ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

3/5/00

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EPA

Regulatory Determination on Wastes from the Combustion of Fossil Fuels

AGENCY: **Environmental Protection Agency**

ACTION: **Regulatory Determination**

SUMMARY: This notice explains EPA's determination of whether regulation of fossil fuel combustion wastes is warranted under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Today's action applies to all utility, industrial, commercial and institutional burners of fossil fuels, including coal, oil, and natural gas fuels. It also applies to entities that use or reuse fossil fuel combustion wastes for beneficial uses or other purposes.

The Agency has concluded, based on our review of the criteria which RCRA directs EPA to consider in making today's regulatory determination:

- The following fossil fuel combustion wastes do not warrant regulation under Subtitle C of RCRA:
  - Wastes from the combustion of oil;
  - Wastes from the combustion of natural gas; and

- Certain coal combustion wastes used for beneficial purposes, other than to fill surface or underground mines, such as waste stabilization, beneficial construction applications (e.g., cement, concrete, and concrete products, road bed, wall board), and in agricultural applications (e.g., as a substitute for lime).

EPA has determined that regulation under Subtitle C of RCRA is warranted for the following wastes when they are land disposed (e.g., managed in landfills or surface impoundments) or when used to fill surface or underground mines. The Agency intends to develop regulations establishing national management standards following the approach taken in the recently proposed regulations applicable to cement kiln dust which includes a contingent hazardous waste listing (64 FR 45632; August 20, 1999). If EPA adopts such an approach, when the following wastes are properly managed in accordance with the standards, they will not be classified as hazardous wastes. When they are not properly managed, these wastes would become listed hazardous wastes subject to tailored Subtitle C standards pursuant to Section 3004(x) of RCRA.

- Large-volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together with certain other coal combustion wastes;
- Coal combustion wastes generated by non-utilities;
- Coal combustion wastes generated at facilities with fluidized bed combustion technology;
- Petroleum coke combustion wastes; and
- Wastes from the combustion of mixtures of coal and other fuels (i.e., co-burning).

Floor, Arlington, VA 22202. Comments may also be submitted electronically through the Internet to: rcra-docket@epa.gov. Comments in electronic format should also be identified by the docket number F-2000-FF2F-FFFFF and must be submitted as an ASCII file avoiding the use of special characters and any form of encryption.

Commenters should not submit electronically any confidential business information (CBI). An original and two copies of CBI must be submitted under separate cover to: RCRA CBI Document Control Officer, Office of Solid Waste (5305W), U.S. EPA, Ariel Rios Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460-0002.

Public comments and supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, we recommend that the public make an appointment by calling 703 603-9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost $0.15/page. The index and some supporting materials are available electronically. See the "Supplementary Information" section for information on accessing them.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at 800 424-9346 or TDD 800 553-7672 (hearing impaired). In the Washington, DC, metropolitan area, call 703 412- 9810 or TDD 703 412-3323.

For more detailed information on specific aspects of this regulatory determination, contact Dennis Ruddy, Office of Solid Waste (5306W), U.S. Environmental Protection Agency,

Ariel Rios Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460-0002, telephone (703) 308-8430, e-mail address ruddy.dennis@epa.gov.

SUPPLEMENTARY INFORMATION: The index and several of the primary supporting materials are available on the Internet. You can find these materials at <http://www.epa.gov/epaoswer/other/fossil/index.htm.

The official record for this action will be kept in paper form. Accordingly, EPA will transfer all comments received electronically into paper form and place them in the official record, which will also include all comments submitted directly in writing. The official record is the paper record maintained at the address in "ADDRESSES" at the beginning of this notice.

EPA will not immediately reply to commenters electronically other than to seek clarification of electronic comments that may be garbled in transmission or during conversion to paper form, as discussed above.

The contents of today's notice are listed in the following outline:

2. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR COAL COMBUSTION WASTES?

   A. What is the Agency's decision regarding the regulatory status of coal combustion wastes and why did EPA make that decision?

   B. What were EPA's tentative decisions as presented in the Report to Congress?

   C. How did commenters react to EPA's tentative decisions and what was EPA's analysis of their comments?

   D. What is the basis for today's decisions?

   E. What other information would EPA like to receive to assist the Agency in implementing today's regulatory determination?

3. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR OIL COMBUSTION WASTES?

   A. What is the Agency's decision regarding the regulatory status of oil combustion wastes and why did EPA make that decision?

   B. What were EPA's tentative decisions as presented in the Report to Congress?

   C. How did commenters react to EPA's tentative decisions and what was EPA's analysis of their comments?

   D. What is the basis for today's decisions?

4. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR NATURAL GAS COMBUSTION WASTES?

A. What is the Agency's decision regarding the regulatory status of natural gas combustion wastes and why did EPA make that decision?

B. What were EPA's tentative decisions as presented in the Report to Congress?

C. How did commenters react to EPA's tentative decisions and what was EPA's analysis of their comments?

D. What is the basis for today's decisions?

5. WHAT IS THE HISTORY OF EPA'S REGULATORY DETERMINATIONS FOR THE FOSSIL FUEL COMBUSTION INDUSTRY?

A. On what basis is EPA required to make regulatory decisions regarding the regulatory status of fossil fuel combustion wastes?

B. What was EPA's general approach in making these regulatory determinations?

C. What happened when EPA failed to issue its determination of the regulatory status of the large volume utility combustion wastes in a timely manner?

D. When was the Part 1 regulatory decision made and what were its findings?

6. EXECUTIVE ORDERS AND LAWS ADDRESSED IN TODAY'S ACTION

A. Executive Order 12866 - Determination of Significance

B. Regulatory Flexibility Act, as amended

C. Paperwork Reduction Act (Information Collection Requests)

D. Unfunded Mandates Reform Act

1. GENERAL INFORMATION

A. What action is EPA taking today?

In today's action, we are announcing two sets of decisions. Our first decision is to continue to exempt the following fossil fuel combustion (FFC) wastes from regulation as hazardous wastes under Subtitle C of the Resource Conservation and Recovery Act (RCRA):

1. Wastes from the combustion of oil;
2. Wastes from the combustion of natural gas; and
3. To the extent they are beneficially used, coal combustion wastes generated at non-utilities, coal combustion wastes generated at facilities with fluidized bed combustion technology, petroleum coke combustion wastes, wastes from the combustion of coal and other fuels (i.e., co-burning), and large-volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together

with other low volume and uniquely associated coal combustion wastes are covered by this continued exemption. Beneficial purposes include waste stabilization, beneficial construction applications (e.g., cement, concrete, and concrete products, road bed, wall board), and agricultural applications (e.g., as a substitute for lime). We acknowledge that when relevant factors are properly addressed, the use of coal combustion wastes to fill surface or underground mines can also provide significant benefits. However, when not done properly, minefilling has the potential to contaminate ground water to levels that could damage human health and the environment. For that reason, we have not classified minefilling as an exempted beneficial use.

Our second decision is that regulation of the following wastes under Subtitle C of RCRA is warranted when they are land disposed (e.g., managed in landfills or surface impoundments) or when used to fill surface or underground mines. We are considering developing national management standards following the approach taken in the recently proposed regulations applicable to cement kiln dust (see 64 FR 45632; August 20, 1999) which includes a contingent hazardous waste listing under Subtitle C of RCRA. Under this approach, when the following wastes are properly managed in accordance with the standards, they would not be classified as hazardous wastes. When they are not properly managed, they would become listed hazardous wastes subject to tailored Subtitle C standards pursuant to Section 3004(x) of RCRA.

- Large-volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together with certain other coal combustion wastes;
- Coal combustion wastes generated at non-utilities;

- Coal combustion wastes generated at facilities with fluidized bed combustion technology;
- Petroleum coke combustion wastes; and
- Wastes from the combustion of mixtures of coal and other fuels (i.e., co-burning of coal with other fuels where coal is at least 50% of the total fuel). [NOTE: In 1981, EPA issued a letter that provided its interpretation of the statutory exemption for coal burners to include wastes from burning mixtures of coal and non-fossil fuels provided that coal is at least 50% of the fuel mixture. Otherwise, the combustion wastes are not covered by the exemption. A copy of the EPA letter, dated January 13, 1981, is available in the docket supporting today's action.]

Under this approach, we would establish standards to ensure management of these wastes to protect human health and the environment. The wastes would remain non-hazardous provided that they are managed properly. We would also establish a contingent hazardous waste listing for wastes that are not managed in accordance with these prescribed standards and tailored Subtitle C management standards applicable to the wastes. In developing the hazardous waste regulations, which would be federally enforceable, we would use our broad authority provided by RCRA Sections 2002(a), 3001(b)(3)(C), and 3004(x) to develop a program tailored to the risks posed by coal combustion wastes while minimizing compliance costs.

EPA recognizes that our determination to develop regulations under Subtitle C of RCRA for the above-listed coal combustion wastes is a departure from the leanings expressed in our March 31, 1999 Report to Congress. This change reflects our consideration of public comments received on the Report to Congress and other analyses that we conducted. Today's decision was, in the Agency's view, a difficult one given the many competing considerations discussed

throughout today's notice. As described in the Report to Congress, this industry has made significant improvements in its waste management practices over recent decades, and most state regulatory programs are similarly improving. Public comments and other analyses, however, have convinced EPA that these wastes can, and do, pose significant risks to human health and the environment when not properly managed, and there is sufficient evidence that adequate controls may not be in place for a significant number of facilities. This, in our view, justifies the development of tailored regulations under Subtitle C of RCRA.

New information received by EPA in public comments includes additional documented damage cases, as well as cases indicating at least a potential for damage to human health and the environment. While the absolute number of documented damage cases is not large, EPA believes that the evidence of proven and potential damage is significant when considered in light of the large numbers of facilities, particularly surface impoundments, that today lack basic environmental controls such as liners and groundwater monitoring. EPA acknowledges, moreover, that its inquiry into the existence of damage cases was focused primarily on a subset of states. Given the huge volume of coal combustion wastes generated nationwide and the numbers of facilities that currently lack some basic environmental controls, especially groundwater monitoring, there is at least a substantial likelihood that other cases of proven and potential damage exist. Since the Report to Congress, EPA has also conducted additional analyses of the potential for the constituents of coal combustion wastes to leach in dangerous levels into groundwater. Based on a comparison of drinking water and other appropriate standards to leach test data from coal combustion waste samples, we identified a potential for significant risks from arsenic that we cannot dismiss at this time.

EPA acknowledges that, even without federal regulatory action, many facilities in the industry have either voluntarily instituted adequate environmental controls or have done so at the direction of states that regulate these facilities. However, in light of the evidence of actual and potential damage to human health or the environment from these wastes, the sheer volume of wastes generated from coal combustion, the significant numbers of facilities that do not currently have basic controls in place, and the composition of these wastes, EPA believes that, on balance, the best means of ensuring that adequate controls are imposed where needed is to develop tailored regulations under Subtitle C of RCRA.

While the Agency is making a final decision pursuant to 42 U.S.C. § 3001(b)(3)(C) regarding these wastes, EPA acknowledges our decision is a departure from the approach described in the Report to Congress, and we are providing the public an opportunity to comment on today's determination. We will consider these comments in either developing regulations under Subtitle C or revisiting and, if appropriate, revising today's determination.

Additionally, in a 1993 regulatory determination, EPA previously addressed coal combustion wastes not covered by today's regulatory determination. The 1993 regulatory determination addressed large volume coal combustion wastes generated at electric utility and independent power producing facilities that manage the wastes separately from certain other low volume and uniquely associated coal combustion wastes (see 58 FR 42466; August 9, 1993). Our 1993 regulatory determination maintained the exemption of these large volume coal combustion wastes from being regulated as hazardous wastes when managed separately from other wastes (e.g., in monofills). In developing national standards for the wastes subject to today's regulatory determination, including tailored standards under Subtitle C of RCRA, we also

intend to address the wastes covered in the 1993 regulatory determination so that all coal combustion wastes are consistently regulated across all waste disposal scenarios and when used to fill surface and underground mines. Thus, EPA intends to revise its 1993 regulatory determination and subject these wastes to the same regulatory regime being considered for the coal combustion wastes covered by today's regulatory determination. We are soliciting public comment regarding our intent to revisit our 1993 regulatory determination and subject these wastes to the same national management standards and management-based hazardous waste listing as for those wastes listed above that are covered by today's action.

Also, based on comments received on the RTC, we are reviewing the groundwater model used to estimate risks for fossil fuel combustion wastes. We also continue to refine the risk assessment methodology for evaluating health impacts of wastes used in agricultural settings. We will also evaluate the effect of future air pollution control requirements for coal burning utilities on levels of mercury and other hazardous constituents in coal combustion wastes. These efforts may result in a re-evaluation of the risks posed by managing fossil fuel combustion wastes.

Finally, though oil combustion wastes will not be subject to hazardous waste regulations, we will work with relevant stakeholders so that any necessary measures are taken to ensure that oil combustion wastes currently managed in the two known remaining unlined surface impoundments are managed in a manner that protects human health and the environment.

