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EASTERN RESEARCH GROUP

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ENVIRONMENTAL PROTECTION AGENCY

PUBLIC HEARING

FOSSIL FUEL COMBUSTION WASTES

Report to Congress

Environmental Protection

Agency

401 M Street, S.W.

Auditorium

Washington, D.C.

Friday, May 21, 1999

9:30 a.m.



## 1 P R O C E E D I N G S

2 THEA MC MANUS: Good morning, everyone, and  
3 welcome to EPA's public hearing on our Report to  
4 Congress on fossil fuel combustion waste. I'm Thea  
5 McManus. I'm the associate division director of the  
6 municipal and industrial solid waste division, and  
7 I'll be your moderator for today.

8 Before we get started, I'd like to thank  
9 you for the time that you've spent preparing your  
10 comments and coming here and engaging with us and  
11 directly presenting your comments, your thoughts and  
12 your ideas to us. We are looking forward to this  
13 opportunity, and I know the panelists as well as the  
14 management team back at the office appreciate the  
15 efforts that you put into this.

16 Let me begin by introducing you to the  
17 panelists that are with us this morning. These are  
18 the folks that are the core members of the team that  
19 develop and put this Report to Congress together. We  
20 have -- closest to me is Dennis Ruddy, he's the  
21 primary lead person for this project. We have Andrew

1 Wittner; he is from our economics division. And we have  
2 Richard Kinch, who is the branch chief and the  
3 industrial and extractive waste branch.

4 As you know, the purpose of today is to  
5 provide you with an opportunity to share your  
6 thoughts, your concerns, any insights, ideas that you  
7 have on our Report to Congress, and then to give us  
8 an opportunity to ask any clarification so we can be  
9 sure that we really understand where you're coming  
10 from and what your points are. And also, if  
11 everybody, as you come up here -- I know you prepared  
12 written testimony and that will be useful as backup  
13 to your oral presentations today.

14 Let me talk a little bit about how we're  
15 going to run today and the format of today. First of  
16 all, I can tell from the sign-in sheet that we seem  
17 to have everybody here except somebody from the Clean  
18 Air Task Force. Did they -- okay. Everybody is here  
19 and as well, as we've had one request for somebody  
20 that didn't sign in to speak, and I would like to  
21 accommodate that person and I'd think we'll be able

1 to.

2 If you do the math, we're going to be here  
3 longer than 3:00 as was identified in the Federal  
4 Register. But we're willing to extend this because I  
5 think it is important till about 4:00 to give  
6 everybody an opportunity to speak. You may, in your  
7 presentations -- if you hear that somebody before you  
8 has made a point and you agree with that point, you  
9 might want to just reference that you agree to that  
10 or you support that argument, and we do have a court  
11 reporter, so it would be duly noted that that is your  
12 opinion. And then you could, A, free up time for  
13 this individual to speak; B, free up time for people  
14 that are perhaps running a little bit over the 15  
15 minutes. And that just might give you an opportunity  
16 to stress some other points.

17 So I would think about that as you're  
18 giving your presentation. I'm going help keep you on  
19 track, so I'm going to be behind here subtly giving  
20 you a warning of five minutes and not so subtly with  
21 a sign going over 15 minutes, and I hope I don't

1 leave any bruises, but I'll be right behind here.

2           Before we get started, a couple of changes  
3 actually in the agenda, so I don't think I'm going to read  
4 the list of names. You're basically going to  
5 speak in the order that you signed in, and I'm just  
6 making two changes to that, so you'll be off by a  
7 half an hour. And we're going the break about 11:00  
8 or 11:15, depending on this change that I made, and  
9 we're only going to break for ten minutes, and we're  
10 going to break again at 12:30 for lunch and start  
11 promptly at 1:30. There's restrooms right out here  
12 to the right and there are telephones outside.

13           I think that's about it. Finally, I just  
14 want to share with you that we have received a lot of  
15 comments requesting an extension. And at this point,  
16 what we are doing is thinking through and discussing  
17 what our options are for granting that extension.  
18 But we do have a court order. We do have a statutory  
19 deadline, and even if it made sense and we decided to  
20 grant that extension, there's no guarantee that the  
21 court would allow that. And therefore, I think it

1            behooves all of us to assume and operate as if we're  
2            working under the six months.

3                        We feel that we can thoroughly and  
4            completely review your comments, analyze them, incorporate  
5            them if we get them by the June 14th  
6            deadline -- if the court doesn't allow that  
7            extension. So that's where we are on that. We will  
8            let everybody know as those discussions evolve and if  
9            the status changes on the extension issue.

10                      Okay. Are there any questions before we  
11            get started? I'll leave about five minutes toward  
12            the end of the day just for questions on timing or  
13            logistics. There will be a written testimony  
14            prepared and it will be in the EPA -- in the Office  
15            of Solid Waste -- excuse me -- docket in about three  
16            weeks. I think we're ready to get started.

17                      The first speaker, Jeffrey Stant.

18                      JEFFREY STANT:     That's Hoosier  
19            Environmental Council. Don't ask me what Hoosier  
20            means or how it came about. It stands for Indiana.  
21            And I'm pleased to be here today. I am the director



1 of the Hoosier Environmental Council, and we have  
2 been working on this issue for ten years in Indiana  
3 ever since the state passed a law that said that D&R  
4 could dump this material, fossil fuel waste, fuel  
5 combustion waste in surface mines, and it would be under  
6 IDEM, the landfill agency's jurisdiction if  
7 that happened. We've been trying to get standards for  
8 that.

9 I'm also here today speaking on behalf of  
10 the Citizen's Coal Council, which is the federation  
11 of -- national of 48 organizations in 21 coal mining  
12 states that help citizens address the massive, and I  
13 mean massive, environmental problems that are created  
14 by the mining and burning of coal.

15 We appreciate this opportunity to present  
16 oral and written remarks in USEPA's Report to  
17 Congress in the draft determination. I will say,  
18 however, right away, that there have been barely  
19 three weeks since the notice of this hearing was put  
20 in the Federal Register, and EPA's report is large  
21 and difficult to comprehend. So my remarks are going

1 to have been cursory, and all 15 minutes of them, and  
2 I'll have to save some substantive follow-up of  
3 additional written testimony. I'll have more remarks  
4 then.

5 We are very concerned about the bias  
6 treatment of issues in this report and the draft  
7 regulatory determination and the superficial effort  
8 that's being made by EPA to solicit meaningful public  
9 review and comment on these documents. I understand  
10 you think you'll have enough time to look at the  
11 comments you get within 45 days. We think you will,  
12 too. That's not the issue; the issue is whether the  
13 public will have enough time to review this extensive  
14 report with these far-reaching implications. We have  
15 seven initial areas of concern and I'll talk about  
16 just the first few today.

17 The first one, and the main one right now,  
18 is that the public needs more than 45 days to digest  
19 this report and comment meaningfully on it. Number 2  
20 is that the report ignores serious damages to  
21 groundwater and threats to people in the environment

1 that are occurring this waste. Number 3 is that the  
2 report appears to mischaracterize the effectiveness  
3 of state programs to regulate this waste and the  
4 willingness of utilities to voluntarily meet safer  
5 disposal standards.

6 The fifth concern is that the report brings  
7 up the issue of coburning of fossil fuels with other  
8 wastes, but does not clarify any requirements or  
9 provide any recommendations on this issue or on  
10 similar issues involving codisposal of wastes covered  
11 in the report with other waste.

12 The report also provides no information or  
13 guidance on coal gasification waste, and that's  
14 become a big issue in Indiana because the state of  
15 Indiana views coal gasification waste now all of a  
16 sudden as bottom ash, and is dumping them in mines  
17 now right into groundwater without any attempt to  
18 isolate the waste.

19 The sixth issue is that the report is based  
20 on a risk assessment that does not reflect the actual  
21 damages occurring to the environment from fossil fuel

1 waste. This assessment apparently does not even  
2 consider the potential for serious damages from  
3 constituents in these wastes other than the eight  
4 RCRA metals. It does not account for the changing  
5 characteristics of fossil fuel wastes that may result  
6 from attempts to comply with new air pollution  
7 standards. It does not examine the risks of the  
8 environment, drinking water supplies and people replacing  
9 tens of millions of tons of fossil fuel  
10 wastes, concentrated, not mixed at all with the  
11 spoils directly the water supplies as is presently  
12 being proposed by rule in Indiana.

13 And the seventh concern we have is that the  
14 effects of the deregulation of electricity sales  
15 across broad regions of the country and the potential  
16 for deregulations promote weak disposal standards  
17 along the states are not addressed. I want to focus  
18 on our first concern, and that is public review and  
19 comment, and how fundamental that is to addressing  
20 the other concerns. The public needs more than 45  
21 days to digest this report and comment meaningfully

1 on it.

2 This report presents a voluminous  
3 discussion that's very difficult to interpret. What  
4 is clear is that the implications of the final  
5 regulatory determination are far reaching. Tens of  
6 thousands of citizens live in a vicinity of sites  
7 that may used as dumping grounds of the waste  
8 involved in this determination. These wastes include  
9 more than 4/5 of all coal ash generated in the country,  
10 scrubber sludge, any other fossil fuel  
11 waste, many other wastes mixed with these wastes and  
12 waste whose parent material were coburned with coal.

13 The report we give a green light to states  
14 to allow these wastes to be dumped right into the  
15 drinking water of those citizens. Those people  
16 should rightfully have sufficient notice and enough  
17 time to give meaningful input into such far reaching  
18 decisions. The public wants to have a meaningful  
19 say. Last week alone, EPA received well over 200 fax  
20 letters from citizens and organizations throughout  
21 the country requesting a comment period of at least

1 six months in this report and determination.

2 The latest copy I've seen comes from  
3 William Carpenter, Jr., who's the counsel for the  
4 plaintiffs in the original case that led to the  
5 consent decree. They're asking for more time and  
6 pointing out that EPA's asked the court for many  
7 extensions, or several extensions to produce this  
8 report. The least they can do is ask the court for  
9 an extension to allow the public to meaningfully  
10 comment on it. We received copies of these faxes  
11 from  
12 citizen's organizations in Maine, Connecticut, New  
13 Jersey, Washington, D.C., Virginia, West Virginia,  
14 Maryland, Pennsylvania, Ohio, Kentucky, Tennessee,  
15 Indiana, Illinois, Arkansas, Minnesota North Dakota,  
16 Colorado and California, all requesting a comment  
17 period of six months. This is a reasonable request  
18 considering the following obstacles that the public  
19 must overcome in reviewing the report.

20 The report is very large. The table of  
21 contents take up ten pages, the report is 226 pages;

1 there's dozens of additional pages of glossaries; the  
2 index for the docket that support the report has 50  
3 pages referencing 429 documents. The report makes  
4 unsubstantiated assertions. For example, the report  
5 makes unsubstantiated assertions. Chapter 3  
6 discusses the economic impasse of alternatives for  
7 managing utility coal combustion waste. The  
8 alternative of managing this waste as hazardous under  
9 RCRA Subtitle C is dismissed by statements which  
10 assert "if beneficial uses of these wastes were  
11 subject to any regulations under Subtitle C, possibly all  
12 beneficial use practices and markets would  
13 cease." And "the cost of compliance with RCRA  
14 Subtitle C by coal burning power producers could  
15 reduce the amount of coal consumed in favor of other  
16 fuels. Depending on the extent of specific Subtitle C  
17 regulations, the cost of generating electricity by  
18 burning coal could substantially increase."

19 This is the end of discussion on one of the  
20 most fundamental issues covered by this  
21 determination. And that's the impact of regulating

1 utility coal managed fossil fuel waste fully under  
2 Subtitle C. There are no estimates of costs,  
3 analysis, data, references or footnotes of references  
4 that would explain these assertions. The reader is  
5 left to wade through the sea of reports in the docket  
6 to figure out where EPA might have come up with these  
7 conclusions. That takes a lot of time.

8 The report is vague and hard to  
9 understand. Seven pages of discussion on Chapter 3  
10 focused on a "risk mitigational alternative," and  
11 other chapters referenced. That would require  
12 disposal of fossil fuel wastes and lime sites with  
13 leachate collection and groundwater monitoring. On  
14 page 372, the discussion called these discussions  
15 "modifications of full Subtitle C requirements" that  
16 could be adopted under section 3004 X of RCRA, and  
17 states that these measures would be considerably less  
18 expensive than meeting full Subtitle C requirements.  
19 Their estimated annual cost would be reportedly just  
20 4/10 of 1 percent of the annual sales of electricity  
21 by utilities, and that's if they were implemented



1 overnight.

2 Yet the report does not recommend this  
3 alternative or solicit any comment on it. This  
4 raises the question of why EPA discussed it. Has EPA  
5 decided that the states and utilities should be  
6 allowed to ignore even this basic level of  
7 protection? Does it consider the cost of this  
8 alternative too excessive? Does it want comments on  
9 this alternative? Nowhere is section 3004 X, or for  
10 that matter, any other section of RCRA explained in  
11 this report.

12 Citizens, those who live around existing or  
13 potential disposal sites, need time to digest the report,  
14 gain an understanding of the provisions of  
15 RCRA, and figure out what to say.

16 Now EPA is also asking for commenters to  
17 provide substantive amounts of technical  
18 information. For example, on page 375, in the text  
19 under the recommendation about agricultural uses, the  
20 discussion abruptly changes topic to a new topic of  
21 mine filling. "The agency solicits additional

1 information in the form of additional case studies of  
2 mine fill situations with the following types of  
3 information: Mine fill project design, including  
4 aerial extent; volumes; depth; environmental  
5 controls; mine spoils mixing ratio; characterization  
6 of combustion wastes that are involved; the  
7 background; the existing conditions of groundwater at  
8 the mine location; and the depth to groundwater at  
9 the mine locations. The agency's also interested in  
10 obtaining information on analytic modeling tools that  
11 can simulate fractured flow conditions and facilitate  
12 prediction of alkalinity consumption by acid mine  
13 drainage intrusion into the combustion waste."

14 Surely, EPA knows that the public, including the  
15 people who live around mines and have a  
16 substantial stake in EPA's decision on mine fills,  
17 will be at an almost insurmountable disadvantage in  
18 providing this information in 45 days. Only industry  
19 consultants will be able to provide this type of  
20 information in that time frame, and they will provide  
21 what they are paid to provide. The Federal Resources

1 Conservation Recovery Act required this report to be  
2 submitted to Congress by October 21, 1982. It's  
3 taken you 17 years beyond the deadline and a lawsuit  
4 to produce the report. After taking that amount of  
5 time, there is no excuse for EPA not to allow -- not  
6 to have already decided that there should be  
7 sufficient time for the public to give meaningful  
8 input. Given the challenges already mentioned and  
9 the implications of this report, that time should be  
10 at least six months.

11 EPA has asked for and received extensions  
12 in time to produce the report from the court that  
13 ordered it; we can purport and see the merit in  
14 granting a reasonable amount of time for the public  
15 to review and comment on it. Now our second concern is  
16 that the report ignores the serious damages to  
17 groundwater and the threats to people in the  
18 environment that are occurring from this waste.  
19 Section 8002 of RCRA requires "that the report study  
20 documented cases in which danger to human health of  
21 the environment has been proved." The report

1 indicates that for such cases to even be discussed,  
2 it has to meet "tests of proof." These tests  
3 required that there be either a scientific  
4 investigation of a site, a formal administrative  
5 ruling, or a court decision finding the damages  
6 occurred from this waste.

7 In the case of a scientific investigation,  
8 the report is requiring that it should include formal  
9 investigation supporting litigation or state  
10 enforcement action. These criteria go beyond what is  
11 meant in RCRA. The vast majority of scientific  
12 investigations and reports that we have seen which  
13 document contamination of ground surface waters from  
14 coal combustion waste have not been part of any  
15 litigation or state enforcement action.

16 By setting such a high standard for what is  
17 considered a damage case and refusing to discuss the  
18 evidence of damage unless such criteria are met, the  
19 report presents a false picture in which the great  
20 preponderance of documented evidence of contamination  
21 from CCW is presumed not to exist. The Hoosier

1 Environmental Council has found six cases in Indiana  
2 and at least 19 cases in four other midwestern states  
3 of irrefuted, substantive groundwater contamination  
4 from coal combustion waste in the groundwater  
5 monitoring files of state environmental agencies, and  
6 these aren't from wells in the waste; they're wells  
7 downgradient of the waste in every case.

8 In these cases stated typically from  
9 groundwater monitoring wells, installed as part of a  
10 state permit, show groundwater flowing out of CCW's  
11 disposal sites with concentrations of arsenic, lead,  
12 chromium, selenium, sulfates, chlorides and/or other  
13 pollutants that far exceed drinking water standards.  
14 In at least three of these cases, drinking water  
15 wells, and in one case, a public drinking water well,  
16 had to be abandoned as a result of the contamination.  
17 None of these cases are considered to be damage cases by  
18 EPA in this report, and they're discussed nowhere  
19 in the report. They don't exist. The A.B. Brown  
20 plant, the R.M. Schaffer plant and the Universal Mine  
21 in Indiana are good examples of these sites. At the

1 A.B. Brown plant, groundwater flowing through the  
2 permit scrubber sludge landfill, goes from being  
3 potable in upgradient wells to being as salty as  
4 ocean water in downgradient wells.

5 Sulfate levels in downgradient wells have  
6 reached 63,000 parts per million, 20 times over any  
7 level in active mining in Indiana, 126 times over the  
8 primary drinking water standard. Boron levels in  
9 downgradient water are regularly 10 to 20 times more  
10 concentrated than the level considered toxic to corn  
11 and beans by the USDA. The state required the  
12 operator to build a slurry wall to stop the  
13 contamination. The contamination has continued, yet  
14 EPA's report does not consider this a damage case.

15 Downgradient wells at the Schaffer plant  
16 have also detected sulfur levels far beyond drinking  
17 water standards. Data from the site shows those  
18 levels steadily increasing over time in downgradient wells  
19 to up to 25,000 parts per million. Boron  
20 concentrations at Schaffer are also much higher than  
21 the safe standard for irrigation. Potable water has

1        been rendered unfit for drinking or irrigation. The  
2        state is required -- requiring a cover to be put on  
3        the site as one phase of corrective action. But the  
4        report does not consider this a damage case.

5        Monitoring wells at the Universal Mine disposal site  
6        have detected arsenic levels four to five times  
7        higher than federal drinking water standards in  
8        downgradient groundwaters.

9                    Boron levels have been recorded at 30 times  
10       the concentration toxic to corn and beans. Lead  
11       levels range from 5 to 36 times the federal drinking  
12       water standards in downgradient water. Although no  
13       plume of contamination has been determined because  
14       they haven't put the wells in to do that, these  
15       levels are not in upgradient groundwater or in nearby  
16       wells measuring mines for water quality. If potable  
17       groundwater being rendered unsafe for drinking or  
18       irrigation is not considered a damage case, then what  
19       is?                    Throughout the country, groundwater is a  
20       valuable source of water of drinking and irrigation.  
21       In the case of irrigation, the cost of replacing

1 contaminated groundwater supplies with water from a  
2 public utility could drive many farmers into  
3 bankruptcy overnight. However, none of the cases  
4 where CCW has created boron concentration far beyond  
5 what is considered toxic to plants are considered  
6 damage cases by EPA. You're ignoring case after case  
7 of serious damage from coal combustion waste because  
8 they haven't cleared a ridiculous obstacle course  
9 that doesn't have a legal basis.

10 You would rather predicate this  
11 determination apparently on the notion that no damage  
12 exists until entire communities and ecosystems are  
13 ruined and people are seriously ill or near death.  
14 Citizen groups can try to present damage cases that  
15 will clear your obstacle course, but they need time  
16 to collect the extensive information that you demand  
17 to collect -- be collected to prove this damage, but  
18 you refuse to collect and you've refused to collect  
19 over 17 years. So give us that time. And I  
20 guess my 15  
21 minutes is up, so I'll leave my third concern for you



1 to read about. I wanted to give you this. I'd like  
2 to give this to Mr. Ruddy. This is the state's  
3 beneficial use policy, which requires no  
4 characterization of the waste and unlimited  
5 quantities to be dumped into mines as long as it's  
6 deemed beneficial use, if there's any kind of fill  
7 for any reason.

8 THEA MC MANUS: Do any of the panelists  
9 have any questions for Jeffrey? Patricio Silva from  
10 NRDC? Okay. Felice?

11 FELICE STADLER: Thank you. My name is  
12 Felice Stadler, and I'm here on behalf of 200  
13 environmental and public health organizations  
14 involved in the Clean Air Network and Clean Air Task  
15 Force. These local regional and national groups are  
16 active in a nationwide effort to reduce the  
17 significant environmental impacts of fossil fuel  
18 combustion at electricity generating stations,  
19 particularly older plants, grandfathered under the  
20 Clean Air Act. You might be asking why do the  
21 groups I

1 represent care about this report? Well, because  
2 electricity generating stations are among the  
3 largest, industrial courses of air and water  
4 pollution, as EPA points out in its executive summary  
5 to the report. Likewise, they also generate the  
6 greatest proportion of fossil fuel combustion waste.

7 The comanaged FFC wastes that are subject of this  
8 report represent about 80 percent of the FFC waste  
9 generated from electric power production. We have  
10 only recently become aware that EPA had released this  
11 Report to Congress, and our experts have only had the  
12 opportunity, since its publication at the end of  
13 April, to begin to evaluate it. Contrary to EPA's  
14 assertion in the report, the over 200 groups I  
15 represent were not asked to participate in the  
16 process of developing this report or its draft  
17 regulatory determinations as to whether to manage FFC  
18 wastes under Subtitle C of RCRA.

19 We have formally requested the agency to  
20 extend the public comment period on this report to  
21 allow us the opportunity to review it and make thorough

1 written comments. The 45-day comment period  
2 EPA has offered is simply inadequate for our  
3 reviewers to provide you with the meaningful public  
4 comment that you've requested. For example, the  
5 detailed information EPA seeks on the question of  
6 mine filling. As Jeff's mentioned, over 170 groups  
7 fax letters expressing the inadequate time for public  
8 comment and requesting six months to complete the  
9 review.

10 We are aware that EPA is under a timing  
11 constraint imposed by consent decree. We are also  
12 aware that that deadline previously has been extended  
13 by consent of the parties, and we have been informed  
14 by the Council for Citizens Interested in Bull Run  
15 that they would not object to an extension of the  
16 public comment deadline to October 24, 1999, to allow  
17 for meaningful review by the environmental community.

18 While our experts had not had the time to  
19 date to conduct a thorough review of the report and  
20 its many underlying documents and appendices, they  
21 have been able to give the report a limited review.

1 On that basis, we can provide you today some general  
2 observations and concerns about the report which we  
3 we think justify, at the very least, an extension of  
4 time, for a more thorough review.

5 Absent a more thorough review, we would  
6 argue that the report is insufficient to support its  
7 draft regulatory determination, to continue to exempt  
8 these wastes from regulation under RCRA Subtitle C.

9 Based on the review we've done today, we find the  
10 report and its conclusions inadequate in the  
11 following eight respects. I know I'm limited in  
12 time, so I'm going to talk very quickly.

13 One, the report is exclusively based on  
14 industry-provided data. We believe that since this  
15 report is based almost entirely on data provided by  
16 industry, it strongly suggests the possibility of  
17 conflict of interest. One of the peer reviewers  
18 pointed out this problem noting the potential for  
19 bias and expressed concern about the objectivity of  
20 the risk assessments completed for the report. The  
21 reviewer stated that a better approach would be to

1       rely on peer review published data. It is not  
2       apparent anywhere that EPA took action based on the  
3       reviewer's comment.

4               Two, in many places, the data is not made  
5       available to commenters. Our reviewers have noted  
6       that many places the data underlying the analyses and  
7       conclusions EPA has drawn from them are simply not  
8       available, either in the report or in the appendices  
9       or other supporting documents. We note that at least  
10      one peer reviewer also stated concerns about the  
11      unavailability of certain background data.

12              Three, the substantial data gaps that we  
13      see, even in our quick review of the report, suggests  
14      to us that the resulting depiction of risks is  
15      incorrect. For example, while there is individual  
16      health risk data reported, the report did not  
17      identify potential impacted communities, nor did it  
18      present community exposure analyses.

19              As a further example, the report identifies  
20      potential ecological risks associated with coal  
21      combustion wastes, but then declares that no

1 documented impact information was available to  
2 compare with the risk modeling results. We are  
3 aware, however, that several published peer review studies  
4 that likely would provide adequate field data  
5 exist to permit a comparison.

6 Four, the peer review -- the report was  
7 inadequately peer reviewed. The report was peer  
8 reviewed, but we understand that there were fewer  
9 than ten professional reviewers, a very small number  
10 compared with the typical peer review of scientific  
11 studies underlying agency regulatory decisions. In  
12 addition to the minimal peer review that can be  
13 achieved by so limited a number of reviewers, we find  
14 no place in the report or the underlying documents in  
15 which the peer reviewer's comments were responded to.

16 Five, the report is out of sync with agency  
17 policies and priorities. Our limited review  
18 indicates that the report runs counter to the  
19 administrator's persistent biocommunicative toxic  
20 strategy. The PBT strategy emphasizes a multimedia  
21 approach and commits the agency to coordinate actions

1 across programs. The report, however, fails to  
2 address cross-media impacts of mercury. It also runs  
3 counter to the policy on evaluating health risks to  
4 children, and the national agenda protects children's  
5 health from environmental health threats. The report  
6 suggests that cancerous to children from coal waste  
7 management facilities that are orders of magnitude  
8 higher than unacceptable action level risks under  
9 these policies, and yet these results do not appear  
10 to factor into the agency's conclusions that the  
11 wastes are not required Subtitle C regulation. And  
12 finally, it runs counter to EPA's risk assessment  
13 policies and guidelines, including the 1995 EPA risk  
14 characterization program and the 1995 guidance for  
15 risk characterization.

16 These policies require EPA offices to  
17 conduct risk assessments reflecting transparency,  
18 clarity, consistency, and reasonableness. Our  
19 limited review indicates to us that the report falls  
20 short on each of the these requirements. In  
21 addition, some of the specific analyses that were

1 conducted were not conducted in a manner consistent  
2 with the EPA policies on the use of various kinds of  
3 risk assessment techniques.

