

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Parts 124, 260, 264, 265, 270, and 271

[EPA-HQ-OLEM-2021-0397; FRL-8592-01-OLEM]

RIN 2050-AH24

### Revisions to Standards for the Open Burning/Open Detonation of Waste Explosives

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA or the Agency) proposes to revise regulations that allow for the open burning and detonation (OB/OD) of waste explosives. This allowance or “variance” to the prohibition on the open burning of hazardous waste was established at a time when there were no alternatives for the safe treatment of waste explosives. However, recent findings from the National Academy of Sciences, Engineering, and Medicine (NASEM) and the EPA have identified safe alternatives which are potentially applicable to treat some energetic/explosive waste streams. Because there may be safe alternatives available and in use today that capture and treat emissions prior to release, regulations would be revised to describe specified procedures for the existing requirements to evaluate and implement alternative treatment technologies. These proposed revisions would reduce OB/OD of waste explosives and increase control of air emissions through improved implementation of existing requirements that facilities must evaluate and use safe and available alternative technologies in lieu of OB/OD.

**DATES:** Comments must be received on or before May 20, 2024. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before April 19, 2024.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OLEM-2021-0397, by one of the following methods:

- **Federal eRulemaking Portal:** <https://www.regulations.gov>. Follow the online instructions for submitting comments.

- **Mail:** U.S. Environmental Protection Agency, EPA Docket Center, OLEM Docket, Mail Code 28221T, 1200

Pennsylvania Avenue NW, Washington, DC 20460.

- **Hand Delivery or Courier:** EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center’s hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

**Instructions:** All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided.

**FOR FURTHER INFORMATION CONTACT:** For further information regarding specific aspects of this document, contact Sasha Lucas-Gerhard (email address: [gerhard.sasha@epa.gov](mailto:gerhard.sasha@epa.gov), phone number: (202) 566–0346) or Paul Diss (email address: [diss.paul@epa.gov](mailto:diss.paul@epa.gov), phone number: (202) 566–0321), in the Program Implementation and Information Division, Office of Resource Conservation and Recovery.

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#### I. General Information

##### A. Does this action apply to me?

This proposed rule potentially affects owners and operators of facilities that use OB/OD to treat waste explosives. This includes facilities that currently treat waste explosives in a miscellaneous unit permitted under 40 CFR part 264, subpart X; facilities that

treat waste explosives under 40 CFR 265.382 (interim status); and other entities that use or would use OB/OD to treat waste explosives, for example, as part of emergency responses conducted under an emergency permit, or as part of cleanup actions.

To determine whether your entity is affected by this action, you should carefully examine the changes to the regulatory text. If you have questions regarding the applicability of this action to a particular entity, consult the person listed under **FOR FURTHER INFORMATION CONTACT**.

##### B. What action is the Agency taking?

EPA is proposing revisions to regulations under the Resource Conservation and Recovery Act (RCRA) related to use of OB/OD to treat waste explosives. This includes proposed changes to clarify how facilities would assess whether safe alternatives are available in lieu of OB/OD. In addition, for instances where OB/OD remains the only treatment method for waste explosives, the Agency is proposing minimum technical standards for OB/OD units. The Agency is also proposing a framework for permitting mobile treatment units (MTUs, proposed definition in § 264.10), which could be used as an alternative to OB/OD. EPA finds that these proposed changes would increase protection of human health and the environment by reducing the amount of waste explosives currently being open burned and open detonated and, where OB/OD remains the only available treatment method, by strengthening protections for OB/OD activities.

##### C. What is the Agency’s authority for taking this action?

These regulations are proposed principally under the authority of section 3004(n), and supported by authorities under sections 2002, 3004 generally, 3005, and 3006 of the Solid Waste Disposal Act of 1965, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). This statute is commonly referred to as “RCRA.”

##### D. What are the overall economic impacts of this action?

EPA estimated the costs and benefits of the proposed rule in a Regulatory Impact Analysis, which is available in the docket for this action. Overall, EPA estimates that the proposed rule would result in quantifiable annual costs of approximately \$6.3 million to \$28.0 million (annualized at a discount rate of

seven percent). The proposed rulemaking's requirements and costs apply to all owners/operators conducting or seeking to conduct OB/OD of waste explosives under RCRA. EPA requests comment on the cost estimates and analysis of this proposed rulemaking. Details of this analysis and requests for comment are presented in the Regulatory Impact Analysis for the Revisions to Standards for the Open Burning/Open Detonation of Explosive Waste Materials Proposed Rule, available in the docket.

#### E. Summary of the Proposed Rule

EPA is proposing revisions to the RCRA regulations to clarify and add specificity to existing requirements for owners/operators of OB/OD units, including how and when to apply and implement the requirements in the permitting process. It also proposes new procedures for the permitting of mobile treatment units for waste explosives and new technical standards for OB/OD units.

Specifically, EPA is proposing to create new Subparts for OB/OD units in Parts 264 (applicable to permitted facilities) and 265 (applicable to interim status facilities). The new Subparts would contain requirements that would apply to all owners/operators conducting or seeking to conduct OB/OD of waste explosives, including activities conducted as part of RCRA cleanup and closure. EPA is also proposing limited requirements for OB/OD emergency permits. EPA is also proposing an exemption from the alternative technology evaluation and implementation regulations for the *de minimis* treatment of waste explosives by OB/OD.

This rulemaking proposes new provisions that would specify how and when owners/operators and permit authorities are to evaluate alternative treatment technologies for OB/OD, including specific information that would be required for facilities to demonstrate whether safe modes of treatment are available for specific waste streams. This rule also proposes new and revised regulatory provisions on timelines for implementing alternative technologies, permitting for alternative technologies, waste analysis/characterization, wastes prohibited/restricted from OB/OD, technical standards for OB/OD units, delay of closure applicability to OB/OD units, clarifications to emergency provisions, and procedures for permitting MTUs. The components of this proposal may be finalized, or not, independently of each other. In addition, EPA intends that the provisions of the rule be severable. In

the event that any individual provision or part of the rule is invalidated, EPA intends that this would not render the entire rule invalid, and that any individual provisions that can continue to operate will be left in place.

## II. Detailed Discussion of the Proposed Rulemaking

### Background

#### A. Introduction to Open Burning and Open Detonation of Waste Explosives and This Rulemaking

What is open burning and open detonation?

Open burning (OB), as currently defined in § 260.10, means the combustion of any material without the following characteristics:

1. Control of combustion air to maintain adequate temperature for efficient combustion,
2. Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and
3. Control of emission of the gaseous combustion products.

Detonation, as currently defined in § 265.382, is an "explosion in which chemical transformation passes through the material faster than the speed of sound." Because the only term defined in part 260 is "open burning," which is related to but different from "open detonation," EPA is proposing to add the terms "detonation," "open detonation," and "open burning/open detonation unit" to the definitions in § 260.10. The proposed definition for "open detonation" is "the detonation of any material without: (1) Containment in an enclosed device and; (2) control of the emission products, causing any unreacted material to be dispersed into the environment. OD refers to both detonation that is not covered and detonation that is covered by soil (buried detonation)"; and the proposed definition for "open burning/open detonation unit" is "any unit used in the OB or OD treatment of waste explosives. These units include but are not limited to detonation pit, burn pile, burn cage, and burn pan units. The permitted unit boundary includes the associated kickout area within the facility, where dispersed metal fragments, unreacted explosives contaminants, and other waste items are deposited onto the land." In addition, EPA proposes to revise the definition of "open burning" in § 260.10 to reference the proposed definition of detonation and to remove the word "gaseous" from "control of emission of the "gaseous combustion products." This proposed

change is because combustion byproducts may also be in the solid phase.

What is an OB/OD unit?

An OB/OD unit is a unit used for the treatment of waste explosives by OB/OD. These units are regulated under RCRA and can include, but are not limited to, detonation pits, burn pits, trenches, piles, burn pans, tubes, and cages. OB/OD units are not enclosed units but are open such that the treatment byproducts are released directly into the environment.<sup>1</sup>

What are waste explosives?

Waste explosives are solid wastes that are hazardous and characteristic for reactivity (D003) as defined under § 261.23(a)(6) through (8): It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure. It is a forbidden explosive as defined in 49 CFR 173.54, or is a Division 1.1, 1.2, or 1.3 explosive as defined in 49 CFR 173.50 and 173.53. Example explosives include but are not limited to propellants from guns, airbag inflators,<sup>2</sup>

<sup>1</sup> For the purpose of compliance with the Land Disposal Restriction (LDR) treatment standards, EPA determined that OB/OD was treatment, not disposal. Land disposal means placement into or on the land. However, EPA clarified that OB/OD constitutes land disposal where residuals [on the land] from the OB/OD operation remain a hazardous waste. Memorandum from Sylvia Lowrance, Director of Office of Solid Waste to Robert Duprey, EPA Region 8, Director Hazardous Waste Management Division, May 18, 1988, RO 13184. [Note: Please note that this memo pre-dates the "Third Third" (June 1, 1990) and Sept 1994 Final Rules, which established LDR requirements for the "explosives subcategory" and the requirement to treat D003 explosives prior to land disposal for "underlying hazardous constituents" as defined in § 268.2, respectively.

<sup>2</sup> While fully-assembled airbag modules contain ignitable propellant, EPA has said that used airbag modules that can safely undergo electronic deployment prior to recovery of metal are considered scrap metal and such deployment does not require a RCRA treatment permit (*Regulatory Status of Automotive Airbag Inflators and Fully Assembled Airbag Modules*, Barnes Johnson, Director, Office of Resource Conservation and Recovery, July 19, 2018, <https://www.epa.gov/hw/regulatory-status-automotive-airbag-inflators-and-fully-assembled-airbag-modules>). Therefore, electronic deployment of these airbag modules for metal recovery would not be subject to the requirements of this rulemaking. However, airbag propellant itself (e.g., off-spec or excess propellant), used airbag inflators, and used airbag modules that cannot safely undergo electronic deployment (such as recalled Takata airbags) are not eligible for the scrap metal exemption and are regulated as hazardous waste. Treatment of these wastes is subject to the requirements of the rule (as would treatment of any airbag modules that are not electronically deployed) if such treatment involves OB/OD.

and rockets (“propellants”), fireworks and flares (“pyrotechnics”), and military and non-military munitions (“munitions”) and become wastes when discarded as defined in §§ 261.2 and 266.202. Military munitions include bombs, warheads, grenades, mines, missiles, and ammunition (see § 260.10 for additional types of explosives defined as military munitions). Waste explosives also include explosives-contaminated debris such as towels, liners, containers, gloves, socks, personal protective clothing, pipes, and soils that meet the § 261.23(a)(6) through (8) explosives definitions quoted above.

#### Contaminants That May Be Released During OB/OD

Waste explosives, when open burned or open detonated, have the potential to release to the environment heavy metals, perchlorate, particulate matter, per- and polyfluoroalkyl substances (PFAS), polychlorinated biphenyls (PCBs), dioxins/furans, explosive compounds, and other toxic contaminants.<sup>3</sup> EPA has documented specific contaminants that exceed action levels in environmental media at OB/OD units that have undergone RCRA closure. These contaminants include explosives (RDX, HMX, TNT, DNT, perchlorate, nitroglycerine), heavy metals (aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, selenium, silver, thallium, zinc), and other contaminants (PCBs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dioxins/furans, dinitrobenzene (DNB), dibromoethane (EDB), endosulfan, ethylbenzene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, nitrates, nitrobenzene, 1,3,5-trinitrobenzene (TNB), xylenes).<sup>4,5</sup> Additionally, many of these hazardous chemicals may exist as mixtures, and have the potential to be released concurrently.

<sup>3</sup> <https://www.epa.gov/fedfac/emerging-contaminants-and-federal-facility-contaminants-concern>.

<sup>4</sup> Alternatives for the Demilitarization of Conventional Munitions, NASEM, January 2019. <https://www.nap.edu/catalog/25140/alternatives-for-the-demilitarization-of-conventional-munitions>.

<sup>5</sup> OB/OD Closure Case Studies, EPA, 2023, available in the docket for this rulemaking. Information about specific chemicals, including information on health and environmental impacts, can be found on EPA’s CompTox Chemicals Dashboard <https://comptox.epa.gov/dashboard/>.

#### Potential Environmental Impacts and Health Effects of Contaminants Released During OB/OD

Incomplete treatment of waste explosives during OB/OD operations can result in the release of waste residuals including explosive kickout (*i.e.*, the dispersal of metal fragments, unreacted explosive contaminants, and other waste items, onto the land) that are hazardous waste and/or explosive waste or contain hazardous constituents and contaminants which may pose a threat to human health and the environment, especially if not removed in a timely manner. As an example, OB/OD of energetic compounds, including obsolete munitions, pieces of ordnance and propellants, in military ranges in China resulted in soil deposition of various energetic compounds.<sup>6</sup> Although OB/OD processes may vary in other countries, as well as by facilities within the United States, the types of environmental damages from OB/OD operations in other countries are illustrative of the types of environmental damages from OB/OD operations in the United States. Therefore, EPA believes this is relevant to this discussion. Substances released during OB/OD also have the potential to migrate into and contaminate the air and deposit onto soil, surface water, groundwater, and subsurface physical structures.<sup>7</sup> Human exposure to contaminants of potential concern released during OB/OD may include but is not limited to inhalation of contaminated air, ingestion of contaminated food and water, and dermal absorption of contaminants. Exposure to these contaminants can cause adverse health effects in humans and animals.<sup>8</sup>

#### Background of Regulatory Requirements

Due to the potential hazards to human health and the environment EPA prohibited the OB, including OD, of hazardous waste in 1980 at interim status facilities with one exception—EPA allowed OB/OD for waste explosives “which cannot safely be

<sup>6</sup> Zhang, Huijun, et al. Contamination characteristics of energetic compounds in soils of two different types of military demolition range in China, *Environmental Pollution*, Volume 295, 2022. <https://www.sciencedirect.com/science/article/pii/S0269749121022363>.

<sup>7</sup> Information about specific chemicals, including information on health and environmental impacts, can be found on EPA’s CompTox Chemicals Dashboard <https://comptox.epa.gov/dashboard/>.

<sup>8</sup> A description of potential environmental impacts and health effects from the contaminants that are released during OB/OD is included in the background document “Background on Potential Environmental Impacts and Health Effects of Contaminants released during OB/OD.”

disposed of through other modes of treatment” (45 FR 33217, May 19, 1980; § 265.382).<sup>9</sup> During that time open burning and open detonation were the only technologies available to treat munitions, waste explosives and bulk propellants; therefore, EPA acknowledged the need for the variance to allow open burning and open detonation of those wastes. This exception, or variance, from the prohibition on OB/OD was not intended to be indefinite. At the time, EPA also committed to monitoring development of new technologies.<sup>10</sup> Interim status facilities refers to facilities that have not yet received a permit to operate but are allowed to continue operations by implementing the standards of part 265.

After establishing interim status standards for thermal treatment in part 265, subpart P, EPA finalized permitting standards in 1987 for hazardous waste management units that were not already covered in the regulations, including OB/OD (part 264, subpart X).<sup>11</sup> In the subpart X rule, EPA listed OB/OD of explosive waste as an example unit covered under subpart X, referring to units “as defined in § 265.382” and used the § 265.382 definition of waste explosives to describe what OB/OD operations could and could not be permitted under subpart X.<sup>12</sup>

The subpart X regulations further direct that permits for such “miscellaneous units” must “contain such terms and provisions as are necessary to protect human health and the environment” (§ 264.601), and permitting authorities generally incorporate applicable provisions from the existing EPA regulations. EPA stated in the preamble to the 1987 rule that “[w]hen upgrading existing units or permitting new units, the applicable portions of part 265, subpart P standards (*e.g.*, minimum safe distances) *will be*

<sup>9</sup> As finalized in 1980, § 265.382 reads “[o]pen burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment. Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level). Owners or operators choosing to open burn or detonate waste explosives must do so in accordance with the following table and in a manner that does not threaten human health and the environment.”

<sup>10</sup> Final Background Document, 40 CFR part 265, subpart P Interim Status Standards for Hazardous Waste Facilities for Thermal Treatment Processes Other Than Incineration and for Open Burning, U.S. EPA, Office of Solid Waste, April 1980; p. 52. “The Agency will be monitoring the progress of the ongoing development of safe alternatives and may propose additional regulations at a later time.”

<sup>11</sup> 52 FR 46964, December 10, 1987.

<sup>12</sup> 52 FR 46952, December 10, 1987.

incorporated during issuance of subpart X permits” (emphasis added).<sup>13</sup> Thus, EPA has long interpreted subpart X to require incorporating the provisions of § 265.382 when permitting OB/OD activities.

RCRA section 3005(c)(1) directs EPA to issue a permit “upon a determination by the Administrator (or a State, if applicable), of compliance by a facility” with the standards promulgated by EPA applicable to owners/operators of hazardous waste treatment, storage, and disposal facilities (TSDFs). This means that to obtain a permit, an interim status facility would need to demonstrate compliance with § 265.382 before issuance of the permit. The facility must demonstrate that the waste “cannot safely be disposed of through other modes of treatment,” and, if there is no safe mode of treatment other than OB/OD, the facility must conduct OB/OD “in a manner that does not threaten human health or the environment.”

Moreover, given the record concerning the release of contaminants, byproducts, and wastes associated with OB/OD, EPA considers that the incorporation of the qualified prohibition in § 265.382 (*i.e.*, an assessment and implementation of alternatives) as a minimum requirement for permitting is necessary to ensure that permitted units are more protective and “operated . . . in a manner that will ensure protection of human health and the environment” (§ 264.601). RCRA section 3005(c) also directs the Administrator (or State), prior to issuing a permit, to “consider improvements in the state of control and measurement technology” in reviewing an application for a permit renewal. (42 U.S.C. 6925(c)(1), (3)). Accordingly, EPA expects that permits are and will be only issued for OB/OD units treating waste explosives as defined in § 261.23(a)(6) through (8) and § 265.382, and that such permits will incorporate the prohibition on OB/OD except for waste explosives “which cannot safely be disposed of through other modes of treatment,” considering the most recent information on available alternative technologies. EPA notes that, during the evaluation and implementation periods for an alternative technology, owners/operators may continue use of OB/OD to treat the subject wastes. Please also see

<sup>13</sup> In addition, shortly after publication of the subpart X final permitting standards, EPA confirmed that “[a]ll thermal treatment is subject to part 265, subpart P; if this was not the case, the standards would not be the same. . . .” Memorandum from Marcia E. Williams, Director of Office of Solid Waste to Robert F. Greaves, EPA Region 3 Acting Chief Waste Management Branch, December 15, 1987, RO 11310.

section “Alternative Technology and Continuity of Operations” for use of OB/OD when an implemented alternative technology is not available.

Also relevant are the provisions in the statute and regulations which provide authority for agency-initiated permit modifications. Under these provisions, Regional, State, and territorial RCRA programs may consider whether cause exists to initiate a modification of existing permits not currently up for renewal. RCRA section 3005(c)(3) stipulates the Administrator (or authorized State) can review and modify a permit at any time during its term. In accordance with this direction, § 270.41(a)(2) authorizes Regional, State, and territorial permitting authorities to modify or revoke and reissue a permit based on “information [that] was not available at the time of permit issuance . . . and would have justified the application of different permit conditions at the time of issuance.” The two 2019 reports (discussed in this preamble) can be considered as this type of information.

#### Overview of OB/OD and Development of Alternative Technologies

Since 1980, approximately two thirds of all RCRA interim status/permitted OB/OD units have ceased operating.<sup>14</sup> However, as of April 2023, there are 67 operating RCRA OB/OD facilities. Permit agencies have issued permits to 63 of these facilities as RCRA hazardous waste treatment units under part 264, subpart X. Four facilities are still awaiting initial permit decisions and continue to operate under interim status.<sup>15</sup> The list of operating RCRA OB/OD facilities is included in the RIA of the proposed rule. This list also adds 2 corrective action facilities currently using OB/OD or that have plans to use OB/OD for treatment of recovered explosives and munitions items.

Given the open design of OB/OD units and their potential to release treatment byproducts directly into the

<sup>14</sup> Munitions Demilitarization/Disposal and Environmental Subgroups of the Joint Ordnance Commanders Group (JOCG) report on the Optimization of Department of Defense Open Burning/Open Detonation Units. The report includes determinations of the criticality of each OB/OD unit, a comparative benefit analysis on the OB/OD units with an intent to remain open, and factors for their considerations to determine whether their maintained OB/OD units are required. This document is available in the docket for the proposed rule.

<sup>15</sup> The four OB/OD facilities operating under interim status are: (1) U.S. Army Picatinny Arsenal (New Jersey), (2) Naval Support Facility Indian Head Strauss Avenue (Maryland), (3) Naval Support Facility Indian Head Stump Neck Annex (Maryland), and (4) Los Alamos National Laboratory (New Mexico).

environment, and associated documented contamination discussed above, OB/OD, consistent with existing regulatory requirements as further communicated in guidance issued by EPA in June 2022,<sup>16</sup> can only be used where there are no other safe modes of treatment available.<sup>17</sup> OB/OD units treating waste explosives are currently permitted under part 264, subpart X. Under the subpart X environmental performance standards, “permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit” (§ 264.601).

When EPA promulgated the 1980 exception to the prohibition to OB/OD for waste explosives, EPA did so because there were no alternative treatment technologies that could safely treat most waste explosives at the time. In the subsequent decades, the Department of Defense (DoD) has researched, developed, tested, and evaluated (RDT&E) alternative technologies, leading to successful implementation of several different alternative technologies.<sup>18</sup> RDT&E efforts, in addition to continuous improvements in alternative technologies, have made such technologies increasingly available. As technology has advanced over time, expectations for demonstrating whether there are no safe and available alternatives have commensurately grown over time.

For facilities, including both Federal and private, that have implemented alternative technologies, a key step in the process is determining which of their explosive waste streams can be treated safely by an available alternative

<sup>16</sup> EPA memorandum from the Director of ORCR to the Regional LCRD Division Directors on “Open Burning and Open Detonation (OB/OD) of Waste Explosives Under the Resource Conservation and Recovery Act (RCRA)” <https://rcrapublic.epa.gov/files/14946.pdf>.

<sup>17</sup> For more discussion on safe modes of treatment see Section II. D. Alternative Technology Evaluation and Implementation.

<sup>18</sup> As described in EPA’s 2019 report, many alternative technologies were first conceptualized, demonstrated, tested, and implemented by DoD (Alternative Treatment Technologies to Open Burning and Open Detonation of Energetic Hazardous Wastes, US EPA, December 2019 [https://www.epa.gov/sites/production/files/2019-12/documents/final\\_obod\\_alttechreport\\_for\\_publication\\_dec2019\\_508\\_v2.pdf](https://www.epa.gov/sites/production/files/2019-12/documents/final_obod_alttechreport_for_publication_dec2019_508_v2.pdf).) EPA also recognizes that private companies have also researched, demonstrated, and tested, and either implemented their alternatives at their facilities or made their alternatives available for purchase.

technology. This step entails, among other considerations, an in-depth evaluation of the waste explosives compared to the capabilities of the available alternative technologies. EPA recognizes that the practice of evaluating and implementing alternative technologies has been taking place over many years despite a lack of specific details in the regulations for how to implement these requirements.

The process of evaluating and implementing alternative technologies may require significant investment in resources and time, depending on the site-specific requirements. An alternative technology evaluation can vary widely in terms of costs based on the number of explosive waste streams that a facility must evaluate, as each must be evaluated against a range of available technologies. Similarly, alternative technology costs, including design, construction, operation, and maintenance, can be significant, and can vary widely depending upon the treatment needs and would be influenced by the complexity of the required technology and whether a combination of technologies is needed to treat a particular waste stream or waste streams. Costs also vary depending on whether a facility needs to design, construct, operate, and maintain its own alternative technology on-site or whether it can transport waste explosives off-site for treatment operated either commercially or by the facility's own enterprise. The use of mobile treatment units presents, for some waste streams, an opportunity for facilities to manage costs in choosing among safe alternative technologies. EPA notes that this proposed rule would establish new requirements to improve implementation of existing requirements established in 1980. Thus, the estimated costs of this proposal include the costs of the new requirements but do not include costs for the existing requirements to evaluate and implement safe alternative technologies, since they were already part of the regulatory framework.

Timing of the process beginning with technology evaluation through technology implementation can also vary considerably. Timing considerations include requesting and securing funding, solicitation of vendors and award of contracts, permitting, construction, and start-up and testing. Federal facilities' funding requests must align with the three-to-five-year budgetary cycle, which means funds may not be available immediately. Additionally, more complex alternative technologies involving high-cost infrastructure may involve longer

Congressional budgeting and appropriations processes. Conversely, EPA is aware of alternative technologies that have been implemented in relatively short timeframes of one to three years, for example in response actions addressed under CERCLA, and at private facilities.

As noted, alternative treatment technologies have been developed and implemented over the past several decades. In 2019, EPA<sup>19</sup> and the NASEM (see footnote 4) published separate reports describing many alternative technologies now available to safely treat explosive waste instead of using OB/OD. Both reports indicated that there appear to be safe available alternative technologies for many waste streams that are currently being open burned. With regard to waste streams that are currently open detonated, there are considerably fewer waste streams that can be treated by alternative technologies due to limited explosion containment capabilities (*e.g.*, some munitions are too large, either in size or net explosive weight (NEW) and cannot be sized-reduced to be safely treated in a chamber or reinforced rotary kiln). Use of safe alternative technologies in general represents a greater level of control and more complete treatment, and therefore better protection of human health and the environment; in addition, capturing and controlling emissions and releases to the environment is more protective compared to treatment open to the environment. Further, since these technologies prevent or greatly reduce the release of hazardous contaminants to the environment, they reduce the chances of exposures, improve the ability to clean close, and avoid the need for post-closure care. More information about closure of OB/OD facilities is available in EPA's OB/OD Closure Case Studies (see footnote 5).

Some energetic and munitions treatment with alternative technologies may be a multi-step process, depending on the starting material and its configuration. Munitions and energetics can be divided into four general categories: thick-case munitions, thin-case munitions, bulk explosives or propellants, and explosive-contaminated materials. The multi-step process may include case opening,

<sup>19</sup> Alternative Treatment Technologies to Open Burning and Open Detonation of Energetic Hazardous Wastes, US EPA, December 2019 [https://www.epa.gov/sites/production/files/2019-12/documents/final\\_obod\\_altechreport\\_for\\_publication\\_dec2019\\_508\\_v2.pdf](https://www.epa.gov/sites/production/files/2019-12/documents/final_obod_altechreport_for_publication_dec2019_508_v2.pdf). "There is a wide range of available alternative treatment technologies that can be, and have been used successfully, in place of OB/OD."

energetic material removal, energetic material destruction, and decontamination. Technologies developed for the case-opening step include reverse assembly, fluid jet cutting, cryofracturing, femtosecond laser cutting or laser machining, and band sawing. For the energetic material removal step, some technologies that have been developed are autoclave meltout, induction heating meltout, washout, dry ice blasting, and ultrasonic separation or sonication. Technologies developed for the energetic material destruction step include closed detonation (controlled detonation chamber (CDC), static detonation chamber (SDC), detonation of ammunition in a vacuum integrated chamber (DAVINCH™), thermal destruction (contained burn, rotary kiln, Decineration™, and rotary furnace), and chemical destruction (alkaline hydrolysis, general atomics neutralization/alkaline hydrolysis, industrial supercritical water oxidation, MuniRem®, Actodemil®). The decontamination step technologies include thermal decontamination (hot gas or steam decontamination, flashing furnace, Decineration™, car bottom furnace) and chemical decontamination (MuniRem®, Actodemil®).<sup>20</sup> For Department of Defense (DoD) facilities, the DoD Explosives Safety Board (DDESB) approves, from an explosives safety standpoint, technologies applying for use within DoD.<sup>21</sup> Although these determinations are very site-specific, in identifying potential alternative technologies it may be helpful to review lists<sup>22</sup> of technologies approved from a safety standpoint by the DDESB (see footnote 20, pg. 11).

#### Public Engagement on Development of the Proposed Rulemaking

In developing this proposed rulemaking, EPA held two rounds of early engagement in March 2022 and December 2022 with States, territories, Tribes, environmental and community

<sup>20</sup> Referral to commercial products or services, and/or links to non-EPA sites does not imply official EPA endorsement of or responsibility for the opinions, ideas, data, or products presented at those locations, or guarantee the validity of the information provided.

<sup>21</sup> DDESB is the DoD organization created in 1928 by Congress to develop, implement, and oversee explosives safety regulations through the DoD Explosives Safety Program for all DoD munitions and munitions-related operations. The DDESB's mission is to protect people, the environment, and infrastructure by preventing accidents involving DoD ammunition and explosives (*i.e.*, military munitions).

<sup>22</sup> EPA, December 2019, p. 30. The 2015 list of eight DDESB-approved technologies was confirmed as current by Mr. M. Luke Robertson (DDESB) in an email to EMS dated July 26, 2017.

groups, and owners/operators of operating OB/OD units (including Federal agencies such as DoD, Department of Energy (DOE), and the National Aeronautics and Space Administration) as well as other members of the public to solicit input on how to amend the hazardous waste regulations with respect to OB/OD. In general, States and territories were very supportive of a proposed rulemaking but concerned about implementation challenges. Owners and operators of OB/OD facilities, including Federal agencies, stressed that safety is paramount when evaluating alternatives and emphasized the importance of retaining the ability to use OB/OD for waste explosives that have no safe alternative. Environmental and community groups want EPA to ban OB/OD completely with no exceptions such as for emergencies. These groups are concerned with exposure to contaminants from OB/OD through inhalation of plumes of smoke migrating into their communities and ingestion of contamination deposited onto soil and leached into groundwater used for irrigation and drinking water. Communities are also concerned with the noise and vibration from OB/OD events. Summaries of these meetings are available in the docket for this proposed rule.<sup>23</sup>

### B. Scope of Applicability

EPA is proposing to create new subparts for OB/OD units in parts 264 (applicable to permitted facilities) and 265 (applicable to interim status facilities). The new subparts would contain requirements that would apply to all owners/operators conducting or seeking to conduct OB/OD of waste explosives, except for those conducting explosives or munitions emergency responses. Applicability would encompass owners/operators of OB/OD units used for RCRA cleanup, closure, post-closure, or corrective action and any persons or entities that conduct or seek to conduct OB/OD of waste explosives. EPA estimates that, as of April 2023, there are 67 TSDFs with operating OB/OD units including four operating under interim status, and 2 corrective action facilities<sup>24</sup> that would

be subject to these proposed requirements.

### Emergency Provisions

Additionally, EPA is proposing to include clarifying text and new regulatory reporting requirements in the subpart Y standards: Emergency Provisions at §§ 264.715 and 265.715 and to revise the existing emergency permit regulations at § 270.61.

These clarifications and additions balance the need to ensure that explosives or munitions emergency responses continue to proceed as expeditiously as practicable by maintaining current exemptions while addressing the potential deleterious human health and/or environmental impacts of OB/OD conducted under temporary emergency permits by requiring that safe alternatives be evaluated and implemented, when practicable. In pre-proposal public engagement, some regulated entities raised concerns that the existing requirement to conduct alternative technology evaluations and implement alternatives when safe alternatives are identified, may result in delays to emergency responses. EPA believes this proposal will address that concern by utilizing the existing exemption from substantive RCRA requirements, including the need to obtain a permit, which by extension, exempts explosives or munitions emergency responses from the requirement to evaluate alternatives. At the same time, the proposal would require submission of specified information after the emergency response is complete. These proposed provisions and their rationale are discussed in more detail in Section II. K. Explosives or Munitions Emergency Provisions.

### Sanitization Under Atomic Energy Act (AEA)

In the 1997 final Military Munitions Rule (MMR), EPA codified a definition for “military munitions” which excluded nuclear weapons, nuclear devices, and non-nuclear components that are managed under DOE’s nuclear weapons program, that have not undergone sanitization.<sup>25</sup> Sanitization is an operation, required under the AEA, that irreversibly modifies or destroys a component or part of a component of a nuclear weapons system, device, trainer, or test assembly. It is EPA’s understanding that DOE occasionally utilizes open burning to sanitize nuclear

and non-nuclear components and parts that either contain explosive residues or are explosive materials themselves. Consistent with the MMR and the supporting legislative history discussed therein, EPA does not consider sanitization operations that utilize open burning to be within the scope of applicability for this proposed rule. However, EPA encourages DOE, when evaluating alternative technologies for its RCRA regulated explosive waste streams, to also consider if an alternative technology could be used for sanitization operations.

### Relationship to CERCLA

During pre-proposal public engagement, some participants also raised concerns that cleanups conducted under the CERCLA may be impeded by any applicable requirements to evaluate and implement alternatives to OB/OD. These participants sought an explicit exemption for CERCLA cleanups. These proposed regulations under RCRA do not grant such an exemption. CERCLA section 121(d) requires that on-site remedial actions attain or waive Federal environmental ARARs, or more stringent State environmental ARARs, upon completion of the remedial action. Substantive RCRA provisions pertaining to waste explosives have been evaluated as CERCLA ARARs on a site-specific basis since their promulgation in 1980.

### De Minimis Exemption From Alternative Technology Evaluation

EPA is proposing an exemption for generators generating up to 15,000 lbs NEW or less of waste explosives from the requirement to conduct a comprehensive alternative technology evaluation provided they make a *de minimis* demonstration.

The proposed *de minimis* exemption regulations would be located at § 264.704(e) for permitted facilities and § 265.704(e) for interim status facilities. The proposed *de minimis* exemption from the requirement to evaluate and implement alternative technologies would require the owner/operator to make three unique demonstrations to the satisfaction of the Director (discussed in this preamble). An owner/operator that satisfactorily made such demonstrations would be exempt from the requirement to conduct an evaluation of alternatives to OB/OD as would otherwise be required under the proposed § 264.707 or § 265.707 regulations. Accordingly, the owner/operator would be exempt from the requirement to implement an alternative technology with the exception of any safe available offsite alternative

<sup>23</sup> Responses to the Environmental Protection Agency Revisions to the Standards for Open Burning/Open Detonation of Waste Explosives Discussion Topics for Virtual Meetings. Summaries from all engagement meetings are available in the docket for this rulemaking.

<sup>24</sup> The two corrective action facilities may or may not be subject to the final requirements depending upon when the activities are completed; they are included in the proposed rule because they currently use OB/OD only for corrective action.

<sup>25</sup> Military Munitions Rule: Hazardous Waste Identification and Management; Explosives Emergencies; Manifest Exemption for Transport of Hazardous Waste on Right-of-Ways on Contiguous Properties. See 62 FR 6624–25, February 12, 1997.

technology treatment options, safe treatment by an existing onsite alternative technology unit, or safe and available treatment by an MTU. The exemption would be limited to only waste explosives generated on site and as proposed to be defined in § 260.10. Thus, the exemption would not exempt additional waste streams from the long-standing prohibition of OB/OD of hazardous wastes that did not meet the definition of waste explosives. As a result of the exemption being limited to waste explosives generated on site, it would also not create an incentive to ship small quantities of waste explosives to different facilities in order to qualify for the exemption. EPA is proposing this *de minimis* exemption for quantities of OB/OD that contribute only trivial contamination or potential for exposure.

Under the proposed terms of the *de minimis* exemption, the owners/operators would have to make three demonstrations, the first of which includes four components, to the satisfaction of the Director. The three demonstrations that would be required are: (1) A demonstration that the proposed *de minimis* treatment by OB/OD would contribute negligible contamination and potential for exposure; (2) a demonstration that treatment by an MTU, treatment off-site by an alternative technology, and treatment by an existing on-site alternative technology, if applicable, are not safe and available; and (3) a demonstration that the facility does not have any unresolved compliance or enforcement actions and does not have a history of significant noncompliance. This section first discusses the first demonstration and its related components being proposed for this exemption, before discussing the two remaining proposed demonstrations.

The first demonstration that would be required, is a demonstration that the proposed *de minimis* treatment by OB/OD would contribute negligible environmental contamination and potential for exposure. This demonstration is essential because it is well established that a *de minimis* exemption is only appropriate in situations where the regulated activity represents only a “trivial” or *de minimis* deviation from the prescribed standard. See, e.g., *Wisconsin Dept of Revenue v. William Wrigley Jr Co*, 505 US 215, 231–232 (1992); *Republic of Argentina v. Weltover, Inc.*, 504 US 607, 618 (1992); *Hudson v. McMillian*, 503 US 1, 8–9 (1992); *Ingraham v. Wright*, 430 US 651, 674 (1977); *Abbott Laboratories v. Portland Retail Druggists Assn., Inc.*, 425 US 1, 18 (1976);

*Industrial Assn. of San Francisco v. United States*, 268 US 64, 84 (1925). Whether a particular activity is a *de minimis* deviation from a prescribed standard is determined with reference to the purpose of the standard. *Wisconsin Dept. of Revenue, supra* at 232. Under RCRA, where the relevant standard is the protection of human health and the environment, this means that the activity in question (here the limited continued OB/OD) would need to produce immaterial or negligible contamination or potential for exposure to qualify as “*de minimis*.” See 42 U.S.C. 6924.

Whether an OB/OD activity could make this first demonstration under the proposed *de minimis* exemption would depend on a variety of site-specific factors. The proposed regulations provide four components that would need to be considered as part of this first demonstration. The first component of this first demonstration specified in the proposed regulations is the quantity of waste explosives proposed to be treated annually by OB/OD under this *de minimis* exemption. EPA is sensitive to the environmental and public health risks associated with even small quantities treated by OB/OD.

At this time, EPA has not determined the exact quantity limit that would present an immaterial contamination potential across all locations and wastes. Rather, EPA is proposing a maximum possible quantity of waste explosives that might qualify for a *de minimis* exemption which would also be the maximum amount of waste explosives the facility could generate. EPA is proposing a framework by which facilities generating under 15,000 lbs NEW of waste explosives annually would be able to apply for an exemption by making a demonstration to the Director’s satisfaction that the OB/OD of that waste would result in negligible contamination and potential for exposure. Specifically, the proposed regulation would limit the exemption to generators generating up to 15,000 lbs NEW annually and specify that under no circumstances will the Director approve a *de minimis* exemption for waste explosives treatment by OB/OD that exceeds 15,000 lbs NEW annually. Of course, at any given facility, once facility-specific information was considered (e.g., waste types, location), the amount treatable by OB/OD under a *de minimis* provision may be significantly lower, or even zero. If the other facility-specific information suggested OB/OD of the proposed quantity of waste presented a material threat of pollution or potential for

exposure, a *de minimis* exemption could not be approved at that facility.

EPA considered the quantities of wastes for which facilities are permitted to OB/OD to inform the specification of a maximum potential quantity limit as part of this process. For comparison, some facilities are permitted to OB/OD 1,000 tons NEW of waste explosives annually. Additionally, EPA notes that the facilities in its closure study that produced significant pollution and have had trouble closing the units due to the contamination, all treated significantly greater quantities of waste by OB/OD annually.

While EPA is proposing an annual maximum quantity of waste explosives that could potentially qualify under a *de minimis* exemption in terms of NEW, other quantity considerations would need to be considered as part of the demonstration, where relevant. For example, gross/total weight would be relevant in some scenarios. In particular, where the explosives or munitions cannot be separated from their packaging for treatment, it would make sense to consider the total weight, as the packaging would also be OB/OD’d and have its own associated contamination potential.

The second component of the first demonstration is the waste stream(s) to be treated and their known or anticipated toxicity and byproducts. This component is important to consider due to the varying byproduct contaminants associated with the various wastes, the degree to which they are bioaccumulative or persistent in the environment, and their potential to migrate. For example, personal protective equipment (PPE) contaminated with explosives that meets the definition of waste explosive is an example of a waste stream for which a *de minimis* exemption would be particularly hard to justify. (Explosives-contaminated PPE and other material that does not itself meet the definition of waste explosive would not fall under the qualified exception for OB/OD.)<sup>26</sup> PPE is one of many combustible materials that can be contaminated with explosives. These combustible materials when open burned generate smoke plumes and large amounts of particulate matter. EPA does not, as a general matter, view these types of wastes as suitable for a *de minimis* exemption due to the potential threat to human health and the

<sup>26</sup> For more discussion on wastes contaminated by explosives see the discussion titled “Clarification of Wastes Contaminated by Explosives” in Section II. F. Permitting of Alternative Technologies.

environment associated with the plumes.

Similar to PPE, other combustible materials, construction/building debris, and noncombustible material contaminated with explosive materials are also poorly suited for OB, which would make a *de minimis* demonstration particularly difficult for these wastes. These wastes potentially generate large amounts of particulate matter, toxic contaminants, and smoke plumes when burned due to the nature of the waste matrix (paper, plastic, cotton, leather, other types of cloth, mops, pallets, wood, dirt, plastic, concrete, masonry, metal, etc.). (As discussed under section F. of this preamble titled, Clarification of Wastes Contaminated with Explosives, treatment by OB/OD of these wastes would generally not be allowed due to availability of safe alternatives.) OB of chlorinated plastics and chlorinated materials can release dioxins and furans. As such, these types of waste streams would generally not be appropriate to OB through a *de minimis* exemption due to the potential for releases to the air of particulate matter and toxic contaminants and/or smoke plumes that may convey off-site and increase risk to receptors.

On the other hand, there are certain waste streams that may be more appropriate candidates for a *de minimis* exemption. One such waste stream is research, development, testing & evaluation (RDT&E) waste. RDT&E wastes tend to be highly variable and are often produced in small quantities. As a practical matter, they are often highly sensitive and difficult to fully characterize, which frequently leads to OB/OD being selected as a treatment method. Given their small quantities, the difficulty associated with characterization, questionable stability, and the limited potential for off-site transportation of pollution, at least when treated via OD, they may be suitable for a *de minimis* exclusion.

The third component of the first demonstration is the location of the OB/OD treatment and its potential to impact nearby receptors, resources, and sensitive environments. The location information would allow for consideration of exposure routes and potential receptors. If, for example, a facility was located close to population centers or near sensitive community resources (e.g., schools, hospitals) the potential for exposure to contaminants from OB/OD would be higher and the *de minimis* demonstration significantly more difficult to make. Similarly, proximity to sensitive or vital environmental receptors such as

aquifers or other drinking water sources or within the 100-year floodplain, would heighten the threat posed by OB/OD and would make a *de minimis* demonstration more difficult—but not impossible—to substantiate.

The fourth and final component that EPA is proposing must be considered as part of the first *de minimis* demonstration is permit conditions and/or other controls or protective measures that are in place and that would inform the potential for contamination onsite and offsite. EPA expects this would be an important criterion because permit conditions, or other controls and protective measures, can reduce the potential for pollution. For example, permit conditions limiting OB/OD treatment to only times with favorable atmospheric conditions would inform whether or not limited OB/OD under a *de minimis* exemption may be acceptable. Another example would be the extent to which the combustion temperature during the open burning would be controlled (e.g., external fuel sources) and optimized for cleaner burning, thus potentially resulting in fewer byproducts. EPA thus believes it is logical to require the owner/operator to consider aspects of how the proposed OB/OD would occur as part of any *de minimis* demonstration.

As noted above, the proposed *de minimis* exemption requires three demonstrations. The first demonstration includes four components and was discussed above. The second required demonstration the owner/operator would need to make in order to treat *de minimis* quantities of waste explosives by OB/OD would entail evaluating a limited suite of alternative technologies. The owner/operator would need to demonstrate that the waste explosives cannot be safely treated by an MTU or that an MTU is not available for the waste, that transportation off-site for treatment by an alternative technology is not safe or available, and, if applicable, that any existing available on-site alternative technology is unsafe for the waste in question. EPA believes it is important to consider this limited suite of alternative technology options as they, generally, could be implemented readily without a major investment of implementation resources. This stands in contrast to the resources that would be required to permit and build an onsite alternative technology.

The third required demonstration the owner/operator would need to make in order to treat *de minimis* quantities of waste explosives by OB/OD would relate to the owner/operator's compliance track record. Specifically,

EPA is proposing to require a demonstration that the OB/OD facility does not have any unresolved compliance or enforcement actions and does not have a history of significant noncompliance. EPA believes such a demonstration would be important, as a track record of compliance is often indicative of a well-managed facility that, if the track record is maintained, would present a lower risk of contributing pollution. Additionally, as discussed further in this preamble, one component of the first demonstration is a consideration of permit conditions or other controls in place that may inform the potential for contamination onsite and offsite. In order for those permits conditions and other controls to be credibly considered as pollution reducing, the facility would need to have a demonstrated track record of complying with applicable permit conditions and regulations.

During implementation, the Director would review the *de minimis* demonstrations and would grant the exemption if the demonstrations have been made to the Director's satisfaction. The Director would deny the request for this *de minimis* exemption when the demonstrations required by the regulations cannot be satisfactorily met. In such a case, the facility would be required to submit an alternative technology evaluation. In instances where the *de minimis* exemption was granted, the OB/OD unit used to treat *de minimis* quantities would still need to meet all of the proposed and existing standards applicable to OB/OD units including the RCRA permitting and closure requirements.

EPA is proposing that the *de minimis* demonstrations would need to be made on the same schedule as the owner/operator would have submitted alternative technology evaluations for the subject wastes under § 264.707(c) and (d) for permitted facilities or § 265.707(c) and (d) for interim status facilities. (See Section E. Timing for Rule Compliance for more information on the proposed timelines for alternative technology evaluation submissions.) EPA proposes to link the timelines for submitting *de minimis* demonstrations to the timelines for submitting alternative technology evaluations for multiple reasons. First, this approach similarly spreads out the burden of reviewing *de minimis* demonstrations at in the same way the proposed rule would spread out the burden of reviewing alternative technology evaluations. Second, this approach should be the most efficient for the owner/operator as they would, for the waste stream(s) in question, only



need to submit either an alternative technology evaluation or a *de minimis* demonstration at each submission deadline.

Moreover, the five-year frequency proposed for alternative technology reevaluations is a sensible frequency for *de minimis* demonstrations. For one, one of the proposed *de minimis* demonstrations is similarly predicated on evaluating the evolution of alternative technologies and, as such, would logically have a similar frequency (e.g., the demonstration regarding the safety and availability of treatment by an MTU). This frequency should also allow for timely consideration of changes that may impact a *de minimis* evaluation (e.g., population growth in the vicinity of the OB/OD unit).

In practice, the proposed rule would require owners/operators of permitted facilities seeking a *de minimis* exemption to submit an initial set of demonstrations along with the application for the next permit renewal or Class 2 or 3 permit modification associated with an OB/OD unit. For new facilities or new OB/OD units that are proposed to treat waste explosives, the owner/operator seeking a *de minimis* exemption would submit the demonstrations as part of the permit application for the new OB/OD unit. For interim status facilities seeking to use the *de minimis* exemption, the demonstrations would need to be submitted within one year of the effective date of the rule. For both permitted and interim status facilities, the *de minimis* demonstrations would need to be made every five years after the initial demonstrations were made in order to remain eligible for the exemption.

EPA is also proposing that if, at any time, the continued treatment of waste explosives by OB/OD under the *de minimis* exemption would present a threat to human health and the environment, the owner/operator must notify the Director within five days. EPA is proposing this requirement in order to ensure the *de minimis* exemption does not result in greater than negligible contamination or potential for exposure or otherwise present a threat to human health and the environment. Additionally, to further this goal, EPA is proposing that the Director would be able to, based on reasonable belief that the continued treatment of waste explosives by OB/OD under the exemption would present a threat to human health and the environment, request additional information from the owner/operator to determine if the OB/OD activities still

meet the *de minimis* criteria. If a determination is made under either of those scenarios that the continued treatment of waste explosives by OB/OD under the *de minimis* exemption would present a threat to human health and the environment, the exemption would be withdrawn and the owner/operator would be required to submit to the Director an alternative technology evaluation for the subject waste streams in accordance with proposed criteria for alternative technology evaluations.

EPA requests comment on several aspects of the proposed *de minimis* exemption, including the appropriateness of the components of the demonstration. EPA solicits comment on whether additional demonstrations or additional components of the first demonstration should be included in *de minimis* exemption and how those additions should be applied. In particular, EPA requests comment and supporting data and information on whether 15,000 lbs NEW annually is an appropriate maximum limit that could potentially qualify under a *de minimis* exemption. Relatedly, EPA requests comment and data and information on what other quantity levels may be appropriate under a *de minimis* exemption. For example, EPA requests comment on the following questions. Could the quantities that define very small quantity generators<sup>27</sup> be an acceptable benchmark for *de minimis*? Should EPA provide an exemption at a smaller annual limit (e.g., up to 5,000 pounds NEW annually) without any demonstration beyond quantity, and require a more robust demonstration (e.g., considering location, waste type, etc.) for a larger category (e.g., 5,000–15,000 NEW annually)? Should EPA specify in regulation different maximum waste quantity criteria for different waste streams? For example, should EPA specify a unique total weight maximum quantity for explosives or munitions that cannot be separated from their packaging for treatment? If so, what might be an appropriate maximum potential quantity for such wastes? Should frequency of treatment by OB/OD be a consideration? Should any wastes or should certain waste streams be excluded from consideration for the

<sup>27</sup> Very small quantity generator is a generator who generates less than or equal to the following amounts in a calendar month: (1) 100 kilograms (220 lbs) of non-acute hazardous waste; and (2) 1 kilogram (2.2 lbs) of acute hazardous waste listed in § 261.31 or § 261.33(e); and (3) 100 kilograms (220 lbs) of any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous waste listed in § 261.31 or § 261.33(e).

*de minimis* exemption? Alternatively, is there no amount or type of waste that should be exempt from consideration of alternative technologies, and thus should EPA not finalize a *de minimis* exemption? Should the exemption be limited to only OD instead of OB? Should the exemption be limited to only military munitions or a specific waste stream such as rocket motors? To RDT&E wastes? Should EPA consider requirements for public notification and/or community engagement in situations where the *de minimis* exemption is exercised? If so, should these be limited to only interim status facilities given that the permitting process already includes such measures?

### C. Waste Analysis and Characterization Introduction and Description

Under § 262.11, a person who generates a solid waste must make an accurate hazardous waste determination at the point of generation. Under § 270.14(b)(2), Contents of part B; General requirements, an application for a treatment, storage, or disposal (TSD) permit must contain a waste analysis plan and chemical and physical analyses of the hazardous waste, debris, and material to be handled at the facility. These analyses must contain all the information necessary to treat, store, or dispose of waste properly in accordance with part 264. Additionally, prior to any TSD activities at RCRA facilities, owners/operators “must obtain a detailed chemical and physical analysis of a representative sample of the wastes” and develop a waste analysis plan under § 264.13. Accurate waste analyses facilitate proper handling of RCRA wastes, thereby minimizing the release of contaminants, byproducts, and wastes associated with OB/OD and ensuring protection of human health and the environment. Waste analysis is also crucial for waste explosives in determining whether the wastes are in fact explosive and whether there is a safe and available alternative treatment that can be used in lieu of OB/OD.

Waste streams currently treated by OB/OD are varied and potentially dangerous to handle, making accurate waste testing more challenging than for many other hazardous wastes due to safety concerns. Importantly, waste analysis for operating OB/OD units currently varies in detail and quality. Thus, EPA is proposing requirements specific to waste explosives which would clarify how waste analyses must be conducted to determine whether a safe alternative treatment is available for

that explosive waste and, if not, whether the waste is eligible for treatment by OB/OD.

#### Proposed Revisions and Supporting Rationale

EPA proposes adding § 264.706 Waste Analysis under the new proposed subpart Y for OB/OD units and § 265.706 Waste Analysis for interim status OB/OD units. Owner and operators would have to comply with both the proposed §§ 264.706 and 265.706 requirements in addition to the existing general waste analysis requirements under § 264.13.

Under the proposed § 264.706 requirements, an owner/operator would be required to conduct a detailed and complete waste analysis for each individual explosive waste stream. In addition, the owner/operator would be required to review and update the waste analysis whenever there is a change in the waste generated and at the time of permit application or renewal. This is consistent with existing waste analysis regulations; however, § 264.706 would additionally provide definitions, clarifications, and requirements specific to waste explosives. EPA would clarify that individual waste streams must be analyzed for each individual product or potentially explosive material; it would not be adequate to analyze wastes based on large groups of wastes, such as “propellants,” “small arms,” or “fuzes.” For example, all small caliber rounds may be grouped for the purposes of final treatment, but they may not be considered the same when conducting waste analyses. Each type of round, identified by manufacturing or product specifications, would be analyzed separately. Explosives or propellants would be separately identified by their individual chemical formulations, including inert binders and materials. Variations of propellant due to degradation and ageing would not have to be analyzed separately unless such degradation leads to significantly different handling procedures and chemical properties. Some waste streams consisting of debris or material contaminated with explosives may be combined for the purposes of the waste analysis, provided they are of similar type of material and contamination. For example, explosive-contaminated gloves and shoe booties may be considered the same waste stream if they are both contaminated to the same extent and with the same explosive. However, these materials would not be combined with significantly different materials, such as building and construction materials, for waste analysis purposes even if contaminated with the same

explosive. For example, personal protective equipment should not be combined with concrete debris and lumber even if both are significantly contaminated with the same waste explosive.

