

Proposal for the Federal Regulation of Coal Combustion Waste

January 31, 2007

PREAMBLE

The following proposal for regulations is submitted jointly to the U.S. Environmental Protection Agency (EPA) by Earthjustice, Clean Air Task Force, Environmental Integrity Project, Sierra Club, Natural Resources Defense Council, Waterkeeper Alliance, Hoosier Environmental Council, Public Citizen, Jefferson Action Group, Dine CARE, Army for a Clean Environment, Plains Justice, Appalachian Center for the Economy and the Environment, People in Need of Environmental Safety, Valley Watch, West Highlands Conservancy, Montana Environmental Information Center, San Juan Citizens Alliance, Clean Wisconsin, Residents against the Power Plant, Ohio Valley Environmental Coalition, Neighbors for Neighbors, Delaware Riverkeeper Network, Healthlink, Wenham Lake Watershed Association, Coal River Mountain Watch, Dakota Resource Council, S.U.F.F.E.R.

Purpose of the Proposal

This proposal provides a framework for federal regulation of the waste generated by U.S. coal-fired power plants. Its intent is to address, with nationally consistent, enforceable minimum standards, the significant risks to human health and the environment posed by the disposal of coal combustion waste (CCW). The above-named groups submit this proposal as a *starting point* for an inclusive and comprehensive discussion between EPA and environmental stakeholders.¹

We are submitting this proposal with the hope that it will function as a working template for draft regulations to be formulated by a committee established pursuant to the Federal Advisory Committee Act. It is necessary for EPA to formally establish a committee comprised of interested and affected stakeholders because, to date, EPA has sought almost exclusively the input of the regulated community and consequently has failed to produce even draft regulations in the nearly *seven years* following EPA's Regulatory Determination.

In 2000, EPA made an explicit commitment to promulgate a rule pursuant to the Resource Conservation and Recovery Act (RCRA) governing CCW.ⁱⁱ Since 2000, EPA has conducted a long standing dialogue with the electric utilities industry and, in fact, invited their consortium, the Utility Solid Waste Activities Group (USWAG)ⁱⁱⁱ, to submit a voluntary plan for CCW management, in lieu of regulations, violating the clear directive of the 2000 Regulatory Determination. In contrast, *EPA did not solicit the submission of today's proposal*. Rather, environmental stakeholders requested the opportunity to submit draft regulations after learning that EPA was poised (1) to publish notice in the federal register of the electric utility industry's voluntary plan, and (2) to seek public comment on the option of abandoning federal regulation of CCW. We greatly appreciate the opportunity to submit this proposal, but its placement in the docket does not in any way indicate parity with the regulated community in terms of access and consideration of our viewpoint by EPA.

We thus respectfully ask that EPA seriously and thoughtfully consider this proposal from environmental groups and communities threatened or harmed by CCW. To this end, we ask for the immediate establishment of a federal advisory committee whose charge is to produce comprehensive enforceable federal regulations. To reiterate, the goal of these proposed regulations is simply to *initiate* this dialogue. In order to move forward, the rulemaking process must allow for extensive additional input from a variety of interested groups including, in addition to environmental groups and affected communities, engineers, hydrogeologists, and those, inside and outside of government, who may have creative approaches to achieving environmental protection from CCW contamination.

Lastly, we cannot lose track of the fact that CCW currently disposed without adequate safeguards poses an *imminent and substantial endangerment* to health and the environment at numerous sites throughout the U.S. In view of this present threat, we ask that EPA use its authority under Section 7003 of RCRA immediately to abate such hazards while the federal rulemaking process is underway. EPA has the authority under Section 7003 to require ground water monitoring, as well as remedial measures, at CCW disposal sites that threaten human health or water resources. Because of the acknowledged damage to human populations, drinking water sources and aquatic ecosystems, it is essential that EPA use this authority to prevent further damage while developing this national rule.

The Need for This Proposal

In light of the significant risk to human health and the environment posed by improper management of CCW, we ask that work begin *immediately* to draft federal regulations containing adequate safeguards. Several recent EPA reports confirm the substantial, imminent and growing risk posed by CCW and thus support the urgent need for federal regulations. Specifically:

- EPA's draft *Revised Risk Assessment* for CCW (December 2006)^{iv} found that people living near CCW surface impoundments assume risks that exceed EPA cancer thresholds

by 1000 times or more. EPA estimates that the excess cancer risk for adults and children drinking groundwater contaminated with arsenic from CCW surface impoundments can be as high as 1 in 100 -- *10,000 times higher* than EPA's regulatory goal for reducing cancer risks.^v Furthermore, this draft *Revised Risk Assessment* confirms that "[t]here are ecological risks associated with surface impoundments to terrestrial and aquatic communities primarily from selenium and boron."^{vi}

- EPA's 2006 report, entitled *Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control* confirmed that CCW leaches arsenic and selenium at levels of potential concern.^{vii} The report tested both laboratory leachate and field leachate of CCW and found significant exceedances of MCLs for arsenic and selenium in groundwater in a substantial percentage of the samples. In fact, the concentrations of some samples approached 100 times the MCL. The report concludes that use of activated carbon injection to capture mercury at coal-fired power plants substantially increases the arsenic and selenium content of CCW. The report found, in addition, that CCW commonly leached arsenic and selenium in excess of 10 times the MCL from both plants that employed sorbent technologies and those that did not.

Also, according to this report and EPA's Preamble to the *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry* published December 20, 2006, sorbent injection processes significantly increase the mercury content of fly ash.^{viii} Testing to date reveals that the median increase in mercury in fly ash is by a factor of 8.5 and, in one case, the mercury content increased by a factor of 70. Such increased mercury, arsenic and selenium in fly ash also increase risks to human health via inhalation of fugitive dust.

In the 2000 Determination, EPA committed specifically to "reevaluat[ing] risks posed by managing coal combustion solid wastes if levels of mercury or other hazardous constituents change due to any future Clean Air Act air pollution control requirements for coal burning utilities."^{ix} It is critical that EPA mandate the use of air pollution control technologies, including sorbent injection, to reduce hazardous emissions from coal-fired power plants. In conjunction with their use, nevertheless, EPA must take action to ensure that the pollution reduction in power plant air emissions is not transferred to land and water via the coal ash. Consequently, in view of EPA's own findings and explicit commitment, the agency must reassess risk to human health and the environment from CCW enhanced by the use of pollution control devices.

A 2006 report published by EPA and the U.S. Department of Energy (DOE), entitled *Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004*, found that states have not closed significant gaps in their regulation of CCW. In fact, the report's survey of surface impoundments and landfills permitted between 1994 and 2004 indicates that the absence of state requirements imposing mandatory safeguards has resulted in disposal units that lack basic safeguards. The report points out that 30% of the total coal-fired generating capacity in the U.S. is in states "that potentially *exempt* CCW landfills from solid waste permitting requirements and that *exclude* certain CCWs from *all* solid waste regulation."^x This astounding statement most certainly *underestimates* the gap in state regulation of CCW, because it does not account for the many states that exempt CCW from all solid waste regulation when

“beneficially used,” a term that frequently encompasses potentially dangerous fill projects for roads, gravel pits, floodplains, floodways, hill sides, valleys and mines.^{xi}

In view of EPA’s draft *Revised Risk Assessment* (cited above) that identifies significant risk from leaking surface impoundments, the findings related to deficiencies in state laws governing surface impoundments are particularly troubling. The DOE/EPA Report found that:

- (i) Only *one* of the states surveyed had regulations requiring groundwater monitoring at CCW surface impoundments.
- (ii) Only 33% of the states surveyed had regulations requiring liners for surface impoundments.
- (iii) Only 14% of the states surveyed had regulations requiring leachate collection systems for surface impoundments.
- (iv) Only 20% of the states surveyed required corrective action and financial assurance at CCW surface impoundments.
- (v) Only 9% of the states surveyed had regulations requiring a solid waste permit for all CCW surface impoundments.

The DOE/EPA report also found that states lacked regulations requiring many basic safeguards for CCW landfills:

- (i) 45% of the states surveyed do not require permits for all on-site CCW landfills. Two states of the states surveyed do not require any solid waste permits for CCW landfills.
- (ii) 44% of the states surveyed did not have regulations requiring liners for CCW landfills.
- (iii) 33% of the states surveyed do not have regulations requiring groundwater monitoring at CCW landfills.^{xii}
- (iv) *No* state surveyed had regulations requiring quarterly groundwater monitoring for the active life of the disposal unit.^{xiii}
- (v) 71% of the states surveyed did not have regulations requiring leachate collection systems for landfills.
- (vi) *No* state surveyed passed more stringent regulations pertaining to liners, groundwater monitoring, leachate collection or financial assurance for surface impoundments or landfills since 1999.

Lastly, the report’s survey of new and expanded CCW landfills and surface impoundments permitted between 1994 and 2004 indicates that substantial safeguards are *still* not employed at many new or expanded units. The report found:

- (i) 89% of the new surface impoundment permits lacked groundwater protection standards.^{xiv}
- (ii) 89% of the new surface impoundment permits lacked requirements for closure and post-closure.

- (iii) 88% of the new surface impoundment permits lacked requirements for financial assurance.
- (iv) 88% of the new surface impoundments lacked solid waste permits.
- (v) 38% of the new surface impoundment permits lacked groundwater monitoring requirements.

EPA's most recent "Damage Case Assessment under RCRA for Fossil Fuel Combustion Wastes," dated August 2006, recognizes 24 proven damage cases – more than double the number of recognized damage cases cited in the 2000 Determination. Further, EPA recognizes another 39 "potential" damage cases in the 2006 Assessment.^{xv} Given the serious deficiencies in monitoring systems at most CCW sites, and the *complete lack of monitoring* at many CCW sites, damage caused by lax management of CCW is highly likely to be underestimated, as EPA conceded in its 2000

Determination.¹⁶ While we believe that EPA's damage case list represents only a small fraction of the contaminated sites caused by CCW, *the significant increase* in the number of proven and potential damage cases speaks for itself. We believe this sharp increase in officially recognized, documented damage cases to groundwater and surface water by mismanaged CCW since 2000 requires an immediate response from EPA.

• DOE and the Energy Information Administration (EIA)'s *2007 Annual Energy Outlook* indicates that electricity production by coal is projected to increase almost 25 percent by 2020 and 64% by 2030.¹⁷ The increase in the production of coal ash is roughly proportional to the increase in the use of coal for electric power. CCW generation will increase, therefore, *at least* 25 percent by 2020. Moreover, the increase in CCW volume is likely to be substantially greater, because both the increased use of scrubbers on coal-fired power plants and the building of numerous fluidized bed combustion plants (that produce up to 10 times more CCW than conventional pulverized coal plants) will significantly boost the waste volume. According to EPA, 129 million tons of CCW was produced in 2004. A sharp growth in the volume of this immense waste stream, as well as its projected increase in toxicity, is a clear basis for immediate regulatory action.

USWAG's "Voluntary Action Plan"

This proposal stands in stark contrast to USWAG's "Voluntary Action Plan" (VAP). USWAG's VAP contains six pages of loosely worded, wholly unenforceable voluntary actions that, even if adopted in full today by all U.S. coal-fired power plants, would guarantee no reduction of risk. While it is outside the scope of this document to critique the VAP, it is worth noting that the agreement contains no enforceable conditions, signatories have up to *five* years before any groundwater monitoring is required at the majority of landfills and surface impoundments, there is *no* prohibition on the most dangerous disposal practice identified by EPA – the dumping of CCW in sand and gravel pits below the water table, nor is there a prohibition on the construction of new surface impoundments, and the plan fails entirely to contain any closure, postclosure and financial assurance requirements.

Simply put, USWAG's VAP fails to address the critical safeguards required for safe disposal of any solid waste. Thus contamination of drinking water supplies will likely continue undetected and unabated, if not increase, given the pending construction of many new power plants and the resulting substantial increase in CCW. Even if the

VAP invited compliance with appropriate safeguards, the fact remains that any voluntary plan, by definition, fails to provide enforceable requirements and national consistency. In view of the abominable level of safeguards on existing disposal units quantified in the 2000 Determination, which found that only 57% of all landfills and 26% of all surface

¹⁶ EPA stated, “ Given the volume of coal combustion wastes generated nationwide (115 million tons) and the numbers of facilities that currently lack some basic environmental controls, especially groundwater monitoring, other cases of proven and potential damage are likely to exist.” 2000 Determination at 32216.

¹⁷ *Annual Energy Outlook, 2007 with Projections to 2030 (Early Release)- Overview*. Report No. DOE/EIA-0383/2007, December 2006.

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impoundments had liners, there is absolutely no basis for EPA to rely on a voluntary plan for nationwide compliance. While the DOE/EPA report asserts that some improvement in the use of safeguards has occurred at CCW units permitted between 1994 and 2004, the 56 units surveyed by the report represent less than 10% of all U.S. CCW disposal units. EPA has no data indicating that the use of safeguards has improved whatsoever at the nation’s 600 existing CCW landfills and surface impoundments, only an official admission that the damage from these units is more pervasive nationally than the agency previously recognized (see above-cited 2006 *Damage Case Assessment*). Thus acceptance of a voluntary agreement to deal with this management crisis consciously disregards the enormous risk to human health and the environment posed by these operating units. It also disregards the increased liability that will result from a major growth in the volume and toxicity of CCW nationally without any enforceable standards in place to assure that citizens, their environment, and their water supplies will be protected from imminent and substantial and endangerment. This protection is required by RCRA and was promised by EPA in the 2000 Regulatory Determination.

Summary of Proposed Regulations

A. Overview

The following proposed regulations constitute a framework for development of comprehensive CCW regulations. The end goal is to produce regulations for the disposal of CCW that prevents unacceptable impact to human health and the environment. To accomplish this goal, the proposal must require that (1) CCW disposal facilities are located, designed and operated to limit impacts to acceptable levels; (2) CCW disposal facilities are monitored to demonstrate that they are limiting and will continue to limit impacts to acceptable levels; and (3) CCW disposal facilities provide the financial means to remediate unacceptable impacts during and after disposal operations.