4 Six, the wastes are not adequately  
5 characterized. Based on our brief review, it appears that  
6 the lack of supportive data on the extent to  
7 which FFC waste has been characterized in the report  
8 undermines the report's conclusions and findings with  
9 respect to potential impacts on public health and  
10 environment. For example, only 17 sites and limited  
11 samples were used to characterize 600 management  
12 sites. The agency admits that it is unsure whether  
13 the data characterizing the wastes are  
14 representative. Sophisticated modeling is of no use  
15 without adequate input data.

16 The waste characterization data were  
17 average for each facility, and then the averages were  
18 averaged, which completely masks any high values and  
19 is consistent with a conservative approach. Data on  
20 organic or radioactive substances when the wastes are  
21 not reported although EPA concludes that they



1 represent no human health risks. The toxicity  
2 characterization of the wastes relied on two tests,  
3 one of which the EPA's own science advisory board in  
4 1991 noted was inadequate. And finally it appears  
5 that the waste characterization analyses failed to  
6 even test for mercury. Seven, the risk  
7 assessments are not  
8 adequate. In our brief review, we have already  
9 discovered several ways in which it seems to us that  
10 the risk assessment in the exposure analyses  
11 contained in the report are inadequate and  
12 inconsistent with the agency policy, including the  
13 following:

14 The exposure and risk assessments do not  
15 represent a high-end analysis, but rather represent  
16 average data. The most important pathway for mercury  
17 releases, the volatilization of mercury from  
18 landfills, impoundments, cold storage piles, fly ash  
19 and agricultural production apparently has not been  
20 considered at all in this report. Indeed it appears  
21 that the air pathway is completely ignored.

1                   It appears to us that the report does not  
2           include any assessment of the community health risks  
3           in areas near those waste management facilities.  
4           Some of the drinking water risk assessment  
5           assumptions seem to be inadequate. For example, the  
6           assumption that an adult resides in a home and is  
7           exposed to contaminated groundwater for only nine years  
8           and only drinks 1.4 liters of water per day.  
9           Well, what about the adult who lives in that same  
10          home for 18 years and consumes twice that amount of  
11          water? A completely reasonable assumption.

12                   Finally, while the agency claims that every  
13          effort was made to coordinate the groundwater pathway  
14          analysis and the above ground exposure assessment,  
15          our brief review suggests that these evaluations were  
16          done completely separately. For example, it appears  
17          that the inhalation exposure is assumed to occur  
18          while an impoundment is active, but no leaching to  
19          the groundwater is assumed to occur until the  
20          impoundment is closed. Concurrent, cumulative  
21          exposures, however, could occur in the real world and

1 would be significant, particularly for arsenic.

2 Eight, the report's conclusions regarding  
3 controls are inadequate. The agency has references  
4 in several places its discussions with industry  
5 regarding voluntary control proposals or options for  
6 managing the waste short of Subtitle C regulatory  
7 requirements.

8 However, we can, as of yet, find no discussion  
9 of those proposals provided for the public  
10 to evaluate, although the agency seems to be relying  
11 on them in lieu of Subtitle C rules. We find at  
12 least one instance in which the report seemingly  
13 ignores high levels of cancer risks to children in  
14 concluding that FFC waste do not require a Subtitle C  
15 regulation. Namely the risk of cancer from exposure  
16 to arsenic from coal waste landfills of 1.3 per 100.

17 Finally, the agency seems willing to defer  
18 to state regulation of co-managed FFC wastes citing  
19 trends and improvements to waste management  
20 facilities. In fact, the trends we are aware of show  
21 that few, if any, improvements have been made. For

1 example, in 25 years, there's been only a 10 percent  
2 increase in the use of lined impoundments. Fewer  
3 than 1 percent of the impoundments have leachate  
4 collection systems. Furthermore, the agency admits  
5 that it did not conduct state specific analyses to  
6 determine whether states are adequately exercising  
7 their authority to regulate the disposal of these  
8 wastes.

9 To summarize briefly, our review to date  
10 indicates that the report and its conclusions are  
11 flawed, based on potentially biased and inadequate  
12 data not responding to peer reviews and  
13 inconsistencies with several important agency  
14 policies. Given no further time to evaluate, we  
15 would argue that the report is insufficient to  
16 support an agency determination not to require to  
17 co-managed FFC wastes to be regulated under Subtitle  
18 C. Our groups will submit more detailed written  
19 comments by the filing deadline; however, reiterate  
20 the importance for us to give the report a more  
21 thorough review -- that it would be impossible for us

1 to give a more thorough review without extension of  
2 time. Thank you for the opportunity to comment.

3 THEA MC MANUS: Thank you, Felice.

4 RICHARD KINCH: I guess I'll just ask one.

5 It's clear that you're requesting an extension of  
6 time derived for comments, very seriously. I wanted  
7 to know, in addition to that, are there any other  
8 steps that you could perceive that we could take to  
9 help you develop your comments during this time  
10 period? We don't know of any instance now, I guess I'll  
11 leave it, as we welcome your feedback today or  
12 some other time, on things that we might be able to  
13 do that help you make your comments.

14 FELICE STADLER: Yeah, I noted a few things  
15 where it's just very difficult to find some of the  
16 data that we need to do a thorough analysis, and so  
17 we're looking for help to find some of that data.  
18 And we can talk after that. I'm sure I have your  
19 number that we can call you and get that  
20 information. But that is one of the most difficult  
21 obstacles we've run into, is getting a hold of some

1 of that information that you're using to base your  
2 conclusions on.

3 RICHARD KINCH: Well, apparently we have  
4 people that should be available to be called and  
5 respond and help you locate things to the extent --

6 FELICE STADLER: Well, we've gone through  
7 the docket, and some of those things are not in the  
8 docket, so we're having trouble finding some of  
9 those, and it would be really helpful to have a staff  
10 person who could respond to our requests quickly.

11 THEA MC MANUS: Thank you, Felice.

12 AUDIENCE MEMBER: I just want to mention  
13 one important step you could take is to have a field  
14 hearing out in Indiana or in the lower midwest  
15 somewhere with enough notice in time for people to  
16 get ready and present this stuff at that hearing.  
17 That's not doable within this kind of 45-day time  
18 period.

19 DAN DERKICS: If I could just interject  
20 something. It would be helpful for our reporter if  
21 folks could request a mike so that we make sure we

1 get a clear copy of what's being said, and you guys  
2 as well, folks on the panel. So don't hesitate to  
3 either step up to the mike or ask for the mike. I  
4 just want to make sure it gets on his tape.

5 THEA MC MANUS: Next we have James Roewer  
6 from the Utility Solid Waste Action Group.

7 JAMES ROEWER: Good morning. My name is  
8 Jim Roewer, and I am the program manager of the  
9 Utility Solid Waste Activities Group, or USWAG  
10 appearing today here to present USWAG's views on  
11 EPA's March 1999 Report to Congress on the so-called  
12 remaining fossil fuel combustion waste. Some of the  
13 speakers that will be following me will also be  
14 presenting comments on specific portions of the  
15 report speaking for USWAG as well as their own  
16 companies or organizations. And, of course, we plan  
17 to submit detailed written comments on the report in  
18 mid June. But today I'd like to provide a brief  
19 overview of our position on the major issues in the  
20 report.

21 I'm going the start my comments by

1 commending the agency and its staff and consultants  
2 for their extraordinary effort in producing a  
3 thorough, and comprehensive report, which, for the  
4 most part, contains well documented and sound  
5 recommendations about utility combustion waste.

6           While I can't say that USWAG agrees with  
7 every finding and recommendation in the report, EPA  
8 is clearly correct in concluding that none of the  
9 remaining combustion waste typically possess the  
10 characteristic of hazardous waste, and most  
11 importantly, that none of these wastes are actually  
12 managed by the electric utility industry in a manner  
13 that warrants regulation as hazardous waste under RCRA  
14 Subtitle C.

15           EPA's ultimate recommendation in that  
16 respect fully vindicates the expectation of  
17 Congressman Tom Bevill of Alabama in 1980 when he  
18 sponsored the amendment to RCRA that led to this  
19 study of utility combustion waste. During floor  
20 debate, Mr. Bevill said "it would be unreasonable for  
21 EPA to impose costly and burdensome regulatory



1 requirements without knowing if a problem really  
2 exists, and if it does, the true nature of that  
3 problem."

4           It should be recalled that the Bevill  
5 amendment was a response to a 1978 EPA proposal to  
6 regulate utility coal combustion waste as special  
7 hazardous wastes. Despite the agency's  
8 acknowledgment that at that time it did not know much  
9 about these combustion wastes, Mr. Bevill was  
10 confident that if the agency would only study these  
11 wastes and get the facts, the agency would conclude  
12 that hazardous waste regulation was unnecessary. As  
13 explained to the House, "I am aware of no evidence  
14 that in the many years in which fossil fuels have ever  
15 been burned in this country, their waste  
16 proposal has ever presented a substantial hazard of  
17 human health or the environment."

18           Although Mr. Bevill envisioned the process  
19 to take a little more than two years, his foresight  
20 regarding the conclusion has shown to be correct,  
21 even if his two-and-a-half year statutory timetable

1 proved to be overly ambitious. Now, 19 years later,  
2 EPA has completed the comprehensive study of  
3 combustion waste. During this period, EPA staff has  
4 communicated with interested stakeholders, both  
5 industry and citizen groups alike.

6 We commend the agency for its openness in  
7 engaging with a dialogue with the interested  
8 parties. Based on the assembled data, EPA has now  
9 concluded that hazardous regulation is unnecessary.  
10 USWAG agrees with this conclusion. I want to turn  
11 now to EPA's findings regarding utility co-management  
12 of coal combustion waste with low volume waste. As  
13 EPA correctly noted in the report, at least 80  
14 percent of all coal combustion wastes are co-managed  
15 in landfills and surface impoundments with low volume  
16 wastes. Co-management is the prevalent industry  
17 practice for managing coal combustion waste.

18 EPA has also correctly observed the trend  
19 among electric utilities to install more  
20 environmental controls at co-managed waste  
21 facilities. Today, more than 50 percent of all

1 landfills and more than 25 percent of all  
2 impoundments are lined. And as older units are  
3 closed or removed from service, the trend toward  
4 greater environmental controls is likely to  
5 accelerate.

6 Of even greater importance than this trend  
7 is the utility industry's outstanding record of  
8 responsible management of these wastes. Despite what  
9 was obviously a very thorough search for documented  
10 cases of environmental damage caused by co-managed  
11 combustion waste, EPA identified a total of only six  
12 proven damaged cases, all of which involve older,  
13 unlined management units, and none of which had any  
14 adverse affect on human health. Indeed, as EPA  
15 noted, most of the units involved in these damage  
16 cases are closed and stopped receiving wastes in the  
17 1980s. EPA's report also noted the fact that the  
18 utility industry has achieved an enviable record of  
19 compliance with environmental regulations. Although  
20 as noted in the report, we are subject to a greater  
21 frequency of inspections than other industries, the

1 ratio of enforcement actions to inspections is one of  
2 the lowest of any industry sector, a mere .06 during  
3 the 1992 to 1997 period.

4 And most significantly, not a single  
5 enforcement case involved the management of solid or  
6 hazardous waste at a utility facility.

7 While I am pleased to be able to speak with  
8 pride about my industry's record of performance, I  
9 also know we're not exempt from the occasional  
10 management problem. I can assure you, however, that  
11 USWAG has already stepped up to develop a proactive  
12 approach to address a potential problem identified in  
13 the Report to Congress; the environmental impacts  
14 associated with the management of pyrites at a few  
15 utility sites. That problem was identified by EPA  
16 during a site visit shortly before it issued the  
17 first Bevill regulatory determination in 1993.  
18 Because USWAG had no knowledge about the  
19 causes of the problem, particularly given the fact  
20 that many utilities were co-managing pyrites with  
21 coal combustion waste without any adverse effect on

1 the environment, we commissioned the Electric Power  
2 Research Institute, known as EPRI, to examine the  
3 problem and come up with a set of options for  
4 preventing the problem in the future. It took the  
5 expertise of EPRI chemists to discover that the fact  
6 of the cause of the problem was the oxidation of  
7 pyrites in impoundments resulting in the leaching of  
8 iron compounds into groundwater.

9 What the study showed was that the  
10 oxidation can occur whether pyrites are managed alone  
11 or co-managed with coal combustion wastes in surface  
12 impoundments. One of the options for preventing this  
13 problem is a carefully designed strategy for  
14 co-management of pyrites and combustion wastes to  
15 minimize pyrite oxidation.

16 We've gone to great lengths to ensure that  
17 all coal-fired electric utilities are aware of the  
18 information in this EPRI study. Every USWAG and EPRI  
19 member has received a copy of the report. In  
20 addition, I've spoken on the pyrite management issue  
21 to senior environmental officials and managers at the

1 meeting of the Edison Electric Institute, and the  
2 American Public Power Association, and I'm scheduled  
3 to address the National Rural Electric Cooperative  
4 Association on this subject in July.

5 Finally, EPA staff joined us last November  
6 at a seminar on pyrite management at which EPRI  
7 outlined in great detail the options for avoiding any  
8 problems with pyrite management, and we plan to  
9 sponsor a second such seminar later this year. In  
10 short, USWAG has long prided itself on an  
11 organizational philosophy of stepping up to the plate  
12 when we discover a problem associated with utility  
13 management of solid or hazardous wastes. I'm glad to  
14 be able to report we have engaged in actively  
15 educating educating our members about the potential  
16 environmental impacts associated with management of  
17 pyrites and surface impoundments, and how to avoid  
18 such impacts. We're committed to continuing that  
19 educational effort. EPA's discussion about  
20 beneficial use of  
21 coal combustion waste in the Report to Congress is

1           surprisingly reserved. To be sure, the agency  
2           discussed at some length the beneficial use  
3           applications about which EPA either has some  
4           concerns, agricultural uses or about which it lacks  
5           sufficient information to arrive at a conclusion,  
6           mine backfill. But other than cataloging the other  
7           beneficial use applications and finding that no  
8           significant risks to human health in the environment  
9           were identified, or believed to exist for any  
10          beneficial uses of these wastes, EPA proposed no  
11          actions, either to promote increased use of coal  
12          combustion products or to remove barriers to such  
13          beneficial uses.

14                   We feel this is a missed opportunity for  
15          EPA to discharge its statutory mission to increase  
16          safe recycling and utilization of materials that  
17          would otherwise be disposed of as wastes. According  
18          to data provided by the American Coal Ash  
19          Association, and you will hear from a speaker from  
20          ACAA, and quoted in this report, roughly 25 percent of  
21          combustion waste generated in 1997 were

1           beneficially used.

2                         In the 1988 report to Congress, EPA  
3           estimated about 21 percent of combustion waste were  
4           beneficially used back in 1985. As you can see,  
5           we've only made limited progress in nearly a dozen  
6           years between the two reports. EPA speculates that  
7           the potential for increase reuse of these wastes is  
8           limited, based on demand for products and services  
9           where wastes are used. We feel this speculation is  
10          far too simplistic. In 1994, the United States  
11          Department of Energy published a thorough study of  
12          the legal regulatory and institutional barriers to  
13          increase use of coal combustion products.

14                        Although there are numerous reasons for the  
15          limited growth of the markets for beneficially used  
16          combustion products, an important barrier to  
17          increasing the amount of products diverted to  
18          beneficial uses are regulatory policies that apply  
19          waste management regulations to combustion products  
20          that do not apply to competing products or virgin  
21          materials. Given the report's positive findings on the



1 absence of significant risks to human health in  
2 the environment for most beneficial use applications,  
3 EPA can make an important contribution to increasing  
4 the percentage of these materials beneficially used  
5 with a clear call for ending the application of waste  
6 regulations to these materials when beneficially  
7 used.

8 I'll leave discussion on the agricultural  
9 uses and mine backfill activities of coal combustion  
10 by-products to other colleagues of mine that will be  
11 making statements following mine. I want to conclude  
12 my remarks with some brief comments on EPA's findings  
13 on oil combustion waste. The agency is certainly  
14 correct that oil combustion waste rarely exhibit  
15 hazardous characteristics and may not present a  
16 significant risk to human health and the  
17 environment.

18 It's also significant that EPA uncovered  
19 only one documented case, a documented damage case  
20 associated with these wastes and that did not involve  
21 human receptors. Other potential damage cases

1 studied involved suspected releases to groundwater, but  
2 in none of the cases was there any drinking water  
3 contamination or other environmental impacts.

4 EPA also was correct in recognizing that  
5 oil combustion wastes were very different from coal  
6 combustion wastes in that oil combustion wastes are  
7 generated in very small volumes as compared to the  
8 high volume generation of coal combustion waste.  
9 Moreover, as EPA observed in the report, unlike coal  
10 combustion waste, the volume of oil combustion to  
11 generate -- the volume of oil combustion to generate  
12 electricity has been declining for the past 20 years,  
13 and this trend towards lower generation of oil  
14 combustion waste is likely to continue.

15 We differ with EPA's recommendation  
16 regarding oil combustion waste management in one  
17 important respect. While EPA correctly noted that  
18 about 2/3 of surface impoundments that manage oil  
19 combustions wastes are lined, and the trend is toward  
20 increased lining, EPA noted some of the unlined  
21 impoundments are permitted under Florida law as

1 percolation basins designed to discharge to  
2 groundwater. These impoundments must comply with state  
3 groundwater standards outside of specified zone  
4 of discharge. EPA has proposed, as one option,  
5 Subtitle C authorities to target these unlined  
6 basins. We believe such action is not supported by  
7 the record and treads upon the state's prerogatives  
8 to exercise their judgment in this area.

9           Despite a long history of such units, EPA  
10 has found no example of any environmental damage  
11 associated with these unlined basins. EPA correctly  
12 noted that these units are typically located near  
13 large bodies of surface water with no drinking water  
14 wells located between the management unit and the  
15 surface water.

16           Second, these are not unregulated units.  
17 They're permitted under state law and must comply  
18 with state groundwater standards at the relevant  
19 point of compliance, namely, outside the zone of  
20 discharge. These state policies are similar to EPA's  
21 own municipal solid waste landfill regulations that

1 permit compliance at a point no more than 150 meters  
2 from the waste management unit boundary on the same  
3 parcel of property. Given EPA's well-established policy  
4 of respecting state primacy in setting  
5 groundwater policies, it would seem strange for EPA  
6 to invoke its Subtitle C authorities to supplant  
7 state groundwater policy for a relatively few units  
8 in the subject area uniquely associated with state  
9 decision-making.

10 We look forward to submitting our detailed  
11 comments next month, and in the meantime, I'd be glad  
12 to respond to any questions you might have.

13 ANDREW WITTNER: With respect to the  
14 practice of mine filling, as you all know, we're  
15 still considering what our options might be in that  
16 respect, I'm curious, I haven't worked on this for 18  
17 years, only about four, as to whether the practice of  
18 mine filling constitutes a beneficial use or a  
19 disposal, and depending on your answer, whether or  
20 not your answer makes any difference.

21 We can take 15 days, I suppose, to discuss

1 this or we can just drop it now, but I'm curious as  
2 to the significance of the answer to this question,  
3 if there is one.

4 JAMES ROEWER: Well, Sam is going to be talking  
5 about beneficial use coming up, and I think  
6 there are other speakers who are going to be talking  
7 about the use of coal combustion products as mine  
8 fill and mine reclamation activities as well, and  
9 perhaps some of their comments might speak to and  
10 address your question.

11 ANDREW WITTNER: Well, the real question is  
12 what might be the significance of the appropriate  
13 adjective here, if adjective is appropriate. Is it  
14 beneficial or is it disposal?

15 THEA MC MANUS: Thank you, James. Our next  
16 speaker is Dennis Leonard from Detroit Edison.

17 DENNIS LEONARD: Good morning. As  
18 principal engineer in the Detroit Edison company's  
19 environmental department. I've been asked to present  
20 the utility solid waste activity group's views on the  
21 utilization of coal combustion products and mine

1 placement projects, an issue that's very important to  
2 many USWAG member companies, and in particular, to  
3 Detroit Edison's coal combustion product management  
4 strategy. It is also an issue that is the focus of  
5 intense and prolonged efforts by state and federal  
6 governments and academic research institutions to  
7 develop cost effective and environmentally sound  
8 methods to reclaim mined land. CCPs can be used  
9 effectively to stabilize mined areas, fill voids and  
10 reclaim land lost to productive use, restoring  
11 resources and effectively preserving greenfields.

12 Mine placement of CCPs can also provide  
13 unique solutions to intractable hydrogeological and  
14 chemical problems that are sometimes encountered in  
15 the post-mining environment. Such problems, acid  
16 mine drainage, for example, are sometimes encountered  
17 as a result of mining activity not from the  
18 combustion of coal or the placement of coal  
19 combustion products in the post-mining environment.  
20 In fact, CCP mine placement is often the only  
21 cost-effective way of dealing with some of the

1 existing problems. The Indiana utilities and the  
2 state of Indiana in particular, have provided EPA  
3 with a wealth of data in support of their mine  
4 placement practices and a representative of the  
5 Indiana Electric Association will provide a more  
6 detailed statement later today. Researchers from  
7 Southern Illinois  
8 University and Virginia Tech will also discuss this  
9 issue in detail. I will like to use my time to  
10 provide an overview of USWAG's position. In the  
11 Report to Congress, EPA asked the question, are there  
12 any mine fill practices that are universally poor and  
13 warrant specific attention? The answer is no. In  
14 support of that answer, we have submitted data that  
15 establish a lack of risk and demonstrate that the  
16 industry's track record is good under existing  
17 regulatory controls. We plan to supplement those  
18 data in our written comments.

19 EPA should respect the state's existing  
20 authority to make case-by-case technical  
21 determinations and should not impose a federal scheme

1 that might frustrate a research and regulatory system  
2 that is working well. There's no need for EPA to  
3 develop a federal regulatory solution to a problem  
4 that does not exist. The analysis of this issue must  
5 necessarily begin with the chemistry of mine  
6 placement. Some eastern coal mine sites might be  
7 characterized by acidic leachate caused by the oxidation  
8 of pyrites from the surrounding rock as  
9 well as the coal remaining in the mine. Pyrites are  
10 naturally present and are normally stable in coal and  
11 rock formation so long as they are kept below the  
12 water table. When pyrites remaining in the rock and  
13 coal in a post binding environment are not below the  
14 water table, they're exposed to oxygen, and oxidation  
15 occurs producing acidic leachate. The placement of  
16 alkaline coal combustion product in such post-mining  
17 environments can produce significant environmental  
18 benefits.

19 The neutralization capacity of alkaline  
20 coal combustion products can be used effectively to  
21 neutralize acid mine leachate. USWAG will submit,



1 with its written comments, data from lab analyses of  
2 ash samples to fully document the neutralization  
3 capacity of various ash streams. And through the  
4 return of the water table to normal premining levels,  
5 further pyrite oxidation can be controlled and a  
6 decrease rate of sulfate reduction would therefore be  
7 likely. The neutralization capacity also has the  
8 potential to control heavy metals that typically leach  
9 from the mine's rock. An increase in pH leads  
10 to a decrease in solubility and concentration of  
11 heavy metals. Precipitation, co-precipitation and  
12 adsorbtion reactions further lower the concentration  
13 of metals. For example, the increase in pH causes  
14 chromium to precipitate out of solution as chromium  
15 hydroxide or iron chromium hydroxide and arsenic to  
16 co-precipitate with iron and adsorb on to iron oxides  
17 and iron hydroxides.

18 Downgradient concentrations of these heavy  
19 metals are expectedly lowered as the result of coal  
20 combustion product placement. USWAG has compiled  
21 detailed case studies, including groundwater

1 monitoring data for 12 mine placement projects  
2 conducted by its members. These data represent a  
3 significant portion of the total population of the  
4 active mine placement projects nationwide. We  
5 provided this information to EPA earlier this year in  
6 our draft report titled "synthesis of available  
7 information on the management of coal combustion  
8 products in mines." The final version of that report  
9 will accompany our written statements. These  
10 case studies are available and  
11 available data from state and federal sources and  
12 from academia, document that the preliminary concerns  
13 EPA has raised in the Report to Congress are not  
14 warranted. The statements presented today  
15 demonstrate that those concerns are not shared by  
16 those in government and academia who have carefully  
17 researched the issue, nor are these concerns shared  
18 by the agencies with the responsibility for  
19 permitting and overseeing these projects.

20 We believe that sound judgment on the part  
21 of industry and informed oversight from state

1 regulatory agencies are essential for determining  
2 whether each specific project is appropriate. USWAG  
3 will provide detailed information on state regulation  
4 of mine placement of CCPs with our written comments.  
5 This information will demonstrate that the states  
6 have the necessary regulatory authority and have  
7 developed robust and protective mine placement  
8 programs.

9 We are encouraged that EPA has identified  
10 in the report to Congress a tenet that those of us  
11 familiar with mine placement projects fully respect,  
12 that resolution of mine placement problems requires  
13 very site specific determinations that do not lend  
14 themselves to national standards. State regulators  
15 from environmental conservation and mining oversight  
16 agencies are well positioned to make such site  
17 specific regulatory determinations. In fact, they do  
18 so routinely and have been exercising their informed  
19 judgment over such matters for years. They have  
20 ample regulatory authority to constrain inappropriate  
21 practices when the site and project specific

1 characteristics dictate.

2           And most importantly, they are not  
3 constrained by "one size fits all" federal controls.  
4 The lack of adverse impacts among the observational  
5 data indicate that the combination of sound  
6 management practices and existing regulatory  
7 oversight has responsibly addressed whatever risk  
8 might exist. An analysis of CCP placement in mines  
9 is not amenable to generic modeling of the sort EPA  
10 employed to analyze the placement in landfills and  
11 surface impoundments.           As other commenters have  
12 demonstrated, the  
13 limits of such modeling are easily exceeded even in  
14 the landfill scenario, which is for more  
15 straightforward and easily reduced to simple  
16 algorithms. Any post-mining environment is  
17 hydrogeologically complex. These peculiarities of  
18 each site demand specific attention.

19           Therefore, we wholeheartedly concur with  
20 EPA's acknowledgment in the report to Congress that  
21 real world monitoring data is the best indication of

1 the effects of mine placement. Predictive modeling  
2 at individual sites can be done effectively, and  
3 indeed, has been provided as a regulatory basis for a  
4 number of successful projects. But such modeling  
5 efforts are necessarily complex to take account of  
6 unique features of each mine setting.

7 Again, this approach is not amenable to  
8 support a generic regulatory determination. This  
9 returns me to EPA's question of whether there are  
10 some mine fill practices that are universally poor  
11 and warrant specific attention.

