 3-years.

ii. Uniform Hazardous Waste Manifest

The Hazardous Waste Manifest is created based on approval number information for shipments to the Klor Kleen facility and authorized TSDF's. This allows Klor Kleen to be accurate in shipping information as well as adhering to Klor Kleen's permit for acceptable wastes. All wastes that are received are entered into the waste tracking database and are assigned a job number which will be used to track the waste cradle-to-grave. These documents are required to be retained for a minimum of 3-years.

iii. Land Disposal Restriction (LDR)

The Land Disposal Restrictions (LDR) forms identify hazardous wastes that are restricted from land disposal, and defines those limited circumstances under which an otherwise prohibited waste may continue to be land disposed. It also provides a second measure of protection from threats posed by hazardous waste disposal. The LDR programs ensures that hazardous waste

cannot be placed on the land until the waste meets specific treatment standards to reduce the mobility or toxicity of the hazardous constituents in the waste.

The LDR notifications state that the hazardous waste identified on the form is prohibited from being landfilled unless it's been treated to be prescribed levels. These notifications are waste-stream-specific identified by their approval code. These forms are attached and filed with the shipping manifest for each shipment. This documentation is required to be retained for 3-years.

APPENDIX H-1 ATTACHMENT 1

RESOURCE CONSERVATION RECOVERY ACT “RCRA”

Training Program

Prepared for

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RCRA OVERVIEW

History and Basic Provisions

RESOURCE CONSERVATION & RECOVERY ACT - RCRA

The Resource Conservation and Recovery Act (RCRA) sets forth an approach for handling the volumes of waste generated in the United States each year. Based on the authority granted by RCRA Subtitle C, EPA developed regulations for the cradle-to-grave management of hazardous wastes. Persons who produce hazardous waste, called hazardous waste generators, are the first link in this cradle-to-grave system. The RCRA regulations established basic hazardous waste management standards for generators. The generator regulations ensure that hazardous waste is appropriately identified and handled safely to protect human health and the environment, while minimizing interference with daily business operations. A solid foundation in the generator regulations is critical to a thorough understanding of the regulations governing the management of hazardous waste from the moment it is produced, or the point of generation, through final disposition.

The RCRA regulations establish a comprehensive hazardous waste management system under the authority of RCRA Subtitle C. RCRA regulates hazardous waste from its point of generation through its point of final disposal. Hazardous waste generators are the first link in the cradle-to-grave hazardous waste management system. Pursuant to the authority granted by RCRA §3002(a), EPA has developed standards that address on-site accumulation of hazardous waste, cradle-to-grave tracking (manifest system), labeling, and recordkeeping and reporting requirements. These standards are found in 40 CFR Part 262.

Recognizing that generators produce waste in different quantities, Congress established three categories in the statute:

- Large Quantity Generator (LQGs) - **≤ 200 lbs.**
- Small Quantity Generators (SQGs) - **> 200 lbs. but < 2200 lbs.**
- Conditionally Exempt Small Quantity generators (CESQGs) - **≤ 2200 lbs.**

The extent of the regulation to which hazardous waste generators are subject depends on the volume of hazardous waste each generator produces.

Hazardous Waste Definition

- The term hazardous waste comprises all toxic chemicals, radioactive materials, and biologic or infectious waste.

- Waste materials that when improperly managed may cause or significantly contribute to serious illness or death or that may pose a substantial threat to human health or the environment
- Waste that originates from a specified waste stream or has hazardous properties or contains hazardous substances as defined in the Hazardous Waste Directive
- By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists
- A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness
- Any substance that is a by-product of society and is classified under law as potentially harmful to human health or the environment. Hazardous wastes are subject to special handling, shipping, storage, and disposal requirements under the laws of the country and province or state
- Poisonous waste that can cause problems for living organisms or the environment
- Means those wastes designated as hazardous by Environmental Protection Agency regulations in 40 CFR part 261
- Waste that poses a risk to human health or the environment and requires special disposal techniques to make it harmless or less dangerous
- Waste which is classified as "hazardous" (i.e., potentially harmful to the environment) by the government
- Hazardous waste comprises of those materials that pose a threat or risk to public health, safety or to the environment (e.g., batteries, paints, solvents, engine oils and fluids, cleaners etc.)
- Specified wastes which are classified as requiring special treatment under the Special Waste Regulations 1996. These include explosive, toxic, carcinogenic and highly flammable wastes and waste prescription-only medicines. These types of waste are tracked using a system of consignment notes
- Waste with properties that make it dangerous, or capable of having harmful effects on human health and the environment
- A product in a home (household hazardous waste) or business that is ignitable, corrosive, reactive or toxic (e.g. used motor oil, oil-based paint, auto batteries, gasoline, pesticides, etc)
- By-products or waste materials of manufacturing and other processes that have some dangerous property; generally categorized as corrosive, ignitable, toxic, or reactive, or in some way harmful to people or the environment

Characteristic Waste

EPA lists a waste on the basis that it may exhibit hazardous characteristic(s) (i.e., Ignitability, Corrosivity, Reactivity, and Toxicity.)

Ignitability – D001

- A liquid, other than an aqueous solution containing less than 24% alcohol by volume, with a flash point below 60°C (140° F)
- A non-liquid, which under standard conditions is capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes and when ignited burns in a manner that creates a hazard
- An ignitable compressed gas, which includes gases that form flammable mixtures at a concentration of 13% or less in air
- An oxidizer, such as a permanganate, inorganic peroxide, or nitrate, that readily stimulates combustion of organic materials

Corrosives – D002

- Is aqueous and has a pH less than or equal to 2, or greater than or equal to 12.5, using EPA-specified or approved test methods; or
- Is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimeters (0.250 inch) per year at a test temperature of 55°C (130° F)

Reactivity – D003

- Is normally unstable and readily undergoes violent change without detonation
- Reacts violently with water
- Forms potentially explosive mixtures with water
- Generates when mixed with water toxic gases, vapors, or fumes in a quantity sufficient to present a danger
- Is a cyanide or sulfide bearing waste that generates toxic gases, vapors, or fumes at a pH between 2 and 12.5
- Is capable of detonation or explosive reaction when subject to a strong initiating source or if heated in confinement
- Is readily capable of detonation, explosive decomposition, or reaction at standard temperature and pressure
- Is an explosive, as defined in 49 CFR Sections 173.51, 171.53 or 173.88

Toxic – D004 thru D043

The characteristic of toxicity is based on the toxic properties of (to date) 8 metals and 32 organic compounds. The hazard of greatest concern with regard to such toxins is contamination of ground water. EPA requires use of a standard test protocol, the Toxicity Characteristic leaching procedure (TCLP), to simulate leaching of these constituents from waste that has been land-disposed (e. g., in a landfill) from percolation of water through the waste. The regulatory level of each constituent is expressed as a risk-based concentration in the TCLP extract, a simulated leachate.

CHARACTERISTIC HAZARDOUS WASTE SUMMARY TOXICITY CHARACTERISTIC WASTES

<u>Constituent Name</u>	<u>Regulatory Level (mg/l)¹</u>
D004 ARSENIC	5.0
D005 BARIUM	100.0
D006 CADMIUM	1.0
D007 CHROMIUM	5.0

METALS (8)

<u>Constituent Name</u>	<u>Regulatory Level (mg/l)¹</u>
D008 LEAD	5.0
D009 MERCURY	0.2
D010 SELENIUM	1.0
D011 SILVER	5.0

ORGANICS (32)

D012	ENDIN	0.0
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
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D020	CHLORADANE	0.03
D021	CHLOROBENZENE	100.0
D022	CHLORFORM	6.0
D023	<i>o</i> -CRESOL ³	200.0
D024	<i>m</i> -CRESOL ³	200.0
D025	<i>p</i> -CRESOL ³	200.0
D026	CRESOL ³	200.0
D027	1,4-DICHLOROBENZENE	7.5

D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D030	2,4-DINITROTOLUENE ²	0.13
D031	HEPTACHLOR (and its epoxide)	0.008
D032	HEXACHLOROBENZENE ²	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D035	METHY ETHLY KETON	200.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE ²	5.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
D043	VINYL CHLORIDE	0.2

Listed Wastes (Hazardous)

Listed wastes are defined and identified by a specific chemical name or a specific production process as described below:

Non-Specific Source Wastes – these are generic wastes, commonly produced by many manufacturing and industrial processes. Examples from this list include:

- Spent halogenated and non-halogenated solvents used in degreasing;
- Wastewater treatment sludge from electroplating processes;
- Electroplating and heat treating wastes;
- Dioxin-bearing production wastes

These wastes are also known as **“F” wastes** (waste codes **F001 through F039**).

Specific Source Wastes – these are wastes from specifically identified industries such as:

- Wood preserving;
- Petroleum refining;
- Organic chemical manufacturing;

or; are production wastes from specific sources including:

- Inorganic pigments
- Organic chemicals
- Pesticides
- Explosives
- Petroleum refining
- Iron and steel
- Secondary lead
- Veterinary pharmaceuticals
- Ink formulation
- Coking

These wastes typically include sludges, still bottoms, wastewater, spent catalysts, and residues (for example, wastewater sludge from the production of pigments).

These wastes are also known as **“K” wastes** (waste codes **K001 through K136**).

Commercial Chemical Products – these are specific commercial chemical products or manufactured chemical intermediates that are being discarded. These wastes are also known as **“P” wastes** (waste codes **P001 through P123**) and **“U” wastes** (waste codes **U001 through U359**). P and U wastes are discarded or intended to be discarded:

- Toxic commercial chemical;
- Off-specification species;
- Container residues;
- Spill residues

P wastes are also considered to be **“acutely hazardous”** or very dangerous in small amounts.

Examples of P and U wastes include commercial chemical products such as chloroform, creosote, sulfuric acid and hydrofluoric acid. In order to be considered a listed waste, these chemicals must be in a pure, unused form. These chemicals are not considered to meet P and U listings after they have blended with other materials or if they have been used. In instances where chemicals have been blended or used, these wastes should be evaluated to determine whether they meet another listing criteria (F or K wastes) or possess a hazardous waste characteristic (D waste).

Hazardous Waste Handling Regulations

Once it has been established that a waste is a hazardous waste and all hazardous waste codes applicable to that waste has been identified, the next challenge is to determine the specific regulation that apply. As with the waste determination process, determining the extent to which a hazardous waste is regulated requires methodical view of numerous conditions. As a general rule, a hazardous waste is subject to full Subtitle C regulation (i.e., CFR 262-266, 268, 270), unless it is entirely or partly exempted or subject to alternative management standards.

Land Disposal Restrictions

Purpose

In order to protect human health and the environment from the dangers associated with disposing of hazardous waste on the land, and to encourage waste minimization, Congress concluded in the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA restrictions for the land disposal of hazardous waste. Set forth at 40 CFR 268, these land disposal restrictions (LDRs) identify hazardous wastes that are restricted from land disposal and define those limited circumstances under which an otherwise “restricted waste” may continue to be land disposed.

Use

Upon determining that waste qualifies as hazardous waste, generators (except CESQGs) must also make a Land Disposal Restriction (LDR) determination. A waste that is an LDR restricted

waste has a promulgated (published or proclaimed) treatment standard that must be met before it can be land-disposed. If the waste is restricted, it is then also important to know if the waste is a prohibited waste, or actually prohibited from land disposal. Generally, a restricted waste is a prohibited waste upon the effective date of the treatment standard if the waste does not meet the applicable treatment standard and no other variances are applicable

Hazardous Waste Shipments

Shipments of hazardous waste must not only be manifested, but at a minimum, the initial shipment of a waste must also be accompanied by a notification prepared by the shipper (e.g., generator) that serves to inform the consignee and/or otherwise document the LDR treatment standards applicable to the waste and the status of the waste with respect to these standards. (Individual states may require notification with each

Manifest System

Hazardous waste shipments generally must be tracked using the manifesting system prescribed in 40 CFR 262, Subpart B and DOT regulations as per 49 CFR 172.205. The Federal Uniform Hazardous Waste Manifest (EPA Form 8700-22) must be used except for certain cases in which SQG waste is being reclaimed under a contractual agreement that specifies the type of waste and frequency of shipments, or cases where the off-site transport is essentially confined to public or private roadways through or bordering the site (40 CFR 262.20.)

Completed Correctly by Facility / Generator

The facility / generator of the hazardous waste are responsible for correctly completing the Uniform Hazardous Waste Manifest. The following key items of information must be included on the manifest:

- Document Number
- Generator name, mailing address, telephone number, and EPA ID number
- Name and EPA ID Number of each transporter to be used for the shipment
- Name, address, and EPA ID Number of the intended destination facility and, at the generator's option, an alternative facility
- Description of the waste as required by DOT regulations as per 49 CFR 172.101, 202, and 203 (e.g., proper shipping name)
- Total quantity of each waste by units of weight and type and number of containers
- Special handling instructions, if any

- Generator's certification (signature and date) that the information supplied on the manifest is complete and accurate, that packaging is in accordance with applicable national (DOT) and international regulations, and that the generator, if an LQG has a waste minimization program in place or has made a good-faith effort to minimize waste generation and, if an SQG, that an appropriate waste management method has been selected

Tracked thru Disposal Process

The hazardous waste manifest basically provides a chain of custody for the waste during shipping. With certain exceptions for domestic United States shipments entirely by water or originating by rail, each party taking custody of the waste, signs and dates the manifest and provides a signed copy to the party from whom the waste was received. In addition, upon acceptance of the waste the consignee (or TSDF) must send a signed and dated copy of the manifest back to the generator to confirm that the waste has arrived at its destination. Therefore, sufficient copies of the manifest must be prepared to allow one copy for the generator and each transporter and two copies for the designated TSDF, one of which must be returned to the generator upon acceptance of the waste.

Record Keeping Requirements

Treatment, Storage, Disposal Facility – Operating Record

Facility permit must be maintained on site and adhered to faithfully.

The facility permit/application describes in detail how the waste must be managed and stored at the facility. It's the fundamental blueprint on how we do business. It also lists all acceptable hazardous waste codes that we are authorized to receive and their quantity limitations. Without exception, we must comply with the language and intent described in the permit.

Waste Analysis Documentation – Waste Profiles & Laboratory Analysis

The waste profile and all associated documentation, communicates the hazard, chemical makeup, generating process and source information regarding each waste stream. After we review profile, lab analysis, or any other associated documentation submitted by the generator for accuracy completeness, and hazardous waste determination we assign a computer generated number (approval number) to each profile. Waste profiles are maintained for a minimal of 3 years from the point of approval.

Uniform Hazardous Waste Manifests

Uniform hazardous waste manifests that accompanies hazardous waste received at the facility shall be maintained for a period of 3 years.

APPENDIX H-1 ATTACHMENT 2

HAZARD COMMUNICATION PROGRAM

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

At least once per year, the HCPC (Hazard Control Program Coordinator) will review and update the program. The HCPC will access the hazardous chemicals and materials at Klor Kleen with the assistance of the Facility Supervisor. The update will consist of each of the following elements of the HAZCOM program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Communication Program was reviewed, evaluated and revised by the Hazard Control Program Coordinator on **October 12, 2015**.

Carl Carter

Hazard Control Program Coordinator

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

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SCOPE

To enhance our employee's health and safety, Midwest Environmental Services, Inc. (Midwest) has developed, implemented, and maintains a Hazard Communication Program as required by the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1200 for operations conducted at the Klor Kleen facility located at 3118 Spring Grove Avenue; Cincinnati, Ohio; 45225.

GENERAL

The following Hazard Communication Program (HAZCOM) has been established to insure compliance with all directives pertinent to Code of Federal Regulations (29 CFR 1910.1200). It is the intent of this program to provide all Klor Kleen employees with a reference guide to working with hazardous chemicals.

Type of Business: Permitted Hazard Waste Facility

Location of Hazard Communication Program

The written Hazard Communication Program is available for review by all Klor Kleen employees in the Employee Break Area.

Copies of the plan may be obtained from Carl Carter – Director of Health & Safety.

Designated Personnel

The following personnel have been designated as responsible parties:

Hazard Communications Program:

Carl Carter– Hazard Communications Program Coordinator (HCPC) and responsible for maintaining the program and ensuring employee training is conducted.

Project Supervisors are responsible for their projects as they pertain to ensuring proper labeling and acquiring Safety Data Sheets (SDS) for those hazardous chemicals that are used and/or maintained in the workplace.

Employee Training:

Training will be conducted by Carl Carter or competent designee as appropriate. After completion of initial program orientation, it will be the responsibility of individual supervisors to provide on the job safety training to all newly hired personnel. When new chemicals or chemical products are introduced, additional training by supervisory personnel will be required.

When appropriate, external agencies may be contracted to conduct training as required.

Labeling on Containers:

It will be the responsibility of the Plant Supervisor to insure proper labeling of containers. This is to be consistent with the information contained in the appropriate SDS.

Appendix H-1 Attachment 2 Hazard Communication Program



Labeling on Shipped Containers:

It will be the responsibility of the Plant Supervisor to insure all boxes, containers, and cartons which are suspect of containing chemicals are appropriately labeled. Shipments that show damage/leak/or spill are to be refused.

Obtaining/Maintaining Safety Data Sheet (SDS):

A central file of SDS will be obtained by and maintained in the Plant Supervisor's office. The Plant supervisor will be responsible for the initiation of requests and is responsible for maintaining applicable SDS at the facility.

Informing Contractors:

It will be the responsibility of Plant Supervisor to inform contractors of the hazards on project sites to which they are assigned. This is critical wherever chemicals or compressed gas are in use or are stored. Contractors are to be informed of any restrictions involving use of compressed gasses, flame, or chemicals to be utilized by the contractor as part of the job.

EVALUATION / REVISION

At least once per year, the HCPC (Hazard Control Program Coordinator) will review and update the program. The HCPC will access the hazardous chemicals and materials on project sites with the assistance of the project supervisor. The update will consist of each of the following elements of the HAZCOM program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

CONTAINER LABELS

Container Labels will be in accordance with OSHA standards per 29 CFR 1910.1200.

Global Harmonized System - GHS

The United States (US) adopted the Globally Harmonized System of Classification & Labeling of Chemicals in 2013. Its requirement includes criteria for classification of health, physical & environmental hazards as well as specifying what info should be included on labels and SDSs.

The GHS effective dates are as follows:

- **May 1, 2013** – Final rule became effective
- **December 1, 2013** – train employees on new label elements & SDS format

Appendix H-1 Attachment 2 Hazard Communication Program



- **June 1, 2015** – Comply with all modified provisions of the final rule , except Distributors may ship products labeled by manufactures under the old system until **Dec 1, 2015**

The GHS mandates the following information on labels for hazardous materials:

- **Product Identifier** – Name or number used on the label and on the SDS – It can be a chemical name, product name, or some other unique identifier that allows you to locate the SDS quickly
- **Pictogram** – For HCS purposes, a pictogram is a symbol on a white background with a red border that is intended to convey specific information about the hazards of a chemical – Determined by the chemical’s hazard classification (see Appendix A)
- **Signal Word** – Used to alert the user to a potential hazard and is determined by the hazard class and category of the chemical – When required on a label, HAZCOM requires that it be either **“Danger”** - for more severe hazards or **“Warning”** – *for less severe hazards*
- **Hazard Statement(s)** – Standardized statements assigned to a specific hazard class and category – Used to describe the nature of the hazard(s), including where appropriate the degree of hazard – **“Causes serious eye damage”** or **“Fatal if swallow”**
- **Precautionary Statement(s)** – Statements are linked to each hazard class and category – **Store locked up”** or **“Wear protective gloves/protective clothing”**
- Name, address, & telephone # of the chemical manufacture, importer, or other responsible party.
-

“Example - Label”

Product Name: ACETONE	
Product code: 3000	
	
Danger	Danger
Hazard Precautionary Statements: Extremely flammable liquid and vapour. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking. May cause drowsiness or dizziness. Keep out of reach of children. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER or doctor/physician.	Liquide et vapeurs extrêmement inflammables. Provoque une sévère irritation des yeux. L'exposition répétée peut provoquer dessèchement ou gerçures de la peau. Peut provoquer somnolence ou vertiges. Tenir hors de portée des enfants. EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. EN CAS D'INGESTION: Rincer la bouche. Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.
Supplier name: COMPANY NAME	
Supplier address: My Street 123	
Contact tel.: 123 456 789	
REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION	

Note: Neither OSHA nor GHS specify format or label design

The pictograms, signal word, and hazard statements should be located together on the label

Labels - Missing

Missing, defaced, or illegible labels will be replaced immediately with clean, properly marked ones. Notices will be placed on bulletin boards that provide container labeling systems, and location of the HAZCOM program.

Labels – Portable Containers

Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer are not required to be labeled. If any hazardous chemical remains when the employee leaves the immediate area, then the container containing the hazardous chemical must be labeled, or the material transferred back (if allowable) into a labeled container. All other portable containers are to be labeled with the content and hazard to the potentially affected body part(s).

SAFETY DATA SHEET (SDS)

Safety Data Sheets are an essential component of the GHS and are intended to provide comprehensive information about a substance or mixture for use in workplace chemical management.

In the GHS, they serve the same function that the Material Safety Data Sheet or MSDS does in OSHA's HazCom Standard. They are used as a source of info about hazards, including environmental hazards, and to obtain advice on safety precautions. The SDS is normally product related and not specific to workplace.

Section Identification

Information in the SDS is presented using the following 16 headings in the order given below:

- Section 1 – Identification;
- Section 2 – Hazard(s) Identification
- Section 3 – Composition / Information on Ingredients
- Section 4 – First-Aid Measures
- Section 5 – Fire-Fighting Measures
- Section 6 – Accidental Release Measures
- Section 7 - Handling and Storage
- Section 8 - Exposure Controls / Personal Protection
- Section 9 - Physical and Chemical Properties
- Section 10 - Stability and Reactivity

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- Section 11 - Toxicological Information
- Section 12 - Ecological Information
- Section 13 - Disposal Considerations
- Section 14 - Transport Information
- Section 15 - Regulatory Information
- Section 16 - Other Information

Note: See Appendix B for specific section description

Location

A master file of all SDS will be kept in the Plant Supervisor's office. SDSs obtained from chemical manufacturers or distributors will be maintained in binders by hazardous chemical in alphabetical order.

SDS(s) are located in the employee break area.

Hazard Determination

SDSs will be requested for all incoming hazardous substances. Klor Kleen shall rely on SDS(s) furnished by suppliers / vendors / contractors.

Missing SDS(s)

The Plant Supervisor or his competent designee will contact suppliers for any missing SDS(s) or missing SDS category information. Contacts will be documented. If the requested information is not received within 30 days, a complaint may be filed with OSHA or a new supplier may be obtained. Documentation of requests will be maintained.

EMPLOYER INFORMATION and TRAINING

Klor Kleen shall ensure that employees are provided with information and training to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

Initial Training

Prior to beginning work with hazardous chemicals, all affected employees are required to receive hazardous communication training. The Plant Supervisor will ensure that new employees are trained, and that the training is documented.

Retraining

Additional training will be conducted by the Plant Supervisor when new chemicals are introduced into the project site. Retraining is not required if the new chemical contains hazard

Appendix H-1 Attachment 2 Hazard Communication Program



similar to previously existing chemicals for which training has already been conducted but documentation of the similarities should be noted.

Record Keeping

The Plant Supervisor will require all Midwest employees receiving Hazard Communication orientation to sign a sheet verifying their orientation.

Training Format

Each Klor Kleen employee attending the safety course will be orientated on the following:

- The location and availability of the written Hazard Communication Program and SDS(s);
- Training on the physical and health hazards of the chemicals on the project site;
- How to reduce or prevent exposure to these hazardous chemicals through proper work practices, engineering procedures, emergency procedures, and personal protective equipment to be used;
- Actions taken and protocols implemented to reduce or prevent the workers' exposure to hazardous chemicals;
- Procedures to follow if they are exposed to hazardous chemicals;
- Methods and observations used to verify the presence or release of a hazardous chemical;
- Explanation of the details of the program, labeling, the SDS, and how employees can obtain and use appropriate information.

NON-ROUTINE TASKS - HAZARDOUS

A non-routine task is any modification, experiments, or maintenance tasks performed on equipment that house or use hazardous production materials (HPMs) that carry a high level of risk and are considered unusual or non-routine

Policy

It is Klor Kleen's policy that no employee will begin work or any non-routine task without first receiving the proper training.

Specific Training

Any non-routine task will require specific training concerning the hazards associated with the task. This training will include information on:

- Specific chemical hazard;
- Protective/safety measures that the employee shall take;
- Measures that Midwest has taken to reduce hazards, including administrative controls, engineering controls, and personal protective equipment (PPE) required.

UNLABELED PIPES

Prior to beginning any work on unlabeled piping, Klor Kleen employees and contractors shall contact the Plant Supervisor for specific information regarding potential hazards and safety precautions that must be conducted. Information for the piping system which identifies the location of all pipes and their contents must be available from the customer.

Piping Contents

- Natural Gas
- Potable Water
- Non Potable Water

MULTI – EMPLOYER WORK SITE

It is the responsibility of the customer representative to provide Klor Kleen with the information listed below. This information will be given to the Klor Kleen's employees and sub-contractors prior to their entering the project site.

- Hazardous chemicals – what they may be exposed to on the work site;
- Measures the employee may take to reduce the possible exposure;
- Steps taken to reduce the risks;
- Procedures to follow if they are exposed;
- Location of the written program.

LIST of HAZARDOUS CHEMICALS USED

No hazardous materials are used at the Klor Kleen facility with the exception of laboratory. Complete list of hazardous chemicals used in the laboratory can be found in the Facility's Chemical Hygiene Plan.










HAZARD COMMUNICATION POLICIES

Policies set forth in this Hazard Communication Program are to be adhered to by all employees, and contractors working for Midwest. Employees found to be knowingly violating the policies set forth will be subject to disciplinary actions, up to and including immediate termination.

ATTACHMENT 2
APPENDIX A

Globally Harmonized System – GHS
“Pictogram Identification”

GHS Pictograms and Hazard Classes

		
<ul style="list-style-type: none"> ▪ Oxidizers 	<ul style="list-style-type: none"> ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides 	<ul style="list-style-type: none"> ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
<ul style="list-style-type: none"> ▪ Acute toxicity (severe) 	<ul style="list-style-type: none"> ▪ Corrosives 	<ul style="list-style-type: none"> ▪ Gases Under Pressure
		
<ul style="list-style-type: none"> ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity 	<ul style="list-style-type: none"> ▪ Environmental Toxicity 	<ul style="list-style-type: none"> ▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract ▪ Irritation

ATTACHMENT 2
APPENDIX B

Safety Data Sheet (SDS)
“Sectional Description”

SAFETY DATA SHEET – SECTIONAL DESCRIPTION

SECTION 1: IDENTIFICATION

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

- Product identifier used on the label and any other common names or synonyms by which the substance is known.
- Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).

SECTION 2: HAZARD(S) IDENTIFICATION

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable liquid, category¹).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s).
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

SECTION 3: COMPOSITIONS / INFORMATION ON INGREDIENTS

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

Substances

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

Mixtures

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
 - Present above their cut-off/concentration limits or
 - Present a health risk below the cut-off/concentration limits.
- The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
 - A trade secret claim is made,
 - There is batch-to-batch variation, or
 - The SDS is used for a group of substantially similar mixtures.

Chemicals where a trade secret is claimed

- A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

SECTION 4: FIRST-AID MEASURES

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

SECTION 5: FIRE-FIGHTING MEASURES

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

SECTION 6: ACCIDENTAL RELEASE MEASURES

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up)

SECTION 7: HANDLING & STORAGE

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements)

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Upper/lower flammability or explosive limits;
- Odor;
- Vapor pressure;
- Odor threshold;
- Vapor density;
- pH;
- Relative density;
- Melting point/freezing point;
- Solubility(ies);
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;

- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential

SECTION 10: STABILITY & REACTIVITY

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

Reactivity

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

Chemical stability

- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

Other

- Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.

- List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).
- List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.
- List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)

SECTION 11: TOXICOLOGICAL INFORMATION

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
- Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA

SECTION 12: EXOLOGICAL INFORMATION (non-mandatory)

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

- Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
- Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
- Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (K_{ow}) and the bioconcentration factor (BCF), where available.

- The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
- Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

SECTION 13: DISPOSAL CONSIDERATIONS (non-mandatory)

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS. The information may include:

- Description of appropriate disposal containers to use.
- Recommendations of appropriate disposal methods to employ.
- Description of the physical and chemical properties that may affect disposal activities.
- Language discouraging sewage disposal.
- Any special precautions for landfills or incineration activities

SECTION 14: TRANSPORT INFORMATION (non-mandatory)

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

- UN number (i.e., four-figure identification number of the substance).
- UN proper shipping name.
- Transport hazard class(es).
- Packing group number, if applicable, based on the degree of hazard.
- Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
- Guidance on transport in bulk (according to Annex II of MARPOL 73/78³ and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code))).
- Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

SECTION 15: REGULATORY INFORMATION (non-mandatory)

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

- Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations)

SECTION 16: OTHER INFORMATION

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

PERSONAL PROTECTIVE EQUIPMENT

Training Program

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

As often as necessary, the Personal Protective Equipment Program will review and updated. The update will consist of each of the following elements of the PPE program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Personal Protective Program was reviewed, evaluated and revised by the Director of Health and Safety on **October 12, 2015**.