To accomplish these objectives, the regulations must require the owners and operators of all CCW disposal units to:

- (1) Characterize the disposal site at and around the facility prior to the development of new CCW disposal units, during the operation of all CCW disposal units and after closure of all disposal units.
- (2) Characterize the chemical and physical properties of the CCW prior to disposal, under disposal conditions and as the CCW evolves during disposal operations and after closure.
- (3) Design a facility capable of limiting impacts to acceptable levels during operation of the unit and after closure.
- (4) Monitor the construction, operation and performance of the facility

during operation of the unit and after closure.

(5) Monitor the impacts of the disposal unit, including instantaneous conditions, historical trends, and future trends during operation of the unit and after closure.

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(6) Abate adverse impacts when they occur by setting standards of performance that trigger intervention both if standards are exceeded and if standards will be exceeded.

(7) Guarantee financial ability to intervene and remediate impacts during the operation of the unit and after closure.

In addition, the proposed regulations must also guarantee public participation, public access to information, and effective enforcement mechanisms, including the right to bring a citizen suit, to ensure compliance with regulatory standards.

B. Specific Regulatory Provisions

The proposal submitted herein is patterned after EPA's proposed rule, "Standards for the Management of Cement Kiln Dust," published by EPA on August 20, 1999.¹⁸ EPA described this rule as a "creative, affordable, and common sense approach for the management of cement kiln dust (CKD) waste under the Resource Conservation and Recovery Act." The 1999 CKD rule set forth numerous design and management standards, drawing primarily from the municipal solid waste landfill regulations (40 CFR Part 258). In the CKD rule, EPA also proposed "contingent" RCRA Subtitle C (hazardous waste) regulatory standards that would apply to CKD in the event of substantial noncompliance with the Subtitle D standards. We believe a similar framework is wholly appropriate for the regulation of CCW, as well. The following proposal, however, does not contain provisions requiring CCW be subject to Subtitle C standards in the event of substantial noncompliance with Part 253. We would, nevertheless, like to discuss the addition of such regulatory provisions in the course of the CCW rulemaking.

Similarly, we have also deferred a discussion of waste characterization requirements for CCW. In our view, most state CCW regulatory programs are barely able to meet the most basic safeguards regarding the characterization, monitoring and abatement of pollution at CCW disposal sites, much less competently implement major improvements in waste characterization measures needed beyond the benchmark leach tests commonly used today. Because the evidence demonstrates that even the most "benign" CCW, as indicated by standard laboratory leach tests, has caused harm to the environment, we believe that the provisions in this proposal should apply regardless of the waste characterization currently employed by state and federal agencies. However, we do believe that characterization of CCW must be further explored and view characterization measures as potentially adding an additional degree of safety to the basic standards of this proposal.

Specifically, our proposal contains the following provisions:

1. Location restrictions: Ban on disposal below the seasonal high groundwater level.

¹⁸ Standards for the Management of Cement Kiln Dust: Proposed Rule. Vol. 64, No. 161, Pages 45631-45697, August 20, 1999.

The proposed regulations include a ban on management of CCW in units whose base is located below the seasonal high groundwater level. The seasonal high groundwater level is defined as the natural level at which water stands in a shallow well open along its length and penetrating the surficial deposits just deeply enough to encounter standing water at the bottom when the aquifer is at its highest seasonal elevation. This specifically includes perched groundwater. This restriction is necessary to protect human health and the environment because of the damage caused by management of CCW at sites located below the natural water table.

2. Additional location restrictions: Prohibition on placement of CCW disposal units in floodplains, wetlands, fault areas, seismic impact zones, unstable areas and karst terrain.

The proposed regulations include a prohibition on locating new CCW units in floodplains, wetlands, fault areas, seismic impact zones, unstable areas and karst terrain. For existing units located in these areas, a demonstration must be made that such units are designed in a way to prevent adverse impacts to the environment. If this demonstration cannot be made the existing unit would have to close within two years of the effective date of the final rule.

3. Standards for protection of groundwater

The draft regulations propose that design criteria similar to those for municipal solid waste landfills (MSWLFs) under the Subtitle D program (Solid Waste Disposal Facility Criteria, 56 FR 50978, October 9, 1991) be adopted with certain modifications for groundwater monitoring and remediation. For the protection of groundwater, any new CCW management unit or expansion of an existing unit must be constructed with a composite liner and a leachate collection and removal system that is designed and constructed to maintain less than a 30 cm depth of leachate over the liner. The composite liner must consist of two components; an upper flexible membrane liner with a minimum thickness of 30 mil, and a lower component consisting of at least two feet of compacted clay with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. All waste management units must also apply suitable cover over exposed waste in a manner designed to minimize surface water infiltration, leachate generation and the creation of fugitive (airborne) releases from waste. Where required, based on site and waste characteristics, additional requirements may be imposed on a case by case basis.

4. Requirements for groundwater monitoring and corrective action

The regulations propose that groundwater monitoring be required for all new and existing CCW disposal units to detect the presence of CCW constituents in the groundwater. The groundwater monitoring system must include at a minimum one upgradient and three downgradient wells screened in the shallow aquifer immediately below the waste disposal unit and at least one well located in the waste to gather pore water quality and allow for rapid identification and response to contamination of

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underlying groundwater. The downgradient wells must be located not farther than 50 meters from the unit boundary at the relevant point of compliance (POC) specified by the EPA Regional Administrator. The groundwater monitoring system must be capable of ascertaining the quality of background groundwater that has not been affected by releases from the unit and assessing the quality of groundwater passing the relevant POC, as

certified by a qualified groundwater scientist. The groundwater monitoring program must include consistent procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells. Because this proposal requires groundwater monitoring at new and existing CCW disposal units, the rule effectively prohibits the location of such units in areas where subsurface conditions prevent characterization and monitoring of subsurface contaminant migration.

The regulations propose that disposal facilities conduct quarterly monitoring for "detection" parameters, which include common constituents of CCW. During "detection monitoring," groundwater monitoring results are measured against corrective action "trigger" levels that are based on the highest pre-disposal concentrations of the constituents, as determined by upgradient background monitoring and baseline monitoring that establishes background quality at downgradient points prior to placement of CCW. If these trigger levels are exceeded, a more extensive groundwater monitoring regime is required, which includes a much larger list of assessment parameters monitored more frequently and from additional monitoring points.

Corrective action abatement steps must be taken if this "assessment monitoring" determines that there is a statistically significant increase in pollutant concentrations above background concentrations. The facility operator must complete an assessment and selection of corrective action remedies within 120 days and begin abatement of the pollution within 60 days of selecting the remedy. The objective of the remedy is to halt the spread of contamination and restore background water quality at affected monitoring points. The remedy is deemed complete when background water quality has been maintained for a period of three years.

5. Closure and Post Closure Care

The proposed regulations require that new and existing CCW disposal units, including expansions and inactive units, be closed in accordance with specified standards and that units be monitored and maintained after closure. Closure and post-closure plans describing these activities are to be prepared to comply with a minimum set of procedural requirements.

The proposal requires that post-closure care be conducted for a period of 30 years after the closure of each CCW disposal unit. Post-closure care consists of maintaining the effectiveness of the final cap, continuing groundwater monitoring and leachate management, and if necessary upgrading these activities, to control the formation and release of leachate into the environment. Routine maintenance of the integrity of the

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final cap is necessary to prevent liquid from penetrating into the closed landfill and creating the potential for leachate migration.

6. Financial Assurance

The proposed regulations require a demonstration of financial assurance for the costs of conducting closure, post-closure care and if applicable, corrective action for known releases. The proposed financial assurance requirements are patterned after the financial assurance provisions for municipal solid waste landfills under Subtitle D (see 258.71 to 258.75). The purposes of the financial assurance are to ensure that the owner or operator of a CCW disposal unit adequately plans for the future costs of closure, postclosure

care and corrective action for known releases, and to ensure that adequate funds will be available when needed to cover the costs if the owner or operator is unwilling or unable to do so.

To demonstrate to the EPA Regional Administrator that it has planned for future costs, written cost estimates must be prepared. These cost estimates would serve as the basis for determining the amount of financial assurance that must be demonstrated. This proposal states that persons managing CCW in new and existing CCW disposal units, including expansions, be required to demonstrate financial responsibility for closure, post-closure care, and corrective action for known releases in an amount equal to the cost of a third party conducting these activities. The cost estimates must be based on the cost of closing the CCW disposal unit at the point of the unit's active life when the extent and manner of its operation would make closure the most expensive. Similarly, cost estimates for post-closure care must include estimates for both annual and periodic activities, and account for the most expensive costs of routine post-closure care.

The proposal does not address the requirement to demonstrate financial assurance for third party liability to compensate injured third parties. Such liability requirements are currently required under RCRA Subtitle C for hazardous waste management facilities (see 40 CFR 264.147). Financial assurance for third-party liability benefits public health by providing the incentive of lower insurance premiums resulting from improved facility design and operation. This requirement should be considered and an analysis completed to determine its feasibility.

7. Implementation

Existing CCW disposal units, including expansions, would be required to be in compliance with the groundwater monitoring requirements proposed under 253.40 within one year after the effective date of the final rule. New CCW disposal units, including expansions, must be in compliance with the groundwater monitoring requirements before CCW can be placed in the unit. Groundwater monitoring shall be conducted throughout the active life and post-closure care period of the CCW disposal unit.

8. Notification, Recordkeeping and Reporting

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The proposed regulations require that information concerning CCW management be retained in an operating record and be submitted to US EPA or an authorized state. In addition, the rule proposes that all information contained in the operating record must be publicly available. These requirements would ensure the public availability of basic types of information that demonstrate compliance with the requirements of the proposed regulations.

Record reviews are one of the ways EPA and citizens can ascertain whether a facility is in compliance. Accordingly, in Sec. 253.23, a recordkeeping requirement ensures that a historical record of CCW disposal unit performance is maintained at the facility and submitted to the EPA Regional Administrator. The person managing CCW would be required to maintain and submit the following records: (1) Any required demonstration, certification, finding, monitoring, notification, testing, or analytical data under Subpart E of part 253; (2) required inspection records, training procedures, and regulatory agency notification procedures; (3) required closure and post-closure care plans and any monitoring or analytical data proposed under Secs. 253.50 and 253.51; and

(4) any required cost estimates and financial assurance documentation proposed in subpart G. All information in the operating record must be publicly available, and, as stated above, EPA or an authorized state would receive copies of the documents. In addition, documentation of groundwater monitoring that indicates exceedances of trigger levels must be clearly set forth in notifications that are submitted to EPA (or the authorized state), the host municipality, adjacent landowners, and the public.

9. Citizen Suits and Citizen Enforcement of Part 253 Standards

Part 253 provides citizens with the right to bring a citizen suit for the failure of any CCW disposal unit to comply with Part 253 standards. In contrast, USWAG's Voluntary Action Plan provides no right of federal, state, or citizen enforcement of its provisions. EPA emphasized, in its 2000 Determination, the importance of citizen enforcement and the inherent advantage of subtitle D standards, which "would be applicable and enforceable by citizens as soon as the federal rule becomes effective."¹⁹ Part 253 also affirms the right of citizens to bring an action under section 7002 of RCRA, 42 U.S.C. §6972, to abate any pollution generated by CCW that may create the threat of an imminent and substantial endangerment of health or the environment or seek other relief related to the abatement of the threat.

In order to ensure the right of EPA to enforce the provisions of Part 253, as well as to ensure the applicability of federal inspection authority of CCW units, it is necessary to provide in the regulations that substantial noncompliance with specific Part 253 standards triggers Subtitle C listing of CCW. While the regulation we are proposing does not propose this step, we reiterate that it is essential to discuss this important contingency in course of comprehensive CCW rulemaking.

¹⁹ EPA 2000 Determination at 32232.

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10. Prohibition on the construction of new CCW surface impoundments and closure of existing CCW surface impoundments

The draft regulations provide that after the effective date of the final rule construction of new surface impoundments and the expansion of existing surface impoundments for the management, storage or disposal of CCW shall be prohibited. In addition, the disposal of CCW into existing surface impoundments shall cease within two years of the final rule. The proposal requires monitoring to be established at existing surface impoundments within one year of the effective date of the regulations and closure of CCW surface impoundments within two years, in accordance with all closure and postclosure requirements set forth in Part 253.

Conclusion

This proposal lays the framework for a federal rule addressing the second largest industrial solid waste stream in the U.S. Such a rule is long past due. The failure of EPA to provide rules for safe disposal of coal ash has resulted in the poisoning of surface water and groundwater in 23 states, by EPA's own admission. As we approach the greatest increase in coal-fired power plants in the history of this country, this is exactly the wrong time to acquiesce and accept voluntary standards from an industry with a track record of poor waste management. EPA must abide by its commitment in its 2000 Regulatory Determination to write a federal rule, and it must bring those to the table with the will, expertise and commitment to assist in the effort. Through a federal advisory committee, the process can be fair, open and collaborative.

Finally, because CCW currently disposed in dumps without adequate safeguards poses an imminent and substantial endangerment to health and the environment at many sites, it is appropriate that EPA immediately use its authority under Section 308(a) of the Clean Water Act and Section 7003 of RCRA to require groundwater monitoring and cleanup at such sites. We recommend that EPA survey its list of CCW damage cases, including potential and indeterminate cases, and solicit input from stakeholders to identify disposal sites where monitoring or remedial action is needed to quantify the threat to health and the environment. Information gathered from this monitoring and remediation will help guide the federal rulemaking. Initiation of such enforcement actions will make good on EPA's explicit promise in its 2000 Determination, wherein EPA stated, exactly twice, "As we proceed with regulation development, we will also take enforcement action under RCRA section 7003 when we identify cases of imminent and substantial endangerment."²⁰

²⁰ EPA 2000 Determination at 32217 (and repeated verbatim at 32233).

