

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- SPECIAL

PERMITTEE

Resource Recovery Group  
Attn: Mark R. Ellison  
#1 Mobile Street  
Sauget, Illinois 62201

Application No.: 98030132  
Applicant's Designation: 98030132  
Subject: Solvent Recovery  
Date Issued: August 9, 2000  
Location: #1 Mobile Street, Sauget

ID. No.: 163121AAZ  
Date Received: March 13, 2000  
Expiration Date: August 9, 2005

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of the following:

Cleaver Brooks boiler oil fired;  
Hot oil heater oil fired;  
LUWA with main condenser and storage tanks T45, T46 and T47 controlled by two carbon adsorbers;  
Oil heated distillation column controlled by two carbon adsorbers;  
Sigma pot still controlled by two carbon adsorbers;  
Portable drum rinse with carbon adsorber;  
Storage tanks RC, S1, S2, S3, S4, S5, T51 and T52 controlled by adsorber TM-1;  
Storage Tanks B1-B4, G2-G11, S6-S8, T5, T10CT14, T17, T18, T20, T23, T24, T27, T28, T33, T34, T37-T39 and T44; and  
Air stripper,

This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit (FESOP) is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 ton/yr volatile organic materials and 10 ton/yr individual and 25 ton/yr combination of hazardous air pollutants). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Because the FESOP operational and emission limitations limits the hazardous air pollutant (HAP) emissions to less than 10 tons per year of any single HAP and 25 tons per year total HAPs, the facility is not subject to the federal Off-Site Waste and Recovery Facilities regulation in 40 CFR 63 Subpart DD as exempted in 40 CFR

63.680(a)(1).

- c. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- d. This permit supersedes all operating permits issued for this location.

2. The facility includes storage tanks subject to a New Source Performance Standard (NSPS) for volatile organic liquid storage 40 CFR 60 Subpart Kb. The Permittee shall limit the use of the storage of volatile organic material in tanks as follow unless equipped with vapor recovery:
  - a. Tanks greater than 151 m<sup>3</sup> (39,894 gal) shall not store volatile organic liquids with vapor pressure greater than 3.5 kilopascals (0.5 psia), 40 CFR 60.112b(a).
3. The operation and emission shall not exceed the following limits:
  - a. Oil fired combustion equipment including a 12.6 mmBtu/hr Clever Brooks boiler and 2 mmBtu/hr hot oil heater unit.

<u>Total Fuel Usage</u> (kgal/Yr)	<u>Pollutants</u>	<u>Emissions</u> (Ton/Yr)
70	PM	0.07
	NO <sub>x</sub>	0.84
	CO	0.18
	SO <sub>2</sub>	1.39
	VOM	0.01

Compliance with the above limits shall be determined from the required records of fuel usage and standard emission factors.

- b. Distillation equipment including: LUWA thin film evaporator with main condenser controlled by carbon adsorbers; distillation column controlled by two carbon adsorbers; and Sigma pot still controlled by carbon adsorbers. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

<u>Equipment</u>	<u>Liquid Throughput</u> (Ton/Yr)	<u>Carbon Adsorber</u> (%)	<u>VOM Emissions</u> (Ton/Yr)
Distillation Units	8,000	95	0.66

<u>Equipment</u>	<u>HAPs Throughput</u> (Ton/Yr)	<u>Carbon Adsorber</u> (%)	<u>HAP Emissions</u> (Ton/Yr)
Distillation Units	6,000	95	0.50

Compliance with the above limits shall be determined from the required monthly records, adherence to good operating practice

and applicable emission factors. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- c. Volatile organic material (VOM) and hazardous air pollutant (HAP) emissions from the storage tanks and loadout:

<u>Equipment</u>	<u>Operation (Hrs/Yr)</u>	<u>VOM Emissions (Ton/Yr)</u>	<u>HAP Emissions (Ton/Yr)</u>
Storage Tanks & Loadout	8,760	17.00	12.75

Compliance with the VOM emission limits shall be determined from records of actual usage based on the required records and standard emission calculation methods. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- d. Volatile organic material (VOM) from fugitive leaks:

<u>Equipment</u>	<u>Operation (Hrs/Yr)</u>	<u>VOM Emissions (Ton/Yr)</u>	<u>HAP Emissions (Ton/Yr)</u>
Pumps, Valves, Flanges and Opens	8,760	4.0	3.0

Compliance with the fugitive emission limits shall be determined from results of the required leak detection and repair program and applicable emission factors. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- e. Volatile organic material (VOM) and hazardous air pollutants from the air stripper.