Carl Carter

Director of Health and Safety

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

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Appendix A – Hazard Assessments

OBJECTIVE

This personal protective equipment program has been designed for implementation and usage at the Klor Kleen facility.

GENERAL REQUIREMENTS – 29 CFR 1910.132

Application

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Employee-Owned Equipment

Employee owned equipment usage is not allowed at the Klor Kleen facility.

Design

Klor Kleen shall provide personal protective equipment that is of safe design and construction for the work to be performed.

Hazard Assessment and Equipment Selection

Klor Kleen has completed a hazard assessment of the workplace and determined hazards may exist, or are likely to be present, which necessitate the use of personal protective equipment (PPE) pending the task. If such hazards are present, or likely to be present, Klor Kleen shall:

- Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;
- Communicate selection decisions to each affected employee; and,
- Select PPE that properly fits each affected employee

Klor Kleen shall verify that the required workplace hazard assessment has been performed through a written certification that identifies:

- The workplace evaluated;
- The person certifying that the evaluation has been performed;
- The date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment

Note: PPE Hazard Assessment Certifications located in Appendix A of this Personal Protective Equipment Program

It has been determined that the following PPE requirements are to be implemented and maintained while engaged in tasks associated with managing hazardous wastes at the Klor Kleen facility:

- Hearing protection – required whenever within 25’ of operating equipment
- Foot protection – required when engaged in any type of operation
- Hand Protection – required at all times while performing any operation
- Full-body Torso Protection – required whenever there is potential for splash
- Respiratory Protection – required whenever there is potential for evaluated PEL’s

Defective and Damaged Equipment

Defective or damaged personal protective equipment shall not be used and removed from service.

Training

Klor Kleen shall provide training to each employee who is required to use PPE. Each such employee shall be trained to know at least the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust, and wear PPE;
- The limitations of the PPE; and,
- The proper care, maintenance, useful life and disposal of the PPE

Each affected employee shall demonstrate an understanding of the training specified, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

When Klor Kleen has reason to believe that any affected employee who has already been trained does not have the understanding and skill required to safely use the required PPE, Klor Kleen shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of PPE to be used render previous training obsolete; or

- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill

Payment for Protective Equipment

Protective equipment, including personal protective equipment (PPE), used to comply with requirements shall be provided by Klor Kleen at no cost to employees with the exception of the following:

- Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen

Klor Kleen shall pay for replacement PPE, except when the employee has lost or intentionally damaged the PPE.

Note: When the provisions of another OSHA standard specify whether or not Klor Kleen must pay for specific equipment, the payment provisions of that standard shall prevail.

EYE and FACE – 29 CFR 1910.133

General Requirements

Klor Kleen shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Klor Kleen shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

Klor Kleen shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Criteria for Protective Eye and Face Protection

Protective eye and face protection devices must comply with the following consensus standard:

- ANSI Z87.1-2003, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference in § 1910.6

Protective eye and face protection devices that Midwest demonstrates are at least as effective as protective eye and face protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

Note: All operations require at a minimum the use of High-Impact safety glasses with side shields

All company issued safety glasses that have become deficient out of usage will be replaced by Midwest so as long the deficient pair is returned to Midwest at the time of replacement

RESPIRATORY PROTECTION – 29 CFR 1910.134

Note: See Klor Kleen's Respiratory Protection Program

HEAD PROTECTION – 29 CFR 1910.135

General Requirements

Klor Kleen shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects.

Klor Kleen shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.

Criteria for Head Protection

Head protection must comply with any of the following consensus standards:

- ANSI Z89.1-2009,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers
- ANSI Z89.1-2003,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers
- ANSI Z89.1-1997,
American National Standard for Personal Protection Protective Headwear for Industrial Workers
- ANSI Z89.1-1986,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers

Head protection devices that the Klor Kleen demonstrates are at least as effective as head protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

FOOT PROTECTION – 29 CFR 1910.136

General Requirements

Klor Kleen shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.

Criteria for Protective Footwear

Protective footwear must comply with any of the following consensus standards:

- ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard Specification for Performance Requirements for Protective Footwear," which are incorporated by reference in § 1910.6;
- ANSI Z41-1999, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6; or
- ANSI Z41-1991, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6.

Protective footwear that Klor Kleen demonstrates is at least as effective as protective footwear that is constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

HAND PROTECTION – 29 CFR 1910.138

General Requirements

Klor Kleen shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

Selection

Klor Kleen shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

**APPENDIX H-1
ATTACHMENT 3**

Hazard Assessments

PROJECT SITE LOCATION: _____

PROJECT NAME: _____

COMPETENT SUPERVISOR (Print): _____

DATE "AHA" COMPLETED: _____

DESCRIPTION (SUMMARY) TASKS TO BE PERFORMED

TASK #1: _____

TASK #2: _____

TASK #3: _____

CHEMICAL(S) TO BE USED (see attached SDS if applicable) or NA**WASTE(S) TO BE HANDLED (see attached Profile if applicable) or NA****PERSONNEL PROTECTIVE EQUIPMENT**

HAND: Task #1 ... Type of Protection - _____ ... NA _____

HAND: Task #2 ... Type of Protection - _____ ... NA _____

HAND: Task #3 ... Type of Protection - _____ ... NA _____

HEAD: Note: Hard Hats are to be worn at all timesEYES: Note: ANSI Z87.1 Approved Safety Eyewear (High Impact Safety Glasses) to be worn at all timesNote: Exceptions granted when wearing safety goggles (see below)

Chemical Goggles: Yes _____ No _____ Cutting Goggles: Yes _____ No _____

Welding Goggles: Yes _____ No _____ Full Face Respirators: Yes _____ No _____

FOOT: Note: ANSI Approved Hard-Toed / Metatarsal Safety Shoe to be worn at all timesNote: Hard-toe rubber boots or equivalent to be worn when contamination exposure exists to the footNote: Hydro Blast boots to be worn when hydro-blasting

Hard-Toed Rubber Boots: Yes _____ No _____ Rubber Disposable Booties: Yes _____ No _____

Hydro-Blast Boots: Yes _____ No _____

BODY: Task #1 ... Type of Protection - _____ ... NA _____

BODY: Task #2 ... Type of Protection - _____ ... NA _____

BODY: Task #3 ... Type of Protection - _____ ... NA _____

RESPIRATOR:

Task #1 ... Type - _____ ... Cartridge - _____ ... NA _____

Task #2 ... Type - _____ ... Cartridge - _____ ... NA _____

Task #3 ... Type - _____ ... Cartridge - _____ ... NA _____

FALL SAFETY DEVICES:

Task # 1 ... Type of Protection - _____ ... NA _____

Task # 2 ... Type of Protection - _____ ... NA _____

Task # 3 ... Type of Protection - _____ ... NA _____

Permit-Required Confined Space Entry? Yes _____ No _____ Scaffolding Usage? Yes _____ No _____

> 3500K Water-Blasting Task Usage? Yes _____ No _____ Vacuum Truck Usage? Yes _____ No _____

Lock-Out / Tag-Out Equipment Usage? Yes _____ No _____ Designated a "Haz" Job? Yes _____ No _____

Mechanical Lift Equipment Usage? Yes _____ No _____ OTHER? _____ Yes _____ No _____

Note: A designated "yes" requires specific based training for employees participating in those activities

I have received orientation as outlined in this AHA to include "HAZARDS" and "PPE" requirements while performing the outlined "LISTED TASKS" associated with the scope of work. I will adhere to all safety requirements to include personal protective equipment usage as outlined. I further acknowledge that if I have any concerns pertaining to the safety of not only myself but those around me, I can stop work and seek consultation with my immediate supervisor.

MIDWEST / OTHER PERSONNEL WORKING ON SITE - (signature required)

INCIDENT SUPERVISOR: _____

REMEDIAL PERSONNEL: _____

SITE SAFETY OFFICER: _____

REMEDIAL PERSONNEL: _____

REMEDIAL PERSONNEL: _____

OTHER: _____

REMEDIAL PERSONNEL: _____

OTHER: _____

APPENDIX H-1 ATTACHMENT 4 RESPIRATORY PROTECTION

Training Program

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



Environmental Services, Inc.

**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

As often as necessary, the Respiratory Protection Program will review and updated by the Respiratory Protection Program Administrator. The update will consist of each of the following elements of the Respiratory Protection program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Respiratory Protection Program was reviewed, evaluated and revised by the Director of Health and Safety on **October 12, 2015**.

Carl Carter

Respiratory Protection Program Administrator

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

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INTRODUCTION

Midwest Environmental Services, Inc. (MIDWEST) is dedicated to the health and safety of their employees, vendors and subcontractors. This Respiratory Protection Program (RPP) sets forth standards that will be adhered to when wearing of such protective equipment is required at the Klor Kleen facility.

General Requirements – 29 CFR 1910.134

Permissible Practice In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When affective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

Respirators shall be provided by Klor Kleen, when such equipment is needed to protect the health of the affected employee, which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program.

Note: Respiratory protection is to be used as a last resort **ONLY** after all other options have been exhausted

RESPIRATORY PROTECTION PROGRAM ELEMENTS

Respirators are necessary at times to protect the health of the employee. Klor Kleen has established the RPP with worksite-specific procedures. The RPP will be updated as necessary to reflect changes in workplace conditions that affect respirator use. Klor Kleen has included in the RPP the following provisions:

- Procedures for selecting respirators in the workplace
- Medical evaluations of employees required to use respirators
- Fit testing procedures for tight fitting respirators
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators
- Procedures to ensure air quality, quantity, and flow of breathing air for atmosphere-supplying respirators

- Training of employees in the respirator hazards to which they are potentially exposed during routine and emergency situations
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance
- Procedures for regularly evaluating the effectiveness of the RPP

RESPIRATORS NOT REQUIRED

Klor Kleen may provide respirators at the request of the employee or permit employees to use their own respirators, if Klor Kleen determines that such respirator use will not in itself create a hazard. If Klor Kleen determines that any voluntary respiratory use is permissible, Klor Kleen shall provide the respirators user with the information contained in 29 CFR 1910.134 Appendix D – Information for employees using respirators when not required under the standard.
(Included with this RPP)

Klor Kleen has established and implemented the elements of the written RPP necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

PROGRAM ADMINISTRATOR

Klor Kleen's designated Respirator Protection Program Administrator will be responsible for administering/over-seeing the program. The Program administrator's duties will include but, are not limited, to:

- Ensure that all affected employees receive the RPP training as require
- Ensure that all elements of the RPP is implemented
- Conducting evaluations as required to ensure the effectiveness of the RPP
- Ensure that Klor Kleen provides respirators, training, and medical evaluations at no cost to the affected employee

SELECTION OF RESPIRATORS

Klor Kleen has and will continue to evaluate respirator hazard(s) in the workplace, identify relevant workplace and user factors and base respirator selection on these factors.

Klor Kleen shall select and provide a NIOSH certified respirator. The respirator at **ALL** times shall be used in compliance with the conditions of the certification.

Klor Kleen shall identify and evaluate the respirator hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respirator hazard(s) and an

identification of the contaminant's state and physical form. Where Klor Kleen cannot identify or reasonably estimate the employee exposure, Klor Kleen shall consider the atmosphere to be **Immediate Dangerous to Life and Health (IDLH)**.

Klor Kleen shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to the user and correctly fits.

IDLH ATMOSPHERES

Klor Kleen does not anticipate the Klor Kleen facility will encounter an IDLH condition; however, in the event such conditions are generated, the following will be implemented:

- A full face-piece pressure demand SCBA certified by NIOSH for a minimum service life of not less than 30 minutes, or a combination full face-piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply shall be utilized.

All oxygen-deficient atmospheres shall be considered IDLH conditions.

Exception: If Klor Kleen can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of the 29 CFR 1920.134, then any atmosphere supplied respirator may be used.

TABLE II – 29 CFR 1910.134

<u>Altitude (feet)</u>	<u>Oxygen deficient Atmospheres (%O₂) for which employer may rely on atmosphere-supplied respirators</u>
Less than 3,001	16.0 – 19.5
3,001 – 4,000	16.4 – 19.5
4,001 – 5,000	17.1 – 19.5
5,001 – 6,000	17.8 – 19.5
6,001 – 7,000	18.5 – 19.5
7,001 – 8,000	19.3 – 19.5

Note: Above 8,000 feet the exception does not apply. Oxygen enriched breathing air must be supplied above 14,000 feet.

NON – IDLH ATMOSPHERES

Klor Kleen shall provide respirators that are adequate to protect the health of the employee and ensure compliance with all OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. The respiratory selected shall be appropriate for the chemical state and physical form of the contaminant. These could include:

- Klor Kleen shall provide if conditions exist for gases and vapors, an atmosphere-supplied respirator or an air-purifying respirator, provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant, or if there is no ESLI appropriate for the conditions in the workplace, Klor Kleen can elect to implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure the canisters and cartridges are changed before the end of service life. If this is the option that Klor Kleen chooses to initiate, documentation of the data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data must be outlined.
- Klor Kleen shall provide if conditions exist for particulates, an atmosphere supplied respirator or an air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR Part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH 42 CFR Part 84 or for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

MEDICAL EVALUATIONS

General Information

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, and the medical status of the employee. Accordingly, this section specifies the minimum requirements for medical evaluation that Klor Kleen must implement to determine the employee's ability to use a respirator.

General

Klor Kleen shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. Klor Kleen may discontinue an employee's medical evaluation when the employee is no longer required to use a respirator.

Medical Evaluation Procedures

Klor Kleen has identified a medical facility that employs both a licensed Physician and a Licensed Health Care Professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as a medical questionnaire.

Follow-Up Medical Examination

Klor Kleen shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in 29 CFR 1910.134 Section 2, Part A of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination. The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content. Klor Kleen shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP. The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- Type and weight of the respirator to be used by an employee
- Duration and frequency of respirator use (including use for rescue and escape)
- Expected physical work effort
- Additional protective clothing and equipment that could be worn
- Temperature and humidity extremes that could be encountered

Klor Kleen shall provide the PLHCP with a copy of the written respiratory protection program. In the event Klor Kleen replaces the PLHCP, Klor Kleen shall ensure the new PLHCP obtains this information either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, Occupational Safety and Health Administration (OSHA) does not expect Klor Kleen to have employees medically evaluated solely because a new PLHCP has been selected.

Medical Determination

In determining the employee's ability to use a respirator, Klor Kleen shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator
- The need, if any, for follow medical examinations
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at risk if the respirator is used, MIDWEST shall (option) provide a powered air-purifying respirator (PAPR) if the PLHCP's medical evaluation finds that the employee can use such a respirator. If a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then Klor Kleen may (option) require the use of a PAPR.

Additional Medical Evaluations

Klor Kleen, at a minimum, shall provide additional medical evaluations that comply with the requirements as per 29 CFR 1910.134 if:

- An employee reports medical signs or symptoms that are related to ability to use the respirator
- A PLHCP, supervisor, or the respiratory program's administrator informs Klor Kleen management that the employee needs to be reevaluated
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation
- Change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee

FIT TESTING

General

OSHA requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face-piece, Klor Kleen must ensure the employee be fit tested with the same make, model, style, and size of respirator that will be used.

Klor Kleen shall ensure that employees using a tight-fitting face-piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).

Klor Kleen shall ensure that the employee using a tight-fitting face-piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face-piece (size, style, model, and make) is used, and at least annually thereafter.

Klor Kleen shall conduct an additional fit test whenever the employee reports, or PLHCP, supervisor, or program's administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to:

- Facial scarring
- Dental changes
- Cosmetic surgery
- Obvious change in body weight

If after passing a QLFT or QNFT, the employee subsequently notifies Klor Kleen's program administrator, supervisor, or PLHCP that the fit of the respirator is acceptable; the employee shall be given a reasonable opportunity to select a different respirator face-piece and to be retested. The fit test shall be administered using the OSHA-accepted QLFT or QNFT protocols and procedures.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face-pieces, or equal to or greater than 500 for tight-fitting full face-pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of the respirators shall be accomplished by temporarily converting the respirator user's actual face-piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air purifying respirator face-piece with the same sealing surfaces as a surrogate for the atmosphere-supplying powered air purifying respirator face-piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face-piece to allow sampling inside the face-piece in the breathing zone of the user, midway between the nose and the mouth. The requirement shall be accomplished by installing a permanent sampling probe onto the surrogate face-piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face-piece. Any modifications to the respirator face-piece for fit testing shall be completely removed, and the face-piece restored to NIOSH-approved configuration, before that face-piece can be used in the workplace.

USE OF RESPIRATORS

General

This section requires Klor Kleen to establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in face-piece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres.

Face-Piece Seal Protection

Klor Kleen shall not permit respirators with tight-fitting face-pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function
- Any condition that interferes with face-to-face face-piece seal or valve function

If any employee wears corrective glasses or goggles or other personal protective equipment, Klor Kleen shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face-piece to the face of the user.

For all tight-fitting respirators, Klor Kleen shall ensure that employees perform a user check each time they put on the respirator.

CONTINUED RESPIRATOR EFFECTIVENESS

General

Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure and stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, Klor Kleen shall evaluate the continued effectiveness of the respirator.

Klor Kleen shall ensure that employees leave the respirator use area whenever any of the following conditions occur:

- To wash faces and respirator face-pieces as necessary to prevent eye injury or skin irritation associated with respirator use
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece
- To replace the respirator or the filter, cartridge, or canister elements

Note: If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece, Klor Kleen will replace or repair the respirator before allowing the employee to return to the work area.

PROCEDURES for IDLH ATMOSPHERES

For all IDLH conditions, Klor Kleen shall ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere
- Visual, voice, or signal line communication will be maintained between employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere
- Employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue
- Before the employee(s) enter the IDLH to provide rescue services, the Klor Kleen onsite competent person must be notified
- The Klor Kleen onsite competent person will provide necessary assistance appropriate to the situation
- Employee(s) located outside the IDLH atmosphere will be equipped with:
 - Pressure demand or other positive pressure SCBA's, or a pressure demand or other positive pressure supplied air respirator with auxiliary SCBA and either:
 - a. Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
 - b. Equivalent means for rescue where retrieval equipment is not required.

MAINTENANCE & CARE OF RESPIRATORS

General

This section requires Klor Kleen to provide the following procedures:

- Cleaning and Disinfecting procedures
- Storage and Inspection procedures
- Maintenance and Repair procedures

Cleaning and Disinfecting

Klor Kleen shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. Klor Kleen shall ensure that respirators are cleaned and disinfected using procedures in 29 CFR 1910.134 or procedures recommended by the respirator manufacture provided that such procedures are of equivalent effectiveness.

The respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition
- Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals

- Respirators maintained for emergency use shall be cleaned and disinfected after each use
- Respirators used in fit testing and training shall be cleaned and disinfected after each use

Storage and Inspection

Klor Kleen shall ensure that respirators are stored as follows:

- All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face-piece and exhalation valve

In addition to the above mention requirements, emergency respirators shall be:

- Kept accessible to the work area
- Stored in compartments or in covers that are clearly marked as containing emergency respirators
- Stored in accordance with any applicable manufacture instructions

Klor Kleen shall ensure that respirators are inspected as follows:

- All respirators used in routine situations shall be inspected before each use and during cleaning
- All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacture's recommendations, and shall be checked for proper function before and after each use
- Emergency escape-only respirators shall be inspected before going into the work place for use

Klor Kleen shall ensure that respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face-piece, head straps, valves, connecting tube, and cartridges, canisters or filters
- A check of elastomeric parts for pliability and signs of deterioration

In addition to the above mention requirements, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacture's recommended pressure level. Klor Kleen shall ensure that the regulator and warning devices are functioning properly.

For respirators maintained for emergency use, Klor Kleen shall:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and the serial # or other means of identifying the inspected respirator
- Must provide above certified information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

Maintenance and Repairs

General

Klor Kleen shall ensure respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator
- Repairs shall be made according to the manufacture's recommendations and specifications for the type and extent of repairs to be performed
- Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer or a technician trained by the manufacturer

BREATHING AIR QUALITY & USE

General

This section requires Klor Kleen to provide employees using atmosphere-supplying respirators (supplied air and SCBA) with breathing gases of high purity.

Klor Kleen shall ensure that compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

- Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen
- Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air G-7.1-1989, to include:
 - Oxygen content (v/v) of 19.5 –23.5%
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less

- Carbon monoxide (CO) content of 10 ppm or less
- Carbon dioxide content of 1,000 ppm or less
- Lack of noticeable odor

Klor Kleen shall ensure that compressed oxygen is not used in atmosphere supplying respirators that have previously used compressed air.

Klor Kleen shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

Klor Kleen shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

- Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 173 and Part 178);
- Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D air; and
- The moisture content in the cylinder does not exceed a dew point of -50° F (-45.6° C) at 1 atmosphere pressure.

Klor Kleen shall ensure that compressors used to supply breathing air to respirators are constructed and situated to meet the following requirements:

- Prevent entry of contaminated air into the air-supply system;
- Minimize moisture content so that the dew at 1 atmosphere pressure is 10 degrees F (5.56° C) below the ambient temperature;
- Have suitable in-line air purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions; and
- Have a tag containing the most recent change date and the signature of the person authorized by Klor Kleen to perform the change. The tag shall be maintained at the compressor

Klor Kleen shall also ensure the following parameters are adhered to:

- Carbon monoxide levels in the breathing air do not exceed 10 ppm in compressors that are not oil-lubricated;
- High temperature or carbon monoxide alarm or both to monitor carbon monoxide levels is used when operating oil-lubricated compressors;
- Breathing-air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substances shall be introduced into the breathing air-lines; and

- Breathing gas cylinders are marked in accordance with the NIOSH respirator certification standard, 42 CFR Part 84.

IDENTIFICATION OF FILTERS, CARTRIDGES, & CANISTERS

Klor Kleen shall ensure that all filters, cartridges, and canisters used in the work place are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

TRAINING & INFORMATION

General

This section requires Klor Kleen to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually and more often if necessary.

Klor Kleen shall ensure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator;
- Limitations and capabilities of the respirator;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, don and remove, use, and check the seals of the respirator;
- Procedures for maintenance and storage;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator; and
- General requirements of the RPP.

Klor Kleen shall conduct the training in a manner that is understandable to the employee and will require the training prior to requiring the employee to use a respirator in the work place.

Retraining shall be administered annually, and when the following situations occur:

- Changes in the work place or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the require understanding or skill; and
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

The basic advisory information on respirators as presented in 29 CFR 1910.134 Appendix D shall be provided by Klor Kleen to the employee(s) in written or oral format that Klor Kleen allows to wear respirators in work areas that do not require respirators. **(Included in this RPP)**

PROGRAM EVALUATION

General

This section requires Klor Kleen to conduct evaluations of the work place to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

Klor Kleen shall conduct evaluations of the work place as necessary to ensure that the provisions of the current RPP are being effectively implemented and that it continues to be effective.

Klor Kleen shall regularly consult employees required to use respirators to assess the employee's views on program effectiveness and to identify any problems. Any problems that are identified during the assessment shall be corrected. Factors to be assessed include, but not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective work place performances);
- Appropriate respirator selection for the hazards to which the employee is exposed;
- Proper respirator use under work place conditions the employee encounters; and
- Proper respirator maintenance.

RECORD KEEPING

General

This section requires Klor Kleen to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist Klor Kleen in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

Medical Evaluation

Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. (30 years post-employment)

Fit Testing

Klor Kleen shall establish a record of the QLFT and the QNFT tests administered to an employee including:

- Name or identification of the employee tested;
- Type of fit test performed;
- Specific make, model, style, and size of the respirator tested;
- Date of the test; and
- Pass/Fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

Fit test records shall be retained for respirator users until the next fit test is administered.

A written copy of the current RPP shall be retained by Klor Kleen.

Written materials required to be retained shall be available upon request to affected employees and to OSHA's Assistant Secretary or designee for examination and copying.

APPENDIX H-1 ATTACHMENT 4

OSHA APPENDIX D

“Information for Employees Using Respirators when not Required”

SECTION H – TRAINING FIGURES

**Figure H-1
Training Components**



	RCRA Overview	Hazcom Program	PPE Program	Respiratory Program	Contingency Plan	Chemistry Haz Wastes	Toxicology	Release Prevention Response	Facility Orientation	Record Keeping	40 Hour HAZWOPER	DOT Hazmat Employee	Sampling Procedures
Facility Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Compliance Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Approvals Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Plant Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Lab Pack Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Lab Technician	X	X	X	X	X	X	X	X	X	X	X	X	X
Truck Driver / Operator	X	X	X	X	X	X	X	X	X	X	X	X	X
Laborer	X	X	X	X	X	X	X	X	X	X	X	X	X
Administrative Office Staff	X	X		X	X	X	X	X	X	X		X	
Sales Staff	X	X		X	X	X	X	X	X	X		X	X

Figure H-2

Training Matrix Template



Job Title	Employee Name	Employee Start Date	RCRA Program Training Current	Contingency Plan Training Current	Part B Section H Training Current	40- Hour HazWoper Training Current	24 - Hour HAZWOPER Training Date	8 - Hour Refresher Training Date
Facility Manager		###/###/####	X	X	X	X	NA	X
Compliance Manager		###/###/####	X	X	X	X	NA	X
Approvals Manager		###/###/####	X	X	X	X	NA	X
ER Services Manager		###/###/####	X	X	X	X	NA	X
Plant Manager		###/###/####	X	X	X	X	NA	X
Lab Pack Manager		###/###/####	X	X	X	X	NA	X
Lab Technician		###/###/####	X	X	X	X	X	X
Truck Driver / Operator		###/###/####	X	X	X	X	NA	X
Laborer		###/###/####	X	X	X	X	NA	X
Administrative Office Staff		###/###/####	X	X	X	X	NA	NA
Sales Staff		###/###/####	X	X	X	X	NA	NA

FIGURE H-3

KLOR KLEEN JOB DESCRIPTIONS

REVISION 12.0

October 2015

Position Title: Training Director

Title of Employee: Carl Carter, Director Health & Safety

Position Responsibilities and Duties

- Develop OSHA, U.S.EPA, U.S.DOT and state-compliant safety programs.
- Organize, schedule and present OSHA, EPA, and DOT compliant programs.
- Director of company Medical Surveillance Program required by 29 CFR 1910.120.
- Director of U.S.DOT consortium drug testing program.
- Storm Water Pollution Prevention and SPCC Trainer.
- Accident, injury and incident investigation and reporting.
- OSHA-compliant injury report manager.
- Responsible for training of personnel in the proper and safe handling of hazardous materials, emergency procedures, and operating procedures.

Qualifications and Experience of the Position

1. OSHA Outreach Training 503 authorized trainer.
2. 40-hour OSHA HAZWOPER trained and trainer.
3. D.O.T. Subpart H, Part 172 trained and trainer.
4. Over 12-years direct experience as Safety and Health professional.

Position Title: Facility Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Provide support to upper-management staff concerning future business undertakings. Assist in the investigation of new business opportunities.
- Responsible for environmental and safety issues at site.
- Approve expenditures to maintain facility and equipment.
- Review and approval all accounts payable and accounts receivable transactions.
- Compile large quotation projects and orchestrate the assembly of information required to meet and exceed minimum standards.
- Obtain permits and licenses or modification of same from Local, State and Federal agencies. This includes the resolution of issues involving the permits and licenses for the facility with all applicable agencies.
- Oversee daily operations and technical aspects of the facility to ensure compliance with the permit and safety of personnel.
- Responsible for assuring training of personnel in the proper and safe handling of hazardous materials, emergency procedures, and operating procedures.

Qualifications and Experience Required for the Position

1. Comprehensive knowledge (RCRA and DOT regulations)
2. Three to five years, experience (hazardous wastes management)
3. Formal education in Chemistry or related field

Position Title: Compliance Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Provide support to the Facility Manager to resolve problems involving permits and licenses from Local, State, and Federal regulatory agencies.
- Responsible for review of incoming and outgoing hazardous waste activities (i.e. manifest, land disposal restriction notification)
- Compile all required reports to the State and Federal Environmental Protection Agencies.
- Resolve issues that develop when material arrives at facility that does not match the established approval.