Under § 264.706(a), EPA proposes that wastes may only be considered for treatment by OB/OD if the waste is found to be waste explosives. EPA proposes the definition of waste explosives in § 260.10 as “hazardous wastes that exhibit the reactivity characteristic (D003) and are capable of detonation or explosive chemical reaction as defined in § 261.23(a)(6) through (8) and include propellants, explosives, pyrotechnics, munitions, military munitions as defined in § 260.10, and unexploded ordnance.” Further analysis described in § 264.706 is in addition to the standard requirements currently in the regulations. The tests described in this section are secondary to the determination if a waste is a waste explosive; however, the tests here may be a part of that determination. The primary purposes of the tests, descriptions, or properties that would be required in this section are to determine (1) if an alternative technology is available and (2) what specific permit or treatment conditions are needed for OB/OD or alternative technology.

In § 264.706(b), EPA is proposing that waste analysis would include, for each unique waste stream, a physical description, chemical constituent analysis, and chemical properties analysis, unless the information is already known from process or generator knowledge as described in this section.<sup>28</sup> Within each set of waste streams described, owners/operators might be required to conduct multiple waste analyses for the same type of munition or explosive. If the explosive is ageing, degrading, or otherwise off specification and this causes a difference in how the explosive must be handled and treated, then a new analysis would be done for each group of explosives, and they would be considered separate waste streams. For example, an owner/operator that is managing a model of rocket motors would separate a group of the same model rocket motors if some of them are found to be significantly older or degraded and the age or degradation is

the reason for different handling or treatment procedures.

Physical description is most important for munitions, explosives, fireworks, fuzes, and other designed materials that are not bulk explosive or propellants. The physical description would include the design, dimensions, mass, main component features, and the casing thickness. All these considerations are important in determining if there is an alternative technology that could be used in lieu of OB/OD. Physical description of the bulk explosives, including propellants, would include the phase, color, mass, density, and any other physical characteristics determined relevant by the permitting authority. Physical description for explosive-contaminated debris or material wastes would include a description of the items and base materials that are contaminated, in addition to the source and type of contamination.

Under the proposed requirements, a complete chemical analysis and breakdown would be required to determine the chemical constituents and the percent composition of each chemical in the waste stream. A Safety Data Sheet (SDS), if available, for each component chemical would be required as part of the analysis. Wastes containing multiple materials or components would have their chemical constituent analysis described separately for each material. As an example, rockets, munitions, fireworks, and other wastes would have their chemical constituent analysis for its propellant, energetic materials, casings, and metals listed separately. Explosive-contaminated hazardous debris and material wastes would not need a chemical analysis on the contaminated base materials (e.g., gloves), but would need a chemical constituent analysis on the contaminant of concern, provided the materials do not contain any wastes prohibited from OB/OD under § 264.708(b)(11). The NEW for each waste stream would be included as a part of the chemical constituent analysis for each individual waste stream.

In § 264.706(b)(4), owners/operators would be required to analyze the chemical properties of the chemical constituents which are described above. The analysis would include measures of insensitivity (for impact, friction, and electrostatic discharge (ESD)), flash point, pH, and free liquid determination. Figure of insensitivity is the measure of the probability of a material to initiate or detonate in response to quantities of external stimuli. Impact insensitivity is most commonly done with a drop-weight

<sup>28</sup> There are thousands of items in the DoD inventory, and any individual site will have far fewer items than that. Larger, more complex sites may have a couple hundred items that must be analyzed. Depending on the analysis, these items may be combined for treatment purposes.

tower, friction insensitivity has several tests including the Alleghany Ballistic Laboratory (ABL) and Bundesanstalt für Materialforschung und -prüfung (BAM) friction tests, and ESD insensitivity is measured with varying energies delivered via capacitors.<sup>29</sup> The permitting authority may require alternative tests or analyses if the determination is made that particular tests are unsafe or unnecessary.

EPA assumes that much of the information required for its proposed waste analysis requirements is already likely known to owners/operators. EPA is proposing that process knowledge and generator knowledge are acceptable in lieu of a detailed and complete waste analysis for a given material as long as it would meet the requirements of § 264.706(d). Process knowledge would include known reactions when materials and reagents mix. For example, the nitration of toluene to form TNT would be a form of well-established chemistry and the presence of TNT in a material may be determined from knowledge of the generating process. Many chemicals found in an explosives waste stream would already have many of the chemical properties described above known. It would not be necessary to determine the impact sensitivity of TNT given that this is well-established in the scientific literature. Owners/operators may find such published chemical data from in a chemical manufacturer's SDS that may be used instead of site generated testing data.

All details of the waste analysis, including supporting information such as known chemical properties of the materials or components thereof, would be required to be submitted to the permitting authority. EPA proposes that owners/operators submit these data electronically to ease submission. EPA acknowledges that there may be unknown information with respect to certain explosives wastes and that it may not be practicable to safely conduct testing to provide data on all relevant chemical properties. EPA is proposing § 264.706(e) to require owners/operators make reasonable efforts to gather the data required in the proposed waste analysis regulations. Should there be any safety concerns with acquiring the data, the permitting authority may allow some sections to be submitted as incomplete if they would not compromise the evaluation of

alternative technologies or development of protective permit conditions described in sections G and H.

EPA also acknowledges there is some waste analysis information that may be of a sensitive or classified nature and notes that such information could be withheld from public disclosure and would not need to be referenced in the permit. The owner/operator would need to work with the permitting authority to determine how the data sharing and access can occur, including acknowledging that the minimum regulatory staff require access to the data and that the regulators may apply for and obtain adequate security clearance, if needed. The permitting authority is responsible for furnishing staff that can go through the security clearance process and obtaining and maintaining adequate security clearance.

#### Summary and Request for Comment

EPA is requesting comment on its proposed requirements for waste analysis applicable to explosive wastes in § 264.706. EPA is also requesting comment regarding how best to balance protection of sensitive or classified information with the duty to provide for meaningful public involvement through the public notice and comment process.

#### D. Alternative Technology Evaluation and Implementation

##### Introduction and Description

As discussed in Section II.A. Background, this rulemaking proposes, among other changes and additions, to revise the existing regulation that established an exception to the prohibition on the OB of hazardous waste but that allows for the OB/OD of waste explosives when there are no safe modes of treatment available. The revisions are needed to provide clarity for the required actions, which are to conduct an evaluation or reevaluation of alternative technologies to OB/OD and to implement identified technologies; as well as to provide a process for demonstrating eligibility, through an alternative technology evaluation, for the exception to the prohibition and the associated timing for doing so.

The existing regulation at § 265.382 banned OB, including OD, of hazardous waste with one exception—OB/OD was allowed for the treatment of waste explosives “which cannot safely be disposed of through other modes of treatment.” This means that a facility utilizing OB/OD must demonstrate that there are no other safe and available alternatives for disposing of its waste explosives. Regulatory language

referring to a demonstration was included in the 1978 rule that proposed a prohibition on the OB of hazardous waste.<sup>30</sup> However, when the regulatory language was finalized in 1980 at § 265.382, this demonstration language was not finalized because it was concluded that open burning of hazardous waste cannot be conducted in manner that is protective of human health and the environment and thus, there was no longer a need. It is unclear, however, why the demonstration language was not included in the final regulation with respect to OB/OD but, such a demonstration remains implicit so that eligibility for the use of OB/OD can be proven and a permit can be issued for treatment of waste explosives via OB/OD.

Further confounding implementation of alternative technologies for facilities operating under subpart X permits or “OB/OD permits,” there is no mention of the prohibition of OB of hazardous wastes nor the exception for waste explosives in the subpart X regulations at § 264.600. However, EPA did address its expectations for permitting OB/OD units in the 1987 final rule for subpart X (see footnote 13). These expectations and supporting statutory references are restated in EPA’s June 7, 2022, policy memorandum entitled *Open Burning and Open Detonation (OB/OD) of Waste Explosives Under the Resource Conservation and Recovery Act (RCRA)*. To summarize from the memorandum, EPA expects that subpart X permits would only be issued for OB/OD units treating waste explosives as defined in § 265.382, and that such permits would incorporate the prohibition on OB/OD except for waste explosives which cannot safely be disposed of through other modes of treatment (see footnote 17).

#### Proposed Revisions and Supporting Rationale

EPA proposes to clarify the existing regulations to remove any ambiguity in implementing the requirement to demonstrate eligibility for continued use of OB/OD in light of the availability of safe alternative technologies. EPA proposes to revise the regulatory text at § 265.382, and include new regulatory text in new subpart Y, §§ 264.704 through 264.715 and §§ 265.704 through

<sup>29</sup> The drop-weight tower involves dropping a 1 kg mass repeatedly to determine the height which produces initiation 50% of the time. ABL and BAM tests use specialized sample plates and moving wheels to determine the initiation point in response to friction stimulus.

<sup>30</sup> Open burning of hazardous waste was originally proposed to be prohibited unless the owner/operator “can demonstrate that alternative treatment and disposal methods . . . have been evaluated and determined to be technically or economically infeasible or that the transport, treatment, and disposal of such waste poses a greater risk to human health or the environment than open burning.” 43 FR 59000, December 18, 1978.

265.715, to explicitly state that OB/OD facilities must demonstrate, through an evaluation or reevaluation of available alternative treatment technologies, which, if any, of their waste streams have no available safe alternative treatment and, thus, can continue to qualify for the exception to the prohibition on OB/OD for waste explosives. In addition, this proposed rule provides the criteria for evaluating alternative technologies and the required content for documenting that evaluation, as well as the timeframes for conducting alternative technology evaluations and implementing identified alternatives. EPA notes that, during the evaluation and implementation periods for an alternative technology, owners/operators may continue use of OB/OD to treat the subject wastes.

There are several reasons, discussed in this preamble, that may contribute to a misperception that unless EPA updated its regulations to state that safe alternatives are available, the requirement to demonstrate eligibility for OB/OD could not be implemented. It is not EPA's position that additional regulations must be proposed that explicitly state that new evaluations or reevaluations must be conducted to assess safe alternatives that are now available, because the expectation has been and remains that when technologies become available, they would be implemented. Nevertheless, owner/operator uncertainty regarding the requirements of the existing regulation has contributed to inconsistent application of the regulation and as a result fewer alternative technologies are being utilized than could be at this time. One of the goals of this proposed rule is to increase the use of alternative treatment technologies to the maximum extent possible by clarifying the existing regulation and providing a process and timeframes for demonstrating whether OB/OD facilities can continue to qualify for OB/OD.

#### Need for Clarification

Despite the uncertainty associated with the existing regulation that OB/OD facilities must demonstrate eligibility for OB/OD, EPA recognizes that there are facilities and regulatory authorities that have been implementing the existing regulations as written. As of April 2023, 24 facilities out of 67 operating facilities have conducted an evaluation of available alternative treatment technologies and of those, 13 have identified an alternative while 11 have concluded there are no safe alternatives available. On the other

hand, 41 facilities have not conducted any evaluation and two facilities are not known to have conducted an evaluation to demonstrate eligibility. Not included in this count are the facilities that have operated or are operating alternative treatment technologies. There may be several reasons why implementation of the requirements has been inconsistent, ranging from omission of explicit demonstration language, leading to differing views on applicability; absence of a process for conducting the demonstration; or insufficient communication by EPA on the development and use of available alternatives over the past few decades leading to a "business as usual" approach to OB/OD.

#### Availability of Alternative Treatment Technology Information

As referred to above, insufficient communication regarding availability of alternative technologies may be a reason why there has not been consistent implementation. If information is available but has not been previously compiled and published in a document for reference, novel technologies can be daunting to implement regardless of requirements. In recognition of this, EPA set out to collect and publish information that could assist OB/OD facilities in evaluating potential alternative technologies and that would be helpful to permitting authorities in facilitating facilities' transition to alternative technologies. EPA published a report in December 2019, *Alternative Technologies to Open Burning and Open Detonation of Energetic Hazardous Wastes*, (see footnote 20) that describes available alternative treatment technologies and identifies the extent to which individual technologies have been developed. It also identifies those that have been implemented at various locations because they are mature, maintainable, reliable, and have been demonstrated to be effective and safe for a variety of explosive waste streams. The report provides the formative steps for evaluating the efficacy and the pros and cons of the technologies for particular applications but does not attempt to analyze the technologies according to the many specific types of waste explosives each is capable of treating. Much of this specific information, however, is available in the NASEM January 2019 report on alternatives, *Alternatives for the Demilitarization of Conventional Munitions*. (January 2019). In the NASEM report, the committee performed an analysis of the stable munitions in DoD's demilitarization stockpile that are treated by OB/OD or

static fire,<sup>31</sup> grouped the items by category, and listed the items that can be treated by an existing alternative technology. The goal of the analysis was to provide examples of possible alternative technologies for each category (see footnote 4, pgs. 81–83).

Another resource on alternative technologies that has become available since the publication of EPA's and NASEM's reports is the International Ammunition Technical Guidelines (IATG) for *Demilitarization, Destruction and Logistic Disposal of Conventional Ammunition* published in March 2021 by the United Nations Office for Disarmament Affairs.<sup>32</sup> This report provides a description of available alternatives and their treatment capabilities, a brief mention of cost considerations for alternative technologies, use of mobile alternative treatment technologies, and negative environmental impacts of OB/OD.

The IATG document notes that technology exists to destroy most ammunition types. However, while the technologies exist, the report does note that implementation is primarily a logistics issue due to the inherent hazards and risks associated with processing operations and large tonnages and quantities of individual items, among other site-specific considerations (see footnote 36, pgs. vi and 7). This is consistent with NASEM's finding that, with few exceptions, it appears that it is technically possible to apply existing alternative technologies to demilitarize the majority of the DODICs [DoD Identification Code] in the demilitarization stockpile inventory. The exceptions referred to are the munitions identified as unstable and potentially shock sensitive. A caveat that should be mentioned is that NASEM was unable to fully investigate whether or not existing alternative technologies are appropriate for every DODIC currently being disposed of by OB/OD, because that would require an in-depth technical and engineering analysis of the construction, fuzing, and functioning of each specific munition (see footnote 4, pg. 80). EPA discusses later in this section that alternative technology evaluations are site-specific such that each waste stream at a facility

<sup>31</sup> Static fire is a form of open burning that is most often used for treatment of propellant in rocket motors. The rocket motors are placed either horizontally or vertically (nose down) and secured in a stand and an electrical charge initiates the burn. (See footnote 4, pg. 31.)

<sup>32</sup> United Nations Office for Disarmament Affairs (UNODA), IATG 10.10:2021, 3rd Edition. <https://data.unsafeguard.org/iatg/en/IATG-10-10-Demilitarization-destruction-logistic-disposal-IATG-V.3.pdf>.

must be evaluated for available alternatives.

Also of interest, the IATG document discusses MTUs as a potentially effective option. As new MTUs become available, and as more entities seek their use, they become more practical; and with the capability to rent their services, they become more accessible (see footnote 36, pg. 10 and 13). EPA recognizes that in the U.S., MTUs could provide an effective solution for facilities using OB/OD infrequently, that have smaller quantities of waste explosives requiring disposal, that have a need to supplement an existing alternative technology, or any combination of these situations. In the U.S. there are explosives treatment MTUs (which are in most cases owned by private companies) that are not widely used due to the time-consuming and resource intensive efforts to obtain a RCRA permit for a limited duration and for every location it is used. EPA is proposing a new streamlined RCRA permitting approach to facilitate the use of MTUs by removing some of the regulatory burden associated with issuing RCRA permits for these units (see Section II.L. Mobile Treatment Units for Waste Explosives). MTUs may be subject to permitting or regulation under other laws as well (*e.g.*, Clean Air Act).

#### Environmental Impacts of OB/OD

Although not discussed at length, the IATG document notes in several places the potential negative environmental impacts associated with OB/OD. The EPA and NASEM reports also note potential negative environmental impacts due to the release of treatment byproducts directly into the environment. There are several potential routes of release from OB/OD, including air emissions and “kickout,” that are challenging to sample, monitor and quantify. Many studies have attempted to characterize air emissions from OB/OD; such characterization is fundamentally difficult to do because neither OB nor OD have confined emissions that can be readily monitored or sampled, unlike an incinerator from which stack emissions can be monitored and sampled. OB/OD can also produce residues and “kickout,” which is the dispersal of metal fragments, unreacted explosive contaminants, and other waste items, onto the land; these releases are also difficult to measure. These challenges impart uncertainty regarding quantities and types of contaminants that are released into the air, soil, groundwater, and surface water bodies from OB/OD of waste explosives. This uncertainty raises concerns about

negative impacts to human health and the environment from wastes that have the potential to release heavy metals, perchlorate, particulate matter, PFAS, dioxins/furans, explosive compounds, and other toxic and hazardous contaminants. (See also Section II.A Background above.)

Studies have sampled air emissions within an inflatable hemispherical detonation chamber known as a “bang box,” and by using aerostat fliers or balloons and airplanes outfitted with sampling equipment, or samplers affixed to poles, in an attempt to capture and analyze emissions from open burns. More recently, studies have utilized unmanned aerial systems (UASs) or “drones” to collect air emission data from both OB and OD. These data are considered more representative than data obtained from prior methods due to the ability to move the drone into the plume and maintain position within the plume. Based on a reasonable assumption that the plume is homogeneous, and a known mass and composition of the waste explosive being tested, the total emissions can be estimated. However, despite the advances in measuring emissions and the improved methods for calculating total emissions, questions regarding the representativeness of the data remain because more data are needed that replicate the quantities and chemical composition of waste explosives that are routinely treated at OB/OD facilities before definitive conclusions can be made.<sup>33 34</sup> Ideally, future studies would include both air sampling and soil/surface sampling so that a more complete mass balance can be achieved by accounting for all treatment byproducts, similar to the two studies discussed in the next section.

EPA is aware of two studies that sampled air emissions and ground surface deposition from OD events. One study utilized a UAS to measure energetic residues from five separate unconfined detonations, using a block of Composition C4 explosive<sup>35</sup> for each detonation, that took place on snow-covered ice.<sup>36</sup> Snow was chosen to

<sup>33</sup> “Field determination of multipollutant, open area combustion source emission factors with a hexacopter unmanned aerial vehicle.” J. Aurell, et al. *Atmospheric Environment*, 2017. [https://cfpub.epa.gov/si/si\\_public\\_record/report.cfm?Lab=NRML&dirEntryId=339722](https://cfpub.epa.gov/si/si_public_record/report.cfm?Lab=NRML&dirEntryId=339722).

<sup>34</sup> “Characterization of Air Emissions from Open Burning at the Radford Army Ammunition Plant.” J. Aurell, Brian Gullet, August 23, 2017.

<sup>35</sup> C4 is an explosive comprised of RDX, HMX, and plasticizer and is often used to initiate treatment of waste explosives and referred to as the donor charge.

<sup>36</sup> “Improving post-detonation energetics residues estimations for the Life Cycle Environmental

improve the accuracy and quality of the surface measurements. It not only provides a visual on the location and extent of residue deposition, but it also eliminates interference encountered when detonations are conducted on or under the soil, which causes soil to become entrained with the residues from the blast. The detonation reactions were very efficient, averaging 99.9993%, which means that very little explosive residue was generated (*i.e.*, only 0.0007% of the C4 was unreacted). Of the total energetic residue that was generated and measured via air and surface sampling, it was found that less than 7% was in the air emissions, while nearly 93% was deposited on the snow. EPA notes that this finding, in which only a negligible percentage of explosive was unreacted, are not unexpected because solid chemical explosives like C4, when not combined with other materials, combust efficiently and produce much less residue than when combined with other explosives or munitions. A significant difference between this study and typical waste treatment activities is that waste explosives and munitions treated during OD events contain more than just the explosive donor charge (*e.g.*, C4). The wastes can include metal casings and other items that do not undergo complete combustion and produce residues; metals are not combusted at all and depending upon the wastes treated, the dispersed metal fragments often contain unreacted explosives.

EPA has identified only one other study that has collected emissions from OD. This study, which precedes the study discussed above, was conducted using an aerostat flyer and was comprehensive in that it was the first to sample emissions from OB, static fire, and OD and collect a limited number of soil samples to ascertain whether metals and energetics collected in the plume emissions were from the existing soil content or to the munitions.<sup>37</sup> The study resulted in successful sampling campaigns and remains the first and only one to take measurements under conditions representative of routine open air detonations and burning of munitions. The results from detonation of Comp B compare well with the more recent sampling conducted during detonations of C4 noted above such that

Assessment process for munitions.” Walsh M., et al. November 15, 2017. <https://www.science.direct.com/science/article/pii/S0045653517318490>.

<sup>37</sup> “Aerostat-based sampling of emissions from open burning and open detonation of military ordnance.” J. Aurell, et al. *Journal of Hazardous Materials*, 2015. <https://19january2017snapshot.epa.gov/sites/production/files/2015-03/documents/9546011.pdf>.

a very small fraction was found in air emissions. The limited data from detonation of munitions found that the amount of the metal transferred to the air was between 0.3% and 22% with the majority of data indicating about 1% or less. However, this indicates that a significantly large portion of the metal emissions are deposited on the ground, accounting for the remaining balance in the range of 78% to 99.7%.

Both studies, while informative regarding the constituents that are released into the air from OD events, indicate that the balance of emissions from OD events are deposited on the ground surface. The findings from these studies correlate with EPA's findings that deposition from repeated OD events can cause extensive soil and groundwater contamination when the deposition products remain on the ground surface (see footnote 5 and subsequent paragraphs).

As discussed, it is challenging to obtain air emission data from OB/OD events, particularly for events that would be representative of routine treatment, that could provide a quantitative estimate of potential human health and environmental impacts. Every study that has been referenced in this section has a common thread, which is that there are limited data points and that results should be verified through additional sampling. However, there is soil and groundwater data collected from OB/OD unit areas (*i.e.*, per monitoring and reporting requirements of § 264.601), that does provide a quantitative measure that can be used to estimate potential impacts to human health and the environment. In addition, EPA initiated a study of nine OB/OD facilities that have undergone, or are undergoing closure, to examine the assessment and cleanup procedures used to achieve closure at each of the nine sites (see footnote 5). Assessment procedures characterize the site by identifying the areas of contamination and the contaminants found in each environmental medium including soil, groundwater, surface water, and sediment. Cleanup procedures are the techniques and technologies used to conduct the cleanup. The goal of the study was to determine the extent to which the cleanup procedures implemented at each site have achieved clean closure<sup>38</sup> (*i.e.*, closure by removal

or decontamination) and are protective of human health and the environment.

Drawing on information and data provided for the site assessment procedures, EPA documented the contaminants that exceed action levels in environmental media at closed OB/OD units.<sup>39</sup> These contaminants include explosives (RDX, HMX, TNT, DNT, perchlorate, nitroglycerine), heavy metals (aluminum, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, selenium, silver, thallium, zinc), and other contaminants (PCBs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dioxins/furans, DNB, EDB, endosulfan, ethylbenzene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, nitrates, nitrobenzene, TNB, xylenes). In summary, sites that open detonated waste explosives exceeded action levels more often than sites that only open burned. In cases where both OB and OD led to an exceedance, the maximum concentration of the contaminant associated with OD was most often greater than the concentration resulting from OB (see footnote 5). Overall, this study, which can be found in the docket for this rulemaking, demonstrates that dispersal of OB/OD treatment residues into the environment contributes to soil and groundwater contaminant concentrations that exceed risk threshold levels.

In closing, it should be noted that enclosed thermal technologies such as incineration have been more thoroughly evaluated than OB/OD, due to the above-noted challenges with evaluation of OB/OD emissions and potential release of contaminants, byproducts, and wastes; and it has been determined that combustion controls and air pollution controls are needed to ensure protective operation of these technologies (see §§ 264.340, 266.100, 270.62, 270.66, 63.1200). Due to its open

necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to ground or surface waters or to the atmosphere; and, (c) complies with the unit-specific closure requirements of part 264 or 265. Generally, two types of closure are allowed—closure by removal or decontamination and closure with waste in place. Because OB/OD is considered treatment rather than disposal, OB/OD facilities are required to conduct closure by removal or decontamination.

<sup>39</sup> Each site determined remediation standards based on the expected future use of the site, thus the action levels reported for each facility may vary in their representation (*e.g.*, residential specific screening levels, residential and industrial Maximum Contaminant Levels, preliminary remediation goals, etc.).

nature, it is not possible to apply such controls to OB/OD. Thus, these uncontrolled emissions from OB/OD are a clear cause for concern.

#### Alternative Treatment Technology Evaluation Criteria and Content

In March of 2022, EPA held a series of early engagement meetings to solicit feedback on revising and amending several regulatory requirements related to OB/OD. One of four topics that EPA presented for feedback was an explicit requirement to evaluate alternative treatment technologies and implement identified alternatives, as well as criteria that should be considered when evaluating alternative technologies. Across the individual participant groups, there were no objections to inclusion of an explicit regulatory requirement. Regarding the criteria, EPA received a variety of suggestions, but a common thread was that safety is the most important criterion. In addition to safety, suggested criteria are maturity, environmental protectiveness, demonstrated effectiveness, cost, overall lifecycle emissions and exposure, volume and characteristics of waste streams, commercial availability, reliability, and maintainability. One commenter grouped individual criteria under the umbrella of “viability,” such that technologies must be consistently reliable, maintainable, and not have high operational costs (see footnote 23).

EPA believes that certain criteria should be mandatory while others should not but could be utilized to make a business decision—for example, to select the best technology or technologies for the individual facility's needs. The criteria that EPA proposes to be mandatory for every technology evaluation are unchanged from the original criteria finalized in 1980 at § 265.382, which are that technologies must be safe and must be available. As explained in more detail in this section, a safe technology accounts for potential risk of explosion when handling and treating waste explosives as well as potential risk to human health and the environment from treatment of munition constituents, byproducts, and wastes associated with OB/OD. EPA recognizes there are long-term risks and immediate risks when managing waste explosives. Any acute risks from explosion due to increased handling and storage associated with alternate technologies must be evaluated by an explosives safety expert as part of the “safe” technology determination. Available means that a technology can be used, rented, leased, purchased, or custom designed and constructed from a qualified vendor or qualified entity

<sup>38</sup> “Clean closure” in this notice refers to closure by removal or decontamination. During closure, facility owners/operators must comply with the closure performance standard at § 264.111 or § 265.111. According to §§ 264.111 and 265.111, closure must be completed in a manner that: (a) minimizes that need for further maintenance; (b) controls, minimizes or eliminates, to the extent

and has been determined through a technical evaluation, such as a demonstration at full-scale, to consistently perform the functions necessary to be effective. These factors are based upon EPA's mandate under RCRA to protect human health and the environment, and in consideration of the hazards associated with the handling, storage, transportation, and treatment of waste explosives. A requirement to implement an alternative technology cannot be met if one is not safe and available.

Criteria that EPA does not believe should be included as mandatory criteria for evaluating whether technologies can be used are tied to the cost of implementing and operating alternative technologies. These cost-related criteria should not remove a technology from consideration. Ultimately, these criteria relate to a business's determination of a technology's suitability for its waste streams.

Cost is a criterion given considerable weight by regulated entities when choosing between available treatment and disposal options that meet their needs and environmental compliance requirements. However, EPA does not believe it should be a mandatory criterion for screening out potential alternative technologies. The relevant standard under RCRA section 3004 requires that treatment technologies protect human health and the environment. Therefore, regulated entities must identify and implement technologies that meet this standard. While EPA recognizes regulated entities will likely consider cost and other practical factors in such screening, there is no need for EPA to identify these considerations as mandatory criteria, nor would it be appropriate for EPA to do so, because the regulated entity must ultimately demonstrate that the approach selected meets the protectiveness standard. Therefore, EPA has not included cost as a criterion that could be used to screen out potential alternative technologies.

EPA restated in the 1987 final rule that OB of nonexplosive waste could not be conducted in a manner that was protective of human health and the environment, saying the Agency "made this finding in 1980 in promulgating the general ban on OB of nonexplosive hazardous waste (§ 265.382) and has no new information to suggest this conclusion should be revised. The Agency, therefore, intends to deny any permit applications it receives under subpart X for such activities." (See footnote 13.)

#### Alternative Technology Criteria and Evaluation Contents Requirements

The following sections present the technology criteria that EPA proposes to require for evaluating potential alternative treatment technologies, and the content believed to be necessary to allow for regulatory authorities to determine that the evaluation conducted by the facility, or on behalf of the facility, is complete and the conclusions provide adequate rationale. All information would be compiled in a report for submission to the regulatory authority for review and approval. The proposed regulations are located at §§ 264.707 and 265.707.

#### Alternative Technology Criteria

For the alternative technology criteria, EPA is specifying the proposed criteria according to the existing requirements: safe and available. The only revision is that EPA is now providing clarity by describing how these terms are to be applied when evaluating alternative technologies. Safe means that a technology must be designed, constructed, and operated in a manner that is safe for the wastes to be treated and that appropriate procedures and technologies are used to ensure safe handling and treatment and appropriate safeguards for worker safety as determined by explosives specialists. Safe can also refer to "protection" of human health and the environment when considering a technology's treatment byproducts; however, protectiveness in this sense would be evaluated during the permitting process when the appropriate standards are developed. EPA discusses, in Section II. F. Permitting of Alternative Technologies, how the ability to monitor operations and treatment byproducts and the capability to treat toxic byproducts are critical factors to assure protectiveness. Available means that a technology can be used, rented, leased, purchased, or custom designed and constructed from a qualified vendor or any entity and has been determined through a technical evaluation to consistently perform the functions necessary to be effective. Published sources such as EPA's and NASEM's reports may also be consulted to help inform whether certain technologies could be applied.

#### Safe

EPA recognizes that any technology under consideration for use must be safe for the wastes to be treated. Safety has been an existing standard since 1980, serving as one of the criteria for allowing an exception for waste

explosives to be treated by OB/OD. In this rulemaking, EPA is clarifying that safety remains an important criterion, but is providing additional context in terms of alternative technologies that are now available. Given that any decision regarding whether a technology is safe to use is based on the degree of risk the entity using the technology is willing to accept, EPA is clarifying that safety is a mandatory criterion and proposes safety to mean that a technology must be designed, constructed, and operated in a manner that is safe for the wastes to be treated and that appropriate procedures and technologies are used to ensure safe handling and treatment and appropriate safeguards for worker safety as determined by explosives specialists. See proposed safety criterion at §§ 264.707(b)(1)(i) and 265.707(b)(1)(i).

Safety is cited by regulated entities as an important criterion and the number one criterion by the DDESB for acceptability of an alternative treatment technology. DoD's goal is to expose the minimum number of people, to the minimum amount of explosives for the minimum period of time (see footnote 23). Both OB/OD and alternative technologies require explosives handling: transport to storage, placement in storage, removal from storage and loading for transport, transport to treatment site, and unloading and placement at the site. Additional handling may be required for alternative technologies, including any needed pre-treatment activities such as disassembly or size reduction (*e.g.*, to reduce the physical size and NEW). Although most alternative technologies and pre-treatment technologies increase handling, highly automated processes may reduce safety risks to workers when compared to OB/OD (see footnote 4, pg. 25). Automated processes are designed according to specific waste types, and thus are more likely to be utilized by facilities that have large quantities of similar waste types that would not require frequent re-tooling and re-programming to switch from one waste type to another. There are also instances when additional handling is performed in preparation for OB/OD, for example, when projectiles contain submunitions. The submunitions are removed from the projectile casing by disassembly before treatment to prevent untreated submunitions from being dispersed into the environment. Thus, in some instances OB/OD may involve the same amount of explosive risk through handling as compared with an alternative technology.

A first step in evaluating alternative technologies is determining which wastes are amenable to treatment by an

alternative technology. For waste explosives that are documented to be unstable and/or potentially shock sensitive and have been determined to be unsafe by an explosives specialist,<sup>40</sup> there may be no other choice but to treat these wastes by OB/OD. The NASEM report acknowledges in several instances that OB/OD may be the only safe option for munitions that may detonate or deflagrate when disturbed. Thus, handling and transportation of these munitions should be minimized to reduce exposure of workers to the explosive hazard (see footnote 4, pg. 79). However, the NASEM report also indicated that only two munitions that were in the demilitarization stockpile or “B5A account” at that time had been identified to the committee by the Office of the Product Director for Demilitarization (PD Demil) as not suitable for alternative contained demilitarization due to instability. According to PD Demil, the 105 mm rocket-assisted projectile (quantity of 240 tons) and 8 in. rocket-assisted projectile (quantity of 744 tons) were potentially shock sensitive due to depletion of stabilizers in the rocket propellant (see footnote 4, pg. 78). To put this into perspective, of the total 430,987 tons of munitions in the total demilitarization stockpile as of September 30, 2017, 984 tons, or approximately 4%, could not be treated by an alternative technology due to instability. This inventory will fluctuate over time, but it is helpful to understand approximately how much waste may continue to require treatment by OB/OD. EPA does anticipate that, as more alternative technology evaluations are conducted at individual facilities as a result of this rulemaking, the number of wastes identified as unstable will increase as munitions waste streams are evaluated specifically to determine suitability for an alternative technology.

EPA notes that facilities engaged in RDT&E produce explosive waste streams that vary widely and may be difficult to characterize due to changes in stability resulting from testing and evaluation. The testing and evaluation phases subject the explosive containing items to physical and thermal stressors to ascertain their stability and performance. These activities damage the items and increase the sensitivity which in turn, increases the handling risks. Therefore, many of these wastes are not amenable to pre-treatment

technologies (e.g., cutting, disassembly) which may be required when the NEW must be reduced to be treated in an alternative technology. In addition, some RDT&E explosive waste streams consist of novel chemical formulations and physical features that are intended to change the fundamental chemical and physical characteristics of the energetic material, which imparts uncertainty regarding how they will behave when treated in the confined conditions of an alternative technology. This also means that formulations with the same chemical composition may have different physical properties and may warrant different treatment technologies. However, this does not mean that RDT&E wastes cannot be treated using alternative technologies, nor does it mean that none of these wastes can be pre-treated using other methods, but the likelihood is reduced in comparison to the explosives contained in certain munitions or bulk explosives and propellants.

According to alternative technology reviews submitted by two facilities that generate RDT&E waste, all of these wastes are currently treated by OB or OD, despite identification of potential alternatives. One facility stated that approximately 50% of its waste could be treated in a closed detonation unit. (Note: pre-treatment technologies were not evaluated so it is assumed that none are required or could not be used due to safety concerns and so 50% represents waste that can be directly place in a closed detonation unit).<sup>41</sup> Another facility stated that 54% of the waste could be treated by a closed detonation unit.<sup>42</sup> Both facilities provided reasons why an alternative technology would not be implemented, but the shared conclusion was that no one technology or combination of technologies could completely replace OB/OD, or that none stand out as a clear and attractive alternative to OB/OD. Based on EPA’s proposed criteria, this is not an acceptable reason for not implementing identified alternatives. EPA’s proposed criteria only requires that a technology be safe and available for the waste streams requiring treatment. Thus, if an alternative technology is identified for any of the facility’s waste streams, then it must be implemented for those waste streams. EPA expects that in many cases, a

facility would need to implement more than one technology.

The potential for injury or loss of life or loss of equipment is always present when handling, storing, transporting, and treating waste explosives. In some respects, use of alternative technologies may result in no change in the potential for an accident when the wastes are stable, and the treatment processes are fully automated. In other respects, use of alternative technologies increases the potential for an accident, but it may continue to be within acceptable safety risk parameters, or it could increase beyond acceptable safety risk parameters. EPA believes that most stable waste explosives awaiting treatment have available and safe alternatives but realizes that there are exceptions when the stability is questionable or when munitions cannot be safely size-reduced. EPA also recognizes that the explosives specialists evaluate the safety related to the handling and treating waste explosives. That does not imply however, that if EPA or a regulatory authority questions a safety decision at any point in the evaluation process or final report, that the decision is being challenged. Rather, the information is needed to better understand and to build a record for the regulatory authority’s decision.

#### Available

Similar to the safety criterion, this is an existing requirement that serves as the second criterion for allowing an exception for waste explosives to be treated by OB/OD. EPA is clarifying that availability remains an important criterion for determining when an alternative technology must be used and is also providing more context for what it means to be available in recognition that there are different stages of development with some technologies that have been proven and successfully used.

EPA is proposing that a technology be considered available if it can be used on-site or off-site, rented, leased, or purchased from, or custom designed and constructed by a qualified vendor or a qualified entity and has been determined through a technical evaluation to consistently perform the functions necessary to be effective. The term “qualified” refers to national security protocols which may prohibit Federal agencies from conducting business with certain foreign vendors or entities. The term “technical evaluation” refers to any process or entity that evaluates the maturity of a technology and its likelihood to successfully meet operational needs.

<sup>40</sup> Items can become unstable and potentially shock sensitive as the result of the depletion of stabilizers in the explosives or propellants caused by excessive age or the environment in which it was contained. In addition, items that are damaged can have unpredictable stability.

<sup>41</sup> *Evaluation of Alternative Technologies to Open Burning and Open Detonation of Energetic Wastes by the Naval Surface Warfare Center, Dahlgren Division*. Appendix 2–5, Supplementary Information for OB/OD Alternative Treatment Methods.

<sup>42</sup> *Updated OB/OD Alternatives at NAWA China Lake 2022*, Goodman, B.T, Ph.D.; April 6, 2022.



This can be an evaluation process that is established, formal or informal, or evaluation processes developed and conducted by consultants and prospective vendors. See proposed available criterion at §§ 264.707(b)(1)(ii) and 265.707(b)(1)(ii).

An example of an established, formal process developed and used by several Federal agencies is the Technical Readiness Assessment (TRA) process. It was developed to reduce technical risk and uncertainty associated with new proposed or modified technologies to ensure that they have been demonstrated to work as intended (technology readiness) before committing to construction expenses.<sup>43</sup> The TRA process includes a scale for measuring the maturity of a technology, referred to as technology readiness levels (TRLs). The TRL describes the maturity of a given technology relative to its development cycle, and assigns a corresponding number from 1 to 9, where 1 indicates that scientific research has begun to be translated into applied research and development, and 9 indicates the actual system has operated over the full range of expected mission conditions (see footnote 54, pgs. 9–10, and 20).

EPA anticipates that Federal agencies evaluating alternative technologies may use the established TRA process in determining whether the availability criterion is met. As discussed later in the alternative technology required content section, when technologies are evaluated, each individual waste stream would need to be evaluated against potential alternative technologies to determine if a technology, or a combination of technologies, is safe and available. Thus, for purposes of the alternative technology evaluation, the screening process would assign a TRL based on the maturity of the technology for a particular waste stream. This TRL would indicate whether a technology would be considered for further evaluation. It is important to note that the same technology can be assigned different TRLs depending on the waste stream to be treated. For example, a static detonation chamber can be assigned a TRL 9 for 50% of the facility's waste streams, but may be assigned a lower TRL for the remaining waste streams because it has not been used previously to treat those wastes at a fully operational level. EPA does not believe it is appropriate to eliminate a technology from consideration if it does not meet the TRL needed to be able to

treat all of the facility's waste streams. Neither is EPA endorsing any particular level under the TRA framework as the one that determines the availability of a technology for purposes of the required technology evaluation in this proposed regulation. Rather, EPA is simply raising awareness and acknowledging that Federal agencies (and others) may find the TRA process useful in evaluating technology availability and in making the availability demonstration required under the proposed regulation.

Other processes or options that can be used to evaluate the availability of a technology and its likelihood to successfully meet operational needs are to conduct a treatability study or to apply for a Research, Development, and Demonstration (RD&D) permit; see § 261.4 (e) and (f) and § 270.65, respectively. The intent of treatability studies and RD&D permits is to promote the development of treatment technologies. Thus, if an owner/operator chooses to conduct either, the results of the study or RD&D activities would inform whether the alternative technology can effectively treat the waste streams tested. Treatability studies and RD&D permits are discussed in more detail under the Analysis of Alternative Technologies According to Individual Waste Streams section.

As a final note on availability, published sources such as EPA's and NASEM's reports may also be consulted to assist with identification of alternative technologies that could be potentially applied. These reports have documented available alternative technologies that have been successfully demonstrated and applied to full scale demilitarization operations, as well as those that are under development or those that have not been successful for stated reasons.

#### Alternative Technology Evaluation Contents

With respect to the required content to be included in the evaluation of technologies, EPA notes that, to date, 24 facilities have conducted reviews and submitted alternative technology evaluations which vary in depth of review, organization, and content. This is not unexpected because there are no national guidelines for conducting a review. Therefore, EPA proposes to standardize the alternative technology evaluation process by specifying the information to be included in the evaluation in the following sections. EPA believes that this information is necessary to guide facilities so that a complete review is conducted and to allow for the regulatory authority reviewing the evaluation to understand

and determine whether the conclusions presented by the facility are acceptable.

#### Description of Facility Operations

EPA recognizes that facilities managing and treating waste explosives vary in complexity of operations depending upon their mission. To aid in understanding the waste streams requiring treatment, EPA proposes that the alternative treatment technology evaluation describe the facility's operations in terms of how the wastes are generated. To do so, the owner/operator would include what the facility's primary purpose is: manufacturing, demilitarization, RDT&E, or other (describe), and the processes that generate explosive wastes. Also, the description would include if there are any alternative treatment technologies in use and identify the waste streams that are treated with the technology/technologies.

#### Characterization of Wastes

As discussed earlier in section II.C, waste characterization and analyses are key to beginning the identification and evaluation of alternatives. The regulations require that a hazardous waste determination be made at the point of generation for each solid waste stream (§ 262.11(a)). One component of this determination is to establish if the waste exhibits the characteristic of reactivity (D003) according to § 261.23(a)(6) through (8) and if it is capable of detonation or explosive chemical reaction. Only wastes determined to be D003 per § 261.23(a)(6) through (8) and are capable of detonation or explosive chemical reaction can be eligible for OB/OD when it is concluded that there are no safe alternative treatments available. Thus, EPA believes that detailed information is necessary to demonstrate that each waste stream is D003 per § 261.23(a)(6) through (8) and is capable of detonation or explosive chemical reaction, and to enable an evaluation of alternative technologies. In addition, an equally important purpose of waste characterization and analyses is to support development of permit conditions necessary for protective management of the waste. For example, waste characterization information is necessary for understanding waste compatibility which is then factored into permit conditions that ensure proper storage and handling procedures are implemented.

As discussed above in Section II. C. Waste Characterization, EPA notes that wastes (e.g., PPE, building materials, metal) that are contaminated or

<sup>43</sup> Technology Readiness Assessment Guide. U.S. Department of Energy, DOE G 413.3-4A, pg. 2, <http://www.directives.doe.gov>.

potentially contaminated by explosives must be characterized as well. The fact that these wastes are contaminated or potentially contaminated with explosives, could be sufficient evidence that the waste is a waste explosive. Should the owner/operator prefer not to test the wastes for reactivity, they may conservatively designate the wastes as a D003 explosive and evaluate potential alternative technologies for treating it. However, if the owner/operator is proposing OB/OD as the treatment method for waste that is contaminated or potentially contaminated with explosives, they would need to provide detailed information to support the D003 designation and its capability to detonate in the alternative technology evaluation.

To ensure that sufficient waste characterization information is provided, EPA believes that the following detail is necessary. Information about the waste configuration (e.g., bulk energetics/propellants, small/medium/large-cased), type (e.g., bombs, projectiles, grenades, cartridge actuated devices (CADs)/propellant actuated devices (PADs), fuzes, detonators, propellants, powders), size, quantity, and its NEW is necessary to evaluate available alternatives for each explosive waste stream. EPA believes that simply grouping similar waste configurations together, for example as propellants, explosives, pyrotechnics, is far too generalized. Providing additional detail by identifying the physical form of an explosive as thin-cased also does not describe the waste sufficiently to understand why an alternative can or cannot be used for that particular waste stream. Therefore, EPA proposes that the owner/operator must identify and describe each explosive waste stream using waste characterization and analysis information according to proposed § 264.706. This includes identification of both physical and chemical aspects of the wastes, as well as the donor charges (i.e., the explosive used to initiate the treatment of the waste explosives).

*Physical aspects* should be grouped as bulk energetics or propellants, small-cased munitions (thin-cased), medium-cased munitions (thin- or thick-cased), large-cased munitions (thin- or thick-cased), or potentially explosive-contaminated materials; and further subcategorized to identify the items under each category. The following are the physical subcategories that EPA proposes, along with descriptions and examples of their contents.

- *Bulk energetics and propellants* include unconfined energetic materials.

- *Small-cased munitions* contain 0.5 pound or less of energetic material in each item. This category includes CADs, PADs, exploding bolts, fuzes, small projectiles, bullets, bomblets, booster pellets, detonators, ignitors, leads, thermal batteries, and numerous other small items. Casings for these items are thin.

- *Medium-cased munitions* contain between 0.5 and 100 pounds of energetic materials in each item. This category includes bomblets, warheads, rocket motors, medium projectiles, propellant charges for projectiles, grenades, mines, flares, sectioned munitions, all-up missiles, and numerous other types of items. The casings for these items may be thin or thick.

- *Large-cased munitions* contain 100 pounds or more of energetic material in each item. This category includes bombs, rocket motors, warheads, large projectiles, sectioned munitions, and all-up missiles. The casings for these items may be thin or thick.

- *Potentially explosive-contaminated materials* include energetic-contaminated wastes, such as cotton rags, gloves, and post-test debris; and energetic contaminated containers such as wood crates, cardboard boxes, velostat bags, and cellulose drums (see footnote 45, pgs. 2–3).

*Chemical aspects* should be characterized according to the constituents contained in the item. For example, composite rocket motor contains ammonium perchlorate, aluminum, polyurethane, and nitroguanidine (NQ).

For each physical grouping of items, each item in that group would be listed, along with the quantity, the pounds NEW of each item, the total pounds NEW per year for each item requiring treatment,<sup>44</sup> its chemical content, and current method of treatment. For example, under large-cased munitions, one entry may be: 25 ammonium perchlorate rocket motors, 60 lbs NEW propellant per motor, 1,500 lbs NEW per year, contains ammonium perchlorate, aluminum, polyurethane, and NQ, and is treated by OB.

With respect to facilities whose primary function is RDT&E activities, EPA recognizes that these facilities may generate numerous different materials and unique explosive formulations that may be continuously changing and vary slightly from the material previously assessed for the existing alternative

technology evaluation. EPA would not expect that each changed item, unless it varies significantly from the initially evaluated item such that it would require a permit modification to add it as a new waste, would need to be evaluated and instead could be grouped according to the similar, previous items or materials. Also, some of these facilities generate small amounts of waste explosive and conduct treatment infrequently. As discussed in Section B. Scope of Applicability, they would be likely to qualify for a de minimis exemption, for example, when the treatment method is OD.

#### Initial Screening of Available Alternative Technologies

Based on the waste characterization, the next step in the process would be to identify and categorize alternative technologies that are available and potential candidates for the facility's waste streams. EPA proposes that the owner/operator screen the technologies for applicability to each explosive waste stream. For those technologies that do not pass the initial screening based on the mandatory criteria (i.e., safe and available), EPA also proposes that the basis be provided to aid in the understanding when, for example, the technology is listed in a published source as available for the waste stream, but the owner/operator has determined it is not. The basis could include a discussion of the TRL, as discussed above, that may be helpful.

#### Analysis of Alternative Technologies According to Individual Waste Streams

After the initial screening, EPA proposes that owners/operators identify alternative technologies that could be used for individual waste streams because they have been determined to be safe and available and to provide more information about the technologies that passed the initial screening. Where applicable, this would include any pretreatment technologies that are required for the primary treatment technology (e.g., band saw required for size/NEW reduction before treatment in detonation chamber). For these technologies, it should be indicated what percentage of the facility's waste streams can be treated by the technology and the waste streams identified according to their physical characteristics: bulk energetics and propellants, small-cased munitions, medium-cased munitions, large-cased munitions, and potentially explosive-contaminated materials. For an example facility, EPA suggests that the analysis would look like this: 80% of all waste streams could be treated via detonation

<sup>44</sup> Pounds per year may be reported for the most recent year available, or when a waste stream fluctuates widely from year to year, it may be reported as an average over a maximum of five years.

chamber and wastes to be treated in a detonation chamber include energetics and propellants that comprise small- and medium-cased munitions; or, 60% of all wastes could be treated by a burn chamber and wastes to be treated via burn chamber include bulk energetics and propellants and comprise small-cased munitions, and explosive-contaminated materials.

In addition to the TRA process described under the availability criterion, and as mentioned earlier, treatability studies and RD&D permits offer owners/operators additional options for determining and confirming which technology or technologies can treat their waste streams before committing to implementation.<sup>45</sup> Much like the TRA process, treatability studies and RD&D permits may be appealing options, for example, when a new waste stream has unique characteristics that impart uncertainty regarding the capability of a proven technology (*e.g.*, a confined burn chamber treating similar waste types at another facility) to treat it effectively and safely; or, if there is an emerging technology that has been successfully demonstrated at the pilot scale and appears to be promising for the waste stream in question.

The treatability study provisions in § 261.4(e) through (f) are designed to promote the development of treatment technologies through reduction of the regulatory requirements that would otherwise apply to the storage, manifesting, and treatment of hazardous waste conducted by TSD facilities. The treatability study exemption is a conditional exemption separated into two parts: an analytical sample exemption to determine hazardous characteristics and a treatability exemption to determine the suitability of a treatment process. The former applies to collection and transportation of samples while the latter applies to the testing and treatment of samples. For samples undergoing treatability studies (*i.e.*, the latter), the conditional exemption allows for the testing or treatment of samples without a RCRA permit or prior EPA approval, and the transportation to and from the laboratory or testing facility is not required to be manifested. (Note, however, that authorized States can be more stringent than the Federal

requirements and thus, may require manifesting or other RCRA requirements outside of the conditions for exemption.) Also, MTUs can qualify for the treatability study exemption. To qualify for the exemption, the applicable conditions under § 261.4(e) and (f) concerning collection, labeling and transportation, sample quantities and time limits, sample and treatment residue disposition at conclusion of the study, recordkeeping, and notifications, must be met.

If an owner/operator plans to conduct a treatability study or is in the process of conducting one, EPA proposes that submittal of a description of the study and the timing for initiating and completing the study be required, given that the study may impact the timing or outcome of the alternative technology evaluation. For owners/operators who have conducted treatability studies, EPA proposes that documentation of completed treatability studies be required under this section of the alternative technology evaluation. Treatability study results would provide additional rationale in support of the owner/operator's technology selection or elimination and communicate intentions and anticipated schedule.

With regard to RD&D permits under § 270.65, they are also designed to promote development of treatment technologies through reduction of the regulatory requirements. Although a permit must be obtained, certain RCRA requirements may, consistent with protection of human health and the environment, be modified or waived so that permits can be issued expeditiously. An advantage of an RD&D permit over treatability studies is that the permit can provide more flexibility in terms of the quantity of wastes that may be received for testing and the length of time needed to initiate and complete testing.

Similar to treatability studies, if an owner/operator will apply for an RD&D permit or is conducting testing under one, EPA proposes that the information that will accompany the permit application be submitted, or a copy of the permit application or permit be submitted for this step of the alternative technology evaluation, and any conclusions reached if the activities have been completed. Again, by submitting the information, permit, or conclusions, this can provide rationale in support of the owner/operator's technology selection or elimination and communicate intentions and anticipated schedule.

Treatability studies and RD&D permits are options that can be utilized separately or in conjunction with the

TRA process. It would be a choice based on the owner/operator's circumstances and the state of development of a technology under consideration. For example, a treatability study may be preferable when the technology that will undergo testing and evaluation is not located at a RCRA permitted facility or the site where the study will be done does not generate the wastes needed for testing and evaluation. An RD&D permit may be preferred when a technology's development is still in early stages and more time is needed to develop and test the technology. The TRA process, treatability studies, and RD&D permits can serve the same broad purpose—to determine the effectiveness of an alternative technology—but differ in the sense that treatability studies and RD&D permits are likely to be used to further develop a technology versus the TRA process that is more likely to be used, in the context of this rulemaking, for evaluating an existing technology that has already been proven to work at a fully operational level for specific applications.

#### Identification of Selected Alternative Technology or Technologies

Based on the information provided in the prior section, EPA proposes that the owner/operator would clearly indicate the technology or combination of technologies that is/are selected.

#### Potential for Off-Site Treatment Using Alternative Technologies and Use of MTUs

In addition to identification and selection of alternative treatment technologies for implementation, EPA proposes that owners/operators also evaluate alternative treatment options that do not involve implementation of permanent on-site units, namely, shipment of wastes off-site to a facility using alternative technologies, and MTUs that could be brought on-site temporarily. (See Section II. L. Mobile Treatment Units for Waste Explosives for more information on MTUs.) For this evaluation, EPA proposes that if neither off-site shipment nor use of an MTU on-site would be possible, the rationale to support the determination must be provided.

In cases where a determination is made that the waste cannot be shipped off-site, EPA proposes that the rationale consist of documentation that either the waste is a forbidden explosive per 49 CFR 173.54, DoD or DOE explosives safety specialists have determined that the waste cannot be shipped according to the DOD Explosives Hazard Classification Procedures (§ 173.56(b)), or that a Department of Transportation

<sup>45</sup> The definition of a treatability study is one in which hazardous waste is subjected to a treatment process to determine: (1) whether the waste is amenable to the treatment process, (2) what pretreatment (if any) is required, (3) the optimal conditions needed to achieve the desired treatment, (4) the efficiency of a treatment process for a specific waste or wastes, or (5) the characteristics and volume of residuals from a particular treatment process. See § 260.10.

(DOT) competent authority approval (*i.e.*, EX number)<sup>46</sup> or a special permit<sup>47</sup> has been requested and denied.

