Revisions to Standards for the Open Burning/Open Detonation of Explosive Wastes

Public Webinar
December 5, 2022

EPA, Office of Resource Conservation and Recovery

Agenda

- Webinar Objectives
- Background on OB/OD
- Potential Approaches/Considerations for Proposed Rule

Webinar Objectives

Webinar Objectives

- Share EPA's potential approaches and considerations regarding how to amend the RCRA regulations pertaining to the open burning and open detonation (OB/OD) of hazardous waste explosives.

- Provide opportunity for public feedback on potential approaches and questions from EPA.

Contributing Input

- Attendees may provide written input, questions, and comments in the Q&A box.
- EPA intends to respond to questions/input during the webinar, as time allows and will review all input as part of the rulemaking.
- You may also provide written feedback by emailing RCRAPost@epa.gov by December 16, 2022.
- EPA will produce a summary of the webinar to include input submitted during and after the webinar. EPA intends to include a summary of the webinar in the docket for the rulemaking.
- Please note feedback during this webinar is not considered a public comment for purposes of the rulemaking. When EPA publishes the proposed rule, we encourage you to submit your comments to the docket during the public comment period for the rulemaking.

OB/OD Background

Background: EPA Regulations

- In 1980, EPA prohibited open burning, including open detonation, of hazardous waste.
- However, an exception was allowed for OB/OD of waste explosives "which cannot safely be disposed of through other modes of treatment" (40 CFR 265.382).
- Explosives include military munitions, explosives, gun and rocket propellants (e.g., RDX, HMX, IMX, TNT, and perchlorate), fireworks, and flares that are discarded.

Background: EPA Regulations

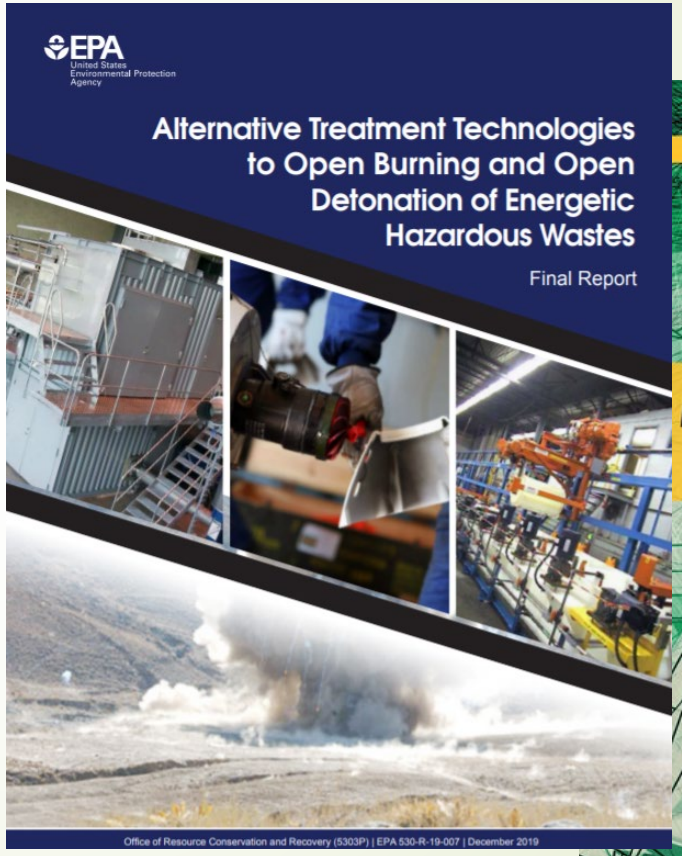
- In 1987, EPA finalized permitting standards for miscellaneous units (40 CFR part 264 subpart X).
- Under Subpart X, units must be designed and operated in manner that will ensure protection of human health and the environment (40 CFR 264.601).
- In the preamble to the 1987 rule, EPA listed OB/OD of waste explosives "as defined in § 265.382" as example units covered under Subpart X.