<u>Operation (Hours/Year)</u>	<u>VOM Emissions (Tons/Year)</u>	<u>HAPs Emissions (Tons/Year)</u>
8,760	0.44	0.44

Compliance with the VOM emission limits shall be determined from records of actual usage based on the required records and standard emission calculation methods. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- 4a. Waste liquids shall only be received and blended in tanks with carbon adsorber controls or into tanks less than 40,000 gallons capacity or when waste liquids are known to have vapor pressures less than 0.5 psia as required by 35 Ill. Adm. Code 219.119.
- b. The Permittee shall keep adequate records to demonstrate compliance

with Special Condition 4(a) to show vapor pressure, size of the tank and availability of the control equipment.

5. Each carbon adsorber system controlling emissions from an operating distillation unit shall be tested daily for breakthrough of 500 ppm hexane at the outlet of the primary bed and replace it if breakthrough has occurred.

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6. Each carbon adsorber system controlling emissions from tanks shall be tested weekly for breakthrough of 500 ppm hexane at the outlet of the primary bed and replace it if the breakthrough has occurred.
7. Each uncontrolled storage tank shall be sampled at least monthly to determine the vapor pressure of the liquid stored, based upon the top layer of liquid.
8. The distillation condenser overhead outlet temperature shall be recorded hourly during operation.
9. Each distillation unit condenser shall be operated at temperature and pressure conditions assuring condensation of the most volatile chemical components being recovered.
10. During distillation all reasonable measures shall be taken to limit the amount of non-condensable gases vented through the condenser.
11. The Permittee shall maintain the following monthly records:
  - a. Amount of fuel oil burned (gal/month).
  - b. Results of each carbon adsorbers testing.
  - c. Results of leak monitoring and repair.
  - d. All liquid amounts transferred shall be recorded.
  - e. Liquid throughput of each controlled tank.
  - f. Liquid throughput of each uncontrolled tank.
  - g. Chemical analysis results of all of samples taken.
  - h. Amount of water treated by air stripper.
12. Within 90 days of issuance of this permit a leak detection and repair program shall be developed and implemented to reduce fugitive volatile organic material and hazardous air pollutant emissions. The program shall incorporate the following provisions.
  - a. The plan shall include all pumps, compressors, valves,

agitators, pressure relief valves, closed-vent system and product accumulator vessels that are not otherwise exempted from the monitoring program.

b. The plan shall exclude the following types of equipment from monitoring:

i. Has no externally actuated shaft penetrating the pump.

ii. Equipment in vacuum service.

- iii. Pumps equipped with a dual mechanical seal system that includes a barrier fluid system if it is operated at a pressure that is always greater than the pump stuffing box pressure.
  - iv. A compressor is exempt from the requirements if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device.
  - v. In-situ sampling systems are exempt.
- c. The plan shall meet the following minimum leak prevention requirements:
- i. Each sampling connection shall be equipped with a closed-purge system or a closed vent system.
  - ii. Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve. The cap, blind flange, plug or second valve shall seal the open-end at all times except during operations requiring process fluid flow through the open-ended valve or line.
  - iii. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the process fluid end is closed before the second valve is closed.
- d. The plan shall provide for inspections and monitoring as follows:
- i. Weekly visual, audible, and olfactory inspection of all potentially leaking equipment items.
  - ii. Monthly instrument monitoring in accord with USEPA Method 21 with 10,000 ppm hexane being a leak.
- e. The plan shall determine a leak by the following manner:
- i. A leak is found during inspection by visual, audible or olfactory sense.
  - ii. A leak is determined as a measure concentration of at least 10,000 ppm using USEPA Method 21.
- f. The plan shall provide for the following repair actions:
- i. When a leak is detected, it shall be repaired as soon as

practicable, but not later than 15 calendar days after it is detected.

