



Environmental Guidance Regulatory Bulletin

Office of Environmental Policy and Assistance • RCRA/CERCLA Division (EH-413)

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Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process (63 FR 56710)

Effective Date: October 22, 1998

Rule Synopsis

Designed to instill greater flexibility into its hazardous waste regulations issued under the Resource Conservation and Recovery Act (RCRA), Subtitle C, the U.S. Environmental Protection Agency (EPA) has issued a final rule (63 FR 56710; October 22, 1998) that embraces fundamental changes to its regulations governing groundwater monitoring, corrective action for releases to groundwater, closure/post-closure care, and permitting. The Post-Closure Rule (and this Regulatory Bulletin) separates these changes into three distinct elements including:

- Modifications that provide regulators with the option of using alternative mechanisms (i.e., “enforceable documents”) in lieu of RCRA closure/post-closure permitting at non-permitted land disposal units [i.e., land disposal units that are closing (or closed) under interim status];
- Amendments that will provide EPA and state regulators (that elect to adopt these provisions) with the discretion to conduct remediation of regulated units with releases to the environment under a more holistic, facility-wide corrective action program, rather than automatically defaulting to prescribed groundwater monitoring, closure, and post-closure care permitting requirements; and

- Revisions that reduce substantially the breadth of information that must be submitted by the owners/operators of land-based, hazardous waste management units (HWMUs) who are required to prepare a RCRA post-closure (Part B) permit application.

The first two elements, which essentially create a third type of closure, are designed to accommodate site-specific considerations and avoid potentially conflicting requirements that may be encountered at DOE facilities currently responsible for conducting groundwater monitoring, remediating releases to groundwater, and implementing closure and post-closure provisions.

Background

EPA has issued numerous regulations to implement RCRA requirements for hazardous waste management facilities, including 40 CFR Part 264 (permitted HWMUs), Part 265 (HWMUs located at interim status facilities), and Part 270, which provides a framework and standards for RCRA permit applications (Part A and Part B), issuance, and modifications.

Closure/Post-Closure Care Provisions

A major component of the RCRA cradle-to-grave management system is EPA’s closure regulations under 40 CFR Parts 264 and 265 Subpart G. These require owners and operators of HWMUs to close their unit in a manner that is protective of human health and the environment and that minimizes the post-closure releases to the environment. These regulations also establish procedures for submitting closure plans and, when appropriate, post-closure care permit applications to the regulators for approval.

In addition, Parts 264 and 265 establish specific responsibilities for closure/post-closure of different types of units. These responsibilities are briefly outlined in Table 1 below.

Table 1. Types of Hazardous Waste Management Units (HWMUs) and HWMU-Specific Closure/Post-Closure Care Responsibilities	
HWMU/Regulation	Responsibilities
Landfill (40 CFR 264/265, Subpart N)	Must be covered with an impermeable cap followed by post-closure care, including maintenance of the final cover, leachate collection and removal, leak detection, groundwater monitoring, and run-on and run-off control.
Surface Impoundment and Waste Pile (40 CFR 264/265, Subparts K and L)	Either: - Clean close by removing all hazardous waste and constituents from the unit, or - Leave waste residues in place, install a final cover over the unit, and conduct post-closure care in accordance with landfill provisions.
Tank, Container, and Containment Building (40 CFR 264/265, Subparts I, J, and DD)	Remove or decontaminate all soils, structures, and equipment at closure. Owners/operators of units that cannot be “clean closed” must close as a landfill, which requires them to prepare and submit a RCRA Part B permit application that includes the conditions governing post-closure care.

The post-closure care period, which is generally expected to last 30 years but may be shortened or extended at EPA’s discretion [40 CFR 264/265.117], begins once a final cover has been installed and compliance with unit-specific closure provisions has been certified. During this period, existing regulations require maintenance of a RCRA cap, liners, and leachate collection systems. In addition to regulated units that have undergone the permitting process and been issued a final RCRA permit, post-closure permitting may be applicable to [40 CFR 270.1(c)]:

- Land disposal units operating under interim status, but pursuing a RCRA Part B permit;
- Units that are closed, closing, or should have closed under interim status, when hazardous wastes or waste residues (i.e., any hazardous constituent and decomposition materials released from a HWMU) remain at the site of the unit at or above levels of human health or environmental concern following completion of closure activities; and
- Interim status surface impoundments, land treatment units, or waste piles that certified “clean closure” prior to March 19, 1987, unless the owner/operator can successfully demonstrate compliance with Part 264 requirements for closure [see [RCRA Clean Closure Equivalency Demonstrations](#) (DOE/EH-231-010/1291)].

Such facilities must comply with closure and post-closure care requirements, and also must comply with the groundwater monitoring requirements of 40 CFR Part 264 or Part 265 Subpart F during the same period [40 CFR 264/265.117(a)(1)(i) and (ii)].

Subpart F Groundwater Monitoring Requirements

The requirements of 40 CFR Part 265, Subpart F apply to any surface impoundment, landfill, and land treatment facility used to manage hazardous waste. This subpart prescribes minimum standards governing the installation of at least one hydraulically upgradient and three hydraulically downgradient detection monitoring wells [40 CFR 265.91(a)(1) and (2)].

In contrast, 40 CFR Part 264, Subpart F applies to “regulated units,” defined in 40 CFR 264.90(a)(2) as any surface impoundment, waste pile, and land treatment unit or landfill (i.e., land disposal unit) that received hazardous waste after July 26, 1982. Part 264 prescribes broader standards for establishing a more comprehensive monitoring system, with the specific details of the system worked out through the permitting process. In addition to resulting in a more extensive network of monitoring wells, Part 264 standards are more comprehensive than Part 265 standards both in terms of monitoring frequency and the range of constituents that must be monitored.