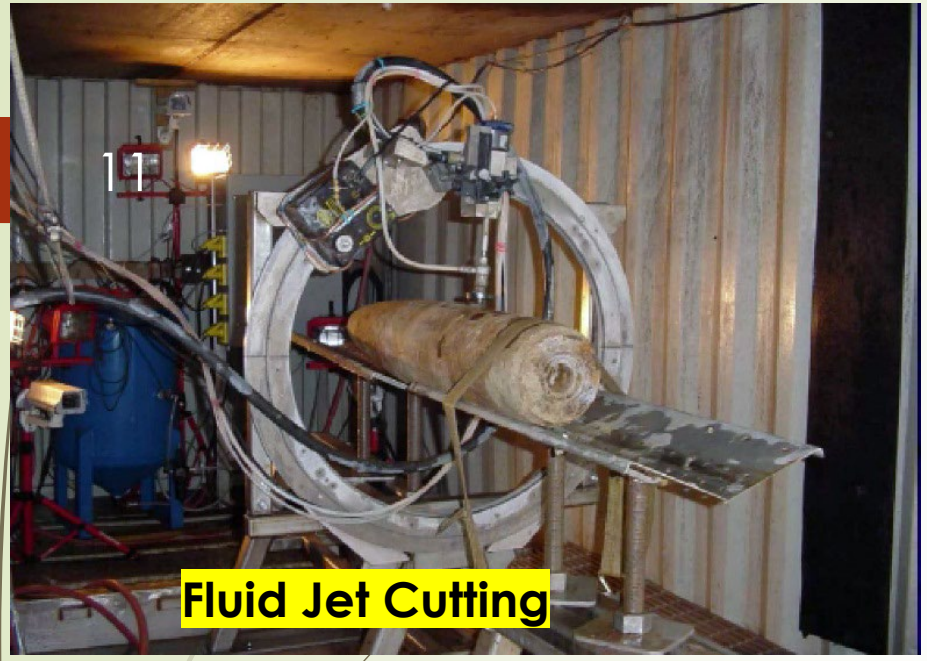
Background:
Concerns with OB/OD

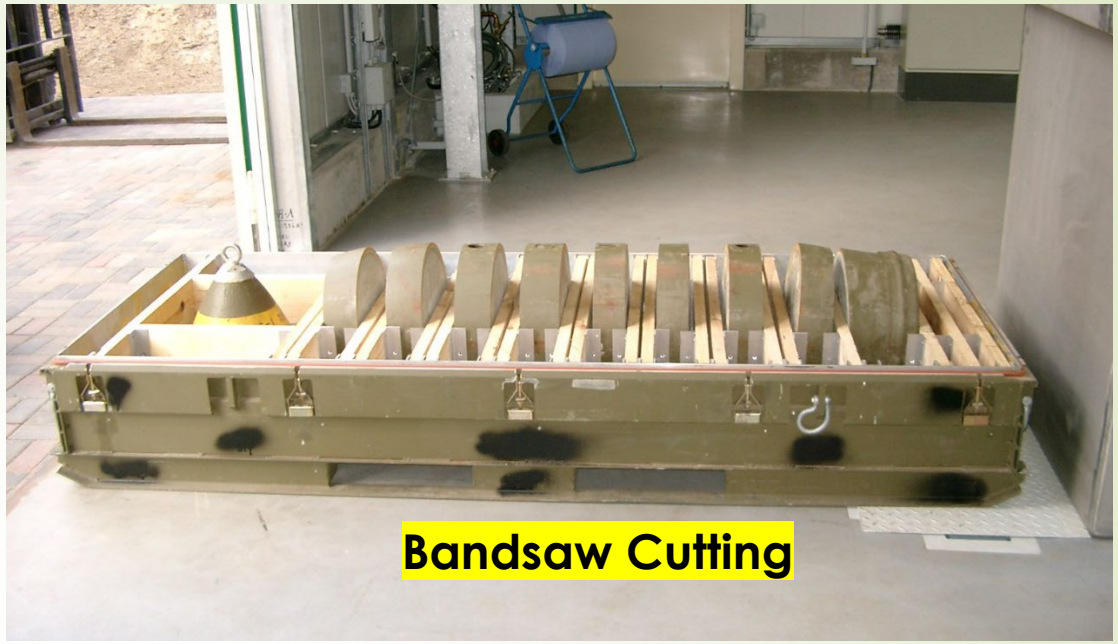
- OB/OD lacks controls needed for complete combustion and for control of emissions.
- Potential to release heavy metals, perchlorate, particulates, PFAS, dioxins/furans, explosive compounds, and other toxic contaminants.
- Communities are concerned with contamination of air, soils, surface water, sediments, and groundwater through release, deposition and kickout.