B. What is the statutory authority for this action?

We are issuing today's notice under the authority of RCRA Section 3001 (b) (3) (C), as amended. This section exempts certain wastes, including fossil fuel combustion wastes, from hazardous waste regulation until the Agency completes a Report to Congress mandated by RCRA Section 8002 (n) and the EPA Administrator makes a determination whether Subtitle C (hazardous waste) regulation of fossil fuel combustion (FFC) wastes is warranted. RCRA Section 3004 (x) provides the Agency with flexibility in developing Subtitle C standards, if appropriate, for these formerly exempted wastes, in areas such as treatment standards, liner design requirements and corrective action.

C. What was the process EPA used in making today's decision?

1. What approach did EPA take to studying fossil fuel combustion wastes?

We conducted our study of wastes generated by the combustion of fossil fuels in two phases. The first phase, called the Part 1 determination, covered high volume coal combustion wastes (e.g., bottom ash and fly ash) generated at electric utility and independent power producing facilities (non-utility electric power producers that are not engaged in any other industrial activity) and managed separately from other fossil fuel combustion wastes. In 1993, EPA issued a regulatory determination that exempted Part 1 wastes from regulation as hazardous wastes (see 58 FR 42466; August 9, 1993). Today's regulatory determination is the second phase of our effort, or the Part 2 determination. It covers all other fossil fuel combustion wastes not covered in Part 1. This includes high volume, utility-generated coal combustion wastes when co-managed with certain low volume wastes that are also generated by utility coal burners; coal combustion wastes generated by industrial, non-utility, facilities; and wastes from the

combustion of oil and gas. Under court order, we are required to complete the Part 2 regulatory determination by March 10, 2000.[1]

2. *What statutory requirements does EPA have to meet in making today's regulatory determinations?*

RCRA Section 8002(n) specifies eight study factors that we must take into account in our decision-making. These are:

1. The source and volumes of such materials generated per year.
2. Present disposal practices.
3. Potential danger, if any, to human health and the environment from the disposal of such materials.
4. Documented cases in which danger to human health or the environment has been proved.
5. Alternatives to current disposal methods.
6. The costs of such alternatives.
7. The impact of those alternatives on the use of natural resources.
8. The current and potential utilization of such materials.

Additionally, in developing the Report to Congress, we are directed to consider studies and other actions of other federal and State agencies with a view toward avoiding duplication of effort (RCRA Section 8002(n)). In addition to considering the information contained in the

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[1] The consent decree entered into by EPA (Frank Gearhart, et al. v. Browner, et al., No. 91-2435 (D.D.C.) for completing the studies and regulatory determination for fossil fuel combustion wastes used the term "remaining wastes" to differentiate the wastes to be covered in today's decision from the large-volume utility coal combustion wastes that were covered in the August 1993 regulatory determination (see 58 FR 42466).

Report, EPA is required to base its regulatory determination on information received in public hearings and comments submitted on the Report to Congress (RCRA Section 3001(b)(3)(C)).

3. *What were the Agency's sources of information and data that serve as the basis for this decision?*

We gathered publicly available information from a broad range of sources, including federal and state agencies, industry trade groups, environmental organizations, and open literature searches. We requested information from all stakeholder groups on each of the study factors Congress requires us to evaluate. For many of the study factors, very limited information existed prior to this study. We worked closely with the Edison Electric Institute (EEI), Utility Solid Waste Activities Group (USWAG), the Electric Power Research Institute (EPRI), and the Council of Industrial Boiler Owners (CIBO) as those organizations developed new information. Because other ongoing EPA projects currently focus on portions of the FFC waste generator universe, we also leveraged data collection efforts conducted for air, industrial waste, and hazardous waste programs. In addition, we obtained information from environmental organizations regarding beneficial uses of some FFC wastes and methods for characterizing the risks associated with FFC wastes.

Specifically, we gathered and analyzed the following information from industry, states and environmental groups:

- Published and unpublished materials obtained from state and federal agencies, utilities and trade industry groups, and other knowledgeable parties on the volumes and characteristics of coal, oil, and natural gas combustion wastes and the corresponding low-

volume and uniquely associated wastes (see the following section for a description of "uniquely associated wastes").

- Published and unpublished materials on waste management practices (including co-disposal and re-use) associated with FFC wastes and the corresponding low-volume and uniquely associated wastes.
- Published and unpublished materials on the potential environmental impacts associated with FFC wastes.
- Published and unpublished materials on trends in utility plant operations that may affect waste volumes and characteristics. We gathered specific information on innovations in scrubber use and the potential impacts of the 1990 Clean Air Act Amendments on waste volumes and characteristics.
- Energy Information Agency (EIA), Department of Energy, data on utility operations and waste generation obtained from EIA's Form 767 database. These data are submitted to EIA annually by electric utilities.
- Site visit reports and accompanying facility submittals for utility and non-utility plants we visited during the study.
- Materials obtained from public files maintained by State regulatory agencies. These materials focus on waste characterization, waste management, and environmental monitoring data, along with supporting background information.

We visited five states to gather specific information about state regulatory programs, FFC waste generators, waste management practices and candidate damage cases related to fossil fuel combustion. The five states we examined in great detail were: Indiana, Pennsylvania, North

Carolina, Wisconsin, and Virginia. These five states account for almost 20 percent of coal-fired utility electrical generation capacity.

We also performed a variety of analyses, including human health and ecological risk assessments, analyses of existing federal and state regulatory programs, and economic impact analyses. We discussed and shared these results with all of our stakeholders. We also conducted an external peer review of our risk analysis.

4. What process did EPA follow to obtain comments on the Report to Congress?

RCRA requires that we publish a Report to Congress (RTC) evaluating the above criteria. Further, within six months of submitting the report, we must, after public hearings and opportunity for comment, decide whether to retain the exemption from hazardous waste requirements or whether regulation as hazardous waste is warranted. On March 31, 1999, we issued the required RTC on those fossil fuel combustion wastes (coal, oil and gas) not covered in the Part 1 regulatory determination, which are also known as the "remaining wastes" (see footnote 1).

We asked the public to comment on the Report and the appropriateness of regulating fossil fuel wastes under Subtitle C of RCRA. To ensure that all interested parties had an opportunity to present their views, we held a public meeting with stakeholders on May 21, 1999. The April 28, 1999 Federal Register notice provided a 45-day public comment period, until June 14, 1999. We received over 150 requests to extend the public comment period by up to six months. However, we were obligated by a court-ordered deadline to issue our official Regulatory Determination by October 1, 1999. (See 64 FR 31170; June 10, 1999.) In response to requests for an extension, we entered into discussions with the parties to consider an extension of the

comment period to ensure that all interested members of the public had sufficient time to complete their review and submit comments. Subsequently, the plaintiffs in Gearhart v. Reilly moved to modify the consent decree to reopen the comment period and to allow EPA until March 10, 2000 to complete the Regulatory Determination. We supported the motion, and on September 2, 1999, the Court granted the motion. In compliance with the court order, on September 20, 1999, we announced that public comments would be accepted through September 24, 1999 (64 FR 50788; Sept. 20, 1999).

We received about 220 comments on the RTC from the public hearing and our *Federal Register* requests for comments. The docket for this action (Docket No. F-99-FF2P-FFFFF) contains all individual comments presented in the public meetings and hearing, and a transcript from the public hearing, and all written comments. The docket is available for public inspection. Today's decision is based on the RTC, its underlying data and analyses, public comments, and EPA analyses of these comments.

The comments covered a wide variety of topics discussed in the Report to Congress, such as fossil fuel combustion waste generation and characteristics; current and alternative practices for managing FFC waste; documented damage cases and potential danger to human health and the environment; existing regulatory controls on FFC waste management; cost and economic impacts of alternatives to current management practices; FFC beneficial use practices; and our review of applicable state and federal regulations.

D. What is the significance of "uniquely associated wastes" and what wastes does EPA consider to be "uniquely associated wastes?"

Facilities that burn fossil fuels generate combustion wastes and also generate other wastes from processes that are related to the main fuel combustion processes. Often, as a general practice, facilities co-dispose these wastes with the large volume wastes that are subject to the RCRA Section 3001 (b) (3) (C) exemption. Examples of these related wastes are:

- precipitation runoff from the coal storage piles at the facility.
- waste coal or coal mill rejects that are not of sufficient quality to burn as fuel.
- wastes from cleaning the boilers used to generate steam.

There are numerous wastes like these, collectively known as "low-volume" wastes. Further, when one of these low-volume wastes, during the course of its generation or normal handling at the facility, comes into contact with either fossil fuel (e.g., coal, oil) or fuel combustion waste (e.g., coal ash or oil ash) and it takes on at least some of the characteristics of the fuels or combustion wastes, we call it a "uniquely associated" waste. When uniquely associated wastes are co-managed with fossil fuel combustion wastes, they fall within the coverage of today's regulatory determination. When managed separately, uniquely associated wastes are subject to regulation as hazardous waste if they are listed wastes or exhibit the characteristic of a hazardous waste (see 40 CFR 261.20 and 261.30, which specify when a solid waste is considered to be a hazardous waste).

The Agency recognizes that determining whether a particular waste is uniquely associated with fossil fuel combustion involves an evaluation of the specific facts of each case. In the Agency's view, the following qualitative criteria should be used to make such determinations on a case-by-case basis:

(1) Wastes from ancillary operations are not "uniquely associated" because they are not properly viewed as being "from" fossil fuel combustion.

(2) In evaluating a waste from non-ancillary operations, one must consider the extent to which the waste originates or derives from the fossil fuels, the combustion process, or combustion residuals, and the extent to which these operations impart chemical characteristics to the waste.

The low-volume wastes that are not uniquely associated with fossil fuel combustion are not subject to today's regulatory determination. That is, they are not accorded an exemption from RCRA Subtitle C, whether or not they are co-managed with any of the exempted fossil fuel combustion wastes. Instead, they are subject to the RCRA characteristic standards and hazardous waste listings. The exemption applies to mixtures of an exempt waste with a non-hazardous waste, but when an exempt waste is mixed with a hazardous waste, the mixture is not exempt.

Based on our identification and review of low volume wastes associated with the combustion of fossil fuels, we offer the following guidance concerning our views on which low volume wastes are uniquely associated with and which are not uniquely associated with fossil fuel combustion. Unless there are some unusual site-specific circumstances, we would generally consider that the following lists of low volume wastes are uniquely and non-uniquely associated wastes:

<u>Uniquely</u> <u>Associated</u>

- Coal Pile Runoff
- Coal Mill Rejects and Waste Coal
- Air Heater and Precipitator Washes

- Floor and Yard Drains and Sumps
- Wastewater Treatment Sludge
- Boiler Fireside Chemical Cleaning Wastes

Not Uniquely Associated

- Boiler Blowdown
- Cooling Tower Blowdown and Sludges
- Intake or Makeup Water Treatment and Regeneration Wastes
- Boiler Waterside Cleaning Wastes
- Laboratory Wastes
- General Construction and Demolition Debris
- General Maintenance Wastes

Moreover, we do not generally consider spillage or leakage of materials used in the processes that generate these non-uniquely associated wastes, such as boiler water treatment chemicals, to be uniquely associated wastes, even if they occur in close proximity to the fossil fuel wastes covered by this regulatory determination.

EPA solicits comment on this discussion of uniquely associated wastes in the context of fossil fuel combustion.

E. Who is affected by today's action and how are they affected?

As explained above, fossil fuel combustion wastes generated from the combustion of oil and natural gas, and coal combustion wastes when used for beneficial purposes (other than when used to fill surface or underground mines) will continue to remain exempt from being regulated

as hazardous wastes under RCRA. No party is affected by today's determination to develop regulations applicable to coal combustion wastes when they are land disposed or used to fill surface or underground mines because today's action does not impose requirements. However, if such regulations are promulgated, they would affect electric utility and independent power producing facilities where large-volume coal combustion wastes are co-managed together with certain other (low volume and uniquely associated) coal combustion wastes, coal combustion wastes generated at non-utilities, and wastes from the co-burning of coal (i.e., where coal is burned with other fuels and coal is at least 50% of the total fuel) when they are land disposed (e.g., in surface impoundments or landfills) or when used to fill surface or underground mines.

As a result of the Part 1 regulatory determination, large-volume coal combustion wastes generated at electric utility and independent power producing facilities that manage these wastes separately from low volume and uniquely associated coal combustion wastes are exempt from being regulated as hazardous wastes. For the following reasons, we believe, in light of today's regulatory determination, that revisiting the exemption of these Part 1 wastes from being regulated as hazardous wastes would be appropriate when land disposed separately (e.g., in landfills or surface impoundments) or when used separately to fill surface and underground mines:

(1) These large-volume wastes, on a dry basis, account for over 95% of coal combustion wastes.

(2) The co-managed coal combustion wastes that we studied extensively in making today's regulatory determination derive their characteristics largely from these large-volume wastes.

(3) We believe that the risks posed by the co-managed coal combustion wastes result principally from the large-volume wastes.

