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H.R. 1391, THE RECYCLING COAL COMBUSTION RESIDUALS ACCESSIBILITY ACT OF 2011

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT AND THE ECONOMY

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

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H.R. 1391, THE RECYCLING COAL COMBUSTION RESIDUALS ACCESSIBILITY ACT OF 2011

THURSDAY, APRIL 14, 2011

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT AND THE ECONOMY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 9:34 a.m., in room 2322, Rayburn House Office Building, Hon. John Shimkus (chairman of the subcommittee), presiding.

Present: Representatives Shimkus, Murphy, Whitfield, Pitts, Bass, Latta, McMorris Rodgers, Harper, Cassidy, Gardner, Barton, Green, Barrow, Dingell, and Waxman (ex officio).

Staff Present: Charlotte Baker, Press Secretary; Jim Barnette, General Counsel; Michael Beckerman, Deputy Staff Director; Anita Bradley, Senior Policy Advisor to Chairman Emeritus; Jerry Couri, Professional Staff Member, Environment; Cory Hicks, Policy Coordinator, Energy and Power; Heidi King, Chief Economist; Dave McCarthy, Chief Counsel, Environment and the Economy; Carly McWilliams, Legislative Clerk; Andrew Powaleny, Press Assistant; Tina Richards, Senior Policy Advisor to Chairman Emeritus; Chris Sarley, Policy Coordinator, Environment and the Economy; Jackie Cohen, Minority Counsel; Greg Dotson, Minority Energy and Environment Staff Director; and Caitlin Haberman, Minority Policy Analyst.

Mr. SHIMKUS. The hearing will now come to order. And we want to welcome everybody here today.

Before I recognize myself for 5 minutes for the purpose of making an opening statement, I would like to make two unanimous consent requests.

First, I ask unanimous consent that all members of the subcommittee may have 5 legislative days to submit their opening statements for the record.

And, secondly, I would like to ask unanimous consent that both Representatives McKinley and Markey, both nonmembers of the subcommittee, be permitted to sit in and ask questions of the witnesses on our panel after all sitting members of the subcommittee have been afforded their opportunity to ask questions.

Without objection, so ordered.

And I will recognize myself for 5 minutes.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

I have a prepared statement, but I am going to start by highlighting and passing around two books, one from the EPA and U.S. Department of Transportation, along with the Coal Ash Association, which talk about the beneficial uses of coal ash. Also, another booklet that is coauthored by the Federal Highway Administration, the Department of Energy, the EPA, also on the benefits of coal ash. And I will pass those around for my colleagues.

Also, as a former teacher, I am a hands-on-training-type guy. So I am going to also pass around—now, if you are afraid of toxicity, don't touch. But if you are not, like me, you can see all of these beneficial uses of fly ash and coal ash in reclamation and in productions of stuff that you wouldn't even imagine—countertops, shingles, gypsum.

So the concern today is, as the EPA moves forward, if they move in the wrong direction, they are going to do more harm than good. Because all this stuff that is in homes will then be considered toxic, we will have a big issue, and the recovery and recycling ability of what we have now will exponentially create larger problems in landfills throughout this country.

So, with that, if you would pass these around to my colleagues and friends, and we will get them over to your side, Gene, in a minute.

Mr. GREEN. I just want to know if that—that wallboard is not from China, is it?

Mr. SHIMKUS. This is good, American-made wallboard with fly ash from U.S. coal-fired power plants.

So today's legislative hearing is on 1391, to prohibit the U.S. EPA from regulating fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal and other fossil fuels under subtitle C of the Solid Waste Disposal Act; or, in plain English, forbid EPA from designating coal combustion residue as hazardous waste under the Solid Waste Disposal Act.

[The bill appears at the conclusion of the hearing.]

It would come as no surprise to many Members that I am enormously skeptical of the efforts by the EPA to begin regulating coal combustion products as hazardous waste. My district is heavily reliant on coal for its electricity generation.

In the first hearing this subcommittee had this Congress, my constituent, the manager of a local rural electric cooperative—that is a not-for-profit entity, for those who are in the business—and a former environmental officer at the Illinois Environmental Protection Agency testified that doing so would increase utility rates for, again, a not-for-profit electricity company by 25 percent.

With historical high unemployment when EPA first proposed this rule and persistently high unemployment while EPA takes its time considering it, now is not the time to send a dramatic negative signal to the economy that jobs are unimportant.

While I do not believe a regulatory dictate should change chemistry or make something harmful, I am also not unsympathetic to making sure items that are made safe simply because we as legislators say so. The question is not whether we need public health

protections but, rather, what protections make the most sense and who is best capable to seamlessly handle this matter. I would note that the bill we are discussing today does not forbid any regulation of coal combustion residues.

Moreover, we should not use scare tactics, claiming the public is not protected unless the Feds are on the case. The States have a good story to tell, and we should understand its impact on this equation. Many thoughtful people, including 43 States, the State Environmental and Highway Officials, the Conference of Mayors, have publicly spoken out against EPA's proposal for subtitle C.

To fundamentally assess 1391, I believe two major proposals EPA has made on this subject, disposal and beneficial use, each must be examined with their own sets of questions.

First, the Bevill amendment required EPA to make a determination.

Second, EPA has twice ruled that coal combustion residues do not merit treatment as a hazardous waste under subtitle C. What has changed in the valid, verifiable science to support a change in position, or was it just an election that changed the position?

Third, what is so different about these proposals from a purely environmental protection standpoint? I am most concerned in distinguishing the differences from a safety concern as it relates to groundwater monitoring and landfill lining, as opposed to simply Federal versus State enforcement.

Fourth, what is the practical impact and what can history tell us about how people will respond to a hazardous-waste designation from an electric reliability and management perspective, which is where I talked about cost and then the cost of dealing with the fly ash.

On the beneficial use side, we should first understand whether subtitle C will encourage recycling of coal combustion products or frighten investors and destroy jobs creating otherwise safe products. While EPA lips are saying, we support beneficial reuse, we need to explore whether encapsulation requirements for beneficial use increase recycling. If not, for those beneficial uses that remain, will the stigma of being labeled as "hazardous" limit opportunity and increase legal liability? I would say it will. Not to mention invite new parties into a morass known as the Superfund? Which I also believe it will.

Finally, what are the costs for our society for lost products, like long-lasting roads or needs for arduous, expensive new subtitle-C-compliant landfill capacity?

I look forward to answers on these questions and other questions. I want to welcome all the witnesses who joined us to bring their views and expertise to bear on this issue.

I also want to recognize the hard work that both Mr. Latta and Mr. McKinley have done on this issue.

I yield back the balance of my time and now recognize the ranking member of the subcommittee, Mr. Green, for 5 minutes.

[The prepared statement of Mr. Shimkus follows:]

Statement of the Honorable John Shimkus
Chairman, Subcommittee on Environment and the Economy
Legislative Hearing on H.R. 1391
April 14, 2011
(As Prepared for Delivery)

The hearing will now come to order.

Before I recognize myself for five minutes for the purposes of making an opening statement, I would like to make two unanimous consent requests.

First, I ask unanimous consent that all members of the Subcommittee may have five legislative days to submit their opening statements for the record.

Second, I would like to ask unanimous consent that both Representatives McKinley and Markey, both non-Members of the Subcommittee, be permitted to sit in and ask questions of the witnesses on our panels after all sitting Members of the Subcommittee have been afforded their opportunity to ask questions.

I now recognize myself for 5 minutes to give an opening statement.

Today's legislative hearing is on H.R. 1391, legislation to prohibit the U.S. Environmental Protection Agency from regulating fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels under Subtitle C of the Solid Waste Disposal Act. Or, in plain English, forbid EPA from designating coal combusting residuals as hazardous waste under the Solid Waste Disposal Act.

It should come as no surprise to any Members here that I am enormously skeptical of efforts by EPA to begin regulating coal combustion products as hazardous waste.

My district is heavily reliant on coal for its electric generation. In the first hearing this Subcommittee had this Congress, my constituent, the manager at the local rural electric cooperative and a former environmental official at the Illinois Environmental Protection Agency, in sworn testimony not only stated that EPA was making a big mistake trying to classify these items as hazardous, but that in doing so, USEPA was guaranteeing a 25 percent increase in the electricity bills of my constituents. With historically high employment when EPA first proposed this rule and persistently high unemployment while EPA takes its time considering it; now is not the time to send a dramatic negative signal to the economy that jobs are unimportant.

While I do not believe a regulatory dictate should change chemistry and makes something harmful, I am also not unsympathetic to making sure that items are not made safe simply because we as legislators say so. The question is not whether we need public health protections, but rather what protections make the most sense and who is best capable to seamlessly handle this matter. I would note that the bill we are discussing today does not forbid any regulation of coal combustion residuals.

Moreover, we should not use scare tactics claiming the public is not protected unless the Feds are on the case, the States have a good story to tell and we should understand its impact on this equation. Many thoughtful people, including 43 States, the state environmental and highway officials, the Conference of Mayors, have publicly spoken out against EPA's proposal for Subtitle C.

To fundamentally assess H.R. 1391, I believe the two major proposals EPA has made on this subject: disposal and beneficial use, each must be examined with their own sets of questions.

First, the Bevill Amendment required EPA to make a determination and move on. I think we should find out under what legal authority EPA believes it can reopen this matter.

Second, EPA has twice ruled that coal combustion residuals did not merit treatment as a hazardous waste under Subtitle C. What has changed – in the valid, verifiable science to support a change in position?

Third, what is so different about these proposals from a purely environmental protection stand point? I am most concerned in distinguishing the differences from a safety concern as it relates to groundwater monitoring and landfill lining as opposed to simply Federal versus state enforcement.

Fourth, what are the practical impacts and what can history tell us about how people will respond to a hazardous waste designation, from an electric reliability and management perspective.

On the beneficial use side, we should first understand whether Subtitle C will encourage recycling of coal combustion products or frighten investors and destroy jobs creating otherwise safe products. While EPA's lips are saying we support beneficial reuse, we need to explore whether encapsulation requirements for beneficial use increase recycling.

If not, for those beneficial uses that remain, will the stigma of being labeled as hazardous limit opportunity and increase legal liability, not to mention invite new parties into the morass known as Superfund?

Finally, what are the costs for our society for lost products, like longer-lasting roads or needs for arduous, expensive new Subtitle C compliant landfill capacity?

I look forward to answers on those and other questions. I want to welcome all the witnesses who joined us to bring their views and expertise to bear on this issue. I also want to recognize the hard work that both Mr. Latta and Mr. McKinley have done on this issue.

I now reserve whatever time I have remaining and yield for the purposes of giving an opening statement, 5 minutes, to our Ranking Member, Mr. Green of Texas.

OPENING STATEMENT OF HON. GENE GREEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. GREEN. Good morning. And thank you, Mr. Chairman, for holding this hearing today on the coal combustion and waste and H.R. 1391 legislation to prohibit the EPA from regulating fossil fuel combustion waste under subtitle C of the Solid Waste Disposal Act.

I would like to welcome not only our witness in the first panel but also our second panel.

The last hearing we had on coal combustion waste was in 2009, and this is the first hearing we have had on coal ash since the EPA has issued proposed regulations.

Coal generates approximately 45 percent of the power in our country. As we will hear from our witnesses today, coal ash can be recycled and converted into everyday materials. In 2008, 136 million tons of coal combustion waste was generated. Industry estimates indicate that 8 percent of it is disposed in mines as minefill; 37 percent is used in such capacities as concrete, cement, gypsum, wallboard, and structural and backfill that our chairman gave us some examples of.

Promoting recycling of coal combustion waste serves both an economic and environmental purpose. There are companies that specialize in producing recycled coal ash products, and this prevents coal ash from ending up in landfills. I don't think any one of us on this subcommittee wants to prohibit the recycling of coal combustion waste or, particularly, force companies that recycle coal ash out of business. However, we must ensure that public safety and health is also taken into account as we consider legislation on this issue.

In 2008, the Tennessee Valley Authority's Kingston Tennessee plant released 1.1 billion gallons of coal ash slurry through a breach in an impoundment pond. The sludge discharged into nearby Emory and Clinch Rivers, filling a large area of the rivers and resulting in fish kills. Rightfully so, individuals are still concerned about lingering water contamination as a result of this breach, and the estimated cleanup costs will likely reach $1.2 billion.

However, I firmly believe we can work to prevent disasters such as the Tennessee Valley incident and come to an agreement on how to promote the recycling of coal combustion waste. That is why this hearing is important today. And Congress needs to hear from all sides surrounding the coal ash, so we can make an educated decision on how to proceed.

And, again, I look forward to the testimony, Mr. Chairman, and our witnesses today. And thank you for having the hearing.

Mr. SHIMKUS. The gentleman yields back the time.

The chair now recognizes the gentleman from Pennsylvania, Mr. Murphy, for initially 3 minutes.

Mr. MURPHY. Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. TIM MURPHY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Here is the situation: Here is coal. We have lots of it in this country. Unfortunately, it is dirty to burn. Whoever figures out how to get us from about 37 percent of efficiency up to 90 or 100 percent

and to not have emissions wins the Nobel Prize and probably becomes a multibillionaire.

But, in the meantime, one of the things that comes from burning coal is ash. And rather than have it float into the air, we have shifted to using the fly ash for recycling, which I prefer to just putting it into landfills, where it can have risks, as my friend Mr. Green pointed out. And, today, electric utilities recycle nearly half of the 136 million tons of fly ash in a wide variety of applications, as pointed out.

Now, no one disagrees that those who violate current regulations should be vigorously prosecuted and held fully accountable. That is why I support regulating coal ash as a nonhazardous waste. That would empower the Environmental Protection Agency to impose uniform Federal requirements for management in States where no such standards exist. This would give the EPA authority to go after any site presenting a danger to public health and the environment.

By the EPA's own admissions, as I understand it, whether the Agency chooses to regulate coal ash as a hazardous or nonhazardous issue, the EPA says it will be still protecting public health and environment.

Now, the issue before us is whether or not a new classification would have an impact upon the environment and the economy. Our concern is that regulating coal ash under subtitle C of the Resource Conservation and Recovery Act would kill jobs and raise electric rates in Pennsylvania and other States. So that is something we want to see as we review this today and so many other areas.

Those who are looking at this as a public health issue and lodged complaints about it in the air, we can now see recycled. So let's see what we can do about cleaning this up while also keeping it in a way so that we can manage this without shutting down the industries.

And, With that, Mr. Chairman, I yield back to you to yield my time to someone else.

Mr. SHIMKUS. The gentleman has 1 minute remaining. Does anyone like to seek 1 minute for an opening statement?

If not, quick timing. It doesn't happen here very often.

So I would like to recognize the Honorable Mr. Stanislaus from the Environmental Protection Agency.

We appreciate you coming, sir. And you are recognized. Your full statement will be submitted for the record. You have 5 minutes. And, you know, if you go—don't be pressed for time. This is an important issue.

So, you are recognized now.

STATEMENT OF MATHY STANISLAUS, ASSISTANT ADMINISTRATOR, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY

Mr. STANISLAUS. Good morning, Chairman Shimkus, Ranking Member Green, and other members of the committee. My name is Mathy Stanislaus. I am the assistant administrator for the EPA's Office of Solid Waste and Emergency Response. I have the responsibility with respect to the coal ash proposed rule. Thank you for the opportunity for me to testify today on coal combustion residuals and H.R. 1391.

Just a bit of background: Coal combustion residuals represent one of the largest waste streams generated in the United States, with approximately 134 million tons generated in 2009. Coal ash residuals contain contaminants such as arsenic, cadmium, and mercury, which can pose threats to public health and the environment if improperly managed. Thus, proper management of these waste streams is essential to protecting public health and the environment.

Just this week, I had the opportunity to meet with citizens from around the country to hear firsthand the impact a coal ash contaminant has had on their families and their communities. I heard about health impacts of windblown coal ash residual contaminants and instances of groundwater contamination caused by improperly designed and operated coal ash residual disposal units. These problems could be addressed easily if disposal units were installed with proper liners, groundwater monitoring, and a few dust controls with an effective government oversight framework.

In addition, as discussed in the preamble to EPA's proposed rule regulating coal ash, we believe there are other issues that need to be addressed to ensure the protection of public health and the environment. This includes an effective oversight role to ensure that CCR regulations are properly implemented and enforced; a role in permitting programs so that all permits contain the necessary requirements to properly manage coal ash disposal units; and ensuring that cleanups associated with coal ash contamination are protective and that the costs of cleanup are not shifted to the general public.

As I mentioned, EPA proposed regulations in June of last year for coal combustion residuals to address risks from the disposal of these wastes in landfills and surface impoundments generated from the combustion of coal, electric utilities, and independent power producers.

I just want to underscore that the proposal is limited to the safe management of coal ash disposal, and it does not go beyond that. It does not seek to propose to regulate the beneficial use of coal ash in various other products.

We had public comments around the country, held numerous public hearings around the country. We heard from close to 15,000 people. We received 450,000 comments during the public comment period, and we are in the middle of going through that.

Under the first regulatory alternative, EPA would reverse its May 2000 Bevill regulatory determination regarding coal combustion residuals and list these residuals, when destined for disposal in landfills or surface impoundments, as special waste, subject to regulation under subtitle C of RCRA, which would create a comprehensive Federal program that is enforceable via a permit-based system.

Under the second alternative, EPA would leave the Bevill regulatory determination in place and regulate the disposal of coal ash under subtitle D of RCRA by issuing national criteria which would be narrow in scope and could only be enforced by States and private citizens.

Under both alternatives, EPA is proposing to establish dam safety requirements to address the structural integrity of surface im-

poundments to prevent future catastrophic releases of coal combustion residuals.

Again, it is important to note that EPA did not propose to change the May 2000 regulatory determination to spread to coal ash residuals that are beneficially used. These residuals are currently exempt from hazardous waste regulation. EPA continues to believe that the Bevill exclusion should remain in place for coal combustion residuals that are beneficially used in an environmentally sound manner because of the important benefits to the economy and the environment.

Now, turning to H.R. 1391, H.R. 1391 would prohibit EPA from making the determination that coal combustion residuals should be regulated under subtitle C of RCRA. We think the better approach would be to consider all potential options based on the best science and data and what is best for the public health, while continuing economic growth. EPA will make this regulatory decision through a transparent rulemaking process based upon substantive data and records generated from extensive public comment.

I want to emphasize that an effective regulatory program must address the risk from mismanagement of coal ash disposal units and must include a comprehensive governmental oversight, require disposal units to install protective units, groundwater monitoring, dust control, and ensure a permit program for all the necessary requirements to properly manage coal ash disposal units.

I would also note that EPA plans to issue a notice of data availability in the next month or so to provide the public an opportunity to comment on certain information and data we have received during the public comment period.

Mr. Chairman, that concludes my remarks. Thank you again for the opportunity to appear here today. Thank you.

[The statement of Mr. Stanislaus follows:]

Testimony of Mathy Stanislaus
Assistant Administrator
Office of Solid Waste and Emergency Response
U.S. Environmental Protection Agency
Before the
Subcommittee on the Environment and Economy
Committee on Energy and Commerce
United States House of Representatives

April 14, 2011

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify today on issues regarding coal combustion residuals and H.R. 1391, the Recycling Coal Combustion Residuals Accessibility Act of 2011. My testimony also includes a brief overview of EPA's regulatory efforts associated with coal combustion residuals.

EPA'S REGULATORY HISTORY ON COAL COMUBSTION RESIDUALS

Coal combustion residuals (CCRs) are one of the largest waste streams generated in the United States with approximately 134 million tons generated in 2009. CCRs contain constituents, such as arsenic, cadmium, and mercury, which can pose threats to public health and the environment if improperly managed. Proper management of these waste streams is essential to protecting public health and the environment.

EPA has a long history of regulatory efforts regarding CCRs. Of particular note, is EPA's "Regulatory Determination on Wastes from the Combustion of Fossil Fuels" issued in May of 2000 which presented EPA's determination that CCRs did not warrant regulation as a hazardous waste under subtitle C of the Resource Conservation and Recovery Act (or RCRA). EPA also concluded that federal regulation as a non-hazardous waste under subtitle D of RCRA was appropriate. However, EPA did not issue regulations at that time. With respect to the

beneficial use of CCRs, EPA determined that the beneficial use of CCRs did not pose a risk and did not require federal regulation. EPA also determined that the placement of CCRs in minefill operations should be regulated under subtitle D of RCRA, the Surface Mining Control and Reclamation Act (SMCRA), or both. Finally, the Agency noted in the Regulatory Determination that if additional analysis or information became available that would indicate the need for regulation under subtitle C of RCRA, that the Agency would revise the Regulatory Determination.

After the May 2000 Regulatory Determination, EPA continued to collect additional information and conduct additional analyses as part of its effort to develop regulations; including additional damage cases, risk modeling, updated information on current management practices and state regulations associated with the disposal of CCRs, petitions and a proposal from citizens and environmental groups for EPA to develop rules for the management of CCRs, and an industry voluntary agreement on how they would manage CCRs.. As a result of this new information and analyses, and how it could impact the Agency's May 2000 Regulatory Determination, EPA decided to make this information available for comment. Thus, in August 2007, EPA made much of this information available for public comment through a Notice of Data Availability. We received nearly 400 comments on the information and analyses.

The catastrophic failure of a surface impoundment retaining wall in Kingston, Tennessee in December 2008 and the resulting spill of coal ash highlighted the issue of impoundment stability. Following this incident, EPA's Administrator Jackson committed to issue regulations that would address the management of CCRs, including impoundment stability.

EPA'S PROPOSED RULE FOR COAL COMBUSTION RESIDUALS

On June 21, 2010, EPA proposed regulations for CCRs under RCRA to address the risks from the disposal of such wastes in landfills and surface impoundments generated from the combustion of coal at electric utilities and independent power producers. Because regulating CCRs raises many significant issues and because EPA wants to ensure that the ultimate decision on regulating such wastes is based on the best available data and is taken with the fullest possible extent of public input, EPA has co-proposed two alternative regulatory options, and took public comment on a wide cross-section of issues. The public comment period closed on November 19, 2010. EPA held two web sessions and eight public hearings throughout the country to provide additional opportunities to comment on the proposed rule. More than 1400 people participated in the public hearings. EPA is now reviewing more than 450,000 comments submitted during the public comment period, including information and data provided in response to the questions posed in the proposal.

Under the first regulatory alternative, EPA would reverse its May 2000 Bevill [1] Regulatory Determination regarding CCRs and list these residuals, when destined for disposal in landfills or surface impoundments as "special wastes" subject to regulation under subtitle C of RCRA, which would create a comprehensive program of federally enforceable requirements. Under the second alternative, EPA would leave the Bevill Regulatory Determination in place and regulate the disposal of CCRs under subtitle D of RCRA by issuing national criteria, which would be narrower in scope and would be enforced by the states and by private citizen suits.

[1] The Bevill exclusion [Section 3001(b)(3)(A)(i)] of RCRA excluded certain large volume wastes generated primarily from the combustion of coal or other fossil fuels from being regulated as a hazardous waste under subtitle C of RCRA, pending completion of a Report to Congress required by Section 8002(n) of RCRA and a determination by the EPA Administrator either to promulgate regulations under RCRA subtitle C or to determine that such regulations were unwarranted.

Under both alternatives, EPA is proposing to establish dam safety requirements to address the structural integrity of surface impoundments to prevent future catastrophic releases of CCRs.

In addition, EPA has not proposed to change the May 2000 Regulatory Determination for CCRs that are beneficially used. These residuals are currently exempt from hazardous waste regulation. EPA continues to believe that the Bevill exclusion should remain in place for CCRs that are beneficially used in an environmentally-sound manner. Further, the management scenarios for these materials are very different from the risk case being considered for the disposal of CCRs in landfills and surface impoundments. EPA's proposal, however, makes clear that EPA does not consider CCRs placed in sand and gravel pits, quarries, and other large fill operations to be beneficial use. EPA views this as disposal and would regulate it under whichever regulatory option EPA finalizes.

EPA has learned a great deal regarding the beneficial use of CCRs since the May 2000 Regulatory Determination. In addition, there has been a significant increase in the reuse of CCRs, with development of commercial sectors that depend on the beneficial use of these materials. As already noted, the beneficial use of CCRs provides significant environmental benefits and new applications may provide even greater benefits, with new studies on their use being conducted. Some of this information confirms or strengthens EPA's views on the benefits of CCRs. Yet, on the other hand, some information indicates that certain uses may raise concerns and merit additional attention.

The area of beneficial use is quite complex, in that some of these uses are in an encapsulated form, while other uses are in an unencapsulated form. EPA believes that the great bulk of beneficial uses, particularly in an encapsulated form, like in concrete and wallboard, do

not raise concerns and offer important environmental benefits. However, some questions have been raised about the use of CCRs in an unencapsulated form. Thus, EPA's proposal sought additional information, and requested specific comment on certain aspects of the beneficial use of CCRs including: whether unencapsulated uses of CCRs warrant tighter controls; whether beneficial use guidance is needed to ensure protection of human health and the environment; whether further incentives could be provided to encourage beneficial use of CCRs; and seeking information and on how best to estimate current and future quantities and changes in the beneficial use of CCRs. A full list of the information on which we sought comment related to beneficial use can be found in EPA's proposal at http://www.epa.gov/osw/nonhaz/industrial/special/fossil/ccr-rule/index.htm.

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EPA and the Administration have no official position regarding the bill at this point. EPA supports an approach to regulation of CCRs that is based upon the best science and data, and what protects public health while continuing economic growth.

EPA will make its regulatory decision through a transparent rulemaking process based upon currently applicable law, substantive data, and the record generated from extensive public comment.

EPA acknowledges that the proposed regulatory options present challenges. However, EPA is committed to address the challenges posed under the regulatory options and to issue a rule that protects human health and the environment from the risks posed by improper management and disposal of CCRs.

CONCLUSION

EPA shares the subcommittee's goal of striking the right balance between protecting human health and the environment and providing opportunities for environmentally sound economic beneficial use of CCRs. EPA's regulatory efforts are designed to ensure that our final decision regarding the appropriate management framework for CCRs is based upon the best available information and with the fullest possible public input. Thank you for the opportunity to discuss EPA's rulemaking efforts and H.R. 1391.

Mr. SHIMKUS. I thank you very much for your testimony.

I now recognize myself for the first 5 minutes of questioning.

And, as I do that, I just—you really put the debate in perspective. But our problem is your definition of beneficial use. If you label an emittent as a toxic, then there is no beneficial use anymore. Then you have a litigation nightmare for all these products that I pointed out, used all over the country. And that is part of the dilemma.

I want to put up a slide that I used with the administrator when she was appearing before us. In June 2010—I think it is coming sometime. Maybe it is not. And so, I am handing you a copy.

In June 2010, the proposed—your coal ash rule, you said, "The regulatory impact assessment for this proposed rule does not include either qualitative or quantitative estimation of the potential effects on the proposed rule on economic productivity, economic growth, employment, job creation, international competitiveness."

Then the President, on January 2011, issued an Executive Order which says, "Our regulatory system must protect public health, welfare, safety, and our environment, while promoting economic growth, innovation, competitiveness, and job creation."

And they are up on the screen now.

"It must take into account the benefits and costs, both quantitative and qualitative."

Doesn't the Executive Order require you to go back and begin the kind of rigorous analysis, including job impact analysis, that he calls for before you propose any regulation in this area?

Mr. STANISLAUS. Well, in the RIA, we did a comprehensive economic analysis——

Mr. SHIMKUS. No, you didn't. You state it right there. That is from your economic analysis. You say it doesn't. "Does not include either qualitative or quantitative estimation."

Mr. STANISLAUS. Well, I mean, we did not do a jobs analysis, but we did do——

Mr. SHIMKUS. OK. The President says in his Executive Order you must do it.

Mr. STANISLAUS. Well, if I could just explain what we did do. We did an economic analysis which looked at the various costs, including the cost on electricity, the cost to——

Mr. SHIMKUS. Wait, wait. But you say you didn't do it.

Mr. STANISLAUS. Well——

Mr. SHIMKUS. I mean, my question is, do you have it? Can you forward us that information? Can you show us your analysis?

Mr. STANISLAUS. Sure.

Mr. SHIMKUS. Because, based upon your statement in the report, you did not. And the President's Executive Order says you must. So we are just trying to figure out if you have done it.

Mr. STANISLAUS. Well, yes. I mean, we did do an economic——

Mr. SHIMKUS. Is it a part of the official submission of the report?

Mr. STANISLAUS. In the proposed rule, we did submit an economic analysis. We looked at both the costs and benefits of the rule. And, again, in terms of—we did receive a lot of data——

Mr. SHIMKUS. OK. Well, let me put it this way. This will give us a great opportunity to hand this over to the O&I Subcommittee to

do a proper investigation if we are hearing one thing and seeing another thing.

Mr. STANISLAUS. Well——

Mr. SHIMKUS. So, all we can do is read what the EPA has produced for us. And we know what the President said. Part of our issue on jobs and the economy is, let's have science-based research, but let's make sure we understand the impacts on jobs.

Now, again, your statement says, for this proposed rule, "Does not include either qualitative or quantitative estimation of the potential effects of the proposed rule on the economic productivity, economic growth, employment, job creation, or international competitiveness."

Mr. STANISLAUS. Yes, we did not do a direct jobs analysis. What we did do is——

Mr. SHIMKUS. Well, OK, now, if you have not done a direct jobs analysis, are you not complying with the President's Executive Order? I would submit—and I would check with your attorneys—that you are not complying with the President's Executive Order.

And I would also, then, request that we look at a way in which we can go back and use the instructions in which the President has asked to put that as part of the analysis of this. Because, as we see these recycled materials, if they do get labeled as—it will have severe impact, and we will be importing gypsum from China, which may have—and we already know it has environmental problems, versus our own gypsum-created wallboard.

So this is not a small thing. I mean, this is what has a lot of us concerned. When I had an electric co-op testify—a lot of places in rural America are served by rural electric co-ops. They are not-for-profits. They are kind of what make rural America great. They projected their increase in electricity costs would be 25 percent to their consumers in small-town, rural America.

That is why many of us were pleased with the President when he did this Executive Order. And we would hope that—we will have this debate, but let's comply with the President's Executive Order.

My time has expired. I yield to——

Mr. STANISLAUS. Well, let me just quickly respond. I mean, we are looking at data submitted with respect to the economic impacts. But, in our analysis, we did also look at the beneficial-use industry. And——

Mr. SHIMKUS. No, I understand that. But I am just going based upon—the President has changed course in January——

Mr. STANISLAUS. Yes.

Mr. SHIMKUS [continuing]. Because of jobs, and said, we have to look at the jobs and economic impact.

Mr. STANISLAUS. Yes.

Mr. SHIMKUS. And our concern is, that is not happening in the agencies yet.

Mr. STANISLAUS. And my commitment is, all economic data has been submitted on the record.

Mr. SHIMKUS. Well, we will get——

Mr. STANISLAUS. We will evaluate that——

Mr. SHIMKUS. We will get a chance to evaluate that.

I yield now to the ranking member for 5 minutes.

Mr. GREEN. I have a series of questions, but I really want to ask, is it—since about 45 percent of coal ash now is used, whether it be minefill for 8 percent or about 37 percent in beneficial uses, would that be prohibited under EPA's ruling, considering this coal ash under RCRA?

Mr. STANISLAUS. It would not be prohibited, nor are we seeking to regulate it. Although we are seeking comments on that.

Mr. GREEN. Because, frankly, I think for years we have tried to—you know, it is great to be able to have beneficial uses. The Port of Houston, we found that the toxicity is not there so we can use it to build islands and bird islands and lots of things. I would like to see us raise that percentage for coal ash to other things so we wouldn't have to worry about it.

Now let me get to my questions. The coal ash rule is a matter of great interest to the subcommittee and to our district. Unfortunately, the specific requirements of the proposed alternatives have not been clear. I appreciate the opportunity to hear directly from the agencies.

Some have said that the subtitle C regulation would require disposal in a hazardous-waste landfill. Is that true?

Mr. STANISLAUS. Well——

Mr. GREEN. For coal ash?

Mr. STANISLAUS. It would require a disposal under a disposal unit pursuant to the rule under subtitle C. That is right.

Mr. GREEN. OK. What controls would be required for that? Of the over 50 percent that we can't use for beneficial uses, what controls would be required under subtitle C for coal ash?

Mr. STANISLAUS. Well, the controls that we have identified are those that ensure to prevent the mismanagement, which have been documented in the rule—things like a composite liner, things like groundwater monitoring, things like an effective government oversight to ensure that there is no mismanagement and, when there is contamination, there is cleanup of that contamination.

Mr. GREEN. I guess I am not familiar with coal ash, coming from—but I have a lot of residue from some of our refineries. We literally have mountains of carbon that we can't burn in our country, and we ship it overseas.

And would that be similar to what would be the residue from a refinery that is regulated? You know, I see the sprinklers, I see their control on it. Would that be similar, considering coal ash, what we have as a residue from our refinery?

Mr. STANISLAUS. Well, I can't give a direct—I mean, there are constituents involved, and I can't really directly answer that question.

Mr. GREEN. Oh, oK. Are these controls more burdensome than what is currently required under subtitle D?

Mr. STANISLAUS. Well, our proposal envisions either a C or a D. And some of the differences include the ability for Federal enforcement, ability to have a permit program, and ability to have government oversight to ensure these are implemented in a safe way.

Mr. GREEN. So right now there is no Federal regulation?

Mr. STANISLAUS. That is right.

Mr. GREEN. OK. Some have said that the EPA, it finalizes a rule under subtitle C that the beneficial use would be prohibited. Is that correct?

Mr. STANISLAUS. That is not correct.

Mr. GREEN. OK. If subtitle C regulation is finalized, what requirements or restrictions on the materials that are beneficially reused—would there be any requirements? Could we not do, you know, FlexCrete, wallboard, gypsum, or mix it with gypsum or any of those products that was listed up here?

Mr. STANISLAUS. We did not propose any restrictions on those kinds of uses.

Mr. GREEN. Can you describe—I know you described the impact would be a lined facility and water monitoring. And do you require—and, again, I am not familiar with coal ash—would you require sprinkling to make sure it doesn't blow all over the place? Because I know that is what we have in other——

Mr. STANISLAUS. Well, yes, I mean, dust control is clearly something that we are evaluating, and we received a series of comments about that. So that is something we would consider.

Mr. GREEN. Well, fly ash or coal ash has a lot of good uses, and, like I said, hopefully, working with—we can make those beneficial uses increase so we wouldn't have to landfill or dispose of it.

And I appreciate your testimony today.

Mr. STANISLAUS. Yes, and I would just underscore, you know, our interest is actually to ensure the maintenance, if not expansion, of the beneficials industry. And I have met with numerous of the companies and the trade associations. I mean, we are very much interested in ensuring that that business continues. But it is a multibillion-dollar business.

Mr. GREEN. Well, I have 20 seconds left. And the chairman provided an EPA brochure that is dated April of—oK, EPA approved this—from 2005. Is this the process of re-evaluating EPA's previous work, I assume? And this might be dated then—yes, this says April of 2005.

Mr. STANISLAUS. Yes, we issued a series of documents, in partnership with industry, about various beneficial uses.

Mr. GREEN. OK.

Thank you, Mr. Chairman.

Mr. SHIMKUS. Thank you.

And the chair now recognizes—I want to go to Joe Barton, chairman emeritus, for 5 minutes.

Mr. BARTON. Thank you, Mr. Chairman. I just got here. I would like to defer at this time.

Mr. SHIMKUS. Mr. Murphy will be recognized for 5 minutes.

Mr. MURPHY. Thank you, Mr. Chairman.

I want to be sure, Mr. Stanislaus. So you are saying that, whether it is under subsection C or D, you can still deal with some regulation issues? Whether it is hazardous or nonhazardous, you would still have the authority to do some regulations?

Mr. STANISLAUS. Well, propose regulation. I mean, some of the difference is, they do establish a criteria, and, you know, it is only enforceable by States and local citizens, whereas C, we would establish a comprehensive system that is federally enforceable to our permit program.

Mr. MURPHY. One of the issues that is of concern is the cost of this. What do you believe is the cost of the increased impact upon electricity development?

Mr. STANISLAUS. Sure. So, we estimate for subtitle C an increase of about 0.1, about 0.2 percent, under subtitle D option for electric rates nationally under subtitle D, about 0.8 percent nationally——

Mr. MURPHY. What does that come out to in dollars per year for a family? Any idea?

Mr. STANISLAUS. Yes, I will get to that in a second. So, roughly, for subtitle C, it is about 8.84 cents per kilowatt hour. Which, if you break it down between residential, commercial, industrial: for residential, on a national average, about 64.4 cents per month; for commercial users, again, a national average, about $4.4 per month; and for industrial——

Mr. MURPHY. Per kilowatt?

Mr. STANISLAUS. No, per month. On a monthly basis.

Mr. MURPHY. Then it depends how much electricity they use.

Mr. STANISLAUS. Yes, it is based on energy information. It is kind of an average based on commercial users around the country.

Mr. MURPHY. I want to make sure we understand that. I can't imagine that all that you are going to do is cost someone $4 a month, a giant factory, whether they use things in the megawatts or watts for a light bulb. So I would appreciate if you could give us some accurate information.

Mr. STANISLAUS. Sure.

[The information follows:]

Insert for Rep. Murphy – Data on Estimated Electricity Rate Impacts

EPA conducted an extensive Regulatory Impact Analysis to estimate the economic and environmental benefits and costs of the Coal Ash Rule. Among its other estimates, the RIA estimated the potential increase in the cost of disposal of coal ash that could result from the regulatory options—that is, a Subtitle C regulatory approach and a Subtitle D regulatory approach that EPA considered in the proposal, and the potential impacts of those estimated cost increases on electricity prices. In estimating the upper-bound of a potential electricity price increase, the RIA evaluated a hypothetical scenario whereby the electric utility "passes through" 100 percent of regulatory costs to their customers. The RIA estimated that even with a 100 percent cost pass-through, the potential increases in electricity prices to coal fired electricity customers would be an average of 0.795 percent for the Subtitle C option and an average of 0.172 percent for the Subtitle D option, relative to the 2009 national average electricity price of 0.088 per kilowatt hour. Given that demand for electricity changes very little based upon changes in price, electricity production would not be expected to change much, if at all, as a result of the proposed rule. Therefore, EPA anticipates there would be little, if any, impact on jobs associated with electricity production.

Although not calculated in the RIA, it is possible to translate these potential maximum electricity price increases for the 100% hypothetical cost pass-through scenario, into potential maximum increases in the average monthly electricity bills paid by U.S. households, U.S. commercial businesses, and by U.S. industrial facilities. This translation is based on the most recent (2008) electricity consumption data available for the U.S. from the Energy Information Administration.

- Subtitle C option:
  - Households: The average monthly electricity bill for U.S. households using coal-fired electricity could increase by 0.795% from $103.67 per month to $104.49 per month (an average increase of $0.82 per month per household).
  - Businesses: The average monthly electricity bill for U.S. commercial businesses using coal-fired electricity could increase by 0.795% from $657.02 per month to $662.24 per month (an average increase of $5.22 per month per commercial business).
  - Industry: The average monthly electricity bill for U.S. industrial facilities using coal-fired electricity could increase by 0.795% from $7,413.54 per month to $7,472.48 per month (an average increase of $58.94 per month per industrial facility).

- Subtitle D option:
  - Households: The average monthly electricity bill for U.S. households using coal-fired electricity could increase by 0.172% from $103.67 per month to $103.85 per month (an average increase of $0.18 per month per household).

- Businesses: The average monthly electricity bill for U.S. commercial businesses using coal-fired electricity could increase by 0.172% from $657.02 per month to $658.15 per month (an average increase of $1.13 per month per commercial business).
- Industry: The average monthly electricity bill for U.S. industrial facilities using coal-fired electricity could increase by 0.172% from $7,413.54 per month to $7,426.29 per month (an average increase of $12.75 per month per industrial facility).

Mr. MURPHY. Thank you.

Another issue then comes up with—a lot of small business say that regulating coal ash as a hazardous waste, versus a nonhazardous waste, has a big impact on public perception of those products. It is in drywall. I am sure there is lots in this building and other buildings, and countertops, et cetera. But they believe it is going to create a stigma, it is going to ruin efforts to do this.

So I am wondering, has EPA done a market analysis of what impact that would have upon purchasing or use of those products?

Mr. STANISLAUS. Well, I mean, we have done a lot of things in the proposed rule, and we saw a lot of comments. One thing that we did is, to the extent that stigma could exist, that is why we proposed it to be a special waste, to kind of distinguish it from—because we do kind of——

Mr. MURPHY. To call it a special waste instead?

Mr. STANISLAUS. I am sorry?

Mr. MURPHY. So label it as a special waste?

Mr. STANISLAUS. Yes. And—well, I will just leave it at that.

Mr. MURPHY. OK. Because what I am concerned about here is that we already are aware that a lot of our coal is going to China and India and other countries. Products are made there in factories and in coal-fired power plants that have little or no emission controls. And that is already a concern.

Secondly, of course, the requirements for scrubbers has been an important way of removing emissions from the air. And I am concerned also about unstable landfills that could cause slides and disrupt communities, et cetera. But my concern overall is, how do we handle this the right way?

But let me ask this. How does the toxicity of fly ash compare with that of cement in producing concrete? Is there a different comparison analysis of that?

Mr. STANISLAUS. Well, a lot of coal ash actually is used to make cement. And so one of the things that we look at in analyzing the risk of beneficial use is look at both how it is used but look at comparable constituents that the coal ash would displace.

And I should also note that there are numerous compounds which are listed under subtitle C that have, in fact, been recycled significantly. I can provide to you a list of all of those compounds.

[The information follows:]

Insert – Recycling Hazardous Wastes

Examples of hazardous wastes that are being recycled where the "hazardous waste designation" has not negatively impacted the recycling of these materials.

In the Preamble to the Proposed CCR rule, EPA stated that "EPA's experience with past waste regulation, and with how hazardous waste and other hazardous materials subject to regulation under subtitle C are used and recycled suggests that a hazardous waste "label" does not impose a significant barrier to its beneficial use and that non-regulated uses will increase as the costs of disposal increase." EPA cited the following examples:

- Electric arc furnace dust is a listed hazardous waste (K061) and between 2001 and 2007, approximately 42% to 51% of K061 was recycled (according to Biennial Reporting System [BRS] data). K061 is used as an ingredient in fertilizer and in making steel, and in the production of zinc products, including pharmaceutical materials. Further, slag from the smelting of K061 is in high demand for use in road construction.

- Electroplating wastewater sludge is a listed hazardous waste (F006) that is recycled for its copper, zinc, and nickel content. In 2007, approximately 35% of the F006 was recycled according to BRS data.

- Chat is a Superfund mining cleanup waste with lead, cadmium, and zinc contamination used in road construction in Oklahoma and in the surrounding states. In this case, the waste that triggered an expensive Superfund cleanup has been successfully offered in the market place as a raw material in road building. The alternative costs of disposal are a significant driver in the beneficial use of the material and the Superfund origin of the material has not been a barrier to its use.

- Used Oil is regulated under subtitle C standards. While used oil that is recycled is subject to a separate set of standards under subtitle C (and is not a "hazardous waste"), "stigma" does not prevent hoe do-it-yourselfers for collecting used oil, or automotive shops from accepting it and sending it on for recovery. Collected used oil may be re-refined, reused, or used as fuel in boilers, often at the site where it is collected. Safety-Kleen reported that in 2008, the company recycled 200 million gallons of used oil. The Preamble goes on to state that "This example is almost directly analogous to the situation with respect to CCRs, although for CCRs, we are not proposing to subject them to any management standards when used or recycled, but, as in the case of used oil, this alternative would avoid labeling CCRs as "hazardous waste," even while relying on subtitle C authority".

- Spent etchants are directly used as ingredients in the production of a copper micronutrient for livestock.

- Spent solvents that are generated from metals parts washing and are generally hazardous wastes before reclamation are directly used in the production of shingles.

- Common products and product ingredients routinely used at home (e.g., motor oil; gasoline; many common drain cleaners and household cleaners; and cathode ray tube monitors for TVs and computers) are hazardous wastes in other contexts. "EPA questions whether CCR-based materials that might be used in the home, like concrete or wallboard, would be likely to raise concerns where they are safely incorporated into a product."

Cite: 75 FR 35186-35187 (June 21, 2010)

Mr. MURPHY. That is important. I mean, I want to make sure—look, we are all concerned with clean air, land, and water. But I want to make sure that we have accurate information here and we are not simply exporting a problem to have it reimported in the air and in products. And this is where I really look to the EPA to be a solid science but also do a solid economic analysis for us, too, if we are just exporting and reimporting here.

Do you plan to seek a hazardous waste designation for municipal wet landfills, that there is also some of these products in landfills too?

Mr. STANISLAUS. We are not pursuing that at the moment.

Mr. MURPHY. OK. With regard to this, do you think States are doing a good job? Or do you have some concerns about how the States are managing some of these issues now?

Mr. STANISLAUS. Well, we clearly have identified in our proposal, there is a mismanagement in circumstances. There have been documented damages from that mismanagement, including documented damages to groundwater. So those are the reasons that we are pursuing this proposal.

Mr. MURPHY. Well, were some of the ratings that you gave because they were unsafe, or does it have to do with some other engineering documentation required? I mean, I am curious what these ratings that you talk about are from.

Mr. STANISLAUS. I am sorry——

Mr. MURPHY. When you reviewed—for example, there is a statement here: "The poor ratings were given because those units lacked some of the necessary engineering and documentation recording the assessments and not because the units are unsafe." This is from a release from the EPA, I believe.

Mr. STANISLAUS. So there are two major risks that we are looking at. One is catastrophic failure. And so we have done——

Mr. MURPHY. That is in the landfill and dams.

Mr. STANISLAUS. That is the dams. And so, the Kingston is the most recent event. So we are trying to prevent catastrophic failures like that.

Separately, we are looking at leaching of various metals, arsenic, for example, from mismanaged coal ash impoundments.

Mr. MURPHY. So the difference is the safety of dams and landfills versus recycled products. You are looking at those in a different way.

Mr. STANISLAUS. Yes. All we are seeking to do is ensuring, where it is disposed, that it is disposed safely. So, prevent catastrophic failure and prevent leaching of the various constituents found in coal ash.

Mr. MURPHY. Thank you.

Thank you, Mr. Chairman.

Mr. SHIMKUS. Thank you.

The chair now recognizes the chairman emeritus, Mr. Dingell, for 5 minutes.

Mr. DINGELL. Thank you, Mr. Chairman.

I would like to make a comment. It seems like we have a problem here, but it seems like we have the wrong cure.

I hope my colleagues were listening to the remarks made by my friend from Texas, Mr. Green, because I get the distinct impression

that our problem here is whether we regulate under subtitle D or subtitle C. And it is clear that we have a problem that is going to require some sort of improvement in regulation.

Am I correct on that, Mr. Stanislaus?

Mr. STANISLAUS. That is right.

Mr. DINGELL. OK. So do you have the authorities you need to regulate the ponds that seem to have brought us to this point? In other words, you had a great big break in a pond that flooded everybody out with a nasty mess. Do you have the power to regulate that?

Mr. STANISLAUS. Well, I mean, we proposed a rule to do the best under the current legal framework——

Mr. DINGELL. But the industry doesn't want this stuff classed as hazardous, because that will reduce the possibility of it being used for useful purposes like drywall and cement and plaster and other things that might be valuable. I think that is something to which we should look.

So if we gave the industry the authority that is needed to simply regulate the ponding, we would have pretty well abated the problem. Isn't that right?

Mr. STANISLAUS. Well, I mean, clearly——

Mr. DINGELL. Yes or no?

Mr. STANISLAUS [continuing]. The major issue is coal ash impoundments and landfills. So——

Mr. DINGELL. OK. But we don't want to landfill this because it is a waste of a valuable resource and uses space and all other manner of things. Am I correct in that?

Mr. STANISLAUS. Yes.

Mr. DINGELL. OK. So I think, then, that if we don't have to change it to be either subtitle D or C, all we have to do is just give the EPA the authority to regulate the ponding. Is that right? And to do so in concert with the States, allowing the States to do so, but under EPA regulations. Does this make sense? Yes?

Mr. STANISLAUS. Yes.

Mr. DINGELL. OK. Because the reporter doesn't have a "nod" button on her machine.

So I think, then, that you would say you agree and EPA generally agrees that we should simply address the question of ponding. Does that solve the environmental problems or does it solve the political problems that we find ourselves affronted with?

Mr. STANISLAUS. Well, clearly, we need to identify the specific items we have identified in the proposed rule, things like——

Mr. DINGELL. Your big problem is you have ponding that is not being well done; you have a potential large risk to the population, right?

Mr. STANISLAUS. Yes.

Mr. DINGELL. OK. So if we control that, we have dealt with much of the problem. Is that right?

Mr. STANISLAUS. That is right, the disposal that is a problem, yes.

Mr. DINGELL. So how much more needs to be done, other than addressing the ponding problem?

Mr. STANISLAUS. Yes, I mean, it is the disposal problem in providing us——

Mr. DINGELL. I recognize that. But we are trying to sort out what the difficulty here is. And I find that there is a ponding problem. I don't see that we need to get into a fight over C or D, but I do see that we need to address that.

Now, what other things are there that we need to address in order to solve the problem and to get an agreement here in the committee that we can go forward with, that makes sense to us all?

Mr. STANISLAUS. Well, it depends under what authority——

Mr. DINGELL. Dear friend, you know, Harry Truman one time talked about he hoped he met a one-handed economist. And everybody said, why do you want to meet a one-handed economist? And he said, because the damned economists are always saying "on the right hand" or "on the left hand." All I want is an answer.

Now, what other things do we have to do here to resolve the problem? My time is running. I got 56 seconds. I am going to let you try to respond, but I hope you can do it within the 51 seconds that remains.

Mr. STANISLAUS. Sure. To have an effective program, we need to have a permitting system, to have effective oversight, and some basic requirements like groundwater monitoring for that disposal.

Mr. DINGELL. Traditionally, this committee has asked for drafting service. Will you submit to us your specific recommendations on what we do to address this problem in a fashion that enables EPA to do the things that have to be done, so we can get this problem out of our hair, solve the difficulties of the people, let you folks do your business, make the States happy, and go about our business dealing with the other big problems?

And, Mr. Chairman, I want to commend you for having this hearing because this is a very useful exercise. And I appreciate your leadership on the matter.

Please get me the answers to those questions.

And thank you very much, Mr. Chairman.

Mr. STANISLAUS. I will do so.

[The information follows:]

Insert for Rep. Dingell – What Needs to be Done to Address CCR Disposal Risk

In response to Representative Dingell's question on what needs to be done to address the problems posed by CCR disposal, a number of issues need to be addressed in response to the risks posed by CCR disposal. There needs to be an effective regulatory program to ensure that permitting programs contain the necessary requirements to properly manage CCR disposal units that address the risks from mismanagement of CCR disposal units. These requirements should include comprehensive governmental oversight, a requirement that disposal units maintain structural integrity, install protective liners, conduct ground water monitoring and provide dust control, and ensure that cleanups associated with CCR contamination are protective and that the costs of cleanup are not shifted to the general public.

Regarding Representative Dingell's reference to Agency technical assistance, should the committee choose to address these issues through legislation, EPA would recommend legislation address the following issues. Legislative provisions should require standards necessary to protect human health and the environment and should:

- 1. Amend Subtitle D of the Solid Waste Disposal Act
    a. By not later than 2 years after enactment, and after notice and opportunity for public comment and consultation with the States, promulgate revised criteria for facilities that receive for disposal fly ash, bottom ash, boiler slag, and fluidized bed combustion residuals generated from utilities burning coal.
    b. The revisions shall consist of standards necessary to protect human health and the environment and shall, at a minimum, (1) require the installation and use of liners for new units and lateral expansions of existing units; (2) provide standards for storage and transportation that control air borne dust and particulate matter; (3) require the phase out of surface impoundments, as defined by EPA, within a reasonable period of time, (4) require groundwater monitoring for new and existing facilities as necessary to detect contamination; (5) include location criteria; (6) provide for corrective action; (7) include criteria for maintenance, structural integrity of dams, and emergency responses at surface impoundments that manage coal combustion residuals; (8) require standards for closure and post-closure care; and (9) establish standards requiring facilities to have adequate financial assurance.