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Respectfully submitted,

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Jeffrey Stant, Director, PPW Project-Safe Disposal Campaign, Clean Air Task Force (CATF). *Clean Air Task Force* is located at 77 Summer St, 8th floor Boston, MA 02110. CATF is a nonprofit organization dedicated to restoring clean air and healthy environments through scientific research, public education and legal advocacy.

Eric Schaeffer, Director, Environmental Integrity Project (EIP). *The Environmental Integrity Project* is located at 919 18th Street, NW, Suite 650, Washington, DC 20006 . EIP is a nonpartisan, nonprofit organization established in March of 2002 to advocate for more effective enforcement of environmental laws.

Ed Hopkins, Director Environmental Quality Program, *Sierra Club* is located at 85 Second Street San Francisco, CA 94105. Sierra Club is a nonprofit environmental advocacy organization seeking to protect and restore the quality of the natural and human environment.

Mayra Quirindongo, Natural Resources Defense Council (NRDC). *Natural Resources Defense Council* is located at 40 West 20th Street New York, NY 10011. NRDC uses law, science and the support of more than 1 million members and online activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things.

Scott Edwards, Senior Attorney, Waterkeeper Alliance. *Waterkeeper Alliance* is located at 50 S. Buckhout, Suite 302, Irvington, New York 10533. Waterkeeper Alliance connects and supports local Waterkeeper programs to provide a voice for waterways and communities worldwide.

Brian Wright, Coal Policy Director, Hoosier Environmental Council. *Hoosier Environmental Council* is located at 1915 W. 18th St. Suite A, Indianapolis, IN 46202. Through education, advocacy, and citizen empowerment in Indiana, the Hoosier Environmental Council works to restore and protect the natural systems upon which life depends.

Lisa Graves Marcucci, President, Jefferson Action Group. *Jefferson Action Group* is located at 123 Oakwood Drive Clairton, PA 15025-3042. The mission of the Jefferson Action Group, Inc. is working to ensure human health is a priority in all environmental regulations.

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Carrie La Seur, Executive Director, Plains Justice. *Plains Justice* is located at 319 3rd St. NW, Mount Vernon, IA 52314. Plains Justice is a public interest environmental law firm working for environmental justice on the Northern Plains.

Lori Goodman, Treasurer, Dine CARE. *Dine CARE* is located 10A Town Plaza, Suite 138, Durango, CO 81301. Dine CARE is a membership organization by and for the Diné, the People. Our members all those Diné who strive to maintain a relationship with Mother Earth based on balance and harmony.

Margaret Janes, Senior Policy Analyst, Appalachian Center for the Economy and the Environment. *Appalachian Center for the Economy and the Environment* is located at 5640 Howards Lick Rd., Mathias, WV 26812. The Appalachian Center is a regional law and policy organization working with citizens and grassroots citizens' groups to clarify, analyze and act on the environmental and economic issues that affect Appalachian communities.

Tom Smith, State Director, Public Citizen. *Public Citizen* is located at 1002 West Avenue #300 Austin, TX 78701. Public Citizen works to protect health, safety, and democracy.

Bud Prast, President, People in Need of Environmental Safety. *People in Need of Environmental Safety* is located at 1621 Colorado Ave. Michigan City, IN 46360. People In Need of Environmental Safety (P.I.N.E.S.) is dedicated to educating Pine Township and surrounding area residents about surface and groundwater contamination caused by coal ash waste.

Dante Picciano, Executive Director, Army for a Clean Environment. *Army for a Clean Environment* is located at 2066 Evergreen Drive Tamaqua, PA 18252. Army for a Clean Environment works to promote a safe environment through education and fostering the prevention of the dumping of harmful materials in the community and surrounding areas.

John Blair, Executive Director, Valley Watch. *Valley Watch* is located at 800 Adams Ave Evansville, IN 47713-2213. Valley Watch, Inc. is an Indiana not-for-profit corporation established in 1981 to protect the public health and environment of the lower Ohio River Valley.

Cindy Rank, Mining Committee Chair, West Virginia Highlands Conservancy. *West Virginia Highlands Conservancy* can be reached at HC 78 Box 227, Rock Cave, WV 26234. The West Virginia Highlands Conservancy is one of the state's oldest environmental activist organizations and has over the past 40 years, be a leader in protecting the natural environment of West Virginia.

Mike Eisenfeld, New Mexico Staff Organizer, San Juan Citizens Alliance. *San Juan Citizens Alliance* is located at 108 N. Behrend, Suite I, Farmington, New Mexico, 87401. The San Juan Citizens Alliance organizes for the land and people of the San Juan Basin.

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Travis Brown, Neighbors for Neighbors. *Neighbors for Neighbors* is located at P.O. Box 661 Elgin, TX 78621. The mission of Neighbors for Neighbors is families working together to protect the lands, economy, and quality of life of Bastap and Lee counties for

future generations.

Anne Hedges, Program Director, Montana Environmental Information Center (MEIC). *Montana Environmental Information Center* is located at P.O. Box 1184 Helena, MT 59624. MEIC is dedicated to the protection and restoration of Montana's natural environment. MEIC is a member supported nonprofit organization with over 4,000 members in Montana and across the country.

Cathy Lodge, President, Residents Against the Power Plant (RAPP). *RAPP* is located at 257 Meinrad Drive, Bulger, PA 15019. RAPP is a citizens organization dedicated to working for the protection of public health and enforcement of environmental laws.

Vivian Stockman, Project Coordinator, Ohio Valley Environmental Coalition. *Ohio Valley Environmental Coalition* is located at P.O. Box 6753 Huntington, WV 25773. The Coalition's mission is to organize and maintain a diverse grassroots organization dedicated to the improvement and preservation of the environment through education, grassroots organizing and coalition building, leadership development and media outreach.

Tracy Carluccio, Deputy Director, Delaware Riverkeeper Network. *Delaware Riverkeeper Network* is located at 300 Pond Street, Second Floor, Bristol, PA 19007. The Delaware Riverkeeper is the voice of the Delaware River and its streams, championing their rights as living members of our community, and is leader for the Delaware Riverkeeper Network.

Mark Redsten, Executive Director, Clean Wisconsin. *Clean Wisconsin* is located at 122 State Street, Suite 200 Madison, WI 53703-2500. Clean Wisconsin, an environmental advocacy organization, protects Wisconsin's clean water and air and advocates for clean energy by being an effective voice in the state legislature and by holding elected officials and corporations accountable.

Vernon Haltom, Co-Director, Coal River Mountain Watch. *Coal River Mountain Watch* is located at Box 651 Whitesville, WV 25209. The mission of Coal River Mountain Watch is to stop the destruction of our communities and environment by mountaintop removal mining, to improve the quality of life in our area and to help rebuild sustainable communities.

Mark Trechock, Staff Director, Dakota Resource Council (DRC). *Dakota Resource Council* is located at P.O. Box 1095, Dickinson, North Dakota 58602-1095. DRC is working for preservation of family farms, enforcement of corporate farming laws, soil and water conservation, regulation of coal mining and oil and gas development, protection of groundwater and clean air, renewable energy, and sound management of solid and toxic wastes.

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Lynn Nadeau, Treasurer, Healthlink. *Healthlink* is located at 4 Seawall St. Marblehead, MA 01945. Healthlink's mission is to protect and improve public health by reducing and eliminating pollutants and toxic substances from our environment through research, education and community action.

Jan Schlichtmann, Executive Director, Wenham Lake Watershed Association. *Wenham Lake Watershed Association* is located at 6 Quincy Park Beverly, MA 01915. The goal of the Wenham Lake Watershed Association is to ensure the integrity of the drinking water for Beverly, Salem and Wenham by promoting the thorough investigation, impartial

evaluation and effective removal of threats to Wenham Lake.
William D. Lockwood, President, Save Us From Future Environmental Risks
(S.U.F.F.E.R.), *S.U.F.F.E.R.* is located at 497 S. Poplar St, Hazleton, PA 18201.
S.U.F.F.E.R. is a Pennsylvania non-profit corporation dedicated to protecting the
environment in and around the City of Hazleton, Pennsylvania.

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PART 253--MANAGEMENT STANDARDS FOR COAL COMBUSTION WASTE

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Authority: 42 U.S.C. 6912(a) and 6924(x).

Subpart A--General Provisions

Sec. 253.1 Purpose, scope, and applicability.

(a) The purpose of this part is to establish minimum national criteria for all coal combustion waste disposal units, including landfills and surface impoundments.

(b) Regulations in this part apply to any coal combustion waste (CCW) actively managed [after the effective date of the final rule], and as otherwise specifically provided in paragraph (c) of this section, including CCW managed in new CCW disposal units, existing CCW disposal units and expansions of CCW disposal units.

(c) Regulations in this part also apply to CCW disposal units that stopped receiving waste before [the effective date of the final rule], hereinafter “inactive units.” [In view of the large and diverse universe of inactive units, it will be necessary to tailor the applicability of the closure and post-closure requirements of Part 253 to these units. Factors that must be considered include the age and condition of the unit, when CCW was last placed in the unit, and whether the unit has already undergone closure pursuant to state requirements. These factors will be considered and tailored requirements generated after further analysis.]

(d) The compliance date for all requirements of this part 253, unless otherwise specified, is [one year after the effective date of the final rule].

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Sec. 253.2 Definitions.

This section contains definitions for terms that appear throughout this part; additional definitions appear in the specific sections to which they apply.

Active life means the period of operation beginning with the initial receipt of CCW and ending at completion of closure activities in accordance with Sec. 253.50.

Active management means a facility or unit that receives CCW and that has not been closed in accordance with Sec. 253.50.

Aquifer means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of ground water to wells or springs.

Beneficial Use of CCW means the substitution of CCW for another commercial product based on similar properties. Beneficial use of CCW shall not present a greater harm or threat of harm than the use of the product that the CCW is replacing. Uses that constitute disposal, including use of CCW as fill, including minefill, unconsolidated road

base, and structural fill are not considered beneficial use of CCW for the purposes of this part.

Coal combustion waste (CCW) means the solid and liquid waste generated primarily by the burning of coal and controlling of resulting emissions including fly ash, bottom ash, boiler slag, scrubber sludge, waste from fluidized bed combustion and other uniquely associated wastes often mixed with the above-mentioned ash, sludge and slag.

Coal combustion waste landfill unit means a discrete area of land or an excavation that receives CCW waste, and that is not a land application unit, surface impoundment, waste pile, as those terms are defined under Sec. 257.2 of this chapter, or injection well as defined by 40 CFR Parts 144 and 146. A CCW disposal unit may receive other types of non-hazardous industrial wastes, such as construction debris, mining overburden and other commercial solid waste (as defined in Sec. 258.2 of this chapter). A CCW disposal unit may be a new CCW disposal unit, an existing CCW disposal unit, an expansion of an existing CCW disposal unit, or an inactive CCW disposal unit.

Coal combustion waste surface impoundment means a topographic depression, excavation, or diked area, primarily formed from earthen materials (lined or unlined) and designed to hold accumulated liquid wastes, wastes containing free liquids, or sludges that were not backfilled or otherwise covered during periods of deposition; the depression may be dry if deposited liquid has evaporated, volatilized or leached, or wet with exposed liquid; structures that may be more specifically described as lagoon, pond, aeration pit, settling pond, tailings pond, sludge pit, etc. Also included is a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Disposal means the discharge, deposit, injection, dumping, spilling, leaking or placing of any CCW into or on any land or water so that such CCW or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

EPA Regional Administrator means the chief administrative officer of the EPA Region responsible for implementing the Subtitle C solid waste permit program. This reference

22 only applies to a State that has not chosen to create a regulatory program under State law. In States with an authorized RCRA program, all references to the EPA Regional Administrator should be read as referring to the State Director, or other State official responsible for implementing the CCW regulatory program.

Existing CCW disposal unit means any coal combustion waste disposal unit, including any CCW landfill or surface impoundment, that is receiving CCW as of 90 days after the effective date of the final rule. Facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of CCW.

Expansion means a lateral or vertical expansion of the waste boundaries of an existing CCW disposal unit.

Groundwater means water below the land surface in a zone of saturation.

Inactive CCW disposal unit means any coal combustion waste disposal unit, including any CCW landfill or surface impoundment that has not received waste after [the date of this final rule].

Leachate means a liquid that has passed through or emerged from CCW and contains

soluble, suspended, or miscible materials removed from such waste.

New CCW disposal unit means any coal combustion waste landfill or surface impoundment or expansion of an existing landfill or surface impoundment that has not received waste prior to the effective date of the final rule.

Owner means the person(s) who owns a CCW disposal unit or part of a CCW disposal unit.

Operator means the person(s) responsible for the overall operation of a CCW disposal unit or part of a CCW disposal unit.

Person(s) managing CCW means any person responsible for transport, storage, treatment, disposal or sale of any CCW, including owners and operators of CCW waste disposal units.

Run-off means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

Run-on means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

Saturated zone means that part of the earth's crust in which all voids are filled with water.

Storage means the containment of CCW on a temporary basis in such a manner as not to constitute disposal of such waste.

Uniquely associated wastes are low volume wastes that are co-managed with coal combustion waste including coal pile runoff, coal mill rejects/pyrites, air heater and precipitator washwater, boiler fireside chemical cleaning waste, floor and yard drains and sumps, and waste treatment sludge.

Uppermost aquifer means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this

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aquifer within the facility's property boundary. This definition specifically includes discontinuous aquifers, which are perched.

Waste management unit boundary means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

Waste pile or pile means any noncontainerized accumulation of solid, nonflowing waste that is used for treatment or storage.

Sec. 253.3 Imminent hazard action.

Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to sections 7002 and 7003 of RCRA.

Subpart B--Location Restrictions

Sec. 253.10 Placement above the seasonal high groundwater level.