Qualifications and Experience Required for the Position

1. Formal education in Chemistry or related field
2. One-three years, experience in chemical related industry
3. Training and /or experience in hazardous waste management

Position Title: Approvals Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for ensuring all waste analysis required for the waste analysis plan is completed for new and recertified waste streams.
- Responsible for reviewing waste profiles for accuracy and completeness of EPA and DOT information prior to approving waste stream to be handled at or on behalf of the facility.
- Responsible for working with TSDFs to maintain updated disposal options for material received at the facility.
- Assist the Compliance Manager with material that arrives at facility and does not match parameters established during the approval process.

Qualifications and Experience Required for the Position

1. Formal education in Chemistry or related field
2. One-three years, experience in chemical related industry
3. Training and/or experience with EPA and DOT regulations

Position Title: Plant Supervisor

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for the operation and maintenance of the hazardous waste storage facility. This includes maintaining waste materials in the required methods as detailed in the permit, reviewing manifest information and ensuring the material received matches what appears on the paperwork, obtaining samples for laboratory to perform quality control testing, and correctly storing the material in the facility until the waste can be shipped to a final treatment facility.
- Responsible for the supervision and safe practices of plant staff.
- Notify proper authorities in emergency situations and maintain understanding of procedures in case of an emergency situation.
- Inspects plant grounds and facility daily/weekly for compliance with permit conditions and complete applicable documentation that inspections are complete.

Qualifications and Experience Required for the Position

1. Three-five years, experience in plant operations
2. Hazardous waste management background

Position Title: Lab Pack Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Review lab pack material prior to approval of material into the facility. This may require traveling to the project location or obtaining a list from the client of materials that need to be managed.
- Classification and segregation of containers into proper packing groups. Again, this may occur at either the facility where the material is located or by information obtained in paper form from the client.
- Determination of hazard class and RCRA waste number for each container.
- Supervision of packing procedures off-site and/or on-site.
- Supervision of commingling/consolidation activities on-site.

Qualifications and Experience Required for the Position

1. Formal education in chemistry or related field
2. Knowledge of EPA and DOT regulations
3. Minimum one year experience in the environmental field.

Position Title: Lab Technician

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for all waste analysis as outlined in the waste analysis plan.
- Perform quality control analysis on incoming waste streams as directed by the Approvals Manager or Plant Supervisor.
- Responsible for maintaining analytical equipment and notifying supervisor of any needed repairs.
- Properly store lab samples at facility during the approval process and dispose the samples following appropriate procedures.

Qualifications and Experience Required for the Position

1. Associate of Science or Bachelor of Science Degree in related field
2. One-three years, experience in chemical related industry
3. Training and/or experience in hazardous waste management

Position Title: Truck Driver/Operator

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for safe transportation of hazardous waste and finished product. This includes loading the containers to prevent shifting and maintaining appropriate distances between non-compatible materials.
- Inspect containers prior to loading on truck to insure suitable condition for transport. This includes checking for any visible leakage and ensuring that all bungs/valves are in place and secure.
- Responsible for loading and unloading the truck and placing the containers in the proper storage location.
- Provide corresponding paperwork to the Plant Manager and divulge any information that may be pertinent for handling of the material.
- Responsible for maintaining truck in safe running condition and making sure truck meets all road and safety standards at all times.

Qualifications and Experience Required for the Position

1. High School diploma or equivalent
2. At least three years driving experience with a CDL License with Hazmat Endorsement

Position Title: Laborer

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible to operate waste handling equipment in a safe manner and following safety guidelines and requirements.
- Inspect equipment regularly and notify manager when defect is detected.
- Assist in training new employees to handle hazardous waste spills and leaks. This includes the use of spill clean-up materials and how to manage a spill safely and effectively.
- Maintain appropriate paperwork adhering to established procedures.
- Notify plant manager and other authorities as necessary in emergency situations.
- Take emergency action on own authority in accordance with established procedures.

Qualifications and Experience Required for the Position

1. High School diploma or equivalent
2. Experience with hazardous waste related activities is helpful, but complete training will be provided

Position Title: Administrative Office Staff

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Scheduling of facility personnel and trucks to meet the needs of customers.
- Prepare manifests and labels for incoming and outgoing shipments of hazardous waste.
- Distribution of completed incoming waste manifests to generator, state agencies as required and facility file.
- Preparation of Certificate of Disposal as required for customers.
- Assemble information required for accounts payable and accounts receivable.
- Distribution and filing of quotations and Waste Approval Forms.

Qualifications and Experience Required for the Position

1. High school diploma or equivalent
2. Background in hazardous waste management options and industry techniques

Position Title: Sales Staff

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Understand the hazardous waste codes that can be accepted at the facility and how the material is managed to meet the permit requirements.
- Provide to the Approvals Manager complete, concise information of potential waste streams. This includes complete Waste Profile Forms, Material Safety Data Sheets, and/or a sample of the waste stream to get approved.
- Responsible for the satisfaction and support of client accounts, including quotation of new material and on-site visits to ensure client is in compliance with Local, State, and Federal agencies.
- Meet budget goals as established by the Sales Manager.

Qualifications and Experience Required for the Position

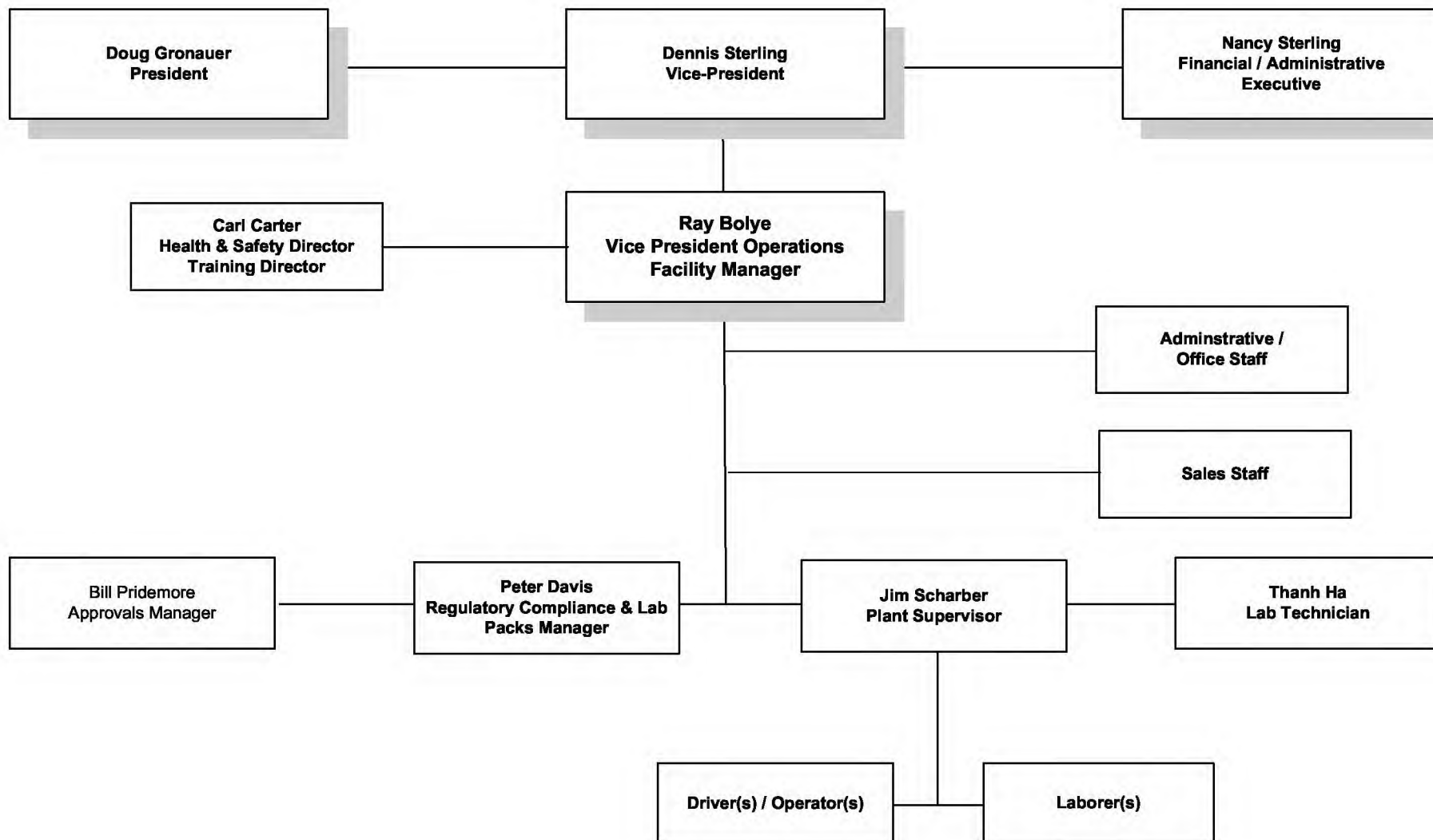
1. High school diploma or equivalent
2. Background in hazardous waste management options and industry techniques

TABLE H-1

LIST OF CURRENT FACILITY PERSONNEL

Facility Manager.....	Ray Boyle
Compliance Manager.....	Peter Davis
Approvals Manager.....	Bill Pridemore
Plant Supervisor.....	Jim Scharber
Lab Pack Manager.....	Peter Davis
Lab Technician.....	Thanh Ha
Driver/Operator(s).....	* Note 1
Laborer(s).....	* Note 1
Administrative Office Staff.....	* Note 1
Sales Staff.....	* Note 1

Note1: Current employee list for this position maintained at the facility



KLOR KLEEN
3118 SPRING GROVE AVENUE
CINCINNATI, OH 45225
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Klor Kleen Part B Permit Renewal Application

October 15, 2015

FIGURE H-4

ORGANIZATIONAL CHART

SECTION H

KLOR KLEEN TRAINING CURRICULUM

REVISION 12.0

Revised May 20, 2016

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H-1a. OUTLINE OF TRAINING PROGRAM

Purpose

The Klor Kleen training program has been designed to prepare facility and support personnel to operate or maintain the facility in a safe manner, and to perform their duties in a manner that will help assure the facility's compliance with the hazardous waste facility standards.

Personnel shall be required to participate in the ongoing training program. Specific training components for personnel shall be based upon their job duties outlined in **Figure H-1, Training Components**.

Training shall be provided for new employees upon hire or when an employee changes job function requiring them to manage hazardous waste at the facility to which they have not been trained before. Personnel training will be completed by facility personnel within six months of the employment date or facility assignment date or new position transfer within the facility, whichever is later.

Employees will not work in unsupervised positions until they have completed the necessary training requirements. Refresher training shall be performed annually with the exception of the Department of Transportation (HazMat Employee) training which specifies training every 3 years.

Training Components Summary

RCRA Overview: Covers the history and basic provisions of the Resource Conservation and Recovery Act (RCRA) to include:

- History and Basic Provisions of the Act
- Hazardous Wastes - Definition
- Characteristic Wastes – Definition

- Listed Wastes - Definition
- Hazardous Waste Handling Requirements
- Land Disposal Restrictions (LDR)
- Uniform Hazardous Waste Manifest
- Record Keeping Requirements

The RCRA Overview training curriculum can be found in **Appendix H-1 / Attachment 1**.

Hazard Communication Program: The purpose of The Hazard Communication Program (HCP) is to ensure that the hazards of all chemicals products used or could be used at the facility, as well as any information concerning specific characteristic hazards of hazardous wastes is transmitted to Midwest employees. The requirements of this program are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.

This will enable the employee to:

- Understand the Hazard Communication Standard
- Know which chemicals are present at the facility
- Know the location and availability of the SDSs
- Understand how to interpret the SDS
- Understand proper labeling requirements

The HCP can be found in **Appendix H-1 / Attachment 2**.

Personal Protective Equipment Program: The purpose of the Personal Protective Equipment Program (PPEP) is to protect Midwest employees by helping to assure that PPE is provided, used, and maintained in a sanitary and reliable condition whenever it is possible due to hazards from processes or in the work environment. To the extent that is possible and feasible, Midwest will remove or eliminate hazards or exposures through engineering means to eliminate the need for PPE.

The PPEP identifies the following:

- Tasks and associated hazards involved in the scope of work;

- Engineering controls to eliminate or minimize hazards associated with the tasks related to the scope of work;
- Appropriate PPE if the elimination of hazards is not possible; and,
- Level of training that personnel must have to perform the scope of work.

Additionally, the PPEP address the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust and wear PPE;
- Limitations of PPE; and
- Proper care, maintenance, useful life, and disposal of PPE.

The PPEP can be found in **Appendix H-1 / Attachment 3**.

Respiratory Protection: The purpose of Respiratory Protection Program (RPP) is to eliminate airborne exposure that may exceed OSHA Permissible Exposure Limits (PEL). A written Respiratory Protection Program (RPP) has been implemented to help assure that facility personnel understand the specific requirements outlined, which include but are not limited to:

- Procedures for proper selection of respirators in the workplace;
- Medical evaluation protocols;
- Fit testing – tight fitting face-pieces;
- Procedures and schedules for cleaning, disinfecting, storing, inspection, repairing, discarding, and otherwise maintaining respirators;
- Training in respirator hazards to which facility personnel are potentially exposed during routine and emergency situations;
- Procedures to ensure adequate air quality, quantity, and flow of breathing air (when required) for atmosphere-supplying respirators; and

- Procedures for regularly evaluating the effectiveness of the RPP.

Personnel shall participate in an occupational medical evaluation to determine their ability to use a respirator prior to being fitted or required to use in the workplace.

Personnel must also receive training in the following areas prior to wearing respirators in the workplace:

- Why the respirator is necessary and how the improper fit, usage and maintenance can compromise the protective effect of the respirator;
- Limitations and capabilities of the respirator are including cartridges and canisters;
- How to inspect seals and gaskets, don and doff, and the proper usage of the respirator;
- How to use the respirator effectively in emergency situations, including when the respirator malfunctions;
- Procedures for maintenance and storage; and
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

The RPP can be found in **Appendix H-1 / Attachment 4.**

Contingency Plan: RCRA requires that owners and operators of hazardous waste treatment, storage, and disposal facilities develop and implement contingency plans defining effective actions to minimize unanticipated damage from any treatment, storage, or disposal of any hazardous waste.

The plan sets out an organized, planned, and coordinated course of action to be followed to minimize hazards to human health or the environment from fires, explosions, or unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents.

The following is an overview of the plan to include the implementation of actions in the event of a fire and/or explosion and a spill and/or release of a hazardous material:

- General Facility Information
- Intent and Purpose

- Internal Emergency Notification Process
- Identification of Hazardous Materials
 - Site Location and Map
 - Facility Emergency Equipment Locations
- Control Procedures
 - Fire / Explosion
 - Spills
 - Facility Evacuation Plan
- Post-Emergency Equipment Maintenance
- Coordination Agreements
- Contingency Plan Revisions / Amendments
 - Waste Characteristics Table
 - Emergency Response Coordinators
 - Emergency Telephone List
 - Reporting Form for Emergency Events
 - Emergency Report
 - Emergency Equipment
 - Emergency Response contingency Plan Distribution
 - Distribution Letter

The Contingency Plan can be found in **Section G** of this Part B Permit Renewal Application.

Chemistry of Hazardous Wastes: Understanding the chemistry of hazardous waste is important to ensure appropriate handling methods are conducted when handling hazardous wastes.

This program covers instruction in chemistry combined with “On-The-Job” training enabling facility personnel to:

- Recognize potential chemical hazards;
- Report chemical hazards to proper on-site personnel;
- Understand chemical aspects of their job including handling of hazardous wastes, sampling of waste material, use of standard operating procedures;

- Understand the behavior of flammable materials including temperature, vapor density, types and availability of ignition sources;
- Understand the behavior of corrosive materials and their handling procedures;
- Understand the behavior of reactive materials including temperature, shock sensitivity and exposure to air and water;
- Comprehend chemical aspects of the materials presented in subsequent sections, especially toxicology and health affects; personal safety and selection and use of protective clothing and equipment; operational aspects of handling, storage, treatment, and disposal of hazardous wastes; Contingency Plan training, labeling; placarding; and recordkeeping;
- Obtain and utilize additional information from available chemical data resources; and
- Safely obtain representative waste and related samples.

The training curriculum shall include the following program elements:

- Basic concepts of the chemistry of hazardous materials and wastes;
- Classification of hazardous materials based on the correlation of hazard to physical and chemical properties;
- Physical and chemical aspects for general hazard classes;
- Chemical aspects of handling, storage, treatment, and disposal of hazardous wastes; and
- Acquisition and utilization of chemical data.

Personnel conducting sampling shall be trained in proper sampling methods used at the facility. Appendix C-2 (Sampling Methods) contains the appropriate guidance. The trainee shall be made aware of the appropriate sample containers to be used, correct holding times, and preservation requirements which are required by a particular testing procedure. Chain of custody requirements shall be addressed. Additional training under the Department of Transportation (HM-126F) shall be required for those personnel responsible for the shipping of hazardous materials.

The Chemistry of Hazardous Wastes training curriculum can be found in **Appendix H-1 Training Program**.

Toxicology: The intent of this portion of the training curriculum is to provide the employee with an overview of chemicals and their potential effects on the human body, both from a direct-physical impact, and related health aspects.

The training program will enable the employee to:

- Recognize potential health hazards;
- Recognize and understand the physical and health effects of chemicals used in the workplace;
- Understand the need for following established preventive measures regarding personal protective equipment;
- Understand the human body's natural defense systems;
- Become aware of acute (immediate) and chronic (long term) health effects that chemicals pose; and
- Utilized combined information found in this training program with knowledge from other training programs to determine the hazards of chemicals or combination of chemicals and the most effective engineering controls to either eliminate or minimize hazards that might exist in the workplace.

The training program consists of many toxicological elements, which are outlined and categorized in the following manner:

- Recognizing Potential Health Hazards;
- Chemical Hazard Reporting for On-site Personnel;
- Health Effects Related Aspects;
- Operational Procedures;
- Selection and Use of Personal Protective Clothing & Equipment;
- Types of Exposure to Commonly Handled Wastes;
- Health Related Aspects of Safe Job Procedures;

- Hazards Related to Deficiency of Safe Job-Handling Procedures;
- Alertness to Odors, Emissions, and/or Leaks

The Toxicology training curriculum can be found in **Appendix H-1 Training Program**.

Release Prevention and Response: Each employee shall be trained in his or her specific role relative to the facility's Contingency Plan. In addition, training should be provided in the following areas:

- First Aid – It is recommended that all facility personnel, with the possible exception of clerical staff, complete a program of instruction in first aid;
- The locations and operations of first aid stations, emergency shower and eye-wash systems, communication systems, and fire suppression equipment; and
- Evacuation procedures and incident reporting procedures to be followed in case of emergency.

It is of vital importance that the necessity of good personal hygiene be stressed to employees of hazardous waste management facilities. Personal hygiene is a key factor in reducing incidence of personal injury caused by contamination of hazardous materials. Major items that are addressed with employees in the training program are:

- Shaving
- Long Hair
- Glasses
- Contact Lenses
- Clothing
- Break Area / Lunch Rooms

Proper decontamination procedures are essential when working with hazardous wastes. The training program will address proper procedures that will be used when decontamination is necessary.

Employees will be trained in aspects of the Contingency Plan regarding remedial activities for spill/releases of hazardous wastes. Employees shall have the knowledge necessary to remediate chemical releases to ensure that they, themselves, and others are not exposed to hazardous wastes.

The Release Prevention and Response training curriculum can be found in Appendix H-1 Training Program.

Facility Orientation: Employees will be trained in the basic layout and operation of the facility in the Contingency Plan. General safety rules shall be discussed during the training and strict adherence shall be maintained.

The Facility Orientation training curriculum can be found in Appendix H-1 Training Program.

Recordkeeping: Facility personnel with hazardous waste management and/or operational responsibilities shall receive training on proper recordkeeping and document management. Intent of this training is to educate facility personnel in the importance of proper paperwork and tracking materials. This training curriculum contains but not limited to the following:

- Facility Permit (Treatment, Storage, Disposal Facility (TSDF)) Operating Record;
- Waste analysis documentation (Waste Profiles and laboratory analysis records);
- Uniform Hazardous Waste Manifest System (How to complete correctly and how manifests are tracked through the treatment or disposal process); and
- Land-ban Notifications – Purpose and use of the notifications and how they accompany hazardous waste shipments.

40-Hour HAZARDOUS WASTE OPERATIONS (HAZWOPER - 29 CFR 1910.120):

These regulations are applicable to operations involving hazardous waste that are conducted at TSD facilities regulated under 40 CFR Parts 264 and 265 pursuant to RCRA, or by agencies under agreement with U.S. EPA to implement RCRA regulations, and emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

40 Hour HAZWOPER shall be required for all facility personnel with hazardous waste management and/or operational responsibilities to include the remediation of uncontrolled (spilled/released) hazardous waste. The training curriculum shall contain but not limited to the following:

- Regulatory Review;
- Toxicology;
- Hazardous Material Identification and Characteristics;
- Respiratory Protection;
- Personal Protective Equipment;
- Site Control and Decontamination;
- Site Safety;
- Confined Space Entry;
- Site Monitoring;
- Incident Command; and
- Hazard Communications.

H-1b. TRAINING DIRECTOR

Ray Boyle, Midwest Vice President Operations, is the designated Training Director for Klor Kleen. His responsibilities as Training Director include, but are not limited to the following:

- Ensure facility personnel receive the appropriate baseline and refresher training per their specific duties; and
- Ensure that appropriate documentation of training is retained as per the requirements.

Ray Boyle has been employed in the environmental field since January 1986. Mr. Boyle is highly experienced in laboratory management, environmental compliance, personnel training/management, plant /facility operations, and financial operations.

Ray Boyle's professional experience includes:

- *Midwest Environmental Services, Inc.* – November 1989 – Present



Mr. Boyle was hired as Director of Environmental and Regulatory Affairs. Early responsibilities included:

- Upgrading the on-site laboratories at two facilities;
- Created new and improved existing laboratory policies and procedures;
- Developed Waste Profile procedures to assist in the waste acceptance process;
- Instituted procedures for accepting and handling Lab Pack materials;
- Supervised the development of a reliable computer tracking system for waste streams;
- Specified elements of the management system to improve over-all compliance with regulatory agencies;
- Worked on improvements on medical monitoring program and company training programs; and
- Developed safety policies.

Ray Boyle was promoted to the position of Vice President of Operations in November 2000, with current responsibilities including:

- Management of daily operations at the Klor Kleen facility;
 - Assist executive team with the development and implementation of the Business Plan throughout all divisions of the company.
- *Stout Environmental, Inc.* – January 1986 – November 2000

Ray Boyle assisted the Plant Manager with daily operations including coordination of waste shipments, reviewing incoming manifests for accuracy and tracking of the waste received at the facility. Established and implanted procedures to ensure compliance with the waste analysis plan for the onsite laboratory. Hired and completed the training of the laboratory technicians to ensure the procedures were adhered to.

During a re-organization at the facility, Ray Boyle worked with the General Manager to improve the operating procedures and implement new policies for accepting incoming waste shipments and tracking of waste shipments received on-site. Ray also instituted and was responsible for performing off-site projects for the new Lab Pack department and coordinated appropriate packaging and categorization of waste at generators site for shipment into the facility.

Mr. Boyle's education and training includes but not limited to the following:

- Kutztown University of Pennsylvania – Major: Chemistry

- 40 Hour OSHA HAZWOPER – 29 CFR 1910.120
- 8 Hour OSHA HAZWOPER (Site Supervisor) – 29 CFR 1910.120
- 24-Hour Confined Space Entry – 29 CFR 1910.146
- Dot HazMat Employee – 40 CFR Part 172 / Subpart H

H-1c. TRAINING SUMMARY– PERSONNEL/POSITION RELEVANCE

All newly hired personnel or personnel that changes job functions that have hazardous waste management and/or operational responsibilities shall be required to receive the above indicated training and receive annual refresher training. This training shall address the employee's responsibilities to ensure the employee has the competency to fulfill his assignments. Additional training shall occur whenever there is evidence of inadequacies in an employee's responsibilities, new policy and/or procedures are introduced, and new equipment is introduced into the facility. The training curriculum and training period is summarized as follows:

- ***Resource Conservation and Recovery Act*** – (within 6 months of hire or change in job function and annual thereafter);
- ***Hazard Communication Program*** – (initial hire, 40-Hour HAZWOPER and annual thereafter);
- ***Personal Protective Equipment Program*** – (initial hire, 40-Hour HAZWOPER and annual thereafter);
- ***Respiratory Protection Program*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Contingency Plan – Klor Kleen*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Chemistry of Hazardous Waste*** – (within 6-months of hire or change in job function and annual thereafter);
- ***Toxicology*** - (within 6-months of hire or change in job function and annual thereafter);
- ***Release Prevention and Response*** - (within 6-months of hire or change in job function and annual thereafter);

- **Facility Operations – Klor Kleen** - (within 6-months of hire or change in job function and annual thereafter)
- **Record Keeping – Klor Kleen** - (within 6-months of hire or change in job function and annual thereafter)
- **40-Hour HAZWOPER 29 CFR 1910.120** - (within 6-months of hire or change in job function with 8-hour refresher training annual thereafter)
- **DOT Subpart H – Part 172** – (within 90-days of hire or change in job function and every three years thereafter)

H-1d. EMERGENCY RESPONSE TRAINING

All facility personnel that have responsibilities for responding to or remediating spilled/released hazardous waste shall have 40-Hour HAZWOPER prescribed under 29 CFR 1910.120. The training curriculum shall consist of:

- Regulatory Compliance;
- Medical Surveillance Program;
- Toxicology;
- Hazardous Material Identification and Characteristics;
- Respiratory Protection 29 CFR 1910.134;
- Personal Protective Equipment 29 CFR 1910.132;
- Confined Space Entry – 29 CFR 1910.146;
- Site Control – Safety – Decontamination;
- Monitoring Instruments;
- Hazard Communication – 29 CFR 1910.1200;
- Incident Command System;

Additional training tailored to Klor Kleen operations shall consist of:

- 1) Procedures for the use, inspection, repair, and replacement of facility emergency and monitoring equipment*;

- 2) Procedures for key parameters of automatic waste feed cut-off systems (where applicable);
- 3) Procedures for communications and alarm systems;
- 4) Procedures for response to fire and explosions;
- 5) Procedures for the response to groundwater contamination incidents; and
- 6) Procedures for Operations shut-down.

**The Klor Kleen facility contains a fire suppression system that is maintained by a third party contractor in accordance with applicable requirements and code.*

Key parameters for automatic waste feed-cutoff systems

There are no automatic waste feed-cutoff systems required at the Klor Kleen facility.

Procedures for Communication or Alarm Systems

Actions related to communication and alarm systems for fire, explosion and spills are addressed in the Contingency Plan (in **Section G** of this Permit Renewal Application). Training will cover appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific "systems" in place and how to respond to them.

Procedures for Response to Fires or Explosions

Actions related to response to fire and/or explosions incidents are addressed in the Contingency Plan. Training covers appropriate actions by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with spill response to include fires and/or explosions.

Procedures for Response for Groundwater Contamination

Actions to be taken related to possible groundwater contamination incidents are addressed in the Contingency Plan. Training covers appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with spill response, including the possibility of releases to groundwater. In the event of an incident involving suspected groundwater contamination, Midwest will mobilize a consulting engineer to investigate the possibility of such contamination through the collection and analyses of groundwater samples in the area most likely to be impacted by the release.

Procedures for Emergency Shutdown Operations

Actions related to the shutdown of operations in the event of an emergency are addressed in the Contingency Plan. Training covers appropriate action by personnel in accordance with Klor Kleen's RCRA Contingency Plan. The training will address and reflect the specific requirements associated with the emergency shutdown of operations.

H-2. TRAINING PROGRAM IMPLEMENTATION

| Training Implementation Matrix

Refer to the *Training Matrix* located in **Figure H-2** for the following information:

- Training requirements (pertaining to position);
- Employee's start date or "Change in Duties" requiring training;
- Training dates (personnel); and
- Job titles (persons having hazard waste management responsibilities).

H-3. TRAINING FREQUENCY

All facility personnel shall be required to participate in a training curriculum that includes an annual review of the hazardous waste training program.

H-4. TRAINING RECORDS AND DOCUMENTS

Klor Kleen shall maintain the following documents and records at the facility:

- (1) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;
- (2) A written job description for each position and must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;
- (3) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position;

(4) Records that document that the training or job experience required have been given to, and completed by, facility personnel.

(E) Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

H-4a. JOB TITLES

Job titles of personnel with hazard waste management responsibilities are included in the Training Matrix located in **Figure H-2**. An **Organizational Chart** is provided as **Figure H-4**.

Information pertaining to job titles is kept on record at the facility.

H-4b. JOB DESCRIPTIONS

Job descriptions are located in **Figure H-3** for the following job titles:

- Facility Manager
- Compliance Manager
- Approvals Manager
- Operations Manager
- Plant Manager
- Lab Pack Manager
- Lab Technician
- Truck Driver / Operator
- Laborer
- Maintenance
- Administrative Office Staff
- Sales Staff

H-4c. TRAINING DESCRIPTIONS



A description of the type of introductory and continuing training for each employee filling a position related to hazardous waste management at the Klor Kleen facility will be kept on record at the Klor Kleen facility. Training descriptions are located in **Figure H-1**.

