

**OVERSIGHT OF THE ENVIRONMENTAL
PROTECTION AGENCY'S FINAL RULE TO
REGULATE DISPOSAL OF COAL COMBUSTION
RESIDUALS FROM ELECTRIC UTILITIES**

HEARING
BEFORE THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED FOURTEENTH CONGRESS
FIRST SESSION

—————
JUNE 17, 2015
—————

Printed for the use of the Committee on Environment and Public Works



Available via the World Wide Web: <http://www.fdsys.gpo.gov>

—————
U.S. GOVERNMENT PUBLISHING OFFICE

95-006 PDF

WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED FOURTEENTH CONGRESS
FIRST SESSION

JAMES M. INHOFE, Oklahoma, *Chairman*

DAVID VITTER, Louisiana	BARBARA BOXER, California
JOHN BARRASSO, Wyoming	THOMAS R. CARPER, Delaware
SHELLEY MOORE CAPITO, West Virginia	BENJAMIN L. CARDIN, Maryland
MIKE CRAPO, Idaho	BERNARD SANDERS, Vermont
JOHN BOOZMAN, Arkansas	SHELDON WHITEHOUSE, Rhode Island
JEFF SESSIONS, Alabama	JEFF MERKLEY, Oregon
ROGER WICKER, Mississippi	KIRSTEN GILLIBRAND, New York
DEB FISCHER, Nebraska	CORY A. BOOKER, New Jersey
MIKE ROUNDS, South Dakota	EDWARD J. MARKEY, Massachusetts
DAN SULLIVAN, Alaska	

RYAN JACKSON, *Majority Staff Director*
BETTINA POIRIER, *Democratic Staff Director*

C O N T E N T S

Page

WEDNESDAY, JUNE 17, 2015

OPENING STATEMENTS

Inhofe, Hon. James M., U.S. Senator from the State of Oklahoma	1
Boxer, Hon. Barbara, U.S. Senator from the State of California	4

WITNESSES

Holleman, Frank S. III, Senior Attorney, Southern Environmental Law Center	6
Prepared statement	9
Cave, Nancy, North Coast Director, Coastal Conservation League	24
Prepared statement	26
Dunn, Alexandra, Executive Director and General Counsel, Environmental Council of the States	29
Prepared statement	31
Kezar, Mike, General Manager, South Texas Electric Cooperative, on Behalf of National Rural Electric Cooperative Association	40
Prepared statement	42
Gray, Danny, Executive Vice President, Charah Inc. on Behalf of the American Coal Ash Association	128
Prepared statement	130

ADDITIONAL MATERIAL

Letters:

Association of State and Territorial Solid Waste Management Officials (ASTSWMO)	203
Colorado Department of Public Health & Environment	207
State of Nebraska, Department of Environmental Quality	208
American Society of Concrete Contractors (ASCC)	209
Santee Cooper	211
Indiana Department of Environmental Management	213
State of Wisconsin Department of Natural Resources	215

OVERSIGHT OF THE ENVIRONMENTAL PROTECTION AGENCY'S FINAL RULE TO REGULATE DISPOSAL OF COAL COMBUSTION RESIDUALS FROM ELECTRIC UTILITIES

WEDNESDAY, JUNE 17, 2015

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 9:31 a.m. in room 406, Dirksen Senate Building, Hon. James Inhofe (chairman of the committee) presiding.

Present: Senators Inhofe, Barrasso, Capito, Boozman, Sessions, Fischer. Rounds, Boxer, Carper, Booker and Markey.

**OPENING STATEMENT OF HON. JAMES INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA**

Senator INHOFE. Our meeting will come to order.

Today's hearing is on the EPA's final rule regulating the disposal of coal ash under the Resource and Conservation Recovery Act. This is an important issue that cuts across the committee's areas of jurisdiction from the regulation of waste to the impact of EPA's other rules on electric utilities and to the importance of coal ash to highways and infrastructure projects.

EPA has extensively studied the safety of coal ash. For decades, coal ash has been regulated by States as non-hazardous waste. It is also worth noting that coal ash is an important ingredient in concrete and helps extend the life span of and control costs of the concrete used in roads and bridges. In fact, many State Departments of Transportation require the use of coal ash in their road projects.

In 2010, in response to a coal ash spill at the TVA's Kingston, Tennessee power plant, EPA issued a proposed rule containing two options for regulating coal ash, either regulating as a hazardous waste, which would have imposed unnecessary and burdensome cradle to grave requirements on the generation, transportation and disposal of coal ash, or continue to regulate it as a non-hazardous waste.

The EPA rule, finalized last December, correctly determined that coal ash should continue to be regulated as non-hazardous waste. It also established minimum, one size fits all standards for the management and disposal of coal ash in landfills and surface impoundments.

EPA's authority to regulate non-hazardous waste under RCRA is limited. EPA's rule encourages States to incorporate the minimum standards into their solid waste management programs.

EPA does not have the authority, under the current law, to improve State permitting programs or to require facilities to implement the rule's requirements. Instead, the rule's requirements are enforceable only through citizen suits.

States and the affected utilities have raised significant concerns with this approach and the possibility that they would pay citizen suits even if they were in compliance with their State's requirements.

Although the final rule agreed that coal ash is non-hazardous, it left open the possibility that EPA would change this determination in the future. This is causing unnecessary uncertainty to the electric utilities troubled by this rule and to the companies that use and recycle coal ash.

The House is currently considering legislation that would clarify EPA's authority in the status of coal ash as a non-hazardous waste. Although the coal ash issue has not received much attention from the Environment and Public Works Committee in recent years, it certainly warrants our attention and we should be looking to get it right.

The EPA rule, which was published in the Federal Register in April, goes into effect in October 2015. That is not much time for States and affected utilities to fully analyze and begin implementing the rule's technical standards.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR
FROM THE STATE OF OKLAHOMA

Today's hearing is on EPA's final rule regulating the disposal of coal ash under the Resource Conservation and Recovery Act.

This is an important issue that cuts across the Committee's areas of jurisdiction—from the regulation of waste, to the impact of EPA's other rules on electric utilities, and to the importance of coal ash to highways and infrastructure projects.

EPA has extensively studied the safety of coal ash. For decades, coal ash has been regulated as nonhazardous waste by states. It is also worth noting that coal ash is an important ingredient in concrete and helps extend the lifespan of and control costs for the concrete used in roads and bridges. In fact, many State Departments of Transportation require the use of coal ash in their road projects.

In 2010, in response to a coal ash spill at the TVA's Kingston, Tennessee power plant, EPA issued a proposed rule containing two options for regulating coal ash: either regulate it as a hazardous waste, which would have imposed unnecessary and burdensome cradle-to-grave requirements on the generation, transportation, and disposal of coal ash, or continue to regulate it as a nonhazardous waste.

The EPA rule finalized last December correctly determined that coal ash should continue to be regulated as a nonhazardous waste. It also established minimum one-size-fits all standards for the management and disposal of coal ash in landfills and surface impoundments.

EPA's authority to regulate nonhazardous waste under RCRA is limited. EPA's rule encourages states to incorporate the minimum standards into their solid waste management programs, but EPA does not have authority under current law to approve State permitting programs or to require facilities to implement the rule's requirements.

Instead, the rule's requirements are enforceable only through citizen suits. States and the affected utilities have raised significant concerns with this approach and the possibility that they would face citizen suits even if they were in compliance with their state's requirements.

Although the final rule agreed that coal ash is nonhazardous, it left open the possibility that EPA will change this determination in the future. This is causing un-

necessary uncertainty to the electric utilities covered by this rule and to the companies that use and recycle coal ash.

The House is currently considering legislation that would clarify EPA's authority and the status of coal ash as a nonhazardous waste. Although the coal ash issue has not received much attention from the EPW Committee in recent years, it certainly warrants our attention and we should be looking to get it right.

The EPA rule, which was published in the Federal Register only in April, goes into effect in October this year. That is not much time for states and affected utilities to fully analyze and begin implementing the rule's technical standards.

We have an excellent panel of witnesses before us representing a range of views on the rule's impact on states, affected utilities, the public, and the beneficial use industry. We have:

- 1) Alexandra Dunn is Executive Director and General Counsel of the Environmental Council of the States;
- 2) Mike Kezar is the General Manager of the South Texas Electric Cooperative and he is here on behalf of National Rural Electric Cooperative Association;
- 3) Danny Gray is Executive Vice President of Charah Inc., a coal ash marketer based in Kentucky and he is here on behalf of the American Coal Ash Association;
- 4) Frank S. Holleman, III, a senior attorney with the Southern Environmental Law Center; and
- 5) Nancy Cave, the North Coast Director of the Coastal Conservation League in South Carolina.

I am especially interested in hearing their views on the challenges in implementing the EPA rule, whether Congress should consider legislation to give EPA authority to approve State permitting programs, and ways to increase the beneficial use of coal ash.

Senator INHOFE. We have an excellent panel of witnesses before us representing a range of views on the rule's impact on States, affected utilities, the public and the beneficial use of industry.

We have: Nancy Cave, North Coast Director, Coastal Conservation League in South Carolina; Frank S. Holleman, III, Senior Attorney, Southern Environmental Law Center; Alexandra Dunn, Executive Director and General Counsel, Environmental Council of the States; Mike Kezar, General Manager, South Texas Electric Cooperative, on behalf of National Rural Electric Cooperative Association; and last, Danny Gray, Executive Vice President of Charah Inc., a coal ash marketer based in Kentucky, on behalf of the American Coal Ash Association.

I am especially interested in hearing their views. I might mention to you, Mr. Kezar, I have had extensive personal involvement with south Texas, the area there. I was a developer down there for many years, so I know them.

Senator BOXER.

Senator BOXER. Mr. Chairman, could I have 15 seconds to laud my Golden State Warriors?

Senator INHOFE. Of course. Yes, you may do that. I want equal time for what is going to be happening to the Oklahoma City Thunder. It is a surprise. Maybe I should not reveal it here.

Senator BOXER. Mr. Chairman, I wanted to say how proud I am of this team. Forty years ago, Stu and I had season tickets to the Warriors, 40 years ago, and we saw them win. It took 40 years. Now I am leaving politics. Then I was just entering politics.

It is a wonderful moment for us, those of us who have rooted for the Warriors.

Senator INHOFE. Your 15 seconds has expired.

Senator BOXER. That is not fair. It is the Senate. We cannot even breathe in 15 seconds.

I will close with this. I think we all can learn from watching this team going against the greatest player in the world how important

teamwork is and how much can be done when you have cooperation, as we do on highways.

Also, there was one more thing I was particularly proud of. That is that short players really are good. I just wanted to note that for my Chairman.

That is it. Congratulations Warriors.

**OPENING STATEMENT OF HON. BARBARA BOXER,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. In today's hearing, we are examining the EPA's first ever national standards for the disposal of coal ash. I really believe this rule ought to have a chance to work.

I personally would have preferred that EPA issue a stronger rule. I am on the other side of this. I think they should have been tougher and stronger. I think they should have designated coal ash as hazardous waste, but I do think the rule is first step. Frankly, I am dismayed that there is legislation moving through the House that attempts to weaken this rule even further, just kind of throw it out if a State did not like it.

Coal ash is so dangerous because it contains many toxins. No one really talks about this: mercury, arsenic and lead. If you ask a person on the street, should there be a rule to make sure this stuff does not get in front of my house in a spill or into my water, I think they would say, isn't there one now? The answer is no. Right now, many of these are treated like household waste. We know these toxic materials cause cancer and harm children's development, including brain development.

Coal ash is often stored in impoundments that are unlined and located adjacent to rivers and lakes, where the toxic substances leach into the groundwater and surface waters. In the worst case scenario, these impoundments can break, spreading toxic waste throughout communities. It is hard to believe that it has been more than 6 years since the devastating spill at the Tennessee Valley Authority's coal ash pond in Kingston, Tennessee. We will show you a chart.

At 1 a.m. on Monday, December 22, 2008, an earthen wall failed on a 40-acre surface impoundment holding coal ash. More than one billion gallons of waste rushed down the valley like an avalanche. These pictures were shown on the front pages of most of the newspapers.

They covered more than 300 acres, destroying and damaging homes, and polluting the Emory River. The volume of ash and water was nearly 100 times greater than the amount of oil spilled in the *Exxon Valdez* disaster.

In January 2009, I chaired an Environment and Public Works Committee hearing on the TVA coal ash spill to explore how the spill happened and how we can prevent events like this from happening again.

I want to compliment TVA. They have spent over a billion dollars cleaning up this spill and made the business decision to convert all of their facilities from wet to dry handling of coal ash. Good for them.

In the wake of the TVA coal ash spill, I called on EPA to assess the hazards associated with coal ash ponds around the Country.

EPA identified 44 coal ash ponds in 10 States that present a “high hazard,” meaning that if the pond were to fail, it would pose a threat to human life.

EPA required facilities to submit corrective action plans for those ponds that were found to pose a serious risk of failure. Unfortunately, EPA relied solely on the States and the utilities to follow through with the corrective action plans. That was not enough. We need this rule.

Duke Energy’s Dan River facility in North Carolina is one example of a company not following through on a corrective action plan. Duke Energy agreed in its corrective action plan to monitor a metal stormwater pipe for signs of potential failure. In February 2014, that very same pipe rusted out and failed, spilling toxic coal ash into the Dan River, a source of drinking water for communities in North Carolina and Virginia.

Since the spill, Duke Energy has pled guilty to criminal charges involving its coal ash ponds. We should not have to get to this point. We should prevent these things, not parade CEOs and members of these utilities in front of the jailhouse.

A criminal investigation of the North Carolina State agency charged with protecting public health and the environment is ongoing. This is serious stuff. We are not helping the utilities if we turn our backs on this rule. I think we are harming these utilities. We ought to have a standard for everyone that is good, decent and fair.

I do not have any coal in my State. Maybe I have a drop, but very little. This does not impact me. I am not talking as someone who is selfish who says my people are getting hurt. I am talking as an American citizen who cares about all of our children. While I believe we should have and could have done more to address these dangers, this rule will go a long way to protecting people from toxic coal ash.

I ask that the rest of my statement be put in the record.

Mr. Chairman, thank you for letting me talk about my Warriors. Thank you.