Finally, Part 264, Subpart F regulations provide for corrective action for releases to groundwater, whereas Part 265, Subpart F regulations do not. Thus, at interim status facilities, regulators must rely on RCRA authorities [i.e., 3008(h) Orders] to compel corrective action.

RCRA Authorities for Conducting Facility Cleanup (i.e., Corrective Action)

Provisions issued or available under RCRA authority create two primary corrective action

regulatory programs at interim status and permitted facilities. First, the Hazardous and Solid Waste Amendments of 1984 (HSWA) expanded EPA's authority to compel corrective action for releases of hazardous waste or constituents from a broad spectrum of units. Section 3008(h) provides EPA with the authority to issue administrative orders or bring court action to require corrective action or other measures, as appropriate, for releases of hazardous constituents from a RCRA facility operating under interim status. RCRA Section 3004(u) requires that hazardous waste permits address corrective action for releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU) at the facility. SWMUs are broadly defined to include any discernible unit at which solid wastes were placed at any time, regardless of whether the unit was intended for waste management. The scope of this authority is significant because, as with 3008(h) orders, 3004(u) can be applied whenever there is a release of hazardous waste or constituents from *any* SWMU at *any* time to *any* environmental media. Finally, Section 3004(v) authorizes EPA to require corrective action beyond the facility boundary where appropriate. Corrective action under these corrective action authorities provide a flexible (yet protective) framework for selecting cleanup levels.

Corrective action authority under 40 CFR Part 264, Subpart F requires a facility to remove contaminants from an aquifer or treat contamination in-situ [40 CFR 264.100(b) and (e)]. This authority is much more limited in scope than the HSWA authorities because it applies only when a release from a regulated unit (which is a subset of SWMUs) impacts groundwater. In addition, Part 264, Subpart F regulations specify requirements for selecting constituents and concentration limits (40 CFR 264.93 and 264.94, respectively). In the event of a release, these limits essentially function as cleanup levels, and do not provide for considerations of technical impracticability. Hazardous constituents released to groundwater must be removed or treated in place to reduce their levels to below their respective concentration limits [40 CFR 264.100(e)(4)].

RCRA Relationship to CERCLA Response Actions

Federal facilities that handle hazardous waste are often also conducting remedial and/or removal actions under Comprehensive Environmental Response,

Compensation, and Liability Act (CERCLA) authority. CERCLA response actions can be used to address hazardous substances (which include hazardous waste), pollutants, or contaminants present in any type of environmental media. At Federal facilities, EPA coordinates the application of RCRA corrective action and CERCLA response actions through the use of CERCLA Section 120 interagency agreements/federal facility agreements (IAGs/FFAs).

Provisions to Address Post-Closure and Remediation of Regulated Units

On November 4, 1994 (59 FR 55778), EPA proposed amendments to its closure/post-closure care regulations. EPA cannot issue a final Hazardous Waste Management Permit to facilities that are non-compliant with applicable requirements [see RCRA 3005(c)] and, therefore, these amendments were designed to address facilities whose owners/operators elected to close, or were forced to close, because they could not comply with 40 CFR Part 265 standards--particularly, groundwater monitoring and financial assurance. This addressed an EPA concern that obtaining a permit--the incentive for operating facilities to proceed through the post-closure permitting process--had no meaning to these facilities since they were not accepting hazardous waste (especially at facilities closing only one unit).

In addition, it had become evident to EPA that closure of land-based units was more complex than initially envisioned. For example, prescribed closure time frames may, in some cases, not be adequate where the facility closure entailed a cleanup activity, rather than the more straightforward waste removal and capping activities. Also, stakeholders raised concerns that implementation of more protective remedies were being discouraged by the post-closure requirement that an impermeable final cover be placed on a land disposal unit. At some facilities, inconsistent cleanup levels were being applied. Specifically, background levels were being used for removal and decontamination (i.e., "clean closure") of HWMUs, whereas higher, risk-based concentrations were selected for site-wide cleanup levels under CERCLA response or RCRA corrective actions. Finally, Subpart F groundwater monitoring requirements designed for regulated units were not providing sufficient flexibility for complex cleanups. For example, the Subpart F requirement to place wells

at the downgradient edge of a regulated unit generally would not make sense if there are downgradient SWMUs that are subject to and monitoring under RCRA corrective action.

Element 1: Post-Closure Care Under Alternatives to Permits

Historically, EPA regions and authorized States have frequently used enforcement actions and legal authorities (e.g., 3008(h) (other than RCRA permits) to compel responsible closure and post-closure care at interim status facilities. By doing so, they are able to establish a schedule of compliance for meeting groundwater monitoring requirements over a period of time, as well as prescribe corrective actions to address the most significant environmental risks at the facility. Regardless of the other authority(ies) used, the requirement remained that a post-closure permit be issued by EPA or the authorized state.

This first element of the final Post-Closure Rule provisions (63 *FR* 56715, col. 2) is designed to allow EPA and states more flexibility in dealing with environmental threats associated with closed and closing facilities by eliminating, if they so choose, the requirement to issue permits to all facilities subject to post-closure care. Specifically, regulators can elect to use an optional, new procedural (i.e., alternative) mechanism for imposing RCRA post-closure care requirements on any interim status facility that has closed (or will close) with waste in place, provided the regulators have not issued a post-closure permit (even if a RCRA Part B permit application has been submitted) (63 *FR* 56717, col. 2). Additionally, use of the new authority is not limited to facilities that are out of compliance with Part 265 (interim status) requirements. Be aware that, in limited cases, programmatic differences (e.g., the inability of CERCLA to address petroleum releases or RCRA to address certain radioactive materials) may be sufficiently great to prevent deferral to another program.