Documentation would need to consist of the denial correspondence and the tracking number assigned to the request for the competent authority approval or special permit.<sup>48</sup> For decisions concerning MTUs, the rationale would be based on the same criteria as any other alternative technology: if it is safe and available. EPA believes it equally important to consider off-site shipment and use of MTUs as potential alternative solutions. Any waste streams that remain after a thorough evaluation of all possible alternative technology options would then likely be eligible for OB/OD.

#### Identification of Individual Waste Streams Requiring OB/OD

For any remaining waste streams that have been determined to require treatment by OB/OD, EPA proposes that the owner/operator identify each explosive waste stream for which OB/OD is the only safe and available treatment method and provide supporting rationale. EPA also proposes that the amount of NEW of each individual waste stream(s), what it is (*i.e.*, per the characterization information), and whether it must be treated by OB or by OD be provided as well as a description of the characteristics which the determination is based upon in terms of the risk posed. For example, a cracked rocket motor has exposed propellant that has contributed to degradation of the stabilizer. As a result, the stability is questionable and

therefore, it would not be safe to size reduce for an available alternative technology. EPA believes this detailed information is necessary to understand and substantiate a request to use OB/OD for the identified waste streams.

#### Optional Secondary Alternative Technology Criteria

EPA has proposed the mandatory criteria for evaluating whether an alternative technology can be used in place of OB/OD; however, an owner/operator may also include a discussion of any secondary criteria that it finds helpful in selecting between identified available alternative technologies for implementation. Such criteria might include, for example, utility demands required to operate alternative technologies, costs, and throughput capacity. Again, such additional criteria cannot be used to dismiss a technology that has been identified as safe and available for a particular waste stream.

#### Submittal and Approval of Alternative Technology Evaluation

EPA proposes that alternative technology evaluations be submitted to the regulatory authority for review and approval. The evaluation must be completed according to the required criteria and content. It must clearly indicate whether a technology or combination of technologies has been selected and which waste streams would be treated by each selected technology. For wastes that the owner/operator proposes to treat by OB/OD because they have determined that there is not a safe and available alternative technology, a detailed rationale according to the required criteria and content must also be included. If an alternative technology or technologies has/have been selected for implementation, the facility need not wait for agency approval of the alternative technology evaluation prior to beginning the process of implementing the technologies (*i.e.*, submitting funding requests, pursuing safety approvals, and submitting a permit application or modification to include the alternative technology or technologies).<sup>49</sup>

For permitting authorities reviewing alternative technology evaluations, the approval would not necessarily be conditioned on the results, but rather on the completeness of the evaluation—that is, whether the evaluation provides the required content and rationale. The content and rationale are key to

illustrating how and why a determination is made by explosives specialists that OB/OD is the only safe and available treatment method for a particular waste stream. As noted earlier, EPA recognizes that explosives specialists are the authority on explosives safety. Equally important to recognize is that regulatory authorities are accountable to the public for their decisions and thus, if additional clarification is requested by the regulatory authority, it should not be viewed as a challenge to the specialists' decisions but rather as information needed to better understand and to build a record for the regulatory authority's decision.

#### Alternative Technologies and Continuity of Operations

As indicated previously, EPA recognizes there will continue to be a need for OB/OD when there are no safe and available alternative technologies for specific waste streams. There may also be other situations when OB/OD may be needed, on a temporary basis, even though an alternative technology has been implemented, so that treatment operations may continue and critical needs can be met. Such situations can arise from unanticipated and prolonged maintenance and repair of an alternative technology, catastrophic failure of an alternative technology, and emergency situations impacting national security such as wartime activities that generate excess waste explosives requiring treatment. During these situations, the quantity of waste explosives awaiting treatment could increase beyond facilities' permitted storage capacity, or more critically, the timeframe for safely storing and handling the waste explosives could be exceeded such that the wastes become unstable and significantly increase the risk of explosion while in storage or during handling. Another potential negative outcome is if an explosives manufacturing facility's alternative technology is down for prolonged repairs, production could also be impacted if the wastes associated with the manufacturing process cannot be treated. Customers dependent on explosive ingredients and materials could be impacted in such a way that national security needs could not be met.

To avoid these situations, OB/OD could be used on a temporary basis to treat the waste explosives that ordinarily would be processed and treated through the alternative technology or to treat excess waste explosives generated during a national emergency. There are existing regulatory

<sup>46</sup> Competent authority approvals are written and issued by DOT (and include assignment of an "EX Number" for the approved explosive material). Persons can be authorized or certified by the DOT to evaluate, examine, and test explosives and recommend a shipping description, division, and compatibility group, and submit to DOT for approval; however, all approvals must be issued by DOT and do not expire. For more information on competent authority and approvals, see 49 CFR 105.5 and 173.56(b). For information on organizations approved to examine and make recommendations on new explosives, see: <https://www.phmsa.dot.gov/hazmat/energetic-materials-approvals/explosive-test-labs>.

<sup>47</sup> Special permits (DOT-SP) authorize a variance from a hazardous materials regulation (HMR). Special permits may be issued provided the person is performing a regulated function in a way that achieves a safety level at least equal to the safety level required by regulations or is consistent with the public interest and regulations, if a required safety level does not exist (49 U.S.C. 5117). Special permits are issued by DOT only and are valid for two years and may be renewed.

<sup>48</sup> A rejection issued due to an incomplete application (*i.e.*, missing information in the request letter, laboratory recommendation, chemical composition) is not adequate evidence that a waste explosive cannot be shipped offsite. Approval status can be tracked at: <https://www.phmsa.dot.gov/approvals-and-permits/hazmat/approvals-search>.

<sup>49</sup> EPA notes that the RCRA regulations require that a permit modification must be requested and approved prior to construction of a new unit.

mechanisms under RCRA that can be utilized to provide continuity of treatment operations in these situations. For facilities that have permitted OB/OD units, a temporary authorization could be issued under § 270.42(e) to increase the permitted treatment capacity and/or frequency of treatment or to allow for a waste that is only permitted for treatment in the (inoperable) alternative technology, to be treated by OB/OD during the temporary authorization period. The temporary authorization procedure was developed to allow owners/operators of permitted TSD facilities to conduct activities to respond promptly to changing conditions and improve the management of hazardous wastes. For more time sensitive needs, short duration needs, or when there is no longer permitted OB/OD capacity at a facility using alternative technologies, emergency permits could be issued under § 270.61 as another option.

For other situations that pertain to routine inspections and maintenance, EPA expects that the associated periods of downtime would have been planned for and managed so that OB/OD would only be allowed for unanticipated delays that prevent return of the system to its operational status, and only after other available options are considered. Thus, in the technology evaluation phase when accounting for needed treatment throughput, facilities could consider the option of implementing redundant systems—installing three static detonation chambers instead of two, for example—that would provide needed capacity during periods of downtime. Other options to consider include use of MTUs, shipment to another facility using alternative technologies, or adding storage capacity.

EPA emphasizes that safe and available alternative technologies that have been implemented must always be used in place of OB/OD. However, EPA is also cognizant that situations arise that could adversely impact continuity of operations, and in turn, significantly increase safety risks or threaten national security. To address these situations, options have been presented that can be pursued to ensure that the needed treatment can take place.

#### Summary and Request for Comment

The purpose of the above section is to propose revisions to the existing regulation for OB/OD to provide clarity and to include a process for achieving successful implementation. This is in recognition that there is currently inconsistency in implementation of the existing regulation. By providing clarity, a process, and information resources on

available alternative technologies, a higher level of consistency can be achieved, which EPA expects to result in increased use of alternative technologies and reduction of OB/OD. EPA does not believe a complete ban on OB or OD is possible given that there are waste explosives that cannot be treated by an alternative technology due to the instability and potential shock sensitivity of those wastes, as discussed in the NASEM report (see footnote 4, p. 78), or the unique properties of certain waste explosives that result in unpredictable reactions, as discussed in the context of RDT&E wastes. At this time, EPA is proposing revisions to clarify eligibility for use of OB/OD for waste explosives and has presented the criteria and content to be required when evaluating alternative technologies. EPA's view is that if a facility utilizes the criteria and provides the required content and supporting rationale, the regulatory authority reviewing the evaluation should be able to determine its completeness and understand the owner/operator's conclusions. Therefore, EPA requests comment on the regulatory language in new §§ 264.707 (a) and (b) and 265.707 (a) and (b) as summarized below. The regulatory language is intended to make clear that if the applicant is proposing to use OB/OD to treat waste explosives, there must be a demonstration of eligibility.

Equally necessary is the process for demonstrating eligibility through an evaluation of technologies. EPA requests comment on the criteria presented in this section. These criteria include the requirement that the technology be safe and available. These criteria are the basis for demonstrating that owners/operators may or may not qualify for OB/OD. Comments should center on the adequacy of the proposed criteria and rationale requirements, keeping in mind that the regulatory standard has been that OB/OD may only be used when waste explosives cannot be *safely* disposed of through *other* modes of treatment.

Also, EPA requests comment on the adequacy and organization of the required content for the evaluation. This includes description of facility operations, characterization of wastes, initial screening of potential alternative technologies, identification of alternative technologies according to individual waste streams, identification of selected alternative technology or technologies, potential for off-site treatment using alternative technologies and use of MTUs, identification of individual waste streams requiring OB/OD, submittal and approval of the

alternative technology evaluation, and continuity of operations. In addition, as noted, RDT&E wastes can present additional challenges for waste characterization and selection of potential alternative treatment technologies due to the variety of different materials and novel formulations produced during the research phase, and due to increased materials sensitivity from testing and evaluations phases and changes to the physical and chemical properties. EPA seeks comment on whether there is an approach that would be better suited for RDT&E facilities when identifying and describing individual explosive waste streams.

#### E. Timing For Rule Compliance

##### Introduction and Description

At present, facilities that conduct OB or OD of waste explosives are required to demonstrate and periodically redemonstrate that no safe alternatives are available for their waste streams by conducting an evaluation of alternative treatment technologies. Owners and operators must also employ safe alternatives to the OB/OD of waste explosives when available. However, the timing and frequencies of these demonstrations are not defined by the existing regulations. Nor do the existing regulations specify required timelines for the implementation of safe alternatives. As such, there is uncertainty around the timing for conducting alternative technology evaluations and implementing safe alternative technologies. Therefore, EPA is proposing requirements for the timing of initial evaluations and reevaluations, and for the implementation of safe available alternative technologies identified. EPA believes the proposed requirements will help manage the workload of State and regional implementers, reduce uncertainty related to implementing the regulations, allow for advanced planning by the regulated community, and foster consistency in implementation.

##### Proposed Revisions and Supporting Rationale

To aid in implementation of the existing regulation and especially as it applies to permitted units, EPA is proposing new regulations at §§ 264.707 and 265.707 that would specify when alternative technology evaluations are required, and the time allowed for implementation of alternative technologies.

### Timing of Initial Alternative Technology Evaluations and Reevaluations

EPA is proposing regulatory text at § 264.707(c) and (d) related to the timing of initial alternative technology evaluations and subsequent reevaluations. In the following paragraphs, EPA discusses the proposed timing for permitted and interim status OB/OD facilities and units, as well as potential new facilities or OB/OD units. For permitted facilities with OB/OD units, EPA is proposing a requirement at § 264.707(c) that, at the next permit renewal or Class 2 or 3 permit modification associated with an OB/OD unit, the RCRA permit application include an alternative technology evaluation as discussed in Section II.D Alternative Technology Evaluation and Implementation. The owner/operator of an existing OB/OD unit would be required to conduct the initial evaluation, or reevaluation, and submit it as part of the permit application submission. For new facilities or new OB/OD units that are proposed to treat waste explosives, the owner/operator would be required to prepare an alternative technology evaluation and submit it as part of the permit application for a new OB/OD unit.

EPA favors an approach tied to permitting actions as, nationally, permits are staggered, and this would assist both regulated entities and permitting authorities in balancing the work and administrative burden of preparing and reviewing the alternative technology evaluations over time. Similarly, linking the timing of the evaluations to the permitting milestones will allow the regulated entities (many of which are owned or operated by Federal agencies) more time to secure funding and resources to conduct the evaluations.

One drawback of this approach is that, depending on the permitting timelines, it could be up to ten years before a permitted facility managing waste explosives becomes subject to the new requirements specifying how to conduct alternative technology evaluations; although EPA ultimately considers this would be rare since permit modifications often occur several times over the course of a ten-year permit term. In addition, this downside can be mitigated by the use of permit modifications initiated by the permitting agency under § 270.41. (See discussion of permit modifications in the Background of Regulatory Requirements component of Section II.A. Introduction to Open Burning and Open Detonation of Waste Explosives and this Rulemaking.) At facilities

where the continued use of OB/OD may present a risk to human health and the environment, including situations where there may be an overburdened or disadvantaged community, the Director can consider whether cause exists to initiate a modification of the permits to incorporate the regulatory requirement to evaluate alternative treatment technologies. EPA believes that an agency-initiated modification may also be appropriate when facilities have conducted an alternative technology evaluation previously, but the evaluation did not provide complete information necessary for the permitting agency reviewing the evaluation to understand and determine whether the conclusions presented by the facility are acceptable. See § 270.41(a)(2). In addition, should EPA finalize this proposal, agency-initiated modifications may also be appropriate to incorporate the new promulgated standards. See § 270.41(a)(3).

EPA is proposing at § 264.707(c)(2) that permitted facilities that have conducted an alternative technology evaluation within the three-year window prior to the final rule's effective date, be able to use that evaluation in lieu of conducting another alternative technology evaluation as part of the permitting process, provided the evaluation meets the criteria as described in this proposal. Namely, the alternative technology evaluation would need to have thoroughly assessed all waste streams managed by the facility and meet or exceed the requirements for an alternative technology evaluation described in this proposal. EPA is including this provision to avoid requiring a new alternative technology evaluation immediately after a complete and thorough one was prepared and accepted by the regulatory authority. EPA anticipates this will provide additional flexibility and be perceived as a benefit by the regulated community. Additionally, EPA acknowledges that regulated entities are required now under the existing regulations to conduct and submit alternative technology evaluations and thus this provision would assist entities in compliance during the transition period of these regulatory changes.

For interim status facilities or a permitted facility with interim status OB/OD units, EPA is proposing requirements at § 265.707(c)(1) that the owner/operator conduct an alternative technology evaluation within one year of the effective date of the regulations. EPA is proposing a one-year deadline for conducting the alternative technology evaluation to address the small number of interim status facilities

as rapidly as possible. There are currently only four interim status facilities treating waste explosives by OB/OD. These facilities are operating without the protections and controls that a permit provides. In addition, because these facilities do not have a RCRA permit for their OB/OD units, they also do not have a standard timeframe for permit renewal or the potential for permit modification that would trigger an evaluation or reevaluation of alternative technologies, such as for the RCRA permitted OB/OD facilities. As such, EPA believes it is appropriate and practicable to require an evaluation within one year of the effective date of the rule for interim status facilities.

EPA is proposing at § 265.707(c)(2) that interim status facilities that have conducted an alternative technology evaluation within the three-year window prior to the final rule's effective date enacting the requirements, to be able to use that evaluation in lieu of conducting another initial alternative technology evaluation. As a result, the owner/operator would not need to conduct an alternative technology evaluation until the reevaluation (*i.e.*, five years after the evaluation used in lieu of the initial evaluation). In order to do so, the evaluation would be required to meet certain criteria as described in this proposal. Namely, the alternative technology evaluation would need to have assessed all waste streams managed by the facility and meet or exceed the requirements for an alternative technology evaluation described in this proposal. EPA is including this provision to avoid requiring a new alternative technology evaluation immediately after a complete and thorough one was prepared and accepted by the regulatory authority. EPA anticipates this will provide additional flexibility and be perceived as a benefit by the regulated community. Additionally, EPA acknowledges that regulated entities are required now under the existing regulations to conduct and submit alternative technology evaluations and thus this provision would assist entities in compliance during the transition period of these regulatory changes.

Regarding reevaluations, EPA is proposing for permitted facility and interim status facilities at §§ 264.707(d) and 265.707(d), respectively, that the owner/operator would be required to conduct reevaluations at the frequency of at least every five years thereafter. EPA requests comment on whether a more frequent alternative technology reevaluation timeline would be appropriate. EPA also requests comment

on whether an annual certification that no new information is present and would warrant an off-cycle reevaluation for alternative technologies would be appropriate.

One factor suggesting a reevaluation every five years may be sufficient is that, as noted above, under existing permitting authorities the Director can consider whether cause exists to initiate a modification of the permits to incorporate the regulatory requirement to evaluate alternative treatment technologies. One of the causes for such a modification identified in § 270.41 is receipt of new information by the Director that was not available at the time of permit issuance. As such, were the Director to become aware of new information that would justify requiring a reevaluation sooner, the Director has an avenue to modify the permit to require one. Examples of such information that EPA expects may lead the Director to initiate such a modification would include: (1) The Director becomes aware that there is existing technology being used to treat similar waste streams at another facility; or (2) the availability of demonstration and test data for an alternative technology that indicates it may be safe and available for one or more of the facility's waste streams. If the availability of this type of information led to an off-cycle reevaluation being prepared, it is EPA's expectation that the reevaluation would be focused on the information or changes cited by the regulatory authority as cause for the permit modification.

Of course, this permitting authority puts the onus on the Director. As such, EPA believes it makes sense to still consider and request comment upon other approaches. Specifically, as noted above, EPA requests comment on whether a more frequent alternative technology reevaluation timeline would be appropriate. EPA also requests comment on whether an annual certification that no new information is present and would warrant an off-cycle reevaluation for alternative technologies would be appropriate.

#### Time Allowed for Implementation of Alternative Technologies

EPA is proposing a requirement that owners/operators that identify safe and available alternatives to OB/OD must prepare and submit an implementation schedule pertaining to the alternative(s). To effectuate this, EPA is proposing regulatory language for permitted facilities at § 264.707(e) Implementation of alternative technologies, and analogous requirements for interim status facilities at § 265.707(e).

The implementation schedule would be due within 180 days of the completion of an alternative technology evaluation and a determination that a safe alternative technology is available. The implementation schedule would need to be approved by the permitting authority and include the significant interim milestones. For permitted facilities, EPA is proposing at § 264.707(e)(2) that the implementation schedule be incorporated by reference into the facility's RCRA permit. EPA expects this would occur as part of the permit action that triggered the requirement to conduct the alternative technology evaluation.

In order for the implementation schedule to remain current and adapt to new developments at the facility, EPA is also proposing that the implementation schedule may be amended as necessary. This provision would also appear at § 264.707(e)(3) for permitted facilities and § 265.707(e)(2) for interim status facilities. For permitted facilities, EPA is proposing that changes to the implementation schedule would be effectuated by a Class 1 permit modification with prior Agency approval. The owner/operator would be required to comply with the schedule of implementation for the alternative technology. This would allow for modification of the implementation schedule in instances such as delays due to factors outside the control of the owner/operator.

EPA is proposing that the implementation schedule include, at a minimum, applicable deadlines related to vendor procurement, permit application submissions associated with the alternative technology, construction start and end dates, testing of the alternative technology, and a deadline for beginning operations of the alternative technology. In specifying the milestones for inclusion in the enforceable schedule, EPA sought to provide some broad requirements for major milestones but to leave flexibility for additional detail to be worked out, as appropriate, on a case specific basis. EPA expects that permitting authorities and facility owners/operators will be in the best position to determine what additional milestones, if any, are appropriate at a given facility for a given alternative technology.

For existing facilities with operating OB/OD units, EPA would allow continued OB/OD while the facility works toward implementation of an alternative technology. In the interim, the permit writer should continue to work with the owner/operator to minimize waste generation and reduce

wastes being open burned/open detonated. Actions may include:

- Reducing the amount of material being contaminated with explosives, *e.g.*, through segregation or diversion of wastes which would include accurate waste determinations/tests to confirm wastes are characteristic for reactivity (D003) under and have the potential to detonate.

- Storing wastes, when it is safe to do so and pursuant to RCRA regulations or temporary authorizations, until the alternative technology is in operation and while alternative technologies are down for maintenance. This may require building and authorizing additional safe storage capacity.

- When safe to do so, shipping wastes off-site to another treatment facility to be managed by an alternative technology.

- Treating wastes, via non-thermal methods (*e.g.*, soaking, chemical treatment), as allowed by regulation. In general, generators of hazardous waste can conduct non-thermal treatment on-site in enclosed tanks or containers without a RCRA permit.

- Reducing the permitted amount/volume of waste that can be treated in the OB/OD unit until the alternative technology is in operation.

The proposed approach allows flexibility in the timing for implementation of the alternative technology by not establishing a regulatory compliance date, but rather, requiring an implementation schedule with enforceable milestones. The primary benefit of this approach is the flexibility it allows regulatory authorities to tailor implementation schedules to facility-specific circumstances. As a practical matter, EPA believes flexibility is important to accommodate facility-specific funding and budget allocation timelines, and vendor availability and contracting lead times which may vary by waste stream and geography. For example, many of the regulated facilities are government facilities which may need to utilize multi-year budget cycles to secure funding for alternative technologies. Additionally, the waste streams differ widely as does the complexity of the alternative technology available to treat the waste streams. For example, a small neutralization technology may be faster and easier to procure and permit than a large detonation chamber or confined burn chamber.

One drawback of the proposed approach is that, absent a regulatory deadline for implementing alternative technologies, the timeframe in which an alternative technology would be implemented may be prolonged.

However, the proposal would require that the implementation schedules must be approved by the permitting authority and would also be enforceable. As such, EPA expects compliance with the implementation schedules without unreasonable delays. An additional downside of the proposed approach would be the implementation burden associated with developing implementation schedules on a facility-by-facility basis. However, considering that alternative technology evaluations would not be performed at the same time if the proposed approach is finalized, implementation schedules also would not be due at the same time, thus balancing the permitting agency's workload over time.

#### Alternative Technology Implementation Deadline by Regulation

A second option EPA considered, but is not proposing, was the establishment of a compliance date or dates in the regulations for both the submission of an implementation schedule with interim milestones and a compliance date for implementation of alternative technology. Under this option, EPA would establish a regulatory deadline (e.g., 60 days from the identification of an alternative technology) for submission of an implementation schedule that contained interim milestones such as vendor procurement, which is the same as the proposed option. However, under an alternative option, EPA would also establish a deadline for completing implementation of the alternative technology (e.g., four years from the identification of a safe alternative technology). The option would also provide an avenue for the regulatory authority to provide extensions to owners/operators in instances where implementation of alternative technology by the established regulatory deadline would not be possible.

This option has appeal primarily because it has the potential to result in a more standardized transition away from OB/OD to alternative technologies. Rather than negotiating individual timelines for implementation on a facility-specific basis, this alternative option would clearly communicate an expected and consistent alternative technology operational date which could result in a more deadline-driven path toward implementation of alternative technologies. For example, the deadline established in regulation could provide Federal facilities an advanced opportunity to initiate budget requests and make other arrangements to meet that deadline. EPA notes however, that owners/operators should

already be planning for alternative technology implementation because the existing regulations already require implementation of safe alternatives to OB/OD.

One major downside of the option, however, is that it would fail to account for the variation in waste streams and complexity and number of alternative technologies (i.e., one facility may have several heterogeneous waste streams requiring treatment by multiple alternatives while another facility may have more limited homogeneous waste streams that may be handled by one alternative) which may not be conducive to a nationwide deadline imposed by regulation. As discussed above, EPA expects that funding approval, vendor procurement, permitting and construction timelines may vary across facilities' selected technologies and complexity of their waste streams. Additionally, the deadline by rule approach in this option would also potentially be disruptive to State and EPA permitting authorities' workload and priorities. Due to these limitations, EPA is not proposing this option but is requesting comment on this option. If public comment is supportive of this option, EPA may elect to adopt the approach in the final rule.

#### Alternative Technology Implementation Deadline by Regulation With Option for Modification

A third option EPA considered is to establish a nationwide regulatory deadline for implementing safe available alternative technologies but with an avenue for that deadline to be modified were it determined not to be feasible. In such an option, the regulations would establish a deadline for implementing an alternative technology (e.g., five years from the identification of a safe alternative technology) but allow a process for the owner/operator to demonstrate that such a deadline was not feasible for the given technology at their facility. If the owner/operator were able to demonstrate to the satisfaction of the Director that the timeline established by regulations was not achievable, then the owner/operator and the Director would negotiate an enforceable implementation schedule much as described in the proposed option.

This option has the advantage of allowing an off-ramp in situations where the nationwide deadline is not feasible and thus addresses one major concern with the nationwide deadline by regulation option. One potential disadvantage with this approach would be that preparing and evaluating demonstrations would entail some level

of burden. If many facilities made such demonstrations, this option may result in the majority of facilities developing facility-specific schedules and, in effect, not offering much of a predictability or expediency advantage over the proposed approach. At this point, EPA cannot predict how many facilities would seek to make such demonstrations and the resulting determination. Given this uncertainty, EPA is not proposing this option but is requesting comment. If public comment is supportive of this option, EPA may adopt the approach in the final rule.

#### Alternative Technology Implementation Deadline by Regulation for Priority Facilities

A fourth option EPA considered is to establish a regulatory deadline only for priority facilities while the rest of the universe would develop facility-specific implementation schedules. Priority facility identification would be based on location data (e.g., proximity to sensitive receptors where ongoing use of OB/OD presents higher potential of exposure to emissions, overburdened communities experiencing cumulative environmental or health stressors, areas vulnerable to impacts of climate change) or other factors making the facility of high interest (e.g., a facility treating high quantities of waste explosives by OB/OD). This option would represent a hybrid of the two options discussed above. In this option, the regulations would provide flexibility for most facilities and less flexibility to priority facilities, e.g., near sensitive receptors.

EPA expects that environmental justice (EJ) analyses, information from facilities' permits, and public comment information would be utilized to determine priority facilities. The primary benefit would be that these sensitive sites would be addressed in certain, near-term time horizons. One downside of this option is that the prioritization process itself, during implementation, would require resources and time. Additionally, because of the lack of flexibility for priority facilities entailed in this option, this approach would also fail to account for the variation in waste streams and alternative technologies necessary at these facilities. As discussed above, EPA believes that variation may argue for facility-specific implementation timelines. Additionally, the deadline by rule approach in this option would also potentially be disruptive to State and EPA permitting authorities' workload and priorities. Again, EPA is not proposing this option but is requesting comment given the benefits and the disadvantages. For example, EPA seeks



criteria suitable for nationwide regulation that could be applied relatively quickly in implementation to identify a priority class of facilities. If public comment is supportive of this option, EPA may adopt the approach in the final rule.

#### Public Participation and Alternative Technology Evaluations

EPA expects that the existing permitting processes would facilitate early and continuous public participation on the alternative technology evaluation and the implementation of alternative technologies. For permitted facilities, the permit action (e.g., permit renewal or Class 2 or 3 modification) that triggers the need for an alternative technology evaluation would include a variety of public participation steps, such as a pre-application meeting (for Class 3 modifications or permit renewals), notice to the facility mailing list, public comment period(s), and/or public notice of intent to issue a new, modified, or renewed permit. Additional steps may be added to ensure meaningful engagement with overburdened communities. Collectively, these steps would allow for the public to review the alternative technology evaluation, the tentative determination on the availability of a safe alternative technology, and the proposed implementation schedule if an alternative technology is determined to be safe and available. For interim status facilities, after conducting an alternative technology evaluation within one year of the effective date of the rule, the facility would be required to submit an updated permit application. The revised application would reflect a determination either that a safe alternative technology was available or that one was not available. In the first instance, the owner/operator would be applying for a permit for an alternative technology unit. In the latter instance, the facility would be seeking a permit for an OB/OD unit meeting the proposed new subpart Y standards for OB/OD units. This permitting process would afford multiple opportunities for public participation as specified in part 124, subparts A and B. These include pre-application public meetings, public comment, public notice, the ability to request a public hearing, and an avenue for appeal of the final permit decision. Because the alternative technology evaluation will inform whether the owner/operator must submit an application for an alternative technology permit or an OB/OD permit, EPA encourages facilities and regulators to consider engaging the public early

during the alternative technology evaluation. For example, the facility may set up an on-site information booth, website, or information repository to share background on the facility and its operations, and the alternative technology evaluation prepared by the owner/operator.<sup>50</sup> In this way, public comment and input during the permitting process may be less likely to require submission of a revised permit application later in the permitting process.

#### Summary and Request for Comment

This proposal includes clarifying regulatory text regarding when alternative technology evaluations would be prepared, and timelines for the implementation of alternative technologies. EPA expects that the proposed regulations would reduce uncertainty and increase consistency in implementation of the regulations. For the timing of alternative technology evaluations, EPA believes the proposal, by linking the timing to permit actions, strikes a balance between expeditiously evaluating the availability of safe alternatives and managing the timing of the evaluations in a manner that reduces administrative burden and best utilizes implementation resources. With respect to the implementation deadlines for alternative technologies, EPA is proposing a flexible process for facility-specific deadlines to be developed and amended as necessary. At the same time, the resulting enforceable deadlines for interim milestones and implementation of the alternative technology would provide greater certainty and accountability. Additionally, EPA described and is requesting comment on three alternative options. One alternative option would be to set a regulatory deadline applicable to all facilities in the regulations. The second alternative option would establish a regulatory deadline applicable to all facilities but provide an avenue for negotiating a modified timeframe as appropriate. The third alternative option would be to set a regulatory deadline applicable to high priority facilities in the regulations, while allowing facility-specific implementation schedules to be developed for the rest of the universe. EPA is requesting comment on the proposed approach as well as each of the alternative options and will consider the input as part of the final action. If

<sup>50</sup>Please see US EPA's 2019 Resource Conservation and Recovery Act Public Participation Manual for more information and considerations related to public participation. The manual is available at: [https://www.epa.gov/sites/default/files/2019-09/documents/final\\_rcra\\_ppm\\_updated.pdf](https://www.epa.gov/sites/default/files/2019-09/documents/final_rcra_ppm_updated.pdf).

public comment is supportive such that additional information not previously considered by EPA in analyzing the advantages and disadvantages is presented, EPA may adopt one of these alternative options in the final rule.

#### F. Permitting of Alternative Technologies

##### Introduction and Description

Units that treat waste explosives are most often permitted according to the part 264, subpart X. As discussed in section II.A, these performance-based standards were developed to be applicable to a variety of waste management units, including OB/OD units, that were not already covered in the regulations. In adopting this approach, EPA concluded that it was not possible to set design and operating standards for all potential subpart X units, especially in the case of units for which there was little or no information available to allow for establishing technology-specific standards.

In the final rule for miscellaneous units, including OB/OD units, EPA did recognize that some miscellaneous units have design features similar to other units already covered in the regulations but are not similar enough that it would be appropriate to include or classify the miscellaneous unit under another section of regulation or to apply established performance standards to certain miscellaneous units.<sup>51</sup> For example, thermal treatment units, such as carbon regeneration units, use heat in the primary chamber to destroy organics in the waste stream (i.e., spent carbon) much the same way that incinerators do. However, carbon regeneration units are designed to desorb contaminants from carbon without damaging the carbon and are not designed to destroy a wide variety of hazardous wastes or materials like incinerators do. Thus, these units have different design features and operating conditions based on their purpose. It would not be practical then to require a carbon regeneration unit to comply with the full suite of incinerator standards; rather, it would be appropriate to "borrow" some of the incinerator standards and apply them to the carbon regeneration unit to ensure that it operates in a manner protective of human health and the environment. This is the basis for the requirement in § 264.601 that directs the permitting authority to include the listed subparts that are appropriate for the miscellaneous unit being permitted.

With respect to this proposed rule, there are a variety of enclosed

<sup>51</sup>52 FR 46950-46951, December 10, 1987.

alternative technologies that can be used for treatment of waste explosives in which subpart X standards would be appropriate. Thus, this section discusses the regulatory classification of devices treating waste explosives, as well as a range of related topics including clarifications on applicable regulatory requirements for certain waste explosives treatment practices and proposed changes to the existing subpart X standards and related permitting standards to account for alternative technologies.

#### Proposed Revisions and Supporting Rationale

In practice, units that treat waste explosives are most often permitted under subpart X, as described above. This includes all OB/OD units, as well as several types of alternative treatment technology units such as those that use chemical destruction and neutralization, and those that use thermal destruction and decontamination. However, thermal treatment units have been permitted according to the subpart X standards, while others have been permitted according to the subpart O and/or Clean Air Act (CAA) Hazardous Waste Combustion National Emission Standards for Hazardous Air Pollutants, subpart EEE standards (CAA subpart EEE) because they meet the definition of a unit regulated under these subparts. Occasionally, there are cases when the same type of thermal treatment unit is permitted under one set of standards in one State, but under a different set of standards in another State because the definitions are applied differently. In these cases, this variability can be frustrating for owners/operators that would like to operate the same or similar units in another State. For example, a State that permits a unit as an incinerator as defined in § 260.10 would be subject to both RCRA and CAA standards and permitting requirements, and in some instances, could have two sets of operating standards and emission limitations (*i.e.*, one set in the CAA title V permit and a second set in the RCRA permit) that must be complied with where States have not adopted the integration with MACT standards language.<sup>52</sup>

Although EPA recognizes that the differences in application of standards is not ideal, EPA is not proposing regulatory revisions at this time that would define the various types of thermal treatment units to provide more consistency in application of standards across the same types of thermal units

for reasons discussed in the following section. EPA anticipates that this proposed rule would significantly increase the use of alternative treatment technologies, especially a variety of thermal units, which will require permitting according to subpart X or subpart O/CAA subpart EEE. EPA is interested, however, in hearing from commenters if it would be helpful for EPA to define the thermal treatment units that are available, which would provide more clarity when applying standards considering the following information.

#### Approaches To Permitting Thermal Treatment Units

If EPA were to define the different types of thermal treatment units, then a unit that is designed and operated like an incinerator and meets the definition of an incinerator<sup>53</sup> would be permitted according to part 264, subpart O and/or the CAA subpart EEE standards. The units that could be defined as incinerators treating waste explosives include the ammunition peculiar equipment (APE)-1236 rotary kiln incinerator, explosive waste incinerator (EWI), and bulk energetics disposal system (BEDS). The common feature of these units is that the wastes travel through a combustion chamber in which heat is applied inside the combustion chamber by a controlled flame.

Other types of thermal treatment units like contained burn chambers, SDCs, CDCs, explosive destruction systems (EDS), and DAVINCH, are most often permitted according to subpart X, and if EPA were to define these types of units, EPA would not define them as incinerators, but rather a type of miscellaneous unit because they do not use a controlled flame within the treatment chamber. The units in this category use an electronic ignition system to initiate treatment, or use heat applied externally to the chamber to initiate treatment.

Reasons for approaching thermal treatment units differently with respect to classification as a miscellaneous unit under subpart X versus an incinerator under subpart O/CAA subpart EEE relate to the authorized permitting authority's interpretation of applicability. Also, it is possible that the permitting authority may choose to take a more straightforward approach and regulate a unit that does not have a controlled flame in the treatment chamber under the full suite of incinerator standards, rather than regulating the unit under subpart X, and thus having to choose which standards

should apply. However, a straight application of subpart O/CAA subpart EEE standards could make the facility's compliance complex and difficult because certain standards may not be practically applicable when a unit does not meet the definition of incinerator. To potentially avoid this type of situation, EPA could define the known types of thermal units that treat waste explosives to impart more consistency in application of standards. The downside to EPA's action would be that it could remove the flexibility that some regulatory authorities prefer when applying standards believed to be appropriate for the unit.

Regardless of the subpart that a technology's permit conditions are derived from, they must be protective of human health and the environment for the selected technology. To be protective, the standards, for example, must assure that the technology is monitorable both in terms of operational controls and effluents/emissions resulting from treatment operations. Alternative treatment technologies are enclosed processes that utilize a series of process and engineering controls beginning with introducing the wastes into the system and through recovery of the treated material and byproducts. Inherent in the design are controls to monitor the system to ensure that explosives safety and treatment protocols are met as the material moves through the treatment process. The system should also include controls to treat and monitor emissions and effluents to ensure they are protective prior to release. Thus, operational controls and associated effluent/emission treatment systems must be monitorable to determine compliance with applicable regulations and to ensure they are protective of human health and the environment.

In addition to the capability to monitor treatment byproducts, the technology must also be able to treat any toxic by-products to levels that are protective of human health and the environment before release. Contained alternative treatment technologies and associated pre-treatment technologies must not release toxic by-products. For example, a pre-treatment technology like water jet cutting will generate a new waste stream—water contaminated with explosives. This waste stream must be characterized and treated on-site or off-site to meet applicable environmental standards before release into the environment. Another example relates to thermal treatment processes. If chlorinated wastes are present in the waste stream, even if they are effectively treated in the primary chamber, the

<sup>52</sup> See §§ 264.340(b), 266.100(b) and 270.22, and 270.62.

<sup>53</sup> See § 260.10.

potential remains for dioxin/furan formation when the treatment gases are cooled after leaving the primary treatment chamber. Thus, it is essential that the systems are optimized to prevent dioxin/furan formation and that the air pollution control equipment can treat any dioxins/furans to required permit limits established according to the applicable regulatory standard (e.g., a dioxin/furan standard under subpart O or subpart EEE) before release.

Again, any alternative technology must be designed and operated in a manner that is protective of human health and the environment. Under RCRA, permit writers consider the applicable regulatory limits (e.g., required design, operating, and emission standards) the technology's test results (e.g., established in literature and on a site-specific basis), and site-specific factors (e.g., proximity to receptors and volume and types of waste) when developing permit conditions. The resulting permit conditions ensure that the technology is protective. In addition, alternative treatment technologies, in all likelihood, will also require permits under other programs such as the CAA and CWA.

#### Clarification of Wastes Contaminated With Explosives

Also related to permitting and application of appropriate standards, EPA is providing clarification on an issue that has presented challenges to regulatory classification. Over the past several years, EPA has learned that some facilities have been treating solid wastes that are minimally or potentially contaminated with explosives by OB in non-RCRA permitted units. This practice has been allowed in certain States that finalized an exception to OB for waste explosives under their air regulations, based on the premise that these materials pose an explosive hazard.<sup>54</sup> The exception is nearly identical to RCRA; however, there is no CAA Federal equivalent to the State air regulation for allowing uncontrolled burning of solid waste that may pose an explosive hazard. Rather, individual States have chosen to implement the exception through their CAA State implementation plans.

Facilities have argued that their wastes may contain explosives and may pose a safety hazard, and thus their OB is exempted from State air regulations as described above; and at the same time have asserted that these wastes are not RCRA D003 reactive waste, and thus

their burning is not subject to RCRA regulations either. EPA does not agree that the above State air and RCRA-related assertions can be made concurrently for the same wastes. If the waste does not meet RCRA's reactive waste characteristic and is not a waste explosive, then it cannot be considered reactive and explosive for purposes of qualifying for the exception under State air regulations (see footnote 58). Or, in other words, if a waste is considered an explosive safety hazard under State air regulations, it must also be considered a reactive hazardous waste under RCRA. EPA notes that if a waste is contaminated with explosives that results in the waste posing a safety hazard or, if the owner/operator has conservatively designated the waste as possibly explosive, then the waste is a RCRA reactive waste and must be managed under RCRA, including the prohibition on OB/OD unless there is no available safe alternative technology. EPA notes that many of the wastes at issue include non-combustible items such as concrete, masonry bricks, metal, pipes, vessels, soil, and combustible items such as cardboard, fiber drums, PPE, gloves, filter socks, and plastic waste. EPA finds that the majority of these wastes have alternative treatment technologies available and thus treatment by OB/OD of these waste would generally not be allowed. An exception could include large components associated with explosives manufacturing (e.g., large diameter concrete pipe, process equipment) that cannot safely be "resized" to the size necessary to support treatment in contained burn equipment or a chemical neutralization process. Cutting (either with a torch or saw) such items present a significant safety hazard.

One type of thermal technology that has been proven and used widely for these materials is a flash furnace which uses a controlled flame in the treatment chamber. Flash furnaces have been permitted under both subpart X and subpart O/CAA subpart EEE standards. Again, the difference in implementation can be attributed to State preference, the purpose of the treatment, or EPA policy regarding controlled flame. An example of a flash furnace that would be suited for permitting under subpart X is for decontamination of non-combustibles. In this case, treatment via chemical neutralization unit is the primary treatment, and a flash furnace is the polishing treatment. The purpose of the flash furnace is to ensure that any trace explosives remaining after neutralization would be removed through heat. A polishing step like this

may be necessary when there is uncertainty that a neutralization solution has reached the elbow of a pipe or small crevices of other materials. Because of the very small amount of explosives potentially present, EPA believes that application of subpart X standards is the appropriate choice for this type of thermal unit despite the use of a controlled flame in the treatment chamber, as subpart X allows for the development of permit conditions that are more fitting and implementable for this technology application.

#### Permitting and New Standards for Treatment of Waste Explosives

In this rulemaking, EPA proposes to designate a new subpart Y for the new technical standards for OB/OD units and the new standards for alternative treatment technology evaluations applicable to OB/OD owners/operators. When issuing permits for OB/OD units, regulatory agencies would incorporate the new subpart Y standards, and thus, issue "Subpart Y permits" once authorized for subpart Y. (See Section IV. State Authorization, Permitting of OB/OD Units section for further discussion.) For alternative treatment technologies, permits would continue to be issued under subpart X, with the exception of units that are determined to be strictly subpart O/CAA subpart EEE units. In designating a new subpart Y for OB/OD units, EPA proposes several revisions related to the permit application procedures in part 270 and to the facility standards in parts 264 and 265 to account for the new subpart Y. Some of the revisions are conforming changes while others are areas in which EPA believes additional clarity is needed.

#### Proposed Changes to 40 CFR Part 270 Subpart B—Permit Application

EPA proposes to make several revisions to § 270.23 Specific part B information requirements for miscellaneous units to account for new standards proposed in this rule for both OB/OD units and alternative treatment technologies. One revision that EPA proposes is to add a new paragraph (e) in § 270.23 and redesignate existing paragraph (e) as (f), to specify that the part B application for units permitted under subpart X as an alternative to subpart Y must include the required evaluation of alternative technologies and a schedule to implement the selected alternatives. A second revision is to add miscellaneous subpart X "treatment units" to paragraph (a)(3) of § 270.23 to specify that permit applications for treatment units, in addition to disposal units, must provide

<sup>54</sup> [https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/429](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/429) and <https://publications.tnsofiles.com/rules/1200/1200-03/1200-03-04.pdf>.

a detailed description of the plans to comply with the post-closure requirement of § 264.603 when they are unable to clean close. This addition will conform to the existing requirements of § 264.603 as it relates to both miscellaneous disposal and treatment units. Finally, EPA proposes to revise the title of § 270.23 to add “OB/OD units” and to include related and applicable references to the newly proposed subpart Y standards for OB/OD units throughout the section. Because OB/OD units have historically been permitted as subpart X units, EPA believes that the OB/OD part B information requirements should remain in this section based on familiarity, and thus provide a clear direction for the information expected of permit applicants.

#### Proposed Changes to 40 CFR Part 264 Subpart X—Miscellaneous Units and 40 CFR Part 265 Subpart P—Thermal Treatment

EPA is proposing a few changes to the subparts X and P regulations. Specifically, EPA is proposing to amend the environmental performance standards in § 264.601(b) and (b)(3) to include stormwater considerations. In § 264.601(b), EPA proposes to add stormwater to the list of environmental media for which prevention of any releases that may have adverse effects on human health or the environment. In addition, EPA proposes to add to § 264.601(b)(3) stormwater run-on and run-off patterns around the subpart X unit as part of the hydrologic characteristics of the unit. These additions are necessary to capture and address any impacts to stormwater management units or areas from contaminants contributed by subpart X units. EPA believes that adding consideration of stormwater impacts to the subpart X environmental performance standards would improve protection of human health and the environment.

In addition, EPA is proposing to revise § 264.603 (Post-closure care) to clarify that if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated “at the time of certification of closure” (rather than “during closure,” which is the wording of the existing regulation), then that unit must also meet the environmental performance standards in § 264.601 during post-closure care. EPA believes that this change more accurately reflects that there is a finite point in time in which the removal and decontamination actions end despite remaining contamination and thus, closure ends,

and post-closure care begins. Also related to § 264.603, is inclusion of similar requirements in the new subpart Y standards specific to post-closure for OB/OD units since these units would no longer be considered as miscellaneous units under subpart X. EPA proposes to carry over similar language with appropriate changes in the new § 264.714. Post-closure care for OB/OD units is particularly important when is it not possible to remove waste explosives and associated contaminated soils and groundwater at closure. As treatment units, OB/OD units are required to close in accordance with §§ 264.114 and 264.603. Should the owner/operator be unable to remove or decontaminate contaminated components, soils, subsoils, structures, and equipment after reasonable efforts to do so, these units will require monitoring, and potentially, remediation and removal actions, during the post-closure period.<sup>55</sup>

EPA is also proposing, in part 265, subpart P, to update the references to the “Assistant Administrator for Solid Waste and Emergency Response” to be the “Assistant Administrator for Land and Emergency Management,” which reflects the new name for this EPA office.

#### Summary and Request for Comment

Waste explosives have a variety of treatment options, many of which are classified as miscellaneous units and are permitted under subpart X due to their design or purpose. Certain types of thermal treatment units, however, have been permitted as subpart O/CAA subpart EEE units. In some instances, the units are clearly incinerators and in others they share similar aspects but not enough that the full suite of incinerator standards would be practical. In a few cases, there are identical thermal treatment units that have been permitted under one set of standards in one State and a different set in another State. As discussed, this difference can be attributed to a permitting authority’s interpretation of applicability based on whether a unit meets the definition of incinerator or not. Also, permitting authorities may choose to take a more straightforward approach and regulate a unit that does not have a controlled flame in the treatment chamber under the full suite of incinerator standards,

<sup>55</sup> An example of post-closure monitoring and removal actions that is likely to be indefinite is at Ft. Wingate Army Depot, NM, where munitions and sub-munitions are dispersed over hillsides making it too dangerous to attempt removal due to the steep grade. Due to erosion activity, the munitions continue to travel downslope into the arroyos where they eventually can be removed.

rather than choosing which standards should apply to a subpart X unit.

EPA recognizes that the current approach to regulating thermal treatment units can result in inconsistencies across different States. Given that this proposed rule is anticipated to increase the use of alternative treatment technologies, and especially a variety of thermal units, EPA requests comment on whether EPA should develop definitions for the various types of thermal units discussed to provide more consistency when applying standards.

EPA also discusses several proposed revisions to parts 264, 265, and 270 to accommodate the new standards for OB/OD units contained in the new subpart Y, to clarify existing language in subpart X, and to update the name of the EPA office in part 265. EPA views most of the proposed revisions as conforming changes needed to ensure that OB/OD units continue to be properly regulated. EPA does, however, propose to add stormwater as an additional medium to monitor under subpart X to ensure that contaminants from miscellaneous units that migrate to stormwater areas are also addressed. Last, EPA proposes a wording change in § 264.603 for treatment and storage units to read “at the time of certification of closure” versus “during closure” since this more accurately reflects the point in the closure process that a determination is made that the closure activities will cease, and post-closure care will begin. If commenters do not support any of the additions or changes noted, EPA would like to hear why.

#### G. Technical Standards for OB/OD Units

##### Introduction and Description

As part of this proposal, EPA is proposing to explicitly describe the existing requirement that owners/operators of OB/OD units demonstrate, through comprehensive waste analysis and an alternative technologies evaluation, eligibility for the exemption to the prohibition on OB/OD established in 1980 (see section II.D). EPA finds that clarifying in the regulations how owners/operators would demonstrate eligibility for the exemption would further reduce reliance on OB/OD due to consistent application of the standards. However, EPA acknowledges that safe alternative technologies are not currently available for every explosive waste stream and thus there will be a continued need for OB/OD to treat explosive wastes which do not yet have an alternative safe mode of treatment.

All OB/OD units are currently permitted under RCRA subpart X standards. As described above in Section F. Permitting of Alternative Technologies, due to the varied nature of miscellaneous units, subpart X standards are performance based and do not contain specific technical standards. Rather, subpart X directs permitting authorities to ensure permits “contain such terms and provisions as are necessary to protect human health and the environment” (§ 264.601). This, understandably, has led to some variability in permit conditions from different regulatory authorities with respect to OB/OD units.

EPA is proposing a new subpart, subpart Y, to establish technical standards for OB/OD units. EPA anticipates this would increase consistency in permitting OB/OD units and provide minimum criteria for protecting human health and the environment.

#### Proposed Revisions and Supporting Rationale

EPA is proposing, in new subpart Y, to establish technical standards for OB/OD units at §§ 264.708, 264.710, and 264.712 and in the interim status regulations in §§ 265.708, 265.710, and 265.712. Many of the requirements proposed are derived from what most OB/OD permits currently require. In addition, feedback received from EPA’s early engagement on the proposed rulemaking confirmed broad consensus among permitting authorities and regulated entities that these technical standards are appropriate and are, in many cases, already in use.

EPA’s approach in the proposed regulations is to not prescribe specific quantitative limits, thresholds, or values, but rather to propose §§ 264.708 and 264.710 operating and monitoring requirements that must be considered, and included as applicable, in the subpart Y permit. This is to preserve the flexibility needed for permitting authorities to determine specific conditions on a facility- and waste-specific basis. The permitting authority, with input from the facility’s permit application and received during public comment on the draft permit, would determine the appropriate limits for each requirement and issue them as conditions of the final permit. Specifically, EPA is proposing the following requirements for subpart Y OB/OD units.

Under § 264.708(a), EPA is proposing that each waste stream be treated by OB/OD as specified in the permit. This provision includes language for acceptable variation within a waste

stream that is deemed acceptable to the permitting authority.

#### Operating Requirements

Under § 264.708(b), EPA is proposing that optimal parameters for OB/OD operation of the unit be specified to minimize the amount of residue and particulate matter that could cross the facility’s boundary, for example, through movement of a plume. Restrictions on timing of OB/OD based on wind speed, wind direction, weather conditions (e.g., precipitation), humidity, cloud ceiling level, and, as appropriate, air pollution status may be necessary to reduce the potential for contaminants to migrate through the air and into communities, where they can deposit onto the soil and leached into groundwater used for irrigation and drinking water. For example, certain restrictions based on wind direction may be needed to reduce plume migration over a nearby community or water body. To ensure set parameters are adhered to, EPA is also proposing that owners/operators be required to monitor and record atmospheric conditions, as applicable. EPA is also proposing that limits, as appropriate, on frequency of OB/OD events and quantity (e.g., by weight and or NEW) be established per event, day, and/or year. In addition, EPA proposes under this section to include restrictions on timing of OB/OD events (e.g., limit OB/OD to daytime hours only to allow for monitoring of plumes or during certain times of the day to minimize disruption to nearby community activities). EPA proposes noise and ground vibration exposure limits for areas outside the facility boundary. In order to comply with noise and ground vibration limits, it may be necessary for the facility to change operations such as atmospheric restrictions, maximum NEW per event, or engineering controls. If the facility is unable to comply with noise or ground vibration limits, the unit may need to be relocated.

Under § 264.708(b)(6), EPA is proposing that specific design and operating requirements for the OB/OD unit be identified. This includes design specifications for the unit (e.g., pan, pit, cage) to include containment devices (e.g., metal lids or covers for burn pans or soil covers for OD units), secondary containment (e.g., liners), and other appropriate engineering controls (e.g., stormwater run-on and run-off controls). Controls and measures could include concrete pads with integrated curbs and sump pumps, lined drainage ditches, collection basins, blast barriers/shields/blankets, and berms. Routine operation and maintenance standards including

removal of residues, kickout, and visible surface contamination (e.g., black soot, staining, ejecta) from the unit and surrounding area should be considered. Overall, the design and operation of the unit should prevent or minimize surface, subsurface, and groundwater contamination and aerial dispersion and release and/or migration of residues, kickout, and contaminants into the environment. Considerations for depth to groundwater and distances to surface water, property boundary, and sensitive receptors such as residences, schools, and daycares should also be considered. Surface water, as defined in § 141.2, is “all water which is open to the atmosphere and subject to surface runoff.” This definition includes, but is not limited to, lakes, ponds, streams, rivers, coastal waters, reservoirs, and temporary waters from storm surges or similar that are affected by surface runoff. Design and construction of the units should take into account the potential for climate change impacts, such as changes to precipitation and to groundwater levels and flow, potential extreme weather events, and, as appropriate, the potential for sea-level rise. Considerations for areas in 100-year floodplains must also be considered under existing requirements in § 264.18(b).

EPA is proposing § 264.708(b)(8) to require a safe distance plan to be included in the permit. Under § 264.708(b)(9), facilities would have a security plan and controls to minimize public access to the OB/OD units. Security may be done through a variety of methods, one being the addition of fencing the perimeter of the unit including the kickout area.

#### Public Notice and Outreach Plan

EPA recognizes the importance of, and is committed to, community involvement on a site-specific basis both during the permitting process and during the life of the permitted unit. Public participation plays an integral role in bringing government, private industry, public interest groups, and communities together to engage on important decisions about hazardous waste management facilities.<sup>56</sup> Section 7004(b) of RCRA and EPA RCRA permitting regulations, found at parts 124 and 270, form the foundation for mandatory public participation activities during the permitting, renewal, and modification processes.