H-4d. TRAINING RECORDS

Training documentation shall be maintained in the Operating Record at the facility to as required to reflect that appropriate training has been provided to and/or completed by facility personnel.

Training records shall be retained for current personnel until closure of the facility. Training records for former personnel shall be retained for a period of three (3) years from the date the employee last worked at the facility.

Part B Permit Renewal Application Appendix H-1

Training Program

Prepared For

**Klor Kleen Facility
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared By



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TRAINING PROGRAM

1. RCRA Overview

The RCRA Overview training curriculum is a stand-alone training program that can viewed in **Appendix H-1 / Attachment 1**.

2. Hazard Communication Program (HCP)

The Hazard Communication Program (HCP) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 2**.

3. Personal Protective Equipment Program (PPEP)

The Personal Protective Equipment Program (PPE) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 3**.

4. Respiratory Protection Program (RPP)

The Respiratory Protection Program (RPP) training curriculum is a stand-alone program that can be viewed in **Appendix H-1 / Attachment 4**.

5. Contingency Plan (Facility Specific)

The Contingency Plan training program is a stand-alone plan that corresponds with the information, procedures, and guidance in **Section G** of this permit application.

6. Chemistry of Hazardous Wastes

a. Recognizing Potential Chemical Hazards

A hazardous waste is a hazardous material (HM), there is none which is not. A hazardous material is a virgin product (unused) waiting to be used in a process. A hazardous waste is the by-product of a process. Therefore all hazardous wastes are considered hazardous materials. EPA requires the usage of the Department of Transportation's (DOT) proper shipping names in regards to hazardous waste labeling requirements.

The following are hazard classes per DOT:

- Class 1 Explosives (Divided into 6 divisions)
- Class 2 Gases (Flammable, Non-Flammable and Poisonous)
- Class 3 Flammable and Combustible Liquids
- Class 4 Flammable Solids, Spontaneous Combustibles, and Dangerous when Wet
- Class 5 Oxidizers and Organic Peroxides
- Class 6 Poisons (Materials other than a gas)
- Class 7 Radioactive Materials
- Class 8 Corrosive Materials
- Class 9 Miscellaneous Materials (Potential hazard in transport but does not meet any other hazard class)

The NFPA 704 Marking System is a system developed by the National Fire Protection Association to alert emergency personnel of the type and degree of hazards within an area enabling them to more easily decide whether to evacuate the area or to commence control procedures. ***This standard is not applicable to transportation or to use by the general public.***

NFPA 704 system helps to convey the degree of health, flammability and instability hazards of chemicals. The system also provides for the recognition of unusual water reactivity and oxidizers. The NFPA 704 ratings are displayed in markings that are commonly referred to as the “NFPA Hazard Diamond”.



The system is characterized by the ‘diamond shape’ that is actually a “square-on-point shape with 4 smaller colored diamonds within. It identifies the hazards of a material and the degree of severity of the health, flammability, and instability/reactivity. The hazard severity is indicated by a numerical rating that ranges from 0 to 4.

Blue Diamond - HEALTH HAZARD RATING CHART

- 0 Material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material (peanut oil)
- 1 Material that on exposure would cause irritation but only minor residual injury (turpentine)
- 2 Material that on intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (ammonia gas)
- 3 Material that on short exposure could cause serious temporary or residual injury (chlorine gas)
- 4 Material that on very short exposure could cause death or major residual injury (hydrogen cyanide)

Red Diamond- FLAMMABILITY HAZARD RATING CHART

- 0 Material will not burn (water)
- 1 Material must be pre-heated before ignition can occur (corn oil)
- 2 Material must be moderately heated or exposed to relatively high ambient temperature before ignition can occur (diesel fuel oil)
- 3 Liquids and solids that can be ignited under almost all ambient temperature conditions (gasoline)
- 4 Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily(propane)

Yellow Diamond - REACTIVITY HAZARD RATING CHART

- 0 Material that in itself is normally stable, even under fire exposure conditions, and is not reactive with water (liquid nitrogen)
- 1 Material that in itself is normally stable, but which can become unstable at elevated temperatures and pressures (phosphorus [red or white])
- 2 Material that readily undergoes violent chemical change at elevated temperatures and pressures or which reacts violently with water or which may form explosive mixtures with water (calcium metal)
- 3 Material that in itself is capable of detonation or explosive decomposition or reaction but requires a strong initiating source or which must be heated under confinement before initiation or which reacts explosively with water (fluorine gas)
- 4 Material that in itself is readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures (trinitrotoluene) *TNT*

White Diamond – Special Precautions

The white diamond can have variable content, depending on who prepared the signal. The 1990 edition of the National Fire Codes (section 704, chapter 5) specifies only two symbols. Additional symbols are commonly included. The field may also be left blank if no special hazards are present.



Material shows unusual reactivity with water (i.e. don't put water on it)
(magnesium metal)

OX

Material possesses oxidizing properties (ammonia nitrate)

ACID

Material is an acid (sulfuric acid)

ALK

Material is a base/alkaline (lime)

COR

Material is a corrosive



Material is radioactive (radium 226)

Chemical hazards are generally divided into toxic, reactive, corrosive, and flammable subcategories.

Toxic

Toxic chemicals may produce responses to exposures that are either acute or chronic depending on the exposure concentrations and duration of exposure. Acutely toxic materials are usually irritants that produce an immediate effect. Acute reactions are characterized by rapid onset and short duration of symptoms. Damage to the body from acute reactions may be reversible or irreversible. A chronic toxin is one that exhibits no symptoms or mild only mild symptoms at the time of exposure, but may build up after a series of exposures. A period of latency may follow, but chronic toxins will typically produce unhealthy systematic effects some time later.

Reactive

Reactive chemicals produce a violent reaction when exposed to or mixed with another substance, sometimes even water.

Corrosive

Corrosive chemicals are materials that disintegrate body tissue. They particularly affect the water and fatty tissues of the body, and are capable of causing rapid and deep destruction of tissue. The EPA definition of a corrosive is as follows "acids or bases with a pH less than or equal to 2, or greater than or equal to 12.5."

Flammable

Flammable substances are defined differently by the standards of various Federal agencies and industry organizations.

DOT – any liquid having a flashpoint not more than 141°F

OSHA – any liquid having a flashpoint below 100°F, except any mixture having components with flashpoints of 100°F or higher, the total volume of which makes up 99% or more of the total volume of the mixture

EPA – (ignitability) any liquid (other than a aqueous solution containing less than 24% alcohol by volume or has a flashpoint less than 140°F, as determined by the Pensky-Martens Closed Cup Tester

b. Chemical Hazard Reporting

All chemical hazards are to be reported to the proper management personnel once discovered. If you are unsure that an actual hazard exists, contact a manager anyway. The appropriate actions will be initiated to investigate, contain if applicable and remediate the hazard. Appropriate person(s) to notify include but not limited to supervisors, plant managers and the facility manager.

c. Chemical Aspects of Specific Job

Operations personnel shall perform the following duties as it pertains to handling hazardous wastes:

- Loading hazardous waste (containers) onto transport vehicles
- Unloading hazardous waste (containers) from transport vehicles
- Performing sampling of hazardous waste from containers
- Inspecting hazardous waste storage area to ensure compliance (labeling, marking, leakage, etc.)

i. Handling of Hazardous Waste

Only authorized, trained personnel may handle hazardous waste.

ii. Sampling of Waste Material

Sampling of hazardous waste shall be conducted by the qualified, competent personnel only.

iii. Use of Safe Job Procedures

At all times, when conducting operations where hazardous wastes are present, extreme care shall be taken. All specific handling procedures shall be conducted with not deviance unless permission is granted by the Facility Manager.

d. Essential Behavior of Flammable Materials

Flammable chemical hazards exist when there is the potential for one or more materials to rapidly react with an oxidant. Such reactions release energy in the form of heat and light. Several factors can play a major role in the behavior of flammable materials.

i. Temperature

At normal temperatures, flammable liquids can give off enough vapor to form burnable mixtures with air. As a result, they can be a very serious fire hazard. Flammable liquids also give off a lot of heat and often clouds of thick black toxic smoke.

ii. Vapor Density

Vapor density is a measure of a vapor's weight when compared to air. Air is assigned a value of 1. Heavier, or denser, vapors tend to sink to floor level while lighter, less dense vapors tend to rise to ceiling level. This property must be taken into account when working with flammable liquids. Most flammable liquid vapors are heavier than air. These vapors can travel some distances and encounter ignition sources remote from the workstation.

iii. Types and Availability of Ignition Sources

An ignition source is any process or event capable of causing fire and explosion. Open flames, sparks, static electricity, and hot surfaces are all possible ignition sources. These and other types of sources should be kept well away from any flammable liquids.

e. Essential Behavior of Corrosives Materials and Handling Precautions

Corrosives will destroy or irreversibly damage another substance when in contact is made. The main hazards to people include damage to eyes, skin and tissue under the skin, but inhalation and ingestion of a corrosive can damage the respiratory and gastrointestinal tracts. Additional facts regarding corrosives are:

- A low concentration of a corrosive is usually an irritant
- Corrosion of non-living surfaces such as metals is a distinct process (rust)
- Corrosives are immediately dangerous to the tissues they contact

f. Essential Behavior of Reactive Materials

Reactive materials are commonly regarded as those materials that can be hazardous when caused to react by heat, pressure, shock, friction, a catalyst, or by contact with air or water.

i. Temperature / Shock Sensitivity

Reactive materials has the tendency to breakdown (decompose) over time or when exposed to conditions such as heat, sunlight, shock, friction, or a catalyst with the resulting decomposition products often being toxic or flammable. Decomposition can be rapid enough to give an explosive energy release and can generate enough heat and gases for fires/explosions.

ii. Exposure to Air or Water

Reactive materials will react with water or moisture. Some react slowly; others violently. Heat and flammable/toxic gases may be produced.

g. Obtaining Representative Sample (Composite)-Definition

A composite sample is a non-discrete sample composed of two or more equal aliquots collected at various points and/or times. The analytical results from a composite sample provide average concentrations of the contaminants present.

h. Selection of Sample Container

Once the samples are collected, the effort turns to maintaining the integrity of the samples; that is, ensuring that the material collected continues to be representative of the point or area sampled. This is the role of the sample management program (see Appendix C-2, Section C of this permit application renewal). Beginning with the selection of the appropriate sample containers should include size/volume, material (glass, plastic, etc.), lid/cap construction material, etc. the sample containers must be cleaned according to procedures that have been

established by either the agency (U.S. EPA, state, etc.) that requires the results or the analytical laboratory utilized for the analysis. Pre-cleaned sample containers are readily available from suppliers.

i. Sample Preservation

To prevent the reduction in analyte concentration within the sample due to decomposition, vaporization, etc., samples should be preserved shortly after collection. Preservation techniques include temperature reduction (down to 4°C) and pH adjustment. Once preserved, sample containers should be placed in plastic zipper-lock bags to contain any spillage should the container leak in transport to prevent possible cross contamination, high concentration samples should not be placed in the same shipping container as low concentration samples.

j. Acquisition and Utilization of Chemical Data

Personnel should be aware of existing sources of chemical data and shall be instructed in procedures for obtaining and using the data. Available data resources include both hard copy reference sources and computer retrieval systems. Specific sources that can provide information on a hazardous material are:

- Chemical Transportation Emergency Center (CHEMTREC)
- EPA Oil and Hazardous Materials Technical Data System
- National Library of Medicine Databases CHEMLINE (Chemical Dictionary)
- Bibliography Retrieval Services databases CA CONDENSATES
- Material's Safety Data Sheets (SDS)

7. Toxicology

Toxicology is the study of the adverse effects of chemical, physical and biological agents on living organisms. Toxicity is the ability of a chemical, physical, or biological agent to cause damage to biological material.

a. Recognizing Potential Health Hazards

Klor Kleen has determined that the most effective and acceptable way to identify potential health hazards is by conducting routine safety and health inspections. By choosing to be proactive in conducting a safety and health inspection Klor Kleen knows with certainty, the conditions which are present in the workplace at all times.

b. Chemical Hazard Reporting – Onsite Personnel

All hazards and/or potential hazards are to be reported immediately upon discovery. An employee's immediate supervisor shall be notified. Personnel shall be removed from the area of concern or potential concern until an extensive hazard assessment can be conducted and a determination if any of the degree of hazard.

c. Health Effects Related Aspects

i. Operational Procedures

Those whose job duties include Administration Office Staff, Sales Staff, Approval Managers and Compliance Managers will not be handling hazardous wastes. Therefore the chances of becoming exposed above the permissible exposure limit (PEL) or published exposure levels (PEL) of wastes constituents are very unlikely. Those job duties defined as Field Service Technicians, Drivers, Supervisors may due to actually handling hazardous waste have an increased chance of being exposed but not to the level of ever exceeding any permissible exposure limits (PEL) established by OSHA.

ii. Selection and Use of Personal Protective Clothing and Equipment

As mentioned earlier in "Operational Procedures," it is highly unlikely that an encounter with hazardous waste resulting in an exposure exceeding the PEL of the wastes' respective constituents; however, whenever anyone's duties requires them to be in the operational portion of the facility, they shall adhere to the required personal protective equipment (PPE) that has been established by facility management. These include safety glasses at a minimum and depending upon the task to be performed, the following protective equipment:

- Face Shield – whenever working with corrosive constituents and a potential for a splash exists;
- Hearing protection – whenever within 25-foot of operating equipment or atmosphere containing 85dBa or greater;
- Foot protection – whenever engaged in any operational activity;
- Hand Protection – whenever engaged in any operational activity;
- Full-body Torso Protection – whenever there is a potential for splash (absorption) hazard to exist;
- Rubber Boot – whenever there is potential for a splash (absorption) hazard; and/or
- Respiratory Protection – whenever atmospheric conditions could or do exceed the hazardous constituent's PEL.

Types of Exposures to Commonly Handled Wastes

The commonly handles wastes at the Klor Kleen facility include:

- D002 Corrosives

- D004 thru D011 Toxic
- F006 Wastewaters containing cyanides

Corrosive - A corrosive material can wear away (corrode) or destroy a substance. For example, most acids are corrosives that can corrode metal, burn skin on contact, and give off vapors that burn the eyes.

Toxic - Toxic materials or substances can poison people and other life. Toxic substances can cause illness, organ damage, and even death if swallowed or absorbed through the skin. Pesticides, weed killers, and many various cleaners may be toxic.

iii. Health Related Aspects of Safe Job Procedures

Establishing responsibilities and relationships within the workplace is a critical element in helping to assure safe working practices, and promoting a culture of safety.

To secure and maintain a safe workplace, Klor Kleen assures that everyone from senior management to individual employees is aware of their responsibilities for safety, and acts accordingly.

To help create a positive safety culture, remember 'the 4 Cs':

- **Control** Everyone must accept responsibility for personal safety and demonstrate commitment;
- **Communication** A clear allocation of responsibilities is required so that everyone understands their health and safety responsibilities;
- **Co-operation** All employees have a legal duty to take reasonable care of their own health and safety and that of others who may be affected by what their actions;
- **Competence** Klor Kleen shall ensure that all employees are knowledgeable of work procedures and are capable of performing their duties in a manner that helps assure their own safety and that of other people.

iv. Hazards Related to Deficiency of Safe Job Handling Procedures

There are many hazards associated with the wastes that are commonly handled at the Klor Kleen facility if not handled according to established policy and procedures.

For chemicals to exert their toxic or harmful effects, they must contact or enter the body. There are 4 primary means of exposure:

1. Inhalation – Corrosives / Ignitables / Toxics

The movement of air from the external environment, through the airway, into the alveoli during breathing. This is typically the easiest way for hazardous materials to enter the body.

2. Absorption – Corrosives / Ignitables / Toxics

Some hazardous materials in the form of gases, or liquids will readily absorb through the skin and into the blood. Others including some solids will cause harmful effects at the point of contact.

3. Ingestion

This type of exposure occurs when a hazardous material enters the body via hand-to-mouth activities (eating, drinking, dipping, and smoking).

4. Injection

Injection of hazardous materials through the skin usually occurs accidentally by stepping on nails, cuts, splinters (physical hazards) exposed to the hazardous substance.

There are basic procedures to follow to avoid exposure:

- Avoid breathing the substance;
- DO NOT smoke, eat, chew, or put your hand in your mouth or near your face; and
- DO NOT touch anything that may have come in contact with the substance.

v. Alertness to Odors / Emissions / Leaks / etc.

Being aware of your surroundings at all times is the key to a safe working environment. This is otherwise known as “situational awareness.” If anything looks out of place, such as liquids where they should not be, a strange odor that you had not noticed before, presence of vapors and mists or any other thing that does not look right, be aware that there is the potential that a safety and health hazard exists. Always remain alert and know your working environment and the situation of that may occur if conditions change from routine.

8. Release Prevention and Response

a. First Aid Stations - Locations

Employees may access the first aid station in the event of a non-severe injury located at the entrance to the employee lavatory (bathroom). For severe injury cases, the employee may be transported to a local medical care facility or in the case of incapacitation transported by ambulance.

b. Emergency Showers and Eye-Wash Stations - Locations

Employees in the event of exposure may access emergency shower and eye wash facilities located in the Haz Plant near the entrance to the laboratory.

c. Communication Systems - Type

The hazardous waste consolidation and storage area has a telephone that can be used to notify employees and emergency response personnel of incidents that have occurred.

d. Fire Fighting Equipment - Locations

The facility is equipped with fire suppression equipment (portable fire extinguishers) located throughout the facility as provided in Figure G-3 of this permit application renewal. No employee is allowed to use the suppression equipment to put out a fire unless they have been trained in the use of the suppression equipment as per the requirements of OSHA. A list of the quantity, type and location of the equipment are as follows:

- 1 each Laboratory (10 LB – ABC)
- 1 each outside of Front Office Bath Room (10 LB – ABC)
- 1 each by Electrical Panel (10 LB – ABC)
- 1 each in Break Room (10 LB – ABC)
- 2 each Warehouse (Pillars by Tank 5 Area & Sump Area) (10 LB – ABC)
- 1 each Warehouse (Pillar by Emergency Eyewash Station) (10 LB – ABC)
- 1 each Warehouse (by SCBA / Entrance to Front Offices) (10 LB – ABC)
- 1 each Warehouse (between Garage Door and man Door) (10 LB – ABC)
- 1 each Warehouse (10-Day Storage Area on Pillar) (10 LB – ABC)
- 1 each Warehouse (Haz Storage Area on Pillar in Row #1) (10 LB – ABC)
- 1 each Warehouse (Haz Storage Area on Pillar between Rows # 6 & #7) (10 LB – ABC)
- 1 each Warehouse (Pillar near Bulk-Tank Unloading / Sludge Box Area) (10 LB – ABC)
- 1 each on Forklift (1 LB – ABC)

There are two each 50-foot sections of 5/8-inch diameter hose connected to a potable water source (No. 1 located on North wall near commingling/consolidation area, and No. 2 located on opposite wall in process area). Both are rated at 750-gallons per hour (gph) at 40-pounds per square inch (PSI) pressure.

There is one each 1.5- inch hose station rated at 500-gallons per minute (gpm) located on a structural support near North West corner of container storage area.

e. Evacuation Procedures and Incident Reporting

In the event of an emergency requiring evacuation, all personnel shall exit the building and rally for head count at the entrance to the facility's storage yard north of the main office entrant.

All incidents, accidents, injuries and releases shall be immediately reported to facility management.

f. Decontamination Procedures

Most hazardous substances have the ability to adhere to employees clothing and contaminate equipment. Workers will inadvertently come in contact with this material during normal operations. If the hazardous substances are not removed from employees and/or equipment leaving the operational areas, it could spread to areas not previously contaminated such as offices, vehicles, homes, etc.

There are many types of PPE that is worn pending type of operational objectives, constituents being handles and location of the objectives. Not all decontamination procedures will be the same. The supervisor will determine if any the proper decontamination procedures. Below is a typical decontamination procedure that should be adhered to when sufficient contamination is present and the employee is wearing impermeable clothing:

Step 1 Step under the deluge shower and flush clothing with water.

Step 2 Scrub rubber boots (if applicable) with either a decontaminant or soap (depending upon incompatibilities).

Step 3 Proceed to undressing stage and remove decontaminated PPE and place in appropriate waste containers or dispose of as appropriate. Remove the PPE in the following order:

- 1) Footwear;
- 2) Outer gloves;
- 3) Outer suit;
- 4) Inner suit (if applicable);
- 5) Inner gloves; then
- 6) Respiratory protection (if applicable).

Step 4 Shower using soap and water.

Step 5 Dress in clean work clothing or street clothing if it's the end of the shift.

Once personal decontamination is completed, protective clothing (if applicable) is sorted, decontaminated, inspected and stored for future use. It is noted that employees who are tasked with this stage shall wear appropriate PPE to ensure exposure is not warranted.

g. Personal Hygiene

It is of vital importance that good personal hygiene be adhered to by all employees of the hazardous waste management facility. Personal hygiene is a key factor in reducing the incidence of personal injury caused by contamination of hazardous materials.

i. Shaving

Employees who are required to wear respiratory protection either on a routine or emergency basis shall be clean shaven. A beard or large sideburns could interfere with the sealing capability of a respirator protection device. A large extending mustache could also prevent the face-piece from sealing. Even beard stubble could prevent a seal.

OSHA's respiratory protection standard 29 CFR 1910.134 states the following:

"The employer shall not permit respirators with tight-fitting face-pieces to be worn by employees who have facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function"

ii. Long Hair

Long hair can prevent face-pieces from sealing properly unless it is pulled back from the face. If hair is observed inside the face-piece, the employee does not have an effective seal. Therefore all long hair shall be kept pulled back and tucked when performing operational duties.

iii. Glasses

Eyewear (glasses) cannot be worn with a tight-fitting full face-piece respiratory protective device. The temple pieces would prevent a good seal of the respirator. Employees who must wear full-face respirators and who require corrective lenses should be provided with spectacles that can be mounted inside the face-piece.

iv. Contact Lens

The wearing of contact lenses while wearing tight-fitting full-face respirators shall not be allowed. This applies to both "hard" and "soft" lenses.

v. Clothing

Street clothing cannot be worn in operational areas. Employees will change from street clothing to work clothing prior to going to an operational area. Once the employee leaves the operational area, they shall go through a decontamination process that ensures which could include showering and re-dressing in their street clothing. This will prevent the possibility of contamination leaving the site on work clothing.

vi. Break Areas / Lunch Rooms

Employees shall adhere to proper hygienic practices pertaining to eating areas. This is an effort to control the spread of contamination and the possibility of exposure. At a minimum, thoroughly wash with soap and water before eating and/or drinking. If the potential for contamination is sufficiently high, employees may be required to go through complete decontamination before performing these functions.

vii. Illness Reporting

Employees are instructed to always inform their supervisor of any illness that could either interfere with their job performance or could mask symptoms caused by materials in the facility. Of vital importance are respiratory illnesses and skin disorders since these could interfere or prevent wearing of protective equipment.

h. Spill Cleanup Procedures

Employees shall be thoroughly briefed on all aspects of the Contingency Plan and shall be expected to perform required duties of responsibility during any release incident depending upon instructions from the Emergency Coordinator.

9. Facility Orientation – General Safety Rules

General Safety Rules

- Safety glasses at a minimum are required in all operational areas;
- Report any spill, leakage or other concern to immediate supervisor;
- No running or horse play allowed in any area;
- Prior to unloading or loading waste, ensure all paperwork is correct;
- Maintain disposal containers in a satisfactory condition;
- Properly trained employees only shall be allowed to operate powered industrial equipment;
- Do not remove emergency equipment from their specified locations unless it is an emergency;
- Do not block any fire suppression systems;
- Maintain a 3-foot clearance around any electrical box;
- Do not remove hazardous waste from its appropriate storage area unless a designated supervisor designates you to do so;
- Safety shoes require in all operational areas while working;
- Always have a spotter to help with backing in a vehicle; and
- Always provide proper labeling when transferring a hazardous chemical from its primary container to a secondary container.

10. Record Keeping

To keep track of hazardous waste activities, TSDF owners and operators must keep certain records and submit reports to Ohio EPA at regular intervals. Recordkeeping and reporting requirements are found at 40 CFR Part 264 Subpart E for permitted facilities, and corresponding Ohio administrative regulations.

a. TSDF Operating Record

The facility permit/application describes in detail how the waste must be managed and stored at the facility. The Operating Records includes all required documentation for facility operations and is the fundamental blueprint for conducting business by Klor Kleen. It also lists all acceptable hazardous waste codes that we are authorized to receive and their quantity limitations. Without exception, Klor Kleen must comply with the language and intent described in the permit.

b. Waste Analysis Documentation

i. Waste Profiles / Laboratory Analysis

The Waste Profile and all associated documentation communicate the hazard, chemical makeup, generating process and source information regarding each wastestream. After a review of the profile, lab analysis, or any other associate documentation submitted by the generator for accuracy, completeness, and hazardous waste determination, Klor Kleen assigns an Approval Number to each profile. This number will link the profile information with QA/QC parameters, process, and storage instructions for the Klor Kleen facility. This information is required to be retained for 3-years.

ii. Uniform Hazardous Waste Manifest

The Hazardous Waste Manifest is created based on approval number information for shipments to the Klor Kleen facility and authorized TSDF's. This allows Klor Kleen to be accurate in shipping information as well as adhering to Klor Kleen's permit for acceptable wastes. All wastes that are received are entered into the waste tracking database and are assigned a job number which will be used to track the waste cradle-to-grave. These documents are required to be retained for a minimum of 3-years.

iii. Land Disposal Restriction (LDR)

The Land Disposal Restrictions (LDR) forms identify hazardous wastes that are restricted from land disposal, and defines those limited circumstances under which an otherwise prohibited waste may continue to be land disposed. It also provides a second measure of protection from threats posed by hazardous waste disposal. The LDR programs ensures that hazardous waste

cannot be placed on the land until the waste meets specific treatment standards to reduce the mobility or toxicity of the hazardous constituents in the waste.

The LDR notifications state that the hazardous waste identified on the form is prohibited from being landfilled unless it's been treated to be prescribed levels. These notifications are waste-stream-specific identified by their approval code. These forms are attached and filed with the shipping manifest for each shipment. This documentation is required to be retained for 3-years.

APPENDIX H-1 ATTACHMENT 1

RESOURCE CONSERVATION RECOVERY ACT “RCRA”

Training Program

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



**Midwest Environmental Services, Inc.
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RCRA OVERVIEW

History and Basic Provisions

RESOURCE CONSERVATION & RECOVERY ACT - RCRA

The Resource Conservation and Recovery Act (RCRA) sets forth an approach for handling the volumes of waste generated in the United States each year. Based on the authority granted by RCRA Subtitle C, EPA developed regulations for the cradle-to-grave management of hazardous wastes. Persons who produce hazardous waste, called hazardous waste generators, are the first link in this cradle-to-grave system. The RCRA regulations established basic hazardous waste management standards for generators. The generator regulations ensure that hazardous waste is appropriately identified and handled safely to protect human health and the environment, while minimizing interference with daily business operations. A solid foundation in the generator regulations is critical to a thorough understanding of the regulations governing the management of hazardous waste from the moment it is produced, or the point of generation, through final disposition.

The RCRA regulations establish a comprehensive hazardous waste management system under the authority of RCRA Subtitle C. RCRA regulates hazardous waste from its point of generation through its point of final disposal. Hazardous waste generators are the first link in the cradle-to-grave hazardous waste management system. Pursuant to the authority granted by RCRA §3002(a), EPA has developed standards that address on-site accumulation of hazardous waste, cradle-to-grave tracking (manifest system), labeling, and recordkeeping and reporting requirements. These standards are found in 40 CFR Part 262.

Recognizing that generators produce waste in different quantities, Congress established three categories in the statute:

- Large Quantity Generator (LQGs) - **≤ 200 lbs.**
- Small Quantity Generators (SQGs) - **> 200 lbs. but < 2200 lbs.**
- Conditionally Exempt Small Quantity generators (CESQGs) - **≤ 2200 lbs.**

The extent of the regulation to which hazardous waste generators are subject depends on the volume of hazardous waste each generator produces.

Hazardous Waste Definition

- The term hazardous waste comprises all toxic chemicals, radioactive materials, and biologic or infectious waste.