- 2. State Permitting Programs
    a. Not later than 2 years after the date of promulgation of the revised criteria, states must adopt and implement a permit program, or other system of prior approval, to ensure that facilities within the State that manage coal combustion wastes comply with the revised criteria.
    b. The Administrator shall determine whether each State has developed an adequate program under this paragraph. The Administrator may approve such programs in whole or in part.

- 3. Adequacy of State Programs and Federal Enforcement
    a. Within 2 years after the date that States are required to implement a permit program, any State that does not adopt the revised criteria or in a State whose program EPA has disapproved, in whole or in part, the Administrator (1) shall administer the criteria through a permit program or other system of prior approval, and/or (2) shall administer those portions of the program that have been disapproved. In addition, the Administrator may use the authority under RCRA section 3007 to inspect and gather information about any facility that is, may be, or was managing coal combustion waste, and may use the authorities in RCRA section 3008 to enforce the criteria.

- 4. Corrective Measures
    a. In addition to the revised standards established pursuant to section 1, where it is determined that a disposal unit is a documented source of constituents in a detection monitoring well at levels above those protective of human health and the environment, in a State that has an approved permitting program, the State, or the Administrator, if the applicable State does not have an approved program, shall take immediate action directing the owner or operator of the unit to take corrective measures addressing the contamination to prevent the contamination from moving off-site.

- 5. Closure and Post-Closure Care
    a. Closure of a unit that ceases receiving coal combustion wastes shall be (1) initiated not later than 90 days after the date of final receipt of coal combustion wastes, (2) completed pursuant to a time frame in a closure plan approved by a State with an approved permitting program or by the Administrator, if the applicable State does not have an approved program, and (3) must provide continuous monitoring and maintenance of the final cover until released from such requirements by a State with an approved permitting program or by the Administrator, if the applicable State does not have an approved program.

Mr. SHIMKUS. Thank you, Mr. Dingell. I look forward to working with you on this.

And now I would like to recognize Chairman Emeritus Barton for 5 minutes.

Mr. BARTON. Thank you, Mr. Chairman. And I want to thank you also for allowing me to defer my questions, but I appreciate being able to do it now.

I want to associate myself with most of what Chairman Dingell said. I do substantively agree with his logic that we have a pond problem, perhaps, or impoundment problem. The coal ash itself I don't believe is a hazardous waste problem.

I do appreciate you being here. We have had a little trouble, apparently, getting the right telephone number or e-mail address at EPA. So somehow we got you to come, and we give you at least one star for showing up. That is a good thing.

Mr. STANISLAUS. I only get one?

Mr. BARTON. Well, depending on how you answer my question. Be lucky you are getting one. I don't give out many stars to the EPA.

Are you a policy maker at the EPA or a policy implementer at the EPA?

Mr. STANISLAUS. I would say both.

Mr. BARTON. Both. OK. Good. I am told that Chairman Shimkus asked some questions about the economic analysis or economic impact statements. You have seen this little handout that the EPA says that does not include either qualitative or quantitative estimation. And then, of course, the President's Executive Order that says it must be taken into account.

There seems to be some confusion about just what, if anything, has been done in terms of an impact analysis. Do you have a work product that can be shown publicly?

Mr. STANISLAUS. Sure. And I can just quickly go through the numbers. I will provide a more comprehensive information.

The economic analysis looked at both the impact of cost and the benefits. So, for example, the impacts on the utilities, impacts on the States, as well as the benefits from avoided groundwater impacts, avoided catastrophic failures. And I could quickly go through numbers of C and D, if you would like for me to do that right now.

Mr. SHIMKUS. Would the gentleman yield for just a second?

But my understanding on this analysis, there is nothing about jobs, effect on jobs. And I would encourage you to sit through the next panel and listen to the next panel testify about the impacts on jobs. You might be enlightened.

I yield back.

Mr. BARTON. Well, point one is you say you have now done one, which seems to be a step forward. If you could just provide that to the committee staff on both sides, so we could take a look at it, and then we will probably have some follow-up questions.

I would assume the bottom line of that analysis is that this rule is the greatest thing since sliced bread and it needs to be implemented immediately to protect public health and safety, because if it doesn't, we are going to be inundated in a tsunami of coal ash waste.

Am I far off the mark on that?

Mr. STANISLAUS. I mean, we do propose two options, and we identify the costs and benefits of both options in the rule. And we also received lots of economic data during the public comment period that we are sifting through now, and we are going to reanalyze it based on that and make the most informed judgment, balancing public health protection and economic consequences.

Mr. BARTON. Well, do you, as an EPA official, agree with what Chairman Dingell said, that coal ash waste does have beneficial uses?

Mr. STANISLAUS. Oh, absolutely.

Mr. BARTON. OK. And there are these products that we have been passing around, that they are useful. And so would you agree on the record that it would be a good thing if we could find our way clear to make sure that those types of uses continue to be an option?

Mr. STANISLAUS. Oh, absolutely. And we would—I have met with the industry numerous times, and we want to do it, separate from the rule, because we are not actually proposing to do anything with beneficial use, but also more proactively work with the industry, as we have sought to do for many years.

Mr. BARTON. OK. Now, this is actually a legislative hearing, so we have a proposed Federal law. What is EPA's main objection to the pending bill?

Mr. STANISLAUS. Well, it is that we want to make the most informed judgment based on all the data on the record, and ensuring that the rule that best provides public health protection as well as ensuring the economic benefits are maintained is done. And so, by this, it would remove that one option and not allow us to more fully make a decision based on all the data and all the 450,000 comments that we have received.

Mr. BARTON. My time is about to expire. But going back to Chairman Dingell's original presentation, wouldn't it be better to work with the States to come up with a pond impoundment improvement program? Isn't that the problem? The problem is not the coal ash itself. The problem is that some companies apparently didn't maintain their impoundment mechanisms correctly and we had a failure. I mean, that is the primary problem. Don't you agree?

Mr. STANISLAUS. Well, I agree. And I believe the States are a very strong partner and a lead regulator on this. And I think the intention is really to have a national framework for this to be done safely.

Mr. BARTON. OK. Thank you.

Thank you, Mr. Chairman.

Mr. SHIMKUS. Thank you.

The chair now recognizes Chairman Emeritus Mr. Waxman for 5 minutes.

Mr. WAXMAN. Thank you very much.

Mr. Stanislaus, I appreciate your being here today.

EPA has made two alternative proposals to address the safe disposal of coal ash. The Agency could regulate it under subtitle C of RCRA. Alternative, they could act under subtitle D. The purpose of the legislation we are examining today is to ensure that EPA does not regulate the safe disposal of toxic coal ash under subtitle

C. I would like to explore with you some of the differences between regulating these wastes under C as opposed to D.

If the EPA finalizes a regulation for coal ash under subtitle C, there would be a minimal standard for the safe disposal of toxic coal ash that would apply consistently in every State. The practice of coal ash impoundments would be discontinued and safe disposal would be federally enforceable. Is that correct?

Mr. STANISLAUS. That is correct.

Mr. WAXMAN. If the EPA finalizes a regulation for coal ash under subtitle D, will States be required to adopt or implement those requirements?

Mr. STANISLAUS. No.

Mr. WAXMAN. Would a regulation under subtitle D be federally enforceable?

Mr. STANISLAUS. No.

Mr. WAXMAN. Would subtitle D regulation ensure that all States meet some minimal level of protection?

Mr. STANISLAUS. No, the State would not have to pick up the requirements.

Mr. WAXMAN. Under subtitle D, there would be no required State action; there would be no federally enforceable requirements. States would have complete discretion to implement the requirements or not, as they see fit.

Can you explain to us how this approach to regulating coal ash under subtitle D would compare with the authority EPA has to regulate municipal solid waste under subtitle D?

Mr. STANISLAUS. Yes. The municipal authority would permit EPA, as it has in the past, to review and approve the municipal solid waste program. And we don't have that authority with respect to coal ash under, currently, D.

I should also note that, even under municipal solid waste, there is no enforcement authority by EPA.

Mr. WAXMAN. EPA has more authority to deal with municipal solid waste than it would for coal ash.

Mr. STANISLAUS. Under D, that is correct.

Mr. WAXMAN. So if EPA acts under subtitle D, the EPA would have more authority over household garbage than it would have over coal ash?

Mr. STANISLAUS. The way it is currently structured, that is right.

Mr. WAXMAN. It is incorrect to consider subtitle D regulation as roughly equivalent to subtitle C regulation. It is not equivalent. It will not create Federal or State enforcement of necessary public health and environmental protections.

Thank you, Mr. Chairman. I yield back the balance of my time.

Mr. SHIMKUS. And I thank you.

The chair now recognizes my colleague from Kentucky, Mr. Whitfield, for 5 minutes.

Mr. WHITFIELD. Thank you very much.

And thank you for being with us today.

How long have you served as assistant administrator of EPA for this area?

Mr. STANISLAUS. I have been in the office since June 2009.

Mr. WHITFIELD. 2009. And where were you prior to that?

Mr. STANISLAUS. Well, I was with a brownfield development organization in New York City.

Mr. WHITFIELD. Uh-huh. Since you have been at EPA, has there ever been a situation where, on a proposed regulation, the cost of the regulation exceeded the benefits of the regulation?

Mr. STANISLAUS. Well, it is clearly something that we look at in all our rules before we even finalize that. So we would not propose a rule where the cost exceeds the benefits.

Mr. WHITFIELD. Could you give us a list of those regulations that you have considered and have realized that the costs exceed the benefits?

Mr. STANISLAUS. Yes. I mean, I can't—since my time, I can't think of one right—we are in the middle of lots of rulemaking. I can't think of——

Mr. WHITFIELD. Can you think of one?

Mr. STANISLAUS. Not right now, but I can get back to you.

Mr. WHITFIELD. Yes, I would like for you to.

Mr. STANISLAUS. OK.

[The information follows:]

Insert for Rep. Whitfield – Rules Where Costs Exceed Benefits

The Office of Solid Waste and Emergency Response (OSWER), through its Policy Analysis and Regulatory Management Office, could not identify a rulemaking promulgated by OSWER during the tenure of Assistant Administrator Stanislaus in which the costs of the rule exceeded the benefits.

Mr. WHITFIELD. The reason I am asking the question, I recently read a Law Journal article on the formula being used determine costs versus benefits. And this Law Journal article, University of Michigan Law Journal article, is very critical of the analysis and it was so subjective in so many ways. So, we get the impression up here that it is very easy to show that benefits outweigh costs. And so I really would appreciate if you would get us an example of one regulation that you considered in which the benefits did not outweigh costs and you all decided not to implement it.

Mr. STANISLAUS. During my time or just generally within EPA?

Mr. WHITFIELD. No, during your time. I want you to give me——

Mr. STANISLAUS. OK. I am not sure. I will go check.

Mr. WHITFIELD. OK. All right. But you are not aware of any.

Mr. STANISLAUS. Yes, I am not aware at this moment, yes.

Mr. WHITFIELD. OK. Now, under the Bevill amendment, I think you said 1993–2000, EPA determined that coal ash was not a hazardous waste. Is that correct?

Mr. STANISLAUS. Yes, that we would not regulate it under C at that time. Yes.

Mr. WHITFIELD. All right. And now you decided that you should regulate it under C?

Mr. STANISLAUS. No. We are still deliberating on that. We have co-proposed to regulate it under C or D.

Mr. WHITFIELD. OK. But has your scientific evidence showed that it is a hazardous waste?

Mr. STANISLAUS. Well, the evidence shows that there has been damages from the mismanagement of coal ash disposal.

Mr. WHITFIELD. OK, there have been damages. But is it a hazardous waste, in and of itself?

Mr. STANISLAUS. Well, I mean, we are still deliberating on that. And the difference is that, because of the various damages, what is the best tool to deal with the damages and ensure mismanagement doesn't happen? And that is what we are currently deliberating on.

C provides certain kinds of tools, like Federal standards, Federal enforceability of permit programs and oversight, that is a tool that we need to examine, along with——

Mr. WHITFIELD. So you are focusing a lot of damages, primarily.

Mr. STANISLAUS. Well, the environmental impact, as well as the economic consequence of——

Mr. WHITFIELD. So, do damages have to be at a certain level for something to be classified as a hazardous waste?

Mr. STANISLAUS. Well, again, we have not classified it as a hazardous waste, and I——

Mr. WHITFIELD. I am just asking theoretically. Do damages have to be considered to determine something as a hazardous waste?

Mr. STANISLAUS. For consideration of subtitle C, absolutely, we have to look at the total damages, the science underneath that, the various constituents, the impact to public health.

Mr. WHITFIELD. Now, in your testimony, you said 130 million tons of waste is generated by coal-fired plants, correct?

Mr. STANISLAUS. That is right.

Mr. WHITFIELD. Now, I read that 16,349 hazardous waste generators generated 47 million tons of hazardous waste last year. And

the issue from some of the testimony of our other witnesses indicates that the capacity to take the amount of waste that would be having to be disposed of if you proceed with these regulations, that the capacity is not there to store it.

Mr. STANISLAUS. Well, it is certainly something we are looking at, in terms of capacity and the States.

Mr. WHITFIELD. But, in your view, isn't the capacity there to take care of it?

Mr. STANISLAUS. Clearly, new capacity is going to be necessary to comply with the rule.

Mr. WHITFIELD. How much new capacity?

Mr. STANISLAUS. I will get back with the specific numbers. I will have to get back with you.

[The information follows:]

Insert for Rep. Whitfield – Hazardous Waste Disposal Capacity

As discussed in EPA's preamble to the proposed CCR rule regarding hazardous waste disposal capacity, should the Agency select the subtitle C option, EPA believes that landfills and surface impoundments currently receiving CCRs will apply for and obtain interim status and convert to RCRA subtitle C status, and that the proposal would not shift disposal patterns in a way that substantially increases the disposal of CCRs off-site from generating utilities to commercial hazardous waste landfills. Therefore, EPA's regulatory analysis presumes disposal patterns will remain generally the same.

However, as commenters to EPA's CCR proposal have pointed out, CCRs do, in theory, have the potential to overwhelm the current hazardous waste capacity in the United States. EPA estimates that the current total national commercial hazardous waste landfill disposal capacity is between 23.5 and 30.3 million tons, while the annual amount of CCRs currently going to land disposal is 46 million tons (with an additional 29.4 million tons going to surface impoundments). These figures illustrate the very large volume of CCR material involved, and how it could overwhelm existing subtitle C disposal capacity, however this presumes that existing landfills and surface impoundments do not apply for and obtain interim status and convert to RCRA subtitle C status.

To the extent that new capacity would be needed if the subtitle C alternative were selected, implementation of the proposed rule would take place over a number of years, providing time for industry and state permitting authorities to address the issue. This is an issue on which EPA solicited detailed information in its proposal to aid in further quantifying the extent to which existing capacity may be insufficient. EPA asked for detailed information on the volume of CCRs now going off-site for disposal; the nature of off-site disposal sites (e.g., commercial subtitle D landfills versus dedicated CCR landfills owned by the utility); and the amount of available land on utility sites for added disposal capacity.

Mr. WHITFIELD. When do you anticipate you will make a final determination on this regulation?

Mr. STANISLAUS. Certainly not this year. We are currently sifting through 450,000 comments. So sometime next year.

Mr. WHITFIELD. OK, I see my time is about expired. Thank you.

Mr. SHIMKUS. The gentleman yields back his time.

The chair recognizes the gentleman from Georgia, Mr. Barrow.

Waives.

The chair now recognizes the gentleman from Pennsylvania, Mr. Pitts, for 5 minutes.

Mr. PITTS. Thank you, Mr. Chairman.

Mr. Stanislaus, do you plan to seek a hazardous waste designation for municipal solid waste landfills?

Mr. STANISLAUS. No, we are not pursuing that at the moment.

Mr. PITTS. Do you feel the States are doing a pretty good job of regulating municipal solid waste landfills?

Mr. STANISLAUS. Yes, I mean, we have reviewed the—well, we previously approved their plans, and so—but we are constantly engaged with the States on this issue.

Mr. PITTS. How do human health risks from municipal solid waste landfills compare to those with coal ash landfills?

Mr. STANISLAUS. Well, I have not done a direct comparison. I am not sure we have that. But we have documented the specific risk from coal ash mismanagement and the need to address that.

Mr. PITTS. How does the toxicity of fly ash compare to that of Portland Cement, which it replaces in producing concrete, for instance?

Mr. STANISLAUS. The direct toxicity? Again, I am going to have to get back to you on that.

Mr. PITTS. Do you have any opinion on the toxicity of synthetic gypsum compared to mined gypsum, which it replaces in manufactured wallboard?

Mr. STANISLAUS. Well, I can get back to you on the specifics, but they are fairly comparable in terms of the constituents found in both, so—in terms of what is contained in either mined or synthetic.

Mr. PITTS. How about the toxicity of coal ash compared to, say, household garbage?

Mr. STANISLAUS. Well, again, I don't have a direct comparison. But, again, there are constituents in coal ash, if mismanaged, that do cause a risk. But if it is managed well, like beneficial use in a brick, for example, or wallboard, it can be done very safely.

Mr. PITTS. OK. Back to landfills, do you disagree with the States that landfill capacity will be wiped out in less than 2 years if EPA makes their subtitle C proposal final?

Mr. STANISLAUS. I have not looked at that comment. I mean, I believe that is a comment on the record. We will look at that. I mean, we don't believe that specifically is the case, but we will look at—we are looking at the capacity of C, disposal units in States.

Mr. PITTS. As head of the waste office, do you have any plans for streamlining permitting to ensure new landfill capacity, if you create the EPA's subtitle C designation?

Mr. STANISLAUS. Well, clearly, our interest is to have a very streamlined program, not just within C but throughout. And as

part of the President's regulatory review, we are looking at numerous opportunities to streamline and bring efficiencies to our programs.

Mr. PITTS. OK. Another question on coal ash: Does coal ash qualify as a hazardous waste based on its toxicity pursuant to RCRA-mandated TCLP, the test?

Mr. STANISLAUS. That is clearly something we are doing. And I should note that our proposal is to designate as a special waste, not a hazardous waste, because that distinguishes it from the disposal concern that we are seeking to address.

Mr. PITTS. Expand on that, please.

Mr. STANISLAUS. Sure. One, there are other compounds because of the inherent nature that are listed as a hazardous waste. We felt in this case, both because if there is a perception of stigma, we wanted to kind of distinguish it from wastes that are inherently hazardous. So we are only seeking to address the disposal of it. So that is why we proposed to designate it as a special waste and to include all of the tools within C, like government oversight and permitting program. Does that answer your question?

Mr. PITTS. Yes.

Mr. SHIMKUS. [Presiding.] Will the gentleman yield?

Mr. PITTS. Yes.

Mr. SHIMKUS. So I hear you. I mean, I think that is kind of the direction a lot of us know that we need to go. But what you are not saying is when you identify it as a special waste, will that be under subtitle C as a toxic waste?

Mr. STANISLAUS. It will definitely be under subtitle C.

Mr. SHIMKUS. OK. Well, then we are not going that way.

Mr. PITTS. I yield back.

Mr. SHIMKUS. The chair now recognizes the gentleman from Louisiana, Mr. Cassidy, for 5 minutes.

Mr. CASSIDY. Hello, Mr. Stanislaus.

Mr. STANISLAUS. Hi.

Mr. CASSIDY. I know just enough to be terribly confused, oK? And I am between two committee hearings, so I apologize if you have already answered some of this.

I gather that the principal problem is groundwater contamination with trace elements which are hazardous, selenium, cadmium, whatever. I also gather that this—I think I have a CRS report here that says, that kind of describes the sort of lining that appears—the composite liner, upper component of flexible membrane, 2 feet of compacted soil beneath that. And that truly seems effective at limiting groundwater contamination.

Mr. STANISLAUS. That is what we propose, exactly.

Mr. CASSIDY. So why not just do that under section D, subtitle D? I mean, if this is what is required, and we know this works, you can go out and inspect and make sure that it is working, do some groundwater pre-and post-testing. Why not just do that under subtitle D? I guess that is my confusion.

Mr. STANISLAUS. Yes, we did propose those technical requirements under D. There are some differences between D and C. As an example, a permit program and government oversight, so there are some differences. I mean, D does not require States to pick it up. So States are not required to modify their program to be con-

sistent with D. So the enforcement of D is either by States or by private citizens groups.

Mr. CASSIDY. Now—oK. Does D include groundwater testing?

Mr. STANISLAUS. D would—as a criteria, it would be one of the components of the criteria; that is right.

Mr. CASSIDY. Of D.

Mr. STANISLAUS. Of D and C.

Mr. CASSIDY. So if we are really concerned about groundwater testing, I would like to think that States are responsible enough that they don't want cadmium, or whatever the trace element is, in their groundwater. And if we know that that testing would be in place, does EPA—implicit in this is that EPA feels the States won't do a good enough job. Is that a fair statement?

Mr. STANISLAUS. Well, no. I mean, we want to have a scheme that—again, we have not made a determination of whether a C or D. We want to be—and one of the sets of data that we have asked, and we have asked for the States, we are in constant engagement with the States, is what is the best framework for doing this? D set the criteria that is effectively what I would characterize as staff implementing. So it is up to the companies to kind of implement that. And so the enforcement and oversight is a real kind of key component to ensure safe management of disposal.

Mr. CASSIDY. And not just the companies to implement, but also puts a burden upon the States to ensure implementation, correct? I mean, the States, once they know it is a health hazard, theoretically States don't want their groundwater contaminated, so theoretically States are going to act in the best interest of their citizens, just as the Federal Government is going to, theoretically, act in the best interest. And as a Republican, of course, I would like to give more responsibility to the States than to the Federal Government.

But again, I go back to this implicit—it seems as if you are a little concerned that the States may not be up to the responsibility.

Mr. STANISLAUS. No. Either way the States would have lead responsibility under C or D.

Mr. CASSIDY. OK. But D—but C would have a bigger role for EPA, if you will, the oversight of the States' oversight.

Mr. STANISLAUS. Yes. So EPA would ensure that the States comply with these requirements. But ultimately, the goal is to have the States run the program.

Mr. CASSIDY. OK. Now, allay my fears. My city, I represent the metropolitan area. Louisiana, Baton Rouge, has been under a nonattainment for quite some time. We can't build out our industry because we are under nonattainment, so we can't create jobs by plant expansion, if you will. We are under Region 6. And I am told by credible sources that they have been sitting on our application for 3 or 4 years; that we are not getting our application to be under attainment processed in a quick way. Of course, the cost is jobs. No explanation given, just not processing.

So I guess my concern is that whenever the EPA is giving oversight, ultimately it means that they really control the process. Is it possible that—of course, it is possible—but how would you address the concern that once you have oversight of the oversight, and you have the ability to yank the permit or to grant the permit,

that it would be that same sort of bureaucratic Kafkaesque scenario where jobs aren't being created, energy costs are going up merely because somebody in Region 6 has decided not to process an application?

Mr. STANISLAUS. Clearly, that is not our interest. And the history of the C program is that we review, approve, and plan to get out of the way for the States to kind of execute that program. So while we retain oversight; but the real goal is to have the States execute the program, as we have done in other programs under C.

Mr. SHIMKUS. The gentleman's time has expired. Kafkaesque. That is pretty impressive for someone from Louisiana. The chair now recognizes the gentleman from Ohio for 5 minutes.

Mr. LATTA. I thank the chairman. And Mr. Assistant Administrator, thanks for being with us today. As you can see, I represent the Fifth District in Ohio. And Ohio is dependent heavily on coal for our generation. And I also—I am going to throw in my friends, just to my west in Indiana, because my district runs down the Indiana line, so we have a lot of folks that work in Indiana, or vice versa, Indiana working in Ohio. So when we have over 80 percent of our power coming from coal, Indiana estimated over 90 percent is coal-generated.

My concerns go back to what the chairman was talking about a little bit earlier, especially on the jobs side. And I would like to ask you a couple of questions, if I may, first on how when EPA was looking at this, did you look at how high the electricity rates could rise for the States like Ohio and Indiana that are dependent on that coal for producing not only that electricity, but that is what turns on those machines at those factories that create those jobs and our States are retaining those jobs in our States?

Mr. STANISLAUS. Yes, we looked at all the costs. And I could break down again the electricity costs, but we did look at the potential impacts for electricity, assuming the utility passes on 100 percent of the cost to the utility customer. And I could provide on the record, I could go back over that. But we did look at both on a national average and individual State-by-State basis.

Mr. LATTA. OK. Do you have any of those statistics with you today?

Mr. STANISLAUS. Yes. I could——

Mr. LATTA. Like for Ohio, for instance; where would you see those costs?

Mr. STANISLAUS. Let me see if I can quickly find Ohio. I am going to have to get back to you on Ohio.

[The information follows:]

Insert for Rep. Latta – Estimated Electricity Rates for Ohio

Exhibit 7A (pages 205 to 207) of EPA's Regulatory Impact Analysis (RIA) for the 2010 CCR proposed rule presents EPA's state-by-state estimates of potential future increases in electricity rates for customers using electricity generated by coal-fired electric utility plants, for both the Subtitle C and Subtitle D regulatory options, and assuming full-cost pass-through of regulatory compliance costs. For the state of Ohio, the RIA estimates a potential increase in electricity price of 1.193% (Subtitle C) and 0.132% (Subtitle D), relative to Ohio's May 2009 statewide average electricity price of $0.0930 per kilowatt hour. The RIA is available as document ID nr. EPA-HQ-RCRA-2009-0640-0003 at http://www.regulations.gov

Mr. SHIMKUS. If the gentleman willl yield just one second on that.

Mr. LATTA. I yield.

Mr. SHIMKUS. The point being, rates will relatively stay unchanged, but you are not including the cost of the waste, new regulations under subtitle C, the disposal of now twice as much material. That is a burden of cost, and that is why that economic eval that the President has directed, that is why that is important, because it needs to be comprehensive, not just a basic thing of what happens to rates because—anyway, I will yield back to my friend.

Mr. STANISLAUS. Just to be clear, we did include all the costs——

Mr. LATTA. Thank you very much, Mr. Chairman. Because under the Electric Power Research Institute, which is not an advocacy organization, it points out that a lot of the cost factors that EPA omitted from its electric rate impact analysis, the EPRA says the proposed coal ash disposal regulations will cost three to four times more than your estimate. And that goes back to what the chairman is saying. And, again, these costs that drive the businesses out of our States.

And I know how bad it is getting because in Ohio we are going to lose two Members of Congress this time around, because we have got folks that are leaving the State, going to other States to find jobs, and our kids are leaving. And I think those are the things that we really need to know is just not the rate, but you know, all of the impact it is going to have on our States.

If I could move on to another question. In your testimony, just to make sure I understand, on page 4 and then also page 5, could you define "encapsulated" and "unencapsulated" because you say that encapsulated, you are talking about concrete or wall board. Now when you are talking about concrete, is that in the dry form or in the final form that it is actually after it has been made?

Mr. STANISLAUS. Yes, it is the final form.

Mr. LATTA. OK. So the powdered form would be the unencapsulated, correct?

Mr. STANISLAUS. No. We got in addition to the final product, so there are some benefits to uses that are not essentially solid in its final form. So we do go through that distinction about—certain stakeholders have raised concerns, and we are doing some research on certain unencapsulated that we are doing more research on. So we don't have concerns or insignificant concerns of like, for example, concrete; because these constituents are kind of embedded in that final form, and we don't believe there are issues that——

Mr. LATTA. OK, again, pardon me for interrupting. You are referring then to concrete after it is set, not in the pallets. OK. Because there are contexts that there are individuals, companies, et cetera, that aren't going to touch this anymore, because they are going to say, We don't want to to be held liable if all of a sudden down the road this is going to be held as something that is hazardous, and then all of sudden we are going to be responsible for tearing something up or being sued.

So I think it is very, very important on these definitional phrases when you are talking about encapsulated and unencapsulated, because if we are talking about concrete in two different forms, that is going to have a lot of people very, very concerned.

Mr. STANISLAUS. Yes. Just to be clear, we are not proposing to regulate beneficial use at all in the proposal. The proposal is limited to just disposal and kind of the impoundments and landfill scenarios. We did see comments on is there anything else that we should be doing. But we have not proposed to address any form of beneficial use at the moment.

Mr. LATTA. Mr. Chairman, my time has expired and I yield back.

Mr. SHIMKUS. The gentleman yields back his time. The chair now recognizes the gentleman from Colorado, Mr. Gardner.

Mr. GARDNER. Thank you, Mr. Chairman. Thank you for joining us today.

And I want to go back to a series of questions that you answered with the chairman regarding economic analysis. You stated in later questioning that the EPA would not propose a rule where the costs exceed the benefits. Earlier though, you said that—and you said that you did an economic analysis, but that economic analysis did not do a jobs analysis. Is it standard procedure for an economic analysis to ignore the impact on jobs?

Mr. STANISLAUS. Well, we didn't do a direct analysis, and again we sought——

Mr. GARDNER. So you did not do a direct economic analysis.

Mr. STANISLAUS. No, no. We did a direct economic analysis of various potential costs that we have identified, which includes cost of compliance by the utility sector, the cost to the States, as well as various benefits

Mr. GARDNER. But not a cost on jobs.

Mr. STANISLAUS. Not directly.

Mr. GARDNER. So you did do a cost on jobs, then, indirectly?

Mr. STANISLAUS. Well, we just looked at the direct cost from complying with the rule

Mr. GARDNER. So you did or you did not do jobs?

Mr. STANISLAUS. Not. No

Mr. GARDNER. So is it standard procedure, then, for an economic analysis to not include jobs?

Mr. STANISLAUS. Well, I can get back to you on the specific details of how we do economic analysis. We do economic analysis based on the direct consequence of our rule

Mr. GARDNER. So you don't think your rule would have direct consequences on jobs?

Mr. STANISLAUS. Well, we did an analysis of various costs of that, and clearly we are cognizant of the economic consequence of our rule

Mr. GARDNER. So it does have an economic consequence.

Mr. STANISLAUS. Sure. But we looked at both the cost and benefits of the rule.

Mr. GARDNER. But you didn't look at jobs.

Mr. STANISLAUS. Not directly, no. So we looked at, for example, the impact on the utility industry.

Mr. GARDNER. So there is no impact on the utility industry on jobs?

Mr. STANISLAUS. Well, we didn't do that direct analysis. There is an impact on cost to the utility industry, and that translates to potential increase, as I had noted earlier, some rise in utility rates

Mr. GARDNER. So do you believe, then, that an economic analysis that fails to show the full picture on jobs, is that an adequate economic analysis?

Mr. STANISLAUS. Well, we think we did a comprehensive analysis of economic—the total cost of economic, the cost and benefits. But clearly we received a lot of data on various forms of economic analysis that we are looking at it very hard right now.

Mr. GARDNER. So let me just ask that question, then. I think it is a "yes" or "no" answer. Do you believe that an economic analysis that fails to show the impact on jobs, is that a complete economic analysis?

Mr. STANISLAUS. Well, clearly we all, you know—and the President has made that commitment. We have to look at job consequence for everything we do

Mr. GARDNER. So then the answer is "no." It is an incomplete economic analysis.

Mr. STANISLAUS. Well, I think the economic analysis as part of every rule is going to differ. And I can get back to you on the reasons.

Mr. GARDNER. Well, I just would like to know. Is it the EPA's position that an economic analysis that fails to take into account jobs, is that a complete economic analysis? I mean, I don't see how you can talk about economic analysis without talking about jobs.

So I guess I would like to know—and you said that you would not propose a rule where the costs exceed the benefits. But if you are not taking into account jobs, I just don't see how that goes. What other rules has your office or the EPA promulgated that hasn't focused on jobs or taken into account jobs?

Mr. STANISLAUS. Well, I mean, I will get back to you on the rules.

Mr. GARDNER. I would like to see a list of all the rules you have proposed that haven't taken into account jobs. And then the Executive Order that was issued, will you ask for a review under the lookback provisions of the Executive Order so that it does take into account the effect on jobs?

Mr. STANISLAUS. Well, clearly we would look at any job consequences.

Mr. GARDNER. But you haven't. And you said you won't, and you didn't.

Mr. STANISLAUS. Well, you know, as I explained earlier, we have to look at the direct consequence of the rule. And so to the extent that there are direct job consequences, we will take a look at that

Mr. GARDNER. So you have taken a look at jobs.

Mr. STANISLAUS. We have not directly taken a look at jobs.

Mr. GARDNER. But your answer just then said that you would take a direct look at jobs. So you have or you haven't?

Mr. STANISLAUS. Not directly in the rule, in the proposed rule.

Mr. GARDNER. I guess I would like an explanation to know whether or not the EPA considers jobs in their analysis, whether you have, and whether or not the EPA's position is to consider jobs when it does an economic analysis.

Mr. STANISLAUS. We definitely consider the consequence of jobs in our economic analysis. But the form of the economic analysis is really driven by the requirements of the rule.

[The information follows:]

Insert for Rep. Gardner – Regulatory Impact Analysis

EPA conducted an extensive Regulatory Impact Analysis (RIA) to estimate the economic and environmental benefits and costs of the Coal Ash Rule. Among its other estimates, the RIA estimated the potential increase in the cost of disposal of coal ash that could result from the regulatory options—that is, a Subtitle C regulatory approach and a Subtitle D regulatory approach that EPA considered in the proposal, and the potential impacts of those estimated cost increases on electricity prices. In estimating the upper-bound of a potential electricity price increase, the RIA evaluated a hypothetical scenario whereby the electric utility "passes through" 100 percent of regulatory costs to their customers. The RIA estimated that even with a 100 percent cost pass-through, the potential increases in electricity prices to coal fired electricity customers would be an average of 0.795 percent for the Subtitle C option and an average of 0.172 percent for the Subtitle D option, relative to the 2009 national average electricity price of 0.088 per kilowatt hour. Given that demand for electricity changes very little based upon changes in price, electricity production would not be expected to change much, if at all, as a result of the proposed rule. Therefore, EPA anticipates there would be little, if any, impact on jobs associated with electricity production.

Although not calculated in the RIA, it is possible to translate these potential maximum electricity price increases for the 100% hypothetical cost pass-through scenario, into potential maximum increases in the average monthly electricity bills paid by U.S. households, U.S. commercial businesses, and by U.S. industrial facilities. This translation is based on the most recent (2008) electricity consumption data available for the U.S. from the Energy Information Administration.

- Subtitle C option:
    - Households: The average monthly electricity bill for U.S. households using coal-fired electricity could increase by 0.795% from $103.67 per month to $104.49 per month (an average increase of $0.82 per month per household).
    - Businesses: The average monthly electricity bill for U.S. commercial businesses using coal-fired electricity could increase by 0.795% from $657.02 per month to $662.24 per month (an average increase of $5.22 per month per commercial business).
    - Industry: The average monthly electricity bill for U.S. industrial facilities using coal-fired electricity could increase by 0.795% from $7,413.54 per month to $7,472.48 per month (an average increase of $58.94 per month per industrial facility).

- Subtitle D option:
    - Households: The average monthly electricity bill for U.S. households using coal-fired electricity could increase by 0.172% from $103.67 per month to $103.85 per month (an average increase of $0.18 per month per household).

- Businesses: The average monthly electricity bill for U.S. commercial businesses using coal-fired electricity could increase by 0.172% from $657.02 per month to $658.15 per month (an average increase of $1.13 per month per commercial business).
- Industry: The average monthly electricity bill for U.S. industrial facilities using coal-fired electricity could increase by 0.172% from $7,413.54 per month to $7,426.29 per month (an average increase of $12.75 per month per industrial facility).

In addition, as part of the RIA, EPA conducted an analysis on the potential ancillary impact on coal ash beneficial use industries. Please note, since the proposed rule retained the Bevill exclusion regarding the beneficial use of CCRs, the proposed rule would not require that CCRs beneficially used be subject to any federal regulation. Thus, no "direct costs" would apply as a result of the proposed rule. However, because of concerns that were raised regarding the "stigma" of calling CCRs hazardous wastes, the 2010 RIA conducted an analysis that estimated three alternative future scenarios involving an increase in the beneficial use of CCRs, a decrease in the beneficial use of CCR, and no change in the beneficial use of CCR by other industries. Respectively, the RIA estimated the future possible change in the annual market cost of these three scenarios on continued future use of CCR, compared to the alternative market cost to the other industries for purchasing substitute raw materials. EPA would expect that an increase in the beneficial use of CCRs might result in an increase in jobs related to CCR beneficial use industries, although it could result in a decrease in jobs related to raw material supply industries for which CCR would be a substitute material, while a decrease in the beneficial use of CCRs might result in a decrease in jobs related to CCR beneficial use industries, but might lead to an increase in jobs in industries related to the use of substitute materials for CCR. In each beneficial use scenario, EPA anticipates an increase in jobs associated with the pollution control equipment and services for compliance with the rule. EPA specifically solicited comment on market costs and employment, and will consider those comments as we develop a final rule.

Mr. GARDNER. This sounds like an answer—well, anyway, I think Yogi Berra could have some interesting comments on "we have," "we haven't." Is environmental justice considered in the economic analysis?

Mr. STANISLAUS. I don't believe directly, no. We just look—the primary amount of the benefit that we are trying to avoid is avoidance of contaminated drinking water

Mr. GARDNER. So environmental justice was not a part of your——

Mr. STANISLAUS. We did do an environmental justice analysis.

Mr. GARDNER. But not jobs.

Mr. STANISLAUS. In terms of the economic analysis, we looked at the benefits of avoiding, for example, drinking contaminated drinking water or avoiding catastrophic failures.

Mr. GARDNER. What does "environmental justice" mean to you?

Mr. STANISLAUS. Avoiding a disproportionate impact on certain communities.

Mr. GARDNER. And that was considered under the rule.

Mr. STANISLAUS. We considered—we evaluated that.

Mr. GARDNER. But disproportionate impact on the community does not include jobs.

Mr. STANISLAUS. We certainly looked at the economic consequence of the rule.

Mr. GARDNER. Well, I look forward to hearing back from you.

Mr. STANISLAUS. And I can provide you with those details.

Mr. SHIMKUS. The gentleman's time has expired. The chair recognizes the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman. And thank you for the committee allowing me to participate in this discussion.

Thank you for being here. I have got several questions. I don't know how I am going to get through them all in 5 minutes. But let me—last week we had some testimony from Purdue University. Dr. Ridgeway came in and explained some of the differences between the costs of handling between the fly ash if it were considered a hazardous waste. And she was suggesting that it would rise from $300,000 at a university to $25 million.

Now, that is not a cost that can be absorbed by the taxpayers or the—excuse me—but it is going to be directly passed on to the consumers. And in that case you had indicated somewhere your analysis had been, I believe, $4 a month or $50 a year under a class C, subsection C classification. I heard you make that testimony earlier, whereas her number is closer to $600 a year. Was she wrong?

Mr. STANISLAUS. Yes. I am not familiar with that. The previous number is more——

Mr. MCKINLEY. We can get that for you then on that, but I think we need to take a look at that and the difference. Then you also talk about the beneficial use. And I heard testimony from our colleague from California refer to it as toxic, toxic fly ash. I don't know that—is the EPA saying it is toxic?

Mr. STANISLAUS. We have——

Mr. MCKINLEY. You agreed. I mean, you didn't correct him when he said toxic fly ash, and you sat there and accepted that. Is it toxic?

Mr. STANISLAUS. Again, we are in the middle of a rulemaking, and whether it is regulated on the C or D is something that——

Mr. MCKINLEY. Because if it is toxic, I think we should treat it a lot differently with it. I am not interested in trying to pass this thing off—especially try to force it on the consumers if it is toxic. And if it is a hazardous material, we shouldn't do it.

You have referred to the studies in 1993 and the study in 2000 that both said it is not a hazardous material. The testimony is there. So I am concerned that the EPA is continuing this mantra that is going to stigmatize a by-product, an unavoidable by-product of burning coal. And the whole administration is concerned with what you are doing.

We have information here in this packet from OMB, the Army Corps of Engineers, Department of Energy, DOI, Department of the Interior, Transportation, TVA, USDA, are all saying this could have some serious consequences to the economy of this country if you proceed with classifying it as a hazardous material. Their own comments back in—talk about the threat. What will corporate liability lawyers tell companies about creating wall board for use in homes, hazardous material? Would you, if you allowed it to be considered a hazardous material, would you allow hazardous material, even though the comment toxic, to be used in drywall in our schools for our children? You are saying that is an oK beneficial use?

Mr. STANISLAUS. Well, again, the only thing that we are identifying is the mismanagement of coal ash could result in impacts. There are lots of products containing constituents either maybe coal ash or not that——

Mr. MCKINLEY. There are a lot of products that have toxic chemicals with it. You do understand Bitchem asphalt highways have nickle, vanadium, chromium, mercury, arsenic, selenium, but yet we have asphalt highways all across America. I am not sure I understand, since the concentration levels are quite similar between fly ash and asphalt, why we are singling out asphalt or singling out fly ash for this issue.

Do you also consider the amount of additional greenhouse gases that will be emitted by replacing this? We are going to do more damage to the environment with greenhouse gases if again, following the EPA's argument, if we substitute fly ash in other products, we are going to have to create more greenhouse gas. Which should we be more concerned with?

Mr. STANISLAUS. Well, clearly, we very much acknowledge the greenhouse gas benefits among other benefits of beneficial use of coal ash. I mean, the cement industry, for example, the concrete industry, tremendous benefits, greenhouse gas and otherwise.

With respect to highways, we fully support the use of coal ash in highways. In fact, we have worked with the private sector. We have worked with the Department of Transportation.

Mr. MCKINLEY. You haven't included encapsulization as such. It is a surface. When you drive over it you are going to create dust. There is concrete dust. We all know that. I have designed plenty

of highways in my days, and we all know that just simply using the highway, scraping it, the use of it is going to create more airborne debris. If you are going to call it a hazardous material, I think we have got problems.

I am afraid I have run over my time. But I look forward to hearing more from you in the days ahead.

Mr. STANISLAUS. Sure. And just quickly, our perspective is safe handling, and we want to promote all the benefits.

Mr. MCKINLEY. We all do

Mr. SHIMKUS. Thank you. We do appreciate your time, Mr. Stanislaus. I know it was a tough morning. But we do appreciate this. I think there are some areas of consensus and agreement. Legislation has moved to ensure that we don't go in a direction that we think is going to be harmful for the economy and not make much difference in the safety of our citizens. So—make any difference.

There are some questions submitted to you for response. We will leave the record open, and if you could reply in a timely manner, we would appreciate it.

I would also just end by saying, you know, on the retaining ponds, you all have authority under the eminent hazard authority on containment ponds. The language is "may." So nothing is prohibiting EPA from doing containment ponds now under RCRA 7003 and Safe Water Drinking Act 1413. So I would draw that to your attention. And with that, I appreciate my colleagues for the first panel. Thank you, sir, for coming. And we will sit the second panel.

I would like to officially recognize the second panel, and the way I will do it is I will just kind of introduce you all right at the beginning and get that out of the way. It won't be in any great depth, and then we will just go to your 5-minute statements. The full record is in the statement for the record.

You can see it is a hearing that we have a lot of interest on, so we want to get to questions as soon as possible. So if we stay around 5 minutes that would be helpful.

And with that, in the order I have here, well, I will go to—first of all, we have to my left Mr. Tom Adams, from the American Coal Ash Association, welcome.

Then we have Ms. Dawn Santoianni. Oh, you are over there. Is that close? Oh, I know why. And then we have Ms. Zdanowicz. Thank you. Good.

And then it looks like it is Ms. Lewis—that is easy—Ms. Evans and Mr. Havens.

Mr. Havens, we want to welcome you here. And the opening statements are 5 minutes, as I said. So we will start with Mr. Adams to my left. You are recognized for 5 minutes, sir.

STATEMENTS OF THOMAS H. ADAMS, EXECUTIVE DIRECTOR, AMERICAN COAL ASH ASSOCIATION; MARY T. ZDANOWICZ, EXECUTIVE DIRECTOR, ASSOCIATION OF STATE AND TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS; ARI S. LEWIS, SENIOR ENVIRONMENTAL TOXICOLOGIST, GRADIENT; DAWN SANTOIANNI, SENIOR ENGINEER, VERITAS ECONOMIC CONSULTING LLC, CARY, NORTH CAROLINA; LISA EVANS, SENIOR ADMINISTRATIVE COUNSEL, EARTHJUSTICE; AND CURTIS HAVENS, CHESTER, WEST VIRGINIA

STATEMENT OF THOMAS H. ADAMS

Mr. ADAMS. Thank you, Mr. Chairman. We appreciate the opportunity to come and talk to you today and the committee about one of the great recycling stories of our time, and how that success is endangered by potential overreaching by the EPA in this effort to create proposals and regulations for disposal.

Our association was founded over 40 years ago to advance the management and use of coal combustion products in ways that are environmentally responsible, technically appropriate, commercially competitive, and supportive of a sustainable society. I would like to emphasize that most of ACAA's members are small businesses comprised of people who are dedicated to the cause of recycling and improving the environment. It is these businesses that are being hurt most by this regulatory uncertainty over EPA's proposal whether to go hazardous waste or nonhazardous waste for disposal.

ACAA strongly endorses the bills that were recently filed to prohibit EPA from regulating coal ash as a hazardous waste. We would like to commend Mr. McKinley and Mr. Latta for their leadership in this issue. When EPA proposed a potential hazardous waste designation for coal ash over a year ago, the agency cast a cloud over our recycling efforts that has caused coal ash users across the country to decrease their specification and use of the resource. Now it appears that EPA will not come up with a final rule for quite some time. And Mr. Chairman, some of our members will not survive this delay.

The bills before the House right now would prevent EPA from regulating coal ash as a hazardous waste under subtitle C, thereby resolving the regulatory uncertainty hurting our members. However, the bills would not prevent EPA from creating rules which protect human health and the environment, as we need.

Our association was very clear last year when we went on the record passing a resolution of our board of directors, endorsing subtitle D rules for disposal, and opposing any form of subtitle C regulation.

Supporters of the hazardous waste designation say there is no evidence of stigma associated with hazardous designation for coal combustion products. In fact, just the existence of EPA's proposal has created a stigma that has affected markets in three ways.

Number one, consumers of coal combustion products are beginning to remove materials from their specification because of uncertainty over safety, or the fear of potential liability from using it. Owners across the country, including the Los Angeles Unified School District, Anne Arundel County in Maryland, and even the

Canadian province of Nova Scotia have removed the use of fly ash and concrete over fears of its potential safety concerns. ACAA members are in these markets daily, dealing with this stigma, and know it is a real problem for the industry.

Manufacturers of competitive products are currently using the potential for a hazardous waste rule as a marketing product for their materials. And we have seen it in blasting grit, brick manufacturing, lightweight aggregate production and concrete block manufacturing, all competitors using some form of the hazardous waste threat to market their products.

And thirdly, we see commercial liability policies from insurance companies coming up with exclusions for concrete products and fly ash and synthetic gypsum being used in projects.

So we have three very good examples of how the stigma is affecting markets today, even without a rule, with just the cloud of that rule. Supporters of hazardous waste designations say that recycling rates will actually increase under hazardous waste designation.

Citing the experience of a handful of industrial by-products, EPA's evidence comes from material such as spent sulfuric acid, electric arc furnace dust, chat from lead and zinc mining and used oil. However, every one of the materials cited by EPA comes in small quantities which are heavily reprocessed before use and generally remain in the custody of the generators.

CCPs are markedly different. They come in large quantities, are not reprocessed before use, are not used by the generator, and are used in products in retail, commercial and institutional markets. Citizens in this country can literally reach out and touch products containing CCPs in their homes.

The coal ash recycling industry is worth protecting. The benefits of using coal ash rather than disposing of it are measured in the millions of tons annually, millions of tons of decreased landfill use, decreased natural resource use and decreased greenhouse gas emissions.

In the decade from 1999 to 2009, the period for which data is most recently available, our Nation successfully recycled 519 million tons of coal ash, some 38 percent of the 1.35 billion tons generated. We decreased greenhouse gases by 138 million tons during that same period through the use of fly ash and concrete products. In the process, we contributed 9- to $10 billion annually to the economy and created over 4,000 green jobs.

Our highways are benefited and bridges are benefited by the use of coal ash. Our agricultural markets are benefited by it as well.

We urge you to support the bills that will resolve this regulatory uncertainty crippling the recycling effort in this country. Thank you.

Mr. SHIMKUS. Thank you, Mr. Adams.

[The prepared statement of Mr. Adams follows:]

Statement of Thomas H. Adams, Executive Director
American Coal Ash Association
U. S. House of Representatives
Energy & Commerce Subcommittee on Energy and Environment
April 14, 2011

Mr. Chairman, my name is Thomas Adams. I am the Executive Director of the American Coal Ash Association (ACAA). I would like to thank you for the opportunity to speak to you and the committee about one of America's greatest recycling success stories and how that success is endangered today by over-reaching Environmental Protection Agency regulatory proposals.

ACAA was established more than 40 years ago, in 1968, as a trade organization devoted to recycling the materials created when coal is burned to produce electricity. Our members comprise the world's foremost experts on coal ash (fly ash and bottom ash), boiler slag, flue gas desulfurization gypsum or "synthetic" gypsum, and other "FGD" materials captured by emissions controls. While other organizations focus on disposal issues, ACAA's mission is to advance the management and use of coal combustion products (CCPs) in ways that are: environmentally responsible; technically sound; commercially competitive; and supportive of a sustainable global community.

ACAA is not a large Washington DC-based trade organization. We are headquartered in Aurora, Colorado, and have only two full-time employees. We rely on our volunteer members to pursue an agenda that is mostly technical. For instance, to develop formal comments on EPA's Proposed Rule for regulating coal ash disposal, our members devoted more than 14,000 volunteer hours to reading, analyzing, and drafting our response. ACAA's membership is comprised of a diverse array of stakeholders, including academic professors and scientists, scientists within businesses associated with CCPs, former regulators, consultants, engineers, cement companies, coal ash marketers, CCP technology companies, international representatives within the CCP industry, and utility representatives.

I would like to emphasize that most of ACAA's members are small businesses comprised of people who have dedicated entire careers to the cause of recycling and improving our environment. It is these small businesses that are being hurt most by the regulatory uncertainty that EPA has created by proposing an unwarranted "hazardous waste" designation for coal ash when it is disposed.

ACAA strongly endorses the bills that were recently filed to prohibit EPA from regulating coal ash as a "hazardous waste" because those bills would resolve that regulatory uncertainty. We commend Representatives David McKinley and Bob Latta for their leadership in filing HR 1391 and HR 1405.

Statement of Thomas H. Adams
Executive Director, American Coal Ash Association
House Energy & Commerce Subcommittee on Energy and Environment
April 14, 2011

When EPA proposed a potential "hazardous waste" designation for coal ash a year ago, the Agency cast a cloud over our recycling effort that has already caused coal ash users across the nation to decrease their specification and use of the resource. Simply put, people do not want to undertake the potential liabilities or risks of using a material that would be considered "hazardous waste" on the property of the people who produced it. Now it appears that EPA does not intend to finalize its proceedings for many more months or possibly years. Mr. Chairman, we have members who may not survive the wait.

The bills before the House now would prevent EPA from regulating coal ash disposal as a "hazardous waste" under Subtitle C of the Resource Conservation and Recovery Act – thereby resolving the uncertainty regarding the resource's classification. The bills would not, however, prevent EPA from moving forward with improving coal ash disposal regulations. Under the "non-hazardous" regulatory approach also proposed by EPA and endorsed by the agency as recently as September of 2009, the engineering standards for coal ash disposal facilities would be essentially the same as under the "hazardous" approach. Wet impoundments would still effectively be phased out and dry landfill standards would be improved. Ironically, the improvements would also get implemented sooner under the non-hazardous approach.

EPA's "hazardous waste" approach is not, therefore, "more stringent," as some contend. The main difference between the "hazardous" and "non-hazardous" approaches boils down to who gets to enforce the new rules. Under the non-hazardous approach, EPA makes the rules and states enforce them. Under the hazardous approach, EPA makes the rules and enforces them directly. EPA seems to be willing to sacrifice an entire recycling industry just to get that disposal enforcement authority.