In developing national standards for the wastes subject to today's regulatory determination, including tailored standards under Subtitle C of RCRA, we also intend to address the wastes covered in the Part 1 regulatory determination so that all coal combustion wastes are consistently regulated across all waste disposal scenarios and when used to fill surface and underground mines. Thus, we intend to revise our Part 1 regulatory determination and subject these wastes to the same regulatory regime being considered for the coal combustion wastes covered by today's regulatory determination. We are soliciting public comment regarding our intent to revisit our Part 1 regulatory determination and subject these wastes to the same national management standards and management-based hazardous waste listing as for those coal combustion wastes that are covered by today's action.

At this time, we do not intend to revisit the Part 1 regulatory determination for these large-volume wastes when managed separately and used for beneficial purposes (other than when used to fill surface or underground mines) because we do not believe they pose a significant risk to human health and the environment when used in these ways.

In addition, while we have determined that Subtitle C regulation of oil combustion wastes is not warranted, we intend to work with relevant stakeholders so that any necessary measures are taken to ensure that oil combustion wastes currently managed in the two known remaining unlined surface impoundments are managed in a manner that protects human health and the environment.

F. What additional actions will EPA take after this regulatory determination regarding coal, oil and natural gas combustion wastes?

To ensure that entities who generate and/or manage fossil fuel combustion wastes provide long-term protection of human health and the environment, we plan several actions:

- At this time, we intend to revise our Part 1 decision so that large-volume coal combustion wastes generated at electric utility and independent power producing facilities and land disposed separately (e.g., in landfills or surface impoundments) or when used separately to fill surface or underground mines will become subject to conditional Subtitle C regulation if they are not managed in accordance with prescribed conditions. We will consider any public comments submitted on today's notice prior to revisiting the Part 1 regulatory determination.
- We will work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that any necessary measures are taken so that these wastes are managed in a manner that protects human health and the environment (described in Section 3.D. of this Notice).
- We are evaluating the ground water model and modeling methods that were used in the RTC to estimate risks for these wastes. This review may result in a re-evaluation of the potential ground water risks posed by the management of fossil fuel combustion wastes and action to revise today's determination if appropriate (see Section 2.C. of this Notice).

- There are a number of ongoing and evolving efforts underway at EPA to improve our understanding of the human health impacts of wastes used in agricultural settings. We expect to receive substantial comments and new scientific information based on a risk assessment of the use of cement kiln dust as a substitute for agricultural lime (see 64 FR 45632; August 20, 1999) and other Agency efforts. As a result, we may refine our methodology for assessing risks related to the use of wastes in agricultural settings. If these efforts lead us to a different understanding of the risks posed by fossil fuel combustion wastes when used as a substitute for agricultural lime, we will take appropriate action to reevaluate today's regulatory determination (see Section 2.C. of this Notice).
- We will evaluate the levels of mercury and other hazardous constituents in coal combustion wastes that may result from future air pollution control requirements for coal burning utilities. We will ensure that the regulations we develop as a result of today's regulatory determination address any additional risks posed by these wastes if hazardous constituent levels should increase significantly (see Section 2.C. of this Notice).
- We will continue EPA's partnership with the states to finalize voluntary industrial solid waste management guidance that identifies baseline protective practices for industrial waste management units, including fossil fuel combustion waste management units. We will use relevant information and knowledge that we obtain as a result of this effort to assist us in developing national regulations applicable to coal combustion wastes.

2. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR COAL COMBUSTION WASTES?

A. What is the Agency's decision regarding the regulatory status of coal combustion wastes and why did EPA make that decision?

We have determined that it is appropriate to establish national regulations applicable to coal combustion wastes when they are land disposed (e.g., managed in landfills and surface impoundments) because: (a) the composition of these wastes has the potential to present danger to human health and the environment and "potential" damage cases identified by EPA and commenters, while not definitively demonstrating damage from coal combustion wastes, lend support to our conclusion that these wastes have the potential to pose such danger; (b) we have identified eleven documented cases of proven damages to human health and the environment by improper management of these wastes in landfills and surface impoundments; (c) present disposal practices are such that these wastes are currently being managed in a significant number of landfills and surface impoundments without proper controls in place, particularly in the area of groundwater monitoring; and (d) while there have been substantive improvements in state regulatory programs, we have also identified significant gaps either in states' regulatory authorities or in their exercising existing authorities. Also, we believe that the costs of complying with regulations that specifically address these problems, while large in absolute terms, are a small percentage of industry revenues.

We have also determined that it is appropriate to establish national regulations applicable to the placement of coal combustion wastes in surface or underground mines. We have reached this decision because (a) we find that these wastes when minefilled have the potential to present a danger to human health and the environment, and (b) there are few states that currently operate comprehensive programs that specifically address the unique circumstances of minefilling, making it more likely that damage to human health or the environment will occur. Additionally, we believe that the cost of complying with regulations that address these potential dangers will not have a substantial impact on this practice because minefilling continues to grow in those few states that already have comprehensive programs.

With the exception of minefilling as described above, we have determined that it is not appropriate to establish national regulations applicable to any of the other beneficial uses of coal combustion wastes. We have reached this decision because: (a) we have not identified any other beneficial uses that are likely to present significant risks to human health or the environment; and (b) no documented cases of damage to human health or the environment have been identified. Additionally, we do not want to place any unnecessary barriers on the beneficial uses of coal combustion wastes so they can be used in applications that conserve natural resources and reduce disposal costs

B. What were EPA's Tentative Decisions as Presented in the Report to Congress?

On March 31, 1999, EPA indicated a preliminary decision that disposal of coal combustion wastes should remain exempt from regulation under RCRA Subtitle C. We also presented our tentative view that most beneficial uses of these wastes should remain exempt from

regulation under RCRA Subtitle C. However, in the RTC we identified three situations where we had particular concerns with the disposition or uses of these wastes.

First, we indicated some concern with the co-management of mill rejects ("pyrites") with coal combustion wastes which, under certain circumstances, could cause or contribute to ground water contamination or other localized environmental damage. We indicated that the utility industry responded to our concern by implementing a voluntary education program for the proper management of these wastes. We expressed satisfaction with the industry program and tentatively concluded that additional regulation in this area was not necessary. We explained that we were committed to overseeing industry's progress on properly managing pyritic wastes, and would revisit our regulatory determination relative to co-management of pyrites with large volume coal combustion wastes at a later date, if industry progress was insufficient in this area.

Second, we identified potential human health risks from arsenic when these wastes are used for agricultural purposes (e.g., as a lime substitute). To address this risk, we indicated our preliminary view that Subtitle C regulations may be appropriate for this management practice. We explained that an example of such controls could include regulation of the content of these materials such that, when used for agricultural purposes, the arsenic level could be no higher than that found in agricultural lime. As an alternative to Subtitle C regulation, we indicated that EPA could engage the industry to implement a voluntary program to address the risk, for example, by limiting the level of arsenic in coal combustion wastes when using them for agricultural purposes. Moreover, we indicated that a decision to establish hazardous waste regulations applicable to agricultural uses of co-managed coal combustion wastes would likely affect the regulatory status of the Part 1 wastes (i.e., electric utility high volume coal combustion wastes

managed separately from other coal combustion wastes) when used for agricultural purposes. This is because the source of the identified risk was the arsenic content of the high volume coal combustion wastes and not other materials that may be co-managed with them.

Third, we expressed concern with potential impacts from the expanding practice of minefilling coal combustion wastes (i.e., backfilling the wastes into mined areas) and described the difficulties we had with assessing the impacts and potential risks of this practice. We explained that these difficulties include:

- determining if elevated contaminants in ground water are due to minefill practices or pre-existing conditions resulting from mining operations,
- trying to model situations that may be more complex than our ground water models can accommodate,
- the lack of long-term experience with the recent practice of minefilling, which limits the amount of environmental data for analysis, and
- the site-specific nature of these operations.

Accordingly, we did not present a tentative decision in the RTC for this practice. We indicated that Subtitle C regulation would remain an option for minefilling, but that we needed additional information prior to making a final decision. Rather, we solicited additional information from commenters on these and other aspects of minefilling practices and indicated we would carefully consider that information in the formulation of today's decision.

C. How did commenters' react to EPA's tentative decisions and what was EPA's analysis of their comments?

Commenter's provided substantial input and information on several aspects of our overall tentative decision to retain the exemption for these wastes from RCRA Subtitle C regulation. These aspects are: modeling and risk assessment for the ground water pathway, documented damage cases, the potential for coal combustion waste characteristics to change as a result of possible future Clean Air Act regulations, proper management of mill rejects (pyrites), agricultural use of coal combustion wastes, the practice of minefilling coal combustion wastes, and our assessment of existing State programs.

1. How did commenters react to the ground water modeling and risk assessment analyses conducted by EPA to support its findings in the Report to Congress?

Comments. Industry and public interest group commenters submitted detailed critiques of the ground water model, EPACMTP, that we used for our risk analysis. Industry commenters believe that the model will overestimate the levels of contaminants that may migrate down-gradient from disposed wastes. Environmental groups expressed the opposite belief; that is, that the model underestimates down-gradient chemical concentrations and, therefore, underestimates the potential risk posed by coal combustion wastes.

The breadth and potential implications of the numerous technical comments on the EPACMTP model are significant. Examples of the comments include issues relating to:

- the thermodynamic data that are the basis for certain model calculations,
- the model's ability to account for the effects of oxidation-reduction potential,
- the model's ability to account for competition between multiple contaminants for adsorption sites,
- the model's algorithm for selecting adsorption isotherms,

- the impact of leachate chemistry on adsorption and aquifer chemistry, and
- the model's inherent assumptions about the chemistry of the underlying aquifer.

EPA's analysis of the comments. We have been carefully reviewing all of the comments on the model. We determined that the process of thoroughly investigating all of the comments will take substantially more time to complete than is available within the court deadline for issuing this regulatory determination. At this time, we are uncertain of the overall outcome of our analysis of the issues raised in the comments. Accordingly, we have decided not to use the results of our ground water pathway risk analysis in support of today's regulatory determination on fossil fuel combustion wastes. As explained below, in making today's regulatory determination, we have relied on other information related to the potential danger that may result from the management of fossil fuel combustion wastes.

Meanwhile, we will continue with our analysis of comments on the groundwater model and risk analysis. This may involve changing or re-structuring various aspects of the model, if appropriate. It may also include additional analyses to determine whether any changes to the model or modeling methodology would materially affect the groundwater risk analysis results that were reported in the RTC. If our investigations reveal that a re-analysis of groundwater risks is appropriate, we will conduct the analysis and re-evaluate today's decisions as warranted by the reanalysis.

In addition to our ongoing review of comments on the groundwater model, one element of the model – the metals partitioning component called "MINTEQ" – has been proposed for additional peer review. When additional peer review is completed, we will take the findings and

recommendations into account in any overall decision to re-evaluate today's regulatory determination.

While not relying on the EPACMTP groundwater model, we have conducted a general comparison of the metals levels in leachate from coal combustion wastes to their corresponding hazardous waste toxicity characteristic levels. Fossil fuel wastes infrequently exceed the hazardous waste characteristic. For co-managed wastes, 2% (1 of 51 samples) exceeded the characteristic level. For individual wastes streams, 0% of the coal bottom ash, 2% of the coal fly ash, 3% of the coal flue gas desulfurization, and 7% of the coal boiler slag exceeded the characteristic level.

We also compared leach concentrations from fossil fuel wastes to the drinking water MCLs. In the case of arsenic, we examined a range of values because EPA expects to promulgate a new arsenic drinking water regulation by January 1, 2001. This range includes the existing arsenic MCL (50 ug/l), a lower health based number presented in the FFC Report to Congress (RTC) (0.29 ug/l), and two assumed values in between (10 and 5 ug/l). We examined this range of values because of our desire to bracket the likely range of values that EPA will be considering in its effort to revise the current MCL for arsenic. The current MCL of 50 ug/L was selected for the high end of the range because EPA is now considering lowering the current MCL and does not anticipate that the current MCL would be revised to any higher value. We selected the health-based number presented in the Report to Congress for the low end of the range, based on the National Research Council's 1999 report on Arsenic in Drinking Water which indicated that the current MCL is not sufficiently protective and should be revised downward as soon as possible. Because at this time we cannot project a particular value as the eventual MCL, we also

examined values in between these low-end and high-end values, a value of 5 ug/L and a value of 10 ug/L, for our analyses supporting today's regulatory determination.