12 In light of my previous comments, again, the  
13 answer to this question is a resounding no. In  
14 fact, there is nothing universal about mine  
15 placement. It is a site specific issue best left to  
16 informed discretion of the states. We therefore  
17 request that the agency take a long look at the  
18 available monitoring data. In addition to the  
19 information USWAG will submit, there is a wealth of  
20 the data available to the agency from federal and  
21 state agencies, from academic research institutions

1 such as Southern Illinois University, Virginia Tech,  
2 Ohio State, and West Virginia University.

3 We are working to provide as much of this  
4 information as possible, and we hope other parties  
5 will submit other such information with their  
6 comments. We are confident that a thorough review of  
7 the data undertaken with an appreciation of the  
8 relevant chemical processes will lead you to a  
9 conclusion that proper managed mine placement  
10 projects do not pose a threat to the environment. To  
11 the contrary, they hold a potential for great  
12 benefits. Mine placement of CCPs generally can  
13 mitigate the effects of acid mine drainage. It can  
14 reclaim land lost to productive use and thereby  
15 preserve greenfields.

16 My own company's use of a mine in one of  
17 its power plants means that less ash must be placed  
18 in landfills, in surface impoundments, and less  
19 pressure to develop greenfields. From that  
20 perspective, it is only appropriate that for the  
21 agency to defer to the regulatory approaches of the

1 states so that it does not impede progress towards  
2 RCRA's statutory objective of promoting the  
3 protection of the environment and the conservation of  
4 resources not to mention to objectives of the Surface  
5 Mining Control and Reclamation Act. Thank you for  
6 this opportunity to appear today.

7 If you have any questions, or if I can be  
8 of further assistance, please let me know. One  
9 additional comment I would make with regards to your  
10 question, whether mine placement is disposal or  
11 reclamation, I think the answer is in the context.  
12 Certainly there's control of mine placement. Some  
13 states regulate their control under --

14 ANDREW WITTNER: Let me ask that if there's any  
15 further discussion of this issue that we  
16 distinguish between the surface mines and the deep  
17 mines. There are many, many differences between the  
18 two analytically and otherwise with respect to the  
19 use of models and so on. And so that it would be  
20 helpful I think if we are to continue to discuss this  
21 question, that speakers may be clear what kind of

1 mine situation they're talking about. Thank you.

2 RICHARD KINCH: Let me ask a question. We  
3 talked earlier about landfills being lined or at  
4 least some percentage of landfills being lined, and  
5 the fact that as new units come on, more landfills  
6 are being lined. And what I would like to know is do  
7 you have any response to, if when we take this  
8 material and we put it on the surface above the  
9 groundwater table, we are essentially observing  
10 people making the decision that this ought to be in a  
11 lined unit, at least in many cases and why, in a mine  
12 fill situation, you might take this stuff and put it  
13 in direct contact with the groundwater table. I find  
14 there seems to be, at least at a minimum, an  
15 inconsistency, as to why you would line it in the surface  
16 versus take the material and put it directly  
17 into the groundwater table.

18 ANDREW WITTNER: We've probably thrown you  
19 off so forgive us, but I think it's important to  
20 distinguish between the different kinds of fills.

21 DENNIS LEONARD: Well, that's a good



1 question. There's at least three instances where  
2 there's a rationale for doing that. In EPA's  
3 regulation of surface landfills, you have a provision  
4 that a liner isn't -- there's generally acceptance in  
5 state programs that a natural liner is an appropriate  
6 liner. And there's a provision in EPA's groundwater  
7 monitoring provisions that if you can demonstrate  
8 that your natural liner has a thickness and an  
9 impermeability that prevents any discharge to the  
10 groundwater unit, you're exempt from having to do  
11 groundwater monitoring.

12 So there's a recognition in those programs  
13 that naturally impermeable sites don't require  
14 liners. Some of the mine fill practices are in mines  
15 that are very impermeable. In fact, if you're  
16 going -- well, oftentimes you mine because the rock is so  
17 impermeable and you don't have much waterflow  
18 into the mines. So you have the issue of situations  
19 where you have a naturally impermeable site.

20 Second situation you might have is a  
21 situation where the groundwater is naturally

1 unusable. It's naturally saline. Or it's naturally  
2 elevated in some other parameters such as boron. In  
3 that situation, there is no receptor, there is no  
4 consequences to mine placement.

5 A third situation -- and these three  
6 situations aren't by any means all inclusive -- the  
7 third situation is where you have acid mine drainage,  
8 and you have a net positive benefit to the  
9 environment from mine placement. I'm sure there's  
10 other situations, and you really need to look at  
11 these things on a site specific basis. See what the  
12 particular impact is at a particular mine. We're not  
13 advocating that we place CCP wastes in all mines.  
14 What we're advocating is that states have the  
15 flexibility to look at such site specific  
16 characteristics that I just mentioned and make  
17 informed decisions. THEA MC MANUS: Thank you,  
18 Dennis.

19 Next we have Sam Tyson from the America  
20 Coal Ash Association.

21 SAM TYSON: Thank you very much and good

1 morning still. Happy to be here today to present the  
2 views of the American Coal Ash Association on this  
3 Report to Congress. I would just like to point out  
4 that ACAA's principal members are co-burning electric  
5 utilities throughout the United States as well as  
6 marketers of coal ash. ACAA will submit detailed  
7 written reports by the June 14th deadline. Today I  
8 will provide a brief overview of the production and  
9 use of coal combustion products as we turn them as  
10 well as ACAA's position on some major issues  
11 addressed in the EPA report. ACAA was founded in  
12 1968, eight years before the enactment of RCRA, and  
13 of course that's been the primary legal guidance,  
14 regulatory guidance for our activities to promote the  
15 use of ash during this -- during the existence of  
16 that act.

17 More recently, ACAA has acted to expand its  
18 efforts to create in the marketplace this coal combustion  
19 product status for coal ash creating  
20 standards for its use and also the technology that  
21 goes along with that. Of course, we now are

1 referring to coal combustion products not only as the  
2 fly ash, bottom ash, boiler slag and FGD material  
3 covered under the EPA report of 1988 and the  
4 regulatory determination of 1993, but also now a  
5 variety of other clean coal combustion materials such  
6 as residues from fluidized bed combustion boilers.

7 These are not currently included in our survey data,  
8 and they're relatively small by comparison to the 105  
9 million tons of these other four high volume products  
10 that we survey annually.

11 ACAA's mission, of course, is to advance  
12 the use of these coal combustion products in ways  
13 that are technically sound, commercially competitive,  
14 and environmentally safe. A guiding principal for  
15 accomplishing our mission is to gain and expand the  
16 recognition of coal combustion products for what they  
17 are, which is engineering and manufacturing  
18 materials. ACAA and its members lead in efforts that  
19 result in the use of some 30 million tons of CCPs each  
20 year in the United States. In calendar year  
21 1997, the most recent year for which data's

1 published, '98 data's being gathered and will be  
2 published later this year.

3 The use of CCPs throughout the United  
4 States has amounted to about 27 percent of the 105  
5 million tons of high volume CCPs that were produced.  
6 I do have a supplemental document which I'll refer to  
7 later, but I would just point out that the coal  
8 combustion products that are currently classified in  
9 our survey as use, to partially address Mr. Wittner's  
10 question, are relatively small. But let me get back  
11 to that point at the end.

12 I'd also like the point out that the  
13 worldwide use of coal combustion products currently  
14 exceeds 100 million tons annually. As in the USA,  
15 CCPs worldwide are produced from the combustion of  
16 coal, the principal fuel source for electricity  
17 needs, they're specified by design engineers as they  
18 are here that rely on the availability of CCPs of  
19 known quality as a mineral resource for engineering  
20 and manufacturing applications. They're marketed by  
21 companies that have extensive knowledge of these

1 materials for what they are, engineering and  
2 manufacturing materials. And, of course, there's a  
3 well-documented record, both in our possession and  
4 other places as well of the satisfactory performance  
5 of these materials in these numerous applications.

6 Our vision, of course is -- everybody has  
7 to have a vision statement. Our vision is to be  
8 recognized as a worldwide leader in the advancement  
9 of ash use. To this end, we currently are working  
10 with 20 countries, and we began this process earlier,  
11 but we had our first meeting of countries in January  
12 of this past year at our symposium that we host  
13 annually, or every two years, rather, in the United  
14 States.

15 And next month, just prior, as a matter of  
16 fact, to the comments being due to EPA on the Report  
17 to Congress, there will be a second meeting which we  
18 will attend in southern France, someone has to do  
19 this, where 15 countries from Europe will be hosting  
20 a meeting which we will attend, because they liked  
21 the idea of creating such an organization which basically

1 will be an Internet-based passive  
2 organization, I suppose we would call it, that  
3 facilitates the exchange of technical information on  
4 the Internet at a particular web site that we have  
5 created for this purpose, called the Worldwide Coal  
6 Ash Council site. You can find it by going to our  
7 site and it will take you to this other site.

8 In the Report to Congress, EPA goes into  
9 some detail with regard to its concerns about  
10 agricultural and mining applications. What EPA did  
11 not do -- I guess in the same tone of some previous  
12 speakers -- what EPA failed to do, was to point out  
13 that there is an abundance, in fact, a very great  
14 abundance of technical information in existence,  
15 which of course was recognized, to a large extent, in  
16 the 1993 regulatory determination which basically  
17 says that coal combustion products are safe for use,  
18 they're technically sound and they should be used.

19 Nevertheless, EPA really did not describe  
20 these volumes of information that document those  
21 beneficial uses of coal combustion waste, including,

1 and I emphasize "including," information that's readily  
2 available, or is available, on agricultural  
3 and mining applications. We intend to address many  
4 of these sources of information, I'm sure some other  
5 folks will too, in our written comments that are due  
6 on June the 14th, not later than.

7 And at that time, we feel that we will be  
8 able to provide, as will others, provide information  
9 to EPA that will assist them in making a clear  
10 finding that agricultural and mining applications of  
11 CCPs warrant no additional regulation by EPA. EPA  
12 has an opportunity now to include in its regulatory  
13 finding a message that would support the continuation  
14 of its earlier efforts to promote increased use of  
15 coal combustion products by advancing efforts  
16 associated with its comprehensive procurement  
17 guideline and the procurement of environmentally  
18 preferable products. This October 1 regulatory  
19 determination should, in fact, focus on opportunities  
20 for EPA to do that and to help to increase safe  
21 recycling and utilization of materials that would



1 otherwise be disposed.

2           Included with this statement, I referred to it  
3 earlier, is another document which I've submitted  
4 for the record. It's 19 pages in a presentation  
5 format, which is easy to read and it's concise, and  
6 if I can just cover briefly what's contained in this,  
7 it summarizes the production of some 105 million tons  
8 of coal ash in the USA annually. It addresses the  
9 principal uses for some 29 million tons of that 105  
10 million tons each year. And it also describes the  
11 annual benefits associated with the use of CCPs,  
12 including things like, but not necessarily limited  
13 to, landfill space preservation, the avoidance of  
14 disposal costs, revenues from the sales of these  
15 CCPs, reduced CO2 emissions from the used fly ash,  
16 and of course it compares CCPs to other leading  
17 mineral resources in the U.S.A., such as crushed  
18 stone, gravel, Portland cement, similar quantities of  
19 those things are produced.

20           The report to Congress quotes ACAA's  
21 industry data, and we are glad of that. And the

1 previous speaker, one of the previous speakers  
2 referred to the fact that the percentage growth in  
3 CCP use compared to production on an annual basis has  
4 increased relatively slowly since 1998. That's  
5 true. The absolute quantities, of course, are those  
6 materials produced have also increased fairly  
7 steadily over those years. So the total quantities  
8 of those used are up considerably, but the total  
9 percentage of use is modest.

10 And therefore, EPA should now review the  
11 considerable regulatory commercial, legal, and  
12 institutional barriers that, in fact, impede the use  
13 of CCPs, and should work with the industry to advance  
14 the use of CCPs. And in 1999, EPA should help to  
15 remove such barriers and not create more.

16 EPA's report says that the potential for  
17 increased use is limited, I think that was addressed  
18 briefly as well earlier, and we would simply point  
19 out that a little help there would be appreciated in  
20 creating more barriers, and more concern about the  
21 use of these materials and their management is not

1 necessary because it's being done at the state level  
2 in the 50 states.

3 In light of EPA's correct finding in the  
4 report to Congress about the absence of significant risks  
5 to human health and the environment, and from  
6 the variety of beneficial use applications that  
7 exist, EPA should now focus on the resource,  
8 conservation, and recovery that are at the heart of  
9 RCRA.

10 And in answer to Mr. Wittner's question  
11 earlier, I think my last paragraph really does say  
12 this, EPA now is in a position to advance the  
13 beneficial use of CCPs, and it can do so by signaling  
14 to the 50 states, EPA's endorsement of the end of the  
15 counterproductive process, or practice, of applying  
16 waste regulations to CCPs when they are used  
17 beneficially.

18 That's the extent of my prepared remarks.  
19 I would like to submit for the record a copy of one  
20 additional item that I had in my bag which I don't  
21 have but one copy of it. But I'll give it to you. I

1 have plenty more in my office, and that is, a summary  
2 of state solid waste regulations governing the use of  
3 coal combustion products that we do periodically.

4 This report was published in August of 1998.

5 I would also point out that we supplied this  
6 information to the U.S. Department of Energy,  
7 Federal Energy Technology Center, which has taken our  
8 survey of 50 state regulations, which are different,  
9 they're considerably different, and has posted this  
10 on their Internet site. So you can find that on  
11 FETC's Internet site.

12 And again I would simply say there there  
13 are discrepancies, there are differences among the  
14 way that the 50 states regulate and refer to  
15 beneficial use and/or disposal, particularly in mine  
16 applications, and that's something that I think EPA,  
17 as I said, can take the lead on by signaling the end  
18 to waste regulation of beneficial uses. Now we just  
19 have to figure out in the 50 states how to determine  
20 what is a beneficial use, but I would emphasize that  
21 that determination should remain where it is now, and

1 that is at the state level, without further federal  
2 regulation. Thank you.

3 THEA MC MANUS: Thank you, Sam. I think  
4 this is probably a good time to take a break. We'll  
5 meet back at about 10 after 11:00.

6 (A recess was taken.) JIM LINDSAY:

7 Good morning. My name is Jim  
8 Lindsay and a senior environmental specialist with  
9 Florida Power & Light companies, environmental  
10 service department. Florida Power & Light is one of  
11 the largest investor-owned electric utilities in the  
12 United States. We serve approximately 7 million  
13 customers in the state of Florida and have the  
14 capability of generating over 15,000 megawatts of  
15 electricity. Florida Power & Light operates 13  
16 fossil fired electric generating facilities and is  
17 one of the largest consumers of number 6 fuel oil in  
18 the world. The combustion of number 6 fuel oil  
19 generates ash much like the combustion of coal,  
20 however, in much smaller quantities. For comparison,  
21 oil combustion products or oil ash represents less

1 than 3/100 of 1 percent of the national generation of  
2 coal ash. Approximately 23,000 tons of oil ash were  
3 generated in 1995 as compared to 92 million tons of  
4 coal ash.

5 Florida Power & Light generates  
6 approximately 5000 tons, or 25 percent of all the oil  
7 ash in the United States. For the past 10 years, I've  
8 been responsible for the management of that oil  
9 ash at FPL's generating facilities. These tasks have  
10 included the removal analysis disposal and recycling  
11 of oil ash, as well as developing an overall  
12 corporate strategy for managing our company's largest  
13 volume waste stream.

14 My comments today relate to Chapter 6 of  
15 the 1999 Bevill Report to Congress containing EPA's  
16 findings and recommendations on oil combustion  
17 products and are presented on behalf of the Florida  
18 Power & Light and the Utility Solid Wastes Activities  
19 Group, or USWAG.

20 Before I comment on the report itself, let  
21 me briefly describe our oil ash management program at

1 FP&L. The majority of oil ash generated by Florida  
2 Power & Light is managed in lined settling basins.  
3 These basins have to be cleaned out on an annual or  
4 biennial basis, depending on the operation of the  
5 plant and the capacity of basins. When removed from  
6 the basins, the ash is mechanically dewatered and  
7 managed in one of three ways: It may be disposed of  
8 as an industrial solid waste in an offsite Subtitle D  
9 lined landfill; it may be beneficially reused as a  
10 source of vanadium for the manufacture of steel  
11 products; or we may send it to a cement manufacturing  
12 facility where it provides additional aggregate, iron  
13 and silica content in the production of Portland  
14 cement.

15 Whenever possible, our company strives  
16 towards beneficial reuse of our oil ash. Since 1998,  
17 100 percent of FP&L's oil ash has been recycled and  
18 we hope that the conditions that have made it  
19 possible to divert our largest waste stream, all of  
20 our ash from waste management to reuse will continue  
21 indefinitely.

1                   The Florida Department of Environmental  
2                   Protection regulates our ash management units by  
3                   permitting the solid settling basins, solids drying  
4                   basins and the evaporation percolation ponds for  
5                   wastewater treatment. The department also regulates  
6                   the ash itself under Florida's solid waste rules.  
7                   The oil combustion waste streams are batch discharged  
8                   to the solid settling basins. The wastewater is then  
9                   neutralized and solids are allowed to settle. Wastewater  
10                  in the solid settling basins overflow to  
11                  an evaporation percolation pond. None of the solids  
12                  or wastewater samples have ever tasted  
13                  characteristically hazardous.

14                  Groundwater monitoring wells ensure that  
15                  the water quality standards for a G-II aquifer are  
16                  not exceeded beyond the point of compliance or in  
17                  Florida, known as the zone of discharge. All  
18                  sampling data from these wells is submitted to the  
19                  Florida Department of Environmental Protection though  
20                  FP&L believes that the Report to Congress prepared by  
21                  EPA is a reasonable assessment of the characteristics



1 of oil ash, and current management practices.

2 I'd like to address a couple of areas where  
3 we think that some clarification is necessary. EPA  
4 has expressed concern in the Report to Congress about  
5 the unlined evaporation percolation ponds that the  
6 Florida Department of Environmental Protection  
7 permits under Florida law. EPA has proposed to use  
8 its RCRA Subtitle C authorities to adopt tailored  
9 regulations to address the discharges to groundwater  
10 from these units. This proposal does not seem to us as  
11 a wise use of EPA's limited resources for a number  
12 of reasons.

13 First, we understand that the total number  
14 of unlined impoundments in the electric utility  
15 industry that would be affected by this proposal may  
16 be as few as six units, four of which are owned by my  
17 company. We have already advised EPA imformally, and  
18 I am here today to formally reaffirm that FP&L has  
19 made the business decision to remove the oil ash from  
20 these evaporation percolation ponds and the basin  
21 material from the impoundments and to line these

1 units. Three of these units will continue to manage  
2 oil ash while the fourth unit, at a facility that is  
3 being repowered, will be converted into a line storm  
4 water management basin.

5           These steps are part of a broader upgrading  
6 of our water management strategy. The money's been  
7 budgeted this year, most of the engineering is  
8 complete, and the work is scheduled. Although we can  
9 not say with certainty that non-utility sectors may  
10 also have unlined oil ash impoundments, we believe  
11 that the probability that any significant number of such  
12 units exist is quite small, and we find it hard  
13 to believe that the EPA will would seriously  
14 contemplate a RCRA Subtitle C rulemaking that would  
15 affect the universe of facilities that may be as few  
16 as two unlined impoundments.

17           We are confident that even if EPA's  
18 concerns about unlined oil ash basins is justified.  
19 The problem, if it exists at all, is a declining  
20 one.

21           Second, it is far from clear that these

1 unlined basins pose any significant environmental  
2 problem. The EPA has not identified any proven  
3 damage cases stemming from management of oil ash at  
4 any unlined basin, and the Report to Congress  
5 correctly notes that these impoundments are adjacent  
6 to either the Atlantic Ocean or salt water estuaries,  
7 and that no drinking water wells are located  
8 downgradient of these units. These ponds simply have  
9 no adverse impact on human health or the  
10 environment.

11 Third, as EPA acknowledges, these  
12 evaporation percolation ponds are not unregulated units.  
13 They are permitted by the state of Florida  
14 under Florida law, and they must comply with  
15 groundwater standards at a specified point of  
16 compliance outside the zone of discharge. Florida's  
17 policy in this respect is similar to the 150 meter  
18 point of compliance for groundwater compliance in  
19 EPA's Part 258 Municipal Solid Waste Landfill Rules.  
20 In addition, all of Florida Power & Light's  
21 evaporation percolation units have graded limerock

1 floor to chelate any leachable metals prior to  
2 percolation. And all of these units have groundwater  
3 monitoring to ensure compliance with state  
4 groundwater standards.

5 Fourth, we don't agree with EPA's  
6 suggestion that the management of oil ash in basins  
7 should include the use of composite liners with  
8 leachate collection systems. Such an elaborate liner  
9 system characteristic of a Subtitle D municipal  
10 landfill is more elaborate than necessary for a  
11 temporary storage area. These basins serve only as a  
12 wastewater treatment system and as a staging area for  
13 the ash until a sufficient quantity is collected to  
14 justify the mobilization of equipment to remove,  
15 de-water, and transport the ash to its final  
16 destination, whether that destination is recycling or  
17 disposal.

18 Additionally, one purpose of a composite  
19 liner, such as that found in a landfill, is provide  
20 long-term assurance that the permanent disposal of  
21 waste will be lined and contained even if the liner

1 fails. The purpose to be served by the proposed  
2 leachate collection system in the report to Congress  
3 is unclear, is the leachate collection system  
4 intended to detect liner leaks, or is it intended to  
5 collect leachate for treatment prior to discharge?

6 The physical properties of oil ash do not  
7 lend themselves to this method of wastewater  
8 treatment. In the case of oil ash settling basins,  
9 the basins are cleaned out periodically which allow  
10 visual inspection of the liners to evaluate for  
11 defects. If a damaged area is discovered, it can be  
12 repaired prior returning a basin back for service.  
13 Given this management practice, FPL would suggest  
14 that a single liner for ash basin should be sufficient.

15 And finally, given EPA's strong policy of  
16 deference to state groundwater decisionmaking, we  
17 fail to understand why EPA, in this instance, is even  
18 considering supplanting Florida groundwater policy  
19 for a federal imposed zero discharge policy for the  
20 imposition of a composite liner requirement.

21 In short, the tailored Subtitle C option

1 that EPA proposed in the Report to Congress for  
2 addressing its concerns with the unlined percolation  
3 ponds would be a classic case of using a regulatory  
4 sledgehammer to kill a gnat. A federal solution to  
5 overrule and disregard state's primacy and  
6 groundwater management policy to solve a problem for  
7 which EPA admits there's no evidence of environmental  
8 damage.

9 Let me conclude that while we disagree with  
10 this portion of EPA recommendations in oil ash, we  
11 are in agreement with EPA's principal recommendations  
12 in Chapter 6 that oil ash disposal and reuse remain  
13 outside of Subtitle C of RCRA. EPA's study of oil  
14 ash is comprehensive and thorough, and with the exceptions  
15 that I have discussed, we are generally in  
16 agreement with the agency's findings.

17 We are certainly prepared to work with the  
18 agency's staff to implement any voluntary changes in  
19 oil ash management if such changes ultimately prove  
20 to be necessary to protect human health in the  
21 environment. We look forward to submitting more

1 detailed comments on our oil ash in our written  
2 comments. But in the meantime, I would be glad to  
3 answer any questions.

4 RICHARD KINCH: You indicated that Florida  
5 Power & Light conducts groundwater monitoring around  
6 these evaporation percolation ponds, and that there  
7 are Florida state groundwater standards that you  
8 abide by.

9 JIM LINDSAY: That is correct.

10 RICHARD KINCH: The modeling analysis that  
11 we conducted tended to demonstrate some concerns, at  
12 least from a modeling point of view, in particular  
13 vanadium and nickel and arsenic. My basic question  
14 is do the Florida State Groundwater Standards include  
15 specific limits for each of those constituents or is there  
16 --

17 JIM LINDSAY: Yes, they do. And in fact  
18 there's vanadium, a tertiary vanadium limit; and  
19 although we do not monitor for vanadium, we do  
20 monitor for nickel at these units, and are in  
21 compliance at the zone of discharge with Florida

1 state nickel levels.

2 RICHARD KINCH: Thank you.

3 THEA MC MANUS: Thank you for your  
4 presentation, James. And the next person is Joseph  
5 Brobjorg from Northern States Power Company, and I  
6 really messed up your last name.

7 JOSEPH BROBJORG: Good morning. My name is  
8 Joe Brobjorg. I'm with Northern States Power  
9 Company. I'm senior fuel engineer responsible for  
10 fuel procurement and ash management issues. NSP is  
11 an investor-owned utility based in Minneapolis,  
12 Minnesota, serving about 2 million electric  
13 customers. And we use about 12 million tons per year  
14 of a western subbituminous. Over the last eight,  
15 nine years, NSP has been very active in developing,  
16 evaluating agricultural uses of coal ash and over the last  
17 four years, we have been working intimately with  
18 our state regulatory agency, the Minnesota Pollution  
19 Control Agency, to allow the use of using coal ash in  
20 agriculture.

21 I would like to address the specific issues



1 raised in EPA's Report to Congress which purported to  
2 identify potential health risks from ag uses from  
3 coal ash from arsenic, child ingestion pathways. I'm  
4 very concerned on the preliminary conclusions EPA  
5 published in the Report to Congress on ag uses of  
6 coal ash. I believe the basis for these preliminary  
7 conclusions is the nongroundwater pathway human  
8 health risk assessment that was performed under  
9 contract to the EPA. This risk assessment is  
10 seriously flawed, gentlemen, which severely limits  
11 its value as a public policy decisionmaking tool.  
12 The electric utility and USWAG ardently challenges  
13 that the unfounded and overly conservative  
14 assumptions that underlie that risk assessment which  
15 identify arsenic ingestion pathways for coal ash ag  
16 uses.

17 Based on this flawed analysis, EPA suggests that  
18 it might impose a higher degree of regulatory  
19 controls on ag uses of coal ash than it has imposed  
20 on other agricultural products with similar chemical  
21 constituents in agricultural uses. That result would

1 be highly unfair to both farmers and to industry.  
2 NSP and other companies, federal agencies, and  
3 academic research institutions have extensively  
4 studied ag uses of coal ash. The study demonstrate  
5 beneficial results from the use of coal ash in  
6 agronomic amounts with no adverse impacts to human  
7 health and the environment. EPA should promote the  
8 beneficial reuse of coal ash through agricultural  
9 applications rather than erect additional regulatory  
10 barriers. Lastly, state regulatory agencies can and  
11 do provide regulatory controls on agricultural uses  
12 of coal ash to protect human health and the  
13 environment.