[The prepared statement of Senator Boxer follows:]

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR
FROM THE STATE OF CALIFORNIA

Today’s hearing will examine the EPA’s first ever national standards for the disposal of coal ash. I strongly believe that the EPA rule must be given a chance to work. While I would have preferred that EPA issue a stronger rule—designating coal ash as “hazardous waste”—EPA’s new rule is an important step toward addressing the dangers of coal ash. I am dismayed that there is legislation moving through the House that attempts to weaken this rule even further.

Coal ash is so dangerous because it contains many toxins, such as mercury, arsenic, and lead. These toxic materials are known to cause cancer and harm children’s development, including brain development. Coal ash is often stored in impoundments that are unlined and located adjacent to rivers and lakes, where the toxic substances leach into the groundwater and surface waters. In the worst case scenario, these impoundments can break, spreading toxic waste throughout communities. It is hard to believe that it has been more than 6 years since the devastating spill at the Tennessee Valley Authority’s coal ash pond in Kingston, Tennessee. At 1 o’clock AM on Monday, December 22, 2008, an earthen wall failed on a 40-acre surface impoundment holding coal ash. More than one billion gallons of waste rushed down the valley like an avalanche, covering more than 300 acres, destroying and damaging homes, and polluting the Emory River. The volume of ash and water was nearly 100 times greater than the amount of oil spilled in the *Exxon Valdez* disaster.

In January 2009, I chaired an EPW Committee hearing on the TVA coal ash spill to explore how the spill happened and how we can prevent events like this from happening again. TVA has spent over a billion dollars cleaning up this spill and has made the business decision to convert all of its facilities from wet to dry handling of coal ash. TVA took this responsible step to protect communities from future spills, and I commend TVA for its actions. In the wake of the TVA coal ash spill, I called on EPA to assess the hazards associated with coal ash ponds around the country. EPA identified 44 coal ash ponds in 10 states that present a “high hazard”—meaning that if the pond were to fail, it would pose a threat to human life. EPA required facilities to submit corrective action plans for those ponds that were found to pose a serious risk of failure. Unfortunately, EPA relied solely on the states and the utilities to follow through with the corrective action plans, which was clearly not enough.

Duke Energy’s Dan River facility in North Carolina is one example of a company not following through on a corrective action plan. Duke Energy agreed in its corrective action plan to monitor a metal stormwater pipe for signs of potential failure. In February 2014, that very same pipe rusted out and failed, spilling toxic coal ash into the Dan River, a source of drinking water for communities in North Carolina and Virginia. Since the spill, Duke Energy has pled guilty to criminal charges involving its coal ash ponds. A criminal investigation of the North Carolina State agency charged with protecting public health and the environment is ongoing.

The EPA rule will provide critical public health protections, including groundwater monitoring, cleanup requirements, transparency, and preservation of each citizen’s right to protect their community from coal ash pollution. For the first time, utilities will have to test the groundwater surrounding their coal ash ponds and post that information online. This will allow citizens to know what is in their water and help prevent pregnant women and children from drinking groundwater that is contaminated with toxins. While I strongly believe EPA should have done more to address the dangers of coal ash, EPA’s rule will go a long way to protecting people from toxic coal ash in the future.

Legislation being considered in the House of Representatives would delay many of the rule’s new health and safety protections, including the rule’s mandate to close inactive coal ash ponds. It would also eliminate public access to information about coal ash ponds and remove the rule’s national minimum standard for protection of health and the environment, allowing State programs to eliminate critical safety requirements. It is important that this new rule not be diluted by Congress. EPA should be allowed to move forward with critical new protections for the safety of our communities.

Senator INHOFE. Of course, without objection.

We will now hear from our witnesses. We will start with you, Mr. Holleman, and work across the room.

Try to keep your remarks down to 5 minutes. Your entire statement will be made a part of the record.

Mr. HOLLEMAN.

**STATEMENT OF FRANK S. HOLLEMAN, III, SENIOR ATTORNEY,
SOUTHERN ENVIRONMENTAL LAW CENTER**

Mr. HOLLEMAN. Chairman Inhofe, Senator Boxer and members of the committee, thank you for listening to me today and inviting me here.

My name is Frank Holleman. I live in Greenville, South Carolina. I am at the Southern Environmental Law Center. We work with local citizens in the south who are concerned about their communities’ futures and about clean water.

Let me ask you to assume something for a minute. Assume that a Washington lobbyist came to your office with this request. We have a plan and we want you to support a bill that will help us make it easier to do.

We have property on the banks of drinking water reservoirs and rivers across the United States. We want to dig big, unlined holes right next to these drinking water reservoirs and rivers. We will

dump millions of tons of industrial waste into these unlined pits next to these water bodies. By the way, you should know this waste contains things like arsenic and lead.

Then we are going to fill these big pits with water and we are going to hold these lagoons, industrial waste lagoons, back from our rivers and drinking water reservoirs only by dikes made of earth that leak. Will you help us?

I can imagine your reaction, but that is exactly what the trade associations are asking you to do by seeking to weaken or eliminate the EPA rule.

As Senator Boxer pointed out, in the south we have seen dramatic harm from primitive coal ash disposal. We have had two catastrophes, TVA at Kingston and Duke Energy on the Dan River.

In North Carolina today, the State is testing drinking water wells near Duke Energy's coal ash site. Over 90 percent of the well owners have been told to stop drinking the water.

In South Carolina, where I live, groundwater has been contaminated with arsenic at hundreds and hundreds of times the legal limit. Across the region, unlined pits are leaking into rivers and lakes at the rate of millions of gallons per day.

In adopting this rule, as was pointed out, the EPA accepted the key demands of the utility and recycling industries. But the rule establishes some uniform, minimum standards, provides communities with information about local coal ash pollution, and preserves a citizen's right to enforce the law when State bureaucracy simply will not do it.

From what we have seen in the southeast, it is clear State agencies have not effectively enforced the law against these very politically powerful monopolies. In South Carolina where I live, for example, for years unlined coal ash disposal violated anti-pollution laws. There was no question about it. Yet the government had not taken action to force a cleanup.

Local organizations like Nancy's collected unpublicized information and enforced the law with the result that all three utilities in the State are cleaning up every one of their unlined riverfront coal ash disposal sites. One utility, Santee Cooper, says the cleanup we pushed for is a win-win for everyone.

In North Carolina, no one was forcing Duke Energy, as mentioned earlier, to clean up its coal ash. Again, local organizations uncovered unpublicized information and took action to enforce the law.

For the first time, the State government was forced to confirm that Duke Energy is violating the law everywhere it has stored coal ash in the State of North Carolina and confirmed that under oath.

I have been a Duke customer my whole life. Duke Energy is the Nation's largest and richest utility. It has now pleaded guilty to nine coal ash crimes committed in its home State. Two of those crimes led directly to the Dan River spill.

Despite repeated warnings over almost 30 years that it was risky to have a corrugated metal pipe under a coal ash lagoon, Duke Energy management turned down requests from its own people to spend a few thousand dollars to inspect the pipe that later broke. The State never required the inspection.

Now Duke Energy has pleaded guilty, has to pay \$102 million, is on nationwide criminal probation and is cooperating in a continuing investigation of the State agency. They are supposed to be enforcing the law.

In summary, Mr. Chairman, in the south, we need the minimum protections of the EPA rule so that we will have clear standards for coal ash disposal, the people will have information they need about threats to their own communities, and the communities themselves will be able to protect themselves when bureaucracies will not do it.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Holleman follows:]

**THE IMPORTANCE OF THE EPA RULE TO PROTECT COMMUNITIES AND
CLEAN WATER FROM COAL ASH**

**Testimony of Frank Holleman, Senior Attorney at the Southern Environmental Law
Center**

U.S. Senate Committee on Environment and Public Works

June 17, 2015

Summary

EPA's new coal ash rule does not by itself solve the problem of primitive coal ash disposal by our utilities. It sets some minimum national criteria. These criteria supplement a number of other federal, state, and local laws that apply to coal ash disposal and storage. Even though the EPA rule adopted many of the provisions urged by the utility and recycling industries, at least it establishes a floor of basic protections for every community, river, and drinking water source in the country and retains the rights of local communities to access to basic information and to enforce the standards. We have seen, over and over again, that without clear standards, public information, and citizen enforcement, utilities will not do what is necessary to protect communities and clean water, and state agencies will not effectively enforce laws designed to protect communities from the risks and pollution stemming from coal ash disposal sites owned by utilities.

In the Southeast, utilities have long been violating state and federal laws in how they dispose of coal ash. Yet state bureaucracies, though they have known of the legal violations, have not taken effective action to require cleanups of these dangerous and polluting sites. The results have been continued pollution, threats to communities, and, at Duke Energy's Dan River facility and TVA's Kingston plant, catastrophic failures. Citizen law enforcement has obtained

cleanups of coal ash pollution where state agencies had not taken action and where utilities have allowed coal ash pollution to continue and dangerous dams to remain unrepaired.

We have seen, repeatedly, that state laws and state regulators will not protect communities and their clean water from utility coal ash pollution. Instead, in many instances state law is inadequate; when it is enforced, the utilities can often lobby the legislatures to weaken the law; and state regulators are unwilling to force the most politically powerful monopolies and corporations in their states to change their dangerous practices. The EPA rule provides basic community and clean water protection, not subject to local utility political pressure, including: a prohibition on new unlined and unmonitored pits; a required separation of five feet between coal ash storage and groundwater supplies; and public notification of and access to information concerning groundwater contamination and toxic releases. In the past, communities have had to rely only upon the general protections of the Clean Water Act and state antipollution laws, because no specific national criteria existed. Thankfully, the new EPA rule fills a gaping void by establishing minimum national standards.

**THE IMPORTANCE OF THE EPA COAL ASH RULE TO PROTECT COMMUNITIES
AND CLEAN WATER FROM COAL ASH**

**Testimony of Frank Holleman, Senior Attorney at the Southern Environmental Law
Center**

U.S. Senate Committee on Environment and Public Works

June 17, 2015

Here is the proposal: We have millions of tons of industrial waste containing toxic substances, including arsenic, lead, chromium, selenium, and mercury. We propose to dig unlined pits next to major rivers and drinking water reservoirs. We will dump the industrial waste into these pits and fill them full of water. These millions of wet tons will be held back from the rivers and the drinking water reservoirs only by earthen dikes that leak into the rivers and reservoirs. The toxic substances in this industrial waste will leach into the groundwater, which flows into the rivers and reservoirs, and in other directions.

Sounds like a good idea? That is exactly what the major utilities are doing on almost every river system across the Southeast and in other areas of the country. In fact, what the utilities are doing is worse, because their unlined leaking coal ash storage lagoons are in most instances decades old, and their infrastructure, which was primitive to begin with, is aging. What is even more striking is that we are tolerating this method of storage by publicly-established monopolies with tremendous resources and great engineering capacity to employ safer and less polluting alternatives.

It should come as no surprise that these lagoons have failures and that there have been catastrophic failures – in the Southeast at TVA’s facility in Kingston, Tennessee, and at Duke Energy’s facility on the Dan River near the North Carolina-Virginia border. It does not take a prophet to predict that other catastrophic failures will happen, it does not take a sophisticated

chemist to determine that a storage system like this will pollute, and it does not take a legal scholar to figure out that something about this is illegal. And any concerned citizen can see that this is no way for industrial waste to be stored in his or her community in the 21st century.

Yet, what we have seen across the Southeast is that even though the utilities are breaking existing law in how they store and manage coal ash and even though the coal ash is polluting groundwater and rivers with coal ash contamination and even though there is the risk of catastrophic failure, the utilities and the state agencies that regulate them have not taken effective action to clean up antiquated coal ash storage and to protect local communities and clean water. We have obtained substantial clean ups and convinced utilities they must change their coal ash storage practices – but only when citizens have had the right to take the future of their communities into their own hands, to bring their own enforcement actions, and to thereby force the state agencies and the utilities to face up to the harm that unlined riverside coal ash storage is doing to local neighborhoods, natural resources, and the utilities themselves.

North Carolina is the striking example. Duke Energy is the largest and wealthiest utility in the United States. It was founded in North Carolina and has its headquarters there. Yet, as confirmed by the North Carolina regulatory agency, for years Duke Energy has been violating the law in North Carolina by illegally polluting groundwater and rivers at coal ash sites across the state. After the Dan River spill, a criminal grand jury was convened that investigated both Duke Energy and the state regulatory agency itself.

Recently, Duke Energy pleaded guilty to nine crimes dealing with five coal ash sites across the state, including the Dan River site where on February 2, 2014 Duke Energy had a catastrophic failure. As a condition of its plea, Duke Energy has agreed to cooperate with the prosecution in its continuing investigation of the state agency.

The failure of utility management and state agency regulation is underscored by the fact that two of these crimes led directly to the Dan River spill. During the grand jury investigation, the Department of Justice learned that Duke Energy management refused to authorize the expenditure of \$5,000 to inspect the rotting storm water pipe under one of two coal ash lagoons – even though Duke Energy personnel at the plant had asked for the inspection. Beginning in the 1980s, dam safety experts and later the EPA-required assessment warned Duke Energy and the state agency about the corrugated metal pipe under the coal ash lagoon. However, the monitoring of the pipe and corrective action was left to Duke Energy and the state agency.

The North Carolina agency never required a thorough inspection, despite the repeated warnings, and Duke itself never conducted one. In February of 2014 that pipe failed, spewing into the Dan River 24 million gallons of coal ash polluted water and 39,000 tons of coal ash. This is a catastrophe that could have been prevented by basic utility attention and basic state oversight – neither of which occurred as of 2014.

Moreover, most of the crimes to which Duke Energy pleaded guilty were legal violations that we had set out in Clean Water Act notices we had sent to Duke Energy, the state regulator, and the Department of Justice in 2013 and 2014 on behalf of local citizen groups. Concerned citizens – not Duke Energy and not the state regulators – brought North Carolina's coal ash problems to the attention of the public, the courts, and law enforcement. Citizens groups were able to protect their communities in this way because of laws that include citizen enforcement and because of information they were able to obtain concerning groundwater and river pollution and legal violations.