Those circumstances where the leach concentrations from the wastes exceed the drinking water criteria have the greatest potential to cause significant risks. This "potential" risk, however, may not occur at actual facilities. Pollutants in the leachate of the wastes undergo dilution and attenuation as they migrate through the ground. The primary purpose of models such as EPACMTP is to account for the degree of dilution and attenuation that is likely to occur, and to obtain a realistic estimate of the concentration of contaminants at a groundwater receptor. To provide a view of potential groundwater risk, we tabulated the number of occurrences where the waste leachate hazardous metals concentrations were: (a) less than the criteria, (b) between 1 and 10 times the criteria, (c) between 10 and 100 times the criteria, and (d) greater than 100 times the criteria. Groundwater models that we currently use, when applied to large volume monofill sources of metals, frequently predict that dilution and attenuation will reduce leachate levels on the order of a factor of 10 under reasonable high end conditions. This multiple is commonly called a dilution and attenuation factor (DAF). For this reason and because lower dilution and attenuation factors (e.g., 10) are often associated with larger disposal units such as those typical at facilities where coal is burned, we assessed the frequency of occurrence of leach concentrations for various hazardous metals which were greater than 10 times the drinking water criteria. Based on current MCLs, there was only one exceedence (for cadmium). However, when we considered the arsenic health based criterion from the RTC, we found that a significant percentage (86%) of available waste samples had leach concentrations for arsenic that were greater than ten times the health-based criterion. Even considering intermediate values closer to

the current MCL, a significant percentage of available waste samples had leach concentrations for arsenic that were greater than ten times the criteria (30% when the criterion was assumed to be 5 ug/l, and 14% when the criterion was assumed to be 10 ug/l). Similar concerns also occurred when comparing actual groundwater samples associated with FFC waste units and this range of criteria for arsenic. We believe this is an indication of potential risks from arsenic that we cannot dismiss at this time.

2. *How did commenters react to EPA's assessment of documented damage cases presented in the Report to Congress?*

Prior to issuing the RTC, we sought and reviewed potential damage cases related to these particular wastes. The activities included:

- a re-analysis of the potential damage cases identified during the Part 1 determination,
- a search of the CERCLA Information System for instances of these wastes being cited as causes or contributors to damages,
- contacts and visits to regulatory agencies in five states with high rates of coal consumption to review file materials and discuss with state officials the existence of damage cases,
- a review of information provided by the Utility Solid Waste Act Group and the Electric Power Research Institute on 14 co-management sites, and
- a review of information provided by the Council of Industrial Boiler Owners on eight fluidized bed combustion facilities.

These activities yielded three damage case sites in addition to the four cases initially identified in the Part 1 determination[1]. Five of the damage cases involved surface impoundments and the two other cases involved landfills. The waste management units in these cases were all older, unlined units. The releases in these cases were confined to the vicinity of the facilities and did not affect human receptors. None of the damages impacted human health. We did not identify any damage cases that were associated with beneficial use practices.

Comments. Public interest group commenters criticized our approach to identifying damage cases associated with the management of fossil fuel combustion (FFC) wastes, stating that EPA did not use the same procedure used to identify damage cases for the cement kiln dust (CKD) Report to Congress. These commenters believed that we were too conservative in our interpretation and determination of FFC damage cases and dismissed cases that commenters believe are relevant instances of damage. For example, these commenters indicated that EPA, in the RTC, did not consider cases where the only exceedences of ground water standards were for secondary MCLs (Maximum Contaminant Levels as established by EPA for drinking water standards). They further indicated that the states often require ground water monitoring only for secondary MCL constituents and that elevated levels of the secondary MCL constituents are an indication of future potential for more serious, health-based standards to be exceeded for other constituents in the wastes, such as toxic metals. Additionally, these commenters stated that the Agency's analysis for damage cases was incomplete and they provided information on 59 possible damage cases involving these wastes, mostly at utilities. Additionally, commenters

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[1] The Part 1 determination identified six cases of documented damages. Upon further review, we determined that two of these cases involve utility coal ash monofills which are covered by the Part 1 determination. However, the other four cases involved remaining wastes that are covered by today's regulatory determination.

submitted seven cases of ecological damage that allege damage to mammals, amphibians, fish, benthic layer organisms and plants from co-management of coal combustion wastes in surface impoundments.

Industry commenters cited EPA's finding of so few damage cases as important support for our tentative conclusion to exempt these wastes from hazardous waste regulation. Further, some of the industry commenters indicated that the few damage cases that EPA identified do not represent current utility industry management practices, but rather reflect less environmentally protective management practices at older facilities that pre-date the numerous state and federal requirements that are now in effect for managing these wastes.

EPA's analysis of the comments. Regarding ecological damage, while we did not identify any ecological damage cases in the RTC associated with management of coal combustion wastes, we reviewed the information on ecological damage submitted by commenters and agree that four of the seven submitted are documented damage cases that involve FFC wastes. All of these involve some form of discharge from waste management units to nearby lakes or creeks. These confirm our risk modeling conclusions as presented in the RTC that there could be adverse impacts on amphibians, birds, or mammals if they were subject to the elevated concentrations of selected chemicals that had been measured in some impoundments. However, no information was submitted in comments that would lead us to alter our conclusion that these threats are not substantial enough to cause large scale, system level ecological disruptions. These damage cases, attributable to runoff or overflow that is already subject to Clean Water Act discharge or stormwater regulations, are more appropriately addressed under the existing Clean Water Act requirements.

Regarding our assessment of damage to ground water, we believe our approach to FFC damage cases in the RTC was consistent with the approach we used for identifying CKD damage cases. For CKD, we established two categories of damage cases – "proven" damage cases and "potential" damage cases. Proven damage cases were those with documented MCL exceedences that were measured off-site, that is, in ground water at a sufficient distance from the waste management unit to indicate that hazardous constituents had migrated to the extent that they could cause human health concerns. Potential damage cases were those with documented MCL exceedences that were measured on-site, that is, in ground water beneath or close to the waste source. In these cases, the documented exceedences had not been demonstrated at a sufficient distance from the waste management unit to indicate that waste constituents had migrated to the extent that they could cause human health concerns. We do not believe that it would be appropriate to consider an exceedence directly beneath a waste management unit or very close to the waste boundary to be a documented, proven damage case. State regulations typically use a compliance procedure that relies on measurement at an off-site receptor site or in ground water at a point beyond the waste boundary (e.g., 150 meters). While our CKD analysis did not distinguish between primary and secondary MCL exceedences, most CKD damage cases involved a primary MCL constituent. Our principal basis for determining that CKD when managed in land-based units would no longer remain exempt from being regulated as a hazardous waste was our concern about generally poor management practices characteristic of that industry. Our conclusion was further supported by the extremely high percentage of proven damage cases occurring at active CKD sites for which groundwater monitoring data were available.

For FFC, we used the same test of proof to identify possible damage cases, noting where contamination was measured off-site. Our FFC analysis drew a distinction between primary and secondary MCL exceedences because we believe this factor is appropriate in weighing the seriousness of FFC damage in terms of indicating risk to human health and the environment. For FFC, in the RTC, we reported only the "proven" damage (i.e., exceedence of a health-based standard such as a primary MCL and measurement in off-site ground water or surface water). As was done in the CKD analysis, we also identified a number of potential FFC damage cases (eleven) which were included in the background documents that support the RTC.

Unlike the primary MCLs, secondary MCLs are not based on human health considerations. (Examples are dissolved solids, sulfate, iron, and chloride for which ground water standards have been established because of their effect on taste, odor, and color.) While some commenters believe that elevated levels of some secondary MCL parameters such as soluble salts are likely precursors or indicators of future hazardous constituent exceedences that could occur at coal combustion facilities, we are not yet able and will not be able to test their hypothesis until we complete our analysis of all comments received on our ground water model and risk analysis, which will not be concluded until next year.

Of the 59 damage cases reported by commenters, 11 cases appear to involve exceedences of primary MCLs or other health-based standards as measured either in off-site ground water or in nearby surface waters, the criteria we used in the RTC to identify proven damage cases. Of these eleven cases, two are coal ash monofills which were included in the set of damage cases described by EPA in its record supporting the Part 1 regulatory determination. The remaining nine cases involve the co-management of large volume coal combustion wastes with other low

volume and uniquely associated coal combustion wastes. We had already identified five of these nine cases in the RTC. Thus, only four of these eleven damage cases are newly identified to us. Briefly, the four new cases involve:

- Exceedence of a state standard for lead in downgradient ground water at a coal fly ash landfill in New York. There were also secondary MCL exceedences for sulfate, dissolved solids, and iron.
- Primary MCL exceedences for arsenic and selenium in downgradient monitoring wells for a coal ash impoundment at a power plant in North Dakota. There were also secondary MCL exceedences for sulfate and chloride.
- Primary MCL exceedences for fluoride and exceedence of a state standard for boron in downgradient monitoring wells at a utility coal combustion waste impoundment in Wisconsin. There was also a secondary MCL exceedence for sulfate.
- Exceedence of a state standard for boron and the secondary MCL for sulfate and manganese in downgradient monitoring wells at a utility coal combustion landfill in Wisconsin.

Nineteen of the damage cases submitted by commenters involve either on-site or off-site exceedences of secondary MCLs, but not primary MCLs or other health-based standards. Consistent with our CKD analysis, we consider these cases to be indicative of a potential for damage to occur at these sites because they demonstrate that there has been a release to ground water from the waste management unit.

Regarding the remaining 29 cases submitted by commenters:

- Six involve primary MCL exceedences, but measurements were in ground water either directly beneath the waste or very close to the waste boundary, i.e., no off-site ground water or receptor measurements indicated that ground water standards had been exceeded. Consistent with our analysis of damage cases for cement kiln dust, we consider these six cases to be indicative of a potential for damage to occur at these sites because they demonstrate that there has been a release to ground water from the waste management unit..

- Eighteen case summary submissions contained insufficient documentation and data for us to verify and draw a conclusion about whether we should consider these to be potential or proven damage cases. Of these 18 cases, commenters claimed that 11 cases involve primary MCL exceedences, and another two involve secondary MCLs, but not primary MCLs. The other five cases lacked sufficient information and documentation to determine whether primary or secondary MCLs are involved. Examples of information critical to assessing and verifying candidate damage cases that was not available for these particular cases include: identification of the pollutants causing the contamination; identification of where or how the damage case information was obtained (e.g., facility monitoring data, state monitoring or investigation, third party study or analysis); monitoring data used to identify levels of contaminants; and/or sufficient information to

determine whether the damages were actually attributable to fossil fuel combustion wastes; and/or location of the identified contamination (i.e., directly beneath the unit or very close to the waste boundary or off-site or on-site at a point somewhat distant (e.g., 150 meters) from the unit boundary).

- Three case submissions are cases we identified in the the Part 1 determination and involve monofilled utility coal ash wastes. However, as explained in the Report to Congress for the Part 1 determination, EPA determined that there was insufficient evidence to consider them to be documented damage cases.
- One case did not involve fossil fuel combustion wastes.
- One case involved coal combustion wastes and other unrelated wastes in an illegal, unpermitted dump site. This site was handled by the state as a hazardous waste cleanup site.

Our detailed analysis of the damage cases submitted by commenters is available in the public docket for this regulatory determination.

In summary, based on damage case information presented in the RTC and our review of comments, we conclude that there are 11 proven damage cases associated with wastes covered by today's regulatory determination. We identified seven of these damage cases in the RTC, so there are four new proven damage cases that were identified by commenters. Additionally, we determined that another 25 of the commenter submitted cases are potential damage cases for the reasons described above. Thus, added to the 11 potential damage cases that we identified in the

background documents that support the RTC, we are aware of 36 potential damage cases. While we do not believe the latter 36 cases satisfy the statutory criteria of a documented, proven damage case because damage to human health or the environment has not been proven (see RCRA Section 8002(n)(4)), we believe that these potential damage cases are relevant to EPA's consideration of the "potential danger" of these wastes under RCRA Section 8002(n)(3) and are indicative that these wastes pose a potential danger to human health and the environment.

In conclusion, while the absolute number of documented, proven damage cases is not large, we believe that the evidence of proven and potential damage is significant when considered in light of the large numbers of facilities, particularly surface impoundments, that today lack basic environmental controls such as liners and groundwater monitoring. We acknowledge, moreover, that our inquiry into the existence of damage cases was focused primarily on a subset of states. Given the huge volume of coal combustion wastes generated nationwide and the large number of facilities that currently lack groundwater monitoring, there is at least a substantial likelihood that other cases of actual and potential damage exist.

3. *What concerns did commenters express about the impact of potential future regulation of hazardous air pollutants under the Clean Air Act on today's regulatory determination?*

Comments. In both public hearing testimony and written comments, public interest groups expressed concern about potential changes in the characteristics of these wastes when new air pollution controls are established under the Clean Air Act. The commenters referred to the possible future requirement for hazardous air pollutant controls at coal burning electric utility power plants, which could result in an increased level of metals and possibly other hazardous constituents in coal combustion wastes. The commenters indicated that these increased levels, in

turn, could have serious implications for cross-media environmental impacts such as leaching to groundwater and volatilization to the air. The commenters argued that the Agency should include these factors in its current decision making on the regulatory status of coal combustion under the Resource Conservation and Recovery Act.

EPA's analysis of the comments. We have carefully considered the issue of cross-media impacts and the commenters' specific concerns that future air regulations could have an adverse impact on the characteristics of coal combustion wastes. We have concluded that it is premature to consider the possible future impact of such new air pollution controls on the wastes that are subject to today's regulatory determination. The Agency plans to issue a regulatory determination in the latter part of 2000 regarding hazardous air pollutant (HAP) controls at coal-burning, power generating facilities. If EPA decides to initiate a rulemaking process, final rulemaking under the Clean Air Act is projected to occur in 2004. Thus no final decision has been made on what, if any, constituents will be regulated by future air pollution control requirements. Additionally, the regulatory levels of the those specific pollutants that might be controlled and the control technologies needed to attain any regulatory requirements have not yet been identified. Therefore, we believe there is insufficient information at this time for evaluating the characteristics and potential environmental impacts of solid wastes that would be generated as a result of new Clean Air Act requirements.