- Waste materials that when improperly managed may cause or significantly contribute to serious illness or death or that may pose a substantial threat to human health or the environment
- Waste that originates from a specified waste stream or has hazardous properties or contains hazardous substances as defined in the Hazardous Waste Directive
- By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists
- A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness
- Any substance that is a by-product of society and is classified under law as potentially harmful to human health or the environment. Hazardous wastes are subject to special handling, shipping, storage, and disposal requirements under the laws of the country and province or state
- Poisonous waste that can cause problems for living organisms or the environment
- Means those wastes designated as hazardous by Environmental Protection Agency regulations in 40 CFR part 261
- Waste that poses a risk to human health or the environment and requires special disposal techniques to make it harmless or less dangerous
- Waste which is classified as "hazardous" (i.e., potentially harmful to the environment) by the government
- Hazardous waste comprises of those materials that pose a threat or risk to public health, safety or to the environment (e.g., batteries, paints, solvents, engine oils and fluids, cleaners etc.)
- Specified wastes which are classified as requiring special treatment under the Special Waste Regulations 1996. These include explosive, toxic, carcinogenic and highly flammable wastes and waste prescription-only medicines. These types of waste are tracked using a system of consignment notes
- Waste with properties that make it dangerous, or capable of having harmful effects on human health and the environment
- A product in a home (household hazardous waste) or business that is ignitable, corrosive, reactive or toxic (e.g. used motor oil, oil-based paint, auto batteries, gasoline, pesticides, etc)
- By-products or waste materials of manufacturing and other processes that have some dangerous property; generally categorized as corrosive, ignitable, toxic, or reactive, or in some way harmful to people or the environment

Characteristic Waste

EPA lists a waste on the basis that it may exhibit hazardous characteristic(s) (i.e., Ignitability, Corrosivity, Reactivity, and Toxicity.)

Ignitability – D001

- A liquid, other than an aqueous solution containing less than 24% alcohol by volume, with a flash point below 60°C (140° F)
- A non-liquid, which under standard conditions is capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes and when ignited burns in a manner that creates a hazard
- An ignitable compressed gas, which includes gases that form flammable mixtures at a concentration of 13% or less in air
- An oxidizer, such as a permanganate, inorganic peroxide, or nitrate, that readily stimulates combustion of organic materials

Corrosives – D002

- Is aqueous and has a pH less than or equal to 2, or greater than or equal to 12.5, using EPA-specified or approved test methods; or
- Is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimeters (0.250 inch) per year at a test temperature of 55°C (130° F)

Reactivity – D003

- Is normally unstable and readily undergoes violent change without detonation
- Reacts violently with water
- Forms potentially explosive mixtures with water
- Generates when mixed with water toxic gases, vapors, or fumes in a quantity sufficient to present a danger
- Is a cyanide or sulfide bearing waste that generates toxic gases, vapors, or fumes at a pH between 2 and 12.5
- Is capable of detonation or explosive reaction when subject to a strong initiating source or if heated in confinement
- Is readily capable of detonation, explosive decomposition, or reaction at standard temperature and pressure
- Is an explosive, as defined in 49 CFR Sections 173.51, 171.53 or 173.88

Toxic – D004 thru D043

The characteristic of toxicity is based on the toxic properties of (to date) 8 metals and 32 organic compounds. The hazard of greatest concern with regard to such toxins is contamination of ground water. EPA requires use of a standard test protocol, the Toxicity Characteristic leaching procedure (TCLP), to simulate leaching of these constituents from waste that has been land-disposed (e. g., in a landfill) from percolation of water through the waste. The regulatory level of each constituent is expressed as a risk-based concentration in the TCLP extract, a simulated leachate.

CHARACTERISTIC HAZARDOUS WASTE SUMMARY TOXICITY CHARACTERISTIC WASTES

<u>Constituent Name</u>	<u>Regulatory Level (mg/l)¹</u>
D004 ARSENIC	5.0
D005 BARIUM	100.0
D006 CADMIUM	1.0
D007 CHROMIUM	5.0

METALS (8)

<u>Constituent Name</u>	<u>Regulatory Level (mg/l)¹</u>
D008 LEAD	5.0
D009 MERCURY	0.2
D010 SELENIUM	1.0
D011 SILVER	5.0

ORGANICS (32)

D012	ENDIN	0.0
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
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D020	CHLORADANE	0.03
D021	CHLOROBENZENE	100.0
D022	CHLORFORM	6.0
D023	<i>o</i> -CRESOL ³	200.0
D024	<i>m</i> -CRESOL ³	200.0
D025	<i>p</i> -CRESOL ³	200.0
D026	CRESOL ³	200.0
D027	1,4-DICHLOROBENZENE	7.5

D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D030	2,4-DINITROTOLUENE ²	0.13
D031	HEPTACHLOR (and its epoxide)	0.008
D032	HEXACHLOROBENZENE ²	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D035	METHY ETHLY KETON	200.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE ²	5.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
D043	VINYL CHLORIDE	0.2

Listed Wastes (Hazardous)

Listed wastes are defined and identified by a specific chemical name or a specific production process as described below:

Non-Specific Source Wastes – these are generic wastes, commonly produced by many manufacturing and industrial processes. Examples from this list include:

- Spent halogenated and non-halogenated solvents used in degreasing;
- Wastewater treatment sludge from electroplating processes;
- Electroplating and heat treating wastes;
- Dioxin-bearing production wastes

These wastes are also known as **“F” wastes** (waste codes **F001 through F039**).

Specific Source Wastes – these are wastes from specifically identified industries such as:

- Wood preserving;
- Petroleum refining;
- Organic chemical manufacturing;

or; are production wastes from specific sources including:

- Inorganic pigments
- Organic chemicals
- Pesticides
- Explosives
- Petroleum refining
- Iron and steel
- Secondary lead
- Veterinary pharmaceuticals
- Ink formulation
- Coking

These wastes typically include sludges, still bottoms, wastewater, spent catalysts, and residues (for example, wastewater sludge from the production of pigments).

These wastes are also known as **“K” wastes** (waste codes **K001 through K136**).

Commercial Chemical Products – these are specific commercial chemical products or manufactured chemical intermediates that are being discarded. These wastes are also known as **“P” wastes** (waste codes **P001 through P123**) and **“U” wastes** (waste codes **U001 through U359**). P and U wastes are discarded or intended to be discarded:

- Toxic commercial chemical;
- Off-specification species;
- Container residues;
- Spill residues

P wastes are also considered to be **“acutely hazardous”** or very dangerous in small amounts.

Examples of P and U wastes include commercial chemical products such as chloroform, creosote, sulfuric acid and hydrofluoric acid. In order to be considered a listed waste, these chemicals must be in a pure, unused form. These chemicals are not considered to meet P and U listings after they have blended with other materials or if they have been used. In instances where chemicals have been blended or used, these wastes should be evaluated to determine whether they meet another listing criteria (F or K wastes) or possess a hazardous waste characteristic (D waste).

Hazardous Waste Handling Regulations

Once it has been established that a waste is a hazardous waste and all hazardous waste codes applicable to that waste has been identified, the next challenge is to determine the specific regulation that apply. As with the waste determination process, determining the extent to which a hazardous waste is regulated requires methodical view of numerous conditions. As a general rule, a hazardous waste is subject to full Subtitle C regulation (i.e., CFR 262-266, 268, 270), unless it is entirely or partly exempted or subject to alternative management standards.

Land Disposal Restrictions

Purpose

In order to protect human health and the environment from the dangers associated with disposing of hazardous waste on the land, and to encourage waste minimization, Congress concluded in the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA restrictions for the land disposal of hazardous waste. Set forth at 40 CFR 268, these land disposal restrictions (LDRs) identify hazardous wastes that are restricted from land disposal and define those limited circumstances under which an otherwise “restricted waste” may continue to be land disposed.

Use

Upon determining that waste qualifies as hazardous waste, generators (except CESQGs) must also make a Land Disposal Restriction (LDR) determination. A waste that is an LDR restricted

waste has a promulgated (published or proclaimed) treatment standard that must be met before it can be land-disposed. If the waste is restricted, it is then also important to know if the waste is a prohibited waste, or actually prohibited from land disposal. Generally, a restricted waste is a prohibited waste upon the effective date of the treatment standard if the waste does not meet the applicable treatment standard and no other variances are applicable

Hazardous Waste Shipments

Shipments of hazardous waste must not only be manifested, but at a minimum, the initial shipment of a waste must also be accompanied by a notification prepared by the shipper (e.g., generator) that serves to inform the consignee and/or otherwise document the LDR treatment standards applicable to the waste and the status of the waste with respect to these standards. (Individual states may require notification with each

Manifest System

Hazardous waste shipments generally must be tracked using the manifesting system prescribed in 40 CFR 262, Subpart B and DOT regulations as per 49 CFR 172.205. The Federal Uniform Hazardous Waste Manifest (EPA Form 8700-22) must be used except for certain cases in which SQG waste is being reclaimed under a contractual agreement that specifies the type of waste and frequency of shipments, or cases where the off-site transport is essentially confined to public or private roadways through or bordering the site (40 CFR 262.20.)

Completed Correctly by Facility / Generator

The facility / generator of the hazardous waste are responsible for correctly completing the Uniform Hazardous Waste Manifest. The following key items of information must be included on the manifest:

- Document Number
- Generator name, mailing address, telephone number, and EPA ID number
- Name and EPA ID Number of each transporter to be used for the shipment
- Name, address, and EPA ID Number of the intended destination facility and, at the generator's option, an alternative facility
- Description of the waste as required by DOT regulations as per 49 CFR 172.101, 202, and 203 (e.g., proper shipping name)
- Total quantity of each waste by units of weight and type and number of containers
- Special handling instructions, if any

- Generator's certification (signature and date) that the information supplied on the manifest is complete and accurate, that packaging is in accordance with applicable national (DOT) and international regulations, and that the generator, if an LQG has a waste minimization program in place or has made a good-faith effort to minimize waste generation and, if an SQG, that an appropriate waste management method has been selected

Tracked thru Disposal Process

The hazardous waste manifest basically provides a chain of custody for the waste during shipping. With certain exceptions for domestic United States shipments entirely by water or originating by rail, each party taking custody of the waste, signs and dates the manifest and provides a signed copy to the party from whom the waste was received. In addition, upon acceptance of the waste the consignee (or TSDF) must send a signed and dated copy of the manifest back to the generator to confirm that the waste has arrived at its destination. Therefore, sufficient copies of the manifest must be prepared to allow one copy for the generator and each transporter and two copies for the designated TSDF, one of which must be returned to the generator upon acceptance of the waste.

Record Keeping Requirements

Treatment, Storage, Disposal Facility – Operating Record

Facility permit must be maintained on site and adhered to faithfully.

The facility permit/application describes in detail how the waste must be managed and stored at the facility. It's the fundamental blueprint on how we do business. It also lists all acceptable hazardous waste codes that we are authorized to receive and their quantity limitations. Without exception, we must comply with the language and intent described in the permit.

Waste Analysis Documentation – Waste Profiles & Laboratory Analysis

The waste profile and all associated documentation, communicates the hazard, chemical makeup, generating process and source information regarding each waste stream. After we review profile, lab analysis, or any other associated documentation submitted by the generator for accuracy completeness, and hazardous waste determination we assign a computer generated number (approval number) to each profile. Waste profiles are maintained for a minimal of 3 years from the point of approval.

Uniform Hazardous Waste Manifests

Uniform hazardous waste manifests that accompanies hazardous waste received at the facility shall be maintained for a period of 3 years.

APPENDIX H-1 ATTACHMENT 2

HAZARD COMMUNICATION PROGRAM

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

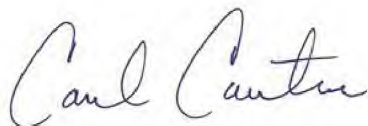
At least once per year, the HCPC (Hazard Control Program Coordinator) will review and update the program. The HCPC will access the hazardous chemicals and materials at Klor Kleen with the assistance of the Facility Supervisor. The update will consist of each of the following elements of the HAZCOM program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Communication Program was reviewed, evaluated and revised by the Hazard Control Program Coordinator on **October 12, 2015**.

Carl Carter

Hazard Control Program Coordinator

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

Environmental Consulting Division
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List of Hazardous Chemicals Used

Hazard Communication Policies

Appendix A Pictogram Identification

Appendix B Safety Data Sheet (Section Descriptions)

Appendix H-1 Attachment 2 Hazard Communication Program



SCOPE

To enhance our employee's health and safety, Midwest Environmental Services, Inc. (Midwest) has developed, implemented, and maintains a Hazard Communication Program as required by the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1200 for operations conducted at the Klor Kleen facility located at 3118 Spring Grove Avenue; Cincinnati, Ohio; 45225.

GENERAL

The following Hazard Communication Program (HAZCOM) has been established to insure compliance with all directives pertinent to Code of Federal Regulations (29 CFR 1910.1200). It is the intent of this program to provide all Klor Kleen employees with a reference guide to working with hazardous chemicals.

Type of Business: Permitted Hazard Waste Facility

Location of Hazard Communication Program

The written Hazard Communication Program is available for review by all Klor Kleen employees in the Employee Break Area.

Copies of the plan may be obtained from Carl Carter – Director of Health & Safety.

Designated Personnel

The following personnel have been designated as responsible parties:

Hazard Communications Program:

Carl Carter– Hazard Communications Program Coordinator (HCPC) and responsible for maintaining the program and ensuring employee training is conducted.

Project Supervisors are responsible for their projects as they pertain to ensuring proper labeling and acquiring Safety Data Sheets (SDS) for those hazardous chemicals that are used and/or maintained in the workplace.

Employee Training:

Training will be conducted by Carl Carter or competent designee as appropriate. After completion of initial program orientation, it will be the responsibility of individual supervisors to provide on the job safety training to all newly hired personnel. When new chemicals or chemical products are introduced, additional training by supervisory personnel will be required.

When appropriate, external agencies may be contracted to conduct training as required.

Labeling on Containers:

It will be the responsibility of the Plant Supervisor to insure proper labeling of containers. This is to be consistent with the information contained in the appropriate SDS.

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Labeling on Shipped Containers:

It will be the responsibility of the Plant Supervisor to insure all boxes, containers, and cartons which are suspect of containing chemicals are appropriately labeled. Shipments that show damage/leak/or spill are to be refused.

Obtaining/Maintaining Safety Data Sheet (SDS):

A central file of SDS will be obtained by and maintained in the Plant Supervisor's office. The Plant supervisor will be responsible for the initiation of requests and is responsible for maintaining applicable SDS at the facility.

Informing Contractors:

It will be the responsibility of Plant Supervisor to inform contractors of the hazards on project sites to which they are assigned. This is critical wherever chemicals or compressed gas are in use or are stored. Contractors are to be informed of any restrictions involving use of compressed gasses, flame, or chemicals to be utilized by the contractor as part of the job.

EVALUATION / REVISION

At least once per year, the HCPC (Hazard Control Program Coordinator) will review and update the program. The HCPC will access the hazardous chemicals and materials on project sites with the assistance of the project supervisor. The update will consist of each of the following elements of the HAZCOM program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

CONTAINER LABELS

Container Labels will be in accordance with OSHA standards per 29 CFR 1910.1200.

Global Harmonized System - GHS

The United States (US) adopted the Globally Harmonized System of Classification & Labeling of Chemicals in 2013. Its requirement includes criteria for classification of health, physical & environmental hazards as well as specifying what info should be included on labels and SDSs.

The GHS effective dates are as follows:

- **May 1, 2013** – Final rule became effective
- **December 1, 2013** – train employees on new label elements & SDS format

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- **June 1, 2015** – Comply with all modified provisions of the final rule , except Distributors may ship products labeled by manufactures under the old system until **Dec 1, 2015**

The GHS mandates the following information on labels for hazardous materials:

- **Product Identifier** – Name or number used on the label and on the SDS – It can be a chemical name, product name, or some other unique identifier that allows you to locate the SDS quickly
- **Pictogram** – For HCS purposes, a pictogram is a symbol on a white background with a red border that is intended to convey specific information about the hazards of a chemical – Determined by the chemical’s hazard classification (see Appendix A)
- **Signal Word** – Used to alert the user to a potential hazard and is determined by the hazard class and category of the chemical – When required on a label, HAZCOM requires that it be either **“Danger”** - for more severe hazards or **“Warning”** – *for less severe hazards*
- **Hazard Statement(s)** – Standardized statements assigned to a specific hazard class and category – Used to describe the nature of the hazard(s), including where appropriate the degree of hazard – **“Causes serious eye damage”** or **“Fatal if swallow”**
- **Precautionary Statement(s)** – Statements are linked to each hazard class and category – **Store locked up”** or **“Wear protective gloves/protective clothing”**
- Name, address, & telephone # of the chemical manufacture, importer, or other responsible party.
-

“Example - Label”

Product Name: ACETONE	
Product code: 3000	
	
Danger	Danger
Hazard Precautionary Statements: Extremely flammable liquid and vapour. Causes serious eye irritation. Repeated exposure may cause skin dryness or cracking. May cause drowsiness or dizziness. Keep out of reach of children. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER or doctor/physician.	Liquide et vapeurs extrêmement inflammables. Provoque une sévère irritation des yeux. L'exposition répétée peut provoquer dessèchement ou gerçures de la peau. Peut provoquer somnolence ou vertiges. Tenir hors de portée des enfants. EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. EN CAS D'INGESTION: Rincer la bouche. Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.
Supplier name: COMPANY NAME	
Supplier address: My Street 123	
Contact tel.: 123 456 789	
REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION	

Note: Neither OSHA nor GHS specify format or label design

The pictograms, signal word, and hazard statements should be located together on the label

Labels - Missing

Missing, defaced, or illegible labels will be replaced immediately with clean, properly marked ones. Notices will be placed on bulletin boards that provide container labeling systems, and location of the HAZCOM program.

Labels – Portable Containers

Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer are not required to be labeled. If any hazardous chemical remains when the employee leaves the immediate area, then the container containing the hazardous chemical must be labeled, or the material transferred back (if allowable) into a labeled container. All other portable containers are to be labeled with the content and hazard to the potentially affected body part(s).

SAFETY DATA SHEET (SDS)

Safety Data Sheets are an essential component of the GHS and are intended to provide comprehensive information about a substance or mixture for use in workplace chemical management.

In the GHS, they serve the same function that the Material Safety Data Sheet or MSDS does in OSHA's HazCom Standard. They are used as a source of info about hazards, including environmental hazards, and to obtain advice on safety precautions. The SDS is normally product related and not specific to workplace.

Section Identification

Information in the SDS is presented using the following 16 headings in the order given below:

- Section 1 – Identification;
- Section 2 – Hazard(s) Identification
- Section 3 – Composition / Information on Ingredients
- Section 4 – First-Aid Measures
- Section 5 – Fire-Fighting Measures
- Section 6 – Accidental Release Measures
- Section 7 - Handling and Storage
- Section 8 - Exposure Controls / Personal Protection
- Section 9 - Physical and Chemical Properties
- Section 10 - Stability and Reactivity

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- Section 11 - Toxicological Information
- Section 12 - Ecological Information
- Section 13 - Disposal Considerations
- Section 14 - Transport Information
- Section 15 - Regulatory Information
- Section 16 - Other Information

Note: See Appendix B for specific section description

Location

A master file of all SDS will be kept in the Plant Supervisor's office. SDSs obtained from chemical manufacturers or distributors will be maintained in binders by hazardous chemical in alphabetical order.

SDS(s) are located in the employee break area.

Hazard Determination

SDSs will be requested for all incoming hazardous substances. Klor Kleen shall rely on SDS(s) furnished by suppliers / vendors / contractors.

Missing SDS(s)

The Plant Supervisor or his competent designee will contact suppliers for any missing SDS(s) or missing SDS category information. Contacts will be documented. If the requested information is not received within 30 days, a complaint may be filed with OSHA or a new supplier may be obtained. Documentation of requests will be maintained.

EMPLOYER INFORMATION and TRAINING

Klor Kleen shall ensure that employees are provided with information and training to the extent necessary to protect them in the event of a spill or leak of a hazardous chemical from a sealed container.

Initial Training

Prior to beginning work with hazardous chemicals, all affected employees are required to receive hazardous communication training. The Plant Supervisor will ensure that new employees are trained, and that the training is documented.

Retraining

Additional training will be conducted by the Plant Supervisor when new chemicals are introduced into the project site. Retraining is not required if the new chemical contains hazard

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similar to previously existing chemicals for which training has already been conducted but documentation of the similarities should be noted.

Record Keeping

The Plant Supervisor will require all Midwest employees receiving Hazard Communication orientation to sign a sheet verifying their orientation.

Training Format

Each Klor Kleen employee attending the safety course will be orientated on the following:

- The location and availability of the written Hazard Communication Program and SDS(s);
- Training on the physical and health hazards of the chemicals on the project site;
- How to reduce or prevent exposure to these hazardous chemicals through proper work practices, engineering procedures, emergency procedures, and personal protective equipment to be used;
- Actions taken and protocols implemented to reduce or prevent the workers' exposure to hazardous chemicals;
- Procedures to follow if they are exposed to hazardous chemicals;
- Methods and observations used to verify the presence or release of a hazardous chemical;
- Explanation of the details of the program, labeling, the SDS, and how employees can obtain and use appropriate information.

NON-ROUTINE TASKS - HAZARDOUS

A non-routine task is any modification, experiments, or maintenance tasks performed on equipment that house or use hazardous production materials (HPMs) that carry a high level of risk and are considered unusual or non-routine

Policy

It is Klor Kleen's policy that no employee will begin work or any non-routine task without first receiving the proper training.

Specific Training

Any non-routine task will require specific training concerning the hazards associated with the task. This training will include information on:

- Specific chemical hazard;
- Protective/safety measures that the employee shall take;
- Measures that Midwest has taken to reduce hazards, including administrative controls, engineering controls, and personal protective equipment (PPE) required.

UNLABELED PIPES

Prior to beginning any work on unlabeled piping, Klor Kleen employees and contractors shall contact the Plant Supervisor for specific information regarding potential hazards and safety precautions that must be conducted. Information for the piping system which identifies the location of all pipes and their contents must be available from the customer.

Piping Contents

- Natural Gas
- Potable Water
- Non Potable Water

MULTI – EMPLOYER WORK SITE

It is the responsibility of the customer representative to provide Klor Kleen with the information listed below. This information will be given to the Klor Kleen's employees and sub-contractors prior to their entering the project site.

- Hazardous chemicals – what they may be exposed to on the work site;
- Measures the employee may take to reduce the possible exposure;
- Steps taken to reduce the risks;
- Procedures to follow if they are exposed;
- Location of the written program.

LIST of HAZARDOUS CHEMICALS USED

No hazardous materials are used at the Klor Kleen facility with the exception of laboratory. Complete list of hazardous chemicals used in the laboratory can be found in the Facility's Chemical Hygiene Plan.










HAZARD COMMUNICATION POLICIES

Policies set forth in this Hazard Communication Program are to be adhered to by all employees, and contractors working for Midwest. Employees found to be knowingly violating the policies set forth will be subject to disciplinary actions, up to and including immediate termination.

ATTACHMENT 2
APPENDIX A

Globally Harmonized System – GHS
“Pictogram Identification”

GHS Pictograms and Hazard Classes

		
<ul style="list-style-type: none"> ▪ Oxidizers 	<ul style="list-style-type: none"> ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides 	<ul style="list-style-type: none"> ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
<ul style="list-style-type: none"> ▪ Acute toxicity (severe) 	<ul style="list-style-type: none"> ▪ Corrosives 	<ul style="list-style-type: none"> ▪ Gases Under Pressure
		
<ul style="list-style-type: none"> ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity 	<ul style="list-style-type: none"> ▪ Environmental Toxicity 	<ul style="list-style-type: none"> ▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract ▪ Irritation

ATTACHMENT 2
APPENDIX B

Safety Data Sheet (SDS)
“Sectional Description”

SAFETY DATA SHEET – SECTIONAL DESCRIPTION

SECTION 1: IDENTIFICATION

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

- Product identifier used on the label and any other common names or synonyms by which the substance is known.
- Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).

SECTION 2: HAZARD(S) IDENTIFICATION

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable liquid, category¹).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s).
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

SECTION 3: COMPOSITIONS / INFORMATION ON INGREDIENTS

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

Substances

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

Mixtures

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
 - Present above their cut-off/concentration limits or
 - Present a health risk below the cut-off/concentration limits.
- The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
 - A trade secret claim is made,
 - There is batch-to-batch variation, or
 - The SDS is used for a group of substantially similar mixtures.

Chemicals where a trade secret is claimed

- A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

SECTION 4: FIRST-AID MEASURES

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

SECTION 5: FIRE-FIGHTING MEASURES

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

SECTION 6: ACCIDENTAL RELEASE MEASURES

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up)

SECTION 7: HANDLING & STORAGE

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements)

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Upper/lower flammability or explosive limits;
- Odor;
- Vapor pressure;
- Odor threshold;
- Vapor density;
- pH;
- Relative density;
- Melting point/freezing point;
- Solubility(ies);
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;

- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential

SECTION 10: STABILITY & REACTIVITY

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

Reactivity

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

Chemical stability

- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

Other

- Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.

- List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).
- List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.
- List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)

SECTION 11: TOXICOLOGICAL INFORMATION

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
- Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA

SECTION 12: EXOLOGICAL INFORMATION (non-mandatory)

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

- Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
- Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
- Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (K_{ow}) and the bioconcentration factor (BCF), where available.

- The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
- Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

SECTION 13: DISPOSAL CONSIDERATIONS (non-mandatory)

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS. The information may include:

- Description of appropriate disposal containers to use.
- Recommendations of appropriate disposal methods to employ.
- Description of the physical and chemical properties that may affect disposal activities.
- Language discouraging sewage disposal.
- Any special precautions for landfills or incineration activities

SECTION 14: TRANSPORT INFORMATION (non-mandatory)

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

- UN number (i.e., four-figure identification number of the substance).
- UN proper shipping name.
- Transport hazard class(es).
- Packing group number, if applicable, based on the degree of hazard.
- Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
- Guidance on transport in bulk (according to Annex II of MARPOL 73/78³ and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code))).
- Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

SECTION 15: REGULATORY INFORMATION (non-mandatory)

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

- Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations)

SECTION 16: OTHER INFORMATION

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

PERSONAL PROTECTIVE EQUIPMENT

Training Program

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

As often as necessary, the Personal Protective Equipment Program will review and updated. The update will consist of each of the following elements of the PPE program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Personal Protective Program was reviewed, evaluated and revised by the Director of Health and Safety on **October 12, 2015**.

Carl Carter

Director of Health and Safety

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

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Appendix A – Hazard Assessments

OBJECTIVE

This personal protective equipment program has been designed for implementation and usage at the Klor Kleen facility.

GENERAL REQUIREMENTS – 29 CFR 1910.132

Application

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Employee-Owned Equipment

Employee owned equipment usage is not allowed at the Klor Kleen facility.

Design

Klor Kleen shall provide personal protective equipment that is of safe design and construction for the work to be performed.

Hazard Assessment and Equipment Selection

Klor Kleen has completed a hazard assessment of the workplace and determined hazards may exist, or are likely to be present, which necessitate the use of personal protective equipment (PPE) pending the task. If such hazards are present, or likely to be present, Klor Kleen shall:

- Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;
- Communicate selection decisions to each affected employee; and,
- Select PPE that properly fits each affected employee

Klor Kleen shall verify that the required workplace hazard assessment has been performed through a written certification that identifies:

- The workplace evaluated;
- The person certifying that the evaluation has been performed;
- The date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment

Note: PPE Hazard Assessment Certifications located in Appendix A of this Personal Protective Equipment Program

It has been determined that the following PPE requirements are to be implemented and maintained while engaged in tasks associated with managing hazardous wastes at the Klor Kleen facility:

- Hearing protection – required whenever within 25’ of operating equipment
- Foot protection – required when engaged in any type of operation
- Hand Protection – required at all times while performing any operation
- Full-body Torso Protection – required whenever there is potential for splash
- Respiratory Protection – required whenever there is potential for evaluated PEL’s

Defective and Damaged Equipment

Defective or damaged personal protective equipment shall not be used and removed from service.

Training

Klor Kleen shall provide training to each employee who is required to use PPE. Each such employee shall be trained to know at least the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust, and wear PPE;
- The limitations of the PPE; and,
- The proper care, maintenance, useful life and disposal of the PPE

Each affected employee shall demonstrate an understanding of the training specified, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

When Klor Kleen has reason to believe that any affected employee who has already been trained does not have the understanding and skill required to safely use the required PPE, Klor Kleen shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of PPE to be used render previous training obsolete; or

- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill

Payment for Protective Equipment

Protective equipment, including personal protective equipment (PPE), used to comply with requirements shall be provided by Klor Kleen at no cost to employees with the exception of the following:

- Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen

Klor Kleen shall pay for replacement PPE, except when the employee has lost or intentionally damaged the PPE.

Note: When the provisions of another OSHA standard specify whether or not Klor Kleen must pay for specific equipment, the payment provisions of that standard shall prevail.

