EPA RESPONSE TO IMCC DISCUSSION OUTLINE
(March 15, 2002 Draft)

Coal Ash Management

I. Categories of Coal Ash Management

The Discussion Outline identified four categories of ash management:

1. Used as product (e.g., concrete, asphalt filler)
2. Used beneficially in the environment (e.g., structural fill, soil additive)
3. Used beneficially in active or abandoned minesites
4. Disposal

EPA's Regulatory Determination identified these same management practices but grouped them into different categories ("Notice of Regulatory Determination on Wastes From the Combustion of Fossil Fuels," Federal Register, Vol. 65, No. 99, May 22, 2000, pages 32214-32237; http://www.epa.gov/epaoswer/other/fossil/ff2f-fr.pdf):

1. Beneficial use, including waste stabilization, beneficial construction applications (e.g., cement, concrete, brick and concrete products, road bed, structural fill, blasting grit, wall board, insulation, roofing materials), agricultural applications (e.g., as a substitute for lime) and other applications (absorbents, filter media, paints, plastics and metals manufacture, snow and ice control, waste stabilization).
2. Minefill (i.e., placement of ash in or on land from which minerals are being or have been extracted).
3. Landfill or impoundment disposal.

EPA exempted all categories from regulation as hazardous wastes and indicated no need to discontinue any management category. EPA continues to encourage the beneficial use of ash, particularly as products (e.g., EPA's Comprehensive Procurement Guidelines; see http://www.epa.gov/epaoswer/non-hw/procure/products/cement.htm). However, EPA determined that regulations under Subtitle D of the Resource Conservation and Recovery Act (RCRA) are needed for the third category (landfill or impoundment disposal). Also, EPA determined that regulations under RCRA Subtitle D and/or the Surface Mining Control and Reclamation Act (SMCRA) are needed for situations where CCW is placed at minesites (minefill).

In its Regulatory Determination, EPA acknowledged that placement of ash at minesites can provide significant benefits. EPA also recognized in the Regulatory Determination that, when not done properly, placement of CCW at mine sites has the potential to contaminate ground water to levels that endanger human health and the

environment.

II. Coal Ash Management Principles for Beneficial Use

Ash Characterization

EPA, through its Regulatory Determination, exempted ash from regulation as a hazardous waste. Thus, for purposes of the federal RCRA, ash need not be characterized via the TCLP to determine whether it is a hazardous waste. However, it is appropriate to analyze ash to determine whether its placement in mines might pose a threat to human health or the environment or whether it would pose any special handling problems. Some State programs require receiving mines to characterize ash either periodically (e.g., quarterly or semiannually) or when the source of ash changes (e.g., ash from a different burner or ash produced from a different coal). Characterization is usually done through EPA's TCLP or some other leaching procedure using water found at the mine site or elsewhere. Presently, EPA is unclear as to how States determine whether a specific ash's characteristics are acceptable for minefill, i.e. the risk analysis procedures, risk levels, and standards which States employ in their decision-making. EPA wishes to learn of ash characterization procedures which will ensure adequate protection of public health and safety and the environment.

Placement in Mines

EPA has observed several beneficial uses of mine placement of ash. Coal ash is a manageable material in a mine environment, particularly a surface mine environment, where it can be placed, spread, and compacted by heavy equipment common to the mine environment. Mine placement beneficially employs ash to occupy void space, allowing the mine site to be reclaimed close to original contours. Placement of ash in mines can be especially cost-effective for power plants which have difficulty obtaining land for disposal of ash. This is particularly true for older power plants which have filled adjacent land with ash generated in past years. These power plants are often located adjacent to rivers, causing them to be land-locked on at least one side; and are often in areas where adjacent land is unavailable at reasonable cost or is inappropriate (e.g., hydrology, geology, flood plain, incompatible land uses) for ash disposal. Placement of ash in mines avoids the need to utilize green space to develop disposal facilities for ash. Additionally, alkaline ash can be placed in mine sites so as to beneficially mitigate acid mine drainage problems. Cementitious alkaline ash can also beneficially isolate acid-forming spoil at mine sites, thereby preventing formation of harmful acid drainage.

EPA does not believe that it can be generalized that mine environments are safe environments for disposal of ash or are geochemical environments conducive to such placement. Rather, EPA believes that this must be considered only on a case-by-case basis. A specifically designed, scientifically sound, decision-making process, in which

risk is evaluated and the public has a role, should be employed in making such determinations. The decision-making process, including the risk assessment, must recognize that large amounts of ash, a material foreign to the natural materials at the mine, will be placed at the mine site. Also, the process must recognize that the mine site is an extensive area which has been substantially disturbed and re-formed, altering the natural hydrology, geology, and soils.

III. Coal Ash Regulatory Principles for Beneficial Use

Not a Hazardous Waste

EPA has formally exempted ash from regulation as a hazardous waste but believes coal ash should be properly managed so as to not adversely impact human health and the environment now and in the future. EPA has identified no documented cases of damage resulting from placement of ash in coal mines. EPA is aware that ash has caused environmental damage when placed in sand and gravel pits and in some designed disposal units, an indication of the potential for ash to cause damage. EPA is trying to better understand whether the damages identified elsewhere can occur at coal mines, and if so, what preventative measures need to be taken.