When any rulemaking under the Clean Air Act proceeds to a point where we can complete an assessment of the likely changes to the character of coal combustion wastes, we will evaluate the implications of these changes relative to today's regulatory determination and take appropriate action.

4. *How did commenters react to the findings presented in the Report to Congress related to proper management of mill rejects (pyrites)?*

The RTC explained that we identified situations where pyrite-bearing materials such as mill rejects (a low volume and uniquely associated waste) that are co-managed with coal combustion wastes may cause or contribute to risks or environmental damage if not managed properly. These materials when managed improperly with exposure to air and water can generate acid. The acid, in turn, can mobilize metals contained in the co-managed combustion wastes. The RTC also explained that the Agency engaged the utility industry in a voluntary program to ensure appropriate management of these wastes. The industry responded by developing technical guidance and a voluntary industry education program on proper management of these wastes.

Comments. Utility industry commenters supported our tentative decision to continue the exemption for coal combustion wastes co-managed with mill rejects from regulation as a hazardous waste. Their position is based primarily on the industry's voluntary implementation of an education program and technical guidance on the proper management of these wastes, as described in the RTC.

Public interest groups and other commenters disagreed with our tentative decision, explaining their belief that such voluntary controls or programs are inadequate. They indicated that coal combustion wastes should be subject to hazardous waste regulations.

EPA's analysis of the comments. We remain encouraged by the utility industry program to educate and inform its members by implementing guidance on the proper management of coal mill rejects. However, as pointed out by commenters, there is no assurance that facilities where coal combustion wastes co-managed with pyritic wastes will follow the guidance developed by

industry. In light of the number of demonstrated and potential damage cases identified to date, we are concerned that simply relying on voluntary institution of necessary controls would not adequately ensure the protection of human health and the environment. At this time, to ensure that we are aware of all stakeholders views on the adequacy of the control approaches described in the guidance to protect human health and the environment, we are soliciting public comment on the final version of the industry coal mill rejects guidance. This guidance is available in the docket supporting today's decisions.

5. *How did commenters react to the findings presented in the Report to Congress related to agricultural use of coal combustion wastes?*

In the RTC, we presented findings on the human health risks associated with agricultural use of coal wastes as an agricultural lime substitute. The pathway examined embodies risks from ingestion of soil and inhalation, and from ingestion of contaminated dairy, beef, fruit and vegetable products. The resultant "high end" cancer risk reported in RTC was 1 x 10-5 (one in one hundred thousand exposed population), for the child of a farmer. The variables held at high end for this calculation were contaminant concentration and children's soil ingestion. With all variables set to central tendency values, the risk was calculated to be 1 x 10-7 (one in ten million exposed population). We did not identify the presence of any non-cancer hazard of concern. Based on the high end risk, the Agency raised the possibility in the RTC of developing Subtitle C controls or seeking commitments from industry to a voluntary program.

Comments. A number of industry, academic, and federal agency commenters disagreed with our tentative conclusion that some level of regulation may be appropriate for coal combustion wastes when used as an agricultural soil supplement. They indicated that EPA used unrealistically conservative levels for four key inputs used in our risk analysis and that use of a realistic level for any one of these inputs would result in a risk level less than 1 x 10-6. The four inputs identified by the commenters are: application rate of the wastes to the land, the rate of soil ingestion by children, the bioavailability of arsenic and the phytoavailability of arsenic.

These commenters further recommended that EPA not regulate or encourage voluntary restrictions because:

- agricultural use of coal combustion wastes creates no adverse environmental impacts and EPA identified no damage cases associated with this practice;
- agricultural use of these wastes has significant technical and economic benefits;
- federal controls would be unnecessarily costly and would create a barrier for research and development on the practice;
- existing regulatory programs are sufficient to control any risks from this practice; and
- the limits suggested in the RTC for arsenic levels in coal combustion wastes are inconsistent with limits applied to other materials used in agriculture.

Public interest groups stated their belief that a voluntary approach would not be sufficiently protective of human health and the environment. They believe the Agency should apply restrictions on the use of these wastes in agriculture because the Agency's analyses of the risks and benefits of this practice were inadequate. They further recommended that EPA should prohibit the land application of coal combustion wastes generated by conventional boilers, and make the arsenic limitation of EPA's sewage sludge land application regulations applicable to the land application of coal combustion wastes generated by fluidized bed combustors, which add lime as part of the process.

EPA's analysis of comments. After reviewing these comments and supporting information provided by the commenters, we concluded that a revised input into the model for children's soil ingestion rate is appropriate. We decided, based on further review of the Agency's Exposure Factors Handbook (EFH) and published literature in this area to model a children's soil ingestion rate of 1 gram per day instead of 1.2 to 1.4 grams per day. A soil ingestion rate of 1 gram per day gives special consideration to the possibility of pica-induced ingestion and is still a clear "high end" for this input variable. The EFH permits selection of any value between 0.4 and 1 gram per day depending on circumstances unique to a particular exposure scenario. Thus, EPA views the 1.0 gram per day value to be an appropriate high end, or plausible "worst case" value. This change alone reduced the calculated risk to 5 x 10-6 and suggests that agricultural use of FFC wastes does not cause a risk of concern.

The other considerations raised in comments would act to further reduce this risk. Some studies indicate that phytoavailability will decrease with time. This would of course

reduce bioavailability. The combined effect of plausible reductions in ingestion rate and plausible further changes in phyto- and bioavailability would cause our estimate of the risk from this pathway to go below 10-6. Our technical analysis that resulted in these changes is explained in a document titled *Reevaluation of Non-groundwater Pathway Risks from Agricultural Use of Coal Combustion Wastes*, which is available in the docket for this action.

Two ongoing studies of wastes of potential use as agricultural soil supplements relate to the use of FFC wastes for this purpose. Although these did not play a direct role in EPA's decision regarding FFC wastes, they are summarized below and may play a role in any future review of today's decision.

(1) On August 20, 1999, the agency proposed risk-based standards for cement kiln dust when used as a liming agent (see 64 FR 45632; August 20, 1999). This analysis was completed in 1998 just prior to our completion of the analysis of FFC wastes when used as agricultural supplements. The CKD analysis underwent a special peer review by a standing committee that is used by the Department of Agriculture. We were not able to respond to the peer review comments in either the CKD proposal or in our assessment for fossil fuel combustion wastes, prior to publication of the Report to Congress. The comment period for the CKD proposal closed on February 17, 2000, and we will soon begin our review and analyses of the public and peer review comments that we received.

(2) In December 1999, EPA proposed new risk based standards for the use of municipal sewage sludge under Section 503 of the Clean Water Act (the "503 standards"). It is important to note that municipal sludge has unique properties, application rates, and uses. This makes it inappropriate to transfer the 503 standards directly. Even though the standards cannot be used directly, there may be interest in the risk assessment methodologies used to support the development of these standards. We disagree that it is appropriate to establish an arsenic limitation for coal combustion ash when used for agricultural purposes equivalent to that contained in the EPA sewage sludge land application regulations. The organic nature of sewage sludge makes it behave very differently from inorganic wastes such as coal combustion wastes.

We conclude at this time that arsenic levels in coal combustion wastes do not pose a significant risk to human health when used for agricultural purposes. We expect to continue to review and refine the related risk assessments noted above, and will consider comments on the Agency's CKD and municipal sludge proposals, as well as new scientific developments related to this issue such as additional peer review of the EPA MINTEQ model that was used as a component of our risk analysis. If these efforts lead us to a different understanding of the risks posed by coal combustion wastes when used as a substitute for agricultural lime, we will take appropriate action to reevaluate today's regulatory determination.

6. *How did commenters react to the findings presented in the Report to Congress related to minefilling of coal combustion wastes?*

In the RTC, we explained that we had insufficient information to adequately assess the risks associated with the use of coal combustion wastes to fill surface and underground mines, whether the mines are active or abandoned. Accordingly, we did not present a tentative conclusion in the RTC with respect to the use of coal combustion wastes for disposal in active mines or for reclamation of mines. However, we did indicate that regulation of minefilling under hazardous waste rulemaking authority would remain an option for minefilling, but that we needed additional information prior to making a final decision. Thus, we solicited additional information on specific minefilling techniques, problems that may be inherent in this management practice, risks posed by this practice, existing state regulatory requirements, and environmental monitoring data. We indicated that we would consider any comments and new information on minefilling received in comments and would address this management practice in today's regulatory determination.

Comments. A number of commenters responded to our request by providing reports on individual case studies, including minefilling in underground as well as in surface mines, descriptions of current state regulatory requirements that address this practice, monitoring data, and information about risk analysis techniques.

Industry commenters and one federal agency supported our decision to study the issue further and not attempt to estimate the risks posed by this practice using existing methods. Further, numerous industry, academic, state agency, and federal agency

commenters encouraged EPA not to adopt national regulations or voluntary restrictions on minefilling because: (a) nationwide standards would not be conducive to the site-specific evaluations needed to appropriately control these operations; (b) minefilling creates no adverse environmental impacts and EPA identified no damage cases associated with this practice; (c) existing state and federal regulatory programs and industry practices are sufficient to control any risks from this practice, and (d) federal standards would be an unreasonable interference with states' authorities.

Additionally, several industry representatives, legislators, and state mining and environmental agencies mentioned that this practice, when used to remediate abandoned mine lands, will produce considerably greater environmental benefits than risks. Further, they maintained that minefilling is a relatively inexpensive means to stop or even reverse the environmental damage caused by old mining practices. They indicated that through remediation by minefilling, these lands frequently can be returned to productive use. These commenters recommended no additional regulation of this practice.

Public interest groups and others believe we should regulate minefilling under RCRA Subtitle C or prohibit it for several reasons including weaknesses in existing state and federal regulatory programs, the poor practices and performance at existing minefilling operations, and potential impacts on potable water sources. Commenters stated that state programs effectively allow open dumps without any design or construction standards. For minefilling, one commenter urged EPA to defer to state regulations only when the Agency has specifically found regulations to be adequate.

EPA's analysis of comments. We agree with commenters that it is inappropriate to estimate the risks posed by minefilling using the existing methods that we employed, for example, to conduct risk analyses for disposal of coal combustion wastes in landfills and impoundments. We found that the groundwater models available to us are unsuitable for estimating risks from minefills because, for example, they are not able to account for conditions such as fractured flow that are typical of the hydrogeology associated with mining operations. In addition, as explained above, EPA's primary ground water model, EPACMTP, is now undergoing careful review on the basis of comments received on the Report to Congress.

We are aware that the use of coal combustion wastes to conduct remediation of mine lands can improve conditions caused by mining activities. We also recognize that this often is the lowest cost option for conducting these remediation activities. We generally encourage the practice of remediating mine lands with coal combustion wastes when minefilling is conducted properly and when there is adequate oversight of the remediation activities. We are also aware that relatively few states currently operate regulatory or other programs that specifically address minefilling, and that many states where this practice is occurring do not have programs in place. Based on our review of information on existing state minefill programs, we find serious gaps such as a lack of adequate controls and restrictions on unsound practices, e.g., no requirement for groundwater monitoring and no control or prohibitions on waste placement in the aquifer.

We continue to be concerned about certain aspects of minefilling and about a general lack of information that would enable us to assess the current state of this practice with certainty. At this time, we cannot reach definitive conclusions about the adequacy of minefilling practices employed currently in the United States and the ability of government oversight agencies to ensure that human health and the environment are being adequately protected. For example, it is often impossible to determine if existing groundwater quality has been impacted by previous mining operations or as a result of releases of hazardous constituents from the coal combustion wastes used in the minefilling applications. Additionally, data and information submitted during the public comment period indicates that if the chemistry of the mine relative to the chemistry of the coal combustion wastes is not properly taken into account, the addition of coal combustion wastes can lead to an increase in hazardous metals released into the environment.

Finally, we concluded in our recent study of disposal of cement kiln dust that placement of cement kiln dust directly in contact with ground water led to a substantially greater release of hazardous metal constituents than we predicted would occur when such placement in ground water did not occur. We are aware of situations where coal combustion wastes are being placed in direct contact with ground water in both underground and surface mines. We find that it is possible that this could lead to increased releases of hazardous metal constituents as a result of minefilling. Thus, if the complexities related to site-specific geology, hydrology, and waste chemistry are not properly taken into account when minefilling coal combustion wastes, we believe that minefilling has the potential to

contaminate, rather than improve, existing groundwater quality and can pose a potential danger to human health and the environment..