Let me be clear: ACAA is in favor of improved coal ash disposal regulations and supports federal regulation under the "non-hazardous" Subtitle D. In April 2010, the ACAA Board of Directors took the unprecedented step of approving a formal resolution establishing that position. The same resolution also clearly stated our opposition to any form of Subtitle C, hazardous waste rule for disposal.

It is important to remember that coal ash does not qualify as a hazardous waste based on its toxicity. The toxicity of coal ash is similar to or less than the toxicity of the materials it replaces in recycling applications. Furthermore, EPA has presented no environmental damage cases related to recycling of coal ash, despite decades of widespread use.

Statement of Thomas H. Adams
Executive Director, American Coal Ash Association
House Energy & Commerce Subcommittee on Energy and Environment
April 14, 2011

It's also important to remember that the only people in favor of the "hazardous waste" approach are anti-coal environmental groups and a handful of companies that manufacture and market products that compete with recycled coal ash. Please allow me respond directly to three of their most common arguments:

- Supporters of the "hazardous waste" designation say that there is no evidence of a stigma associated with the hazardous designation. In fact, just the existence of EPA's proposal has created a created a stigma that is already affecting the beneficial use of coal ash in at least three ways:
    - Consumers of coal combustion products are beginning to remove the materials from their specifications because of uncertainty regarding the safety of the material or because of concern over potential legal liability from using it. Let me give you one example of each. The Los Angeles Unified School District has prohibited the use of coal fly ash in its concrete, and I quote: "until the EPA confirms fly ash to be a non-hazardous toxic waste." HR 1391 sponsor Rep. McKinley – who is a civil engineer outside of his service to Congress – has indicated that he has removed coal fly ash from his concrete specifications because of liability concerns. It is important to remember that it doesn't matter whether health or legal liability concerns are scientifically or legally justified. What matters is that people do not want to take the risks created by the potential "hazardous" designation and they can choose not to use the coal combustion products to avoid those risks. It takes significant assets to defend even unjustified lawsuits.

    - Manufacturers of products that compete with recycled coal ash have been fanning the stigma flames by citing the potential EPA "hazardous waste" designation. This has already occurred in markets for blasting grit, brick manufacturing, lightweight aggregate production, and concrete block manufacturing. One particularly egregious magazine advertisement featured a skull and crossbones for an illustration.

    - We are now beginning to see commercial liability insurance policies that contain exclusions for companies using products that contain fly ash. Examples of this disturbing development – as well as more examples of the other forms of stigma mentioned above – are being collected and made available by an organization that is separate from ACAA (Citizens for Recycling First) at this website: http://www.recyclingfirst.org/pdfs.php?cat=9

Statement of Thomas H. Adams
Executive Director, American Coal Ash Association
House Energy & Commerce Subcommittee on Energy and Environment
April 14, 2011

- Supporters of the "hazardous waste" designation say that recycling rates will actually increase under a "hazardous waste" designation, citing the experience of a handful of other industrial byproducts. The materials cited by EPA include electric arc furnace dust, electroplating wastewater sludge, chat from lead and zinc mining, used oil, spent etchants and spent solvents. The problem is that none of those materials are anything like coal ash. Most of them actually qualify as a hazardous waste based on their toxicity. (Coal ash does not.) Almost all of them are reprocessed prior to recycling. (Coal ash is not.) Most of them get recycled in industrial processes, often by the same companies that produced the materials in the first place. (Coal ash is distributed for recycling by thousands of other companies in tens of thousands of public and residential locations all over the country.) Many of them are produced and recycled very small quantities. (Coal ash recycling is measured in the millions of tons.)

- Supporters of the "hazardous waste" designation say concerns raised by international standard setting organizations such as the American Concrete Institute and ASTM International have been somehow unfairly influenced by industry. In fact, these organizations are consensus based institutions whose memberships are comprised of a broad array of representatives from business, government and academia. These institutions place protection of public safety as their top priority. They have rightly raised the concern that it may not be appropriate to allow a material classified by EPA as "hazardous" in codes and standards designed to protect human health. In contrast, some of the same environment activists that criticize the open, consensus-based processes of ASTM and ACI are simultaneously mounting an attack on coal ash in the U.S. Green Building Council's LEED program – an organization that welcomes them but does not allow consensus participation by product manufacturers.

The EPA's extensive public comment process during 2010 showed that those who are actually involved in recycling coal ash – from producers to marketers to specifiers to users – are unanimous in the opinion that a "hazardous" designation for coal ash would be disastrous for beneficial use. Proponents of the "hazardous waste" designation are essentially telling these people that they don't understand their own industry – a recycling industry they have been painstakingly building for over four decades.

Statement of Thomas H. Adams
Executive Director, American Coal Ash Association
House Energy & Commerce Subcommittee on Energy and Environment
April 14, 2011

The coal ash beneficial use industry is worth protecting:

- The benefits of using coal ash rather than disposing it are measured in the millions of tons annually – millions of tons of decreased landfill utilization, decreased natural resources production and decreased greenhouse gas emissions from manufacturing the materials coal ash replaces.

- In the decade from 1999 to 2009, our nation successfully recycled 519 million tons of coal ash – some 38 percent of the 1. 35 billion tons of coal ash produced. We decreased greenhouse gas emissions by more than 138 million tons during that period through the use of fly ash in concrete products. In 2009 the recycling rate for coal combustion products was 44%.

- In the process, we have created a sustainability focused industry with a direct impact on the economy of more than $9 billion per year that directly accounts for at least 4,000 "green" jobs.

- Our highways and bridges last longer because of recycled coal ash. Our fields are more productive and shed fewer pollutants because of recycled synthetic gypsum. These are all benefits worth protecting.

I urge you to support the bills that will resolve the regulatory uncertainty EPA has created and remove the risk to one of America's greatest recycling success stories.

Thank you.

Mr. SHIMKUS. Now we will recognize Ms. Mary Zdanowicz, Association of State and Territorial Solid Waste Management Officials. I wanted to get that on the record for the title. So you are recognized for 5 minutes.

STATEMENT OF MARY T. ZDANOWICZ

Ms. ZDANOWICZ. Chairman, Ranking Member and members of the subcommittee, as the executive director of ASTSWMO, I won't say the whole name, I want to thank you for inviting us to testify today.

Members are experts, government experts in the management of hazardous and solid waste and representing 50 States, five territories and the District of Columbia. ASTSWMO supports the goal of H.R. 1391, to prevent regulation of coal ash as a subtitle C material.

The States have concerns, many concerns, but I am only going to address three today: One, CCRs are not a hazardous waste; the limited amount of capacity for hazardous waste; and the impact on State waste management programs.

First, the hazardous waste issue. There are three bases for regulating CCRs as a hazardous waste that the EPA has cited. First is the criticism of the test method used to determine whether it has characteristics of hazardous waste; the second are damage cases; and the third is a draft risk assessment report.

The test is TCLP, and it is the only procedure that is approved by the EPA for determining if a material has characteristics of hazardous waste for purposes of disposal. There are other tests that can be used to determine if a waste is hazardous for purposes of exposure to the environment. And our members support other methods that can in fact simulate those other conditions and believe that those are beneficial for beneficial use determinations. However, there is no evidence that TCLP is not appropriate for determining hazardous waste for the purposes of landfill. And based on vast experience of our State members, coal ash rarely is found to be hazardous with the TCLP method.

The second issue is the risk assessment. And there is much to critique about that risk assessment. But the report itself really says it most succinctly, and that is the risk assessment was based on landfill methods that are outdated and that, using current landfill methods, the risk—there is not the risk identified in the report.

And then the alleged damage cases. I can say the same thing for the 24 damage cases that EPA identified. And I say "alleged" because they are alleged to represent modern-day landfill construction and practices. In fact, they don't. Those 24 cases are from—some of them, for example, are from before RCRA. There are only three that appear to be operated after 1990, and for a short time. And those are times when the construction of landfills certainly were not what they are today. But, in fact, those cases, as well, are not really what I would call landfill practices, clearly not today. For example, some include gravel pits, quarries, and even a lake impoundment. That would never be considered disposal.

Now, not all sites that are called damage cases actually are. Recent nongovernmental reports name an additional 70 sites as damage cases. But the sites were identified by members of the public

who reviewed records from State environmental offices. And our members contest the conclusions about those sites in their reports. They found the information to be incomplete, incorrect, and/or misleading. The bottom line, any evidence that is used to support subtitle C regulation of coal ash should be based on sound science and modern disposal practices.

The other issue I would like to address is disposal capacity. Using a very optimistic estimate, the amount of coal ash that will be produced for disposal is about 22 million tons a year. The States and EPA agree that there is less than 35 million tons of capacity for coal ash—or, I am sorry, for hazardous waste currently. So that means in less than 2 years that capacity will be consumed and that has tremendous implications for State programs.

[The prepared statement of Ms. Zdanowicz follows:]

Association of State and Territorial
ASTSWMO
Solid Waste Management Officials

U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy and Power

Hearing
"Fossil Fuel Combustion Waste Regulation"
April 14, 2011

Testimony of
Mary T. Zdanowicz, Executive Director
On Behalf of the
Association of State and Territorial Solid Waste Management Officials

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) is an association representing the waste management and remediation programs of the 50 States, five Territories and the District of Columbia (States). Our membership includes State waste program experts in the management and regulation of solid and hazardous waste. In addition to the views expressed in this testimony, we would like to note that individual State or Territorial waste programs may have other perspectives based on their State experience with the management of Coal Combustion Residuals (CCRs).

ASTSWMO opposes regulation of Coal Combustion Residuals (CCRs) as a hazardous waste. A detailed accounting of State concerns is presented in ASTSWMO's *Comments on the proposed rule for Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities* (ASTSWMO's Comments).

There are several reasons why ASTSWMO asserts that CCRs should not be regulated as a hazardous waste. First and foremost, there is insufficient scientific data to designate CCRs as hazardous. The impact on landfill disposal capacity and State waste program resources of regulating the second largest waste stream in the country under Subtitle C should not be underestimated. The impacts that some States would experience are far-reaching and would be disruptive in multiple ways. Even using optimistic assumptions about continuing beneficial use and on-site disposal, at least 22 million tons of CCR would have to be disposed off-site. Current EPA and State estimates of the available capacity for hazardous waste is less than 35 million tons, meaning the hazardous waste capacity in this country would be consumed in less than 2 years. Furthermore, the stigma of such a designation will impair beneficial use.

CCR SHOULD NOT BE REGULATED AS A HAZARDOUS WASTE

Decisions that have such far-reaching consequences should be science-based. However, the arguments that have been used to assert that CCRs are hazardous are not scientifically sound.

The three main scientific bases relied upon to make the case that CCRs are a hazardous waste are (1) an April 2010 Draft Risk Assessment, (2) criticism of the test method used to identify characteristic hazardous waste for landfilling, and (3) alleged damage cases. A detailed critique of each form of evidence is provided in ASTSWMO's Comments. However, three issues are particularly relevant.

Risk Assessment

The draft April 2010 *Human and Ecological Risk Assessment of Coal Combustion Wastes* and the August 2007 draft that preceded it state succinctly why the results, even if they were not questionable, are not pertinent to a decision concerning management of CCRs today.

The August 2007 Draft Risk Assessment report indicates:

> "Composite liners, which are used in the majority of new facilities constructed after 1995, effectively reduce risks from all pathways and constituents below the risk criteria (cancer and noncancer) for both landfills and surface impoundments."

The more recent April 2010 Draft Risk Assessment warns that:

> "These results suggest that with a higher prevalence of composite liners in new [CCR] disposal facilities, along with practices to prevent co-disposal of coal refuse with [CCR], future national risks from onsite [CCR] disposal are likely to be lower than those presented in this risk assessment."

Regulating CCRs under Subtitle C would not prevent risk exposure from past practices. Any evidence used to support Subtitle C regulation of CCRs should be based on present disposal conditions rather than the outdated ones upon which the assessment of risk was based.

Toxicity Characteristics Leaching Procedure (TCLP) is an Appropriate Test Method

The Toxicity Characteristic Leaching Procedure (TCLP) is the method typically used to determine whether a waste is characteristically hazardous. The overwhelming experience in State waste programs is that CCR rarely meets the criteria for regulation as a hazardous waste and if it does it is disposed accordingly. Critics of the method rely upon a National Academy of Sciences (NAS) report to assert that TCLP is not a valid test for evaluating waste for disposal. In fact, the opinions in the

report are taken out of context and have nothing to do with modern disposal practices. The NAS report concerns the stability of CCRs in mines in which CCRs can be exposed to a wide pH range that the TCLP test does not simulate.

> "The reliance on single-point batch leaching procedures, such as the TCLP, for prediction of *CCR stability in mine settings* has been widely criticized." [1]

While new methods under development may be better suited to making beneficial use determinations, there is not yet any concrete evidence that TCLP is not appropriate for determining whether a waste is suitable for landfill disposal. Furthermore, TCLP is the only approved method for determining whether a waste has hazardous waste characteristics.[2]

Alleged Damage Cases

The application of the "proven damage cases" in determining whether CCR should be managed as a hazardous waste is inappropriate and misleading.

The age and nature of the disposal facilities in the damage cases make them unsuitable for analysis in the case at hand because they do not reflect current land disposal practices to which the proposed regulations apply. Disposal "units" included five sand and gravel pits, two quarries and one lake impoundment. Half of the sites began operating in 1970 or before and at least six sites began operating in the early '50s. It appears that only three sites operated after 1990. Several sites were operated before enactment of the Resource Conservation and Recovery Act (RCRA), for

example, one site was managed from 1952 to 1969. These are hardly representative of current disposal practices. Wastes in the co-disposal facilities which included sewage sludge, tannery waste, materials from another landfill, yard sweepings, demineralizer regenerant, soil, concrete, brick and "other wastes", inhibit the ability to identify a source of contamination. A National Academy of Sciences report drew similar conclusions about the proven damage cases:

> Many of the damage cases ... involve older legacy sites that were developed under less rigorous regulations than now exist. Many were either slurry impoundments that drained to nearby surface waters or abandoned aggregate quarries that, by their very nature, were in highly permeable geologic environments. ... For example, landfills developed before the implementation of RCRA were not subjected to requirements for covers, compaction, liners, and other characteristics ... of RCRA compliant landfills...

Recently an additional 70 sites were alleged to be "damage cases." According to the source, reviews at State environmental offices served as evidence for the claims. However, much of the reported information is incomplete, incorrect and/or misleading based on our discussions with the State representatives. A comprehensive list of the types of errors that were made by those who identified sites as damage cases can be found in ASTSWMO'S Comments. Some of the categories of error include:

- claims of damage made without providing pertinent information
- assumptions made based on available, but inappropriate information
- data in State files made available for review contradict claims in the reports
- obvious errors such as incorrectly identifying a site as a CCR facility

- technical errors such as ignoring findings that contamination was from another source

The value of the damage cases in determining the appropriate disposal for CCRs is misplaced.

IMPACT ON STATE PROGRAMS

Requiring disposal of CCRs as a hazardous waste would rapidly deplete the available commercial hazardous waste landfill disposal capacity. States would be inundated with applications to permit new hazardous waste landfill capacity, a process that is both lengthy and complex.

DISRUPTION TO STATE SUBTITLE C DISPOSAL CAPACITY

Amount of waste generated

According to EPA's National Biennial RCRA Hazardous Waste Report, in 2007 (the most recent data published), 47 million tons of hazardous waste was generated by 16,349 hazardous waste generators. In contrast, more than 130 million tons of coal ash is generated by 495 coal-fired electric power plants.

Amount of waste managed off-site

According to the National Biennial RCRA Hazardous Waste Report (based on 2007 Data), only 1.6 million tons of hazardous waste were disposed in off-site landfills and surface impoundments. The estimated amount of CCRs managed in landfills and surface impoundments annually by 495 coal-fired power plants is 75 million tons, which is 40 times more than current amounts of hazardous waste. The estimates of the amount of CCR that would be disposed in off-site hazardous waste landfills under the proposed Subtitle C option vary. An optimistic scenario, that beneficial use continues at its current rate of about 45% *and* that 70% of disposed CCR continues to be disposed on-site[3], would result in 22 million tons of CCR disposed off-site -- *14 times more than the current rate of off-site Subtitle C disposal.*

Disposal Capacity

EPA's current projected Commercial Subtitle C Management Capacity through 2013 is 34 million tons. States estimate that there is only 31 million tons of currently permitted Subtitle C disposal capacity remaining, 3 million less than the 2013 projection. There are only 14 States in which operating commercial Subtitle C landfills are located. Thus, even with the optimistic scenario for off-site disposal, the available Subtitle C capacity would be consumed in about a year and a half.

Consuming the commercial hazardous waste landfill capacity not only means that CCR would begin to pile up unmanaged at utilities, but also that the current 1.6 million tons of hazardous waste generated by industry and hazardous waste site remedial activities would also begin to accumulate on-site. This could also bring a halt to Superfund cleanups that require off-site disposal of hazardous wastes as well as having a devastating impact on vital industries and facilities generating nearly half of the country's electric power.

DISRUPTION TO STATE SUBTITLE C PROGRAMS

Subtitle C Funding Shortfalls

Based on estimates from 35 States, more than 150 additional Full Time Equivalent (FTEs) employees would be needed just for permitting. If the annual cost of one FTE for salary, fringe benefits, and overhead is approximately $100,000, the additional personnel costs for Subtitle C permitting for 35 States alone could exceed $15 million. Additional expenditures would be needed for personnel inspecting the facilities and enforcing the permits. Funding for training would be needed, particularly for staff processing original installation permits for new RCRA C hazardous waste facilities. Only a few States have issued an original installation permit since 1990. All of this

would have to be factored into State and Territorial Assistance Grants (STAG) funding needs.

EPA identified 495 electric generating stations potentially affected by the rule. EPA has estimated that 300 landfills and 584 surface impoundments are used to dispose of CCRs at these power plants, and has stated that, additionally, a small number of power plants dispose of their CCRs off-site. By comparison, the RCRAInfo "Selected Sites Count Report" with user selection criteria "National" for "Location" and "Active Status; Permit" for "Handler Universe" provides a "total handler" figure of 2,363 facilities, which includes operating treatment/storage/disposal facilities and post-closure facilities. This implies the need for a massive permitting effort to be implemented and overseen by the States – roughly a 20% increase over the number of currently permitted facilities, based on information obtained from EPA's RCRAInfo data base in November 2010.

Oversight and Enforcement of Ancillary Hazardous Waste Management Requirements

Listing CCR under RCRA Subtitle C would have significant impacts on State hazardous waste compliance and enforcement programs. These programs would face a significant increase in the number of Treatment, Storage and Disposal Facilities (TSDs) and Large Quantity Generators (LQGs) which would need to be inspected. The State resources that would be required to implement the plethora of Subtitle C hazardous waste management requirements for generators, that are substantially unrelated to the safe landfill disposal of hazardous waste, are enormous, and in some cases risk diverting State resources from more pressing priorities. It is doubtful that imposing these requirements on CCR generators would address a demonstrable problem. The principal justification for a hazardous waste listing involves concerns about the safe disposal of CCRs.

CONCLUSION

ASTSWMO fully supports the goal of H. R. 1391 to prevent the regulation of Coal Combustion Residuals as a hazardous waste under the Solid Waste Disposal Act (42 U.S.C. 6901). Based on extensive State experience, CCRs routinely fail to meet the criteria for regulation as a hazardous waste. Requiring Subtitle C regulation would have substantial negative consequences beginning with the rapid consumption of the limited currently available Subtitle C disposal capacity. This consumption would quickly eliminate viable options to safely dispose of the 1.6 million tons of hazardous waste that is sent off-site for disposal each year. Superfund remediation projects could stall due to the lack of disposal capacity for hazardous wastes that are generated, such as contaminated soils from cleanups. Only those responsible for State waste programs can fully appreciate the impact that Subtitle C regulation would have on the already taxed State waste programs. ASTSWMO is committed to working toward a solution to the address the valid concerns about proper disposal of CCRs. We encourage you to draw upon the extensive experience and expertise of ASTSWMO through its members.

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[1] National Academy of Sciences, *Managing Coal Combustion Residues in Mines*; The National Academies Press, Washington, DC, 2006.

[2] *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA publication SW-846.

[3] Based on disposal rates cited in the proposal from an unidentified DOE survey, 70% of CCRs are disposed on-site and 30% of CCR are disposed off-site.

Mr. SHIMKUS. Thank you very much. The time is expired. Y'all both did great on 5 minutes.

Mr. SHIMKUS. Now we will see how Ms. Lewis does. Ms. Lewis is a toxicologist with Gradient. We welcome you, and you are recognized for 5 minutes.

STATEMENT OF ARI S. LEWIS

Ms. LEWIS. Good morning, everyone. I appreciate the opportunity to testify here today in front of this committee. My name is Ari Lewis, and I am a toxicologist and risk assessor, and I presently work in an environmental consulting company called Gradient. As far as my background goes, I have extensive expertise in metal toxicology and risk assessment, and over the past several years I have been actively involved in many different issues related to coal ash and public health.

Before I move on to my key points, I would just like to point out that most of my technical work related to coal ash risks has been performed under contract with the Electric Power Research Institute. However, I am here today as an independent agent, and the opinions that I am going to express are my own.

Today my testimony is focused on EPA's risk assessment and the regulatory impact analysis; and specifically, whether the health-based information contained in these documents supports the regulation of coal ash as hazardous waste. And just to get everyone oriented, I am going to sort of state my overall conclusions first, and then I will provide some of the details.

So my overall conclusions are these: Number one, the results of the risk assessment actually demonstrate that under typical waste disposal practices, coal combustion residuals do not pose a public health concern. High-end risk estimates in EPA's risk assessments are uncertain and reflect more atypical exposure scenarios that do not necessarily reflect real-world conditions. As a result, the quantitative risk estimates that are presented in the risk assessment cannot be reliably used to distinguish among different regulatory options, mainly because the risks are likely to be severely overestimated.

And finally, the results of the regulatory impact analysis and considerations of the uncertainties in that analysis demonstrate that there is very little public health benefit to be derived from regulating coal combustion waste as hazardous waste.

So now I will just provide a little bit more background. I think, first, it should be recognized that the EPA risk assessment was a very complex undertaking that attempted to capture the full range of disposal scenarios under a wide range of environmental conditions and waste characteristics.

While this was a very comprehensive approach, examining risks in this way leads to two major issues. The first one is that this approach creates hypothetical waste management units that do not necessarily reflect real-world conditions.

And number two is that this kind of approach involves a large number of assumptions that leads to a profound amount of uncertainty which often manifest as risk overestimates. When this uncertainty is not fully characterized, it leads to risks that can be overstated and lack reliability, particularly when you are esti-

mating high-end or low-end risk. And for this reason it is most appropriate to use the EPA results qualitatively, for example, to understand which types of waste types or management units are associated with more risk. So the EPA risk assessment presents more typical risk and high-end risk.

As is typical of any risk assessment, both these estimates were developed using health protective perceptions that were meant to overestimate risk. And despite this health protective bent, the results of the risk assessment clearly showed that coal combustion waste does not pose a public health concern under typical waste management conditions.

Although risk targets were exceeded for arsenic under some of these more typical disposal scenarios, the risks are actually similar to what you would expect if you were exposed to naturally occurring arsenic in food, water, and soil. At the high end, arsenic risk from landfills were still similar to those from naturally occurring background sources of arsenic. But arsenic risk from surface impoundments, ponds, were clearly elevated. These high-end risks reflect more improbable exposure scenarios and, as mentioned earlier, are highly uncertain and should not be used quantitatively to evaluate the need for hazardous waste determination.

And finally, in regards to the RIA to determine if hazardous waste listing was justified, EPA conducted a cost-benefit analysis using the arsenic result from the risk estimate to estimate how many potential cancer cases would be avoided under different waste management options. As a result, the uncertainties in the arsenic risk assessment were perpetuated into the cost-benefit analysis. And then on top of this, the cost-benefit analysis itself contained several additional assumptions that led to overestimates.

The implications of this are that the number of cancer cases avoided under each disposal scenario, subtitle B versus subtitle C, are likely to be significantly overestimated. And if this factored into the analysis, the difference in the cancer cases avoided between hazardous and nonhazardous disposal is negligible. And in fact, given the potential magnitude of this overestimate, it is plausible that regulating coal combustion residue as hazardous versus nonhazardous waste offers no measurable public health benefit. Thank you very much.

[The prepared statement of Ms. Lewis follows:]

Testimony of Ari S. Lewis, MS
Regarding H.R. 1391, A Bill "To prohibit the Environmental Protection Agency from regulating fossil fuel combustion waste under subtitle C of the Solid Waste Disposal Act."

Prepared for the
Subcommittee on Energy and the Environment
April 14, 2011
at the
House of Representatives Committee on Energy and Commerce
2322 Rayburn HOB
Washington, DC 20515

Prepared by
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April 14, 2011

Testimony Summary

The United States Environmental Protection Agency (US EPA) has performed several analyses that evaluate the potential human health risks associated with the disposal of coal combustion products (CCPs). These risk evaluations, in part, form the basis of the recent Proposed Rule regarding potential regulatory options for coal ash disposal and its beneficial use. One of the regulatory options in the Proposed Rule is to regulate CCPs as hazardous waste under Resource Conservation and Recovery Act (RCRA) Subtitle C.

I am providing testimony regarding the Bill H.R. 1391, which is a bill that would prohibit US EPA from regulating CCPs under Subtitle C of The Solid Waste Disposal Act (US Congress, 2011).[1] My testimony relates to how US EPA risk assessment information on CCPs is best used to support regulatory options related to the disposal of CCPs and, specifically, whether the regulation of CCPs as hazardous waste is warranted. This will include a discussion of the results of US EPA's most recent (2010) risk assessment and the interpretation of these results in light of the risk assessment's strengths and limitations. Also addressed will be how health-based information from the risk assessment was used in the cost-benefit analysis presented Regulatory Impact Analysis (RIA). Based on my review of the 2010 risk assessment and RIA, I have reached the following conclusions:

- Overall, the results of the 2010 risk assessment demonstrate that, under typical existing waste disposal practices, CCPs are not associated with an elevated health risk.
- The elevated risk estimates that have been reported in the most recent US EPA risk assessment are uncertain and reflect more atypical exposure scenarios that do not necessarily reflect conditions at actual disposal sites. As a result, quantitative risk estimates cannot be used reliably to distinguish among different regulatory options.
- The results of the RIA, and considerations of the uncertainty in that analysis, demonstrate that there is very little public health benefit to be derived from regulating CCPs as hazardous waste.
- In view of these results, regulation of CCPs as hazardous waste (RCRA Subtitle C) by US EPA lacks a sound scientific basis and is not warranted.

[1] RCRA is the amended version of the Solid Waste Disposal Act.

Introduction

My name is Ari Lewis. I am a toxicologist and risk assessor at Gradient, which is an environmental consulting firm in Cambridge, Massachusetts. The majority of my graduate studies and professional career has focused on metals toxicology and risk assessment. In particular, I have been involved with the toxicology on arsenic and how human, animal, and cell culture data related to arsenic should be used in risk assessment. Although arsenic has been my key area of research over the past decade, I have also conducted analyses on other metals, including selenium, lead, mercury, thallium, molybdenum, and chromium. The toxicology and risk assessment of these metals, especially arsenic, are critical to an evaluation of the potential human health effects associated with exposure to CCPs.

My specific experience with CCPs began in 2007 when I conducted an in-depth analysis of US EPA's Human Health and Ecological Risk Assessment of Coal Combustion Waste (US EPA, 2007). At that time, I was part of a group that pointed out some of the limitations and uncertainties associated with that analysis and provided oral and written comments on what US EPA could do make its risk assessments more informative (EPRI, 2008). Since 2007, I have been actively involved in evaluating many issues related to CCPs and public health, including evaluation of potential health effects associated with CCP beneficial use, such as in concrete and wallboard (*e.g.*, Long *et al.*, 2009). I have also conducted independent analyses on the potential risks to populations living in the vicinity of coal combustion waste management units (WMUs). In an ongoing effort to understand potential hazards, I have evaluated the technical merit of analyses that recommend use of Subtitle C to regulate of CCPs, *i.e.*, as a hazardous waste. Most recently, I conducted an in-depth analysis of US EPA's updated 2010 CCP risk assessment, which was conducted to support the hazardous waste regulatory determination (EPRI, 2010; US EPA, 2010a; US EPA, 2010b). As part of this effort, I also examined how information in the risk assessment was used in cost-benefit analysis presented in US EPA's RIA (US EPA, 2010c).

Much my work related to the potential human health effects of CCPs was conducted under contracts with the Electric Power Research Institute (EPRI). The expressed purpose of EPRI's comments was to provide technical and scientific information that can be used by US EPA and others to develop regulations based on the best data available. The EPRI comments, which do not endorse any particular regulatory option put forth by US EPA, can be downloaded at epri.com/ccp. While my comments today will also be largely focused on technical and scientific issues, any opinions I express or conclusions I draw regarding the various regulatory options of CCPs are my own. I am not being compensated for my travel expenses or any of the time I have spent preparing for or attending today's hearing.

Overall Testimony

My testimony will be focused mainly on how information in US EPA's 2010 risk assessment is best used to support regulatory options related to the disposal of CCPs. This discussion will cover the results of US EPA's most recent risk assessment and the interpretation of these results in light of the risk assessment's strengths and limitations. Also addressed will be how health-based information from the risk assessment was used in the RIA. Understanding the risk assessment results and how these results were used to support cost-benefit calculations allows one to evaluate the potential public health impact of Subtitle C *vs.* Subtitle D regulation.

The Role of Risk Assessment

Risk assessment is a tool that can be used to examine whether certain defined exposures will result in a human health risk. In general, the aim of a risk assessment is to determine the likelihood (or probability) of adverse health effects in an individual or population by estimating potential chemical exposures and relating these exposures to information on chemical toxicity. Conducting a risk assessment is important because the mere presence of a chemical in the environment or a product does not mean that

people will be exposed in a manner or at a level sufficient to cause a health problem. In this regard, saying that coal ash contains "poisonous" or "harmful" chemicals is misleading in the absence of specific exposure information; in fact, most of the constituents in coal ash occur naturally in food, water, and soil.

The quantitative information generated in risk assessments is often used by federal and state agencies to set cleanup standards at contaminated sites, evaluate product safety, develop safe occupational exposure levels, and support health-based regulations. Site-specific risk assessments often involve more definitive information on the chemicals that people could be exposed to and the amount of that exposure. Thus, site-specific risk assessments often produce more refined risk estimates that allow for targeted remediation interventions. In contrast, risk assessments that support health-based national regulations (such as the proposed national scale regulations for coal ash) tend to use more variable assumptions about exposure in an attempt to characterize a wide range of potential risks. Trying to generalize potential risks on the national level necessarily requires simplifying assumptions that can introduce substantial uncertainty into the assessment. In the face of uncertainty, assumptions are often biased to ensure that "uncertain" information does not lead to an underestimate of risk. If this uncertainty is not properly recognized or characterized, risk estimates become unreliable.

It is extremely important to note that, in order to ensure adequate health protection, risk assessments by design tend to use toxicity and exposure assumptions that *overestimate* risks. Because of this goal, risk assessments are most useful for identifying *potential* health risks. Importantly, risk exceedances cannot be used to demonstrate that a particular person or group of people became sick as a result of an evaluated exposure. To conclude that a specific exposure caused a specific health effects, a causation analysis that considers all available epidemiological and toxicological information, as well as personal risk factors, is needed.

US EPA's Human Health and Ecological Risk Assessment

Over the past 15 years, US EPA has conducted several risk assessments evaluating the potential health risks associated with CCPs. In two separate screening risk assessments, US EPA concluded that non-groundwater pathways did not pose a public health concern (US EPA, 2002; US EPA, 1998). These pathways of exposure included inhalation, soil ingestion, and ingestion of contaminated produce, beef, and milk.

While the 1998 and 2002 risk assessments were able to "rule out" many potential CCP exposure pathways as a public health concern, both risk assessments determined that the leaching of certain metals in CCPs from landfills and surface impoundments to groundwater could pose a potential concern under certain conditions. These findings prompted the full-scale risk assessment that was conducted in 2007 and updated in 2010. The Proposed Rule issued in June 2010 was not specific on how the results of the risk assessment should be used in a Subtitle C *vs.* Subtitle D determination under RCRA and, in fact, US EPA solicited public input on how risk assessment information should be used. Nonetheless, the 2010 risk assessment results were used in the RIA as a basis, in part, to calculate the costs and benefits associated with different regulatory options. Additionally, the Proposed Rule implies that the risk assessment results could be used quantitatively to demonstrate that CCPs are "capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed" – which is one criterion for listing a substance as hazardous waste.

Because the 2010 risk assessment appears to be informing potential regulatory options for CCP disposal, it is important to understand the risk assessment results and the limitations of the risk estimates. Overall, the risk assessment was a very complex undertaking that attempted to capture a wide range of scenarios involved with the storage of CCPs under a full range of environmental conditions and waste

characteristics. Because US EPA's modeling approach encompasses a vast number of variables and ranges of conditions due to its large geographical and chronological spans, the modeling by necessity requires considerable simplification. This, as explained in more depth below, has led to a quantitative estimate of risk from CCPs that lack reliability, particularly when estimating high-end or low-end risks. Additionally, the overall approach used to assess risks associated with hypothetical waste management scenarios, using the full range of possible site and exposure conditions, will produce highly variable results that likely do not reflect the actual risks around any given site.

Risk Assessment Results

Based on a probabilistic approach,[2] the 2010 risk assessment ultimately presented 50th and 90th percentile risks for unlined, clay-lined, and composite-lined landfills and surface impoundments. The 50th percentile reflects conditions that are more typical of waste management operations, while the 90th percentile relies on more extreme assumptions that are not only less certain but combine assumptions that may be implausible and may not reflect real-life conditions.

The overall results of the risk assessment show that, under typical scenarios, metal constituents in CCPs do not pose a health concern. Under more extreme scenarios, overall, landfills still do not pose a substantial public health concern, but arsenic leaching from surface impoundments does require further considerations for unlined and clay-lined units. Also, any reported risk exceedances were for CCPs stored in unlined or clay-lined units. The use of a composite liner effectively eliminated any potential risk for all compounds. A more detailed summary of the 2010 risk assessment results is presented below.

[2] A probabilistic risk assessment uses distribution of assumption estimates as opposed point estimates to calculate risk estimates. Under a probabilistic approach, the values from the individual input distributions are used to create a an overall risk distribution.

For the risk estimate that reflects more typical industry conditions (*i.e.*, 50th percentile estimates), the only reported risk exceedances were from arsenic exposure in unlined and clay-lined waste management units. However, arsenic risk assessment is unique because, using current toxicity criteria, background exposure to arsenic (*i.e.*, arsenic that naturally occurs in food, water, soil, and air) is associated with cancer risks above 1 x 10^{-5} (the target cancer risk used in the risk assessment). The 50th percentile risks calculated arsenic for both landfills and surface impoundment storage of CCPs were similar to or less than the risks from background exposures to arsenic or from drinking water at the federal drinking water standard. For surface impoundments at the 50th percentile, in addition to arsenic, there was also an exceedance for cobalt, but only under the scenario that considered the combined storage of conventional CCPs and coal refuse. Cobalt risks, however, were based on only two data points, one of which was significantly higher than all other leachate concentrations reported for other wastes stored in surface impoundments and landfills and may represent a unique waste stream or one that was generated under very site-specific conditions that is not representative of industry-wide conditions.

At the 90th percentile, several other metals were above risk target, but the exceedances were relatively small, especially for CCPs stored in landfills (no hazard index exceeded 4); arsenic risks from landfills, even at this high-end range, were still in the range of typical background exposures and drinking water at the maximum contaminant level (MCL). Surface impoundments, however, were associated risks from cobalt and arsenic. As discussed earlier, the cobalt risks are highly unreliable.

Because arsenic risks from surface impoundments at the 90th percentile show clear risk exceedences, it is worthwhile to gain a better understanding of what these high-end risk mean and how they should be interpreted in the context of the hazardous waste determination. Although it is not possible to deconstruct exactly what assumptions went into the calculation of the high-end risk estimates we know that some of the data used to calculate the upper-bound risks were unrealistic. For example, in

the distributions that were used, an adult could weigh as little as 33 pounds and could live as close as 2 feet from a waste management unit. Many other conservative assumptions, particularly with regard to how the fate and transport of constituents were modeled, were also incorporated into risk estimates (*e.g.*, a 10,000-year modeling duration, use of data with high detection limits, environmental conditions that favor contaminant leaching and transport). Although risk assessments often use worst-case assumptions to be health protective, information should still be plausible. Also, the use of overly conservative distributions is not appropriate in a probabilistic model because the compounding effect of multiple conservative input distributions can skew the final risk percentiles significantly, making the high-end estimates unrealistically high.

Also, as acknowledged by US EPA, many other uncertain assumptions were used in the risk assessment. This uncertainty, although acknowledged, was not sufficiently characterized, such that risk estimates (and regulatory benefits based on those risk estimates, see below) are unreliable and should not be used quantitatively to inform regulatory decision. Because of the uncertainties in the quantitative risk estimates presented in the risk assessment, it is most appropriate to use information qualitatively to understand the relative risks among different waste management units and waste types, as well as key exposure pathways. More specifically, the collective risk assessments are useful for confirming that the groundwater pathway is a key exposure route, surface impoundments have a greater *potential* to constitute an unacceptable health risk than landfills *via* leaching to groundwater, composite liners effectively reduce risks, and arsenic is a key constituent that should be carefully monitored.

The Use of Risk Assessment Data in the Regulatory Impact Analysis

To evaluate different regulatory options, US EPA conducted a cost-benefit analysis (RIA, US EPA, 2010c) in which benefits, in part, were based on a reduction in potential cancer cases associated

with different waste management options. To quantify the number of cancer cases that could be avoided under different regulatory options, US EPA conducted a population risk assessment.

Given that the arsenic risk estimates as presented in the 2010 risk assessment, particularly at the high end, are uncertain, the cancer cases avoided analysis is also necessarily uncertain. Additionally, there were several elements of the RIA itself that compound this uncertainty. Because the uncertainty is not sufficiently characterized, the risk estimates are not bounded; confidence in the estimates cannot be evaluated and should not serve as a basis for determining among regulatory options.

Moreover, there are several assumptions used in the RIA that likely lead to an over estimate of cancer cases avoided under Subtitle C *vs.* Subtitle D regulation. Some of these key assumptions are summarized briefly below:

- The RIA relies on a cancer slope factor (CSF) for arsenic that is over 17 times more potent than the value used in the 2010 risk assessment. While it is recognized that the CSF used for arsenic in the risk assessment is outdated, a revised slope factor is currently being reviewed by US EPA and by a scientific advisory panels. There are several outstanding scientific issues, many of which relate to the CSF used in the RIA. Until the CSF assessment is finalized, it is not appropriate to use a value that lacks a scientific consensus. Using the currently accepted slope factor for arsenic (i.e., the value that was used in the 2010 risk assessment), the number of cancer cases avoided under Subtitle C vs. Subtitle D would have been considerably less (i.e., .the hypothetical cancer cases would be 17 times lower).
- Regardless of the arsenic slope factor used, it is important to appreciate that both values are derived using health-protective assumptions that overestimate risks (and, in this case, cancer cases). Specifically, the CSF is developed by defining an upper-bound risk estimate at a given exposure and using linear extrapolation to assume proportional risk at lower exposure levels; this assumes any increase in arsenic exposure leads to some increase in risk. It is important to realize, however, that using a linear slope factor to assess arsenic risks is a conventional, but conservative, approach. There is substantial evidence, however, suggesting that arsenic carcinogenicity has a threshold and that arsenic exposures below a certain level may be associated with zero risk (see for example, Petito Boyce *et al.*, 2008). Thus, excess cancer cases calculated in the RIA analysis should also be considered a conservative, hypothetical estimate. Determining any actual increase in disease rates in communities living within the vicinity of CCP waste management units would require a properly designed epidemiological study. To my knowledge, however, there are no epidemiological studies that report a link between CCP exposure in communities living near waste management units (from the drinking water exposure route or other pathways) and disease.

- Arsenic can exist in the environment in several different forms. The cancer cases avoided analysis assumed that all arsenic exists in groundwater as trivalent arsenic (AsIII), which is the more mobile form of arsenic. In reality, it is likely that a large portion of the arsenic leaching from surface impoundments and traveling through ground water is in a less mobile form (*i.e.*, pentavalent arsenic, AsV). If the RIA had assumed that arsenic was present in groundwater as AsV, the number of cancer cases calculated over a 75-year period would be about 25 times lower.
- When determining the population that could be potentially exposed to CCPs in groundwater, the RIA made some generic assumptions. I was part of an independent assessment that engaged in a more refined estimate of the number of people in the US that live in the vicinity of a CCP waste management unit. That analysis determined the RIA overestimated the potentially exposed population. If the more refined population estimate were used, cancer cases avoided under Subtitle C *vs.* Subtitle D would have been about 2-fold lower.

In light of the overestimates documented above, the number of cancer cases avoided under Subtitle C *vs.* Subtitle D regulations is negligible. In fact, given the magnitude of the potential overestimate of arsenic-related cancer cases and the fact that there is no epidemiological evidence establishing a link between CCPs in drinking water and cancer, it is plausible that regulating CCPs under RCRA Subtitle C *vs.* Subtitle D offers no measurable public health benefit.

The Risk Assessment, the RIA, and Overall Implications CCP Regulatory Options

Providing the most significant public health benefit should be the primary goal of any regulation affecting CCP disposal. Based on the 2010 risk assessment results, which showed minimal risk at the 50th percentile (*i.e.*, under the more typical conditions), CCP disposal does not pose a public health concern. Under more extreme scenarios where waste concentrations may be relatively high, environmental conditions favor contaminant leaching and transport, and individuals have unusually high exposures, there may be a potential for CCPs to pose a human health risk. However, these high-end exposure risk results are highly uncertain and cannot be used quantitatively to distinguish among appropriate risk management options.

Based on these analyses, it is my opinion that a Subtitle C regulation, which would require federal resources to oversee all CCP disposal facilities is not warranted, mainly because the vast majority of facilities already operate under conditions that do not pose a public health concern and because the requirements of Subtitle C that will limit CCP leaching and potential risk are very similar to requirements under Subtitle D. Indeed, the result of the RIA, and considerations of the uncertainty in that analysis, show that there is very little public health benefit to be derived from a Subtitle C *vs.* Subtitle D designation.

References

Electric Power Research Institute (EPRI); Ladwig, K; Gradient; Lewis, A; Bittner, A; Natural Resource Technology, Inc.; Hensel, B; Tetra Tech, Inc.; Summers, K; Johnson, K; S.S. Papadopulos & Associates, Inc.; Vlassopoulos, D. 2008. "Comments on US Environmental Protection Agency Notice of Data Availability on the Disposal of Coal Combustion Wastes in Landfills and Surface Impoundments, Human and Ecological Risk Assessment of Coal Combustion Wastes." EPA-HQ-RCRA-2006-0796, February 11.

Electric Power Research Institute (EPRI). 2010. "Comments to US EPA re: Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities." Submitted to US EPA Docket. EPA–HQ–RCRA–2009–0640, 94p., November 18.

Long, C; Lewis, A; Sax, S. 2009. "Inhalation risks of mercury from indoor air from beneficial use of coal combustion products (CCPs) in building materials." *Toxicologist - Supplement to Toxicological Sciences* 108(1):172. Abstract No. 834, In Society of Toxicology 48th Annual Meeting, Baltimore, MD.

Petito Boyce, C; Lewis, AS; Sax, SN; Eldan, M; Cohen, SM; Beck, BD. 2008. "Probabilistic analysis of human health risks associated with background concentrations of inorganic arsenic: Use of a margin of exposure approach." Hum. Ecol. Risk Assess. 14 :1159-1201.

US Congress. 2011. "H.R. 1391: A bill to prohibit the Environmental Protection Agency from regulating fossil fuel combustion waste under subtitle C of the Solid Waste Disposal Act." 4p., April 6.

US EPA. 1998. "Draft Final Report: Non-Groundwater Pathways, Human Health and Ecological Risk Analysis for Fossil Fuel Combustion Phase 2 (FFC2)." Office of Solid Waste and Emergency Response, EPA 68-W6-0053, 139p., June 5.

US EPA. 2002. "Constituent Screening for Coal Combustion Wastes." EPA-HQ-RCRA-2006-0796-0470, 171p., October.

US EPA. 2007. "Human and Ecological Risk Assessment of Coal Combustion Wastes (Draft)." Office of Solid Waste, EPA-HQ-RCRA-2006-0796-0009, 333p., August 6.

US EPA. 2010a. "Hazardous and Solid Waste Management System; Identification and listing of special wastes; Disposal of coal combustion residuals from electric utilities (Proposed rule)." Accessed on June 02, 2010 at http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/ccr-rule/index.htm#propose, 283p.

US EPA. 2010b. "Human and Ecological Risk Assessment of Coal Combustion Wastes (Draft)." Office of Solid Waste and Emergency Response, 409p., April.

US EPA. 2010c. "Regulatory Impact Analysis for EPA's Proposed RCRA Regulation of Coal Combustion Residues (CCR) Generated by the Electric Utility Industry." Office of Resource Conservation & Recovery, 242p., April 30.

Mr. SHIMKUS. I want to thank you.

And I now recognize Ms. Santoianni for 5 minutes. She is with Veritas Economic Consulting.

STATEMENT OF DAWN SANTOIANNI

Ms. SANTOIANNI. Good morning, Mr. Chairman, Members of Congress, and fellow panelists. Thank you for the opportunity to speak to you today.

My name is Dawn Santoianni. I am a senior engineer with Veritas Economic Consulting. I have over 19 years' experience in combustion science, air pollutant formation, and quality assurance reviews.

Veritas Economics is a small business that specializes in cost-benefit analysis, and assessing the energy production, economic implications, and electric reliability implications of proposed environmental policies.

Today I will be presenting the results of our cost analysis on EPA's proposed subtitle C option for the regulation of coal combustion residuals, or CCRs. This research was sponsored by the Electric Power Research Institute, but I am here representing myself and my company alone, and my views do not necessarily reflect EPRI's views.

The analysis we conducted quantifies the incremental costs for the additional requirements under the subtitle C option compared to a baseline, or what the current operations are today. We collected site-specific information on CCR handling and the plant configuration through a survey of coal-fired generating unit owners. And these survey responses covered 561 units at 225 plants subject to the regulations.

Our cost of the industry report is available through the EPRI Web site. It is publicly available, and I have several copies with me if you are interested. Although the landfill design requirements and the groundwater monitoring requirements under subtitle D are identical to those under subtitle C, because CCRs under subtitle C would be regulated from cradle to grave or their point of generation, this imposes additional standards and costs. Our analysis quantified these costs, which are excluded by EPA from their IRA.

Under subtitle C, CCRs would be regulated from their point in generation, as I said, which requires retrofits and engineering upgrades in the plant for tanks, buildings, and conveyors that handle, process, or store CCRs. In addition, plants would also need wastewater treatment systems to replace the function currently provided by surface impoundments. Under subtitle C, EPA acknowledges surface impoundments would be effectively phased out.

The decision to where to dispose of CCRs is a function of many site-specific parameters and also some restrictions that include seismic restrictions, fault area restrictions, unstable topology, State-level restrictions, floodplain, watershed, land availability. These restrictions may preclude some plants from having a landfill on-site for the disposal of their CCRs, and this was confirmed from our survey data. The amount of CCRs destined for disposal would be, obviously, impacted by any changes to beneficial use rates.

I will note that in the IRA and in their proposal, EPA specifically expresses concern about unencapsulated uses of CCRs. These uses

include large-scale structure fill, road embankments, and sand and gravel pits, and even agricultural uses.

In the scenario where EPA examines stigma in the IRA, they assume an 80 percent reduction in these uses. It is entirely plausible that unencapsulated uses would completely go away, either due to direct regulation or stigma. Encapsulated uses, on the other hand, according to our calculations, represent only 31.5 percent of the total CCPs generated annually. So the bulk of the CCPs, regardless of what happens to products such as wall board and concrete, would end up still needing to be disposed.

I will acknowledge that although the EPA assumes this drop in unencapsulated uses, they do not quantify the increased disposal costs associated with that for that scenario, as well as the economic impacts to the beneficial use industry in the form of job losses or lost revenue.

Our analysis estimates that between 14.97 million and 20.55 million tons of CCRs each year would be sent to commercial hazardous waste landfills under the subtitle C option. This is comparable to the ASTSWMO estimate that you heard about earlier, even though our figures were independently derived. This volume of waste, as you heard, would exceed the entire current capacity of the commercial hazardous waste market within 2 years.

Our analysis shows that the cost of the subtitle C regulation to the electric generating industry, including these upstream costs to comply with subtitle C, are between $5.32 billion and $7.62 billion annually over 20 years, and at a 7 percent discount rate the total incremental costs are $55.3 billion to $74.5 billion. This is significantly higher than EPA's estimate of $20.35 billion.

I will make note, even though I am sorry I am running overtime, compliance with other environmental regulations such as the utility boiler max will increase the cost to comply with CCR rules beyond what we have estimated. A good example is the need to add scrubbers, which will increase the amount of CCRs generated and, thus, disposal cost.

Since there has been several questions about economic analysis and benefit-cost analysis posed by the Congressmen, I will note that an integrated analysis should include the impacts to energy supply, electricity prices, jobs, and local electric reliability from these concurrent regulations. And I would emphasize that an electric reliability analysis that only considers the generating capacity to shut down is a partial analysis and does not provide a complete picture of the reliability impacts. Reliability analysis——

Mr. SHIMKUS. I am going to ask you, just for the respect of other panelists, we will stop there. You will get some few questions. As you know, we were focused on economic analysis quite a bit in the first panel.

[The prepared statement of Ms. Santoianni follows:]

Before the

ONE HUNDRED TWELFTH CONGRESS OF THE UNITED STATES

HOUSE OF REPRESENTATIVES

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

TESTIMONY OF

DAWN SANTOIANNI

Senior Engineer

Veritas Economic Consulting LLC

Cary, North Carolina

April 14th, 2011

Thank you for the opportunity to speak to you today. I am Dawn Santoianni, senior engineer with Veritas Economic Consulting (Veritas Economics). Veritas Economics is an interdisciplinary small business that specializes in environmental policy analysis, benefit-cost analysis, and assessing the economic and electric reliability impacts of proposed environmental regulations. The results of Veritas Economics' analyses have been used to inform policy decisions, support regulatory compliance, and for strategic decision making. I have been invited here today to present the results of our analysis on the costs to the coal-fired electric generating industry from the Environmental Protection Agency's (EPA's) proposed rule regulating coal combustion residuals (CCRs) under Subtitle C of the Resource Conservation and Recovery Act (RCRA). This research was sponsored by the Electric Power Research Institute (EPRI).

The analysis we conducted quantifies the incremental cost for the additional compliance requirements under the Subtitle C option, compared to the baseline, or current operations. Costs for this analysis were developed at the individual generating unit and plant level, and aggregated to develop a national industry

cost estimate. Because the regulatory requirements for any individual power plant or generating unit would be a function of the current technical systems and operating practices, compliance costs will vary across units and plants. A variety of publicly available and site-specific information was collected to develop a generating-unit level database that contained data on the relevant characteristics and CCR management practices that would determine compliance costs. Veritas Economics designed a survey that was distributed to coal-fired generating unit owners, and compiled survey response data to accurately assess compliance costs. The analysis used engineering cost estimates for Subtitle C compliance developed by EPRI and its contractors. The final cost report prepared for EPRI, "*Cost Analysis of Proposed National Regulation of Coal Combustion Residuals from the Electric Generating Industry*" is publicly available online at epri.com/ccp.