EYE and FACE – 29 CFR 1910.133

General Requirements

Klor Kleen shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Klor Kleen shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

Klor Kleen shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Criteria for Protective Eye and Face Protection

Protective eye and face protection devices must comply with the following consensus standard:

- ANSI Z87.1-2003, "American National Standard Practice for Occupational and Educational Eye and Face Protection," which is incorporated by reference in § 1910.6

Protective eye and face protection devices that Midwest demonstrates are at least as effective as protective eye and face protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

Note: All operations require at a minimum the use of High-Impact safety glasses with side shields

All company issued safety glasses that have become deficient out of usage will be replaced by Midwest so as long the deficient pair is returned to Midwest at the time of replacement

RESPIRATORY PROTECTION – 29 CFR 1910.134

Note: See Klor Kleen's Respiratory Protection Program

HEAD PROTECTION – 29 CFR 1910.135

General Requirements

Klor Kleen shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects.

Klor Kleen shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.

Criteria for Head Protection

Head protection must comply with any of the following consensus standards:

- ANSI Z89.1-2009,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers
- ANSI Z89.1-2003,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers
- ANSI Z89.1-1997,
American National Standard for Personal Protection Protective Headwear for Industrial Workers
- ANSI Z89.1-1986,
American National Standard for Personal Protection—Protective Headwear for Industrial Workers

Head protection devices that the Klor Kleen demonstrates are at least as effective as head protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

FOOT PROTECTION – 29 CFR 1910.136

General Requirements

Klor Kleen shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.

Criteria for Protective Footwear

Protective footwear must comply with any of the following consensus standards:

- ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard Specification for Performance Requirements for Protective Footwear," which are incorporated by reference in § 1910.6;
- ANSI Z41-1999, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6; or
- ANSI Z41-1991, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6.

Protective footwear that Klor Kleen demonstrates is at least as effective as protective footwear that is constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.

HAND PROTECTION – 29 CFR 1910.138

General Requirements

Klor Kleen shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

Selection

Klor Kleen shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.

**APPENDIX H-1
ATTACHMENT 3**

Hazard Assessments

PROJECT SITE LOCATION: _____

PROJECT NAME: _____

COMPETENT SUPERVISOR (Print): _____

DATE "AHA" COMPLETED: _____

DESCRIPTION (SUMMARY) TASKS TO BE PERFORMED

TASK #1: _____

TASK #2: _____

TASK #3: _____

CHEMICAL(S) TO BE USED (see attached SDS if applicable) or NA**WASTE(S) TO BE HANDLED (see attached Profile if applicable) or NA****PERSONNEL PROTECTIVE EQUIPMENT**

HAND: Task #1 ... Type of Protection - _____ ... NA _____

HAND: Task #2 ... Type of Protection - _____ ... NA _____

HAND: Task #3 ... Type of Protection - _____ ... NA _____

HEAD: Note: Hard Hats are to be worn at all timesEYES: Note: ANSI Z87.1 Approved Safety Eyewear (High Impact Safety Glasses) to be worn at all timesNote: Exceptions granted when wearing safety goggles (see below)

Chemical Goggles: Yes _____ No _____ Cutting Goggles: Yes _____ No _____

Welding Goggles: Yes _____ No _____ Full Face Respirators: Yes _____ No _____

FOOT: Note: ANSI Approved Hard-Toed / Metatarsal Safety Shoe to be worn at all timesNote: Hard-toe rubber boots or equivalent to be worn when contamination exposure exists to the footNote: Hydro Blast boots to be worn when hydro-blasting

Hard-Toed Rubber Boots: Yes _____ No _____ Rubber Disposable Booties: Yes _____ No _____

Hydro-Blast Boots: Yes _____ No _____

BODY: Task #1 ... Type of Protection - _____ ... NA _____

BODY: Task #2 ... Type of Protection - _____ ... NA _____

BODY: Task #3 ... Type of Protection - _____ ... NA _____

RESPIRATOR:

Task #1 ... Type - _____ ... Cartridge - _____ ... NA _____

Task #2 ... Type - _____ ... Cartridge - _____ ... NA _____

Task #3 ... Type - _____ ... Cartridge - _____ ... NA _____

FALL SAFETY DEVICES:

Task # 1 ... Type of Protection - _____ ... NA _____

Task # 2 ... Type of Protection - _____ ... NA _____

Task # 3 ... Type of Protection - _____ ... NA _____

Permit-Required Confined Space Entry? Yes _____ No _____ Scaffolding Usage? Yes _____ No _____

> 3500K Water-Blasting Task Usage? Yes _____ No _____ Vacuum Truck Usage? Yes _____ No _____

Lock-Out / Tag-Out Equipment Usage? Yes _____ No _____ Designated a "Haz" Job? Yes _____ No _____

Mechanical Lift Equipment Usage? Yes _____ No _____ OTHER? _____ Yes _____ No _____

Note: A designated "yes" requires specific based training for employees participating in those activities

I have received orientation as outlined in this AHA to include "HAZARDS" and "PPE" requirements while performing the outlined "LISTED TASKS" associated with the scope of work. I will adhere to all safety requirements to include personal protective equipment usage as outlined. I further acknowledge that if I have any concerns pertaining to the safety of not only myself but those around me, I can stop work and seek consultation with my immediate supervisor.

MIDWEST / OTHER PERSONNEL WORKING ON SITE - (signature required)

INCIDENT SUPERVISOR: _____

REMEDIAL PERSONNEL: _____

SITE SAFETY OFFICER: _____

REMEDIAL PERSONNEL: _____

REMEDIAL PERSONNEL: _____

OTHER: _____

REMEDIAL PERSONNEL: _____

OTHER: _____

APPENDIX H-1 ATTACHMENT 4 RESPIRATORY PROTECTION

Training Program

Prepared for

**Klor Kleen
3118 Spring Grove Avenue
Cincinnati, Ohio 45225**

Prepared by



Environmental Services, Inc.

**Midwest Environmental Services, Inc.
Environmental Consulting Division
1400 Envoy Circle, Suite 1410
Louisville, Kentucky 40299**

PROGRAM - EVALUATION / REVISION

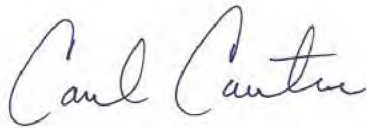
As often as necessary, the Respiratory Protection Program will review and updated by the Respiratory Protection Program Administrator. The update will consist of each of the following elements of the Respiratory Protection program:

- Hazard assessment
- Assessment of applicable regulations
- Written plan(s)
- Policies
- Discipline/procedures
- Training
- Inspection Audits
- Designated employee accountability

The Klor Kleen Hazard Respiratory Protection Program was reviewed, evaluated and revised by the Director of Health and Safety on **October 12, 2015**.

Carl Carter

Respiratory Protection Program Administrator

A handwritten signature in blue ink that reads "Carl Carter". The signature is written in a cursive, flowing style.

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INTRODUCTION

Midwest Environmental Services, Inc. (MIDWEST) is dedicated to the health and safety of their employees, vendors and subcontractors. This Respiratory Protection Program (RPP) sets forth standards that will be adhered to when wearing of such protective equipment is required at the Klor Kleen facility.

General Requirements – 29 CFR 1910.134

Permissible Practice In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When affective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.

Respirators shall be provided by Klor Kleen, when such equipment is needed to protect the health of the affected employee, which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program.

Note: Respiratory protection is to be used as a last resort **ONLY** after all other options have been exhausted

RESPIRATORY PROTECTION PROGRAM ELEMENTS

Respirators are necessary at times to protect the health of the employee. Klor Kleen has established the RPP with worksite-specific procedures. The RPP will be updated as necessary to reflect changes in workplace conditions that affect respirator use. Klor Kleen has included in the RPP the following provisions:

- Procedures for selecting respirators in the workplace
- Medical evaluations of employees required to use respirators
- Fit testing procedures for tight fitting respirators
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators
- Procedures to ensure air quality, quantity, and flow of breathing air for atmosphere-supplying respirators

- Training of employees in the respirator hazards to which they are potentially exposed during routine and emergency situations
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance
- Procedures for regularly evaluating the effectiveness of the RPP

RESPIRATORS NOT REQUIRED

Klor Kleen may provide respirators at the request of the employee or permit employees to use their own respirators, if Klor Kleen determines that such respirator use will not in itself create a hazard. If Klor Kleen determines that any voluntary respiratory use is permissible, Klor Kleen shall provide the respirators user with the information contained in 29 CFR 1910.134 Appendix D – Information for employees using respirators when not required under the standard.
(Included with this RPP)

Klor Kleen has established and implemented the elements of the written RPP necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

PROGRAM ADMINISTRATOR

Klor Kleen's designated Respirator Protection Program Administrator will be responsible for administering/over-seeing the program. The Program administrator's duties will include but, are not limited, to:

- Ensure that all affected employees receive the RPP training as require
- Ensure that all elements of the RPP is implemented
- Conducting evaluations as required to ensure the effectiveness of the RPP
- Ensure that Klor Kleen provides respirators, training, and medical evaluations at no cost to the affected employee

SELECTION OF RESPIRATORS

Klor Kleen has and will continue to evaluate respirator hazard(s) in the workplace, identify relevant workplace and user factors and base respirator selection on these factors.

Klor Kleen shall select and provide a NIOSH certified respirator. The respirator at **ALL** times shall be used in compliance with the conditions of the certification.

Klor Kleen shall identify and evaluate the respirator hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respirator hazard(s) and an

identification of the contaminant's state and physical form. Where Klor Kleen cannot identify or reasonably estimate the employee exposure, Klor Kleen shall consider the atmosphere to be **Immediate Dangerous to Life and Health (IDLH)**.

Klor Kleen shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to the user and correctly fits.

IDLH ATMOSPHERES

Klor Kleen does not anticipate the Klor Kleen facility will encounter an IDLH condition; however, in the event such conditions are generated, the following will be implemented:

- A full face-piece pressure demand SCBA certified by NIOSH for a minimum service life of not less than 30 minutes, or a combination full face-piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply shall be utilized.

All oxygen-deficient atmospheres shall be considered IDLH conditions.

Exception: If Klor Kleen can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of the 29 CFR 1920.134, then any atmosphere supplied respirator may be used.

TABLE II – 29 CFR 1910.134

<u>Altitude (feet)</u>	<u>Oxygen deficient Atmospheres (%O₂) for which employer may rely on atmosphere-supplied respirators</u>
Less than 3,001	16.0 – 19.5
3,001 – 4,000	16.4 – 19.5
4,001 – 5,000	17.1 – 19.5
5,001 – 6,000	17.8 – 19.5
6,001 – 7,000	18.5 – 19.5
7,001 – 8,000	19.3 – 19.5

Note: Above 8,000 feet the exception does not apply. Oxygen enriched breathing air must be supplied above 14,000 feet.

NON – IDLH ATMOSPHERES

Klor Kleen shall provide respirators that are adequate to protect the health of the employee and ensure compliance with all OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. The respiratory selected shall be appropriate for the chemical state and physical form of the contaminant. These could include:

- Klor Kleen shall provide if conditions exist for gases and vapors, an atmosphere-supplied respirator or an air-purifying respirator, provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant, or if there is no ESLI appropriate for the conditions in the workplace, Klor Kleen can elect to implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure the canisters and cartridges are changed before the end of service life. If this is the option that Klor Kleen chooses to initiate, documentation of the data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data must be outlined.
- Klor Kleen shall provide if conditions exist for particulates, an atmosphere supplied respirator or an air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR Part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH 42 CFR Part 84 or for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

MEDICAL EVALUATIONS

General Information

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, and the medical status of the employee. Accordingly, this section specifies the minimum requirements for medical evaluation that Klor Kleen must implement to determine the employee's ability to use a respirator.

General

Klor Kleen shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. Klor Kleen may discontinue an employee's medical evaluation when the employee is no longer required to use a respirator.

Medical Evaluation Procedures

Klor Kleen has identified a medical facility that employs both a licensed Physician and a Licensed Health Care Professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as a medical questionnaire.

Follow-Up Medical Examination

Klor Kleen shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in 29 CFR 1910.134 Section 2, Part A of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination. The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content. Klor Kleen shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP. The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- Type and weight of the respirator to be used by an employee
- Duration and frequency of respirator use (including use for rescue and escape)
- Expected physical work effort
- Additional protective clothing and equipment that could be worn
- Temperature and humidity extremes that could be encountered

Klor Kleen shall provide the PLHCP with a copy of the written respiratory protection program. In the event Klor Kleen replaces the PLHCP, Klor Kleen shall ensure the new PLHCP obtains this information either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, Occupational Safety and Health Administration (OSHA) does not expect Klor Kleen to have employees medically evaluated solely because a new PLHCP has been selected.

Medical Determination

In determining the employee's ability to use a respirator, Klor Kleen shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator
- The need, if any, for follow medical examinations
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at risk if the respirator is used, MIDWEST shall (option) provide a powered air-purifying respirator (PAPR) if the PLHCP's medical evaluation finds that the employee can use such a respirator. If a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then Klor Kleen may (option) require the use of a PAPR.

Additional Medical Evaluations

Klor Kleen, at a minimum, shall provide additional medical evaluations that comply with the requirements as per 29 CFR 1910.134 if:

- An employee reports medical signs or symptoms that are related to ability to use the respirator
- A PLHCP, supervisor, or the respiratory program's administrator informs Klor Kleen management that the employee needs to be reevaluated
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation
- Change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee

FIT TESTING

General

OSHA requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face-piece, Klor Kleen must ensure the employee be fit tested with the same make, model, style, and size of respirator that will be used.

Klor Kleen shall ensure that employees using a tight-fitting face-piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).

Klor Kleen shall ensure that the employee using a tight-fitting face-piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face-piece (size, style, model, and make) is used, and at least annually thereafter.

Klor Kleen shall conduct an additional fit test whenever the employee reports, or PLHCP, supervisor, or program's administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to:

- Facial scarring
- Dental changes
- Cosmetic surgery
- Obvious change in body weight

If after passing a QLFT or QNFT, the employee subsequently notifies Klor Kleen's program administrator, supervisor, or PLHCP that the fit of the respirator is acceptable; the employee shall be given a reasonable opportunity to select a different respirator face-piece and to be retested. The fit test shall be administered using the OSHA-accepted QLFT or QNFT protocols and procedures.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face-pieces, or equal to or greater than 500 for tight-fitting full face-pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of the respirators shall be accomplished by temporarily converting the respirator user's actual face-piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air purifying respirator face-piece with the same sealing surfaces as a surrogate for the atmosphere-supplying powered air purifying respirator face-piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face-piece to allow sampling inside the face-piece in the breathing zone of the user, midway between the nose and the mouth. The requirement shall be accomplished by installing a permanent sampling probe onto the surrogate face-piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face-piece. Any modifications to the respirator face-piece for fit testing shall be completely removed, and the face-piece restored to NIOSH-approved configuration, before that face-piece can be used in the workplace.

USE OF RESPIRATORS

General

This section requires Klor Kleen to establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in face-piece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres.

Face-Piece Seal Protection

Klor Kleen shall not permit respirators with tight-fitting face-pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function
- Any condition that interferes with face-to-face face-piece seal or valve function

If any employee wears corrective glasses or goggles or other personal protective equipment, Klor Kleen shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face-piece to the face of the user.

For all tight-fitting respirators, Klor Kleen shall ensure that employees perform a user check each time they put on the respirator.

CONTINUED RESPIRATOR EFFECTIVENESS

General

Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure and stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, Klor Kleen shall evaluate the continued effectiveness of the respirator.

Klor Kleen shall ensure that employees leave the respirator use area whenever any of the following conditions occur:

- To wash faces and respirator face-pieces as necessary to prevent eye injury or skin irritation associated with respirator use
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece
- To replace the respirator or the filter, cartridge, or canister elements

Note: If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece, Klor Kleen will replace or repair the respirator before allowing the employee to return to the work area.

PROCEDURES for IDLH ATMOSPHERES

For all IDLH conditions, Klor Kleen shall ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere
- Visual, voice, or signal line communication will be maintained between employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere
- Employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue
- Before the employee(s) enter the IDLH to provide rescue services, the Klor Kleen onsite competent person must be notified
- The Klor Kleen onsite competent person will provide necessary assistance appropriate to the situation
- Employee(s) located outside the IDLH atmosphere will be equipped with:
 - Pressure demand or other positive pressure SCBA's, or a pressure demand or other positive pressure supplied air respirator with auxiliary SCBA and either:
 - a. Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
 - b. Equivalent means for rescue where retrieval equipment is not required.

MAINTENANCE & CARE OF RESPIRATORS

General

This section requires Klor Kleen to provide the following procedures:

- Cleaning and Disinfecting procedures
- Storage and Inspection procedures
- Maintenance and Repair procedures

Cleaning and Disinfecting

Klor Kleen shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. Klor Kleen shall ensure that respirators are cleaned and disinfected using procedures in 29 CFR 1910.134 or procedures recommended by the respirator manufacture provided that such procedures are of equivalent effectiveness.

The respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition
- Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals

- Respirators maintained for emergency use shall be cleaned and disinfected after each use
- Respirators used in fit testing and training shall be cleaned and disinfected after each use

Storage and Inspection

Klor Kleen shall ensure that respirators are stored as follows:

- All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face-piece and exhalation valve

In addition to the above mention requirements, emergency respirators shall be:

- Kept accessible to the work area
- Stored in compartments or in covers that are clearly marked as containing emergency respirators
- Stored in accordance with any applicable manufacture instructions

Klor Kleen shall ensure that respirators are inspected as follows:

- All respirators used in routine situations shall be inspected before each use and during cleaning
- All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacture's recommendations, and shall be checked for proper function before and after each use
- Emergency escape-only respirators shall be inspected before going into the work place for use

Klor Kleen shall ensure that respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face-piece, head straps, valves, connecting tube, and cartridges, canisters or filters
- A check of elastomeric parts for pliability and signs of deterioration

In addition to the above mention requirements, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacture's recommended pressure level. Klor Kleen shall ensure that the regulator and warning devices are functioning properly.

For respirators maintained for emergency use, Klor Kleen shall:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and the serial # or other means of identifying the inspected respirator
- Must provide above certified information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

Maintenance and Repairs

General

Klor Kleen shall ensure respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator
- Repairs shall be made according to the manufacture's recommendations and specifications for the type and extent of repairs to be performed
- Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer or a technician trained by the manufacturer

BREATHING AIR QUALITY & USE

General

This section requires Klor Kleen to provide employees using atmosphere-supplying respirators (supplied air and SCBA) with breathing gases of high purity.

Klor Kleen shall ensure that compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

- Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen
- Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air G-7.1-1989, to include:
 - Oxygen content (v/v) of 19.5 –23.5%
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less

- Carbon monoxide (CO) content of 10 ppm or less
- Carbon dioxide content of 1,000 ppm or less
- Lack of noticeable odor

Klor Kleen shall ensure that compressed oxygen is not used in atmosphere supplying respirators that have previously used compressed air.

Klor Kleen shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

Klor Kleen shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

- Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR Part 173 and Part 178);
- Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D air; and
- The moisture content in the cylinder does not exceed a dew point of -50° F (-45.6° C) at 1 atmosphere pressure.

Klor Kleen shall ensure that compressors used to supply breathing air to respirators are constructed and situated to meet the following requirements:

- Prevent entry of contaminated air into the air-supply system;
- Minimize moisture content so that the dew at 1 atmosphere pressure is 10 degrees F (5.56° C) below the ambient temperature;
- Have suitable in-line air purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions; and
- Have a tag containing the most recent change date and the signature of the person authorized by Klor Kleen to perform the change. The tag shall be maintained at the compressor

Klor Kleen shall also ensure the following parameters are adhered to:

- Carbon monoxide levels in the breathing air do not exceed 10 ppm in compressors that are not oil-lubricated;
- High temperature or carbon monoxide alarm or both to monitor carbon monoxide levels is used when operating oil-lubricated compressors;
- Breathing-air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substances shall be introduced into the breathing air-lines; and

- Breathing gas cylinders are marked in accordance with the NIOSH respirator certification standard, 42 CFR Part 84.

IDENTIFICATION OF FILTERS, CARTRIDGES, & CANISTERS

Klor Kleen shall ensure that all filters, cartridges, and canisters used in the work place are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

TRAINING & INFORMATION

General

This section requires Klor Kleen to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually and more often if necessary.

Klor Kleen shall ensure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator;
- Limitations and capabilities of the respirator;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, don and remove, use, and check the seals of the respirator;
- Procedures for maintenance and storage;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator; and
- General requirements of the RPP.

Klor Kleen shall conduct the training in a manner that is understandable to the employee and will require the training prior to requiring the employee to use a respirator in the work place.

Retraining shall be administered annually, and when the following situations occur:

- Changes in the work place or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the require understanding or skill; and
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

The basic advisory information on respirators as presented in 29 CFR 1910.134 Appendix D shall be provided by Klor Kleen to the employee(s) in written or oral format that Klor Kleen allows to wear respirators in work areas that do not require respirators. **(Included in this RPP)**

PROGRAM EVALUATION

General

This section requires Klor Kleen to conduct evaluations of the work place to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

Klor Kleen shall conduct evaluations of the work place as necessary to ensure that the provisions of the current RPP are being effectively implemented and that it continues to be effective.

Klor Kleen shall regularly consult employees required to use respirators to assess the employee's views on program effectiveness and to identify any problems. Any problems that are identified during the assessment shall be corrected. Factors to be assessed include, but not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective work place performances);
- Appropriate respirator selection for the hazards to which the employee is exposed;
- Proper respirator use under work place conditions the employee encounters; and
- Proper respirator maintenance.

RECORD KEEPING

General

This section requires Klor Kleen to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist Klor Kleen in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

Medical Evaluation

Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. (30 years post-employment)

Fit Testing

Klor Kleen shall establish a record of the QLFT and the QNFT tests administered to an employee including:

- Name or identification of the employee tested;
- Type of fit test performed;
- Specific make, model, style, and size of the respirator tested;
- Date of the test; and
- Pass/Fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

Fit test records shall be retained for respirator users until the next fit test is administered.

A written copy of the current RPP shall be retained by Klor Kleen.

Written materials required to be retained shall be available upon request to affected employees and to OSHA's Assistant Secretary or designee for examination and copying.

APPENDIX H-1 ATTACHMENT 4

OSHA APPENDIX D

“Information for Employees Using Respirators when not Required”

SECTION H – TRAINING FIGURES

**Figure H-1
Training Components**



	RCRA Overview	Hazcom Program	PPE Program	Respiratory Program	Contingency Plan	Chemistry Haz Wastes	Toxicology	Release Prevention Response	Facility Orientation	Record Keeping	40 Hour HAZWOPER	DOT Hazmat Employee	Sampling Procedures
Facility Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Compliance Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Approvals Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Plant Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Lab Pack Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Lab Technician	X	X	X	X	X	X	X	X	X	X	X	X	X
Truck Driver / Operator	X	X	X	X	X	X	X	X	X	X	X	X	X
Laborer	X	X	X	X	X	X	X	X	X	X	X	X	X
Administrative Office Staff	X	X		X	X	X	X	X	X	X		X	
Sales Staff	X	X		X	X	X	X	X	X	X		X	X

Figure H-2

Training Matrix Template



Job Title	Employee Name	Employee Start Date	RCRA Program Training Current	Contingency Plan Training Current	Part B Section H Training Current	40- Hour HazWoper Training Current	24 - Hour HAZWOPER Training Date	8 - Hour Refresher Training Date
Facility Manager		###/###/####	X	X	X	X	NA	X
Compliance Manager		###/###/####	X	X	X	X	NA	X
Approvals Manager		###/###/####	X	X	X	X	NA	X
ER Services Manager		###/###/####	X	X	X	X	NA	X
Plant Manager		###/###/####	X	X	X	X	NA	X
Lab Pack Manager		###/###/####	X	X	X	X	NA	X
Lab Technician		###/###/####	X	X	X	X	X	X
Truck Driver / Operator		###/###/####	X	X	X	X	NA	X
Laborer		###/###/####	X	X	X	X	NA	X
Administrative Office Staff		###/###/####	X	X	X	X	NA	NA
Sales Staff		###/###/####	X	X	X	X	NA	NA

FIGURE H-3

KLOR KLEEN JOB DESCRIPTIONS

REVISION 12.0

October 2015

Position Title: Training Director

Title of Employee: Carl Carter, Director Health & Safety

Position Responsibilities and Duties

- Develop OSHA, U.S.EPA, U.S.DOT and state-compliant safety programs.
- Organize, schedule and present OSHA, EPA, and DOT compliant programs.
- Director of company Medical Surveillance Program required by 29 CFR 1910.120.
- Director of U.S.DOT consortium drug testing program.
- Storm Water Pollution Prevention and SPCC Trainer.
- Accident, injury and incident investigation and reporting.
- OSHA-compliant injury report manager.
- Responsible for training of personnel in the proper and safe handling of hazardous materials, emergency procedures, and operating procedures.

Qualifications and Experience of the Position

1. OSHA Outreach Training 503 authorized trainer.
2. 40-hour OSHA HAZWOPER trained and trainer.
3. D.O.T. Subpart H, Part 172 trained and trainer.
4. Over 12-years direct experience as Safety and Health professional.

Position Title: Facility Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Provide support to upper-management staff concerning future business undertakings. Assist in the investigation of new business opportunities.
- Responsible for environmental and safety issues at site.
- Approve expenditures to maintain facility and equipment.
- Review and approval all accounts payable and accounts receivable transactions.
- Compile large quotation projects and orchestrate the assembly of information required to meet and exceed minimum standards.
- Obtain permits and licenses or modification of same from Local, State and Federal agencies. This includes the resolution of issues involving the permits and licenses for the facility with all applicable agencies.
- Oversee daily operations and technical aspects of the facility to ensure compliance with the permit and safety of personnel.
- Responsible for assuring training of personnel in the proper and safe handling of hazardous materials, emergency procedures, and operating procedures.

Qualifications and Experience Required for the Position

1. Comprehensive knowledge (RCRA and DOT regulations)
2. Three to five years, experience (hazardous wastes management)
3. Formal education in Chemistry or related field

Position Title: Compliance Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Provide support to the Facility Manager to resolve problems involving permits and licenses from Local, State, and Federal regulatory agencies.
- Responsible for review of incoming and outgoing hazardous waste activities (i.e. manifest, land disposal restriction notification)
- Compile all required reports to the State and Federal Environmental Protection Agencies.
- Resolve issues that develop when material arrives at facility that does not match the established approval.

Qualifications and Experience Required for the Position

1. Formal education in Chemistry or related field
2. One-three years, experience in chemical related industry
3. Training and /or experience in hazardous waste management

Position Title: Approvals Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for ensuring all waste analysis required for the waste analysis plan is completed for new and recertified waste streams.
- Responsible for reviewing waste profiles for accuracy and completeness of EPA and DOT information prior to approving waste stream to be handled at or on behalf of the facility.
- Responsible for working with TSDFs to maintain updated disposal options for material received at the facility.
- Assist the Compliance Manager with material that arrives at facility and does not match parameters established during the approval process.

Qualifications and Experience Required for the Position

1. Formal education in Chemistry or related field
2. One-three years, experience in chemical related industry
3. Training and/or experience with EPA and DOT regulations

Position Title: Plant Supervisor

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for the operation and maintenance of the hazardous waste storage facility. This includes maintaining waste materials in the required methods as detailed in the permit, reviewing manifest information and ensuring the material received matches what appears on the paperwork, obtaining samples for laboratory to perform quality control testing, and correctly storing the material in the facility until the waste can be shipped to a final treatment facility.
- Responsible for the supervision and safe practices of plant staff.
- Notify proper authorities in emergency situations and maintain understanding of procedures in case of an emergency situation.
- Inspects plant grounds and facility daily/weekly for compliance with permit conditions and complete applicable documentation that inspections are complete.

Qualifications and Experience Required for the Position

1. Three-five years, experience in plant operations
2. Hazardous waste management background

Position Title: Lab Pack Manager

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Review lab pack material prior to approval of material into the facility. This may require traveling to the project location or obtaining a list from the client of materials that need to be managed.
- Classification and segregation of containers into proper packing groups. Again, this may occur at either the facility where the material is located or by information obtained in paper form from the client.
- Determination of hazard class and RCRA waste number for each container.
- Supervision of packing procedures off-site and/or on-site.
- Supervision of commingling/consolidation activities on-site.

Qualifications and Experience Required for the Position

1. Formal education in chemistry or related field
2. Knowledge of EPA and DOT regulations
3. Minimum one year experience in the environmental field.

Position Title: Lab Technician

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for all waste analysis as outlined in the waste analysis plan.
- Perform quality control analysis on incoming waste streams as directed by the Approvals Manager or Plant Supervisor.
- Responsible for maintaining analytical equipment and notifying supervisor of any needed repairs.
- Properly store lab samples at facility during the approval process and dispose the samples following appropriate procedures.