It is important to emphasize that in the cases we have brought, neither we nor the local community groups we represent have been suing in order to recover money. Over the almost

four years we have been working on citizen enforcement actions, we and the groups we represent have settled cases and have not sought or received money in any of those settlements. The goal of this citizen law enforcement is to protect rivers and communities and to clean up coal ash pollution. While provision for recovery of attorney's fees and litigation expenses is an important part of an effective citizens suit provision, we have not petitioned for attorney's fees and we have not received any.

Here are examples of what citizen enforcement actions have accomplished in the Southeast when the state agencies and utilities did not act.

A. South Carolina

For years the utilities in South Carolina have been contaminating groundwater at their coal ash lagoons with substances like arsenic. There is groundwater testing information going back decades showing groundwater contamination at coal ash storage sites throughout South Carolina. And these sites leak into nearby waterways. The South Carolina Department of Health and Environmental Control (DHEC) has in the past notified the utilities in writing that they were violating the law through their coal ash pollution. But DHEC did not take direct action to force a cleanup of the lagoons or the groundwater pollution. The information concerning groundwater contamination was buried in state agency files and had not been brought to the public's attention.

Using the citizen's right to enforce clean water and anti-pollution laws, we represented local conservation organizations and brought suit against both SCE&G and Santee Cooper (two of the three South Carolina utilities) to force cleanup of unlined coal ash lagoons on the Catawba-Waterlee River near Columbia and the Waccamaw River at Conway near the coast. In both instances, the courts rejected motions to dismiss filed by the utilities. *Catawba Riverkeeper*

Foundation, Inc. v. SCE&G, 2012 WL 1963606 (May 31, 2012; *Winyah Rivers Foundation, Inc. v. S.C. Public Service Authority (Santee Cooper)*, C.A. No. 2012-CP-26-4462 (Horry County Court of Common Pleas) (Dec. 17, 2012).

After prevailing on the motions to dismiss, we entered into settlements with both utilities requiring them to excavate the ash from these unlined river-front pits to safe, dry, lined storage away from the rivers or to appropriately recycle it. In the case of SCE&G, we reached the settlement eight months after filing suit; we settled with Santee Cooper 17 months after filing suit. Both utilities have committed themselves to clean up all the other unlined coal ash lagoons in their systems.

The Santee Cooper experience is instructive. For a year, Santee Cooper fought our litigation and proposed to leave its coal ash in a swamp in the middle of Conway, South Carolina. On behalf of local citizen groups, we brought actions under state and federal anti-pollution laws. At a public hearing, local citizens from all walks of life spoke out in favor of cleaning up the ash. The Conway Mayor and City Council adopted a resolution urging Santee Cooper to move the ash. After more than a year of litigation, we entered into a settlement agreement with Santee Cooper for removal of the ash from Conway to safe lined storage or recycling. At the same time, Santee Cooper announced it would clean up every lagoon in its system.

Santee Cooper describes this change of course as a win-win for the utility and the community:

“Kierspe [a Santee Cooper official] says in addition to the obvious benefit of getting rid of what is currently a toxic byproduct, ‘It’s a win for the economy, we have several businesses investing as much as \$40 million creating jobs for the

economy, and it's a win for customers because it's financially the right thing to do and it eliminates a long-term potential problem with the ponds.'”

Channel 2 News (Charleston, SC) March 10, 2014.

The removal of the ash from these old lagoons is eliminating a continuing source of pollution and also creating jobs and investment in the community, while protecting the reputations of areas of the Low County that depend upon tourism for significant parts of their economies.

Duke Energy (the third South Carolina utility) owns the remaining two waterfront unlined coal ash disposal sites in South Carolina. One site includes a set of water-filled lagoons on the Saluda River near Anderson and Greenville, South Carolina. After several months of negotiations, we entered into a binding settlement agreement with Duke Energy to remove all the ash from its lagoons and other disposal sites on the Saluda River to dry lined storage away from the River, and that removal began in May of 2015. Duke Energy also owns unlined coal ash disposal pits on the banks of Lake Robinson near Hartsville, South Carolina, in the basin of the Pee Dee River. After we publicized the serious groundwater contamination (arsenic in the groundwater at 100 times the legal limit), the fact that the coal ash extends 18 feet into the groundwater, and previous dumping of low level radioactive waste into one of the unlined pits, in 2015 Duke Energy agreed to clean up this site also, by excavating the ash and moving it to safe, dry, lined storage.

In both instances, the ability of citizens groups to bring suit – as they had in S.C. against other utilities and as they had against Duke Energy in N.C. (see below) – gave local citizens the ability to come to the table to negotiate a solution that works for all concerned. In both

instances, the cleanups were obtained because of the ability of local citizens to get access to information about the extent of the threat of coal ash to their communities.

Thus, through straightforward informed citizen enforcement of existing anti-pollution laws, we were able to obtain commitments from all three South Carolina utilities to clean up all their riverfront unlined coal ash lagoons in the state – something utilities had for years failed to do, and something the state law enforcement authorities for years had not been willing to do.

B. North Carolina

Duke Energy stores coal ash in unlined riverfront pits across North Carolina. Through groundwater testing over several years, it had been established that there was groundwater contamination at many Duke Energy coal ash sites, and inspections showed Duke Energy sites were illegally leaking into rivers and drinking water sources.

Yet, North Carolina's Department of Environment and Natural Resources (DENR) had never taken action against Duke Energy for the cleanup of groundwater contamination and other pollution from these lagoons. Duke Energy insisted upon the status quo – operating unlined coal ash lagoons on the banks of rivers, including the storage of 2.5 million tons of coal ash in earthen lagoons overlooking the drinking water reservoir for 800,000 people in and around Charlotte. Conservationists urged DENR to take action, but no direct enforcement occurred.

In 2013 on behalf of local riverkeepers and citizen organizations, we issued Notices of Intent to sue Duke Energy under the federal Clean Water Act for violations of its permits by coal ash pollution at three of its coal-fired plants in North Carolina. We spent months gathering information concerning coal ash pollution of rivers, lakes, and groundwater – information that had not been widely disseminated to the public.

In response to our notices (and to block our enforcement actions, see below), DENR for the first time brought enforcement actions against Duke Energy for pollution of rivers and

groundwater from its leaking coal ash lagoons. DENR confirmed in pleadings filed under oath that Duke Energy was violating state groundwater laws or the federal Clean Water Act or both at every site where Duke Energy stores coal ash in North Carolina. Further, it stated, again under oath, that Duke Energy's illegal coal ash pollution "poses a serious danger to the health, safety, and welfare of the people of the State of North Carolina and serious harm to the water resources of the State." *E.g., State of N.C. ex rel. N.C. DENR v. Duke Energy Carolinas, LLC*, 13 cvs 11032 (filed August 6, 2013) at ¶ 204.

In the ensuing months, our Clean Water Act litigation continued; Duke Energy's Dan River coal ash disposal lagoons failed; the Associated Press published an expose of the joint efforts of Duke Energy and DENR to frustrate our law enforcement efforts; and a federal criminal grand jury issued subpoenas to Duke Energy and DENR concerning their coal ash practices across the state. In response, in the spring of 2014 Duke Energy announced it would clean up four of its fourteen coal ash storage sites in the state (the three for which we issued Clean Water Act Notices and the Dan River spill site) and would evaluate the remaining ones for cleanup. Later in 2014, the North Carolina legislature passed a statute that requires the cleanup of the same four sites – the four that Duke Energy has committed to clean up – and evaluation of the rest.

In 2015, the situation has gotten even more serious. Duke Energy pleaded guilty to nine crimes at five coal ash sites across North Carolina, has agreed to pay \$102 million for criminal fines and river restoration, and has been placed on nationwide criminal probation for five years. The state agency remains under investigation, with Duke Energy required to cooperate in the investigation. North Carolina has begun testing drinking water wells around coal ash sites, and over 90% of the well owners have been told to stop drinking water from the wells – wells they

have been using for years. North Carolina has proposed a \$25 million fine for Duke Energy's groundwater pollution at one site and has ordered Duke Energy to stop the spread of coal ash pollution at this site – a site where the groundwater contamination had been shown for years before. Duke Energy faces nine lawsuits in North Carolina for coal ash pollution at all 14 of its sites and a number of shareholder suits related to its coal ash management.

Again, as in South Carolina, informed private citizen enforcement has led to cleanups that government law enforcement had never sought. The four sites slated for cleanup are three locations where direct, informed citizen law enforcement action was taken, and the site of the Dan River spill. Through intervention in the pending DENR enforcement suits and filing of federal Clean Water Act suits, we are representing local citizen groups seeking cleanup of the remaining 10 sites – thereby assuring that local communities have a seat at the table when decisions are made.

C. Tennessee

TVA was responsible for the disastrous coal ash spill at Kingston, Tennessee, which dumped over 1 billion gallons of coal ash sludge across the Tennessee landscape and has cost TVA over \$1 billion to clean up. Yet, TVA continues to store wet coal ash in unlined pits and resists calls to clean up its unlined riverfront coal ash storage. Furthermore, the State of Tennessee did not take effective action to address TVA's coal ash disposal sites across the state.

At its Gallatin Plant on the Cumberland River near Nashville, TVA stores wet coal ash in unlined pits near the River and has a history of groundwater contamination at the site. Yet, the Tennessee environmental agency (TDEC) had not taken enforcement action against TVA for a cleanup. TVA insisted it has complied with all laws and has refused to move the ash to safe, dry, lined storage.

Representing local citizen groups, we researched data that were publicly available from the utility (because TVA is a federal agency) and information buried in the files of the Tennessee agency. Based on the information we gathered, we sent a Notice of Intent to sue under the federal Clean Water Act, setting out TVA's violations of its National Pollution Discharge Elimination System permit and the Clean Water Act at Gallatin. For the first time, in response to our citizen notice, TDEC has filed an enforcement action against TVA for its violations of law in how it has disposed of coal ash at Gallatin.

In this action, which is filed under oath, Tennessee confirms and sets out that TVA indeed is violating and has for years violated Tennessee anti-pollution and clean water laws. According to the verified complaint, TVA is discharging and has been discharging solid waste into Tennessee's groundwater and around the Gallatin Plant, has illegally discharged coal ash pollution into waters, and has violated its NPDES permit. The state agency also sets out, under oath, that the public interest required that action be taken.

These violations did not occur just recently. They had been ongoing for an extended period of time. Yet, the state agency never brought an enforcement action until local citizens exercised their right of citizen law enforcement. And TVA – despite the fact that it was responsible for the largest coal ash spill in the history of the Southeast at Kingston in 2008 – continued to violate the law in how it stores coal ash at Gallatin.

D. Virginia

Virginia has had a similar experience, and local groups have had to take law enforcement into their own hands in that state as well. Recently, we have represented local citizens groups in Virginia who are seeking a cleanup of Dominion Power's coal ash disposal sites at the Chesapeake Energy Center and at Possum Point. Both notices point out serious issues with coal

ash disposal at those sites. In both instances, the state agency had not taken action to require a cleanup at those sites, and the Virginia agency has received budget cuts that reduce its ability to take on projects like these.

E. The EPA Rule

The new EPA rule on coal ash disposal offers some basic protections to communities and their clean water that we have not had before. State laws and state regulators simply have not protected local communities or their water supplies from utility coal ash disposal practices. The public utilities in our region have legal monopolies over one of the most important parts of our economy, electrical energy. They are among the wealthiest corporations in our states. They spend millions of dollars on political contributions and lobbying, and they are very influential in the state legislatures, which appropriate the funds for the jobs and budgets of state regulators. Despite clear legal violations and serious threats to clean water and community safety, the state regulators have not in the past enforced the law to obtain cleanups of these polluting and dangerous sites. Indeed, in North Carolina, the state agency – which is supposed to be a law enforcer – has itself been investigated by a criminal grand jury.

As well, in response to citizen efforts to enforce existing clean water laws, state legislatures have protected polluting utilities by weakening anti-pollution laws. In South Carolina, the legislature in 2012 eliminated the citizen's right to enforce state anti-pollution laws for future pollution, and in North Carolina the legislature has twice passed bills that weaken North Carolina groundwater protections and undercut citizen efforts to force the North Carolina agency to enforce requirements that Duke Energy clean up groundwater pollution.

In the absence of effective state agency law enforcement and in the face of state resistance of law enforcement against the utilities, citizens have been forced to rely upon the

general protections of the federal Clean Water Act and, when available, state anti-pollution laws. Thankfully, for the first time the EPA rule establishes uniform, nationwide basic standards for coal ash disposal, including: a prohibition on new unlined and unmonitored pits; a required separation of five feet between coal ash disposal and groundwater supplies; and public notification of and access to information concerning groundwater contamination and toxic releases. Again thankfully, these requirements of the EPA rule can be enforced by citizens groups, because we have no reason to think that state agencies will effectively enforce them. While the EPA accepted the key demands of the utility and recycling industries, at least we now have some specific minimum standards to protect every community and all water supplies in the country from the scourge of coal ash pollution.

CONCLUSION

The record is absolutely clear. Local communities cannot count on utilities or state agencies to effectively protect them from illegal, polluting, and dangerous coal ash disposal. Without legally binding standards, adequate available public information, and the citizen right to enforce the law, local communities will remain vulnerable to another Kingston or Dan River disaster, and their water supplies will continue to be polluted by coal ash. The EPA coal ash rule sets out minimum protective standards, requires that the public have easy access to important information, and preserves the citizens' power to enforce the standards. Communities must have meaningful minimum universal criteria, essential information, and the ability to enforce this rule if it is going to be effective. Utilities have shown themselves unwilling to take the steps necessary to store coal ash safely and cleanly, and state agencies have been reluctant to take action for violations of pre-existing laws. In one instance, the country's leading utility has

pleaded guilty to coal ash crimes, and the state agency that was supposed to regulate its activities is itself being investigated by a criminal grand jury. The new EPA rule is going to help local communities to be safe, to protect their economies, and to reduce coal ash pollution of water supplies.

Senator INHOFE. Thank you, Mr. Holleman.
Ms. CAVE.

**STATEMENT OF NANCY CAVE, NORTH COAST DIRECTOR,
COASTAL CONSERVATION LEAGUE**

Ms. CAVE. Good Morning. I am Nancy Cave, North Coast Office Director of the South Carolina Coastal Conservation League, an environmental advocacy organization.

I want to thank you, Chairman Inhofe, Senator Boxer and members of the committee for giving me this opportunity to testify today.