COMPLIANCE REQUIREMENTS UNDER SUBTITLE C

Under the Subtitle C proposal, EPA would list CCRs destined for disposal under a new waste category as a "special waste" under RCRA. The Subtitle C proposal would reverse the Bevill exemption for CCRs destined for disposal, but retain the exemption for CCRs that are beneficially used. Coal combustion products destined for disposal "would be regulated from the point of their generation to the point of their final disposition, including during and after closure of any disposal unit" (75 Fed. Reg. 35133). The requirements of RCRA Subtitle C include disposal unit siting requirements, design requirements for liners, groundwater monitoring, and dust control; financial assurance, facility-wide corrective action, disposal unit closure and post-closure care; generator permits, monitoring and reporting; as well as secondary containment for tanks and structural requirements for storage buildings. All impoundments that do not meet the minimum technology criteria would need to cease receiving CCRs within five years of the state implementation of the rules, and close within seven years. As stated by EPA, the "combined requirements under Subtitle C would effectively phase-out all wet handling of CCRs and prohibit the disposal of CCRs in surface impoundments" (75 Fed. Reg. 35157). Because surface impoundments are not only used for final disposal, but also of settling of CCR waste streams and wastewater treatment, coal-

fired power plants would therefore also require new tank-based wastewater treatment systems. Our analysis included the costs associated with conversion to dry handling systems and new wastewater treatment systems.

Although the proposed Subtitle C rule would apply only to CCRs destined for disposal, the technical operations of coal-fired power plants makes the separation and distinction of CCRs destined for beneficial use and CCRs destined for disposal virtually impossible. Our analysis quantified several costs that have been previously difficult to estimate, including the "upstream" costs associated with collection, handling, and storage of CCRs from the point of generation to disposal. These costs pertain only to the Subtitle C option, which would regulate CCRs from the point of generation to final disposition (i.e., cradle to grave). In assessing the point of generation and the required engineering retrofits and compliance requirements, we applied concepts codified by EPA. Specifically, when one makes the determination to discard or dispose of materials that are not subject to exclusion or variance from solid waste, those materials are regulated as solid wastes under RCRA; a solid waste that is a listed RCRA waste is a hazardous waste under RCRA (40 CFR 261.2(a)(1) and 40 CFR 261.3). Further, 40 CFR 260.10 defines disposal as "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters." Therefore, disposal may be an active decision (e.g., placing materials in a landfill for disposal) or passive (e.g., discharge, spilling, leaking solid waste or constituents of solid waste into the environment, air, or water). If CCRs are contained, the point of generation occurs at the point when the decision is made to discard or dispose of the CCRs. However, if the CCRs are spilled, leaked, or discharged, then the point of generation occurs at the place of the discharge. It is important to note that in their Regulatory Impact Analysis (RIA), EPA did not include or quantify these upstream costs or wastewater treatment costs.

OVERVIEW OF COST ANALYSIS

To quantify the costs of the proposed Subtitle C regulation, EPRI undertook a comprehensive engineering cost analysis, which included developing engineering estimates to comply with Subtitle C requirements, undertaken in a separate project.[1] These costs were developed using site visits to coal-fired generating facilities to determine system upgrades and technological changes that would be required to comply with a Subtitle C rule. The objective of the site visits was to assess the range of CCR management practices, plant configurations, and the retrofits required for Subtitle C compliance "upstream" of disposal units. For example, bottom ash hoppers, hydrobins, and flue gas desulfurization (FGD) system dewatering areas could require secondary containment, and truck-loading facilities from fly ash storage silos could require negative pressure enclosures. These engineering cost estimates were used in our analysis based on plant-specific configuration data obtained through an extensive survey of generating unit owners. The survey responses covered 561 coal-fired units at 225 plants, representing 60.3 percent of the coal-fired generating capacity (60.2 percent of generation) in the U.S. subject to the rule. Respondents included large utilities with numerous coal-fired plants, independent power producers, and small, municipal-owned facilities. These site-specific parameters were used in a Monte Carlo statistical model to generate unit- and plant-specific compliance cost estimates for each of the regulated facilities, accounting for the uncertainty in input cost estimates.

Since disposal costs would constitute a large percentage of the compliance costs, the location where facilities would choose to dispose of CCRs is an important factor. The decision on where to dispose of CCRs under a Subtitle C regulation would be a function of numerous site-specific parameters. These parameters include whether the plant currently has a landfill on-site (or nearby) with remaining capacity that could meet Subtitle C siting and design criteria, land availability, proximity to commercial hazardous waste landfills, concerns about the permitting and public involvement process, and potential legal or

[1] Electric Power Research Institute. 2010. *Engineering and Cost Assessment of Listed Special Waste Designation of Coal Combustion Residuals Under Subtitle C of the Resource Conservation and Recovery Act.* 1020557. EPRI, Palo Alto, CA.

liability issues. Site-specific restrictions may preclude many plants from siting new land disposal units. These restrictions include seismic, fault area, unstable topology, floodplain, watershed, and state-level restrictions. Some states currently have statutes more restrictive than federal Subtitle C rules. For example, Florida prohibits the land disposal of hazardous waste (2010 Florida Statutes, sec. 403.7222, Prohibition of hazardous waste landfills).

If a plant does not currently have a landfill on-site (or has limited capacity), that facility would be faced with a decision to permit and construct a new landfill on-site, transport CCRs for disposal at an off-site company-owned landfill, or transport CCRs to a commercial hazardous waste landfill for disposal. Lacking site-specific data, disposal choice is difficult to assess and can lead to gross inaccuracies in estimating disposal costs. Further, current disposal patterns are a poor predictor for future disposal choice under Subtitle C due to the more restrictive requirements of the regulation. In the RIA, EPA assumes that current disposal practices continue and facilities that currently dispose of CCRs on-site would continue to do so under Subtitle C. Survey data confirms not all facilities would be able to, or would choose to, site a new on-site landfill under the Subtitle C rules. Due to siting restrictions and other factors, survey responses indicated that 42 percent of plants would choose on-site disposal, 29 percent would choose to transport CCRs off-site to another company-owned landfill, and 28 percent would choose commercial landfill disposal. In terms of percentage of CCRs, 67 percent of CCRs produced by the surveyed plants would be disposed on-site, 21 percent of CCRs would be disposed off-site, and 12 percent of CCRs would be disposed of in commercial hazardous waste landfills.

The amount of CCRs destined for disposal would be impacted by any changes to beneficial use rates. In the proposal, EPA has expressed concerns about "unencapsulated" uses, such as large-scale structural fill, road embankments, sand and gravel pits, and agricultural uses (75 Fed. Reg. 35155, 35160). In addition, stakeholders have raised concerns about a stigma on beneficial uses associated with Subtitle C regulation. Regulation that restricts the beneficial use of CCRs will have significant impacts to the electric generation industry by increasing the amount of CCRs that must be disposed. In the RIA, EPA assumes that

unencapsulated use drops by 80 percent. Our analysis assumed that unencapsulated uses are eliminated entirely through regulation or due to liability concerns and stigma. We also performed a sensitivity analysis mirroring EPA's assumptions for potential increases or decreases in encapsulated use rates. A moderate increase or decrease in encapsulated beneficial use does not affect total costs significantly. This is because encapsulated uses are only 31.5 percent of the total CCRs produced annually. The majority of CCRs will still require disposal under the Subtitle C rule, regardless of stigma impacts to encapsulated beneficial uses.

SUMMARY OF FINDINGS

The analysis estimates that the total incremental cost to the coal-fired electric generating industry for Subtitle C regulation of CCRs over a 20-year period is between $54.66 billion and $76.84 billion present value (at a discount rate of seven percent). The range in costs accounts for uncertainty in compliance cost estimates and uncertainty in disposal decisions. If upstream Subtitle C compliance costs are not included, and if disposal costs are calculated based on current disposal patterns, the incremental compliance costs would be underestimated by approximately $30 billion. EPA's estimate of the Subtitle C regulatory cost does not include wastewater treatment system costs to replace impoundments; the "upstream" costs of bottom ash, fly ash, and FGD solids management to meet RCRA standards; increased maintenance, spill prevention and response costs; or off-site (and commercial) disposal costs except for those plants that currently dispose of CCRs off-site. This largely accounts for the difference between our cost estimate, and EPA's $20.35 billion estimate for Subtitle C regulation.

The analysis also estimated the total tons of CCRs that would be sent to commercial disposal under the Subtitle C rule, based on restrictions identified from survey data and regression analysis of characteristics of non-surveyed plants. The analysis predicts between 14,970,000 and 20,550,000 tons of CCRs would be sent to commercial hazardous waste landfills each year. This volume of waste would exceed the entire

current capacity of the commercial hazardous waste market, estimated at 34,000,000 tons, within two years.

The implications for compliance deadlines can exacerbate this situation. Siting, designing, permitting, and constructing landfill capacity to replace impoundments that must close under the rule is expected to take at least five to seven years (and possibly longer for Subtitle C landfills or where state agencies are confronted with a large number of permit applications). These timelines will affect compliance costs, particularly for plants that currently utilize only surface impoundments for disposal. These difficulties could increase compliance costs, and send more CCRs to commercial landfills.

Although we did not specifically estimate costs for the Subtitle D option, due to the permitting, reporting, handling, storage, and disposal requirements for RCRA-listed wastes, the costs incurred under Subtitle C would be significantly greater than the costs incurred under the Subtitle D option.

Finally, compliance decisions for each plant would be made in context of compliance with other regulations affecting the coal-fired generating industry, including national emission standards for hazardous air pollutants (NESHAP), the Transport Rule, greenhouse gas regulation, and 316(b) regulation of once-through cooling intake structures. The technological requirements to comply with one rule could also affect the compliance strategy and costs for another regulation. A good example of this is the addition of scrubbers to control sulfur dioxide emissions, which would then affect the amount of CCRs generated and overall CCR rule compliance costs. The cumulative impacts of multiple regulations, from both an economic standpoint as well as a technological standpoint, will ultimately affect compliance decisions and costs.

My objective today was to inform you of the potential financial impacts to the coal-fired electric generating industry from the proposed Subtitle C regulation of CCRs. The analysis we prepared for EPRI quantified costs that had not been previously estimated. However, the full economic impact of the proposed regulation would be borne not just by the coal-fired electric generating industry, but also by the

CCR beneficial use industry, consumers of products made from CCRs, and electricity customers. Thus, a thorough benefit-cost analysis should include the economic impact to the beneficial use industry, as well as impacts to energy supply, electricity prices, and electric reliability.

Mr. SHIMKUS. So I would like to now recognize Ms. Evans, Lisa Evans from Earthjustice. You are recognized for 5 minutes, ma'am.

STATEMENT OF LISA EVANS

Ms. EVANS. Chairman Shimkus, Ranking Member Green, and members of the subcommittee, I appreciate the opportunity today to address the threats posed to our Nation's health and environment and economy by coal ash in ponds and landfills. When mismanaged, this toxic waste harms Americans nationwide by poisoning our water and our air.

My name is Lisa Evans. I am senior administrative counsel for Earthjustice, a national nonprofit public interest law firm. I speak today for all those who are harmed by coal ash, some of whom are in the room this morning.

I speak for those whose water is poisoned, whose air is filled with ash, whose homes have lost their value. I speak for those behind me from Illinois, West Virginia, Pennsylvania, Indiana, and Missouri, who fear for their children and their grandchildren and who came here for help.

However, the bill before this committee does not serve these citizens nor does it serve the Nation. H.R. 1391, whose purpose is to remove EPA's authority to establish federally enforceable regulations for coal ash, will cause great harm.

First, the bill strips EPA of its ability to consider science and public comments in its ongoing rulemaking. Second, the bill will perpetuate highly dangerous conditions at coal ash dumps across the country, wet and dry. Third, the bill will not increase recycling and, instead, will decrease the incentive for coal ash reuse. And, fourth, the bill passes on to future generations the enormous economic liability created by decades of ash mismanagement and ensures that this liability will grow ever larger in the absence of disposal and cleanup standards.

No, this bill does not serve the Nation. This bill focuses very narrowly on only one aspect of the Nation's enormous coal ash problem—namely, the benefits of recycling a portion of the ash. In essence, the bill does try to divert a tsunami into a swimming pool.

Please allow me to elaborate.

First, the bill is an unwise and wholly unwarranted interference in an ongoing rulemaking. In June 2010, EPA proposed two alternative coal ash regulations. The Agency held eight public hearings and received an unprecedented 450,000 comments. EPA must be permitted to consider these comments and to issue a final rule based on the best available science. Interference in EPA's ongoing technical and scientific deliberation is reckless and unjustifiable.

Second, by removing EPA's ability to regulate coal ash under subtitle C, the bill guarantees that coal ash disposal in States with inadequate or even nonexistent regulations will continue without essential controls on dangerous dumping. It must be understood that the great majority of States do not require essential controls; yet, the bill prevents EPA from filling this gap.

States that fail today to require composite liners, dust controls, monitoring, and financial assurance, like Illinois, Kentucky, Ohio, Oklahoma, Texas, and many more, can continue unchanged. The reality is that most States have been unwilling to impose restric-

tions on coal ash dumping for decades. These States simply are not going to change their programs based on voluntary guidelines.

In addition, if Federal standards are not made mandatory, there will be a significant disproportional impact on low-income communities and communities of color—our Nation's most vulnerable communities.

Further, ironically, the bill prevents EPA from phasing out the most dangerous form of coal ash dumping, wet disposal of ash in impoundments. This bill will make it impossible for EPA to once and for all phase out high-risk coal ash dumps like the one that collapsed in Kingston, Tennessee, in 2008.

Third, the bill will not increase recycling. Market analysis and our research of all the hazardous wastes that have been designated to be hazardous show that, when disposal of waste is regulated under subtitle C, there is far greater incentive to recycle because disposal costs increase. This bill will remove this incentive, and recycling cannot compete with a hole in the ground. Significant increases in real innovation in the reuse of fly ash and other combustion waste will occur only if disposal of coal ash is strictly regulated.

Lastly, the bill does nothing and, in fact, only increases the enormous existing liability posed by the Nation's existing coal ash dumps. This bill turns its back on the reality of the hundreds of aging, poorly constructed, and leaking dumps located throughout the U.S. Another costly disaster is inevitable if ash ponds are not phased out. It is also inevitable that the drinking water of more communities will be poisoned by arsenic and other chemicals if leaking dumps are not monitored and lined. Does this Congress really want to direct EPA to ignore these deadly hazards? And who will accept responsibility when this occurs?

Yes, this bill asks EPA to close its eyes and hope this immense and deadly problem goes away. Yet, the Resource Conservation Recovery Act requires EPA to carefully consider the best available science, health risks, and environmental damage in its hazardous waste determination. This process has worked well for 30 years. Tying EPA's hands now and removing science in the middle of an ongoing rulemaking is a reckless call that will have dire consequences for the Nation's health and economy. And it will have dire consequences for all those in this room and elsewhere who today are relying on the good sense, compassion, and foresight of this Congress.

Thank you.

[The prepared statement of Ms. Evans follows:]

Testimony of
Lisa Evans, Senior Administrative Counsel, Earthjustice
before the
Subcommittee on Energy and Environment,
Committee on Energy and Commerce,
U.S. House of Representatives
April 14, 2011

Chairman Shimkus and Members of the Subcommittee, I appreciate the opportunity today to address the threats posed to our nation's health, environment and economy by coal ash -- the hazardous byproduct of burning coal. When mismanaged, this toxic waste harms Americans nationwide by poisoning our water and our air.

I am Lisa Evans, senior administrative counsel for Earthjustice, a national non-profit, public interest law firm dedicated to protecting natural resources and wildlife, and to defending the right of all people to a healthy environment. I have worked previously as an assistant regional counsel for U.S. EPA enforcing hazardous waste laws.

The bill before this committee- whose purpose is to remove EPA's authority to establish federally enforceable regulations for coal ash -- will cause great harm, both to public health and to our economy.

- First, the bill strips EPA of its ability to consider science and public comments in its ongoing rulemaking;
- Second, the bill will perpetuate and exacerbate highly dangerous conditions at coal ash dump sites across the U.S.;
- Third, the bill will not increase recycling, but will decrease the incentive for coal ash reuse; and

- Fourth, the bill passes on to future generations the enormous economic liability created by decades of ash mismanagement and ensures that this liability will grow ever larger in the absence of disposal and cleanup standards.

This bill focuses very narrowly on only one aspect of the nation's enormous ash problem-namely the benefits of recycling a portion of the toxic ash. In essence, this bill tries to divert a tsunami into a swimming pool.

Please allow me to elaborate.

First, this bill is an unwise and wholly unwarranted interference in an ongoing rulemaking. In June 2010, EPA proposed two alternative coal ash regulations. The agency held eight public hearings and received an unprecedented 450,000 public comments. EPA must be permitted to consider these comments and to issue a final rule based on the best available science. Interference in EPA's ongoing technical and scientific deliberation is reckless and unjustifiable, and it will place the American public and our environment at great risk.

Second, by removing EPA's ability to regulate coal ash under subtitle C, the bill guarantees that coal ash disposal in states with inadequate or nonexistent coal ash regulations will continue without essential controls on dangerous dumping. It must be understood that the great majority of states do not require essential controls on coal ash dumps. State regulations simply do not exist. Despite this, the bill prevents EPA from filling this gap, guaranteeing that the gross deficiency of current state regulatory programs will continue. States that fail today to require composite liners, fugitive dust controls, groundwater monitoring, and financial assurance, like Illinois, Kentucky and Texas, can continue unchanged.

The reality is that most states have been unwilling to impose restrictions on coal ash dumping for decades. These states simply are not going to change their programs based on voluntary federal guidelines under a nonhazardous rule. In addition, according to EPA, if federal standards are not made mandatory, there will be a strong disproportionate impact on low income communities and communities of color. Attachment 1 provides a detailed analysis of coal ash regulations in the 37 largest coal ash-generating states.

Further, the bill *prevents* EPA from phasing out the most dangerous form of coal ash dumping-- wet disposal of coal ash in impoundments. This bill will make it impossible for EPA to phase-out high-risk coal ash ponds like the one that collapsed in Kingston, Tennessee in 2008. The bill will prolong the life indefinitely of hundreds of high and significant hazard dams that will take human life or cause great environmental and economic destruction when they fail. Hundreds of these coal ash dams are dangerous structures that were not designed by professional engineers, are decades old and have never been routinely inspected.

Third, the bill will not increase recycling. The intended outcome of this bill—an increase in the recycling of coal ash— will simply not occur. Market analyses show that when the disposal of wastes is regulated under subtitle C, there is far greater incentive to recycle, because disposal costs increase. This bill removes this incentive. Recycling cannot compete with a hole in the ground. Significant increases and real innovation in the reuse of fly ash and other combustion wastes will occur *only if* the disposal of coal ash is strictly regulated. Attachment 2 provides an analysis of the impact of EPA regulations on hazardous waste recycling.

Lastly, the bill does nothing—and in fact only increases—the enormous, existing liability posed by the nation's coal ash dumps. This bill turns its back on the reality of the hundreds of aging, poorly constructed and leaking coal ash dumps located throughout the U.S. Another

costly disaster is inevitable if ash ponds are not phased out. It is also inevitable that the drinking water of more communities will be poisoned by arsenic and other chemicals, if leaking dumps are not monitored and lined. Does this Congress really want to direct EPA to ignore these deadly hazards? Who will accept responsibility when another disaster occurs?

Preventing EPA from regulating coal ash will certainly not save companies or ratepayers money in the long run. We have turned a blind eye to the hazards of storing coal ash in unlined ponds and pits for nearly three decades. Clean up of just one broken impoundment will cost the Tennessee Valley Authority's ratepayers over a billion dollars. The groundwater at other sites will have to be cleaned up eventually by trial lawyers and courts if the industry is not required to take reasonable action to prevent further contamination.

This bill asks EPA to close its eyes and hope this immense and deadly problem goes away. Yet the very essence of the Resource Conservation and Recovery Act requires EPA to carefully consider the best available science, public health, and environmental damage in its hazardous waste determinations. This process has worked well for 30 years. Tying EPA's hands and removing science in the middle of an ongoing rulemaking is a reckless call that will have dire consequences for the nation's health and economy.

Testimony of
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Attachments

Attachment 1

Attachment 1

A Review of State Regulatory Programs for the Disposal of Coal Ash
Summary of Earthjustice's Analysis of 37 Coal Ash-Generating States[1]

As part of its June 2010 proposal for rulemaking, EPA requested comments on the current management practices of state programs, including the specific requirements that states have in place to regulate coal combustion residue (CCR) and the extent to which such requirements apply to older, existing units. Earthjustice reviewed the regulatory programs of 37 states, looking specifically at whether states have imposed requirements to address: (1) groundwater monitoring; (2) unit liners; (3) leachate collection systems; (4) financial assurance; (5) post-closure monitoring and maintenance; and (6) extent of permitting requirements—issues EPA has identified as having particular relevance to its decision-making process.[2] Our analyses of these issues provide an up-to-date and comprehensive picture of the significant regulatory gaps that currently exist in state programs. Our conclusion is that these programs do not and cannot adequately protect health and the environment from the dangers posed by CCR disposal. Such gaps illustrate the necessity for EPA to promulgate expeditiously mandatory minimum federal standards under subtitle C of RCRA for the safe disposal of CCR.

[1] The full 37-state analysis is included in the comments submitted by Earthjustice to the rulemaking record, Docket No. EPA-HQ-RCRA-2009-0640, available at www.regulations.org and http://earthjustice.org/node/9571.
[2] 75 Fed. Reg. at 35,157.

Table 1. Overview of Mandatory State Requirements for CCR Disposal

STATE REGULATORY REQUIREMENT	ALL (NEW AND EXISTING) LANDFILLS	ALL (NEW AND EXISTING) SURFACE IMPOUNDMENTS	NEW LANDFILLS	NEW SURFACE IMPOUNDMENTS
Groundwater Monitoring (during operation)	4 states/3.66%*	6 states/19.12%	7 states/13.24%	6 states/19.12%
Composite Liner	*No states have retroactive liner requirements*	*No states have retroactive liner requirements*	5 states/7.19%	4 states/19.61%
Leachate Collection System	*No states have retroactive leachate collection requirements*	*No states have retroactive leachate collection requirements*	12 states/30.21%	7 states/23.14%
Daily Cover	7 states/25.99%	N/A[a]	7 states/25.99%	N/A
Dust Controls	13 states/39.37%	1 state/10.88%	13 states/39.37%	1 state/10.88%
Run-off Controls	17 states/42.81%	3 states/13.7%	17 states/42.81%	3 states/13.7%
Separation from Water Table	*No states have retroactive siting requirements*	*No states have retroactive siting requirements*	21 states/56.64%	7 states/25.64%
Financial Assurance	16 states/41.78%	4 states/15.85%	14 states/38.2%	3 states/14.17%
Composite Final Cover	1 state/1.14%	1 state/1.14%	1 state/1.14%	1 state/1.14%
Groundwater Monitoring (30 years after closure)	5 states/25.64%	1 state/1.14%	5 states/25.64%	1 state/1.14%

* Number of states out of 37 surveyed with requirement/percentage total CCR generated in U.S. in 2005 by states.
a: We did not review daily cover requirements for surface impoundments.

The above table is an indictment of current state of regulatory programs, revealing a widespread absence of mandatory basic safeguards. For example:

- Only 4 states (comprising less than 4 percent of the CCR generated in the U.S) require groundwater monitoring at all new and existing landfills in their states;
- Only 6 states (comprising 19 percent of the CCR generated in the U.S.) require groundwater monitoring at all new and existing surface impoundments;
- Only 5 states (comprising 7 percent of the CCR generated in the U.S.) require composite liners for all new landfills; and
- Only 4 states (comprising 19 percent of the CCR generated in the U.S.) require composite liners for all new surface impoundments.

Not only is the national picture dismal, but some of the largest coal ash-generating states in the country have no or nearly no coal ash regulatory programs. As described above, three states—Alabama, New Mexico, and Utah[3]—exempt coal ash completely from regulation as a solid waste, leaving the disposal of CCR virtually unregulated. In addition, Ohio excludes virtually all CCR from regulation by classifying it as "nontoxic" and, therefore, exempt.[4] Texas excludes all coal ash that is disposed of on-site (defined as anywhere within 50 miles of the place of generation) or destined for beneficial reuse (the vast majority of the state's CCR) from regulation.[5] In these states, which together generate approximately 33.4 million tons of CCR each year (almost a quarter of total CCR generated in the U.S.), none of the basic safeguards such as groundwater monitoring that EPA recognizes as necessary are required.

1. States Fail to Require Groundwater Monitoring.

Despite the critical need to monitor for potential contamination of water resources at CCR disposal units, a majority of the states examined do not require groundwater monitoring for both existing and new CCR landfills. We reviewed whether states required all of their operating landfills (and surface impoundments) to conduct groundwater monitoring, not just those built after a certain date. For the protection of public health, it is absolutely essential that all units be monitored. In fact, it is arguably more important for older units to be monitored because older units are more likely to be constructed without liners and leachate collection systems. When states "grandfather" older waste units, they likely are exempting a large proportion of the state's waste disposal units, because both landfills and surface impoundments are used for many decades.

The resulting analysis reveals that the majority of coal ash in the U.S. is not subject to mandatory groundwater monitoring when disposed in landfills. In addition to the states identified above that completely exempt all or most of coal ash disposal from regulation, at least seven other states provide for wholesale exemption from regulation of CCR that is disposed in on-site or in monofills, and another seventeen states leave the decision of whether to require such monitoring at landfills up to the discretion of state agency staff. Thus, at least 30 states (which as a whole generated 85 percent of the total CCR in the United States in 2005) lack mandatory groundwater monitoring requirements for both new and existing CCR landfills. Of the states in which groundwater monitoring of CCR landfills is mandatory, only semi-annual sampling is required.

[3] Ala. Admin. Code r. 335-13-1-.03(12) (2010); N.M. Code § 20.9.2.7(S)(9) (2010); Utah Admin. Code r. § 19-6-102(18)(b)(iii).
[4] Ohio Admin. Code 3745:27-01(S)(23) (2010).
[5] 30 Tex. Admin. Code §§ 335.2(d); 335.1(138)(H) (2010).

Table 2. Is Groundwater Monitoring Mandatory at CCR Landfills?

Yes 7 out of 37 states surveyed 13.24% of total CCR	7 states require groundwater monitoring at CCR landfills: IL, NH, NJ, NV, LA*, MO*, WV*; 4 of these states (IL, NH, NJ, NV) require monitoring at new and existing units (representing 3.66% of total CCR)
No 30 out of 37 states surveyed 84.92% of total CCR	3 states exclude CCR from the definition of solid waste: AL, NM, UT 5 states leave question of whether to require monitoring to discretion of state regulators: AZ, KS, MD*, NC*, WI* 12 states provide for variance of monitoring requirements: IA, KY*, MN*, NY, ND, OK*, SD, TN, VA, WA, WY, GA 7 states exempt on-site or monofill disposal: CO, FL*, MS, MT, PA, TX* 4 states exempt CCR that meets certain toxicity criteria: IN, OH, MI, SC

*grandfathering of existing sites

Even fewer states require groundwater monitoring for all existing and new CCR surface impoundments. Of the 37 states examined, only six required any level of groundwater monitoring under state solid waste programs. Of those six, two states require monitoring of groundwater only after the closure of a disposal unit and one requires monitoring for surface impoundments located in specific areas associated with the water supply. Thus, at least 31 states (which as a whole generated 79% of the total CCR in the United States in 2005) lack mandatory groundwater monitoring requirements for all CCR surface impoundments. As discussed below, the fact that groundwater monitoring is not mandatory at the majority of CCR surface impoundments takes on particular significance in light of EPA's assumption that states without groundwater monitoring requirements for surface impoundments are unlikely to implement subtitle D criteria on their own accord.

Table 3. Is Groundwater Monitoring Mandatory at CCR Surface Impoundments?

Yes 6 out of 37 states surveyed 19.12% of total CCR	6 states require groundwater monitoring at both new and existing CCR surface impoundments: LA, PA, WA, IL (only in recharge areas); MI (only after unit closure); VA (only after unit closure)
No 31 out of 37 states surveyed 79.07 of total CCR	2 states provide for variance of monitoring requirements: ND, NY 5 leave question of whether to require monitoring to discretion of state regulators: KY, NJ, OK, WI, WV 7 states specifically exclude or exempt CCR impoundments from monitoring requirements: AL, FL, IN, MT, NH, NM, CO* 17 states have no groundwater monitoring requirements for CCR impoundments: AZ, GA, IA, KS, MD, MN, MO, MS, NC, NV, OH, SC, SD, TN, TX, UT, WY

*grandfathering of existing units

Even in states where groundwater monitoring is mandatory or where regulators have exercised their discretion to require such monitoring, the specific requirements in place are not necessarily protective of health and the environment. For example, all of the states that require groundwater monitoring at CCR landfills require only that monitoring wells be sampled twice a

year; yet semi-annual sampling is insufficiently protective. In order to ensure protection of groundwater and early detection of any contamination as well as understand seasonal variations in sampling results, quarterly sampling must be required.

Table 4. Is Quarterly Monitoring Required at CCR Landfills?

Yes 0 out of 37 states surveyed 0% of total CCR	None of the 37 states that require groundwater monitoring at CCR landfills require quarterly monitoring for active life of the unit.
No 37 out of 37 states surveyed 98.19% of total CCR	*Illinois requires quarterly monitoring for first five years of operation, but then allows for less frequent monitoring.* 4 of the states with qualified groundwater monitoring requirements (e.g., variance available, on-site/monofill exemptions) require quarterly groundwater monitoring at CCR landfills: MI, NY, PA, WA (14.61% of total CCR) 19 states call for semi-annual monitoring, in event groundwater monitoring is required at a particular unit: CO, FL, GA, IN, KY, LA, MS, MO, MT, NV, NJ, ND, SC, SD, TN, TX, VA, WV, WY 3 states call for annual monitoring, in event groundwater monitoring is required at a particular unit: IA, OH, OK 3 states leave monitoring frequency to the discretion of state regulators: MN, NH, IL (quarterly for first five years) 8 states have no groundwater monitoring requirements whatsoever: AL, AZ, SK, MD, NC, NM, UT, WI

Table 5. Is Quarterly Monitoring Required at CCR Surface Impoundments?

Yes 2 out of 37 states surveyed 11.88% of total CCR	2 states require quarterly groundwater monitoring at both new and existing CCR surface impoundments: PA, WA
No 35 out of 37 states surveyed 86.31% of total CCR	1 state requires semi-annual sampling: LA 4 of the states with qualified groundwater monitoring requirements at CCR landfills (e.g., variance available, on-site/monofill exemptions) call for quarterly sampling when groundwater monitoring is conducted: CO, IL, MI, NY (14.61% of total CCR) 6 leave question of whether to require monitoring to discretion of state regulators: KY, NJ, ND (semi-annual), OK, WI, WV (semi-annual) 7 states specifically exclude or exempt CCR impoundments from monitoring requirements: AL, FL, IN, MT, NH, NM, VA (after unit closure) 17 states have no groundwater monitoring requirements for CCR impoundments: AZ, GA, IA, KS, MD, MN, MO, MS, NC, NV, OH, SC, SD, TN, TX, UT, WY

Similarly, few states require the adequate minimum number of downgradient monitoring wells. A minimum of three wells is necessary to determine the direction of groundwater flow and, thus, the existence and extent of contamination originating at a CCR disposal unit. However, only a handful of states require the installation and sampling of three downgradient wells.[6] Without the ability to properly define groundwater movement and the presence and location of contaminants, a groundwater monitoring program cannot be effective.

Table 6. Are a Minimum of Three Downgradient Wells and One Upgradient Well Required at CCR Landfills?

Yes 4 out of 37 states surveyed 9.09% of total CCR	4 states require a minimum of three downgradient wells and one upgradient well at CCR landfills: NH, NJ, MO*, WV*; 2 of these states (NH, NJ) require monitoring at new and existing units (representing 0.65% of total CCR)
No 33 out of 37 states surveyed 89.1% of total CCR	7 of the states with qualified groundwater monitoring requirements (*e.g.*, variance available, on-site/monofill exemptions) require a minimum of three downgradient wells and one upgradient well at CCR landfills: IN, NY, OK, PA, SD, VA, WA 26 states do not require a minimum of three downgradient wells and one upgradient well at CCR landfills: AL, AZ, CO, FL, GA, IA, IL, KS, KY, LA, MS, MT, MN, MD, MI, NM, NC, ND, NV, OH, SC, TN, TX, UT, WI, WY

*grandfathering of existing sites

[6] Indeed, EPA identifies only *three* states that require a minimum of four monitoring wells (one upgradient and three downgradient) at CCR landfills. *2010 RIA*, at Exhibit E1.

Table 7. Are a Minimum of Three Downgradient Wells and One Upgradient Well Required at CCR Surface Impoundments?

Yes 2 out of 37 states surveyed 11.88% of total CCR	2 states require a minimum of three downgradient wells and one upgradient well at CCR surface impoundments: PA, WA
No 35 out of 37 states surveyed 86.31% of total CCR	*3 of the states with qualified groundwater monitoring requirements (e.g., variance available, on-site/monofill exemptions) require a minimum of three downgradient wells and one upgradient well at CCR surface impoundments: NJ, VA, WV* 32 states do not require a minimum of three downgradient wells and one upgradient well at CCR surface impoundments: AL, AZ, CO, FL, GA, IA, IL, IN, KS, KY, LA, MD, MI, MN, MO, MS, MT, NC, ND, NH, NM, NY, NV, OH, OK, SC, SD, TN, TX, UT, WI, WY

2. States Fail to Require Adequate Liners for CCR Landfills and Surface Impoundments.

The risks stemming from the lack of adequate groundwater monitoring requirements are exacerbated by the often parallel deficiencies in state regulation of landfill and surface impoundment design requirements. While EPA has stated that only composite liners are sufficient to protect human health and the environment,[7] only 5 of 37 states mandate the installation of composite liners at all new CCR landfills and only 4 of 37 states require composite liners at all new CCR surface impoundments. Seven states lack any liner requirement for CCR landfills, composite or otherwise, and another 19 states exempt certain landfills from liner requirements or allow variance of such requirements by state regulators.

The deficiencies in the regulation of surface impoundments are even more severe. Twenty-seven of the states that were reviewed have no liner requirement whatsoever for CCR surface impoundments. Indeed, some of the largest CCR-generating states (*e.g.*, Texas, Ohio, Kentucky, and Indiana) lack this basic safeguard. The lack of adequate liners at CCR surface impoundments underscores the importance of mandatory groundwater monitoring. Without sufficient barriers separating the millions of gallons of wet coal ash that are stored in surface impoundments from the groundwater below, seepage of hazardous constituents into the groundwater is bound to occur.

[7] A composite liner system that consists of two components: the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10(-7) cm/sec. 75 Fed. Reg. at 35,174.

Table 8. Type of Liner Required for New CCR Landfills

Composite 7.19% of total CCR	5 states require a composite liner at CCR landfills: LA, MS, NC, NV, WI
Clay 10.33% of total CCR	4 states require a clay liner at CCR landfills: MD, MO, NJ, WV
Soil 21.65% of total CCR	5 states require a soil liner at CCR landfills: IL, IN, MI, NH, PA
Variance available 16.27% of total CCR	10 states provide for variance of liner requirements at CCR landfills: GA, MN, NY, ND, OK, SD, TN, VA, WA, WY
Exemption 25.1% of total CCR	6 states exempt certain CCR landfills from liner requirements: SC, FL, MT, CO, OH, TX
No Requirement 17.65% of total CCR	7 states do not require liners at CCR landfills: AL, AZ, IA, KS, KY, NM, UT

Table 9. Type of Liner Required for New CCR Surface Impoundments

Composite 19.61% of total CCR	4 states require a composite liner at CCR surface impoundments: LA, NY, PA, WV
Clay 3.79% of total CCR	2 states require a clay liner at CCR surface impoundments: IL (only in setback/recharge zones), OK
Soil 5.36% of total CCR	4 states require a soil liner at CCR surface impoundments: CO, ND, WA, WI
No Requirement 69.43% of total CCR	27 states do not require liners at CCR surface impoundments: AL, AZ, FL, GA, IN, IA, KS, KY, MD, MI, MN, MS, MO, MT, NJ, NV, NH, NM, NC, OH, SC, SD, TN, TX, UT, VA, WY

3. States Fail to Require Leachate Collection Systems for CCR Landfills.

Fewer than half of the 37 state programs we reviewed require leachate collection systems for CCR landfills, and only seven states require such systems for CCR surface impoundments. Without leachate collection systems,[8] liquids that collect at a landfill can compromise even the best liner system. The pooling of water above a liner causes the liner to become saturated, thereby exhausting its permeability and eliminating its effectiveness at leakage prevention.

[8] Leachate collection systems capture pollutants that may have escaped through the flexible membrane layer located above it. Pumps are employed to move the leachate out of the landfill where it can be treated to safe levels.

Table 10. Is a Leachate Collection System Mandatory for CCR Landfills?*

Yes 12 out of 37 states surveyed 30.21% of total CCR	12 states require a leachate collection system at CCR landfills: LA, MI, MS, MO, MD, NH, NJ, NC, NV, PA, WV, WI
No 25 out of 37 states surveyed 67.98% of total CCR	7 states do not require a leachate collection system at CCR landfills: AL, AZ, NM, IA, KS, KY, UT (17.65% of total CCR) 8 states exempt certain CCR landfills from leachate collection requirements: CO (on-site), FL (on-site), IN (required only in karst), IL (monofill), MT (on-site), OH (nontoxic), SC (TCLP), TX (on-site) (34.06% of total CCR) 10 states provide for variance of leachate collection requirements: GA (at monofills), OK, MN, NY, ND, SD, TN, VA, WA, WY (16.27% of total CCR)

Table 11. Is a Leachate Collection System Mandatory for CCR Surface Impoundments?*

Yes 7 out of 37 states surveyed 23.14% of total CCR	7 states require a leachate collection system at CCR surface impoundments: NJ, NY, ND, PA, WA, WV, WI
No 30 out of 37 states surveyed 75.05% of total CCR	30 states do not require a leachate collection system at CCR surface impoundments: AL, AZ, CO, FL, GA, IN, IA, IL (requirement only applies on setback/recharge areas), KS, KY, LA, MD, MI, MN, MS, MO, MT, NV, NH, NM, NC, OH, OK, SC, SD, TN, TX, UT, VA, WY

4. States Fail to Control Fugitive Dust at CCR Landfills and Surface Impoundments.

Operational safeguards at CCR disposal sites are also severely lacking under current state regulatory programs. Only 7 of the 37 states evaluated require daily cover at CCR landfills. Seven additional states require cover, but not on a daily basis. Five states allow for variance or waiver of cover requirements, and 18 states had no cover requirement of any kind. Fewer than half of the states examined require fugitive dust controls at CCR landfills, and only one state (Pennsylvania) has mandatory dust controls for CCR surface impoundments. Of the states that require dust controls, none requires specific measures for the control of dust on a daily basis; significant discretion is left in the hands of state permitting authorities and facility operators. EPA found, however, that daily cover was necessary to protect the health of residents near CCR landfills in its 2010 report, *Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills*. The screening assessment found that daily cover was necessary to prevent NAAQS violations.

Table 12. Is Daily Cover Mandatory at CCR Landfills?*

Yes 7 out of 37 states surveyed 25.99% of total CCR	7 states require daily cover at CCR landfills: IL, LA, NV, NJ, NC, PA, WV
No 30 out of 37 states surveyed 72. 2% of total CCR	18 states do not require daily cover at CCR landfills: AL, AZ, FL (on-site), IN (required only at Type I), IA, KS, KY, MD, MI, MT (required only for Class II/on-site exempt), NH, NM, OH (nontoxic), SC (required only at Class III), TX, UT, VA, WA (53.64% of total CCR) 7 states require some cover at CCR landfills, but not daily: MS, MO, ND, OK, TN, WI, WY (10.85% of total CCR) 5 states provide for variance of daily cover requirements: CO (on-site), GA (monofill), MN, NY, SD (7.71% of total CCR)

Similarly, dust controls are necessary at CCR landfills to prevent exposure to airborne ash during landfill operations. Dumping, truck traffic on the surface of the landfill, and spreading can generate significant fugitive dust, sufficient to endanger the health of nearby residents. Our study found, however, that less than half of the states examined mandated dust controls at CCR landfills, and only a single state required dust controls at CCR surface impoundments.

Table 13. Are Dust Controls Mandatory at CCR Landfills?

Yes 13 out of 37 states surveyed 39.37% of total CCR	13 states require dust controls at CCR landfills: IL, IN, IA, MD, MI, MO, NV, NJ, NC, PA, SC, WV, WI
No 24 out of 37 states surveyed 58.82% of total CCR	15 states do not require dust controls at CCR landfills: AL, AZ, CO (on-site), FL (on-site), GA, KS, KY, LA, MS, MT, NH, NM, OH (nontoxic), TX, UT (46.85% of total CCR) 9 states allow for variance of dust control requirements: MN, NY, ND, OK, SD, TN, VA, WA, WY (11.97% of total CCR)

Table 14. Are Dust Controls Mandatory at CCR Surface Impoundments?

Yes 1 out of 37 states surveyed 10.88% of total CCR	Only 1 state requires dust controls at CCR surface impoundments: PA
No 36 out of 37 states surveyed 87.31% of total CCR	36 states do not require dust controls at CCR surface impoundments: AL, AZ, CO, FL, GA, IL, IN, IA, KS, KY, LA, MD, MI, MN, MO, MS, MT, ND, NY, NH, NM, NC, NV, NJ, OH, OK, SC, SD, TN, TX, UT, VA, WA, WI, WV, WY

5. States Fail to Require Run-on and Run-off Controls.

Good CCR landfill design includes run-on and run-off controls. Run-on must be diverted to prevent erosion to the landfill. Run-off of precipitation must be collected and managed to reduce the potential for off-site migration of contaminants. Less than half of the states examined required such controls for CCR landfills and only three states required such controls for CCR surface impoundments.

Table 15. Are Run-off Controls Mandatory at CCR Landfills?

Yes 17 out of 37 states surveyed 42.81% of total CCR	17 states require run-off controls at CCR landfills: IL, IN, IA, LA, MD, MI, MS, MO, MT, NV, NH, NJ, NC, PA, SC, WV, WI
No 20 out of 37 states surveyed 55.38% of total CCR	10 states do not require run-off controls at CCR landfills: AL, AZ, CO (on-site), FL (on-site), KS, KY, NM, TX, UT, VA (33.41% of total CCR) 10 states allow for variance of run-off controls at CCR landfills: GA (monofills), MN, NY, ND, OH, OK, SD, TN, WA, WY (21.97% of total CCR)

Table 16. Are Run-off Controls Mandatory at CCR Surface Impoundments?

Yes 3 out of 37 states surveyed 13.7% of total CCR	3 states require run-off controls at CCR surface impoundments: LA, MI, PA
No 34 out of 37 states surveyed 84.49% of total CCR	31 states do not require run-off controls at CCR surface impoundments: AL, AZ, CO, FL, GA, IL, IN, IA, KS, KY, MD, MN, MS, MO, MT, NV, NH, NJ, NM, NY, NC, OH, SC, SD, TN, TX, UT, VA, WI, WV, WY 3 states allow variance of run-off controls at CCR surface impoundments: ND, OK, WA

6. States Fail to Require Isolation of CCR from Groundwater when Placed in Landfills and Surface Impoundments.

Coal ash must be isolated from contact with groundwater to prevent the migration of toxic contaminants from the waste into the underlying water table. This is the purpose of an impermeable composite liner. When coal ash is placed in contact with water, or when the separation from the water table is insufficient, soluble metals in the ash will migrate to the underlying groundwater. Although mandating separation from the water table is one of the most basic tenets of proper waste management, 16 of 37 states place no restriction on the location of ash landfills with respect to the water table and 30 of 37 states place no restrictions with regard to the location of coal ash surface impoundments.

Table 17. Can CCR Landfills to be Constructed in the Water Table?

No 21 out of 37 states surveyed 56.64% of total CCR	21 states prohibit the location of CCR landfills within a certain distance of the water table: CO, IA, IL, MD, MI, MN, MS, NC, NH, NJ, NV, NY, OH, OK, PA, SC, TN, TX, WA, WI, WV
Yes 16 out of 37 states surveyed 41.55% of total CCR	16 states place no restriction on the location of CCR landfills with respect to the water table: AL, AZ, GA, FL, IN, KS, KY, LA, MO, MT, ND, NM, SD, UT, VA, WY

Table 18. Can CCR Surface Impoundments to be Constructed in the Water Table?

No 7 out of 37 states surveyed 25.64% of total CCR	7 states prohibit the location of CCR surface impoundments within a certain distance of the water table: CO, NC, NY, OK, PA, WI, WV
Yes 30 out of 37 states surveyed 72.55% of total CCR	30 states place no restriction on the location of CCR surface impoundments with respect to the water table: AL, AZ, GA, FL, IA, IL, IN, KS, KY, LA, MD, MI, MN, MO, MT, MS, ND, NH, NJ, NM, NV, OH, SC, SD, TN, TX, UT, VA, WA, WY

7. States Fail to Place Other Location Restrictions on CCR Landfills and Surface Impoundments.

While we did not conduct an independent assessment of state regulation of disposal unit location, EPA's *2010 RIA* includes a synopsis of state government restrictions on locating CCR landfills and surface impoundments for the top 25 coal usage states.[9] The *2010 RIA*'s summary of six categories of location restrictions—water table, wetlands, floodplains, faulty areas, seismic zones, unstable karst terrain—highlights the inadequacy of state regulation of disposal unit siting. Only 5 of the 25 states reviewed restricted the siting of CCR surface impoundments below the natural water table; only eight states placed such restrictions on CCR landfill siting. Only 5 of 25 states restricted the siting of CCR surface impoundments in wetland areas; 17 states restricted such siting for CCR landfills. Eight of the 25 states reviewed restricted locating CCR surface impoundments in floodplains; 20 of 25 states placed such restrictions on CCR landfills. A mere two states had restrictions on the siting of CCR surface impoundments in fault areas or seismic zones; seven states restricted locating CCR landfills in fault areas, and eight restricted such siting in seismic zones. Five states restricted the siting of CCR surface impoundments in areas of unstable (karst) terrain, and 12 states restricted the location of CCR landfills in such areas.

[9] *2010 RIA* at 46–47.

8. States Fail to Require Financial Assurances for CCR Landfills and Surface Impoundments.

Financial assurance for landfills and surface impoundments is a critical safeguard and an important tool for ensuring safe waste disposal operations. Fewer than half of the states surveyed, however, require financial assurances for all CCR landfills, and only four states mandate financial assurances for all CCR surface impoundments.

Table 19. Are Financial Assurances Mandatory for CCR Landfills?

Yes 16 out of 37 states surveyed 41.78% of total CCR	16 states require financial assurances for CCR landfills: GA, IN, IA, LA, MI*, MS, MO*, NV, NH, NJ, NC, PA, SC, SD, WV, WI
No 21 out of 37 states surveyed 56.41% of total CCR	6 states have no financial assurance requirement: AL, AZ, KS, MD, NM, UT (11.71% of total CCR) 6 states exempt certain CCR landfills from financial assurances requirements: CO, IL, FL, MT, OH, TX (26.29% of total CCR) 9 states allow for variance of financial assurance requirement: KY, MN, NY, ND, OK, TN, VA, WA, WY (18.41% of total CCR)

* grandfathering of existing units

Table 20. Are Financial Assurances Mandatory for CCR Surface Impoundments?

Yes 4 out of 37 states surveyed 15.85% of total CCR	4 states require financial assurances for CCR surface impoundments: LA, MI*, PA, ND
No 33 out of 37 states surveyed 82.34% of total CCR	33 states have no financial assurance requirement for CCR surface impoundments: AL, AZ, CO, FL, GA, IN, IA, IL, KS, KY, MD, MN, MS, MO, MT, NH, NJ, NY, NV, NM, NC, OH, OK,SC, SD, TN, TX, UT, VA, WA, WI, WV, WY

* grandfathering of existing units

9. States Fail to Require Safe Closure of CCR Landfills or Surface Impoundments.

Our analyses revealed significant deficiencies in the states' regulation of the closure of CCR disposal units at the end of their active lives. Only one of the state programs reviewed includes a mandatory requirement that final cover for all CCR landfills and surface impoundments include a composite element. Fourteen states require less protective materials such as clay or soil, and 22 state programs lack any mandatory requirements for final cover materials. Impermeable covers are essential for coal ash landfills and surface impoundments to prevent precipitation from infiltrating the closed unit. Impermeable covers are especially essential for coal ash landfills and ponds, because so many of these units are unlined. Water percolating through a closed, unlined landfill will facilitate the migration of contaminants from the ash into the underlying groundwater.

Table 21. Type of Final Cover Required for CCR Landfills

Composite 1.14% of total CCR	1 state requires a composite final cover for CCR landfills: LA
Clay 21.69% of total CCR	5 states require clay final cover for CCR landfills: MO, MD, PA, WV, WI
Soil 17.14% of total CCR	9 states require soil final cover for CCR landfills: IA, IL, IN, MI, MS, NJ, NH, NC, NV
Variance available 16.27% of total CCR	10 states allow for variance of final cover requirements for CCR landfills: GA, SD, VA, NY, ND, OK, TN, WA, WY, MN
Exemption 25.1% of total CCR	6 states exempt certain CCR landfills from final cover requirements: CO, FL, MT, OH, SC, TX
No Requirement 16.85% of total CCR	6 states have no final cover requirement for CCR landfills: AL, AZ, KS, KY, NM, UT

Table 22. Type of Final Cover Required for CCR Surface Impoundments

Composite 1.14% of total CCR	1 state requires a composite final cover for CCR surface impoundments: LA
Clay 11.94% of total CCR	2 states require clay final cover for CCR surface impoundments: OK, PA
Soil 2.68% of total CCR	2 states require soil final cover for CCR surface impoundments: MI, WA
Removal upon closure 3.72% of total CCR	3 states require that CCR surface impoundments be removed upon closure: ND, NJ, NY
No requirement 78.71% of total CCR	29 states have no final cover requirement for CCR surface impoundments: AL, AZ, CO, FL, GA, IN, IA, IL, KS, KY, MD, MN, MS, MO, MT, NV, NH, NM, NC, OH, SC, SD, TN, TX, UT, VA, WI, WV, WY

Long-term post-closure monitoring of coal ash landfills and surface impoundments is critical to ensure that contaminants are not migrating from the disposal units. Early detection of contaminated groundwater is necessary to protect the health of nearby communities. Such monitoring is essential, once again, because of the hundreds of unlined landfills and ponds that are currently in operation or that have already retired. All units, both those that will close and those already retired, must be monitored so that leaks are detected before substantial migration can occur. Lastly, it is necessary that post-closure monitoring be at least 30 years because coal ash is not a stable material, and its condition changes over time. Especially if exposed to the water table or precipitation, coal ash will evolve slowly and release its harmful contaminants over the course of decades. A dump that is not releasing contamination five years after closure says absolutely nothing about its potential to poison groundwater 10, 20, 30 or 50 years later. According to EPA's 2010 Risk Assessment, peak contaminant releases from CCR surface impoundments will not occur until over 70 years after waste placement, and the peak release

period for CCR landfills is thousands of years.[10] A post-closure monitoring period of at least 50 years is indeed reasonable and necessary. Almost no states, however, require a mandatory monitoring period of at least 30 years, as shown in the table below.

Table 23. Is 30 Years of Post-Closure Groundwater Monitoring Required for CCR Landfills?

Yes 5 out of 37 states surveyed 25.64% of total CCR	5 states require post-closure groundwater monitoring for 30 years at all CCR landfills: LA, MI, MO, NV, WV
No 32 out of 37 states surveyed 72.55% of total CCR	32 states do not require post-closure groundwater monitoring for 30 years at all CCR landfills: AL, AZ, CO (on-site), FL (on-site), GA (variance for monofills), IL, IN (Type III exempt), IA, KS, KY, MD, MN, MS, MT (on-site), NH, NJ, NM, NY, NC (on-site), ND, OH, OK, PA, SC, SD, TN, TX (on-site), UT, VA, WA, WI, WY

Table 24. Is 30 Years Post-Closure Groundwater Monitoring Required for CCR Surface Impoundments?