Qualifications and Experience Required for the Position

1. Associate of Science or Bachelor of Science Degree in related field
2. One-three years, experience in chemical related industry
3. Training and/or experience in hazardous waste management

Position Title: Truck Driver/Operator

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible for safe transportation of hazardous waste and finished product. This includes loading the containers to prevent shifting and maintaining appropriate distances between non-compatible materials.
- Inspect containers prior to loading on truck to insure suitable condition for transport. This includes checking for any visible leakage and ensuring that all bungs/valves are in place and secure.
- Responsible for loading and unloading the truck and placing the containers in the proper storage location.
- Provide corresponding paperwork to the Plant Manager and divulge any information that may be pertinent for handling of the material.
- Responsible for maintaining truck in safe running condition and making sure truck meets all road and safety standards at all times.

Qualifications and Experience Required for the Position

1. High School diploma or equivalent
2. At least three years driving experience with a CDL License with Hazmat Endorsement

Position Title: Laborer

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Responsible to operate waste handling equipment in a safe manner and following safety guidelines and requirements.
- Inspect equipment regularly and notify manager when defect is detected.
- Assist in training new employees to handle hazardous waste spills and leaks. This includes the use of spill clean-up materials and how to manage a spill safely and effectively.
- Maintain appropriate paperwork adhering to established procedures.
- Notify plant manager and other authorities as necessary in emergency situations.
- Take emergency action on own authority in accordance with established procedures.

Qualifications and Experience Required for the Position

1. High School diploma or equivalent
2. Experience with hazardous waste related activities is helpful, but complete training will be provided

Position Title: Administrative Office Staff

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Scheduling of facility personnel and trucks to meet the needs of customers.
- Prepare manifests and labels for incoming and outgoing shipments of hazardous waste.
- Distribution of completed incoming waste manifests to generator, state agencies as required and facility file.
- Preparation of Certificate of Disposal as required for customers.
- Assemble information required for accounts payable and accounts receivable.
- Distribution and filing of quotations and Waste Approval Forms.

Qualifications and Experience Required for the Position

1. High school diploma or equivalent
2. Background in hazardous waste management options and industry techniques

Position Title: Sales Staff

Name of Employee: See Table H-1

Position Responsibilities and Duties

- Understand the hazardous waste codes that can be accepted at the facility and how the material is managed to meet the permit requirements.
- Provide to the Approvals Manager complete, concise information of potential waste streams. This includes complete Waste Profile Forms, Material Safety Data Sheets, and/or a sample of the waste stream to get approved.
- Responsible for the satisfaction and support of client accounts, including quotation of new material and on-site visits to ensure client is in compliance with Local, State, and Federal agencies.
- Meet budget goals as established by the Sales Manager.

Qualifications and Experience Required for the Position

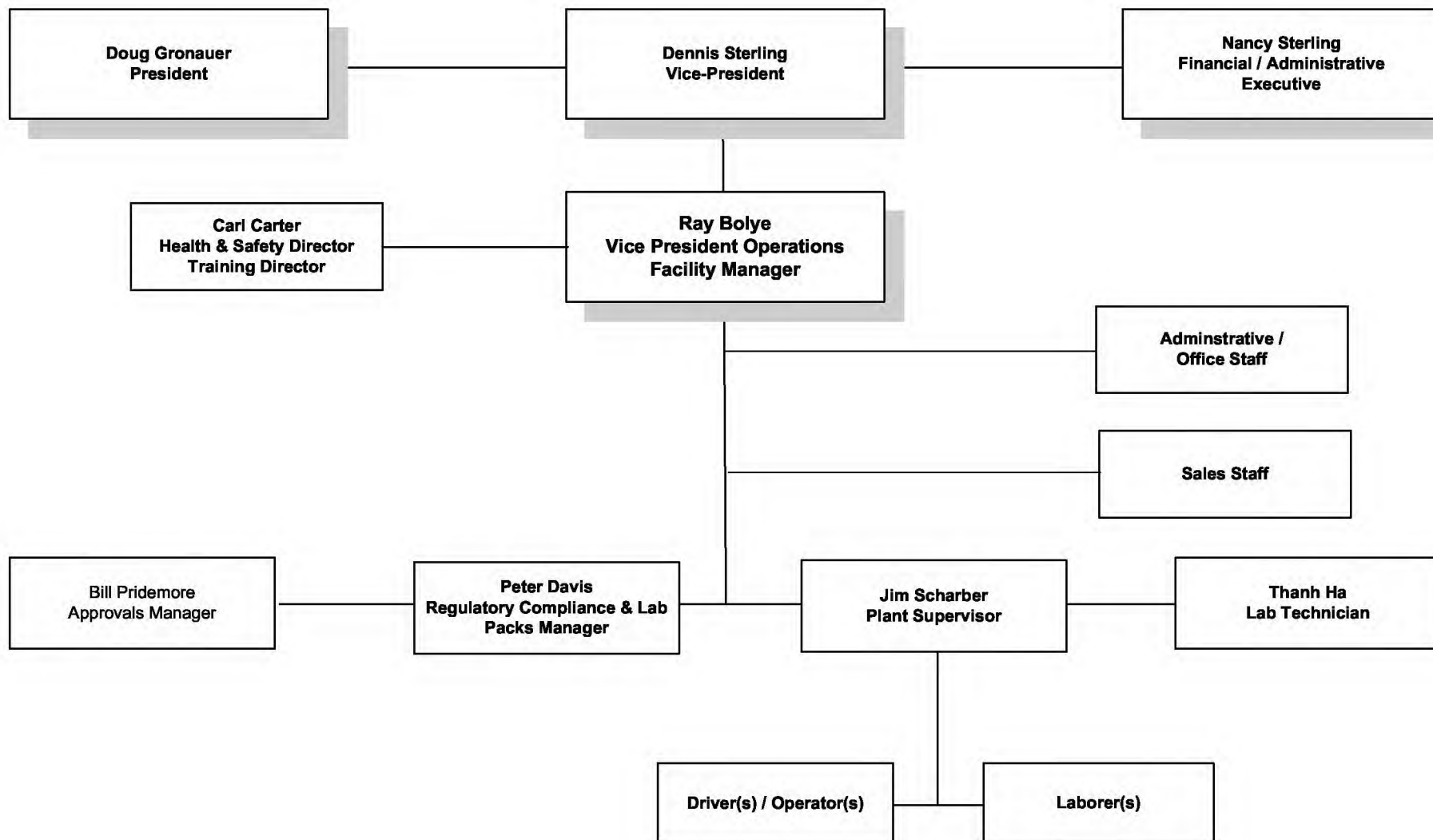
1. High school diploma or equivalent
2. Background in hazardous waste management options and industry techniques

TABLE H-1

LIST OF CURRENT FACILITY PERSONNEL

Facility Manager.....	Ray Boyle
Compliance Manager.....	Peter Davis
Approvals Manager.....	Bill Pridemore
Plant Supervisor.....	Jim Scharber
Lab Pack Manager.....	Peter Davis
Lab Technician.....	Thanh Ha
Driver/Operator(s).....	* Note 1
Laborer(s).....	* Note 1
Administrative Office Staff.....	* Note 1
Sales Staff.....	* Note 1

Note1: Current employee list for this position maintained at the facility



KLOR KLEEN
3118 SPRING GROVE AVENUE
CINCINNATI, OH 45225
TELEPHONE: 531..681.0060

Klor Kleen Part B Permit Renewal Application

October 15, 2015

FIGURE H-4

ORGANIZATIONAL CHART

Klor Kleen
Part B Renewal Application
Section I - Closure Plan

I-1 Closure Plans

This section is submitted in accordance with the requirements of OAC 3745-55-10 through 3745-44-20, and 40 CFR 264.110. This plan identifies all steps that will be necessary to close the facility at any point during or at the end of its intended operating life. Included is a time schedule for closure which allows tracking of progress during closure and the financial requirements to cover the costs of closure. Klor Kleen will maintain an onsite copy of the approved closure plan and all revisions to that plan until the certification of closure completeness has been submitted and accepted by the Ohio Environmental Protection Agency (Ohio EPA).

A post-closure plan is not required since Klor Kleen is not a disposal facility, and all wastes will be removed from the site at closure. Subsurface concentrations of waste constituents will be addressed through the ongoing Resource Conservation and Recovery Act (RCRA) corrective action. Upon completion of closure, Klor Kleen will submit to the Director of the Ohio EPA and the Regional Administrator of the USEPA a certification by both the Klor Kleen facility owner and by a local independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved Corrective Measures Study (CMS) report.

Klor Kleen is not planning closure of its hazardous waste management facility at this time. However, this Closure Plan will present the procedures for closure of this facility in the event that future circumstances or decisions require discontinuing hazardous waste management

activities. If closure of this facility is planned, Klor Kleen will notify the Director of the Ohio EPA and the USEPA Region V Administrator at least 45-days prior to the date we expect to begin final closure. This closure plan will be amended during the active life of the facility whenever changes in operating plans or facility design affects the closure plan.

I-1a Closure Performance Standard

In accordance with regulatory requirements (OAC Rules 3745-55-10 through 3745-55-20, upon permanent cessation of operations, Klor Kleen will perform closure of its hazardous waste storage facility. Closure will be performed in a manner that is designed to:

- minimize the need for further maintenance;
- control, minimize or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and,
- comply with the closure requirements of OAC 3745-55-10 and 40 CFR Part 264.110

I-1b Time and Activities Required for Partial and Final Closure Activities

This plan contains the following information:

- A description of how each hazardous waste management unit at the facility will be closed according to the RCRA closure performance standard;
- A description of how final RCRA closure of the facility will be conducted, including an estimate of the maximum inventory of hazardous waste on-site;

- A description of steps necessary to remove all hazardous waste, decontaminate the hazardous waste management units or render them non-hazardous at RCRA closure, and demonstrate successful closure by removal of all hazardous waste;
- A description of other activities necessary during RCRA closure to ensure that closure performance standards are satisfied; and,
- A schedule for RCRA closure for and an estimate of the expected year of final RCRA closure.

The maximum extent of hazardous waste operations at the site will be the storage of wastes listed in the Part A. This includes the following chlorinated organic hazardous waste codes F001, F002, U080, U121, U210, U226, U228, D019, D022, D039, and D040; and the following inorganic hazardous waste codes F006, D002, D004, D005, D006, D007, D008, D009, D010, and D011.

I-1c Maximum Waste Inventory

The maximum amount of waste material in storage at any given time is 200 drums or 11,000 gallons. Klor Kleen will not accept additional waste thirty (30) days after the start of closure as explained in Section I-1(d)(1).

I-1d Schedule for Closure

Klor Kleen will notify the Director of the Ohio EPA and the U.S. EPA Region V Administrator at least 45 days prior to the date the closure is expected to begin. Completion of the closure activities will be completed within 180 days from the receipt of the final volume of hazardous waste. A bar graph of the closure schedule is included as Figure I-1.

I-1 e(1) Time Allowed for Closure

The U.S. EPA Regional Administrator and Ohio EPA will be notified at least 45-days prior to initiating final RCRA closure activities for the hazardous waste storage facility. Klor Kleen will stop accepting waste from offsite generators within thirty (30) days from the start of closure.

Klor Kleen will ship all drums of hazardous waste to an off-site permitted TSDF within ninety (90) days from the start of closure. After shipment of all drums of hazardous waste has been completed, decontamination of process equipment, the container storage area and unloading/loading areas will be completed within 150 days from the start of closure.

Disposition of equipment as described in section I.1(e)(2) and disposal of all residue at a licensed hazardous waste management facility will be completed within 180 days from the start of closure. **Figure I-1** presents the schedule graphically.

The certification will be signed by the owner/operator of the facility and by an independent registered professional engineer.

I-1f Closure Procedures

I-1f(1) Inventory Removal

The inventory of hazardous waste stored at this facility will consist of various waste chlorinated solvents for recycling, acids, caustics, heavy-metal contaminated wastes and various other wastes as allowed by the permit. All hazardous waste in storage will be shipped to a permitted off-site treatment storage and disposal facility (TSDF) facility for treatment and disposal. The containers will be properly labeled, manifested

and transported to the off-site facility in compliance with all EPA and Department of Transportation (DOT) regulations. This will occur within 90 days of receipt of the final shipment of hazardous waste accepted at the facility.

I-1f(2) Disposal or Decontamination of Equipment

The process equipment consisting of portable pumps, hoses, and all hand tools such as shovels, brooms and buckets will be scraped and cleaned until a visual inspection shows no residue present. All equipment will then be rinsed three (3) times with a high pressure hot water wash. The residue from the decontamination process will be collected in 55-gallon drums and shipped to a properly licensed hazardous waste treatment facility. A sample of the final rinse will be analyzed to confirm that the equipment has been decontaminated.

This decontamination of equipment will take place in an enclosure constructed in the lab pack commingling/consolidation area. This will prevent uncontaminated areas from becoming contaminated during equipment decontamination. This enclosure will be a wood framed plastic tent into which the pieces of equipment will be placed for decontamination. The location of the decontamination structure is shown on **Figure I-2**. A drawing showing construction of the decontamination enclosure is provided as **Figure I-3**.

All decontaminated equipment will be moved to a new facility, sold on the open market or shipped offsite as scrap metal. All empty drums with recycle value will be shipped to a drum recycling facility. All RCRA empty drums and/or other containers that are not recyclable will be shipped offsite for disposal.

I-1f(3) Closure of Disposal Units

Klor Kleen does not operate any hazardous waste disposal units, therefore this section does not apply.

I-1f(4) Closure of Container Storage Areas

Decontamination of Drum Storage Area and Unloading/Loading Areas

After all containers of waste have been removed from the drum storage area, the concrete drum loading/unloading area and all container staging and storage areas will be swept and scraped free of all visible residue. The concrete floor in the drum storage area and in the loading/unloading area will then be cleaned with a high pressure hot water wash. The wash will be repeated three times. Rinse waters will be squeegeed to the sump in the process area and removed using a drum vacuum. A sample of the final rinse will be collected and analyzed for hazardous constituents. The residue from this process will be transferred to 55 gallon drums using a portable pump and shipped to a properly-licensed hazardous waste treatment facility.

Following the removal of the final rinse water from the containment areas and/or sumps, the sumps will be visually inspected for integrity. If the sump is found to be in poor condition, additional sampling will be required. The waste residue will be manifested to a hazardous waste treatment facility.

A sample will be taken of the final rinse water in each of the sumps before the rinse water is transferred to the drums. Separate samples will be collected from the container storage area and the non-hazardous process area sumps. Samples will be collected from the sumps by

bottle immersion as outlined in the Ohio EPAs Field Standard Operating Procedures July 21, 2004 guidance. Field procedures for Quality Assurance/Quality Control will be followed (e.g. iced samples, chain-of-custody duplicate samples) in accordance with the procedures followed during the Corrective Action (CA).

If the analytical results from the final rinse are not within the range specified below, the equipment and areas will be rinsed again and individual samples taken from each of the areas for analysis.

Klor Kleen will analyze for the parameters listed in **Table I-2**, based on the waste codes listed on the Part A. The testing will follow SW 846 methods. Table I-2 contains the methods specified for each constituent. The container storage area shall not be considered decontaminated until the rinse water meets the following standards:

1. Public drinking water maximum contaminant level (MCL) for hazardous waste constituents are promulgated in 40 CFR 141.11 and OAC 3745-81-11 for inorganics and 40 CFR 141.12 and OAC 3745-81-12 for organics.
2. If an MCL is not available, then the maximum contaminant level goal (MCLG) as promulgated in 40 CFR 141.50 shall be used; or
3. If neither an MCL nor an MCLG is available, 1 milligram per liter (mg/L) shall be used for fluids/liquids. Note: appropriate analytical methods prescribed in USEPA publication SW-846 will be utilized to assure that detection limits are below the MCLs or MCLGs of the respective constituent.

The facility is currently in CA. Therefore, extensive soil, groundwater and soil vapor samples have been collected. Post closure sampling soil sampling will entail coring the concrete floor in

the area to be sampled and collecting soil samples to a depth of 3-feet below ground surface to ensure that a sample is taken at a depth below the bottom of the sumps.

The locations of the borings are shown in Figure I-2. One will be located next to the sump in the Container Storage Area. The second in the corner where the Storage Area, Product Storage Area and Unloading Area join. The third next to the sump located in the non-hazardous process area.

Soil samples will be analyzed for the parameters listed in **Table I-2**, based on the waste codes listed on the Part A. The testing will follow SW 846 methods. Table I-2 contains the methods specified for each constituent. Soil sample results will be compared to those gathered during the CA to determine if there have been changes in constituent concentrations which might require further evaluation under the CA.

I-2 Post-Closure Plans

Klor Kleen is not a disposal facility and does not require post closure activities. Therefore, RCRA post-closure requirements/cost estimates are not applicable to this facility, except as required under Section J, Corrective Action Information related to subsurface soil, groundwater and soil vapor assessment is provided under Section J, Corrective Action. Addressing residual constituent concentrations in the environmental media will be performed as outlined in the approved CMS report prepared as part of the CA as part of the site closure process.

I-3 Notices Required for Disposal Facilities

Klor Kleen does not operate any hazardous waste disposal units, therefore, this section does not apply.

I-4 Closure Cost Estimate

The closure cost information presented is submitted in accordance with the requirements of OAC 3745-55-10 and 40 CFR 264.110.

An estimated \$52,278.00 will be needed to close the Klor Kleen hazardous waste storage facility. The closure costs are presented in **Table I-1**. Activities include shipping of any remaining waste off-site, disposal of residue from decontamination of equipment, disposal of solid hazardous and non-hazardous waste, decontamination of process equipment and container storage area and closure certification. The assumptions made in the cost estimate are as follows:

1. Total Hazardous Waste Volume is 213 Drums of assorted waste broken down as follows:

- Solvents to be Recycled: 30 Drums

(This material will consist of F001-F002 Waste Chlorinated Solvent with a minimum average 65% recovery of solvent)

- Hazardous Solid Material to be Shipped Offsite: 30 Drums to an approved hazardous waste incinerator

(This material will consist of F001-F002 hazardous solid material)

- Hazardous Material to be Shipped Offsite to an Approved Hazardous Waste Management Facility for Treatment: 140 Drums

(This material will consist of D004 thru D011 and F006 waste which will require further treatment)

- Decontamination Waste to be Shipped Offsite: 13 Drums

(This material will consist of F001-F002 waste from decontamination of the process equipment and drum storage pad)

2. Closure activities will be performed first utilizing Klor Kleen personnel and equipment. However, all cost calculations for closure are figured using outside contractors performing the closure work and shipping all drums offsite for management.
3. The cost of certification of closure by a Professional Engineer (P.E.) is estimated on the basis of a labor rate of \$145.00 / Hour for an eight (8) hour period.

This closure cost estimate will be kept on file at the Klor Kleen facility along with all revisions to the estimate. It will be revised whenever a change in the closure plan increases the cost of closure. The closure cost estimate will also be adjusted for inflation within thirty (30) days after each anniversary of the date on which the first closure cost estimate was prepared, using an inflation factor derived from the Annual Implicit Gross National Price Deflator.

I-5 Financial Assurance for Closure

I-5a Closure Trust Fund

Klor Kleen is not seeking to establish a closure trust fund as the financial mechanism for closure. Therefore, this section does not apply.

I-5b Surety Bond

Klor Kleen is not seeking to establish a surety bond as the financial mechanism for closure. Therefore, this section does not apply.

I-5c Closure Letter of Credit

Klor Kleen has established a closure Letter Of Credit as the financial mechanism for closure. A copy of the letter of credit is enclosed in **Attachment I-1**.

I-5d Closure Insurance

Klor Kleen is not seeking to obtain closure insurance as the financial mechanism for closure. Therefore, this section does not apply.

I-5e Financial Test and Corporate Guarantee for Closure

Klor Kleen is not seeking to use the financial test to demonstrate financial assurance for closure. Therefore, this section does not apply.

I-5f Use of Alternate Financial Mechanisms

Klor Kleen is not seeking the use of alternate financial mechanisms. Therefore, this section does not apply.

I-5g Use of Multiple Financial Mechanisms for Multiple Facilities

Klor Kleen is not seeking the use of multiple financial mechanisms for multiple facilities as the financial mechanism for closure. Therefore, this section does not apply.

I-6 Post-Closure Cost Estimate [40 CFR 270.14(b)(16); 264.144]

Klor Kleen is not a disposal facility and does not require post closure activities. Therefore, RCRA post-closure requirements/cost estimates are not applicable to this facility.

I-7 Financial Assurance Mechanism for Post-Closure Care [40 CFR 270.14(b)(16); 264.145; 264.151]

Klor Kleen is not a disposal facility and does not require post closure activities. Therefore, RCRA post-closure requirements/cost estimates are not applicable to this facility.

I-8 8 Liability Requirements

I-8a Coverage for Sudden Accidental Occurrences

Klor Kleen has obtained liability insurance for sudden and accidental occurrence in the amount of one million (\$1,000,000) per occurrence with an annual aggregate of two million (\$2,000,000). This pollution liability insurance coverage is provided by Nautilus Insurance Company, policy number SSP1542095-11 with an effective date for the current policy of January 1, 2015. This policy will not expire without notification to Ohio EPA. A copy of the current insurance certificate is provided as **Attachment I-2**.

I-8b Coverage for Non-Sudden Accidental Occurrences

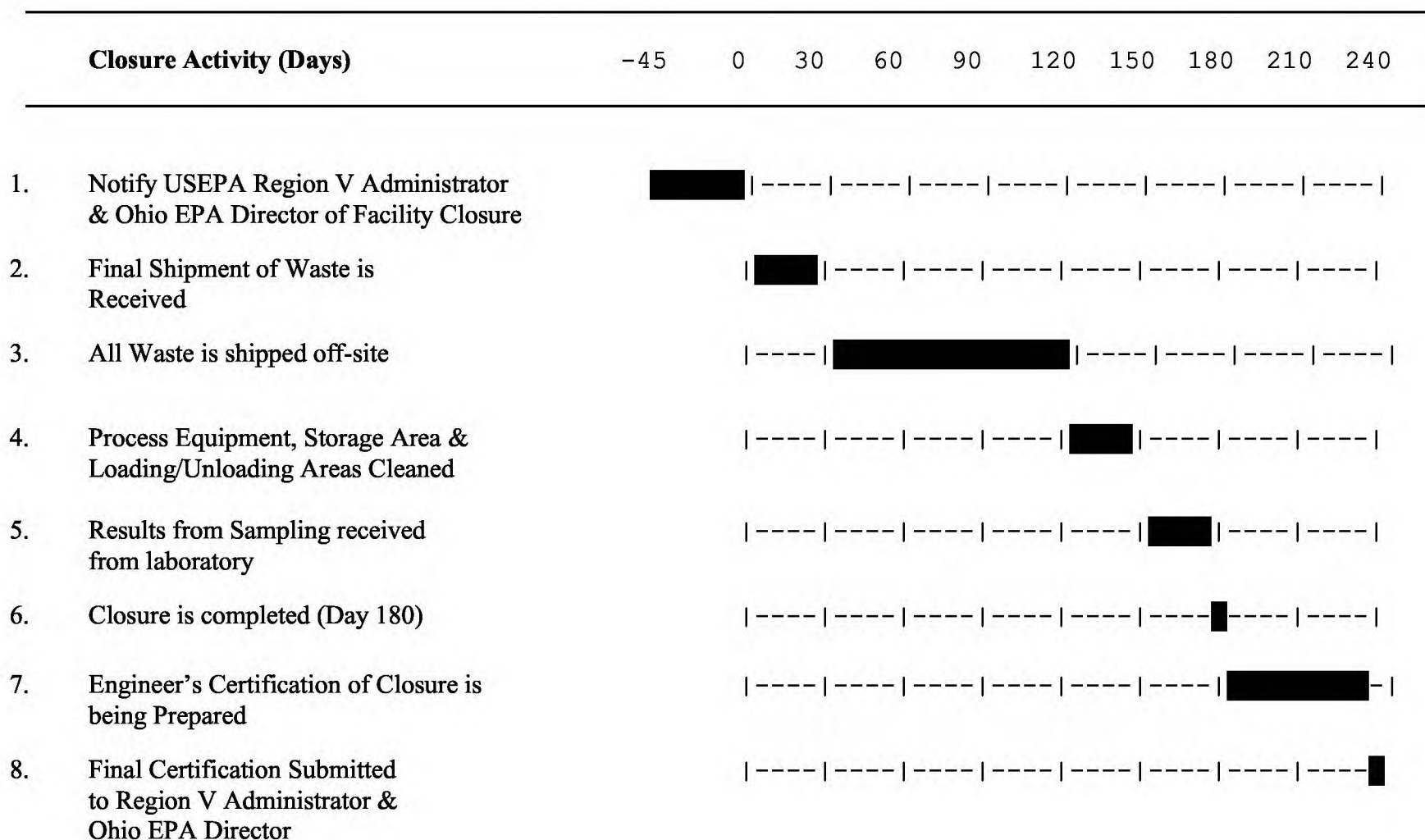
Klor Kleen does not manage hazardous waste in surface impoundments, landfills, land treatment facilities, or disposal miscellaneous units therefore, no liability insurance is required for a non-sudden accidental occurrence.

I-8c Requests for Variance

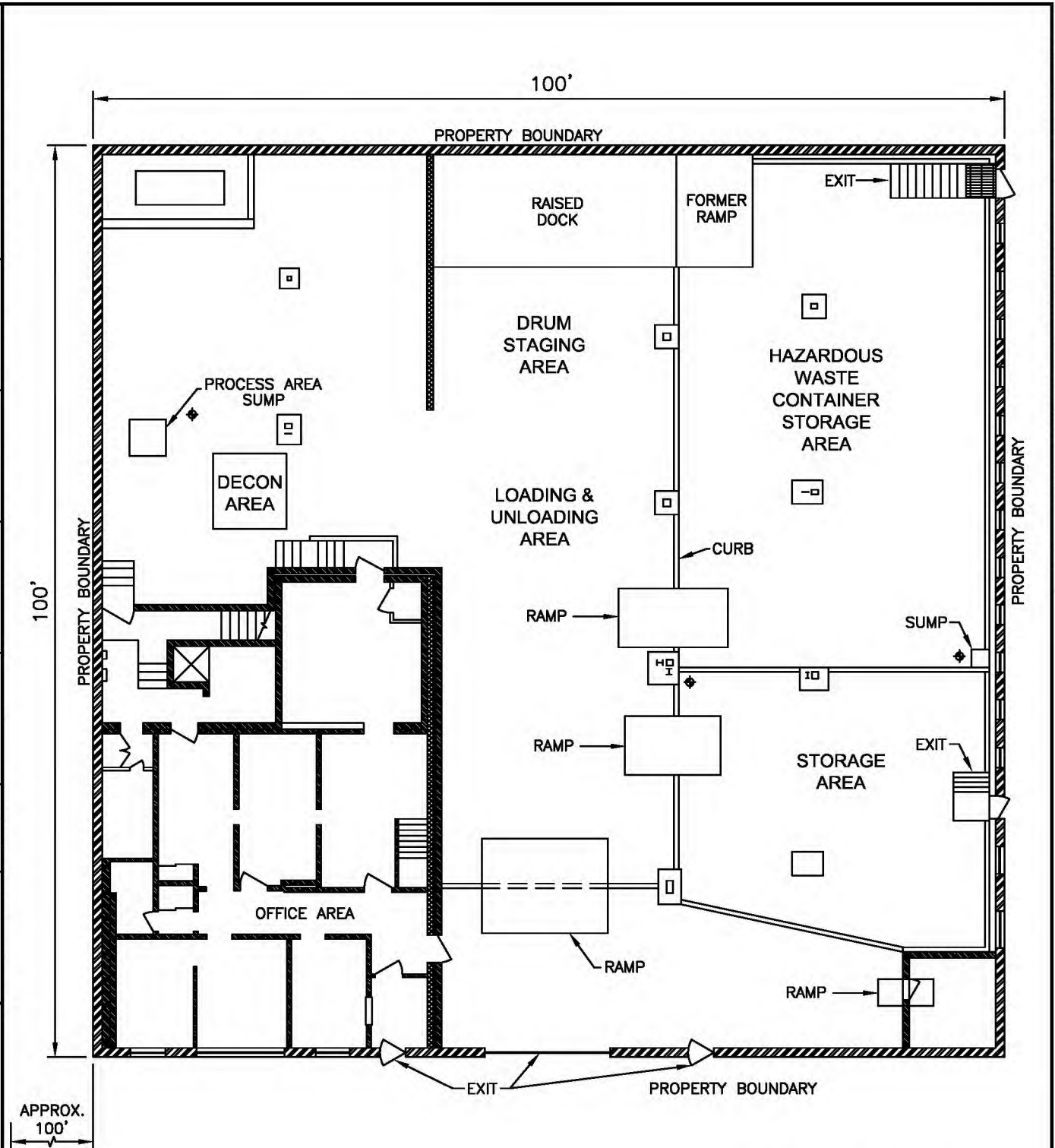
Klor Kleen is not requesting any type of variance for adjusted level of required liability and therefore this section is not applicable.