14 EPA's risk analysis claims to find there is  
15 a potential health risk from using coal ash in  
16 agricultural due to child ingestion pathways for  
17 arsenic. The underlying assumptions using this risk  
18 analysis appear to be substantially more conservative than  
19 assumptions used in previous health risk  
20 analyses performed by EPA for other materials. EPA  
21 must maintain a consistent objective basis in

1 evaluating health risks for the public. And this  
2 study appears to subjectively identify risks, but do  
3 not objectively exist. EPA's own peer review of  
4 fossil fuel combustion risk assessment document,  
5 dated September 4, 1998, alerted EPA the serious  
6 flaws in that risk assessment criticizing that  
7 methodology is obscure in identifying numerous  
8 shortcomings that undermine its scientific validity.

9 Because of these defects, the peer  
10 reviewers advised the EPA that this risk assessment  
11 should not be used as a decisionmaking tool, yet  
12 eight months after completion of this peer review,  
13 EPA chose to incorporate those flawed results in its  
14 Report to Congress. EPA helped risk assessment  
15 assume questionable values for ash application rate,  
16 ash application frequency, ash arsenic  
17 concentrations, ash ingestion rate, arsenic reference  
18 doses. Those issues combined to create additional  
19 conservatism to the order of two or three magnitudes above  
20 and beyond what sound science would indicate.  
21 And if you were to apply those same basic sets of

1 assumptions to look at U.S. soils using USGS data for  
2 the United States, almost all of those U.S. soils  
3 would indicate -- would similarly indicate potential  
4 arsenic health risks.

5 Gentlemen, clearly something is wrong  
6 here. The USGS data does indicate average U.S. soil  
7 concentrations of arsenic in the range of about 4 to  
8 5 ppm with a standard deviation of about 2-1/2, and  
9 the study, health risk assessment, identified any  
10 material which approaches 1 ppm arsenic is  
11 potentially problematic. There's a big problem  
12 there. It would be unfair to farmers and industry to  
13 impose a higher regulatory standard on coal ash in  
14 agriculture than is applied to other agricultural  
15 products. Various standards already exist for ag  
16 products to protect human health and the environment,  
17 and those standards are equally applicable for  
18 agricultural uses of coal ash.

19 U.S. EPA standards for land application of  
20 sewerage sludge in the EPA 503-B guidelines provides an  
21 additional basis for such agricultural standards.

1           Granted, sewerage sludge and coal ash are very  
2           different materials, but those differences would  
3           support less restricted standards for coal ash  
4           compared to sewerage sludge. The Canadian Food  
5           Inspection Agency also has standards for metals and  
6           fertilizers and other soil amendments.

7                   Individual states also regulate land  
8           application of industrial by-products including coal  
9           ash. These existing regulations provide a very valid  
10          framework for ensuring protection of human health and  
11          the environment in ag uses of coal ash. NSP and USWAG  
12          will submit a detailed overview of these existing  
13          regulatory programs. As I mentioned earlier, NSP  
14          extensively studied the use of coal ash as a lining  
15          fertilizer over the last eight years.

16                   We've completed laboratory testing, green  
17          house testing, pilot scale field testing, full scale  
18          demonstration testing using coal ash as a lining  
19          fertilizer. This testing has been successfully  
20          completed on over 500 acres of farmland throughout  
21          this evaluation process. These evaluations were performed

1 in cooperation with the Minnesota Pollution  
2 Control Agency, the Minnesota Department of  
3 Agricultural, the Minnesota Department of Health, the  
4 University of Minnesota Soil Science Department, and  
5 the United States Department of Agriculture. Results  
6 of these studies all demonstrate that beneficial use  
7 of coal ash, when used in agronomic amounts, leads to  
8 no adverse impacts to human health and the  
9 environment. I have been working specifically in  
10 trying to permit a coal ash from NSP's Sherco plant  
11 unit 3, which uses western subbituminous coal with a  
12 spray dryer scrubber system. That ash material is  
13 uniquely suited for agricultural applications in  
14 terms of --in addition to its significant lining  
15 capability, there's also agronomic quantities of  
16 sulfur and boron that the agricultural community  
17 values.

18 Market studies have shown farmers will pay  
19 a premium for that coal ash product compared to  
20 aglime alone, in recognition of the increased  
21 nutrient value in the coal ash. Crop productivities

1 improved at a lower cost to the farmer when he uses a coal  
2 ash liming fertilizer compared to cost of using  
3 aglime plus other commercially available sulfur,  
4 boron, and other nutrients. This reduction in  
5 agricultural costs will result in improved  
6 agricultural economy.

7 Using coal ash in agricultural can also  
8 provide significant environmental benefits. Mining  
9 and production of other lining materials and  
10 fertilizers is reduced. A by-product is recognized  
11 as a resource and is beneficially reused for its  
12 inherent nutritional value. The need for landfilling  
13 of coal ash would be reduced. Soil erosion on  
14 farmland, which is a big problem, would also be  
15 reduced, because allowing products like this in the  
16 marketplace, for example, would allow farmers to  
17 revitalize a three-year stand of alfalfa with a coal  
18 ash top dressing instead of having to plow that field  
19 down and plant high-intensity row crops such as  
20 corn.

21 The Pollution Control Agency of Minnesota

1 developed a regulatory permitting framework for land  
2 applications of industrial by-products which provides for  
3 a tiered risk based approach to based on  
4 by-product characteristics. Using this permitting  
5 framework, MPCA has drafted a permit which would have  
6 allowed NSP to use coal ash as a liming fertilizer  
7 that is protective of human health and the  
8 environment.

9           Gentlemen, we have been working on this for  
10 four years. We were in public notice process to get  
11 this on the street when the EPA report to Congress  
12 was published in the Federal Register. Needless to  
13 say, additional permitting activities suspended  
14 pending resolution of these federal issues on  
15 arsenic. This permit would allow the coal ash liming  
16 fertilizer to compete in the agricultural marketplace  
17 as a cost effective beneficial product. The permit  
18 would require strict controls on the use of coal ash  
19 including maximum ash application rates; soil testing  
20 to demonstrate agronomic need as a condition  
21 precedent to application; metal concentration limits;



1 annual loading limits; product registration and  
2 labeling under PCA; and Department of Agricultural  
3 requirements; ash testing and analysis for QA/QC purposes;  
4 recordkeeping; looking at chain of custody;  
5 soil analysis records; documenting agronomic needs;  
6 records documenting every insight receiving that coal  
7 ash liming fertilizer. It would also require  
8 operator certifications as a type IV solid waste  
9 operator for program operation. It would require  
10 annual reporting on coal ash testing, amount applied,  
11 et cetera.

12 Gentlemen, I believe that states can and do  
13 implement responsible programs that regulate this  
14 type of product.

15 In summary, the conclusions presented by  
16 EPA on arsenic health risk for ag use as a coal ash  
17 were not based on sound science. To impose a higher  
18 standard on coal ash for health risk analysis  
19 compared to other EPA health risk analyses is not  
20 fair to farmers or the industry. NSP and industry  
21 had extensive experience using coal ash and

1 agriculture, and state regulatory agencies provide  
2 regulatory controls to protect human health and the  
3 environment. The purported risk documented in the  
4 EPA health risk analysis does not reasonably exist, and  
5 there's no justification for EPA to consider  
6 additional regulatory controls based on a flawed  
7 analysis. Thank you for allowing me to present this  
8 testimony.

9 RICHARD KINCH: The Report to Congress  
10 essentially referred to a limit for arsenic that was  
11 equivalent to what's naturally found in agricultural  
12 lime. My basic question is did the coal combustion  
13 ash that you had planned on using, does that exceed  
14 that limit? And if so, by how much, or are there  
15 other problems that concern you with the Report to  
16 Congress and what we mentioned with regard to  
17 agricultural lime.

18 JOSEPH BROBJORG: There are other problems  
19 in that regard because if you were to take, again,  
20 that naturally occurring arsenic and limestone and  
21 subject that to the same analysis for risk

1 assessment, we'd still have the same problems,  
2 gentlemen. Same thing like with any soil. By  
3 establishing a default value of 1 ppm arsenic for  
4 soil ingestion pathways creates a hurdle that cannot  
5 be met in a virgin environment. RICHARD KINCH:

6 Well, that's why we didn't  
7 go a strict risk-based number and went with aglime as  
8 the basis. Back to my first question, does your  
9 material exceed that number, and if so, but how much?

10 JOSEPH BROBJORG: It is lower than that  
11 when you consider that there's approximately a  
12 million tons per year of aglime used in Minnesota.  
13 Approximately 60 percent of that aglime is procured  
14 from wastewater treatment lime sources, and that does  
15 have higher concentrations of arsenic compared to the  
16 coal ash for the data I've seen.

17 My coal ash has arsenic concentrations in  
18 the range of 8 to 18 ppm. I've seen one number out  
19 of the almost 50 analyses which had up to 37 ppm, and  
20 I will contrast that with the existing EPA 503-B  
21 guidelines which require maximum arsenic

1 concentrations of 41 ppm to qualify as an exceptional  
2 quality material suitable for unrestricted  
3 distribution as per EPA 503-B guidelines.

4 THEA MC MANUS: Thank you, Joseph. The  
5 next speaker is Robert Bessette from the Council of  
6 Industrial Boiler Owners. ROBERT BESSETTE: They  
7 usually put me on  
8 before lunch and that's because they know I'm always  
9 hunting for food. I want take this opportunity to  
10 thank you for the opportunity to present public  
11 comments on the waste combustion fossil fuels Report  
12 to Congress regarding the management and beneficial  
13 use of ash from industrial and nonutility combustion  
14 sources. It's not always we have the opportunity to  
15 compliment EPA. The other guys are usually harassing  
16 them.

17 ANDREW WITTNER: Bob, it's not often that  
18 we wish to hear a compliment.

19 (Laughter.)

20 ROBERT BESSETTE: We support the general  
21 conclusion in this RTC that the Bevill exemption

1 should be continued. We also believe that the data  
2 found RCRA policy support further conclusion that no  
3 aspect of these substances warrant subjecting them to  
4 federal state RCRA programs or counterpart state  
5 solid waste programs or to a national Subtitle C  
6 regulation in any form. In fact, we see the general  
7 principles in this report as a framework that should  
8 control how special waste determination should now be  
9 conducted by EPA. You guys did a good job. Those  
10 principles include the weight EPA gave to the current  
11 and projected ash management, practices by affected  
12 industrial sectors, and to the state efforts to  
13 address ash management in reasonable ways. They also  
14 include the way EPA treated so called damage cases  
15 and the way it conducted its risk evaluations to  
16 conclude that the risk to human health and  
17 environment from those substances do not, in general,  
18 rise to a level of national regulatory concern.

19 I am president of the Council of Industrial  
20 Boiler Owners, I represent about 100 or so owner  
21 operators, architect engineers, suppliers to that

1 industry, 20 or so university affiliates. We only  
2 work on energy and environmental issues. Nothing  
3 commercial. We look for and strive to produce and  
4 generate sound regulatory policies for the industrial  
5 boilers. We always seek to promote the national best  
6 interest by supporting a rebuilding of the industrial  
7 energy base in the United States to improve and  
8 maintain our standard of living and continue to clean up  
9 the environment.

10 Sometimes I can wave the American flag and  
11 it feels good because I'm not looking at something.  
12 We can look at it from the perspective of energy use  
13 and needs. Back about three years ago, we started a  
14 special project. The objective was to put together  
15 information, we didn't know what the answer was going  
16 to be, or what the ash characteristics would be. We  
17 began and developed what we call special waste  
18 program. We started looking at and asked and  
19 involved EPA and said what do you need? We want to  
20 help and provide the kind of information.

21 Through this special project, CIBO

1 developed a more than 70-page detailed survey of  
2 industrial FBC units, and a shorter survey of  
3 conventional and industrial combustion sources for  
4 comparison to utility information. We started out --  
5 in fact, we asked some EPA people to be there -- we  
6 started out with a 54-page survey. And the CIBO  
7 special project members increased the length of the  
8 survey from 54 pages to over 70 pages to be able to  
9 provide the kind of information that would be able to  
10 address the eight Bevill study amendments, or study  
11 factors. Very important.

12 We would like to give special thanks and  
13 commendation to EPA for their working with us, and  
14 especially Dennis Ruddy, Dan Derkics and Andy  
15 Wittner. Their candid, very candid, highly  
16 professional comments and review of information in  
17 our process helped prepare or helped us prepare a  
18 report of the highest quality and applicability to  
19 address the eight Bevill study factors. They went so  
20 far in our initial discussions -- we wanted to  
21 involve environmental people -- they went so far as

1       trying to get environmental people to sit in in our  
2       discussions to help us make sure that the information  
3       that we were generating was going to be of a top  
4       utmost quality, that this information was going to be  
5       applicable and could address the questions that were  
6       coming up.

7               We couldn't get anybody. Throughout the  
8       process we've always maintained that real life data  
9       and experience is far superior to modeling  
10      projections. Modeling, no matter how good, cannot replace  
11      real data. Models no matter how good, cannot  
12      account for all the variables in geology, hydrology,  
13      meteorology and mother nature in general, at even one  
14      site, never mind across the continent.

15             As a television commercial once said when I  
16      was kid, you can't fool mother nature. As I was  
17      thinking on the Metro coming in today, I understand  
18      why they call mother nature "mother," because like a  
19      woman, it's almost impossible the understand all the  
20      facets.

21             Models, no matter how good, cannot account



1 for human and technological development over time.  
2 They're static snapshots, not dynamic movies.  
3 Because of their limitations, environmental models  
4 including the risk assessment models are always --  
5 and I believe by necessity, extremely conservative.  
6 They substantially overstate real world exposure and  
7 risk, they're even more conservative when the  
8 screening levels are set at extremely low thresholds  
9 and their internal default assumptions maximize  
10 projected impacts and define significant impacts very  
11 stringently like defining the significant impacts for  
12 arsenic at 1/20 of the national drinking water MCL  
13 for that substance, or the 503 sewerage sludge  
14 standards, or defining the horizon for impact as any  
15 projected impacts over a period of 10,000 years, 10  
16 millenniums.

17 I was trying to think of human development,  
18 or technology development. Over the last millennium,  
19 never mind the next ten millenniums, we don't take  
20 that into consideration. Congress has to find  
21 several specific criteria by which EPA is to

1 determine under what regime Bevill waste should be  
2 managed. In the case of wastes combustion of fossil  
3 fuels, EPA carefully and thoroughly evaluated those  
4 criteria, and concluded that Subtitle C regulation is  
5 not appropriate for fossil fuel combustion ash  
6 disposal and most aspects of ash beneficial use. We  
7 wholeheartedly agree. Under those extraordinarily  
8 stringent evaluation criteria, we further believe  
9 there is no need to change the way we do things  
10 today. Any fossil fuel combustion ash, beneficial  
11 use should be exempted.

12           There are massive amounts of real world data to  
13 support this when considering the eight  
14 Bevill study factors. This report does reserve  
15 certain questions concerning mine reclamation, mine  
16 fill applications, the use of fossil fuel combustion  
17 ash for agricultural purposes, and oil ash disposal.

18           I would offer a few brief comments. We are  
19 preparing a detailed set of comments to support the  
20 conclusion that there is no need the change the way  
21 we do things today. And these will be in by, at this

1 point, the 14th.

2 In the overall Report to Congress, the only  
3 concern raised by the agency's extremely conservative  
4 evaluation criteria for solid fuels is related to  
5 arsenic, but if the projected arsenic impacts were  
6 evaluated against concentrations ten times more  
7 stringent than the national drinking water or  
8 sewerage sludge standards, it would take 30,000 years  
9 before there might be a health concern.

10 That's 30 millenniums. That assumes no  
11 human development or technology development in that  
12 period of time. If those impacts were evaluated  
13 against the permissible ash concentration for those  
14 drinking water and sewerage sludge standards, it  
15 would be 60,000 years before there might be a  
16 concern.

17 It's hard to imagine the evaluation of  
18 fossil fuel combustion products would exceed the  
19 stringency of sewerage sludge regulations. If my  
20 lunch -- I think food -- happens to fall on the  
21 ground or fall in an ash pile, and that's happened

1 while I was at coal mines, or utility plants, I  
2 probably would pick it up, dust it off and eat it.  
3 My grandmother used to say a little dirt never hurt  
4 anybody. And I'm still here. However, I cannot say  
5 the same if it fell in a sewerage sludge pile. From  
6 my -- we have to look at the net impact on the  
7 environment. What is the baseline? What is the  
8 change? And how does it compare to the risks to  
9 health and environment that might be posed without  
10 the activity in question?

11 Beneficial use is extremely important.  
12 Significant benefits can be shown almost  
13 immediately. It may take 1000 years to prove or  
14 disprove a significant environmental concern.  
15 From personal experience, I live across the  
16 street from a farm. And the guy is out there, he  
17 grows corn or soybeans, and the last couple of years  
18 it's been corn. He tills the field probably four  
19 times a year. I know he's doing it because when I  
20 come home or in the morning, there's dust on my  
21 cars. I got an acre of land and it's nice out there

1 in the country. He probably puts, and I see him  
2 about every couple of years, he'll bring a small  
3 truck and he'll dump a pile of little limestone, I  
4 guess. I don't ask him what it is. And he tills  
5 that stuff in and he puts that stuff in when he tills  
6 the field.

7 If we look at the net, we have to look at  
8 four times a year, compare that and we look at the  
9 ash, the amount of times it's tilled, what's in the  
10 soil, what in the limestone, look at fluidized bed  
11 combustion ash and some of the utility ash, which are  
12 much more reactive, they can use less quantities, and  
13 we do a true evaluation of what's there, there could  
14 actually be a benefit for using these things rather  
15 than using what's currently used. And with the changes  
16 in technology in the future, it may even be  
17 better.

18 Some of you think the EPA has done a very  
19 good job under the constraints. We believe the  
20 docket is complete and contains more quality  
21 information than EPA has had for the past

1 determinations. The states are doing a very good  
2 job. And the current management practices are very  
3 good and continue to get better as technology  
4 develops. We fully understand and the overly  
5 conservative nature of modeled risks assessments and  
6 believe real world data should be used if products  
7 that do not pose any credible health threat;  
8 accordingly, we believe all fossil fuel combustion  
9 waste from the industrial sector should be exempted  
10 from classification under Subtitle C whether disposed  
11 or destined for beneficial reuse.

12 THEA MC MANUS: Thank you, Robert. Next we  
13 have Patricio Silva from the National Resources  
14 Defense Council.

15 PATRICIO SILVA: Thanks, and still good  
16 morning, for the opportunity to testify on the  
17 availability of the Report to Congress on fossil fuel  
18 combustion. I'd like at this time to acknowledge the  
19 testimony by Jeff Stant from the Hoosier  
20 Environmental Council, and Felice Stadler from the  
21 Clean Air Network, and thereby just about ripped my

1 comments to a third.

2 My name is Patricio Silva. I'm here on  
3 behalf of the Natural Resources Defense Council.  
4 NRDC is a national nonprofit organization of  
5 scientists, lawyers and environmental specialists  
6 dedicated to protecting public health and the  
7 environment. We have a membership of 400,000 members  
8 nationwide, and we have been leading efforts to  
9 reduce pollution from fossil fuel fire generating  
10 units across the nation. While we were surprised  
11 frankly when we first saw this report and have not  
12 yet completed a review and analysis of the report,  
13 the associated technical support documents and other  
14 docketed materials.

15 We would like to echo comments of the other  
16 two commenters that the 45-day period provided for  
17 public comment effectively defeats meaningful public  
18 participation in commenting on a topic of this  
19 complexity.

20 As you may be aware, since publication of  
21 the notice of the availability of the report, over

1 170 organizations, including NRDC, have requested an  
2 extension of the comment period to permit adequate  
3 review and analysis. In the report, EPA invites  
4 public comment and data on a range of issues,  
5 including economic analyses for mitigating potential  
6 ecological risks, concerns related to environmental  
7 justice, mine filling and other topics. If EPA is  
8 serious about soliciting such input, a 45-day period  
9 is simply not feasible, and not reasonable under the  
10 circumstances.

11 We also note that, notwithstanding the  
12 statement in the report, that EPA maintained contact  
13 with a number of environmental organizations to share  
14 information and ideas regarding beneficial uses of  
15 some FFC wastes and methods of characterizing the  
16 risk associated with FFC wastes. We searched among  
17 current and past participants in the environmental  
18 community on this topic and were unable to identify any  
19 environmental organization familiar with the  
20 report, its preparation, or its contents. We are  
21 particularly concerned about the health and safety of



1 the community surrounding the estimated 660 FFC waste  
2 management units operated at approximately 450 coal  
3 fired utility power plants. Over 50 percent of the  
4 coal fired facilities nationwide are located within a  
5 metropolitan statistical area. Many, particularly in  
6 the upper midwest, are located in or immediately  
7 adjacent to neighborhoods. And the report, however,  
8 concludes, in part, that these types of facilities  
9 are typically located in areas of low population and  
10 thus present infrequent opportunity for human  
11 exposure.

12 One question we have is the adequacy of the  
13 survey identifying and locating the facilities and  
14 also assessing the demographic data of the adjacent  
15 surrounding communities. We questioned the accuracy  
16 of this and other conclusions reached in the report.  
17 Further, it appears that the report does not include  
18 any comprehensive risk assessment of the health risks  
19 for the communities adjacent or near to FFC waste  
20 management facilities. Despite our limited  
21 opportunity to review the report and associated

1 technical support documents, we can't provide enough  
2 general comments which we believe warrant an  
3 extension of the comment period for a more thorough  
4 review and analysis.

5 Absent an extension of the comment period,  
6 we believe the report is currently constituted as  
7 inadequate to support the findings, and  
8 recommendations for the draft regulatory  
9 determinations to exempt these wastes from regulation  
10 under RCRA, Subtitle C. The report requires  
11 additional work to correct these deficiencies and to  
12 identify the gaps in the data and analysis. One  
13 section I would like to focus on is mercury and its  
14 absence from the report.

15 The report fails to adequately document  
16 underlying analyses for EPA's conclusions that the  
17 wastes are sufficiently free of mercury contamination  
18 to conclude the disposal of these wastes should  
19 remain exempt from RCRA Subtitle C.

20 The 1997 Mercury Study Report to Congress  
21 calculated that mercury emissions from coal fired

1 utility boilers amounted to 51 tons per year,  
2 representing 33 percent of the mercury emissions from  
3 all combustion sources. Also in that report, EPA  
4 noted that mercury is a highly volatile metal that  
5 exists naturally as a trace element in fossil fuels  
6 and can also be found in its wastes.

7 We're essentially asking what happened  
8 between that institutional knowledge and in the 1997  
9 report and this assessment. We recognize also the  
10 report addresses coal washing and the fact that 77  
11 percent of all coal shipments are washed prior to  
12 shipment, but that still leaves a significant  
13 percentage of rock coal being delivered to coal fired  
14 power plants. Mercury is recognized as volatilizing  
15 from coal piles, runoffs, from ash, and other  
16 sources, and we find it extremely troubling that in  
17 this report, simply mercury disappears as a subject  
18 matter; even to recognize these other sources of  
19 information.

20 The assessment fails to consider the most  
21 important pathway from mercury releases. The

1 volatilization of mercury from landfills,  
2 impoundments, coal storage piles, fly ash, and  
3 agricultural application. The air pathways were  
4 completely ignored in this analysis.

5           Scientific literature clearly demonstrates  
6 the volatilization from mercury-bearing wastes when  
7 applied to fields. These considerations must be  
8 included in the exposure assessments. The waste  
9 characterization analyses fail even to test for  
10 mercury, or if they do, the report fails to present  
11 the data. In fact, when we reviewed the docket  
12 several times, we could find no assessment or  
13 supporting documentation on this point, and it may  
14 merely go to the point that out of the several  
15 thousand pages in the docket, it's an appendix, a  
16 particular document that we missed. That speaks to  
17 the issue that we need, additional time, if we're  
18 going to do an adequate job in reviewing this  
19 report.

20           Despite the conclusion offered that mercury  
21 screened out of the analysis based on TCLP results,

1 the concentrations measured when the minimum values were  
2 taken revealed that nationally tons of mercury  
3 were being mobilized in these waste sites. This is  
4 particularly troubling given the fact that EPA, under  
5 its persistent bioaccumulative toxic strategy, has  
6 made a priority of cross media approaches to mercury  
7 releases and managing anthropogenic mercury emissions  
8 from these and other sources.

9 I'd like to, in closing, ask that the  
10 agency take serious consideration to extend the time  
11 for the public to make meaningful public comments,  
12 and to seriously consider extending its time for its  
13 regulatory determination. Thank you. Those are my  
14 comments.

15 THEA MC MANUS: Thank you, Patricio. Next  
16 we have Rufus Chaney from the U.S. Department of  
17 Agriculture.

18 RUFUS CHANEY: I'm a research agronomist  
19 with USDA's agricultural research service. I been  
20 involved with risk assessment for trace elements in  
21 soils, plants, food chain, sewage sludge, other

1 agricultural amendments, and environmental  
2 contamination in agriculture. I spent, let's say, four  
3 years of my life from '89 to '93 helping EPA  
4 correct a terrible first risk assessment for sewerage  
5 sludge where they had to abandon their first  
6 published rule, and I think that rule was better  
7 regarding arsenic than the rule that you have here  
8 today.

9 Mr. Brobjorg mentioned a few points about  
10 use, beneficial use of FGD, the desulphurization  
11 treatment residues in agriculture. On the one hand,  
12 government requires desulphurization generating a  
13 much larger quantity of residual from certain power  
14 generating facilities, and then when beneficial uses  
15 are developed by cooperative research between DOE,  
16 EPA, USDA, state university systems and others, when  
17 there's no evidence of these risks that are of such  
18 concern when it's used at the beneficial rate, and  
19 then we come to this report and this risk  
20 assessment.

21 I feel blindsighted because, among other

1 things, the research community who developed  
2 technologies for beneficial use who demonstrated  
3 success and benefit from beneficial use were not part of  
4 this process. I understand it's difficult. With  
5 all the different academic and government and  
6 industrial interests out there, but to have one rule,  
7 sewerage sludge, allows 41 ppm and products assumed  
8 to be applied to the 1000 metric tons in 100 years  
9 and so on, that allows 41 ppm, and a risk assessment  
10 calculation from this rule that depending on  
11 whether -- I'm relying on a RTI claim that when  
12 exceeded one part per million, it was already in a  
13 risk area.