Background: Alt Tech Reports

- In 2019, the EPA and the National Academies of Sciences, Engineering, and Medicine (NASEM) published separate reports describing many alternative technologies now available to treat explosive waste.
- In response, EPA has taken two actions: issued a policy memo and initiated rulemaking.







Source: *Alternative Treatment Technologies to Open Burning and Open Detonation of Energetic Hazardous Wastes*, EPA-ORCR 20192


Controlled Detonation Chamber


Static Detonation Chamber


Contained Burn Furnace

Detonation Chamber


Supercritical Water Oxidation


Decineration Rotary Furnace

Source: *Alternative Treatment Technologies to Open Burning and Open Detonation of Energetic Hazardous Wastes*, EPA-ORCR 20192

Background: OB/OD Policy Memo(Issued June 2022)

- Purpose of the memo is to communicate *existing* requirements and provide guidance to Regions, states, and territories. See: https://rcrapublic.epa.gov/rcraonline/details.xhtml?rcra=14946

- Under the *existing* requirements, OB/OD facilities **must** evaluate—and re-evaluate—whether safe alternative technologies are available.

- Where safe alternatives are available, facilities **must** use those alternatives in lieu of OB/OD.

Background: OB/OD Policy Memo

- EPA acknowledges that OB/OD will still be needed to treat waste explosives that do not yet have other safe modes of treatment.
- Where OB/OD is needed, EPA provided guidance regarding permit conditions to reduce impacts to human health and the environment.
- EPA acknowledges that implementation may be complex; EPA encourages communication among EPA, states, territories, tribes, local communities, and facility owners/operators with respect to site-specific permitting decisions.

Background: Early Engagement

- Held early engagement meetings in March 2022
- Key feedback points heard from early engagement meetings:
    - Regulators: generally, very supportive; concerned with implementation challenges
    - Environmental/Community Groups: ban OB/OD completely (no exceptions)
    - Regulated Entities: safety is highest priority; funding questions; preserve ability to use OB/OD when needed

Potential Approaches/ Considerations for Proposed Rule

Proposed Approach for OB/OD

- EPA is considering adding clarity to the existing RCRA requirements by specifying:
  - Applicability of the rule to TSDFs with exception for time critical emergencies
  - Timelines for conducting alternative technology evaluations;
  - Information that must be included in alternative technology evaluations; and
  - A process for establishing timelines for implementation of safe alternative technologies;
  - Technical standards for OB/OD units
- EPA is considering other potential additions to the proposal including:
  - A prohibition on the OB/OD of certain wastes;
  - Mobile Treatment Units (MTUs) permitting provisions

Applicability

- EPA anticipates the proposed rule would be applicable to RCRA treatment, storage and disposal facilities (TSDFs).
- EPA is considering a potential exemption for *de-minimis* quantities of waste explosives under certain conditions.
  - How to specify de-minimis levels?
- EPA is examining how existing RCRA emergency provisions (e.g., emergency permits, exemptions from permitting) could be adapted under the proposal to not impede responses in emergency situations.
  - Specifying situations warranting an exemption from the requirement to conduct an alternative technology evaluation.
  - Can the waste be safely picked up, transported and stored?