In addition to agency-led public participation in these permitting

<sup>56</sup> Executive Order 14096: Federal Register Revitalizing Our Nation’s Commitment to Environmental Justice for All.

processes, it is important for facility owners/operators to engage with communities directly, on an ongoing basis, to learn about citizens' concerns and share information; this engagement can provide opportunities for the public to provide valuable information and ideas that improve the quality of public health protection. EPA is proposing § 264.708(b)(10) that owners/operators develop a public notice and outreach plan so that communities are informed of facility actions and can fully consider and raise issues about activities that impact community health. Under § 264.708(b)(10), OB/OD permits would have to include conditions requiring a public notice and outreach plan including notice to the surrounding community of OB/OD activities and events, the method of notice distribution, method(s) for community members to contact the facility with questions or concerns, and the timeframe for any notifications. The outreach plan would not need to include a schedule of OB/OD activities, but it would include the method and frequency of notification to the surrounding communities. All outreach plans would include how information would be made public regarding contaminants emitted, released, or ejected from the OB/OD operations and environmental monitoring results and data (described in the Monitoring Requirements section and § 264.710). The outreach plan should tailor public participation approaches to reach out effectively to the specific populations in the community. Examples include using translation or interpretation services; providing multilingual fact sheets and other information; partnering with community groups or community leaders; and using non-traditional media outlets for outreach.

#### Monitoring Requirements

Under § 264.710(a), EPA is proposing owners/operators of OB/OD units be required to develop plans for and conduct soil, sediment, surface water, stormwater, groundwater, and air monitoring, as appropriate per site-specific conditions. Monitoring plans would include plans for sampling, analysis, evaluation, reporting, and appropriate response actions. Monitoring plans would address the principal products, constituents, byproducts, and other releases to the environment specific to the wastes treated in the OB/OD unit that have the potential to migrate outside the unit boundary and adversely affect human health and the environment. For each monitored constituent and media type (soil, water, air, etc.), the monitoring

plan would include an action level, a concentration or amount where the facility must take appropriate action to mitigate and manage the release of contamination, based on the best available science. EPA notes that many of the requirements set forth in this section of the proposal are already in effect at many facilities. Existing monitoring may be incorporated into the new subpart Y permit if it meets the minimum standards in the proposal. The purpose of this requirement is to ensure that the subpart Y permitted unit is protective of human health and the environment. Because OB/OD units are not contained and have no controls on releases, monitoring of environmental media is critical to ensure hazardous constituents are not migrating beyond the unit boundary. In addition, monitoring would provide for early detection of releases, and allow releases to be addressed in a timely manner. This section of the proposed regulations outlines minimum frequencies for the required monitoring in § 264.710(a). However, in § 264.710(c), EPA is proposing that the minimum monitoring frequencies may be reduced if the unit is not used frequently enough to warrant the outlined monitoring plans, the permit limits the OB/OD treatment activity in the unit, and the Director makes the determination that a reduced monitoring plan is acceptable for the site. Monitoring may not be required for specific media if there are no pathways for contaminants to reach receptors, and the Director makes the determination it is not needed.

Under § 264.710(a)(1), EPA proposes groundwater monitoring requirements, including an upgradient well for background monitoring and that all downgradient wells be located to detect potential releases of contaminants to uppermost flow zones and preferential flow paths (pathways allowing more rapid transport of water into soil and groundwater). Approved groundwater monitoring would continue until the unit completes RCRA closure and is under a post-closure permit as applicable. Such a plan would include piezometers to identify and track changes to groundwater direction and flow, unless the Director determines they are not necessary for the particular unit and facility due to hydrogeologic conditions. EPA is also proposing stormwater and surface water monitoring plans in §§ 264.710(a)(2) and 264.710(a)(3) respectively. Determinations and plans related to groundwater and stormwater should take into account the potential for climate change impacts, such as changes

to precipitation and to groundwater levels and flow, potential extreme weather events, and, as appropriate, the potential for sea-level rise. Owners/operators would design and propose plans to detect any potential releases from the OB/OD, and all monitoring would be conducted regularly according to an approved monitoring plan until the unit completes RCRA closure and is under a post-closure permit as applicable. Sediments in surface water would be monitored under an approved sediments sampling plan.

Under § 264.710(a)(4), EPA proposes monthly soil monitoring for the area around the unit. The owner/operator must test for contamination and contamination is found at or above the action level specified in the monitoring plan, the owner/operator would take appropriate response actions as required in the monitoring plan. One possible response is the periodic removal of residuals and contaminated soil. This soil does not include soil or environmental media used as engineering controls such as soil cover for detonation events, but this requirement includes the soil around the unit to detect potential releases into the environment.

EPA is proposing air monitoring plans under § 264.710(a)(5). Owners/operators would design and implement a plan to detect potential releases into the air from the OB/OD unit. At a minimum, these would include an upwind sampling point not impacted by other OB/OD operations to determine a background with ambient concentrations unless the facility makes the assumption there is zero background contamination. The testing would include at least one monitoring station as close to the OB/OD unit as possible downwind of the prevailing wind direction. It should be noted that due to the difficulties of sampling OB/OD emissions (described in recent studies in sampling OB emissions with drones<sup>57</sup>) and relating the results to total emissions and exposure, finding high levels of contaminants in air monitoring results may indicate a need for further investigation or controls, but sampling results that do not find high levels of contaminants do not provide conclusive proof that the OB/OD operation poses no risk.

In § 264.710(a)(6), owners/operators must monitor air smoke plumes during each OB/OD event. The visual

<sup>57</sup> Aurell, J. Field Determination of Multipollutant, Open Area Combustion Source Emission Factors with a Hexacopter Unmanned Aerial Vehicle. *Atmos Environ* (1994). 2017 Oct 20, 166(11): 433-440. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC623134/>.

monitoring must include direction, duration, extent, opacity, and whether the plume goes off facility.

Under § 264.710(a)(7), kickout monitoring and retrieval plans would be required. After each OB/OD event, owners/operators would monitor and record all kickout, including distance from the unit, description of waste, and location for all kickout that goes off the facility boundary. On a weekly basis, the owner/operator would retrieve all kickout that goes off the facility and keep a record of all such kickout. If a landowner refuses entry for this purpose, the facility would still document the ejecta and suspected location. The owner/operator should reduce the NEW per event if the kickout regularly exceeds the unit or facility boundary; they may also request a permit modification to expand the unit boundary. These records would be maintained on-site for the operating life of the unit and until all remaining kickout is found and treated or until RCRA closure and a post-closure permit is issued as applicable.

#### Recordkeeping, Reporting, Inspection, and Training Requirements

Under § 264.712, EPA is proposing to require recordkeeping, reporting, inspection, and training requirements. The proposed requirements are supplementary to the general permitting requirements found in §§ 264.15 and 264.16, subparts C and D, and § 264.73 to clarify and to add additional provisions that are applicable to OB/OD units. Under § 264.712(a), owners/operators would be required to maintain records of all wastes treated by OB/OD and associated treatment events. This section expands the description and record of treated waste required in § 264.73 to include chemical composition of energetic and inert chemicals, materials, and binders; physical form/dimensions/composition; description of casing; number of items; total weight; and NEW. Much of the information required for the recordkeeping would be included in the waste analysis for the waste stream treated with OB/OD. This information may be referenced as part of the facility records. These records would include a description of wastes treated, time and duration of treatment, atmospheric conditions at time of treatment, and a description of any performance issues (incomplete treatment, smoldering, black plumes beyond facility boundary, releases of ejecta or kickout from the unit boundary) and response actions taken (e.g., collection and return events).

In § 264.712(b), EPA is proposing minimum inspection schedules in addition to those found in § 264.15. However, EPA is proposing that the minimum inspection frequencies may be reduced if the unit is not used frequently enough to warrant the outlined inspection plans, the permit limits the OB/OD treatment activity in the unit, and the Director makes the determination that a reduced inspection plan is acceptable for the site. The proposed requirements include inspections of the OB/OD unit at the end of each waste treatment day, to identify and remove untreated wastes, debris, shrapnel, burn residues, and other material, and to identify obvious damage to the treatment unit that would affect unit performance. EPA is also proposing monthly inspections to verify structural integrity of the unit, e.g., ensuring concrete pads remain free of cracks and breaks. The inspection schedule may be reduced if unit activity decreases and the facility notifies the Director.

For training under § 264.712(c), EPA is proposing owners/operators must train all personnel involved in the handling and OB/OD treatment of the waste at least annually and document that training, maintaining the training records until unit closure. The proposed language includes requirements specific to OB/OD units, including that the training must be tailored to the unique nature of the explosive wastes treated and that the training must be updated with each new waste stream or whenever operations change the way treatment is conducted for the unit.

EPA proposes § 264.712(d), reporting requirements specific to owner/operators of OB/OD units. Owners/operators would be required to report any unit failures to the Director within seven days. Unit failures are any event where the unit is damaged or where treatment does not occur in the OB/OD unit as intended. The unit failure cause and the potential correction/repair for the unit must then be submitted to the Director within 30 days of initial failure. Annual reporting would consist of a summary of all documented treatment residues and untreated waste beyond the OB/OD area from the biannual inspection in § 264.712(b). The owners/operators would report all unauthorized releases of hazardous constituents and treatment byproducts immediately. The Director may request records as they deem necessary.

#### Closure and Post-Closure Requirements

The general requirements for closure and post-closure are under part 264, subpart G, §§ 264.110 through 264.120

and part 265, subpart G, §§ 265.110 through 265.121 for interim status units. Because EPA is proposing technical standards for OB/OD units in the new subpart Y, EPA is also proposing to reference the subpart G standards in the new subpart and include additional standards for OB/OD units in the new §§ 264.714 and 265.714. The subpart G closure standards require that all contaminated equipment, structures, and soils must be properly disposed of or decontaminated. For OB/OD units, this could entail removal of all explosive waste and its decomposition products, leachate, run-off, soils, and subsoils contaminated with explosive wastes as well as containment system components such as liners and liner systems and equipment contaminated with explosive waste and/or leachate.

In addition to the subpart G standards, EPA is proposing to add to subpart Y at § 264.714 that, if after conducting removal and decontamination and making all reasonable efforts to remove or decontaminate any contaminated components, soils, subsoils, structures, and equipment, the owner/operator finds that not all contaminated soils and subsoils can be practically removed or decontaminated, the owner/operator must close the unit and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills at § 264.310. EPA believes that this proposed regulatory language is needed based on the closure case study EPA conducted for nine OB/OD facilities (see footnote 5). The results of the study show that, of the nine facilities that have performed closure, most continue to have contamination in the soil, subsoil, and groundwater that cannot be removed or remediated to required action levels for the specified future land use. In addition, some of these facilities' closure plans do not include the necessary monitoring for the waste left in place. EPA expects that adding this language will ensure application of the appropriate closure standards and thus, more protective measures to be enacted.

Should an OB/OD unit be closed as a landfill unit and a cover or cap is emplaced to prevent migration of contamination, § 264.310 requires that the integrity and effectiveness of the final cover be maintained during the post-closure period. EPA proposes at § 264.714(b), in addition to the requirements of § 264.310, to require that, before any final engineered cap or vegetation cover is put in place, any remaining waste explosives and waste explosive residues concentrations be remediated to levels to ensure that the

explosive safety hazard is no longer present. EPA proposes this additional requirement based on the safety and environmental hazards associated with waste explosives and unexploded ordnance (UXO) when left in place. There have been several instances where waste explosives and UXO were left in place, or consolidated and buried, and covered, causing a range of issues from underground fires to flooding and frost eroding the cover and exposing the waste.<sup>58</sup> As a result, EPA believes that waste explosives, UXO, and explosive waste residues must be remediated and removed to levels that no longer present an explosive safety hazard prior to placement of a cap or cover. However, EPA does believe that a cover or cap would be appropriate after removal and when contaminated soil has been remediated to levels that the explosives concentration no longer presents an explosives safety hazard and proposes this condition accordingly. Explosive materials left in the environment present unique safety hazards because the material is unreacted and thus, there is potential for an accidental explosion when disturbed. During the closure process, soils containing less than 10 percent explosives by weight are considered to be unreactive.<sup>59 60</sup> Therefore, if closure activities successfully remove the safety hazard as verified by testing to determine the explosive concentration, a cover or cap would be acceptable.

#### Summary and Request for Comment

EPA is proposing to establish technical standards specific for OB/OD units as part of a new subpart Y. Should EPA finalize this rulemaking and after the effective date of the final rule, OB/OD units would be permitted in accordance with the new standards under subpart Y, rather than the subpart X performance-based standards. EPA requests comments on the proposed technical standards in §§ 264.708, 264.710, and 264.712. In addition, EPA requests comment on whether additional technical standards should be incorporated for OB/OD units and on the proposed requirements for closure

<sup>58</sup> In Badger, WI, explosives and explosive residues were buried, and a prescribed burn ignited the residues causing an underground fire for 1½ days. Ft. Wainwright, AK, had flooding and frost, which eroded the cover, exposing munitions that the public accessed.

<sup>59</sup> *Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Wastes*; EPA Handbook, Office of Research and Development; EPA/625/R-93/013, September 1993. See p.30.

<sup>60</sup> EPA Federal Facilities Forum Issue Paper: Site Characterization for Munitions Constituents. EPA-505-S-11-001, January 2012. See p. 136.

and post-closure in addition to the subpart G standards. EPA seeks comment on the public notice and outreach plan requirements, including what elements will best support meaningful involvement. EPA also requests comment on whether more frequent reporting and data submission requirements would be appropriate and on additional requirements recordkeeping requirements to document movement of waste explosives between storage and treatment. Based on the level of support in public comments, EPA may include additional technical standards or other closure and post-closure requirements in the final rulemaking.

#### H. Wastes Prohibited From OB/OD

##### Introduction and Description of Wastes To Prohibit From OB/OD

As discussed in section II.A., OB/OD lacks controls needed for complete combustion and for control of emissions. EPA is thus particularly concerned about OB/OD treatment of waste streams that contain chemicals or explosive material that require very high temperatures for sustained periods of time to ensure adequate destruction and/or ensure that hazardous byproducts or products of incomplete combustion do not form. In addition, EPA is concerned with OB/OD treatment of wastes that may release particularly toxic or dangerous contaminants that would threaten human health and the environment.

Many chemicals or wastes that are difficult or impossible to destroy by OB/OD and/or would pose acute threats to human health and the environment such as chemical, nuclear, and biological agents, are already restricted or prohibited from treatment by OB/OD. Most permitting authorities also restrict or prohibit treatment of certain waste streams by OB/OD in permits. However, because EPA had not previously promulgated specific technical standards for OB/OD units, the RCRA regulations remain silent on this issue. In addition, EPA is aware of emerging chemicals or contaminants of concern (see footnote 3), like certain insensitive high explosive (HE) formulations, for which treatment by OB/OD is ineffective or could pose significant risk to human health and the environment through dispersal of contaminants.

#### Proposed Revisions and Supporting Rationale

The wastes containing the chemicals or explosive materials discussed in this preamble either adversely affect or pose a threat to human health and the

environment. This is because many of these chemicals have high mobility in air, soil, and groundwater resulting in contamination of soil, water, plants, and food, as well as direct exposure to humans by inhalation, ingestion, or dermal contact. Also, some of these chemicals can transform into more toxic compounds, enhance the solubility and migration capacity of other contaminant metals, persist in the environment, and bioaccumulate in the food chain. Treatment of these wastes by OB/OD can cause the dispersal of these chemicals into the air and onto the ground, providing a pathway to enter the soil, waterways, livestock, and crops.

For these reasons, including that many RCRA permits already prohibit many of the chemicals and explosive items discussed, EPA is proposing §§ 264.708(b)(11) and 265.708(b)(11) to prohibit treatment by OB/OD of chemical weapons,<sup>61</sup> mixed waste containing depleted uranium (DU), white and red phosphorus, Picatinny Arsenal Explosive-21 (PAX-21), and PCBs. The proposed wastes to prohibit will not apply in emergency response situations.

<sup>61</sup> In this proposal, EPA is proposing the definition in 32 CFR 179.3: "means generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. CWM includes V- and G-series nerve agents or H-series (mustard) and L-series (lewisite) blister agents in other-than-munition configurations; and certain industrial chemicals (e.g., hydrogen cyanide (AC), cyanogen chloride (CK), or carbonyl dichloride (called phosgene or CG)) configured as a military munition. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include riot control devices; chemical defoliants and herbicides; industrial chemicals (e.g., AC, CK, or CG) not configured as a munition; smoke and other obscuration-producing items; flame and incendiary-producing items; or soil, water, debris, or other media contaminated with low concentrations of chemical agents where no CA hazards exist. For the purposes of this Protocol, CWM encompasses four subcategories of specific materials: (1) CWM, explosively configured are all munitions that contain a CA fill and any explosive component. Examples are M55 rockets with CA, the M23 VX mine, and the M360 105-mm GB artillery cartridge. (2) CWM, nonexplosively configured are all munitions that contain a CA fill, but that do not contain any explosive components. Examples are any chemical munition that does not contain explosive components and VX or mustard agent spray canisters. (3) CWM, bulk container are all non-munitions-configured containers of CA (e.g., a ton container) and CAIS K941, toxic gas set M-1 and K942, toxic gas set M-2/E11. (4) CAIS are military training aids containing small quantities of various CA and other chemicals. All forms of CAIS are scored the same in this rule, except CAIS K941, toxic gas set M-1; and CAIS K942, toxic gas set M-2/E11, which are considered forms of CWM, bulk container, due to the relatively large quantities of agent contained in those types of sets.



## Chemical Weapons

Chemical weapons were produced by the United States from World War I to 1968. These weapons were never used in battle and are now obsolete and deteriorating with time. These chemical weapons are made of nerve agents (sarin, tabun, VX) and vesicant, or blister agents (sulfur mustards agents H/HD and HT, lewisite).<sup>62</sup> Nerve agents are like organophosphate pesticides, but much more potent, and exert their adverse effects by interfering with the nervous system. Humans can be exposed to nerve agents through inhalation, ingestion, skin, or eye contact. Exposure to low or moderate doses of sarin can cause several effects including but not limited to chest tightness, cough, rapid breathing, confusion, and drowsiness among many other effects. Large doses of this agent can cause loss of consciousness, convulsions, paralysis, and respiratory failure possibly leading to death.<sup>63</sup> Exposure to tabun causes adverse effects including but not limited to miosis, nausea, vomiting, dyspnea, and cramping. Severe effects include loss of consciousness, seizures, muscular twitching, floppy paralysis, secretions from nose and mouth, apnea, and death.<sup>64</sup> VX is persistent in the environment and exposure to this agent has effects similar to those of tabun.<sup>65</sup>

Vesicants or blister agents combine with proteins and deoxyribonucleic acid (DNA) to cause cellular changes immediately after exposure. Clinical effects include skin erythema, blistering, pharyngitis, cough, dyspnea, conjunctivitis, burns, nausea, and vomiting. Other effects include but are not limited to necrosis, blindness, atrioventricular block, cardiac arrest, conclusions, coma, anemia, hemorrhage, and bone marrow suppression, among others.<sup>66</sup>

Congress ordered the destruction of all U.S. chemical weapons in The DoD Authorization Act, 1986 (Pub. L. 99-145) and for that process to be carried out by the U.S. Army in a manner to protect the environment, the public, and workforce.<sup>67</sup> Subsequent National

Defense Authorization Acts directed research into alternatives to incineration for chemical weapons, created Chemical Demilitarization Citizens' Advisory Commissions, and formed the Assembled Chemical Weapons Assessment program (ACWA).<sup>68</sup> ACWA activities have continued since its creation, and at the time of this proposal, the Army has destroyed the remaining U.S. chemical weapons stockpile. The final two facilities that recently completed their activities were using alternative technologies. There are no chemical weapons being treated via OB or OD today. To remain consistent with current bans and practices, EPA is proposing to ban all chemical weapons from OB/OD.

## Mixed Waste Containing Depleted Uranium

Mixed waste, as defined in § 266.210, is waste that contains both RCRA hazardous waste and source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954. Thus, waste explosives (which are RCRA hazardous waste due to their reactivity characteristic) and which contain depleted uranium are considered mixed wastes under RCRA. EPA has promulgated a conditional exemption from the regulatory definition of hazardous waste for low-level mixed waste in part 266, subpart N; however, treatment by OB/OD is not eligible for this condition exemption. Specifically, § 266.235 prohibits under the conditional exemption the treatment of mixed waste that cannot be done in a tank or container without a permit.

Uranium ore occurs naturally in the environment and contains several forms of uranium known as isotopes (U-234, U-235, and U-238). All uranium isotopes are radioactive; however, only one of these isotopes, Uranium-235 (U-235),<sup>69</sup> provides the fuel used to both produce nuclear power and in development of nuclear weapons. In nature, U-235 only makes up a very small part of the uranium ore. Given its importance for nuclear power and nuclear weapons technology, U-235 is often removed from the natural uranium ore and concentrated through a process called uranium enrichment. DU is the material left behind after enrichment. As with natural uranium ore, DU is

radioactive.<sup>70</sup> Radioactive contaminants can be released to the environment if munitions or other materials containing DU are open burned or detonated.

Exposure to DU occurs through inhalation, ingestion, and skin contact.<sup>71</sup> The most likely route of DU exposure is through inhalation. Burning or detonating waste containing DU does not destroy or treat the DU to make it less radioactive or toxic. OB/OD causes DU to enter the air where it is suspended in the atmosphere, eventually depositing on the ground and potentially migrating to surface and groundwater, where it poses a risk of contaminating plants and livestock. Ingestion of DU could then occur through the consumption of the contaminated livestock, vegetation, and drinking water.<sup>72</sup> Skin contact itself is not considered a hazard, but DU can enter the body through open wounds. DU is toxic in humans and can cause detrimental health outcomes. High concentrations of uranium retained in the kidneys have potential to damage the organ and cause renal failure. Due to the radioactive nature of the waste, DU can irradiate the organs once inside the body. Increased cancer risk is also a concern, caused by exposure to radiation emitted from DU.

It is EPA's understanding that no OB/OD units currently treat mixed waste containing more than trace amounts of DU. Because of its acute effects to human health and the environment, EPA is proposing to prohibit treatment by OB/OD of mixed wastes containing more than trace amounts of DU.

## White and Red Phosphorus

White phosphorus<sup>73</sup> is produced from rocks containing phosphate and used in the manufacture of munitions, pyrotechnics, explosives, smoke bombs, and other uses.<sup>74</sup> Yellow phosphorus is another term for white phosphorus that contains impurities in the crystalline structure causing yellowing. White phosphorous is pyrophoric and ignites in contact with oxygen. Upon auto-ignition with air, white phosphorous can form a phosphoric acid residue causing further contamination and damage. Red phosphorus forms when

<sup>62</sup> History of U.S. Chemical Weapons Elimination, <https://www.cdc.gov/nceh/demil/history.htm>.

<sup>63</sup> Sarin: Exposure, Decontamination, Treatment, <https://emergency.cdc.gov/agent/sarin/basics/facts.asp>.

<sup>64</sup> Tabun (GA): Nerve Agent, [https://www.cdc.gov/niosh/ershdb/emergencyresponsecard\\_29750004.html](https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750004.html).

<sup>65</sup> VX: Nerve Agent, [https://www.cdc.gov/niosh/ershdb/emergencyresponsecard\\_29750005.html](https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750005.html).

<sup>66</sup> Vesicant/Blister Agent Poisoning, <https://emergency.cdc.gov/agent/vesicants/tsd.asp>.

<sup>67</sup> Facts: Assembled Chemical Weapons Alternatives Program Legislation, <https://www.peocwa.army.mil/2021/03/12/facts-peocwa-program-legislation>.

<sup>68</sup> Assembled Chemical Weapons Alternatives, [https://www.peocwa.army.mil/wp-content/uploads/ACWA\\_Program\\_Legislation\\_1985-2022\\_FINAL\\_21April2022.pdf](https://www.peocwa.army.mil/wp-content/uploads/ACWA_Program_Legislation_1985-2022_FINAL_21April2022.pdf).

<sup>69</sup> Uranium-235, <https://comptox.epa.gov/dashboard/chemical/details/DTXSID80872929>.

<sup>70</sup> Depleted Uranium, <https://www.epa.gov/radtown/depleted-uranium>.

<sup>71</sup> Chemical Effects of DU, <https://health.mil/Military-Health-Topics/Health-Readiness/Environmental-Exposures/Depleted-Uranium/Effects-and-Exposures/Chemical-Effects>.

<sup>72</sup> Depleted Uranium, <https://www.iaea.org/topics/spent-fuel-management/depleted-uranium>.

<sup>73</sup> White Phosphorus (P4), <https://comptox.epa.gov/dashboard/chemical/details/DTXSID90923991>.

<sup>74</sup> Phosphorus Hazard Summary, <https://www.epa.gov/sites/default/files/2016-09/documents/phosphorus.pdf>.

white phosphorus is exposed to high heat or light radiation, causing the crystalline structure of white phosphorus to become amorphous. Due to this amorphous nature, red phosphorus is more stable than white/yellow phosphorus under standard conditions. These chemicals are waxy crystalline solids.<sup>75</sup>

Exposure routes of white and red phosphorus include absorption through the skin, inhalation, and ingestion. This chemical can cause contamination of the local air, waterways, fish, birds, and soils.<sup>76</sup> When white phosphorus enters water with low oxygen, it may degrade to a highly toxic compound called phosphine. Phosphine accumulates in fish that live in contaminated water bodies and can also remain intact in deep soil at low oxygen concentrations. Phosphine is known to cause respiratory, neurological, and gastrointestinal effects. Some of the symptoms include headaches, drowsiness, vomiting, gastrointestinal distress, cough with fluorescent green sputum, and pulmonary irritation and edema, among others. Animal studies have shown that phosphine can cause effects to the liver, kidney and spleen, and other effects including paralysis, convulsions, and dyspnea.<sup>77</sup>

White and red phosphorus can cause severe irritation, second to third degree burns, spasmodic blinking, increased sensitivity to light, and damage to the cornea upon eye contact. This substance can be absorbed through the skin and cause systemic effects. If inhaled, it can cause systemic effects, pulmonary edema, and upper respiratory tract irritation. Ingestion of phosphorus can cause nausea, vomiting, diarrhea, severe abdominal pain, burning pain in the throat along with intense thirst, and death may occur due to cardiovascular collapse.<sup>78</sup>

Given the extreme reactivity of white and red phosphorus with oxygen and the severe health impacts caused by exposure, EPA is proposing to prohibit treatment of wastes containing white and red phosphorus by OB/OD.

<sup>75</sup> White phosphorus, <https://www.acs.org/content/acs/en/molecule-of-the-week/archive/w/white-phosphorus.html#:~:text=White%20phosphorus%20is%20one%20of,darkened%20from%20exposure%20to%20light>.

<sup>76</sup> White Phosphorus—ToxFAQs, <https://www.atsdr.cdc.gov/toxfaqs/tfacts103.pdf>.

<sup>77</sup> Phosphine Hazard Summary, <https://www.epa.gov/sites/default/files/2016-09/documents/phosphine.pdf>.

<sup>78</sup> White Phosphorus: Systemic Agent, [https://www.cdc.gov/niosh/ershdb/emergencyresponsecard\\_29750025.html](https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750025.html).

Improved Conventional Munitions (ICMs) and Submunitions

ICMs and cluster bombs are munitions characterized by the delivery of two or more antipersonnel, anti-material, or anti-armor submunitions (also known as bomblets) by a parent munition.<sup>79</sup> ICMs and cluster bombs employ submunitions to affect an area with more than one target, such as dispersed enemy formations, ground and air defense units, and other mixed unit targets.<sup>80</sup> OD of these types of wastes has resulted in sites that cannot be adequately cleaned up due to the presence of dangerous knockout which may be armed.<sup>81</sup> This results in permanent restrictions on any future land use, as is the case of Fort Wingate Depot Activity in New Mexico.<sup>82</sup> An Army policy dated March 2, 2001, restricted the maintenance, characterization, clearance of ranges and other areas known or suspected of containing ICMs and submunitions.

Because treatment by OB/OD causes dangerous dispersal, rather than destruction, of these wastes, and land unsuitable for future use, EPA is proposing to prohibit treatment of ICMs and submunitions by OB/OD.

Picatinny Arsenal Explosive—21 (PAX-21)

Insensitive munitions (IM) are munitions developed to operate with the same performance as conventional/traditional munitions but more safely as they are less sensitive to external stimuli such as heat, shock, or impact.<sup>83</sup> <sup>84</sup> Insensitive high explosive (HE) formulations are the chemical constituents in the energetic material and other materials that add to the munitions insensitivity.<sup>85</sup> This includes solid high-energy materials, energetic plasticizers which alter the mechanical properties to increase material

<sup>79</sup> Improved Conventional Munitions and Submunitions, <https://apps.dtic.mil/sti/pdfs/ADA402342.pdf>.

<sup>80</sup> Improved Conventional Munitions Policy, [https://csbaonline.org/uploads/documents/Improved\\_Conventional\\_Munitions\\_FINAL3.pdf](https://csbaonline.org/uploads/documents/Improved_Conventional_Munitions_FINAL3.pdf).

<sup>81</sup> A Global Overview of Explosive Submunitions, [https://www.hrw.org/sites/default/files/related\\_material/submunitions.pdf](https://www.hrw.org/sites/default/files/related_material/submunitions.pdf).

<sup>82</sup> FORT WINGATE DEPOT ACTIVITY Base Realignment & Closure Installation Action Plan, [https://www.ftwingate.org/docs/pub/FWDA\\_IAP\\_FY07.pdf](https://www.ftwingate.org/docs/pub/FWDA_IAP_FY07.pdf).

<sup>83</sup> Anniyappan, M., Talawar, M.B., Sinha, R.K. et al. Review on Advanced Energetic Materials for Insensitive Munition Formulations. *Combust Explos Shock Waves*. (2020). 56, 495–519. <https://doi.org/10.1134/S0010508220050019>.

<sup>84</sup> NATO Standard—Policy for Introduction Assessment of Insensitive Munitions (IM).

<sup>85</sup> The physical design and materials of the munition also are developed to be insensitive.

flexibility, and polymeric binders, which bind all the chemicals together.<sup>86</sup>

The incomplete detonation of IM and insensitive HE formulations results in unreacted materials being released to the environment, potentially causing adverse effects to the human health and the environment. Detonation tests were conducted on PAX-21 as part of the Strategic Environmental Research and Development Program (SERDP) Project ER-2219 and results showed a high deposition of ammonium perchlorate.<sup>87</sup> <sup>88</sup> Insensitive high explosive formulations have been shown to have low sorption to soil resulting in a high aqueous solubility, and potential to be transported to groundwater. Due to the greater likelihood of dispersal, rather than destruction, by OB/OD and the adverse health impacts associated with these insensitive HE formulations, EPA is proposing to prohibit treatment of munitions containing PAX-21 by OB/OD.

Polychlorinated Biphenyls

PCBs are a group of compounds manufactured from 1929 until manufacturing was banned under the Toxic Substances Control Act (TSCA) of 1976 and subsequent EPA regulations in 1979 (44 FR 31514, May 31, 1979). PCBs consist of two connected phenyl rings with a number of chlorine atoms; the number and location of chlorine atoms on the rings determine the exact chemical, physical, and toxicological properties. PCBs have been demonstrated to cause cancer in animals, in addition to many other severe health effects including adverse effects to the immune, reproductive, nervous, and endocrine systems.<sup>89</sup> <sup>90</sup>

The Federal PCB Regulations currently prohibit the OB of PCBs under § 761.50(a)(1), “No person may open

<sup>86</sup> Emily May Lent, Glenn Leach & Mark S. Johnson (2021). Development of health-based environmental screening levels for insensitive munitions constituents, Human and Ecological Risk Assessment: *An International Journal*, 27:6, 1543–1567, DOI: 10.1080/10807039.2020.1859352.

<sup>87</sup> Characterization of Residues from the Detonation of Insensitive Munitions SERDP Project ER-2219, <https://apps.dtic.mil/sti/pdfs/AD1053694.pdf>.

<sup>88</sup> Walsh MR, Walsh ME, Ramsey, CA, Thiboutot S, Ampleman G. Perchlorate contamination from detonation of insensitive high-explosive rounds. *J Hazard Mater*. 2013 Nov 15; 262:228–33. doi:10.1016/j.hazmat.2013.08.045.

<sup>89</sup> PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures, [https://www.epa.gov/sites/default/files/2015-10/documents/pcbs\\_cancer\\_dose\\_response\\_assessment\\_and\\_application\\_to\\_environmental\\_mixtures.pdf](https://www.epa.gov/sites/default/files/2015-10/documents/pcbs_cancer_dose_response_assessment_and_application_to_environmental_mixtures.pdf).

<sup>90</sup> Learn About Polychlorinated Biphenyls, <https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs#healtheffects>.

burn PCBs. Combustion of PCBs approved under § 761.60 (a) or (e), or otherwise allowed under part 761, is not open burning.” This ban includes any activity conducted at RCRA OB/OD units as those units are not approved for disposal under TSCA. To be consistent with the current PCB regulations, EPA is proposing to include a mirror provision in the RCRA regulations clarifying that treatment of PCB-containing waste by OB/OD is prohibited.

### *I. Delay of Closure for OB/OD Units*

#### Introduction and Description

Owners or operators of permitted and interim status TSDFs must comply with the facility closure standards in parts 264 and 265, subpart G, and the specific standards applicable to the unit in which they are managing hazardous waste. These closure standards require all owners/operators to treat, remove from the unit or facility, or dispose of on-site all hazardous waste in accordance with the approved closure plan within 90 days after receiving the final volume of hazardous waste or non-hazardous waste, or within 90 days after approval of the closure plan, whichever is later (§§ 264.113(a) and 265.113(a)). In addition, the owner/operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes or non-hazardous wastes (§§ 264.113(b) and 265.113(b)).

The closure standards at §§ 264.113 and 265.113 allow additional time for closure or “delayed closure” if the owner/operator can make certain demonstrations. To qualify for delayed closure, the owner/operator must demonstrate that either the closure activities will require more time than allotted by the regulation, or that specific conditions related to recommencing operation of the unit after final receipt of hazardous or non-hazardous wastes can be met. For the latter, the owner/operator must demonstrate that the unit (or facility) has capacity to receive more waste, that there is a reasonable likelihood that operation of the unit will recommence within one year, and that closure of the unit would be incompatible with continued operation of the site. The owner/operator must also demonstrate that they have taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

Any hazardous waste management facility can qualify for delayed closure

by demonstrating they meet the regulatory requirements. The existing regulatory requirements allow for OB/OD units to delay closure; however, there are some OB/OD units that are impacted by activities that do not include waste management. EPA believes that additional bases for delayed closure would be appropriate for these OB/OD units, considering circumstances unique to them. Specifically, these OB/OD units include those used for actions that involve munitions that are used for their intended purpose. Munitions used for their intended purpose include those used during training exercises, weapons testing, and range cleanup activities (see footnote 26). For these activities, the OB/OD unit is no longer treating waste explosives but continues to be used for activities that in effect, are using the same or similar materials to the RCRA hazardous waste. Therefore, it would be impractical to clean up and close OB/OD units that are no longer treating waste explosives, but that continue to use products that are not subject to RCRA that contribute the same or similar contaminants. In another scenario, some OB/OD units no longer treat hazardous or solid wastes but continue to receive waste explosives contaminants from adjacent operations, such as an active OB/OD unit or an active military range. Again, it would be impractical to require closure of the inactive unit when it will continue or has the potential to continue to receive the same or similar contaminants. However, these scenarios are not specifically addressed under the existing demonstrations in § 264.113 that allow more time for closure. To address these situations, EPA proposes to amend the delayed closure regulations and add a new section specific to OB/OD units under the new subpart Y—Open Burning and Open Detonation Units.

#### Proposed Revisions and Supporting Rationale

As noted, the current delayed closure standards do not address the circumstances unique to OB/OD units when they no longer receive hazardous or solid wastes but continue to receive contaminants from products or when adjacent activities continue to contaminate an inactive unit. Therefore, EPA proposes to include eligibility requirements for delayed closure of these OB/OD units in the new subpart Y regulations at §§ 264.713 and 265.713 titled Closure; time allowed for closure for certain activities. Also, EPA proposes to revise §§ 264.113(b) and 265.113(b) to cross-reference the newly

proposed §§ 264.713 and 265.713 to direct the reader to the proposed additional bases for delayed closure for these unique circumstances. Last, consistent with current delayed closure requirements, EPA reiterates that the RCRA permit must be retained for the OB/OD unit until closure is completed.

As discussed above, EPA believes that additional bases for delayed closure would be appropriate for certain activities at OB/OD units, due to unique situations related to these types of units. In particular, explosive or energetic products may continue to be used within the unit, or the unit may continue to receive munitions constituents or explosive waste contaminants from adjacent operations. The new regulations in part 264, subpart Y, §§ 264.713 and 265.713 will address these situations for delayed closure only for these activities at OB/OD units. Otherwise, OB/OD units seeking delayed closure outside of these situations must demonstrate eligibility according to §§ 264.113 and 265.113.

EPA proposes to establish that OB/OD units used for activities such as training, weapons testing, and range cleanup are eligible for delayed closure under the proposed new regulations at §§ 264.713(a)(1) and 265.713(a)(1), because the existing closure regulations that allow delayed closure for hazardous waste management facilities do not account for activities unique to these OB/OD units. As with any other unit that has not certified closure, the OB/OD unit must maintain its permit during this delayed closure period. In addition to the unit’s existing permit conditions, EPA proposes that the new monitoring requirements at § 264.710 be applicable conditions which include monitoring of soil, groundwater, stormwater, surface water, and air as appropriate to the location and circumstances of use of the unit. These robust monitoring requirements serve to better ensure that contaminants do not migrate beyond the unit’s boundary during the delayed closure period. The proposed requirements are located in the new §§ 264.713(a)(3) and 265.713(a)(3).

In addition, for OB/OD units that are no longer treating hazardous wastes, but that are located within or adjacent to an active OB/OD unit or active military range, EPA also proposes to establish that these OB/OD units are eligible for delayed closure under the new regulations. Again, EPA believes that this is another situation unique to OB/OD units, which the existing regulations do not account for. For this situation, EPA is proposing that a requirement be included in the new regulation, in addition to complying with monitoring

requirements in § 264.710, that a demonstration be made showing the potential for contamination from the adjacent activities as a condition of eligibility for the need for delayed closure under these circumstances. EPA proposes that a demonstration would include submission of maps illustrating the boundaries of the activities that overlap with the inactive unit's boundary, information about the activities that could impact the boundary of the inactive unit, meteorological conditions that could cause deposition of contaminants within the inactive unit boundary, and lastly, that all steps to prevent threats to human health and the environment have been taken and all applicable permit requirements, or interim status requirements, are being complied with. The proposed requirements are located in the new §§ 264.713(a)(2) and 265.713(a)(2).

As a final note, under either of these situations, the inactive OB/OD unit in delayed closure status may be used for emergency treatment if that need arises. However, that action would fall under RCRA such that the unit's permit conditions would be applicable to the use of the unit. Although the explosives or munitions being treated under the emergency response are exempt from most RCRA provisions, including the need to obtain a permit, the unit itself may still have permit conditions that must be met. For example, when the OB/OD location is used for emergency response treatment, the applicable (and perhaps modified) operating, monitoring, and recordkeeping permit conditions must be complied with. For inactive OB/OD units that no longer treat hazardous waste, but which may be impacted by waste explosives from adjacent operations, such as emergency response to munitions or an active military range, it may not be appropriate to require regular monitoring of the OB/OD unit because the location may be receiving munitions constituents from non-RCRA munitions activities occurring near the inactive OB/OD units. Thus, it may be appropriate to modify monitoring as appropriate to the location and circumstances of use of the unit. For more information on emergencies and RCRA permitting, see Section K. Emergency Provisions.

In regard to the timeline for notification of closure of OB/OD units, the closure regulations at §§ 264.112(d) and 265.112(d) do not specifically refer to OB/OD units. For the time allotted for notification of the expected date to begin partial and final closure of units, EPA proposes to modify §§ 264.112(d)(1) and 265.112(d)(1) by

adding OB/OD units to the types of units listed. The current regulations specify the time at which the notification of partial and final closure must occur according to the type of unit. For surface impoundments, waste piles, land treatment or landfill units, notification is required at least 60 days prior to the date in which partial or final closure is expected to begin. For treatment or storage tanks, container storage, incinerator units or boilers and industrial furnaces, notification is required at least 45 days prior. Since OB/OD units are treatment units that resemble land treatment units, EPA is proposing to revise paragraph (d)(1) to include OB/OD units in the list of units that must notify at least 60 days prior.

#### Summary and Request for Comment

EPA believes that certain circumstances unique to OB/OD units should qualify for delayed closure when they: are used for activities in which military munitions are used as intended—product use, or they continue to receive munitions constituents or explosive waste contaminants from the active military range the unit is located on or from an adjacent OB/OD unit. EPA believes that the RCRA permit would address potential threats to human health and the environment while closure is delayed. Based on the rationale provided, EPA is proposing to add these unique circumstances that establish conditions for when certain OB/OD units would also be eligible for delayed closure at §§ 264.713 and 265.713 and make conforming changes to the existing regulations at §§ 264.112 and 265.112, and 264.113 and 265.113. EPA requests comment on the proposed additions for delayed closure and the associated timeframes for notification of beginning and completing closure.

#### *J. Minimum Safe Distances for Treatment of Waste Explosives*

##### Introduction and Description

The 1980 final interim status standards rule included a table of minimum safety distances developed by DoD to protect persons in the open from fragmentation, flying debris, or the effects of overpressure (see footnote 10). This table is currently located at § 265.382. The regulation notes that OB/OD must be conducted in accordance with the minimum distances specified in the table in a manner that does not threaten human health or the environment. Thus, the purpose of the safe distance table is to provide sufficient safe distance between the OB/OD units and the location of persons, property of others, and environmental

receptors (e.g., water bodies, agricultural land). These distances are to be included in permits issued to OB/OD units as applicable provisions according to the 1987 final subpart X permitting standards rule (see footnote 13). Since codification of the table in 1980, EPA has learned that the distances listed may be outdated and are now either over-protective in the case of OB or under-protective in the case of OD. While being over-protective is still safe, the distances that are under-protective are of concern.

#### Potential Revisions and Supporting Rationale

EPA believes that minimum safe distances continue to be important for protection of persons in the open, property of others, and human health and the environment, and seeks information on whether the distances listed in the table are in fact inaccurate so that appropriate updates can be made if necessary. It is EPA's preference to maintain a table in the regulation since it is straightforward and can be readily incorporated into permits.

The distances in the table were developed and published by DoD and subsequently incorporated into EPA's 1980 final interim status regulations. However, it appears that the method for calculating those distances is not the same as the method currently used by DoD, thus raising the possibility that the existing distances may not be protective. Presently, DoD calculates safe distances according to the Defense Explosives Safety Regulation (DESR) 6055.09.<sup>91</sup> EPA's reading of 6055.09 is that it is intended for determining separation distances for siting explosives storage, handling, and treatment areas within the property boundaries and determining the maximum allowable amount of explosives to be treated at the OB/OD units. Moreover, the DESR 6055.09 includes several pages of calculations, instructions, and references based on individual explosive items.

According to the DESR 6055.09 the minimum safe distances for the open burning will depend on the type of waste explosives being burned (bare, ammunition and explosives in packaging that may produce debris, ammunition and explosives in casings that may produce fragments, or static firing of motors). For waste bare explosives, minimum safe distances are calculated using the below quantity-distance (QD) formula:

<sup>91</sup> Defense Explosives Safety Regulation 6055.09 Edition 1, <https://denix.osd.mil/ddes/home/home-documents/desr-6055-09/>.

$$D = K * W^{1/3}$$

where “D” is the minimum safe distance (units of ft), “K” is a factor (also called K-factor) that is dependent upon the risk assumed or permitted (units of ft/lb<sup>1/3</sup>), and “W” is the NEW (units of lbs). For bare explosives the K-factor is 40. There is a minimum safe distance of 75 ft if the distance calculated from the QD formula is less than 75 ft.

The minimum safe distance from the open burning of waste explosives in packaging that may produce debris will be the larger of the distance calculated using the QD formula or the distance calculated using the hazardous fragment distance (HFD) formula. The HFD is defined as the distance at which the density of hazardous fragments becomes 1 per 600 square feet (ft<sup>2</sup>), and it can be calculated as follows:

$$HFD = -1133.9 + [389 * \ln(NEW)]$$

where “ln” is the natural logarithm. Calculated values can be found on the “Structure” column of Table V3.E3.T2. of the DESR 6055.09. This formula applies to NEW larger than 31 lbs up to 450 lbs. If NEW is 31 lbs or less, the minimum safe distance is 200 ft. For example, the distance using the QD formula for 50 lbs of NEW is 147 ft and the obtained distance from the Table V3.E3.T2 of the DESR 6055.09 (or the distance calculation using the HFD formula) is 388 ft. Therefore, the minimum safe distance would be the latter, as the QD formula resulted in a distance less than the minimum of 200 ft and less than the calculated value (or obtained from the table) of 388 ft.

The minimum safe distance from the open burning of waste explosives in the casings that may produce fragments, and open burning of rocket motors will be the larger distance of the calculated using the QD formula or the HFD in accordance with paragraph V3.E3.1.2.1. of the DESR 6055.09. This paragraph outlines different studies that can be conducted to determine the minimum safe distances for fragments. In the absence of proper studies, the hazardous debris distances (HDD) from Table V3.E3.T11. of the DESR 6055.09 apply. This formula is based on a maximum credible event. The HDD is the distance at which the areal number density of hazardous debris becomes one per 600 square feet (ft<sup>2</sup>). The HDD can be calculated using the below formula and has a minimum distance of 200 ft.

$$HDD = -1133.9 + [389 * \ln(NEW)]$$

This formula applies to NEW larger than 31 lbs up to 450 lbs. If NEW is 31 lbs or less, the minimum safe distance is 200 ft.

The minimum safe distances for the open detonation of wastes explosives that will not produce fragments will be the larger of a minimum distance of 200 ft or the distance calculated using the QD formula with a K-factor of 328. If there are fragments produced from the open detonations, the minimum safe distance will be the larger of a minimum distance of 200 ft, the distance calculated using the QD formula with a K-factor of 328, or the maximum fragment distance (MFD) in accordance with paragraph V5.E3.2.7. of the DESR 6055.09. That is to say that it can be obtained from greater of the two distances given in Tables V5.E3.T1. or V5.E3.T2. for the MFD, or an item-specific calculation in accordance with DDESB Technical Paper 16.<sup>92</sup> The MFD is defined as the calculated maximum distance to which any fragment from the cylindrical portion of an ammunition and explosive case is expected to be thrown by the design mode detonation of a single ammunition and explosive item. The MFD will depend on the type and diameter of the munition.

EPA is not proposing revisions to the table in § 265.382 because of the uncertainties surrounding how to accurately develop and provide minimum safe distances that can be easily referenced. However, to the extent that commenters can provide a workable solution, EPA may make regulatory changes in the final rule. EPA asks that commenters keep in mind that EPA is interested in methods that factor in the distance from the OB/OD units to persons in the open, property of others, and environmental receptors (e.g., water bodies, agricultural land) beyond the facility boundary, that would be protected. For example, would it be possible to calculate the distance, on a site-specific basis, using the maximum permitted limit in NEW for the OD unit(s)? While this method of calculation, if feasible, would not result in a table of distances that all facilities could use, the method itself could be finalized and published for use on a site-specific basis. Should EPA adopt the DESR 6055.09 calculations for the minimum safe distances? Should EPA make changes in the final rule it would also include the changes in the proposed part 264, subpart Y standards for OB/OD as well.

#### Summary and Request for Comment

Through discussions with DoD, EPA has learned that the distances in the

<sup>92</sup> Primary Fragment Characterization Tools: A DDESB Technical Paper 16 Update <https://ndia.storage.blob.core.usgovcloudapi.net/ndia/2018/intexpsafety/HamiltonSPaper.pdf>.

table at § 265.382 may be either overprotective or not protective enough. EPA believes it is important to address circumstances in which its regulation may no longer be protective. It is EPA’s preference to keep a table in the regulation similar to the current one because it is easy to understand and implement versus relying on the extensive calculations and site-specific and explosive-specific inputs such as that required by DESR 6055.09.

To this end, EPA would like to know whether commenters are aware of any methods that could be used to determine safe distances between OB/OD units and the location of persons in the open, the property of others, and environmental receptors. Ideally, the method would allow for totals to be calculated based on maximum NEW according to OB events and to OD events and could be either input into a table for reference by facilities and regulatory agencies, or the method for calculating the maximum NEW could be published for use by facilities to determine safe distances.

#### K. Emergency Provisions

##### Introduction and Description

The emergency provisions in RCRA, including the specific regulatory provisions related to an “explosives or munitions emergency” as defined in § 260.10, were developed to ensure emergency situations are addressed in a timely manner without imposing regulatory burdens that would delay the response and further endanger the public, environment, and responding personnel. The MMR clarified that RCRA generator, transporter, and permit requirements do not apply to responses to immediate threats involving munitions or other explosives, or to an imminent and substantial threat to a discharge of hazardous waste,<sup>93</sup> because RCRA requirements may impede emergency responses, especially by causing delays or confusion (see footnote 26, 62 FR 6622 and 6642) herein also referred to as “emergency response exempt from RCRA permitting.”<sup>94</sup> When immediate responses are determined not to be necessary by an explosives specialist, and the emergency responses can be delayed, EPA or the authorized State

<sup>93</sup> The MMR also established that, in addition to an immediate threat from military munitions and explosives, an imminent and substantial threat of discharge of hazardous waste is exempt from the same RCRA requirements, as both threats may require an immediate and expeditious response action. See § 270.1(c)(3)(i)(B) and (D).

<sup>94</sup> These emergency actions, however, are not exempt from the RCRA corrective action and section 7003 authorities once the emergency is over.

agency may issue a temporary RCRA emergency permit under § 270.61. Both provisions address emergency situations, but they differ based on the urgency of the response needed and thus, applicable requirements.

The explosives or munitions emergency response provisions at §§ 262.10(i), 263.10(e), 264.1(g)(8), 265.1(c)(11)(i)(D), and 270.1(c)(3)(i)(D) specify the emergency as an *immediate threat* to human health, public safety, property, or the environment, from military munitions or other explosive devices or material, requiring an immediate response, as determined by an explosives or munitions emergency response specialist (as defined in § 260.10) and are exempt from substantive RCRA requirements, including permits. On the other hand, the emergency permit provision at § 270.61 applies to situations or events in which there is an *imminent and substantial endangerment* to human health or the environment, but an immediate response is not necessary. In the MMR, EPA notes that while a permit is not required for immediate or time critical responses, alternatively, an emergency permit could be issued to a non-permitted facility or to a permitted facility for hazardous waste not covered in a permit when an immediate response is not necessary (see footnote 26, 62 FR 6643). Another distinguishing aspect of these provisions is that emergency response exemption decisions are generally made independently by an “explosives or munitions emergency response specialist” whereas actions taken in an emergency permit scenario are made in coordination with regulators.<sup>95</sup>

In the context of emergency situations, the key difference between an immediate or time-critical threat (*i.e.*, an explosives and munitions emergency) versus short-term treatment that can be delayed under an emergency permit, is that an immediate threat requires that a response must be initiated right away. Response to an immediate threat can be delayed for hours or days (but not weeks or months) for practical considerations such as nightfall, for inclement weather to conclude, or to allow time for emergency response specialists to mobilize and set up. The explosives and munitions emergency continues until the explosives and munitions response specialist determines the critical threat is over.” If an immediate response is not needed such that there is time to discuss

whether a RCRA emergency permit is appropriate, then responders should consult with the regulatory authority as to how to proceed. The presumption in this case is that the required treatment can be addressed within a 90-day period under a RCRA emergency permit, or if appropriate, a traditional RCRA permit.

Examples of situations involving an immediate threat include those where used munitions and explosives (*i.e.*, those that were previously fired but did not function or are degraded in the environment) are discovered and are determined to be primed, fused, and armed; the status of explosive items cannot be confirmed; or the public or property is threatened and the munitions or explosives can be transported to a safer location, including to an explosive ordnance disposal (EOD) range, to defuse, detonate, or otherwise to abate the immediate threat.<sup>96</sup> Immediate threats may also involve bulk propellants and other munitions and explosives and pyrotechnics that have become unstable (*e.g.*, unused discarded military munitions that have been discovered, certain unstable category D propellants,<sup>97</sup> and certain lab wastes such as aged or crystallized picric acid), and uncertain/unknown explosive devices (*e.g.*, improvised explosive devices (IEDs)).

On the other hand, if the response can be delayed without significantly compromising safety or increasing the risks posed to life, property, health, or the environment, and to the responding personnel, treatment of the explosives or munitions should be discussed with the regulatory authority to determine if the expedited emergency permit provisions in § 270.61 or a traditional permit according to § 270.1 would be appropriate. Situations in which the treatment could be delayed include where the public or property are not threatened by a potential explosion (*e.g.*,

in remote areas such as some former ranges or where immediate action is not necessary to prevent explosion or exposure) (see footnote 26, 62 FR 6643). In these cases, there is time to consult with the regulatory authority on which type of RCRA permit should be required.