14 Mr. Brobjerg made the point, and I think  
15 it's a very important idea, and that is that when EPA  
16 does a risk assessment that would require you to  
17 conclude that 90 percent of America's soils are  
18 hazardous, how can you even talk about it without  
19 saying to yourselves hey, maybe that's not true.  
20 Maybe that's not the way it is? Where did I go  
21 wrong? Why don't I ask experts? Because there are

1 people out there who could have told you, there are  
2 publications out there. The drinking water office  
3 has gone through a massive input of data from the  
4 community about arsenic risk. And in that effort, of  
5 course, soil ingestion risk of arsenic is part of  
6 what's considered, not just the drinking water  
7 supply; the bioavailability of food arsenic is part  
8 of that consideration, and the fact that we have  
9 significant problems about arsenic in the  
10 environment, the United States and around the world  
11 that really deserve EPA's attention. And here we are  
12 focusing on a very minor, or in my -- as my comments  
13 suggest, clearly demonstrated nondangerous level,  
14 where we have housing developments being built on  
15 soils with hundreds of ppm arsenic from historic  
16 orchards, or cotton ground, as well as, of course,  
17 the few places where are we have industrial  
18 contamination that was bad enough to require  
19 Superfund evaluation.

20 Concepts. One, I think, an example that  
21 will tell you why we think beneficial use is a good



1 idea compared to landfill disposal. Back in the '70s  
2 and '80s, a group at Cornell did some research that  
3 nicely showed or confirmed what we would say should  
4 have been expected, that if you grow crops on pure  
5 high selenium fly ash, you will have dangerous crops.  
6 Hardly a surprise. Other researchers at  
7 Cornell said well, wait a minute, nearly all the  
8 crops grown in the United States are deficient in  
9 selenium for an animal and human life. Maybe if we  
10 use a little bit instead of ten feet pile, maybe it  
11 would do some good.

12 So he did a test and sure enough there was  
13 a great fertilizer. The dose does make the poison,  
14 selenium, and many of these other materials are not  
15 persistent in a bioavailable form, or they're  
16 required and used in crops and into foods. That  
17 strategy of using responsible rates can be applied to  
18 FGD by-products, materials, and one can, as the model  
19 Brobjerg presented, growing alfalfa with three- to  
20 five-ton projectors every three to five years. As a  
21 boron, sulfur and selenium fertilizer and limestone

1 replacement is a real benefit to farmers. Farmers  
2 are going to lose value. They're going to pay more.  
3 Rate payers are going to pay more and the entire  
4 reason for not allowing that to proceed is  
5 assumptions about arsenic risk, that your part of EPA  
6 hadn't learned what the other parts of EPA have learned.

7 I raised other points in my text, but the  
8 big ideas are that soil arsenic is not biomagnified  
9 in the way that other things are, and more  
10 importantly, that soil arsenic is not sodium arsenic  
11 for toxicology reasons. When you presume that  
12 ingested soil arsenic is 100 times as bioavailable as  
13 sodium arsenic added to test diets, when the data  
14 have shown that when you deal with soils with 30 to  
15 100 parts per million arsenic, you're more like 5 to  
16 10 percent as bioavailable, relative bioavailability  
17 is sodium arsenic, then you've made a serious error.

18 A tenfold error on that assumption almost  
19 by itself puts it into the nonrisk category, but that  
20 wasn't the only serious error. You claim to have  
21 followed the Exposure Factors Handbook, and yet you

1 used a 95 percentile soil ingestion of one gram when  
2 it's clear that it's in the range of 150 to 200  
3 million grams a day from many data sets, imperfect,  
4 but a lot of data that are generally accepted in  
5 scientific community. To presume that children are  
6 going to be eating a gram of soil per day for six years  
7 and less for the next 18 years, and then the  
8 next year that I point out the issue of just dealing  
9 with children's allowable increased dietary arsenic.

10 Children are growing and eat a higher  
11 amount of food per unit body weight than older  
12 people, which means that the difference between the  
13 calculated allowable in the food intake from  
14 background normal foods can be very small. But using  
15 the .0003 RFD milligram per kilogram day, rather than  
16 the one used in the sludge rule, one simply collapses  
17 a large area down to just a little bit, but put it in  
18 proportion. Here was background intake. Here's your  
19 allowable, and there was the other allowable which  
20 was also one of EPA's listed values that's accepted.

21 There's another problem in that question,

1 if the risk from arsenic is indeed cancer, from  
2 seven-year lifetime exposure to apply the slopes from  
3 that to a short part of life, view it one year to  
4 seven years, with that assumption of intakes that are  
5 completely out of proportion to the rest of the  
6 lifetime where the slopes were developed, causes, I  
7 believe, a significant error. Also during the  
8 drinking water exercise a  
9 whole suite of errors were found in the Taiwan data  
10 set that is a basis for the slope, cancer slope, and  
11 they had to put it on hold and they still don't have  
12 a replacement value that the agency has adopted.  
13 Your part didn't understand perhaps that that had  
14 been discredited. It was discredited because the  
15 original data were flawed, discredited because the  
16 water intakes were lower than the people drank, and  
17 it was a water arsenic, a high bioavailability. It  
18 ignored food intake from rice and yams, the principal  
19 foods which have now been shown to be more than half  
20 inorganic arsenic so that the cancer slope factor  
21 together was off by a factor of 10. So I got three

1 factors of ten here. That would put it to where  
2 there never was an arsenic risk. And that's not all  
3 of them, but that's all I'll have time to talk  
4 about.

5 I mentioned earlier these other exposures.  
6 I think it is federal policy to deal with the worst  
7 risks first. I know this is your risk and you want  
8 to deal with your risk, but CCA-treated wood is still  
9 allowed to be sold in the United States, when  
10 children licking that wood or their fingers after  
11 touching their -- will give so much more exposure to  
12 bioavailable arsenic than these soil amendment  
13 products would give, that it's a joke for you to be  
14 deciding that risk from arsenic and beneficially-used  
15 FGD by-products would be something that is called  
16 hazardous waste.

17 I mentioned about bioavailability stuff,  
18 and so on, and I provide references about each of the  
19 technical points that I've raised here. And I'll be  
20 happy to respond to technical questions since these  
21 are very important technical things that I think

1       discredit the risk assessment, besides other points  
2       that were raised here today.

3               As a scientist who has worked in risk  
4       assessment for many years, I'm very frustrated by the  
5       lack of transparency of this rule. I'm a  
6       knowledgeable expert, and I can't find, without a  
7       great deal of effort, most of the information that is  
8       the ultimate, the real thing that shows where the  
9       limitation occurred. I think our citizens deserve better  
10      than that, and I think that EPA can, at its  
11      highest levels, decide that we don't let reports go  
12      out, that even experts who have read the entire  
13      literature can't find the connecting data without a  
14      great deal of effort or coming to the docket.

15             I agree with other comments about short  
16      time, short fuse for the hearing. And as far as I  
17      know, USDA was not contacted about this in the review  
18      process, and I would have thought that might have  
19      been appropriate. And I brought this to the  
20      attention of my management and hope that USDA will  
21      provide formal comments about most of the issues that

1 I've raised.

2 In closing, the evidence that FGD  
3 by-product and a number of other coal combustion  
4 by-products, can be beneficially used at little or no  
5 risk, and great benefit. In many cases, based on the  
6 data, thousands of papers that we can rely on to make  
7 those conclusions tell me that there's such an  
8 important error, that EPA should not allow this  
9 document to go to Congress until those errors have  
10 been corrected. Thank you.

11 RICHARD KINCH: I just have one brief  
12 question. The sewerage sludge report basically said  
13 that those kinds of limits should not be used for  
14 other materials because uptake rates and other things  
15 would be different.

16 I guess you certainly like the sewerage  
17 sludge rule as it is finalized better than what we  
18 have here. What's your comments on use of sewerage  
19 sludge criteria within this setting?

20 RUFUS CHANEY: I think we have enough data  
21 on arsenic in bioavailability from soils fed to test

1 animals. Although the bulk of those are for mine  
2 waste that are much more highly contaminated than a  
3 soil would ever become from these coal combustion  
4 by-products. One of the places where there is a big  
5 difference between the two is the short term effect  
6 on uptake, but compared to a number of other  
7 categories of wastes or by-products that are  
8 considered for use, the coal combustion by-products  
9 contain oxides that can adsorb specifically arsenic  
10 on iron aluminum and other oxides. So in terms of these  
11 factors that would affect plant uptake and  
12 bioavailability, I don't think they are so different  
13 that they would be a factor too different in what we  
14 would estimate ought to be allowed.

15 Now there are coals that are going to be so  
16 high in arsenic that they shouldn't be allowed  
17 anywhere on land. Finkelman from USGS has some  
18 delightfully tragic papers about human poisoning in  
19 China from coals collected by citizens from local  
20 resources. I mean, if you want to learn about  
21 hazards of coal wastes, you'll read his papers. We



1 don't do that in the United States, and the companies  
2 know that they got to protect themselves from that  
3 kind of risks and they use higher quality NSP, in  
4 particular, uses -- because they wanted to have a  
5 product that they can justify, an application  
6 program, stick with one coal source.

7           They don't have such variation from  
8 day-to-day that it is a mysterious problem. You're  
9 really implying a plant uptake difference between the  
10 two as opposed to the direct injection  
11 bioavailability. I'll just point out that typical quality  
12 arsenic level, coal combustion, fly ash and  
13 FGD may show, particularly when high rates are used,  
14 a significant uptake of arsenic the first year, and  
15 then after a year of equilibrating in soil because  
16 there are chemical reactions that take a while to  
17 occur, there's no longer a significantly higher  
18 concentration of plants because of bad adsorption  
19 when it comes to mere equilibrium.

20           These are well known in the literature.

21           THEA MC MANUS: Thank you, Rufus. Before

1 we break for lunch. Let me ask if there's anybody  
2 here from the Clean Air Task Force, or from the  
3 association of independent power producers. We'll  
4 break now for lunch. And return promptly at 1:30, at  
5 which point Larry LaBuz will be giving his  
6 presentation.

7 (Whereupon, at 12:07 p.m., the hearing was  
8 recessed, to be reconvened at 1:30 p.m. this same  
9 day.)

10

11

12 AFTERNOON SESSION (1:30 p.m.)

13 THEA MC MANUS: We're ready to get started  
14 for the afternoon sessions. Larry LaBuz from  
15 Pennsylvania Power & Light.

16 LARRY LA BUZ: Good afternoon. My name is  
17 Larry LaBuz. I'm supervisor of ash operations at  
18 PP&L, an electric utility company that generates and  
19 delivers electricity to 1.3 million customers in  
20 central eastern Pennsylvania. I appreciate the  
21 opportunity to present comments today on behalf of

1 the American Coal Ash Association, or ACAA and PP&L  
2 on the EPA's Report to Congress; waste from the  
3 combustion of fossil fuels. In particular, my  
4 comments will focus on mine fill initiatives in  
5 Pennsylvania, which, through the cooperative efforts  
6 of the Pennsylvania Department of Environmental  
7 Protection and the coal mining and power production  
8 industries are accelerating the reclamation of  
9 abandoned mine lands in Pennsylvania.

10 According to DEP estimates, there are an  
11 estimated 200,000 acres of abandoned mine land in  
12 Pennsylvania that is polluting over 2400 miles of streams,  
13 making it Pennsylvania's single biggest  
14 water quality problem. Pennsylvania's mine fill  
15 initiatives range from the conventional placement,  
16 which is subject to very specific regulatory  
17 requirements governing ash quality and placement,  
18 through more innovative approaches to placement, such  
19 as the reclamation of crop falls which I will discuss  
20 later, coal refuse banks and water filled strip pits,  
21 strip mine pits.

1                   These particular projects are being  
2 performed as demonstration projects and involve  
3 significant testing, research and monitoring measures  
4 to insure the placement of coal ash is safe to the  
5 environment. The ACAA and PP&L believe the  
6 beneficial use of coal ash as mine fill is being  
7 effectively managed in Pennsylvania under existing  
8 regulatory mechanisms, and federal controls are  
9 unnecessary and may even thwart these beneficial  
10 initiatives.

11                   Now I would like to discuss PP&L coal ash  
12 management strategy. PP&L burns about 8 million tons  
13 of coal ash -- I'm sorry, coal each year, making it the  
14 largest producer of electricity generated from  
15 coal in Pennsylvania. As a result, PP&L generates  
16 about 1 million tons of coal ash each year. Up until  
17 the mid 1990s, most of PP&L's coal ash was disposed  
18 of in captive landfills or surface disposal  
19 impoundments, constructed mainly on farmland and  
20 green space adjacent to the power plants.

21                   In total nearly 1000 acres of land was

1 required for disposal of coal ash at PP&L's four  
2 operating coal fired power plants. Today, however,  
3 mine reclamation is a major component of PP&L's ash  
4 management strategy. Since 1995, PP&L has increased  
5 the amount of coal ash beneficially used in mine  
6 reclamation from 65,000 tons in 1995 to over 320,000  
7 tons in 1998. The beneficial use of coal ash's mine  
8 fill has significantly reduced PP&L's coal ash  
9 handling costs. Also, due to Pennsylvania's mine  
10 fill initiatives, PP&L currently has no plans to  
11 build any more coal ash disposal facilities at its  
12 power plants. Working with the local public advisory  
13 committee, PP&L identified sufficient mine sites to  
14 reclaim with its coal ash that would result in the best  
15 balance of environmental improvement, public  
16 safety and cost savings to the company and to the  
17 public.

18 The dramatic increase in the use of coal  
19 ash as mine fill in Pennsylvania can be initially  
20 attributed to the 1986 amendment the Pennsylvania  
21 Solid Waste Management Act, that revised the

1 definition of solid waste to exclude coal ash that is  
2 beneficially reused or beneficially used. The act  
3 defines coal ash as fly ash, bottom ash, or boiler  
4 slag resulting from the combustion of coal, that is  
5 or has been beneficially used, reused or reclaimed  
6 for a commercial, industrial, or governmental  
7 purpose. The act goes on to define what constitutes  
8 a beneficial use, and includes the use of coal ash  
9 for mine subsidence, mine fire control, and mine  
10 sealing.

11 The 1986 amendment to the act is  
12 significant to coal ash producers who are now  
13 beneficially using coal ash as a product at mine  
14 sites as opposed to disposing of it as a waste  
15 material. In this case, coal ash is being beneficially  
16 used as mine fill in lieu of natural  
17 borrow materials or mine spoils which, in many cases,  
18 are absent at mine sites.

19 Surface mines. PP&L is dealing with  
20 surface mines. This, in a particular earlier  
21 presentation discussed -- two presentations discussed

1 barriers to the increased use of coal ash, and it's  
2 clear that in Pennsylvania this was one barrier to  
3 the increased beneficial use of coal ash that has  
4 been removed and really promoted this use.

5           However, this does not mean that the  
6 beneficial use of coal ash is unregulated in  
7 Pennsylvania. The amendment to the act gave the EPA  
8 the authority to establish standards and criteria for  
9 various beneficial uses DEP subsequently developed  
10 covering mine fill, which eventually were  
11 incorporated into the residual waste regulations  
12 which were enacted and adopted in 1992. Mine fill is  
13 also subject to the Surface Mining Control and  
14 Reclamation Act, and the Coal Refuse Disposal Act.  
15 Subsection H of the Residual Waste Regulations  
16 specifically sets forth procedures which must be followed  
17 for the conventional placement of coal ash  
18 at mine sites. Major requirements include ash  
19 delivered to the mine site must have a pH between 7  
20 and 12.5, and cannot produce a leachate that exceeds  
21 DEP's class 3 limits, which the DEP has established

1 as safe for unlined natural attenuation facilities.  
2 Ash must be separated from the groundwater high  
3 walls, and other consolidated rock features. Ash  
4 must be delivered to the site within an acceptable  
5 moisture range and compacted in layers not exceeding  
6 two feet in thickness.

7 And lastly, groundwater must be monitored  
8 to show that not only is there no adverse impact, but  
9 also that the beneficial use results in an  
10 improvement. Since 1986, the DEP has issued over 80  
11 permits for the conventional placement of coal ash at  
12 mine sites and has -- and in its reports, has not  
13 detected any significant off site groundwater  
14 pollution from the use of coal ash.

15 I understand that the Department of Energy  
16 is currently pulling this information together and  
17 will be submitting a report, a written report summarizing  
18 this data, and I also understand that the  
19 Department of Environmental Protection is also going  
20 to be submitting data to substantiate this.

21 While groundwater quality at mine sites may



1 take many years to show improvement due to the  
2 significant damage caused by absent mine drainage,  
3 reclamation activities have already significantly  
4 reduced surface water infiltration, and eliminated  
5 safety hazards posed by high walls and other  
6 dangerous features at the mine sites. The innovative  
7 nonconventional mine fill initiatives underway in  
8 Pennsylvania are being evaluated through the use of  
9 no cost contracts or demonstration permits, until it  
10 can be shown that the approaches are justified  
11 without compromising environmental quality. No cost  
12 contracts are also being used by other states for  
13 mine fill applications.

14 PP&L itself initiated a nonconventional  
15 mine fill project involving the reclamation of crop  
16 falls which posed a serious safety hazard in the  
17 anthracite region. Crop falls consist of long narrow  
18 openings resulting from the subsidence of abandoned deep  
19 mines creating almost vertical high walls of  
20 various depths. They represent significant problems  
21 because of their size, their depth, location and

1 numbers. And also due to the fact that there's no  
2 material available nearby for backfill. Current  
3 funding associated with reclamation of abandoned mine  
4 land does not typically allow these extensive crop  
5 fall areas to be reclaimed. Therefore, the only way  
6 these crop fall areas may be reclaimed is through the  
7 beneficial use of coal ash.

8 In conclusion, the environment is being  
9 well protected in most cases enhanced through the  
10 beneficial use of coal ash as mine fill in  
11 Pennsylvania. The ACAA and PP&L believe that mine  
12 fills should be left to the states to regulate based  
13 on state specific needs and priorities. I wish to  
14 thank EPA for holding these public meetings and  
15 allowing me to present our recommendations to the  
16 agency, and I'd be happy to entertain any questions  
17 you may have.

18 ANDREW WITTNER: Larry, you mentioned  
19 separation from groundwater as mandated from the state.  
20 Can you elaborate just a bit?

21 LARRY LA BUZ: For the -- again, I'm

1 speaking to the conventional placement of coal ash  
2 requires a separation, I believe, of 8 feet to the  
3 groundwater table, which must be accomplished by  
4 placement of any materials that are available  
5 nearby. This is -- no liners are required, just  
6 keeping a separation distance. So as long as you  
7 meet that separation distance, you can begin placing  
8 coal ash. There are -- and I would have to defer to  
9 DEP -- I do know that they are investigating direct  
10 placement of coal ash into the water table at some  
11 mine sites, and this would be one of those projects  
12 that they're evaluating under a demonstration  
13 permit. I'm not familiar with that but I know  
14 they're looking into that. But this would be one of  
15 those projects that they would be handling outside  
16 the Pennsylvania regulatory process until they have  
17 the monitoring data to show that it is a safe  
18 practice.

19 So in conclusion, the idea would be that  
20 the states are looking at this, Pennsylvania, in  
21 particular, is studying the safety of that particular

1 application.

2 RICHARD KINCH: I thought for your mine  
3 fill, you made a reference for mine filling and the  
4 operations that you selected to engage in mine  
5 filling, that you somehow pick the best sites.

6 LARRY LA BUZ: Yes.

7 RICHARD KINCH: Could you elaborate a  
8 little bit more on what factors help constitute what  
9 was a best site?

10 LARRY LA BUZ: We had at our sites some --  
11 at our coal fired power plants, we were bringing coal  
12 in from an anthracite region, bringing anthracites  
13 and other coal sources. So what we did was we  
14 basically looked in a five-mile radius of those coal  
15 reserves what was available for reclamation, and we  
16 basically did -- established criteria to evaluate  
17 these sites, including public safety, hall roots, the  
18 particular site was what sort of groundwater  
19 degradation was occurring from the abandon mine land  
20 from acid mine drainage, and we actually solicited  
21 input from a public advisory committee who helped us with

1 this ranking process. And in this particular  
2 instance, this crop fall came to the top of this  
3 process mainly because of the safety hazards posed by  
4 the crop fall. Thank you.

5 THEA MC MANUS: Thank you, Larry. Next we  
6 have Barry Scheetz from the Association of  
7 Independent Power Producers.

8 BARRY SCHEETZ: Thank you very much for  
9 having us here today. My name is Barry Scheetz. I'm  
10 a professor at Penn State University. My actual  
11 title there is professor of materials, civil and  
12 nuclear engineering. I have degrees; my formal  
13 education is in geochemistry. And I have been on the  
14 faculty there for about 24 years. For this period of  
15 time, I have worked in various environmental  
16 applications, primarily with cement and consequently  
17 the use of fly ash in Portland cement. My activities  
18 for the past 10 years have concentrated on large  
19 volume uses of fly ash, specifically making  
20 cementitious grout out of the fly ash and using that  
21 for mine land reclamations. I'm here testifying on

1       behalf of ARIPPA. ARIPPA is a trade association comprised  
2       of 12 independent power plants, these are  
3       located in both the anthracite and bituminous region  
4       of Pennsylvania, and they have an additional five  
5       associate members in Pennsylvania and in West  
6       Virginia.

7               These power plants burn coal refuse waste.  
8       This is material that has blighted the landscape of  
9       Pennsylvania since before the Reclamation Act of '77,  
10      where you must go back and backfill. These power  
11      plants represent a total production of 886 megawatts  
12      of generation capacity and they have consumed, during  
13      the course of their operations, which is now about 10  
14      years in Pennsylvania, they have consumed about 56  
15      million tons of this coal refuse waste. They provide  
16      a very significant environmental benefit to  
17      Pennsylvania. They impact and improve the  
18      aesthetics. I'm a product of the coal region of the  
19      anthracite region of eastern Pennsylvania, and I was  
20      seven years old before I realized that snow was not  
21      supposed to be gray.

1           They eliminate mine drainage, they  
2           eliminate the materials for mine fires, they eliminate  
3           huge quantities of silt runoff because most  
4           of these column banks are unvegetated. And they  
5           eliminate very significant health and safety issues.  
6           Within Pennsylvania, the priority on the restoration  
7           using AML money, abandon mine lands money, is based  
8           upon occurrence of fatalities at site, and this  
9           group, ARIPPA, has a number of their participating  
10          members who are working specifically on sites where  
11          there have been fatalities.

12           The ash that's generated by these  
13          facilities is used as a sweetener, all of these  
14          facilities add lime to their fluidized bed in order  
15          to control the socks emissions so they will all run a  
16          slight excess of lime so that the ashes that come off  
17          have a higher pH. They have the lime content in  
18          them. That acts as a sweetener for soil restoration,  
19          in restoration of contaminated soil. It's also used  
20          either as a direct -- a neutralization component for  
21          acid mine drainage, and what results from these are

1 that the reclaimed mine sites are revegetated, and  
2 they are beginning to provide very valuable habitat  
3 for wild life. My two co-presenters here, Rufus and  
4 Larry, have presented a great deal of what I wanted  
5 to say, and they're going to hit the highlights of  
6 what I have here. So I'm going to repeat just a few  
7 of what I think are important points.

8 Our DEP has, as you just heard, 2400 -- or  
9 has indicated an inventory of 2400 miles of degraded  
10 streams. They have 252 miles of high wall which  
11 constitute an immediate and present danger to the  
12 inhabitants to Pennsylvania. They have 1200 mine  
13 shafts and ventilation shafts that are not closed,  
14 that are open and accessible the deep mines. We have  
15 38 burning underground mine fires in Pennsylvania.  
16 And, of course, you'd heard that infamous 250,000  
17 acres of unreclaimed mine lands in Pennsylvania.  
18 This is the largest single environmental problem in  
19 our commonwealth. 45 of the 67 counties in  
20 Pennsylvania are impacted by this. This constitutes  
21 just the mine lands, a \$15 billion restoration



1 effort. The 2400 miles of stream constitute a \$5  
2 billion restoration effort. Waste piles of coal that  
3 ARIPPA is burning amounts to what we think is a very  
4 conservative estimate of 303 million tons of abandoned  
5 preact refuse that exposed upon the lands.

6 In the anthracite region, there's 132 million tons,  
7 and the majority of the participating members in  
8 ARIPPA have consumed in the past ten years 56 of  
9 those.

10 Let me get to the issue. I'd like to in  
11 the remaining time I have, to address the risk  
12 assessment model. I'd like to give you some idea of  
13 what the use of this ash in mine land restorations,  
14 and these are surface mine restorations, has done,  
15 and then we'll draw some conclusions. In your  
16 previous reviews in '88 and '91, the EPA had used  
17 standards of release that were based upon the EPA  
18 13-1. That's 100 times drinking water standard.  
19 From these standards, the arsenic released from  
20 fluidized bed combustor wastes would clearly pass --  
21 all of the waste would pass those standards. In

1 fact, the vast majority of material that has come out  
2 of these wastes will pass the drinking water  
3 standards. Making a decision to regulate the  
4 fluidized bed combustion by-products in mine land  
5 reclamation, either under Subchapter C of RCRA, or a  
6 voluntary program is not appropriate, especially when  
7 we feel that the primary basis -- or primarily based  
8 on the risk assessment in modeling. We don't think  
9 that was well chosen. We think it's ill founded.

10 We believe that the decision to regulate  
11 fluidized bed combustion by-products under the  
12 Subchapter C, or under a voluntary purpose, will  
13 impact the overall program within Pennsylvania.  
14 Governor Ridge has announced a growing, greener  
15 initiative in Pennsylvania, which will expand  
16 reclamation, and he is specifically targeting -- this  
17 is the single most pervasive environmental problem in  
18 Pennsylvania. He's targeting it for restoration.  
19 The Pennsylvania Joint Legislative Air and Water  
20 Pollution Control and Conservation Committee have  
21 evaluated the use of these wastes products, of these

1 combustion wastes, and they have come back with an  
2 endorsement of them, for their beneficial use for  
3 these applications.

