

April 9, 1973  
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBPART X WORKGROUP PROJECT

Part B Permit Applications, Mechanical Unit Information.

BACKGROUND

Mechanical units used to manage hazardous waste are subject to the permitting requirements of 40 CFR Part 270 and Subpart X of 40 CFR Part 264. The permitting process requires owners and operators of "Miscellaneous Units" to conduct an environmental assessment to insure that their treatment, storage, and disposal of hazardous waste is protective to human health and the environment. To stream-line the permitting of "mechanical units", especially those fully enclosed in a containment structure such as a building, an environmental assessment may not be necessary.

The permittee must be able to justify that an environmental assessment is unnecessary. To do this, the permittee must provide all design and operating information necessary to backup this claim. The permit writer must be able to assess whether adequate safeguards are engineered into the system. Additionally, the permit writer may specify design and operating conditions considered appropriate for the technology and site, such that the unit will not impact any environmental media.

If, in the opinion of the permit writer, there exists a potential for significant health or environmental risk, then the permit must require adequate risk mitigative measures. In the case of most mechanical units, the primary concern will be the migration of waste constituents in the air. Of course, other variables such as regulatory compliance history and the complexity of waste streams should be considered before waving a part or all of this assessment.

Enclosed is a summary of information collected from various regions which should be of help in permitting proposed mechanical units. This information is provided as a guide. Permit conditions must be case/site-specific. For cases where a proposed mechanical unit is in the planning stages, sufficient detailed information must be submitted in the Part B Permit Application to satisfy the above mentioned concerns.

Enclosure**I. Design**

a.) 40 CFR 270.23/264.601; Containment device description. Dimensions, construction materials, and controls must be described. Engineering drawings must be provided to determine design specifications and dimensions.

example permit conditions: CONTAINMENT SYSTEMS

1. The Permittee must construct, maintain and operate the secondary containment systems in accordance with the attached specifications, contained in Attachment #.
  - a. Incorporate the applicable regulatory requirements of 40 CFR 264.175 and 264.193(b)-(f).
  - b. The concrete base of all active portions within the shredding building (unit's secondary containment areas as well as routes within the building used to move wastes to be shredded) must be sufficiently impermeable to contain leaks, spills, and accumulated precipitation until detected and removed. In addition, the Permittee must maintain the concrete of the active portions of the shredder building with an impervious coating, and repair any detected cracks.
2. The Permittee must construct and maintain the building that contains the shredder in accordance with the attached specifications, contained in Attachment #. (Building Codes of the authority having jurisdiction must be met.)
3. The shredder room shall be provided with a fire alarm and extinguishing system that meets the National Fire Prevention Association (NFPA) requirements for Type B (flammable liquids) and Type C (energized electrical equipment) fires.

b.) 40 CFR 270.23/264.601; Shredder equipment description. Process equipment units, dimensions, construction materials and controls must be described. Unit drawings and manufacturer's process equipment literature must be provided to determine design specifications.

example permit condition: SHREDDER SYSTEMS

1. The shredder feed chute, shredder and discharge chute must bolted together with air tight seals.

2. The electric motors, switches, circuit-breakers, lightings and fixtures, including the power supply and distribution systems located inside the shredder room must be rated for explosion-proof services (i.e., Class I, Group D, or Division I-A under the National Electrical Code). There may be electrical equipment inside the shredder building that is ordinary service (wall outlets, emergency lights, etc.).
3. All machinery and equipment used in conjunction with the shredding operations must be tied to the plant grounding grid.
4. The units, as detailed in Attachment #, are designed to produce a relatively uniform solid hazardous wastestream to produce a hazardous waste fuel. The shredder system consists of ...(unit specific).

#### Compliance Schedule

1. The Permittee must submit the following information for approval and, if necessary, modification:
  - a. At least # days before beginning construction of the shredder building and containment area, detailed construction drawings. Design specifications necessary to comply with permit conditions as well as to insure the unit will be protective to human health and the environment.
  - b. At least # days before beginning construction of the shredding unit, detailed construction drawings of the system. Design and operational specifications necessary to comply with permit conditions as well as to insure the unit will be protective to human health and the environment.
2. Treatment of hazardous waste in the shredder system is prohibited until the Permittee submits the following:
  - a. Certification by the Permittee and an independent, Connecticut registered Professional Engineer, stating that the shredding system (including containment building) has been constructed according to the construction drawings and specifications in Permit Condition #.
  - b. Certification by the Permittee that the surface of the concrete containment system has been finished with an impervious coating.