#### Proposed Revisions and Rationale

As discussed, the explosives or munitions emergency response exemptions and emergency permit provisions are designed specifically to allow for expedient responses to immediate threats or imminent and substantial endangerment without creating regulatory burdens that could obstruct the response. EPA believes that there should be more clarity provided on the differences between them, as well as specifying when requirements for consideration of alternative treatment technologies would apply. Therefore, EPA proposes to require minimal reporting for explosives or munitions emergency responses after the emergency is over, so that the regulatory authority can better understand the circumstances that contributed to the immediate threat. With respect to alternative technologies and their applicability to the emergency provisions, EPA proposes that, as explosives or munitions responses are exempt from RCRA permitting, these responses would also be exempt from the need to evaluate whether alternatives can be used. For actions that are covered under an emergency permit, EPA proposes that these be required to consider if an alternative treatment technology can be used in lieu of OB/OD. EPA is also proposing revisions to the existing emergency permit regulations at § 270.61 to underscore that the emergency permit duration is not to exceed 90 days but to allow for a one-time permit renewal only for explosives and munitions to extend the emergency permit for up to another 90 days for unanticipated circumstances.<sup>98</sup> Also, if additional time is needed beyond 180 days to accommodate procurement and operation of an alternative technology for treatment at the treatment location, the Director may renew the permit for a total period not to exceed one year. Last, EPA proposes to revise the

<sup>96</sup> See definition for *Explosives or munitions emergency response* at 40 CFR 260.10.

<sup>97</sup> Chemical stabilizers are added to propellants to slow the aging process. In time, the stabilizer levels will drop to a point where the propellant may auto-ignite and thus monitoring the stability level of each propellant is essential for safe storage. The U.S. Army classifies propellant according to the percent stabilizer it contains; category D has <0.20% stabilizer remaining, which is a level of deterioration that presents a potential safety hazard and are unsafe for continued storage. The propellant must be treated/destroyed within 60 days, which may include shipping off-site within the 60 days for treatment/destruction. U.S. Department of the Army Pamphlet 742-1. *Inspection of Supplies and Equipment; Ammunition Surveillance Procedures*. November 22, 2016. [https://safety.army.mil/Portals/0/Documents/ON-DUTY/EXPLOSIVESAFETY/Standard/DA-PAM-742-1\\_Ammunition-Surveillance-Procedures\\_22Nov16.pdf?ver=2016-12-19-150215-207](https://safety.army.mil/Portals/0/Documents/ON-DUTY/EXPLOSIVESAFETY/Standard/DA-PAM-742-1_Ammunition-Surveillance-Procedures_22Nov16.pdf?ver=2016-12-19-150215-207).

<sup>98</sup> 40 CFR 270.61(b)(2) states that the emergency permit shall not exceed 90 days in duration and does not provide for any extensions. What is being proposed is to allow for a one-time only extension up to 90 days, if needed. An extension may be needed because, for example, the time to safely dismantle and treat items will take more than 90 days because of, for example, weather or other unanticipated delays such as time to deploy an MTU.

<sup>95</sup> Safe Handling, Storage and Treatment of Waste Fireworks. <https://www.epa.gov/hwpermitting/safe-handling-storage-and-treatment-waste-fireworks>.

definition of explosives or munitions emergency in § 260.10 to replace “imminent threat” with “immediate threat” for consistency.

#### Emergency Responses Exempt From RCRA Permitting

As noted above, EPA is proposing to add a reporting requirement that would be triggered when the explosives or munitions emergency response has been completed. EPA expects that the proposed additional information would aid in clarity for regulators to better understand the circumstances that contributed to the immediate threat, as well as to provide more complete information that could inform future decisions, for example, should there be a need for remediation purposes or for land development activities. EPA proposes that the following information be documented by the explosives or munitions emergency response specialist: the type of explosive or munition; if it is primed, fused, armed, fired and did not function, or if unknown or uncertain; and if it has deteriorated and the stability is unknown or uncertain. EPA proposes that this information then would need to be submitted to the regulatory authority, via the environmental or regulatory compliance liaison at the response unit’s base or facility of origin, within five days of concluding the response, and when applicable, the information includes whether an alternative was immediately available and safe for use given the site-specific situation. See proposed §§ 264.715(a)(1) and 265.715(a)(1). Finally, EPA proposes to add a new paragraph (c)(3)(iv) to § 270.1(c)(3) that points to the new reporting requirements of § 264.715.

#### RCRA Emergency Permits

If an emergency response is not declared as an immediate threat, then it would be conducted under a temporary 90-day RCRA emergency permit or possibly, a traditional RCRA permit. Again, the RCRA emergency permit provisions are structured to allow for expedient response by not requiring the substantive requirements that a traditional RCRA permit does, and can even be oral, as long as a written permit follows within five days. However, EPA finds that the emergency permit provisions are often being used for situations that do not conclude within the 90 days required by the regulation. EPA acknowledges that in some cases, emergency situations could conceivably require more than 90 days to conclude if a large number of additional explosives or munitions are

unexpectedly found, or weather or other unanticipated delays such as time to deploy an MTU are encountered; these situations would be an appropriate basis for proposing a one-time extension of 90 days, or longer in situations where MTUs are utilized. But, this is different than the situation in which requests are made to renew emergency permits on a continuous 90-day cycle to respond to explosives or munitions that are continuously found/generated in the same location and treated on an ongoing basis. Examples of this can include when fireworks are regularly confiscated at a port of entry, when propellants, explosives, pyrotechnics (PEP) deteriorates, or when very small quantity generators like university laboratories have reactive chemicals that require ongoing disposal due to exceedance of the shelf life, and the stability is questionable.<sup>99</sup>

The regulation at § 270.61(b)(2) specifies that an emergency permit “shall not exceed 90 days in duration” and does not provide for a renewal nor repeated renewals. Because these permits are limited in duration, there is an expectation that treatment under an emergency permit will not result in continuous treatment. By allowing for the continued use of OB/OD under emergency permits that provide significantly fewer protections than a traditional RCRA permit, when issued on a recurring basis, there is greater potential for contaminants to migrate into soil and water resources and impact human health and the environment.

EPA proposes at § 270.61(b)(2) to strengthen the emergency permit regulatory language to emphasize that the duration of the permit must not exceed 90 days, but also would allow for a one-time renewal, only for explosives and munitions, of an additional 90 days to address unforeseen delays or circumstances as proposed at § 270.61(b)(7). Any treatment that requires more than 180 days to complete would not qualify for an emergency permit for treatment because this indicates an open-ended need or one that is too extensive to be concluded in 180 days. However, EPA also anticipates that it is possible that 180 days may not be sufficient when accounting for the time it may take to procure and operate an MTU. Therefore,

<sup>99</sup>For very small quantity generators, a more appropriate, effective, and timely solution could be a mobile treatment unit. EPA has proposed an approach to allow for and facilitate the use of mobile treatment units in Section L. Mobile Treatment Units for Explosive Wastes. However, an emergency permit may be appropriate when the treatment activities occur infrequently, such as twice per year or less.

EPA is proposing that if additional time is needed beyond 180 days to accommodate procurement and operation of an alternative technology for treatment at the treatment location, the Director may renew the permit for a total period not to exceed one year. As discussed in detail in the below section an evaluation of alternatives to OB/OD is proposed to be required for emergency permits.

Last, because there is some question regarding whether a treatment activity is eligible for an emergency permit as described above, EPA proposes that, in addition to the information proposed to be included for explosives or munitions emergency responses exempt from RCRA permitting, the following additional information be included for treatment of explosives or munitions conducted under an emergency permit: the anticipated frequency and quantity of generation and the expected timeframe from discovery or generation to achieving final treatment. See proposed §§ 264.715(b)(1) and 265.715(b)(1). EPA believes that this information is necessary to assess and confirm whether an emergency permit is appropriate or a traditional RCRA permit should be required.

#### Emergency Permits and Alternative Treatment Technologies

Consistent with the primary purpose of this proposed rule, which is to clarify that there must be an evaluation of safe and available alternatives before new OB/OD can be initiated under a RCRA permit, EPA proposes that treatment of explosives or munitions conducted under an emergency permit (*i.e.*, do not require an immediate response and thus are not RCRA exempt) be subject to the requirement to evaluate whether there are alternatives, but according to less prescriptive requirements, before OB/OD can be used.

Specifically, EPA proposes that the evaluation of alternatives for these activities need only (1) address whether an existing alternative technology is available that can safely treat the waste, and (2) include the rationale for the treatment method selected if an alternative technology cannot be used (see proposed §§ 264.715(b)(1) and 265.715(b)(1)). For these activities, inherent in the determination that an alternative technology or MTU is safe and available is that it can be deployed in a reasonable amount of time given the site-specific situation.

Regarding timing for submission of the required information, EPA notes that the process to obtain approval for emergency permits is very streamlined (*i.e.*, can be oral but must be followed

in five days by a written permit). For consistency, EPA proposes that the evaluation of technologies be submitted to the regulatory authority within five (5) days of the permit application. If treatment using OB/OD has begun, upon identification of an alternative, the OB/OD must cease when the alternative technology has been deployed according to proposed § 264.715(b)(4), and consistent with § 270.61(b)(4), and a new permit application would be submitted per § 270.61(a).

Because explosives or munitions emergency responses are exempt from RCRA permitting (and other substantive RCRA requirements), these responses, by extension, would also be exempt from requirements to conduct an alternative technology evaluation. However, EPA does propose to require documentation of whether there was a safe alternative immediately available for explosives or munitions emergency responses, which is located at §§ 264.715(a)(1)(v) and 265.715(a)(1)(v). This proposed rule does not require an evaluation for the reasons discussed, however, EPA believes it important to highlight historical site-specific uses of alternatives when people, property, or the environment have been threatened. In these limited and very site-specific cases, alternative technologies were the safer and available method. Thus, under similar future scenarios, alternative technologies could conceivably be considered by the explosives and munitions emergency response specialist.

Site-specific cases when MTUs (*e.g.*, mobile contained burn, contained detonation, or chemical treatment units) were used for certain explosive waste streams during emergency situations include Camp Minden, LA; Pier 91 in Seattle, Washington; and American University Experimental Station (AUES), Spring Valley, Washington, DC. Additionally, in another case at Massachusetts Military Reservation, an emergency that was initially determined to be exempt from RCRA permitting, was evaluated and it was subsequently determined that an MTU could be used to treat the munitions. In each of these emergency situations, an alternative technology was used in place of OB/OD to better protect public safety, property, and/or the environment.

Although a hypothetical example, a case in which EPA could anticipate an alternative technology evaluation to be conducted is when there are potentially significant quantities of munitions and UXO that will be removed and treated. EPA is aware of many former training ranges where buried munitions and UXO remain that have yet to be

addressed. If there are potentially significant quantities to be removed during future cleanup activities, for example, based on knowledge of the area and use or confirmed through a geophysical investigation, EPA would expect that an alternative technology evaluation be performed accordingly. In these situations, it is reasonable to conduct the evaluation because at the time the decision is made to investigate, there is time to do the evaluation, there are potentially alternatives, and with appropriate planning, there is time to implement a selected alternative(s). EPA notes however, that such cleanup activities are most likely to be conducted under CERCLA. In such a case, the CERCLA program has its own processes and requirements that would apply to the evaluation of potential ARARs and remedial alternatives.

EPA presents these examples to illustrate how, in limited cases, emergencies, occasionally including those that are determined to be explosives or munitions emergency responses exempt from RCRA permitting, can nonetheless utilize alternative technologies in place of OB/OD. EPA also recognizes that it does not make practical sense to impose a requirement (*i.e.*, an evaluation of safe and available alternative technologies as described in Section II.D. Alternative Treatment Technologies) that would delay the emergency response and further endanger the emergency response specialists or the public. At the same time, MTUs as alternative technologies to OB/OD have been utilized for explosives or munitions emergency responses pre-dating this proposed rulemaking, indicating that there are limited, site-specific cases in which deploying them was reasonable for the response.

There are documented uses of MTUs beyond the cases referred to above, and there are several vendors that provide enclosed units that have been proven safe and effective for emergency responses. Through this rulemaking, as discussed in the next section, EPA intends to facilitate the use of MTUs by reducing and removing implementation barriers and as a result, MTUs should become more widely available, lending to more expedient and routine use. Last, EPA notes that if an MTU is determined to be safe and available for the site-specific conditions, whether for explosives or munitions emergency responses exempt from RCRA permitting or treatment conducted under an emergency permit, the MTU itself would not require a permit to operate. See Section L. Mobile Treatment Units for Waste Explosives

for additional information regarding the proposed MTU permit approach.

#### Summary and Request for Comment

The RCRA regulations differentiate between explosives or munitions emergency responses and treatment activities conducted under an emergency permit based on how quickly a response is required. An explosives or munitions emergency requires an immediate response and is exempt from RCRA TSD standards (§§ 262.10(i), 263.10(e), 264.1(g)(8) and 265.1(c)(11)) and permit requirements (§ 270.1(c)(3)). When immediate responses are determined to not be necessary by an explosives specialist, the treatment is subject to a RCRA emergency permit or potentially, a traditional RCRA permit (§ 270.61 or § 270.1, respectively).

To better ensure that emergency responses and treatment actions are conducted under the appropriate provisions of RCRA, EPA is proposing to add new regulatory language to the new parts 264 and 265, subpart Y standards at §§ 264.715 and 265.715, revise the existing regulations at § 270.61 Emergency permits, revise the definition of explosives or munitions emergency in § 260.10, and add a new paragraph (c)(3)(iv) to the exclusion for explosives or munitions emergency responses in § 270.1(c)(3) that points to the new parts 264 and 265, subpart Y standards of §§ 264.715 and 265.715 for the new reporting requirements.

For the new subpart Y standards, EPA requests comment on the proposed inclusion of information that would need to be documented and submitted for the explosives or munitions found or generated after an explosives or munitions emergency response is completed. EPA also requests comment on the proposed requirement that additional descriptive information for the explosives or munitions found or generated be submitted for treatment conducted under an emergency permit to better distinguish between these treatment activities and those that can be addressed under a traditional RCRA permit.

With respect to treatment activities for explosives or munitions that require a RCRA emergency permit, the timing for submittal of information is proposed to be the same as the five-day requirement in § 270.61(b)(1) for emergency permits. EPA requests comment on whether this five-day deadline is reasonable for treatment that require a RCRA emergency permit.

Regarding revisions to the emergency permit provisions at § 270.61, EPA proposes to clarify the duration of the permit to be only 90 days by removing



“shall” and replacing with “must.” Consistent with this revision, EPA proposes to revise all places in paragraph (b) that use the term “shall” to be clear in meaning by removing “shall” and replacing with “must.” EPA also proposes to add a new paragraph (b)(7) that would allow for a one-time only extension, only for explosives and munitions, for an additional 90-day period, and to allow for renewal of the permit for a total period not to exceed one year to account for procurement and use of an alternative technology. EPA requests comment on the appropriateness of these clarifications and additions.

Finally, with respect to alternative treatment technologies and how this proposed rule intersects with the emergency provisions, EPA discusses the need to only document and report whether there was a safe alternative immediately available for explosives or munitions emergency responses that are exempt from RCRA permitting, and to consider whether an alternative technology is available that can safely treat the waste within a reasonable time for treatment that requires an emergency permit. EPA requests comment on the merits of not requiring an intensive evaluation of alternatives for treatment conducted under a RCRA emergency permit, but rather the more simplified consideration of available existing MTU alternatives as proposed at §§ 264.715(b) and 265.715(b), based on the known prior uses of contained technologies such as detonation chambers, contained burn, and chemical treatment MTUs for certain explosive waste streams.

#### *L. Mobile Treatment Units for Waste Explosives*

##### Introduction and Description

EPA is proposing regulations and a framework for the RCRA permitting and operation of MTUs that treat waste explosives. MTUs would be considered themselves facilities and be issued a permit by the Agency (EPA) in a unique two-stage process that enables the MTU owner/operator to treat waste explosives on-site where they are generated.

EPA believes MTUs are an important component of the proposed regulations and would offer a solution to some of the challenges associated with the management and treatment of waste explosives. First, MTUs could reduce the need for OB/OD in the near term, potentially providing alternative technology treatment services sooner than permitting and constructing a permanent on-site unit. In addition, because the use of MTUs to treat waste explosives could be less costly than

building, maintaining, and operating alternative technologies, MTUs could decrease reliance on OB/OD. The benefits would be particularly keen for stationary TSD facilities that do not treat waste explosives routinely or only treat very small quantities of self-generated wastes. Lastly, MTUs could offer an additional compliance option beyond off-site shipment and building an alternative technology unit, and thereby provide additional regulatory flexibility. These kinds of benefits could be realized in cleanup activities as well as in the treatment of as-generated waste. As cleanup programs evaluate potential remedies and treatment technologies as part of the cleanup process, the availability of relatively low-cost permitted alternative technology for some waste streams could reduce the overall use of OB/OD.

This may be particularly true in situations where the treatment is episodic and/or of short duration. For example, law enforcement authorities episodically conduct OB/OD of confiscated ammunition, fireworks, and other explosives.<sup>100</sup> Because the need for OB/OD is only episodic, MTUs are likely to provide an alternative. In addition, some waste explosives for which safe alternatives exist may not be safe to transport off-site to a facility using an alternative technology. For example, forbidden explosives are not eligible to receive a DOT competent authority approval (*i.e.*, an EX number issued by DOT to allow transport) and therefore, cannot be shipped off-site (see 49 CFR 173.54). Or, in cases where obtaining a DOT EX number may not be timely or long-distance transport is not preferred due to increased risk for an accident, MTUs could provide a solution. EPA is aware of at least one scenario in which a mobile detonation chamber was brought in to treat waste explosives as part of a response rather than ship the waste explosives to an off-site treatment location.<sup>101</sup> Mobile treatment units could bring alternative technology to these locations thereby

<sup>100</sup> See Letter from National Bomb Squad Advisory Board to EPA Administrator Scott Pruitt dated March 28, 2017, in which the National Bomb Squad Advisory Board notes that public safety bomb squads and other explosive specialists routinely destroy large quantities of seized illegal fireworks, other explosives, and pyrotechnics. The letter identified OB/OD as the preferred method.

<sup>101</sup> EPA was also informed during public outreach that shipping eligibility has in some cases been an impediment to off-site shipment of waste explosives for treatment by an alternative technology. See the *Summary of Meeting with Owners and Operators of Open Burning/Open Detonation Facilities: Revisions to Standards for the Open Burning/Open Detonation of Waste Explosives* from March 15, 2022, and March 31, 2022, available in the docket to this rulemaking.

mitigating the transportation safety concern.

At present, the RCRA regulations require that owners/operators of MTUs obtain a RCRA permit for treatment from the permitting authority at each site where it will operate. Furthermore, every time the unit moves across State lines, a new permit with potentially unique State-specific requirements would need to be issued. EPA recognizes that the RCRA permit process is time and resource intensive and thus, not very conducive to meeting the needs of facilities that only require a short-term and/or infrequent treatment option. EPA previously proposed regulatory amendments to create a framework to enable streamlined permitting of MTUs to facilitate their use in the RCRA program.<sup>102</sup> However, that proposal, which was significantly broader than the changes being proposed, was never finalized. The proposal was not finalized primarily because it would not have materially reduced the permitting burden vis-à-vis issuing facility-specific permits at each location an MTU would be used. Mindful of the shortcomings of that approach, EPA is proposing a different approach. One key difference in the MTU permitting approach being proposed is the scope. Specifically, EPA is proposing a framework for MTUs solely to treat waste explosives, rather than all hazardous wastes as in the 1987 proposal. Additionally, EPA has endeavored to create a more standardized two-stage permitting process than that employed in the previous proposal.

This proposal would establish a framework for the permitting of MTUs that includes requirements related to public participation, recordkeeping and reporting, contingency planning, closure, operation and design standards, and permit terms. The current RCRA subtitle C regulatory structure developed for permitting and regulating hazardous waste TSDFs, including the corrective action requirements, was developed to address stationary facilities. Given the mobile nature of these units, EPA believes it makes sense to adapt the permitting framework, including public participation requirements as applied to them. EPA also believes that the corrective action requirements of § 264.101 do not apply to MTUs. This proposal intends to provide an additional compliance option for waste explosives management and treatment, while maintaining a robust permitting framework. The proposed approach for waste explosive

<sup>102</sup> 52 FR 20914, June 3, 1987.

MTUs is described in more depth in the following sections.

#### Proposed Approach and Supporting Rationale

EPA is proposing a two-stage permitting process for MTUs. In the first stage, EPA would issue a nationwide conditional approval to the MTU owner/operator. The issuance of the nationwide conditional approval to the owner/operator of an MTU would enable the owner/operator to subsequently during the duration of their conditional approval receive a RCRA permit, after a second expedited process, that would authorize treatment at individual job sites. While the conditional approval is a prerequisite to obtaining a permit to treat waste explosives, it does not authorize the MTU to treat the waste. In other words, the conditional approval would allow an owner/operator of an MTU to apply for a location-specific permit, but in the absence of a location specific permit, it would not authorize the owner/operator to treat waste explosives.

In the second stage, a location-specific RCRA permit authorizing treatment of waste explosives would be issued location-by-location (*e.g.*, for specific jobs) once public notice requirements and other requirements specific to that location are satisfied. To avoid an unnecessarily duplicative two-stage process, EPA intends that the vast majority of the permitting workload would be associated with the nationwide conditional approval that would accompany the MTU to each job site.

EPA is proposing new or amended regulatory text in several areas in order to create a standardized framework for the permitting and regulation of MTUs. Key components of the framework include: State authorization, permitting, public notice, recordkeeping and reporting, contingency planning, closure, operation and design standards, and permit terms. These key components are discussed in greater detail in the following sections, which are organized by describing first the permitting process and second, the permit modification process.

#### Permitting

EPA is proposing a two-stage permitting process for MTUs under a new part 270, subpart K. The proposed framework would create a new special form of an individual RCRA permit enabling MTUs to treat waste explosives. Because the applicable provisions being proposed for MTUs cite to a variety of other RCRA subparts, EPA believes a new section, under

subpart F, provides the most transparent mechanism for incorporating these provisions, and would also provide for ease of reference. EPA has codified other special forms of permits under subpart F, such as permits by rule, emergency permits, and remedial action plans (RAPs).

In the first stage of the permitting process, EPA would issue a nationwide conditional approval to the MTU owner/operator that would accompany the unit to every job site and would contain the bulk of the permit terms and conditions [requirements] applicable to the unit. In the second stage, the location-specific RCRA permit authorizing treatment of waste explosives at a specific site would be issued by EPA. Prior to issuance of the location specific permit, EPA would provide public notice as required by section 7004(b) and would establish any other requirements specific to that location.

In the following sections, EPA discusses three key aspects of the proposed permitting process: the proposed procedures to obtain a permit, the proposed application content requirements, and the conditions EPA is proposing to be required in all RCRA permits for MTUs. These aspects are each discussed twice. First, each is discussed in the context of the first stage of the proposed MTU permitting process—the issuance of the nationwide conditional approval. Second, these aspects are each discussed again in the context of the second stage of the proposed permitting process—the location-specific RCRA permit for an MTU to treat waste explosives.

Before discussing the permitting procedures however, EPA notes that this proposed permitting approach would not apply to MTUs used for emergency responses or emergency treatment involving waste explosives. When MTUs are brought to a location to respond to an emergency, the RCRA emergency permit provisions at § 270.61 and emergency exemption provisions at §§ 264.1(g)(8)(i)(D), 265.1(c)(11), and 270.1(c)(3)(D) would supersede the two-stage permitting process proposed in this rule. This is because the RCRA emergency provisions were developed to ensure emergency situations are addressed in a timely manner without imposing regulatory burdens that would delay the response and further endanger the public, environment, and responding personnel. To require that an MTU that was brought in to treat recovered explosives during an emergency response revise its nationwide conditional approval and obtain a final permit for the job site

could significantly delay initiation of the response.

#### Procedural Process Applicable to Issuance of Nationwide Conditional Approvals

As discussed above, the nationwide conditional approval would be issued under the processes described in part 270, subpart K at the newly proposed § 270.332. The proposed process for obtaining a nationwide conditional approval described in § 270.332 is very similar to the process established for obtaining RAPs in part 270, subpart H. The regulations governing issuance of RAPs include a variety of procedural steps and processes to provide for consistent and fair treatment of applications, and opportunity for public participation, and that ensure the RAPs are protective. In addition, the process for RAP issuance does not heavily rely on part 124 procedures, which EPA believes are not well suited to issuing permits for MTUs. The part 124 regulations were developed for facilities being permitted in a single stage permitting process. EPA believes more flexibility is necessary to craft a two-stage process for MTUs to accommodate the mobile nature of the units and the relatively short time horizons in which they will be operating at any one site. Additionally, the part 124 regulations include some features that are less practical for MTUs. For example, under part 124, the Director cannot begin processing an application until the owner/operator has fully complied with the permit application requirements. This does not fit the envisioned two-stage permitting process for MTUs. In light of these considerations, EPA modeled the proposed approach for issuing conditional approvals (the first stage of the MTU permitting process) and for issuing location-specific permits (the second stage) after the RAP regulations. EPA, at the same time, worked to ensure the proposed approach provides meaningful public participation opportunities. Discussion on public participation during the MTU permitting process is located in the section titled “Public Notice and Input.”

The proposed procedural steps for issuing a nationwide conditional approval include: (1) application signature and submission, (2) a tentative finding by EPA on the application’s completeness and consistency with the applicable regulatory standards, (3) preparation of a draft conditional approval or notice of intent to deny; (4) public notice and comment; and (5) final determination of the nationwide conditional approval. Finally, the

proposed regulations include an appeal process for final decisions.

#### Application Contents for Nationwide Conditional Approvals

Applications for an MTU conditional approval would be required to contain the information in the newly proposed § 270.333. Under the proposal, the applicant for a nationwide conditional approval would be required to submit to EPA all of the information required in part A permit applications at § 270.13 except for the information required by § 270.13(b), (f), and (l). EPA is proposing to not require submission of the facility location information, Tribal land information, and topographical map required by § 270.13(b), (f) and (l) during this initial stage. Instead, with the exception of the topographical map required by § 270.13(l), EPA is proposing that the location-specific information in these three sections would be submitted during the location-specific second stage of the permitting process. EPA, in this proposal, is not requiring the topographical map required by § 270.13(l) as part of a traditional RCRA permit application for MTUs given their mobile nature. MTUs will operate for only short periods of time in any location and must “clean close” after every treatment activity (see Section II.L. Closure and Financial Requirements for more information on the proposed closure requirements for MTUs). As such, EPA believes the preparation of a topographical map for each location at which an MTU may operate would be unnecessary and overly burdensome.

Additionally, EPA is proposing that the application for a conditional approval must include enough information to demonstrate that design and operation of the MTU will comply with applicable requirements of part 264 as specified by a new paragraph (k) at § 264.1. The part 264 standards represent minimum national standards which define the acceptable management of hazardous waste at permitted facilities and apply to all facilities which are permitted to treat, store, or dispose of hazardous waste. As discussed in this preamble section, a tailored set of the part 264 requirements would apply to MTUs. EPA is proposing this information to include preparedness and prevention information, a contingency plan (which would be updated in the second stage with specifics on arrangements made with local authorities for each job site), closure plans, and information on the types of waste explosives the unit may treat, among other information. This information is important as it would

serve, in part, as the basis for determinations that the proposed design and operating standards of the unit meet the applicable regulatory standards.

Some of the unit specific information that would be required as part of an application for an MTU nationwide conditional approval includes information currently required in part B applications for subpart X at § 270.23(a), (d), and (f).<sup>103</sup> As discussed in “Design and Operating Standards for MTUs,” EPA believes that design and operating standards developed under subpart X are appropriate for MTUs. This information includes a detailed description of the unit, including physical characteristics, materials of construction, and dimensions of the unit. Additionally, the unit specific standards would also include detailed plans and engineering reports describing how the unit will be designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of § 264.601 and the applicable requirements of § 264.602. For an MTU, EPA expects this information would include information on how the unit will be transported to ensure the unit’s treatment efficacy and integrity are maintained. This information is proposed to be required as it helps ensure that the unit’s operations will be safe and protective by way of achieving the performance standards required for miscellaneous units.

Second, the part B application information required for subpart X units would require the applicant for a nationwide conditional approval to also submit a report on a demonstration of the effectiveness of the treatment based on laboratory or field data, including information on emissions from the unit. This information is important to assist the permit writer in determining the efficacy of the proposed treatment technology. Lastly, EPA is proposing to require that the application include the additional information required for subpart X units determined by EPA to be necessary to evaluate compliance of the unit with the environmental performance standards of § 264.601 for ensuring protection of human health and the environment, consistent with § 270.23(e).

In the case of an applicant seeking a nationwide conditional approval for multiple identical MTUs, the applicant would also be required to submit a certification from a registered professional engineer that the units are

identical. In this way, multiple identical units would be able to go through the nationwide conditional approval application process concurrently utilizing one application package. This could further streamline the permitting process for owners/operators seeking to own or operate a fleet of identical MTUs.

EPA anticipates this stage of the permitting process (*i.e.*, obtaining a conditional nationwide approval) would comprise the vast majority of the effort required for an MTU to obtain a RCRA permit. Relevant location-specific information and demonstrations would be submitted and made as part of the second stage of the permitting process.

#### Conditions for Nationwide Conditional Approvals

Under this proposal, the information and conditions that would need to be in the nationwide conditional approval are identified in § 270.334. EPA expects that nationwide conditional approvals issued to owners/operators of MTUs would include all unit design and operating standards applicable to MTUs. A major component of those unit design and operating standards would be those requirements found in part 264. In addition to the design and operating requirements, the nationwide conditional approval would also include terms related to closure (interim and final), financial assurance, contingency and emergency planning, and recordkeeping and reporting requirements. The proposed applicable part 264 standards are discussed in more detail in a preamble section titled “Applicable Part 264 Standards”. As noted earlier, EPA is proposing a new paragraph at § 264.1(k) that describes the part 264 standards applicable to MTUs. These standards and conditions would be required to be included in the draft nationwide conditional approval prepared by EPA for public notice and comment. While these conditions would be included in the nationwide conditional approval, some of the location-specific information required to comply with these conditions would not be required until the second (location-specific) phase of the MTU permitting process. For example, it is not reasonable to request information related to arrangements with local authorities required by § 264.37 during the nationwide conditional approval process when the specific locations of operation are unknown.

It is worth noting that the applicable part 264 requirements include certain subpart X requirements. These would require, among other things, that the conditional approval contain such terms

<sup>103</sup> Note that, currently, there is no § 270.23(f). However, as a result of this proposal, current § 270.23(e) would be redesignated as § 270.23(f).

and conditions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from units covered by the conditional approval. This requirement would address unit-specific issues that may arise and require unique permit terms to facilitate the safe and protective operation of the unit in question. This type of authority is available for subpart X units in traditional RCRA permits and has been a valuable tool for addressing unit-specific matters. The authority to require, via permit conditions, a response to releases from the unit is a valuable addition to the proposed MTU permitting process. EPA believes it is important for the owner/operator of an MTU that experiences a release to be responsible for responding to the release. As such, EPA is proposing at § 264.1(k) that nationwide conditional approvals must include requirements for responses to releases of hazardous waste or hazardous constituents from the unit. EPA expects such releases would be rare but believes the owner/operator of the MTU should address those releases. This requirement, combined with the proposed closure and financial assurance requirements for MTUs (see Section II.L. Closure and Financial Requirements), should provide strong protections against contamination remaining after treatment and closure concludes.

In addition to the part 264 requirements, the nationwide conditional approval would also need to include the terms and conditions applicable to all RCRA permits and the recordkeeping and reporting requirements at §§ 270.30 and 270.31, respectively. These include basic obligations, good housekeeping, and recordkeeping requirements that, much like stationary facilities, would be necessary to ensure permitted MTU operations are protective of human health and the environment. Relatedly, EPA is proposing that the nationwide conditional approval include a notification requirement that the owner/operator of an MTU must notify EPA each time an MTU treats waste explosives at a location. This notification would need to include the start and end dates of treatment and the quantity of wastes treated. The conditional approval would also be required to contain terms and conditions for modifying, revoking and reissuing, and terminating the MTU

permit (including the conditional approval), as provided in §§ 270.40 through 270.43. Relatedly, EPA is proposing amendments to § 270.42 to address how permit modifications requested by the owner/operator would work for MTUs. Specifically, EPA is proposing that all modifications to a permit for an MTU would be required to adhere to the process for Class I permit modifications in § 270.42(a) and would require the prior written approval of the Director.

#### Procedural Process Applicable to Issuance of Location-Specific Permits

Under this proposal, the second stage of the MTU permitting process—the location-specific permit—would also be governed by the processes described in part 270, subpart K at the newly proposed § 270.335. As with the procedures for the nationwide conditional approval, EPA modeled the permitting process for the location-specific permit after that established for RAPs in part 270, subpart H. This process would be followed at all locations at which an MTU intended to operate, including instances where the MTU intended to treat waste explosives at another (stationary) permitted TSDF. In the case of an MTU being permitted to treat waste explosives at a permitted TSDF, the owner/operators of the stationary TSDF would not need to modify their permit or sign onto the MTU's permit. As such, the obligations and the responsibilities of the respective owner/operators in the two permits would be distinct.

The proposed regulations include a variety of procedural steps and processes to provide for consistent and fair treatment of applications for MTU location-specific permits, as well as opportunity for public participation. The proposed procedural steps for issuing the location-specific permit include: (1) Application signature and submission, (2) a tentative finding by the EPA on the application's completeness and consistency with the applicable regulatory standards, (3) preparation of a draft location-specific permit or notice of intent to deny; (4) public notice and comment; and (5) final determination of the location-specific permit. Finally, the proposed regulations include an appeals process for final decisions.

During this second stage of the permitting process, public notice of a draft location-specific permit would include newspaper and radio and notice to relevant local and State government offices. These public notice steps would be undertaken no less than 45 days before operations are intended to begin.

During this time, EPA would post the draft location-specific permit, along with the nationwide conditional approval, on its website. If during that 45-day period, EPA receives notice of opposition to the EPA's intention to issue a location-specific permit or a request for a hearing, EPA would hold a public hearing. Following the public notice period, EPA would issue its final determination of its location-specific permit. More discussion on public participation during the MTU permitting process is located in the section titled "Public Notice and Input."

#### Application Contents for Location-Specific Permits

At newly created § 270.336, EPA is proposing specific information that would need to be submitted by an applicant during the second stage of the permitting process for an MTU—the location-specific permit. This information includes the nationwide conditional approval that would have already been issued by EPA and select location-specific information typically required in a RCRA permit application that would not have been required during the nationwide conditional approval stage.

The submission of a valid nationwide conditional approval would be the foundation for the information submission requirements during the location-specific stage of the proposed permitting process. The nationwide conditional approval would contain all of the nationwide operational and design standards specific to that MTU plus other various requirements including closure (interim and final), financial assurance, and recordkeeping and reporting. In most cases, this document, which would be incorporated into the location-specific permit, if issued, would comprise the bulk of the terms and conditions that would apply to the unit. At this stage of the process some of those conditions could be refined, as necessary, to address location-specific issues.

At this stage, EPA is proposing to require some limited location-specific information such as location information (name, address, longitude and latitude, and Tribal land status) for the proposed site at which the applicant is seeking a permit to operate. This information is required by § 270.13(b) and (f) for traditional RCRA permits as well. In addition, EPA would require information about the requested start date of operation, expected duration of activities, and what types and volumes of wastes would be treated. EPA is also proposing to require information demonstrating compliance with

§ 264.37—arrangement with local authorities. This information is important to document that the owner/operator has attempted to contact and make arrangements with local authorities (e.g., fire departments, emergency responders, hospitals) to familiarize the authorities with the MTU's operations and the wastes to be treated and make any necessary arrangements. Relatedly, EPA is proposing to require an updated contingency plan that includes the information required by § 264.52(c) reflecting the arrangements with local authorities. While the contingency plan is required to be submitted during the nationwide conditional approval stage, information in the plan related to arrangements with local authorities would be required at this stage.

EPA is also proposing to require evidence of an arrangement between the original generator of the waste explosives and the MTU owner/operator as to who will take the actions required to comply with the applicable part 262 regulations related to any hazardous waste generated by the MTU's operations. As discussed in more detail in the Mobile Treatment Units as Generators section below, when a mobile treatment unit is operating on the site of a generator or another TSDF, EPA considers the original generator of hazardous waste and the owner/operator of the mobile treatment unit to be co-generators of the treatment residuals and both parties are subject to the RCRA generator regulations in part 262. However, this does not mean that both generators must satisfy each regulatory requirement individually. When two or more parties contribute to the generation of a hazardous waste, as is the case in the generation of treatment residuals from a mobile treatment unit, these requirements are satisfied if one of the parties assumes and performs the duties of the generator on behalf of both parties. Thus, to assure awareness of and compliance with these provisions, it will be important for the owner/operator of the MTU and the original generator of the hazardous waste to work out who will take responsibility for compliance with these part 262 requirements. Such evidence might include a contract specifying which party would comply with the requirements. EPA is proposing this information be submitted as part of the location-specific RCRA permit stage at § 270.336.

Finally, EPA is proposing to require the submission of information specific to the location determined by EPA to be necessary for evaluation of compliance of the unit with the environmental

performance standards of § 264.601. EPA believes this information would be important for informing potential permit conditions necessary to allow for safe and protective operation of the unit at the specific location in question. This information could also shape whether issuing a permit is appropriate for the subject unit at the location in question. As noted in the discussion of the nationwide conditional approval application contents, information necessary to evaluate compliance with the § 264.601 environmental performance standards was also required as part of the nationwide conditional approval application. It is EPA's expectation that most of the unit design and operation standards necessary to ensure compliance with the environmental performance standard in § 264.601 will be developed during the nationwide conditional approval stage. However, relevant information about the location and site, and the specific wastes to be treated, could not practically be submitted during the nationwide conditional approval application process. As such, EPA is proposing an analogous requirement as part of the location-specific RCRA permit application. Examples of the type of information EPA expects the Director may request would include information demonstrating that the unit's proposed operation does not present a threat of releases that may impact neighboring property or receptors.

#### Required Conditions for Location-Specific RCRA MTU Permits

At newly created § 270.337, EPA is proposing regulations that would specify the required conditions in a location-specific permit. Specifically, the regulations would require three categories of conditions. First, the location-specific RCRA permit must, by reference or explicitly, include the information and terms and conditions in the nationwide conditional approval issued in accordance with § 270.332. As discussed above, the nationwide conditional approval would include all the nationwide unit design and operating standards. As such, it is essential that these standards be included in the location-specific permit issued to the owner/operator to treat waste explosives at a specific location.

Secondly, the location-specific permit issued to an MTU must include the location-specific information required by § 270.13(b) that must be submitted as part of the permit application. This information simply identifies the location of the proposed MTU treatment operations. Additionally, it would be

required to contain specifications on the types and quantities of wastes permitted to be treated at the site as well as the dates of operation. These specifications would be derived from the information that is proposed to be required to be submitted as part of the permit application.

Finally, the RCRA permit would be required to include any additional terms or conditions, including revisions to the nationwide conditional approval, that EPA determines are necessary to achieve the environmental performance standard in § 264.601 and the applicable monitoring, analysis, inspection, response, and reporting requirements of § 264.602. The environmental performance standard in § 264.601 requires terms and provisions necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. EPA is proposing to include this provision to accommodate unit and location-specific issues that may arise and require unique permit terms to facilitate the safe and protective operation of the unit in question. This type of authority is available for subpart X units in traditional RCRA permits and has been a valuable tool for addressing unit-specific matters. EPA expects that some permit terms and provisions necessary to achieve the environmental performance standard for subpart X units would be developed on a nationwide basis and included in the nationwide conditional approval. This second (location-specific permit) stage would also provide an opportunity to revise terms and conditions in the conditional approval in order to account for location-specific considerations, or otherwise update the terms and conditions. For example, the location-specific permit would include operating conditions tailored as necessary to ensure effective and protective treatment of the specific waste streams at a job site.

Finally, and as described in the Conditions for Nationwide Conditional Approval section above, the environmental performance standard also provides the authority to require, via permit conditions, a response to releases from any units covered by the location-specific permit. For MTUs, EPA believes an obligation to respond to releases should be included in every MTU permit (via the nationwide conditional approval) and has proposed that requirement in § 264.1(k).

## Appeals and Public Comment During MTU Permit Issuance Process

In the above sections, EPA described a proposed two-stage approach to developing and issuing MTU permits that includes appeals processes and opportunities for public comment. One challenge associated with developing the permitting process for MTUs was providing both ample opportunity for public input and appeal of the conditions in the nationwide conditional approval and the location-specific permit, and a predictable and timely permitting process. To illustrate how this balance may play out under the proposed approach, below is an example. EPA requests comment on whether this approach achieves an appropriate balance or whether refinements might be beneficial.

The first step of the proposed approach would involve an MTU applying for a nationwide conditional approval. This application would be required to include the information specified in the newly proposed § 270.333, such as information about the MTU's design and proposed operation in accordance with the applicable regulatory standards in the newly proposed § 264.1(k). EPA would review the application to determine whether it included the required information and whether the proposed design and operating standards meet the regulatory criteria. If EPA determines the application is complete and the proposed design of the MTU and the proposed operating standards meet the requirements, the Agency would prepare a draft nationwide conditional approval. If EPA determines the application is not complete the Agency would request additional information from the applicant. If the applicant fails to remedy the deficiencies, EPA would prepare a notice of intent to deny the nationwide conditional approval. By contrast, if EPA determines that the proposed design and operating standards do not meet the applicable regulatory requirements, the Agency can either issue a notice of intent to deny the conditional approval or can propose a draft conditional approval that contains the terms and conditions EPA determines to be necessary.

During the nationwide conditional approval stage, the draft nationwide conditional approval or notice of intent to deny the nationwide conditional approval would be made available for public comment along with the administrative record that formed the basis of the action. At this point the applicant, or any other interested party, could raise comments criticizing the

proposed decisions. For example, the applicant may submit a comment opposing a term EPA proposed to include in the nationwide conditional approval, based on a determination by EPA that the condition was necessary to protect human health and the environment, as required by § 264.601. Alternatively, a commenter could raise concern that the applicant had failed to demonstrate that the MTU meets one or more of the performance standards in § 264.1(k). A commenter could not however, comment on whether one of the performance standards listed in § 264.1(k) is appropriate, as that issue would have been resolved by the final rule. A challenge on that basis may only be brought in a challenge to the final rule. EPA would consider and respond to all significant comments received before making a final decision on the nationwide conditional approval.

If EPA denies the nationwide conditional approval, such a decision could be appealed as described in newly proposed § 270.332(i). By contrast, a decision to issue the nationwide conditional approval could not be appealed at that time; this is because, as noted below, there would be an opportunity to comment again upon the terms in the nationwide conditional approval as part of the process to issue a location-specific RCRA permit before the MTU would be allowed to operate under the conditions described in the nationwide conditional approval. Once EPA issues a decision on a location specific RCRA permit, issues raised during either of the two comment periods could form the basis for an appeal. For example, if the applicant had raised concern that a particular condition EPA had included in the nationwide conditional approval pursuant to § 264.601 was not necessary to protect human health and the environment, the applicant could only appeal that decision once the location specific RCRA permit was issued for the MTU.

During the second stage of the MTU permitting process, the applicant would apply for a location-specific permit by submitting both the nationwide conditional approval previously issued and the rest of the information required by § 270.336. Similar to the first stage, EPA would review the application for completeness and to ensure the proposed design and operating standards meet the applicable regulatory standards. If EPA believes there are deficiencies, the Agency may request additional information from the applicant or otherwise request the deficiencies to be remedied. EPA would then either prepare a draft location-

specific permit or a notice of intent to deny. In either case, the draft document and the administrative record supporting the decision would be publicly noticed and made available for public comment. During this time, the applicant or other parties may comment on the Agency's proposed decision or any of the specific terms and conditions in the draft location-specific permit, were one prepared.

As noted previously, an applicant, or any other party, at this stage, may submit a comment on a term in the draft location-specific permit regardless of whether they had previously offered the comment during the nationwide conditional approval stage. This also means that it is possible that a party (e.g., a local community group) might comment for the first time on a term in the location-specific permit incorporated by reference to the nationwide conditional approval. This is because a local community group may not be aware of the specific applicant's MTU permit application until it reached the location-specific stage. EPA recognizes that parties potentially commenting twice on the same condition and opening the same conditions up to multiple rounds of comment may not be the most streamlined approach. However, EPA believes this approach provides due process and robust public participation while still providing a principled and predictable permitting process.

EPA would consider and respond to all significant comments received upon the proposed location-specific permit or decision to deny the location-specific permit. EPA would revise the proposal as appropriate based on the public comment received prior to issuance. Both an EPA decision to issue a location-specific permit and a decision to deny the permit, could be appealed as described in newly proposed § 270.335(i). As mentioned above, EPA requests comment on the appeals processes provided by the proposed MTU permitting approach.

## Permit Modifications

As noted above in the discussion of the conditions that EPA is proposing to require to be included in nationwide conditional approval, EPA is also proposing to require that the nationwide conditional approval include terms and conditions for modifying, revoking and reissuing, and terminating the location-specific RCRA MTU permit in accordance with §§ 270.41 through 270.43. Over the proposed five-year term of the permit, EPA anticipates there may be a need to modify it to account for changes, for example, when

the unit returns to the same location for additional treatment events, but the waste stream to be treated has changed.

In consideration of the potential for changes that would need to be made to the location-specific RCRA permit before the MTU could recommence operations when it returns, EPA is proposing that any modifications to the permit would be a Class 1 modification with prior Agency approval. To effect this, EPA also proposes to include a new line entry to appendix I of § 270.42 specific to MTUs. A Class 1 modification with prior approval allows for the owner/operator to make changes as needed provided that: the permitting agency is notified, all persons on the mailing list are notified, and the change is approved by the permitting agency. EPA believes that the Class 1 with prior Agency approval is appropriate for MTUs because these units will all have already undergone prior testing to establish protective design and operating standards. Thus, any subsequent changes to the design and operating parameters to address changes in the waste stream and ensure the parameters remain protective, could be incorporated into the permit using the Class 1 with prior approval modification procedure. In the event that there may be a significant change that could affect the MTU's performance, such as a design change to the MTU (*e.g.*, modification of the air pollution control system) or the waste stream is proposed to have an increased NEW that may be at the capacity limits of the MTU (*e.g.*, the unit previously only treated wastes at 75% of the NEW design limit), it would be at the discretion of the Agency to require a Class 2 or Class 3 modification procedure.

#### Public Participation

As described above, EPA is proposing a framework for permitting MTUs which would include public notice at two different stages. Under the proposed framework, the public would have the opportunity to participate in the permitting process during both the issuance of the national conditional approval and, again, during the issuance of the location-specific permit.

During the national conditional approval process, EPA would publish notice of a draft nationwide conditional approval in the **Federal Register** for public comment and allow at least 30 days for public comment. During that time, the draft nationwide conditional approval and administrative record would be available online for examination. In addition, EPA would also notify the public of the opportunity to comment via email to a list of

interested entities the Agency would maintain. EPA expects this list would include environmental and community groups, Tribes, Federal and State regulators, and industry representatives. At this time, EPA would also encourage applicants to consider notifying communities in which they expect to apply for a location-specific permit. Such early engagement with communities could streamline the location-specific permitting stage.

The draft nationwide conditional approval available for public comment would contain the unit design and operating conditions among other applicable part 264 and part 270 conditions. EPA would review and consider public comments received prior to responding to comments and would notify the applicant and any commenters of changes from the draft to the final conditional approval as a result of the public comments.

During the location-specific permit process (after the final nationwide conditional approval has been issued), EPA is proposing that for each location (job site) at which the owner/operator of an MTU would be operating, EPA would provide public notice to the surrounding community. Specifically, EPA would publish notice in a major local newspaper and broadcast over radio the intent to issue the location-specific permit that would allow the MTU to operate at the site.<sup>104</sup> Additionally, EPA would issue notices to each unit of local government having jurisdiction over the area in which the MTU is proposed to operate and to the applicable State agency. In contrast to the first stage, EPA would not publish notice in the **Federal Register**. Under the proposed approach, EPA would provide public notice and opportunity for comment no less than 45 days before operations are intended to begin. During this time, EPA would post the draft location-specific permit on its website along with the background information from the notices.

If during that 45-day period, EPA receives notice of opposition to the EPA's intent to issue a location-specific permit or a request for a hearing, EPA would hold a public hearing. In the event a public hearing is held, the hearing would serve as an opportunity for the public to provide oral and written comments. EPA would consider and respond to any comments received in making its decision on the location-specific permit. If during that 45-day

<sup>104</sup> Note that the Permitting Updates Rule is considering proposed regulatory changes related to major local newspaper and radio broadcast requirements.

period, EPA does not receive any notice of opposition, significant adverse comment, or request for a hearing, the location-specific permit will commence in force on the date in the permit.

EPA believes public notice of a location-specific permit is an important component of the proposed MTU permitting process as it would provide awareness of RCRA activities within a specific community, with the opportunity to request a public hearing or oppose certain conditions, including conditions from the nationwide conditional approval. It would also provide an opportunity to ensure the notice meets the needs of the community, for example, providing notice in languages other than English and/or translation services for a community in which some members have limited English proficiency, or identifying additional avenues of providing notification to potentially interested community members, such as through social media or community organizations. EPA expects local communities would generally be interested in MTUs in that they would provide an alternative treatment method to OB/OD in their community. Additionally, this stage of public notice may help inform whether any location-specific conditions in the permit (*e.g.*, specific siting restrictions, hours of operation, etc.) should be revised.

EPA believes the public participation approach proposed for MTUs treating waste explosives strikes an appropriate balance between providing for adequate public notice while ensuring the permitting process would not be so onerous that it dissuades companies from providing valuable alternative treatment services in lieu of OB/OD.

#### State Authorization

Because of the need for national consistency related to permitting of units that cross State boundaries, EPA is proposing the Agency would not authorize States for permitting of MTUs and is requesting comment on whether States should be authorized. See section IV for more discussion about state authorization and MTUs.

#### Corrective Action (40 CFR 264.101)

Section 264.101 requires that permits include conditions for facility-wide corrective action to address releases of hazardous waste and hazardous constituents from solid waste management units. For purposes of corrective action, EPA regulations at § 260.10 define "facility" as all contiguous land under the control of the owner/operator. In developing this proposed rule, EPA considered the

applicability of that definition to MTUs. EPA particularly considered the relationship between the MTU and the multiple parcels of land on which it might operate over its lifetime.

After considering the applicability of the definition of facility to MTUs, EPA believes that MTUs are unique among TSD units because they are mobile and operate for short periods of time at multiple locations and can thus be defined as facilities unto themselves. EPA is thus proposing that the “facility” subject to the requirement to obtain an MTU permit be limited to the MTU unit, and not include the land on which it operates. Because an MTU facility would not include the land on which it operates, an MTU operating at a RCRA TSD would not become part of the TSD and thus would not become subject to facility-wide corrective action obligations at that TSD. An MTU operating at a site would not cause the land at that site to become a TSD and incur resulting corrective action obligations. EPA is proposing this approach for several reasons.

Under this proposed rule, units qualifying for special MTU permits would be allowed to remain at a particular site only 180 days and would be required to clean close before leaving the site. Thus, as MTUs are defined in this proposal, they would not be associated with any particular parcel of land for the life of the unit or even for extended periods of time, but with multiple parcels of land for short periods of time, and because they clean close, could not contribute to corrective action obligations associated with the land on which they operate.

Further, a large part of EPA’s goal in this proposal is to create incentives for the permitting and use of MTUs. Much of the benefit MTUs provide is derived from the fact that they move from location to location, minimizing the risks associated with transporting explosive hazardous waste. And owners/operators of MTUs are unlikely to choose to operate on multiple parcels if they were to become responsible for facility-wide corrective action at each. Thus, EPA believes that the proposed approach creates incentives that maximize the environmental benefits associated with MTUs.

Additionally, to assure protection of human health and the environment, EPA is narrowly defining MTUs by proposing strict limits on the duration of operation at any one location and an affirmative “clean closure” requirement for those units. The MTU would be permitted to operate and/or remain at any location for a maximum of 180 days at a time and be required to achieve

clean closure standards, including addressing any releases from the unit before it leaves the location.

Furthermore, EPA is proposing at 264.1(k) to modify the incorporated part 264, subpart X standards, in order to specify that all MTU permits contain requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Of course, failure of the MTU owner/operator to adhere to the time limits and closure requirements would result in the unit failing to remain an MTU as defined in the regulations. In such instances, the MTU would cease to be a unique facility. In such a situation, an MTU operating at a RCRA TSD would become a part of the facility at which it was operating and would be subject to applicable requirements including facility-wide corrective action requirements; where an MTU was operating at a non-TSD site, the site would become a TSD and all owners/operators would become subject to TSD requirements, including the requirement for facility-wide corrective action.

#### Applicable Part 264 Standards

Thus far, EPA has focused on how the public notification and permitting procedures of Parts 124 and 270, respectively, could be adapted for MTUs. Equally important is consideration of applicable technical standards in part 264 that would specify what must be included in the permit as conditions for the protection of human health and the environment. In the following sections, EPA discusses its proposal for which part 264 standards are necessary and appropriate, and thus should apply, for MTUs.