FIGURE I-1

Bar Graph of Closure Schedule



OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	07/11/16	RB	AM	BI	---	2005 40-02



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

LEGEND:
 ◆ - BORING LOCATION

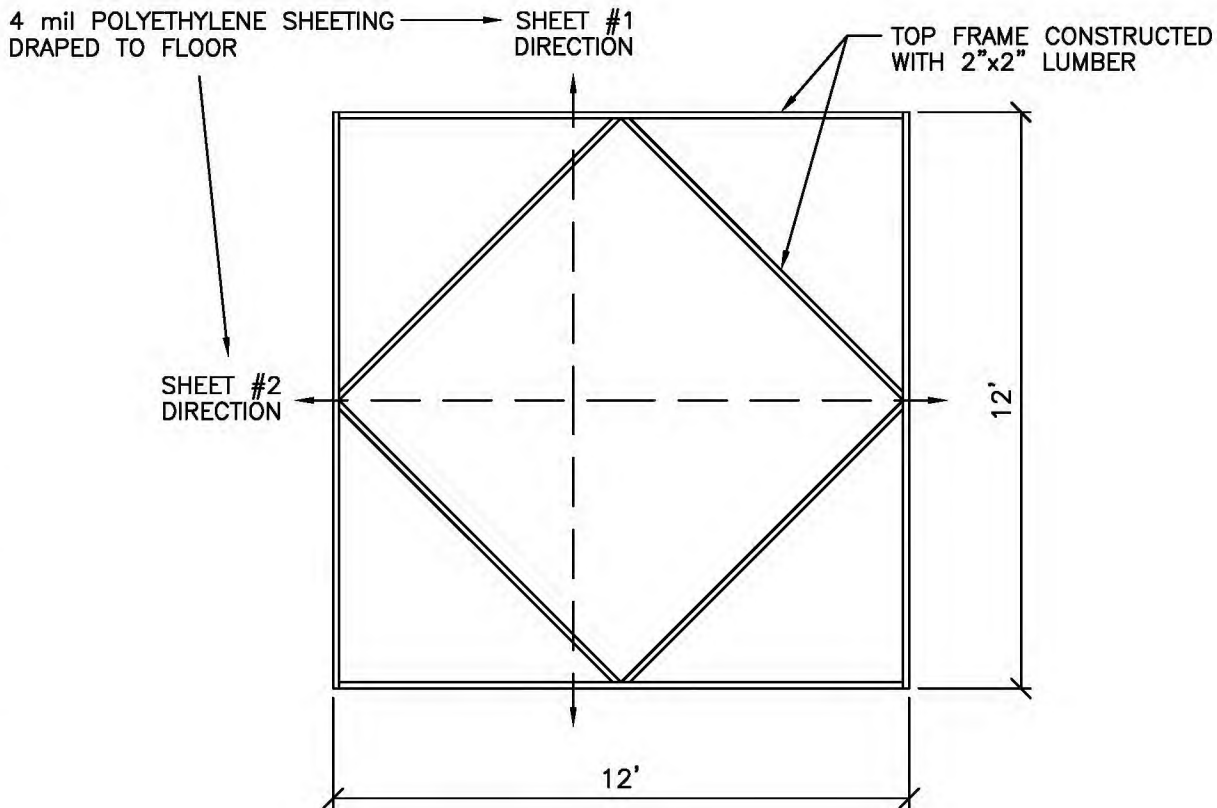


MIDWEST
Environmental Services, Inc.

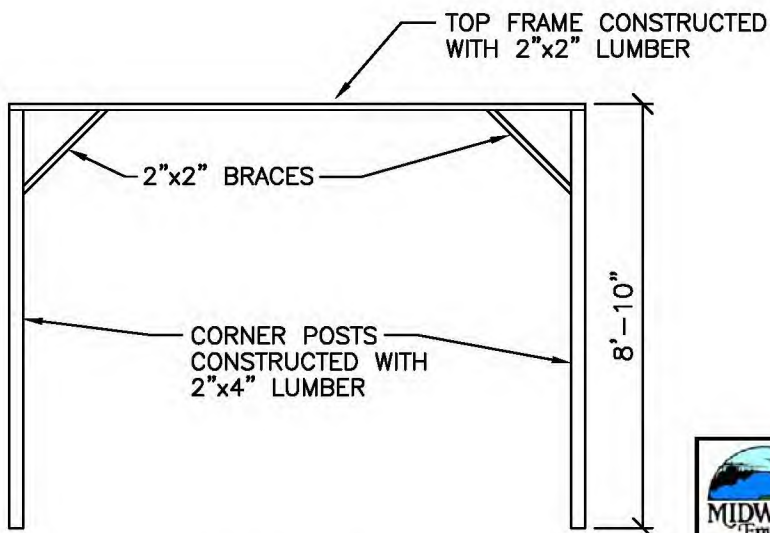
Midwest Environmental Services, Inc.
 27 Kiesland Ct, Hamilton, OH 45015
 Permit Application

FIGURE I-2
CLOSURE PLAN
PROPOSED BORING LOCATION DRAWING
 Klor Kleen Facility
 3118 Spring Grove Avenue

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	10/12/15	RB	AM	BI	---	2005 36-03



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



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



Midwest Environmental Services, Inc.

27 Kiesland Ct, Hamilton, OH 45015
Permit Application

FIGURE I-3
TOP AND SIDE VIEW FOR
DECONTAMINATION STRUCTURE
FOR KLOR KLEEN

TABLE I-1
KLOR KLEEN
CLOSURE COST ESTIMATE

1.	Offsite Disposal of recyclable waste chlorinated solvent with a minimum average 65% Recovery Rate	
A.	Disposal - 30 drums @ \$125.00/drum	\$3,750.00
B.	Transportation - 30 drums @ \$20.00/drum	\$600.00
C.	Labor to Load Truck - 2 hrs. @ \$45.00/hr.	\$90.00
D.	Supervision - 1 hrs. @ \$75.00 hr.	\$75.00
	Subtotal	\$4,515.00
2.	Offsite Disposal of Hazardous Waste Solid Material (F001-F002) at an approved hazardous waste incinerator or boiler industrial furnace (BIF)	
A.	Disposal - 30 drums @ \$300.00/drum	\$9,000.00
B.	Transportation - 30 drums @ \$20.00/drum	\$600.00
C.	Labor to Load Truck - 2 hrs. @ \$45.00/hr.	\$90.00
D.	Supervision - 1 hr. @ \$75.00/hr.	\$75.00
	Subtotal	\$9,765.00
3.	Offsite Disposal of D002, D004-D011 and F006 at an off-site approved hazardous waste management facility.	
A.	Disposal - 140 drums @ \$125.00/drum	\$17,500.00
B.	Transportation - 140 drums @ \$20.00/drum	\$2,800.00
C.	Labor to Load Truck - 4 hrs. @ \$45.00/hr.	\$180.00
D.	Supervision - 2 hrs. @ \$75.00/hr.	\$150.00
	Subtotal	\$20,630.00

TABLE I-1

4. Decontamination of Storage Area

Sweep area and scrape all visible residue from concrete pad. High pressure hot water wash concrete pad in drum storage area and concrete floor in process area. Vacuum water wash and transfer to 55 gallon drums.

A.	Labor - 16 hrs. @ \$45.00/hour	\$720.00
B.	Supervisor - 8 hrs. @ \$75.00/hr.	\$600.00
C.	Rental of High Pressure Washer - 1 day @ \$175.00	\$175.00
D.	Rental of Vacuum - 1 day @ \$100.00	\$100.00
E.	Disposal of Water - 8 drums @ \$225.00	\$1,800.00
F.	Transportation - 8 drums @ \$20.00/drum	\$160.00
G.	Analysis of Rinse Water -	
	Volatile Organic: 1 sample @ \$225.00/sample	\$225.00
	Metal Analysis - TCLP Metals: 1 sample @ \$230.00/sample	\$230.00
	Subtotal	\$4,010.00

5. Offsite Disposal of Decontamination Residue at an approved Hazardous Waste Incinerator or BIF(Trash, Personnel Protective Equipment, etc.)

A.	Disposal - 7 drums @ \$300.00/drum	\$2,100.00
B.	Transportation - 7 Drums @ \$20.00/drum	\$140.00
C.	Labor to load truck - 1 hr. @ \$45.00/hr.	\$45.00
D.	Supervision - 1 hr. @ \$75.00/hr	\$75.00
	Subtotal	\$2,360.00

TABLE I-1

6. Sampling of Soil under Hazardous Waste Storage Area

Drill 3 holes through concrete with drill. Sample soil under concrete pad.

A.	Labor - 16 hours @ \$45.00/hour	\$720.00
B.	Supervisor - 8 hrs. @ \$75.00/hr.	\$600.00
C.	Rental of Drill - 1 day @ \$175.00/day	\$175.00
D.	Analysis of Soil -	
	VOC Method 8240 - 3 samples @ \$225.00/each	\$675.00
	Metals (Cd, Cr, Pb) - 3 samples @ \$60.00/each	\$180.00
	Subtotal	\$2,350.00

7. Closure Certification

	Professional Engineer - 8 hrs. @ \$145.00/hr.	\$1,160.00
	Subtotal	\$1,160.00

8.	Closure Cost Estimate Total	\$44,790.00
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9.	Engineering Allowance - 5%	\$2,240.00
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10.	Contingency Allowance - 15%	\$6,719.00
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11.	Closure Estimate including allowances	\$53,749.00
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	Closure Cost Total	\$53,749.00
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TABLE I-2
Constituent Test Methods

Waste Codes				Chemical Name	SW-846 Test Method(s)
F001	F002		U226	1,1,1-Trichloroethane	8010, 8021, 8240
F001	F002	D040	U228	Trichloroethylene	8010, 8021, 8040, 8260
F001	F002	D039	U210	Tetrachloroethylene	8010, 8021, 8240, 8260
F001			U080	Methylene Chloride	8010, 8260
F001	F002			Trichlorofluoroethane	8010, 8021, 8240
F001		D019		Carbon Tetrachloride	8010, 8021, 8240, 8260
		D002		Corrosivity	9040, 9045
		D022		Chloroform	8010, 8021, 8240, 8260
		D004		Arsenic	6010B, 7060, 7061
		D005		Barium	6010B, 7080, 7081
F006		D006		Cadmium	6010B, 7130, 7131
		D007		Chromium	6010B, 7190, 7191
F006		D008		Lead	6010B, 7420, 7421
		D009		Mercury	7470A, 7471
F006				Nickel	7520
		D010		Selenium	6010B, 7740, 7741
		D011		Silver	6010B, 7760, 7761

ATTACHMENT I-1

FINANCIAL ASSURANCE DOCUMENT

Irrevocable Standby Letter of Credit

Mr. Craig W Butler, Director
Ohio Environmental Protection Agency
P.O box 1049
Columbus, OH 43216-1049

Dear Sir or Madam:


We hereby establish our Irrevocable Standby Letter of Credit No. 306 in your favor, at the request and for the account of Midwest Environmental Services, PO Box 218, Brownstown, IN, 47220 up to the aggregate amount of Fifty Seven Thousand Dollars and NO/100 U.S. dollars \$57,000.00, available upon presentation of:

- (1) Your sight draft, bearing reference to this letter of credit no. 306, and
- (2) Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under the authority of Chapter 3734. of the Ohio Revised Code as amended."

This letter of credit is effective as of March 17, 2015 and will expire on March 17, 2016, but such expiration date will be automatically extended for a period of one (1) year on March 17, 2016 and on each successive expiration date, unless, at least one hundred twenty days before the current expiration date, we notify both you and Midwest Environmental Services by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event that you are so notified, any unused portion of the credit will be available upon presentation of your sight draft for one hundred twenty days after the date of receipt by both you and Midwest Environmental Services as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we will duly honor such draft upon presentation to us, and we will deposit the amount of the draft directly into the standby trust fund of Midwest Environmental Services in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in paragraph (D) of rule 3745-55-51 of the Administrative Code as such regulations were constituted on the date shown immediately below.


Brian Sommers
VP/Senior Loan Officer
The Peoples Bank
March 17, 2015

This credit is subject to the Uniform Customs and Practice for Documentary Credits, 2007 Revision, International Chamber of Commerce Publication No. 600 (UCP), or any later version or amendment.

ATTACHMENT I-2

LIABILITY INSURANCE

DOCUMENT

**CERTIFICATE OF INSURANCE
OHIO HAZARDOUS WASTE FACILITY**

Named Insured and Mailing Address:
Midwest Environmental Services, Inc.
420 ½ South Francis
Brownstown, IN 47220

Policy Number	Policy Effective Date	Policy Expiration Date	Endorsement Effective Date
SSP1542095-11	01/01/2015	01/01/2018	01/01/2015

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. Nautilus Insurance Company, the "Insurer", of 7233 E. Butherus Drive, Scottsdale, AZ 85260, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Midwest Environmental Services, the "insured", of 420 1/2 South Francis, Brownstown, IN 47220 in connection with the insured's obligation to demonstrate financial responsibility under rules 3745-55-47 or 3745-66-47 of the Administrative Code. The coverage applies at:

OHD980821862
Klor Kleen
3118 Spring Grove Avenue
Cincinnati, OH 45225

for sudden accidental occurrences. The limits of liability are \$1,000,000 each occurrence and \$2,000,000 annual aggregate, exclusive of legal defense costs. This coverage is provided under policy number SSP1542095-11, issued on 01/01/2015. The effective date of said policy is 01/01/2015.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:
- a. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
 - b. The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in paragraph (F) of rule 3745-55-47 or paragraph (F) of rule 3745-66-47 of the Administrative Code.
 - c. Whenever requested by the director of the Ohio Environmental Protection Agency, the Insurer agrees to furnish to the director a signed duplicate original of the policy and all endorsements.
 - d. Cancellation of the insurance, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice and only after the expiration of sixty days after a copy of such written notice is received by the director.
 - e. Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty days after a copy of such written notice is received by the director.

I hereby certify that the wording of this instrument is identical to the wording specified in paragraph (J) of 3745-55-51 of the Administrative Code as such regulation was constituted on the date first above written, and the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, on one or more States.

A handwritten signature in black ink that reads "Steve Zeitman". The signature is written in a cursive, flowing style.

Steve Zeitman
Vice President

Authorized Representative of
Nautilus Insurance Company

Administrative Office
7233 E. Butherus Drive
Scottsdale, AZ 85260

Service Office
Three Ravinia Drive, Suite 500
Atlanta, GA 30346

Klor Kleen

Part B Renewal Application

Section J - Corrective Action

Klor Kleen moved to its current location at 3118 Spring Grove Avenue, Cincinnati, Ohio (Figure J-1) from 3159 Spring Grove Avenue to in January 1984, at which time the facility received its permit [United States Environmental Protection Agency (USEPA) ID No. OHD-980-821-862] as a recycler of chlorinated solvents and hazardous waste storage facility. At that time, Klor Kleen handled 1,1,1-trichloroethane (TCA), trichloroethene (TCE), tetrachloroethylene (PCE), methylene chloride, and Freon compounds. Permitted waste operations included acceptance and storage of certain hazardous wastes prior to off-site treatment and disposal at a permitted facility.

As part of the Resources Conservation and Recovery Act (RCRA) (Part B) Facility Permit renewal process, a Visual Site Inspection (VSI) was conducted by the Ohio Environmental Protections Agency (OEPA) at the current facility on January 17, 1990. Based on information acquired during the Preliminary Review/Visual Site Inspection (PR/VSI), a total of 19 Solid Waste Management Units (SWMUs) were identified (Figure J-2). These are as follows:

SWMU	Description	Included in original RFI	Status
1	Pad – Vehicle Entrance and Backhoe Storage Area.	Yes	Closed - 2006
2	Backhoe	No	Closed
3	Pad – Recycled Product Drum Storage Area	Yes	Open
4	Pad – Hazardous Waste Drum Storage Area	No	Open
5	Sump – Hazardous Waste Drum Storage Area	No	Open
6	Loading/Unloading Pad	Yes	Open
7	Solid Waste Bin	No	Closed - 2006
8	Nonhazardous Oils and Water Tank/Raised Dock	No	Open
9	Floor – Plant Process Area	No	Open
10	Short Floor Drain – Plant Process Area	Yes	Open

11	Long Floor Drain – Plant Process Area	Yes	Open
12	Sump – Plant Process Area	Yes	Open
13	Venting System – Plant Process Area	No	Closed – 1993
14	Northeast Still	No	Closed – 1993
15	Central Still	No	Closed – 1993
16	Northwest Still	No	Closed – 1993
17	Piping – from Floor Drains and Laboratory Sink to Sump (SWMU 12)	No	Open
18	Stills (2) Stored in Warehouse	No	Closed – 1993
19	Still, Formerly Used at the Facility	No	Closed – 1993

In 1993, Klor Kleen closed its chlorinated solvent recycling stills and modified its operations to become only a distributor of recycled chlorinated solvents, a processor of non-hazardous waste, and a RCRA hazardous waste storage facility.

Based on PR/VSI observations, a RCRA Facility Assessment (RFA) was completed in October 1998. The 1998 RFA identified evidence of releases from AOC 1 (SWMUs 10, 11, and 12), SWMU 1, and SWMU 3. The leak source identified during the RFA at AOC 1 was repaired and the drains passed a subsequent leak test, thus the potential for additional releases from AOC 1 were eliminated.

In July 1999, Klor Kleen submitted an RCRA Facility Investigation (RFI) Work Plan in response to findings of the 1998 RFA. Based on OEPA review of the RFI Work Plan, a Notice of Deficiency (NOD) letter, dated December 20, 2004, was issued to Klor Kleen that documented additional information to be included in the RFI Work Plan. SWMU's included in the original RFI are noted in the above table.

Klor Kleen submitted under separate cover a revised RCRA Facility Investigation Work Plan (RFI-WP) in accordance with Permit Condition E.4 (a) to the OEPA on May 3, 2005. In October 2005, the OEPA provided Klor Kleen with a NOD which provided comments to the RFI-WP. The revised RFI-WP was submitted to the OEPA in December 2005. Subsequent to OEPA review and public comment period, the RFI-WP was approved for implementation in April 2006.

The RFI-WP was implemented between May and August 2006. Results of the RFI were documented in the Draft RCRA Facility Investigation Report (RFI Report) that was submitted to OEPA in October 2006. The RFI Report recommended additional site investigation to delineate the extent of contamination in groundwater and to collect sub-slab soil gas samples to evaluate the vapor intrusion exposure pathway.

OEPA comments on the Draft RFI Report were issued in April 2007, and indicated that the RFI Report contained comprehensive information and requested a supplemental RFI Work Plan (Supplemental RFI-WP) to address the additional investigation activities. A Supplemental RFI-WP was prepared and submitted to the OEPA in February 2008. The Supplement RFI work was completed and the report submitted to the OEPA in April 2009. The OEPA provided a RFI Report Approval Letter in June 2010. This letter stated that “in accordance with Condition E.6(a) of Klor Kleen’s Ohio Hazardous Waste Permit, Klor Kleen must submit a Corrective Measures Study Work Plan” (CMS-WP).

The CMS-WP was submitted to the OEPA in September 2010. The OEPA commented on the Work Plan in November 2010 and a revised plan was submitted in January 2011. The OEPA approved of the CMS-WP in January 2011. In March 2012, the OEPA requested additional information regarding several items mostly relating to groundwater monitoring prior to the completion of the CMS report. This information was provided in a May 2012 letter. In March 2014, the OEPA responded that Klor Kleen could proceed with the CMS report. The CMS report was submitted in October 2014. Comments from the OEPA were received in June 2015. Klor Kleen met with the OEPA in July 2015 and subsequently provided the agency with a plan to address the comments in August 2015. The plan was approved in September 2015. A Revised Corrective Measures Study Report was received in April 2016 and is currently under review.

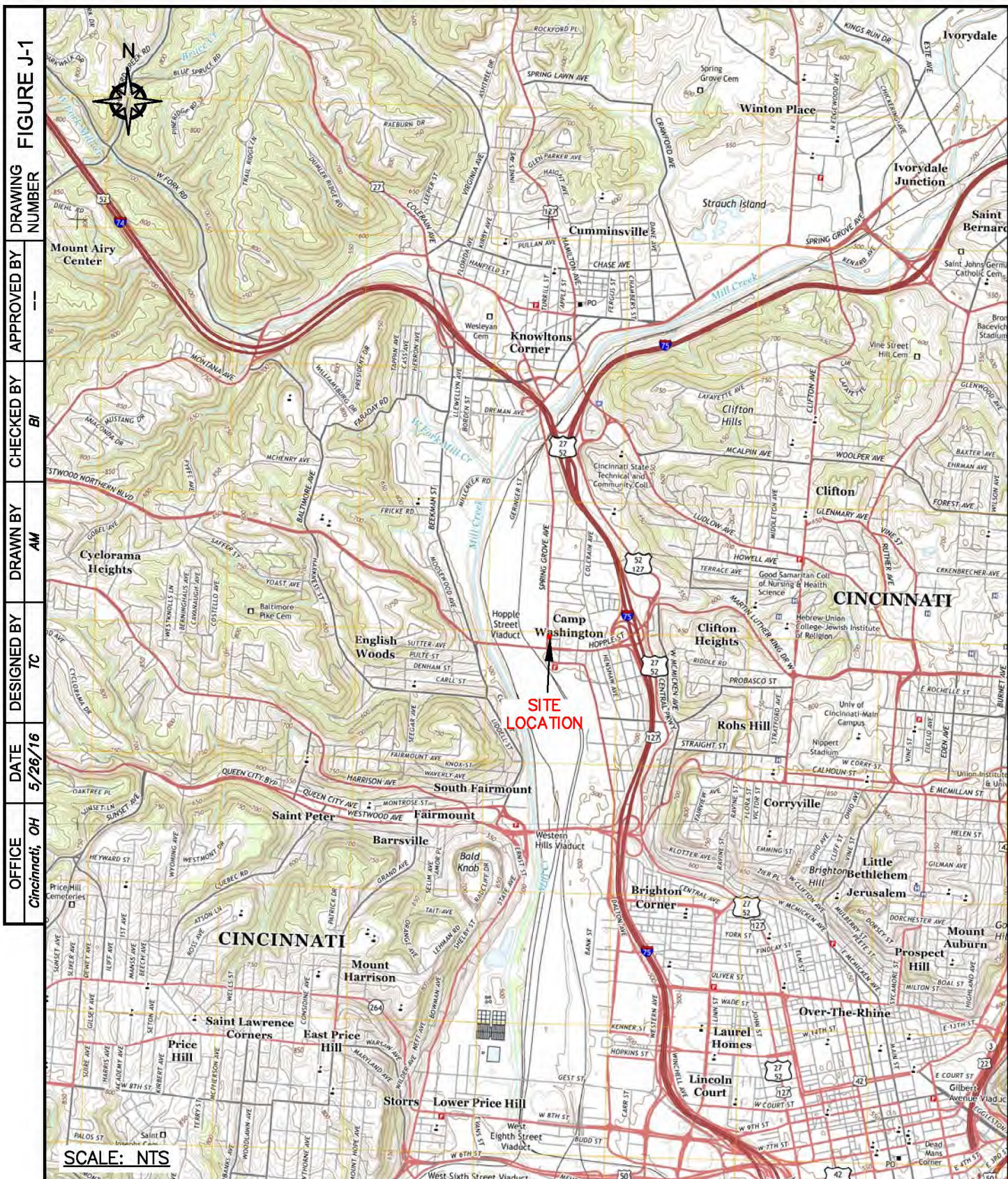


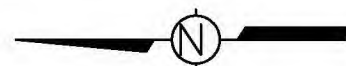
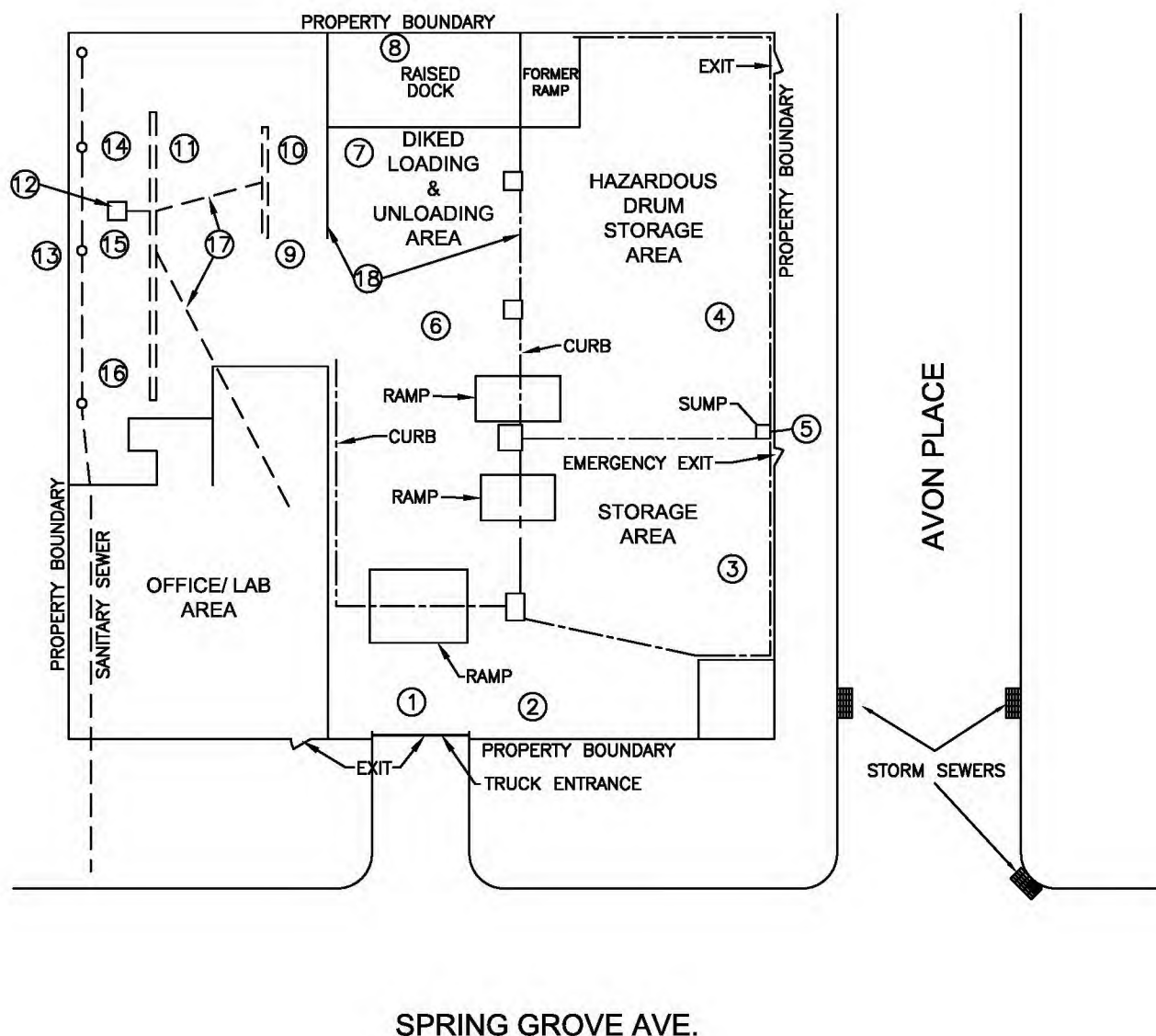
FIGURE J-1
 SITE LOCATION MAP
 3118 SPRING GROVE AVENUE
 CINCINNATI, OHIO

amec foster wheeler



Midwest Environmental Services, Inc.
 Klor Kleen Facility
 3118 Spring Grove Avenue
 Cincinnati, Ohio 45225

OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
Cincinnati, OH	5/26/16	RB	AM	BT	---	FIGURE J-2



SCALE: 1"=25'
MAP DATE: 5-16-83

FIGURE J-2
SWMU LOCATION MAP
3118 SPRING GROVE AVENUE
CINCINNATI, OHIO

amec foster wheeler



Midwest Environmental Services, Inc.
Klor Kleen Facility
3118 Spring Grove Avenue
Cincinnati, Ohio 45225

Klor Kleen

Part B Renewal Application

Section K – Other Federal Laws

Klor Kleen is not subject to the requirements of the following Federal Laws:

Wild and Scenic Rivers Act

Klor Kleen is not adjacent to a river.

National Historic Preservation Act of 1996

Klor Kleen is not in a Historic Preservation District.

Endangered Species Act

Klor Kleen's operations are not impacting any wildlife.

Coastal Zone Management Act

Klor Kleen is not within Coastal Management Zone.

Fish and Wildlife Coordination Act

Klor Kleen's operations are not impacting any wildlife.

Klor Kleen

Part B Renewal Application

Section L - Certification

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



Signature

Ray Boyle Vice President Operations
Printed Name and Title

May 27, 2016
Date