Enforceable Documents for Post-Closure Care

Owners/operators that desire to obtain, in lieu of a post-closure care permit, an enforceable document should recognize that EPA has defined “enforceable document” under 40 CFR 270.1(c)(7) to include orders, plans, or other documents issued by EPA or an

authorized state, provided such documents contain authorities to conduct the following:

- Sue in courts;
- Compel compliance with corrective action or other emergency response measures; and
- Access or sue to recover in court civil penalties, including fines, for violations of requirements in such documents [40 CFR 271.16(e)].

EPA further clarifies that these documents include, **but are not limited to**, orders issued under RCRA 3008(a) and 3008(h), orders/documents issued under CERCLA 104 and 106, closure or post-closure plans, or approved state equivalents (63 *FR* 56715).

By codifying the types of authorities that must be available (rather than prescribing each type of acceptable order, plan, or document), EPA hopes to avoid limiting the types of administrative or enforcement mechanisms/authorities that can be used in lieu of a post-closure care permit. Accordingly, waste management and environmental restoration line managers whose facility, in addition to closure/post-closure, is subject to corrective action and/or environmental restoration activities being conducted in accordance with an EPA or authorized state/tribe order, plan, or other document may find it beneficial to investigate whether (1) their existing agreement, order, plan, or other document contains the requisite authorities; (2) the regulators have the authority and are amenable to renegotiating/modifying the order, plan, or document; and (3) use of such a document in lieu of a post-closure permit will eliminate redundant activities, minimize or eliminate arbitrary procedural and administrative requirements or deadlines, improve resource prioritization, or enhance design of corrective action requirements to accommodate site conditions.

Be aware that such investigations may need to be coordinated with DOE headquarters and field counsel [see DOE guidance prepared by the Office of Environmental and Regulatory Analysis (EM-75) titled *Review and Approval Guidance for Environmental Compliance and Cleanup Agreements for the Office of Environmental Management* (dated June 17, 1997)]. Also recognize that, in some cases, the overseeing agency or agencies may be using (or choose to use) more than one alternative mechanism. (63 *FR* 56716).

Post-Closure Requirements for Facilities that Obtain Enforceable Documents

Under this final rule, regulators must ensure that owners/operators using alternative mechanisms meet the same substantive requirements that apply to regulated units receiving post-closure permits. That is, the final Post-Closure rule does not remove or modify the requirements applicable to regulated units under post-closure permits. Rather, it allows regulators to use a variety of mechanisms to impose those requirements. Accordingly, except for permitted regulated units being remediated to address releases to the environment (discussed in the second element), EPA or an authorized state that issues an “enforceable document” [as defined in Sec. 270.1(c)(7)] in lieu of a post-closure permit must impose:

- Part 270 information requirements that are relevant to closed facility requiring permits only for post-closure care and which enable the regulators to implement ground water monitoring and other requirements [40 CFR 265.121(a)(1)];
- Facility-wide corrective action for SWMUs consistent with 40 CFR 264.101 [40 CFR 265.121(a)(2)]; and
- The more extensive Part 264 groundwater monitoring standards, as they apply to regulated units [40 CFR 265.121(a)(3)].

[NOTE: The remaining interim status requirements that apply during the post-closure care period relate to the maintenance of the closed unit and financial responsibility (i.e., portions of 40 CFR Part 265, Subparts G and H) are virtually identical to permitted standards and do not need to be addressed in the enforceable document.]

Non-Permit (i.e., Alternative) Mechanism Provisions for Public Involvement

The new, non-permit mechanisms (i.e., generally enforcement orders compelling corrective action) also include opportunities for public comment that differ somewhat from those governing RCRA permit issuance and permit modification procedures of 40 CFR Parts 124 and 270. They are designed to assure “meaningful opportunity for public involvement” by requiring that regulators provide, at a minimum, ample time for public notice and an opportunity to comment during three stages:

- when the regulators become involved in a remediation at the facility as a regulatory or enforcement matter;
- when the preferred remedy and its underlying assumptions (e.g., future land use, site characterization) are proposed; and
- prior to making the final decision that the remedial action is complete (i.e., no further action is required).

The rule, however, does not limit public involvement to these three stages of cleanup; rather, it encourages early, open, and continuous involvement of the public when alternate authorities are used (63 *FR* 56720).

Table 2 compares the existing public involvement requirements against those for facilities using enforceable documents in lieu of post-closure permits. The final Post-Closure Rule also addresses two additional public involvement responsibilities that might be encountered by facilities using alternative mechanisms to address post-closure care including:

Emergencies. For emergencies that arise during the closure/post-closure process, EPA clarifies that the regulators may delay public involvement activities and implement interim measures immediately. Public involvement, however, must occur at the earliest opportunity after the emergency is addressed and, in all cases, upon making the decision that no further remedial action is needed at the facility [40 CFR 265.121(b)(2)].

Cleanup activities have already been initiated. In some cases, cleanup-related activities began before the effective date of this rule (e.g., cleanup began before a state adopts the Post-Closure Rule provisions). EPA will allow the remediation to substitute for corrective action required under a post-closure permit, provided ample time for public involvement regarding the decision that the remedial action is complete (i.e., no further action is required) occurs at the earliest reasonable opportunity after October 22, 1998 [40 CFR 265.121(b)(3)]. Where the public had already had an opportunity to comment on the alternate mechanism, there is no need to revisit issues that were already raised and addressed or reopen decisions (63 *FR* 56724).