#### General Facility Standards

General Facility standards in part 264, subpart B apply to all owners/operators of RCRA TSDs, with some exceptions, and cover a variety of good housekeeping requirements, including recordkeeping, personnel training, and safety requirements. EPA is proposing to apply several subpart B requirements to MTUs: §§ 264.11, 264.13, 264.16, and 264.17.

Because MTUs would be treating RCRA hazardous waste, it is important that all activities conducted by the MTU owner/operator be tracked throughout its operational life. Thus, each MTU would be required to obtain an EPA Identification number. For general waste analysis, the regulation specifies that before an owner/operator treats, stores, or disposes of any hazardous wastes, a detailed chemical and physical analysis of a representative sample of the wastes be performed. The MTU owner/operator

would be required to obtain the waste analysis, per the § 264.13 requirements, from the facility or entity requiring the services of the MTU.<sup>105</sup>

The personnel training requirements in § 264.16 establish standards for personnel training and requirements for maintaining records of such training. EPA believes these requirements would be appropriate for the personnel operating MTUs. Specifically, the personnel operating the MTU should have the pertinent training related to the safe management and treatment of waste explosives for their unit. EPA expects that the personnel at the facilities and sites at which the MTU would operate would already have applicable training and, in the case the MTU was operating at a TSD, would already be required to meet the personnel training requirements in subpart B. That being said, the operators of the MTU itself should also have the appropriate training as required by § 264.16 as such training would be important to ensuring the unit’s safe and protective operations.

As noted above, EPA is also proposing that the general requirements for ignitable, reactive, or incompatible wastes at § 264.17 of subpart B would apply to MTUs. This section requires owners/operators to take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. The requirements specify certain waste management practices (e.g., separating ignitable and reactive wastes from sources of heat, flame, etc.) but also allow flexibility for site-specific practices to be employed to prevent accidental ignition or reaction of the wastes. Since MTUs would be managing waste explosives, EPA believes these requirements are appropriate for MTUs.

The remainder of this subpart’s standards are either covered in more specificity by other part 264 standards, as discussed and applied below, or are entirely related to activities outside the scope of responsibilities for owners/operators of MTUs. For the applicable requirements of this subpart, references to §§ 264.11, 264.13, 264.16, and 264.17, general requirements for ignitable, reactive, or incompatible wastes are included in the proposed new paragraph (k) of § 264.1. All proposed requirements would be included in the conditional nationwide approval.

#### Preparedness and Prevention

The regulations of subpart C Preparedness and Prevention are

<sup>105</sup> When MTUs are procured for emergency treatment, the waste analysis would be limited to the procedures proposed in the new regulation at § 264.715(c) and (d).



applicable to every RCRA TSD facility and are designed to prevent or minimize releases of hazardous waste or hazardous waste constituents to air, soil, or surface water that could threaten human health or the environment. These regulations are written to address overall facility design and operations to minimize the possibility of releases and ensure that the necessary equipment is available for responding to emergencies and for requesting emergency response services. EPA believes that these regulations are important and applicable to MTUs. Therefore, EPA proposes to incorporate elements of subpart C into a new paragraph at § 264.1(k).

Required equipment for an MTU would be transported with the unit and include items such as fire extinguishers, spill control, and decontamination equipment that must be periodically tested and maintained. Also, communication devices would be required for personnel operating the unit that will ensure access to emergency responders. Finally, prior to beginning operations, notifications would be required to be made to local authorities and emergency responders to ensure awareness of the MTU's operations at the facility or location.

All proposed requirements, with exception of notification to local authorities and emergency responders (§ 264.37), would be included in the conditional nationwide approval. When the location for the MTU is determined, permit conditions with the notification information would be developed as part of the location-specific permit stage.

#### Contingency Plan and Emergency Procedures

Owners and operators of RCRA TSD facilities are required to develop contingency plans and emergency procedures under subpart D to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water (see § 264.51). EPA recognizes that all of the requirements in this subpart are essential for MTUs and therefore, proposes to incorporate the regulations of subpart D into the new paragraph at § 264.1(k) (discussed in the above section) to clearly define the applicable requirements for MTUs.

EPA notes that there are unit-specific and some location-specific aspects that would need to be addressed. For the unit-specific aspects, these would be addressed in the nationwide conditional approval and include §§ 264.50 through 264.56, with exception of § 264.52(c) which is location-specific. Paragraph (c)

would be addressed later during drafting of the location-specific permit. Manifest System, Recordkeeping and Reporting

Another set of existing requirements that EPA considered for potential applicability to MTUs is the part 264, subpart E. Part 264, subpart E includes requirements to ensure that hazardous waste is accounted for and properly managed by tracking, through manifests and maintenance of its operating record, its transportation, and other aspects of its management. EPA is proposing that only a subset of the requirements in this section would apply to MTUs. Specifically, EPA is proposing that the use of manifest system requirements at § 264.71(c), operating record requirements at § 264.73, the availability, retention, and disposition of records requirements at § 264.74, and the biennial report requirements at § 264.75 would apply to MTUs. As with the other part 264 subparts, EPA is proposing to prescribe which components of subpart E would apply to MTUs in the new paragraph (k) at § 264.1.

As noted above, EPA is proposing that an MTU owner/operator be required to keep a written operating record that would accompany the unit to every location in which it operates and to maintain the operating record throughout the operational life of the unit until final closure. The contents of the operating record would include identification and quantities of the wastes treated, the location of the treatment, the operational period for each location at which the MTU operates, any malfunctions of the unit or incidents encountered, and the responses taken to address them, routine equipment inspections, and monitoring and testing data. EPA proposes to include references to §§ 264.73 through 264.75, and § 264.77 (*i.e.*, excluding the unmanifested waste report provisions under § 264.76), in the new paragraph (k). Additionally, because MTUs are unique treatment units by way of their mobility, limited waste streams, and short duration of operation, EPA is providing additional context on the information needs and procedures to achieve compliance with the applicable subpart E requirements.

Regarding the wastes to be treated and the quantities, this information would be made available through the waste characterization information from the facility at which the MTU would operate or emergency response personnel procuring the services of the MTU. The location of the treatment would include the name of the facility,

where applicable, the address the MTU will be located, and a map with the longitude and latitude coordinates for the MTU location and a depiction of the MTU treatment area boundaries. Regarding the operational period, this would include the dates upon which the MTU arrives and departs, as well as when treatment operations begin (*i.e.*, wastes fed to the unit, including start-up and testing) and cease (*i.e.*, last waste fed to the unit before interim closure). Any malfunctions of the unit and its associated equipment that result in unplanned releases of emissions, effluents, or contaminants to the environment, accidental spills, and/or any incidents that require implementation of the contingency plan would be required to be documented in the operating record. Inspections of the unit and associated equipment to detect leaks, spills, and fugitive emissions would be documented in the operating record. Finally, all testing conducted in preparation for treatment at each site, as well as monitoring data any time waste is being processed, would be documented in the operating record.

For any facility or unit that treats hazardous waste, it is important to identify what the recordkeeping and reporting requirements are so that all wastes can continue to be accounted for. EPA believes that requiring the proposed contents to be included in the operating record would provide a detailed accounting of the wastes to be treated by the MTU, as well as ensure that the unit operates in a manner that is protective of human health and the environment. Because the operating record is unit specific and contains unit-specific information and data, it would be developed initially for inclusion in the nationwide conditional approval and referenced or incorporated into the location-specific permits. All other applicable requirements of subpart E would also be unit specific and be part of the nationwide conditional approval.

One portion of the requirements in part 264, subpart E that would not apply to MTUs is the manifest requirements at §§ 264.71, 264.72, and 264.77, with the exception of § 264.71(c), discussed later in this section. EPA does not believe the part 264, subpart E manifest requirements that apply to the receipt and storage of wastes would be necessary for MTUs because MTUs, as defined by this proposal, would provide a temporary treatment service on the site of permanent facilities and would not transport, receive, or store the wastes to be treated. As described in the "Closure and Financial Requirements" section below, EPA is proposing interim closure measures for MTUs that would

require decontamination of the unit at the end of each job prior to leaving the location. As such, the MTU would not transport hazardous waste.

Additionally, because the MTU would travel to generator or TSD facilities to treat waste explosives, the MTU would also not receive shipments of wastes from off-site. In light of this, EPA does not believe it is necessary to apply the subpart E manifest requirements applicable to receiving wastes and storing wastes to MTUs. Of course, the RCRA manifest and transportation requirements in Parts 262 (and referenced in 264.72(c)) and 263, respectively, would apply in the event the MTU was not properly closed (*i.e.*, still contained hazardous waste) and was transported off-site, and when the MTU generates waste and ships it offsite, as discussed below.

#### Mobile Treatment Units as Generators

As with other hazardous waste treatment units, when a mobile treatment unit generates treatment residuals such as air pollution control residues, spent activated carbon, and/or bottom ash, this new waste would be considered a new point of generation. The derived-from rule in § 261.3(c) applies to determining which hazardous waste codes apply to those treatment residuals. When hazardous waste treatment units generate treatment residuals, the generator of those hazardous waste treatment residuals becomes subject to part 262 for the waste that they generate.<sup>106</sup> This includes, but is not limited to, making an accurate hazardous waste determination, management standards and labeling for the accumulation unit (*e.g.*, container or tank), getting the waste off site in accordance with the appropriate accumulation time limits, manifesting when shipping the hazardous waste off site, etc.

When a mobile treatment unit is operating on the site of a generator or another TSDF, EPA considers the original generator of hazardous waste and the owner/operator of the mobile treatment unit to be co-generators of the treatment residuals and both parties are subject to the RCRA generator regulations in part 262. However, this does not mean that both generators must satisfy each regulatory requirement individually. When two or more parties contribute to the generation of a hazardous waste, as is the case in the generation of treatment residuals from a mobile treatment unit, these

requirements are satisfied if one of the parties assumes and performs the duties of the generator on behalf of both parties. Thus, to assure compliance with these provisions, it will be important for the owner/operator of the MTU and the original generator of the hazardous waste to work out who will take responsibility for compliance with these part 262 requirements. As noted in the discussion of the Application Contents for Location-Specific Permits, EPA is proposing to require the MTU permit applicant submit evidence of an arrangement between the original generator of the waste explosives and the MTU owner/operator as to who will take the actions required to comply with the applicable part 262 regulations related to any hazardous waste generated by the MTU's operations. In any event, EPA reserves the right to enforce against any and all persons who fit the definition of "generator" in a particular case if the requirements of part 262 are not adequately met.<sup>107</sup>

#### Closure and Financial Requirements

All RCRA TSD facilities must comply with the closure standards in parts 264 and 265, subpart G, and the specific closure standards applicable to the units in which they are managing hazardous waste. As noted throughout this proposed permitting framework, MTUs are a unique subset of treatment units. This poses challenges too for closure and financial requirements. With regard to closure, MTUs do not fit neatly within the existing closure standards construct because the units only operate for a limited duration before they move on to the next location and begin treating hazardous wastes again. MTUs should not trigger application of the closure standards until after their final use and decommissioning. Rather, during the operational life of the unit, as it moves between locations, a temporary or "interim" closure would be appropriate. This would require that any hazardous constituents are removed from the unit and properly managed in preparation for transport of the MTU and use at another location. Thus, EPA proposes closure requirements for MTUs that include an interim closure as well as select final closure requirements. EPA notes that, whether conducting interim closure or final closure, because MTUs are treatment units, they must clean close under either closure scenario in accordance with § 264.114 and the MTU specific requirements at § 264.1(k)(5). In other

words, an MTU cannot leave behind contamination that did not already exist.

Clean closure for MTUs is particularly important considering that MTUs are mobile and limited to 180 days of operation at one location. As a public policy matter, requiring the owner/operator of the MTU to be responsible for clean closing the MTU including any contamination in the treatment area is most appropriate. This requirement best aligns the costs of closure with the party profiting from the operation of the MTU. Additionally, it should also limit the risk to the property owners contracting with MTUs. Finally, EPA expects that clean closure will be readily achievable by MTUs due to the controlled and contained nature of the treatment employed and the short operating periods. If the MTU owner/operator fails to clean close, the MTU would cease to be an MTU as defined by this proposal and would be a TSD unit. In that case the MTU owner/operator (as well as the owner/operator of the property at which the MTU was operating) would be liable for corrective action.

For the interim closure requirements, EPA envisions that when the treatment concludes at each location, the MTU owner/operator would be required to close in a manner that completely decontaminates the MTU and removes any contaminated environmental media, residuals or debris resulting from the MTU's operation.<sup>108</sup> Residues associated with the unit include any present on the surfaces and within the unit and its ancillary equipment such as air pollution control equipment, tanks, containers, piping, as well as other wastes generated by the unit such as spent activated carbon, bottom ash, fly ash, and water or fluids. In regard to the operational footprint of an MTU, this would be the area that surrounds the unit that became contaminated should an accidental spill occur or in which treatment residues could be inadvertently deposited. The residues, wastes, and contaminated media from spill cleanup would be considered newly generated wastes which the MTU owner/operator would be responsible for determining if they are hazardous wastes and managing them accordingly (see Manifest System, Recordkeeping and Reporting section above for generator and manifesting responsibilities). To affect interim closure requirements, EPA proposes to include them with the final closure

<sup>108</sup> Note that the MTU owner/operator would be responsible for verifying that all hazardous residues are removed from the unit, and if necessary, obtaining applicable DOT approvals prior to transporting the unit.

<sup>106</sup> See Hazardous Waste Generator Improvements Final Rule, 81 FR 85732; November 28, 2016, page 85762.

<sup>107</sup> See 45 FR 72024; October 30, 1980, page 72026. Also see RCRA Online memos 12515, 12706, and 13280.

requirements in the new paragraph (k) of § 264.1.

For the final closure requirements, which in contrast to the interim closure would include final disposition of the MTU itself, EPA believes that the closure performance standards in subpart G are applicable but is proposing an explicit obligation to clean close the MTU. As discussed, the existing closure regulations do not accommodate the mobile nature of MTUs. So, in addition to developing interim closure requirements for MTUs, EPA is proposing to adopt a more limited set of subpart G closure requirements for inclusion in the new paragraph (k) to serve as the final closure requirements. This would encompass §§ 264.111 through 264.115. Also, as with interim closure, final closure must also adhere to the clean closure requirements. Specifically, the MTU would be required to close in a manner that completely decontaminates the MTU and removes any contaminated environmental media, residuals or debris resulting from the MTU's operation. EPA solicits comment on the proposed closure requirements.

Interrelated with closure is financial assurance. The financial requirements located in part 264, subpart H require that all TSDFs demonstrate that they will have the financial resources to properly close the facility or unit when its operational life is over and have third-party liability coverage for sudden and nonsudden accidental releases. Similar to the closure requirements, only certain requirements in subpart H would be relevant to MTUs. For example, financial assurance for post closure care would not be applicable because the proposed rule requires MTUs to clean close at the end of their operational life. Similarly, nonsudden accidental third-party liability coverage would not be relevant as MTUs would not be permitted as surface impoundments, landfills, land treatment facilities, or disposal miscellaneous units. Therefore, EPA proposes at § 264.1(k) that a more limited set of the requirements in subpart H be applicable to MTUs. The applicable requirements EPA believes would ensure that the MTU owner/operator has adequate financial resources to close the unit as well as have third-party liability coverage for sudden accidental releases include §§ 264.140, 264.141, 264.142, 264.143, 264.147, 264.148, and 264.151.

EPA expects in implementation that some of the prescribed wording in § 264.151 for financial assurance mechanisms may need to be refined to accommodate the mobile nature of MTUs. For example, EPA anticipates

that references to Regional Administrator may need to be replaced with a comparable official at EPA Headquarters given the potential for these units to travel across EPA Regions. Additionally, the § 264.151 instrument language requires, in certain places, the insertion of facility location information that would not be logical for mobile units. To accommodate these necessary variations, and others that may arise, EPA is proposing that variations to the required instrument wording in § 264.151 of subpart H necessary to effectuate the financial assurance requirement for mobile units would be acceptable. Of course, the Director would need to approve all variations, and these variations would be limited only to those necessary to accommodate mobile units.

#### Design and Operating Standards for MTUs

As discussed in section II. F. of this proposed rule, Permitting of Alternative Technologies, alternatives for treating waste explosives include thermal and chemical treatment and neutralization technologies. These technologies are predominantly permitted according to the subpart X standards located at § 264.601 with exception of a few alternatives that have been permitted as incinerators under the subpart O Incinerator and/or the CAA Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants, subpart EEE standards because their design more closely meets the definition of incinerator. EPA also discussed in the permitting section that EPA's preferred permitting approach for thermal treatment units is under subpart X unless the unit uses a controlled flame in the treatment chamber.

With regard to MTUs, these units also can include thermal and chemical treatment and neutralization technologies. Although EPA's information is limited on MTUs that have been used for waste explosives, those that EPA are aware of are thermal technologies that have been issued subpart X permits, issued RCRA emergency permits, or have been exempt from RCRA permitting when used for legitimate recycling or used in response to a time sensitive emergency. For the information that EPA does have on mobile thermal technologies, none have used controlled flame inside the treatment chamber. Instead, they have either heated the treatment chamber externally using either propane or electrical conductivity or used donor charges to detonate and treat the explosives. EPA believes that design and operating standards developed

according to subpart X would be appropriate for MTUs because they provide flexibility for units of different design and because it is unlikely that an MTU would utilize a controlled flame in the treatment chamber. However, in the event it would, EPA can still apply the incinerator standards via the subpart X standards. Therefore, EPA is proposing to apply the subpart X standards at § 264.601 and the part B unit specific information for miscellaneous units of § 270.23(a), (d), and (f) when developing the nationwide conditional approval, and § 270.23(f), again, when developing the location-specific permit.

Relatedly, when developing the design and operating conditions for treatment units, it is important to both consider the waste's characteristics and the unit's capability to effectively treat the wastes to meet the applicable emission or effluent standards. This is accomplished via a testing phase that uses wastes representative of those to be treated by the unit and the results are measured and compared to the standards. For MTUs, EPA discusses above that the nationwide conditional approval would contain the design and operating standards that would be applicable for each location that the unit operates at. EPA recognizes that each location will have waste streams that vary and thus, the design and operating standards established for the MTU at a prior location may not be appropriate for the wastes at the next location. To account for differences between locations, final design and operating standards, based on the location-specific wastes, would be incorporated into the final location-specific RCRA permit issued to the MTU to begin operation.

#### Nationwide Conditional Approval Term Limit

Permits for RCRA TSD facilities are valid for a period of up to ten years, upon which time they must be renewed for the facility to continue to operate. Because the nationwide conditional approval would contain conditions much like a permit—it would contain the unit specific information covering the design and operating requirements—EPA is proposing that it also have a term limit. Due to the mobility and multi-use nature of MTUs, EPA believes that a five-year limit would be more appropriate than a ten-year limit. A renewal every five years would ensure that the nationwide conditional approval is reviewed at intervals sufficient to address any significant changes, for example, a replacement of the treatment chamber, which may obviate the need for permit

modifications during the five-year permit term.

EPA is requesting comment on the proposed nationwide conditional approval term of five years. Specifically, EPA requests comment on whether a ten-year term would be appropriate. A ten-year term for the nationwide conditional approval would allow the owners/operators of MTUs to provide a greater number of treatment services under the same nationwide conditional approval and may result in greater availability of MTUs and a lower cost of services. However, as noted above, the longer term of the nationwide conditional approval would result in less frequent scrutiny of the terms and conditions in the nationwide conditional approval. In such a scenario, the location-specific permit issuance process may become more cumbersome if there is a perceived need to re-examine the nationwide conditional approval for needed updates. EPA is not proposing a ten-year nationwide conditional approval term and is instead proposing a five-year term. However, if the public comment is sufficiently supportive of the idea of a ten-year nationwide conditional approval term, EPA could finalize a ten-year term.

#### Limitation on Duration of Location-Specific Permit and Operation at Job Site

Additional aspects of the location-specific permit that are important to consider are the term limits of the location-specific permit and the maximum allowable duration of operation at the location in which an MTU will operate. EPA is proposing that the location-specific permit could be issued for a term of no greater than five years. Similar to the discussion of the duration of the nationwide conditional approval, EPA believes a five-year term limit is appropriate for MTUs. However, EPA is proposing that the permit would restrict the duration of operation at a location to 180 consecutive days before which the unit must complete interim closure. EPA envisions that MTUs would provide a treatment solution on an as-needed basis for waste explosives that can be safely treated by an alternative technology. As such, EPA does not anticipate that MTUs would need to remain at any one location for extended periods of time and proposes to limit the amount of operational time at a job site not to exceed 180 days. EPA is proposing that the operational time at a job site would be calculated as the number of calendar days between the date of initial start-up of the unit at a

location and the date at which interim closure is completed.

Facilities that may seek to use MTUs are likely to be those that generate small quantities of waste explosives that require treatment a few times per year (e.g., 5–10 treatment events annually) or that prefer not to invest in additional permanent alternatives for small waste streams. Also, explosives or munitions emergency response specialists may seek, or may be required, to use MTUs as an alternative to OB/OD when the emergency response action does not pose an immediate threat. Thus, EPA does not anticipate that MTUs would need to remain at a location for extended periods since the volume of waste requiring treatment should not be significant in any scenario. A time limitation of 180 days would also be consistent with the proposed total amount of time an emergency response could be conducted under a RCRA emergency permit (for more information on proposed changes, see Section K. Emergency Provisions). EPA believes that establishing a limit on the duration would ensure that the units do not become semi-permanent or permanent fixtures that would be more appropriately regulated as a unit of the facility or the entity requiring treatment. In such a scenario, likewise under the CAA, the unit would become a stationary source triggering application of relevant standards.

While EPA is proposing to limit the duration of operation in the location-specific permit to 180 days at any time, the proposed approach would allow the MTU to later return to the same location without being reissued the same location-specific permit. In effect, for the duration of an MTU location-specific permit, the MTU would be able to return to the location to provide multiple treatment services provided that the MTU never exceeds the proposed 180 consecutive operational day limit at the location and that the wastes do not vary significantly from prior treatment events. In the scenario that the wastes varied significantly and could no longer be treated under the terms of the existing permit, the MTU owner/operator could request a modification to the permit (see the section titled Permit Modifications above for more information on how MTU permits would be modified). EPA expects that this will allow for more efficient deployment of the MTU for recurring treatment work at a location while ensuring the protective conditions of the location-specific permit are applied and that the MTU does not start to resemble a permanent unit.

To effectuate these proposed limitations, EPA is proposing language in both in the definitions of MTU nationwide conditional approval, and MTU location specific permit in § 260.10 and also in the proposed RCRA MTU permit conditions at § 270.337.

#### Alternative Approaches for MTUs

##### One-Stage RCRA MTU Permit

As discussed above, EPA is proposing a two-stage permitting process for MTUs treating waste explosives. EPA is proposing a two-stage process in order to separate the nationwide procedures (e.g., development of the nationwide design and operating standards, public comment on draft nationwide conditional approval) from the location-specific procedures (e.g., development location-specific permit conditions, public notice). In this way, EPA believes that location-specific permits can be issued relatively quickly by incorporating the nationwide conditional approval previously issued. Additionally, a distinct location-specific stage provides certain benefits. First, it allows for the development of permit conditions that may be necessary for the protective operation of an MTU at a given location with given waste streams. Secondly, it provides for targeted public notice of the intent to issue a permit.

Under RCRA, before issuing a permit, the Director must cause to be published in major local newspapers of general circulation and broadcast over local radio stations notice of the agency's intention to issue the permit. Additionally, the Director must transmit in writing notice of the agency's intention to issue the permit to each unit of local government having jurisdiction over the area in which the facility is proposed to be located and to each State agency having any authority under State law with respect to the construction or operation of such facility. EPA expects that satisfying these public notice obligations, and providing meaningful opportunity for community participation, may be more efficiently done on a location-by-location basis. As such, EPA is proposing a two-stage process, in part, to allow for a location-specific stage where this public outreach can occur.

However, EPA is requesting comment on a variation to the proposed option, under which EPA would permit MTUs in a single stage. Under such an approach, the technical part 264 standards applicable to an MTU would be largely unchanged, but the key procedural steps involved in issuing an MTU permit would be collapsed into one stage. The result would be a permit

that could allow for the MTU to operate at multiple locations under one permit. The primary appeal of this variation is that it may allow for more readily dispatchable MTUs that, over the duration of their permit, could operate at multiple locations with fewer procedural steps.

EPA sees two potential shortcomings of this variation. First, in order to satisfy the public notice requirements required by RCRA, the MTU owner/operator would have to identify the areas and regions in which they expect and/or seek to operate in advance. Relatedly, the public notice requirements would presumably be more burdensome. However, this additional burden may be more than offset by the flexibility provided by a permit allowing an MTU to operate in multiple locations. Prior to issuance of a permit allowing them to operate in the specified areas, the public notice requirements would have to be satisfied in all of those areas. For example, this would require radio and newspaper notice on applicable local radio stations and in applicable newspapers of general circulation. If the MTU sought a permit to operate in several States, this would presumably require significantly more newspaper and local radio notifications be provided. Additionally, the notice would need to be provided to each unit of local government having jurisdiction over the areas in which the MTU is proposed to be located and to each State agency having any authority under State law with respect to the construction or operation of such an MTU. Finally, EPA would need to hold an informal public hearing if one is requested.<sup>109</sup>

A second potential shortcoming would be a lack of an opportunity to develop permit conditions tailored to location and waste-specific considerations. In practice, this may be addressed by more comprehensive permit conditions. For example, the permit could set operating parameters for each of the potential waste types the unit may treat. The permit could also be required to include maximum limits or standards that would be protective in nearly all conceivable scenarios. The permit, much like in the proposed approach, would also be subject to environmental performance standards applicable across all locations. At a minimum, EPA expects developing the permit conditions that ensure protectiveness for a greater range of scenarios may mean more stringent standards would be applied than may be

necessary at any given location. This potential for additional permitting burden may be offset, however, by the flexibility afforded by a permit allowing the MTU to treat waste explosives in more than one location.

If such an approach were implemented, EPA expects the permitting procedures would, similarly to the proposed approach, be derived from those required during the issuance of RAPs. Of course, to accommodate a one-stage process, EPA expects some other refinements and changes to the proposed approach (beyond those discussed above) would likely be necessary to accommodate a one-stage permitting process. For one, the Agency would also likely modify the permit modification regulations to specify an avenue whereby additional operating locations could be added to the scope of a permit. Such a modification would include, among other things, the public notice requirements that would be required were a permit issued *de novo* to the MTU. An additional variation from the proposed approach, separate from any amendment to the permit modification regulations, may include additional advance notification requirements, for example, submitted to EPA and posted on the MTU's company website, related to where the MTU intends to treat hazardous waste and the volumes and types of wastes to be treated. Such information would be important for EPA and community awareness.

Finally, EPA would consider requiring that the MTU owner/operator, not EPA, undertake the public notice requirements under such an approach. During the issuance of a traditional RCRA permit to a stationary facility, EPA or the authorized State undertake the post-application public notice efforts. However, given the MTU would have the best knowledge regarding the communities in which it intends to operate during the permit term, EPA believes it could be more appropriate for the owner/operator to satisfy public notification requirements. Additionally, such an arrangement may serve as a check to owners/operators applying for permits allowing the MTU to treat waste explosives in a more extensive geographical area than, in all likelihood, would be necessary. While EPA is not proposing this approach to permitting MTUs, EPA requests comment on the approach. If public comment is supportive, EPA may finalize such an approach.

Permit by Rule—40 CFR Part 270 Subpart F, New Addition to 40 CFR 270.60

In developing an approach to encourage use of MTUs for waste explosives, EPA has so far focused on the RCRA permit process and how it could support more expeditious implementation of MTUs that would be more protective of human health and the environment than OB/OD. As discussed, MTUs could provide an on-demand treatment solution for facilities and entities that otherwise would need to invest in a permanent alternative or that cannot ship wastes off-site to another facility using alternative technologies. MTUs could also reduce wastes treated by OB/OD while a permanent alternative is pursued. While EPA is proposing a permitting approach that the Agency finds practical for MTUs, EPA recognizes that there are other alternative approaches that could also be considered for MTUs which could be more expeditious and further increase the use of MTUs. One of these alternatives considered but not proposed by EPA is a permit by rule.

Under RCRA, permits by rule exist at § 270.60 for certain classes of facilities conditioned on meeting regulatory-specified requirements. These are special forms of permits sometimes granted to facilities with permits for activities under other environmental laws. The RCRA regulations currently provide permits by rule for ocean disposal barges or vessels, injection wells, and publicly owned treatment works provided they meet certain criteria. EPA considered whether MTUs could reasonably operate under a permit by rule. MTUs not present a unique waste treatment solution, outside of a traditional TSD facility, for a specific subset of hazardous waste—waste explosives and may be amenable to a permit by rule. In addition, as noted above in the permitting framework discussions, many of the part 264 and 270 regulations cannot be directly referenced or incorporated because they were developed with fixed or permanent facilities in mind. MTUs require a tailored set of requirements under parts 264 and 270 because they are not traditional, permanent facilities.

EPA envisions an alternative to the proposed permitting approach whereby MTUs treating waste explosives would be granted a RCRA permit by rule, conditioned upon meeting specified requirements of part 264. EPA believes MTUs that comply with design and operating standards specified in part 264 would provide a more environmentally protective solution

<sup>109</sup> Presumably, such a public hearing could be held virtually and thus cover multiple population centers.

than continued use of OB/OD. Similar to the proposed permitting approach, MTUs would be limited to 180 consecutive days of operation in any one location to ensure they do not become a stationary or permanent facility. An additional condition of the permit by rule could be a requirement to conduct certain public outreach steps prior to operating at any location. These steps could be the same public notice requirements required prior to issuance of a permit (*e.g.*, notice via newspaper and radio). A permit by rule would also allow for quicker implementation of MTUs and divert more wastes from OB/OD sooner. Thus, EPA has considered whether MTUs are another instance in which a permit by rule would be appropriate for consideration.

With respect to the conditions of the permit by rule that would need to be complied with to provide the necessary protections to human health and the environment, EPA envisions that under a permit by rule approach, select design and operating standards from part 264 would be adopted as conditions. As discussed earlier in the Design and Operating Standards section of the proposed permitting approach, the design and operating standards would be determined according to the part 264, subpart X standards for Miscellaneous Units. In addition, under this approach, the same unit-specific and location-specific part 264 requirements presented above in the proposed permitting approach would be appropriate to apply as conditions that must also be required to be met to have a permit by rule.

In the Design and Operating Standards section, EPA discusses each of the part 264 subparts that would constitute the unit specific applicable requirements. For example, under this approach (granting MTUs a permit by rule), MTU owners/operators would be required to develop a contingency plan that describes the actions to be taken by the MTU operators in response to fires, explosions, or any unplanned sudden or non-sudden releases. For each of the part 264 subparts (*i.e.*, subparts B through E, G, H, and X) that EPA identified as appropriate for MTUs under the proposed permitting approach, EPA would, under this alternative, apply those standards as the conditions that MTUs must meet to receive a permit by rule. The applicable conditions for the permit by rule would be in a new paragraph in § 270.60.

As noted above, a major benefit of a permit by rule approach is that it would allow for the most expedient implementation of MTUs and divert more wastes from OB/OD sooner.

However, EPA has identified significant disadvantages with this approach. First, it would not afford the public or the State regulatory authority an opportunity to review and provide input on site-specific design and operating conditions to better ensure protectiveness. Second, it would be extremely challenging for EPA to develop and finalize design and operating standards that would be applicable to the wide variety of MTUs that may be used under this exemption, ranging from closed detonation and thermal destruction technologies to chemical destruction technologies such as supercritical water oxidation to unknown future technologies. (See discussion in Overview of OB/OD and Development of Alternative Technologies.)

A variation of this permit by rule that could address some of the disadvantages mentioned, could be to require as a condition of the permit by rule that the MTU owner/operator apply for and receive a nationwide conditional approval and comply with the terms and conditions in the approval. As presented in the proposed permitting approach above, the nationwide conditional approval would include the MTU design and operating standards for the specific type of unit, and conditions related to closure (interim and final), financial assurance, contingency and emergency planning, and recordkeeping and reporting requirements. Additionally, the nationwide conditional approval process would provide an opportunity for public comment on the draft approval before it would be finalized/approved by the regulatory authority and the unit could begin operations.

Although this option contains enhanced protections and opportunity for public and regulatory input prior to operations beginning, the nationwide conditional approval does not consider location-specific information such as identification of the location of the proposed MTU treatment operations, specifications on the types and quantities of wastes allowed to be treated at the location, operational conditions tailored to the specific wastes, or the dates of operation. Also, it lacks the additional opportunity for public participation at the local level that would be associated with issuance of a RCRA permit. For the above reasons, EPA has decided not to propose the permit by rule alternative. However, EPA is requesting comment on this variation on the permit by rule (*i.e.*, that incorporates a nationwide conditional approval), particularly with regard to how EPA could potentially address

some of the identified gaps, for example by adding more conditions to the nationwide conditional approval. If public comment on this approach is supportive and constructive, EPA may finalize this approach.

#### Use of Existing Special Forms of Permits and Temporary Authorization Procedures

Other possible approaches for MTUs that could facilitate their use include relying on existing special permit procedures such as research, development, and demonstration (RD&D) permits under § 270.65 and temporary authorizations under § 270.42(e).

#### RD&D Permits

RD&D permits are intended to be used to evaluate feasibility of an innovative and experimental technology. In the case of MTUs, there are units that have been demonstrated and successfully used to treat waste explosives that would not be considered innovative or experimental and thus, would not qualify for an RD&D permit. EPA believes, however, that RD&D permits could be appropriate for an individual MTU under certain circumstances. Explosive wastes encompass a wide variety of items, some of which currently do not have an alternative technology that can safely or effectively treat them. A new experimental technology could be designed to address some of these challenging explosive waste streams, and thus qualify for an RD&D permit when brought to a location to demonstrate its capability.

The goal of RD&D projects is to determine whether they can provide a reliable treatment solution without the risk of investment in significant resources that could result in losses if a technology is not successful.<sup>110</sup> In addition, RD&D projects are short-term by their nature, since the results are intended to be applied to processes or units that could operate on a permanent basis in the future. HSWA added RCRA section 3005(g)(3) to allow EPA to issue RD&D permits for the purpose of promoting development of innovative and experimental hazardous waste treatment technologies and processes, provided that permit standards for such activities have not already been established by EPA.<sup>111</sup> Because of the

<sup>110</sup> EPA is aware of one RD&D permit that was issued by EPA Region 7 to Iowa Army Ammunition Plant specifically for testing and ensuring that the alternative treatment technology would be capable of safely treating waste explosives prior to its full commissioning.

<sup>111</sup> MTUs would be classified as part 264, subpart X. Subpart X provides performance-based standards

emphasis on technological advancements and the shorter duration of RD&D projects, the requirements for obtaining RD&D permits are less rigorous than traditional RCRA permits. That is, certain part 124 and part 270 requirements may be waived to expedite the issuance of RD&D permits, but standards deemed necessary to protect human health and the environment are required to be maintained (§ 270.65(a)(2) and (3)).

Based on the requirements for, and the intent of RD&D permits, EPA believes that these permits could be appropriate in certain cases and could provide a more streamlined permit solution than either a traditional RCRA permit or EPA's proposed two-stage permitting approach. One potential drawback, however, of RD&D permits is that because they are intended to evaluate the feasibility of an innovative and experimental technology, the permit would be limited to a one-time use covering the RD&D period of the MTU at the specified location. EPA anticipates that if an MTU successfully completes the RD&D activity, it would likely be contracted to return for future treatment. In this case, a subsequent RD&D permit would not be an available option if the same MTU returns that was previously and successfully demonstrated. A different permitting mechanism or procedure would be required to enable the treatment, unless perhaps there is a novel waste stream to be treated that the unit has not previously been demonstrated for.

#### Temporary Authorizations

Another potential alternative for operation of MTUs at TSDFs involves use of temporary authorizations. The temporary authorization procedure at § 270.42(e) was developed to allow owners/operators of permitted TSD facilities to conduct activities to respond promptly to changing conditions and are intended to improve the management of hazardous wastes. As further explained in the preamble for the final rule promulgating temporary authorization regulations, the temporary authorization is expected to be useful in the following two situations: (1) To address a one-time or short-term activity (up to 180 days) at a permitted facility; or (2) to allow a permitted facility to initiate a necessary activity while its permit modification request is undergoing the Class 2 or 3 review

for a variety of units. Thus, EPA does not interpret this to mean that MTUs have existing permit standards that are applicable to every type of MTU. MTU permits will be comprised of appropriate part 264 design and operating standards developed on a site-specific basis.

process.<sup>112</sup> For MTUs, EPA sees merit in both situations. In the first, the primary purpose of MTUs is to provide short-term treatment activities in which a full modification process could unnecessarily delay a more protective treatment option and discourage its implementation. For the second, MTUs would be providing a more environmentally protective solution when compared to the current treatment method of OB/OD, and the sooner it could begin the necessary treatment activity while a modification is under review, the better for the environment and for any nearby communities. EPA believes that temporary authorizations for the use of MTUs would be appropriate because they would provide a short-term treatment solution and improve hazardous waste management.

Temporary authorizations are limited to permitted facilities; however, EPA anticipates that permitted facilities would account for the majority of MTU use. Temporary authorizations may be obtained for activities that traditionally fall under the Class 2 or Class 3 permit modification procedures and must meet the corresponding criteria as described in § 270.42(e)(2)(i). EPA believes that MTUs can meet the specified criteria for both Class 2 and Class 3 procedures. Also, the regulation requires that temporary authorizations be issued for a limited period of no more than 180 days. If the work cannot be completed within the 180 days, a temporary authorization may be re-issued but a permittee must also request a Class 2 or Class 3 permit modification for the covered activity. This timing is consistent with EPA's proposal under the permitting option to limit the duration of operation at any one location, which EPA believes is necessary to ensure that the MTU does not become a permanent facility and would require a traditional RCRA permit. In addition, it may make sense then for permitted facilities that would like to use an MTU on a recurring basis (e.g., for example, more than once per year) to submit a Class 2 or Class 3 permit modification request along with the temporary authorization for ease of future operation at the facility.

While EPA sees the benefits of a temporary authorization to include a streamlined and expeditious approach for facilitating use of more environmentally protective treatment via MTUs, EPA also notes that temporary authorizations can be issued without prior public notice and comment. The permittee, however, must still send a notice about the temporary

authorization to the facility mailing list per § 124.10(c)(1)(ix). Again, because of the benefits MTUs offer over OB/OD and given that the units must still comply with relevant part 264 operating standards, EPA anticipates that there would be public support for MTUs and use of the temporary authorizations on a one-time, short-duration basis. Also, it should be noted that if, subsequent to or without a temporary authorization request, when a facility requests a Class 2 or 3 modification for longer-term or recurring MTU operation, public notice and comment would be provided as part of these modification processes.

#### Summary and Request for Comment

MTUs offer many potential environmental and economic benefits as a controlled and more protective alternative to OB/OD. In this proposal, EPA has endeavored to create a framework to facilitate the safe, effective, and efficient use of MTUs to treat waste explosives as an alternative to OB/OD. Specifically, EPA has proposed a two-stage permitting approach and has presented three alternative approaches for MTUs. The alternative approaches include a one-stage RCRA MTU permit, a non-permitting approach, and the use of two existing permit-based approaches which could be used in combination with the proposed permitting approach or on their own in certain cases. In developing each approach, EPA has strived to identify and construct them to facilitate use of MTUs as an alternative to OB/OD, and to provide sufficient regulatory oversight of the operation of MTUs.

EPA has presented several approaches for permitting MTUs for waste explosives and is interested in commenter feedback generally on the preference for one approach versus another, but also on specific aspects of each approach. With respect to EPA's proposed two-stage permitting process, EPA seeks comment on the proposed framework in which EPA would issue a nationwide conditional approval to the MTU owner/operator that would accompany the unit to every job site and would reflect the bulk of the permitting requirements applicable to the unit, followed by the EPA-issued location-specific RCRA permit authorizing treatment of waste explosives (*i.e.*, for a specific job site). Specifically, EPA would like feedback on the procedural processes proposed for both stages, for example, the completeness finding and public participation requirements and the application contents including the applicable part 264 and part 270 requirements. In addition, EPA would like to know if commenters agree with

<sup>112</sup> 53 FR 37912, September 28, 1988.

the proposed time limitations for the nationwide conditional approval, the location-specific RCRA permit, and the operational time limits. Overall, EPA is interested in whether commenters believe this proposed approach to standardize a permit process, via a special form of permit specific to MTUs would be helpful in promoting the use of MTUs.

Regarding the alternative approaches, EPA presents a variation of the proposed two-stage permitting approach which essentially collapses all of the requirements into one-stage. Under this alternative one-stage RCRA MTU permit, the technical part 264 standards applicable to an MTU would be largely unchanged and the result would be a permit that could allow for the MTU to operate at multiple locations with fewer procedural steps. EPA recognizes that there are potential challenges with this approach particularly in regard to public notice requirements for the various locations at which the MTU could operate, and to developing permit conditions tailored to location and waste-specific considerations. In light of these shortcomings, EPA discusses potential avenues to mitigate them and thus, requests comment on whether this one-stage permit approach would be desirable, and if commenters agree with the mitigating solutions discussed.

EPA also discussed and described a permit by rule approach to permitting MTUs based on compliance with specified standards. For this alternative approach, EPA requests that commenters indicate if they agree with the approach generally, and specifically with the applicable part 264 standards which would be the same as those proposed for the nationwide conditional approval. In addition, given the disadvantages with the permit by rule approach discussed, EPA suggests that a requirement could be added to obtain a nationwide conditional approval. EPA requests comment on this variation to add a nationwide conditional approval and whether certain location-specific requirements should be added to the nationwide conditional approval to provide further protections.

Last, EPA discussed how existing RCRA permit procedures could be applied to MTUs in certain circumstances. While there would not be any changes needed for RD&D permits or the temporary authorization procedures to accommodate MTUs, EPA requests comment on the merits of using these existing procedures for MTUs where applicable.

### III. State Authorization

#### A. Applicability of Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer their own hazardous waste programs in lieu of the Federal program within the State. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized States have primary enforcement responsibility. The standards and requirements for State authorization are found at part 271.

After a State receives initial authorization, new Federal requirements and prohibitions promulgated under RCRA authority existing prior to the 1984 HSWA do not apply in that State until the State adopts and receives authorization for equivalent State requirements. In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), which was added by HSWA, new requirements and prohibitions imposed under HSWA authority take effect in authorized States at the same time that they take effect in unauthorized States. As such, EPA carries out the HSWA requirements and prohibitions in authorized States, including the issuance of new permits implementing those requirements, until EPA authorizes the State to do so.

Authorized States are required to modify their programs only when EPA enacts Federal requirements that are more stringent or broader in scope than existing Federal requirements. Under RCRA section 3009, States may impose standards more stringent than those in the Federal program (see also § 271.1(i)). Therefore, authorized States are not required to adopt new Federal regulations that are considered less stringent than previous Federal regulations or that narrow the scope of the RCRA program.

#### Effect on State Authorization

This proposed rule would be promulgated primarily pursuant to section 3004(n) of RCRA, a provision added by HSWA. RCRA section 3004(n) directs the Agency to develop standards to control air emissions at hazardous waste TSDFs as may be necessary to protect human health and the environment. These proposed revisions would reduce OB/OD of waste explosives through strengthened requirements that narrow facility eligibility to treat by OB/OD. Specifically, this proposal would increase control of air emissions through greater adoption and use of alternative technologies, and the

increased control of air emissions is EPA's principal objective in this proposal. The Agency is proposing to add the requirements to table 1 in § 271.1(j) accordingly.

In addition, this proposed rule would be more stringent than the existing Federal regulations. This is because the proposed rule would establish new (1) requirements for the content and timing of alternative technology evaluations and implementation of safe alternatives; (2) technical standards for OB/OD units, including prohibition of certain wastes from treatment by OB/OD; (3) requirements for emergency responses subject to emergency permits to consider alternatives to OB/OD; (4) requirements for delay of closure as applicable to OB/OD units including continuation of permits until clean closure is completed; and (5) standardized MTU permitting procedures which include a two-stage permitting process with national and local public notice, five-year permit term, and limits on operating duration of the unit at any one location.

Because this proposed rule would be implemented under HSWA authority and is more stringent than the existing Federal requirements, the proposed rule would take effect in authorized States at the same time it takes effect in unauthorized States. All permits issued after the effective date would incorporate the appropriate standards. The proposed standards would apply to interim status facilities on the effective date of the standards.

Interim status facility owners/operators who have submitted part B applications but have not received their final permits as of the effective date of the standards would be required to modify their part B applications to incorporate the part 264 and 270 requirements of the final rule into their applications. For permitted facilities, the new standards would not apply until the facility's permit is modified or renewed. When new regulations are promulgated after the issuance of a permit, EPA or authorized States may reopen the permit to incorporate the new requirements as stated in § 270.41.

With respect to State authorization, this proposal: (1) Would, under proposed part 264, subpart Y, establish new technical standards for OB/OD units, which authorized States already have authority to permit; and (2) would for the first time establish national procedures for permitting of mobile treatment units that would cross State borders. In light of these circumstances, EPA describes how State implementation of the proposed rule would work in authorized States.



### Permitting of OB/OD Units

In 1987, the Agency promulgated the part 264, subpart X miscellaneous unit standards. In that 1987 rule, the Agency stated that OB/OD units are one example of a miscellaneous unit that could be permitted under those standards. Thus, authorized States currently have authority to permit OB/OD units under the existing part 264, subpart X standards.

With respect to implementing the proposed part 264, subpart Y standards for OB/OD units and new provisions related to emergency responses exempt from RCRA permitting and for emergency permits, authorized States would continue to implement their programs rather than EPA taking separate actions under Federal authority, provided authorized State permits are as stringent as the new requirements.

EPA is proposing new technical standards for OB/OD units under a new subpart Y in part 264. Because the proposed subpart Y technical standards would be imposed under HSWA authority and are more stringent than the existing Federal program, these technical standards would take effect in authorized States at the same time as unauthorized States.

States that are authorized to implement part 264, subpart X standards may already have authority for requirements similar to those in this proposed rule. Specifically, subpart X standards already require permits to contain such terms and provisions as necessary to protect human health and the environment, including permit terms and requirements of various other unit standards in part 264 and requirements in part 270. This is further underscored by the fact that many OB/OD permits issued by States already contain conditions consistent with many of the subpart Y standards EPA is proposing. Authorized States would continue to administer and enforce these standards under subpart X, provided permits issued after the effective date of the final rule include permit terms and conditions that are equivalent to the proposed subpart Y standards. This permit administration could continue until the authorized State adopts and becomes authorized for subpart Y as required under RCRA. States would also continue to administer and enforce RCRA emergency permits in the same manner; authorized States already have authority under § 270.61(b)(6) to incorporate other applicable requirements, such as those similar to requirements proposed.

While this State permit administration would continue as described above, EPA would also have an obligation to ensure the regulations promulgated under HSWA authority are implemented in all States after the effective date of the final rule. To satisfy this obligation, EPA would review and provide comments on draft permits provided by authorized States to ensure the requirements are implemented. Should an authorized State issue a final permit that fails to include the newly promulgated HSWA requirements, EPA would have the authority to issue a joint permit with the State to include those requirements.

### Permitting of Mobile Treatment Units

With respect to permitting MTUs for waste explosives, EPA would not authorize states to permit MTUs, although it may consider doing so at some point in the future.

MTUs are unique in that they would be permitted to treat waste explosives at multiple locations including, potentially, in multiple States. As described above in this proposal, MTUs could serve as an important and cost-effective alternative to OB/OD for facilities that generate small or infrequent amounts of waste explosives. EPA proposes standardized permitting procedures that include a nationwide conditional approval and a location-by-location specific permit for MTUs.

Because of the need for national consistency related to permitting of units that cross State boundaries, EPA would not authorize States to permit MTUs under this rulemaking. There are several reasons for this. First, EPA's proposed permitting process for MTUs consists of a nationwide conditional approval, which, because of its national impacts, could only be implemented by EPA as national authority. Second, EPA is proposing that the nationwide conditional approval could be modified as part of each location-specific permit, and EPA believes it would reduce administrative burden if the modifications as part of each permit were considered by the same authority (EPA) that issued the nationwide conditional approval. EPA is concerned that, should the barriers to obtaining an MTU permit be too high, it would effectively remove this option as an alternative, thereby delaying the benefits of reduced air emissions from treatment of explosive hazardous waste. Third, EPA is not expecting there to be a large number of MTUs that would be permitted to treat waste explosives. Consolidating the expertise and process with one permitting authority would be more efficient. Fourth, EPA expects the

Agency would gain valuable experience and information from review of MTU permit applications that may affect future OB/OD or MTU rulemakings. EPA could consider, after some time in implementing the MTU permitting program, whether authorization of states for certain aspects of the program could make sense in the future.

EPA requests comment on two alternative approaches to State authorization specific to permitting MTUs. The first alternative approach would be to allow States to be authorized to issue the location-specific permits (with EPA issuing nationwide conditional approvals). Under such an approach, EPA would issue nationwide conditional approvals to MTUs as described in the proposed approach, and then EPA or the State, if authorized, would issue the location-specific RCRA permit to the MTU. This approach has the benefit of leveraging the experience and expertise in RCRA permitting that exists in the States; however, it may result in a less efficient approach to permitting MTUs. As noted above, because each issuance of a location-specific permit is an opportunity to modify conditions of the EPA-issued nationwide conditional approval, EPA believes it would reduce administrative burden if both the nationwide conditional approval and location-specific permit were considered by the same authority (EPA). Moreover, the approach could result in inconsistencies in the location-specific permitting approaches and requirements state-to-state, that may add greater uncertainty into the permitting process. Finally, the financial assurance requirements for MTUs would either need to be restructured or an MTU may need to make separate financial assurance demonstrations in each State in which they seek to operate. EPA would, under this approach, still issue nationwide conditional approvals and location-specific permits to allow MTUs to operate in States until States become authorized.

The second alternative approach would be to allow States to become authorized to issue both statewide conditional approvals (in lieu of EPA issuing a nationwide conditional approval) and also location-specific permits in their State. EPA would, under this approach, still issue nationwide conditional approvals and location-specific permits to allow MTUs to operate in States until States become authorized. Similar to the first alternative, this approach also has the benefit of leveraging the experience and expertise in RCRA permitting that exists in the States. This approach would also

allow the same authority that issued the conditional approval to issue the location-specific permit resulting in some efficiency. However, this approach would require MTUs to obtain a statewide conditional approval in each State they sought to operate as well as a nationwide conditional approval to operate in unauthorized States. In some large States, this may not be as consequential, however, given that there are only 67 TSDFs with operating OB/OD units (and 2 corrective action facilities), EPA believes this approach may be significantly more administratively burdensome nationwide. EPA notes that this approach is most similar to the 1987 proposed approach for RCRA MTUs that was never finalized due to the administrative burden it entailed.

While EPA is not proposing either of these two approaches, EPA is requesting comment on the approaches and may finalize either of the options. Additionally, should EPA consider finalizing one of the two alternative approaches, EPA is requesting comment on whether it should provide an option for States to become authorized to permit MTUs. For example, if EPA did finalize an alternative to allow States to become authorized for MTUs, some authorized States could choose not to become authorized thereby allowing EPA to permit MTUs within their State. Were either of these approaches to be finalized, most of the proposed approach (e.g., the technical standards applicable to MTUs, permitting procedures) would remain intact. However, EPA expects the financial assurance requirements would need to be restructured to reflect the fact that the MTU may be issued RCRA permits from multiple permitting authorities. This may entail requiring the owner/operator to make multiple financial assurance demonstrations.

#### B. Summary and Request for Comment

EPA proposes that this rule would take effect in authorized States at the same time it takes effect in unauthorized States. Interim status facility owners/operators would be required to modify their part B applications to incorporate the Parts 264 and 270 requirements of the final rule into their permit applications. With respect to implementing the proposed part 264, subpart Y standards for OB/OD units and new provisions related to emergency responses exempt from RCRA permitting and for emergency permits, State permit administration would continue as described above, provided authorized State permits are as stringent as the new requirements.

Additionally, under EPA's proposed approach, EPA would not authorize States to permit MTUs for the reasons stated above.

EPA requests comment on how it should implement the proposed rules in authorized States, including both on its proposed approach and alternative approaches with respect to authorizing States to permit MTUs.

#### IV. Statutory and Executive Order (E.O.) Reviews

Additional information about these statutes and EOs can be found at <https://www.epa.gov/laws-regulations/laws-and-executive-orders>.

##### A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is a "significant regulatory action" as defined in Executive Order 12866, as amended by Executive Order 14094. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for Executive Order 12866 review. Documentation of any changes made in response to the Executive Order 12866 review is available in the docket. The EPA prepared an economic analysis of the potential impacts associated with this action. This analysis, "Regulatory Impact Analysis for the Revisions to Standards for the Open Burning/Open Detonation of Explosive Waste Materials Proposed Rule," and is also available in the docket.

##### B. Paperwork Reduction Act (PRA)

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2769.01. You can find a copy of the ICR in the docket for this proposed rule, and it is briefly summarized here.

This proposed rule imposes new information collection requirements on the facilities subject to the proposed rule's new operating, monitoring, and reporting requirements. The new provisions would specify how and when owners/operators and permit authorities are to evaluate alternative treatment technologies for OB/OD, including specific information that would be required for facilities to demonstrate whether safe alternative modes of treatment are available for specific waste streams.