I live and work in South Carolina. South Carolina, like other States, has not protected its citizens from the harmful impacts of coal ash. South Carolina's regulatory program has failed. For years we have not been informed of toxic groundwater pollution and illegal activity. The State has turned a blind eye to utility violations, and State regulators have taken no effective action to clean up these dangerous sites.

The EPA's final rule is a critical first step. The rule gives people access to necessary information to decide how best to protect their health and well being, and the rule ensures citizens the right to enforce the law, even if State regulatory safeguards are not enforced, are diminished, or are nonexistent.

In Conway, South Carolina, it was the State's owned utility, Santee Cooper, that blatantly endangered the safety of its own customers. At the utility's Grainger coal-fired electric generation plant, 1.3 million tons of coal ash fills two unlined ponds adjacent to the Waccamaw River, which provides drinking water to communities up and down its banks.

Since the 1990's, Grainger's leaking coal ash ponds have been releasing arsenic into groundwater at levels as high as 300 times the State's drinking water standard. The South Carolina Department of Health and Environmental Control, the agency responsible for public health and safety, has been aware of this arsenic pollution for years. Yet they have neither informed the public nor done anything to stop it.

In 2012, Santee Cooper closed the Grainger plant with plans to leave the toxic coal ash sitting where it was, in pits next to the river. When the Grainger Closure Plan was publicly released, I worked quickly to inform people of the coal plant's years of health-threatening arsenic pollution.

Following multiple public meetings and a presentation that I gave to the city council, the city of Conway passed a resolution calling on Santee Cooper to remove the coal ash. At the same time, the Coastal Conservation League and other community groups used a State statute that allowed citizen enforcement when the State bureaucracies failed to act.

Santee Cooper asked for dismissal, but the judge refused. The State-owned utility agreed to negotiate. Today, Santee Cooper is removing and relocating all of Grainger's 1.3 million tons of coal ash.

It was the citizens' actions that forced Santee Cooper to take the protective action of removing the coal ash. The State did not step in to force protection and the local government did not have jurisdiction.

South Carolinians near Duke Energy's Robinson coal plant in Hartsville, face similar threats. The Robinson plant was opened in 1959. Its 55-acre open, unlined coal ash pit, dug from porous sandy soil, is adjacent to Lake Robinson, one of the area's most popular recreational lakes.

Today, 4.2 million tons of coal ash extends 18 feet into the groundwater table. Test well results have shown groundwater arsenic levels at 1,000 ppb, over 100 times the legal limit. As more information was made public, Hartsville citizens wanted action. Duke Energy balked, but on the morning of April 30 before a public meeting was organized, Duke Energy announced it would remove and relocate the coal ash.

This announcement was the direct result of public pressure and possible citizen action. Transparency, information and protective action as required by EPA's final rule must not be removed or diminished.

The rule, as written, is our only line of defense against utilities that have demonstrated they are unwilling to take responsibility and affordable actions to safely dispose of their toxic waste. The final rule is our only line of defense against States that have demonstrated they are unwilling or unable to protect their citizens.

Thank you.

[The prepared statement of Ms. Cave follows:]

The EPA Rule's Protection of Citizen Health and Safety

Testimony of Nancy Cave, North Coast Office Director,
of the South Carolina Coastal Conservation League

U.S. Senate Committee on Environment and Public Works

June 17, 2015

Good Morning, my name is Nancy Cave, I am North Coast Office Director of the South Carolina Coastal Conservation League, an environmental advocacy organization. I want to thank the Chairman, Ranking Member and Members of the Committee for giving me this opportunity to testify today.

I live and work in South Carolina. South Carolina, like other states, has not protected its citizens from the harmful impacts of coal ash. South Carolina's regulatory program has failed. The state does not require the most basic safeguards for pits containing millions of tons of coal ash. For years we have not been informed of toxic groundwater pollution, illegal activity, weak ash pond enclosures and failing dams. The state has turned a blind eye to utility violations, and state regulators have taken no effective action to clean up these dangerous sites. The health and safety of South Carolinians have been put at risk.

The Coastal Conservation League is a twenty-six year old, not-for-profit environmental advocacy organization. We work with communities, businesses and citizen groups to protect South Carolina. The League strives for smart, sustainable economic growth and good policies and protections that maximize the potential of our community. Our goal is the balance of nature and community.

The EPA's Final Rule to Regulate Disposal of Coal Combustion Residuals from Electric Utilities is a critical first step to establish consistent nationwide water, air and community safeguards. The rule gives people access to necessary information to decide how best to protect their health and wellbeing, and the rule ensures our right to enforce the law to protect communities, even if state regulatory safeguards are not enforced, are diminished, or are nonexistent. Put another way, the Final Rule provides me and my fellow citizens the tools to keep our communities safe and maintain our quality of life.

In Conway, South Carolina, it was the state's own utility, Santee Cooper that blatantly endangered the safety of its own customers. At the utility's Grainger coal-fired electric generation plant, 1.3 million tons of coal ash fill two unlined ponds adjacent to the Waccamaw

River, which provides drinking water to me and communities up and down its banks. Since the 1990s, Grainger's leaking coal ash ponds have been releasing arsenic into groundwater at levels as high as 300 times the state's drinking water standard. The South Carolina Department of Health and Environmental Control, the agency responsible for public health and safety, has been aware of this arsenic pollution for years. Yet they have neither informed the public nor done anything to stop it. In 2012, Santee Cooper closed the Grainger plant with plans to leave the polluting coal ash right where it was-- in lagoons separated from the river only by berms of soft clay, which if flooded would dump a million tons of toxic ash into the Waccamaw River.

When the Grainger Closure Plan was publically released I worked quickly to inform people of the coal plant's years of health-threatening arsenic pollution and of the inadequacy of the ash pond enclosures. As I explained the dangers revealed in the Plan, citizens realized that one major storm or hurricane could flood their river and their community with coal ash. Citizens, local government, the Coastal Conservation League and others refused to allow this blatant disregard for the safety of the community and the river. Following multiple public meetings and a presentation that the Waccamaw Riverkeeper and I gave to city council, the City of Conway passed a resolution calling on Santee Cooper to remove the coal ash.

At the same time, the Coastal Conservation League and other community groups were able to enforce the law through statutes that allowed for citizen enforcement when the state bureaucracies failed to act. Santee Cooper asked for dismissal, but the judge refused. The state-owned utility agreed to sit down and talk with us. An agreement was reached, and today Santee Cooper is removing and relocating all of Grainger's coal ash -- 1.3 million tons -- from the banks of the river.

It was the citizens' actions that forced Santee Cooper to take the protective action of removing the coal ash. The state did not step in to force protection and the local government didn't have the jurisdiction. Thus the federal government must protect citizens' right to information that affects their health and wellbeing, and the federal government must protect a citizen's right to private action if the state or the utility is not willing or required to safeguard the individual or the community.

South Carolinians near Duke Energy's Robinson coal plant in Hartsville, Darlington County, face similar threats from leaking coal ash ponds. The Robinson plant was opened in 1959. Its 55-acre open unlined coal ash pit, dug from porous sandy soil, is adjacent to Lake Robinson, one of the area's most popular recreational lakes. Today 4.2 million tons of coal ash extend 18 feet into the groundwater table. Test well results have showed groundwater arsenic levels at 1000 parts per billion, over 100 times the legal limit.

Just like at Santee Cooper, Robinson's Closure Plan revealed to the community how the plant had for years polluted the groundwater. The state allowed groundwater contamination not only from coal ash but from low level radioactive waste that was dumped into the ash pit during the 1990s. The blatant disregard for human health and safety is unconscionable. Darlington County is a county without great financial resources, and a county with a large number of low income residents. I was told by the County they don't have money to test drinking water wells and public waters. They said that's the state's responsibility.

As more information was made public, Darlington County citizens wanted answers and action—specifically to remove the coal ash from the groundwater and its location near the lake. Duke Energy balked, but on the morning of an April 30th public meeting that I had organized, the utility announced it would excavate the leaking ponds and remove the coal ash. This announcement was the direct result of public pressure and possible citizen action. Today citizens continue to ask me if the contaminated groundwater will poison their wells and if it's safe to swim in Lake Robinson. These are questions that I can not answer. We will have to wait until Duke Energy's Revised Closure Plan is released in November and the state's response to it.

Transparency, information and protective action as required by EPA's Final Rule must not be removed or diminished. These are our only line of defense against utilities that have demonstrated again and again that they are unwilling to take reasonable and affordable actions to safely dispose of their toxic waste. And it is our only line of defense against states that have demonstrated, again and again, that they are unwilling or unable to protect their citizens.

Senator INHOFE. Thank you, Ms. Cave.
Ms. DUNN.

**STATEMENT OF ALEXANDRA DUNN, EXECUTIVE DIRECTOR
AND GENERAL COUNSEL, ENVIRONMENTAL COUNCIL OF
THE STATES**

Ms. DUNN. Good morning, Chairman Inhofe, Ranking Member Boxer, and members of the committee. I am Alexandra Dunn, Executive Director and General Counsel of the Environmental Council of the States.

We are the national non-profit association of U.S. State and territorial environmental commissioners who have been referenced as perhaps not doing the most effective job as possible. I would like to give you some thoughts on the State role in implementation of CCR regulations.

There has been so much dialog over so many years on CCR management and surface impoundments. What I am able to bring you today is something that is unusual in the environmental world days, something that all 50 States agree upon and how we should regulate.

You cannot find that in water, you cannot find that in air these days, but you can find it in coal combustion residuals. We have a position going back to 2008 that is supported by all 50 States.

States are well familiar with the cases that you have heard about, the devastating environmental property damage and human health impacts that coal releases can cause. They do a mission to serve the public and protect water supplies and to regulate.

Because it has taken so long for there to be a Federal rule, many States have programs to permit these facilities, to oversee them and to regulate them. We have had many opportunities where States have been sharing best practices with one another, helping each State improve its program by learning from its neighbors and States in other parts of the Country.

Now we have a final Federal rule which States do not oppose. We actually think the final Federal rule is quite good. It reflects a lot of strong research by the agency. However, there is an implementation problem with the final rule and a lack of flexibility that we would like hopefully this committee to help us address.

First, I should say on the determination that it is non-hazardous waste coal ash, we support life cycle management of waste in this Country. There are tons and tons of coal ash. The more coal ash that can be put into wallboard and roads and reused means there is less coal ash in the ponds. That is important. We do support the finding under Subtitle D.

Unfortunately, under RCRA, that puts us in a bit of a complex situation. It means that we have a self-implementing rule. The Federal legislation can help address that. Let me give you a bit more context.

By moving with Rule D under RCRA, we now have a waste that is a solid waste, not a hazardous waste. That means that States are in the primary role of regulating it.

Unfortunately, the final rule does not really reflect some important State-specific considerations that a State program would have like looking at the hydrology, the underground soils, the topog-

raphy, and what types of liners might be needed. States have unique elements of their programs that the Federal rule is unable to recognize.

We would like to see a rule that can be delegated to the States like many other environmental programs are so that the States can implement the most stringent provisions, whether the Federal provision or the State provision, but there is a single regulatory system.

Because of RCRA structure, we have a duplicative regulatory system. We now have the self-implementing Federal rule and then we have all the existing State programs. That is going to put the regulated facilities and actually the citizen groups in a bit of a complex quandary. They are going to have compare and contrast the existing State programs to the Federal rule, trying to figure out which ones are more stringent, which provisions should be followed and then look at citizen suits as an enforcement mechanism.

We recognize that citizen suits play an important role, but we do think that States play an important role in enforcement as well. The structure of this rule really puts the States a bit on the sidelines. It puts the citizens in a good position but maybe not the best position given the expertise at the State level that will not be recognized by a citizen-driven enforcement mechanism.

We really think that regulatory clarity is key in all environmental programs. Much of the litigation with which we are all familiar in the environment is because there is a lack of clarity. We need to know who is in the lead. Right now, we have a Federal program and State programs and it is not clear who is in the lead. We essentially have a duplicative structure.

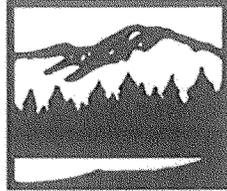
We feel the best way to move forward is to ask this committee to consider legislation to amend RCRA to allow State permitting programs to operate in lieu of the Federal program, but to incorporate elements of the Federal rule that are appropriate.

Only through legislation can this occur. The House has moved forward, as you have heard, with a bill. We think their approach is generally workable and time is of the essence. There are a variety of approaches and we know this committee may be considering alternative approaches to the House.

We are willing to work with you on that but the goal should be to eliminate a duplicative regulatory system. That is an important public policy goal. It benefits the communities, citizens, States, taxpayers and the public.

Thank you very much.

[The prepared statement of Ms. Dunn follows.]



E C O S

Testimony

**“EPA’s 2014 Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities”
Senate Environment and Public Works Committee
Wednesday, June 17, 2015**

by

**Alexandra Dapolito Dunn, Executive Director and General Counsel of the Environmental
Council of the States**

Main Points

1. The Environmental Council of the States supports the U.S. Environmental Protection Agency’s (EPA’s) scientifically based determination that coal combustion residuals (CCR) should be regulated as non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA).
2. States have concerns with the complexities of the self-implementing program finalized in EPA’s final rule for CCR facilities under Subtitle D Part 257 of RCRA.
3. The development and passage of federal legislation to amend RCRA will allow states and EPA to more successfully and effectively regulate and respond to the environmental impacts of CCR facilities.

Chairman Inhofe, Ranking Member Boxer, and Members of the Committee,
good morning. My name is Alexandra Dapolito Dunn, and I am the Executive Director and
General Counsel of the Environmental Council of the States (ECOS). ECOS is the national non-

profit, non-partisan association of U.S. state and territorial environmental commissioners. I appreciate the opportunity to be here with you today to discuss state views on the final coal combustion residuals (CCR) rule and the clarity federal legislation in this arena could provide.

States are familiar with the devastating environmental, property, and human health impacts that coal impoundment releases can cause. In recent years several states have had to respond to and remediate such incidents. In the absence of a comprehensive federal rule, many states have developed sophisticated permitting programs for CCR facilities and these states have shared best practices with one another regarding the regulation of these facilities.