(a) Upon the effective date of this rule, all CCW disposal units and expansions of CCW disposal units must be managed such that the base of the unit is located above the upper limit of the site-specific seasonal high groundwater level.

(b) For purposes of this section seasonal high groundwater level means the level at which water stands in a shallow well open along its length and penetrating the surficial deposits just deeply enough to encounter standing water at the bottom when the aquifer is at its highest seasonal elevation. This specifically includes

perched groundwater.

(c) Owners and operators of all existing CCW disposal units must submit to the EPA Regional Administrator a demonstration that the base of each CCW disposal unit is located above the site-specific seasonal high groundwater level. This demonstration shall be placed in the operating record.

(d) Any existing CCW disposal unit whose base is not located above the site-specific seasonal high groundwater level must be closed in compliance with the applicable requirements of this Part within two years of [the effective date of this final rule].

Sec. 253.11 Floodplains.

(a) Upon the effective date of this rule, new CCW disposal units or expansions of CCW disposal units shall not be located within floodplains.

(b) Existing CCW disposal units located in a 100-year floodplain must make a demonstration to the EPA Regional Administrator within 120 days of [the effective date of this rule] that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The person

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managing CCW must place the demonstration in the operating record and submit the demonstration to the EPA Regional Administrator.

(c) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.11(b) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit must close the disposal unit in compliance with the applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.

(d) For purposes of this Section:

(1) Floodplain means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands that are inundated by the 100-year flood.

(2) 100-year flood means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a significantly long period.

(3) Washout means the carrying away of solid waste by waters of the base flood.

Sec. 253.12 Wetlands.

(a) Upon the effective date of this rule, CCW disposal units shall not be located in wetlands.

(b) Existing CCW units that are located in wetlands must make the following demonstration to the EPA Regional Administrator within 120 days of [the date of the final rule]:

(1) The construction and operation of the CCW disposal unit does not:

(i) Cause or contribute to violations of any applicable State water quality standard,

(ii) Violate any applicable toxic effluent standard or prohibition under section 307 of the Clean Water Act,

(iii) Jeopardize the continued existence of endangered or threatened species or

result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973, and

(iv) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(2) The CCW disposal unit does not cause or contribute to significant degradation of wetlands. The integrity of the CCW disposal unit and its ability to protect ecological resources must be demonstrated by addressing the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCW disposal unit;

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(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the CCW disposal unit;

(iii) The volume and chemical nature of the waste managed in the CCW disposal unit;

(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(v) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(c) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.12(b) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit located in a wetland must close the disposal unit in compliance with the applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.

(d) For purposes of this section, wetlands means those areas that are defined in 40 CFR 232.2(r).

(e) Nothing in this section affects the applicability of any other statute or regulation affecting management of CCW in wetlands, including the permitting requirements under section 404 of the Clean Water Act.

Sec. 253.13 Fault areas.

(a) Upon the effective date of this rule, CCW disposal units shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time.

(b) Existing CCW disposal units located within 200 feet (60 meters) of a fault that has had displacement in Holocene time must make a demonstration to the EPA Regional Administrator within 120 days of [the effective date of this rule] that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the CCW disposal unit and will be protective of human health and the environment, except as specified in paragraph (c) of this section.

(c) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.13(b) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit must close the disposal unit in compliance with the

applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.

(d) For the purposes of this section:

(1) Fault means a fracture or a zone of fractures in any material along which strata
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on one side have been displaced with respect to that on the other side.

(2) Displacement means the relative movement of any two sides of a fault measured in any direction.

(3) Holocene means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

Sec. 253.14 Seismic impact zones.

(a) Upon the effective date of this rule, CCW shall not be managed in a CCW disposal unit located in a seismic impact zone, unless a demonstration is made to the EPA Regional Administrator, within 120 days [of this final rule] for existing units and prior to construction of any new CCW disposal unit, that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The person managing CCW waste must place the demonstration in the operating record.

(b) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.14(a) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit located in a seismic impact zone must close the disposal unit in compliance with the applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.

(c) For the purposes of this Section:

(1) Seismic impact zone means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g (i.e., 98.0 centimeters per second per second) in 250 years.

(2) Maximum horizontal acceleration in lithified earth material means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(3) Lithified earth material means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

Sec. 253.15 Unstable areas.

(a) CCW shall not be managed in disposal units located in unstable areas.

(b) Existing CCW disposal units located in an unstable area must make a demonstration to the EPA Regional Administrator within 120 days [of this final rule] that engineering measures have been incorporated into the CCW disposal unit's design to ensure the integrity of the structural components of the CCW disposal unit will not be disrupted.

The following factors, at a minimum, must be considered when determining whether an area is unstable:

- (1) On site or local soil conditions that may result in significant differential settling;
 - (2) On site or local geologic or geomorphologic features; and
 - (3) Onsite or local human made features or events (both surface and subsurface).
- (c) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.15(b) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit located in an unstable area must close the disposal unit in compliance with the applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.
- (d) For purposes of this Section:

- (1) Unstable area means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.
- (2) Structural components means liners, leachate collection systems, final covers, runoff/run-off systems, and any other component used in the construction and operation of the CCW disposal that is necessary for protection of human health and the environment.
- (3) Poor foundation conditions means those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of a CCW disposal unit.
- (4) Areas susceptible to mass movement means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the CCW disposal unit, because of natural or human-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

Sec. 253.16 Karst terrains.

- (a) Upon the effective date of this rule, new CCW disposal units and expansions of CCW disposal units shall not be located in karst terrain.
- (b) A person managing an existing CCW disposal unit located in karst terrain must make a demonstration to the EPA Regional Administrator within 120 days [of this final rule] that engineering measures have been incorporated into the CCW disposal unit's design to ensure the integrity of the structural components of the CCW disposal unit will not be disrupted. The following factors, at a minimum, must be considered when determining whether a terrain is karstic:

- (1) On-site or local geologic or geomorphologic features;
- (2) On-site or local soil conditions that may result in significant differential settling, collapse, or puncture of a landfill liner;

- (3) On-site hydrology, including the character and direction of ground-water flow and points of discharge for the karst ground-water basin the facility may affect; and
- (4) On-site or local human-made features or events (both surface and subsurface).
- (c) The Regional Administrator must approve or disapprove any demonstration made pursuant to Sec. 253.16(b) within 120 days of its submission. If the Regional Administrator does not approve the demonstration, the owner or operator of the existing CCW disposal unit located in karst terrain must close the disposal unit in compliance with the applicable requirements of this Part within two years of that determination. All approved demonstrations must be maintained in the operating record.
- (d) For purposes of this Section:
- (1) Karst terrains mean areas where karst landscape, with its characteristic hydrogeology and/or landforms are developed. In karst terrain, ground-water flow generally occurs through an open system with both diffuse and conduit flow end member components, and typically has rapid ground-water flow velocities that exceed Darcian flow velocities. Composed of limestone, dolomite, gypsum and other soluble rock, karst terrain typically has well developed secondary porosity enhanced by dissolution. Landforms found in karst terrain include, but are not limited to, sinkholes, sinking streams, caves, springs and blind valleys. Karst terrains always include one or more springs for each ground-water basin, and underground streams except where groundwater flow is diffuse or the host rock has megaporosity.
- (2) Structural components means liners, leachate collection systems, final covers, runoff/run-off systems, and any other component used in the construction and operation of the CCW disposal unit that is necessary for protection of human health and the environment.
- (3) Conduit flow means nonlinear to turbulent groundwater flow through an integrated system of conduits that behave hydraulically as a system of pipes. Conduit flow is typical of ground-water flow through thick, massive soluble rock such as limestone, where ground water is concentrated, flow is rapid and specific discharges are high. Turbulent conduit flow can be initiated in fractures as thin as 5 to 10 millimeters.
- (4) Darcian flow means groundwater flow which follows Darcy's law, where the specific discharge is proportional to the hydraulic gradient. Darcian ground-water flow is typically linear and laminar, travels from 1×10^{-11} to 1×10^{-12} centimeters per second, and is characteristic of ground-water flow through granular porous media.
- (5) Diffuse flow means groundwater flow that is laminar and slow (within the range of Darcian flow velocities) through a system of joints and bedding planes that have had minimal solution enlargement.

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Subpart C--Additional Criteria

Sec. 253.20 Air criteria for temporary storage including storage in tanks, containers, or buildings.

- (a) This section applies to coal combustion waste placed in temporary storage. Such CCW must be covered or otherwise managed to control wind dispersal of dusts, or stored in tanks, containers or buildings that meet the following minimum standards:
- (1) The tank, container, or building should be an engineered structure with a humanmade floor, walls, and a roof all of which prevent water from reaching the stored

CCW and are made of non-earthen materials providing structural support.

(2) The tank, container, or building must be free standing and not a surface impoundment (as defined in 40 CFR 257.2), be manufactured of a material suitable for storage of its contents, and meet appropriate specifications such as those established by either ASTM, API, or UL standards.

(b) For purposes of this section, temporary storage means interim storage of CCW designated for recycling, sale or final disposal.

(c) Alternative measures for fugitive dust control may be approved by the EPA Regional Administrator if a demonstration is made to the EPA Regional Administrator that the alternative measures are at least as effective in controlling wind dispersal of CCW as the minimum standards defined in paragraph (a) of this section. The person managing CCW must place the demonstration in the operating record and provide the EPA Regional Administrator with a copy of the demonstration.

Sec. 253.21 Criteria for trucks transporting coal combustion waste.

(a) CCW transported in trucks or other vehicles must be covered or otherwise managed to control wind dispersal of dust.

(b) All trucks transporting CCW must comply with the applicable DOT standards pertaining to the transportation of hazardous materials.

Sec. 253.22 Air criteria for CCW disposal units.

(a) CCW disposed in CCW disposal units must be managed in a manner that does not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

(b) CCW must be disposed in CCW disposal unit constructed so that such CCW is:

(1) Covered or otherwise managed to control wind dispersal of dust, or

(2) Emplaced as conditioned CCW to control wind dispersal, and

(3) Covered with a sufficient thickness of earthen material at the end of each operating day, or at more frequent intervals if necessary, except as provided in paragraph (d) of this section, to control blowing dust.

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(c) For purposes of this section conditioned CCW means coal combustion waste that has been compacted in the field at appropriate moisture content using moderate to heavy equipment to attain 95% of the standard Proctor maximum dry density value according to ASTM D 698 or D 1557 test methods.

(d) Alternative measures for fugitive dust control may be approved by the EPA Regional Administrator if a demonstration is made to the EPA Regional Administrator that the alternative measures are at least as effective in controlling wind dispersal of CCW as the minimum standards defined in paragraphs (a), (b), and (c) of this section. The person managing CCW must place the demonstration in the operating record and provide a copy of the demonstration to the EPA Regional Administrator.

Sec. 253.23 Recordkeeping requirements.

(a) An operating record of a CCW disposal unit must be retained at the facility. The following information must be recorded in the operating record as it becomes available:

(1) Any notification of violation required under paragraph (c) of this section;

(2) Any certification of compliance required under paragraph (d) of this section;

- (3) Any location restriction demonstration required under Subpart B;
 - (4) Any CCW disposal unit design documentation;
 - (5) Any demonstration, certification, finding, monitoring, testing, or analytical data required by Subpart E;
 - (6) Any demonstration, certification, testing, or analytical data required by Sec. 253.17(d);
 - (7) Any plans for selected remedies as required by Sec. 253.47;
 - (8) Closure and post-closure care plans and any monitoring, testing, or analytical data as required by Secs. 253.50 and 253.51; and
 - (9) Any cost estimates and financial assurance documentation required by Subpart G of this part.
- (b) The person managing CCW must submit copies of documents, including changes and updates to all documents specified in paragraph (a)(3), (a)(4), (a)(5), (a)(6), (a)(7), (a)(8) and (a)(9), to the EPA Regional Administrator. All information contained in the operating record must be made available for inspection and copying by the public at all reasonable times.
- (c) The person managing CCW must notify the EPA Regional Administrator, in a letter signed by the owner or operator of the facility, whenever any standard of this rule is violated.
- (d) The person managing CCW must submit a certification to the EPA Regional Administrator, signed by the owner or operator of the facility, once each year: throughout the active life and post-closure care period that a new or existing CCW disposal unit is in compliance with the additional criteria, groundwater monitoring, and corrective action provisions of subparts C and E of this part and with the closure and post-closure and

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financial assurance provisions of subparts F and G; and throughout the active life of the facility that all CCW managed on-site or sent off-site for beneficial use is disposed in compliance with all applicable provisions of this part. The certification must also certify that all records from paragraph (a) of this section are properly maintained, submitted as required to the EPA Regional Administrator, and available to the public in accordance with the provisions of paragraph (b) of this section.

Sec. 253.24 Storage criteria [To be inserted]

Subpart D--Design Criteria

Sec. 253.30 Design criteria.

- (a) Prior to construction of a CCW disposal unit in carbonate terrain, a karst groundwater investigation must be conducted to verify that the site does not contain features characteristic of karst terrain, as described in Sec. 253.16. The karst investigation must define the direction of groundwater flow and points of discharge for the karst groundwater basin(s) the facility may affect. The karst groundwater investigation shall also include, but not be limited to, a karst inventory and a dye tracer study to identify springs that are hydrologically related to the CCW disposal unit. The investigation must be certified by a qualified groundwater scientist and approved by the EPA Regional Administrator.
- (b) CCW must be managed in CCW disposal units and expansions constructed:
 - (1) In accordance with a design and operating practices that, together with location

characteristics, will prevent the migration of any hazardous constituents into the groundwater or surface water at any future time, and

(2) With a composite liner, as defined in paragraph (c) of this section and a leachate detection, collection, and removal system that is designed, constructed, and operated to maintain less than a 30 cm depth of leachate over the liner. The owner or operator shall collect and remove pumpable liquids to minimize the head on the liner.