4 Those 56 million tons that ARIPPA have  
5 consumed of the gob have resulted in much higher than  
6 average ash, simply because the average BTU content is  
7 much lower but it has constituted the 2300 acres  
8 of restoration in that ten-year period of time.

9 Our concerns with your modeling are  
10 basically threefold, and I have a lot of detail here,  
11 and I'm only going to skip over these in deference to  
12 the time limit that we have. Your own evaluation of  
13 the modeling quotes that it fails to account for  
14 correlations that occur between parameters at a site  
15 due to physical relationships among soil properties  
16 and regional trends and climate and geohydrology.  
17 It's basic hydrogeologic -- students will learn that  
18 simulation of groundwater flows in a uniform flow, in  
19 a unidirectional flow path. When you apply that to  
20 very complex situations, it just doesn't work,  
21 particularly the complex geology that we see in the

1 folded Appalachian Mountains where the anthracite  
2 occurs where we have multiple aquifers that may be  
3 underlying one another with much varying different  
4 chemistries. Most of these complexes where we're  
5 talking about applying this material are --  
6 geohydrology's controlled by complex interconnection  
7 of deep mining and drainage shafts into mine pools.

8 The second issue is the source term. And  
9 this is the one that -- we got five minutes, and this  
10 is the one that's particularly important. The source  
11 term is critical in modeling. You have to be  
12 particularly -- pay particular attention to the  
13 mechanism of release, how much material is there, the  
14 kinetics of release, and if you look at the model, we  
15 don't believe that the use of cementitious  
16 material -- that this ash constitutes -- was  
17 adequately modeled for the source term. This  
18 material is pozzolanic. That means that in the ash  
19 material in the presence of high pH will undergo  
20 chemical reactions that are cementitious. And I can  
21 go through the chemistry if you'd like that.

1                   As compared to Portland cement, the  
2                   compacted ash here will generate compressor strengths  
3                   of 1000 to 4000 PSI. Redi-Mix that you use for your  
4                   sidewalk gets to be 2500 or 3500 PSI. Because of the  
5                   swelling action that occurs in this hydration  
6                   product, we will routinely measure in the laboratory  
7                   hydraulic conductivities of  $10^{-6}$  to  $10^{-10}$  centimeters  
8                   per second, comparable to the capping material that you  
9                   require for hazardous waste landfills.

10                   The material itself will set up as a hard  
11                   mass, and when you go to look at the component -- the  
12                   metal release source term from this, you will find  
13                   that you have a solid mass, not that loose fluffy fly  
14                   ash that you expect. And if you look at some very  
15                   simple calculations, back-of-the-envelope  
16                   calculations, you can see that you can reduce by  
17                   several orders of magnitude, in fact, seven orders of  
18                   magnitude, 10 million times the surface area, and if  
19                   you're exposing the same volume of water to that  
20                   reduced surface area, you have to reduce leaching.  
21                   It's the same thing you get when you try to dissolve

1 sugar into coffee. If you use a sugar cube, versus  
2 granulated sugar, versus powdered sugar, you will  
3 know that the powdered sugar dissolves fastest.  
4 Why? It has the highest surface area.

5 The same thing occurs for this, and your  
6 own verbiage in the various documents that were  
7 available to me for the preparation of this suggests  
8 that indeed, that was overlooked. There are a number  
9 of other assumptions in there, and I think I hit upon the  
10 most telling of them. Let me just very quickly  
11 hit the water quality data. The co-gen plants impact  
12 and the use of this ash impact water in four  
13 significant ways. The one that we're here to talk  
14 about today is the release of metals, and  
15 specifically in the document that we're addressing  
16 here was arsenic. The data from the ARIPPA  
17 memberships spanning ten years of operation have in  
18 their database 8,931 separate water analyses. And  
19 these show an improvement of water contacting the  
20 reclaimed mine sites. The pH of the contacting water  
21 is generally increased, the dissolved metals, iron

1 and manganese and arsenic are reduced, acidity is  
2 reduced, and generally, the reduction of arsenic  
3 concentration in water affected by the fluidized bed  
4 ash is typically in the range of a factor of 3 to a  
5 factor of 100.

6 Let me conclude now basically saying that  
7 there are quite a number of things. We think that  
8 your modeling was not adequate. We think your  
9 modeling seriously needs to be relooked at. I think  
10 your modeling seriously needs to look at the implications  
11 of the use of this ash as an aqua-tard,  
12 not as something that's going to let water permeate  
13 through it.

14 We would very strongly suggest that you  
15 abandon the course of action of trying to regulate  
16 this under Subchapter C of RCRA, simply because it is  
17 a very significant economic impact to the  
18 Commonwealth of Pennsylvania. And I think of behalf  
19 of ARIPPA -- and I'm going to extend an invitation to  
20 you -- if you're going to go to Indiana, take a  
21 shortcut through Pennsylvania, and we would be

1 delighted to lead you on a tour of the various  
2 facilities that we have going in the various  
3 demonstrations. The project that Larry talked about  
4 of ash placement in standing water, I'm doing. And  
5 I've done the one before that. We've done two in  
6 Pennsylvania, one where we've injected fly ash grout  
7 directly into a reclaimed mine site, and we've  
8 afforded a 90 percent improvement in water quality on  
9 that one. And the other demonstration is ongoing,  
10 but it's just outstanding right now.

11 ANDREW WITTNER: How do you feel about the eight  
12 foot separation distance which Larry spoke  
13 given -- we don't have any real problem, pozzolanic,  
14 cementitious and source terms kind of criticisms. We  
15 understood these things. And I think you were  
16 probably speaking of our -- when you say you reviewed  
17 our models, are you speaking of landfills or mine  
18 fills?

19 BARRY SCHEETZ: The mine fills.

20 ANDREW WITTNER: Okay. Well, that's -- you  
21 probably notice further down in the report that we



1 backed off that for the present. But given how you  
2 feel about the mobility of contaminants in this ash,  
3 why do you or do you not accept the need for 8-foot  
4 separation distance?

5 BARRY SCHEETZ: The demonstrations that  
6 we're doing right now are specifically being  
7 conducted to look at that. The eight-foot  
8 separations I personally don't think are necessary.  
9 We have not seen -- in the data that I've look at  
10 over the years, we have not seen the mobility of any  
11 heavy metals that would warrant doing that. But our  
12 DEP has taken what I think is a very aggressive leadership  
13 role, and I think is a model that ought to  
14 be looked at as a leadership model for how to  
15 regulate the use of ash. They chose that as a  
16 conservative issue.

17 We're addressing that situation right now  
18 with our demonstration. We're placing the ash into  
19 standing water. We have 140 million gallon surface  
20 strip pit that we are gradually recovering with  
21 this. And the metals in there are nonexistent. In

1 fact, the pH is elevated because of the lime that's  
2 in the water, but if it were not for pH, that pool  
3 would meet drinking water standards.

4 RICHARD KINCH: What's the timetable for  
5 that demonstration project?

6 BARRY SCHEETZ: The timetable on it is that  
7 it's been in progress for about two years. It's  
8 about a third finished. So we're looking probably at  
9 another four years before we -- before the pit is  
10 filled. Water is being collected on a monthly basis  
11 and on a quarterly basis by the DEP, so those data  
12 are being assembled, and I know that DEP is going to  
13 be presenting a written commentary to you. And that's  
14 going to be highlighted as one of the --

15 ANDREW WITTNER: That water is somehow  
16 contained or is it a pool?

17 BARRY SCHEETZ: It's a mine pool. It's  
18 connected to a mine pool, and it constitutes about 25  
19 percent of the mine pool, but the mine pool's is  
20 interconnected only through deep mines. And we are  
21 monitoring upgradient, of course, and there are four

1 downgradient monitors, and then we're monitoring the  
2 outfall of that, where it discharges into the  
3 Schuylkill River. It is the head water of the  
4 Schuylkill River. And as I say, to date, there's --  
5 you can drink it if you like the pH. It tastes a  
6 little soapy. Thank you. Please take us up on our  
7 invitation.

8 THEA MC MANUS: Thanks, Barry. Next we  
9 have Ron Hamrick from the National Mining Association  
10 and Anchor Energy.

11 RON HAMRICK: Going with the old adage that  
12 a picture is worth a thousand words in the 15-minute  
13 time limit, I brought a few pictures that I'll show  
14 you as we go on. What I'd like to present are three case  
15 histories. I'm the manager from Environmental  
16 Services for Anchor Energy Corporation located in  
17 Morgantown, West Virginia, and the three case  
18 histories that I'll be presenting are done by Patriot  
19 Mining Company, which is an operating subsidiary of  
20 Anchor Energy Corporation.

21 The operations that I'm going to be talking

1 about are in Monongalia and Preston Counties in  
2 northern West Virginia. Patriot first began the  
3 utilization of coal ash in 1990. And at that time,  
4 the ash back-haul was undertaken as part of a coal  
5 sales contract. Since that time, the ash utilization  
6 has been incorporated into the mining operation and  
7 remains the only practical way for meeting current  
8 permit requirements. The ash is used to stabilize  
9 and solidify other mine wastes and to produce -- and  
10 to reduce the potential for acid mine drainage in the  
11 northern West Virginia coal fields.

12 The three projects that I'm going to talk  
13 about demonstrate a number of different techniques in  
14 which the coal combustion by-products are utilized at  
15 these mine sites, and the by-products from the ash are  
16 from circulating fluidized bed boilers, which  
17 inject limestone with coal in the combustion bed.  
18 And resulting ash is highly alkaline and tends to  
19 harden and has a very low permeability content.

20 The first site I'd like the talk about is  
21 the Albright re-mine site. This is a premacrosite

1 located on the banks of Cheat River in Preston  
2 County, West Virginia, and it had been burning for a  
3 number of years. And this is a picture taken of the  
4 site from across the river at a site where the  
5 whitewater rapids put in, this is one of the parking  
6 lots and there's a large AMDC coming into the river  
7 directly across from this site.

8 This is a closer-up view of the site. You  
9 can see the sting smoke coming off of the burning  
10 refuse. In addition, there were three seams of coal  
11 that have been surfaced mined in this site leaving  
12 about 2500 feet of unreclaimed high wall and unstable  
13 spoil piles. The burning refuse is reclaimed by the  
14 West Virginia AML program in 1990, which eliminated  
15 exposed refuse in the air pollution hazard. But due  
16 to the extreme acidic nature of the refuse, seepage from  
17 this pile was still acidic with high metal  
18 concentrations.

19 A typical seepage quality was 1600 --  
20 16,700 parts per million acidity, loading rate of  
21 about 1300 pounds per day. Iron was 3,620,292 pounds

1 per day, pH was 2.7. And this discharged into the  
2 Cheat River, as I said earlier, directly across from  
3 where these whitewater rafting companies put in in  
4 the spring for their tours. Patriot has a rail car  
5 dumping facility located nearby where ash was brought  
6 in on the CSX rail line. From the outset of this  
7 project, it was Patriot's objective that the ash that  
8 was brought in by the rail would be used in totally  
9 eliminating the AMD discharge from the site.

10 Prior to any construction, we did an  
11 extensive engineering evaluation on all materials to  
12 be used in the field. Laboratory tests were  
13 conducted on the field materials to determine the  
14 strengths for stability. In addition, lab scale  
15 leach tests were done and coal refuse, ash and soil  
16 and rock from the site in various proportions in  
17 order to predict potential leaching of heavy metals from  
18 these mixes. TCLP was agent conducted on  
19 samples of ash.

20 Re-mining of this site began in June,  
21 1994. The plan called for complete excavation of all

1 refuse down to original ground on the site. Numerous  
2 acidic seeps were intercepted with constructed  
3 underdrain which outletted into a perimeter diversion  
4 ditch around the site. Our original plan was to haul  
5 as much of this refuse as possible to a nearby refuse  
6 burning co-gen plant. However, due to the burning  
7 which occurred over the years within the pile, most  
8 of the BTU content was too small, too low to be used  
9 as the waste fuel, and therefore it was placed back  
10 in the field with the CFB ash. Upon completion of  
11 the underdrain, we placed a 6-to 8-foot layer of CFB  
12 ash on original ground as a liner system. Then above  
13 this, alternating layers of ash and refuse were  
14 compacted in the field. Layers of ash were typically  
15 2 feet thick, and the refuse layers ranged between 2  
16 feet and 4 feet in thickness.

17 A 14-foot wide bar of CFB ash was placed at  
18 the outer edge of the field to act as a drainage barrier.  
19 Due to the pozzolanic properties of the  
20 ash, this served as a barrier to surface water  
21 infiltration into the pile, greatly reducing the

1 amount of water that could potentially come into  
2 contact with the refuse post mining. This ash was  
3 then covered with 18 inches of soil when  
4 revegetated. From the beginning of the project, the  
5 alkaline nature of this ash has neutralized the A&D  
6 runoff seepage from the coal refuse. And typical  
7 post water discharges from this site, which I have in  
8 a table which I'll submit, they all meet the West  
9 Virginia water quality standards for arsenic, barium,  
10 lead, mercury and nickel. We've exceeded a 6 pH from  
11 all the ponds that we have on the site, and iron,  
12 manganese and aluminum values have been well below  
13 the -- even the technology-based ones which would be  
14 placed on a coal mining site.

15 We had a remine permit, so we were allowed  
16 to discharge above technology-based limits, but that  
17 never occurred due to the nickelization of the ash.

18 I have a couple of pictures showing an  
19 aerial view of the site during construction. And what it  
20 looks like today. The second site is the  
21 Stacks Run coal refuse processing project. This was



1 another re-mine site. It was originally mined during  
2 World War II with a small steam shovel which resulted  
3 in a series of narrow pits and steep soil ridges.  
4 And Patriot began utilizing abandoned pits in this  
5 area for refuse placement about 14 years ago.

6 The refuse is generated by a coal  
7 preparation plant owned by Patriot located in  
8 Kingwood, West Virginia. In late 1992, Patriot began  
9 excavating the refuse as fuel for a new co-generation  
10 plant constructed in Morgantown, West Virginia. The  
11 trucks that haul the refuse to the plant, back-haul  
12 CFB ash to the site and this ash is utilized as a  
13 liner and as a cap material. Typically the CFB ash  
14 has excess calcium carbonate equivalent of about 229  
15 tons per thousand tons, which roughly says that it's  
16 about 23 percent limestone equivalent in the ash.  
17 Typically the coal refuse, which is being excavated  
18 and burned has a deficiency of calcium carbonate of  
19 about 48 tons per 1000 tons, which is highly prone to  
20 produce acid drainages. Most ash and coal refuse  
21 aren't mixed at

1 this site because the refuse is eventually going to  
2 be excavated and burned. Some refuse, however, is  
3 too wet to be compacted to meet requirements on the  
4 site, and this refuse is mixed with the ash which has  
5 a very high ability to absorb water, and the  
6 resulting mixture is stable enough that we can get  
7 proper compaction for the refuse going to the site.  
8 This mixture is stored separately because once the  
9 ash is mixed with the refuse, it can no longer be dug  
10 up again for use as a waste fuel.

11 I have a couple of photographs which  
12 basically show the site with the ash being placed as  
13 a liner and the refuse being placed on top of it.  
14 This refuse will eventually be excavated and burned  
15 in the coal burning power plant. This is a closer  
16 version, the light gray material being the ash and  
17 the dark material being placed on top of it is the  
18 coal refuse.

19 The third area that I'd like to talk about  
20 is the Morgantown area surface mines. The co-gen  
21 power plant which utilizes this refuse from Stacks Run

1 also utilizes coal from Patriot's Morgantown area  
2 surface mines. The coal and the refuse are then  
3 stored in separate silos at the power plant, and mix  
4 is needed to supply the proper feed into the boilers  
5 at the plant. The trucks that haul the coal from our  
6 surface mines return the ash from the back-haul.

7 We're mining the Waynesburg coal seam and it's  
8 overlain by overburden that is very variable from an  
9 acid-base standpoint, and can quickly change from one  
10 pit to the next from a net alkaline to a net  
11 acid-producing balance in the overburden.

12 As a result, some of the historical reclaim  
13 sites have met effluent limits without treatment  
14 while other sites have required chemical treatment to  
15 meet effluent limits. And I'll have included a table  
16 when the paper that gives results of the acid base  
17 accounts from these sites.

18 CFB ash was first utilized as a reclamation  
19 amendment on our surface mines in 1993, and we have  
20 three principal uses for the ash, the first of which  
21 is a pit liner. Following coal removal, a six to

1 18-inch layer of ash is spread on the pit floor. Whenever  
2 possible, we like to have the trucks from  
3 the power plant place the ash directly on the pit  
4 floor following coal removal. When scheduling  
5 doesn't allow this, the ash is stockpiled and then  
6 hauled to the pits in 50-ton rock trucks, and then  
7 tracked in and compacted with a rubber tire front end  
8 loader. What this does is give the post mining  
9 groundwater flows in the backfill pits an alkaline  
10 surface to run over, rather than the coal pavement.  
11 There are areas where this coal pavement can be acid  
12 produced and we're going to try to have an alkaline  
13 layer for that water to run across rather than an  
14 alkaline acid and coal pavement. That's one of the  
15 loaders tracking in the ash into a pit floor.

16           The second use is a cap material.  
17 Following backfill when we regraded the areas to  
18 original contour, we placed a 6-to 36-inch layer of  
19 ash over the regraded area prior to topsoil  
20 placement. In addition to adding alkalinity into the  
21 backfill, this also reduces surface water

1 infiltration, thus reducing the potential for water  
2 to become into contact with the acid producing material  
3 in the backfill. And the final use of the  
4 ash is encapsulation of acid producing shale binders  
5 and roof rock that are associated with the coal seam  
6 that we're mining.

7 And typically, we prepare a level area over  
8 several feet of ash compacted on this area, then the  
9 refuse, or the acid-producing material are trucked on  
10 to this blanket and compacted on top of it, and then  
11 the ash is placed on top of that of that as a seal.  
12 And that's placed in the backfill of mine pits.

13 All sediment structures that we see run off  
14 from this area, from many of the mined areas that are  
15 reclaimed with ash are monitored quarterly for a  
16 number of heavy metals, including arsenic, lead,  
17 nickel, aluminum, barium and mercury. All of these  
18 concentrations from the surface mines have met West  
19 Virginia water quality standards with the exception  
20 of nickel, but we've found that the nickel has also  
21 been exceeded even in the background water quality,

1 which would indicate that this is a background  
2 problem unrelated to the ash utilization. I might  
3 add that I have additional data that will be submitted  
4 during the written comments, both on  
5 groundwater in the 13 sites that we currently have  
6 reclaimed in underactive mining where this ash has  
7 been utilized.

8 RICHARD KINCH: The person from  
9 Pennsylvania referred to an 8-foot separation to the  
10 groundwater table. Do you operate with any kind of  
11 requirement with regard to a separation to the  
12 groundwater table or the bottom of these pits below  
13 the table?

14 RON HAMRICK: What we are doing is we're  
15 intercepting various perched aquifers in the high  
16 wall, as we create the high wall for removal of  
17 coal. And in addition to any perched water that may  
18 be coming in from those high walls, we're going to  
19 have the infiltration water after the area's  
20 reclaimed, so our intent is to put that directly on  
21 the pit floor. So post mining, when the groundwater

1 table's re-established, there will be some  
2 groundwater that's established above the pit floors.  
3 However, our data is showing that we get much better  
4 post mining water quality from ash treated areas because  
5 that ash is running over the -- the  
6 groundwater is running over an alkaline surface as  
7 opposed to the natural, sometimes acidic pavements  
8 that are present in that coal scene. So we  
9 intentionally put it in contact with the pit floors.

10 Thank you.

11 RICHARD KINCH: Dr. Scheetz, you think  
12 that's a good idea?

13 BARRY SCHEETZ: Yes, it is.

14 THEA MC MANUS: Thanks, Ron. You have a  
15 couple of pictures up here. Next we have Lee Daniels  
16 from Virginia Tech.

17 LEE DANIELS: Good afternoon. My name is  
18 Lee Daniels. I'm a professor of soil and  
19 environmental sciences at Virginia Polytechnic  
20 Institute and State University, AKA, Virginia Tech.  
21 I've conducted an active research program on

1 stabilization and reclamation of coal mine lands and  
2 coal processing wastes in southern Appalachia since  
3 1987. So I'll be talking about coal surface mines  
4 and coal waste piles. I'm not talking about deep  
5 mine injection. Since 1990, a major portion of  
6 my research  
7 program has been focused on the beneficial reuse  
8 potential of coal fly ash in mine land environments.  
9 I also served as a scientific advisor to the Virginia  
10 Coal Combustion By-product Task Force and the  
11 Virginia Department of Environmental Quality during  
12 the development of our Virginia regulations for CCP  
13 management, which were adopted in 1995.

14 I also currently work with the Virginia  
15 Department of Agricultural and Consumer Services  
16 testing a wide range of industrial and municipal  
17 wastes and residuals for their reuse potential as  
18 either soil amendments lining materials and  
19 occasionally as alternative fertilizers. In short, I  
20 support the continued beneficial utilization of CCPs  
21 in mine land environments and certain other



1 agricultural environments for reasons which I will  
2 detail in the balance of my comments.

3 First let me focus on the potential for  
4 beneficial use. And clearly in Virginia, this is  
5 beneficial use. We're not talking co-disposal here.  
6 Our perspective is if we're using it in this environment,  
7 it is beneficial reuse, period.

8 We have 100,000 acres of coal mine lands,  
9 these are mainly surface mines, or what you might  
10 call strip mines. They're dominated by very rocky  
11 and frequently infertile mine soils. Actively permit  
12 a coal processing waste which are also known as  
13 refuse gob piles, slate dumps, comb banks, they've  
14 got probably 10 different names -- I'll call them  
15 coal waste here -- cover almost 10,000 acres in  
16 Virginia alone and are typically net acid-producing  
17 over time. Virtually every coal waste pile that I  
18 know of in the Appalachian coal fields is a net acid  
19 producing pile.

20 Since 1990, we have extensively researched  
21 the potential of back-hauled coal fly ash materials

1 for one, utilization as a topsoil amendment to  
2 improve mine soil physical and chemical properties;  
3 and two, as a bulk blended alkaline additive for  
4 offsetting acid mine drainage from these acid coal  
5 processing wastes.

6 Both of these beneficial use pathways for  
7 coal fly ash have merits as I will detail later. While  
8 there are certain risks to the utilization of  
9 CCPs in mine land environments, they can be  
10 effectively minimized through attention to site  
11 conditions and management practices, you've got to  
12 have a local focus looking at individual site that  
13 the conditions match to the CCP of interest. In my  
14 opinion, the latter problem just mentioned, that of  
15 acid mine drainage from coal processing waste  
16 problems is probably the most significant long-term  
17 environmental compliance issue facing the Appalachian  
18 coal industry today.

19 The only proven way to prevent acid mine  
20 drainage from the vast majority of coal wastes  
21 disposal fills is to bulk blend lime or other

1 alkaline materials with the coal wastes to an  
2 appropriate acid-based balance. The alternative, and  
3 most common practice of today is the long term  
4 treatment of the acid discharge at discharge points  
5 for many years, if not decades, if not in  
6 perpetuity. We have extensively examined the effects  
7 of bulk blending alkaline fly ash typically at rates  
8 of 20 to 30 percent by volume with extremely acidic coal  
9 waste materials, both in long-term leaching  
10 column trials, and in a field setting with moderately  
11 acidic coal waste materials. Our column leaching  
12 trials were running large diameter leaching columns  
13 about that big. They were a meter or so long, for  
14 over two years, under unsaturated conditions with a  
15 worst case coal waste material. There was a 4  
16 percent sulfur material that folks said it was so  
17 hot, it just ran away from you. Very, very acidic  
18 material.

19 Untreated columns, those that got no  
20 treatment, quickly acidified to a pH of 1.8 with  
21 10,000 parts -- 10,000 ppm iron in solution along

1 with a host of other metals at elevated levels. The  
2 color of those leachates was the color of these  
3 curtains. However, when we added alkaline fly ashes  
4 above 20 percent by volume, we completely prevented  
5 acid mine drainage over the two-year period study for  
6 a period of over two years for unsaturated leaching  
7 conditions. Similar application of fly ash to  
8 moderately acidic coal refuse in the field similarly  
9 suppress the metal levels and its elevated pH in  
10 subsurface leachates as monitored for over two  
11 years. Based upon these results and our review of  
12 other studies, we clearly support the utilization of  
13 alkaline fly ash bulk blended with a potentially  
14 acidic coal waste material to offset -- to prevent  
15 acid mine drainage. It is also apparent from our  
16 data and from that of a number of other researchers,  
17 that coal ash also has the potential to  
18 surface-absorb iron and other metals, significantly  
19 reducing their concentration in solution, via another  
20 mechanism in addition to the normal acid base balance  
21 effects I just discussed.

1           However, our data also indicates that it is  
2           critical to accurately estimate the amount of  
3           alkalinity required in the fly ash coal waste bulk  
4           blend to prevent the onset of acidic conditions over  
5           long periods of time. If the fly ash blended zone is  
6           allowed to acidify, heavy metals will be stripped  
7           preferentially from the ash and into the leachates  
8           greatly complicating an already negative water  
9           quality problem. Thus we do not recommend the  
10          utilization of non-alkaline ashes for this particular  
11          purpose, and weakly alkaline ashes may need lime  
12          additions to appropriately balance their alkaline  
13          loading to that of the potential acidity of the host  
14          refuse.

15                 However, as I'll mention later, this is  
16          taken care of under the Surface Mining Act and most  
17          state acts in that you have to estimate the probably  
18          hydrologic consequences of what you're doing, and  
19          part of that is ensuring that in the zone of  
20          co-utilization, that acid base balances are met. In  
21          addition to acid neutralization benefits I just

1 talked about, we have also documented the fact that  
2 fly ash additions of 20 to 30 percent to coal refuse  
3 by volume can drastically reduce the rate of water  
4 flow or hydrogeologic conductance tend to, at times,  
5 100-fold without increasing the net volume of the  
6 fill or decreasing the sheer strength of the blended  
7 and recompacted fly ash with coal waste. This  
8 drastically limits the rate of water and oxygen  
9 movement through these pyritic materials, cost waste  
10 materials.

11 Finally, our data also indicate that when a  
12 semi-pozzolanic ash is used in bulk blends, it is  
13 possible to effectively cement the entire zone  
14 completely limiting water and air movement through  
15 the coal waste, which is definitely beneficial. Coal  
16 fly ash can also be utilized as an incorporated  
17 surficial soil amendment to both rocky mine soils on  
18 surface mines and for the direct revegetation of acid  
19 coal waste. Utilization rates must be controlled by  
20 the bulk salt content of the soil ash mixture after  
21 incorporation, which may limit loading rates to salt

1 sensitive vegetation.