The extensive dialogue around CCR management and surface impoundments means that I bring you a uniquely aligned, common, and longstanding state position on these topics. In 2008, ECOS passed and in 2013 renewed and amended a comprehensive resolution, on this subject. The resolution, attached, in principal documents that:

- coal combustion residuals should be regulated under RCRA Subtitle D as non-hazardous waste so that they can continue to be beneficially reused;
- states have effective programs for managing these residuals; and that
- a federal regulatory program could prove to be duplicative of existing state requirements and as such, close collaboration with states is important.

EPA's final rule, signed on December 19, 2014 and published April 17, 2015, will become effective on October 14, 2015. States and the regulated sources are already taking steps to implement the rule and to prepare for its impacts. The impending implementation of the federal rule has highlighted some of the rule's limitations, which are a direct result of RCRA's

structure. As discussed below, Congress has a clear opportunity to improve the implementation of this new program through narrow changes to the existing RCRA statute.

Support of Coal Ash as Non-Hazardous. First, ECOS supports EPA's categorization in the final rule of coal ash as non-hazardous waste under RCRA Subtitle D. ECOS is joined in this support by many other organizations, including the Association of State and Territorial Solid Waste Management Officials (ASTSWMO). EPA's non-hazardous categorization means that coal ash can continue to be safely and efficiently reused as an ingredient in many products such as concrete, road bed fill, and wallboard. It is important to our economy and environment to make regulatory decisions that promote material reuse when supported by science and research.

The Final Rule and its Limitations. Second, ECOS commends EPA's development of the final CCR rule. The rule reflects extensive and important research and study, and presents a rigorous approach to managing the over 250 facilities located in 33 states. States generally find that the technical elements of EPA's final rule are very sound; however, the minimum standards do not necessarily take into account the differences between the states and their hydrology, climate, and other unique features that a state permitting program would incorporate.

Due to EPA's appropriate determination that it will regulate coal ash as non-hazardous waste, the regulatory program EPA developed in the final rule falls under RCRA Subtitle D. RCRA Subtitle D Part 257 does not allow EPA to eliminate duplicative regulation with existing state permitting programs. Other complications also result from RCRA's structure, including: (1) that the rule is self-implementing, meaning that regulated entities make all compliance decisions without regulatory oversight; and (2) that citizen suits are the only mechanism for enforcement of the rule. Below ECOS offers additional detail about these limitations, which would support this Committee's consideration of legislation to address these shortcomings.

Concern with a Dual Regulatory System. As noted previously, many states already have successful CCR permit programs. Under the final rule, there is no clarity of primacy between the state and federal government. Typically, when the final rule creates a permitting program, that program is then adopted and implemented by states who adapt it to be more stringent and state-specific as needed. Where a state does not choose to adopt the program, EPA implements and oversees the permitting and enforcement. This process results in a clear and consistent understanding of the permitting and enforcement roles of the states and EPA.

Instead, due to RCRA's structure, EPA does not have authority to approve a state regulatory program for CCR, so facilities may now face duplicative federal and state regulatory requirements, a result that ECOS has long been concerned with due to the fact that regulatory duplication makes ineffective use of limited state and federal time and resources. Duplicative programs also make compliance difficult and confusing for the regulated entities, and present a challenge to members of the public who desire to participate in and monitor the regulatory process.

Given its limited authority under RCRA Subtitle D, EPA found the most workable solution under RCRA to be to encourage states, in the final rule, to amend their Solid Waste Management Plans (SWMP) to incorporate the new final CCR rule's requirements. EPA then will approve the plans to demonstrate federal approval of the state requirements. However, because of the limitations of RCRA's structure, this still does not accomplish the most straightforward end; even if states directly incorporate the federal rule, the requirements of the federal rule continue to apply in tandem with the requirements of a state permit program. Michael Forbeck, President of ASTSWMO, recently referenced in his testimony before the Subcommittee on Environment and the Economy of the House of Representative's Committee

on Energy and Commerce (Subcommittee) the final rule's statement that "EPA approval of a state SWMP does not mean that the state program operates 'in lieu of' the federal program." The reality is that only federal legislation can amend RCRA to allow state permitting programs to operate in place of the federal program.

In addition, it is important to recognize that the process of amending state solid waste management plans is not quick. In January, Thomas Easterly, Commissioner of the Indiana Department of Environmental Management (IDEM) testified before the Subcommittee that his state would not be able to achieve a final SWMP amendment within the timeframes set out by the final rule. IDEM must have four public notices with an associated comment period for a new regulatory action. This process takes approximately eighteen months and some of the self-implementing deadlines are set for six months. Indiana is not alone on this forefront. In March, David Paylor, Director of the Virginia Department of Environmental Quality, also testified before the Subcommittee that, like in Indiana, the solid waste plan amendment process would require Virginia to invest both time and meaningful resources.

Concern with Citizen Suit Exposure. Enforcement of regulatory requirements is as important as reflecting on their implementation. ECOS is concerned that under RCRA's existing statutory language, the only way that the self-implementing rule will be enforced will be through citizen suits. States acknowledge that citizen suits play an important role in the enforcement of federal environmental law and regulation. However, in this situation, regulated entities following the requirements of an existing state permitting program will also have to comply with the final federal rule, and may find themselves facing conflicting provisions. Citizen groups may allege in a complaint that the facility failed to implement the most stringent of the provisions or that it failed to clearly demonstrate compliance with both federal and state requirements. The

state will be placed in a role of attempting to sort out and align differences. Rather than the clarity that this significant federal rule could bring, we may instead create a patchwork of varying federal court decisions interpreting the federal rule.

The Need for Legislation. Only legislation can resolve these concerns by allowing state permitting programs to operate in lieu of the federal program. Through legislation, states and EPA would invest the same amount of time and resources as amending and approving state solid waste management plans – but with a more effective result. With legislation, the result will be a state permitting program that provides certainty, clarity of roles, and even incorporates sufficient flexibility so that requirements can be risk based and environmentally appropriate to the soil and hydrology of an area.

On April 13, 2015, the House introduced Bill H.R.1734 - Improving Coal Combustion Residuals Regulation Act of 2015. The approach that is being taken in the House is generally workable in the states' opinions. Other approaches may be possible; however, time is of the essence and we might encourage the Senate to think strongly about a similar approach. As always, ECOS remains willing to assist in any way that we can.

ECOS is also committed to the position we took before the House on this very subject over two years ago: we support bi-partisan efforts in the Senate and House to develop legislation to authorize a federal oversight program that would allow the states to regulate coal ash management and disposal using EPA's excellent technical work, implemented through approved state permitting programs. There is precedent for this under many statutes, and including RCRA Subtitle D Part 258 for municipal solid waste landfills.

Eliminating a dual regulatory system is an important public policy outcome. Federal legislation can set clear expectations regarding implementation authority, stringency, and still empower citizens to step in where there is regulatory inaction or gaps.

Conclusion. Mr. Chairman, Ms. Ranking Member, and Members of the Committee, I thank you for the opportunity to present ECOS's views to you today. I am happy to answer any questions.



Resolution Number 08-14
Approved September 22, 2008
Branson, Missouri

Revised March 23, 2010
Sausalito, California

Revised March 5, 2013
Scottsdale, Arizona

As certified by
R. Steven Brown
Executive Director

THE REGULATION OF COAL COMBUSTION RESIDUALS

WHEREAS, the 1980 Beville 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 Beville Amendment and reported its findings to U.S. Congress on March 8, 1988 and on March 31, 1999, and in both reports recommended that coal combustion residuals (CCR) 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 CCR disposal following the regulatory determination that hazardous waste regulation of CCR disposal is not warranted, and throughout the entire Beville regulatory process, CCR disposal has remained a state regulatory responsibility and the states have developed and implemented regulatory programs tailored to the wide-ranging circumstances of CCR management throughout the country; and

WHEREAS, in 2005, U.S. EPA and the U.S. Department of Energy published a study of CCR disposal facilities constructed or expanded since 1994 and evolving state regulatory programs that found: state CCR regulatory requirements have become more stringent in recent years, the vast majority of new and expanded CCR 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, in June 2010, U.S. EPA issued proposed rules for the management of CCR under both RCRA Subtitle C (hazardous waste) and RCRA Subtitle D (solid waste) laws, and these proposed rules have yet to be finalized; and

WHEREAS, the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) conducted surveys of states in 2009 and 2010, which indicated that of the 42 states that responded which have disposal of CCR, 36 of those states have permitting programs for disposal activity, with 94% of those requiring groundwater monitoring. In addition, all 42 states have the authority to require remediation, should it be necessary, and the majority of these state regulations are under general solid waste and general industrial waste regulations; and

WHEREAS, the states have demonstrated a continued commitment to ensuring proper management of CCR and several states have announced proposals for revising and upgrading their state CCR regulatory programs; and

WHEREAS, some states and utilities have cooperatively demonstrated numerous beneficial uses of CCR, such as additives in cement, soil amendments, geotechnical fill, and use in drywall.

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 CCR 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 CCR as they are best suited to develop and implement CCR regulatory programs tailored to specific climate and geological conditions designed to protect human health and the environment;

Supports safe, beneficial reuse of CCR, including for geotechnical and civil engineering purposes;

Believes that the adoption and implementation of a federal CCR 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 CCR waste management programs, the regulations must be developed under RCRA Subtitle D rather than RCRA Subtitle C;

Believes that designating CCR a hazardous waste under RCRA Subtitle C could create stigma and liability concerns that could impact the beneficial use of CCR; and

Therefore calls upon U.S. EPA to conclude that additional federal CCR 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 CCR including use principles and guidelines, and to accelerate the development of markets for this material.

Senator INHOFE. Thank you, Ms. Dunn.
Mr. KEZAR.

STATEMENT OF MIKE KEZAR, GENERAL MANAGER, SOUTH TEXAS ELECTRIC COOPERATIVE, ON BEHALF OF NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Mr. KEZAR. Good morning. My name is Mike Kezar. I serve as the General Manager of South Texas Electric Cooperative or STEC. I appreciate the invitation to appear before the committee today on behalf of STEC and the National Rural Electric Cooperative Association to discuss the need for legislation to supplement EPA's regulation of coal combustion residuals, CCRs.

STEC is a non-profit electric cooperative that serves over 180,000 rural members in 42 south Texas counties. NRECA is a national service organization dedicated to representing the national interests of cooperative electric utilities and the consumers they serve, including more than 900 not for profit rural electric utilities providing electricity to over 42 million people in 47 States.

STEC relies on a variety of energy sources, including hydroelectric, wind, natural gas, and a lignite power plant located in Atascosa County, Texas called the San Miguel Plant. I am deeply familiar with the San Miguel lignite plant because prior to becoming the general manager of STEC, for 33 years I served in various capacities at San Miguel including 6 years as its general manager.

The San Miguel power plant is a well-controlled power plant and has been a long and active participant in the development of CCR regulations primarily as a member of the Texas Coal Combustion Products Coalition. San Miguel has beneficially used CCRs for decades and continues to assess expanded use markets for CCRs.

STEC supports the EPA's decision to regulate CCRs as a non-hazardous waste under Subtitle D of RCRA in its CCR rule. There are two things, however, that EPA's final rule did not accomplish in the end which warrant legislation as soon as possible. Stated another way, EPA's rule needs a couple more tools in its CCR toolbox for its regulation of CCRs to be as effective and reliable as possible.

First, regulatory certainty for CCR beneficial use markets is needed in the form of a legislative, non-hazardous determination to allay concerns that a hazardous determination could still be in the cards given that EPA's final rule merely defers the question.

Second, EPA needs the statutory clarity of new legislation to give EPA and the States the ability to oversee CCR management through federally approved State permit programs. Although EPA's decision to regulate CCRs as non-hazardous was the right one, its decision to defer until a future date whether hazardous regulation might be pursued in the future leaves the CCR beneficial use market in a very uncertain posture.

The risk of potential future hazardous regulation makes the type of capital investments necessary to maximize the beneficial use of CCRs very hard to justify, given the market disruption that would result from the stigma associated with hazardous waste classification down the road. Legislation that would establish as a matter of statutory law that regulation of CCRs will occur under nonhazardous authorities and that hazardous regulations are not on the

horizon would bring certainty to the beneficial use market and facilitate greater investments in beneficial use projects.

In addition to the certainty the legislation can bring to beneficial use markets, legislation is also needed to fill key gaps in EPA's current statutory authority so that it can implement a permitting program that will be much more comprehensive, science-based and enforceable than the current CCR rule.

In contrast, the unprecedented nature of the current self-implementing model, a State and Federal permit approach like that utilized for municipal solid waste would allow EPA to both set the minimum standards and retain direct approval and enforcement authority while allowing for States to develop and implement risk-based environmental standards that are tailored to site-specific environmental conditions.

Without legislation, facilities like San Miguel are left open to regulatory uncertainty and potentially extreme litigation costs. Under the current rule, nothing a State or even EPA says about a regulatory question that San Miguel might have will trump an ad hoc decision by a Federal district court judge in the context of a citizen suit.

In every other environmental compliance program area, San Miguel can reliably turn to State or Federal environmental agencies to secure permits, work through highly technical risk management approaches and assure that it protects human health and the environment in a site-specific and reliable fashion.

Every day that passes is another day closer to October 14, 2015, the effective date of the CCR rule. Already facilities like San Miguel are exposed to regulatory uncertainty for both beneficial use investments and compliance costs associated with EPA's CCR rule.

Please act soon so rural electric cooperatives can utilize and focus our limited resources on compliance rather than litigation defense. Thank you for the opportunity to appear before you today and to submit the more detailed comments and attachments that have been provided in writing to the committee.

[The prepared statement of Mr. Kezar follows:]

**Written Testimony Submitted by Mr. Michael Kezar
General Manager
South Texas Electric Cooperative**

**United States Senate
Committee on Environment and Public Works**

Hearing:

**Oversight of the Environmental Protection Agency's Final Rule to Regulate Disposal of
Coal Combustion Residuals from Electric Utilities**

June 17, 2015

INTRODUCTION

Good morning. My name is Mike Kezar, and I serve as the General Manager of South Texas Electric Cooperative or STEC. I appreciate the invitation to appear before the committee today on behalf of STEC and the National Rural Electric Cooperative Association (NRECA) to discuss the need for legislation to supplement EPA's regulation of Coal Combustion Residuals (CCRs).