(c) For purposes of this Section, composite liner means a system consisting of two components; the upper component must consist of a minimum 30 mil flexible membrane liner (FML), and the lower component must consist of at least a two foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60 mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(d) For purposes of this Section the leachate detection, collection, and removal system must be capable of detecting, collecting, and removing leachate during the active life and post-closure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

(1) Constructed with a bottom slope of one percent or more;

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(2) Constructed of granular drainage materials with a hydraulic conductivity of 1×10^{-2} cm/sec or more and a thickness of 12 inches (30.5 cm) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3×10^{-5} m²/sec or more;

(3) Constructed of materials that are chemically resistant to the waste managed in the unit and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes and any waste cover materials or equipment used;

(4) Designed and operated to minimize clogging during the active life and post-closure care period; and

(5) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the waste. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(6) The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the liner.

(e) When designing a CCW disposal unit that complies with paragraph (b)(1) of this section, the following factors, at a minimum, must be considered:

(1) The hydrologic characteristics of the facility and surrounding land;

(2) The climatic factors of the area; and

(3) The volume and physical and chemical characteristics of the leachate.

(f) The relevant POC shall be no more than 50 meters from the waste management unit boundary and shall be located on land owned by the owner of the CCW disposal. In determining the relevant POC, the following factors shall be considered:

(1) The hydrogeologic characteristics of the facility and surrounding land including

the locations of nearest connections of groundwater to surface waters and all groundwater recharge and discharge points in the surrounding land;

- (2) The volume and physical and chemical characteristics of the leachate;
- (3) The quantity, quality, and direction of flow of groundwater;
- (4) The anticipated travel time for potentially impacted groundwater to reach the monitoring system;
- (5) The proximity and withdrawal rate of the groundwater users;
- (6) The availability of alternative drinking water supplies;
- (7) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water; and
- (8) Public health, safety, and welfare effects.

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(g) The person managing CCW must submit to the EPA Regional Administrator copies of documents required in paragraph (a) of this section within ten (10) days of the date these documents have been placed in the operating record, and all information contained in the operating record must be made available for inspection and copying by the public.

Sec. 253.31 Prohibition on construction of new coal combustion waste surface impoundments

Upon [the effective date of this final rule], construction of new surface impoundments and the expansion of existing surface impoundments for the management, storage or disposal of CCW shall be prohibited.

Sec. 253.32 Closure of existing coal combustion waste surface impoundments

Existing CCW surface impoundments shall close within two years of [the effective date of this final rule]. Closure of CCW surface impoundments shall be in accordance with all closure and post-closure requirements in set forth in this Part 253. [Note: additional requirements regarding the closure of existing surface impoundments will be added.]

Sec. 253.33 Access requirements.

Owners or operators of all CCW disposal units must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

Sec. 253.34 Run-on/run-off control systems.

(a) Owners or operators of all CCW disposal units must design, construct, and maintain:

- (1) A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;
- (2) A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(b) Run-off from the active portion of the landfill unit must not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402.

Subpart E--Groundwater Monitoring and Corrective Action

Sec. 253.40 Applicability.

(a) The requirements in this part apply to all new and existing CCW disposal units, except as provided in paragraph (b) of this section.

(b) Persons managing CCW in CCW disposal units must comply with the groundwater monitoring requirements of this part according to the following schedule:

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(1) Existing CCW disposal units must be in compliance with the groundwater monitoring requirements specified in Secs. 253.41 through 253.45 by one year after the effective date of the rule;

(2) Upon the effective date of this rule, new CCW disposal units and expansions of existing CCW disposal units must be in compliance with the groundwater monitoring requirements specified in Secs. 253.41 through 253.45 before CCW can be placed in the unit.

(c) The owner or operator of the CCW disposal unit(s) must notify the EPA Regional Administrator once each year throughout the active life and post-closure care period that a new or existing CCW disposal unit is in compliance with the groundwater monitoring and corrective action provisions of this Subpart.

(d) Once established at a CCW disposal unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that CCW disposal unit as specified in Sec. 253.51.

(e) For the purposes of this subpart, a qualified ground-water scientist is a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by State registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

Sec. 253.41 Groundwater monitoring systems.

(a) A groundwater monitoring system must be installed that consists of a sufficient number of wells and/or springs, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer (as defined in Sec. 253.2) and any other aquifer that is hydrologically connected to the uppermost aquifer or is otherwise vulnerable to contamination by the waste unit based on the hydrologic characterization of the site. The groundwater monitoring system must consist of sufficient monitoring points to detect degradation of groundwater quality that originates from any point within the unit. The system must include, at a minimum, one upgradient and three downgradient wells. Groundwater samples must:

(1) Represent the seasonal variation of head elevation and water quality of upgradient groundwater that has not been affected by leakage from the unit being monitored.

(2) Represent the elevation and quality of leachate contained within the disposal unit throughout the operation and post closure monitoring of the unit;

(3) Represent the quality of groundwater passing the relevant POC. The downgradient monitoring system must be installed at the relevant POC (or at the waste management unit boundary if deemed necessary by the EPA Regional Administrator to prevent offsite migration of contaminants) that ensures timely detection of groundwater contamination in the uppermost and any other affected aquifer.

(b) A groundwater monitoring system must be designed, installed, and operated to assure

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the ability to detect changes in groundwater quality considering projected changes to the hydrogeologic system at the facility during the construction, operation, and post-closure periods.

(c) A multi-unit groundwater monitoring system may be installed instead of separate groundwater monitoring systems for each CCW disposal unit when the facility has several units, provided the multi-unit groundwater monitoring system meets the requirement of paragraph (a) of this section and will be as protective of human health and the environment as individual monitoring systems for each CCW disposal unit, based on the following factors:

- (1) Number, spacing, and orientation of the CCW disposal units;
- (2) Hydrogeologic setting that exists during the construction, operation, and postclosure periods; and
- (3) Site history.

(d) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground-water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(1) The person managing CCW must notify the EPA Regional Administrator that the documentation of design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices has been placed in the operating record; and

(2) The monitoring wells, springs, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(e) The number, spacing, and depths of monitoring systems shall be:

(1) Determined based upon site-specific hydrogeologic information that must include thorough characterization of:

(i) Aquifer thickness(es), ground-water flow rate(s), groundwater flow direction(s) including seasonal and temporal fluctuations in groundwater flow, and flow through fractures or other pathways between aquifers; and

(ii) Saturated and unsaturated geologic units, disposed wastes, and fill materials overlying the uppermost aquifer, materials comprising each potentially affected aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(2) Certified by a qualified groundwater scientist and approved by the EPA Regional Administrator. Within 14 days of this certification, the person managing CCW must notify the EPA Regional Administrator that the certification has been placed in the operating record.

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Sec. 253.43 Groundwater sampling and analysis requirements.

(a) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the upgradient and downgradient wells (and at

springs respective to site hydrogeology) installed in compliance with Sec. 253.41(a). The person managing CCW must submit to the EPA Regional Administrator the sampling and analysis program documentation and place this documentation in the operating record.

The program must include procedures and techniques for:

- (1) Sample collection;
 - (2) Sample preservation and shipment;
 - (3) Analytical procedures;
 - (4) Chain of custody control; and
 - (5) Quality assurance and quality control.
- (b) The monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents, pH, temperature, specific conductivity and other monitoring parameters in groundwater and leachate samples. Analyses shall be reported at detection limits at least 50 percent below the lower of health-based or drinking water standards where such exist. Groundwater samples shall not be field-filtered prior to laboratory analysis.
- (c) The sampling procedures and frequency must ensure protection of human health and the environment with an adequate margin of safety and be designed to reliably detect changes in water quality and contamination from the waste disposal unit(s) before such contamination has migrated beyond the property boundary of the waste disposal unit.
- (d) Groundwater and leachate elevations must be measured in each well immediately prior to purging, each time ground water is sampled. The rate and direction of groundwater flow must be determined each time ground water is sampled. Groundwater elevations in wells that monitor the same waste management area must be measured within a period of time short enough to account for temporal variations in groundwater flow that could otherwise preclude accurate determination of groundwater flow rate and direction.
- (e) Baseline groundwater quality must be established in upgradient and downgradient well(s) (and spring(s) if appropriate) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the CCW disposal unit, as determined under Sec. 253.44(a) or Sec. 253.45(a). Baseline monitoring must be sufficient to track seasonal variability and consist of not less than quarterly sampling for a period of one year.
- (f) The person managing CCW must determine whether or not there is an increase (increase or decrease for pH) over baseline values for each parameter or constituent required in the particular groundwater monitoring program that applies to the CCW disposal unit, as determined under Sec. 253.44(a).
- (g) In determining whether an increase (increase or decrease for pH) has occurred, the
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person managing CCW must compare the groundwater quality of each parameter or constituent at each monitoring well (and spring if appropriate) to the highest (highest and lowest for pH) recorded baseline value of that constituent.
- (h) Within 14 days after completing sampling and analysis, the person managing CCW must determine whether there has been an increase (increase or decrease for pH) over baseline at each monitoring well and spring.

Sec. 253.44 Detection monitoring program.

(a) Detection monitoring is required at CCW disposal units at all groundwater monitoring wells (and springs if appropriate) defined under Sec. 253.41 (a). At a minimum, a detection monitoring program must include the monitoring for the constituents listed in Appendix I to this part.

(1) The EPA Regional Administrator may establish an expanded list of indicator parameters for a CCW disposal unit, in addition to the constituents listed in Appendix I to this part. In determining additional parameters, the EPA Regional Administrator shall consider the following factors:

- (i) The types, quantities, and concentrations of constituents in wastes and leachate managed at the CCW disposal unit;
- (ii) The mobility, stability, and persistence of waste constituents or their reaction products in any unsaturated zone(s) beneath the CCW disposal unit;
- (iii) The detectability of indicator parameters, waste constituents, and reaction products in the ground water; and
- (iv) The concentration or values and coefficients of variation of monitoring parameters or constituents in the ground-water baseline.

(b) The monitoring frequency for all constituents listed in Appendix I to this part, or in the alternative list approved in accordance with paragraph (a)(1) of this section, shall be sufficient to track seasonal variability and not less than quarterly during the active life of the facility (including closure) and the post-closure period.

(c) At least one sample from a leachate collection sump, and each upgradient and downgradient well (and spring if appropriate) must be collected and analyzed during subsequent sampling events.

(d) If the person managing CCW determines that the concentration of one or more of the constituents listed in Appendix I to this part is higher (outside the range for pH) than the highest (outside the range for pH) baseline value for that parameter at the POC, the person managing CCW:

(1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have increased (outside the range for pH) over baseline levels, and notify the EPA Regional Administrator of this finding. The documentation shall clearly indicate all constituents that have increased over baseline and define the baseline for each identified constituent;

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(2) If the person managing CCW determines that there has been an increase above the highest baseline value for any parameter (outside the range for pH), in any two sampling events, he must establish an assessment monitoring program meeting the requirements of Sec. 253.45 within 90 days, except as provided for in paragraph (d)(3) of this section.

(3) The owner/operator may demonstrate that the increase (outside the range for pH) resulted from error in sampling or analysis. A report documenting this demonstration must be certified by a qualified groundwater scientist and submitted to the EPA Regional Administrator, as well as placed in the operating record. If the demonstration is approved by the EPA Regional Administrator, the person managing CCW may continue detection monitoring as specified in this Section. If, after 90 days, a successful demonstration is not made, the person managing CCW must

initiate an assessment monitoring program as required in Sec. 253.45.

Sec. 253.45 Assessment monitoring program.

(a) Assessment monitoring is required whenever an increase over the highest (outside the range for pH) baseline value has been detected for one or more of the constituents listed in the Appendix I of this part during any two sampling events.

(b) Within 90 days of triggering an assessment monitoring program, and at least bimonthly (every other month) thereafter, the person managing CCW must sample and analyze the groundwater for constituents identified in Appendix VIII of Part 261 of this chapter as well as aluminum, boron, chloride, chromium (hexavalent), copper, molybdenum, sulfate, and zinc. A minimum of one sample from each downgradient well (and spring if appropriate) must be collected and analyzed during each sampling event. The initial sampling event for assessment monitoring will consist of the collection and analysis of four independent samples for all constituents in Appendix VIII of Part 261 as well as aluminum, boron, chloride, chromium (hexavalent), copper, molybdenum, sulfate and zinc from each upgradient and downgradient well (and spring if appropriate) to establish existing concentrations for the constituents.

(c) The EPA Regional Administrator may increase the frequency for repeated sampling and analysis for the set of constituents required by paragraph (b) of this Section, during the active life (including closure) and post-closure care of the unit considering the following factors:

- (1) Lithology of the aquifer(s) and unsaturated zone(s);
- (2) Hydraulic conductivity(ies) of the aquifer(s) and unsaturated zone(s);
- (3) Ground-water flow rates;
- (4) Minimum distance between upgradient edge of the CCW disposal unit and downgradient monitoring well screen (minimum distance of travel);
- (5) Hydrograph of springs if appropriate;
- (6) Resource value of the aquifer; and

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(7) Nature (fate and transport) of any constituents detected in response to this Section.