EPA must obtain sufficient information to assess whether safe alternatives are available in lieu of OB/

OD. In addition, for instances where OB/OD remains the only treatment method for waste explosives, the Agency requires sufficient information to ensure that permitting requirements are being met and properly implemented. The goal of the reporting requirements is to support improved protection of human health and the environment by reducing the amount of waste explosives currently being open burned and open detonated and, where OB/OD remains the only available treatment method, by strengthening protections for OB/OD activities. EPA will use the collected information to ensure that alternatives to OB/OD of waste explosives are being identified and implemented, when possible, confirm permitting requirements are being met, and monitor any potential harms to human health and the environment.

*Respondents/affected entities:* Entities potentially affected by this action are private sector and State, Local, or Tribal governments.

*Respondent's obligation to respond:* Mandatory (RCRA section 3004).

*Estimated number of respondents:* 24.  
*Frequency of response:* Every five years or as specified in permit.

*Total estimated burden:* 27,557 hours (per year). Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost:* \$2,763,449, includes \$207,600 annualized capital or operation & maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this proposed rule. The EPA will respond to any ICR-related comments in the final rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs using the interface at [www.reginfo.gov/public/do/PRAMain](http://www.reginfo.gov/public/do/PRAMain). Find this particular information collection by selecting "Currently under Review—Open for Public Comments" or by using the search function. OMB must receive comments no later than May 20, 2024.

##### C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities

under the RFA. The small entities subject to the requirements of this action are small businesses from the following NAICS code industries: Other Basic Inorganic Chemical Manufacturing; All Other Basic Organic Chemical Manufacturing; Explosives Manufacturing; All Other Miscellaneous Chemical Product and Preparation Manufacturing; Ammunition (except Small Arms) Manufacturing; Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing; and Marketing Research and Public Opinion Polling. The Agency has determined that eight small entities (12% of the universe) may experience an impact of 0.02% and 0.7% of revenues. Details of this analysis are presented in the Regulatory Impact Analysis for the Revisions to Standards for the Open Burning/Open Detonation of Explosive Waste Materials Proposed Rule.

#### *D. Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any State, local or Tribal governments or the private sector.

#### *E. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

#### *F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action has Tribal implications. However, it will neither impose substantial direct compliance costs on federally recognized Tribal governments, nor preempt Tribal law. Some facilities affected by this law are near federally recognized Tribes.

The EPA invited Tribes located near OB/OD facilities to consult with EPA on the proposed rulemaking under the EPA Policy on Consultation and Coordination with Indian Tribes so they would have opportunity to provide meaningful and timely input into its development. One Tribe formally consulted with EPA on this proposed rule; a summary of that consultation is provided in the docket of this proposed rule.

#### *G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*

Executive Order 13045 directs Federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in Federal health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is not subject to E.O. 13045 because it is not a significant regulatory action under section 3(f)(1) of Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. However, EPA's *Policy on Children's Health* applies to this action.<sup>113</sup> EPA finds that this proposal, through clarifying a previously promulgated Federal standard, would improve protection of human health, including children's health, in communities located near OB/OD facilities.

#### *H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use*

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. The scope of this rulemaking does not impact the supply, distribution or use of energy.

#### *I. National Technology Transfer and Advancement Act (NTTAA)*

This rulemaking involves environmental monitoring or measurement. Consistent with the Agency's Performance Based Measurement System (PBMS), the EPA proposes not to require the use of specific, prescribed analytic methods. Rather, the Agency plans to allow the use of any method that meets the prescribed performance criteria. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. The EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified.

#### *J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096 Revitalizing Our Nation's Commitment to Environmental Justice for All*

The EPA believes that the human health or environmental conditions that exist prior to this action result in or have the potential to result in disproportionate and adverse human health or environmental effects on communities with environmental justice concerns. The demographic analysis in the Regulatory Impact Analysis for the Revisions to Standards for the Open Burning/Open Detonation of Explosive Waste Materials Proposed Rule, indicates that, in aggregate, current conditions may disproportionately impact potentially vulnerable communities near operating OB/OD facilities. Some demographic and socioeconomic indicators are higher than national averages in the above analyses.

The EPA believes that this action is likely to reduce existing disproportionate and adverse effects on communities with environmental justice concerns. More frequent alternative technology reevaluations and new technical permitting standards may accelerate the identification and implementation of cleaner, safer alternative technologies.

The EPA additionally identified and addressed EJ concerns by conducting informational webinars. EPA recognizes that communities are concerned about emissions of contaminants from OB/OD. The treatment of waste explosives conducted in the open can expose communities to hazardous substances through air emissions and deposition onto the ground that can contaminate the soil, surface water, sediments, and groundwater. Leading up to, and during development of this proposed rulemaking, EPA has taken actions to involve communities. During several separate webinars, communities were invited to provide their input on proposed changes to the existing OB/OD regulations that would help strengthen the existing regulations, as well as clarify when facilities are eligible to conduct OB/OD.<sup>114</sup>

First, EPA held an informational webinar on February 23, 2022, for Tribes located near OB/OD facilities, in support of EPA's consultation and coordination regarding the proposed

<sup>113</sup> <https://www.epa.gov/system/files/documents/2021-10/2021-policy-on-childrens-health.pdf>.

<sup>114</sup> Tribal coordination and consultation materials and webinar meeting summaries are in the docket for this rulemaking, Docket ID No. EPA-HQ-OLEM-2021-0397 (<http://www.regulations.gov>).

rulemaking.<sup>115</sup> EPA identified four OB/OD facilities located in close proximity to or on Tribal lands and presented information about the proposed rule to assist Tribes in determining whether they would like to formally consult with EPA. One Tribe subsequently requested formal consultation with EPA, which occurred on March 28, 2022. During this consultation, the Choctaw Nation of Oklahoma raised several concerns ranging from air emissions, contaminants spread through “kickout” of unreacted waste explosives, ground vibration causing structural damage to residences, and impairment of local water bodies. EPA provided responses to the Choctaw Nation of Oklahoma during the consultation meeting and committed to coordination with other program areas in EPA, as well as the State permitting agency, to address their concerns. In addition, EPA has considered ways in which the OB/OD regulations could be improved via this proposed rulemaking and has included new provisions and clarifications of existing requirements to strengthen the regulations.

Second, EPA held an informational webinar on March 10, 2022, for interested communities and environmental groups (see footnote 24). This early engagement sought input for EPA to consider prior to development of the proposed rulemaking.

Representatives from a variety of community and environmental groups and one Tribe were in attendance:

- Louisiana Environmental Action Network
- Center for Progressive Reform
- Tulane Law School
- Public citizens
- Earthjustice
- Citizens for Safe Water Around Badger
- Prutehi Litekyan/Save Ritidian
- California Communities Against Toxics
- Central Louisiana Coalition for a Clean and Healthy Environment
- Vidas Viequenses Valen
- Concerned Citizens for Nuclear Safety
- San Ildefonso Pueblo

Topics addressed included:

- Alternative treatment technologies and adding an explicit regulatory requirement to evaluate available alternative treatment technologies and to implement identified alternatives in place of OB/OD.

- Scope of applicability for who the rule should include/exclude.

- Timing for rule compliance to determine how soon the new/revised requirements should go into effect.

- New technical standards for OB/OD units to better control emissions and contamination.

As a result of this webinar, EPA heard accounts of how communities located near OB/OD facilities are negatively impacted by air emissions and noise and vibration impacts from the treatment events. In addition, some community and environmental members indicated environmental justice concerns for certain locations.

Last, EPA held an informational public webinar on December 5, 2022, which was open to all groups, to provide opportunity for public input during the drafting phase of the proposed rule. This webinar presented the same topics as the March 10, 2022, webinar, with more specific approaches under consideration by EPA.

Community and environmental members, and several Tribes provided additional input related to their concerns. Input provided to EPA included establishing in the rule: prohibition OB/OD of certain wastes, provisions for air monitoring in communities, and requirements for better communication between the OB/OD facilities and the communities.

Through the webinars, EPA gained valuable insight and information from community and environmental groups that led to the incorporation of additional proposed requirements to further strengthen OB/OD regulatory requirements.

#### List of Subjects in 40 CFR Parts 124, 260, 264, 265, 270, and 271

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Hazardous materials transportation, Hazardous waste, Indians-lands, Insurance, Intergovernmental relations, Packaging and containers, Penalties, Reporting and recordkeeping requirements, Security measures, Surety bonds, Water pollution control, Water supply.

**Michael S. Regan,**  
*Administrator.*

For the reasons set forth in the preamble, the EPA proposes to amend 40 CFR parts 124, 260, 264, 265, 270, and 271 as follows:

#### PART 124—PROCEDURES FOR DECISIONMAKING

■ 1. The authority citation for part 124 continues to read as follows:

**Authority:** Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*; Safe Drinking Water Act, 42 U.S.C. 300f *et seq.*; Clean Water Act, 33 U.S.C. 1251 *et seq.*; Clean Air Act, 42 U.S.C. 7401 *et seq.*

#### Subpart A—General Program Requirements

■ 2. Amend § 124.1 by revising paragraph (a) to read as follows:

##### § 124.1 Purpose and scope.

(a) This part contains EPA procedures for issuing, modifying, revoking and reissuing, or terminating all RCRA, UIC, PSD and NPDES “permits” (including “sludge-only” permits issued pursuant to § 122.1(b)(2) of this chapter. The latter kinds of permits are governed by part 270 of this chapter. RCRA interim status and UIC authorization by rule are not “permits” and are covered by specific provisions in parts 144, subpart C and 270 of this chapter. This part also does not apply to permits issued, modified, revoked and reissued or terminated by the U.S. Army Corps of Engineers. Those procedures are specified in 33 CFR parts 320 through 327. This part also does not apply to the issuance of RCRA permits for Mobile Treatment Units except as specified in part 270, subpart K of this chapter. The procedures of this part also apply to denial of a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29 of this chapter.

\* \* \* \* \*

#### PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

■ 3. The authority citation for part 260 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), 6921–6927, 6930, 6934, 6935, 6937, 6938, 6939, 6939(g), and 6974.

#### Subpart B—Definitions

■ 4. Amend § 260.10 by:

- a. Adding the definitions in alphabetical order for “Detonation”,
- b. Revising the definition for “Explosives or munitions emergency”;
- c. Adding the definitions in alphabetical order for “Mobile treatment unit or MTU”, “MTU location-specific permit”, “MTU nationwide conditional approval”;
- d. Removing the definition for “Open burning”; and
- e. Adding the definitions in alphabetical order for “Open burning (OB)”, “Open burning/open detonation (OB/OD) unit”, “Open detonation”, and “Waste explosives”.

The additions and revision read as follows:

<sup>115</sup> EPA Policy on Consultation and Coordination with Indian Tribes. <https://www.epa.gov/tribal/forms/consultation-and-coordination-tribes>.

§ 260.10 Definitions.

\* \* \* \* \*

Detonation means the explosive process in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level).

Explosives or munitions emergency means a situation involving the suspected or detected presence of unexploded ordnance (UXO), damaged or deteriorated explosives or munitions, an improvised explosive device (IED), other potentially explosive material or device, or other potentially harmful military chemical munitions or device, that creates an actual or potential immediate threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist. Such situations may require immediate and expeditious action by an explosives or munitions emergency response specialist to control, mitigate, or eliminate the threat.

\* \* \* \* \*

Mobile treatment unit or MTU means a facility comprised of a device and any ancillary equipment that is designed and used to treat waste explosives on a temporary basis and be transported for use at multiple locations. An MTU may not operate at a location for more than 180 consecutive days at any time. For the purposes of calculation, days of consecutive operation begins with the date on which start-up of the unit occurs and concludes with the date on which interim closure is completed and includes every calendar day in between those dates. An MTU unit must satisfy the closure requirements at § 264.1(k)(5) of this chapter. A unit that operates at a location for more than 180 consecutive days at any time and/or does not satisfy the closure requirement in § 264.1(k)(5) of this chapter at any site is not a mobile treatment unit.

MTU location-specific permit means the RCRA permit issued to an MTU seeking to treat waste explosives under part 270, subpart K of this chapter. To qualify as an MTU location-specific permit, the permit shall have a term length of five years or less and also restrict operation of the MTU at any location to 180 consecutive days or less. For the purposes of calculation, days of consecutive operation begins with the date on which start-up of the unit occurs and concludes with the date on which interim closure is completed and includes every calendar day in between those dates.

MTU nationwide conditional approval means the nationwide conditional approval, with a term of five

years, issued to an MTU seeking to treat waste explosives under part 270, subpart K of this chapter.

\* \* \* \* \*

Open burning (OB) means the combustion of any material without the following:

- (1) Control of combustion air to maintain adequate temperature for efficient combustion,
  - (2) Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and
  - (3) Control of emission of the combustion products.
- (4) (See also “Incineration,” “Thermal treatment,” and “Detonation.”)

Open burning/open detonation (OB/OD) unit is any unit used in the OB or OD treatment of waste explosives. These units include but are not limited to detonation pit, burn pile, burn cage, burn trenches, and burn pan units. The permitted unit boundary includes the associated kickout area within the facility, where dispersed metal fragments, unreacted explosives contaminants, and other waste items are deposited onto the land from the operation of the OB/OD unit.

Open detonation (OD) means the detonation of any material without containment in an enclosed device and control of the emission products, causing any unreacted material to be dispersed into the environment. OD refers to both detonation that is not covered and detonation that is covered by soil (buried detonation).

\* \* \* \* \*

Waste explosives are hazardous wastes that exhibit the reactivity characteristic (D003) and are capable of detonation or explosive chemical reaction as defined in § 261.23(a)(6) through (8) of this chapter and include propellants, explosives, pyrotechnics, munitions, military munitions as defined in this section, and unexploded ordnance.

\* \* \* \* \*

**PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES**

- 5. The authority citation for part 264 continues to read as follows:

Authority: 42 U.S.C 6905, 6912(a), 6924, 6925, and 6939g.

**Subpart A—General**

- 6. Amend § 264.1 by adding paragraph (k) to read as follows:

**§ 264.1 Purpose, scope, and applicability.**

\* \* \* \* \*

(k) The requirements of this part do not apply to Mobile Treatment Units as defined in § 260.10 of this chapter that have been permitted to treat waste explosives under subpart K of part 270 of this chapter, except as provided below. An owner/operator of an MTU must comply with:

- (1) Sections 264.11, 264.13, 264.16, and 264.17 of subpart B of this part;
- (2) Subpart C of this part;
- (3) Subpart D of this part;
- (4) Sections 264.70, 274.71(c), 264.73, 264.74, 264.75, and 264.77 of subpart E of this part;
- (5) Sections 264.111 through 264.115 of subpart G of this part except that:
  - (i) The MTU must close in a manner that completely decontaminates the MTU and removes any contaminated environmental media, residuals or debris resulting from the MTU’s operation; and
  - (ii) The MTU, after completing treatment at each location must conduct an interim closure in a manner specified in an interim closure plan referenced in the nationwide conditional approval that completely decontaminates the MTU and removes any contaminated media, residuals or debris resulting from the MTU’s operation;

(6) Sections 264.140 through 264.143, 264.147, 264.148, and 264.151 of subpart H of this part. The Director may accept or require variations to the required instrument wording in § 264.151 of subpart H of this part necessary to effectuate the financial assurance requirement for mobile units;

(7) Subpart X of this part except that the nationwide conditional approval issued must include requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Additionally, for the purposes of complying with § 264.602 of subpart X of this part, references to §§ 264.15, 264.76, and 264.101 are not applicable for MTUs; and

(8) Section 264.706 of subpart Y of this part.

**Subpart G—Closure and Post-Closure**

- 7. Amend § 264.111 by revising paragraph (c) to read as follows:

**§ 264.111 Closure performance standard.**

\* \* \* \* \*

(c) Complies with the closure requirements of this part, including, but not limited to, the requirements of §§ 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, 264.713, and 264.1102.

- 8. Amend § 264.112 by revising paragraph (d)(1) to read as follows:

**§ 264.112 Closure plan; amendment of plan.**

\* \* \* \* \*

(d) \* \* \*

(1) The owner/operator must notify the Director in writing at least 60 days prior to the date on which he expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, open burn or open detonation unit, or final closure of a facility with such a unit. The owner/operator must notify the Director in writing at least 45 days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed. The owner/operator must notify the Director in writing at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or industrial furnace, whichever is earlier.

\* \* \* \* \*

■ 9. Amend § 264.113 by revising paragraph (b) introductory text to read as follows:

**§ 264.113 Closure; time allowed for closure.**

\* \* \* \* \*

(b) Except as provided in § 264.713, the owner/operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner/operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at the hazardous waste management unit or facility. The Director may approve an extension to the closure period if the owner/operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

\* \* \* \* \*

**Subpart X—Miscellaneous Units**

■ 10. Amend § 264.601 by revising paragraph (b) introductory text and paragraph (b)(3) to read as follows:

**§ 264.601 Environmental performance standards.**

\* \* \* \* \*

(b) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in stormwater, surface water, or wetlands or on the soil surface considering:

\* \* \* \* \*

(3) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land

around the unit, and the stormwater run-on and run-off patterns around the unit;

\* \* \* \* \*

■ 11. Revise § 264.603 to read as follows:

**§ 264.603 Post-closure care.**

A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with § 264.601 during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated at the time of certification of closure, then that unit must also meet the requirements of § 264.601 during post-closure care. The post-closure plan under § 264.118 must specify the procedures that will be used to satisfy this requirement.

■ 12. Amend part 264 by adding subpart Y to read as follows:

**Subpart Y—Open Burning and Open Detonation Units**

Sec.

264.704 Applicability.

264.705 Definitions applicable to this subpart.

264.706 Waste analysis.

264.707 Alternative technology evaluation and implementation.

264.708 Operating requirements.

264.710 Monitoring requirements.

264.712 Recordkeeping, inspections, training, and reporting requirements.

264.713 Closure; time allowed for closure for certain activities.

264.714 Closure and post-closure care.

264.715 Emergency provisions.

**§ 264.704 Applicability.**

(a) Open burning and open detonation of hazardous waste is prohibited except for the open burning and/or open detonation of waste explosives (as those terms are defined in § 260.10 of this chapter) that cannot be safely treated or disposed of through other modes.

(b) To be eligible to open burn or open detonate waste explosives, owners/operators must submit documentation of waste analysis required under § 264.706 and an alternative technology evaluation required under § 264.707(b)(3) to the Director in accordance with the time frames established under § 264.707(c). During the evaluation period for the alternative technology and during the implementation period for the alternative technology, the owner/operator can continue the use of OB/OD as a treatment method for the subject wastes. If the owner/operator is eligible to open burn or open detonate any waste explosives, they must conduct the open burning or open detonation in

accordance with §§ 264.708 and 264.710 and in a manner that is protective of human health and the environment.

(c) The requirements of this subpart apply to owners/operators that treat or intend to treat waste explosives in open burning and open detonation (OB/OD) units as defined in § 260.10 of this chapter, except as § 264.1 provides otherwise.

(d) Explosives and munitions emergency responses as defined in § 260.10 of this chapter are exempt from the requirements of this subpart, except as indicated in § 264.715(a).

(e) *De minimis* quantities.

(1) Owners and operators of a facility that generates up to 15,000 lbs NEW of waste explosives annually may treat by OB/OD up to the amount of waste explosives generated without complying with § 264.707 provided that they make, to the Director's satisfaction, the demonstrations in paragraphs (e)(1)(i) through (iii) of this section.

(i) A demonstration that the proposed *de minimis* treatment by OB/OD would contribute negligible contamination and potential for exposure. This demonstration must address, at a minimum, the following components:

(A) The quantity of generated waste explosives proposed to be treated annually by OB/OD under this *de minimis* exemption. Under no circumstances will the Director approve a *de minimis* exemption for waste explosives treatment by OB/OD that exceeds 15,000 lbs NEW annually.

(B) The waste stream(s) to be treated and their known or anticipated toxicity and byproducts from OB/OD treatment.

(C) The location of the OB/OD treatment and potential to impact nearby receptors, resources, and sensitive environments.

(D) Permit conditions and other controls that are in place and would inform the potential for contamination onsite and offsite.

(ii) A demonstration that treatment by an MTU, treatment off-site by an alternative technology, and treatment by an existing on-site alternative technology, if applicable, are not safe and available.

(iii) A demonstration that the facility does not have any unresolved compliance or enforcement actions and does not have a history of significant noncompliance.

(2) The Director shall deny the request for this *de minimis* exemption when the demonstrations required by (e)(1)(i) through (iii) of this section cannot be satisfactorily met.

(3) To remain eligible for the exemption from the requirements of § 264.707, the owner/operator must

submit this demonstration on the same schedule as they would have submitted alternative technology evaluations for the subject wastes under § 264.707(c) and (d).

(4) If at any time, the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, the owner/operator must notify the Director within five days.

(5) The Director may, based on reasonable belief that the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, request additional information from the owner/operator to determine if the OB/OD activities still meet the *de minimis* criteria of paragraph (e)(1) of this section.

(6) If a determination is made under paragraph (e)(4) or (5) of this section that the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, the exemption will be withdrawn. If the exemption is withdrawn, § 264.707 becomes applicable and the owner/operator must submit to the Director an alternative technology evaluation for the subject waste streams in accordance with § 264.707 within one year.

#### **§ 264.705 Definitions applicable to this subpart.**

The following definitions apply to this subpart:

*Chemical weapon* means a Chemical Warfare Material (CWM) as defined in 32 CFR 179.3.

*Debris* means solid material exceeding a 60 mm particle size that is intended for treatment or disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material.

*Hazardous debris* means debris (e.g., wood, plastic, concrete, personal protective equipment) that contains a hazardous waste listed in subpart D of part 261 of this chapter, or that exhibits a characteristic of hazardous waste identified in subpart C of part 261 of this chapter. Any deliberate mixing of hazardous waste with debris or hazardous debris with other debris that changes its treatment classification (i.e., from waste to hazardous debris) is not allowed under the dilution prohibition in § 268.3 of this chapter.

*Insensitive munition* means a munition that reliably fulfills its performance, readiness and operational requirements on demand and that minimizes the probability of inadvertent initiation and severity of subsequent collateral damage to weapon platforms, logistic systems and personnel when

subjected to specified accidental and combat threats.

*Surface water* means all water which is open to the atmosphere and subject to surface runoff.

#### **§ 264.706 Waste analysis.**

(a) Owners or operators that seek to use OB and/or OD (OB/OD) for treatment of waste explosive as defined in § 260.10 of this chapter must conduct and provide to the Director a detailed physical and chemical waste analysis for each explosive waste per § 270.14(b)(2) and (3) of this chapter, § 264.13, and the requirements in this section.

(b) Documentation of waste analysis must include:

(1) *Identification of each waste stream.* Identify each waste stream by name and type. Munitions, explosive wastes, and explosive-contaminated waste materials of the same specifications, design, and purpose may be grouped together. Propellants may only be considered a single waste stream if the propellant has the same mixtures and compounds, are from the same manufacturing process and has the same degradation status and tolerances, based in part on lot/batch and expiration date. Similarly, if the owners/operators must handle or treat any explosive differently due to degradation or being off-specification for that explosive, a new waste analysis must be done for each batch of munition that has degraded or is off-specification. Explosives-contaminated hazardous debris or material may be grouped together if containing the same explosive contaminant and the debris or material is of similar composition.

(2) *Physical description.* For each waste stream, a physical description of the waste. For munitions, or any material that is not bulk explosive waste, waste analysis must include design, dimensions, mass, main component features, and casing thickness. For bulk explosive wastes, energetics, and propellants, waste analysis must describe at a minimum the phase, color, packaging, mass, and density. Explosives-contaminated hazardous debris or material must include a physical description of all debris/material in the waste stream.

(3) *Chemical constituent analysis.* For each waste stream, a complete description of the chemical constituents and average percent composition, and an assessment of potential contaminants. Safety Data Sheet (SDS) for each chemical constituent must accompany this analysis (where available). Munitions and multi-component wastes must have chemical

constituent analysis for each component of the waste. For example, the casing component should be analyzed separately from the filler and energetic component. Hazardous debris or material must include an analysis for all contaminants. The debris or material (e.g., wood, plastic, concrete, personal protective equipment) may be excluded from the chemical analysis unless there is potential it includes wastes listed under § 264.708(b)(11) or the Director determines an analysis of debris or material is needed. The chemical constituent analysis must include the NEW for each waste stream.

(4) *Chemical properties analysis.* For each waste stream, a description of the explosive properties of each mixture or component. At a minimum, the properties must include insensitivity (to impact, friction, and electrostatic discharge), flash point, pH, and free liquid determination. For each waste stream, all test methods, test results, and documentation of analyses conducted to comply with this section must be included.

(c) The owner/operator may use pre-determined information or knowledge of a specific waste stream or constituent in lieu of conducting chemical and physical analysis. The information must still be submitted as part of the waste analysis, and the source of that information must be clearly marked. Where applicable, the alternate source of information must be included. Acceptable sources of information for each waste or waste stream include the following:

(1) Process knowledge when raw materials and reagents are combined and react in a known manner.

(2) Generator knowledge and manufacturer published specifications of chemicals or components.

(d) The Director may request further information, as needed, to substantiate the determination that explosive wastes exhibit the characteristic of reactivity under § 261.23 of this chapter or cannot be treated by another safe mode of treatment or to substantiate conditions established by an explosives safety specialist to safely treat, store, or dispose the waste properly in accordance with this part.

(e) Owners or operators must submit all components of the waste analysis to the Director electronically. If there are information sensitivity concerns (information may include, but is not limited to: confidential business information, controlled unclassified information, and classified information), the owner/operator must make reasonable accommodations for the Director to have access to the

information contained in a waste analysis unless prohibited by applicable Federal law or regulation, including prohibition or restriction for national security reasons. This information may be withheld from the public and summarily referenced in the waste analysis as part of the public RCRA permit application without disclosing sensitive information.

(f) The Director may accept a waste analysis without all prescribed analysis as described in this section if there are safety concerns that cannot be mitigated/prevented in conducting the analysis, there is no process or generator knowledge applicable, and the owners/operators provide information describing the safety concerns related to testing.

**§ 264.707 Alternative technology evaluation and implementation.**

(a) *Requirement for an alternative technology evaluation.* Owners or operators that seek to use OB and/or OD (OB/OD) for treatment of waste explosives as defined in § 260.10 of this chapter must demonstrate through an evaluation that there are no safe and available alternative treatment technologies, except as § 264.704 provides otherwise, according to the requirements of this section. During the evaluation period for the alternative technology and during the implementation period for the alternative technology, the owner/operator may continue the use of OB/OD as a treatment method for the subject wastes.

(b) *Criteria and contents of alternative technology evaluation.* The demonstration must be an evaluation of alternative treatment technologies for each waste explosive stream requiring treatment. The evaluation must be conducted using the following specified criteria and the evaluation report must include the following specified content:

(1) Criteria that each technology must be evaluated against are:

(i) *Safe.* Technology must be determined to be safe for the specific waste explosives by an explosives or munitions specialist; designed, constructed, and operated in a manner that is safe and protective of human health and the environment; and uses appropriate procedures and technologies to ensure safe handling and treatment, as determined by an explosives or munitions specialist; and

(ii) *Available.* Technology is available when it can be used on-site or off-site, rented, leased, or purchased from a qualified vendor or entity, or custom designed and constructed by a qualified vendor or entity and has been

determined through a technical evaluation, such as a demonstration at full-scale, to consistently perform the functions necessary to be effective.

(2) Evaluation content must include:

(i) A description of the facility operations that generate waste explosives and of any alternative treatment technologies in use and the waste streams treated;

(ii) A characterization of the waste explosives according to both the physical and chemical aspects as required under § 264.706;

(iii) An initial screening of available alternative treatment technologies according to the criteria in paragraph (b)(1) of this section for each explosive waste stream and the rationale to support removal of technologies from further consideration;

(A) If an owner/operator plans to conduct a treatability study in accordance with § 264.1(e) and/or (f), a description of the proposed study and the timing for conducting study must be submitted to the Director.

(B) If an owner/operator is in the process of conducting or has conducted a treatability study in accordance with § 264.1(e) and/or (f), documentation of the study, including anticipated timing for completion or the completion date, and any conclusions reached, must be submitted to the Director.

(C) If an owner/operator plans to apply for a research, development, and demonstration (RD&D) permit under § 270.65 of this chapter, all available information that will accompany a permit application, including anticipated timing for initiating and completing the RD&D activities, must be submitted to the Director.

(D) If an owner/operator is conducting RD&D activities under a § 270.65 permit, or has concluded RD&D activities, a copy of the permit or any conclusions reached after conclusion of the RD&D activities, must be submitted to the Director.

(iv) An analysis of alternative treatment technologies that pass the initial screening for each explosive waste stream to include any pre-treatment technologies and the waste streams and the percentage of the waste streams capable of being treated by the technologies;

(v) Identification of selected alternative treatment technology or combination of technologies;

(vi) Evaluation of off-site and mobile unit treatment options using alternative treatment technologies.

(A) For waste streams that cannot be shipped off-site, documentation must be submitted indicating that the waste explosive is a forbidden explosive, DoD

or DOE explosives safety specialists have determined that the waste cannot be shipped according to the DoD Explosives Hazard Classification Procedures, or a Department of Transportation competent authority approval or special permit has been requested and denied. For the Department of Transportation permit denial, documentation must include the denial correspondence and the tracking number assigned to the request for a competent authority approval or special permit.

(B) For the mobile treatment unit alternative technology evaluation, it must be conducted according to the criteria in paragraph (b)(1) of this section and accompanied by a rationale when a decision is made to not use a mobile treatment unit.

(vii) Identification of each explosive waste stream proposed for treatment by OB/OD and its:

(A) Net explosive weight;

(B) Physical and chemical aspects according to § 264.706(b)(1);

(C) Treatment method as either OB or OD; and

(D) Rationale for OB/OD.

(3) A complete evaluation must be submitted, as a written report, to the Director for approval in accordance with the time frames established under paragraph (c) of this section.

(4) The Director shall approve the evaluation after a completeness determination is made. An evaluation is complete when:

(i) Every component of the required content according to (b)(2) of this section is fully addressed; and

(ii) The rationale, where required by (b)(2) of this section, is provided to support the decisions.

(c) *Timing of initial alternative technology evaluations.* (1) The initial alternative technology evaluation must be prepared and submitted to the Director as part of the next permit application supporting any of the following permit actions.

(i) Application for a new OB/OD unit;

(ii) Renewal application of an existing OB/OD unit;

(iii) Permit application for an interim status OB/OD unit; or

(iv) Class 2 or Class 3 permit modification associated with an OB/OD unit.

(2) An owner/operator that conducted an alternative technology evaluation within three years prior to [EFFECTIVE DATE OF THE FINAL RULE] may use that evaluation in lieu of conducting another alternative technology evaluation provided that:

(i) The alternative technology evaluation assessed all waste streams



currently or proposed to be treated by OB/OD by the facility; and

(ii) The alternative technology evaluation meets or exceeds the requirements for an alternative technology evaluation at § 264.707(b).

(d) *Timing of alternative technology reevaluations.* To continue OB/OD, the owner/operator must conduct an alternative technology reevaluation every five years following the initial alternative technology evaluation.

(e) *Implementation of alternative technologies.* (1) Within 180 days of the completion of an alternative technology evaluation and a determination that a safe alternative technology is available, the owner/operator must submit a schedule for implementation of the identified safe alternative technology. The schedule must include all significant milestones including:

- (i) Vendor procurement;
- (ii) Submittal of a permit application to add the alternative technology unit;
- (iii) Construction start and completion dates, if applicable;
- (iv) Testing and results of testing of the alternative technology; and
- (v) Operation of the alternative technology.

(2) The schedule of implementation must be incorporated by reference into the facility's RCRA permit.

(3) Thereafter, the schedule for implementation may be amended through a Class 1 permit modification with prior Director approval as provided by § 270.42 of this chapter.

(4) The owner/operator must comply with the schedule of implementation of the alternative technology.

#### § 264.708 Operating requirements.

(a) The owner/operator of an OB/OD unit may only treat waste explosives as specified and according to the conditions of the permit.

(b) An OB/OD unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. The permit must contain any conditions necessary to protect human health and the environment. Permit conditions and terms for OB/OD units must be established that are specific to the unit and type of explosive waste and which address the following parameters:

(1) *Meteorological conditions.* Allowable wind conditions including a minimum and maximum speed and direction; acceptable minimum and maximum air temperature; acceptable minimum and maximum humidity; restrictions on OB/OD activities in the event of precipitation or a high probability of precipitation; acceptable

cloud conditions including overall cloud cover and cloud ceiling height; and, as appropriate, restriction on OB/OD for different air pollution statuses (e.g., air quality index).

(2) *Explosive waste processing limits.* Limits on duration of OB/OD events; maximum net explosive weight per OB/OD event, day, and year.

(3) *Noise and ground vibration control.* Threshold levels and mitigation measures to minimize noise and ground vibration that affects areas outside the facility boundary. Controls or changes in operating parameters or unit design may be necessary to comply with this provision. If measures to control noise and ground vibration are not possible, the unit may need to be relocated.

(4) *Removal of excess material.* Requirements to remove excess material (such as foils and casings) if it is possible to do so safely.

(5) *Timing of OB/OD events.* Requirements on time of day for OB/OD events and duration of events. OB/OD should only occur during daylight hours and should not be allowed to continue after dark.

(6) *Engineering controls and measures.* Appropriate engineering controls and measures to prevent/minimize surface, subsurface, and groundwater contamination and aerial dispersion and release and/or migration of residues, kickout and contaminants into the environment and off-site. Engineering controls include surface water/storm water run-on and run-off controls, concrete pads with integrated curbs and sump pumps, lined drainage ditches, collection basins, blast barriers/shields/blankets, berms, metal cages, metal lids or covers for burn pans, soil covers for OD, and routine operation and maintenance measures including removal of residues, kickout, and visible surface contamination (e.g., black soot, staining, ejecta) from the unit and surrounding area.

(7) *Location.* Location considerations including depth to groundwater, distance to surface water, distance to the property boundary, and distance to the nearest residence, school, or daycare; and location considerations for units in 100-year floodplains as required under § 264.18(b).

(8) *Safe distance.* Safe distance plan including safe distance calculation. The safe distances calculation must include to the property boundary and to the nearest public access point. If the waste stream does not have known safe distances, or the waste characterization is unavailable due to safety concerns, a plan for determining the safe distance must be included.

(9) *Security.* Security plan and controls to ensure unauthorized access by the public to the OB/OD units including surrounding kickout area is minimized.

(10) *Public notice and outreach plan.* Public notice and outreach plan must include notice to the surrounding community of OB/OD activities and events, method of notice distribution, required content of the notice, method(s) for community members to contact the facility with questions or concerns, and timeframe for notifications. The content of the plan must include how information will be made available to the public regarding contaminants emitted or released from OB/OD operations, environmental monitoring data/results, and, if applicable, locations of off-site contamination including kickout and groundwater contamination.

(11) *Prohibited wastes.* Owners or operators must not treat by OB/OD any of the following wastes:

(i) Mixed wastes containing more than trace amounts of depleted uranium (DU);

(ii) White and red phosphorus;

(iii) Picatinny Arsenal Explosive 21 (PAX-21);

(iv) Any materials containing polychlorinated biphenyls (PCBs) as defined in § 761.3 of this chapter;

(v) Munitions characterized by the delivery of two or more antipersonnel, anti-material, or anti-armor submunitions (also known as bomblets) by a parent munition, such as improved conventional munitions (ICMs) or cluster bombs;

(vi) Chemical weapons as defined in § 264.705; and

(vii) Any other wastes the Director determines should be banned from OB/OD as necessary to protect human health and the environment.

#### § 264.710 Monitoring requirements.

(a) Owners/operators of OB/OD units must develop monitoring plans for groundwater, soil and residues, air, kickout, storm water, and if present, surface water and sediments, and submit these plans to the Director for approval under § 270.23 of this chapter. The Director must make the determination whether the proposed monitoring plans are sufficient for the specific facility and include the approved monitoring plans for the permit. In all cases where the owner/operator proposes that a specific media monitoring is not needed, the rationale for such proposal must be included in the monitoring plan. Owners/operators must implement the monitoring plans to monitor for releases and contamination

from the OB/OD units including the surrounding kickout areas as specified in paragraphs (a)(1) through (6) of this section. The monitoring must test for any potential constituents related to the treatment of the wastes by OB/OD including any combustion products and byproducts, that have the potential to adversely affect human health and the environment. For all media types, monitoring frequencies may be reduced from the minimum monitoring outlined in paragraphs (a)(1) through (7) of this section, if the permit limits the OB/OD treatment activity in the unit to ensure that the unit is not used frequently enough to warrant the monitoring frequency outlined in paragraphs (a)(1) through (7) of this section, and the Director makes the determination that a reduced monitoring plan is acceptable for the site. For each monitored constituent and environmental media type, the monitoring plans must include an action level, a concentration or amount where the owner/operator must take action to mitigate and manage the release of the constituent based on best available science. The plans must also include analysis and evaluation of the data, procedures for notifications to the Director, and all appropriate response actions. The monitoring must include:

(1) Groundwater monitoring to detect any potential releases from the OB/OD units. Groundwater monitoring must include at least one upgradient background well in addition to downgradient wells. Wells must be located and screened to detect potential releases of contaminants to the uppermost flow zones and any preferential flow paths (subsurface pathways that allow more rapid transport of water and solutes in the soil and groundwater). Groundwater monitoring must include routine depth to water. Nested piezometers where needed to chart groundwater flow and measurements to identify and track any fluctuations in the direction of groundwater flow are required, unless the Director determines they are not needed due to hydrogeologic conditions. Sampling and testing must be conducted in accordance with an approved RCRA groundwater monitoring plan at least until the unit completes RCRA closure (soils and groundwater) and is under a post-closure permit as applicable. If, based on site-specific conditions, there is no pathway for constituents to enter groundwater from OB/OD, the Director may determine that groundwater monitoring is not necessary.

(2) Stormwater monitoring to detect any potential releases. Stormwater monitoring must be conducted in

accordance with an approved RCRA stormwater monitoring plan until the unit completes RCRA closure and is under a post-closure permit as applicable.

(3) Surface water monitoring of nearby surface water bodies to detect potential releases from the OB/OD unit. Surface water monitoring must be conducted in accordance with an approved RCRA surface water monitoring plan until the unit completes RCRA closure and is under a post-closure permit as applicable. Sediments in the surface water must be monitored according to the sediments sampling plan. If, based on site-specific conditions, there is no pathway for constituents to enter surface water from OB/OD, the Director may determine that surface water monitoring is not necessary.

(4) Soil must be monitored monthly around the unit (e.g., burn pans, cages, piles, and detonation sites) to detect potential releases into the environment. This soil does not include any soil or environmental media used as engineering control such as soil cover for detonation events.

(5) Air monitoring to detect potential releases from the OB/OD unit. Air monitoring is required downwind of the OB/OD unit and at or near the facility boundary. Downwind monitoring must be located in the direction most likely to be downwind at the time of OB/OD. If there is no single most likely direction, multiple downwind monitoring locations may be needed. The direction must be determined in accordance with § 264.708(b)(1). At least one air monitoring station must be located downwind of the OB/OD unit and as close to the unit as possible, in accordance with an approved air monitoring plan. Air monitoring must be conducted upwind of the facility, where they would not be impacted by facility operations including any other open burning or open detonation (e.g., OB/OD conducted related to product testing or training or explosives or munitions activities), to establish background or ambient concentrations unless the owner/operator makes the assumption there is zero background contamination. If, based on site-specific conditions, the owner/operator can demonstrate that air monitoring is not necessary to protect human health and the environment, the Director may determine that air monitoring is not necessary.

(6) Air smoke plumes must be visually monitored and recorded (e.g., in a log) during each OB/OD event: the direction, duration, extent, and opacity

of smoke plumes, and whether the plume goes off facility.

(7) Kickout must be visually monitored and recorded after each OB/OD event conducted at the OB/OD unit. The operator/operator must monitor and record the following information: the extent (distance from OB/OD unit), description, and location of all kickout that goes off facility. On a weekly basis, the owner/operator must find, retrieve, and treat all kickout that goes off-site unless the landowner refuses entry for this purpose. The owner/operator must maintain an electronic record on-site for any kickout that is known to migrate off-site but not found during the operating life of the unit, and this record must be maintained on-site until all remaining kickout is found and treated, such as during closure of the unit. If kickout is regularly discovered or found outside the unit boundary, the owner/operator should reduce the NEW per event or request a permit modification to adjust the unit boundary.

(b) Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with §§ 264.15, 264.33, 264.75, 264.76, 264.77, and 264.101 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

#### **§ 264.712 Recordkeeping, inspections, training, and reporting requirements.**

All facilities must comply with §§ 264.15, 264.16, subparts C and D, and 264.73. The contents of this section clarify and add additional provisions applicable to OB/OD units.

(a) The owner/operator is required to keep electronic records of all OB/OD unit activity. This information must be maintained in the operating record and accessible on-site five (5) years after closure of the entire Resource Conservation and Recovery Act (RCRA) facility in the event of clean closure. If an OB/OD unit enters post-closure, the records must be maintained through the entire post-closure period. The records must contain the following for each treatment event:

(1) A detailed description of each waste stream treated in each unit including the type, chemical composition, and percentage of energetic and inert chemicals, materials, and binders; physical form/dimensions/composition; description of casing if any; number/amount of items; total weight; and net explosive weight (NEW). The waste analysis of the waste stream may be referenced if the waste analysis includes this information.

(2) Time and date of OB/OD treatment.

(3) A record of the atmospheric conditions at the time of treatment to document compliance with the criteria set forth in the permit.

(4) A detailed description of any non-conformance issues or events, including incomplete treatment that required collection and re-treatment of partially treated waste; periods of smoldering or incomplete combustion; black smoke plumes migrating beyond the facility boundary, releases of ejecta or kickout from the unit boundary or facility boundary. Details of actions taken to remedy the non-conformance issues or events. Actions taken to prevent non-conformance issues or events in the future.

(b) The owner/operator of any OB/OD units must conduct regular inspections as specified in the permit. A schedule and example inspection sheet must be included in the permit application. The schedule and example inspection sheet must account for the maximum OB/OD operations NEW and frequency limits set forth in the permit application. The permit may have any additional inspection requirements to remain protective of human health and the environment as determined by the Director. All inspection records and recordkeeping must be kept electronically and must be accessible on-site for at least five (5) years. At a minimum, the inspection schedule must include the schedule outlined by paragraphs (b)(1) and (2) of this section unless the unit is used for treatment less than the frequency specified in paragraphs (b)(1) and (2) of this section, the owner/operator notifies the Director of the reduction in unit monitoring and the rationale based on site-specific conditions:

(1) Inspections after the last treatment event per day to look for untreated waste, debris, shrapnel, burn residues, and obvious damage to the treatment unit that would affect unit performance.

(2) Monthly inspections to verify the structural integrity of any structures built or used to treat hazardous waste. If any problems affecting performance or protectiveness of the unit are found, they must be fixed before the unit is used for any treatment activity.

(c) The owner/operator must design and administer personnel training in accordance with § 264.16. All personnel involved in the handling, treatment, or management of hazardous waste must attend training tailored to the OB/OD unit and the explosive wastes treated. Training must be updated whenever there is a new waste stream and whenever operations change the way

treatment is conducted for the unit. This information must be maintained in the electronic operating record until closure of the facility.

(d) The owner/operator must report the following to the Director electronically:

(1) Any unit failure event where the unit is damaged, or treatment does not occur in the OB/OD unit as intended by the permit seven (7) days of the initial failure. The unit failure cause and potential correction for the unit must be submitted within 30 days of the initial failure.

(2) An annual summary report of all documented untreated waste beyond the OB/OD unit from the kickout monitoring described in § 264.712(c)(6).

(3) All hazardous constituents and treatment byproducts in the air, soil, groundwater, or surface water at or above the levels set forth in the monitoring plan. All findings must be reported immediately.

(4) Any records requested by the Director.

**§ 264.713 Closure; time allowed for closure for certain activities.**

Open burn and open detonation units are subject to the requirements of § 264.113, except when the units are used for activities in which military munitions are used as intended or the units have the potential to be impacted by munitions constituents or explosive waste contaminants from adjacent activities. When used for these activities, the owner/operator must demonstrate that:

(a) The following activities will occur or are occurring:

(1) The open burn or open detonation unit is used for activities in which military munitions are used as intended; or

(2) The open burn or open detonation unit has the potential to be impacted by munitions constituents or explosive waste contaminants from the active military range the unit is located on or from adjacent open burn or open detonation units. The owner/operator must demonstrate that contaminants from the active range or adjacent operating units have the potential to contribute contaminants within the inactive unit boundary. This demonstration must be made by providing:

(i) Maps showing all impacted open burn and open detonation units, kickout areas, and their boundaries and the locations of the activities that will occur or are occurring; and

(ii) A description of all activities that will contribute contaminants;

(iii) Meteorological conditions that may cause deposition of contaminants within the inactive unit boundary; and

(b) Has taken and will continue to take all steps to prevent releases and threats to human health and the environment from the unclosed but not operating OB/OD unit, including compliance with all applicable permit requirements. Monitoring requirements of § 264.710 may be modified in the permit as appropriate to the location and circumstances of use of the unit, until closure activities have been completed for the units requesting delayed closure under the listed circumstances in paragraph (a) of this section.

**§ 264.714 Closure and post-closure care.**

OB/OD units must comply with the closure requirements of subpart G of part 264 except as specified in § 264.713. In addition:

(a) If after removing or decontaminating all residues and making all reasonable efforts to remove or decontaminate any contaminated components, soils, subsoils, structures, and equipment, the owner/operator finds that not all contaminated soils and subsoils can be practicably removed or decontaminated, the owner/operator must close the unit and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills at § 264.310.

(b) If an OB/OD unit is closed as a landfill, any remaining waste explosives and residues must be remediated to levels such that the explosives concentration in the soil and subsoils no longer present an explosive safety hazard as confirmed by testing before a cap or cover may be put in place.

**§ 264.715 Emergency provisions.**

(a) *Emergency responses.* An explosives or munitions emergency response, as defined in § 260.10 of this chapter, is exempt from RCRA treatment, storage, and disposal standards and permit requirements pursuant to §§ 262.10(i), 263.10(e), 264.1(g)(8), 265.1(c)(11), and 270.1(c)(3) of this chapter, including the requirement to conduct an alternative treatment technology evaluation per § 264.704, during a response. After the explosives or munitions emergency response specialist declares that the emergency response is complete,

(1) The response unit's base or facility of origin, based on information from an explosives or munitions emergency response specialist must submit the following information to the Director within five (5) days:

(j) The type of explosive or munition and its size and quantity;

(ii) Whether it is armed, primed, fused, had been fired and/or did not function, or if undeterminable, as applicable to the item type;

(iii) The condition and its stability, as applicable to the item type;

(iv) The location of discovery or generation and location and description of the storage area; and if applicable,

(v) Whether an alternative technology was immediately available and safe for use given the site-specific situation.

(b) *Emergency permits.* When an explosives or munitions emergency response as defined in § 260.10 of this chapter is not required, but temporary treatment of explosives or munitions is needed to address an imminent and substantial endangerment to human health and the environment, an emergency permit under § 270.61 of this chapter is required.

(1) The response unit's base or facility of origin, based on information from an explosives or munitions emergency response specialist must provide documentation to support a decision by the Director to issue an emergency permit under § 270.61 of this chapter. This documentation must include the following information:

(i) All information required by paragraphs (a)(1)(i) through (iv) of this section;

(ii) The anticipated or actual frequency and quantity of generation of explosive material;

(iii) The expected timeframe from discovery or generation to final treatment;

(iv) A list of existing available alternative technologies that are known to treat the waste explosive identified in paragraph (b)(1)(i) of this section and which can either be brought to the location for use or to which the wastes can be transported; and,

(v) Rationale to support a determination that no safe alternative technology is available for use within a reasonable time given the site-specific situation, or that the wastes cannot be shipped off-site.

(2) Documentation required in § 264.715(b)(1) must be submitted to the Director within five (5) days of beginning treatment and must be incorporated into the emergency permit.

(3) If the Director determines, based on the documentation submitted, that the treatment activity does not qualify for an emergency permit, then the treatment must cease until a permit application with an alternative technology evaluation is received pursuant to § 270.10 of this chapter and

in accordance with the applicable standards in subpart Y of this part.

(4) Treatment by OB/OD must cease if and when an alternative technology is selected and implemented, in accordance with the revised emergency permit.

**PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES**

■ 13. The authority for part 265 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6906, 6912, 6922, 6923, 6924, 6925, 6935, 6936, 6937, and 6939g.

■ 14. Amend § 265.111 by revising paragraph (c) to read as follows:

**§ 265.111 Closure performance standard.**

\* \* \* \* \*

(c) Complies with the closure requirements of this subpart, including, but not limited to, the requirements of §§ 265.197, 265.228, 265.258, 265.280, 265.310, 265.351, 265.381, 265.404, 265.713, and 265.1102.

\* \* \* \* \*

■ 15. Amend § 265.112 by revising paragraph (d)(1) to read as follows:

**§ 265.112 Closure plan; amendment of plan.**

\* \* \* \* \*

(d) \* \* \*

(1) The owner/operator must submit the closure plan to the Director at least 180 days prior to the date on which he expects to begin closure of the first surface impoundment, waste pile, land treatment or landfill unit, or open burn or open detonation unit, or final closure if it involves such a unit, whichever is earlier. The owner/operator must submit the closure plan to the Director at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or industrial furnace. The owner/operator must submit the closure plan to the Director at least 45 days prior to the date on which he expects to begin final closure of a facility with only tanks, container storage, or incinerator units. Owners or operators with approved closure plans must notify the Director in writing at least 60 days prior to the date on which he expects to begin closure of a surface impoundment, waste pile, landfill, land treatment unit, open burn or open detonation unit or final closure of a facility involving such a unit. Owners or operators with approved closure plans must notify the Director in writing at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or

industrial furnace. Owners or operators with approved closure plans must notify the Director in writing at least 45 days prior to the date on which he expects to begin final closure of a facility with only tanks, container storage, or incinerator units.

\* \* \* \* \*

■ 16. Amend § 265.113 by revising paragraph (b) introductory text to read as follows:

**§ 265.113 Closure; time allowed for closure.**

\* \* \* \* \*

(b) Except as provided in § 265.713, the owner/operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of nonhazardous wastes if the owner/operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at the hazardous waste management unit or facility, or 180 days after approval of the closure plan, if that is later. The Director may approve an extension to the closure period if the owner/operator demonstrates that:

\* \* \* \* \*

**Subpart P—Thermal Treatment**

■ 17. Revise § 265.382 to read as follows:

**§ 265.382 Open burning and open detonation; waste explosives.**

Open burning and open detonation of hazardous waste is prohibited except for the open burning and/or open detonation of waste explosives (as those terms defined in § 260.10 of this chapter) cannot be safely treated through other modes of treatment. Owners or operators choosing to open burn or detonate waste explosives must do so in accordance with subpart Y of this part and in accordance with the following table:

Pounds of waste explosives or propellants	Minimum distance from open burning or detonation to the property of others
0 to 100 .....	204 meters (670 feet).
101 to 1,000 .....	380 meters (1,250 feet).
1,001 to 10,000 .....	530 meters (1,730 feet).
10,001 to 30,000 .....	690 meters (2,260 feet).

■ 18. Revise § 265.383 to read as follows:

**§ 265.383 Interim status thermal treatment devices burning particular hazardous waste.**

(a) Owners or operators of thermal treatment devices subject to this subpart may burn EPA Hazardous Wastes FO20, FO21, FO22, FO23, FO26, or FO27 if

they receive a certification from the Assistant Administrator for Land and Emergency Management that they can meet the performance standards of subpart O of part 264 of this chapter when they burn these wastes.

(b) The following standards and procedures will be used in determining whether to certify a thermal treatment unit:

(1) The owner/operator will submit an application to the Assistant Administrator for Land and Emergency Management containing the applicable information in §§ 270.19 and 270.62 of this chapter demonstrating that the thermal treatment unit can meet the performance standard in subpart O of part 264 of this chapter when they burn these wastes.

(2) The Assistant Administrator for Land and Emergency Management will issue a tentative decision as to whether the thermal treatment unit can meet the performance standards in subpart O of part 264 of this chapter. Notification of this tentative decision will be provided by newspaper advertisement and radio broadcast in the jurisdiction where the thermal treatment device is located. The Assistant Administrator for Land and Emergency Management will accept comment on the tentative decision for 60 days. The Assistant Administrator for Solid Waste and Emergency Response also may hold a public hearing upon request or at his discretion.

(3) After the close of the public comment period, the Assistant Administrator for Land and Emergency Management will issue a decision whether or not to certify the thermal treatment unit.

■ 19. Amend part 265 by adding subpart Y to read as follows:

### Subpart Y—Open Burning and Open Detonation Units

Sec.

265.704 Applicability.

265.705 Definitions applicable to this subpart.

265.706 Waste analysis.

265.707 Alternative technology evaluation and implementation.

265.708 Operating requirements.

265.710 Monitoring requirements.

265.712 Recordkeeping, inspections, training, and reporting requirements.

265.713 Closure; time allowed for closure for certain activities.

265.714 Closure and post-closure care.

265.715 Emergency provisions.

#### § 265.704 Applicability.

(a) Open burning and open detonation of hazardous waste is prohibited except for the open burning and open detonation of waste explosives as defined in § 260.10 of this chapter and

which cannot be safely treated of through other modes of treatment.