Table 2. Comparison of RCRA Public Involvement Opportunities

Public Involvement Requirements Associated with Existing Regulations			Potential Applicability to Facilities Using Enforceable Documents in Lieu of Post-Closure Permits ¹
Facility Activity	Timing of Activity	Applicability To Post-Closure Care	
Closure/Post-Closure of a HWMU under Interim Status	<p>Submit post-closure plan (1) 180 days prior to date expected to begin closure of land disposal unit; or (2) no later than 15 days following: (a) termination of interim status, or (b) judicial decree or final order to cease receiving waste [40 CFR 265.118(e)]</p> <p>When regulators propose to amend a post-closure plan to alter the requirements of or extend or reduce the post-closure care period [40 CFR 265.118(g)]</p>	<p>Applicable provided HWMU closure includes a post-closure care component [40 CFR 265.118(f)]</p> <p>Applicable provided the amendment to the post-closure plan would be a Class 2 or Class 3 modification, according to the criteria specified in 40 CFR 270.42 [40 CFR 265.118(d)(3) &(4)]</p>	<p>May be viewed as opportunity for public comment “[o]n the proposed preferred remedy and the assumptions upon which the remedy is based” [40 CFR 265.121(b)(1)(ii)]</p> <p>Depending on the proposed modification, may be viewed as opportunity for public comment</p> <ul style="list-style-type: none"> • “[o]n the proposed preferred remedy and the assumptions upon which the remedy is based” [40 CFR 265.121(b)(1)(ii)]; or • “[a]t the time of a proposed decision that remedial action is complete at the facility” [40 CFR 265.121(b)(1)(iii)]
Owner/Operator of Interim Status Facility Pursuing Post-Closure Permit In Accordance with RCRA Part B Permitting Procedures for Decision-making	<p>Prior to submitting initial or renewal RCRA Part B permit application, hold pre-application public meeting [40 CFR 124.31(b)]</p> <p>Following submittal of Part B application that includes SWMU(s) information, but “prior to initiation of any activity [i.e., RCRA Facility Investigation (RFI)] to assess contamination” (63 FR 56720) [40 CFR 124.32(b)]</p> <p>When draft RCRA Part B permit is prepared or denied and regulators issue public notice, including newspaper and radio broadcast (40 CFR 124.10)</p>	<p>Not applicable [40 CFR 124.31(a)]</p> <p>Not applicable [40 CFR 124.32(a)]</p> <p>Applicable, provided a post-closure plan was required in application for and, thus, is a condition of the draft permit [40 CFR 270.14(b)(13)]</p>	<p>May be viewed as opportunity for public comment “[w]hen the Agency becomes involved in a remediation at the facility as a regulatory or enforcement matter” [40 CFR 265.121(b)(1)(i)]</p> <p>May be viewed as opportunity for public comment “[w]hen the Agency becomes involved in a remediation at the facility as a regulatory or enforcement matter” [40 CFR 265.121(b)(1)(i)]</p> <p>May be viewed as opportunity for public comment “[o]n the proposed preferred remedy and the assumptions upon which the remedy is based” [40 CFR 265.121(b)(1)(ii)]</p>
Permitted Facilities	When a draft permit containing the proposed changes (i.e., an amended or new post-closure plan) is prepared (or the request is denied) (40 CFR 124.6 &.10)	Applicable when the request qualifies as a Class 2 or 3 modification of an approved plan (40 CFR 270.42), or constitutes the initial submittal of a post-closure plan [40 CFR 265.118(d)(3) &(4)]	May be viewed as opportunity for public comment “[o]n the proposed preferred remedy and the assumptions upon which the remedy is based” [40 CFR 265.121(b)(1)(ii)]
Certification of Post-Closure	Within 60 days after completion of post-closure care period [40 CFR 264/265.120]	Not applicable. Public comments are solicited during post-closure plan approval process (interim status) or RCRA permitting process rather than after completion of the post-closure care period	May be viewed as opportunity for public comment “[a]t the time of a proposed decision that remedial action is complete at the facility” [40 CFR 265.121(b)(1)(iii)]

¹ Use of an enforceable document at *permitted* facilities is limited to only those instances that a leaking regulated unit is clustered with, or located upgradient from certain SWMUs or areas of concern (see the second element of this bulletin).

Finally, in contrast to administrative procedures governing permitting decisions, the new alternative mechanism requirements do not furnish an opportunity for administrative appeal; EPA views appeals as inappropriate in an enforcement context.