(d) After obtaining the results from the initial or subsequent sampling events required in paragraph (b) of this Section, the person managing CCW must:

- (1) Within 14 days, place documentation in the operating record identifying the constituents that have been detected and their concentrations and submit such documentation to the EPA Regional Administrator and to the host municipality in which the CCW disposal unit is located. The documentation shall clearly specify each detected constituent along with the baseline values for all detected constituents;
- (2) Within 90 days, resample all wells (and springs if appropriate) specified by Sec. 253.41(a), conduct analyses for those constituents required by paragraph (b) of this Section, and submit all analyses to the EPA Regional Administrator and host municipality as well as record all concentrations in the facility operating record. At least one sample from each upgradient and downgradient well (and spring if appropriate) must be collected and analyzed during these sampling events.
- (3) Establish upgradient concentrations for any constituents detected pursuant to paragraph (b) or (d)(2) of this Section; and

- (4) Determine whether or not there is a statistically significant increase over upgradient or baseline values for each parameter or constituent required in the particular groundwater monitoring program that applies to the CCW disposal unit, as determined under Sec. 253.44(a) or Sec. 253.45(a).
- (e) The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (f) of this section. The sampling procedures shall be those specified under Sec. 253.44 for detection monitoring, Sec. 253.45 for assessment monitoring.
- (f) One of the following statistical methods to be used in evaluating groundwater monitoring data must be specified in the operating record and submitted to the EPA Regional Administrator for each hazardous constituent in addition to an evaluation of trend analysis that is sufficient to account for seasonal or other temporal variations in the data. The statistical test chosen shall be conducted separately for each hazardous constituent in each well (and spring if appropriate).
- (1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the upgradient mean levels for each constituent.
- (2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the upgradient median levels for each constituent.
- (3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the upgradient data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.
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- (4) A control chart approach that gives control limits for each constituent.
- (5) Another statistical test method that meets the performance standards of paragraph (h) of this section. The person managing CCW must place a justification for this alternative in the operating record and submit the justification to the EPA Regional Administrator of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph (h) of this section.
- (g) Any statistical method chosen shall comply with the following performance standards, as appropriate:
- (1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the person managing CCW to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.
- (2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with upgradient constituent concentrations

or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimental error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the baseline data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate ground-water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the baseline data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantification limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) The statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

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(h) In determining whether a statistically significant increase has occurred, the person managing CCW must compare the groundwater quality of each parameter or constituent at each monitoring well (and spring if appropriate) designated pursuant to Sec. 253.41(a)(3) to the baseline value of that constituent at that well (spring, if appropriate) and upgradient value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (f) and (g) of this section.

(i) If the concentrations of all constituents listed in paragraph (b) are shown to be at or below baseline values and upgradient values, using the statistical procedures in Sec. 253.45, for consecutive sampling events spanning an entire hydrologic cycle, the person managing CCW must notify the EPA Regional Administrator of this finding prior to returning to detection monitoring.

(j) If one or more constituents listed in paragraph (b) are detected at statistically significant levels above the baseline or upgradient concentrations established under paragraph (h) of this section in any sampling event, the person managing CCW must, within 14 days of this finding, place a notice entitled "Statistically Significant Contaminant Detection" in the operating record identifying the constituents that have exceeded baseline or upgradient concentrations and the extent of those exceedances, and submit such documentation, including the extent of the exceedances to the EPA Regional Administrator, the host municipality, adjacent landowners and to the public through a

public notice in a major local newspaper of general circulation. The person managing CCW must also:

- (1) Characterize the nature and extent of the release by installing additional monitoring wells as necessary;
- (2) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with paragraph (d)(2) of this Section;
- (3) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells (and springs if appropriate) in accordance with paragraph (g) of this section; and
- (4) Initiate an assessment of corrective measures as required by Sec. 253.46 within 30 days; or
- (5) Demonstrate that a source other than a CCW disposal unit caused the contamination, or that the SSI increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist and submitted to the EPA Regional Administrator and placed in the operating record. If the EPA Regional Administrator approves the demonstration, the person managing CCW must continue monitoring in accordance with the assessment monitoring program pursuant to this section, and may return to detection monitoring if the constituents listed in paragraph (b) are at or below baseline and upgradient concentrations as specified in paragraph (i) of this section in subsequent sampling. Until a successful demonstration is made, the person managing CCW must comply

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with paragraph (j) of this section including initiating an assessment of corrective measures. Approval of a demonstration by the EPA Regional Administrator shall be placed in the operating record, sent to the local municipality and adjacent landowners, and published in a local newspaper of general circulation.

Sec. 253.46 Assessment of corrective measures.

- (a) Within 30 days of finding that any of the constituents listed in Section 253.45 of this chapter have been detected at a statistically significant level exceeding baseline or upgradient concentrations, the person managing CCW must initiate an assessment of corrective measures. Such an assessment must be completed within 90 days, or such shorter period of time decided by the EPA Regional Administrator.
- (b) The person managing CCW must continue to monitor in accordance with the assessment monitoring program as specified in Sec. 253.45.
- (c) The assessment shall include an analysis of the effectiveness of potential corrective measures in halting the spread of the contamination and restoring baseline water quality as well as meeting all of the other requirements and objectives of the remedy as described under Sec. 253.47, addressing at least the following:
 - (1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;
 - (2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as State or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedies.

(d) The owner or operator of the CCW disposal unit must provide the public with information regarding the corrective measures assessment, as well as the opportunity to comment on the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties. The owner or operator of the CCW disposal unit shall publish a notice of availability and brief analysis of the corrective measures assessment and proposed corrective action remedy in a major local newspaper of general circulation. The owner or operator shall make the assessment and proposed remedy, as well as the operating record, available for public viewing at a public information repository, as required by section [to be determined] of this part.

(e) The owner or operator shall provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed remedy. Upon timely request, the EPA Regional Administrator will extend the public comment period by a minimum of 30 additional days. The EPA Regional Administrator shall provide the opportunity for a public meeting to be held during the public comment period at or near the facility regarding the proposed remedy.

Sec. 253.47 Selection of remedy.

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(a) Within 30 days of completing an assessment of corrective measures conducted under Sec. 253.46, the person managing CCW must select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. Within 14 days of selecting a remedy, the person managing CCW must submit to the EPA Regional Administrator a report describing the selected remedy which demonstrates how the remedy meets the standards in paragraph (b) of this section. The report must include a notification that the owner and operator have placed a copy of the report in the operating record.

(b) Remedies must:

(1) Be protective of human health and the environment;

(2) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of constituents listed in Section 253.45 of this chapter into the environment that may pose a threat to human health or the environment; and

(3) Comply with standards for management of wastes as specified in Sec. 253.48(d).

(c) In selecting a remedy that meets the standards of paragraph (b) of this section, the person managing CCW shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedies.

(2) The effectiveness of the remedy in controlling the source to reduce further releases.

(3) The ease or difficulty of implementing a potential remedy(s).

(4) The degree to which community concerns are addressed by a potential remedy(s).

(d) The person managing CCW shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the

initiation of remedial activities within 60 days taking into consideration the factors set forth in paragraphs (d) (1) through (5) of this section. The person managing CCW must consider the following factors in determining the schedule of remedial activities:

- (1) Extent and nature of contamination;
- (2) Practical capabilities of remedial technologies;
- (3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;
- (4) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;
- (5) Other relevant factors.

(e) The EPA Regional Administrator shall approve or amend the selected remedy, taking into consideration the comments received during the public comment period as well as the factors enumerated in this section. The EPA Regional Administrator may approve a remedy with amendments to conform to the requirements of this section or public comments received. The EPA Regional Administrator may determine an alternative period of time for the person managing CCW to initiate or complete remedial activities

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pursuant to paragraph (d) of this section.

(f) The owner or operator of the CCW disposal unit shall publish a notice of the corrective action remedy approved and the initiation of the implementation of the corrective action program in a local paper of general circulation.

Sec. 253.48 Implementation of the corrective action program.

(a) Based on the schedule established under Sec. 253.47 for initiation and completion of remedial activities, the owner/operator must:

(1) Establish and implement a corrective action groundwater monitoring program that:

(i) At a minimum, meets the requirements of an assessment monitoring program under Sec. 253.45;

(ii) Indicates the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with groundwater protection standards pursuant to paragraph (e) of this section.

(2) Implement the corrective action remedy selected under Sec. 253.47; and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to Sec. 253.47. The following factors must be considered by a person managing CCW in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause hazardous constituents to migrate or be released;

- (vi) Potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and
 - (vii) Other situations that may pose threats to human health and the environment.
- (b) A person managing CCW may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of Sec. 253.47 are not being achieved through the remedy selected. In such cases, the person managing CCW must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the person managing CCW makes the determination under paragraph (c) of this section.
- (c) If the person managing CCW determines that compliance with requirements under 45 Sec. 253.47 cannot be practically achieved with any currently available methods, the person managing CCW must:
- (1) Obtain certification of a qualified groundwater scientist and approval by the EPA Regional Administrator that compliance with requirements under Sec. 253.47(b) cannot be practically achieved with any currently available methods;
 - (2) Implement alternate measures approved by the EPA Regional Administrator to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and
 - (3) Implement alternate measures approved by the EPA Regional Administrator for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:
 - (i) Technically practicable; and
 - (ii) Consistent with the overall objective of the remedy.
 - (4) Submit to the EPA Regional Administrator within 14 days a report justifying the alternative measures prior to implementing the alternative measures and place the report in the operating record.
- (d) All solid wastes that are managed pursuant to a remedy required under Sec. 253.47, or an interim measure required under paragraph (a)(3) of this section, shall be managed in a manner:
- (1) That is protective of human health and the environment; and
 - (2) That complies with applicable RCRA requirements.
- (e) Remedies selected pursuant to Sec. 253.47 shall be considered complete when:
- (1) Compliance with the groundwater protection standards established under Sec. 253.45(h) has been achieved by demonstrating that concentrations of constituents listed in section 253.45(b) of this chapter have not exceeded baseline concentrations for a period of three consecutive years.
 - (2) All actions required to complete the remedy have been satisfied.
- (f) Upon completion of the remedy, the person managing CCW must submit to the EPA Regional Administrator within 14 days a certification that the remedy has been completed in compliance with the requirements of paragraph (e) of this section, and he must place the certification in the operating record. The certification must be signed by the owner or operator of the CCW disposal unit and by a qualified groundwater scientist, and approved by the EPA Regional Administrator.

Subpart F--Closure And Post-Closure Care

Sec. 253.50 Closure criteria for CCW landfills.

(a) A final cap system must be installed at all CCW disposal units that is designed to minimize infiltration and erosion. The cap system must be designed and constructed to:

- (1) Have a saturated hydraulic conductivity less than or equal to the saturated hydraulic conductivity of any bottom liner system or natural subsoils present, or a saturated hydraulic conductivity no greater than 1×10^{-5} cm/sec, whichever is less, and
- (2) Minimize infiltration through the closed CCW disposal unit by the use of an infiltration layer that contains a minimum 18-inches of earthen material, and
- (3) Minimize erosion of the cap by the use of an erosion layer that contains a sufficient thickness of earthen material that is capable of sustaining native plant growth, and
- (4) Minimize the disruption of the cap through a design that accommodates settling and subsidence.

(b) The EPA Regional Administrator may approve an alternative cap design that includes:

- (1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (a)(1) and (a)(2) of this section, and
- (2) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in paragraph (a)(3) of this section.

(c) The person managing CCW must prepare a written closure plan that describes the steps necessary to close all CCW disposal units at any point during their active life in accordance with the design requirements in paragraphs (a) or (b) of this section, as applicable. The closure plan, at a minimum, must include the following information:

- (1) A description of the cap, designed in accordance with paragraph (a) of this section and the methods and procedures to be used to install the cap;
- (2) An estimate of the largest area of the CCW disposal unit ever requiring a cap as required under paragraph (a) of this section at any time during the active life;
- (3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility. The plan should include drawings and cross sections depicting the information in (c)(1), (c)(2) and (c)(3); and
- (4) A schedule for completing all activities necessary to satisfy the closure criteria in this section.

(d) The person managing CCW must submit the closure plan to the EPA Regional Administrator and place such plan in the operating record no later than one year after the effective date of this rule for existing units or by the date of the initial receipt of waste for new units. [Rules regarding approval of closure plans by the EPA Regional Administrator to be inserted.]

(e) Prior to beginning closure of each CCW disposal unit as specified in paragraph (f) of this section, the person managing CCW must submit a notice of intent to close the unit to the EPA Regional Administrator and place that notice in the operating record.

(f) The closure activities of each CCW disposal unit (except inactive units) must begin no later than 30 days after the date on which the CCW disposal unit receives the known final receipt of wastes or, if the CCW disposal unit has remaining capacity and there is a reasonable likelihood that the CCW disposal unit will receive additional wastes, no later

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than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the EPA Regional Administrator if the person managing CCW demonstrates that the CCW disposal unit has the capacity to receive additional wastes and the person managing CCW has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed CCW disposal unit.

(g) The closure activities of all CCW disposal units must be completed in accordance with the closure plan within 180 days following the beginning of closure as specified in paragraph (f) of this Section. Extensions of the closure period may be granted by the EPA Regional Administrator if the person managing CCW demonstrates that closure will, of necessity, take longer than 180 days and he or she has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed CCW disposal unit.

(h) Within 14 days following closure of each CCW disposal unit, the owner or operator of the CCW disposal unit must submit to the EPA Regional Administrator a certification, signed by an independent registered professional engineer, facility management, and approved by the EPA Regional Administrator, verifying that closure has been completed in accordance with the closure plan and such certification shall be placed in the operating record.

(1) Within 14 days following closure of all CCW disposal units, the owner of operator of the CCW disposal unit must record a notation on the deed to the facility property, or some other instrument that is normally examined during title search, and notify the EPA Regional Administrator that the notation has been recorded and a copy has been placed in the operating record.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that the land has been used for disposal of CCW.

(j) The person managing CCW may request permission from the EPA Regional Administrator to remove the notation from the deed if all CCW has been removed from the facility. Such removal must be verified by the EPA Regional Administrator and must include the removal or decontamination of all waste residues, contaminated containment system components (including but not limited to liners, leachate collection and pipes), contaminated subsoils and site materials, and structures and equipment contaminated with waste and leachate. The notation cannot be removed from the deed if the waste disposal unit is the subject of any ongoing corrective action requirement in Subpart E.

Sec. 253.51 Post-closure care requirements.