STEC is a non-profit cooperative with a mission to provide the infrastructure and services necessary to deliver reliable and economical electric power to a diversified membership. STEC was formed in 1944 to provide wholesale electric services to member distribution cooperatives, with eight current member cooperatives. These distribution cooperatives serve over 180,000 members in forty-two South Texas counties. In order to maintain a low and competitive electricity price, STEC relies on a variety of energy sources, including hydroelectric, wind, natural gas, and lignite power sources. The lignite plant is the San Miguel Electric Cooperative, Inc. power plant, located in Atascosa County, Texas. STEC has a multi-year contract with San Miguel to purchase 50% of the power generated by the plant.

NRECA is the national service organization dedicated to representing the national interests of cooperative electric utilities and the consumers they serve, including more than 900 not-for-profit rural electric utilities providing electricity to over 42 million people in 47 states.

I am deeply familiar with the San Miguel plant, because prior to becoming the General Manager of STEC, I served in several capacities at the plant over 33 years, including 6 years as the General Manager. The San Miguel power plant is a well-controlled power plant that employs an electrostatic precipitator, flue-gas desulfurization scrubber, a selective non-catalytic reduction

system, and, after installation this summer, a mercury control system. San Miguel also employs numerous other technologies (e.g., neural network for combustion control, low NOx burners and a separated overfire air system) and best management practices to ensure protection of water and other resources. This has been done, all while providing competitively priced and reliable power to STEC and other member cooperatives. STEC's members are located in rural parts of Texas many of whom are low income. As a result, STEC is particularly sensitive to anything that could drive up the cost of electricity – including, and especially, regulatory uncertainty and litigation expenses. It is STEC's desire to avoid regulatory uncertainty and prevent unnecessary litigation expense that brings me here today to discuss the need for legislation regarding CCRs.

DISCUSSION

STEC supports EPA's decision to regulate CCRs as a nonhazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA) in its CCR Rule. There are two things, however, that EPA's final rule did not accomplish in the end which warrant legislation as soon as possible. Stated another way, EPA's rule needs a couple more tools in its CCR toolbox for its regulation of CCRs to be as effective and reliable as possible.

First, regulatory certainty for CCR beneficial use markets is needed in the form of a legislative nonhazardous determination to allay concerns about the fact that a hazardous determination could still be in the cards given that EPA's final rule merely defers the question. Second, EPA needs the statutory clarity of new legislation to give EPA and the states the ability

to oversee CCR management through federally-approved state permit programs. What follows is a more detailed discussion of why these issues warrant immediate consideration and resolution.

I. San Miguel's Participation in CCR Regulatory Development

San Miguel has been a long and active participant in the development of CCR regulations, primarily as a member of the Texas Coal Combustion Products Coalition (TCCPC or "Coalition"). It is through this organization that San Miguel, and many others in Texas, have worked with EPA and state regulators to develop CCR regulations that support beneficial uses and protect the environment through smart policies and sound science.

In EPA's present rulemaking, the Coalition and San Miguel filed comments on the CCR Rule Proposal.¹ The Coalition also submitted comments on the October 2011 Notice of Data Availability and Request for Comment on the CCR Rule Proposal² and the August 2013 Notice of Data Availability and Request for Comment.³ To every extent practicable, San Miguel and the Coalition were deeply involved in this rulemaking process, including stakeholder and EPA public meetings.

¹ Comments of San Miguel Electric Cooperative, Inc. on the Proposed Rule: Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities, 75 Fed. Reg. 35,128 (June 21, 2010). *Available at:* Docket Id. No. EPA-HQ-RCRA-2009-0640-9427. Comments of Texas Coal Combustion Products Coalition on the Proposed Rule: Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities, 75 Fed. Reg. 35,128 (June 21, 2010). *Available at:* Docket Id No. EPA-HQ-RCRA-2009-0640-7395.

² Comments of the Texas Coal Combustion Products Coalition on Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities; Notice of Data Availability and Request for Comment, 76 Fed. Reg. 63,252 (October 12, 2011). *Available at:* Docket Id No. EPA-HQ-RCRA-2011-0392-0276.

³ Comments of the Texas Coal Combustion Products Coalition on Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities; Notice of Data Availability and Request for Comment, 78 Fed. Reg. 46,940 (Aug. 2, 2013). *Available at:* Docket Id No. EPA-HQ-RCRA-2012-0028-0091.

In addition, the Coalition worked proactively with EPA and state leaders throughout the 2000s to secure regulatory standards over CCR management and beneficial use and to develop and expand beneficial use markets. In 2005, following the successful development of regulations that facilitated Texas having the highest beneficial use rates of any state in the nation, EPA contracted for a study to conduct an in-depth review of Texas' CCR programs, policies, and beneficial use practices.⁴ Texas was selected "because of its progressive approach to CCR utilization and its support network to implement such activities." The Coalition hosted the research team that conducted the study, one of the Coalition's engineer's served on the review team, and several Coalition members provided significant input throughout the process. A full copy of the report is attached to this testimony as Attachment A. As described in more detail in the report, one of the key threats identified by the reviewers to continued growth in beneficial use markets was the risk that EPA might leave open the possibility of regulating CCRs as hazardous, as opposed to nonhazardous, material.

The Coalition has also worked for years with multiple state agencies, including in their roles as members of the Association of Territorial and State Solid Waste Management Organizations (ATSWMO), to advocate for the importance of state regulatory primacy and a risk-based approach to CCR regulation because state agencies are the best-equipped to ascertain the types of limitations and controls necessary to ensure protection of human health and the environment at the local level, as discussed more below.

II. Importance and Need for Protecting Beneficial Use of CCRs

⁴ Energy & Environmental Research Center, Review of Texas Regulations, Standards, and Practices Related to the Use of Coal Combustion Products, Prepared for the U.S. Environmental Protection Agency (January 2005).

A. Background on CCR Beneficial Use Markets

San Miguel has a long history of beneficially using CCRs both at its lignite mine and in the marketplace. In addition to assisting the San Miguel mine with a number of engineered beneficial uses on-site, off-site beneficial uses have included the use of fly ash at oil and gas development sites, as well as the use of CCR cenospheres (small glass beads) from ash ponds in lightweight filler applications (current cenosphere uses range from small mobile phone gaskets to radar-deflecting coating for F-22 Raptors).⁵

A more recent arrangement with Boral Material Technologies has significantly increased marketing activities of San Miguel's fly ash because of its unique benefits to the cement and concrete industries. Beneficial uses currently include oil and gas well casing applications (San Miguel is located in the middle of the Eagle Ford Shale Play), as well as an additive in the production of pozzolanic ("one-piece") cement that does not require the use of Portland Cement or the GHGs produced through its manufacture.

The largest and fastest-growing beneficial use relates to the use of San Miguel's fly ash in the production of Ready Mix Concrete that is both sulfate resistant and mitigates Alkali-Silica Reaction (ASR) which results from aggregates contained in concrete. San Miguel's fly ash is highly desirable because it qualifies as "Class F" fly ash under the American Society for Testing and Materials (ASTM) specification No. C 618-08a (excerpt attached as Attachment B). Class F Ash is required in Texas concrete applications within 35 miles of the coast pursuant to Texas

⁵ See <http://www.cenostar.com/pages/cenospheres>.

DOT Standard DMS 4610 and in California, pursuant to California DOT Concrete Specification 90-1.02B(3), to resist the degradation that occurs due to high sulfate soils across the state (excerpts from Texas and California DOT specifications attached as Attachment C and Attachment D, respectively).

As EPA says on its website, using fly ash in concrete “improves strength, durability, and workability of materials.”⁶ Because of these qualities and the above-referenced specifications, demand in Texas and California for Class F ash like San Miguel’s is expected to continue to increase unless a hazardous waste regulatory risk looms in the future. According to the attached study about the need for Class F ash in California, by the end of this year, high sulfate soils are expected to necessitate the import of nearly 900,000 tons of Class F fly ash per year in California alone.⁷

B. Need for Certainty of Permanent Nonhazardous Designation

Although EPA’s decision to regulate CCRs as nonhazardous was the right one, its decision to defer until a future date whether hazardous regulation might be pursued in the future leaves the CCR beneficial use market in a very uncertain posture. The risk of potential future hazardous regulation makes the type of capital investments necessary to maximize the beneficial use of CCRs very hard to justify given the market destruction that would result from the stigma associated with hazardous waste classification down the road.

⁶ U.S. Environmental Protection Agency, Coal Ash Basics. Available at: <http://www2.epa.gov/coalash/coal-ash-basics> (last accessed June 8, 2015).

⁷ *Beneficial Use of Fly Ash for Concrete Construction in California* (Stein, Ryan, Vitkus, and Halverson), 2015 World of Coal Ash (<http://www.flyash.info/2015/095-stein-2015.pdf>).

The beneficial use of CCRs requires regulatory certainty. Developing markets for products incorporating CCRs and other beneficial uses requires years of planning. Often, large capital investments must be made in order to bring products containing CCRs to market, while consumers must be confident in the safety of these products and their uses. Legislation that would establish, as a matter of statutory law, that regulation of CCRs will occur under nonhazardous authorities and that hazardous regulations are not on the horizon, would bring certainty to the beneficial use market and facilitate greater investments in beneficial use projects.

III. Importance of Restoring State Authority Oversight and Cooperative Federalism

In addition to the certainty that legislation can bring to beneficial use markets, legislation is also needed to fill key gaps in EPA's current statutory authority so that they can implement a permitting program that will be much more comprehensive, science-based and enforceable than the current CCR rule. This would be a dramatic improvement to the current self-implementing nature of the CCR rule which leaves the environmental regulatory agencies out of the picture and depends exclusively on a litigation model whereby citizen suits brought in federal district courts across the country will be the sole method of enforcing the regulatory criteria.

In contrast to the unprecedented nature of the current self-implementing model, the state and federal permitting approach that we are requesting is not new or unique. In fact, you need not look any further than the very successful model of the municipal solid waste (MSW) program where EPA oversees a state-implemented permitting program.⁸ With legislation, EPA's CCR rule can establish minimum nonhazardous waste criteria – a “floor” which state regulatory

⁸ See Comments of Texas Coal Combustion Products Coalition on the Proposed CCR Rule at 16-20.

programs can exceed, but not fall below. States would be allowed to administer EPA-approved permit programs and EPA would retain the right to revoke approval and enforce if necessary. The result allows EPA to both set the floor and retain direct approval and enforcement authority, while allowing for states to develop and implement risk-based environmental standards that are tailored to site-specific environmental conditions. For example, state regulatory agencies can factor site-specific geology and hydrogeology into liner designs, groundwater monitoring, and closure and post-closure care. This would empower facilities like San Miguel to reliably make investments in scientifically sound, site-specific, and risk-based CCR management designs.

Without legislation, facilities like San Miguel are left open to vast regulatory uncertainty and potentially extreme litigation costs. Under the current rule, nothing a state or even EPA says about a regulatory question that San Miguel might have will trump an ad hoc decision by federal district court judge in the context of a citizen suit. These costs and risks of inconsistent, scientifically unsound decisions that are likely to be generated by a litigation-only compliance approach cannot be overstated. In every other environmental compliance program area (air, water, mining/reclamation, etc.), San Miguel can reliably turn to state or federal environmental agencies to secure permits, work through highly technical risk management approaches, and ensure that it protects human health and the environment in a site-specific and reliable fashion. The uncertainty that the current CCR rule creates for San Miguel could result in millions of dollars of duplicative expenditures due to the absence of an overseeing regulatory agency without protecting San Miguel from abusive citizen suit litigation tactics that might be motivated by a desire to shut the plant down rather than ensure sound CCR management.

IV. Conclusion

Every day that passes is another day closer to October 14, 2015 - the effective date of the CCR rule. Already, facilities like San Miguel are having to spend hundreds of thousands of dollars toward what they hope will be sufficient compliance, but with no regulatory agency endorsement of that compliance to protect them from abusive citizen suit litigation. So legislation is needed as soon as possible to remedy this situation and make sure that EPA has every possible tool in its CCR regulatory toolbox and electric cooperatives can focus their limited resources on compliance, not litigation defense.

Moreover, as I set out in detail from the outset, legislation is needed to eliminate the regulatory uncertainty created by EPA's deferral of the question of whether hazardous regulation might happen in the future. We are at the verge of making unprecedented progress in the beneficial use of San Miguel's fly ash and it will be very difficult to achieve this progress unless market-disrupting regulatory uncertainty is resolved as soon as possible.

Thank you for the opportunity to submit these comments into the record on behalf of South Texas Electric Cooperative.

Attachment A

**REVIEW OF TEXAS REGULATIONS,
STANDARDS, AND PRACTICES RELATED TO
THE USE OF COAL COMBUSTION PRODUCTS**

Final Report

Prepared for:

John Sager

Environmental Protection Specialist
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest (MC 5306W)
Washington, DC 20460

John Ward

Vice President Marketing & Communications
Headwaters Resources
10653 South Riverfront Parkway, Suite 300
South Jordan, UT 84095

Prepared by:

Tera D. Buckley
Debra F. Pflughoeft-Hassett

Energy & Environmental Research Center
University of North Dakota
PO Box 9018
Grand Forks, ND 58202-9018

ACKNOWLEDGMENTS

The Energy & Environmental Research Center (EERC) would like to express its appreciation to the U.S. Environmental Protection Agency (EPA) and Headwaters Resources for the opportunity to work on the Review of Texas Regulations, Standards, and Practices Related to the Use of Coal Combustion Products project as a subcontractor. The EERC authors would specifically like to thank Mr. John Sager, EPA, and Mr. John Ward, Headwaters Resources, for their financial support and input on this effort. In addition, thank you to the American Coal Ash Association (ACCA) for supporting the authors' travel to Texas.

The EERC would like to thank Mr. Richard Bye, Texas Coal Ash Utilization Group (TCAUG); Mr. John Sager, EPA; and Ms. Lisa Kost, Lloyd Gosselink Blevins Rochelle & Townsend, P.C., for helping conduct the reviews in Texas. The EERC would also like to express its appreciation to the many individuals who participated voluntarily in the information-gathering process of the review. In addition, the members of the project advisory board—Mr. William Aljoe, U.S. Department of Energy; Mr. Richard Bye TCAUG; Ms. Susan Ferguson, Texas Commission on Environmental Quality; Mr. David Goss, ACAA; Mr. Jason Harrington, Federal Highway Administration; Mr. James Roewer, Utility Solid Waste Activities Group; Mr. Jerry Smith, Headwaters Resources; and Mr. Kimery Vories, Office of Surface Mining—are gratefully acknowledged for helping shape the review process and providing comments on the draft report.