Applicability of the Alternative Mechanism Provisions To DOE Facilities

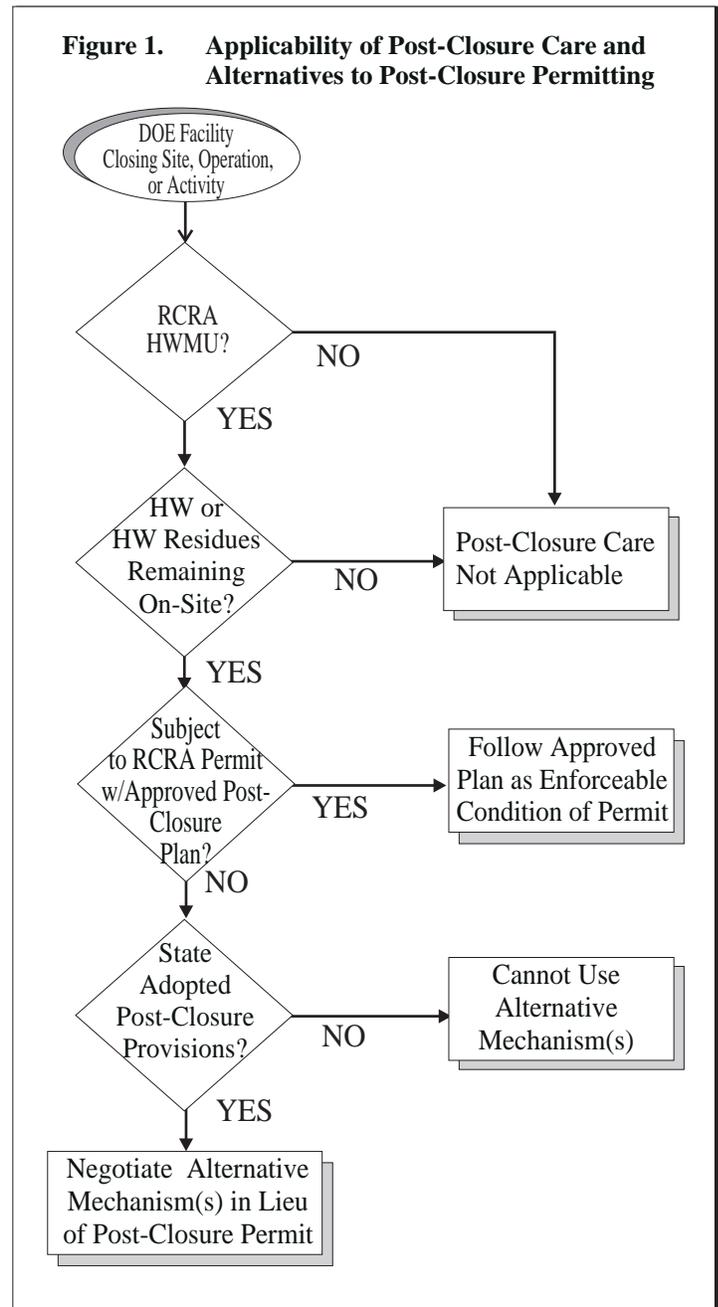
EPA intended that authorized states have sufficient flexibility to decide when an alternative mechanism should be used in lieu of a permit to address a site. Thus, rather than specifying when a mechanism would be used, EPA offers the following factors to states evaluating the appropriateness of an alternative mechanism (63 FR 56717):

- specific conditions at the site;
- the availability of approved alternate state cleanup authorities;
- availability of resources;
- the facility cooperation or recalcitrance;
- preferences of facility owners/operators and local public; and
- compliance status of the owners/operators

In addition to considering these factors, Figure 1 illustrates a decisional framework that can be used when determining whether a particular DOE facility, site, or operation, or activity is eligible to use an alternative mechanisms in lieu of a post-closure care permit.

Step 1 In general, closure/post-closure regulations (40 CFR Parts 264 and 265 Subpart G) apply to owners/operators of RCRA permitted and interim status HWMUs. They have limited applicability to generators. These regulations establish procedures for submitting closure and, as necessary, post-closure plans to regulators [see EH-413 Information Brief *RCRA Closure and Post-Closure Plans* (EH-231-009/1291)]. Thus, the first step in determining whether the post-closure care provisions and, hence, a need for the alternative mechanisms are applicable is to determine whether the specific unit, operation, or activity qualifies as a RCRA HWMU.

Figure 1. Applicability of Post-Closure Care and Alternatives to Post-Closure Permitting



Step 2 RCRA regulations establish unit-specific requirements for closing different types of land-based and non-land-based HWMUs using one of two approaches--“clean closure” or “closure as a landfill” (see Table 1). In contrast to clean closure, post-closure care and permitting is necessary when hazardous wastes or waste residues remain on-site at or above levels of human health or environmental concern. Therefore, for the second step, owners/operators will need to determine whether waste residues will remain on-site at levels that exceed established thresholds.

Step 3 With an exception for remediation of regulated units with releases to the environment (as discussed under the next major heading of this Regulatory Bulletin), the Post-Closure Rule limits the use of alternative mechanisms to facilities that have not received post-closure permits (even if a RCRA Part B permit application has been submitted). Therefore, a quick review of its RCRA permitting status will verify whether an interim status facility is eligible to use one or more alternative mechanisms to impose post-closure care requirements.

Step 4 Finally, the availability of using the new procedural (i.e., alternative) mechanism in lieu of a post-closure permit hinges on whether a particular state has adopted the final Post-Closure Rule provisions. Requirements allowing the use of alternative mechanisms were issued under RCRA base-program authority rather than Hazardous and Solid Waste Amendments of 1984 (HSWA) authority. If a state is authorized for the RCRA base program and EPA promulgates a *new, non-HSWA requirement*, the requirement does **not** become effective in that state on the date specified in the final rule. Rather, the authorized State must adopt the regulation and receive EPA authorization for the new, non-HSWA regulation before it becomes effective in that State [RCRA section 3006(b) and 40 CFR 271.3 (b)]. Furthermore, this provision is not more stringent than current requirements and, therefore, states are not required to adopt them (63 *FR* 56729). Thus, DOE facilities located in authorized states will not be eligible to use the alternate mechanisms unless and until their State revises its program to adopt equivalent requirements. Be aware that States obtaining authorization for this rule will be able to use enforceable cleanup orders similar to EPA's section 3008(h) orders, as well as State superfund authorities. These authorities, however, must first undergo formal EPA review to determine whether they provide: (1) adequate authority to compel cleanup of all releases from SWMUs within a facility's

boundary, and (2) procedural requirements to ensure compliance (i.e., adequate penalty and injunctive authority to address failures to comply) [40 CFR 271.16(e)].