2           However, we have observed significant  
3 long-term plant growth benefits from that practice,  
4 presumably due to enhanced water holding capacity  
5 along with improved availability of certain nutrients  
6 as was talked about earlier.

7           Finally, I would like to speak in support  
8 of the recently developed regulatory framework for  
9 beneficial utilization of CCPs in the various  
10 states. In Virginia, for example, our regulation  
11 governing management of coal combustion by-products  
12 which is VR 672-20-20 exempts tested and its eligible CCPs  
13 from regulation as solid waste, when it can be  
14 demonstrated up front that they're going to be used  
15 in a beneficial use pathway or recycled for specific  
16 purposes. All such CCPs utilized have got to pass  
17 the TCLP test, and when soil applied or utilized in  
18 land reclamation or even in mine fills. They must be  
19 kept two feet above the seas in the water table, 100  
20 feet away sink holes, wells, et cetera.

21           In almost all cases, utilization of CCPs on

1 coal mine lands falls under the requirements of the  
2 Federal Surface Mining Control and Reclamation Act of  
3 SMCRA, and result in state regulatory programs. In  
4 Virginia we have developed a specific set of  
5 regulatory guidelines, except for this purpose that  
6 are administered by the Virginia Division of Mine  
7 Land Reclamation.

8 Under these combined federal and state  
9 regulatory packages, a significant permit revision is  
10 required with full public notice, full estimation of  
11 probable hydrologic consequences to both surface and  
12 to groundwaters of the practice and enhanced water  
13 quality monitoring as deemed necessary. The PHC  
14 determination then mandates that acid-based balances  
15 be estimated and met in the utilization zone that the  
16 CCP properties much matched appropriate to the host  
17 environment and that the long-term geochemical  
18 stability of the system can be assured.

19 When CCPs are to be land applied in  
20 Virginia as a soil amendment to either abandoned coal  
21 mine lands that are out of permit or to agricultural



1 lands, a CCP must be specifically and tested and  
2 approved by the Virginia Department of Agriculture  
3 and Consumer Services and labeled for this purpose.  
4 Our current testing program for such soil amendment  
5 labeling includes extensive total elemental and  
6 equilibrium extract testing along with the greenhouse  
7 bioassay using the soils and crops of interest. To  
8 date, we have certified and tested several CCPs and  
9 various combined CCP waste residuals for use of oil  
10 amendments.

11 Overall it's my opinion that the existing  
12 federal and state regulatory programs as I just  
13 talked about do allow for, and in fact, require  
14 sufficient testing and appropriate management practices  
15 of coal fly ash and related CCPs when  
16 utilized in both mine land and agricultural  
17 environment. I do realize that state regulatory  
18 packaging vary but particularly on active surface  
19 mines. All states must comply with the minimum  
20 standards of the SMCRA program.

21 In summary, I support the continued

1 beneficial utilization of coal fly ash and other  
2 appropriate CCPs on surface mine lands. And I  
3 particularly support their use for neutralizing  
4 acidic coal or processing waste materials. CCPs used  
5 in this fashion must be tested, and the long term  
6 geochemical stability of the materials as placed must  
7 be insured. However, the net benefits from utilizing  
8 appropriate coal fly ash material to offset acid mine  
9 drainage production and to improve mine soil quality  
10 in the Appalachian coal fields are potentially very,  
11 very large.

12 And I will turn in a detailed and fully  
13 documented paper in support of this with all the  
14 references and data sets. And I can assure you there  
15 are extensive data sets available on the effect of putting  
16 CCPs in a mine backfill environment and what  
17 the long -- the effects are on water quality.

18 RICHARD KINCH: You mentioned doing some of  
19 these studies for a two-year period and also this  
20 long term geochemical stability must be maintained.  
21 And I was wondering if there were any other estimates

1 of translating from -- this works for two years to  
2 long term stability and what you or the state or  
3 others may mean by long-term stability.

4 LEE DANIELS: We actually ran one of the  
5 trials for three and a half years, but still, the  
6 time frames involved, I am convinced, that as long as  
7 we can accurately estimate the acid-based balance,  
8 there is a tremendous literature based on acid-base  
9 accounting and how to offset long-term acid mine  
10 drainage using that approach.

11 So I think as long as we can rigorously  
12 estimate, what is the alkaline loading of the ash and  
13 balance that against the acidity, that we're talking  
14 long-term, decades long effectiveness. The problem  
15 would be if you critically underload that alkalinity  
16 and if the system goes acid on you, then you definitely  
17 have problems. But again, we need  
18 conservative estimates of the alkaline loading from  
19 the fly ash, and it's a very simple procedure to do  
20 that acid base accounting at that point in time. And  
21 I believe that that is the long term solution. Thank

1           you.

2                   THEA MC MANUS:  Thanks, Lee.  Next is  
3           Bradley Paul from the University of Southern  
4           Illinois.

5                   BRADLEY PAUL:  I would have to be  
6           different.  I'm Dr. Bradley C. Paul.  I'm a mining  
7           and mineral resources engineer from Southern Illinois  
8           University in Carbondale.  I specialize in surface  
9           mining, reserve estimation and the management of  
10          utilization by-products.  The work that I'm to be  
11          describing is mostly work that I have done myself.  
12          This work has been sponsored by organizations like  
13          the National Mine Land Reclamation Center, the  
14          Illinois Department of Natural Resources, the U.S.  
15          Department of Energy, and the Illinois Clean Coal  
16          Institute.  And I give them credit for that support.

17                   The coal that we have in Illinois was originally  
18          formed from plaque material and soils that  
19          settled in the bottom of ancient swamps.  These  
20          materials were compacted.  We mine them today.  When  
21          this coal is burned in the power plants.  The

1 carbonaceous material is burned away, and the  
2 residual soils basically become the ash that EPA is  
3 considering regulation for.

4 This particular graph compares some typical  
5 concentrations in soils and also in combustion ashes  
6 from the Illinois basin. What the data is basically  
7 telling you is what any coal geologist could tell  
8 you, and that is, that coal combustion ash is baked  
9 swamp dirt. It becomes kind of scary when you think  
10 that there are people who are saying that we need to  
11 have clay liners to protect us from water that has  
12 been in contact with clay soil. Moreover, the  
13 combustion process itself stabilizes a lot of the  
14 metals that are in here as illustrated by this  
15 particular graph comparing spoil material from  
16 Illinois mine sites with combustion residues from  
17 similar coals.

18 And the thing that I'd like you to note from  
19 this particular graph is that the spoil  
20 materials are, in fact, more active and more  
21 leachable than the coal combustion ash and that's not

1 surprising. If you stick half the stuff in glass,  
2 it's a very stable phase, it'll break down over  
3 geologic time only. There are a number of  
4 considerations in the Illinois coal field that  
5 provide a unique opportunity for placing these  
6 materials, natural hydrologic containment.

7           If you look, for example, at our Forsythe  
8 Energy Number 5 mine field site, the rock layer  
9 immediately below that kit has a natural hydraulic  
10 conductivity of 10-11 centimeters per second. Most  
11 of our coal deposits are underlain already by a thick  
12 layer of underclay for those people who like clay  
13 liners. If you look at -- Peabody number 10, which  
14 is an underground backfill placement, we did this for  
15 subsidence control. Our most permeable layer was a  
16 couple of feet above the coal seam. The fracture  
17 hydraulic conductivity of this particular site was  
18 10-11 centimeters per second on the fracture zone.

19           In the Illinois coal layers, a blot of our brine  
20 layers are fairly close to the surface, about  
21 100 to 300 feet down. And it's interesting to note

1 mother nature's testament to the lack of mixing. The  
2 salt is not getting up into the fresh layers above.  
3 A lot of these underground mines, when we place  
4 material, are going to be down in these brine layers  
5 already, and mother nature's already's given her  
6 testament that there is no way in heck that trace  
7 metals from this swamp dirt is ever going to get up  
8 to the surface and into your drinking water.

9 Little bit on the subject of underground  
10 backfills, and that is the Illinois, the Illinois  
11 coal basin you heard a lot of horror stories about  
12 the nightmares of acid mine drainage in Appalachia,  
13 our nightmare is underground mine subsidence. We  
14 have similar acreages available in Illinois coal  
15 basin.

16 In the past, when half of someone's house  
17 drops into a pit, you get to cry about it, but  
18 there's not a whole lot that you're able to do in  
19 that situation because of the cost of backfilling  
20 with traditional materials is going to run you about \$60  
21 per cubic yard of material placed, and unless

1 that's one very valuable historic structure, you  
2 can't afford to do it.

3 With the programs that we've developed for  
4 U.S. Department of Energy and a number of other  
5 people who have been working on similar schemes, we  
6 can put these materials into underground mines to  
7 stabilize against subsidence for under about \$4.50 a  
8 ton. And changing the cost of this kind of work by  
9 an order of magnitude changes the entire world in  
10 terms of what we can do as far as stabilization. But  
11 remember, we're talking about sites that have natural  
12 hydrogeologic barriers already built into it. This  
13 stuff is not going any place.

14 They talked about and admitted that there  
15 were a lot of very beneficial uses of putting coal  
16 combustion ash in the mine sites; A fact that I echo  
17 also. However, there were indications that there  
18 might be such things as universally poor or bad  
19 practices. And one of the things that was hinted at  
20 as a universally bad practice was to put coal  
21 combustion residues in direct contact with groundwater.



1 Our Forsythe Energy Number 5 site is a  
2 closely monitored example of this sort. We placed  
3 120 tons of material into a surface strip pit. The  
4 material consisted of approximately 90 percent of  
5 sulfite rich scrubber by-products stabilized with PC  
6 fly ash at a ratio of about 3.125 to 1. It also  
7 consisted of synthetic scrubber gypsum and it also  
8 consisted of some PC bottom ash as well.

9 Prior to placement of anywhere of this  
10 material, our state environmental protection agency  
11 put monitor wells upgradient and downgradient at the  
12 site for us, so that the downgradient wells would be  
13 15 meters away from the edges of the field for us to  
14 monitor. We monitored the site for a full year prior  
15 to the placement of any material to collect  
16 background natural water quality data, and we also  
17 took water from the upgradient monitor well, and we  
18 used it for column leaching experiments on any  
19 material that was considered for that fill and ran  
20 those experiments for a period of three years to  
21 determine what the effects would be on the water.

1                   We did extensive modeling at this particular  
2 site. This is an example on the kind of  
3 things we saw coming out of the column that we have  
4 since confirmed from work at the actual site and that  
5 is this material will suck the heavy metals out of  
6 the groundwater, not put them in. In fact the only  
7 things that we can really find coming out of the ash  
8 in contact with the real groundwater was boron and  
9 molybdenum, and after assessing whether there was  
10 anything downgradient that may be heard from boron  
11 and molybdenum, we went ahead and we placed a fill.  
12 What we found, we were going to use boron and  
13 molybdenum to trace the plume and help us to  
14 calibrate our models so that one of the products of  
15 this study was supposed to be a calibrated model that  
16 was actually capable of echoing some real world  
17 data.

18                   We ran into a little problem. Soil sucked  
19 up all of the boron and molybdenum before it could  
20 get to our monitor well. 15 meters away we can't  
21 transport. We got 120 ppm boron in the doggone fill

1       itself and I can't transport it 15 meters. There no  
2       way in heck with any set of parameters that you can run  
3       in those models, to say that plume hadn't hit  
4       those monitor wells years ago. We've been monitoring  
5       this site for five years. It's not going anywhere.

6                Another thing that was asked about was  
7       well, what's going to happen when all the alkalinity  
8       is stripped out of the ash. We took some FDC ash and  
9       we had a nasty little acid, like, 2 million gallons  
10       of water, nastiest stuff I've ever seen in my life.  
11       At any rate, we took 160 tons of FDC fly ash and shot  
12       it directly into the water. The water consumed  
13       literally all the readily released alkalinity in this  
14       ash. We never got the pH above 3.5. This is what  
15       the metals looked like. Everything going down.  
16       There's more data where that comes from, but we were  
17       taking out a lot more metal than anything that could  
18       possibly been stripped out of that ash. Direct  
19       contact with nasty, acidic water. Plumes not going  
20       anywhere from this kind of stuff.

21               One of the special benefits that we got

1 from using the ash in this way is that only about  
2 half of the alkalinity is quickly and easily released  
3 and available. The other half is much slower released so  
4 when we took those precipitates down to  
5 the bottom of the lake, we basically stabilized them  
6 against any sort of rerelease. There are no other  
7 materials available to us in AML program that have  
8 those kind of time-released properties to them. Now  
9 it's great for us when we're doing acid mine drainage  
10 however. It can raise havoc with people's computer  
11 models. There's several things that need to be  
12 checked very closely in looking at a computer model  
13 assessment of risk. And I bring up these because  
14 some of these kinds of problems do, unfortunately,  
15 show up in the modeling that EPA has done for their  
16 risk assessment purpose.

17 First question, do the models assume a  
18 constant sort concentration? One of the things that  
19 you see when you a ASTM open column leaching, or a  
20 number of other tests where you stage and change the  
21 volumes of water, is by about the eighth or 16th core

1 volume, most of your trace elements are leaching at a  
2 concentration 1/10 of what you saw initially. If you  
3 do not decay the concentration over time, you're  
4 going to overpredict your plume. Unfortunately, this is  
5 a problem with the work that was done in the EPA  
6 assessment.

7 Does the model check for amount of trace  
8 elements available? Thank goodness the EPA models  
9 basically did check to make sure they didn't keep on  
10 leaching arsenic long after all the arsenic of the  
11 source was gone. So they did catch that one rather  
12 effectively. However, an associated problem with  
13 that is the assumption that virtually all of a  
14 particular trace element is available for quick  
15 release at an initial concentration. Remember that a  
16 lot of these materials are in glass phases they will  
17 be released over geologic time, not over human life  
18 spans.

19 The assumptions made in a computer model  
20 was virtually everything was readily available for  
21 leaching. In fact, according to the EPRI data and

1 data from most other places, you're only going to  
2 have about 10, maybe at the very best, an occasional  
3 ash will have 50 percent of some isolated mineral  
4 that you can release. Mostly it's more like about 10  
5 percent. Unfortunately you plug into the model an  
6 assumption that everything is leachable, and you just  
7 made an order of magnitude error in terms of how much  
8 material you have. Please remember that the  
9 sensitivity analysis on the EPA study showed that  
10 this was the most sensitive parameter and most  
11 capable of following up a model risk assessment.

12 Finally, and this is something -- I teach  
13 oil reserve estimation. It's very difficult for me  
14 to same side of hysteria when I see somebody make a  
15 mistake like that. Most trace elements are highly  
16 lognormally distributed. The result is that when  
17 somebody goes charging in and starts taking straight  
18 numerical averages, and compiling data together, the  
19 upper tail outwires are going to pull your estimates  
20 way up. That's why you have to use geometric means.  
21 A lot of literature on that subject when you're

1        considering things like that.  If you run a Monte  
2        Carlo simulation assuming a uniform distribution,  
3        when in fact your actual source is lognormally  
4        distributed, you're going to have a disaster.

5                    Why am I so sensitive to this sort of  
6        thing?  In the mining industry, a lot of the things that  
7        we try and mine are available in only trace  
8        amounts.  If you go charging after a mineral deposit  
9        thinking that you're going to mine it and make a  
10       fortune, even though there's nothing wrong with your  
11       samples, if you do not handle that lognormality, you  
12       will overestimate your income, and we've learned in  
13       the school of bankruptcy what happens to poor dumb  
14       fools that do things like that.

15                   In the risk assessment process here, EPA is  
16        considering the cost of, and the benefit benefits  
17        available.  You're basically looking at the same  
18        problem we are.  Your earnings are measured in  
19        something other than dollars.  They're measured in  
20        risk from exposed populations, but it's the same  
21        problem, and you're going to have the same result if

1 those lognormal distributions are not accounted for.  
2 And according to the appendices of the risk  
3 assessment documents, they are not.

4 Finally, problems in the area of economic  
5 assessment. In terms of the cost, they looked at the  
6 size of the industry considering combined generation  
7 transmission and distribution systems. In the world of  
8 deregulation, everyone knows a generation is going  
9 to be separate from transmission and distribution.

10 Result: The regulated entity has only 40 percent or  
11 less of the income that was originally being  
12 projected in the study. They used a 40-year  
13 amortization period for the capital cost associated  
14 with their facilities. A coal combustion power plant  
15 has a life span of about 50 to 60 years and a lot of  
16 the facilities were already talking about 30-year old  
17 power plants. They don't have enough life left for  
18 some of the things that are assumed.

19 Finally, they considered only the cost of  
20 management at the site. You heard it mentioned  
21 several times in testimony given here today about



1 people back-hauling. That's because back-hauling is  
2 one heck of a lot cheaper than front hauling  
3 materials. There is a big cost difference if you  
4 wind up banning mine fill types of applications.

5 Put it all together. Take a look at it,  
6 and what you're talking about doing is knocking out  
7 40 to 80 percent of the bottom line of affected  
8 generating entities. Not only would that effect the  
9 viability of coal combustions, you're talking about  
10 taking out entire companies. Including at the 80  
11 percent end, it just so happens that my rural  
12 electric cooperative looks like exactly like your  
13 small power plant example in terms of size and  
14 everything else.

15 In summary, then, coal combustion ash is  
16 old swamp dirt. It improves mine reclamation in a  
17 variety of ways. It can and has been put in direct  
18 contact with groundwater without adverse effects. It  
19 can and has been placed in direct contact with acid  
20 mine drainage without ill effects. The risk  
21 assessment model drastically overestimates things

1 that are major problems with the probability  
2 distributions. The cost impacts are underestimated.  
3 There are a lot of things that are unique and  
4 available at local sites. The state regulator know  
5 these. They know how to handle them. They can deal  
6 with the difference between the midwest and  
7 Appalachia. Let the state regulators control the  
8 practice of mine filling. They're doing a darn good  
9 job. And in conclusion, don't be afraid of the dirt.

10 THEA MC MANUS: Thank you Dr. Paul. I  
11 think we should take a ten-minute break. It's about  
12 10 of 3:00. Why don't we resume at 3:00. And at  
13 that time, Sean Griggs will be giving his  
14 presentation.

15 (A recess was taken.)

16 THEA MC MANUS: We have four more  
17 presenters this afternoon. Sean. We have Sean  
18 Griggs from Indiana Electric Association.

19 SEAN GRIGGS: Good afternoon. My name is  
20 Sean Griggs, and I will be presenting comments today  
21 on behalf of the Indiana Electric Association, or

1 IEA. The Indiana Electric Association is comprised  
2 of five member companies including Northern Indiana  
3 Public Service Company, Synergy, Indianapolis Power &  
4 Light, American Electric Power, and southern Indiana  
5 Gas & Electric Company.

6 Collectively, IEA's members supply electric  
7 power to several million residential commercial and  
8 industrial customers in Indiana. IEA appreciates the  
9 opportunity to express its views on the important  
10 issues outlined in EPA's Report to Congress on waste from  
11 the combustion of fossil fuels. The EPA  
12 administrator and her staff are to be commended for  
13 the comprehensive evaluation that has already taken  
14 place with respect to many of the issues addressed in  
15 the Phase II report. IEA supports EPA's tentative  
16 conclusions that coal fired, utility co-managed  
17 wastes should remain exempt from RCRA Subtitle C  
18 regulations and that most, if not all, beneficial  
19 uses of these waste should also remain exempt from  
20 Subtitle C regulations.

21 IEA's comments will focus on the beneficial

1 use of coal combustion products as mine fill. IEA  
2 believes one, that the replacement of coal combustion  
3 products back into the mine environment poses little  
4 or no potential risk to human health or the  
5 environment; two, that such practices are currently  
6 subject to industry waste management practices in  
7 state regulatory controls that are both adequate and  
8 effective; and three, that Subtitle C regulations  
9 would not effectively address the issues associated  
10 with CCP placement in mines at reasonable cost.

11 While my comments will focus on the mine fill  
12 issues that I just outlined, IEA's review of the  
13 administrative record compiled to date in this  
14 proceeding, indicates that several Indiana sites have  
15 been suggested as so-called damage cases. IEA  
16 believes that these characterizations are highly  
17 misleading. Time permitting, I will address some of  
18 the Indiana sites about which concerns have been  
19 raised to EPA by the Hoosier Environmental Council.

20 First, the replacement of coal combustion  
21 products back into the mine environment poses little

1 or no risk to human health or the environment. There  
2 is substantial scientific evidence demonstrating that  
3 Indiana CCPs produced by co-burning and co-managed  
4 operations are not hazardous. A joint study of  
5 Indiana coal ash conducted by the University of North  
6 Dakota Energy and Mineral Research Center on behalf  
7 of governmental industry and environmental interest  
8 groups including Hoosier Environmental Council,  
9 concluded that none of the CCPs tested in the study  
10 was hazardous using any leachate testing method.  
11 Even though CCPs pose no risk to human health and the  
12 environment. The tangible benefits of placing CCPs back  
13 into the mine environment were very substantial  
14 and should be preserved, even encouraged in EPA's  
15 final regulatory determination.

16 The following benefits have been identified  
17 even today. One, the natural alkalinity of CCPs can  
18 mitigate the negative environmental impact caused by  
19 acid mine drainage. Two, CCPs are similar in  
20 composition to the natural materials found at mine  
21 sites, and are therefore ready acclimated into the

1 subsurface environment through adsorption,  
2 attenuation, dispersion, and dilution processes.

3 The CCP placed as mine fill will represent  
4 only approximately one percent of the total disturbed  
5 material at the mine site. Three, the post mining  
6 environment is already disturbed by the coal  
7 extraction process. By using CCPs for mine fill, the  
8 need for additional, undisturbed greenfield areas  
9 where CCP storage and disposal can be minimized. And  
10 fourth, the use of CCPs as mine fill will minimize  
11 the need for borrowed materials required for mine  
12 reclamation activities performed pursuant to surface  
13 mining control and reclamation act regulations.

14 The direct benefits to the mining  
15 environment specifically, and indirect benefits to  
16 the broader environments in general, far outweigh any  
17 negligible risks posed by CCPs that are used as mine  
18 fill. EPA's Phase II regulatory determination should  
19 strongly encourage responsible reuse of CCPs as mine  
20 fill.

21 Second, CCP storage and disposal practices

1 including mine filling are currently subject to  
2 industry waste management practices and state  
3 regulatory controls that are both adequate and  
4 effective. Indiana's electric power generators have  
5 been proactive in addressing environmental concerns  
6 associated with CCPs. Although industry landfills  
7 and ash storage areas were constructed in compliance  
8 with all applicable laws and regulations at the time  
9 they were built, some of which were built in the  
10 1950s, some environmental concerns have arisen.

11 I want to be as clear and candid as I  
12 possibly can on this point. Some CCP storage and  
13 disposal sites in Indiana have released contaminants  
14 above background concentrations into the environment.  
15 These few sites, however, are atypical  
16 and are not representative of CCP sites in general.  
17 In those isolated instances in which peculiar  
18 circumstances have resulted in minor environmental  
19 impacts, the materials disposed of and the placement  
20 practices followed are not representative of current  
21 industry practices and materials. A few Indiana CCP

1 landfill sites have undergone, and are currently  
2 undergoing corrective actions on either a voluntary  
3 or state agency directed basis. These corrective  
4 actions are required by state landfill regulations  
5 whenever a release exceeds background  
6 concentrations.

7 In some instances, old CCP landfills are  
8 being capped or leachate is being collected, even  
9 though these protected measures were not required  
10 when the landfills were originally constructed.  
11 Today, any new construction or major modification of  
12 a CCP landfill is subject to state regulations that  
13 require the utilization of liners. At minimum, all  
14 Indiana CCP landfills are being monitored to insure  
15 that any problems are identified in a timely manner. In  
16 Indiana, the nearest groundwater monitoring wells  
17 at CCP landfills are placed within 50 feet of the  
18 disposal area boundary, compared to the 150 meters  
19 required by federal Subtitle D regulations, nine  
20 times closer.

21 In short, Indiana disposal sites are in



1 full compliance with applicable state and federal  
2 regulations including, when necessary, corrective  
3 action requirements. With respect to mine placement  
4 of CCPs, Indiana requires that all proposed for  
5 disposal be characterized using bulk analysis as well  
6 as short and long term neutral leach test methods.  
7 Furthermore, an extensive characterization of the  
8 site, a hydrogeological study and groundwater  
9 monitoring around the CCP mine fill area is required  
10 for each permit issued.

11 Since 1992, Indiana has operated under a  
12 policy memorandum governing the use of CCP as mine  
13 fill. In 1998, formal rules were proposed and  
14 preliminarily adopted by the Indiana Natural  
15 Resources Commission. Final approval of these rules  
16 as subsequently amended is expected late this year.

17 In addition, the Office of Surface Mining,  
18 Indianapolis field office, accounted a study in 1997  
19 to determine whether the Indiana Division of  
20 Reclamation was "properly administering their surface  
21 mining program responsibilities by requiring all

1 operators to develop effective handling, disposal and  
2 monitoring plants to insure the protection of  
3 hydrogeologic balance."

4 After reviewing all 13 mine permits that  
5 didn't allow the placement of CCPs at mine sites, the  
6 OSM study concluded that Indiana was properly  
7 administering the placement of CCPs.

8 In response to a question posed earlier by  
9 Mr. Wittner, I would like to say a word or two about  
10 whether mine placement is disposal for beneficial  
11 use. In Indiana, it depends. Certain applications,  
12 particularly subsidence control, are considered  
13 beneficial use, whereas the placement of CCPs simply  
14 for reclamation, that is, to fill the hole, is  
15 disposal under Indiana's program. IEA believes these  
16 distinctions are arbitrary and undervalue the  
17 indirect environmental benefits of using CCPs for  
18 reclamation.

19 Do perceptions make a difference?

20 Definitely yes. The beneficial reuse of CCPs  
21 excluding mine placement for reclamation which is not

1 considered a beneficial use in Indiana, declined by  
2 25 percent as a result of Indiana's characterization  
3 of FFC products as coal combustion waste. Waste is a  
4 word with bad connotations, and the choice of  
5 descriptive terms like disposal versus beneficial use  
6 by EPA, will have a very significant impact on public  
7 perception regarding these materials.