(b) To be eligible to open burn or open detonate waste explosives, owners/operators must submit documentation of waste analysis required under § 265.706 and an alternative technology evaluation required under § 265.707(b)(3) to the Director in accordance with the time frames established under § 265.707(c). During the evaluation period for the alternative technology and during the implementation period for the alternative technology, the owner/operator can continue the use of OB/OD as a treatment method for the subject wastes. If the owner/operator is eligible to open burn or open detonate any waste explosives, they must conduct the open burning or open detonation in accordance with §§ 265.708 and 265.710 and in a manner that is protective of human health and the environment.

(c) The requirements of this subpart apply to owners/operators that treat or intend to treat waste explosives in open burning and open detonation (OB/OD) units as defined in § 260.10 of this chapter, except as § 265.1 provides otherwise.

(d) Explosives and munitions emergency responses as defined in § 260.10 of this chapter are exempt from the requirements of this subpart, except as indicated in § 265.715(a).

(e) *De minimis* quantities.

(1) Owners and operators of a facility that generates up to 15,000 lbs NEW of waste explosives annually may treat by OB/OD up to the amount of waste explosives generated without complying with § 265.707 provided that they make, to the Director's satisfaction, the demonstrations in paragraphs (e)(1)(i) through (iii) of this section.

(i) A demonstration that the proposed *de minimis* treatment by OB/OD would contribute negligible contamination and potential for exposure. This demonstration must consider, at a minimum, the following criteria:

(A) The quantity of waste explosives proposed to be treated annually by OB/OD under this *de minimis* exemption. Under no circumstances will the Director approve a *de minimis* exemption for waste explosives treatment by OB/OD that exceeds 15,000 lbs NEW annually.

(B) The waste stream(s) to be treated and their known or anticipated toxicity and byproducts from OB/OD treatment.

(C) The location of the OB/OD treatment and potential to impact nearby receptors, resources, and sensitive environments.

(D) Controls and other protective measures that are in place and would

inform the potential for contamination onsite and offsite.

(ii) A demonstration that treatment by an MTU, treatment off-site by an alternative technology, and treatment by an existing on-site alternative technology, if applicable, is not safe and available.

(iii) A demonstration that the facility does not have any unresolved compliance or enforcement actions and does not have a history of significant noncompliance.

(2) The Director shall deny the request for this *de minimis* exemption when the demonstrations required by (e)(1)(i) through (iii) of this section cannot be satisfactorily met.

(3) To remain eligible for the exemption from the requirements of § 265.707, the owner/operator must submit this demonstration on the same schedule as they would have submitted alternative technology evaluations for the subject wastes under § 265.707(c) and (d).

(4) If at any time, the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, the owner/operator must notify the Director within five days.

(5) The Director may, based on reasonable belief that the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, request additional information from the owner/operator to determine if the OB/OD activities still meet the *de minimis* criteria of paragraph (e)(1) of this section.

(6) If a determination is made under paragraph (e)(4) or (5) of this section that the continued treatment of waste explosives by OB/OD under this exemption would present a threat to human health and the environment, the exemption will be withdrawn. If the exemption is withdrawn, § 265.707 becomes applicable and the owner/operator must submit to the Director an alternative technology evaluation for the subject waste streams in accordance with § 265.707 within one year.

#### § 265.705 Definitions applicable to this subpart.

The following definitions apply to this subpart.

*Chemical weapon* means a Chemical Warfare Materiel (CWM) as defined in 32 CFR 179.3.

*Debris* means solid material exceeding a 60 mm particle size that is intended for treatment or disposal and that is: A manufactured object; or plant or animal matter; or natural geologic material.

*Hazardous debris* means debris (e.g., wood, plastic, concrete, personal protective equipment) that contains a hazardous waste listed in subpart D of part 261 of this chapter, or that exhibits a characteristic of hazardous waste identified in subpart C of part 261 of this chapter. Any deliberate mixing of hazardous waste with debris or hazardous debris with other debris that changes its treatment classification (i.e., from waste to hazardous debris) is not allowed under the dilution prohibition in § 268.3 of this chapter.

*Insensitive munition* means a munition that reliably fulfills its performance, readiness and operational requirements on demand and that minimizes the probability of inadvertent initiation and severity of subsequent collateral damage to weapon platforms, logistic systems and personnel when subjected to specified accidental and combat threats.

*Surface water* means all water which is open to the atmosphere and subject to surface runoff.

#### § 265.706 Waste analysis.

(a) Owners or operators that seek to use OB and/or OD (OB/OD) for treatment of waste explosive as defined in § 260.10 of this chapter must conduct and provide to the Director a detailed physical and chemical waste analysis for each explosive waste per §§ 270.14(b)(2) and (3) of this chapter, 265.13, and the requirements in this section.

(b) Documentation of waste analysis must include:

(1) *Identification of each waste stream.* Identify each waste stream by name and type. Munitions, explosive wastes, and explosive-contaminated waste materials of the same specifications, design, and purpose may be grouped together. Propellants may only be considered a single waste stream if the propellant has the same mixtures and compounds, are from the same manufacturing process and has the same degradation status and tolerances, based in part on lot/batch and expiration date. Similarly, if the owners/operators must handle or treat any explosive differently due to degradation or being off-specification for that explosive, a new waste analysis must be done for each batch of munition that has degraded or is off-specification. Explosives-contaminated hazardous debris or material may be grouped together if containing the same explosive contaminant and the debris or material is of similar composition.

(2) *Physical description.* For each waste stream, a physical description of the waste. For munitions, or any

material that is not bulk explosive waste, waste analysis must include design, dimensions, mass, main component features, and casing thickness. For bulk explosive wastes, energetics, and propellants, waste analysis must describe at a minimum the phase, color, packaging, mass, and density. Explosives-contaminated hazardous debris or material must include a physical description of all debris or material in the waste stream.

(3) *Chemical constituent analysis.* For each waste stream, a complete description of the chemical constituents and average percent composition, and an assessment of potential contaminants. Safety Data Sheet (SDS) for each chemical constituent must accompany this analysis (where available). Munitions and multi-component wastes must have chemical constituent analysis for each component of the waste. For example, the casing component should be analyzed separately from the filler and energetic component. Hazardous debris or material must include an analysis for all contaminants. The debris or material (e.g., wood, plastic, concrete, personal protective equipment) may be excluded from the chemical analysis unless there is potential it includes wastes listed under § 265.708(b)(11) or the Director determines an analysis of debris or material is needed. The chemical constituent analysis must include the net explosive weight (NEW) for each waste stream.

(4) *Chemical properties analysis.* For each waste stream, a description of the explosive properties of each mixture or component. At a minimum, the properties must include insensitivity (to impact, friction, and electrostatic discharge), flash point, pH, and free liquid determination. For each waste stream, all test methods, test results, and documentation of analyses conducted to comply with this section must be included.

(c) The owner/operator may use pre-determined information or knowledge of a specific waste stream or constituent in lieu of conducting chemical and physical analysis. The information must still be included as part of the waste analysis, and the source of that information must be clearly marked. Where applicable, the alternate source of information must be included. Acceptable sources of information for each waste or waste stream include the following:

(1) Process knowledge when raw materials and reagents are combined and react in a known manner.

(2) Generator knowledge and manufacturer published specifications of chemicals or components.

(d) The Director may request further information, as needed, to substantiate the determination of explosive wastes as having characteristic for reactivity under § 261.23 of this chapter or cannot be treated by another safe mode of treatment, or to substantiate conditions established by an explosives safety specialist to safely treat, store, or dispose the waste properly in accordance with this part.

(e) Owners or operators must submit all components of the waste analysis to the Director electronically. If there are information sensitivity concerns (information may include, but is not limited to: confidential business information, controlled unclassified information, and classified information), the owner/operator must make reasonable accommodations for the Director to have access to the information contained in a waste analysis unless prohibited by applicable Federal law or regulation, including prohibition or restriction for national security reasons. This information may be withheld from the public and summarily referenced in the waste analysis as part of the public proposed site plan without disclosing sensitive information.

(f) The Director may accept a waste analysis without all prescribed analysis as described in this section if there are safety concerns that cannot be mitigated/prevented in conducting the analysis, there is no process or generator knowledge applicable, and the owners/operators provide information describing the safety concerns related to testing.

#### § 265.707 Alternative technology evaluation and implementation.

(a) *Requirement for an alternative technology evaluation.* Owners or operators that seek to use OB and/or OD (OB/OD) for treatment of waste explosives as defined in § 260.10 of this chapter must demonstrate through an evaluation that there are no safe and available alternative treatment technologies, except as § 265.704 provides otherwise, according to the requirements of this section. During the evaluation period for the alternative technology and during the implementation period for the alternative technology, the owner/operator may continue the use of OB/OD as a treatment method for the subject wastes.

(b) *Criteria and contents of alternative technology evaluation.* The demonstration must be an evaluation of

alternative treatment technologies for each waste explosive stream requiring treatment. The evaluation must be conducted using the following specified criteria and the evaluation report must include the following specified content:

(1) Criteria that each technology must be evaluated against are:

(i) *Safe*. Technology must be determined to be safe for the specific waste explosives by an explosives or munitions specialist, designed, constructed, and operated in a manner that is safe and protective of human health and the environment, and uses appropriate procedures and technologies to ensure safe handling and treatment, as determined by an explosives or munitions specialist; and

(ii) *Available*. Technology is available when it can be used on-site or off-site, rented, leased, or purchased from a qualified vendor or entity, or custom designed and constructed by a qualified vendor or entity and has been determined through a technical evaluation, such as a demonstration at full-scale, to consistently perform the functions necessary to be effective.

(2) Evaluation content must include:

(i) A description of the facility operations that generate waste explosives and of any alternative treatment technologies in use and the waste streams treated;

(ii) A characterization of the waste explosives according to both the physical and chemical aspects as required under § 265.706;

(iii) An initial screening of available alternative treatment technologies according to the criteria in paragraph (b)(1) of this section;

(iv) An analysis on of alternative treatment technologies that pass the initial screening for each explosive waste stream;

(A) If an owner/operator plans to conduct a treatability study in accordance with § 264.1(e) and/or (f) of this chapter, a description of the proposed study and the timing for conducting study must be provided.

(B) If an owner/operator is in the process of conducting or has conducted a treatability study in accordance with § 264.1(e) and/or (f) of this chapter, documentation of the study, including anticipated timing for completion or the completion date, and any conclusions reached, must be provided.

(C) If an owner/operator plans to apply for a research, development, and demonstration (RD&D) permit under § 270.65 of this chapter, all available information that will accompany a permit application, including anticipated timing for initiating and

completing the RD&D activities, must be submitted to the Director.

(D) If an owner/operator is conducting RD&D activities under § 270.65 permit, or has concluded RD&D activities, a copy of the permit or any conclusions reached after conclusion of the RD&D activities, must be submitted to the Director.

(v) Identification of selected alternative treatment technologies;

(vi) Evaluation of off-site and mobile unit treatment options using alternative treatment technologies.

(A) For waste streams that cannot be shipped off-site, documentation must be submitted indicating that the waste explosive is a forbidden explosive, DoD or DOE explosives safety specialists have determined that the waste cannot be shipped according to the DOD Explosives Hazard Classification Procedures, or a Department of Transportation competent authority approval or special permit has been requested and denied. For the Department of Transportation permit denial, documentation must include the denial correspondence and the tracking number assigned to the request for a competent authority approval or special permit.

(B) For the mobile treatment unit alternative technology evaluation, it must be conducted according to the criteria in paragraph (b)(1) of this section and accompanied by a rationale when a decision is made to not use a mobile treatment unit.

(vii) Identification of each explosive waste stream proposed for treatment by OB/OD and its:

(A) Net explosive weight;

(B) Physical and chemical aspects according to § 265.706(b)(1); and

(C) Treatment method as either OB or OD.

(3) A complete evaluation must be submitted, as a written report, to the Director for approval in accordance with the time frames established under § 265.707(c).

(4) The Director shall approve the evaluation after a completeness determination is made. An evaluation is complete when:

(i) Every component of the required content according to paragraph (b)(2) of this section is fully addressed; and

(ii) The rationale, where required by paragraph (b)(2) of this section, is provided to support the decisions.

(c) *Timing of initial alternative technology evaluations and permit applications*. (1) The initial alternative technology evaluation must be prepared and submitted by [ONE YEAR AFTER THE EFFECTIVE DATE OF THE FINAL RULE].

(2) An owner/operator that conducted an alternative technology evaluation within three years prior to [EFFECTIVE DATE OF THE FINAL RULE] may use that evaluation in lieu of conducting another alternative technology evaluation provided that:

(i) That alternative technology evaluation assessed all waste streams currently or proposed to be treated by OB/OD by the facility; and

(ii) That alternative technology evaluation meets or exceeds the requirements for an alternative technology evaluation at § 265.707(b).

(3) Owners and operators who have previously submitted their part B permit applications for an OB/OD unit and who have not received their final permit as of [EFFECTIVE DATE OF THE FINAL RULE] would be required to modify their part B permit applications to incorporate the requirements of the final rule in parts 264, subpart Y of this chapter and/or apply for a permit for an alternative technology unit. A modified OB/OD unit permit application is due within one year of submitting the alternative technology evaluation or *de minimis* demonstration under § 265.704(e). The application for an alternative technology unit must be submitted in accordance with the schedule developed under paragraph (e) of this section.

(d) *Timing of alternative technology reevaluations*. To continue OB/OD, the owner/operator must conduct an alternative technology reevaluation every five years following the initial alternative technology evaluation.

(e) *Implementation of alternative technologies*. (1) Within 180 days of the completion of an alternative technology evaluation and a determination that a safe alternative technology is available, the owner/operator must complete a schedule for implementation of the identified safe alternative technology. The schedule must include all significant milestones including:

(i) Vendor procurement;

(ii) Submittal of a permit application to add the alternative technology unit;

(iii) Construction start and completion dates, if applicable;

(iv) Testing and results of testing of the alternative technology; and

(v) Operation of the alternative technology.

(2) The schedule of implementation must be incorporated by reference into the facility's hazardous waste management plan.

(3) Thereafter, the schedule for implementation may be amended upon mutual written agreement of the owner/operator and the Director.

(4) The owner/operator must comply with the schedule of implementation of the alternative technology.

**§ 265.708 Operating requirements.**

(a) The owner/operator may only treat waste explosives as specified and according to the conditions of the operating plan.

(b) An OB/OD unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. The plan must contain any conditions necessary to protect human health and the environment. Plan conditions and terms for OB/OD units must be established that are specific to the unit and type of explosive waste and which address the following parameters:

(1) *Meteorological conditions.*

Allowable wind conditions including a minimum and maximum speed and direction; acceptable minimum and maximum air temperature; acceptable minimum and maximum humidity; restrictions on OB/OD activities in the event of precipitation or a high probability of precipitation; acceptable cloud conditions including overall cloud cover and cloud ceiling height; and, as appropriate, restriction on OB/OD for different air pollution statuses (e.g., air quality index).

(2) *Explosive waste processing limits.*

Limits on duration of OB/OD events; maximum net explosive weight per OB/OD event, day, and year.

(3) *Noise and ground vibration control.* Threshold levels and mitigation measures to minimize noise and ground vibration that affects areas outside the facility boundary. Controls or changes in operating parameters or unit design may be necessary to comply with this provision. If measures to control noise and ground vibration are not possible, the unit may need to be relocated.

(4) *Removal of excess material.*

Requirements to remove excess material (such as foils and casings) if it is possible to do so safely.

(5) *Timing of OB/OD events.*

Requirements on time of day for OB/OD events and duration of events. OB/OD should only occur during daylight hours and should not be allowed to continue after dark.

(6) *Engineering controls and measures.* Appropriate engineering controls and measures to prevent/minimize surface, subsurface, and groundwater contamination and aerial dispersion and release and/or migration of residues, kickout and contaminants into the environment and off-site. Engineering controls include surface water/storm water run-on and run-off

controls, concrete pads with integrated curbs and sump pumps, lined drainage ditches, collection basins, blast barriers/shields/blankets, berms, metal cages, metal lids or covers for burn pans, soil covers for OD, and routine operation and maintenance measures including removal of residues, kickout, and visible surface contamination (e.g., black soot, staining, ejecta) from the unit and surrounding area.

(7) *Location.* Location considerations including depth to groundwater, distance to surface water, distance to the property boundary, and distance to the nearest residence, school, or daycare; and location considerations for units in 100-year floodplains as required under § 265.18(b).

(8) *Safe distance.* Safe distance plan including safe distance calculation. The safe distances calculation must include to the property boundary and to the nearest public access point. If the waste stream does not have known safe distances, or the waste characterization is unavailable due to safety concerns, a plan for determining the safe distance must be included.

(9) *Security.* Security plan and controls to ensure unauthorized access by the public to the OB/OD units including surrounding kickout area is minimized.

(10) *Public notice and outreach plan.* Public notice and outreach plan must include notice to the surrounding community of OB/OD activities and events, method of notice distribution, required content of the notice, method(s) for community members to contact the facility with questions or concerns, and timeframe for notifications. The content of the plan must include how information will be made available to the public regarding contaminants emitted or released from OB/OD operations, environmental monitoring data/results, and, in applicable, locations of off-site contamination including kickout and groundwater contamination.

(11) *Prohibited wastes.* Owners or operators must not treat by OB/OD any of the following wastes:

(i) Mixed wastes containing more than trace amounts of depleted uranium (DU);

(ii) White and red phosphorus;

(iii) Picatinny Arsenal Explosive 21 (PAX-21);

(iv) Any materials containing polychlorinated biphenyls (PCBs) as defined in § 761.3 of this chapter;

(v) Munitions characterized by the delivery of two or more antipersonnel, anti-material, or anti-armor submunitions (also known as bomblets) by a parent munition, such as improved

conventional munitions (ICMs) or cluster bombs; and

(vi) Chemical weapons as defined in § 265.705.

**§ 265.710 Monitoring requirements.**

(a) Owners/operators of OB/OD units must develop monitoring plans for groundwater, soil and residues, air, kickout, storm water, and if present, surface water and sediments, and submit these plans to the Director. The Director must make the determination whether the proposed monitoring plans are sufficient for the specific facility. In all cases where the owner/operator proposes that a specific media monitoring is not needed, the rationale for such proposal must be included in the monitoring plan. Owners/operators must implement the monitoring plans to monitor for releases and contamination from the OB/OD units including the surrounding kickout areas as specified in paragraphs (a)(1) through (6) of this section. The monitoring must test for any potential constituents related to the treatment of the wastes by OB/OD including any potential products and byproducts, that have the potential to adversely affect human health and the environment. For all media types, monitoring frequencies may be reduced from the minimum monitoring outlined in paragraphs (a)(1) through (7) of this section, if the unit is not used frequently enough to warrant the monitoring frequency outlined in paragraphs (a)(1) through (7) of this section, and the Director makes the determination that a reduced monitoring plan is acceptable for the site. For each monitored constituent and environmental media type, the monitoring plans must include an action level, a concentration or amount where the owner/operator must take action to mitigate and manage the release of the constituent based on best available science. The plan must also include analysis and evaluation of the data, procedures for notifications to the Director, and all appropriate response actions. The monitoring must include:

(1) Groundwater monitoring to detect any potential releases from the OB/OD units. Groundwater monitoring must include at least one upgradient background well in addition to downgradient wells. Wells must be located and screened to detect potential releases of contaminants to the uppermost flow zones and any preferential flow paths (subsurface pathways that allow more rapid transport of water and solutes in the soil and groundwater). Groundwater monitoring must include routine depth to water. Nested piezometers where needed to chart groundwater flow and



measurements to identify and track any fluctuations in the direction of groundwater flow are required, unless the Director determines they are not needed due to hydrogeologic conditions. Sampling and testing must be conducted in accordance with an approved RCRA groundwater monitoring plan at least until the unit completes RCRA closure (soils and groundwater) and is under an approved post-closure plan as applicable. If, based on site-specific conditions, there is no pathway for constituents to enter groundwater from OB/OD, the Director may determine that groundwater monitoring is not necessary.

(2) Stormwater monitoring to detect any potential releases. Stormwater monitoring must be conducted in accordance with an approved RCRA stormwater monitoring plan until the unit completes RCRA closure and is under an approved post-closure plan as applicable.

(3) Surface water monitoring of nearby surface water bodies to detect potential releases from the OB/OD unit. Surface water monitoring must be conducted in accordance with an approved RCRA surface water monitoring plan until the unit completes RCRA closure and is under an approved post-closure plan as applicable. Sediments in the surface water must be monitored according to the sediments sampling plan. If, based on site-specific conditions, there is no pathway for constituents to enter surface water from OB/OD, the Director may determine that surface water monitoring is not necessary.

(4) Soil must be monitored monthly around the unit (e.g., burn pans, cages, piles, and detonation sites) to detect potential releases into the environment. This soil does not include any soil or environmental media used as engineering control such as soil cover for detonation events.

(5) Air monitoring to detect potential releases from the OB/OD unit. Air monitoring is required downwind of the OB/OD unit and at or near the facility boundary. Downwind monitoring must be located in the direction most likely to be downwind at the time of OB/OD. If there is no single most likely direction, multiple downwind monitoring locations may be needed. The direction must be determined in accordance with § 265.708(b)(1) of this subpart. At least one air monitoring station must be located downwind of the OB/OD unit and as close to the unit as possible, in accordance with an approved air monitoring plan. Air monitoring must be conducted upwind of the facility, where they would not be

impacted by facility operations including any other open burning or open detonation (e.g., OB/OD conducted related to product testing or training or explosives or munitions activities), to establish background or ambient concentrations unless the owner/operator makes the assumption there is zero background contamination. If, based on site-specific conditions, the owner/operator can demonstrate that air monitoring is not necessary to protect human health and the environment, the Director may determine that air monitoring is not necessary.

(6) Air smoke plumes must be visually monitored and recorded (e.g., in a log) during each OB/OD event: the direction, duration, extent, and opacity of smoke plumes, and whether the plume goes off facility.

(7) Kickout must be visually monitored and recorded after each OB/OD event conducted at the OB/OD unit. The operator/operator must monitor and record the following information: the extent (distance from OB/OD unit), description, and location of all kickout that goes off facility. On a weekly basis, the owner/operator must find, retrieve, and treat all kickout that goes off-site unless the landowner refuses entry for this purpose. The owner/operator must maintain an electronic record on-site for any kickout that is known to migrate off-site but not found during the operating life of the unit, and this record must be maintained on-site until all remaining kickout is found and treated, such as during closure of the unit. If kickout is regularly discovered or found outside the unit boundary, the owner/operator should reduce the NEW per event or revise the unit boundary in the management plan.

(b) Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with §§ 265.15, 265.33, 265.75, 265.76, and 265.77 as well as meet any additional requirements needed to protect human health and the environment as specified in the site operating plan.

**§ 265.712 Recordkeeping, inspections, training, and reporting requirements.**

All facilities must comply with §§ 265.15, 265.16, subparts C and D, and 265.73. The contents of this section clarify and add additional provisions applicable to OB/OD units.

(a) The owner/operator is required to keep electronic records of all OB or OD unit activity. This information must be maintained in the operating record and accessible on-site five (5) years after closure of the entire RCRA facility in the event of clean closure. If an OB/OD unit

enters post-closure, the records must be maintained through the entire post-closure period. The records must contain the following for each treatment event:

(1) A detailed description of each waste stream treated in each unit including the type, chemical composition, and percentage of energetic and inert chemicals, materials, and binders; physical form/dimensions/composition; description of casing if any; number/amount of items; total weight; and net explosive weight (NEW). The waste analysis of the waste stream may be referenced if the waste analysis includes this information.

(2) Time and date of OB/OD treatment.

(3) A record of the atmospheric conditions at the time of treatment to document compliance with the criteria set forth in the operating plan.

(4) A detailed description of any non-conformance issues or events, including incomplete treatment that required collection and re-treatment of partially treated waste; periods of smoldering or incomplete combustion; black smoke plumes migrating beyond the facility boundary, releases of ejecta or kickout from the unit boundary or facility boundary. Details of actions taken to remedy the non-conformance issues or events. Actions taken to prevent non-conformance issues or events in the future.

(b) The owner/operator of any OB/OD units must conduct regular inspections as specified in the permit. A schedule and example inspection sheet must be included in the permit application. The schedule and example inspection sheet must account for the maximum OB/OD operations NEW and frequency limits set forth in the permit application. The plan may have any additional inspection requirements to remain protective of human health and the environment as necessary. All inspection records and recordkeeping must be kept electronically and must be accessible on-site for at least five (5) years. At a minimum, the inspection schedule must include the schedule outlined by paragraphs (b)(1) and (2) of this section unless the unit is used for treatment less than the frequency specified in paragraphs (b)(1) and (2) of this section, the owner/operator notifies the Director of the reduction in unit monitoring and the rationale based on site-specific conditions:

(1) Inspections after the last treatment event per day to look for untreated waste, debris, shrapnel, burn residues, and obvious damage to the treatment unit that would affect unit performance.

(2) Monthly inspections to verify the structural integrity of any structures built or used to treat hazardous waste. If any problems affecting performance or protectiveness of the unit are found, they must be fixed before the unit is used for any treatment activity.

(c) The owner/operator must design and administer personnel training in accordance with § 265.16. All personnel involved in the handling, treatment, or management of hazardous waste must attend training tailored to the OB/OD unit and the explosive wastes treated. Training must be updated whenever there is a new waste stream and whenever operations change the way treatment is conducted for the unit. This information must be maintained in the electronic operating record until closure of the facility.

(d) The owner/operator must report the following to the Director electronically:

(1) Any unit failure event where the unit is damaged or treatment does not occur in the OB/OD unit as intended by the plan seven (7) days of the initial failure. The unit failure cause and potential correction for the unit must be submitted within 30 days of the initial failure.

(2) An annual summary report of all documented untreated waste beyond the OB/OD unit from the kickout monitoring described in § 265.712(c)(6).

(3) All hazardous constituents and treatment byproducts in the air, soil, groundwater, or surface water at or above the levels set forth in the monitoring plan. All findings must be reported immediately.

(4) Any records requested by the Director.

**§ 265.713 Closure; time allowed for closure for certain activities.**

Open burn and open detonation units are subject to the requirements of § 265.113, except when the units are used for activities in which military munitions are used as intended or the units have the potential to be impacted by munitions constituents or explosive waste contaminants from adjacent activities. When used for these activities, the owner/operator must demonstrate that:

(a) The following activities will occur or are occurring:

(1) The open burn or open detonation unit is used for activities in which military munitions are used as intended; or

(2) The open burn or open detonation unit has the potential to be impacted by munitions constituents or explosive waste contaminants from the active military range the unit is located on or

from adjacent open burn or open detonation units. The owner/operator must demonstrate that contaminants from the active range or adjacent operating units have the potential to contribute contaminants within the inactive unit boundary. This demonstration must be made by providing:

(i) Maps showing all impacted open burn and open detonation units, kickout areas, and their boundaries and the locations of the activities that will occur or are occurring; and

(ii) A description of all activities that will contribute contaminants;

(iii) Meteorological conditions that may cause deposition of contaminants within the inactive unit boundary; and

(b) Has taken and will continue to take all steps to prevent releases and threats to human health and the environment from the unclosed but not operating OB/OD unit, including compliance with all applicable interim status requirements. Monitoring requirements of § 265.710 may be modified as appropriate to the location and circumstances for use of the unit, until closure activities have been completed for the units requesting delayed closure under the listed circumstances in paragraph (a) of this section.

**§ 265.714 Closure and post-closure care.**

OB/OD units must comply with the closure requirements of subpart G of this part except as specified in § 265.713. In addition:

(a) If after removing or decontaminating all residues and making all reasonable efforts to remove or decontaminate any contaminated components, soils, subsoils, structures, and equipment, the owner/operator finds that not all contaminated soils and subsoils can be practicably removed or decontaminated, the owner/operator must close the unit and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills at § 265.310.

(b) If an OB/OD unit is closed as a landfill, any remaining waste explosives and residues must be remediated to levels such that the explosives concentration in the soil and subsoils no longer present an explosive safety hazard as confirmed by testing before a cap or cover may be put in place.

**§ 265.715 Emergency provisions.**

(a) *Emergency responses.* An explosives or munitions emergency response, as defined in § 260.10 of this chapter, is exempt from RCRA treatment, storage, and disposal standards and requirements pursuant to

§§ 262.10(i), 263.10(e), 264.1(g)(8), 265.1(c)(11), and 270.1(c)(3) of this chapter, including the requirement to conduct an alternative technology evaluation per § 265.704, during a response. After the explosives or munitions emergency response specialist declares that the emergency response is complete,

(1) The response unit's base or facility of origin, based on information from an explosives or munitions emergency response specialist, must submit the following information to the Director within five (5) days:

(i) The type of explosive or munition and its size and quantity;

(ii) Whether it is armed, primed, fused, had been fired and/or did not function, or if undeterminable, as applicable to the item type;

(iii) The condition and its stability, as applicable to the item type;

(iv) The location of discovery or generation and location and description of the storage area; and if applicable,

(v) Whether an alternative technology was immediately available and safe for use given the site-specific situation.

(b) *Emergency permits.* When an explosives or munitions emergency response as defined in § 260.10 of this chapter is not required but temporary treatment of explosives or munitions is needed to address an imminent and substantial endangerment to human health and the environment, an emergency permit under § 270.61 of this chapter is required.

(1) The response unit's base or facility of origin, based on information from an explosives or munitions emergency response specialist must provide documentation to support a decision by the Director to issue an emergency permit under § 270.61 of this chapter. This documentation must include the following information:

(i) All information required by paragraphs (a)(1)(i) through (iv) of this section;

(ii) The anticipated or actual frequency and quantity of generation of explosive material;

(iii) The expected timeframe from discovery or generation to final treatment;

(iv) A list of existing available alternative technologies that are known to treat the waste explosive identified in paragraph (b)(1)(i) of this section and which can either be brought to the location for use or to which the wastes can be transported; and,

(v) Rationale to support a determination that no safe alternative technology is available for use within a reasonable time given the site-specific

situation, or that the explosive material cannot be shipped off-site.

(2) Documentation required in § 265.715(b)(1) must be submitted to the Director within five (5) days of beginning treatment and must be incorporated into the emergency permit.

(3) If the Director determines, based on the documentation submitted, that the treatment activity does not qualify for an emergency permit, then the treatment must cease until a permit application with an alternative technology evaluation is received pursuant to § 270.10 of this chapter and in accordance with the applicable standards in subpart Y of this part.

(4) Treatment by OB/OD must cease if and when an alternative technology is selected and implemented, in accordance with the revised emergency permit.

**PART 270—EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM**

■ 20. The authority citation for part 270 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912, 6924, 6925, 6927, 6939, and 6974.

**Subpart A—General Information**

■ 21. Amend § 270.1 by adding paragraph (c)(3)(iv) to read as follows:

**§ 270.1 Purpose and scope of these regulations.**

- (c) \* \* \*
(3) \* \* \*

(iv) Any person who responds to an explosives or munitions emergency must also comply with the reporting requirements of § 264.715(a)(1) or § 265.715(a)(1) of this chapter.

**Subpart B—Permit Application**

■ 22. Amend § 270.10 by adding paragraph (a)(7) to read as follows:

**§ 270.10 General application requirements.**

(a) \* \* \*

(7) If you are seeking a permit for a Mobile Treatment Unit to treat waste explosives, the procedures for application and issuance are found in subpart K of this part.

\* \* \* \* \*

■ 23. Amend § 270.23 by:

- a. Revising the section heading, the introductory text, paragraphs (a)(2) and (3) and (b);
■ b. Redesignating paragraph (e) as paragraph (f); and
■ c. Adding a new paragraph (e).

The revisions and addition to read as follows:

**§ 270.23 Specific part B information requirements for miscellaneous and open burn and open detonation units.**

Except as otherwise provided in § 264.600 of this chapter, owners/operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units and open burn and open detonation units must provide the following additional information:

(a) \* \* \*

(2) Detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of §§ 264.601 and 264.602 of this chapter for miscellaneous units, or §§ 264.708, 264.709, and 264.712 of this chapter for OB/OD units; and

(3) For disposal units and treatment units that cannot clean close, a detailed description of the plans to comply with the post-closure requirements of § 264.603 of this chapter for miscellaneous units or § 264.714 of this chapter for OB/OD units.

(b) Detailed hydrologic, geologic, and meteorologic assessments and land-use maps for the region surrounding the site that address and ensure compliance of

the unit with each factor in the environmental performance standards of § 264.601 of this chapter for miscellaneous units or technical standards of §§ 264.708, 264.709, and 264.712 of this chapter for OB/OD units. If the applicant can demonstrate that he does not violate the environmental performance standards of § 264.601 of this chapter for miscellaneous units or technical standards of §§ 264.708, 264.709, and 264.712 of this chapter for OB/OD units and the Director agrees with such demonstration, preliminary hydrologic, geologic, and meteorologic assessments will suffice.

\* \* \* \* \*

(e) For owners/operators of OB/OD units regulated under subpart Y of this part that identified alternatives to OB/OD, the required evaluation of alternative technologies, a schedule to implement the selected alternatives to be permitted under subpart X of this part.

\* \* \* \* \*

**Subpart D—Changes to Permit**

■ 23. Amend § 270.42 by:

- a. Adding paragraph (l); and
■ b. In Appendix 1 to § 270.42, adding the entry “P. Mobile Treatment Units” to the end of the appendix.

The additions read as follows:

**§ 270.42 Permit modification at the request of the permittee.**

\* \* \* \* \*

(l) Modification of RCRA Mobile Treatment Unit (MTU) Permits treating waste explosives. All modifications to a permit for an MTU treating waste explosives shall adhere to the process for Class I permit modifications in § 270.42(a) and shall require the prior written approval of the Director.

**Appendix 1 to § 270.42—Classification of Permit Modification**

Table with 2 columns: Modifications, Class. Row P: Mobile Treatment Units: 1. All modifications to a permit for an MTU treating waste explosives issued in accordance with subpart K of this part ..... 1 1. Row Q: Open Burning and Open Detonation Units: 1. Changes to alternative technology implementation schedule pursuant to §264.707(e)(3) ..... 1 1.

**Subpart F—Special Forms of Permits**

■ 24. Amend § 270.61 by revising paragraph (b) to read as follows:

**§ 270.61 Emergency permits.**

\* \* \* \* \*

(b) This emergency permit:

(1) May be oral or written. If oral, it must be followed in five days by a written emergency permit;

(2) Must not exceed 90 days in duration;

(3) Must clearly specify the hazardous wastes to be received, and the manner

and location of their treatment, storage, or disposal;

(4) May be terminated by the Director at any time without process if he or she determines that termination is appropriate to protect human health and the environment;

(5) Must be accompanied by a public notice published under § 124.10(b) of this chapter including:

- (i) Name and address of the office granting the emergency authorization;
- (ii) Name and location of the permitted HWM facility;
- (iii) A brief description of the wastes involved;
- (iv) A brief description of the action authorized and reasons for authorizing it; and
- (v) Duration of the emergency permit; and

(6) Must incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of this part and parts 264 and 266 of this chapter, including for emergencies involving explosives and munitions an evaluation and implementation of alternative technologies to OB/OD as required by § 264.715(b)(1)(iv) and (v) of this chapter.

(7) In the case of an emergency situation that includes explosives and munitions, the permit may be renewed one time, for an additional 90 days, at the discretion of the Director. If additional time is needed to accommodate procurement and operation of an alternative technology for treatment at the response location, the Director may renew the permit for a total period not to exceed one year.

\* \* \* \* \*

■ 25. Add § 270.69 to read as follows:

**§ 270.69 Mobile Treatment Unit (MTU) permits.**

Mobile Treatment Units permits are special forms of permits that are regulated under subpart K of this part.

■ 26. Amend part 270 by adding subpart K to read as follows:

**Subpart K—RCRA Permits for Mobile Treatment Units (MTUs) To Treat Waste Explosives**

Sec.

- 270.330 Applicability.
- 270.331 Obtaining an MTU permit to treat only waste explosives.
- 270.332 Application process for a nationwide conditional approval.
- 270.333 Application contents for a nationwide conditional approval.
- 270.334 Nationwide conditional approval conditions.
- 270.335 Application process for a RCRA MTU permit.
- 270.336 Application contents for a RCRA MTU permit.
- 270.337 RCRA MTU permit conditions.

**§ 270.330 Applicability.**

(a) An owner/operator of an MTU, or group of identical MTUs, as defined in § 260.10 of this chapter, may obtain a

RCRA MTU permit to treat only waste explosives as defined in § 260.10 of this chapter, by adhering to the procedures in this subpart.

(b) The owner/operator of an MTU, or group of identical MTUs, may not treat waste explosives until they have obtained a RCRA MTU permit as described in this subpart.

(c) This subpart does not apply to MTUs seeking to treat non-explosive hazardous wastes or to MTUs seeking to treat explosive hazardous waste in response to an emergency under §§ 264.1(g)(8)(i)(D), 265.1(c)(11)(i)(D), 270.1(c)(3)(D), and 270.61 of this chapter.

**§ 270.331 Obtaining an MTU permit to treat only waste explosives.**

An owner/operator of an MTU, or group of identical MTUs, seeking to treat waste explosives must first apply for and obtain a nationwide conditional approval in accordance with §§ 270.332 through 270.334. Upon receiving a nationwide conditional approval, the owner/operator is eligible to apply for a RCRA MTU permit in accordance with §§ 270.335 through 270.337 for each location at which the unit, or group of identical units, will treat waste explosives (location-specific permit).

**§ 270.332 Application process for a nationwide conditional approval.**

(a) An owner/operator of an MTU seeking a nationwide conditional approval to treat waste explosives must complete an application, sign it, and submit it to the Director according to the requirements in this section.

(b) Both the owner and the operator must sign the nationwide conditional approval application and any required reports according to § 270.11(a) through (c). In the application, both the owner and the operator must also make the certification required under § 270.11(d)(1).

(c) The application for a nationwide conditional approval must include all information required by § 270.333.

(d) If the Director tentatively finds that the application for a nationwide conditional approval includes all of the information required by § 270.333 and that the proposed design and operating standards meet the applicable regulatory standards in § 264.1(k) of this chapter, the Director will make a tentative decision to approve the nationwide conditional approval application. The Director will then prepare a draft nationwide conditional approval and provide an opportunity for public comment, in accordance with paragraph (g) of this section, before making a final

decision on the nationwide conditional approval application.

(e) If the Director finds that the nationwide conditional approval application does not include all of the information required by § 270.333 or the proposed design and operating standards do not meet the applicable regulatory standards in § 264.1(k) of this chapter, the Director may request additional information from the applicant or ask the applicant to correct deficiencies in their application. If the applicant fails or refuses to provide any additional information the Director requests, or to correct any deficiencies in the nationwide conditional approval application, the Director may make a tentative decision to deny the nationwide conditional approval application. After making this tentative decision, the Director will prepare a notice of intent to deny the nationwide conditional approval application (“notice of intent to deny”) and provide an opportunity for public comment, in accordance with paragraph (g) of this section, before making a final decision on the nationwide conditional approval application. The Director may deny the nationwide conditional approval application either in its entirety or in part.

(f) The Director must also:

(1) Prepare a statement of basis that briefly describes the derivation of the conditions of the draft nationwide conditional approval and the reasons for them, or the rationale for the notice of intent to deny;

(2) Compile an administrative record, including:

(i) The nationwide conditional approval application, and any supporting data furnished by the applicant;

(ii) The draft nationwide conditional approval or notice of intent to deny;

(iii) The statement of basis and all documents cited therein (material readily available online or published material that is generally available need not be physically included with the rest of the record, as long as it is specifically referred to in the statement of basis);

(iv) Any other documents that support the decision to approve or deny the nationwide conditional approval; and

(v) A copy of the final nationwide conditional approval or notice of intent to deny, once issued.

(3) Make information contained in the administrative record available for review by the public.

(g) Prior to making a final determination, the Director must:

(1) Provide notice of the draft nationwide conditional approval or notice of intent to deny and the location

of the administrative record in the **Federal Register** to provide at least 30 days for public comment and make the draft available online.

(h)(1) The Director must consider and respond to any significant comments raised during the public comment period and may revise the draft nationwide conditional approval or notice of intent to deny based on those comments, as appropriate.

(2) If the Director determines that the nationwide conditional approval includes the information and terms and conditions required in § 270.334, then the Director will issue a final decision approving the nationwide conditional approval and, in writing, notify the applicant and all commenters (who provided contact information) on the draft nationwide conditional approval that the nationwide conditional approval application has been approved.

(3) If the Director determines that the nationwide conditional approval does not include the information and terms and conditions required in § 270.334, then the Director will issue a final decision denying the nationwide conditional approval and, in writing, notify the applicant and all commenters (who provided contact information) on the draft nationwide conditional approval that the nationwide conditional approval application has been denied.

(4) If the Director's final decision is that the tentative decision to deny the conditional approval application was incorrect, the Director will withdraw the notice of intent to deny and proceed to prepare a draft nationwide conditional approval, according to the requirements in this subpart.

(5) When the Director issues the final nationwide conditional approval decision, the Director must include reference to the procedures for appealing the decision under § 270.332(i).

(i)(1) Any commenter on the draft conditional approval or notice of intent to deny, may appeal the Director's decision to deny the conditional approval application to EPA's Environmental Appeals Board in accordance with § 124.19 of this chapter. Any person who did not file comments on the draft conditional approval or denial, may petition for administrative review only with respect to any changes from the draft to the final conditional approval decision. Appeals of conditional approvals may be made to the same extent as for final permit decisions under § 124.15 of this chapter (or a decision under § 270.29 to deny a permit for the active life of a RCRA

hazardous waste management facility or unit).

(2) This appeal is a prerequisite to seeking judicial review of these EPA actions.

**§ 270.333 Application contents for a nationwide conditional approval.**

(a) The application for a nationwide conditional approval for an MTU, or group of identical MTUs, must include the information required by § 270.13 except that the information required by § 270.13(b), (f) and (l) is not required.

(b) The application for a nationwide conditional approval for an MTU, or group of identical MTUs, must include sufficient information to demonstrate that design and operation of the MTU will ensure compliance with applicable requirements of part 264 of this chapter as specified by § 264.1(k). However, the following information is not required until the location-specific permit stage of the permitting process:

(1) The information on arrangements with local authorities required by § 264.37 of this chapter; and

(2) The information regarding arrangements with local authorities required to be in the MTU's contingency plan as per § 264.52(c) of this chapter;

(c) The application for a nationwide conditional approval for an MTU, or group of identical MTUs, must include the information required by § 270.23(a), (d) and (f);

(d) If the application for a nationwide conditional approval relates to a group of identical MTUs, the application must include a certification from a registered professional engineer that the units are identical; and

(e) For the purposes of complying with this section, references in §§ 270.13, 270.14, and 270.23 to "permit" should be read as "nationwide conditional approval."

**§ 270.334 Nationwide conditional approval conditions.**

If the Director prepares a nationwide conditional approval, it must include the:

(a) Information required under § 270.13(a), (d), (e), (i), and (j);

(b) The following terms and conditions:

(1) Terms and conditions necessary to ensure that the operating requirements specified in the nationwide conditional approval comply with the applicable part 264 of this chapter standards as described in § 264.1(k).

(2) Terms and conditions in §§ 270.30 and 270.31;

(3) A requirement to notify EPA each time an MTU treats waste explosives at a location, including the start and end

dates of treatment and the quantity of wastes treated; and

(4) Terms and conditions for modifying, revoking and reissuing, and terminating the MTU nationwide conditional approval in accordance with §§ 270.41 through 270.43.

**§ 270.335 Application process for a RCRA MTU permit.**

(a) An owner/operator of an MTU seeking a permit to treat only waste explosives as defined in § 260.10 of this chapter, must complete an application, sign it, and submit it to the Director according to the requirements in this section.

(b) Both the owner and the operator must sign the permit application and any required reports according to § 270.11(a) through (c). In the application, both the owner and the operator must also make the certification required under § 270.11(d)(1).

(c) The application for a permit must include all information required by § 270.336.

(d) If the Director tentatively finds that the application for a permit includes all of the information required by § 270.336 and that the proposed design and operating standards meet the applicable regulatory standards of § 264.1(k) of this chapter and §§ 270.30 through 270.32, the Director will make a tentative decision to approve the permit application. The Director will then prepare a draft permit and provide an opportunity for public comment, in accordance with paragraph (g) of this section, before making a final decision on the permit application.

(e) If the Director tentatively finds that the permit application does not include all of the information required by § 270.336 or the proposed design and operating standards do not meet the applicable regulatory standards of § 264.1(k) of this chapter and §§ 270.30 through 270.32, the Director may request additional information from the applicant or ask the applicant to correct deficiencies in their application. If the applicant fails or refuses to provide any additional information the Director requests, or to correct any deficiencies in the permit application, the Director may make a tentative decision to deny the permit application. After making this tentative decision, the Director will prepare a notice of intent to deny the permit application ("notice of intent to deny") and provide an opportunity for comment, in accordance with paragraph (g) of this section, before making a final decision on the permit application. The Director may deny the permit

application either in its entirety or in part.

(f) The Director must also:

(1) Prepare a statement of basis that briefly describes the derivation of the conditions of the draft permit and the reasons for them, or the rationale for the notice of intent to deny;

(2) Compile an administrative record, including:

(i) The permit application and the nationwide conditional approval, and any supporting data furnished by the applicant;

(ii) The draft permit or notice of intent to deny;

(iii) The statement of basis and all documents cited therein (material readily available online or published material that is generally available need not be physically included with the rest of the record, as long as it is specifically referred to in the statement of basis);

(iv) Any other documents that support the decision to approve or deny the permit; and

(v) A copy of the final permit or notice of intent to deny, once issued.

(3) Make information contained in the administrative record available for review by the public.

(g)(1) Prior to making a final determination, the Director must:

(i) Send notice to the applicant of their intention to approve or deny the permit application, and send the applicant a copy of the statement of basis;

(ii) Publish a notice of their intention to approve or deny the permit application in a major local newspaper of general circulation;

(iii) Broadcast their intention to approve or deny the permit application over a local radio station; and

(iv) Send a notice of their intention to approve or deny the permit application to each unit of local government having jurisdiction over the area in which the site is located, and to each State agency having any authority under State law with respect to any construction or operations at the site.

(2) The notice required by paragraph (g)(1) of this section must provide an opportunity for the public to submit written comments on the draft permit or notice of intent to deny within at least 45 days.

(3) The notice required by paragraph (g)(1) of this section must include:

(i) The name and address of the office processing the permit application;

(ii) The name and address of the permit applicant, and if different, the site at which the permit would allow the treatment of waste explosives;

(iii) A brief description and expected duration of the activity the permit will regulate;

(iv) The name, address, and telephone number of a person, as well as an email address, from whom interested persons may obtain further information, including copies of the draft permit or notice of intent to deny, statement of basis, and the permit application;

(v) A brief description of the comment procedures in this section, and any other procedures by which the public may participate in the permit decision;

(vi) If a hearing is scheduled, the date, time, location, and purpose of the hearing;

(vii) If a hearing is not scheduled, a statement of procedures to request a hearing;

(viii) The location of the administrative record; and

(iv) Any additional information the Director considers necessary or proper.

(4) If, within the comment period, the Director receives written notice of opposition to their intention to approve or deny the permit application and a request for a hearing, the Director must hold an informal public hearing to discuss issues relating to the approval or denial of the application. The Director may also determine on their own initiative that an informal hearing is appropriate. The hearing must include an opportunity for any person to present written or oral comments. Whenever possible, the Director must schedule this hearing at a location convenient to the nearest population center to the site where waste explosives would be treated and give notice according to the requirements in paragraph (g)(1) of this section. This notice must, at a minimum, include the information required by paragraph (g)(3) of this section and:

(i) Reference to the date of any previous public notices relating to the permit application;

(ii) The date, time, and place of the hearing; and

(iii) A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

(h)(1) The Director must consider and respond to any significant comments raised during the public comment period, or during any hearing on the draft permit or notice of intent to deny and may revise the draft permit based on those comments, as appropriate.

(2) If the Director determines that the permit includes the information and terms and conditions required in § 270.337, then the Director will issue a final decision approving the permit and, in writing, notify the applicant and all commenters (who provided contact information) on the draft permit that the permit application has been approved.

(3) If the Director determines that the permit does not include the information and terms and conditions required in § 270.337, then the Director will issue a final decision denying the permit and, in writing, notify the applicant and all commenters (who provided contact information) on the draft permit that the permit application has been denied.

(4) If the Director's final decision is that the tentative decision to deny the permit application was incorrect, the Director will withdraw the notice of intent to deny and proceed to prepare a draft permit, according to the requirements in this subpart.

(5) When the Director issues the final permit decision, the Director must refer to the procedures for appealing the decision under § 270.335(i).

(i)(1) Any commenter on the draft permit or notice of intent to deny, may appeal the Director's final decision to approve or deny the permit application to EPA's Environmental Appeals Board under § 124.19 of this chapter. Any person who did not file comments on the draft permit, may petition for administrative review only to the extent of the changes from the draft to the final permit decision. Appeals of permits may be made to the same extent as for final permit decisions under § 124.15 of this chapter (or a decision under § 270.29 to deny a permit for the active life of a RCRA hazardous waste management facility or unit).

(2) This appeal is a prerequisite to seeking judicial review of these EPA actions.

**§ 270.336 Application contents for a RCRA MTU permit.**

(a) The application for a RCRA MTU permit for an MTU, or group of identical MTUs, must include:

(1) The nationwide conditional approval issued in accordance with § 270.332;

(2) The information required in § 270.13(b) and (f);

(3) The proposed start date of operation, expected duration of activities, and the proposed types and volumes of wastes to be treated; specification of the types and quantities of wastes to be treated at the site as well as the dates of operation of the MTU. The dates of operation must account for any time necessary to comply with the interim closure requirement of the MTU, and the start and end dates must be less than 180 days apart.

(4) The information required by § 270.23(f);

(5) Information demonstrating compliance with § 264.37 regarding arrangements with local authorities;

(6) An updated contingency plan required by subpart D of part 264 of this chapter including the information required by § 264.52(c) reflecting the arrangements with local authorities; and

(7) Evidence of an arrangement between the original generator of the waste explosives and the MTU owner/operator as to who will take the actions required to comply with the applicable part 262 of this chapter regulations related to any hazardous waste generated by the MTU's operations.

**§ 270.337 RCRA MTU permit conditions.**

If the Director prepares a draft permit, it must include the:

- (a) Information and terms and conditions in the nationwide conditional approval issued in accordance with § 270.332;
- (b) The proposed MTU location of operation information required by § 270.13(b);
- (c) Specification of the types and quantities of wastes to be treated at the site as well as a permit term not to exceed five years and a limit on the consecutive days of operation of the MTU at the subject location consistent

with definition of an MTU location-specific permit in § 260.10 of this chapter; and

(d) Any additional terms or conditions, including revisions to the conditional approval, that the Director determines are necessary to achieve the environmental performance standard in § 264.601 of this chapter and the applicable monitoring, analysis, inspection, response, and reporting requirements of § 264.602 of this chapter.

**PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS**

■ 27. The authority for part 271 continues to read as follows:

**Authority:** 42 U.S.C. 6905, 6912(a), 6926, and 6939g.

- 28. Amend § 271.1 by:
  - a. Revising paragraph (h); and
  - b. In table 1 to paragraph (j), adding an entry for “Revisions to Standards for the Open Burning/Open Detonation of Waste Explosives” in chronological order by promulgation date.

TABLE 1 TO PARAGRAPH (j)

Promulgation date	Title of regulation	Federal Register reference	Effective date
[Month, XX, XXXX] .....	Revisions to Standards for the Open Burning/Open Detonation of Waste Explosives.	[XXXX] .....	[Month, XX, XXXX.]

\* \* \* \* \*  
■ 29. Amend § 271.3 by adding paragraph (b)(5) to read as follows:

**§ 271.3 Availability of final authorization.**

- \* \* \* \* \*
- (b) \* \* \*
- (5) Any requirement applicable to the permitting of Mobile Treatment Units to treat waste explosives:

- (i) Shall take effect in each State having a finally authorized State program on the same date as such requirement takes effect in other States;
- (ii) Shall supersede any less stringent or inconsistent provision of a State program, and
- (iii) Shall be carried out by the Administrator in an authorized State

The revision and addition read as follows:

**Subpart A—Requirements for Final Authorization**

**§ 271.1 Purpose and scope.**

\* \* \* \* \*  
(h) Partial State programs are not allowed for programs operating under RCRA final authorization. However, in many cases States will lack authority to regulate activities on Indian lands. This lack of authority does not impair a State's ability to obtain full program approval in accordance with this subpart, *i.e.*, inability of a State to regulate activities on Indian lands does not constitute a partial program. EPA will administer the program on Indian lands if the State does not seek this authority. Additionally, this paragraph does not apply to the authority to issue nationwide conditional approvals and RCRA permits to Mobile Treatment Units (MTUs) treating waste explosives under subpart K of part 270 of this chapter.

\* \* \* \* \*  
(j) \* \* \*

except where, pursuant to section 3006(b) of RCRA, the State has received final authorization to carry out the requirement in lieu of the Administrator.