Element 2: Remediation of Regulated Units with Releases to the Environment

Since promulgating RCRA closure/post-closure care provisions (in the 1980s), EPA has found that, when a regulated unit has released hazardous waste or constituents into surrounding soils and groundwater, closure of the unit is not simply a matter of removing the waste or capping the unit. Rather, groundwater and/or other environmental monitoring data may identify a need to conduct site cleanup to protect human health and the environment.

At facilities that have regulated units clustered with, or upgradient from, other facility SWMUs or areas of concern (AOCs), under current regulations, groundwater monitoring and cleanup of a regulated unit to “background” levels would be required under 40 CFR Part 264/265, Subpart F; whereas, the other site cleanup is being conducted to risk-based cleanup standards issued under a different regulatory program (e.g., RCRA corrective action). Thus, a facility could be subject to two or more different regulatory programs.

This second element of the final Post-Closure Rule (63 *FR* 56724, col. 3) introduces substantial flexibility into RCRA provisions governing the cleanup of regulated units. It allows owners/operators to propose and provides regulators with the option to:

- Replace the requirements for closure/post closure care (removal/decontamination or capping), groundwater monitoring and corrective action of SWMU releases, and/or financial responsibility set out in Parts 264 and 265 with alternative standards tailored specifically for unit cleanup;
- Integrate the cleanup requirements for the regulated unit into the requirements for the SWMUs or AOCs developed under approved remediation authorities; and
- Set forth any newly established alternative standards/requirements in a site-specific permit, an approved closure plan and/or post-closure plan, or an enforceable document that is referenced in the permit or plan (63 *FR* 56725).

These new options apply equally to both permitted and interim status units. They also can be applied to either operating and closed facilities.

Appropriateness of Closing Regulated Units Using the Corrective Action Process

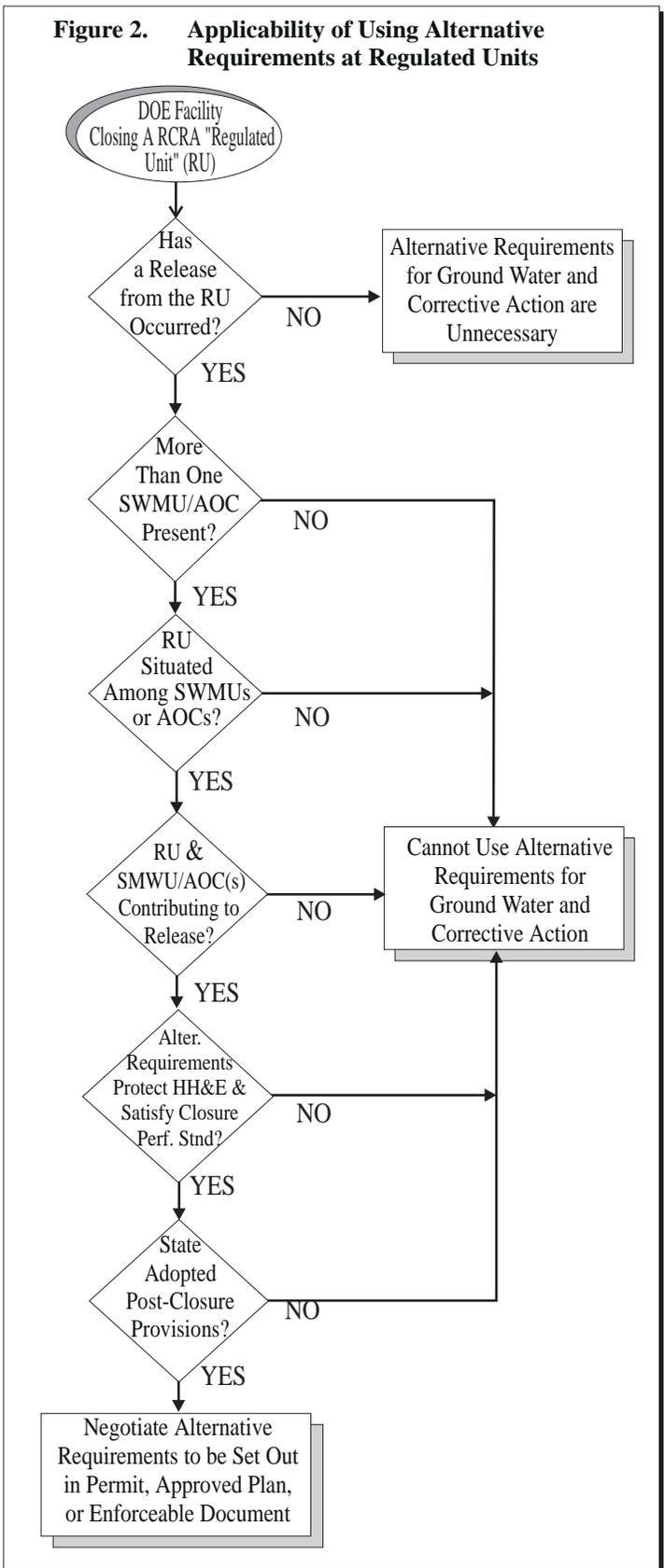
Figure 2 illustrates the decisional framework for owners/operators that are determining whether their facility or a particular regulated unit may be eligible, at the discretion of the regulators, to replace all or part of the requirements of 40 CFR Part 264/265, Subpart F (groundwater monitoring and corrective action) and Subpart G (closure/post-closure care) with the alternative requirements, as developed through the corrective action process.