(a) Following closure of each CCW disposal unit, the person managing CCW must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this Section, and consist of at least the following:

(1) Maintaining the integrity and effectiveness of any final cap, including making repairs to the cap as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cap;

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(2) Maintaining and operating the leachate collection system in accordance with the requirements in Sec. 253.30; and

(3) Monitoring the groundwater and undertaking corrective actions in accordance with the requirements of Subpart E of this part and maintaining the groundwater monitoring system.

(b) The length of the post-closure care period may be increased by the EPA Regional Administrator, if the EPA Regional Administrator determines that the lengthened period is necessary to protect human health and the environment.

(c) For all CCW disposal units, including inactive units, the person managing CCW must prepare a written post-closure care plan that includes, at a minimum, the following information [Rules regarding approval of post-closure plans by the EPA Regional Administrator to be inserted.]:

(1) A description of the monitoring and maintenance activities and requirement for corrective action required in paragraph (a) of this Section for each CCW disposal unit, and the frequency at which these activities will be performed;

(2) Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

(3) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this part. The EPA Regional Administrator may approve any other disturbance if the person managing CCW demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

(d) The person managing CCW must submit a post-closure plan to the EPA Regional Administrator and place such a plan in the operating record no later than one year after the effective date of this rule for existing units or by the initial receipt of waste for new units.

(e) Within 14 days following completion of the post-closure care period for each CCW disposal unit, the owner or operator of the CCW disposal unit shall submit to the EPA Regional Administrator a certification, signed by an independent, registered professional engineer and approved by the EPA Regional Administrator, verifying that post-closure care has been completed in accordance with the post-closure plan and shall place such certification in the operating record.

(f) [Rules regarding certification of completion of post-closure requirements by the EPA Regional Administrator to be inserted.]

§ 253.52 Closure and post-closure care of CCW surface impoundments.

(a) At closure, the owner or operator of a CCW surface impoundment must:

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(1) Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate and dispose of the resulting waste according to applicable RCRA requirements; or

(2) Eliminate free liquids by removing liquid wastes and leachate, or solidifying the remaining wastes and waste residues;

(3) Stabilize remaining wastes to a bearing capacity sufficient to support final cover;

and,

(4) Cap the surface impoundment with a cap designed and constructed to:

(A) Provide long-term minimization of the migration of liquids through the closed impoundment;

(B) Function with minimum maintenance;

(C) Promote drainage and minimize erosion or abrasion of the cap;

(D) Accommodate settling and subsidence so that the cap's integrity is maintained; and

(E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all post-closure requirements contained in §253.53, including maintenance and monitoring throughout the post-closure care period. The owner or operator must:

(1) Maintain the integrity and effectiveness of the cap, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) Maintain and monitor the leachate detection, collection and removal system and comply with all other applicable leachate detection system requirements of this part;

(3) Perform a one-year hydrologic study prior to closing the impoundment that defines baseline surface water and groundwater quality;

(4) Monitor all surface water discharges (including permitted NPDES discharges, flows from the top of the filled impoundment, and breakouts from dikes) shall be monitored. Any exceedance of Clean Water Act standards will require corrective action responses to permanently halt the exceedances. [Note: requirements for monitoring and maintenance of surface water monitoring systems will be added at a later date];

(5) Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Section 253.53 of this part;

(6) Prevent run-on and run-off from eroding or otherwise damaging the final cap; and

(7) Prevent the erosion or structural compromise of dikes, berms, any other earthen or manmade structures that contain the waste on site; and

(8) Present a plan that will accomplish these steps and maintain the site for at least a 50

30-year period, certified by an independent professional engineer, to the EPA Regional Administrator for approval. The plan must be approved by the EPA Regional Administrator prior to initiation of any closure activities including the performance of the hydrologic study in (b)(3).

(c) If an owner or operator plans to close a surface impoundment in accordance with paragraph (a)(1) of this section, and the impoundment does not comply with the liner requirements of Section 253.30 (c), then:

(1) The closure plan for the impoundment must include both a plan for complying with paragraph (a)(1) of this section and a contingent plan for complying with paragraphs (a)(2) – (a)(4) of this section in case not all contaminated subsoils can be practicably removed at closure; and

(2) The owner or operator must comply with paragraph (b) of this section in case not

all contaminated subsoils can be practicably removed at closure.

(d) The cost estimates calculated for closure and post-closure care of an impoundment subject to this paragraph must include the cost of complying with the contingent closure plan and the contingent post-closure plan.

Sec. 253.53 Post-closure care for CCW surface impoundments

[Additional requirements to be added pending further analysis.]

Subpart G--Financial Assurance Criteria

Sec. 253.60 Applicability.

(a) The requirements of this section apply to owners and operators of all CCW disposal units, except owners or operators who are State or Federal Government entities whose debts and liabilities are the debts and liabilities of a State or the United States.

(b) In this part, Owner means the person(s) who owns a CCW disposal unit or part of a CCW disposal unit.

(c) Operator means the person(s) responsible for the overall operation of a CCW disposal unit or part of a CCW disposal unit.

Sec. 253.61 Financial assurance for closure.

(a) The owner or operator must have a detailed written estimate, in current dollars, approved by the EPA Regional Administrator of the cost of hiring a third party to close the largest area of all CCW disposal units ever requiring a final cap as required under Sec. 253.50 at any time during the active life in accordance with the closure plan. The owner or operator must notify the EPA Regional Administrator that the estimate has been placed in the operating record.

(1) The cost estimate must equal the cost of closing the largest area of all portions of the CCW disposal unit ever requiring a final cap at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see Sec. 253.50(c)(2)).

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(2) During the active life of the CCW disposal unit, the owner or operator must annually adjust the closure cost estimate for inflation.

(3) The owner or operator must increase the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this Section if changes to the closure plan or CCW disposal unit conditions increase the maximum cost of closure at any time during the remaining active life.

(4) The owner or operator may reduce the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this Section if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the CCW disposal unit. Within 14 days of this finding, the person managing CCW must notify the EPA Regional Administrator that the justification for the reduction of the closure cost estimate and the amount of financial assurance has been placed in the operating record. The existing amount of financial assurance may not be reduced to the amount estimated for the reduced closure cost until the reduction in cost is approved by the EPA Regional Administrator.

(b) For each CCW disposal unit receiving CCW after the effective date of the rule, the owner or operator must establish financial assurance for closure in compliance with Sec. 253.64. The owner or operator must provide continuous coverage for closure until

released from financial assurance requirements by demonstrating compliance with Sec. 253.50 (h) and (i). [At Sec. 253(h), I assume you want the Reg. Admin. to approve the certified closure completion statement that is submitted to him/her.]

Sec. 253.62 Financial assurance for post-closure care.

(a) The owner or operator must have a detailed written estimate, in current dollars, approved by the EPA Regional Administrator of the cost of hiring a third party to conduct post-closure care for the CCW disposal unit in compliance with the post-closure care plan developed under Sec. 253.51. The post-closure care cost estimate used to demonstrate financial assurance in paragraph (b) of this Section must account for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure care plan over the entire post-closure care period. The owner or operator must notify the EPA Regional Administrator that the estimate has been placed in the operating record.

(1) The cost estimate for post-closure care must be based on the most expensive costs of post-closure care during the entire post-closure care period.

(2) During the active life of the CCW disposal unit and during the post-closure care period, the owner or operator must annually adjust the post-closure cost estimate for inflation.

(3) The owner or operator must increase the post-closure care cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the post-closure plan or CCW disposal unit conditions increase the maximum costs of post-closure care.

(4) The owner or operator may reduce the post-closure care cost estimate and the

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amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum costs of post-closure care remaining over the postclosure care period. Within 14 days of this finding, the owner or operator must notify the EPA Regional Administrator that the justification for the reduction of the postclosure cost estimate and the amount of financial assurance has been placed in the operating record. The existing amount of financial assurance may not be reduced to the amount estimated for the reduced post-closure cost until the reduction in cost is approved by the EPA Regional Administrator.

(b) The owner or operator of each CCW disposal unit must establish, in a manner in accordance with Sec. 253.64, financial assurance for the costs of post-closure care as required under Sec. 253.51. The owner or operator must provide continuous coverage for post-closure care until released from financial assurance requirements for post-closure care by demonstrating compliance with Sec. 253.51(e).

Sec. 253.63 Financial assurance for corrective action.

(a) An owner or operator in a CCW disposal unit required to undertake a corrective action program under Sec. 253.48 must have a detailed written estimate, in current dollars, approved by the EPA Regional Administrator of the cost of hiring a third party to perform the corrective action in accordance with the program required under Sec. 253.48. The corrective action cost estimate must account for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period. Prior to undertaking corrective action under Sec. 253.48, the owner or operator must

notify the EPA Regional Administrator that the estimate has been placed in the operating record.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action program is completed in accordance with Sec. 253.48(f).

(2) The owner or operator must increase the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the corrective action program or CCW disposal unit conditions increase the maximum costs of corrective action.

(3) The owner or operator may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum remaining costs of corrective action. Within 14 days of making an annual adjustment under paragraph (a)(1) of this section, the owner or operator must notify the EPA Regional Administrator that the justification for the reduction or increase of the corrective action cost estimate and the amount of financial assurance has been placed in the operating record. The existing amount of financial assurance may not be reduced to a lesser amount estimated for a reduced cost for corrective action until the reduction in cost is approved by the EPA Regional Administrator.

(b) An owner or operator in a CCW disposal unit, if required to undertake a corrective action program under Sec. 253.48 must establish financial assurance using the allowable mechanisms defined under Sec. 253.64. An owner or operator in a CCW disposal unit must establish financial assurance for all corrective action programs initiated during the 53

active life of the unit, closure, and post-closure care periods. The owner or operator must provide continuous coverage for corrective action.

Sec. 253.64 Allowable mechanisms.

The mechanisms used to demonstrate financial assurance under this Section must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Persons managing CCW must choose from the options specified in paragraphs (a) through (j) of this section.

(a) Trust Fund.

(1) The owner or operator may satisfy the requirements of this section by establishing a trust fund that conforms to the requirements of this paragraph. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. A copy of the trust agreement must be placed in the facility's operating record.

(2) Payments into the trust fund must be made annually by the owner or operator over the term of the initial control mechanism or over the remaining life of the CCW disposal unit, whichever is shorter, in the case of a trust fund for closure or postclosure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and postclosure care, the first payment into the fund must be at least equal to the current cost

estimate for closure or post-closure care, except as provided in paragraph (k) of this section, divided by the number of years in the pay-in period as defined in paragraph (a)(2) of this section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = [\text{CE}-\text{CV}]/\text{Y}$$

Where: CE is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action, except as provided in paragraph (k) of this section, divided by the number of years in the corrective action pay-in period as defined in paragraph (a)(2) of this Section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = [\text{RB}-\text{CV}]/\text{Y}$$

Where: RB is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period), CV is the current value of the trust fund, and Y is the

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number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or before two years elapse after the effective date of this rule, whichever is later; in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48.

(6) If the owner or operator establishes a trust fund after having used one or more alternate mechanisms specified in this Section, the initial payment into the trust fund must be at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to the specifications of this paragraph and paragraph (a) of this section, as applicable.

(7) The owner or operator, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action, and if justification and documentation of the cost is placed in the operating record. Prior to reimbursement, the owner or operator must notify the EPA Regional Administrator that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(8) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance as specified in this Section or if he is no longer required to demonstrate financial responsibility in accordance with the requirements of Sec. 253.61(b), Sec. 253.62(b), or Sec. 253.63(b).

(b) Surety Bond Guaranteeing Payment or Performance.

(1) The owner or operator may demonstrate financial assurance for closure or postclosure

care by obtaining a payment or performance surety bond that conforms to the requirements of this paragraph. The owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond that conforms to the requirements of this paragraph. The bond must be effective before the initial receipt of waste or before two years elapse after [the effective date of this rule], whichever is later; in the case of closure and post-closure care, the bond must be effective no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48. Within 14 days after demonstrating financial assurance according to this section, the owner or operator must notify the EPA Regional Administrator that a copy of the bond has been placed in the operating record. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.

(2) The penal sum of the bond must be in an amount at least equal to the current closure, post-closure care or corrective action cost estimate, whichever is applicable, except as provided in paragraph (k) of this section.

(3) Under the terms of the bond, the surety will become liable on the bond

55 obligation when the owner or operator fails to perform as guaranteed by the bond.

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of paragraph (a) of this Section except the requirements for initial payment and subsequent annual payments specified in paragraphs (a)(2), (3), (4) and (5) of this section.

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the EPA Regional Administrator 120 days in advance of cancellation. If the surety cancels the bond, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) The owner or operator may cancel the bond only if alternate financial assurance is substituted as specified in this Section or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with Sec. 253.61(b), Sec. 253.62(b) or Sec. 253.63(b).

(c) Letter of Credit.

(1) The owner or operator may satisfy the requirements of this Section by obtaining an irrevocable standby letter of credit that conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before two years elapse after the effective date of this rule, whichever is later; in the case of closure and post-closure care, the letter of credit must be effective no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48. Within 14 days after obtaining a letter of credit, the owner or operator must notify the EPA Regional Administrator that a copy of the letter of credit has been placed in the operating record. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit

operations are regulated and examined by a Federal or State agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: Name, and address of the facility, and the amount of funds assured, must be included with the letter of credit in the operating record.

(3) The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable, except as provided in paragraph (k) of this Section. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner and operator and to the EPA Regional Administrator 120 days in advance of cancellation. If the letter of credit is canceled by the issuing institution, the owner or operator must obtain alternate financial assurance.

(4) The owner or operator may cancel the letter of credit only if alternate financial assurance is substituted as specified in this Section or if the owner or operator is

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released from the requirements of this Section in accordance with Sec. 253.61(b), Sec. 253.62(b) or Sec. 253.63(b).

(d) Insurance.