- ii. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

- iii. First attempts at valve repair include, but are not limited to the following best practices where practicable:
  - A. Tightening of the bonnet bolts;
  - B. Replacement of the bonnet bolts;
  - C. Tightening of packing gland nuts; and
  - D. Injection of lubricant into the lubricated packing.
- iv. Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.
- g. The following records shall be maintained:
  - i. Records of inspections and date(s) for each weekly and monthly inspection.
  - ii. Record of each leak detected for two years.
  - iii. Repair actions and dates for each leak detected.
- 13. Within 90 days of written request from the Illinois EPA, pursuant to 35 Ill. Adm. Code 201.282 the emissions of volatile organic materials (VOM) shall be measured by an approved testing service using the appropriate USEPA methods, under conditions which are representative of maximum operation.
- 14. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
- 15. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois with 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a

description of the exceedance or violation and efforts to reduce emissions and future occurrences.

16. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not equal or exceed 10 tons per year of any single HAP or 25 tons per year of any combination of such HAPs, or such lesser quantities as USEPA may

establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.

17. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing, or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency  
Divisions of Air Pollution Control  
P.O. Box 19276  
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Divisions of Air Pollution Control  
2009 Mall Street  
Collinsville, Illinois 62234

18. Annual emissions of regulated air pollutants shall not exceed 24 ton/yr volatile organic materials, which shall be the permitted emissions for this site.

If you have any questions on this, please call Jim Cobb at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:JDC:jar

cc: Illinois EPA, FOS Region 3  
Illinois EPA, Compliance Section  
USEPA, Region V

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the solvent recovery facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are limited below the 10 tons per year any single hazardous air pollutant or a total of 25 tons per year of hazardous air pollutants at which this source would be considered a major source for purpose the Clean Air Act Permit Program (CAAPP) and subject the facility to the federal Off-Site Waste and Recovery Facilities regulations, 40 CFR 63 Subpart DD.

1. Emissions and operational limitations:

- a. Oil fired combustion equipment including a 12.6 mmBtu/hr Clever Brooks boiler and 2 mmBtu/hr hot oil heater unit.

Total Fuel Usage (kgal/Yr)	Pollutants	Emission Factors (Lb/kgal)	Emissions (Ton/Yr)
70	PM	2.0	0.07
	NO <sub>x</sub>	24	0.84
	CO	5	0.18
	SO <sub>2</sub>	39.8	1.39
	VOM	0.34	0.01

Compliance with the above limits shall be determined from the required records of fuel usage and standard emission factors. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- b. Distillation equipment including: LUWA thin film evaporator with main condenser controlled by carbon adsorbers; distillation column controlled by two carbon adsorbers; and Sigma pot still controlled by two non-regenerative carbon adsorbers.

<u>Equipment</u>	Liquid Throughput (Ton/Yr)	Carbon Adsorber (%)	VOM Emissions (Ton/Yr)
Distillation Units	8,000	95	0.66

<u>Equipment</u>	HAPs Throughput (Ton/Yr)	Carbon Adsorber (%)	HAP Emissions (Ton/Yr)
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Distillation	6,000	95	0.50
Units			

Compliance with the above limits shall be determined from the required monthly records, adherence to good operating practice and applicable emission factors. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- c. Volatile organic material (VOM) and hazardous air pollutant (HAP) emissions from the storage tanks and loadout:

<u>Equipment</u>	<u>Operation (Hrs/Yr)</u>	<u>VOM Emissions (Ton/Yr)</u>	<u>HAP Emissions (Ton/Yr)</u>
Storage Tanks & Loadout	8,760	17.00	12.75

Compliance with the VOM emission limits shall be determined from records of actual usage based on the required records and standard emission calculation methods. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- d. Volatile organic material (VOM) from fugitive leaks:

<u>Equipment</u>	<u>Operation (Hrs/Yr)</u>	<u>VOM Emissions (Ton/Yr)</u>	<u>HAP Emissions (Ton/Yr)</u>
Pumps, Valves, Flanges and Opens	8,760	4.0	3.0

Compliance with the fugitive emission limits shall be determined from results of the required leak detection and repair program and applicable emission factors. Compliance with the annual limits shall be determined monthly using the last 12 months of data.

- e. Volatile organic material (VOM) and hazardous air pollutants from the air stripper.

<u>Operation (Hours/Year)</u>	<u>VOM Emissions (Tons/Year)</u>	<u>HAPs Emissions (Tons/Year)</u>
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Compliance with the VOM emission limits shall be determined from records of actual usage based on the required records and standard emission calculation methods. Compliance with the annual limits shall be determined monthly using the last 12 months of data.