EPA recognizes that mine sites are complex, disturbed environments which pose a formidable challenge to ground-water modeling and monitoring efforts. As a result, EPA is uncertain whether the lack of known damage cases is due to complexities which impede monitoring, inability to discern the impacts of ash from those of mining activities, lack of or inadequate monitoring, or true absence of adverse impacts. Because mine placement is a relatively recent practice, it is possible that insufficient time has passed to be able to realize or measure adverse impacts of the practice. EPA couples this concern with the possibility that existing regulations may authorize monitoring to cease before problems become evident. In its Minefill Risk Assessment/Modeling (MRAM) project, EPA is working closely with a variety of stakeholders to assemble case study data on long-term monitoring of a large number of facilities. This compilation and analysis of data on ground-water quality and site and ash characterization should advance the state of knowledge and contribute to improved decision-making.

State and Federal Regulatory Programs

EPA believes that existing SMCRA and RCRA statutory authorities can be employed to properly protect public health and safety and the environment, and no additional statutory authorities are required. EPA recognizes that States and federal agencies, specifically OSM and EPA, have existing regulatory programs which have been operating for a number of years to protect human health and safety and the environment. Varying among the States, these regulatory programs are a blending of regulatory requirements, policy memoranda, and guidelines and may involve multiple regulatory agencies. From the perspective of the public, these factors increase the

complexity and difficulty of discerning specific protective requirements, standards, and limits which are enforceable at facilities. It is difficult for the public to understand the performance levels which they can expect from specific facilities, how they can know whether performance levels are being met or exceeded, and where accountability rests for compliance assurance and issues such as QA/QC of monitoring data.

Placement of ash at mine sites is a permanent action which cannot feasibly be undone, should adverse impacts become apparent in the future. For this reason, especially, EPA agrees that it is imperative for State and federal regulatory agencies to cooperate in making the best use of existing regulatory and statutory authorities to protect public health and safety and the environment. Working with OSM and State regulatory agencies, EPA is currently striving to document an understanding of the State-federal cooperative regulatory framework under which ash is placed at mine sites and whether this framework assures the public of adequate protection of health and the environment. Public assurance appears somewhat elusive, perhaps due to the flexibility and discretion of regulatory programs and the complexities of differing ash and minesite characteristics. EPA is being strongly encouraged by public advocacy groups to carefully ensure adequate protection of health and the environment.

Public Involvement

EPA agrees that opportunity for public involvement in approval and oversight of ash placement in mine sites is necessary. Through an enforceable regulatory process in which they have a voice, the public requires assurances that:

- Characteristics of ash and the mine site are compatible for intended placement;
- Placement will not create or exacerbate problems;
- A viable mechanism exists to ensure remediation of problems, should they occur; and
- If placement is intended for a purpose beyond ash disposal (e.g., AMD remediation, fire control, subsidence control, etc.), the intended purposes will be achieved.

Beneficial Use at Minesites

EPA acknowledges that ash can be strategically placed at minesites so as to provide a benefit to mine operations and/or reclamation. For example, ash has been placed at minesites in a manner that has beneficially mitigated mine drainage problems, controlled mine fires, prevented subsidence, achieved approximate original contours, and fostered revegetation. EPA understands that, where such beneficial uses are intended, States examine ash characteristics to determine whether the ash is compatible with the intended uses. EPA appreciates the value of these beneficial uses to mine operations and reclamation, particularly to mine operators and regulators charged with overseeing the operations and reclamation of mines. EPA's paramount interest extends beyond these benefits to the potential adverse impact of the ash on the environment. Within the framework of this interest, EPA agrees that it must be

determined that use of ash or disposal of ash at selected sites will not create problems or exacerbate existing problems. This determination is particularly important because placement is a permanent action not feasibly undone.

IV. Disposal/Placement at Minesites (including Beneficial Use)

EPA solicits the help of OSM and State regulatory agencies in providing assurances to the public that existing SMCRA and RCRA statutory authorities establish a regulatory framework which adequately ensures protection of health and the environment where ash is placed at mine sites. Drawing on the substantial experience and expertise of OSM and State regulatory agencies in overseeing ash placement at mine sites, EPA expects to document the elements of regulation appropriate to the practice such that the public can have a better understanding of, and a higher level of comfort in, the protections afforded by the regulatory programs. From discussions to date with OSM and State regulatory authorities, as well as other stakeholders, EPA agrees that potential regulatory program components would provide appropriate opportunities for public involvement and would address:

- Waste (ash) characterization
- Site considerations (i.e. site prohibitions; operation plans; approximate original contour; buffer zones; physical hazards; hydrologic analyses)
- Environmental controls (i.e. volume restrictions; placement requirements; use of liners; compaction; state ground water protection plans; water quality standards; air quality standards; monitoring; reporting)
- Determination of End Points (i.e. active mining = contemporaneous reclamation; abandoned mines = reclamation; disposal = closure)
- Assurance of Project Completion (i.e. financial assurances (surety bonds, insurance, etc.); enforcement authorities; clean-up authorities and funds (CERCLA); risk analysis; other regulatory controls (BMPs, NPDES, Waste Regulations)).

V. Conclusions

As described in section I, above, EPA's Regulatory Determination categorized several ash management practices as "beneficial use" and explained the Agency's view that further regulation of these practices by EPA is not needed. For landfill and impoundment disposal practices, EPA is developing RCRA Subtitle D regulations for proposal and public comment. For minefill practices, EPA continues to work with OSM and State regulatory agencies to identify desirable regulatory enhancements for promulgation under RCRA Subtitle D and/or SMCRA to increase the public's comfort

with the safety of the practice. Differences in geology, climate, ash characteristics, and other factors speak to the need for flexibility in any additional federal regulations, allowing the States to build on their experience in implementing existing State and federal laws. Public availability of monitoring and inspection data and information will be important to increase public acceptance of the permanent placement of ash at minesites as a practice which is protective of human health and the environment.