(1) The owner or operator may demonstrate financial assurance for closure and postclosure care by obtaining insurance that conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or before two years elapse after the effective date of the requirements of this rule, whichever is later; in the case of closure and post-closure care, the insurance must be effective no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. Within 14 days after obtaining insurance, the owner or operator must notify the EPA Regional Administrator that a copy of the insurance policy has been placed in the operating record.

(2) The closure or post-closure care insurance policy must guarantee that funds will be available to close the CCW disposal unit whenever final closure occurs and/or to provide post-closure care for the CCW disposal unit whenever the post-closure care period begins, whichever is applicable. The policy must also guarantee that once closure or post-closure care begins, the insurer will be responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the current cost estimate for closure or post-closure care, whichever is applicable. The term face amount means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) A owner or operator, or any other person authorized to conduct closure or postclosure care, may receive reimbursements for closure or post-closure expenditures,

whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care, and if justification and documentation of the cost is placed in the operating record. Within 14 days after reimbursement, the owner or operator must notify the EPA Regional Administrator that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure of payment of premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner
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and operator and to the EPA Regional Administrator 120 days in advance of cancellation. If the insurer cancels the policy, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.

(8) The owner or operator may cancel the insurance policy only if alternate financial assurance is substituted as specified in this Section or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with the requirements of Sec. 253.61(b), Sec. 253.62(b) or Sec. 253.63(b).

(e) Corporate Financial Test. The owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified herein:

(1) Financial Component.

(i) The owner or operator must satisfy one of the following three conditions:

(A) A current rating for its senior unsecured debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's; or

(B) A ratio of less than 1.5 comparing total liabilities to net worth; or

(C) A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus \$10 million, to total liabilities.

(ii) The tangible net worth of the owner or operator must be greater than:

(A) The sum of the current closure, post-closure care, corrective action cost estimates and any other environmental obligations, including guarantees, covered by a financial test plus \$10 million except as provided in paragraph (e)(1)(ii)(B) of this section.

(B) \$10 million in net worth plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided all of the

current closure, post-closure care, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements, and subject to the approval of the EPA Regional Administrator.

(iii) The owner or operator must have assets located in the United States amounting to at least the sum of current closure, post-closure care, corrective action cost estimates and any other environmental obligations covered by a financial test as described in paragraph (e)(3) of this Section.

(2) Recordkeeping and reporting requirements.

(i) As they become available, the owner or operator must place the following items into the facility's operating record:

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(A) A letter signed by the owner's or operator's chief financial officer that:

(1) Lists all the current cost estimates covered by a financial test, including, but not limited to, cost estimates required for municipal solid waste management facilities under 40 CFR Part 258, cost estimates required for UIC facilities under 40 CFR Part 144, if applicable, cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable, cost estimates required for PCB storage facilities under 40 CFR Part 261, if applicable, and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and

(2) Provides evidence demonstrating that the firm meets the conditions of either paragraph (e)(1)(i)(A) or (e)(1)(i)(B) or (e)(1)(i)(C) and paragraphs (e)(1)(ii) and (e)(1)(iii) of this Section.

(B) A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion, disclaimer of opinion, or other qualified opinion will be cause for disallowance, with the potential exception for qualified opinions provided in the next sentence. The EPA Regional Administrator may evaluate qualified opinions on a case-by-case basis and allow use of the financial test in cases where the EPA Regional Administrator deems that the matters which form the basis for the qualification are insufficient to warrant disallowance of the test. If the EPA Regional Administrator does not allow use of the test, the owner or operator must provide alternate financial assurance that meets the requirements of this Section.

(C) If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that owner or operator satisfies paragraphs (e)(1)(i)(B) or (e)(1)(i)(C) of this section that are different from data in the audited financial statements referred to in paragraph (e)(2)(i)(B) of this Section or any other audited financial statement or data filed with the Securities and Exchange Commission (SEC) then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed upon procedures

engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the chief financial officer's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

(D) If the chief financial officer's letter provides a demonstration that the firm has assured for environmental obligations as provided in paragraph (e)(1)(ii)(B) of this section, then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements, how these obligations have been measured and reported,

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and that the tangible net worth of the firm is at least \$10 million plus the amount of any guarantees provided.

(ii) The owner or operator must place the items specified in paragraph (e)(2)(i) of this section in the operating record and notify the EPA Regional Administrator that these items have been placed in the operating record before the initial receipt of waste or before two years elapse after the effective date of this rule, whichever is later; in the case of closure, and post-closure care, items specified in paragraph (e)(2)(i) of this section must have been placed in the operating record no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48.

(iii) After the initial placement of items specified in paragraph (e)(2)(i) of this section in the operating record, the owner or operator must annually update the information and place updated information in the operating record within 90 days following the close of the owner or operator's fiscal year. The EPA Regional Administrator may provide up to an additional 45 days for a owner or operator who can demonstrate that 90 days is insufficient time to acquire audited financial statements. The updated information must consist of all items specified in paragraph (e)(2)(i) of this section.

(iv) The owner or operator is no longer required to submit the items specified in paragraph (e)(2) of this section or comply with the requirements of this paragraph when:

(A) The person substitutes alternate financial assurance as specified in this section that is not subject to these recordkeeping and reporting requirements; or

(B) The person is released from the requirements of this section in accordance with Sec. 253.61(b), Sec. 253.62(b), or Sec. 253.63(b).

(v) If the owner or operator no longer meets the requirements of paragraph (e)(1) of this section, the owner or operator must, within 120 days following the close of the owner or operator's fiscal year, obtain alternative financial assurance that meets the requirements of this section, place the required submissions for that assurance in the operating record, and notify the EPA Regional Administrator that the owner or operator no longer meets the criteria of the financial test and that alternate assurance has been obtained.

(vi) The EPA Regional Administrator may, based on a reasonable belief that the

owner or operator may no longer meet the requirements of paragraph (e)(1) of this section, require at any time the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in paragraph (e)(2) of this section. If the EPA Regional Administrator finds that the owner or operator no longer meets the requirements of paragraph (e)(1) of this section, within 120 days of this finding the owner or operator must provide alternate financial assurance that meets the requirements of this section. (vii) Calculation of costs to be assured. When calculating the current cost estimates for closure, post-closure care, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a 60

financial test referred to in paragraph (e) of this section, the owner or operator must include cost estimates required for coal combustion waste management facilities under this part, as well as cost estimates required for the following environmental obligations, if the person assures them through a financial test: obligations associated with UIC facilities under 40 CFR Part 144, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 261, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

(f) Corporate Guarantee.

(1) The owner or operator may meet the requirements of this section by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph (e) of this section and must comply with the terms of the guarantee. A certified copy of the guarantee must be placed in the facility's operating record along with copies of the letter from the guarantor's chief financial officer and accountants' opinions. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the guarantor's chief financial officer must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee.

(2) The guarantee must be effective and all required submissions placed in the operating record before the initial receipt of waste or before the effective date of the requirements of this section, whichever is later, in the case of closure and postclosure care, or in the case of corrective action no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48.

(3) The terms of the guarantee must provide that:

(i) If the owner or operator fails to perform closure, post-closure care, and/or corrective action of a facility covered by the guarantee, the guarantor will:
(A) Perform, or pay a third party to perform, closure, post-closure care, and/or corrective action as required (performance guarantee); or

(B) Establish a fully funded trust fund as specified in paragraph (a) of this section in the name of the owner or operator (payment guarantee).

(ii) The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this Subpart unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the EPA Regional Administrator. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the EPA Regional Administrator, as evidenced by the return receipts.

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(iii) If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the EPA Regional Administrator, obtain alternate financial assurance, place evidence of that alternate financial assurance in the facility operating record, and notify the EPA Regional Administrator. If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within 120 days of the cancellation notice, obtain alternative assurance, place evidence of the alternate assurance in the facility operating record, and notify the EPA Regional Administrator.

(4) If a corporate guarantor no longer meets the requirements of paragraph (e)(1) of this section, the owner or operator must, within 90 days, obtain alternative assurance, place evidence of the alternate assurance in the facility operating record, and notify the EPA Regional Administrator. If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within the next 30 days.

(5) The owner or operator is no longer required to meet the requirements of paragraph (g) of this section when:

(i) The owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The owner or operator is released from the requirements of this section in accordance with Sec. 253.61(b), Sec. 253.62(b), or Sec. 253.63(b).

(g) State-Approved Mechanism. In an authorized State, the owner or operator may satisfy the requirements of this section by obtaining any other mechanism that meets the criteria specified in paragraph (j)(1) Of this section, and that is approved by the State Director.

(h) State Assumption of Responsibility. If the State Director either assumes legal responsibility for the person's compliance with the closure, post-closure care and/or corrective action requirements of this part, or assures that the funds will be available from State sources to cover the requirements, the owner or operator will be in compliance with the requirements of this section. Any State assumption of responsibility must meet the criteria specified in paragraph (j)(1) of this section.

(i) Use of multiple mechanisms. The owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action, as required by Sec. 253.61, Sec. 253.62, and Sec. 253.63 by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in paragraphs

(a), (b), (c), (d), (e), (f), (g), (h), and (i) of this section, except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.

(j) The language of the mechanisms listed in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), and (i) of this section must ensure that the instruments satisfy the following criteria:

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(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator by the effective date of these requirements or prior to the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of Sec. 253.48, until the owner or operator is released from the financial assurance requirements under Secs. 253.61, 253.62 and 253.63.

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under State and Federal law.

Sec. 253.65 Discounting.

The EPA Regional Administrator may allow discounting of closure cost estimates in Sec. 253.61(a), post-closure cost estimates in Sec. 253.62(a), and/or corrective action costs in Sec. 253.63(a) up to the rate of return for essentially risk free investments, net of inflation, under the following conditions:

(a) The EPA Regional Administrator determines that cost estimates are complete and accurate and the owner or operator has submitted a statement from a Registered Professional Engineer so stating;

(b) The EPA Regional Administrator finds the facility in compliance with applicable and appropriate permit conditions;

(c) The EPA Regional Administrator determines that the closure date is certain and the owner or operator certifies that there are no foreseeable factors that will change the estimate of site life; and

(c) Discounted cost estimates must be adjusted annually to reflect inflation and years of remaining life.

Appendix I to Part 253--Constituents for Detection Monitoring

Common Name 1

pH

Conductivity

Total Dissolved Solids

Aluminum

Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Calcium
Chloride
Chromium (Total)
Chromium (hexavalent)
Copper
Fluoride
Iron
Lead
Mercury
Nickel
Magnesium
Manganese
Molybdenum
Potassium
Selenium
Silver
Sodium
Sulfate
Thallium
Zinc

¹ Common names are those used widely in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

ⁱ Due to the very short time period provided by EPA to submit this proposal, we have not attempted to address all aspects of CCW management nor have all identified issues been fully resolved. For example, this proposal does not address the various uses of CCW that can cause serious contamination of water resources, such as the use of coal ash for fill and road base. The absence of provisions addressing this and other CCW hazards should not be construed as an absence of concern, nor should it be construed to mean that regulations are not required to address those issues. Given the time and opportunity, we are very interested in working with EPA to fill all gaps remaining in this proposal.

ⁱⁱ On April 24, 2000, EPA acknowledged in its Regulatory Determination that “coal combustion wastes could pose risks to human health and the environment if not properly managed” and “national regulations under subtitle D of RCRA are warranted for coal combustion wastes when they are disposed in landfills or surface impoundments.” U.S. Environmental Protection Agency. *Regulatory Determination on Wastes from the Combustion of Fossil Fuels*, 70 Fed. Reg. 32214 at 33214. Hereinafter this document is referred to as “EPA 2000 Determination.”

ⁱⁱⁱ USWAG is a consortium of approximately 80 utility operating companies comprising more than 85% of total U.S. electric generating capacity

^{iv} In January 2007, EPA denied a FOIA request from Earthjustice for the final *Revised Risk Assessment*. The denial is currently under appeal. Earthjustice did receive in a synopsis of the draft *Revised Risk Assessment*, and, as of the date of this document, Earthjustice has received no indication from EPA that the conclusions of the draft *Revised Risk Assessment* have changed.

^v EPA summarized the draft Revised Risk Assessment as follows: “The primary risk to groundwater is from Arsenic. Risk exceedances due to arsenic (groundwater to drinking water pathway) are from 10(-2) to 10(-3) for surface impoundments and 10(-4) for landfills.” From a document entitled, “Coal Combustion Waste (CCW) Rulemaking Early Guidance Meeting, Briefing: Marcus Peacock, Deputy Administrator, EPA, July 27, 2006,” (Document undated.)

^{vi} *Id.*

^{vii} F. Sanchez, Keeny, R., Kosson, D., Delapp, R., Thorneloe, S. Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control, EPA/600/R-06/008, January 2006.

^{viii} U.S. Environmental Protection Agency. *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry*, Federal Register, Vol. 71, No. 244, December 20, 2006.

^{ix} 2000 Determination at 32221.

^x United States Environmental Protection Agency and United States Department of Energy. *Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004* (August 2006) at page 46.

^{xi} See, for example, the Indiana statutory provision that explicitly prohibits the Solid Waste Management Board, the rulemaking body responsible for environmental regulation of solid wastes, from developing any regulations restricting the use of power plant waste as fill. See IC 13-19-3-3(2)(E).

^{xii} Texas, the state that generates the largest amount of CCW in the U.S., does *not* require groundwater monitoring.

^{xiii} The only surveyed state that approached this benchmark was Pennsylvania, which requires “no shorter than” quarterly groundwater monitoring for indicator parameters but “no shorter than” annual monitoring for metals and volatile organic compounds.

^{xiv} Groundwater protection requirements are defined in the report as contaminant concentrations in groundwater that cannot be exceeded.

^{xv} “Potential damage cases,” by EPA’s definition, constitute sites at which groundwater or surface water is contaminated by CCW leachate but where the agency has no evidence of migration beyond the property boundary or where contaminants are not listed as primary contaminants under the Safe Drinking Water Act. “Potential” does not mean that contamination is not proven.