8 Indiana's experience with CCP placement in  
9 mine environments over the last seven years has  
10 demonstrated that the combination of industry waste  
11 management practices and state regulatory controls  
12 are adequate and effective to address any potential  
13 environmental concerns. A summary of the Indiana  
14 regulatory perspective written by Mike Sponsler of  
15 the Indiana Department of Natural Resources, is being  
16 submitted with my comments today.

17 Third, Subtitle C regulations would not  
18 effectively address the issues associated with CCP  
19 placement in mines at reasonable cost. Subtitle C  
20 regulations provide uniformity and consistency in the  
21 management disposal of hazardous waste. CCPs are not

1 hazardous wastes and do not pose the type of risks  
2 that associated with other federally regulated  
3 hazardous wastes. Each mine site is  
4 hydrogeologically complex and unique. Each mine site  
5 has numerous site specific issues and considerations  
6 that must be evaluated to determine whether and how  
7 mine filling should occur at a particular site. In  
8 Indiana, such determinations are made by the Indiana  
9 Department of Natural Resources during the mine  
10 permit approval process.

11 By considering the placement of CCPs into  
12 mines in a wholistic fashion at the permitting stage,  
13 adequate evaluation of site specific factors can be  
14 made on a case-by-case basis. In addition, the  
15 benefits of placing CCPs back into the mine  
16 environment to address acid mine drainage and  
17 subsidence issue can be intelligently planned for the  
18 maximum beneficial effect.

19 The need for case-by-case analysis strongly  
20 suggests that blanket federal regulation is not the  
21 most efficient or best approach. IEA also has

1 concerns about the cost effectiveness of implementing  
2 any Subtitle C regulations with regard to the use of  
3 CCPs in mine fill applications. Until specific  
4 regulatory alternatives are proposed, the ultimate  
5 economic impact could not be reasonably evaluated.  
6 However, the economic incentives for using CCPs as  
7 mine fill are marginal due to the significant  
8 transportation costs and regulatory compliance costs  
9 that are currently in place. And any additional  
10 regulatory burden could easily tip the balance away  
11 from using CCPs as mine fill.

12 THEA MC MANUS: Any questions?

13 SEAN GRIGGS: I did, if I could have one  
14 more minute, to address two specific sites that  
15 Mr. Stant brought up this morning. A third site that  
16 he brought up, I understand EPA representatives will  
17 be visiting next week, and I will leave it to you to  
18 make your own determinations about that site. But I  
19 think in fairness to these sites, I should say  
20 something about them. The two sites that I'm going to  
21 refer to are the Schaffer site and the A.B. Brown

1 site in Indiana. They have been indicated as having  
2 significant environmental concerns and that EPA  
3 should pay special attention to these sites in  
4 reaching its final regulatory determination.

5 Mr. Stant's suggestion that these particular sites  
6 are somehow representative of CCP storage and  
7 disposal sites is simply wrong. I will try to set  
8 the record straight as best I can.

9 Both Schaffer and A.B. Brown are on site  
10 landfills that placed FGD materials from a dual  
11 alkalized scrubber system. This type of FGD material  
12 is unique to these two sites in Indiana, and perhaps  
13 in the country. Schaffer converted its dual  
14 alkalized scrubber system in late 1997, and that  
15 means it no longer makes this particular material,  
16 and now makes material that is wallboard grade  
17 gypsum. In addition, only localized monitoring  
18 wells, two of which are placed at the waste boundary,  
19 show any contamination.

20 Monitoring wells placed further from the  
21 waste but within the site boundary show no contamination

1           whatsoever. Most importantly, one half  
2           of the affected landfill was capped in 1998, and the  
3           other half is being capped this year with a composite  
4           membrane. The Schaffer site is not a typical site  
5           and is not representative of CCP sites in general or  
6           mine placement specifically. A.B. Brown also uses a  
7           dual alkalized system that produces wallboard grade  
8           gypsum. Since at least 1996, all new FGD material  
9           produced, that is, 100 percent, has been reused for  
10          beneficial and profitable use. To address the  
11          material that was historically placed in this  
12          landfill, the operator voluntarily installed a slurry  
13          wall to capture any contaminants. However, it  
14          appears that contaminants have been trapped outside  
15          the slurry wall with a slope back towards the wall  
16          and have been continued to be monitored by the  
17          monitoring well since the slurry wall was installed.  
18          Therefore, there is little -- it's clear why there  
19          has not been a reduction in the level of contaminants  
20          at this site. The same groundwater is being sampled  
21          over and over again. The operator is currently

1 pumping these wells to eliminate the pooled, or  
2 preexisting water, and we're confident that the  
3 contamination about which concerns have been raised  
4 will be eliminated.

5 In any event, the Schaffer and A.B. Brown  
6 sites are historic landfill sites that applied  
7 atypical CCPs. They are simply poor candidates as  
8 case studies for making generalizations for CCPs.  
9 Thank you.

10 ANDREW WITTNER: Why do you say these was  
11 unique, and what do you mean by that? Are they the  
12 only two in the country with respect to what they are  
13 generating, apart from the disposal practices?

14 SEAN GRIGGS: They are definitely the only  
15 two in Indiana. We are unaware of any others in the  
16 country that have used this particular scrubber  
17 technology. It results in relatively high salt  
18 concentrations, and many of the contaminants that are  
19 being complained about are salts, not metals. In one  
20 case, the site has ceased using this particular  
21 technology to recover sulfur, and the other one they



1 have found a clear beneficial use of the material,  
2 and are selling the material into the marketplace.

3 THEA MC MANUS: Thank you, Sean, for that  
4 presentation. Next we have William Miller from the  
5 University of Georgia.

6 WILLIAM MILLER: Good afternoon. My name  
7 is William Miller. I'm a salt scientist at the  
8 University of Georgia in Athens, Georgia. I'd like  
9 to address two different topics, I guess, in my time  
10 this afternoon having to do with my experience with  
11 fossil fuel combustion wastes, particularly my  
12 research experience over the past ten years working  
13 with different fossil fuel combustion waste,  
14 specifically with fly ash and with flu gas  
15 desulphurization gypsum. And say a quick word about  
16 the risk assessment contained in the Report  
17 to Congress which has already been discussed to some  
18 degree.

19 About ten years ago we started working with  
20 a group at the University of Georgia. With Georgia  
21 Power Company, with Southern Company, the major power

1 producer in southeastern United States looking at a  
2 by-product gypsum material that they were producing  
3 under a clean coal technology program. It was a  
4 relatively pure gypsum material. They were looking  
5 for beneficial uses besides wallboard, and we began  
6 applying gypsum to soils in the southeast, which are  
7 traditionally low in calcium and need additional  
8 calcium source. Actually, besides commercial  
9 limestone, gypsum has some special properties that  
10 make the calcium more soluble, more liable to move  
11 within the soil profile. And what we found is some  
12 very beneficial effects, land application of rates  
13 from three to five tons per acre of gypsum, really  
14 just a single time application. When we measured  
15 yields of alfalfa and also row crops, even five or  
16 ten years later, we get very large increases, in some  
17 cases, in yields of these agricultural plants.

18 After a five-year study we found no adverse  
19 environmental impacts of applying this gypsum  
20 material. It was very pure, had a very low metal  
21 content. And even gypsum material that had roughly

1 50 percent fly ash mixed into it due to the fact that  
2 they would turn off the electrostatic precipitators  
3 and collect the fly ash in the desulphurization  
4 vessel, that material also had the same beneficial effects  
5 on crop growth, and even though there were  
6 higher levels of contaminants obviously in that  
7 material, there was very little environmental impact.

8 We measured uptake in crop plants of a  
9 range of regulated trace metals. We measured  
10 movement of these materials through the salt profile,  
11 and were unable to find significant, environmentally  
12 significant differences between untreated plots and  
13 these treated plots. So we believe flu gas  
14 desulphurization gypsum has a real place in  
15 production agriculture in the southeastern United  
16 States, particularly for leguminous crops that have a  
17 real high calcium demand. It's a high calcium  
18 material.

19 About five years ago, we started another  
20 project, this time working with EPRI to look at a  
21 range of fly ash materials mixed with other types of

1 wastes. The idea here is that we would take fly ash  
2 samples, mix them with organic wastes, and custom  
3 blend fertilizer materials that would be able to have  
4 specialty uses within the agricultural and  
5 horticultural markets. We mixed fly ash with sewerage  
6 sludge, with different kinds of animal  
7 manures, we palletized it, we did all kinds of new  
8 and creative things with it to try to produce  
9 products that could be marketed for soil amendment in  
10 production agriculture formulated as potting mixes  
11 for horticultural production, and also use in mine  
12 land reclamation as top dressings for some very rocky  
13 soils that were difficult to revegetate due to the  
14 limited water-holding capacity.

15 The results of that experiment and all of  
16 this is detailed in my written report which will be  
17 submitted to the docket, is that even though fly ash  
18 has a -- probably a more limited range of beneficial  
19 effects for crop growth and for soil properties,  
20 there were still some definite yield increases, we  
21 were able to blend the materials that could be used

1 as fertilizer substitutes, and that were definitely  
2 beneficial in terms of specialty applications. We  
3 had some very good results with horticultural crop  
4 growth, making synthetic potting mixes, using  
5 different kinds of ash materials including bottom  
6 ash, and were able to show that again, environmental  
7 impacts were quite low for most of these ranges of  
8 ash materials. We had 25 different ash materials  
9 that we evaluated.

10 Now ash is a very, variable material. We  
11 had some ashes that were very low in contaminants;  
12 some that were relatively high. Obviously, this is  
13 related back to the kind of coal that's burned. And  
14 when we look at land application of ash materials,  
15 certainly we feel like one needs to look carefully at  
16 the composition of the ash that's going to be applied  
17 and not simply blanketly say a certain amount of ash  
18 can be applied without some reference back to the  
19 level of contaminants and also the level of nutrients  
20 and the physical condition of that ash has to be  
21 considered in terms of the value of that material in

1 an agricultural setting.

2 We did some work on the economics of this.  
3 Certainly there is some fertilizer substitution value  
4 in the horticultural market. This material has  
5 definite value because of the high cost of many of  
6 the potting -- components of potting mixes. And  
7 eventually we feel that fly ash will have a definite  
8 market value in an agricultural setting.

9 With respect to some of the environmental  
10 issues, and specifically the risk assessment that was  
11 performed in the Report to Congress, Dr. Chaney, I  
12 think, mentioned that many of the assumptions in the  
13 risk assessment probably are flawed and that that  
14 really needs to be re-examined in light of some more  
15 realistic estimates of some of these parameters. The  
16 idea that a child eating a gram a day, 365 days a  
17 year of soil, almost up to the age of 18 years old,  
18 that is the scenario that's limiting our ability to  
19 manage soils out in the field. That risk pathway  
20 really needs to be examined to make sure that we know  
21 what the distribution of those children are, what the

1 actual consumption is, and what the risk is to that  
2 population of children.

3 I think the idea that the background soil  
4 levels in many cases lower than the EPA hazardous  
5 level has already been brought up. We have many  
6 soils in Georgia that contain 20 to 30 ppm arsenic  
7 due to either natural background levels or due to the  
8 fact that they've have arsenical pesticides applied to  
9 them, so that probably constitutes a risk, but I  
10 think we need to balance that out and try to see if  
11 children really are at risk from those kind of levels  
12 of arsenic.

13 The biggest factor in the risk assessment,  
14 the way I look through it, is that EPA probably needs  
15 to more clearly define the scenarios that are  
16 actually being considered, how do these children  
17 actually get exposed to this soil, to find the  
18 distribution of values that are likely to occur for  
19 variables like ingestion rate, exposure duration, and  
20 things like that that may be less than exactly  
21 realistic. And the idea of using high end and

1 central tendency concepts probably needs to be  
2 relooked at. Some of these central tendency values  
3 seem to be more like high end values in many cases.

4 My personal feeling is that some guidance  
5 probably needs to be supplied by EPA for the  
6 agricultural use of these kinds of materials,  
7 particularly given the fact that many of these  
8 materials have a very wide range of contaminant  
9 concentrations. Again, we've had some ashes that are as  
10 low as a few ppm in arsenic, some are up above 400  
11 ppm in arsenic. You cannot simply say that a certain  
12 application rate is acceptable and another rate is  
13 not acceptable. We certainly have been using the 503  
14 B regulations as a way to gauge whether we're high or  
15 low on contaminant levels. It is only arsenic that  
16 really that ever bumps against the ceiling. Most of  
17 the other contaminants are much lower than that.

18 The chemistry of arsenic in a fly ash  
19 material is much different than it is in sewerage  
20 sludge. So in terms of applying 503 B regulations to  
21 inorganic wastes like fly ash, I think that has to be



1 evaluated really on a metal-by-metal basis, to make  
2 sure that the kinds of chemical reactions occurring  
3 in an ash material can be understood in a way that we  
4 realize the difference between that chemistry and  
5 what's going on in an organic mixture like sewerage  
6 sludge. And I think that can be done, there's enough  
7 expertise out there to be able to do that. And if  
8 that's done, I think these materials can be used  
9 safely and effectively and represent a resource in  
10 agriculture that can avoid the cost of landfilling, and  
11 probably substitute for a fair amount of  
12 fertilizer and other inputs into agriculture. Thank  
13 you.

14 THEA MC MANUS: Thank you, William. And  
15 next we have Dorothy McGlincy from the U.S.  
16 Generating Company.

17 DOROTHY MC GLINCY: There's only one more  
18 after me. We can do it.

19 Good afternoon. I appreciate the  
20 opportunity to submit comments to the Environmental  
21 Protection Agency on the Report to Congress. My name

1 is Dorothy McGlincy. I'm a licensed site  
2 professional in the Commonwealth of Massachusetts. I  
3 work for U.S. Generating Company providing technical  
4 support to our plants on waste issues, hazardous  
5 materials and remediation activities.

6 Throughout our affiliates, U.S. Gen owns  
7 and manages a portfolio of 30 rating plants and  
8 contracts that comprise 7,700 megawatts in 10  
9 different states. Our company produces electricity  
10 from a variety of sources; coal, oil, gas and hydro.  
11 U.S. Gen is wholly operated, owned by PG&E Corporation,  
12 a national energy services holding  
13 company based in San Francisco whose business  
14 encompasses power generation, natural pipelines and  
15 liquids, wholesale energy trading, retail energy  
16 sales and regulated utility services.

17 Now back into the comments. More than half  
18 of U.S. Gen's plants could be directly impacted if  
19 ash management activities were regulated under  
20 Subtitle C of RCRA. We commend EPA on the  
21 comprehensive nature of the Report to Congress. In

1 general, we agree with EPA's determination that the  
2 electric power industry has a significant level of  
3 installed environmental controls for managing wastes  
4 that were studied in the report.

5 The majority of states have regulations  
6 controlling ash management. There are extremely few  
7 cases of documented damage cases associated with  
8 management of wastes that were studied, and the ash  
9 typically does not exhibit characteristics of  
10 hazardous wastes. U.S. Gen support's EPA's  
11 preliminary determinations to retain hazardous  
12 exemptions for fluidized bed combustion wastes; the  
13 co-management of coal ash with all things studied in  
14 the report; the co-burning of coal with other  
15 fuels; the burning of petroleum coke, non-utility  
16 combustion waste, and natural gas combustion waste.

17 We strongly encourage EPA to finalize the  
18 hazardous waste exemption for these wastes. We also  
19 urge EPA to consider information presented during the  
20 comment period to re-evaluate your position  
21 concerning the use of ash in mine filling, mine

1 reclamation, agricultural uses, and in oil ash  
2 management activities. We believe that in posing  
3 hazardous waste regulations on ash management will  
4 have a far greater impact to economics than those  
5 outlined in the Report to Congress. And it may have  
6 significantly impacted the environment by preventing  
7 mine reclamation in the United States.

8           The following testimony pertains to  
9 fluidized bed and oil combustion wastes and the  
10 management of those wastes used by our company. U.S.  
11 Gen will be submitting comments on or by June 14,1999  
12 to support this testimony. U.S. Gen affiliates  
13 operate two waste coal circulating fluidized bed,  
14 combustion, electric generating facilities in  
15 Pennsylvania. U.S. Gen has reclaimed more than 770  
16 acres of the abandoned coal mines in the past six  
17 years.

18           Our Pennsylvania plants have been  
19 recognized specifically for their mine reclamation  
20 activities through awards received from the state of  
21 Pennsylvania and from the Office of Surface Mining

1 for their environmental excellence. We are a member  
2 of ARIPPA, and Barry Scheetz's comments were some  
3 that we helped contribute to.

4 Based on the operating experienced to date,  
5 U.S. Gen believes that fluidized bed combustion ash  
6 provides significant benefits to the environment and  
7 to the economy. The operations have already been  
8 described. We remove excess fuel from the abandoned  
9 mines, we take it to the power plant; we burn it  
10 with some limestone for acid gas controls, then we  
11 take the alkaline ash back to the mine site; we  
12 actually operate our mine sites in Pennsylvania and  
13 we compact it greater and put a top cover of soil,  
14 grass and other vegetative covers. The work's done in  
15 accordance with Pennsylvania DEP requirements.

16 Included in an appendix of today's  
17 testimony, are some photographs of before and after  
18 sites -- photographs of our sites. Our ground water  
19 and surface water monitoring data for these sites in  
20 Pennsylvania show improvements in water quality at  
21 the abandon mine reclamation sites. Groundwater and

1 surface water quality are monitored for approximately  
2 25 metals and inorganics on a quarterly basis, and  
3 the data regularly provided to Pennsylvania DEP.

4 Water quality improved for a variety of reasons we've  
5 been discussing, but we've actually seen it at our  
6 sites. We believe this is because there's a reduced  
7 loading of total dissolved solids, and of metals and  
8 water leaving the strip mine. The ash, because of  
9 the pozzolanic characteristics, sets up like a cement  
10 providing the structural stability and minimizing  
11 infiltration which helps generate the acid mine  
12 drainage.

13 U.S. Gen will submit additional data from  
14 our mine reclamation sites in our formal comments,  
15 but I've also included some actual data showing graphs of  
16 increased pH from seeps at our sites and  
17 some other information with today's testimony. There  
18 are economic benefits resulting from the reclamation  
19 of mines. The reclamation of the mines is done at no  
20 cost to the taxpayer, to state or federal agencies,  
21 and the reclamation benefits the development of the

1 local community. Abandoned mines don't provide any  
2 commercial value to the community, and if you've ever  
3 been in these areas, they really are an eyesore and  
4 pose a significant safety to the community.

5 One of the ways -- another way that waste  
6 coal facilities benefit the environment is the way  
7 the clean energy from these brand new plants has its  
8 state-of-the-art technology that's used at these  
9 plants. If mine reclamation using FBC ash was not an  
10 economic viable alternative for utilizing our ash,  
11 then it will be extremely difficult for these plants  
12 to stay in business. As a result, not only would  
13 mining sites remain blighted, they would not become  
14 commercially viable properties and acid mine drainage  
15 would continue unabated.

16 The energy supplied by the waste coal  
17 facilities, if they were to go out of business, would  
18 likely be supplied by older electric plants that have  
19 less effective emissions, and emissions control  
20 technologies. Additionally, the waste coal  
21 facilities in Pennsylvania were financed in part by

1 state sponsored industrial revenue bonds. Adverse  
2 action to FBC ash could have a significant impact on  
3 the financing community and on future state economic  
4 development activities.

5 In summary, these waste coal projects and  
6 their reclamation of abandon mine sites are a  
7 significant part of the state's program to redevelop  
8 brown field sites, provide jobs and financial  
9 infusion to the local economies. The power plants  
10 provide clean electricity, reduce acid mine drainage  
11 and improve safety at the mine sites, all at no cost  
12 to taxpayer or government funds. Again, I reiterate  
13 that our data do show these points.

14 The next topic I would like to go into  
15 pertains specifically to oil combustion waste. U.S.  
16 Generating Company has two facilities in the  
17 Commonwealth of Massachusetts that uses fuel oil for  
18 generating electricity. Based on our experience, and  
19 our predecessor who were utilities, over the past 20  
20 to 30 years, U.S. Gen has found that industry  
21 practices have significantly proved on the management



1 for ash management, specifically, oil ash storage and  
2 disposal. State regulations have firm control over  
3 this activity. Oil ash management activity should  
4 not be regulated under hazardous waste regs because  
5 adequate regulatory controls are already in place.

6 And I'd like to give you a brief overview of our  
7 operations. The two U.S. Gen oil combustion sites  
8 were actually described in EPA's March '99 Report to  
9 Congress, although there were one of two items we'll  
10 be specifically contesting, our ash has not been used  
11 for -- our oil ash has not been used for structural  
12 fills. Nonetheless, the other information in there  
13 is correct. We have four water treatment basins that  
14 manage oil combustion wastes. Three are lined and  
15 one is unlined at one of our facilities. On a second  
16 plant that burns oil, we manage oil combustion waste  
17 in four unlined water treatment basins. These are  
18 all small -- half acre at the most -- basins.

19 Both of our oil sites are regulated under  
20 state groundwater discharge permit programs. Both  
21 have monitoring wells around the unlined basins to

1 determine groundwater quality. The wells are  
2 monitored on a quarterly or monthly basis for  
3 inorganics, metals and organic compounds. In some  
4 cases, we have more than 20 years of groundwater  
5 quality data for our sites.

6           There are no drinking water receptors  
7 impacted by these sites. And in the event that there  
8 were unacceptable impacts to human health or the  
9 environment from our unlined basins, U.S. Gen would  
10 take appropriate actions to mitigate any unacceptable  
11 risks. U.S. Gen, in addition to these unlined basins  
12 which were certainly remarked about in the Report to  
13 Congress, we have, on site, lined oil ash landfills  
14 at one of our properties. They're relatively small;  
15 we have nine closed facilities. They're both lined  
16 and closed cells. They're capped with PVC, and we  
17 have two active double-lined, oil ash landfills at  
18 the site. We have, in that case which the landfills  
19 which is ultimate disposal for our ash, we monitor the  
20 groundwater around those landfills for metals,  
21 inorganics and selected organic compounds. We also

1 sample the interstitial leachate between the two  
2 liners.

3           What we found is that there is no  
4 significant risk to human health or the environment  
5 from our ash management facilities. We find that  
6 Massachusetts regulations require sampling and  
7 reporting on surface water, groundwater and soil  
8 quality at our sites. Ash management activities are  
9 controlled by a host of different regulations,  
10 including the groundwater discharge permit regs, the  
11 solid waste regulations, Massachusetts site  
12 assignment regulations, Massachusetts contingency  
13 plan regulations, which pertained to uncontrolled  
14 releases of hazardous materials, and the National  
15 Pollutant Discharge Elimination System. We have --  
16 all of these permits are in effect at our sites.

17           We do not believe that oil combustion waste  
18 should be regulated as hazardous waste. As EPA notes  
19 in volume 2 of the Report to Congress, oil combustion  
20 wastes typically do not exhibit hazardous waste  
21 characteristics, and we have certainly seen that on

1 our site. In addition, there's little evidence that  
2 there's unacceptable risks associated with current  
3 industry practices. There is also not the weight of  
4 evidence from our sites nor other sites to warrant  
5 regulation of oil combustion wastes under Subtitle  
6 C.

7 In summary for oil combustion waste,  
8 managing them as hazardous waste is inappropriate  
9 because there's a very small volume of fossil fuel  
10 combustion waste that are generated, our oil ash  
11 managements sites are located at close-to-surface  
12 water bodies. There are no drinking water receptors  
13 at or near any of our oil ash managements sites.  
14 There's a significant amount of groundwater quality  
15 data for our sites. And we do not see any adverse  
16 impacts to the environment. Continued monitoring  
17 will keep our facilities in compliance with the state  
18 regulations, which have more than adequate control  
19 over our activities.

20 In conclusion, we support EPA's preliminary  
21 determination to retain the hazardous waste exemption for

1 fossil fuel combustion waste described in the  
2 1999 Report to Congress. U.S. Gen also urges EPA to  
3 retain the hazardous waste exemption for oil ash and  
4 beneficial uses of ash use in mine filling, mine  
5 reclamation and agricultural uses. Thank you for the  
6 opportunity to submit these comments.

7 THEA MC MANUS: Thank you, Dorothy. And  
8 James Myers from USWAG is our last speaker.

9 JAMES MYERS: Good afternoon. My name is  
10 Jim Myers, and I'm representing the Utilities Solid  
11 Waste Activities Group today. I promise to be very  
12 brief. But I would like to briefly touch on two  
13 issues that were raised today. USWAG and myself was  
14 surprised to hear claims of earlier speakers that  
15 this report came as a surprise, and they're asking  
16 for an extension of the common period and the  
17 regulatory deadline, regulatory determination  
18 deadline. I've been working on this issue for the  
19 past 10 years and have interacted with the Hoosier  
20 Environmental Council since 1992.

21 Hoosier Environmental Council and other

1 environmental groups have been in contact with the EPA for  
2 a few years. And in fact, have provided data  
3 to the agency for this very study. Their claim of  
4 public disenfranchisement in this process is  
5 unwarranted. Congress specified the six-month period  
6 between the report and the regulatory determination.  
7 EPA should not ignore this clear statutory time table  
8 at this late date.

9 The second issue, the claim that EPA is  
10 disregarding the agency's PBT strategy is a red  
11 herring. The example cited earlier today, mercury is  
12 irrelevant to this study of combustion waste. The  
13 issue of mercury volatilizing off of coal piles is  
14 not a waste issue, and not an issue in this report or  
15 this regulatory determination. The small fraction of  
16 mercury in CCP is neither leachable nor volatile, the  
17 EPA addressed this issue in Section 3 and Section 5  
18 of the 1988 Report to Congress, specifically on pages  
19 317 and 519.

20 That's the end of my comments and I just  
21 look forward to EPA and Chris coming out to Indiana

1 next week to tour some mine sites. And hopefully,  
2 the regulatory experts and the other technical experts  
3 that will be at the sites that the DNR has  
4 invited will answer more of your questions on the  
5 placement of CCPs in mines. Thanks.

6 THEA MC MANUS: That concludes the public  
7 hearing for today. I want to remind everybody if you  
8 have some written documentation on your oral  
9 presentations, please leave a copy up here if you  
10 haven't done so. Finally I'd like to thank you again  
11 for your thoughtful, useful comments and taking time  
12 from your busy schedules to share them with each  
13 other and with us today. Thank you.

14 (Whereupon, at 4:00 p.m., the hearing was  
15 concluded.)