Yes 1 out of 37 states surveyed 1.14% of total CCR	1 state requires post-closure groundwater monitoring for 30 years at all CCR surface impoundments: LA
No 36 out of 37 states surveyed 97.05% of total CCR	36 states do not require post-closure groundwater monitoring for 30 years at all CCR surface impoundments: AL, AZ, CO, FL, GA, IL, IN, IA, KS, KY, MD, MI, MN, MS, MO, MT, NV, NH, NJ, NM, NY, NC, ND, OH, OK, PA, SC, SD, TN, TX, UT, VA, WA, WV, WI, WY

10. Grandfathering of Existing Units Encourages Prolonging Life of Aging Ponds and Landfills.

States routinely allow the continued operation of existing landfills and surface impoundments, without requiring the older units to comply with newly-imposed safeguards. This widespread practice encourages the use of existing units for as long as possible. In the 1999 Report to Congress, EPA estimated that the average age of surface impoundments and landfills was about 40 years. Yet many ponds and landfills are operating for decades longer.[11] Section III.B.1.d.i.2., *infra*, discusses in detail the aging of the nation's fleet of surface impoundments. The continued operation and expansion of hundreds of ponds and landfills without liners, leachate collection systems, monitoring and other basic safeguards is another critical reason why regulation under subtitle C is essential.

[10] 2010 Risk Assessment, at 4-11.
[11] *See* EPA, Coal Combustion Residuals Impoundment Assessment Reports, http://www.epa.gov/osw/nonhaz/industrial/special/fossil/surveys/index.htm.

Attachment 2

RECYCLING OF HAZARDOUS WASTE: RCRA'S UNSUNG SUCCESS STORY

PREPARED BY:

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NATURAL RESOURCES DEFENSE COUNCIL

November 20, 2010

November 20, 2010

Mr. Patrick Gallagher
Director of Environmental Law
Sierra Club
85 Second Street, 5th Floor
San Francisco, CA 94105

Re: *"Recycling of Hazardous Waste"*

Dear Mr. Gallagher:

Pursuant to your request, I am submitting my Report on the current status, trends, and history of hazardous waste recycling under the Resource Conservation and Recovery Act (RCRA).

Appendix A summarizes my 30+ years of involvement with the RCRA Program and related environmental statutes. **Appendix B** provides a detailed accounting of the false claims of "stigma" that have been made over 30+ years of RCRA rulemakings.

I appreciate the opportunity to be of assistance to you, the Sierra Club, Earth Justice, the NRDC and the communities which have been affected or threatened by this glaring gap in RCRA's regulatory regime.

Sincerely,

/S/ Richard C. Fortuna

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I. RECYCLING OF HAZARDOUS WASTE IS ALIVE AND WELL UNDER RCRA

A. Introduction

Since RCRA's adoption and implementation in the late 1970's, RCRA[1] regulation has enhanced recycling and beneficial reuse and assured environmental protection in the process. As discussed in greater detail below, this is in part because under RCRA, environmentally protective recycling is preferred to the land disposal of a waste material.

Despite the clear evidence of RCRA's success at driving increases in reuse and recycling, industries have often resisted RCRA regulation by arguing, for example, that RCRA regulation would reduce recycling because it is supposedly too burdensome,[2] or because labeling a material as "hazardous" would stigmatize the material and reduce people's willingness to reuse it; so called "stigma" arguments. According to these assertions, the only way to encourage recycling is to exempt it from hazardous waste regulation.

In this regard, industry's current opposition to EPA's proposal to regulate Coal Combustion Residue ("CCR") under RCRA Subtitle C repeats the same arguments that industry has asserted over the past thirty-plus years of RCRA's implementation, However, the history of RCRA regulation demonstrates the fallacy of these assertions. RCRA regulation of a substance does not decrease recycling and beneficial reuse of the substance -- whether because of the alleged burden of such regulation, or because of a supposed stigma from labeling a product as hazardous – to the contrary, RCRA regulation has just the opposite effect on recycling rates.

As discussed in this Report, the beneficial reuse and recycling of materials under RCRA has been a tremendous success. This Report is divided into 6 sections, each

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[1] The statute governing the daily management of "hazardous waste" in the U.S. is known as the Resource Conservation and Recovery Act (RCRA; pronounced Rec-Ra). RCRA or P.L. 94-580 was enacted in 1976 and amended the Solid Waste Disposal Act (SWDA) P.L. 89-272, enacted in 1965. RCRA incorporated Subtitle C, the Hazardous Waste Program. The Hazardous and Solid Waste Amendments (HSWA) of 1984, P.L. 98-616, effectively rewrote Subtitle C of the SWDA. Of all these acronyms, it is "RCRA" that is most frequently used to refer to the SWDA and its collective amendments.

RCRA is the nation's basic authority governing the daily management and ongoing releases from waste management units. CERCLA OR "Superfund" is the nation's cleanup and emergency response authority for releases of hazardous substances. The preventive standards of RCRA are intended to avert the creation of future problem sites requiring cleanup under CERCLA.

[2] According to the "regulatory burden" argument, the increased burden of RCRA compliance will increase the costs of the recycled products produced from a waste material and in turn disadvantage or "stigmatize" them in the marketplace.

examining a separate aspect of RCRA's recycling history and trends and their applicability to the CCR rulemaking. **Section I** examines several general trends in hazardous waste recycling under RCRA. **Section II** uses specific illustrative examples to demonstrate that reuse and recycling of materials has increased under RCRA regulation. **Section III** examines the accelerating trends in the recycling of consumer-based hazardous waste. **Section IV** examines how California's Used Oil Program has a higher rate of recycling than the Federal Program. **Section V** examines the historical claims of "stigma" associated with recycling-related rulemakings under RCRA from 1979-present and compares these claims with marketplace reality.

B. Overview of Data

Actual data on RCRA generation and waste management provides empirical evidence demonstrating that hazardous waste recycling under RCRA is in fact a great success. More specifically, RCRA requires that every two years waste generators and managers submit data regarding their waste generation and management in what is called the RCRA Biennial Report Survey (BRS).[3] This survey examines on a biennial basis the full spectrum of waste generation and management, including recycling practices, and attempts to quantify the volumes of wastes managed and generated by facility type, location, and volume. The Biennial Report assigns hazardous waste recycling practices to one of 5 subcategories. **See Table 1.**

TABLE 1: Reclamation and Recovery Management Codes

Code	Recycling Activity
H010	Metals recovery including retorting, smelting, chemical, etc.
H020	Solvent recovery (distillation, extraction, etc.)
H039	Other recovery or reclamation for reuse including acid regeneration, organics recover, etc.
H050	Energy recovery at this site – used as a fuel (includes onsite fuel blending before energy recovery)
H061	Fuel blending prior to energy recovery at another site (waste generated either onsite or received from offsite)

In examining the Biennial Report data for 2007, the last year for which complete tabulated data exists, one sees a wide range of waste being reclaimed in substantial volumes under the hazardous waste regulations. For example, as shown in **Table 2** below, which summarizes some of the most commonly generated wastestreams and

[3] 40 **CFR** Parts 262.41, 264.75, and 270.30(l)(9)

the volume of those wastes reclaimed during 2007, over a million tons of ignitable, corrosive, and/or leachable metal-bearing wastes were recycled in 2007.

TABLE 2: Volume of Various RCRA Hazardous Waste Recycled in 2007		
Waste Code	**Waste Description**	**Recycled (Tons)**
D001 - D009 characteristic waste	ignitable, corrosive and/or leachable metal-bearing wastes	1,461,006
D002 - Corrosives	lead acid batteries	1,299,823
D009 - Mercury	fluorescent lamps	813,935
F001 - F005 listed waste	chlorinated solvents	311,521
F006 - F009 listed waste	metal bearing wastes	37,857

Source: 2007 RCRA Biennial Report Survey (BRS) Database. FOIA Request HQ-FOI-01815-10. October 12, 2010. 2007 is the most current year for which data has been tabulated and published.

Indeed, for some commonly generated hazardous waste the recycling rate is 67% or greater as shown in **Table 3**.

TABLE 3: Recycling Rates for Various Large Volume RCRA Hazardous Wastes				
Waste Code	**Waste Type**	**Volume Recycled (tons)***	**Volume Generated (tons)****	**Recycling Rate**
K048-52	Petroleum Refining Sludge	23,878	34,777	69%+
K061	Electric Arc Furnace Dust	610,000***	923,546	67%
K171-172	Petroleum Refining Catalysts	49,336	61,127	81%
D002	Lead Acid Batteries	1,300,000	1,400,000	93%++

* FOIA Request HQ-FOI-01815-10

** Supplemental data provided by RCRA BRS Staff, October 21, 2010.

*** EPA, Office of Resource Conservation and Recovery, "Assessing the Management of Lead in Scrap Metal and Electric Arc Furnace Dust; Final Report," EPA 530-R-09-004, April, 2009, p. 18.

\+ This is an underestimate as many refineries dispose/recycle their K048-52 wastes in their coking systems or use it to quench the coking cycle.

++ "Waste Recycling," Solid Waste Association of North America (SWANA), Silver Spring, MD, 2008; Presentation of Dr. Reinhart. Data was from a 2003 Survey.

Lastly, another measure of the frequent and routine nature of hazardous waste recycling under RCRA is revealed by examining all 563 waste codes listed or identified under RCRA and determining which of those codes were not recycled at all. The BRS data reveals that only 4 of the 563 waste codes for which data was reported in 2007 had no recycling whatsoever. These codes were largely dioxin-containing wastes and/or vinyl chloride production wastes. In short, 99.3% of all RCRA waste codes underwent some level of recycling during the 2007 reporting period, as reflected in **Table 4** below.

TABLE 4: Percentage of RCRA Waste Codes for Which Some Level of Recycling Was Reported in the 2007 Biennial Report

Number of RCRA Waste Codes*	Number Reporting No Recycling**	% RCRA Wastes Codes Reporting Some Recycling
563	4+	~99.3%***

* 2007 RCRA Biennial Report Survey, pp. D1 - D17.

** Supplemental data provided by RCRA BRS Staff, October 22, 2010.

*** 559+563 = 99.3%. Some obscure "P" and "U" list wastes may not have been generated during the BRS reporting period.

\+ Except for RCRA waste codes F020, F023, K174, K178; every "D", "F" and "K" code wastes were recycled in 2007, frequently by multiple methods.

II. BENEFICIAL REUSE AND RECYCLING HAS INCREASED DRAMATICALLY AS REGULATORY STANDARDS HAVE INCREASED UNDER RCRA AND OTHER FEDERAL STATUTES

A. Background – RCRA's Land Disposal Restriction (LDR) Program

This section provides a more in depth analysis of trends in hazardous waste recycling using three different hazardous wastestreams: i.e., K061 Electric Arc Furnace Dust, D009 mercury containing fluorescent lamps, and D009 mercury-containing automotive switches. This analysis reveals a trend which is typical of many wastestreams that have been recycled under RCRA; namely, that the rate of recycling increases as the standards under RCRA became more stringent.

The passage of the initial RCRA-based program regulations in 1980 prompted a minimal level of recycling to be undertaken for many wastestreams.[4] However, it was not until RCRA's Land Disposal Restriction (LDR) program was implemented in 1986-1990 that the recycling of many RCRA wastestreams began to accelerate.[5] The Land Disposal Restrictions (or LDR Program) is a two part program that: 1) prohibited all land disposal unless wastes were first treated to reduce toxicity to the greatest extent achievable by Best Demonstrated Available Treatment (BDAT), and 2) required that the residues of such treatment be placed only into units meeting state-of-the-art liner and containment standards. The LDR program has its genesis in the 1984 Hazardous and Solid Waste Amendments (HSWA) which established a phased, multi-year program that required best treatment followed by best containment. As discussed in greater detail below, by requiring that waste material be pre-treated and disposed of in an environmentally appropriate manner, RCRA and its LDR program allowed resource recovery and recycling to flourish by making it cost-competitive with the alternative-disposal of the material.

The institution of the LDR program in the 1984 HSWA truly put an end to the land disposal of untreated wastes, and by doing so provided a level playing field on which treatment and recycling technologies could compete. Prior to the institution of the LDR program, very few treatment or recycling technologies could financially compete with an unregulated, unlined hole in the ground. This section examines the beneficial impact of RCRA's increasing stringency on the rate and volumes of hazardous waste being recycled.

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[4] 45 **FR** 33066 (May 19, 1980). The RCRA "Base Program" Regulations; Final Rule.

[5] www.epa.gov/wastes/hazard/tsd/ldr/index.htm. RCRA 3004(b) - (p), especially 3004(m), (o).

B. The Electric Arc Furnace Dust Recycling Market: A RCRA Success Story Of Increased Regulation And Resulting Increases In Recycling

1. Management Trends for EAF Dust: 1983-1993. Vastly More Recycling After RCRA LDRs

In 1995 I was retained by EPA to make a presentation before their Common Sense Initiative (CSI) Subcommittee on Iron and Steel Industry Wastes.[6] Much of the data for this study was derived from the available Biennial Report data at the time.

As reflected in **Table 5**, "K061 Management Trends from 1983-1993," in 1983, when there were no requirements under RCRA to immobilize or recycle the toxic constituents contained in K061 Electric Arc Furnace dust prior to land placement, less than 10% of the electric arc furnace dust waste stream was recycled. The vast majority was simply land disposed. By 1993, ten years later, over 70% of this waste stream was being reclaimed, either on-site or off-site; virtually a complete reversal in ten years time. The massive jump in recycling was driven by the LDR program's treatment requirements.

Prohibition of uncontrolled land disposal provided the engine for this transition to recycling. This fact is and has been acknowledged by industry, including the American Iron and Steel Institute (AISI) representative in attendance at my presentation to the EPA.[7]

TABLE 5: K061 Management Trends: 1983-1993*

Management Method	Percent (%) EAF Dust Managed-1983	Percent (%) EAF Dust Managed-1993 +
HTMR**	<10%	72 (86.5)+
Other Recovery, Reuse	----	6 (2.3)+
Landfill	>80%	19 (11.2)+

* Data based on 1983, 1993 Biennial Reporting data.
** HTMR-High Temperature Metals Recovery
\+ Figures in ( ) are for 1992, based on a 1993 PRI Study, "Electric Arc Furnace Dust – 1993 Overview," EPRI Center for Materials Production, CMP Report 93-1, July, 1993, p. 3-5.

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[6] Fortuna, Richard C., "Steel Industry Waste and RCRA's Solid Waste Definition," Presentation before EPA's Common Sense Initiative, Iron & Steel Society Committee; Ambassador West Hotel, Chicago, IL, August 24, 1995.

[7] At this CSI Session, John Wittenborne of the American Iron and Steel Institute, (AISI) acknowledged this finding in his own presentation as well.

2. Twenty-One Firms Were Developing Technologies To Reclaim EAF Dust After The LDRs Took Effect

Another indication of the robust market for recycling electric arc furnace dust is the number of firms that invested in new technologies to recycle the material. In 1995 there were 21 separate firms developing a broad array of recycling technologies to reclaim zinc and other metals from electric arc furnace dust. These methods included: electrowinning, plasma cupola, plasma arc, hydrometallurgy and the re-injection of EAF dust back into the electric arc furnace. This recycling based industry was driven by the LDR program – indeed, virtually none of these technologies existed prior to the LDR program.

3. RCRA's Impact On Recycling Economics; Without RCRA Most Recycling Would Be Impossible

Another measure of the premise at issue would be to examine whether RCRA regulations were making it economically impossible for firms to enter or compete in this marketplace. The argument is frequently made that the cost of permitting and compliance are so high that economically sensitive operations such as recycling facilities must be exempt from RCRA regulation in order to survive.

In fact, quite the opposite is the case. It is precisely due to RCRA regulation that many otherwise marginal, or non-profitable recycling and/or reuse operations are able to provide services that both return resources back to the economy and protect the environment. For example, the Electric Power Research Institute (EPRI) released a study of electric arc furnace dust recyclers concluding that none of the leading commercially available EAF dust zinc reclaimers would be profitable without a hazardous waste tipping fee.[8] Data from this study, reflected in **Table 6**,[9] demonstrates that no facility in existence in 1994 (i.e., Bold entries in **Table 6**) could survive on the sale of reclaimed zinc product alone. Five of the eight existing and proposed facilities in **Table 6** would not be profitable without a hazardous waste tipping fee. In fact, it is the hazardous waste tipping fee companies charge that makes both the facility profitable, and provides the revenues to ensure that the toxic residues of recycling are properly managed.

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[8] A "tipping fee" is the fee a firm charges for proper management of a waste and its residuals. The term originated when land disposal was the predominant method of management (i.e., trucks tipping their contents into the disposal cell), but now refers to the fee charged for all forms of management, including recycling.

[9] The EPRI Center for Materials Production. Proceedings of the CMP Electric Arc Furnace Dust Treatment Symposium IV. A Summary of the Technical Presentations and Panel Discussion from the January 25, 1994 Symposium. February 1994. CMP Report No. 94-2.

Thus, while industry has in the past argued that the cost of RCRA permitting and compliance are so high that economically sensitive operations such as recycling facilities cannot afford to comply and will be shut down, just the opposite is true. RCRA regulation makes recycling economically feasible, and provides stability in the market by serving as a buffer against the sometimes violent pricing swings in commodity markets, avoiding the temptation to then cut corners on environmental compliance requirements.

TABLE 6: Comparative Earnings of EAF Dust Recyclers Before Taxes**

Process	Earnings/Ton ($) For EAF Dust Facilities Scaled To 100,000 Tons Per Year***	
	No Tip Fee	**Tip Fee**
Metal Producers		
Enviroplas	37	103
Modified Zincex	24	83
Oxide Producers		
Ausmelt	**NP***	**108**
Flame Reactor	**NP**	**120**
Enviroplas	NP	66
ScanArc	NP	71
Single Stage Waelz Kiln	**8**	**119**
Two Stage Waelz Kiln	**NP**	**75**

* NP=Not Profitable

** The EPRI Center for Materials Production. Proceedings of the CMP Electric Arc Furnace Dust Treatment Symposium IV. A Summary of the Technical Presentations and Panel Discussion from the January 25, 1994 Symposium. February 1994. CMP Report No. 94-2.

*** Pre-tax earnings are per ton, and are based on facilities scaled to manage at least 100,000 tons/yr. "Earnings" typically refers to actual revenues, minus the cost of sales, before taxes.

4. Comparative Analysis of EAF Dust Recycling In The U.S. Versus Canada

A comparison of electric arc furnace dust recycling markets in the United States and in Canada provides further evidence that RCRA regulation – particularly its LDR program – can and will drive increases in recycling and reuse rates. As discussed above,

electric arc furnace dust became regulated under RCRA in the 1980's, and by 1993, over 70 percent of the dust was being recycled.

At the same time, however, Canada left electric arc furnace dust largely unregulated. Ontario did not institute an RCRA-type LDR program until approximately 2005, nearly 20 years after the RCRA LDR program was enacted in HSWA. Quebec still has no program comparable to the RCRA LDR program.[10]

In the 1993-95 period, when the United States was recycling 70 percent of its electric arc furnace dust, in Ontario most such waste (i.e., K061-type waste (Ontario waste code 143H (NA 9380)) was simply stored or disposed of in piles on-site. Moreover, the volume of EAF dust being recycled in Canada from domestic sources in most areas was virtually zero, and was merely being piled on the ground.[11] Other large EAF dust recyclers in the U.S. also investigated various Canadian markets in the early 1990s and found no interest in recycling or treatment technologies for EAF dust as well. One Canadian steel manufacturer was interested in recycling EAF dust, but only if it was "free."

Thus, in 1995 the very waste that was being reclaimed to a 70%-86% level (**Table 5**) in this country was simply being placed into huge land-based piles in Ontario, much as it was in the U.S. prior to the existence of the RCRA Land Disposal Restrictions (LDR) program of 1984.

C. RCRA's Land Disposal Restriction Program Has Driven The Success Of Mercury Lamp Recycling

RCRA regulation, and the LDR program in particular, has had a similarly beneficial impact on recycling of Mercury lamps. Prior to the institution of the Land Disposal Restrictions for mercury-containing waste in 1990, including mercury-containing lamps,[12] virtually no mercury recycling was occurring. There were only three firms

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[10] The only standards that conceivably govern such wastes in Canada, are the characteristic leaching tests for heavy metals. These levels are quite permissive and could be easily achieved. Typically, the U.S. LDR standards for reclamation residues will be at least one order of magnitude more stringent then the characteristic leach levels for Pb, Hg, and Cr.

[11] "Evaluation of the Future Market for EAF Recycling in the U.S. and Canada," prepared for the Scientific Ecology Group, prepared by Strategic Environmental Analysis, L.C., May 8, 1995.

[12] 55 **FR** 22520 (June 1, 1990). Third Third Scheduled Waste; Final Rule. This rule established the treatment standards for a wide range of RCRA hazardous waste including the "D" code characteristic wastes such as D009 mercury-containing lamps. The LDR for D009 largely required the use of thermal retorting technology to achieve the maximum amount of mercury recovery prior to the land disposal of any remaining mercury-containing residuals. 40 **CFR** 268.40, 268.48. Recycling via retorting was deemed Best Demonstrated Available Treatment (BDAT) to achieve maximum toxicity reduction prior to the land disposal of mercury-containing residuals.

recycling lamps in the U.S. in 1990, handling only about 5 million lamps total.[13] Subsequent to the implementation of the LDR program for mercury-containing waste, including mercury lamps, by 2000, there were over 60 businesses operating in 33 states to collect and recycle mercury-containing products.[14] This growth continued after 2000 as well. The 2007 RCRA Biennial Report Survey reports that as of 2007, there were 814,000 tons of mercury-containing lamps recycled in the U.S., the last year for which complete data is available, as indicated in **Table 2** above

In addition, to facilitate the recycling of mercury-containing lamps from small businesses, retailers and households, EPA amended the Universal Waste Rule to include mercury-containing lamps in 1999.[15] The recycling of mercury-containing lamps, a frequently generated household hazardous waste, and the establishment of an industry to facilitate this recycling, would not have occurred but for the increased stringency of RCRA's hazardous waste regulations.[16]

D. Regulation Under The Clean Air Act NESHAP Program Has Driven The Success Of Mercury Auto Switch Recycling

Most automobiles built through 2003 commonly utilized mercury-containing switches to operate a variety of lighting and other circuitry in the vehicle. At the end of a vehicle's life, these mercury-containing switches were typically crushed and shredded, along with

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[13] Presentation of Paul Abernathy, Executive Director, Association of Lighting and Mercury Recyclers (ALMR) before the U.S. EPA Workshop on Mercury Products, Processes, Wastes, and the Environment; Plenary Session: National Implementation of the Universal Waste Rule for Mercury Lamps. Baltimore, MD, March 22, 2000, p. 1.

[14] Ibid.

[15] 64 **FR** 36465 (July 6, 1999); Final Rule. Amendments to the Universal Waste Rule to include mercury-containing lamps. The Universal Waste Rule (UWR) provided a modified regulatory system to ease the regulatory burdens on retail stores and others that wish to collect wastes such as mercury-containing lamps and encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors. In addition the UWR regulations ensure that the wastes subject to this system will go to appropriate treatment and recycling facilities pursuant to the full hazardous waste regulatory controls. www.epa.gov/wastes/hazard/wastetypes/universal/.

[16] Recycling of mercury lamps was further aided by EPA's 1999 amendment of the Universal Waste Rule which advanced the recycling of mercury-containing lamps by small businesses, retailers and households 64 **FR** 36465 (July 6, 1999); Final Rule. Amendments to the Universal Waste Rule to include mercury-containing lamps. More specifically, the Universal Waste Rule (UWR) provided a modified regulatory system to ease the regulatory burdens on retail stores and others that wish to collect wastes such as mercury-containing lamps and encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors. In addition, the UWR regulations ensure that the wastes subject to this system will go to appropriate treatment and recycling facilities pursuant to the full hazardous waste regulatory controls. www.epa.gov/wastes/hazard/wastetypes/universal/.

the balance of the automobile, resulting in the rapid volatilization and environmental release of the mercury contained therein.

In 2007, EPA instituted a National Emissions Standard for Hazardous Air Pollutants (NESHAPs) for Electric Arc Furnace (EAF) Steelmaking.[17] Among the regulatory and demonstration provisions included in the rulemaking was a provision requiring MACT standards for the control of mercury from EAFs.[18] This program states that the final standards for mercury are based on pollution prevention and requires EAF owners or operators who melt scrap for motor vehicles either to purchase or otherwise obtain the motor vehicle scrap only from scrap providers participating in an EPA-approved program for removal of mercury switches. EAF facilities participating in an approved program must maintain records identifying each scrap provider and documenting the scrap provider's participation in an EPA-approved mercury switch removal program.

Until the institution of the NESHAP program there was no regulatory requirement or program to collect mercury switches and as a result none had been collected. As a result of the NESHAP CAA regulation, in 2007, 2008 and 2009, a total of over 2,584,000 mercury-containing switches have been removed from automobiles prior to scrapping.[19] Absent this regulatory program established under the Clean Air Act NESHAP program, very few of these switches would be collected, recycled and removed from becoming part of the waste disposal problem.

E. Halogenated Solvent Recovery Flourishes under RCRA

Historically, solvent recycling facilities have been one of the leading causes of Superfund sites or otherwise have been a leading source of environmental damages for many years. According to a 1992 survey, solvent recycling sites were the second most prevalent recycling-based cause of Superfund sites.[20] Today, there are more solvent recovery facilities permitted under RCRA (i.e., 456) than any other type of hazardous waste management facility.

Moreover, in the solvent recovery sector there are a large number of facilities (i.e., 456) managing a significant, but relatively smaller, volume of solvents[21] (i.e., 328,000 tons).

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[17] 72 **FR** 74088 (Dec. 28, 2007).

[18] 72 **FR** 74088, 74089-90 (Dec. 28, 2007).

[19] Personal communication with and data transmitted from Charles Griffith, Executive Director, The Ecology Center, Ann Arbor, Michigan, Oct. 27, 2010; www.ecocenter.org.

[20] "RCRA's Recycling Loopholes," EDF/HWTC, April, 1992. Submitted at the hearing of the House Energy and Commerce Committee on Sham Recycling, April, 1992.

[21] Web citation: http://www.epa.gov/osw/hazard/recycling/index.htm

This means that there is a relatively large number of small volume solvent reclamation facilities permitted under RCRA. Apparently, even small recycling operations were not "stigmatized" by RCRA's "onerous" and "burdensome" regulatory requirements.

Solvents are inherently much more dangerous than coal ash. Exposure to organic solvents can result in serious health impacts, including major birth defects, immune system disorders (such as rheumatoid arthritis, scleroderma, and lupus erythematosus), and several kinds of cancer. Yet a healthy reuse market, used to great advantage by large corporations such as Safety-Kleen, operate without the extreme trepidations expressed by coal ash reuse industries. Spent solvents are collected in great quantities daily by such companies, transported large distances to reclamation/distillation facilities, and freely returned to companies for reuse. The recycling companies manage the risks posed by spills of the material during transport, storage and processing without great impact to their bottom line. Users of solvents, including both small and large businesses, accept the risk of use and storage without a second thought.

Furthermore, ASTM provides specifications for the reuse of solvents and thus, by implication, does not appear to take issue with the use of these recycled wastes, despite their classification as hazardous wastes when disposed.[22] If risk and environmental impact were taken into account, there is far more reason for solvent recyclers to be driven from this enterprise than concrete and wallboard manufacturers.

F. Catalyst from Petroleum Refining Are Almost Universally Reclaimed

Prior to the enactment of RCRA and the 1986-90 Land Disposal Restriction Program, large volumes of catalysts used in the refining process were simply land-disposed, rather than reclaimed.[23] Data from the 2007 BRS reveals that in 2007 81% of petroleum refining catalysts were recycled, directly contradicting the dire predictions of the petroleum industry when EPA proposed the regulation of such material. **See Table 3** above, and **Appendix B**.

The parallels between EPA's proposed regulation of CCR wastes at issue here and EPA's regulation of catalyst waste are striking. When RCRA regulation of petroleum catalysts was first proposed, the petroleum industry resisted RCRA regulation on the grounds that RCRA regulation would depress beneficial reuse and recycling, just as the electric industry has asserted that RCRA regulation would depress beneficial reuse and recycling of CCR. However, the empirical evidence is that RCRA regulation of

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[22] **See**, for example, ASTM Volume 15.05, Engine Coolants, Halogenated Organic Solvents and Fire Extinguishing Agents; Industrial and Specialty Chemicals, http://www.normas.com/ASTM/BOS/volume1505.html. **See** also ASTM D5396 - 04 Standard Specification for Reclaimed Perchloroethylene, http://www.astm.org/Standards/D5396.htm.

[23] Personal communication with former executives of Duratherm, a leading petroleum residuals recycling firm.

petroleum catalysts has had just the opposite effect, and has instead driven reuse and recycling to 81 percent, directly contradicting the dire and predictions of the petroleum industry.

G. Lead Acid Battery Recycling -- No Longer a Leading Cause of Superfund Sites

In a 1992 survey, battery reclamation sites were the 4th leading cause of recycling-related Superfund sites identified in that survey.[24] Today, however, as the data from Table 3 reveals, 93% of lead acid batteries were being reclaimed rather than disposed of (**See Table 3**). This is due in no small part to the transformation in management practices for lead acid battery reclaimers brought about by the imposition of RCRA regulations throughout the 1980's and 90's.

H. RCRA Requirements Or Procedures Are Not An Impediment To Recycling Markets Or Market Entry

As the above examples demonstrate, RCRA has a stimulating effect on beneficial reuse and recycling. Time and again, recycling and reuse have increased dramatically after wastes become RCRA regulated, for the reasons identified above.

Moreover, the entities that are actually participating in the recycling and reuse markets of materials that have already been regulated under RCRA do not assert that RCRA regulations are unduly burdensome, onerous, or an impediment to recycling, contrary to the arguments advanced by industries when they oppose proposals by EPA to extend RCRA regulation in the first instance, such as the comments asserted in the present case in opposition to EPA's proposed regulation of CCR as a subtitle C waste. In the only survey ever conducted on this question, only 7 percent of the facilities surveyed identified RCRA permitting, manifesting or financial responsibility requirements as the impediment to market entry.[25] Good recycling is its own incentive, and should not have to be subsidized by sub-standard regulatory controls.

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[24] "RCRA's Recycling Loopholes," EDF/HWTC, April, 1992. Submitted at the hearing of the House Energy and Commerce Committee on Sham Recycling, April, 1992.

[25] U.S. EPA, 1993 RCRA Biennial Report, Exhibit 3-11, based on 1988-1989 data. This data was collected long after RCRA corrective action and permitting requirements were in effect.

III. USE AND/OR RECYCLING OF RCRA HAZARDOUS WASTES IS FLOURISHING IN THE CONSUMER/RESIDENTIAL SECTORS AS WELL

A. Background

In much the same way that RCRA regulation has seen dramatic increases in industrial recycling/reuse of a regulated substance, the history of RCRA regulation shows increasing rates of use and recycling of RCRA regulated substances in the consumer/residential sectors as well. This indicates that RCRA's regulation of the substance does not stigmatize it and/or reduce its use/recycling, regardless of whether the use and recycling is in the industrial, commercial or residential sectors. Examples of this trend are discussed in greater detail below.

B. Use And Recycling of Mercury Lamps Has Been Unaffected by RCRA's Hazardous Waste Listing. Demand for CFL's Is Flourishing

Mercury lamps have been regulated as hazardous since 1980 pursuant to the initial RCRA regulatory program, and were further subject to the Land Disposal Restriction Program in the late 1980s. Neither of these promulgations in any way diminished demand for mercury-containing fluorescent lamps. If anything, demand for high efficiency or compact florescent mercury-containing lamps (CFLs) has flourished, as has the recycling and reuse of these lamps. As **Table 2** above indicates, in 2007, approximately 814,000 tons of mercury lamps were recycled as "hazardous waste."

Indeed, mercury lamps represent one of the most commonly occurring household hazardous wastes generated. Increasingly lamp manufacturers as well as retail stores are instituting take-back programs to collect and recycle yet additional volumes of mercury lamps generated at the household level. The fact that these materials, once their useful lives are past, are regulated as "hazardous waste" has in no way deterred, and in fact has accelerated, the purchase of these products and the responsible recycling of spent mercury fluorescent lamps. The increasing rates of purchase, use, and subsequent recycling of a RCRA regulated substance in residential and commercial applications refutes the assertion by industry that RCRA regulation would stigmatize CCR and depress its beneficial reuse/recycling by consumers.

C. "Stigma" Never Affected Saccharin

For many years saccharin, clearly a consumer product, and its salts have been listed as a hazardous waste under RCRA, Waste Code U202. Saccharin was listed as a hazardous waste due to the determination by EPA's Carcinogen Assessment Group was that it was a potential human carcinogen. Listing saccharin as a "hazardous

waste" on the "U" list of waste has meant that since 1980 the disposal of saccharin as a pure product must occur in accordance with hazardous waste regulations.[26]

Despite its many years of regulation as a hazardous waste, there was no apparent stigma from RCRA's hazardous waste listing that was in any way distinguishable from broader public concerns regarding saccharin's carcinogenic potential. Indeed, saccharin continues to be important for a wide range of low-calorie and sugar-free food and beverage applications.[27] In fact, in its public discussion of its petition to remove saccharin from RCRA's list of hazardous waste, the Calorie Control Council (CCC) makes no mention whatsoever of the stigmatic effects of the RCRA listing on the use of saccharin as a consumer product.

D. Other Household Chemical Products--No Stigma Here

In addition to saccharin, there are numerous other commonly encountered household and personal care chemicals that have been listed as "hazardous" under RCRA since 1980, and yet which consumers readily purchase. These include, for example: acetone (U002), or nail polish remover; 1-butanol (U031), a compound which has many uses including a flavoring ingredient in a wide range of foods; and methyl alcohol or methanol (U154), the most common additive to gasolines and something which is encountered by the typical consumer on an almost weekly basis. In fact, the most recent BRS data for 2007 shows that these and other commercial chemical products are also being recycled as well.

Despite being listed as hazardous waste, for the last thirty-plus years, there is no evidence whatsoever that the consumer has attached any "stigma" to the use of these products either in the car, in the home, or on their own person. Nor is there any evidence that suggests that CCR, if regulated as a hazardous waste under RCRA, would be treated any differently by the consumer than, for example, nail polish remover.

E. Do-It-Yourselfer Used Oil Collection–Stigma Takes a Holiday

Several states have established targeted programs for the collection of do-it-yourselfer (DIY) used oil collection. California, which lists used oil as "hazardous," has been a leader in championing used oil collection from do-it-yourselfers as it has one of the best tracking and management systems in the country. California's ability to measure what

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[26] As a result of recent determinations by the National Toxicology Program that saccharin is not reasonably expected to be a human carcinogen, EPA has proposed to remove saccharin from the "U" list of wastes. www.epa.gov/osw/hazard/wastetypes/wasteid/saccharin/faqs.htm

[27] www.caloriecontrol.org/sweetners-and-lite/sugar-substitutes/saccharin

is happening with used oil and why is the nation's most effective do-it-yourselfer used oil programs.[28]

The California program promotes curbside collection and includes state certified collection centers and local government and state-wide education and information efforts. The program is funded by a fee ($0.04 a quart) on lubricating oil. Grants are available to local governments as an incentive to recycle. In physical year, 2005 - 2006, approximately 7.8 million gallons of used oil were collected from do-it-yourselfers over 2500 collection sites in California, the most of any state in the nation.[29]

Thus, despite listing used oil as a hazardous waste and widely publicizing its status as a hazardous waste, California has not only developed a robust state-wide collection program from all used oil generators as discussed in greater detail in **Section IV** below, but moreover, has succeeded in targeting the DIY market unlike any other state in the nation. In short, listing used oil as a hazardous waste in California, has done nothing to "stigmatize" or discourage the purchase and recycling of oil.

F. The American Consumer Has Shown Growing Sophistication in Understanding Hazardous Material Threats in the Home and Is Increasingly Engaging in Proper Management of These Materials

The American consumer has demonstrated increasing sophistication in understanding the breadth and depth of hazardous materials contained in the typical household. Consumers are well aware that a wide range of household cleaners, automotive products, toner cartridges, mercury lamps, batteries, pharmaceuticals, paints, and home maintenance chemicals contain a wide variety of hazardous substances which much be managed properly.

This awareness is attested by the dramatic growth in household hazardous waste collection programs throughout the nation. In fact, EPA issued its first manual to guide communities in establishing household hazardous waste collection programs in 1993.[30] Since 1993 states, counties, and commercial management firms have established broad-ranging household hazardous waste collection programs for a wide range of

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[28] Arner, Robert, "2006 Used Oil Recycling In America," Presented Before the 22nd International Conference on Solid Waste Technology and Management, March, 19, 2007, p. 4, www.robarner.com/usedoil.html.

[29] Arner, Robert, "2006 Used Oil Recycling In America," Presented Before the 22nd International Conference on Solid Waste Technology and Management, March, 19, 2007, p. 3, www.robarner.com/usedoil.html.

[30] U.S. EPA, Office of Solid Waste and Emergency Response, "Household Hazardous Waste Management," EPA 530-R-92-026, August, 1993.

household hazardous waste, many of which are in fully concentrated form, or are not encapsulated or bound-up to prevent contaminant release.

In fact, interviews with leading commercial waste management firms indicate that: 1) over the past 15 years all major firms have established separate programs or divisions dedicated to household hazardous waste collection; and, 2) the trends in household hazardous waste collection has been "dramatic" since the early 1990's. Most firms experienced a 4% yearly increase in household hazardous waste collection since 1995, for an overall increase of approximately 60% over this period.[31]

The assertion that consumers will shun any products employing coal combustion residuals (CCR), even those such as cement or wallboard which are encapsulated uses of CCR, because of an alleged stigma associated with treating disposed CCR wastes as hazardous is simply untenable. All available evidence points to the fact that consumers purchase, properly manage, and are increasingly recycling full strength, non-encapsulated chemicals found throughout the home, workshop and garage – including chemicals subject to regulation under RCRA.

[31] Interviews with sales managers of various commercial waste management firms.

IV. CALIFORNIA'S USED OIL RECYCLING PROGRAM, WHICH LISTS USED OIL AS A HAZARDOUS WASTE, HAS A HIGHER BENEFICIAL REUSE RATE THAN THE FEDERAL PROGRAM WHICH, WITH LIMITED EXCEPTIONS, DOES NOT LIST USED OIL AS HAZARDOUS

Perhaps the most striking evidence that listing a used material as a hazardous waste does not stigmatize that material and depress its reuse – even when that material is a consumer product used in residential contexts – is California's used oil program. California classifies used oil as a hazardous waste.[32] Meanwhile, the volume and rate of used oil recycling in California has increased virtually every year from 1995 through 2005, the last year for which complete data is available. **Table 7** depicts these trends in terms of the volume and rate of used oil recycling in the State. In 2005, California recycled used oil at a 59% rate. However, in reviewing the table, it is important to note -- for comparison with federal used oil reuse rates -- that the reuse rates expressed in **Table 7** do not include burning used oil for energy recovery as a form of recycling/reuse. The State estimates that, if one includes used oil that is recycled/reused by burning for energy recovery, California's reuse rates would increase by another 20 to 40 percent of total used oil volume. Thus, in 2005, if one includes burning used oil for energy recovery, the recycling/reuse rate would be at least 79% and potentially much higher.

TABLE 7: California Used Oil Recycling Rates 1995-2005+++

	1995	1997	1999	2001	2003	2005
Lube Oil Sales+ (M gal)	140.8	137.5	150.0	163.6	150.2	153.3
Lube Oil Recycled (M gal)	54.6	60.9	76.9	81.9	83.7	91.3
Recycling Rate++	39% (59%)	44% (64%)	51% (71%)	50% (71%)	58% (78%)	59% (79%)

\+ Reflects only volumes of lubricating oils, not industrial oils.

++ Lube oil recycling rate does not account for oil that is burned or spilled during use which is estimated at 20-40%. Figures in parenthesis ( ) represent the addition of the low end of this 20-40% range to the documented recycling rate.

+++ Calrecycle, "Used Oil Recycling Rate Annual Report: 2005," www.calrecycle.ca.gov/usedoil/RateInfo/

In comparison, the Federal RCRA program does not list used oil as a hazardous waste. Notably, as **Table 8** reveals, in 1992, approximately 1.35 billion gallons of used oil were generated in the U.S., of which only approximately 63 percent or 850 million gallons were recycled (this figure does include recycling through burning for energy

[32] American Petroleum Institute, Used Motor Oil, Frequently Asked Questions, 2010, www.recycleoil.org/faqs/index.html

recovery – in fact, the vast majority -- 90 percent -- was recycled by burning for energy recovery).[33]

Fourteen years later, the Department of Energy conducted a survey of the used oil generation and management methods and determined that in 2006, 1.37 billion gallons of used oil was generated of which approximately 780 million was used as a fuel, 165 million was re-refined, for a total recycle rate of only about 69% – while the remaining 426 million gallons were annually disposed of in landfills or improper locations.[34]

TABLE 8: Used Oil Management Trends in the U.S. 1992- 2006

Year	Total Volume Generated (Gallons) (1) *	Total Volume Recycled (Gallons) (2) **	Volume Burned Fuel (Gallons) (3)	Volume Re-Refined (4)	Total Volume Disposed (5)	Total Recycle Rate (6) ***	Re-Refining Rate (7) +
1992	**1.35 B**	**850 M**	765 M	85 M	**500 M**	63%	6.3%
2006	**1.37 B**	**945 M**	780 M	165 M	**426 M**	69%	12.0%

* Column (1) = Columns (2) + (5)
** Column (2) = Columns (3) + (4)
*** Column (6) = Column (2) ÷ Column (1)
\+ Column (7) = Column (4) ÷ Column (1)

Thus, at the very least, the California Used Oil Recycling/Reuse Rate -- including burning – is substantially greater (at least 79% and potentially as high as a 99% recycling rate) than that which is occurring on a national basis (69%), despite, and most likely because of the fact that the material is listed as a "hazardous waste" in California.

Just as important for present purposes is that the "hazardous" material at issue is being reused in a consumer product purchased retail for commercial and residential applications, such as personal automobile use. The experience in California therefore indicates that consumers will in fact purchase consumer products derived from a waste listed as "hazardous" – they do it each time they purchase oil for their cars that has been through the recycling process.

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[33] Used Oil Recycling Markets and Best Management Practices In The United States," Presented To The National Recycling Congress, Boston, Massachusetts, October 27, 1992, p. 50.

[34] U.S. Department of Energy, "Used Oil Re-Refining Study To Address Energy Policy Act Of 2005, Section 1838, " 2006, p. 5-1.

This is affirmative evidence that "stigma" has not attached to the used oil recycling industry in California to deter or diminish the willingness of retail consumers to purchase consumer products containing that "hazardous" material. To the contrary, they readily purchase oil that was recycled – that is, oil that was derived from a listed hazardous waste (used oil), and that they then recycle again. If anything, the State's "hazardous waste" based used oil recycling program has resulted in even more robust recycling program than one sees on the national level.

V. INDUSTRIES' ARGUMENTS THAT RCRA REGULATION WILL REDUCE BENEFICIAL REUSE AND RECYCLING ARE UNFOUNDED AND UNORIGINAL

A. Background

In the context of the pending coal combustion residuals (CCR) rulemaking, opponents of EPA's proposed approach have argued that listing of any coal combustion residuals as "hazardous waste" under RCRA will reduce the beneficial reuse and recycling of material. To this end, opponents have asserted that, for example, applying the label of "hazardous" to a material will create an adverse public perception or "stigma" that will reduce the public's willingness to purchase products made from the material.[35] They have also asserted that regulating a material under RCRA will result in such additional regulatory burdens that industry will not be willing to recycle the material, or that the recycled product will be disadvantaged or "stigmatized" by virtue of higher production costs due to RCRA compliance requirements. These arguments are referred to variously as "stigma" and/or "regulatory burden" type arguments, the essence of which is that regulating a material as "hazardous" under RCRA will inherently discourage its use particularly in recycling applications.

In this rulemaking, opponents of listing CCR wastes under subtitle C assert both types of arguments. For example, the American Coal Ash Association (ACAA) has asserted that listing CCR wastes under Subtitle C would result in an adverse public perception and an unwillingness to use the product and depress beneficial reuse and recycling of the product.[36] Similarly, the National Ready Mix Concrete Association (NRMCA) has argued that listing CCR wastes under Subtitle C would result in significant additional regulatory burdens that would depress beneficial reuse.[37]

As discussed above, empirical data over the last thirty years of RCRA rulemaking demonstrates the fallacy of Industry's arguments that RCRA regulation will depress

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[35] EPA has made several attempts over the years to address the "hazardous waste" label aspect of the "stigma" argument, but to no avail. While most proponents of recycling-related stigma assert that it is only the "hazardous waste" label that they object to; in reality it is the substantive requirements for hazardous waste facilities that are frequently the source of their objection. **See Appendix B**; Statements of API (1983), Cadence (1986), Lafarge (1987), and Horseheads (1995).

[36] See Webinar conducted by Citizens for Recycling First, ACAA, NRMCA, and NPCA on August 19, 2010, concrete_products_webinar__81910.pdf. **See** in particular the presentation of ACAA.

[37] See Webinar conducted by Citizens for Recycling First, ACAA, NRMCA, and NPCA on August 19, 2010, concrete_products_webinar__81910.pdf. **See** in particular the presentation of NRMCA complaining that as a result of the RCRA listing of CCR, states would establish stricter management laws. **See** also transcript of August 30, 2010, EPA Public Hearing on the Proposed CCR Rule in which industry witnesses discussed the "burdensome" nature of RCRA's regulatory requirements in the event of a Subtitle C listing and the potentially costly impact on their recycled product.

beneficial reuse and recycling. Beneficial reuse and recycling has increased after a material is regulated under RCRA Subtitle C. Direct comparisons between markets where the same or similar material is regulated as hazardous in one, and not regulated as hazardous in the other – examples such as electric arc furnace dust and used oil – demonstrate that the beneficial reuse/recycling/reclamation of the material is higher in those areas where the material is regulated as a hazardous waste. Indeed, to a large extent, many recycling markets would not exist, but for hazardous waste regulations [**See Section II** above].

What makes industry's argument even more untenable in this case is that EPA is not, in fact, proposing to list as hazardous CCR that is beneficially reused. To the contrary, EPA is only proposing to list CCR as hazardous if, and when, it is disposed of. Not only does this negate the argument that EPA's proposal to regulate CCR will result in an adverse public perception or stigma – because, in fact, no "hazardous" label will be applied to reused CCR–but moreover, it creates an even stronger incentive for industry to reuse the materials and not dispose of it as waste. Industry's efforts to stretch the stigma argument to CCR material that will not even be labeled as hazardous is both unprecedented and absurd. Usually "stigma" is a self-serving smokescreen to preserve an unregulated status quo. In this case utilities are attempting to avoid RCRA regulation of their disposal practices which, based on science and risk, is indefensible. Therefore, they have tried to move the argument away from disposal to the purported negative impact on beneficial use by arguing "stigma."

The balance of this section: 1) tracks industry's repeatedly false assertions over the last 30 years that RCRA regulation will depress beneficial reuse and recycling; and, 2) provides information as to what actually happened when the materials were regulated. Not once have claims of stigma ever been realized in the hazardous waste marketplace. Industry's claims in this regard are nothing short of RCRA's equivalent of the "boy crying wolf." **Section C** below and **Appendix B** provide detailed examples of the false claims of "stigma" over the past 30 years – claims which are both unfounded and unoriginal.

B. Even Opponents Of Subtitle C Regulation of CCR's Acknowledge That Beneficial Reuses of Fly Ash Will Be Largely Unaffected by the Rule. Promises of Better Management Practices Are 30+ Years Old

1. The August, 2010 Industry Webinar

On Friday, August 19, 2010, a consortium of groups opposed to the regulation of CCR under Subtitle C conducted a "webinar" under the auspices of a group entitled, "Citizens For Recycling First," chaired by John Ward. This Webinar produced some interesting, if not ironic results. Presentations were made by the following groups: Citizens For Recycling First, ACAA (American Coal/Ash Association), the NRMCA (National Ready Mixed Concrete Association), and the NPCA (National Precast Concrete Association).

Both the NRMCA and NPCA conducted surveys of their members regarding the impact of a Subtitle C listing of disposed of CCR residuals. In response to a question from the NRMCA to its membership regarding whether they would continue to use fly ash in their products if CCR's were listed as a Subtitle C waste when disposed, 69 percent responded affirmatively.[38]

In addition, in response to a question from the NPCA to its membership, 84 percent of surveyed participants indicated they would still use fly ash even if the EPA designated it as a Subtitle C hazardous waste.[39]

2. March, 1979 Comments of the National Ash Association

Assertions regarding the recyclable nature of fly ash and assurances by ash generators to regulate themselves date back to 1979. Ironically, in 1979 the National Ash Association in its comments on the very first RCRA rulemaking stated:

> "Power plant ash is becoming available in greater quantities in more locations across the country, the quality is improving, and acceptability continues to increase. We are dealing with a recoverable resource and not a discarded material. . . .What we are really trying to point out is that the ash industry has demonstrated the capability of initiating an effective ash management program . . . ."[40]

Thirty years later, 64% of coal combustion residual (CCR) is still simply being disposed of in landfills, surface impoundments or caves and mines, rather than recycled.[41] Damage incidents from improper disposal, and some recycling operations continue to mount.[42] The utility industry has failed to institute any industry-wide minimum standards of practice to prevent damage as such has occurred at the TVA. Properly regulated CCR, which will put a higher price on disposal, will provide the economic incentives needed to increase, not decrease, the recycling of fly ash, and reverse this 30+ year pattern of excessive dependence on sub-standard landfills, lagoons and piles.

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[38] "Coal Ash as Hazardous Waste," NRMCA response, Lionel Lemay, Senior Vice President Sustainable Development, Presentation At Industry Webinar, August 19, 2010, p. 14.

[39] Presentation of National Precast Concrete Association, Claude Goguen, Director of Technical Services, Industry Webinar, August 19, 2010, p. 9.

[40] RCRA Docket EPA-HQ-RCRA-1980-002, Docket ID # A-D1-TT-01000, pp. 1 - 2.

[41] **See** 75 **FR** 35128, 35151 (June 21, 2010); CCR Proposed Rule.

[42] Stant, Jeff, "Out of Control: Mounting Damages from Coal Ash Waste Sites," Environmental Integrity Project and Earth Justice; Feb. 24, 2010.

C. What They Said About "Stigma" and What Really Happened in the Marketplace

In order to examine the veracity of "stigma" claims attributable to recycling-related regulations under RCRA, a thorough review of major RCRA recycling-related rulemakings since 1979 was conducted. These assertions were then compared with what actually happened in the hazardous waste marketplace regarding the recycling practices in question. In short, this analysis reveals that claims of "stigma" associated with recycling-related rulemakings under RCRA are wholly unfounded and baseless. Not once have any of these claims come to pass. Not only are these claims untrue, but in many cases the exact opposite result was witnessed in the marketplace compared to the contentions of the industry.

Immediately below, four examples of "stigma" claims that closely approximate the ones being made in the CCR rulemaking are contrasted with what actually happened in the hazardous waste marketplace.

1979 – Phoenix Cement Company: In commenting on EPA's first proposed RCRA regulation, which would have potentially regulated some forms of recycling including burning hazardous waste for energy and/or materials recovery, Phoenix Cement in their comments stated as follows:

> "Instead, the harsh 'cradle to grave' regulations that are proposed by EPA would impose regulatory costs and administrative burdens that will permanently discourage producer interest in recycling. . . .Also, individuals, private industry and governmental agencies will totally avoid any items carrying the 'hazardous waste' label even if the application is termed environmentally safe."[43]

Subsequently, EPA regulated burning hazardous wastes for recovery. Today, burning hazardous waste in cement kilns for energy and/or materials recovery is a major method of thermal processing of hazardous waste, despite a series of strict operational and MACT emission control standards issued throughout the 1980's, 1990's, and 2000's. In 2007, approximately 1.1 million tons of hazardous wastes are burned in commercial cement kilns compared to 0.6 million tons burned in commercial incinerators.[44] Clearly industry's assertion that stricter recycling rules would "permanently discourage" burning for recovery proved false.

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[43] RCRA Docket EPA-HQ-RCRA-1980-002; Docket ID #: A-D1-TT-01120, p. 2. Comments of the National Ash Association, Marcy 14, 1979.

[44] 2007 National Biennial RCRA Hazardous Waste Report. **See** also www.epa.gov/epawastes/hazard/tsd/td/combustion.htm.