- Pause for Input from Attendees: Applicability

Timelines for Conducting an Alternative Technology Evaluation

- EPA is considering an approach in which the requirement to conduct an initial alternative technology evaluation is linked to permitting actions.
  - Examples: Application for a new OB/OD unit, Class 2 or 3 permit modification, or renewal application for OB/OD unit
  - For the limited number of interim status facilities, initial alternative technology evaluation would be linked to rule effective date. (e.g., one year after the effective date)
- EPA is considering an approach in which owners and operators of OB/OD units would be periodically required to conduct an alternative technology reevaluation.
  - EPA considering specifying a frequency in the regulations (e.g., every five years)
  - EPA is also considering providing the regulator with specific authority to request a reevaluation in the event new information becomes available suggesting the conclusions in the most recent evaluation may no longer be supported

Alternative Technology Evaluations

- As noted previously, under the *existing* requirements, OB/OD facilities **must** evaluate—and re-evaluate—whether safe alternative technologies are available, and where available, facilities **must** use those alternatives in lieu of OB/OD.
- The evaluation is necessary to demonstrate that OB/OD facilities are eligible for the exception to the prohibition on OB/OD of waste explosives.
- Because the existing regulation does not include a clear process for demonstrating how facilities can be eligible for the exception, EPA is considering:
  - 1) Clarifying that a demonstration is necessary and can be accomplished through an evaluation of safe and available alternatives; and
  - 2) Providing the **criteria** by which the alternative technologies are to be evaluated against and the required **content** for inclusion in the evaluation that would be approved by the permit agency.

Alternative Technology Evaluations

- Criteria for evaluating whether an alternative treatment technology is **safe** and **available** and if so, would require implementation of the technology.
- For determining whether technologies are **safe**, consider:
  - Operational safety - technology must not create *unreasonable risk of injury* (I.e., by substantially increasing the likelihood of unintentional explosion) to personnel operating the unit.
  - Monitorability - technology must be monitorable both in terms of operational controls and effluents/emissions resulting from treatment operations to ensure *protection of human health and the environment*.
  - Toxic by-products - technology must be able to treat any toxic by-products to levels that are *protective of human health and the environment* before release.
- For determining whether technologies are **available**, consider:
  - Current sources of information including EPA and National Academies of Science, Engineering, and Medicine reports. Both reports discuss technologies that have been successfully used in full-scale demilitarization operations.
  - What technologies have been developed to date for certain waste streams.

Alternative Technology Evaluations

- Criteria that may be considered to further select among alternatives identified as safe and available. These would not be mandatory considerations but could be referred to when determining which identified technology/technologies to implement.
  - Utility demands required to operate alternative technologies
  - Throughput capacity
  - Maintainability
  - Reliability
  - Cost

Alternative Technology Evaluations

- Content for inclusion in the alternative technology evaluation that will provide the necessary information to ensure a complete review is conducted and to allow for the regulatory agency reviewing the evaluation to understand and determine whether the conclusions presented by the facility are acceptable.
  - Description of Facility Operations
  - Characterization of Wastes
    - Grouping by **physical** configuration (e.g., bulk, small/med/large cased munitions)
    - Identify **chemical** composition of each waste stream item
    - For example, under large-cased munitions, one entry may be: 25 ammonium perchlorate rocket motors, 60 lbs propellant per motor, 1,500 lbs per year, contains ammonium perchlorate, aluminum, polyurethane, and nitroguanidine, and is treated by OB.

Alternative Technology Evaluations

- Content for inclusion (continued)
  - Initial Screening of Available Alternative Technologies
  - Identification of Alternative Technologies According to Individual Waste Streams
  - Identification of Candidate Alternative Technology or Technologies
  - Identification of Individual Waste Streams Requiring OB/OD
  - Potential for Offsite Treatment Using Alternative Technologies
  - Optional Alternative Technology Criteria
- Alternative Technology Evaluation Submittal and Approval.