EERC DISCLAIMER

LEGAL NOTICE This research report was prepared by the Energy & Environmental Research Center (EERC), an agency of the University of North Dakota, as an account of work sponsored by EPA and Headwaters Resources. Because of the research nature of the work performed, neither the EERC nor any of its employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement or recommendation by the EERC.

TABLE OF CONTENTS

LIST OF FIGURES	iii
LIST OF TABLES.....	iii
NOMENCLATURE	iv
EXECUTIVE SUMMARY	v
BACKGROUND	1
OBJECTIVE.....	1
SCOPE.....	2
PRE-SITE VISIT REVIEW PROCESS	2
Task 1: Establish an Administrative Team.....	2
Task 2: Select a Pilot State.....	2
State Selection Rationale by State	4
EERC State Selection Conclusions.....	6
Task 3: Form an Advisory Board.....	7
Task 4: Assemble a Review Team.....	7
Task 5: Create a Review Guide	7
Task 6: Develop a List of Interviewees	7
Task 7: Prepare an Agenda	9
STATUS OF CCP PRODUCTION AND UTILIZATION IN TEXAS.....	9
KEYS TO SUCCESSFUL CCP UTILIZATION IN TEXAS	10
Key 1: Formation and Perseverance of TCAUG	10
Key 2: Proactive Regulatory Development in Texas.....	11
Amendment to 30 TAC Chapter 335 – Industrial Solid Waste and Municipal Wastes.....	12
Key 3: Legislative Provisions	13
Texas Water Code 26.12 – Unauthorized Discharges Prohibited.....	13
SB 1340 – CCP Use in Road and Bridge Construction.....	13
SB 1051 – Establishment of the Recycling Market Development Board.....	14
Key 4: Newly Adopted TxDOT Specifications	14
DMS-4610 – Fly Ash.....	14
DM-4615 – Fly Ash for Soil Treatment	15
DMS-11000 – Evaluating and Using Nonhazardous Recyclable Materials.....	15
Product Application Specifications and Special Provisions	15
Key 5: Strong Building Industry Coupled with Green Building Initiatives	15

continued...

TABLE OF CONTENTS (continued)

Key 6: Texas Utilities Generally Produce Good-Quality Fly Ash	16
Key 7: Development of Statewide Online Recycling Resources.....	16
REPORTED BARRIERS TO INCREASING CCP UTILIZATION IN TEXAS.....	17
Barrier 1: Education and Attitude	17
Barrier 2: Consistency of Supply	18
Barrier 3: Liability	18
Barrier 4: Limited Markets for FGD Material and Bottom Ash.....	19
Barrier 5: Transportation and Infrastructure Issues	19
Barrier 6: Local and Abundant Asphalt Supply.....	19
POTENTIAL THREATS THAT COULD IMPACT FUTURE CCP UTILIZATION IN TEXAS	20
Threat 1: New Pollution Control Requirements	20
Threat 2: Ability to Retain Institutional Knowledge at TCEQ and TxDOT.....	21
Threat 3: Class C vs. Class F Issues Related to ASR	21
Threat 4: EPA Could Reconsider Its RCRA Determination.....	21
ROAD MAP TO INCREASED CCP UTILIZATION IN TEXAS.....	21
Action 1: Adopt Performance-Based Concrete Specifications.....	21
Action 2: Develop Profitable Markets for FGD Material and Bottom Ash That Consider Transportation Costs	22
Action 3: Exempt Beneficial Reuse from Federal Toxic Release Inventory Reporting.....	22
Action 4: Change How the Material Is Perceived	22
Action 5: Build Off of LEED's Success	23
Action 6: Promote Industry Successes Outside of the CCP Industry	23
Action 7: Produce a Hybrid Blended Fly Ash	24
Action 8: Develop Markets for Low-Quality Fly Ash.....	24
Action 9: Provide Economic Incentives for Using Recycled Materials	24
TRANSFERRING THE INFORMATION FROM THE TEXAS EXPERIENCE TO OTHER STATES	25
CONCLUSIONS.....	26
REFERENCES	27
ADVISORY BOARD AND REVIEW TEAM MEMBERS.....	Appendix A
TEXAS REVIEW GUIDE.....	Appendix B
PARTICIPANT LIST AND FINAL AGENDA.....	Appendix C
1995 LETTER TO TEXAS COAL ASH UTILIZATION GROUP FROM TEXAS NATURAL RESOURCE CONSERVATION COMMISSION.....	Appendix D

LIST OF FIGURES

1 States with laws, regulations, policies, or guidance authorizing CCP utilization..... 3
2 Production and utilization of CCPs in Texas from 1996 to 2002 10

LIST OF TABLES

1 Uses of Coal Ash by State 4
2 Potential Interviewees 8

NOMENCLATURE

AASHTO	American Association of State Highway and Transportation Officials
ACAA	American Coal Ash Association
ASR	alkali silica reactivity
ASTM	American Society for Testing and Materials
ASTSWMO	Association of State and Territorial State Waste Management Officials
C ² P ²	Coal Combustion Products Partnership
CCP	coal combustion products
CO ₂	carbon dioxide
DOT	Department of Transportation
EERC	Energy & Environmental Research Center
EPA	Environmental Protection Agency
FAQMP	Fly Ash Quality Monitoring Program
FGD	flue gas desulfurization
FHWA	Federal Highway Administration
GLO	General Land Office
LCRA	Lower Colorado River Authority
LEED	Leadership in Energy & Environmental Design
NAA	National Asphalt Association
NO _x	Nitrogen oxide
NRM	nonhazardous recyclable materials
ODOT	Ohio Department of Transportation
PRB	Powder River Basin
QA/QC	quality assurance/quality control
RCRA	Resource Conservation & Recovery Act
RENEW	Resource Exchange Network for Eliminating Wastes
RMDB	Recycling Market Development Board
SB	Senate Bill
STRONGER	State Review of Oil and Natural Gas Environmental Regulations Inc.
TAC	Texas Administrative Code
TBPC	Texas Building and Procurement Commission
TCAUG	Texas Coal Ash Utilization Group
TCEQ	Texas Commission on Environmental Quality
TNRCC	Texas Natural Resources Conservation Commission
TRI	Toxic Release Inventory
TWC	Texas Water Code
TxDOT	Texas Department of Transportation

REVIEW OF TEXAS REGULATIONS, STANDARDS, AND PRACTICES RELATED TO THE USE OF COAL COMBUSTION PRODUCTS

EXECUTIVE SUMMARY

Texas was selected as the pilot state for an in-depth review of its coal combustion product (CCP) programs, policies, and use practices because of its progressive approach to CCP utilization and its support network to implement such activities. The review process, including state selection rationale, advisory board member selection, interviewee identification and confirmation, questionnaire development, and other logistical issues, are described.

Based on information obtained during the Texas state review processes, the following items were identified as keys to successful CCP utilization in Texas:

1. Formation and perseverance of the Texas Coal Ash Utilization Group
2. Proactive regulatory developments in Texas
3. Adaptable federal and state legislative provisions
4. Newly adopted Texas Department of Transportation (TxDOT) specifications
5. Strong building industry coupled with green building initiatives
6. Texas utilities generally producing good-quality fly ash
7. Development of statewide online recycling resources

Although Texas has a 60%–70% CCP utilization rate, the following barriers were identified during the review that currently prohibit increased CCP utilization in Texas:

1. Education and attitude among district and local highway personnel, architects, engineers, and contractors
2. Consistency of CCP supply
3. Liability issues among generators and users
4. Limited markets for flue gas desulfurization (FGD) material and bottom ash
5. Transportation and infrastructure issues
6. Local and abundant asphalt supply

In addition to barriers, the following potential threats were identified during the review that could hinder CCP utilization in the future:

1. New pollution control requirements
2. Ability to retain institutional knowledge at Texas Commission on Environmental Quality (TCEQ) and TxDOT
3. Class C vs. Class F issues related to alkali silica reactivity
4. EPA could reconsider its Resource Conservation and Recovery Act determination

The following activities were suggested during the review as actions that would help increase CCP utilization in Texas:

1. Adopt performance-based concrete specifications
2. Develop profitable markets for FGD material and bottom ash that consider transportation costs
3. Exempt beneficial reuse from federal Toxic Release Inventory reporting
4. Change how the material is perceived
5. Build off of Leadership in Energy & Environmental Design's (LEED's) success
6. Promote industry success outside of the CCP industry
7. Produce a hybrid/blended fly ash
8. Develop markets for low-quality fly ash
9. Provide economic incentives for using recycled materials

Using the keys, barriers, threats, and actions identified during the state review process, other states with less successful CCP utilization can learn from what Texas has done right and implement similar activities in their own states. This report provides an analysis of how the Texas experience can be transferred to other states.

REVIEW OF TEXAS REGULATIONS, STANDARDS, AND PRACTICES RELATED TO THE USE OF COAL COMBUSTION PRODUCTS

BACKGROUND

About 46 million tons of coal combustion products (CCPs) are beneficially used in the United States each year, but nearly 75 million tons are still being disposed of in landfills (American Coal Ash Association, [ACAA], 2003). A few key barriers and trends need to be addressed in order to increase the utilization rate. A frequent barrier that hinders the use of CCPs is the broad range of state laws, regulations, policies, and guidelines regarding the use of CCPs (ACAA, 1998). Some states (Pflughoeft-Hassett et al., 1999) have worked to develop progressive and effective guidance for CCP utilization, while other states still lack the resources and information to feel comfortable with a more progressive approach. For example, the use of CCPs in nonconcrete applications is not well addressed in state environmental regulations or in Department of Transportation (DOT) specifications. It is anticipated that state reviews will provide the opportunity to identify the nonconcrete applications (i.e., controlled low-strength materials, highway road base and subgrade, soil stabilization, and construction materials) that warrant consideration and, perhaps, development of regulations and standards and specifications at the federal and state levels. In addition, fly ash utilization in the United States is not keeping pace with coal consumption, and federal purchasing of fly ash concrete has decreased 50% since 1996. Although fly ash concrete is a common material used by various federal and state DOTs, these trends are alarming and show that the use of this material needs to be improved. It is important to review existing state regulations, standards, and use practices to provide information that can lead to the adjustment of these barriers.

In 2003, the U.S. Environmental Protection Agency (EPA) announced the Coal Combustion Products Partnership (C²P²) program to promote the beneficial use of CCPs and the associated environmental benefits. The participation of EPA is a key element of this effort, as many of its efforts on the federal level filter down to state and local governments. Yet, despite EPA's policy support, CCP use is often dependent on state and local environmental regulations and construction.

OBJECTIVE

The primary objective of this pilot effort was to develop an interdisciplinary team to work with a cooperating state to evaluate regulations and use practices within the state's government and private sectors pertaining to CCP use. The deliverable was to develop a deployment package of a presentation, final report, and other documentation for distribution to the project's advisory board and EPA. This review was intended to be a pilot program that may provide impetus to EPA to perform additional state reviews.

SCOPE

The scope of the pilot review, as identified by the project's advisory board members, was to evaluate the various factors related to CCP utilization. In order to focus the study on current practices, which are most readily transferable, the pilot review highlighted various CCP use practices, including highway construction and building practices, but did not consider the use of CCPs at mine sites, as originally intended by the project's administrative team. This was not to diminish the significance or use of CCPs at mine sites as a high-volume application but to recognize the national regulatory debate on the use of CCPs at mine sites, which is being conducted independently of this review.

PRE-SITE VISIT REVIEW PROCESS

The following tasks were completed prior to the site visit. Tasks are listed in order; however, many tasks were implemented concurrently.

Task 1: Establish an Administrative Team

A project administrative team was established to perform the majority of the administrative work, including organizing the review, compiling findings, and writing reports. Ms. Tera Buckley, Energy & Environmental Research Center (EERC), acted as team leader, and other team members were Ms. Debra Pflughoeft-Hassett, EERC; Mr. John Sager, EPA; and Mr. John Ward, Headwaters Resources.

Task 2: Select a Pilot State

The project's administrative team conducted an extensive evaluation to select the pilot state. The team looked for a pilot state with an existing and successful CCP beneficial use program and infrastructure that allowed good cooperation between industry and state agencies. It was intended that this "model" state could provide information to other states attempting to increase CCP use through examples of successful interaction among all stakeholders. Project administrative team members agreed that the pilot state should be progressive, without being aggressive to the point of exhibiting a model that would be difficult to replicate in other states. The pilot state selected needed to be a realistic prototype. For example, California would not be a good choice because it produces very limited supplies of coal ash and tends to have a reactionary response to environmental issues. Further, it was agreed that the pilot state should be successfully implementing beneficial use policies that can be, in part, assessed by the acceptance of citizen and environmental groups. Finally, the project administrative team agreed that a range of issues should be addressed by the potential pilot state. The range of issues could be represented by the authorized or allowed CCP uses in individual states. Ideally, the potential pilot state would have an established CCP network and demonstrated successful communication between industry and state agencies.

Based on this rationale, the administrative team first determined which states have rules, regulations, or policies authorizing or allowing CCP use (see Figure 1).

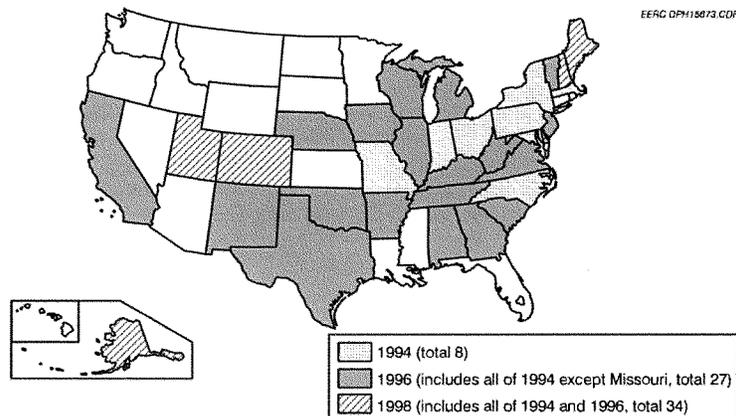


Figure 1. States with laws, regulations, policies, or guidance authorizing CCP utilization.