7. *How did commenters react to EPA's tentative reliance on state programs and voluntary industry implementation of improved management practices to mitigate potential risks from coal combustion waste management?*

In the RTC, EPA considered retaining the exemption for coal combustion wastes disposed in surface impoundments and landfills and for mill rejects (pyrites) that are managed with those wastes. The Agency cited a reliance on state programs that have improved substantially over the past 10 - 15 years and continue to improve, combined with voluntary industry implementation of guidance for improved management practices to mitigate risk. In addition, we stated that we would continue to work with industries and states to promote and monitor improvements.

To assess the adequacy of state programs and the potential for voluntary implementation of improved practices, we looked at the current number of facilities with liners and ground-water monitoring (which may reflect voluntary industry upgrading as well as state requirements), and the number of state programs that currently have authority to require a broad range of environmental controls. For currently operating units, we found that among utilities, slightly more than half of the disposal units are surface impoundments. Of these impoundments, 38 percent have ground-water monitoring and 26 percent have liners. Eighty-five percent of the utility landfills have ground-water monitoring and 57 percent have liners. For non-utility landfills, 94 percent have ground-water monitoring, and somewhere

between 16 and 52 percent have liners. Over the last 15 years, 75 percent of new landfills and 60 percent of new surface impoundments have been lined.

In looking at state programs, we found that for landfills, more than 40 states have the authority to require permits, siting restrictions, liners, leachate collection, ground-water monitoring, closure controls, and cover/dust controls. Forty-three states can require liners and 46 can require ground-water monitoring compared to 11 and 28 states, respectively, in the 1980's. For surface impoundments, more than 40 states have authority to require permits, siting restrictions, liners, ground-water monitoring, and closure control; 33 can require leachate collection (there is no earlier comparison data for surface impoundments). Forty-five states can require liners and 44 can require ground-water monitoring for impoundments.

Comments. Industry and state agency commenters generally stated that the Agency presented an accurate and comprehensive analysis of state programs and that existing state regulations are adequate. Public interest commenters raised many concerns about the adequacy of state programs: either they do not have provisions to cover all elements of a protective program; they do not consistently impose the requirements for which they have authority; and/or enforcement is lax. Evidence commenters cited for the inadequacy of state programs included grandfathering for older management units and an apparent lack of controls for surface impoundments. For these reasons, some found EPA's review of state programs inaccurate or incomplete.

Public interest commenters were also skeptical of programs or efforts that rely on voluntary industry implementation because adherence to guidance is not guaranteed. Several commenters, primarily from industry, urged the Agency not to regulate pyrite co-management because of the voluntary, industry-developed guidance.

EPA's analysis of comments. We believe that state programs have, in fact, substantially improved over the last 15 years or so, as evidenced by the large number of states that have authority to impose protective management standards on surface impoundments and landfills, especially for groundwater monitoring, liners, and leachate collection, which mitigate potential risks posed by these units. In addition, we believe that the trend to line and install groundwater monitoring for new surface impoundments and landfills is positive. However, as some commenters noted, we acknowledge that our state program review looked at the authorities available to states and their overall regulatory requirements, not the specific requirements applied to any given facility, which could be more or less stringent. In addition, we recognize that many individual state programs have some gaps in coverage, as indicated below, so that some controls may not now be required at coal combustion waste impoundments and landfills.

One consistent trend that raises concern for the Agency is that surface impoundment controls occur at a significantly lower rate than at landfills. Hydraulic pressure in a surface impoundment increases the likelihood of releases; and groundwater monitoring, at a minimum, in existing as well as new impoundments, is a reasonable approach to monitor performance of the unit and a critical first step to addressing groundwater damage that may

be caused by the unit. Only 38 percent of currently operating utility surface impoundments have groundwater monitoring and only 26 percent have liners.

While liners and groundwater monitoring are applied more frequently at landfills, there are still many utility and non-utility landfills that do not have liners. In addition, 15 percent of utility landfills do not have groundwater monitoring and some small proportion of non-utility landfills do not have groundwater monitoring.

The utility industry through its trade associations has demonstrated a willingness to work with EPA to develop protective management practices, and individual companies have committed to upgrading their own practices. However, the Agency recognizes the validity of the comment that adherence to voluntary programs is not assured. Also, individual facilities and companies may not implement protective management practices and controls, for a variety of reasons, in spite of their endorsement by industry-wide groups.

We see a trend toward significantly improving state programs and voluntary industry investment in liners and ground-water monitoring that we believe can mitigate potential risks over time. However, we identified significant gaps in controls already in place and, in particular, requirements that may be lacking in some states, either in authority to impose the requirements or potentially in exercising that authority. In response to comments, we further analyzed risks posed by coal combustion wastes taking into account waste characteristics and potential and actual damage cases. Based on these analyses, we concluded that coal combustion wastes have the potential to present danger to human health and the environment and that a number of proven damages have been documented and that more are likely if we

had been able to conduct a more thorough search of available state records and if groundwater monitoring data were available for all units. We recognize that there will probably continue to be some gaps in practices and controls and are concerned at the possibility that these will go unaddressed. We also believe that the timeframe for improvement of current practices is likely to be longer in the absence of federal regulations.

D. What is the basis for today's decisions?

Based on our collection and analysis of information reflecting the criteria in Section 8002(n) of RCRA that EPA must consider in making today's regulatory determination, materials developed in preparing the RTC and supportive background materials, existing state and federal regulations and programs that affect the management of coal combustion wastes, and comments received from the public on the findings we presented in the RTC, we have concluded the following:

1. Beneficial Uses

To the extent that they are used for beneficial purposes, we believe that coal combustion wastes should continue to remain exempt from being regulated as hazardous wastes under RCRA. Beneficial purposes include waste stabilization, beneficial construction applications (e.g., cement, concrete, and concrete products, road bed, wall board), and agricultural applications (e.g., as a substitute for lime). [For the reasons presented below, we have not classified the use of coal combustion wastes to fill surface or underground mines as an exempted beneficial use.] We have reached this decision because,

other than for minefilling: (a) we have not identified that any beneficial uses are likely to present significant risks to human health or the environment; and (b) no documented cases of damage to human health or the environment have been identified. Additionally, we do not want to place any unnecessary barriers on the beneficial use of coal combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs.

Disposal can be burdensome and fails to take advantage of beneficial characteristics of fossil fuel combustion wastes. About one-quarter of the coal combustion wastes now generated are diverted to beneficial uses. Currently, the major beneficial uses of coal combustion wastes include: construction (including building products, road base & sub-base, blasting grit and roofing materials) accounting for 21%; sludge and waste stabilization and acid neutralization accounting for 3%; and agricultural use accounting for 0.1%. Based on our conclusion that these beneficial uses of coal combustion wastes are not likely to pose significant risks to human health and the environment, we support increases in these beneficial uses of coal combustion wastes.

Off-site uses in construction, including wallboard, present low risk due to the coal combustion wastes being bound or encapsulated in the construction materials or because there is low potential for exposure. Use in waste and sludge stabilization and in acid neutralization are either regulated (under RCRA for hazardous waste stabilization or when placed in municipal solid waste landfills, or under the Clean Water Act in the case of municipal sewage sludge or wastewater neutralization), or appear to present low risk due to

low exposure potential. While in the RTC, we expressed concern over risks presented by agricultural use, we now believe our previous analysis assumed unrealistically high-end conditions, and that the risk, which we now believe to be below 1×10^{-6}, does not warrant regulation of coal combustion wastes that are used in agricultural applications.

In the RTC, we were not able to identify damage cases associated with these type of beneficial uses, nor do we now believe that these uses of coal combustion wastes present a significant risk to human health or the environment. While some commenters disagreed with our findings, no data or other support for the commenters' position was provided, nor was any information provided to show risk or damage associated with agricultural use. Therefore, we conclude that none of the beneficial uses of coal combustion wastes listed above pose risks of concern.

2. Land Disposal

We believe that establishment of national regulations under Subtitle C of RCRA is warranted for coal combustion wastes when they are land disposed (e.g., managed in landfills and surface impoundments) because: (a) the composition of these wastes has the potential to present danger to human health and the environment and "potential" damage cases identified by EPA and commenters, while not definitively demonstrating damage from coal combustion wastes, lend support to our conclusion that these wastes have the potential to pose such danger; (b) we have identified eleven cases of proven damage to human health and the environment by improper management of these wastes when land disposed; (c) present disposal practices are such that these wastes are currently being managed in a

significant number of landfills and surface impoundments without proper controls in place, particularly in the area of groundwater monitoring; and (d) while there have been substantive improvements in state regulatory programs, we have also identified significant gaps either in states' regulatory authorities or in their exercise of existing authorities. Also, we believe that the costs of complying with regulations that specifically address these problems, while large in absolute terms, are only a small percentage of industry revenues.

We identified that the constituents of concern in these wastes are metals, particularly hazardous metals. We further identified that leachate from various of these wastes generated at coal combustion facilities has exceeded the hazardous waste toxicity characteristic for one or more of the following metals: arsenic, cadmium, chromium, lead, and mercury. Additionally, when we compared waste leachate concentrations for hazardous metals to their corresponding MCLs, we found that there was a potential for significant risk as a result of arsenic leaching from these wastes. The criteria we examined included the existing arsenic MCL, a lower health based number presented in the RTC, and two assumed values in between. We examined this range of values because, as explained earlier in this notice, EPA is in the process of revising the current MCL for arsenic to a lower value as a result of a detailed study of arsenic in drinking water and we wanted to assess the likely range of values that would be under consideration by EPA.

We also identified situations where the improper management of mill rejects, a low volume and uniquely associated waste, with high volume coal combustion wastes has the potential to cause releases of higher quantities of hazardous metals. When these wastes are

improperly managed, the mill rejects can create an acidic environment which enhances leachability and can lead to the release of hazardous metals in high concentrations from the co-managed wastes to ground water or surface waters. Thus, our analysis of the characteristics of coal combustion wastes leads us to conclude that these wastes have the potential to pose a significant danger to human health and the environment.

Additionally, we identified 11 proven damage cases that documented disposal of coal combustion wastes in unlined landfills or surface impoundments that involved exceedences of primary MCLs or other health-based standards in ground water or drinking water wells. Three of the proven damage cases were on the EPA Superfund National Priorities List. These damage cases point to the fact that coal combustion wastes have been shown to present a danger to human health and the environment.

As detailed in the RTC and explained earlier in this notice, we identified that the states and affected industry have made considerable progress in recent years toward more effective management of coal combustion wastes. We also identified that the ability for most states to impose specific regulatory controls for coal combustion wastes has significantly increased over the past 15 years. In addition to regulatory permits, the majority of states now have authority to require siting controls, liners, leachate collection, groundwater monitoring, closure controls, and other controls and requirements for surface impoundments and landfills. Nonetheless, we have concluded that there are still gaps in the actual application of these controls and requirements, particularly for surface impoundments. While most states now have the appropriate authorities and regulations to require liners and

groundwater monitoring that would reduce or minimize the risks that we have identified, we have also identified numerous situations where these controls are not being applied. For example, only 26 percent of utility surface impoundments and 57 percent of utility landfills have liner systems in place. We have insufficient information to determine whether the use of these controls is significantly different for non-utility disposal units. While many of these unlined units may be subject to grandfathering provisions that allow them to continue to operate without being lined, we are especially concerned that a substantial number of units do not employ ground water monitoring to ensure that if significant releases occur from these unlined units, they will be detected and controlled. Ground water is monitored at only 36 percent of utility surface impoundments. While monitoring is more frequent at landfills, because of the large number of units employed, there are still a large number of units at which significant releases of hazardous metals could go undetected. We are concerned that undetected releases could cause significant contamination that may threaten public health or groundwater and surface water resources. Thus, we conclude that national regulations would lead to substantial improvements in the management of coal combustion wastes.

For these reasons, we believe it is prudent to establish national regulations applicable to coal combustion wastes when managed in surface impoundment and landfills. We will rely on all of the flexibility afforded by RCRA, especially that allowed under Section 3004(x), to ensure that the regulations have minimal affect on those states that are effectively overseeing management of coal combustion surface impoundments and landfills to assure protection of human health and the environment.

3. Minefilling

We believe that establishment of national regulations under Subtitle C of RCRA is warranted for coal combustion wastes when they are placed in surface or underground mines because: (a) we find that these wastes when minefilled have the potential to present a danger to human health and the environment, and (b) there are few states that currently operate comprehensive programs that specifically address the unique circumstances of minefilling, making it more likely that damage to human health or the environment will occur. Additionally, we believe that the cost of complying with regulations that address these potential dangers will not have a substantial impact on this practice because minefilling continues to grow in those few states that already have comprehensive programs.

When the complexities related to site-specific geology, hydrology, waste chemistry and interactions with the surrounding matrix, and other relevant factors are properly taken into account, coal combustion wastes used as minefill can provide significant benefits. However, when not done properly, minefilling has the potential to contaminate ground water to levels that could damage human health and the environment for the following reasons. Based on materials submitted during the public comment period, coal combustion wastes used as minefill can lead to increases in the quantity of hazardous metals released into ground water if the acidity within the mine overwhelms the capacity of the coal combustion wastes to neutralize the acidic conditions. This is due to the increased leaching of hazardous metals from the wastes. The potential for this to occur is further supported by data showing that management of coal combustion wastes in the presence of acid-generating pyritic wastes

has caused metals to leach from the combustion wastes at much higher levels than are predicted by leach test data for coal combustion wastes when strongly acidic conditions are not present. Such strongly acidic conditions often exist at mining sites.