## II. Operations

a.) 40 CFR 270.23/264.601; Shredder operational description. A description of the operation of the units must be provided to determine operational conditions.

example permit conditions: OPERATING REQUIREMENTS

For emission control, include permit conditions needed to meet the standards of 40 CFR Subpart AA and BB for the entire shredder system.

1. Waste containers are moved from the storage area to the shredder staging area identified in Figure #.
2. Describe the unit feed process. (i.e., manual, semi-automatic, automatic feed)
3. Describe the discharge process. (i.e., how shredded waste is discharged from the unit to fuel blending process tank #.)
4. The Permittee may process # (gallons/day) of hazardous waste in the shredder system identified in Permit Condition #.
5. The Permittee must verify that the shredder is free of ignitable material before metal drums are treated in the unit.
6. The Permittee shall not shred hazardous waste unless the following requirements are fully complied with: (Shredder system must be operated to prevent explosions and fires within the unit caused by the treatment process as well as the accumulation of ignitable waste.)
  - a. The shredder system identified in Permit Condition # must be nitrogen purged when in operation or when material is in the unit whenever potentially flammable materials are being processed. Introduction of the nitrogen must be detailed to insure that there is nitrogen flow throughout the shredder equipment.
  - b. The shredder must have negative air draft hoods in operation while treating or when material is in the unit, as specified in Attachment #.
7. Air monitoring for organic vapors in the vicinity of the shredding equipment must be performed, at a minimum, once per hour during operation or when material is in the shredder unit, as specified in Permit Condition #. The location(s) of the air sampling must be immediately above the feed chute and/or discharge chute of the shredder.

- a. If detectable emissions exceed 500 ppm above background, treatment in the unit must be stopped. Before resuming treatment operations, the units venting system must be modified to prevent organic vapor emissions to the treatment area.
8. The shredder system must be vented to the Vapor Oxidation Unit (VOU)/ Carbon Absorption Unit (CAU) when in operation or when material is in the unit, as described in Permit Condition #.
  9. The total hydrocarbon concentration of the ventilation air released into the atmosphere, monitored as specified in Permit Condition #, shall not exceed 20 ppmv.
  10. The shredder system's emission control device shall be designed and operated to reduce the organic emissions vented to it by 95 weight percent or greater; or to achieve a total organic compound concentration of 20 ppmv, expressed as the sum of the actual compounds, not carbon equivalent, on a dry basis corrected to 3 % oxygen. Control device monitoring is in accordance with Permit Condition #.
  11. Describe operational safety features that are to be initiated when any of the operating conditions deviate from the limit specified in the permit. (i.e., automatic feed cut-off system/ manual shut-down procedure, interlocks, etc.)
  12. The Permittee shall operate the drum shredder in such a manner that will eliminate spillage of any material before, during and after being shredded.
  13. The Permittee shall ensure operation of all automatic equipment that prevent spills and overflows from a treatment device, tank or containment system.

### III. Inspection/Monitoring/Maintenance

a.) 40 CFR 270.23/264.602; Inspection, monitoring and maintenance plans must be provided to insure the unit is properly operated and maintained to protect human health and the environment.

example permit conditions: INSPECTION REQUIREMENTS

1. The Permittee must inspect the shredder system once per shift in accordance with Attachment #.
2. The Permittee must inspect the following, to ensure proper function prior to commencing treatment for each operating

day:

- a. Manual shutdown switch.
- b. Nitrogen purge system.
- c. VOU/CAU venting system.
- d. Negative air draft hoods.

example permit conditions: MONITORING REQUIREMENTS

Applicable standards from 40 CFR Subpart AA and BB as necessary to insure vented and fugitive emissions of the entire shredder system are monitored.

1. Lists of monitoring devices, types, locations, operating ranges and limits, calibration frequencies, etc., must be specified.
2. Air monitoring for organic vapors above the shredder feed chute must be taken with a portable organic vapor detector (Reference Method 21 in 40 CFR 60).
3. An oxygen analyzer will be located in the vent duct to provide an indication that the nitrogen purge is adequate.
4. Air monitoring for organic vapors in the ventilation air must be conducted downstream of the VOU/CAU ...
5. The following monitoring devices must be maintained as part of the shredding system:

example permit conditions: MAINTENANCE REQUIREMENTS

1. All hand tools used for operation and maintenance inside the shredding area must be of the spark-proof type.

#### IV. Wastestream Provisions

a.) 40 CFR 264.601; Waste identification/characterization requirements (safety issues).

example permit conditions: WASTE PROVISIONS

1. The Permittee may treat only the hazardous wastes identified in Permit Condition # in the shredder system.
2. The Permittee is prohibited from placing reactive waste in the shredding system.
3. The Permittee must not place incompatible wastes in the shredder system prior to decontamination of the system.