Step 1 Assuming the unit qualifies as a regulated unit, the first step is to determine whether hazardous wastes or constituents listed in 40 CFR Part 261, Appendix VIII have been released from the unit. Releases are broadly defined to include constituents that have been spilled, leaked, pumped, poured, emitted, emptied, discharged, injected, escaped, leached, dumped, or disposed into the environment, and abandoned/discarded barrels, containers, and other closed receptacles (61 FR 19442; May 1, 1996).

Step 2 Owners/operators generally should be able to ascertain whether their site conditions indicate that the regulated unit is situated among one or more SWMUs/AOCs. This determination typically can be based on the SWMU/AOC information gathered during an initial site assessment [i.e., the RCRA facility assessment (RFA) under 40 CFR 270.14(d), or the CERCLA preliminary assessment/site inspection (PA/SI) conducted as part of a removal/remedial site evaluation (40 CFR 300.410/.420)]. Since the final determination is ultimately left up to the discretion of the regulators, consensus should be reached as early as possible in the decisional process.

Step 3 The third question --Is the regulated unit situated among one or more SWMUs or AOCs?--likewise, should be determined based on the results of the RFA and/or PA/SI.

Figure 2. Applicability of Using Alternative Requirements at Regulated Units



Step 4 In contrast to the second and third questions, to answer the fourth question [i.e., demonstrate (to the regulators) that both the regulated unit and the SWMU(s)/AOC(s) are likely to have contributed to the release],

owners/operators may find it necessary to conduct focused site investigations that go beyond those activities conducted under the RFA or PA/SI. Specifically, in these cases, a RCRA release assessment (Phase I RFI) or focused remedial investigation (RI) may be appropriate vehicles for obtaining the type of information used to address this data need [see page 18 of EPA's *RCRA Corrective Action Plan* (OSWER Dir. 9902.3-2A)]. This type of information also may be useful to owners/operators using a phased approach or determining whether RCRA Interim Measures are necessary.

264/265.140(d), and 271.16(e)--are issued under HSWA authority, they provide additional options (i.e., they allow EPA or authorized states to address regulated units using the corrective action program) and, therefore, are not viewed as more stringent than the existing RCRA program. (63 *FR* 56729). Accordingly, these provisions became immediately effective only in states that do not have base program authorization. Moreover, because they are not more stringent, authorized states are not required to adopt them; however, once adopted, these HSWA provisions can be implemented by EPA before the state receives authorization for the change (63 *FR* 56729).

Step 5 Relative to the fifth question, a primary goal of the RCRA groundwater monitoring and corrective action requirements and closure/post-closure care requirements is to ensure long-term protection. As a prerequisite to replacing some or all of either requirement (i.e., using the alternative requirements), EPA requires a new "generalized" standard be met. When replacing 264/265 Subpart F groundwater monitoring requirements, the new standard must ensure protection of human health and the environment. When replacing 264/265 Subpart G closure/post-closure requirements, the new standard must protect human health and the environment by meeting the closure performance standards. This involves controlling, minimizing, or eliminating post-closure releases to the environment of hazardous wastes, constituents, leachate, contaminated run-off, and decomposition products. Determining whether one or both of these standards (i.e., "protectiveness"), as applicable, will be met by the alternative requirements likely will require site-specific, risk-based decisions that consider cross-media contamination and ecological end-points.

Administrative Approaches: Documenting the Decision

The requirements governing the regulated unit and its adjacent SWMUs/AOCs can be set out in the permit or in an approved closure plan and/or post-closure plan, or they can be set forth in an enforceable document and be referenced in the permit or approved closure plan and/or post-closure plan, as applicable. For permitted facilities, owners and operators can incorporate the alternative requirements using the existing Part 264 procedures for closure and post-closure plan approval and modification, and for "Class 3" permit modifications (63 *FR* 56725). At interim status facilities, owners and operators should use the existing procedures for closure plan and post-closure plan approval and modification in Part 265, Subpart G (63 *FR* 56725). Finally, alternative requirements can be documented at closed RCRA facilities using alternative mechanisms as described in the first section of this bulletin.

To reduce duplicative administrative processes, EPA is not requiring that the alternative requirements be incorporated into a single permit, closure plan and/or post-closure plan, or enforceable document. For example, owners/operators of permitted facilities might incorporate the alternative requirements for a regulated unit directly into the facility's permit, whereas the adjacent SWMUs would continue to be addressed under RCRA 3004(u)--the permitting corrective action authority (63 *FR* 56725).

Step 6 Finally, the last step involves a determination as to whether the state has adopted this second element of the Post-Closure Rule. Although these provisions--264/265.90(f), 264.110(c)/265.110(d),

Integrating RCRA Post-Closure and Corrective Action

The goal of any approach to integration of overlapping cleanup and regulatory requirements should be to avoid duplication of effort (including oversight) and second-guessing of remedial decisions. Using alternative mechanisms (i.e., enforceable documents) in lieu of post-closure permits allows regulators to reduce or eliminate the regulatory distinctions between cleanup of releases from closed (or closing) regulated units and RCRA cleanup (corrective actions) of non-regulated unit releases and, thereby, avoid these complications. For example, rather than using RCRA to address the hazardous constituents and CERCLA to address the radioactive component of mixed waste released from a regulated unit, regulators may now elect to defer to the CERCLA program post-closure care and cleanup for a mixed waste regulated unit that is physically encompassed within a CERCLA operable unit, and reference the ongoing CERCLA cleanup and requirements in a RCRA permit or order.

Although EPA believes deferral from one program to another using an alternative mechanism is typically the most efficient and desirable method to address overlapping cleanup requirements, in some cases, full deferral will not be appropriate (e.g., inability of RCRA to address certain source, special nuclear, or byproduct material). In these cases, careful integration of the standards governing post-closure care with other cleanup activities will be essential and present unique challenges.