We are also aware of situations where coal combustion wastes are being placed in direct contact with ground water in both surface and underground mines. We concluded in our recent study of cement kiln dust management practices that placement of cement kiln dust in direct contact with ground water led to a substantially greater release of hazardous metals than we predicted would occur when the waste was placed above the water table. For this reason, we find that there is a potential for increased releases of hazardous metals as a result of placing coal combustion wastes in direct contact with groundwater.

We are also concerned that government oversight is necessary to ensure that minefilling is done appropriately to protect human health and the environment. Because minefilling is a recent, but rapidly expanding use of coal combustion wastes, government oversight has not yet "caught up" with the practice consistently, across the country. There are a few states that have minefilling programs. Some are relatively comprehensive, but commenters pointed out significant gaps in others, for example, no requirement for ground-water monitoring and no control or prohibition on waste placement in the aquifer. In addition, such programs are not widespread and do not exist in many states where minefilling is now being practiced.

For these reasons, we believe that it is prudent to establish national regulations applicable to the use of coal combustion wastes to fill surface and underground mines. We

will rely on all the flexibility afforded by RCRA, especially that allowed under Section 3004 (x), to ensure that the regulations have minimal effect on those states that are effectively overseeing minefilling operations to ensure protection of human health and the environment. The regulations can also be tailored to the differing circumstances of surface and underground mines. We will draw on the expertise of other federal agencies with responsibility in the mining area, states, and industry and public interest stakeholders to ensure that our regulations are protective, flexible and complementary to existing state and federal programs.

E. What other information would EPA like to receive to assist the Agency in its efforts to implement today's regulatory determination?

As described above, at this time, we intend to develop management standards for coal combustion wastes that, when met, would result in these wastes remaining non-hazardous wastes. While those standards would not be federally enforceable (except under Section 7003 of RCRA if there is a finding of substantial endangerment), failure to comply with the management standards would result in the application of hazardous waste requirements, which would be enforceable by the federal government. This is the approach that EPA took in our recently-proposed regulations applicable to cement kiln dust (64 FR 45632; August 20, 1999). Based on the information available today, this is the Agency's preferred approach for addressing the hazards presented by coal combustion wastes that are land disposed (e.g., managed in landfills and surface impoundments) or used to fill surface

or underground mines. However, as noted previously, this decision has been a difficult one given the competing considerations described throughout this notice, Thus, we are soliciting comment on this regulatory determination and will, if appropriate based on comments and any other information obtained by the Agency, revise this determination if warranted. As discussed further below, options under consideration by the Agency include deciding that regulation under Subtitle C of RCRA is not warranted for coal combustion wastes.

When proposing regulations applicable to cement kiln dust, EPA presented information on several possible approaches, including EPA's preferred approach, for addressing the risks posed by cement kiln dust. We also solicited comments on these various regulatory and non-regulatory approaches. We did so to enable us to evaluate our preferred regulatory approach not only on its own merits, but also in comparison to alternative approaches. (See 64 FR 45640 - 45643.) The period for commenting on the proposed cement kiln dust regulations, including the information on alternative approaches provided in the preamble to the proposed rule, ended on February 17, 2000. Prior to proposing a comparable approach for coal combustion wastes, we are today inviting comment so that all interested parties can offer comments on alternative approaches to EPA's preferred approach that would also ensure that coal combustion wastes are managed safely.

Alternative approaches that have been shared previously in the context of cement kiln dust that appear to be relevant to coal combustion wastes include state improvement of existing programs such that federal regulations are no longer necessary; a "state-based

approach," based somewhat on the approach specified in RCRA under which EPA approves state municipal solid waste landfill permitting programs; reliance on a Memorandum of Understanding (MOU) between industry and EPA; regulation exclusively under RCRA non-hazardous waste authority (Subtitle D); and development of tailored standards under hazardous waste regulatory authority. Under all of these approaches, EPA could take enforcement action under Section 7003 of RCRA if there is a finding of substantial endangerment. If the Agency were to decide at a later time to rely on any of these alternative approaches, with the exception of developing tailored hazardous waste management standards, we would revisit today's regulatory determination, and determine that regulation under Subtitle C of RCRA is not warranted.

Additionally, we would more favorably consider revisiting our regulatory determination in favor of a lesser federal role if: 1) there were more evidence that coal combustion facilities have made additional improvements to their waste management practices, especially in the area of groundwater monitoring; 2) there was greater agreement among all stakeholders regarding appropriate waste management, including placement of coal combustion wastes in surface and deep mines; 3) there was a strong level of support from industry, states, and other stakeholders for movement toward an MOU or state-based approach; and 4) the alternative adequately considered the interests of other parties with a stake in the Agency's coal combustion rulemaking effort. Prior to issuing a proposed rule, EPA will carefully consider new information that is provided, along with the alternative

approaches discussed below. This process is similar to how the Agency is dealing with cement kiln dust.

1. States Adopt Appropriate Programs

Alternatively, states may come forth with appropriate programs for managing coal combustion wastes when land disposed or used to fill surface or underground mines. The Agency believes there may be no need to finalize a federal program if states adopt and implement appropriate programs to ensure the safe management of coal combustion wastes. We solicit comments on this approach to ensuring that coal combustion wastes are managed in a manner that protects human health and the environment.

2. State-Based Approach

The American Portland Cement Alliance (APCA) has submitted a proposal to EPA for a state-based approach to cement kiln dust (CKD) management. The main components of APCA's proposed approach are listed below, in chronological order:

(a) *EPA Would Complete Work on Management Standards.* EPA would complete draft management standards for issuance as guidance as described below.

(b) *EPA Would Publish Proposed Guidance and "Backstop" Regulatory Regime For Public Comment.* EPA would publish a Notice of Data Availability in the *Federal Register* which would have two separate components. The first component would describe and summarize the key components of the management standards, and announce the public availability of a complete copy of the management standards. In the notice, the Agency would announce its willingness to withdraw its earlier regulatory determination if all of the

states in which coal combustion waste is managed in landfills and surface impoundments or used to fill surface or underground mines developed an adequate management program within two years. The second component would be a "backstop" proposed rule based on a "conditional exclusion" or "contingent management" approach in which RCRA Subtitle C authority would not be triggered unless the conditions of the exclusion were violated. EPA would finalize the proposal only if one or more states in which coal combustion waste is land disposed do not have an adequate management program within two years. EPA would solicit public comment on all aspects of the notice.

(c) *EPA Would Publish Final Guidance In Response To Public Comment.* One year after publishing the initial guidance and backstop proposal, EPA would publish its "final" guidance in a subsequent *Federal Register* notice in response to public comments. In this notice, EPA would also include an explicit time line for the remaining steps in the State-based approach.

(d) *EPA Would Take Final Action Regarding Inadequate State Programs.* Two years after publishing the initial proposed guidance and backstop proposal, EPA would publish another *Federal Register* notice announcing its assessment of the adequacy of state coal combustion waste management programs. If EPA finds that such state programs are adequate, the Agency would announce withdrawal of its regulatory determination. Conversely, if the Agency finds one or more states with inadequate programs, EPA would issue a final rule that will be effective in those states. These regulations would be based on a conditional exemption approach in which RCRA Subtitle C authorities would not be

invoked unless terms of the exemption were violated. For those states with adequate programs, EPA would revise its regulatory determination and determine that Subtitle C regulation was not warranted in those states.

3. Memorandum of Understanding

Another option, in lieu of a detailed regulatory scheme, would have EPA enter into a memorandum of understanding (MOU) with the coal combustion industry. The MOU would include specific standards for the management of coal combustion wastes. This approach is not unprecedented. In January 1994, EPA and the American Forest and Paper Association (AF&PA) negotiated a MOU regarding the implementation of land application agreements among AF&PA member pulp and paper mills and the EPA. The purpose of the MOU (which is available in the docket that supports today's action) was to develop a stewardship program for the practice of land application of pulp and paper mill sludges. Each paper mill participating in the program signed a "Land Application Agreement" which established standards and land management practices for the mill's land application of sludge. The MOU also provided for annual materials monitoring reports to be submitted to EPA, AF&PA member outreach programs, and annual AF&PA member surveys. The individual "Land Application Agreements" specify, among other things, dioxin/furan concentration limits for land applied sludge and receiving soils, application rates, waste testing requirements, and recordkeeping and reporting requirements. The MOU and "Land Application Agreements" do not contain specific enforcement provisions, including citizen

suit provisions. Moreover, EPA, to date, has not formally assessed the success of the Agreements.

The Agency could consider a similar approach to tailored management standards and for monitoring the management of coal combustion wastes. The Agency solicits comments on the advantages and disadvantages of a program utilizing a memorandum of understanding to encourage environmentally-sound waste management practices.

4. Develop Regulations Under Authority of Subtitle D

Another option would be to issue standards as RCRA Subtitle D requirements, relying on the authority in RCRA sections 1008(a)(3) and 4004(a). EPA would issue such standards after consulting with states. Under this approach, EPA would establish standards for the disposal and minefilling of coal combustion wastes, and failure to abide by those standards would be considered "open dumping" under RCRA Subtitle D. Such "open dumping" is a prohibited act under RCRA section 4005(a). States are required under RCRA section 4005(a) to see that their state solid waste management plans ensure that all disposal facilities comply with the "open dumping" standards which EPA issues to eliminate health hazards and minimize potential health hazards.

These "open dumping" standards issued by EPA under RCRA Sections 1008(a)(3) and 4004(a) standards would be enforceable by the public through citizen suits. However, such standards would not be directly enforceable by EPA under the enforcement authorities of Sections 3007 and 3008. In contrast, as described above, the Agency's preferred approach would, as implemented in the proposed cement kiln dust regulations, provide the

opportunity for federal enforcement against major violations of the proposed standards, where warranted. The Agency solicits comment on issuing management standards solely as RCRA Subtitle D requirements and views on the need for federal enforcement of violations of the management standards.

5. Tailored Standards Under Subtitle C

Another option available to the Agency is to establish regulations under authority of Subtitle C, using a tailored approach to standards development as allowed in Section 3004(x) of RCRA. Under this approach, affected coal combustion wastes would be listed as hazardous wastes and would be regulated under management standards tailored to the risks posed by the regulated wastes. The management standards would be federally enforceable.

The Agency solicits comment on the option of regulating coal combustion wastes under authority of RCRA Subtitle C and whether certain provisions could be eliminated or whether additional provisions are needed.

3. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR OIL COMBUSTION WASTES?

A. What is the decision regarding the regulatory status of oil combustion wastes and why did EPA make this decision?

We have determined that it is not appropriate to issue regulations under Subtitle C of RCRA applicable to oil combustion wastes because: (a) we have not identified any

beneficial uses that are likely to present significant risks to human health or the environment; and (b) except for a limited number of unlined surface impoundments, we have not identified any significant risks to human health and the environment associated with any waste management practices.

We intend to work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that any necessary measures are taken to ensure that their wastes are managed in a manner that protects human health and the environment.

B. What were EPA's tentative decisions as presented in the Report to Congress?

In the Report to Congress, we stated that the only management scenario for which we found risks posed by management of oil combustion wastes was when oil combustion wastes are managed in unlined surface impoundments. The Report to Congress further explained that we were considering two approaches to address these identified risks. One approach was to regulate using RCRA Subtitle C authority. The other approach was to encourage voluntary changes so that no oil combustion wastes are managed in unlined surface impoundments. This voluntary approach is based on recent industry and state regulatory trends to line oil combustion waste disposal units and implement ground-water monitoring.

We also tentatively decided that the existing beneficial uses of OCW should remain exempt from RCRA Subtitle C. There are few existing beneficial uses of these wastes, which include use in concrete products, structural fill, roadbed fill, and vanadium recovery.

We determined that no significant risks to human health exist for the beneficial uses of these wastes. For the case of facilities that accept these wastes to recover vanadium from them, we explained that if the wastes resulting from the metal recovery processes are hazardous, they will be subject to existing hazardous waste requirements.

We found in most cases that oil combustion wastes (OCW), whether managed alone or co-managed, are rarely characteristically hazardous. Additionally, we identified no significant ecological risks posed by OCWs that are land disposed. We identified only one documented damage case involving OCW in combination with coal combustion wastes, and it did not affect human receptors.

Although most of the disposed oil combustion wastes are managed in lined surface impoundments, we did identify six utility sites where wastes are managed in unlined units. We expressed particular concern with management of these wastes in unlined settling basins and impoundments that are designed and operated to discharge the aqueous portion of the wastes to ground water. Our risk analysis indicated that, in these situations, three metals – arsenic, nickel, and vanadium – may pose potential risk by the ground-water pathway.

C. How did commenters react to EPA's tentative decisions and what was EPA's analysis of their comments?

Comments. The primary focus of the comments regarding oil combustion wastes was on the six unlined surface impoundments that we identified. Industry commenters supported the approach to encourage voluntary changes in industry practices on a site-specific basis,

and explained why they believed hazardous waste regulations are unnecessary. The environmental community supported the development of hazardous waste regulations.