1983 – Cadence Chemical Resources (CCR): In a 1983-85 rulemaking to revise RCRA's "Definition of Solid Waste," extending RCRA jurisdiction to many previously exempt recycling practices, including fuel blending and burning for energy recovery, Cadence Chemical stated: "To label the primary result of such effort [fuel blending to produce a hazardous waste-derived fuel] as 'waste" or employing a euphemism such as 'regulated recyclable materials' as is done in Proposed Section 261.6, would be a significant disincentive for future development of bonafide recycling of energy-bearing residuals. This is because designating residual-derived products as 'waste' or 'regulated recyclable materials' would exacerbate the already negative and highly volatile public perception of such materials."[45]

EPA moved forward with its regulations and again industry's dire predictions that EPA's proposed regulations would depress beneficial use proved false. Despite a series of increasing stringent regulations on fuel blending and burning for energy recovery throughout the 1980's and 1990's, by 2007 burning for energy recovery combined with blending of waste-derived fuels emerged as the dominant method of hazardous waste recycling, accounting for 2.5 million tons of hazardous waste managed in 2007.[46]

1985 – Halogenated Solvents Industry Alliance (HSIA): The HSIA, which represented most of the largest chemical companies in the country, opposed EPA's 1985 attempt to establish a stopgap measure to distinguish between burning for energy recovery, which was unregulated at the time, and incineration which was fully controlled. The proposal stated that burning any waste materials with less than 4,000 BTUs per pound would be deemed to be "burning for destruction" and would be regulated as incineration until such time as formal and comprehensive standards for burning hazardous waste in boilers and industrial furnaces (BIFs) were proposed in 1987 and issued in the 1991.[47] In proposing these standards for burning some of the most toxic and potentially carcinogenic solvents, (i.e., perchloroethylene, trichloroethylene and chloroform), the HSIA grabbed for a familiar argument, "stigma":

> "The labeling of these blended fuels as 'hazardous waste fuels' is not only unnecessary, but counterproductive to encouraging this beneficial and effective means of reducing or eliminating any risk that might be related to other disposal."[48]

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[45] RCRA Docket: EPA-HQ-RCRA-1985-006; Docket ID#: A-DW-16-00003; p. 21.

[46] The National Biennial RCRA Hazardous Waste Report, 2007, Exhibit 2.5. Combination of Fuel Blending and Energy Recovery volumes. Combined Volume is the largest of any recycling method surveyed in the 2007 Biennial Report.

[47] 56 **FR** 7208 (Februrary 21, 1991). The original Boiler and Industrial Furnace Rule (BIF Rule); Final Rule.

[48] RCRA Docket: EPA-HQ-RCRA-1985-0002, Docket ID#: BWOF002, Slide 1337, p. 3

Once again, industry's arguments proved false. The solvent manufacturing and recovery industries were affected by numerous RCRA rulemakings throughout the 1980's, including the BIF rule. Despite these regulations, both energy recovery and solvent recovery are flourishing. According to the 2007 Biennial Report there were 456 separate solvent recovery facilities, accounting for 32.7% of all RCRA hazardous waste management facilities in existence. Moreover, given the fact that a relatively smaller total volume of hazardous waste (i.e., 329,000 tons) are managed via "Solvent Recovery" indicates that many of the 456 facilities engaging in the recovery of this 329,000 tons of solvent are relatively small recovery operations. Apparently, even small recycling operations are not "stigmatized" by RCRA's regulatory requirements.[49]

1996 – American Petroleum Institute (API): In 1995, EPA proposed to list various refinery residuals as hazardous waste, including several spent catalysts the refining process. 60 **FR** 57747 (Nov. 20, 1995). Virtually without exception every member of the petroleum industry predicted that listing spent catalysts would discourage if not fully undermine recovery of these catalysts. Along with BP, Exxon Mobil and others, the trade association for the petroleum industry, the American Petroleum Institute, invoked "stigma" once again:

> In addition, listing of these residuals could actually discourage additional or innovative recycling/reclamation practices. . . Designating these materials as listed hazardous waste would discourage existing recycling and further increase the costs of recycling relative to disposal.[50]

This did not happen. In fact, In 2007, over 80% of refinery catalysts that were listed as hazardous under RCRA were recycled, not disposed.[51] **Appendix B** chronicles the many additional, and amiss, claims of "stigma" in RCRA rulemakings beginning in 1979.

D. Even Major Proponents of "Stigma" Such as the Cement Industry Acknowledge that this Factor Plays No Role in Business Decision Making

One of the most frequent advocates of "stigma" in recycling-related rulemakings has been the cement industry. Since 1979, the cement industry has been asserting "stigma" virtually whenever EPA has proposed to regulate any aspect of its operations involving the burning of hazardous waste for either energy or materials recovery.[52] In

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[49] 2007 RCRA Biennial Report, Exhibits 2.6 and 2.7.

[50] RCRA Docket: EPA-HQ-RCRA-1995-0058, Docket ID#: F-95-PRLP-00046, pp. 2, 101.

[51] **Table 3** above, 2007 RCRA Biennial Report Survey Database.

[52] See **Appendix B**, comments of Phoenix Cement, Portland Cement Association, Lafarge Corporation, and Cadence Chemical.

the pending CCR rulemaking the cement industry has resurrected the "stigma" stalking horse once again.[53] In fact, it is difficult to find a RCRA rulemaking of any kind where someone in the cement industry didn't summon a claim of "stigma."[54]

For the record, not one of these many claims of "stigma" by the cement industry has ever been realized. Even when commercial hazardous waste incinerators, which compete with cement kilns in the hazardous waste combustion marketplace, tried to "stigmatize" the cement produced by plants that burn hazardous waste as a fuel, there was no perceptible marketplace impact whatsoever from these efforts. If anything, there was a backlash against the incinerator consortium.

Moreover, when cement kilns have announced decisions to cease burning hazardous waste fuels in some of their facilities, "stigma" is never mentioned as a reason for ceasing this hazardous waste management practice. While some cement kilns have cited the MACT standards and their related compliance costs as a basis for ceasing to burn hazardous waste, stigma has never been mentioned. If "stigma" were as potent a force as the cement industry repeatedly contends, one would expect that they could produce a bounty of press releases, customer letters, supplier letters, and/or SEC 10-K filings that identified "stigma" as the basis for ceasing their recycling activities. Such releases and filings do not exist because "stigma" has never played such a role.

For example, this past summer TXI, formerly known as Texas Industries, announced that it would close four of its oldest cement kilns and stop burning hazardous waste fuel altogether.[55] A TXI company spokesperson stated that the decision was "based on its desire to boost efficiency in preparation for a recovery in the North Texas construction market." The TXI spokesperson even went so far as to say that new impending Federal MACT rules governing toxic air emissions from [non-hazardous waste burning] cement kilns did not contribute to the decision. Thus in this case there was "no stigma" from the CCR rule, not even an impact from pending Clean Air Act (MACT) regulations; simply a desire to boost overall production efficiency.

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[53] Letter from Richard Stoll to Matt Hale, "Concerns over 'Stigma' for Coal Combustion Products," August 7, 2009.

[54] In addition to the various rulemakings identified in **Appendix B**, the Cement Industry also raised the specter of "stigma" when EPA proposed to regulate cement kiln dust (CKD) as "hazardous" under RCRA. 64 **FR** 45632 (Aug. 20, 1999); Proposed Rule. 67 **FR** 48648 (July 25, 2002); NODA. RCRA Docket ID: F-1999-CKD-FFFFF. See also Kelly, Kathryn, "Is CKD Hazardous to Your Health," Cement Americas, March 1, 2000.

[55] "TXI to Shut Four Older Cement Kilns, Quit Burning Hazardous Waste," The Dallas Morning News, July 7, 2010; www.dallasnews.com.

E. "Stigma" Under RCRA Is Illegal

In 1986 EPA issued a final decision not to list recycled oil as hazardous waste because the stigmatic effect of such a listing would discourage recycling.[56] Despite its own report indicating that certain types of used oil should be listed as hazardous waste because of various toxic constituents, EPA failed to act on its own determinations. As a result in the 1984 HSWA, Congress adopted Sections 241-242 requiring EPA to decide within a specified time whether to list used oils as hazardous.

EPA's decision not to list used oil because of "stigma" was challenged by The Hazardous Waste Treatment Council (HWTC),[57] petroleum refining organizations and the Natural Resources Defense Council. In its opinion, the Court ruled unanimously, stating tersely that:

> The EPA erroneously based its decision not to list recycled oils as hazardous waste on the stigmatic effects of such a listing, a factor not permitted by the statute.[58]

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[56] 51 **FR** 41900 (November 18, 1986), Used Oil Listing; Final Rule.

[57] I was the Executive Director of the HWTC at the time.

[58] 861 F.2d 270 (D.C. Cir. 1988), *Hazardous Waste Treatment Council v. EPA* (HWTC I). Used Oil Recycling Litigation.

APPENDIX A

I. QUALIFICATIONS

A. Overall Experience

I have over 30+ years experience in developing and implementing waste management policies involving solid, hazardous and radioactive wastes. I have developed key legislative provisions, implemented them for nearly 30 years, and witnessed firsthand regulated industry's response to statutory and regulatory directives of RCRA and CERCLA and the Clean Water Act (CWA). I have testified at over 20 Congressional hearings; organized eight other hearings while serving on the House Energy and Commerce Committee Staff; organized 12 national and regional conferences on hazardous waste policy and technology issues since 1984; and, been admitted as a RCRA/CERCLA and industry practices expert in Federal and State court and in an EPA Administrative Law proceeding.

I was a principal architect of the cornerstone elements of the 1984 Hazardous and Solid Waste Amendments (HSWA), including the "hammer" provision[59] as well as Corrective Action, the Land Disposal Restriction, and Burning and Blending Provisions. I led the nation's leading association of technology-based waste management firms, the Hazardous Waste Treatment Council (HWTC), for 11 years. HWTC members included hazardous waste incinerators, cement kilns, fuel blenders and other major solvent and metal-bearing waste recyclers. In addition, I authored a book on RCRA and the 1984 HSWA Amendments with a forward by Sen. John Chaffee, the Floor Manager of the HSWA, and co-authored by Dave Lennett, Chief RCRA Attorney for the Environmental Defense Fund (EDF) at the time. Other accomplishments include:

- As Executive Director of the HWTC, was involved in 10+ legal challenges to EPA and State interpretations of RCRA/CERCLA provisions, including a challenge which secured HSWA's "technology-based" treatment standards;[60]

- Submitted over 100 comments to Federal and State Agencies on RCRA, CERCLA, TSCA, and CWA proposed regulations;

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[59] RCRA: The Birth of the Hammer," The Environmental Forum, Environmental Law Institute, Washington, Vol. 7, No. 5, September/October 1990, p. 18.

[60] 62 **FR** 26041, 26058-60, (May 12, 1997), Land Disposal Restrictions Phase IV; Final Rule. "To satisfy RCRA Section 3004(m), EPA has chosen to promulgate treatment standards based on performance of 'best demonstrated available technology' (BDAT), **See** 51 **FR** 40,572, 40,578, (Nov. 7, 1988); provided such standards are not established at a point beyond which threats are minimized. **See** *Hazardous Waste Treatment Council v. EPA*, 886 F.2d 355, 361-66 (D.C. Cir. 1989) (upholding establishing technology-based treatment standards as a reasonable construction of RCRA section 3004(m), cert. denied, 498 U.S. 849 (1990) ('**HWTC III**')."

- Worked with over 200 commercial firms in navigating the waste management and remediation marketplaces; and,

- Conducted dozens of market studies in the thermal and other waste management sectors.

B. Specific Recycling Experience

In addition to these overall credentials, I have been involved in a number of specific regulatory, legal and investigatory projects regarding RCRA's Definition of Solid Waste and its recycling provisions. These accomplishments include:

- Worked for years to limit the exemptions from RCRA's Solid Waste Definition for various forms of recycling, especially use constituting disposal and burning for energy/materials recovery;

- Served as a RCRA regulatory and compliance Expert to the DOJ in a recent case involving a facility blending hazardous waste-derived fuels without a RCRA permit. Case involved the calculation of the economic benefit derived from illegal operation using the BEN Model and other methodologies;

- Commented on proposed Solid Waste Definition revisions since 1985;

- Filed the initial inquiry with EPA and the DOJ in 1986 on the legitimacy of Marine Shale Processors (MSP) recycling operation as head of HWTC. Our group initiated or participated in numerous administrative and legal proceedings at the Federal and State level to ensure proper enforcement of RCRA at MSP;[61]

- Filed a successful suit in 1987 to challenge EPA's decision to not list used oil based on "stigma." HWTC v. EPA (HWTC I);

- Authored numerous articles on RCRA policy and legislation including a 1988 article, "Escape from RCRA," in The Environmental Forum[62] which examined the impact of RCRA's recycling loopholes;

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[61] **See** "An Assessment of Environmental Problems Associated with Recycling of Hazardous Secondary Materials," U.S. EPA, Office of Solid Waste, Appendix 2, p. 142, RCRA Docket # EPA-HQ-RCRA-2002-0031, for chronology of MSP events. **See** also Louisiana DEQ Press Release, September 18, 2006 stating that, "DEQ does not expect that [existing settlements of $6.2 M + $850,000 Letter of Credit] will be sufficient for a full remediation and will pursue other responsible parties for the remainder of the cost."

[62] The Environmental Forum, the Environmental Law Institute, Washington, D.C., May/June, 1988, p. 30;

- Participated in EPA's Solid Waste Definition Task Force in 1990, an Office of Solid Waste's initiative to reform the Solid Waste Definition as it pertained to recycling and reuse of secondary materials, and to better define *sham recycling*;

- Issued a Report with the Environmental Defense Fund on recycling loopholes in RCRA's Solid Waste Definition that was aired at a hearing of the House Energy and Commerce Committee in 1992;

- Filed several comments and actively worked with EPA to limit the use of hazardous waste as ingredients in fertilizers, particularly K061 Electric Arc Furnace (EAF) dust; and,

- Initiated numerous inquiries regarding the legitimacy of other purportedly exempt hazardous waste "recycling" practices.

APPENDIX B

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: March 13, 1979
Company: The National Ash Association, Inc.
RCRA Rulemaking: Original RCRA "Base Program" Rulemaking. Proposed Rule, 43 **FR** 58946, (December 18, 1978); Final Rule, 45 33066 (May 19, 1980).
Recycling Practice: General reuse of power plant ash

What They Said: "Power plant ash is becoming available in greater quantities in more locations across the country, the quality is improving, and acceptability continues to increase. We are dealing with a recoverable resource and not a discarded material. . . .What we are really trying to point out is that the ash industry has demonstrated the capability of initiating an effective ash management program . . . ."
Source: RCRA Docket EPA-HQ-RCRA-1980-002, Docket ID # A-D1-TT-01000, pp. 1 - 2.

What Really Happened: In 2008, 64% of coal combustion residual (CCR) was still being disposed of in landfills, surface impoundments or caves and mines, rather than recycled. **See** 75 **FR** 35128, 35151 (June 21, 2010); CCR Proposed Rule. Damage incidents from improper disposal, and some recycling operations continue to mount. The fly ash industry failed to institute any industry-wide minimum standards of practice to prevent damage as such has occurred in the TVA incident. While this example does not purely depict a false claim of "stigma" that was undermined by subsequent EPA regulation, it is included here as an example of the consequences of Agency acquiescence to a deregulatory argument such as "stigma" or an assurance to self-police.
Source: Stant, Jeff, "Out of Control: Mounting Damages from Coal Ash Waste Sites," Environmental Integrity Project and Earth Justice; Feb. 24, 2010.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: March 14, 1979 **Company:** Phoenix Cement Company **RCRA Rulemaking:** Original RCRA "Base Program" Rulemaking. Proposed Rule, 43 **FR** 58946, (December 18, 1978); Final Rule, 45 FR 33066, (May 19, 1980). **Recycling Practice:** Burning hazardous waste for energy/materials recovery **What They Said:** "Instead, the harsh 'cradle to grave' regulations that are proposed by EPA would impose regulatory costs and administrative burdens that will permanently discourage producer interest in recycling. . . .Also, individuals, private industry and governmental agencies will totally avoid any items carrying the 'hazardous waste' label even if the application is termed environmentally safe." **Source:** RCRA Docket EPA-HQ-RCRA-1980-002; Docket ID #: A-D1-TT-01120, p. 2. **What Really Happened:** Burning hazardous waste in cement kilns for either energy and/or materials recovery as a major method of thermal processing of hazardous waste, despite a series of strict operational and MACT emission control standards issued throughout the 1980's and 1990's. For example, with regard to commercial facilities, in 2007, approximately 1.1 million tons of hazardous tons of hazardous wastes are burned in commercial cement kilns compared to 0.6 million tons burned in commercial incinerators. **Source:** 2007 National Biennial RCRA Hazardous Waste Report. **See** also www.epa.gov/epawastes/hazard/tsd/td/combustion.htm. **See** (*) at end of **Appendix B** describing methodology for calculating 1.1 m ton and 0.6 m ton volumes.
Date: December 1, 1981 **Company:** National Association of Recycling Industries, Inc. (NARI) **RCRA Rulemaking:** Definition of Solid Waste Rulemaking. 48 **FR** 14471 (April 4, 1983); Proposed Rule. 50 **FR** 614 (January 4, 1985); Final Rule. **Recycling Practice:** All recycling practices generally. **What They Said:** NARI was commenting on the EPA's 1983-85 proposal to extend RCRA jurisdiction to a broader range of recycling practices that heretofore had been excluded from RCRA. In this regard NARI stated, "In any event, it is imperative for EPA effectively to exclude recyclable and recycled materials from the definition of 'solid waste' for the following reasons..." **Source:** RCRA Docket, EPA-HQ-RCRA-1985-0006; Docket ID#: A-DW-11-00050, p. 1 **What Really Happened:** Despite extending RCRA regulation to a broad array of hazardous waste recycling practices in 1985, recycling is expansive and growing. **Source:** **See** Tables 2, 3, and 4 above.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: July 28, 1983 **Company:** Chemical Industries Council (CIC) **RCRA Rulemaking:** Proposed Definition of Solid Waste Rulemaking. 48 **FR** 14471 (April 4, 1983); Proposed Rule. 50 **FR** 614 (January 4, 1985); Final Rule. **Recycling Practice:** All recycling practice employed within the chemical industry at the time. **What They Said:** CIC commented on EPA's 1983-85 proposal to extend RCRA jurisdiction to a broader range of recycling practices that heretofore had been excluded from RCRA. Regarding EPA's proposed actions, CIC stated, "More importantly, however, we believe the EPA proposal will be a strong deterrent to recycling and will thus result in more waste being generated. The concept that recycling is a waste treatment operation places a stigma in their communities on recyclers and on those wishing to use such facilities or conduct such activities onsite incidental to manufacturing operations." **Source:** RCRA Docket: EPA-HQ-RCRA-1985-0006; Docket ID#: A-DW-2-XXXXX, Frames 0598-0602, p. 2. **What Really Happened:** In 2007 only 4 of the 563 RCRA waste codes reported no recycling activity for that reporting year. Over 99% of RCRA waste codes reported at least some level of recycling during the 2007 biennial reporting period. **Source:** **See** Table 4 above.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: August 1, 1983
Company: Cadence Chemical Resources, Inc.
RCRA Rulemaking: Definition of Solid Waste Rulemaking. 48 **FR** 14471 (April 4, 1983); Proposed Rule. 50 **FR** 614 (January 4, 1985); Final Rule.
Recycling Practice: Fuel blending/burning for energy recovery

What They Said: In a 1983-85 rulemaking to revise RCRA's "Definition of Solid Waste," extending RCRA jurisdiction to many previously exempt recycling practices, including fuel blending and burning for energy recovery, Cadence Chemical stated: "To label the primary result of such effort [fuel blending to produce a hazardous waste-derived fuel] as 'waste" or employing a euphemism such as 'regulated recyclable materials' as is done in Proposed Section 261.6, would be a significant disincentive for future development of bonafide recycling of energy-bearing residuals. This is because designating residual-derived products as 'waste' or 'regulated recyclable materials' would exacerbate the already negative and highly volatile public perception of such materials."
Source: RCRA Docket: EPA-HQ-RCRA-1985-006; Docket ID#: A-DW-16-00003; p. 21.

What Really Happened: Despite a series of increasing stringent regulations on fuel blending and burning for energy recovery throughout the 1980's and 1990's, by 2007 burning for energy recovery combined with blending of waste-derived fuels was the most dominant method of recycling by volume, accounting for 2.5 million tons of hazardous waste managed in 2007, or more than any other method of recovery/recycling identified by the Biennial Report Survey.
Source: The National Biennial RCRA Hazardous Waste Report, 2007, Exhibit 2.5.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: August 2, 1983 **Company:** American Petroleum Institute (API) **RCRA Rulemaking:** Proposed Definition of Solid Waste Rulemaking. 48 **FR** 14471 (April 4, 1983); Proposed Rule. 50 **FR** 614 (January 4, 1985); Final Rule. **Recycling Practice:** Petroleum waste recycling **What They Said:** API was commenting on the EPA's 1983-85 proposal to extend RCRA jurisdiction to a broader range of recycling practices that heretofore had been excluded from RCRA. In this regard API stated, "In order to mitigate the impact on recycling activities, EPA has designated 'hazardous waste' that are used, reused or reclaimed as 'regulated recyclable materials'. We oppose this approach for several reasons. First, the impact of recycling will be significant regardless of the new title EPA gives these materials because they would be subject to potentially expensive regulatory requirements." **Source:** RCRA Docket: EPA-HQ-RCRA-1985-0006; Docket ID#: AA-DW-5-00106. **What Really Happened:** Despite listing numerous petroleum refinery wastes as "hazardous" under RCRA and subjecting many petroleum waste recycling practices to separate regulations, petroleum wastes remain one of the most frequently recycled wastes generated by any industry in the U.S. Nearly 80% of refining sludges/catalysts are recycled according to the 2007 Biennial Report data. **Source:** **See Tables 3, 4** above.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: March 12, 1985
Company: The Halogenated Solvents Industry Alliance (HSIA)
RCRA Rulemaking: Hazardous Waste as Fuel Specification. 50 **FR** 1684 (January 11, 1985); Proposed Rule 50 **FR** 49164 (November 29, 1985); Final Rule.
Recycling Practice: Solvent recovery and burning wastes fuels.

What They Said: The HSIA, which represented most of the largest chemical companies in the country, opposed EPA's 1985 attempt at established a stopgap measure to distinguish between burning for energy recovery, which was unregulated at the time, and incineration which was fully controlled. The proposal stated that burning any waste materials with less than 4,000 BTUs per pound would be deemed to be "burning for destruction" and would be regulated as incineration until such time as formal and comprehensive standards for burning hazardous waste in boilers and industrial furnaces (BIFs) were issued in the late 1980's. In proposing these standards for burning some of the most toxic and potentially carcinogenic solvents, (i.e., perchloroethylene, trichloroethylene and chloroform), the HSIA grabbed for a familiar argument, "stigma": "The labeling of these blended fuels as 'hazardous waste fuels' is not only unnecessary, but counterproductive to encouraging this beneficial and effective means of reducing or eliminating any risk that might be related to other disposal."
Source: RCRA Docket: EPA-HQ-RCRA-1985-0002, Docket ID#: BWOF002, Slide 1337, p. 3

What Really Happened: The solvent manufacturing and recovery industries were affected by numerous RCRA rulemakings throughout the 1980's including the burning of hazardous wastes for energy recovery. Despite these regulations, both energy recovery and solvent recovery are flourishing. The most prevalent type of hazardous waste management facility according to the 2007 Biennial Report was solvent recovery. In 2007 there were 456 separate solvent recovery facilities, accounting for 32.7% of all RCRA waste management facilities in existence. Moreover, given the fact that a relatively smaller total volume of hazardous waste (i.e., 329,000 tons) are managed via "Solvent Recovery" indicates that many of the 456 facilities engaging in the recovery of this 329,000 tons of solvent are relatively small recovery operations. Apparently, even small recycling operations were not "stigmatized" by RCRA's "onerous" and "burdensome" regulatory requirements.
Source: 2007 RCRA Biennial Report, Exhibits 2.6 and 2.7.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: March 5, 1986
Company: Cadence Chemical Resources, Inc. (CCR)
RCRA Rulemaking: Hazardous Waste as Fuel Specification. 50 **FR** 1684 (January 11, 1985); Proposed Rule 50 **FR** 49164 (November 29, 1985); Final Rule.
Recycling Practice: Burning waste-derived fuels

What They Said: In response to EPA's 1985 Hazardous Waste Fuel Specification Rulemaking, Cadence once again pled their case that they should be exempt from such rules and citing among other things the stigma argument once again: "The regulation of the Cadence product as a 'hazardous waste' will discourage its production and use. Excessive and unjustifiable regulations, unnecessary permitting problems, and costly waste-end and taxes might eliminate this valuable recycling technology."
Source: RCRA Docket: EPA-HQ-RCRA-1987-0024, Docket ID#: F-1987-BBFP-S0047. A, p. 22.

What Really Happened: Burning waste-derived fuels for energy recovery has been a leading method of recycling since the mid-1980's and remains so to this day. In 2007, nearly 1.1 million tons of hazardous waste-derived fuels were burned in commercial BIFs, while 0.6 million tons were burned in commercial incinerators. In addition, Cadence Chemical Resources went on to become one of the largest and most successful hazardous waste fuel blending operations in the country. Ted Reese, Cadence President, discovered that there was life and indeed prosperity after RCRA regulation after all. Mr. Reese named his yacht after his company, "Cadence," and in 1990, 5 years after the Hazardous Waste Fuel Specification was finalized, Mr. Reese announced plans to build a new office building to house his rapidly growing company.
Source: **See** (*) at end of **Appendix B** describing methodology for calculating 1.1 m ton and 0.6 m ton volumes. **See** also www.chicagoyachtclub.org (**See** results of Heyworth Memorial Trophy race);
www.highbeam.com/doc/1N1-10852FE2B151C75E.html, "Cadence Has Bright Ideas For the Future," Post Tribune (Indiana), May 7, 1990.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: June 26, 1987 **Company:** National Association of Solvent Recyclers (NASR) **RCRA Rulemaking:** Burning Hazardous Waste in Boilers and Industrial Furnaces (BIFs) Rulemaking. 52 **FR** 16982 (May 6, 1987); Proposed Rule. 56 **FR** 7134 (February 21, 1991); Final Rule. **Recycling Practice:** Burning hazardous waste for energy/materials recovery. **What They Said:** In 1987, EPA proposed specific regulations on facilities burning hazardous waste in boilers and industrial furnaces pursuant to the directive of the 1984 HSWA. In their comments, NASR equated the new regulations with the specter of industrial furnaces to "cease burning hazardous waste fuel blends." **Source:** RCRA Docket: EPA-HQ-RCRA-1987-0024; Docket ID#: F-1987-BBFP-00025. **What Really Happened:** Burning hazardous waste in industrial furnaces became the dominant commercial method for burning hazardous waste of all kinds, dwarfing the volumes burned by permitted hazardous waste incinerators. In 2007, nearly 1.1 million tons of hazardous waste derived fuels were burned in commercial BIFs, while 0.6 million tons were burned in commercial incinerators. **Source:** 2007 National Biennial RCRA Hazardous Waste Report. **See** (*) at end of **Appendix B** describing methodology for calculating 1.1 m ton and 0.6 m ton volumes.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: July 1, 1987
Company: Portland Cement Association (PCA)
RCRA Rulemaking: Burning Hazardous Waste in Boilers and Industrial Furnaces (BIFs). 52 **FR** 16982 (May 6, 1987); Proposed Rule. 56 **FR** 7134 (February 21, 1991); Final Rule.
Recycling Practice: Burning hazardous waste for energy/materials recovery.

What They Said: In 1987, EPA proposed specific regulations on facilities burning hazardous waste in boilers and industrial furnaces pursuant to the directive of the 1984 HSWA. PCA in their comments stressed that the imposition of certain emission requirements would force all cement kilns to cease burning hazardous waste fuels. "An informal survey of the industry by this office indicates that virtually all cement companies would refrain from burning hazardous waste if the 100 ppm CO limit were required."
Source: RCRA Docket: EPA-HQ-RCRA-1987-0024; Docket ID#: F-1987-BBFP-0078, p. 2.

What Really Happened: After several revisions of the BIF rule, the CO limit for cement kilns was established at ≤100 ppm, the level that was deemed to be the death knell of burning hazardous waste fuels for energy recovery in cement kilns. Cement kilns remain the dominant method of thermal processing of hazardous waste today, burning nearly twice as much waste as commercial incinerators. While this constitutes more of a "regulatory burden" than a stigma argument, it is included for purposes of illustrating how easily and frequently recycling firms resort to hyperbole in responding to proposed regulatory requirements. The "if I am regulated, I will just quit" statement is an all too common theme in these contexts. **See** also comments of Lafarge (July 17, 1987).
Source: 2007 National Biennial RCRA Hazardous Waste Report. **See** also 56 **FR** 7208 (February 21, 1991); The BIF Rule.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: July 6, 1987 **Company:** General Battery Corporation **RCRA Rulemaking:** Burning Hazardous Waste in Boilers and Industrial Furnaces (BIFs). 52 FR 16982 (May 6, 1987); Proposed Rule. 56 FR 7134 (February 21, 1991); Final Rule. **Recycling Practice:** Lead acid battery recycling. **What They Said:** General Battery Corporation was concerned that the 1987 Proposed BIF Rule would affect secondary lead smelters processing spent lead acid batteries. Their comment stated, "Increased regulation will discourage recycling. . . .It is also Exide/General Battery Corporation's belief that the increased regulation of recycling chains places stress on the system to the point that regulations act as an impediment to resource recovery and recycling. **Source:** RCRA Docket: EPA-HQ-RCRA-1987-0024; Docket ID#: F-1987-BBFP-00082, p. 4. **What Really Happened:** Despite the regulation of various aspects of lead acid battery recycling, in the most recent report, 1.30 million tons of lead acid batteries were recycled under RCRA regulation in 2007. The Solid Waste Association of North America (SWANA) estimated that in 2003 over 93% of automotive lead acid batteries were recycled. **Source:** 2007 RCRA Biennial Report, FOIA Request # HQ-FOI-01815-10. **See Table 2** above. **See** also "Waste Recycling," Solid Waste Association of North America (SWANA), Silver Spring, MD, 2008; Presentation of Dr. Reinhart.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: July 17, 1987
Company: Lafarge Corporation
RCRA Rulemaking: Burning Hazardous Waste in Boilers and Industrial Furnaces (BIFs). 52 FR 16982 (May 6, 1987); Proposed Rule. 56 FR 7134 (February 21, 1991); Final Rule.
Recycling Practice: Burning waste derived fuels for energy recovery

What They Said: In their comments on the Proposed1987 BIF Rule, Lafarge, one of the largest cement kiln processors of hazardous waste derived fuels, cautioned that unless the BIF rules were substantially modified it would effectively bring about the end of hazardous waste derived fuel burning in cement kilns. "Responsible operators, such as fully permitted cement kilns, which may already have final Part B hazardous waste storage permits and state air permits, would be forced out of business [by the proposed BIF regulations]. This would have significant adverse effects on treatment capacity and environmental quality."
Source: RCRA Docket: EPA-HQ-RCRA-1987-0024; Docket ID#: F-1987-BBFP-00122, p. 38.

What Really Happened: Even after the BIF Rule was enacted in 1991, Lafarge continued to burn hazardous waste at all five of its cement producing plants in Alabama, California, Kansas, Michigan and Ohio. Lafarge remains one of the largest, if not the largest, single cement kiln processor of hazardous waste-derived fuels today.
Source: Various SEC 10-K Filings.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: April 18, 1995
Company: Horsehead Resource Development Company, Inc.
RCRA Rulemaking: Use of Slag Residues Derived from HTMR Treatment of K061, K062, and F006 Waste. 59 **FR** 67256 (December 29, 1994); 60 **FR** 10052 (February 23, 1995); Proposed Rules.
Recycling Practice: Metals recovery from steel industry wastes

What They Said: In 1994, EPA proposed to regulate the use of slag residues derived from high temperature metal recovery treatment of electric arc furnace dust and related metal bearing wastes. 59 Fed Reg 67256 (Dec. 29, 1994). Despite establishing a relatively permissive regime for the management of these slag residues, the largest such recycler of K061 Electric Arc Furnace (EAF) dust envisioned an end to its recycling practice unless the slag was effectively exempt from all RCRA controls: "The HTMR Slag Product Rulemaking does contain several serious errors and inconsistencies and shortcomings, however, which will render EPA's Proposed Exclusion unnecessarily stringent and largely meaningless. Such a result would increase resource recovery and recycling costs and discourage further resource recovery and recycling, thereby frustrating EPA's stated purpose of the Rulemaking. . . .The most that this Rulemaking will accomplish is to not further discourage environmentally sound recycling, but only if the Rulemaking incorporates the changes recommended in these comments.
Source: RCRA Docket: EPA-HQ-RCRA-1994-0083; Docket ID#: F-1994-SRTP-00062, pp. 14-15, 20.

What Really Happened: EPA subsequently modified and strengthened the Proposed Rulemaking to require that slags derived from high temperature metals recovery of K061 Electric Arc Furnace dust, when applied to the land, must meet the same toxicity reduction standards as when those materials are placed into a landfill. Despite this increased stringency and HRD's dire predictions, HRD remains the largest EAF recovery facility in N. America, recovering approximately 2/3 of the approximate 1.0 million tons of EAF dust produced annually in the U.S.
Source: EPA, Office of Resource Conservation and Recovery, "Assessing the Management of Lead in Scrap Metal and Electric Arc Furnace Dust; Final Report," EPA 530-R-09-004, April, 2009, p. 18.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present
Date: March 19, 1996 **Company:** BP Oil **RCRA Rulemaking:** Listing of Petroleum Refinery Process Waste as Hazardous. 60 **FR** 57747 (November 20, 1995); Proposed Rule. 63 **FR** 42110 (August 6, 1998); Final Rule. **Recycling Practice:** Recovery of Refining Catalysts. **What They Said:** In 1995, EPA proposed to list various refinery residuals as hazardous waste, including several spent catalysts the refining process. 60 **FR** 57747 (Nov. 20, 1995). Virtually without exception every member of the petroleum industry predicted that listing spent catalysts would discourage if not fully undermine recovery of these catalysts. BP's comments were typical of Exxon, Mobil and others. "Listing catalysts as hazardous waste also serves to discourage the beneficial practice of in-situ or ex-situ regeneration since there is little or no incentive to render the material non-pyrophoric or non-characteristically hazardous prior to removal from the unit or in subsequent management." **Source:** RCRA Docket: EPA-HQ-RCRA-1995-0058, Docket ID#: F-95-PRLP-00019, p. 4 **What Really Happened:** In 2007, over 80% of refinery catalysts that were listed as "hazardous" under RCRA were recycled, not disposed. **Source:** Table 3 above, 2007 RCRA Biennial Report Survey Database
Date: March 21, 1996 **Company:** American Petroleum Institute (API) **RCRA Rulemaking:** Listing of Petroleum Refinery Process Waste as Hazardous. 60 **FR** 57747 (November 20, 1995); Proposed Rule. 63 **FR** 42110 (August 6, 1998); Final Rule. **Recycling Practice:** Recovery of Refining Catalysts. **What They Said:** Along with BP, Exxon Mobil and others, the trade association for the petroleum industry, the American Petroleum Institute, chimed in on the stigma argument asserting that, "In addition, listing of these residuals could actual discourage additional or innovative recycling/reclamation practices, and direct contravention of the stated goals of both RCRA and EPA's pollution prevention effort. . . . Designating these materials as listed hazardous waste would discourage existing recycling and further increase the costs of recycling relative to disposal. **Source:** RCRA Docket: EPA-HQ-RCRA-1995-0058, Docket ID#: F-95-PRLP-00046, pp. 2, 101. **What Really Happened:** In 2007, over 80% of refinery catalysts that were listed as hazardous under RCRA were recycled not disposed. **Source:** Table 3 above, 2007 RCRA Biennial Report Survey Database.

"Stigma" Claims vs. Marketplace Reality – 1979 to Present

Date: February 26, 2001
Company: Copper and Brass Fabricators Council, Inc.
RCRA Rulemaking: Using Metal-bearing Hazardous Waste to Produce Zinc-containing Fertilizers. 65 **FR** 70954 (November 28, 2000); Proposed Rule. 67 **FR** 48393 (July 24, 2002); Final Rule.
Recycling Practice: Zinc fertilizers made from hazardous waste.

What They Said: In 2000, EPA proposed various requirements for zinc-containing fertilizers made from hazardous waste. 65 **FR** 70953 (November 28, 2000). In proposing this rule, the Agency established several standards for testing of the zinc-containing hazardous waste to be used as a fertilizer including limits for toxic metals and dioxins, and required that the purveyors of this practice bear the burden of demonstrating the legitimacy of this practice and its compliance with applicable regulatory requirements. Virtually without exception all industry commenters on this rule found the testing and verification requirements to be burdensome and would effectively discourage the use of this practice. The comments below are typical: "The Agency should not impose expensive dioxin testing requirements on fertilizer manufacturers when there is no need to do so. . . . By imposing unnecessary testing burdens [for toxic metals such as lead, cadmium, arsenic, mercury, nickel, chrome] on the fertilizer manufacturer using secondary hazardous materials, the Agency is at odds with the stated objective of encouraging recycling of these materials. . . . Recycling of secondary hazardous materials is further discouraged by the burden shifting provision proposed."
Source: RCRA Docket: EPA-HQ-RCRA-2000-0054; Docket ID#: F-2000-RZFP-00104, pp. 3 - 7.

What Really Happened: Use of K061 and other metal-bearing wastes to produce zinc-based fertilizers continues despite the promulgation of final standards requiring testing for various heavy metals and dioxins.
Source: Hayden, Anita, L., "Truth About Fertilizer," 2008, www.drdaymaker.com.

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* **Methodology for Obtaining Data on Incineration and Cement Kiln Volumes**: The EPA Biennial Report System (BRS) was searched for volumes of waste managed by incineration and energy recovery. EPA assigns a code of H040 for management of waste by incineration and H050 for energy recovery. Another code, H061, is assigned to fuel blending for TSDFs that accept hazardous waste and blends these to make a waste mix of sufficient heat content for use as a fuel. The database was sorted for these three management method codes to identify the quantities of waste managed by incineration and energy recovery in cement kilns. To do this the section of the BRS designated for "waste received" was searched, since incinerators and cement kilns would receive the waste from off-site generators. The search was limited to the 2007 reporting year, which is the most recent data available in the BRS. Specific waste types are also assigned a unique code and it was possible to also search for specific categories of waste such as solvents, used oil and other organic materials. For example the code W202 is used for halogenated solvents and W203 for non-halogenated solvents. W206 is assigned to waste oils. A simultaneous search can be done by management method (ie incineration – H040) and waste type (ie non-halogenated solvents – W203). This allows the volume of solvents managed by incineration vs energy recovery to be evaluated. It is also possible to search by specific RCRA waste codes such as F001 to F005 solvents.

Mr. SHIMKUS. Thank you.
Now I would like to recognize Mr. Havens for 5 minutes.
Welcome, sir.

STATEMENT OF CURTIS HAVENS

Mr. HAVENS. Thank you. Good morning, Mr. Chairman, members of the committee. My name is Curt Havens, and I live in Representative McKinley's First District in Hancock County in Chester, West Virginia. We live 1,584 feet from the nearest finger of Little Blue Run unlined coal ash impoundment. Our home is 100 feet below the elevation of the impoundment.

At this time, I would like to introduce my wife of 40 years. She is sitting behind me.

In 1974, a Bruce Mansfield representative knocked at our door and handed me and my wife a beautiful, laid-out plan of a recreational place that would have hiking, bike trails, fishing, and a place to spend time with my family. But, today, this same site is not a beautiful lake; it is a toxic waste dump called Little Blue.

The impoundment is 1,300 feet, and 400 feet deep in some places. It has a high-hazard dam that, if breached, will cause loss of human life. We believe the land that God has given us to take care of is being destroyed by a coal ash impoundment since 1975. The smell of rotten egg and sulfur hangs in the air near our homes, and several of the neighbors are experiencing water gushes on their land and into their springs. Water gushes were not there before First Energy began filling the West Virginia site of the impoundment.

There is a fellow named Merle Beyer who has a vehicle repair shop on Johnsonville Road down from us. For years, he had used a spring on his land to make coffee. First Energy does the testing from the spring. The man that comes and does the collection of the water told Merle not to drink it because it will do you in.

First Energy did acknowledge a correlation between their impoundment and the offsite seeps when they met with West Virginia DEP on October 27, 2010. We already have problems and worry that First Energy plans to dump more toxic ash near our homes. First Energy will be stacking geotubes filled with toxic ash on the impoundment 62 feet high. We worry that this additional ash will push more water toward the seeps on the West Virginia side.

The seeps coming from Little Blue pond are contaminated. On August the 21st, 2010, the West Virginia DEP did two water tests on seeps and springs, and the end result is high levels of cadmium in both tests. As I understand it, cadmium appears to be the largest single contributor to thyroid disease.

I had thyroid cancer in 2001 and had my total thyroid removed. My wife, Debbie, has a lump on her thyroid that they found last year, and they are monitoring it and keeping an eye on it. My neighbor, which is 30 years old, has thyroid trouble and a tumor on his spine. Another neighbor, 70 years old, had thyroid cancer and prostate cancer. My doctor told me in Pittsburgh, the surgeon said that thyroid is mostly in women, not men. There are three men within a half a block that had thyroid cancer.

We found out that there are 10 monitoring wells at Little Blue that have high levels of arsenic, and no one told us about them.

We found that after reviewing public documents. Even more troubling is the fact that, on January 25th, 2006, the West Virginia DEP turned over the rights to Pennsylvania DEP. This is West Virginia land, not land in Pennsylvania. About one-third of the unlined coal ash impoundment is in West Virginia.

I have concerns about my wife's health. She has Type 1 diabetes. She has full body tremors. Her hand shakes. And the only thing—she takes pills that control that, but someday them pills might stop working, and that wears her out. I have Type 1 diabetes. I have high blood pressure; as I said before, thyroid cancer. And I have poor circulation in my legs and feet.

I have grown a garden on my land for the past 34 years and have fed my children and my grandchildren from it. Two years ago, I had a garden with some nice red ripe tomatoes in it. My granddaughter, Sara, wanted to walk in my garden. She was 4 at that time. As we walked through the garden, I looked back and she had picked a tomato and took a bite out of it. I took it from her; I didn't want her to eat any more of it.

The next day, I destroyed my whole garden—beans, tomatoes, peppers, cabbage. I cried like a baby. I enjoyed my garden. We need my soil tested for things that is in coal ash to see if it is hazardous. The grandkids—we have, you know, two grandkids that live close to us, and they are always asking Grammy and Pappy to make—Grammy to make chili and vegetable soup. They enjoy that. We can't use the stuff out of our garden because we are not sure what is in the soil.

I had been honored to serve my country as a Yeoman Third Class aboard the USS John S. McCain DDG–36 in the Navy. Now I come to Washington, D.C., this week to speak to Members of Congress and the administration, asking for a strong Federal protection of my family and community.

We are only on earth one time. Please help us keep it safe and make it a better place for us and our grandkids. We understand jobs are important, but no one should have to choose jobs or health. We need and deserve both.

We have friends that do work at First Energy and neighbors that work there. People say, why don't you just move? Well, who can afford to move? Who would buy our house? You know, the depreciation and the value is down. Who would live in an area that has risk of health reasons there? You know, we put in 31 years of hard work in our house to keep it up. So what we do? I retired 6 years ago from the U.S. Postal Service, so we have a nice, comfortable home to live in.

We met with Representative McKinley yesterday, and we would like to still invite him to our house sometime and come up and see the impoundment. And we would like to continue talking to you and keep in contact.

Thank you.

[The prepared statement of Mr. Havens follows:]

Testimony of Curt Havens
Before the Subcommittee on Energy and Environment
Committee on Energy and Commerce
U.S. House of Representatives
April 14, 2011

Good morning, Mr. Chairman and Members of the Committee. My name is Curt Havens and I live in Chester, West Virginia, 1,584 feet from the nearest finger of Little Blue Run unlined coal ash impoundment. Our home is 100 feet below the elevation of the impoundment.

In 1974, a Bruce Mansfield representative knocked at our door and handed me and my wife a beautiful laid out plan of a recreational place that would have hiking, bike trails, fishing and a place to spend time with my family. But today that same site is not a beautiful lake, it is a toxic waste dump site called Little Blue. The impoundment is 1300 acres and 400 feet deep in some places. It has a high-hazard dam that, if breeched, would cause loss of human life.
We believe the land that God has given us to take care of is being destroyed by this coal ash impoundment since 1975. The smell of rotten egg and sulfur hangs in the air near our homes. And, several of our neighbors are experiencing water gushes on their land and into their springs – water gushes were not there before First Energy began filling the West Virginia side of the impoundment.

First Energy did acknowledge a correlation between their impoundment and the offsite seeps when they met with the West Virginia Department of Environmental Protection (WVDEP) on October 27, 2010. We already have problems and worry that First Energy plans to dump more toxic ash near our homes. First Energy will be stacking geotubes, filled with toxic ash on the impoundment 62 feet high. We worry this additional ash will push more water towards the seeps on the WV side.

The seeps coming from the Little Blue pond are contaminated. On August 24, 2010 the WVDEP did two water tests on seeps/springs, and the end result was high levels of cadmium in both tests. As I understand it, cadmium appears to be the largest single contributor to thyroid disease. I had thyroid cancer in 2001 and had my total thyroid removed. My wife Debbie has a lump on her thyroid that the Doctor found in 2009. The Doctor keeps a close eye on it. My neighbor around 30

years of age has a lump on his thyroid and a tumor on his spine and another neighbor around 70 years of age had thyroid cancer and prostrate cancer in 2008. My Doctor told me that thyroid cancer is more common in women than men.

We have found out there are ten monitoring wells at Little Blue that have high levels of arsenic, and no one told us about them. We found that out after reviewing public documents. Even more troubling is the fact that on January 25, 2006 the WVDEP turned our rights over to the Pennsylvania Department of Environmental Protection (PADEP). This is West Virginia. This land does not belong to Pennsylvania.

I have pictures of the dam from 1996 and they show the dam full of strange, blue water … today, there is no water. Where did all this water go? We believe it has been discharged to area drinking water.

We don't believe we can depend on the WVDEP or PADEP to protect our health from the known toxic metals found in coal ash. We believe the only way to get health protections from toxic coal ash are through federal rules – and require the states to enforce those protections.

I have concerns about my wife's health and my health because I have grown a family garden on my land for the past 34 years and have fed my children and my grandchildren from it.

I have been honored to serve my country as a Yeomen 3rd Class aboard the USS John S. McCain (DDG-36) in the Navy. Now I come to Washington, DC this week to speak to members of Congress and the administration asking for strong federal protections for my family and community.

We are only on earth one time. Please help us keep it safe and make a better place to live for us and our grandchildren. We understand jobs are important – but no one should have to chose jobs OR health. We need and deserve both.

I thank you for this opportunity to share my experiences with this committee. I am happy to answer any questions.

Mr. SHIMKUS. Thank you, sir. Thank you for your service. And the great thing about our Constitution is that it does give individuals the right to collectively organize to air their grievances, and you got the chance to do that today.

Mr. HAVENS. I am sorry about my voice.

Mr. SHIMKUS. No. We do appreciate you.

Now I recognize myself for the first 5 minutes of questioning.

Ms. Lewis, some of the panelists are testifying that having EPA regulate coal ash under subtitle D will dramatically increase the incidence of cancer cases. In your professional opinion as a toxicologist, do you agree with their point?

Ms. LEWIS. No. I am not sure why people would say that. If you looked at the regulatory impact analysis, it wouldn't support that at all.

And then, based on my professional opinion, as I sort of mentioned in my comments here, those estimates that are in that analysis—and I don't remember the exact numbers—they would definitely overestimate the difference between subtitle C and subtitle D.

And I don't want to get into all the details because it would bore you people. But I think, you know, in a back-of-the-envelope calculation and the things I have looked at, I mean, it would really amount to, on a hypothetical basis, less—well, well, well under one excess cancer case per year. But it could be as low as zero. There is no way to tell because you are comparing hypotheticals. You are looking at hypothetical risks.

I mean, there is certainly no evidence that I am aware of that anyone has ever——

Mr. SHIMKUS. Can you explain the difference between toxicology and a public health assessment?

Ms. LEWIS. Well, toxicology is looking at human health studies, looking at animal studies, looking at in vitro studies, and garnering information about the toxicity of the chemical, in and of itself, whereas a public health assessment more combines the toxicity information with the exposure information to understand how that may impact public health.

Now, it is very important—this has come up a lot here, talking about the toxicity of something. In and of itself, that is not a very informative statement. You really need to understand how people are exposed and what amount they are exposed to, to really understand the public health impacts.

Mr. SHIMKUS. Great.

Mr. Adams, if you follow a lot of the opening statements, even Ms. Evans mentioned that when mismanaged—my question is, you heard Mr. Dingell in his opening statement and his questions. Did you disagree with any of his line of thought, as far as really defining the problem and possible remedies?

Mr. ADAMS. Well, first off, the American Coal Ash Association concentrates on the beneficial uses of coal combustion products, and we try to stay away from discussions of what is appropriate for disposal.

Having said that, what we are looking at here is a situation that was fired by the Tennessee Valley Authority problem at Kingston. That really coalesced people around creating rules for disposal.

So when we listen to a lot of the comments about damage cases and concerns about disposal, they seem to focus on the wet impoundments. So what Congressman Dingell was mentioning is perhaps we need to look at the impoundment problem and solve that problem as our most immediate concern. And then, if we need to move later on, I think it would make sense to take other action.

But in terms of the ACAA, we really just encourage any type of regulation other than a subtitle C hazardous waste——

Mr. SHIMKUS. Great. Let me move on because my time is limited.

Ms. Santoianni, obviously, the big debate was cost-benefit analysis, job creation. Wide disparities in the cost, compared to what EPA was sort of alluding to but obviously on record saying they never calculated job impact.

In an economic analysis, have you done a job impact?

Ms. SANTOIANNI. No. We were not tasked to do a full economic analysis, so——

Mr. SHIMKUS. But let's, then, follow up on—Mr. McKinley talked about—and she was here last week, one of the university professors from Purdue, dramatically talked about the huge increase in the cost to that university because they have a coal-fired power plant.

When you sat in on the first panel and I intervened with the EPA representative, was I correct in saying they are just talking about the electricity rate; they are not talking about the loss of revenue or the increased disposal cost of a new regulatory regime? Is that correct?

Ms. SANTOIANNI. That is correct. With the subtitle C proposal, their estimation of cost is exactly the same regardless of what kind of stigma they examined. And they do not look at the increased cost of disposal. In fact, they assume the same disposal patterns as today, whereas subtitle C imposes a whole set of other requirements that would cause more to go offsite and commercial, at an increased cost, obviously.

Mr. SHIMKUS. Yes, and let me go to Ms. Zdanowicz.

Does the history back up the testimony from Ms. Santoianni?

Ms. ZDANOWICZ. There is some history to rely on, and that is, in 1980, industries had much of their waste stored onsite. But later, when it became hazardous, those industries, rather than going for corrective action and subtitle C permits, went for offsite disposal. So, in fact, there is precedence for that.

Mr. SHIMKUS. And, actually, just the opposite of what some of the previous testimony said.

Ms. ZDANOWICZ. Yes.

Mr. SHIMKUS. So thank you.

My time has expired. I will now yield to the ranking member, Mr. Green, for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman.

I have a number of questions. But it sounds like the storage of the slurry is the problem. But would the industry, Mr. Adams or Ms. Zdanowicz, would they oppose lining not only slurry but also the lining requirements also for dry storage?

Mr. ADAMS. Our association supports subtitle D requirements. In the EPA proposals, the requirements, the engineering standards for either subtitle C or subtitle D landfills would be identical. So

you are going to get the same level of protection; the difference is in who gets to enforce that protection.

Mr. GREEN. Yes. Well, I understand that subtitle D is the State enforcement. But, you know, that is what we do here, is change the law. And if we gave EPA the authority to have these standards—and, of course, they still could be forced just like EPA does with lots of other issues—the States would have the first authority to enforce them. But if we required that lining for both dry storage and wet storage, is that a problem with the industry?

