Hazardous Waste Operations with Thermal Desorbers and Condensers

Problem Summary

Many commercial facilities volatilize organic fractions of hazardous waste (HW) and oil-bearing hazardous secondary materials by heating them in thermal desorption units (TDUs) and later condense the volatilized organics.[1] The volatilized gas that doesn't condense is typically routed to an incinerator or flare. The condensed liquid is typically marketed as a HW derived fuel, an exempt on-specification used oil, an exempt input into a petroleum refinery process, a non-fuel product (a degreaser, for example), or a combination thereof, depending on the type of material being processed.

Numerous questions have been raised by regulated industry, Regions, and states about how these operations should be regulated (for example, are they legitimate recycling activities exempt from permitting requirements). The Environmental Technology Council (ETC) has also threatened to file a citizen suit against EPA for not appropriately and consistently regulating these types of facilities.

We recommend this topic be elevated and prioritized in the Permit Integrity Team process. Specific questions/issues needing assessment/resolution at the national level include:

- Should these activities be classified as HW treatment activities requiring a RCRA permit, or as exempt recycling operations?
    - What is legitimate recycling (valued based or quantity based)?
    - Does it make any difference if various physical and thermal treatment units are in one package (box) as opposed to being physically separated?
- Assuming the TDU is exempt:
    - Is a physical treatment unit (e.g., a centrifuge) prior to the TDU exempt?
    - Is the thermal oxidizer exempt if it is considered a combustion unit even if the TDU is exempt?
    - What are the applicable disposal criteria for residue generated in an exempt TDU?
- If a thermal treatment permit is required, should the process be regulated as an incinerator or subpart X treatment unit?
    - Are flares allowable treatment devices? If yes, do we require standards similar to what otherwise would be required for incinerators?
    - When is the thermal process a combustion unit as opposed to an air pollution control device?
        - Is it based on quantity (% of organics or amount combusted) or physical configuration?
- Could we instead regulate these types of operations similarly to how the regulations apply to HW recycling operations applicable to distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations?
    - Emission standards for process vents and equipment leaks apply to the above four types of HW recycling operations if the facility is required to get a RCRA permit for other activities at the facility (e.g., storage).

[1] Based on a preliminary assessment, we know of approximately 12 facilities nationwide that utilize TDUs and condensers (8 in R6, and 1 in R3, R4, R5, and R10). A key part of this effort would include identifying the universe of facilities with this design.

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        - 261.6(d) says: "Owners or operators of facilities subject to RCRA permitting requirements with HW management units that recycle HW are subject to the requirements of subparts AA and BB of parts 264, 265 or 267 of this chapter".
    - Likely would require regulatory change.
- Impact of recent court decision on the 2015 Definition of Solid Waste final rule (including the verified recycler exemption) will need to be assessed.

Potential National Actions and Deliverables

- Policy assessment and development (e.g., memorandum, guidance).
- Communicate recommendations to Regions and states, either in guidance or memorandum.

Milestones

This issue, to a certain degree, is currently a "work in progress" since we prioritized a facility-specific assessment of a facility named Tradebe in East Chicago, Indiana, due to questions raised about whether it should be required to get a RCRA treatment permit. As a result, some of the information gathering activities and issue assessments are already in progress. Nonetheless, it may be appropriate to continue to assess these issues broadly on a national basis. We anticipate that options development (for management decision) could be completed within a year after the decision is made to prioritize this issue. Key milestones for this project would include:

- Identify past/present universe of HW facilities utilizing TDUs/condensers;
- Finish identifying policy/technical/legal issues and past policy statements that could influence information needed to be gathered/assessed;
- Identify key information that would be needed to be gathered to develop and assess options;
- Complete information gathering needed for policy options development; and
- Complete options development for management decisions.

Anticipated Results

Better ensure these recycling operations are consistently regulated in accordance with RCRA and in a manner that is protective of human health and the environment.

Anticipated Challenges

Complicated subject matter, especially since the line delineating between exempt thermal recycling activities and thermal hazardous waste recycling activities that require RCRA treatment permits is not clearly defined. Most of the facilities operating with these types of processes claim much of their design info as RCRA confidential business information, which makes assessment burdensome. This would require assessment of many facilities with many different designs.

Who Would Be Involved

- Michael Galbraith, Sasha Gerhard, Frank Behan, Tracy Atagi, EPA Headquarters (ORCR).
- Kishor Fruitwala (R6), Harry Shaw (R6), Jae Lee (R5), Denise Housley (R4).
- Other Regions with thermal desorber/condenser operations.