For DOE sites that are not on the National Priorities List (NPL), current approaches that are in use are highlighted in an EPA memorandum titled *Coordination between RCRA Corrective Action and Closure and CERCLA Site Activities* (dated September 24, 1996). These include:

- Crafting CERCLA, RCRA, or authorized state decision documents (i.e., enforceable documents) such that cleanup responsibilities are divided, which is EPA's preference. For example, at facilities undergoing CERCLA response action, the CERCLA decision document can focus CERCLA activities on certain units or areas, and designate other areas (e.g., RCRA units) for action under RCRA; and

- Establishing timing sequences (i.e., schedules) in RCRA and CERCLA decision documents such that the requirements needed for cleanup at the facility under one authority would be determined only after completing an action under the other authority. For example, RCRA permits/orders could establish schedules of compliance that allow decisions as to whether corrective action is required to be made **after** completing a CERCLA response action. Similarly, CERCLA decision documents could delay review of a unit or area being cleaned up under RCRA, with the expectation that additional efforts will not be required pending successful completion of the RCRA activities.

For federal facilities on the NPL, CERCLA Section 120 imposes certain prescriptive requirements that must be accommodated regardless of the integration approach chosen (see EPA memorandum titled *Lead Regulator Policy for Cleanup Activities at Federal Facilities on the National Priorities List*, dated November 6, 1997).

Element 3: Post-Closure Permit Part B Information Submission Requirements

Under RCRA, Subtitle C, owners/operators of land disposal units are required to obtain a permit that governs post-closure care. Requirements that are important to ensuring proper post-closure care include:

- Groundwater characterization and monitoring data;
- Long-term care of the regulated unit and monitoring systems (e.g., inspections and systems maintenance); and
- Information on SWMUs and possible releases.

Historically, however, facilities seeking post-closure permits were required to submit general, facility-level and unit-specific information that was often extraneous to post-closure activities.

In accordance with a new section (40 CFR 270.28) added as the third element of the final Post-Closure Rule (63 FR 56728, col. 1), only that information appearing in Table 3 must be submitted as part of post-closure Part B permit application or when an alternative mechanism is used in lieu of a post-closure permit. [NOTE: Although post-closure

Table 3. Post-Closure (Part B) Permit Application Information Required under 40 CFR 270.28

Regulation	Information Required
40 CFR 270.14(b)(1)	1. A general description of the facility
40 CFR 270.14(b)(4)	2. A description of the security procedures and equipment required by Sec. 264.14, or a justification demonstrating the reasons for requesting a waiver of this requirement
40 CFR 270.14 (b)(5)	3. A copy of the general inspection schedule required by Sec. 264.15(b) including unit-specific inspection, where applicable
40 CFR 270.14 (b)(6)	4. Justification of any request for a waiver(s) of the preparedness and prevention requirements of Part 264, Subpart C
40 CFR 270.14 (b)(11)	5. Facility location information including compliance with the seismic standard and 100-year floodplain information, when applicable
40 CFR 270.14 (b)(13)	6. A copy of the closure plan and, where applicable, the post-closure plan including unit-specific requirements
40 CFR 270.14 (b)(14)	7. For hazardous waste disposal units that have been closed, documentation that notices required under Sec. 264.119 have been filed
40 CFR 270.14 (b)(19)	8. A topographic map showing a distance of 1,000 feet around the facility and the pattern of surface water flow in the vicinity of and from each operational unit of the facility
40 CFR 270.14 (c)	9. Additional information regarding protection of groundwater such as ground-water monitoring data; identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property; ground-water flow direction and rate; a delineation of the waste management area, the property boundary, the proposed "point of compliance" as defined under Sec. 264.95, the proposed location of ground-water monitoring wells; a description of any plume of contamination that has entered the ground water from a regulated unit
40 CFR 270.14 (d)	10. Information requirements for each solid waste management unit (SWMU) including all available information pertaining to any release and environmental media sampling and analysis results
40 CFR 270.28	11. Additional information otherwise specified by the Regional Administrator

cost estimates and documentation demonstrating financial assurance are otherwise required under 40 CFR 270.28, they are not required for DOE facilities.] Site-specific informational requirements that are generally less relevant to post-closure and for which owners/operators will no longer be required to collect data for and prepare, unless requested by Regional Administrator, include: (See [Economic Assessment for the Final Post-Closure Rule](http://www.epa.gov/epaoswer/hazwaste/closure/economic.pdf) at <http://www.epa.gov/epaoswer/hazwaste/closure/economic.pdf>)

- The waste analysis plan;
- The contingency plan;
- A description of procedures, structures, or equipment to prevent hazards, run-off, flooding, contamination of water supplies, etc., and mitigate effects of equipment failure or power outages; A description of precautions to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes;
- A description of traffic patterns, volume, and control;
- An outline of personnel training programs and description of training design; and

- Written descriptions of personnel training programs and description of training design.

As with the previously discussed elements of the Post-Closure Rule, this element is not immediately effective. First, it is promulgated under non-HSWA authority. Second, it is **not** more stringent than the current base RCRA program. Therefore, DOE personnel at facilities located in authorized States will not be able to take advantage of the new provision until it is adopted by their State.

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For More Information

Questions regarding the information contained in this Regulatory Bulletin, or the RCRA closure/post closure care provisions in general should be directed to Jerry Coalgate at (202) 586-6075, fax (202) 586-3915, or e-mail: jerry.coalgate@eh.doe.gov.