Mr. ADAMS. Not for the American Coal Ash Association and its members.

Mr. GREEN. OK.

Mr. Havens, one, thank you for your service. Congratulations to you and your wife for 40 years. My wife and I celebrated 41 in January.

Mr. HAVENS. Congratulations.

Mr. GREEN. So, you know, for our wives to put up with us all these years, it is amazing.

Have you had a chance to test your garden with soil samples?

Mr. HAVENS. I have talked to the West Virginia DEP, and he is supposed to come up from Charleston or Fairmont and test it. They said they would test my soil for me.

Mr. GREEN. I know—you know, I only grow peppers and tomatoes in my yard, but I know people test their soil all the time to have certain types of plants that are successful. You know, in Texas, those are azaleas or whatever. And, obviously, I would do that. That is why I was wondering, because living 100 feet—and I sympathize with you.

I moved into my first house in 1971, and we were told this 15-acre tract was going to be a park. We didn't go bother to go check with the county to see if they had reserved that 15-acre tract. It turned out they were going to build multifamily there. We ended up having a school built and a community building. But it took a lot of political work to do that, because the developer, even though they told us something, we didn't check on it. It made me—from then on, when I buy property, I look and see what the reserves are.

Mr. HAVENS. Our thing was we moved there in 1973 when I got out of the Navy. We was there before the dam was.

Mr. GREEN. Yes. Well, and somebody owned that property, and they have the right to use that property. But even though you were told that, there was no guarantee for that for you.

Mr. HAVENS. Yes.

Mr. GREEN. Ms. Evans, in your testimony, you state that market analysis shows that when the disposal of waste is regulated under subtitle C, there is a greater incentive to recycle because of the disposal cost increase.

That is interesting, because I want to—obviously, we want to—in EPA testimony, they want more recycling. And I think that is what we want.

And I am going to ask the rest of the panel, particularly from the industry, is that true? Because I know we have—the percentage we have—37 percent now is recycled. And, you know, the cheapness of just slurry storage or dry storage doesn't encourage recycling. Is that correct?

Ms. Evans? And then I will ask the industry in my minute and 30 seconds.

Ms. EVANS. It is absolutely correct. When you dump the ash in a pond or landfill, it can cost $3 a ton; it can cost almost nothing. There is no incentive, with that kind of cheap disposal cost, to find other uses for it.

In my own home State of Massachusetts, when the Massachusetts State government clamped down on two power plants, they were unable to keep using their unlined ponds. They ended up going to a re-burning system on their power plant, which now captures, at that one, at our biggest plant, about 100 percent of the ash, which is now used in concrete. That is the kind of success story when a company cannot just dump in a hole next to the plant.

Mr. GREEN. Mr. Adams, I know that is what your association does. Do you see that if the cost for wet storage or dry storage is so cheap, then it would discourage recycling?

Mr. ADAMS. No. That, in fact, is not the case. What is happening in the marketplace—and, first off, as I mentioned earlier, we look at beneficial use. And, first, we look at environmental safety; secondly, we look at technical appropriate; third, it has to be commercially competitive. And our members have done a great job, as evidenced by the recycling rate today, of identifying how those products compete in the marketplace and the real value. Utilities have recognized that, too. And, over time, contracts between utilities and their marketing companies have changed to reflect that.

So we have currently many, many situations where, for example, in Wisconsin, if you look at the CCPs generated there, over 90 percent are used beneficially, with We Energies using 99 to 100 percent every year because they recognize it has value to market.

Mr. GREEN. Well, obviously, I think all of us would rather have wallboard with coal ash in it than what we have got from China.

Mr. ADAMS. The wallboard you are looking at does not contain coal ash. It contains synthetic gypsum from the scrubbers in power plants. There is no ash in that wallboard. It is synthetic gypsum, about 35 percent of the wallboard.

Ms. EVANS. But if I could respond to the Wisconsin situation, is that in Wisconsin there are better laws than average, which gives an incentive to the Wisconsin We Energies to the utilities to recycle. That same situation would not be true in Texas, in Alabama, in Illinois.

Mr. GREEN. We try not to have much coal ash.

Mr. SHIMKUS. The gentleman's time has expired.

Now the chair recognizes the chairman emeritus, Mr. Waxman, for 5 minutes.

Mr. WAXMAN. Thank you, Mr. Chairman.

I would like to set aside the debate over subtitle C versus subtitle D and focus on what protections should be established on the ground.

Mr. Adams seems to state that the American Coal Ash Association supports phasing out wet impoundments like the one that burst in Kingston, Tennessee, in 2008.

I would like to go down the line and ask all of the witnesses if they support phasing out wet impoundments. And please just give me a "yes" or "no" answer.

Mr. Adams?

Mr. ADAMS. Yes, if those impoundments are not providing environmental protection——

Mr. WAXMAN. "Yes" or "no." Because I have "yes" or "no" questions and want to get everybody in.

Ms. Zdanowicz?

Ms. ZDANOWICZ. Our association has not taken a position on that, so I can't say "yes" or "no."

Mr. WAXMAN. OK.

Ms. Lewis?

Ms. LEWIS. I don't have a position on that either. I would want to——

Mr. WAXMAN. OK.

Ms. SANTOIANNI. I don't have a position on that either.

Mr. WAXMAN. OK.

Ms. Evans?

Ms. EVANS. Yes.

Mr. HAVENS. Yes.

Mr. WAXMAN. OK.

We have heard testimony about the need to ensure that the standards for dry landfill disposal are also improved. These standards would likely include the use of double liners, groundwater monitoring, dust control, and other necessary measures.

Would each of you please answer if they would support improving the standards for dry landfill disposal?

Mr. ADAMS. Yes.

Ms. ZDANOWICZ. Many of our States are doing that already. So, yes, we support.

Mr. WAXMAN. OK.

Ms. LEWIS. To the extent I think it would reduce risk, yes.

Ms. SANTOIANNI. Yes, I would support that.

Ms. EVANS. Yes.

Mr. HAVENS. Yes.

Mr. WAXMAN. OK.

Let me ask each of the witnesses if improved coal ash disposal standards should be enforceable.

Mr. Adams?

Mr. ADAMS. Yes.

Ms. ZDANOWICZ. Yes. But if I might say, yes, by the States.

Ms. LEWIS. There should be some oversight, you know. I don't have an opinion about who oversees that.

Ms. SANTOIANNI. I don't have a position on who oversees it.

Mr. WAXMAN. I am not asking who. Do you think they ought to be enforceable?

Ms. SANTOIANNI. Yes, there should be enforcement.

Ms. EVANS. Yes.

Mr. HAVENS. Yes, uh-huh.

Mr. WAXMAN. Over the years, this committee has typically ensured that there is a minimum Federal floor for public health and environmental protection. States are typically authorized to provide

additional protections, but a Federal floor prevents a race to the bottom.

Would each of the witnesses state whether they support a minimal level of protection that would apply consistently to every State?

Mr. Adams?

Mr. ADAMS. We support regulation that is enforceable by the State. And it works for municipal solid waste——

Mr. WAXMAN. Would you agree with a Federal floor, no matter who enforced it?

Mr. ADAMS. Expressed in the subtitle D rule? Yes.

Ms. ZDANOWICZ. It would depend on what it is. But, yes. And many of the States actually go well beyond what is required. And even though there is no requirement for CCR, the vast majority of our States have permitting programs——

Mr. WAXMAN. I am not—my only question, and I want a "yes" or "no," is: Do you think there ought to be a minimal level of protection that would apply to every State?

Ms. ZDANOWICZ. Yes.

Mr. WAXMAN. OK.

Ms. LEWIS. I would agree.

Ms. SANTOIANNI. I don't have an opinion on that.

Mr. WAXMAN. OK.

Ms. EVANS. Yes.

Mr. HAVENS. Yes.

Mr. WAXMAN. OK.

If EPA acts under subtitle D instead of subtitle C, EPA believes that the only way to enforce minimum safety standards at a disposal site will be through citizen suit enforcement.

Will each of you state whether you support allowing impacted citizens to enforce requirements through the use of citizen suits? A "yes" or "no" on this.

Mr. ADAMS. That statement is incorrect. EPA would have authority under imminent endangerment to step in and enforce under subtitle D. So the premise of the statement is incorrect.

Mr. WAXMAN. If it is not an imminent danger and they want to enforce safety standards, would you think that they ought to be able to enforce them through citizen suits?

Mr. ADAMS. We trust the States with municipal solid waste; we trust them with this. So not at the Federal level.

Mr. WAXMAN. You don't want citizen suits at any level?

Mr. ADAMS. Citizen suits are—yes. Entirely, yes.

Mr. WAXMAN. OK.

Ms. ZDANOWICZ. Yes.

Ms. LEWIS. Yes.

Ms. SANTOIANNI. Yes.

Ms. EVANS. Yes.

Mr. HAVENS. Yes.

Mr. WAXMAN. OK.

I am concerned that if EPA acts under subtitle D, there would be no consistent national standards that would be consistently enforced. Instead, we would largely rely upon the States to ensure the public health and the environment are protected.

Mr. Havens, you have experience with coal ash regulation at the State level. Do you think that these important protections can be left to the States?

Mr. HAVENS. I think all agencies should protect us as citizens, our health and——

Mr. WAXMAN. Should it be left to the States, or should there be a Federal——

Mr. HAVENS. I think a Federal.

Mr. WAXMAN. OK.

Perhaps all States would elect to require liners, groundwater monitoring, and dust control. But there is nothing in the legislation before us today that requires or encourages the finalization of EPA's subtitle D proposal or the adoption of those requirements by States.

Ms. Zdanowicz, you are here representing State regulators. Can you offer the committee an assurance or a commitment that States would adopt those requirements?

Ms. ZDANOWICZ. Based on prior experience, yes, when there is a Federal requirement, the States do adopt it.

Mr. WAXMAN. OK.

Well, we all agree that there is a risk and that engineering controls can mitigate that risk. If we take our commitment to protect human health and the environment seriously, we should also all agree that those necessary controls should be required.

And I thank you, Mr. Chairman.

Mr. SHIMKUS. I thank the chairman emeritus.

The chair now recognizes the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. MCKINLEY. Thank you again, Mr. Chairman, for allowing me to participate in this panel discussion.

Ms. Zdanowicz, I heard earlier in the testimony that Ms. Evans said that States are unwilling to regulate coal ash. Could you amplify on that a little bit or respond to that?

Ms. ZDANOWICZ. Yes. And I am glad that you asked me, because I disagree with that premise completely.

There are 42 States at which coal ash is disposed. The vast majority of those States have permitting programs, require composite liners or multiple liners, require groundwater monitoring, a number of the things that are protective and that EPA addressed in its proposal. In addition, at least 15 States are considering changing their regulations with regard to coal combustion waste.

So I don't agree that the States aren't doing anything, and, in fact, I would say just the opposite. I am continually impressed with our members and the extent that they go to to make sure the public is safe.

Mr. MCKINLEY. OK.

Tom Adams, could you amplify a little bit? There was also a comment that, if it becomes a hazardous material, that 1391, if 1391 is passed, Ms. Evans said it would decrease coal ash recycling.

I think, if I could preface this remark or this question, I think this whole argument today is over we are trying to remove the stigma to fly ash. That is really what it is all about. Is that not a fair statement?

Mr. ADAMS. Absolutely. What is happening in the marketplace now—and EPA has projected some ideas about what is going to happen with marketing and that kind of thing. Our people live it day-in and day-out. They are hearing from the users, the owners, the specifiers, contractors, consultants. They are hearing what people's position will be under a hazardous waste rule.

This uncertainty, this regulatory uncertainty of are we going hazardous, are we going nonhazardous, is crippling the recycling industry. And each day that this goes on, more and more damage is happening to the recycling industry. And lot of these are small businesses, as I mentioned in my testimony, that will not survive long delay.

Mr. MCKINLEY. I don't think any of your vendors or the people downstream disagree that if it is causing—it is probably the way that the dams in the past, the impoundments in the past have been contained. This Little Blue, it was an old dam, an impoundment built in the 1970s and didn't have the requirements that they have today.

But under the new requirements, whether it is a single liner or a double liner, I think anyone that is using fly ash is going to be concerned about they don't want that to leachate into the water. Is that not fair? I don't think anyone is intentionally trying to cut a corner and pollute the atmosphere or the environment.

Mr. ADAMS. Absolutely. And when I discuss this issue with experts on recycling, like Utility Solid Waste Activities Group, if you go back and look at the landfill and other disposal facilities that have been built in the last 15 to 20 years, you find these protections are built into virtually all these projects. As Ms. Zdanowicz indicated earlier, if you look at the damage cases closely, they are all on facilities that are 20-plus years old, some of them going back even 40 years.

Mr. MCKINLEY. Let me go back. You may or may not have been in the room. In the last panel, there was an issue raised. This is a document from the administration: "Regulation of the CCR under subtitle C could have negative impacts on the reuse or beneficial use of these materials and may create liability concerns related to past reuse of these materials and applications, such as construction and agriculture. And these implications have not been fully explored by the EPA."

Now, that statement is supported by the USDA, the TVA, the Department of Transportation, Department of Interior, Department of Education, the Corps of Engineers, CEQ, OMB. Are they wrong?

Mr. ADAMS. Those agencies all have experience with using these materials beneficially for different purposes. In the case of, as you cited, the USDA, they have completed a risk assessment on the use of synthetic gypsum in agriculture, but EPA will not even pick up the phone and call them and ask them for the data.

In the particular case of use of coal ash in minefill, EPA is committed to working with the Office of Surface Mines. We have encouraged the EPA to do the same on agricultural issues with USDA, but they don't seem to have that phone number.

Mr. MCKINLEY. OK. I just want to make sure, as long as we all understand what 1391 is to do, is to remove the stigma that can be associated with it. The idea of the States maintaining it—and

what I heard you say, Ms. Zdanowicz, is that the States will regulate it. And hopefully there will be the standards set, if it is a double one, a single one, whatever it is, to make sure that we don't have—because none of us want to see anyone hurt. And to think about what the Havens have had to deal with, I am sorry. That was a past situation. I want to make sure that never happens again to another family in America.

I yield back my time. Thank you.

Mr. SHIMKUS. The gentleman yields back his time.

I ask unanimous consent that the following items be included in the record, and these have been pre-cleared: a letter to Administrator Jackson dated November 14, 2010, from Drs. Cosnet, Smith, and Vadder; a letter to the subcommittee from the Edison Electric Institute and the Environment Council of the States, both dated April 13th, 2010; and two letters to residents from First Energy Generation Corp. dated October 22nd, 2010, and February 4th, 2011, regarding the Little Blue Run impoundment.

[The information follows:]

November 14, 2010

The Honorable Lisa Jackson, Administrator
U.S. Environmental Protection Agency
Ariel Rios Building, Mail Code: 1101A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities; Docket ID No. EPA–HQ–RCRA–2009–0640

Dear Administrator Jackson:

The document, "Human and Ecological Risk Assessment of Coal Combustion Wastes", prepared by the US EPA Office of Solid Waste and Emergency Response and the Office of Resource Conservation and Recovery and released in draft form April 2010, examined human and ecological health risks associated with the disposal of coal combustion waste (CCW) and related waste streams in landfills or surface impoundments. The two key exposure pathways considered in the human risk assessment were 1) ingestion of groundwater contaminated by migration of a hazardous CCW constituent, and 2) consumption of fish caught by recreational fisherman from surface waters impacted by contaminants migrating from CCW disposal sites. A major finding of the draft document was that "Arsenic in certain types of WMUs [waste management units] managing certain types of CCW may present lifetime cancer risks above EPA's range of concern to highly exposed groundwater users."[1] In like manner, the risk assessment concluded that lifetime cancer risks exceeding EPA's range of concern were associated with ingestion of fish impacted by arsenic arising from surface impoundments. Overall, the cancer risks associated with arsenic ingestion via these pathways emerged as a principal factor in the report's conclusion that there are "...potentially significant risks to human health from CCW disposal in landfills and surface impoundments."[2]

It is notable that the draft CCW risk assessment document reached its conclusions regarding the arsenic-associated CCW risks by relying on a cancer slope factor (CSF) for arsenic ingestion of 1.5 $(mg/kg\text{-}d)^{-1}$ obtained from EPA's IRIS database. That slope factor, which was first published in IRIS in 1988, is based on a study of the *prevalence of skin cancer* in a population ingesting

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[1] Human and Ecological Risk Assessment of Coal Combustion Wastes, U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response and Office of Resource Conservation and Recovery. EPA: Washington DC, April 2010. Page ES-10. EPA's stated range of concern for excess cancer risk was 10^{-6} to 10^{-4} (page ES-2).

[2] *Ibid*, page 4-40.

arsenic in drinking water. It's use has long been acknowledged by multiple offices of EPA and the broad scientific community to yield an underestimate of the actual cancer risk posed by inorganic arsenic ingestion, which in addition to skin cancer is recognized as a cause of cancer of the lung and bladder in humans. For example, in 2000 - 2001, EPA's Office of Water used independent estimates of arsenic induced lung and bladder cancer, rather estimates derived from the IRIS CSF, as a basis for lowering the maximum contaminant level for arsenic in drinking water from 50 μg/L to 10 μg/L.[3]

Although the draft CCW risk assessment included a nonspecific acknowledgement that "some benchmarks in IRIS are quite dated"[4], the narrative contained no explicit indication that use of the IRIS CSF for arsenic would substantially underestimate the cancer risk. By contrast, the "Regulatory Impact Analysis For EPA's Proposed RCRA Regulation Of Coal Combustion Residues (CCR) Generated by the Electric Utility Industry" (hereafter "RIA") issued by the EPA Office of Resource Conservation & Recovery on April 30, 2010 did explicitly state that "the skin cancer based risk assessments no longer represent the current state of the science for health risk assessment for arsenic."[5] Consequently, the RIA contained an impact analysis based in part on the findings of the National Research Council report "Arsenic in Drinking Water: 2001 Update", which yielded a combined CSF for lung and bladder cancer of 26 $(mg/kg\text{-}d)^{-1}$.[6] Further support for use of a revised CSF for inorganic arsenic ingestion arises from another recent document produced by the EPA National Center for Environmental Assessment entitled, "Toxicological Review of Inorganic Arsenic In Support of Summary Information on the Integrated Risk Information System (IRIS)".[7] Although still under review by the EPA SAB for technical accuracy and science policy implications, this externally peer-reviewed final draft derived an oral CSF of 25.7 $(mg/kg\text{-}d)^{-1}$.

Because estimates of lifetime cancer risk increase linearly with the CSF, a direct consequence of the draft CCW risk assessment's utilization of a CSF of 1.5 $(mg/kg\text{-}d)^{-1}$ instead of 26 $(mg/kg\text{-}d)^{-1}$ is an underestimation of the cancer risk associated with each CCW disposal scenario by a factor of 17.3 (i.e. 26 ÷ 1.5). Accordingly, a revision of the draft CCW risk assessment utilizing the CSF of 26 derived in Appendix K4 of the RIA is indicated at this time. In addition to reinforcing EPA's current draft conclusions regarding the health risk of CCW disposal, use of the alternative CSF may elevate the risk associated with some

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[3] Arsenic in Drinking Water: Final Rule. EPA -815-Z-01. 66 FR 6976 *et seq* (January 22, 2001)
[4] "Human and Ecological Risk Assessment of Coal Combustion Wastes", *op cit*, page 4 -56.
[5] Regulatory Impact Analysis [RIA] For EPA's Proposed RCRA Regulation Of Coal Combustion Residues (CCR) Generated by the Electric Utility Industry, EPA, Office of Resource Conservation and Recovery, EPA: Washington, DC. April 30, 2010. Appendix K4, page 265.
[6] See RIA page 120, and RIA Appendix K4, pp 263 – 266.
[7] EPA/635/R-10/001 (February 2010).

additional disposal scenarios, such as ingestion of fish impacted by certain CCW landfills, into EPA's stated range of concern.

Sincerely,

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Power by Association℠

Edison Electric Institute

Thomas R. Kuhn
President

April 13, 2011

The Honorable John Shimkus
Chairman
Subcommittee on Environment and the Economy
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Gene Green
Ranking Member
Subcommittee on Environment and the Economy
2125 Rayburn House Office Building
Washington, D.C. 20515

RE: Hearing on H.R. 1391 before the House Subcommittee on Environment and the Economy

Dear Mr. Shimkus & Mr. Green:

The Edison Electric Institute ("EEI") and the Utility Solid Waste Activities Group ("USWAG") appreciate the opportunity to provide written testimony on H.R. 1391, the Recycling Coal Combustion Residuals Accessibility Act of 2011. We are pleased that Representative McKinley has introduced H.R. 1391, as we agree that coal combustion residuals ("CCR") do not warrant regulation under RCRA Subtitle C. While there are certain refinements that need to be made to H.R. 1391 to clarify the scope of the bill's Subtitle C prohibition, the legislation represents the start of the process to ensure that, consistent with EPA's regulatory determinations under the Bevill Amendment, CCR is not regulated under RCRA Subtitle C. In addition, we believe that any legislation barring EPA from regulating CCR under Subtitle C should also direct EPA on how to appropriately develop *non*-hazardous waste controls for CCR.

Clarifying the Scope of the Subtitle C Prohibition in H.R. 1391 – It is critically important that the legislation's prohibition on regulating CCR under Subtitle C includes *all* the CCR that Congress intended to be covered by the Bevill Amendment. This is best achieved by prohibiting EPA from regulating under Subtitle C not only the four high-volume fossil fuel combustion wastes listed in the Bevill Amendment (*i.e.*, fly ash waste, bottom ash waste, slag waste and flue gas emission control waste), but also the wastes

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addressed in EPA's 1993 and 2000 Bevill Amendment regulatory determinations. Codification of the regulatory determinations in the legislation's Subtitle C prohibition is necessary to ensure that the prohibition accurately and clearly captures the full scope of CCR waste management practices that Congress intended to be covered by the Bevill Amendment.

The Bevill Amendment's sponsors, including Representatives Bevill and Rahall, went to great lengths to explain that the Amendment's statutory language listing the four high-volume waste streams was intended to encompass fossil fuel combustion wastes as they are actually managed in the real world. *See* 126 Cong. Rec. 3361(1980) (remarks of Rep. Bevill) ("EPA should recognize that these 'waste streams' often include not only the byproducts of the combustion of coal and other fossil fuels, but also relatively small proportions of other materials produced in conjunction with the combustion, even if not derived directly from these fuels."). Consistent with the Bevill Amendment's statutory directive, EPA concluded in its 2000 regulatory determination that these real world practices, including the management of the high-volume CCR with other materials produced in conjunction with the combustion of coal, do not warrant regulation under Subtitle C. *See* 65 Fed. Reg. 32214, 32215 (May 22, 2000) (explaining that the regulatory determination that CCR does not warrant Subtitle C regulation covers "large volume coal combustion wastes . . . that are co-managed together with certain other coal combustion wastes.").

This is an area where H.R. 1391 requires revision. As currently written, the legislation prohibits EPA regulating under Subtitle C the four high-volume CCR listed in the Bevill Amendment's statutory text. We are concerned, however that the legislation's prohibition could be interpreted as being under-inclusive, as it does not specifically refer to the wastes addressed in EPA's Bevill regulatory determinations. To ensure that EPA does not backslide with respect to the scope of its prior Bevill Amendment regulatory determinations, it is important that the bill's prohibition on regulating CCR under Subtitle C specifically encompasses and codifies EPA's 1993 and 2000 regulatory determinations.

Directing EPA on How to Regulate CCR Under a Non-Hazardous Waste Program – In addition to prohibiting EPA from regulating CCR under Subtitle C, the legislation should direct EPA on how to properly regulate CCR under a non-hazardous waste program. This is necessary to ensure that EPA does not promulgate an impractical Subtitle D regulatory regime, such as the self-implementing option contained in last year's Environmental Protection Agency proposed CCR rule that does not contemplate state implementation and administration of the non-hazardous solid waste rules for CCR.

As EEI and USWAG testified throughout the CCR rulemaking process, we believe that EPA should be directed to develop a non-hazardous waste program for CCR patterned after the existing non-hazardous waste program for municipal solid waste landfills ("MSWLFs.") Key elements of the legislation would:

- Direct EPA to develop performance-based non-hazardous waste rules, including liner controls for new units; groundwater monitoring and corrective action, as appropriate; dam integrity standards; and provide adequate time for units that cannot meet these controls to cease receiving CCR and close; and

- Allow for state administration of the rules, authorizing EPA administration and enforcement in those states that do not adequately adopt the federal rules.

EEI and USWAG appreciate Representative McKinley's introduction of H.R. 1391, as this legislation represents the beginning of an important legislative process to ensure the development of cost-effective and environmentally protective non-hazardous solid waste regulations for CCR. We look forward to working with the Subcommittee to achieve this important objective.

Sincerely,

Tom Kuhn

TRK:mh



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R. Steven Brown
Executive Director

April 13, 2011

The Honorable John Shimkus
Chairman
Subcommittee on Environment and the Economy
2452 Rayburn House Office Building
Washington, DC 20515

The Honorable Gene Green
Ranking Member
Subcommittee on Environment and the Economy
2470 Rayburn HOB
Washington, DC 20515

RE: H.R. 1391 - To prohibit regulation of fossil fuel combustion waste under RCRA Subtitle C

Dear Congressmen:

The Environmental Council of the States (ECOS) is writing to support the concepts included in H.R. 1391 as drafted today regarding the regulation of coal combustion residuals (CCR).

ECOS' members are the leaders of the states' environmental agencies. Our members passed a resolution on this matter last year (attached, and also found at: http://www.ecos.org/files/4018_file_Resolution_08_14_2010_version.doc)

ECOS supports the goal of H. R. 1391 to prevent the regulation of coal combustion residuals as a hazardous waste under the Solid Waste Disposal Act (42 U.S.C. 6901).

We understand that you will receive testimony this week from our sister association, the Association of State and Territorial Solid Waste Management Officials. These are the men and women who implement the waste programs within the states' environmental agencies, and we have worked closely with them on this issue. I urge you to carefully consider their testimony which we support.

We ask that you include this letter in the record on this matter. If there is anything else that ECOS can do to assist you in this matter, please do not hesitate to ask.

Regards,

R. Steven Brown

Executive Director

Attachment

ECOS

Resolution Number 08-14
Approved September 22, 2008
Branson, Missouri

Revised March 23, 2010
Sausalito, California

As certified by
R. Steven Brown
Executive Director

THE REGULATION OF COAL COMBUSTION PRODUCTS

WHEREAS, The 1980 Bevill Amendment to the Resource Conservation and Recovery Act (RCRA) requires the U.S. Environmental Protection Agency (U.S. EPA) to "conduct a detailed and comprehensive study and submit a report" to U.S. Congress on the "adverse effects on human health and the environment, if any, of the disposal and utilization" of fly ash, bottom ash, slag, flue gas emission control wastes, and other byproducts from the combustion of coal and other fossil fuels and "to consider actions of state and other federal agencies with a view to avoiding duplication of effort;" and

WHEREAS, U.S. EPA conducted the comprehensive study required by the Bevill Amendment and reported its findings to U.S. Congress on March 8, 1988 and on March 31, 1999, and in both Reports that recommended that coal combustion wastes (CCW) not be regulated as hazardous waste under RCRA Subtitle C; and

WHEREAS, on August 9, 1993, U.S. EPA published a regulatory determination that regulation of the four large volume coal combustion wastes (fly ash, bottom ash, boiler slag, and flue gas emission control waste) as hazardous waste under RCRA Subtitle C is "unwarranted;" and

WHEREAS, on May 22, 2000, U.S. EPA published a final regulatory determination that fossil fuel combustion wastes, including coal combustion wastes, "do not warrant regulation [as hazardous waste] under Subtitle C of RCRA," and that "the regulatory infrastructure is generally in place at the state level to ensure adequate management of these wastes;" and

WHEREAS, U.S. EPA is under no statutory obligation to promulgate federal regulations applicable to CCW disposal following the regulatory determination that hazardous waste regulation of CCW disposal is not warranted, and throughout the entire Bevill regulatory process, CCW disposal has remained a state regulatory responsibility and the states have developed and implemented robust regulatory programs tailored to the wide-ranging circumstances of CCW management throughout the country; and

WHEREAS, in 2005, U.S. EPA and the U.S. Department of Energy published a study of CCW disposal facilities constructed or expanded since 1994 and evolving state regulatory programs that found: state CCW regulatory requirements have become more stringent in recent years, the vast majority of new and expanded CCW disposal facilities have state-of-the-art environmental controls, and deviations from state regulatory requirements were being granted only on the basis of sound technical criteria; and

WHEREAS, the states have demonstrated a continuing commitment to ensure proper management of CCWs and several states have announced proposals for revising and upgrading their state CCW regulatory programs.

NOW, THEREFORE BE IT RESOLVED THAT THE ENVIRONMENTAL COUNCIL OF THE STATES:

Agrees with U.S. EPA's repeated assessments in 1988, 1993, 1999, 2000, and 2005 that CCW disposal does not warrant regulation as hazardous wastes under RCRA Subtitle C;

Agrees with U.S. EPA's finding in the 2005 study previously cited that "the regulatory infrastructure is generally in place at the state level to ensure adequate management of these wastes" and believes that states should continue to be the principal regulatory authority for regulating CCW as they are best suited to develop and implement CCW regulatory programs tailored to specific climate and geological conditions designed to protect human health and the environment;

Supports safe, beneficial reuse of CCW, including for geotechnical and civil engineering purposes;

Believes that the adoption and implementation of a federal CCW regulatory program would create an additional level of oversight that is not warranted, duplicate existing state regulatory programs, and require additional resources to revise or amend existing state programs to conform to new federal regulatory programs and to seek U.S. EPA program approval;

Believes that if U.S. EPA promulgates a federal regulatory program for state CCW waste management programs, the regulations must be developed under RCRA Subtitle D rather than RCRA Subtitle C;

Believes that designating CCW a hazardous waste under RCRA Subtitle C could create stigma and liability concerns that could impact the beneficial use of CCW; and

Therefore calls upon U.S. EPA to conclude that additional federal CCW regulations would be duplicative of most state programs, are unnecessary, and should not be adopted, but if adopted must be developed under RCRA Subtitle D rather than RCRA Subtitle C, and in addition, urges U.S. EPA to make a timely decision, and calls upon U.S. EPA to begin a collaborative dialogue with the states to develop and promote a national framework for beneficial use of CCW including use principles and guidelines, and to accelerate the development of markets for this material.

FirstEnergy.
Generation Corp.

Bruce Mansfield Plant
P. O. Box 128
Shippingport, PA 15077-0128

October 22, 2010

FirstEnergy Generation Corp. would like to correct erroneous claims made by environmental organizations and individuals in recent months about groundwater and surface water impacts at the Little Blue Run disposal facility located in Greene Township.

Most concerning was a statement made in a report by the Environmental Integrity Project, which claimed that "Discharges to groundwater and surface water from the 1,300 acre 'Little Blue' surface impoundment have exceeded MCLs for arsenic and other parameters in multiple off-site residential drinking wells (prompting several buy-outs by FirstEnergy) . . . ." **This claim simply is not true**.

First, discharges from Little Blue Run have NOT caused off-site residential drinking water wells to exceed maximum contaminant levels (MCLs). Second, FirstEnergy has never purchased a home due to concerns about drinking water well contaminants.

Those making the false claims assume that any well sampled in the area of the disposal facility is influenced by it, which is not the case. Some wells with elevated levels of dissolved minerals are simply at too great a distance from Little Blue Run for it to have any impact. Others are in groundwater aquifers that are geologically separated from Little Blue Run, making it impossible for Little Blue Run to be the source of the materials found in the sample.

For example, the report implied that Little Blue Run is the source of high levels of iron in a water sample taken from the Greene Township Municipal Building. A review of geological conditions in the township makes it clear that this well is outside the area influenced by Little Blue Run. In addition, the facility does not contain high levels of iron. The presence of iron in the Municipal Building's water well is most likely from naturally occurring sources, which are common in many other wells in Western Pennsylvania.

In short, these environmental groups consistently ignore basic science while making claims regarding local drinking water wells. In addition, they ignore other factors that could impact someone's drinking water well. Specifically, areas around Greene Township include previous mining operations and historic oil and gas exploration and development, which are significant potential sources for dissolved minerals in local drinking water wells.

-over-

FirstEnergy has a comprehensive groundwater monitoring program to ensure that there is no contamination of drinking water wells by the facility.

Groundwater conditions are sampled, monitored and analyzed quarterly (four times each year) at 42 groundwater monitoring wells, 22 surface water monitoring points and 7 domestic water wells. Additional samples from numerous springs near Little Blue Run are collected and analyzed twice a year. The company's sampling program has been in place for decades to ensure there are no adverse impacts on the local community.

FirstEnergy also maintains a long-standing policy to sample drinking water wells at the request of any nearby property owner, and provides residents with the results of the sample analyzed by an independent laboratory certified by the Pennsylvania DEP. More than 70 off-site drinking water wells have been sampled through this program, with many of those wells sampled on multiple occasions.

FirstEnergy has acknowledged that there have been some limited impacts to groundwater in areas near to and down-gradient from the facility, which would be expected based on the nature of the facility and local geologic conditions. These impacts and the associated groundwater monitoring results are regularly reported to the Pennsylvania DEP, and do not pose a threat to the public or the environment.

Thank you for taking the time to review this information. FirstEnergy understands that some people might have concerns about the Little Blue Run disposal facility and we are committed to providing you with factual information about all aspects of its operation. At the same time, FirstEnergy cannot allow erroneous claims to be unchallenged, as has taken place in recent months, and we will continue to correct that misinformation in the future.

If you have additional questions about FirstEnergy or the Little Blue Run disposal facility, call 724-643-2201.

FirstEnergy
Generation Corp.

Bruce Mansfield Plant
P.O. Box 128
Shippingport, PA 15077-0128

February 4, 2011

Dear Bruce Mansfield Plant Neighbor:

Please allow me to introduce myself – I am Frank Lubich, vice president, Central Fleet Operations, for FirstEnergy Generation. For the past several years I have had overall responsibility for the Bruce Mansfield Plant and have been closely involved in the decisions that have been made regarding its operation. You may have read or heard that our company wants to build a new, state-of-the-art scrubber disposal facility in an area near our existing Little Blue Run impoundment. The new facility would be considered a "dry" disposal site for safely storing the material produced by the plant's scrubbers and would be designed, permitted and constructed to meet stringent state environmental regulations.

I want to emphasize that we have thoroughly evaluated all available known options and selected the solution that we believe minimizes our impacts to the community and the environment, while maintaining this critical plant and associated jobs for a reliable and safe supply of electricity to the western Pennsylvania region.

As part of this process, we have proposed a benefits package that could provide your community with more than $500,000 a year in new revenue for the next 20 to 30 years that could be used to reduce or eliminate the property taxes that you pay to Greene Township during that time.

This benefits package would:

- Provide an annual contribution of $250,000 that could be used to reduce or eliminate property taxes in Greene Township. This payment would begin in 2014, or during the year in which all permits required for the facility are issued, and continue until the new disposal facility is closed. Based on an estimated 20 to 30-year operating period for the new facility, this payment could provide up to $8 million in new revenue to Greene Township.

- Make available $250,000 annually in funding to the township for municipal service improvements. This contribution would begin when disposal operations start at the new facility, estimated between 2016-2018, and continue throughout the operating period of the facility. This contribution could provide up to $7.5 million to the township during the 20-30 years of operations.

- Provide additional annual contributions of up to $25,000 between 2011-2015 to support non-profit and educational organizations in Greene Township. You and your fellow community members would determine which local organizations would receive this funding, such as the Southside School District, local 4-H Club or the Hookstown Volunteer Fire Department.

- Include an annual $10,000 contribution over a four-year period to enable Greene Township to hire a consulting engineer to review technical documents associated with the design and permitting phase of the new disposal facility. After the facility opens, this payment would

continue and cover the cost of hiring a host community inspector to monitor ongoing operations and provide regular inspection reports to the township supervisors.

In addition, we will work with Greene Township and the South Side Area school district to ensure that local taxes are not impacted as a result of any property acquisitions required for the new facility. This "tax-neutral" agreement will maintain tax payments on these properties in the future.

Above and beyond the benefits package, FirstEnergy also has agreed to contribute $50,000 to support the South Side Historical Village Association's efforts to preserve the Glenn Barn by relocating it to the Hookstown Fairgrounds. In addition, we recently donated $5,000 to the South Side Athletic Organization to support a new building at the community athletic complex.

We have presented this proposed benefits package to the Greene Township supervisors. We hope to obtain feedback from residents and refine the package based on the community's input.

Our goal at FirstEnergy is the continued safe, reliable and environmentally responsible operation of our Bruce Mansfield Plant through the construction of a new state-of-the-art disposal facility. Thank you for taking the time to review the information about the proposed facility and benefits package. If you have any questions, please feel free to call us at 724-643-2201.

Sincerely,

Frank Lubich

Vice President, Central Fleet Operations

FirstEnergy Generation

Mr. SHIMKUS. I would also like to thank the second panel and remind Members they have 10 days if they would like to submit additional questions.

And if they do so, if you would get those back to us, we would appreciate it. We know you took out time in your day to help us this morning. We do appreciate it.

And I call the hearing adjourned.

[Whereupon, at 12:04 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Statement of the Honorable Fred Upton
Chairman, Committee on Energy & Commerce
April 14, 2011
Subcommittee on Environment and the Economy Hearing on H.R. 1391,
The Recycling Coal Combustion Residuals Accessibility Act of 2011 (RCCRA of 2011)
(As Submitted for the Record)

Mr. Chairman, thank you for holding this hearing today on legislation to prevent an unnecessary regulatory burden on businesses that recycle fly ash and other fossil fuel combustion by-products. I commend our colleagues, the gentleman from West Virginia, Mr. McKinley, and the gentleman from Ohio, Mr. Latta, for their leadership on this issue.

For decades, Americans have enjoyed the advantages that come with beneficial reuse of coal combustion residuals. For example, they make concrete stronger and longer lasting, wall board more durable, and even improve the quality of roofing shingles.

Each ton of material beneficially recycled is one less ton that needs to be hauled to a landfill. In my own State of Michigan, landfill capacity has been an issue of historical concern.

There are few things the Carol Browner EPA and the Bush Administrations agreed on, but one was that coal combustion by-products need not be regulated as hazardous materials under Subtitle C of the Resource Conservation and Recovery Act. For cases when coal ash is not recycled, states have regulations of their own for ensuring safe handling.

That is why the EPA proposal to regulate these by-products as hazardous caught so many of us by surprise. And it is amazing that when EPA made the proposal back in June, it said,

> "The [regulatory impact assessment] for this proposed rule does not include either qualitative or quantitative estimation of the potential effects of the proposed rule on economic productivity, economic growth, employment, job creation, or international economic competitiveness."

Why not? We have asked EPA Administrator Jackson that question and received no clear answer. We discussed the need for this kind of analysis with Cass Sunstein, Administrator of the Office of Information and Regulatory Analysis at OMB. Yet the Administration seems to persist, indifferent to the impact on the economy and jobs.

If the President wants to stop using coal as an energy resource, then I suggest he propose that to Congress and we can have that debate – in my view that would be very unwise policy, but in the meantime, it is grossly unfair to the recyclers, many of whom are small businesses facing near-term financial ruin from the mere proposal of this regulation.

Mr. Chairman, it is important to bring an economic conscience to the discussion about environmental regulation. Environmental regulation does not have to kill jobs, does not always have to emanate from Washington, and does not always have to raise energy costs for the American people. It should provide common-sense protection with an emphasis on common sense.

Statement from Rep. Diana DeGette
Subcommittee on Environment & Economy

Hearing: 4/14/2011

Coal Combustion Waste (Coal Ash), H.R. 1391

Arsenic and toxic metals like cadmium that build up in the human body over time are present in coal ash. Ms. Ari Lewis, an industry-sponsored toxicologist acknowledged in her testimony that the risk to people from dumping coal ash is "uncertain". We have learned recently that when it comes to our energy resources, somehow, even with our best risk estimates, things can happen that we didn't plan for and are worse than we expected. Mr. Adams from the Coal Ash Association has told us today that his organization supports many of the proposed regulatory controls on coal ash. So we are really all on the same page. They just don't like the designation as "hazardous waste". It seems silly that we are arguing about semantics when we should be concerned about protecting public health. If that means we need to call something a hazardous waste in order to get the best protections within our regulatory framework (and the EPA hasn't even determined that yet), then it seems like this is a small price to pay. It also seems like it is premature for Congress to weigh in at this point before EPA goes through their public comment process, evaluates everything and makes its determination for the rule. It sounds a bit like saying we know the answer we want before we get all the information.

AUTHENTICATED
U.S. GOVERNMENT
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112TH CONGRESS
1ST SESSION

H. R. 1391

To prohibit the Environmental Protection Agency from regulating fossil fuel combustion waste under subtitle C of the Solid Waste Disposal Act.

IN THE HOUSE OF REPRESENTATIVES

APRIL 6, 2011

Mr. MCKINLEY (for himself, Mr. WHITFIELD, Mr. RAHALL, Mr. HOLDEN, Mr. TERRY, Mrs. CAPITO, Mr. OLSON, Mr. BARTON of Texas, Mr. POMPEO, Mr. GIBBS, Mr. GUTHRIE, Mr. KINZINGER of Illinois, Mrs. MCMORRIS RODGERS, Mr. CRITZ, Mr. MURPHY of Pennsylvania, and Mr. GRIFFITH of Virginia) introduced the following bill; which was referred to the Committee on Energy and Commerce

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A BILL

To prohibit the Environmental Protection Agency from regulating fossil fuel combustion waste under subtitle C of the Solid Waste Disposal Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Recycling Coal Combustion Residuals Accessibility Act of 2011" or the "RCCRA Act of 2011".

SEC. 2. FINDINGS.

The Congress finds the following:

(1) Pursuant to section 3001(b)(3)(C) of the Solid Waste Disposal Act (42 U.S.C. 6921(b)(3)(C)), the Environmental Protection Agency, in two separate final regulatory determinations, "Final Regulatory Determination on Four Large-Volume Wastes From the Combustion of Coal by Electric Utility Power Plants" published at 58 Fed. Reg. 42466 (August 9, 1993) and "Notice of Regulatory Determination on Wastes from the Combustion of Fossil Fuels" published at 65 Fed. Reg. 32214 (May 22, 2000) (hereinafter the "2000 regulatory determination"), concluded that neither large-volume coal combustion wastes, nor any of the remaining fossil fuel combustion wastes, warrant regulation under subtitle C of the Solid Waste Disposal Act.

(2) In its 2000 regulatory determination, the Environmental Protection Agency found that regulation of fossil fuel combustion wastes under subtitle C of the Solid Waste Disposal Act would be environmentally counterproductive because such regulation would unnecessarily stigmatize such wastes and impede their beneficial use.

(3) The Department of Energy, the Federal Highway Administration, and the Department of

Agriculture have studied fossil fuel combustion wastes and determined that such wastes do not require a hazardous waste designation under subtitle C of the Solid Waste Disposal Act.

(4) Roughly 42 percent of fossil fuel combustion wastes are used beneficially in a variety of applications, including in concrete, wallboard, bricks, agricultural fertilizers, soil amendments, roofing materials, and other consumer products, in producing road base and fill materials, and in snow and ice control products.

(5) According to the Environmental Protection Agency, 13,700,000 tons of fossil fuel combustion wastes were recycled and used in place of Portland cement in 2007, saving the United States nearly 73,000,000,000,000 BTUs of energy, which is equivalent to the annual energy consumption of more than 676,000 households. Greenhouse gas emissions were also reduced by 12,400,000 metric tons of carbon dioxide equivalent, roughly the annual greenhouse gas emissions of 2,300,000 vehicles.

(6) The regulatory impact analysis for the Environmental Protection Agency's proposed rule entitled "Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes;

Disposal of Coal Combustion Residuals From Electric Utilities" published at 75 Fed. Reg. 35128 (June 21, 2010) stated that such proposed rule did not include either a qualitative or quantitative estimation of the potential effects of the proposed rule on economic productivity, economic growth, employment, job creation, or international economic competitiveness.

SEC. 3. NO REGULATION OF FOSSIL FUEL COMBUSTION WASTE UNDER SUBTITLE C OF THE SOLID WASTE DISPOSAL ACT.

Section 3001(b)(3) of the Solid Waste Disposal Act (42 U.S.C. 6921(b)(3)) is amended by adding at the end thereof the following:

"(D) Notwithstanding the provisions of paragraph (1) or any other provision of this paragraph, each waste listed in clause (i) of subparagraph (A) of this paragraph shall not be subject to regulation under this subtitle.".

○

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

JUN 16 2011

The Honorable John Shimkus
Chair
Subcommittee on Environment and Economy
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Thank you for your letter of April 29, 2011, to the Environmental Protection Agency (EPA) Assistant Administrator Mathy Stanislaus providing Questions for the Record from the April 14, 2011, hearing on "H.R. 1391- A Bill to Prohibit the EPA from Regulating Coal Combustion Residuals Under Subtitle C of the Solid Waste Disposal Act."

Please find the enclosed responses to these questions. I hope this information will be useful to you and Members of the Committee. If you have further questions, please contact me or your staff may contact Carolyn Levine in EPA's Office of Congressional and Intergovernmental relations at (202) 564-1859.

Sincerely,

Arvin R. Ganesan
Deputy Associate Administrator
for Congressional Affairs

Enclosure

EPA Responses to Questions for the Record
April 14, 2011
Hearing on H.R. 1391- A Bill to Prohibit the EPA from Regulating Coal Combustion Residuals Under Subtitle C of the Solid Waste Disposal Act
Before the Subcommittee on Environment and the Economy
Committee on Energy and Commerce

Congressman John Shimkus (R-IL-19)

1. A number of the damage cases you referred to in your testimony before the Subcommittee are based only on the presence of arsenic and/or selenium—which are naturally occurring in many areas, how did you factor in the background levels of those metals in those areas?

Response: In assessing ground water contamination potentially caused from leaching of CCRs, EPA looked at the concentrations of arsenic and selenium, as well as other contaminants in monitoring wells hydrologically up-gradient from the CCR units and the concentration of those contaminants in wells located hydrologically down-gradient from the CCR units. The key parameters are the differences in concentrations of these contaminants. The concentration in wells up-gradient reflects groundwater before it passes under the CCR unit, and so should reflect background, while the concentration in wells down-gradient reflects the groundwater after it has passed under the CCR unit, and so it should reflect background plus any contamination caused by leaching of these contaminants from the CCR unit.

2. In your written testimony before the Subcommittee, you make the blanket statement that classifying coal ash as "hazardous" will increase recycling and in your written testimony you refer to "market analyses" that support your allegation - what market analyses are you referring to? What other evidence do you have to support the claim that recycling will increase? Please provide specific examples where this has occurred.

Response: EPA's written testimony did not address whether beneficial use of CCRs will increase or decrease under EPA's regulatory proposal. However, EPA's analysis for our statement that coal ash recycling would be expected to increase is discussed in section 5C2 (pages 157 to 159) of EPA's Regulatory Impact Analysis (RIA) for the June 2010 CCR proposed rule. The RIA is available for download from http://www.regulations.gov as document ID number EPA-HQ-RCRA-2009-0640-0003. The specific examples cited in the RIA are existing hazardous waste recycling and coal ash recycling markets involving (1) electric arc furnace dust, (2) electroplating wastewater sludge, (3) chat, (4) used oil, (5) spent etchants, (6) spent solvents, (7) household materials (motor oil, gasoline, drain cleaners, household cleaners, TV and computer cathode ray tube monitors, fluorescent lamps, compact fluorescent lamps), (8) ASTM market standards, (9) Green Building Council LEED market standards for concrete, (10) Federal "Comprehensive Procurement Guidelines" for federally-funded projects involving coal ash recycling in the cement market, and (11) state government statutes and regulations for coal ash beneficial use markets.

EPA's other evidence is presented in the same RIA document. Specifically, the existing U.S. nationwide market conditions for coal ash recycling as described by the American Coal Ash Association (ACAA) characterizes current market conditions as being stimulated by an "*avoided disposal cost incentive*" as evidenced by the ACAA quotation about this current market condition on page 169 in the RIA. Given that the Subtitle C "*special waste*" regulatory approach is more costly on an average annualized basis compared to the Subtitle D based approaches, the Subtitle C approach may provide greater "*avoided*

disposal cost incentive" to grow coal ash recycling markets. EPA estimated in the RIA document (section 5C.2) that this potential cost-incentivized growth in future beneficial uses could contribute $6.1 billion per year in economic benefits (to industrial markets) and environmental benefits under the Subtitle C option, compared to lower beneficial use growth benefits of $2.4 billion per year under the less-costly Subtitle D option.

Congressman Cory Gardner (R-CO-4)

1. Is it the case that, prior to EO 13563, the EPA did not take into account job losses or gains in an economic analysis of every economically significant regulation?

Response: Consistent with relevant Executive Orders, EPA estimates the benefits and costs of all of its economically significant rules. Labor, a key factor of production, is intrinsically incorporated into EPA's economic analyses and EPA pays close attention to the impact of our rules on industry and the economy. The Agency has supplemented these detailed analyses on a case-by-case basis with a qualitative or quantitative analysis that looks specifically at employment impacts, but it has never been standard practice of the Agency (under any Administration) to perform an employment analysis for every rule. EPA is keenly aware that these are tough economic times and there is particular concern about impacts on employment -- that is why we have been performing quantitative employment analyses on economically significant rules more frequently than the last Administration.

2. What is the methodology used by the EPA to plan and perform a thorough and complete economic analysis of a particular regulation, including analysis of regulatory alternatives? How does EPA decide whether the creation of jobs directly as a result of regulation should be part of a thorough economic analysis? Please provide me with examples of regulatory analyses in which EPA has assessed the impact on employment, and the rationale for performing jobs analyses for these regulations?

Response: EPA's *Guidelines for Preparing Economic Analyses* (USEPA 2010) provides the basic framework for the Agency's economic analyses. Recently revised and updated to reflect the latest literature, the Agency generally received strong support and praise from its Science Advisory Board on the document:

> "By providing thorough and consistent technical advice regarding the application of benefit cost analysis to environmental problems, the Guidelines significantly elevate the quality and transparency of the information upon which environmental decisions are made. We again applaud EPA for developing these Guidelines and the Agency's commitment to continually revise and improve them. Indeed, we believe these Guidelines could serve as a successful model for all state and federal agencies who undertake benefit-cost analysis in support of environmental decision making." [1]

EPA's analyses also comply with OMB Circular A-4's guidelines on economic analysis. Because each regulation is different, EPA examines them on a case-by-case basis to determine if additional analysis on employment impacts is warranted, and if the appropriate analytical tools are available to provide a quantitative estimate.

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[1] USEPA. 2009. Science Advisory Board (SAB) Advisory on EPA's draft *Guidelines for Preparing Economic Analyses (2008)*. EPA-SAB-09-018. P iii. http://yosemite.epa.gov/sab/sabproduct.nsf/cf0020ec3f99320a85256eb4006b6bd1/559b838f18c36f078525763c0058b32f/$FILE/ATTC1H4M/EPA-SAB-09-018-unsigned.doc

As an example, EPA performed an employment analysis as part of the National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial & Institutional Boilers and Process Heaters. Published, peer-reviewed work by Morgenstern, Pizer, and Shih (2002) which examined actual employment impacts in regulated industries gave EPA an analytical basis for estimating employment impacts for the industrial sectors in this specific NESHAP major source rule. Our analysis estimates that the rule's impact on employment will be modest, but will, on net, result in an increase in employment in those sectors.

3. Regarding the Coal Ash Rule, EPA's analysis shows that there is a larger proportion of low-income families in the areas where the analyzed plants are located, and also that this regulation would increase their electricity prices. Please explain why EPA decided not to include an assessment of how job losses combined with increased electricity prices in these communities would impact these families.

Response: As discussed in response to questions posed by several Subcommittee Members during the April 14, 2011 hearing, EPA conducted an extensive Regulatory Impact Analysis to estimate the economic and environmental benefits and costs of the Coal Ash Rule. Among its other estimates, the RIA estimated the potential increase in the cost of disposal of coal ash that could result from the regulatory options—that is, a Subtitle C regulatory approach and a Subtitle D regulatory approach that EPA considered in the proposal -- and the potential impacts of those estimated cost increases on electricity prices.