Timelines for Implementing Alternative Technologies

- EPA is considering an approach under which the regulations would provide a process for owners/operators and the regulators to develop facility-specific, enforceable implementation schedules for alternative technologies.
  - Flexible yet enforceable approach that allows for waste-stream specific and facility-specific considerations when developing schedules of implementation
- Other options under consideration by EPA include:
  - National implementation deadline established by regulation (e.g., four years from the identification of a safe alternative)
  - Implementation deadline established by regulation for priority facilities (e.g., those in sensitive locations)

- Pause for Input from Attendees: Alternative Technology Evaluations and Implementation

OB/OD Technical Standards

- EPA recognizes the need for continued, limited use of OB/OD for waste explosives where there is no safe alternative treatment technology available
- To ensure consistent protections for OB/OD, EPA envisions proposing minimum standards for permitted units
- EPA is considering proposing minimum permit standards that describe conditions to include in a permit, but do not specify the parameters of that condition
  - For example, all permits would be required to have a condition that sets parameters for wind speed and direction
- Requirements fall into two categories: operating requirements and monitoring requirements

OB/OD Operating Requirements

- Operating parameters established for each waste stream
- Atmospheric conditions: wind speed, direction; air temperature; precipitation restrictions; cloud conditions
- Waste processing limits: time of day for OB/OD events; maximum net explosive waste (NEW) in single event, per day, per calendar year; removal of excess materials prior to OB/OD; maximum number of OB/OD events per day
- Design considerations: run-on/run-off controls; soil cover requirements and soil/earth lining design (OD)
- Safe distance plan
- Prohibited wastes
- Public outreach plan, e.g., notification of OB/OD events

OB/OD Monitoring Requirements

- Soil monitoring plan
- Groundwater monitoring plan most likely to detect any water table contamination
- Surface water monitoring
- Air monitoring downwind of OB/OD unit at or near the boundary
- Monitoring plan must include sampling plan, analysis and evaluation plan, response/notification procedures for contamination found, public accessibility to monitoring data/results

Prohibited Wastes

- EPA is proposing to prohibit treatment by OB/OD of specific wastes of concern
- Wastes of concern would include those for which
  - OB/OD process creates byproducts that pose unacceptable risks to human health and the environment; or
  - OB/OD is an ineffective treatment method (e.g., disperses rather than destroys)
- EPA is proposing to prohibit treatment by OB/OD for
  - Chemical weapons
  - Depleted uranium (DU)
  - White and red phosphorous
  - Certain per- and poly-fluoroalkyl substances (PFAS)
  - Certain insensitive munitions formulations
  - Tungsten

- Pause for Input from Attendees: OB/OD Technical Standards

Mobile Treatment Units

- EPA is considering proposing provisions to facilitate the use of mobile treatment units (MTUs) as an alternative technology solution for treating hazardous waste explosives.
- MTUs could provide considerable benefits with respect to some explosives waste streams:
  - Cost-efficient for smaller quantities, fast implementation, less OB/OD, less off-site transportation of waste explosives
- EPA is evaluating how a permitting framework for MTUs treating waste explosives could be developed within the broader RCRA regulatory structure.

Mobile Treatment Units

- One approach under consideration is a two-stage permitting process that allows for the issuance of a RCRA permit at each location an MTU intends to operate.
  - Stage one: A national conditional approval by EPA that includes the national design and operational standards for the MTU, or group of identical MTUs, and public notice and comment that would be valid for every location the MTU is used.
  - Stage two: final issuance of RCRA permit on a site-specific basis to treat waste explosives that would include the standards from the national conditional approval plus limited site-specific criteria and public notice.
    - The goal would be for this stage to entail significantly less burden than the first stage.
  - Areas of particular focus under this potential approach include state authorization, public participation and input, and corrective action

- Pause for Input from Attendees: Mobile Treatment Units

- Pause for Input from Attendees: Open Discussion

Next Steps and Closing Remarks

Next Steps

- You may provide written feedback after this meeting by emailing RCRAPost@epa.gov by December 16, 2022.
- EPA plans to provide a summary of input received during and after this webinar in the docket for the proposed rule.
- EPA intends to publish its proposed rule in 2023. You may then provide feedback on the proposed rule during the public comment period.
- For more information, see https://www.epa.gov/hwpermitting/energetic-hazardous-wastes

Closing

Thank you! We appreciate your interest in this topic and for providing feedback to inform EPA's future policies.