EPA's analysis of comments. In the RTC, we identified that our only concern about oil combustion wastes was based on the potential for migration of arsenic, nickel, and vanadium from unlined surface impoundments. We requested information on this issue and did not receive any additional data and/or information to refute our tentative finding stated in the RTC that these unlined surface impoundments could pose a significant risk.

As stated in the RTC, there are only six sites involving two companies that have unlined surface impoundments. Four of the sites are in Florida and are operated by one company. The company operating the four unlined impoundments in Florida is undertaking projects to mitigate potential risks posed by their unlined management units. At a May 21,1999 public hearing, the company announced its plans to remove all the oil ash and basin material from its unlined impoundments and to line or close the units. The company informed us in January 2000 that it had completed the lining of all the units. Based on this information, we do not believe that these units pose a significant risk to human health and the environment.

The other two sites with unlined impoundments are operated by one utility in Massachusetts. Both sites are permitted under Massachusetts' ground water discharge permit program and have monitoring wells around the unlined basins. Arsenic is monitored for compliance with state regulations. Although the company expressed no plans to line their impoundments, they are preparing to implement monitoring for nickel and vanadium in

ground water around the waste management units. We have been working with the State and the company to obtain additional information to evaluate these two management units. We will continue this effort and will work with the company and the State to ensure that any necessary measures are taken so that these wastes are managed in a manner that protects human health and the environment.

D. What is the basis for today's decisions?

We have determined that it is not appropriate to establish national regulations applicable to oil combustion wastes because: (a) we have not identified any beneficial uses that are likely to present significant risks to human health or the environment; and (b) except for a limited number of unlined surface impoundments, we have not identified any significant risks to human health and the environment associated with any waste management practices. As explained in the previous section, we intend to work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that any necessary measures are taken so that their wastes are managed in a manner that protects human health and the environment. Given the limited number of sites at issue and our ability to adequately address risks from these waste management units through site-specific response measures, we see no need for issuing regulations under Subtitle C of RCRA.

4. WHAT IS THE BASIS FOR EPA'S REGULATORY DETERMINATION FOR NATURAL GAS COMBUSTION WASTES?

A. What is the decision regarding the regulatory status of natural gas combustion wastes?

For the reasons described in the Report to Congress (pages 7-1 to 7-3), EPA has decided that regulation of natural gas combustion wastes as hazardous wastes under RCRA Subtitle C is not warranted. The burning of natural gas generates virtually no solid waste.

B. What was EPA's tentative decision as presented in the Report to Congress?

The Agency's tentative decision was to retain the Subtitle C exemption for natural gas combustion because virtually no solid waste is generated.

C. How did commenters react to EPA's tentative decision?

No commenters on the RTC disagreed with EPA's findings or its tentative decision to continue the exemption for natural gas combustion wastes.

Specific comments on this issue supported our tentative decision to retain the exemption for natural gas combustion waste. One industry association encouraged us to foster the use of natural gas as a substitute for other fossil fuels. While some public interest group commenters disagreed broadly with our tentative conclusions to retain the exemption

for fossil fuel combustion wastes, they did not specifically address natural gas combustion wastes.

D. What is the basis for today's decision?

The burning of natural gas generates virtually no solid waste. We, therefore, believe that there is no basis for EPA developing hazardous waste regulations applicable to natural gas combustion facilities.

5. What is the History of EPA's Regulatory Determinations for Fossil Fuel Combustion Wastes

A. On what basis is EPA required to make regulatory determinations regarding the regulatory status of fossil fuel combustion wastes?

Section 3001(b)(3)(C) of the Resource Conservation and Recovery Act (RCRA) as amended requires that, after completing a Report to Congress mandated by section 8002(n) of RCRA, the EPA Administrator must determine whether Subtitle C (hazardous waste) regulation of fossil fuel combustion wastes is warranted.

B. What was EPA's general approach in making these regulatory determinations?

We began our effort to make our determination of the regulatory status of fossil fuel combustion wastes by studying high volume coal combustion wastes managed separately

from other fossil fuel combustion wastes that are generated by electric utilities. In February 1988, EPA published the *Report to Congress on Wastes from the Combustion of Coal by Electric Utility Power Plants*. The report addressed four large-volume coal combustion wastes generated by utilities and independent power producers when managed alone. The four wastes are fly ash, bottom ash, boiler slag, and flue gas desulfurization (FGD) wastes. The report did not address co-managed utility coal combustion wastes (UCCWs), other fossil fuel wastes generated by utilities, or wastes from non-utility boilers burning any type of fossil fuel. Because of other priorities at the time, we did not immediately complete a determination of the regulatory status of these large-volume coal combustion wastes.

C. **What happened when EPA failed to issue its determination of the regulatory status of the large volume utility combustion wastes in a timely manner?**

In 1991, a suit was filed against EPA for not completing a regulatory determination on fossil fuel combustion wastes (Gearhart v. Reilly Civil No. 91-2345 (D.D.C.)). On June 30, 1992, the Agency entered into a Consent Decree that established a schedule for us to complete the regulatory determination for all fossil fuel combustion wastes in two phases:

- The first phase covers fly ash, bottom ash, boiler slag, and flue gas emission control wastes from the combustion of coal by electric utilities and independent commercial power producers. These are the four large volume wastes that were the subject of the 1988 Report to Congress described above. We refer to this as the Part 1 regulatory determination.

- The second phase covers all of the "remaining" fossil fuel combustion wastes not covered in the Part 1 regulatory determination. We refer to this as the Part 2 regulatory determination, which is the subject of today's action. Under the current court-order, EPA was directed to issue the Part 2 regulatory determination by March 10, 2000.

D. When was the Part 1 regulatory decision made and what were EPA's findings?

In 1993, EPA issued the Part 1 regulatory determination, in which we retained the exemption for Part 1 wastes (see 58 FR 42466; August 9, 1993). The four Part 1 large-volume utility coal combustion wastes (UCCWs) are also addressed in the Part 2 regulatory determination when they are co-managed with low-volume fossil fuel combustion wastes not covered in the Part 1 determination.

6. EXECUTIVE ORDERS AND LAWS ADDRESSED IN TODAY'S ACTION

A. Executive Order 12866 - Determination of Significance

Under Executive Order 12866, (58 FR 51735, Oct. 4, 1993) we must determine whether the regulatory action is "significant" and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

- have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles in the Executive Order."

Under Executive Order 12866, this a "significant regulatory action." Thus, we have submitted this action to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the public record.

B. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 USC 601 et. seq.

Today's action is not subject to the RFA, which generally requires an agency to prepare a regulatory flexibility analysis for any rule that will have a significant economic impact on a substantial number of small entities. The RFA applies only to rules subject to notice-and-comment rulemaking requirements under the Administrative Procedure Act (APA) or any other statute. This action is not subject to notice and comment requirements

under the APA or any other statute. Today's action is being taken pursuant to Section 3001(b)(3)(C) of the Resource Conservation and Recovery Act. This provision requires EPA to make a determination whether to regulate fossil fuel combustion wastes after submission of its Report to Congress and public hearings and an opportunity for comment. This provision does not require the publication of a notice of proposed rulemaking and today's action is not a regulation. See American Portland Cement Alliance v. E.P.A., 101 F.3d 772 (D.C.Cir. 1996).

C. Paperwork Reduction Act (Information Collection Requests)

Today's final action contains no information collection requirements.

D. Unfunded Mandates Reform Act

Today's rule is not subject to the requirements of sections 202 and 205 of the UMRA. Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 104-4, establishes requirements for federal agencies to assess the effects of their regulatory actions on state, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "federal mandates" that may result in expenditures to state, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year.

Before we issue a rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the rule's objectives. Section 205 doesn't apply when it is inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the final rule explains why that alternative was not adopted. Before we establish any regulatory requirements that may significantly affect small governments, including tribal governments, we must have developed under section 203 of the UMRA a small-government-agency plan. The plan must provide for notifying potentially affected small governments, enabling them to have meaningful and timely input in the developing EPA regulatory proposal. with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's final action contains no federal mandates (under the regulatory provisions of Title II of the UMRA) for state, local, or tribal governments or the private sector. Today's final action imposes no enforceable duty on any state, local or tribal governments or the private sector.

In addition, we have determined that this rule contains no federal mandate that may result in expenditures of $100 million or more for state, local, and tribal governments, in the aggregate, or the private sector in any one year.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled Federalism (64 FR 43255, August 10, 1999) requires us to develop an accountable process to ensure meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications. The executive order defines policies that have federalism implications to include regulations that have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

Under section 6 of Executive Order 13132, we may issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that isn't required by statute, only if the federal government provides funds the direct compliance costs incurred by state and local governments, or if EPA consults with state and local officials early in the development of the proposed regulation. Also, EPA may issue a regulation that has federalism implications and that preempts state law, only if we consult with state and local officials early in the development of the proposed regulation.

If EPA complies by consulting, Executive Order 13132 requires us to provide OMB, in a separately identified section of the rule's preamble, a federalism summary impact statement (FSIS). The FSIS must describe the extent of our prior consultation with state and local officials, summarizing the nature of their concerns and our position supporting the need for the regulation, and state the extent to which the concerns of state and local officials have been met. Also, when we transmit a draft final rule with federalism implications to

OMB for review under Executive Order 12866, our federalism official must include a certification that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

Today's final action does not have federalism implications. It will not have a substantial direct affect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This is because no requirements are imposed by today's action, and EPA is not otherwise mandating any state or local government actions. Moreover, today's action does not affect the relationship between the national government and the states and does not affect distribution of power and responsibilities among the various levels of government. Thus, the requirements of section 6 of the Executive Order do not apply to this final action.

F. Executive Order 13084: Consultation and Coordination with Indian Tribal Governments

Under Executive Order 13084, EPA may take an action that isn't required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, only if the federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires us to describe in a separately identified section of the

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OMB for review under Executive Order 12866, our federalism official must include a certification that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

Today's final action does not have federalism implications. It will not have a substantial direct affect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This is because no requirements are imposed by today's action, and EPA is not otherwise mandating any state or local government actions. Moreover, today's action does not affect the relationship between the national government and the states and does not affect distribution of power and responsibilities among the various levels of government. Thus, the requirements of section 6 of the Executive Order do not apply to this final action.

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preamble to the rule the extent of our prior consultation with representatives of affected tribal governments, summarizing of the nature of their concerns, and state the need for the regulation. Also, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's final action does not significantly or uniquely affect the communities of Indian tribal governments. This is because today's action by EPA involves no regulations or other requirements that significantly or uniquely affect Indian tribal governments. So, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

"Protection of Children from Environmental Health Risks and Safety Risks" (62 F.R. 19885, April 23, 1997) applies to any rule that: (1) is "economically significant" as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Today's final action isn't subject to the Executive Order because it is not economically significant as defined in E.O. 12866, and because we have no reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. Risks were thoroughly evaluated during the course of developing today's decision and were determined not to disproportionately affect children.

H. National Technology Transfer and Advancement Act of 1995

As noted in the proposed rule, Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Pub L. No. 104-113, § 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary-consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or otherwise impractical. Voluntary-consensus standards are technical standards (such as materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary-consensus standards bodies. The NTTAA directs us to explain to Congress, through OMB, when we decide not to use available and applicable voluntary-consensus standards.

Today's final action involves no technical standards. So, EPA didn't consider using any voluntary-consensus standards.

I. Executive Order 12898: Environmental Justice

EPA is committed to addressing environmental justice concerns and is assuming a leadership role in environmental justice initiatives to enhance environmental quality for all

populations in the United States. The Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, or income bears disproportionately high and adverse human health or environmental impacts as a result of EPA's policies, programs, and activities, and that all people live in safe and healthful environments. In response to Executive Order 12898 and to concerns voiced by many groups outside the Agency, EPA's Office of Solid Waste and Emergency Response formed an Environmental Justice Task Force to analyze the array of environmental justice issues specific to waste programs and to develop an overall strategy to identify and address these issues (OSWER Directive No. 9200.317).

7. HOW TO OBTAIN MORE INFORMATION

Documents related to this regulatory determination, including EPA's response to the public comments, are available for inspection in the docket. The relevant docket numbers are: F-99-FF2D-FFFFF for the regulatory determination, and F-99-FF2P-FFFFF for the RTC. the RCRA Docket Information Center (RIC), is located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding Federal holidays. To review docket materials, it is recommended that the public make an appointment by calling 703 603-9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost $0.15/page. The index and some supporting materials are available

electronically. See the "Supplementary Information" section for information on accessing them.

In addition to the data and information that was included in the docket to support the RTC on FFC waste and the Technical Background Documents, the docket also includes the following document: *Responses to Public Comments on the Report To Congress, Wastes from the Combustion of Fossil Fuels.*

List of Subjects

Fossil fuel combustion waste, Coal combustion, Oil combustion, Gas combustion, Special wastes, Bevill exemption

Dated: _____ _____

Carol M. Browner,

Administrator