In estimating the upper-bound of a potential electricity price increase, the RIA evaluated a hypothetical scenario whereby the electric utility "passes through" 100 percent of regulatory costs to their customers. The RIA estimated that even with a 100 percent cost pass-through, the potential increases in electricity prices to coal fired electricity customers would be an average of 0.795 percent for the Subtitle C option and an average of 0.172 percent for the Subtitle D option, relative to the 2009 national average electricity price of $0.088 per kilowatt hour. Given these small effects, electricity production would not be expected to change much, if at all, as a result of the proposed rule. Therefore, EPA anticipates there would be little, if any, impact on jobs associated with electricity production.

Although not calculated in the RIA, it is possible to translate these potential maximum electricity price increases for the 100% hypothetical cost pass-thru scenario into potential maximum increases in the average monthly electricity bills paid by U.S. households. This translation is based on the most recent (2008) electricity consumption data available for the U.S. from the Energy Information Administration. Under the Subtitle C option, the average monthly household electricity bill would be expected to increase by a maximum of roughly 82 cents per month, less if part of the regulatory costs come from profits of the facility. Under the Subtitle D option, the average monthly household electricity bill would be expected to increase by a maximum of roughly 18 cents per month.

In addition, as part of the RIA, EPA conducted an analysis on the potential ancillary impact on coal ash beneficial use industries. Please note, since the proposed rule retained the Bevill exclusion regarding the beneficial use of coal combustion residuals (CCRs), the proposed rule would not require that CCRs beneficially used be subject to any federal regulation. Thus, no "direct costs" would apply as a result of the proposed rule. However, because of concerns that were raised regarding the "stigma" of calling CCRs hazardous wastes, the 2010 RIA conducted an analysis that estimated three alternative future scenarios involving an increase in the beneficial use of CCRs, a decrease in the beneficial use of CCRs, and no change in the beneficial use of CCRs by other industries. For each scenario, the RIA estimated the future possible change in the annual market cost of these three scenarios on continued future use of

CCRs, compared to the alternative market cost to the other industries for purchasing substitute raw materials.

EPA would expect that an increase in the beneficial use of CCRs might result in an increase in jobs related to CCR-beneficial use industries, although it could result in a decrease in jobs related to raw material supply industries for which CCR would be a substitute material, while a decrease in the beneficial use of CCRs might result in a decrease in jobs related to CCR-beneficial use industries, but might lead to an increase in jobs in industries related to the use of substitute materials for CCRs. In each beneficial use scenario, EPA anticipates an increase in jobs associated with the pollution control equipment and services for compliance with the rule. The RIA with the proposed rule did not include specific indications of the magnitude or net effects of these jobs impacts. However, EPA specifically solicited comment on market costs and employment, and will consider those comments as we develop a final rule.

4. How will the EPA quantify both the direct and indirect effects on U.S. job creation and employment associated with particular regulation in the future, as directed by the President's EO?

Response: On January 18th 2011, President Obama issued a new executive order, EO 13563. This executive order reaffirms that:

a. "Our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation." [2]

In particular, OMB's recent Draft Report to Congress clarifies:

b. "consistent with Executive Order 13563, regulatory decisions and priority-setting should be made in a way that is attentive to the importance of promoting economic growth, innovation, job creation, and competitiveness. The simplest method for achieving that goal is to continue to engage in careful analysis of both costs and benefits and as a general rule, to proceed only if the benefits justify the costs."[3]

EPA will be fully complying with EO 13563.

5. Please provide me with a list of all rules that have been finalized for which the EPA has not yet performed an economic analysis of the regulation's direct and indirect impact on jobs.

Response: So far this year, the only economically significant rule which has been finalized for which the EPA did not perform an analysis of employment impacts is the "Oil Pollution Prevention: Spill Prevention, Control and Countermeasure (SPCC) Rule – Amendments for Milk and Milk Products Containers." This rule resulted in an annualized savings of $146 million.[4]

6. EO 13563 directs the executive branch to periodically review "existing significant regulations to determine whether any such regulations should be modified." Will this review include an analysis of the impact various regulations have had on jobs since they were finalized?

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[2] http://www.whitehouse.gov/the-press-office/2011/01/18/improving-regulation-and-regulatory-review-executive-order

[3] OMB, Draft 2011 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities, page 50 (http://www.whitehouse.gov/sites/default/files/omb/legislative/reports/Draft_2011_CBA_Report_AllSections.pdf

[4] http://www.gpo.gov/fdsys/pkg/FR-2011-04-18/pdf/2011-9288.pdf

Response: EPA will be examining a variety of factors as we review regulations under EO 13563, including, where appropriate, the available data on the economic impacts of such rules. EPA notes that, peer-reviewed studies of the retrospective impacts of environmental regulations on employment have often failed to find major employment impacts, even in heavily regulated sectors. For example, Morgenstern et al. (2002) estimated employment impacts for four heavily regulated industries (pulp and paper, refining, iron and steel, and plastic) and concluded:

a. "We find that increased environmental spending generally does *not* cause a significant change in employment. Our average across all four industries is a net gain of 1.5 jobs per $1 million in additional environmental spending.... These small positive effects can be linked to labor-using factor shifts and relatively inelastic estimated demand." [5]

Harvard Economist Dale Jorgenson recently agreed that that there was no evidence to support large job losses linked to environmental regulations, saying: "I wouldn't say that there is any academically respectable support for that view."[6]

[5]Jobs Versus the Environment: An Industry-Level Perspective. Richard D. Morgenstern, William A. Pizer, and Jhih-Shyang Shih, *Journal of Environmental Economics and Management* | May 2002 | Vol. 43, no. 3 | pp. 412-436.
These results are similar to Berman and Bui (2001) who find that while sharply increased air quality regulation in Los Angeles to reduce NOx emissions resulted in large abatement costs they did not result in substantially reduced employment.

[6] Is EPA's greenhouse gas plan a job killer? History might offer clues. Christian Science Monitor. (March 2, 2011)

AMERICAN COAL ASH ASSOCIATION
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720.870.7897

May 10, 2011

The Honorable John Shimkus, Chairman
US House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy and the Economy
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Congressman Shimkus,

Thank you for the opportunity to testify on April 14, 2011 before your subcommittee on H.R. 1391. The American Coal Ash Association appreciates the subcommittee's interest in this important bill. Should the US Environmental Protection Agency create regulation for the disposal of coal combustion products under Subtitle C of the Resource Conservation and Recovery Act of 1976, the recycling of these materials, one of the greatest environmental success stories of our time would be devastated.

I am in receipt of questions posed following the referenced hearing. I am providing responses as listed below.

1. *How does the American Coal Ash Association define beneficial use?*

   In order to qualify as a beneficial use, such use must meet four criteria.
   - i. The use must be environmentally responsible.
   - ii. The use must be technically sound.
   - iii. The use must be commercially competitive
   - iv. The use must be supportive of a sustainable global community.

   a. Please explain the difference between encapsulated and unencapsulated uses.

   These terms have been applied by the EPA. They have been used to describe uses where a coal combustion product (CCP) is encapsulated in a matrix such that there is little or no opportunity for migration of elements from that matrix. For example, fly ash mixed with Portland cement, fine and coarse aggregates, and water creates a concrete product from which little or no leaching of elements occurs.

An example of an unencapsulated use would be the use of a CCP used for structural or geotechnical fill in place of a mined aggregate. The concern is that as water contacts the CCP elements would be able to migrate into groundwater. This concern is not a danger in our opinion when structural fills are done using standard engineering practice and appropriate quality control/quality assurance is present.

A more correct terminology would be bound and unbound uses as characterized in European standards.

b. Please elaborate on why unencapsulated uses are not inherently unsafe.

The safe use of any CCP depends on the nature of the use, not the nature of the material itself. In the case of current industry practice for structural fills, the CCP is placed into an engineered system which includes liners and cover to mitigate contact with groundwater and surface water. If there is no water migrating through the fill, there can be no opportunity for contamination.

Also the amount of CCP used in the final product is important. If a CCP is used to stabilize a road base, some groundwater may contact that stabilized base. However the amount of CCP used for stabilization may only be 5% of the total volume of material in place. As a result the amount of elements present in the stabilized contained in the CCP for potential migration is extremely low.

It is not the fact that a CCP may contain an element of concern, such as arsenic, that should be the focus. It is the system into which the CCP is placed that is important.

It should also be noted that alternate materials used in these applications contain the same elements of concern. In the case of road bases, the common alternate materials are portland cement and lime. Both of these materials contain the same elements as CCP and often in higher concentrations.

c. Are there damage cases resulting from beneficial use as the American Coal Ash Association defines it – from either encapsulated or unencapsulated uses?

No. To the best of our knowledge there are no damage cases from beneficial uses that meet the four criteria listed above.

2. Please provide a range of the members of your organization represents and the scope of products they produce that could be affected by EPA's actions. If possible, please provide specific examples of the effects of EPA's proposed rule; specifically, the proposal to regulate coal combustion residuals under Subtitle C of RCRA.

The American Coal Ash Association membership includes some the largest utility companies in the US to small businesses and individuals. Our members include generators of CCP (utilities), ash management and marketing firms, ash handling and beneficiation equipment vendors, contractors, CCP product manufacturers consultants, academics, and individual interests.

The products produced or supported by these members include concrete products for virtually all applications – residential, commercial, industrial, transportation and infrastructure; cement manufacture; synthetic lumber; coatings for various commercial products; roofing shingles; blasting grit; carpet backing; drywall and other wallboard; agricultural soil amendments; and agricultural fertilizers.

Our members concerns fall into two fundamental categories. First, the exposure to liability suits would drive users away from CCP. Unfortunately there is ample evidence that trial lawyers would attempt to create cases based on the argument that a material that is hazardous when retained on the property of the generator must also be hazardous when taken off the generator's property and incorporated into products and projects throughout the community. Exposing the public to a "hazardous waste", in spite of the lack of damage cases, is a risk owners, architects, engineers, material producers, contractors, and labor will not take.

There have been comments from some generators that should a Subtitle C regulation be promulgated they will direct all CCP to disposal and not allow any beneficial use. The reasoning behind this thinking is that all disposal costs are recoverable in rate structures and would be passed on to rate payers. Costs for defending tort activity is not recoverable in rate structures. Those costs would be paid by the investors in the generator. Therefore the rational decision is to protect investors by disposing of all CCO.

The second concern from our membership is the creation of a stigma about CCP, something already occurring even without a rule being announced. Public acceptance of a product containing "hazardous waste" is problematic. Given a choice between selecting a product containing a CCP which is considered hazardous for disposal purposes and a product which does not contain CCP, the rational decision is to select the "safer" product. We have already noted evidence of marketing efforts by companies competing with CCP users implying that any product containing a CCP is dangerous.

EPA has stated that the stigma concern is overblown. The agency has said they will support certain beneficial uses under any rule and the public will ignore any type of stigma effect should a hazardous waste rule emerge. They are wrong for two reasons.
First their argument that they have listed thirteen materials in such a manner and recycling rates increased with all thirteen materials. By increasing the cost of disposal, generators have an incentive to improve CCP and make them more attractive to markets. The thirteen materials cited a generated in relatively small quantities, do not leave the possession of the generator, are heavily reprocessed before reuse, and are used in industrial applications. These are materials include spent sulfuric acid, electric arc furnace dust, and used oil. CCP is quite different. It is generated in large quantities, moved through a supply chain, with virtually no reprocessing, and used in retail, commercial, institutional, industrial, and infrastructure markets. Homeowners can literally touch products containing CCP from the roof of their house to the drywall to the carpet to the foundation.

Secondly, an unfortunate example of why the EPA is wrong about stigma and public acceptance is unfolding as a result of the BP oil spill in the Gulf of Mexico in 2009. The region's fishing industry is devastated as consumers are refusing to bug seafood produced from the Gulf. Government agencies have been testing these products and have repeatedly assured the public that the seafood being offered is safe to eat. The public does not believe these assurances and are turning away from seafood harvested in the Gulf of Mexico. Just because government agencies say a product is safe does not necessarily resolve doubt in the mind of consumers.

As the result of a Subtitle C regulation, many of our members would be out of business as liability and stigma would destroy their markets. The jobs provided by these members would disappear. The materials furnished by our members would come from existing competitive sources. There would be a net loss in employment. Disposal of CCP would increase as markets turned away from CCP use resulting in the need for significant, new landfill creation. Disposal rates at commercial landfills would increase for all users. Greenhouse gases would increase as the use of fly ash decreased. For each ton of cement that is replaced by a ton of fly ash in concrete products, approximately one ton of greenhouse gas production is avoided.

I hope these responses are helpful in your deliberations. We are available to provide any additional information deemed important in this matter. We urge you and your colleagues to support H.R. 1391 to help protect the CCP recycling industry from over-reaching EPA regulation.

Sincerely,

Thomas H. Adams

Thomas H. Adams, Executive Director
American Coal Ash Association

Association of State and Territorial
ASTSWMO
Solid Waste Management Officials

May 17, 2011

Honorable John Shimkus
Committee on Energy and Commerce
Subcommittee on Environment and the Economy
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Shimkus,

It was my pleasure to appear before the Subcommittee on Environment and the Economy on April 14, 2011 for the hearing on H.R. 1391.

Thank you for providing the opportunity to provide responses to the additional questions on this matter. The Association of State and Territorial Solid Waste Management Officials' (ASTSWMO's) responses to the questions are provided with this letter.

Please do not hesitate to contact us if we can provide any additional assistance.

Respectfully,

Mary T. Zdanowicz
Executive Director
ASTSWMO

Association of State and Territorial Solid Waste Management Officials
Responses to Additional Questions for the Record
April 14, 2011 Hearing on H.R. 1391

Responses to Chairman Shimkus' Additional Questions for the Record

1. Would you please provide the following information regarding state regulation of coal combustion residuals:

a) How many states currently generate coal combustion residuals?

Forty-five States generate coal combustion residuals (CCR). Not all States in which CCR is generated have disposal of CCR. CCR is disposed in only 42 of those States.

The responses below are based on the information that ASTSWMO has about State programs. ASTSWMO does not have the information requested below for 3 States of the 42 States in which CCR is disposed. Additionally, ASTSWMO may not have information to be able to respond to each question for all 39 of the remaining States. For each information request response, the number of States that ASTSWMO has information for is provided with the information that is available for those States.

b) How many states require permits for disposal?

Thirty-six out of 42 States require permits for disposal of CCR in landfills. Twenty-nine out of 32 States require permits for the management of CCR in surface impoundments. In some States, the permits may not be specifically for disposal of CCR in surface impoundments. In those cases, the permit may be for effluent discharge[1].

i. In the states that require permits for disposal of coal combustion residuals, what are the liner requirements?

ASTSWMO has information about landfill liner requirements for 38 States. In 27 of the 38 States, a bottom liner is required for landfills. Eleven of the 38 States do not require a bottom liner. Seven of those 11 States make a determination about requiring a bottom liner on a case-by-case basis. Liner requirements in 32 States are as follows: dual/multiple liner in 9 States; composite liner in 14 States; clay liner in 7; and 2 States require another type of liner. Variances are allowed in 23 States and exemptions in 7 States. Liner requirements apply to both existing and new lateral expansions of landfills in 13 States and only new expansions in 23 States.

ASTSWMO has information about surface impoundment liner requirements for 26 States. In 17 of the 26 States, a bottom liner is required for surface impoundments. Nine of the 26 States do not require a bottom liner. Five of those States make a determination about requiring a bottom liner on a case-by-case basis. Liner requirements in 19 States are as follows: dual/multiple liner in 9 States; composite liner in 5 States; clay liner in 5 States. Variances are allowed in 7 States and exemptions in 3 States. Liner requirements apply to both existing and new lateral expansions of surface impoundments in 12 States and only new expansions in 9 States.

ii. In each of the states that require permits for disposal of coal combustion residuals, what are the groundwater monitoring requirements?

ASTSWMO has information about landfill groundwater monitoring requirements for 39 States. In 34 of the 39 States, groundwater monitoring is required for landfills. Five of the 39 States do not require groundwater monitoring. Groundwater monitoring requirements apply to both existing and new lateral expansions of landfills in 29 States and only new expansions in 4 States.

ASTSWMO has information about surface impoundment groundwater monitoring requirements for 27 States. In 18 of the 27 States, groundwater monitoring is required for surface impoundments. Nine of the 27 States do not require groundwater monitoring. Six of those 9 States make a determination about requiring groundwater monitoring on a case-by-case basis. Groundwater monitoring requirements apply to both existing and new lateral expansions of surface impoundments in 15 States and only new expansions in 3 States. Five States that make case-by-case determinations about groundwater monitoring do so for both existing and new lateral expansions of surface impoundments.

iii. In each of the states that require permits for disposal of coal combustion residuals, what are the requirements or regulations regarding structural stability?

ASTSWMO has information about landfill structural stability monitoring requirements for 36 States. In 30 of the 36 States, structural stability monitoring is required for landfills. Six of the 36 States do not require structural stability monitoring. Structural stability monitoring requirements apply to both existing and new lateral expansions of landfills in 24 States and only new expansions in 6 States. Two States that make case-by-case determinations about structural stability do so for both existing and new lateral expansions of surface impoundments and only new expansions in 1 State.

ASTSWMO has information about surface impoundment structural stability monitoring requirements for 25 States. In 16 of the 25 States, structural stability monitoring is required for surface impoundments. Seven of the 25 States do not require a structural stability monitoring. Two of the 7 States make a determination about requiring structural stability monitoring on a case-by-case basis. Structural stability monitoring requirements apply to both existing and new lateral expansions of surface impoundments in 12 States and only new expansions in 2 States. Two States that make case-by-case determinations about structural stability do so for both existing and new lateral expansions of surface impoundments and only new expansions in 1 State.

Association of State and Territorial Solid Waste Management Officials
Responses to Additional Questions for the Record
April 14, 2011 Hearing on H.R. 1391

2. At the hearing before the Subcommittee on April 13, 2011 you and Ms. Santoianni testified that if EPA regulates coal combustion residuals under Subtitle C of RCRA, a potentially sizeable volume of coal combustion residuals will be diverted to the commercial hazardous waste disposal market.

a) What quantity of coal combustion residuals will likely be diverted to off-site hazardous waste facilities?

EPA's proposed rulemaking for the Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes: Disposal of Coal Combustion Residuals from Electric Utilities, published in the Federal Register on June 21, 2010 (75 FR 35128) (hereinafter "Proposal") indicates that more than 130 million tons of coal ash are generated by 495 coal-fired electric power plants annually.

The estimates of the amount of CCR that would be disposed in off-site hazardous waste landfills under the proposed Subtitle C option vary. Using the most optimistic assumptions, that beneficial use continues at its current rate of about 45%[2] and that 70%[3] of disposed CCR continues to be disposed on-site, 22 million tons of CCR would be disposed off-site.

However, there are several factors that make it unlikely that beneficial use and on-site disposal will continue at current rates. For example, beneficial use of CCR would likely decline due to the stigma associated with hazardous waste regulation. There is anecdotal evidence that this is already occurring based on the *prospect* of Subtitle C regulation. Off-site disposal would likely increase due to the burdensome and costly requirements for permitting a hazardous waste facility on-site.

b) How long will it take to consume existing off-site hazardous waste landfill capacity?

EPA's current projected Commercial Subtitle C Management Capacity through 2013 is 34 million tons. Based on State estimates, there is only 31 million tons of currently permitted Subtitle C disposal capacity remaining, 3 million less than the EPA's 2013 projection. Thus, even using the most optimistic estimate for off-site disposal (22 million tons annually) and the higher estimate of available Subtitle C capacity (34 million tons) the available Subtitle C capacity would be consumed in less than a year and a half.

c) What are some of the practical and economic impacts on the states if this were to occur?

The likely impact on State regulatory programs, if EPA selects the Subtitle C option, is a serious concern. The Proposal identified 495 electric generating stations with an estimated 300 landfills and 584 surface impoundments in which CCR are disposed on-site. There are currently fewer than 20 permitted commercial Subtitle C disposal facilities in the country. If all existing electric generating stations seek Subtitle C permits for on-site units, States would have to issue permits for as many as 25 times more Subtitle C permitted disposal facilities than exist now. This would require a massive permitting effort be implemented and overseen by the States. Permitting is only one aspect of regulating Subtitle C facilities. For example, significant efforts and resources would also be needed to:

- inspect and enforce permit compliance at regulated facilities;

- evaluate closure plans for surface impoundments required to close by specified deadlines;
- provide permits and oversight for the closure of disposal units;
- implement and provide oversight of financial assurance requirements for permitted facilities;
- implement facility-wide corrective action requirements established by §3004(u) and §3004(v) of RCRA; and
- oversee and enforce ancillary hazardous waste management requirements applicable to generators of hazardous waste at facilities generating CCRs.

The impact on individual States would be even more severe than these numbers imply, since the 495 power plants affected by the rule are not distributed evenly across the country. States with a disproportionate share of plants (such as PA (34 plants), IN (26), OH (26), IL (25), NC (22), MI (22), MO (20), TX (19)) would face disproportionate challenges.

Transportation issues associated with CCR designated as hazardous waste will also have an adverse impact on States and local communities. The burden on transportation infrastructure and citizens, including the potential for environmental justice and equity impacts, would be enormous. The amount of CCR Subtitle C waste that would be shipped would be concentrated in far fewer communities compared to current shipment patterns. According to EPA's RCRA Hazardous Waste Report, 7 million tons of hazardous waste is shipped each year by 16,349 hazardous waste generators. Transportation of far greater quantities of CCR would be concentrated in far fewer communities than those in which current generators are located.

The location of Subtitle C landfills will create disproportionate impacts on transportation for States in particular regions of the country. For example, the States in the Northeast Region of the country generate 23 million tons of CCR . There is currently only one commercial Subtitle C disposal facility in the Region and its remaining capacity is less than a half million tons. Using the most optimistic assumptions about the continuation of beneficial use and on-site disposal of CCR, an estimated 8 million tons would have to be transported out of the Region each year.

d) Is it possible to create additional hazardous waste landfill capacity in time to deal with the disposal of coal combustion residuals?

Only a few States have issued an original Subtitle C installation permit since 1990. Even fewer have issued an original commercial Subtitle C disposal facility permit since 1990. At that time, it could take several years to permit a Subtitle C facility, especially for commercial disposal facilities. But there are additional complicating factors today. Of the estimated 38 staff that States identified as having experience processing original Subtitle C installation permits, 23 are eligible to retire within 5 years, leaving only approximately 15 staff nationally that have this experience.

There are other significant impediments to permitting that must be considered. Permitting hazardous waste facilities may be conditioned upon the applicant meeting additional State or local requirements or may even be prohibited.

At least two States have statutory prohibitions[4] against hazardous waste landfills. In some States, siting hazardous waste landfills may be prohibited under certain circumstances[5] such as whether there is another hazardous waste treatment facility in the county or the proximity to inhabited areas[6].

States face a variety of hurdles that precede conducting certain steps in the permitting process, such as technical review of an application. Such requirements may include:

- review by legislative oversight committees;
- legislative approval;
- local public hearings;
- approval by local and/or State siting boards or commissions;
- environmental and health impact assessments; and/or
- issuance of a certificate of public necessity.

State or local zoning and siting requirements can be prohibitively restrictive, so much so that one State noted, "there have been no successful attempts at siting any type of new RCRA C facility since inception of the RCRA program." Another State concluded that "location standards would impede the permitting of CCR RCRA C facilities given current locations of power generating plants."

Direct involvement in the decision making process by local governments and citizens is necessary but can be a complicated and lengthy process. For example, Massachusetts law[7] requires the establishment of a Local Assessment Committee which shall include "four residents ... three of whom shall be residents of the area of the city or town most immediately affected by the proposed facility." The powers of the committee on which the citizens sit include negotiating the detailed terms, provisions, and conditions of a siting agreement to protect the public health, the public safety, and the environment of the host community, as well as to promote the fiscal welfare of said community through special benefits and compensation.

Connecticut law[8] provides for an environmental justice review which must include "meaningful public participation" and "community environmental benefit agreement." "Meaningful public participation" means (A) residents of an environmental justice community have an appropriate opportunity to participate in decisions about a proposed facility or the expansion of an existing facility that may adversely affect such residents' environment or health; (B) the public's participation may influence the regulatory agency's decision; and (C) the applicant for a new or expanded permit, certificate or siting approval seeks out and facilitates the participation of those potentially affected during the regulatory process; and "Community environmental benefit agreement" means a written agreement entered into by a municipality and an owner or developer of real property whereby the owner or developer agrees to develop real property that is to be used for any new or

expanded affecting facility and to provide financial resources for the purpose of the mitigation, in whole or in part, of impacts reasonably related to the facility, including, but not limited to, impacts on the environment, traffic, parking and noise.

e) Assuming utilities could obtain hazardous waste permits to manage coal ash on-site, do the states have the resources to process, issue, and administer these additional hazardous waste permits?

Based on estimates from only 35 States, more than 150 additional FTEs would be needed for *permitting alone*. This does not include as many as 7 more States that have not estimated FTE needs but would likely have to issue permits for disposal of CCR in landfills. Nor does it include the plethora of other Subtitle C regulatory requirements, some of which are identified in the response to Question 2 (c).

For those 35 States alone, if the annual cost of one FTE for salary, fringe benefits, and overhead is approximately $100,000, the additional personnel costs for Subtitle C permitting could exceed $15 million. However, $15 million is a fraction of what would be required for all States to implement full Subtitle C programs for CCR.

f) In your opinion, do the practical effects of the Subtitle C proposal constitute an unfunded mandate?

ASTSWMO is not in a position to draw a legal conclusion about whether EPA's Subtitle C Proposal would constitute an unfunded mandate. However, the federal funding of Subtitle C programs is already grossly inadequate. In 2006, ASTSWMO's Hazardous Waste Subcommittee conducted a pilot program to determine the cost to States of implementing a complete and adequate RCRA Subtitle C Program. The report, entitled State *RCRA Subtitle C Core Hazardous Waste Management Program Implementation Costs - Final Report* (January 2007) revealed that the cost to States of implementing a complete and adequate Subtitle C program in 2006 was approximately $255 M, or $284 M in 2011 dollars. State Subtitle C programs are supposed to be funded with 75% in federal funding through State Tribal Assistance Grants (STAG) with a 25% State match. That being the case, STAG funding should be at least $213 M. In FY 2010 STAG funding was approximately $100 M - about half of the funding necessary for States to run a complete and adequate program. As a result, the State match has been significantly higher than 25%.

It is difficult to comprehend the impact that the addition of the Subtitle C Proposal would have on State funding needs. Based on the current deficits in Subtitle C federal funding for the States and the magnitude of the increase in State responsibilities under a Subtitle C Proposal, it is fair to assume that the mandated Proposal would be grossly underfunded.

3. a) Do you think the development of non-hazardous waste regulations for coal ash, patterned after those in place for municipal solid waste, would be more effective? Would the states be prepared to implement such an approach for coal ash and do you think such an approach would be protective of human health and the environment?

Regulating CCR as a non-hazardous waste would be more effective primarily because CCR rarely tests hazardous. CCR that exhibit the characteristics described in Section 3001 of Subtitle C are currently regulated as hazardous waste. Furthermore, by State estimates there is at least 100 times more Subtitle D permitted disposal capacity than there is Subtitle C disposal capacity (3 billion tons of D vs. 31 million tons of C). As noted in the response to Question 2(b), the available Subtitle C capacity would be consumed in less than a year and a half if CCR is regulated as a hazardous waste. As a result, the Subtitle C Proposal would become ineffective in less than two years due to the lack of disposal capacity while CCR continues to be generated.

Regulating non-hazardous CCR under regulations patterned after MSW regulations would be more efficient as well because, as noted below, the majority of States currently regulate CCR as a non-hazardous waste. It would be far more effective to build upon existing State non-hazardous regulatory programs that substantially satisfy the engineering and regulatory requirements in EPA's Proposal for CCR regulation.

Nearly all States regulate CCR under one or more of the State non-hazardous regulations that are designed specifically for CCR, industrial waste or general solid waste. There are only four States that exempt captive landfills, where waste is generated and disposed on the same site, from permit requirements suggesting that on the whole, States are prepared to regulate both on-site and off-site CCR landfills. While not all States currently regulate CCR surface impoundments under solid waste regulations, 37 States coordinate with other State enforcement entities to protect human health and the environment under one or more other statutes thereby enforcing repair and maintenance, closure and remediation requirements.

Non-hazardous CCR can be regulated in a manner that is protective of human health and the environment using the existing regulatory scheme for municipal solid waste which includes, among other things, requirements for permits, bottom liners, groundwater monitoring, corrective action, unit closure and financial assurance.

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[1] Pursuant to the National Pollutant Discharge Elimination System (NPDES) permit programs.
[2] Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes: Disposal of Coal Combustion Residuals from Electric Utilities, published in the Federal Register on June 21, 2010 (75 FR 35128).
[3] Based on disposal rates cited in the proposal from an unidentified DOE survey, 70% of CCRs are disposed on-site and 30% of CCR are disposed off-site.
[4] FL Statutes 403.7222- Prohibition of hazardous waste landfills. (2) The Legislature declares that, due to the permeability of the soil and high water table in Florida, future hazardous waste landfills are prohibited. Therefore, the department may not issue a permit pursuant to s. 403.722 for a newly constructed hazardous waste landfill. However, if by executive order the Governor declares a hazardous waste management emergency, the department may issue a permit for a temporary hazardous waste landfill. Any such landfill shall be used only until

such time as an appropriate alternative method of disposal can be derived and implemented. Such a permit may not be issued for a period exceeding 6 months without a further declaration of the Governor.
KS Statutes 65-3458. - Burial prohibited; exceptions; procedure. (a) The underground burial of hazardous waste produced by persons generating quantities of such waste greater than those specified in K.S.A. 65-3451 and amendments thereto is prohibited except as provided by order of the secretary of health and environment issued pursuant to this act. (b) (1) The secretary shall decide whether or not an exception to the prohibition against underground burial of hazardous waste shall be granted for a particular hazardous waste. No decision to grant an exception shall be rendered unless it is demonstrated to the secretary that, except for underground burial, no economically reasonable or technologically feasible methodology exists for the disposal of a particular hazardous waste.

[5] AL Statutes 22-30-5.1(c) - There shall be no more than one commercial hazardous waste treatment facility or disposal site as defined by subdivisions (4) and (14) of Section 22-30-3 situated within any one county of the state.
OK Statutes 27A-2-7-114 A. Except as provided in subsections B and C of this section, no permit shall be issued for the off-site disposal of hazardous waste or for the off-site treatment of hazardous waste by incinerator at a new hazardous waste facility proposed to be located within eight (8) miles of the corporate limits of an incorporated city or town.

[6] OK Statutes 27A-2-7-114 A. Except as provided in subsections B and C of this section, no permit shall be issued for the off-site disposal of hazardous waste or for the off-site treatment of hazardous waste by incinerator at a new hazardous waste facility proposed to be located within eight (8) miles of the corporate limits of an incorporated city or town.
NV Statutes 444.8456 - 1. A stationary new or expanding facility for the management of hazardous waste must not be constructed within:
(a) One mile of:
(1) A dwelling, school, church or community center;
(2) An area zoned solely for residential use; etc.

[7] MA Statutes Chapter 21D, Section 5

[8] CT Statutes Chapter 439 Section 22a-20a

Responses to Additional Questions for the Record, as submitted by the Honorable John Shimkus

by

Ari S. Lewis

Gradient- Cambridge, MA

Question #1: At the hearing before the Subcommittee on May 13, 2011 [*sic*] testimony was provided that if EPA does not regulate coal ash under subtitle C, there will be a dramatic increase in the incidence of cancer cases, in your professional opinion as a toxicologist, do you agree?

Response: In my professional opinion, I do not believe that regulating coal combustion residue (CCR) disposal under Subtitle C of the Resource Conservation and Recovery Act (RCRA) would cause any meaningful decrease in cancer incidence in the United States. The United States Environmental Protection Agency's (US EPA) own cost-benefit analysis showed the number of cancer cases that would be avoided if CCRs were regulated under Subtitle C *vs.* Subtitle D would be a total of 430 cases over a 75-year period. This value, however, is likely a gross overestimate for key several reasons.

1. The value is based on an overestimate of the population that lives within the vicinity of CCR waste management facilities.
2. The number of excess cancer cases was based on risk estimates from US EPA's 2010 Human Health and Ecological risk assessment of CCRs. The risk estimates were derived using several conservative assumptions that likely overestimated risks.
3. The number of cancer cases avoided was based on the use of a cancer potency estimate for arsenic that is 17 times higher than the currently accepted value in US EPA's risk assessment database [Integrated Risk Information System (IRIS)]. There are several outstanding scientific issues with the proposed value in IRIS, which is currently being revised and has not yet been finalized. Moreover, regardless of the arsenic slope factor used, it is important to recognize that both values are derived using health-protective assumptions that overestimate risks (and, in this case, cancer cases). In fact, low-level exposure to arsenic may be associated with zero risk.
4. The cancer cases avoided are based on the assumption that arsenic is mobilized to drinking water sources in the trivalent form (*i.e.*, AsIII). It is more common for arsenic in CCRs to be in the pentavalent state (AsV), which is less mobile and would lead to fewer cancer cases over a 50-year period (see response to Question #2 below for more details).
5. The number of cancer cases avoided assumes that utilities that do not presently have programs that limit leaching potential will not upgrade practices and comply with the guidance provided under Subtitle D. However, because the technical measures being proposed under Subtitle C and Subtitle D are similar, compliance with Subtitle D would lead to a similar reduction in hypothetical cancer cases as calculated under Subtitle C.

Based on these factors, the number of cancer cases avoided between Subtitle C and Subtitle D regulations would be negligible. Also, importantly, there is no epidemiological evidence establishing a link between CCRs in drinking water and cancer under current conditions. Thus, it is plausible that regulating CCRs under RCRA Subtitle C *vs.* Subtitle D offers no measurable public health benefit.

Question #2: One of your particular areas of expertise is arsenic in coal ash, is all arsenic the same? Could you please explain the type of arsenic most commonly found in coal ash? Is the arsenic found in coal ash the type that typically mobilizes in soil and would leach quickly into groundwater?

Response: Arsenic can naturally exist in the environment in many different forms. Organic arsenic compounds (*i.e.*, compounds that contain a carbon) are generally less toxic than inorganic arsenic compounds. In soil, water, air, as well as coal ash, arsenic is usually present in the inorganic form, which is considered to pose a greater potential human health risk. In the inorganic form, arsenic can exist as either pentavalent arsenic (AsV) or trivalent arsenic (AsIII). AsV is generally considered less toxic than AsIII.

Although it is outside my toxicological expertise, I am aware that AsV is the inorganic arsenic species more commonly found in coal ash, and, although some conversion to AsIII may occur, AsV is also the inorganic arsenic species more commonly found in coal ash leachate. I am also aware that AsV does not mobilize as quickly as AsIII and would take much longer to reach a downstream drinking water well. This explains why the number of estimated excess cancer cases decreased dramatically when assuming arsenic in coal ash leachate is present as AsV instead of AsIII (the cost-benefit analysis is based on arsenic being in the form of AsIII). Specifically, as stated by US EPA in the cost-benefit analysis:

> Cancer risks decrease noticeably when 100% arsenic V was assumed. This is due to the nature of arsenic transport in the environment. Using the proportions of co-managed to conventionally managed CCRs, the best estimate decreased from 2,509 cancers to 99 cancers, or an approximately 96% decrease. (US EPA, 2010)

Question #3: During the hearing before the Subcommittee there were a number of questions regarding the relative risk of municipal solid waste to coal combustion residuals. We understand that work has been conducted on this topic by the Electric Power Research Institute (EPRI). Please describe the results of the EPRI report. Are you aware of any other reports comparing the relative risks of municipal solid waste to coal ash, and if so, please describe that work.

Response: Although I was not involved in the EPRI analysis comparing the risks from municipal solid waste (MSW) to coal ash waste, I am aware of the report (EPRI, 2010). Specifically, the analysis examined the relative risks of leachate associated with MSW landfills *vs.* the leachate associated with CCR storage in landfills and impoundments. The report concluded that, based on this comparison, the "relative human health risks associated with leachates from MSW landfills and fly ash management are similar."

I am not aware of any other analyses comparing potential risks from the management of municipal solid waste *vs.* coal ash.

Question #4: Given the results of studies that have compared the relative risks of coal ash to municipal solid waste, from your professional experience as a toxicologist and risk assessor, does it make sense to regulate coal combustion residuals more stringently than municipal waste?

Response: The results of the risk comparison between MSW landfills and coal ash waste management units demonstrate that the relative risks associated with the leachates under these disposal scenarios are similar (*i.e.*, within a factor of 3, with risks associated with CCR leachate slightly higher at the 50^{th} percentile and MSW-related risks slightly higher at the 90^{th} percentile). It is important to note that this assessment had some limitations. Specifically, this assessment did not examine the site-specific risks posed by these leachates at various disposal units. Such an analysis would require consideration of site-specific geological and geographical variables, site-specific leachate concentrations, and an examination of complete exposure pathways and potential receptors. Nonetheless, leachate concentrations and their ability to impact groundwater presents a potentially significant exposure pathway.

Based on these results, it is my professional opinion that, since leachate-related risks from MSW are similar in magnitude to those from coal ash AND MSW is effectively regulated as a nonhazardous waste so as to not pose a public health concern, coal ash leachates can also be effectively managed without being regulated as a Subtitle C hazardous waste.

I would add that, regardless of the comparison with municipal waste, overall, under typical waste management conditions, the results of several US EPA risk assessments demonstrate that, after considering a wide range of geological and geographical conditions, leachate concentrations, and exposure pathways, the management of coal ash under more typical exposure scenarios does not pose a substantial public health concern.

References

Electric Power Research Institute (EPRI). 2010. "Comparison of Risks for Leachate from Coal Combustion Product Landfills and Impoundments with Risks for Leachate from Municipal Solid Waste Landfill Facilities (Final)." 1020555. 152p., November.

US EPA. 2010. "Regulatory Impact Analysis for EPA's Proposed RCRA Regulation of Coal Combustion Residues (CCR) Generated by the Electric Utility Industry." 242p., April 30.

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May 6, 2011

The Honorable John Shimkus
Chairman
Subcommittee on Environment and the Economy
Congress of the United States
House of Representatives
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Representative Shimkus:

Thank you for inviting me to testify before the Subcommittee on Environment and the Economy on April 14, 2011, and for the additional questions you have asked regarding the economic implications of the proposed regulation of coal combustion residuals. Veritas Economics has been investigating the economic impacts of coal combustion residuals regulation over the past two years, and I appreciate the opportunity to provide insight based on that analysis. I have attempted to address each question fully, but please contact me if you have additional questions or require clarifications.

Sincerely,



Dawn Santoianni
Senior Engineer

phone: 919.677.8787, extension [redacted]
cell: [redacted]
email: [redacted]

The Honorable John Shimkus

1. It was brought up at the hearing before the Subcommittee on May 13, 2011 that regulating coal combustion residuals under Subtitle C would increase recycling. In your professional opinion, will more coal combustion residuals become recycled materials under EPA's Subtitle C proposal?

In my professional opinion beneficial use of coal combustion residuals (CCRs) will decrease under the Subtitle C proposal. If unencapsulated uses of CCRs are considered disposal, rather than beneficial use under the rule, the overall recycling rate will decrease. EPA makes unrealistic projections of beneficial use rates even under the baseline (without regulation) scenario, assuming beneficial use increases to over 88 percent by 2060. These projections are based on comparisons to other countries that recycle CCRs. However, these projections fail to recognize that the U.S. produces over twice the amount of CCRs as Europe and over 10 times the amount in Japan. Opportunities to market and sell CCRs are already exploited, as it represents a source of revenue for electric utilities as well as the avoided cost of management and disposal.

a) What percent of coal combustion residuals are currently beneficially reused/recycled?

In 2009, 41.3 percent of CCRs produced (55,642,011 tons) were beneficially used, according to the American Coal Ash Association (ACAA). This amount includes mining applications, which would be regulated by the Office of Surface Mining Reclamation and Enforcement.

b) Of that number, what percentage is encapsulated uses versus unencapsulated uses?

EPA has not clearly defined "encapsulated" versus "unencapsulated" uses, or identified which applications would be considered acceptable beneficial uses. In the proposed rule, EPA explicitly discusses "encapsulated" beneficial uses of CCRs in wallboard, concrete, cement, bricks, and roofing materials (75 *Fed. Reg.* 35154, 35163). EPA identifies concerns with unencapsulated uses such as road embankments or agricultural uses (Ibid. 35148, 35160) and explicitly considers large-scale structural fill as disposal (Ibid. 35155). There is no guidance provided on other uses such as waste stabilization, road base, or soil modification. Thus, it is unclear which uses would retain the Bevill exemption and which uses would be considered disposal.

However, based on the language in the rule, the estimate of encapsulated uses is 41.7 percent of all CCRs beneficially used (based on 2009 usage data from ACAA). Unencapsulated uses represent 31.5 percent of the total CCRs beneficially used, and mining applications (not subject to this rule) account for 26.8 percent.

c) Under EPA's proposal to regulate coal combustion residuals under Subtitle C; specifically, EPA's proposal to ban the beneficial reuse of unencapsulated uses, what percentage of coal combustion residuals will be available to be beneficially reused/recycled?

If unencapsulated uses are considered disposal under Subtitle C (Ibid. 35155, 35160), only 17.2 percent of CCRs produced would be recycled in encapsulated uses, based on current usage rates.

d) From your experience and analyses, will Subtitle C increase recycling?

No, based on the language in the proposal and the issues discussed above, recycling will decrease under Subtitle C regulation. EPA considers certain unencapsulated uses as disposal, rather than beneficial use. These applications (such as structural fill) would be subject to the stringent requirements of Subtitle C, including disposal in a landfill which meets the design and performance requirements of the rule. To compensate for the elimination of unencapsulated uses, encapsulated uses would have to increase by *over* 175 percent for the overall recycling rate to increase.

Second, although this has not been formally studied, anecdotal information indicates that in the electric generation industry and beneficial use industries, liability concerns (regardless of stigma) would reduce the recycling of CCRs. Some utilities and product manufacturers would be unwilling to risk potential legal action over the sale/use of CCRs if it has been designated as a hazardous waste. Third, recently proposed air emissions regulations may affect the suitability of some CCRs for beneficial use. For example, a primary technology for mercury emissions control to meet the limits of the Utility Boiler MACT rule is the injection of activated carbon. However, activated carbon in fly ash makes it unsuitable for use in concrete, one of the main (encapsulated) beneficial uses of CCRs.

2. Has EPA considered the impact of the Subtitle C proposal on electric generation and transmission? Are you concerned that a failure in this area could have serious consequences for the reliability of the grid?

EPA has not evaluated the impacts to electric generation (supply) or transmission (reliability). EPA's Regulatory Impact Analysis concludes that electricity prices would *on average* would increase by 0.795 percent (based on their underestimated Subtitle C cost of $20.3 billion). EPA concludes that this average value does not exceed the one percent threshold in OMB Memorandum 01-27 guidance for implementing Executive Order 13211, which states energy production impacts should be assessed for "increases in the cost of energy production in excess of one percent." However, OMB Memorandum 01-27 also requires federal agencies to evaluate the potential effects on energy distribution and supply if the proposed rule results in "reductions in electricity production in excess of 1 billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity." EPA did not perform an assessment of capacity that will be retired as a result of the rule.

The detailed cost study that we conducted indicates that EPA has substantially underestimated the cost of the rule by not accounting for all the costs associated with Subtitle C regulation. Also, their methodology for assessing electricity price impacts is based on an aggregate assessment of impacts that does not recognize the location-specific implications of the proposed rule. For example, it does not include the relationship between the geographic concentration of coal-fired electric generating plants combined with location-specific disposal restrictions and costs. As a result, EPA's estimate of electricity price increases is inaccurate. A more appropriate evaluation of energy supply impacts would be based on accurately estimated plant-specific compliance costs and the implications of these costs within regional electricity market models that consider supply and demand conditions. The evaluation should also consider regulation-induced retirements to determine the magnitude of electricity price increases. Although policy-level models currently exist to study electric reliability to this level of detail, such an analysis has not been conducted.

Maintaining electric system reliability is the job of regional transmission operators and independent system operators. As plant retirements are proposed, these entities study the reliability implications of units going off line and make appropriate plans that consider transmission upgrades and expected new capacity to compensate for retirements. Losses of

generating capacity due to regulation can stress this process. Concurrent environmental regulations affecting the electric generating industry mean that planning for retirements, permitting and bringing replacement capacity online, and making the necessary transmission upgrades will be an important challenge in maintaining electric system reliability.

3. **EPA's position is that the regulation of coal ash under Subtitle C will have no impact on how utilities dispose of coal ash—in other words, they will continue to manage the ash on-site and simply obtain RCRA hazardous waste permits and will not send these materials off-site to commercial hazardous waste disposal facilities, of which even EPA acknowledges there is limited capacity.**

   a) Does your research support this conclusion?

No. Our research shows that the approximately 15 million to 20 million tons of CCRs would be sent to commercial hazardous waste disposal facilities each year. This estimate is based on survey information that identifies site-specific landfill siting restrictions under Subtitle C. We performed a statistical analysis of the survey data to quantify uncertainty regarding where each plant would dispose of their CCRs under a Subtitle C rule. This estimate recognizes that some plants would not be able to dispose of CCRs on-site due to these restrictions, and may be forced to use commercial disposal. Our estimate is consistent with the estimate independently derived by the Association of State and Territorial Waste Management Officials.

   b) If not, why?

Power plants that would not be able to dispose of CCRs on-site due to Subtitle C or state-level restrictions may be forced to use commercial disposal. This includes restrictions in states whose statutes are more stringent than federal rules (i.e., 2010 Florida Statutes, sec. 403.7222, *Prohibition of hazardous waste landfills*), as well as Subtitle C floodplain, wetlands, fault line, or seismic restrictions. It would also include other challenges such as lack of land availability, particularly in populous areas. Further, some generating plant owners would not choose to dispose of CCRs on-site due to the expense of constructing a landfill or concerns about permitting delays and noncompliance.

   c) What are some of the economic implications under the Subtitle C option of coal ash entering the commercial hazardous waste disposal market?

The projected volume of CCRs entering the commercial hazardous waste disposal market would quickly overwhelm existing capacity, estimated at 34,000,000 tons. Thus, commercial Subtitle C landfill operators would seek cell expansions or begin to site new hazardous waste landfills. However, construction of a new hazardous waste landfill takes numerous years because of the permitting and public participation process. Due to the shortage of landfill space during this interim period, tipping fees at commercial hazardous waste facilities would likely dramatically increase, putting a financial strain on small quantity hazardous waste generators as well as large generators and coal-fired electric producers. Our analysis of the costs of Subtitle C regulation did NOT examine these potential increases for transportation and commercial disposal of CCRs. We used current market tipping fee prices, so the total cost to the electric generating industry could be greater than what we have estimated if tipping fees increase due to the regulation.



By Email

May 12, 2011

Honorable John Shimkus
Chairman
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Dear Honorable John Shimkus:

This letter provides my response to questions I received as a follow-up to my testimony before the Subcommittee on Environment and the Economy on April 14, 2011. For your convenience, I have repeated your question, followed by my answer.

1. *A number of the damage cases you referred to in your testimony before the Subcommittee are based on the presence of arsenic and/or selenium—which are naturally occurring in many areas, how did you factor in the background levels in those areas?*

While some metals can occur naturally in groundwater and surface water, experts at the U.S. Environmental Protection Agency (EPA) and those who authored our damage case reports[1] account for background levels by comparing contaminant levels in upgradient or upstream water to levels of contaminants detected in downgradient or downstream water. If arsenic or selenium is "naturally" present in water, these levels will appear in the upgradient or upstream monitoring data. Coal ash damage cases occur when an increase, often above federal drinking water standards, occurs in wells downgradient of the waste disposal unit or in water monitoring stations downstream of the waste unit. Background levels of contaminants, both naturally occurring and from other polluting sources, are taken into account.

At properly monitored disposal sites, the upstream or upgradient monitoring wells reflect the background levels of contaminants unaffected by the coal ash disposal sites. If substantial increases in the concentration of contaminants are found in downgradient wells or downstream water, these increased levels are attributed to coal ash disposal, if there are no additional intervening sources of pollutants. To accurately measure the impact of a coal ash disposal unit, it

[1] Earthjustice and Environmental Integrity Project. "Out of Control: Mounting Damages from Ash Waste " (February 2010) and Earthjustice, Environmental Integrity Project and Sierra Club, "In Harm's Way: Lack of Federal Coal Ash Regulations Endangers Americans and Their Environment" (August 2010). Both are available at www.earthjustice.org/coalash.

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is essential that monitoring wells provide upgradient and downgradient groundwater chemistry data. In sum, at properly monitored disposal sites, the upstream monitoring points determine the background concentration of chemicals, and monitoring points downstream from the waste disposal area measure the impact of the waste disposal unit.

The U.S. Environmental Protection Agency's latest damage case report, "Coal Combustion Waste Damage Case Assessments" (July 2007), employed this comparative analysis. The Agency examined the level of contaminants in downgradient monitoring wells near coal ash disposal sites and compared these levels to upgradient wells. At sites where upgradient wells showed contamination due to "background" or sources of contamination other than coal combustion waste, EPA rejected such sites as cases of "proven damage" from coal ash.

Unambiguous background concentrations are not available from some coal ash disposal facilities, however, particularly where groundwater flows away in all directions, such as away from an ash pond or landfill. These sites may cause contaminated water to flow away from the landfill or pond at levels well above surrounding areas. Monitoring points located on all sides of such facilities may be impacted. Under these circumstances appropriate contaminant concentrations from nearby wells completed in the same geologic unit are compared to site monitoring wells to determine impacts attributable to the coal ash facility.

Lastly, hazardous metals such as selenium and arsenic have been found in groundwater at many coal ash disposal sites at levels far exceeding federal drinking water standards or maximum contaminant levels (MCLs). It is very rare for natural levels of arsenic and selenium in groundwater to exceed by orders of magnitude their respective MCLs. In Earthjustice's comments on the U.S. Environmental Protection Agency's proposed coal ash rule, we documented a number of coal ash sites where levels of arsenic and selenium in groundwater greatly exceeded their MCLs. In fact, at 63 of the 137 coal ash damage cases identified by EPA and environmental groups, the arsenic level in groundwater exceeded the MCL, and at 19 of these sites, the arsenic level was over 10 times the federal standard. Furthermore, at five of the sites, the arsenic level in groundwater was over 100 times the MCL— a concentration that exceeds the toxicity threshold for hazardous waste. For selenium, 29 of the 137 coal ash damage cases documented selenium contamination exceeding its MCL (one-quarter of the total sites). Groundwater at 3 of the 29 contaminated sites exceeded the selenium MCL by over 10 times. At such levels, it is highly unlikely that the sources are "naturally-occurring" arsenic and selenium.

2. *In your written testimony before the Subcommittee, you make the blanket statement that classifying coal ash as "hazardous" will increase recycling and in your written testimony you refer to "market analysis" that support your allegation—what market analyses are you referring to? What specific analysis do you have to support the claim that recycling will increase? Please provide specific examples where this has occurred.*

The specific analysis that I referred to in my written testimony is found in Attachment 2 of the testimony I submitted to the Subcommittee on April 13, 2011, which I am resubmitting for your convenience with this letter. Attachment 2 is a report entitled "Recycling of Hazardous Waste: RCRA's Unsung Success Story," prepared by Richard C. Fortuna, Strategic

Environmental Analysis, L.C., dated November 20, 2010. This report describes several specific examples where the recycling rates of wastes increased after regulation under RCRA, including electric arc furnace dust (K061), mercury lamps, mercury auto switches, halogenated solvents, catalysts from petroleum refining, and lead acid batteries. Further details and analysis are contained are the attached report.

Thank you again for the opportunity to testify before the Subcommittee on this important issue and for this opportunity to provide additional information.

Respectfully submitted by:

/s/

Lisa Evans
Senior Administrative Counsel
Earthjustice