*Dates note when significant policies were finalized.

Next, input was sought from various groups, including the Association of State and Territorial Solid Waste Management (ASTSWMO) and the American Association of State Highway and Transportation Officials (AASHTO). States that were recommended or volunteered to participate as the pilot state included the following:

- Colorado
- Illinois
- Indiana
- North Dakota
- Ohio
- Pennsylvania
- Texas

These states were further analyzed to determine which beneficial uses were allowed in each state. Table 1 presents CCP use by the potential states summarized from the ACAA's State Solid Waste Regulations Governing the Use of CCPs (ACAA, 1998).

Table 1. State Uses of Coal Ash by State

	IL	IN	ND	OH	PA	CO	TX
Cement/Concrete Products	★	☆	★	★	★	☆	★
Flowable Fill	★	★		★			★
Structural Fill	★	★	☆	★	★		
Road Base/Subbase	★	★	☆	★	★		★
Mineral Filler in Asphalt				★			★
Snow and Ice Control	★	★		★	★		
Roofing Shingles	★			★			★
Blasting Grit				★			★
Grouting				★		☆	★
Mining Applications	★	★	☆	★	★		
Waste Stabilization				★	★		★
Filler in Plastics/Paints/Metals	★			★			★
Mineral Recovery	★	★		★	★		
Soil Amendment	★		☆	★	★		
Ingredient in Product		★		★	★		★
Aggregate				★	★		★
Landfill Cover							
Walking/Driving Surface	★			★			★
Bricks/Ceramics/Insulation				★			★
Artificial Reefs							★
Well Construction						☆	★

★ = Authorized ☆ = Allowed

State Selection Rationale by State

The following is a state-by-state review of the states identified as potential model pilot states. All states under consideration were coal-mining states. To further narrow the pilot state selection, the following criteria were evaluated:

- Public acceptance of state CCP use policy
- Established support network
- Demonstrated ongoing industry, government, and public communication

It should be noted that the state selection process was conducted prior to the project's advisory board revising the scope to exclude mining applications.

Colorado

Colorado, suggested as a potential pilot state by members of the coal ash industry, allows only three use applications and has relatively new use authorization. Because Colorado authorizes very few applications, it was excluded from further consideration, but should be considered as a target state for the information transfer related to this study.

Illinois

Illinois authorizes 11 utilization applications, and those authorizations have been in place since 1996. Illinois has a university actively conducting coal ash-related research. Southern Illinois University at Carbondale and the Illinois Clean Coal Institute regularly fund research related to ash, but Illinois still appears to lack a readily available and coordinated support network from the industry side. However, there is some indication that the Departments of Transportation and Environmental Protection may provide a support network.

Indiana

Indiana allows eight use applications, but the public acceptance of CCP use is not very positive. Indiana's Hoosier Environmental Council is an example of an organization whose actions have had long-term effects on CCP use and public opinion. The Hoosier Environmental Council is an adamant opponent to the use of CCPs, touting numerous cases of CCP ground and surface water contamination and CCP's negative effects on human health. Because the actions of the Hoosier Environmental Council negatively affect public acceptance of CCP use, Indiana is not considered a model pilot state.

North Dakota

North Dakota, considered primarily for EERC logistical reasons, only allows five use applications and, as noted in Figure 1, did not have authorization in 1998, implying that these authorizations are relatively new. North Dakota does not have a track record of productive interaction between the utility industry and the North Dakota Department of Health. The EERC's coal ash research program and support from the North Dakota Industrial Commission have resulted in a large number of CCP utilization-related efforts in North Dakota, yet resistance is noted from regulatory agencies. North Dakota is not a candidate for a model pilot state and should be considered as a target state for the information transfer of the results of this study.

Ohio

Ohio authorizes the most beneficial use applications (18) for coal ash. Ohio State University offers an established coal ash research program with contacts within Ohio, an extension agent focusing on CCP utilization, and support from the Ohio Coal Development Office. Ohio State University's CCP Pilot Extension program works "to develop and promote standardized practices and procedures acceptable to private sector end users and government regulators; serves as an information center and coordinates, sponsors, and presents at seminars and similar events; assesses the markets for CCP uses; and conducts many related activities" (CCPOhio, 2004). It has a history of working with industry, government, and the public to remove CCP utilization barriers.

In addition to the positive aspects noted, there are also political issues that have been brought to the forefront recently. These primarily revolve around the Ohio Department of Transportation's (ODOT's) purchasing practices. More than 90% of ODOT's paving work is asphalt, not concrete. The issues for this effort are twofold: 1) fly ash concrete in paving is a key

use application, so ODOT may not be the best source of information on encouraging this use and 2) ODOT representatives may not be open to or available for inquiries on their practices because of upcoming hearings on the issue. While Ohio would otherwise be ranked very high in the selection process, these items could significantly impact the outcome of the state review if Ohio were selected.

Pennsylvania

Pennsylvania was high on the list of potential pilot states because it was identified as having model activity in the development of CCP beneficial use policies as early as the first EERC Barriers Report (Pflughoeft-Hassett et al., 1999). As shown in Figure 1, Pennsylvania already authorized CCP use in 1994 or earlier. Pennsylvania authorizes ten use applications. Pennsylvania has support from ASTSWMO members, but it does not have a documented industry support group. Public acceptance of CCP use in Pennsylvania has been problematic recently in the mining application area. For example, Pennsylvania recently experienced opposition from the public regarding coal ash use to mitigate acid mine drainage. Pennsylvania's state environmental officials and mining companies support the use, but neighbors to the site bitterly oppose the use, fearing the coal ash will leach into the groundwater and contaminate wells (Rubinkam, 2003).

Texas

Texas was high on the list of potential pilot states because it was recognized as having model activity in the development of CCP beneficial use policies as early as the first EERC Barriers Report (Pflughoeft-Hassett et al., 1999). Texas established authorization of CCP use between 1994 and 1996 and is second only to Ohio with the number of authorized uses. With the Texas Coal Ash Utilization Group (TCAUG) and Texas Coal Combustion Products Coalition, Texas has an existing support network that supports coal ash utilization. TCAUG's mission is "to work with and assist public and private agencies, organizations, and associations to remove barriers to environmentally/technically sound utilization of coal combustion by-products." This organization has worked to remove utilization barriers in Texas since it was established and has assembled information on coal ash for Texas regulatory agencies.

EERC State Selection Conclusions

The selection process was easily narrowed to Illinois, Ohio, Pennsylvania, and Texas based on the assembled information. Illinois and Pennsylvania have significantly fewer approved or authorized use applications than Ohio and Texas, so the selection was further narrowed to Ohio and Texas.

In comparing and contrasting Ohio and Texas, Ohio has the advantage of accepting the somewhat controversial uses of CCPs in mining applications, soil amendment, and structural fills. Recent developments in use practices in Ohio may significantly impact the future of CCP use in concrete, a major beneficial use application, and may prohibit a smooth state review process. The project administrative team agreed that with the TCAUG, Texas offered the best support network to facilitate the review process. Anecdotal information indicates that CCP use in

mine settings and soil amendment was recently instituted in Texas. For these reasons, the project team selected Texas as the pilot state for review.

Task 3: Form an Advisory Board

A second team, the project advisory board, was formed to provide input to interviewee selection, assist in the development of a standard questionnaire, and review findings. Advisory board members and associated contact information are listed in Appendix A.

Task 4: Assemble a Review Team

A select group of individuals from the advisory board and administrative team comprised the review team. The primary role of the review team was to administer the meetings at the review. Review team members and associated contact information are listed in Appendix A.

Task 5: Create a Review Guide

Similar review processes including STRONGER (State Review of Oil and Natural Gas Environmental Regulations Inc.) and the Federal Highway Administration's Recycled Aggregate Review were evaluated. Using frameworks developed under these independent reviews, a review guide was developed for Texas that included background information for interviewees and targeted questionnaires for each discussion group (see Appendix B). It became apparent as the interview list began to form that targeted questionnaires were needed for different review sessions because various issues applied to the wide cross section of interviewees. To facilitate appropriate discussions, the following four discussion groups were formed to answer questions posed by the review team:

- Government agencies – directors and other key personnel of state or regional transportation and environmental agencies
- Marketers/end users – CCP marketers and ready-mix suppliers
- CCP generators – utilities/producers of CCPs
- Special interest – environmental and citizen groups, research institutions

The project's administrative team and advisory board members carefully selected questions for each discussion group. All questions are in keeping with the scope of the review defined by the project's advisory board members.

Task 6: Develop a List of Interviewees

With input from the advisory board, the administrative team developed a list of potential interviewees for each of the discussion groups identified in Task 5. Table 2 lists all potential companies/associations/organizations to be reviewed. Key contacts were identified for each of these companies/associations/organizations, and all contacts were asked to participate in the

Table 2. Potential Interviewees**Government Agencies**

Texas Commission on Environmental Quality*
 Texas Department of Transportation*
 Texas Recycling Market Development Board

Marketers

Boral Material Technologies, Inc.*
 Headwaters Resources*
 Lafarge North America*
 Mineral Resource Technologies, Inc.*

End Users

Alamo Concrete Products, Ltd.*
 Association of General Contractors of Texas
 Austin Energy's Green Building Program
 Centex Materials, LLC*
 Lattimore Materials Company*
 Lone Star Ready Mix
 Southern Star Concrete*
 Texas Building and Procurement Commission
 Texas Concrete and Aggregates Association
 Texas Mining & Reclamation Association**
 Texas Railroad Commission, Surface Mining and Reclamation Division**
 TXI Operations, LP
 Transit Mix Concrete

CCP Generators

American Electric Power*
 Lower Colorado River Authority*
 Sempra Energy Resources
 Texas Coal Ash Utilization Group*
 Texas Coal Combustion Products Coalition*
 TXU Energy Company*

Special Interest

BRIDGES to Sustainability
 Neighbors for Neighbors
 Potts & Reilly L.L.P.**
 Public Citizen–Texas Office**
 Rice University
 Sierra Club, Lone Star Chapter*
 Texas Clean Air Working Group
 Texas Transportation Institute, Texas A&M University*
 The North American Coal Corporation**

* Participated in the review.

**Accepted invitation but was uninvited once the scope was revised to exclude mining applications.

review. Some declined because their mission did not fit the scope of this effort, and others declined because of scheduling conflicts. The final list of interviewees and associated contact information is located in Appendix C.

Special interest groups were highly debated by the project's advisory board members. After the study's scope was redirected to not include mining applications, several special interest groups originally identified as interviewees were no longer candidates to participate (i.e., Neighbors for Neighbors and Public Citizen).

Task 7: Prepare an Agenda

The review was scheduled for September 13–15, 2004, to coincide with a C²P² Workshop in Austin, Texas, on September 16, 2004. Lloyd Gosselink Blevins Rochelle & Townsend, P.C., in Austin, Texas hosted the interviews, with the exception of Texas Commission on Environmental Quality (TCEQ) and Texas Department of Transportation (TxDOT), which took place at their offices.

The final agenda is included in Appendix C. The open meeting was scheduled on the last day for interviewees not able to attend their scheduled meeting time. In addition, a conference call was held on September 23, 2004, for interviewees who wanted to participate but had scheduling conflicts. Written comments were also accepted.

STATUS OF CCP PRODUCTION AND UTILIZATION IN TEXAS

Texas ranks fifth nationally among states with coal production and is the largest producer of lignite coal. Lignite constitutes approximately 97% of the near-surface coal resources in Texas. The most significant bituminous resources are in the north-central and southern parts of the state. Recoverable coal reserves in Texas are estimated to be 673 million tons, about 3% of U.S. recoverable coal reserves (Railroad Commission of Texas, 2004).

According to ACAA (2003), 121.7 million tons of CCPs were produced in the United States in 2003, and 38% of those materials were used. Texas is the largest consumer of coal in the United States consuming 105,376 short tons in 2003 (Energy Information Administration, 2004) and, consequently, is the largest producer of coal ash (TCAUG, 1994), producing about 15 million tons of coal ash per year, or about 12% of the national total. In fact, 83% of the Texas industrial solid waste stream is made up of coal ash. Currently, 60%–70% of coal ash produced in Texas is beneficially used, up from 15% in 1992. In some instances, Texas utilities are using 100% of the ash they produce and are reclaiming material from their landfills to recycle. Fly ash produced in Texas is exported to Florida, New Mexico, and Georgia. Small amounts are imported from Arizona and Oklahoma.

Figure 2 shows the production and utilization of CCPs in Texas in from 1996–2002 (Akers, 2004a).

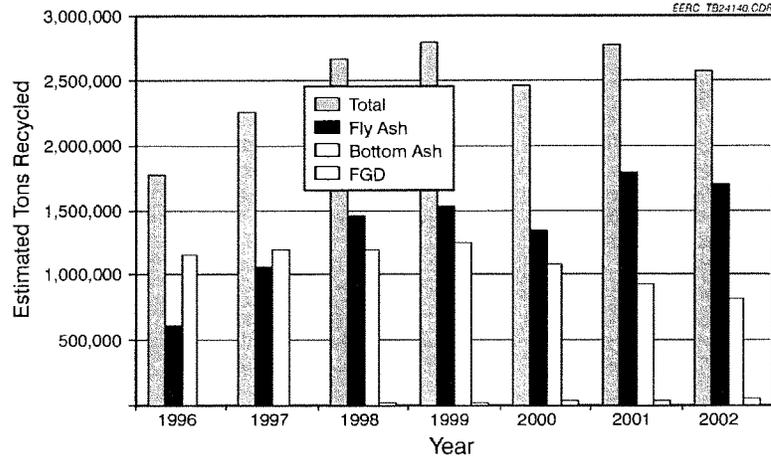


Figure 2. Production and utilization of CCPs in Texas from 1996 to 2002.

KEYS TO SUCCESSFUL CCP UTILIZATION IN TEXAS

The dramatic increase (~55%) in CCP utilization in Texas over the past 10 years can be directly attributed to the following key factors. The authors believe the “keys” are listed in order of importance.

Key 1: Formation and Perseverance of TCAUG

In 1990, the Texas utilities, ash marketers, environmental consultants, and university professors formed TCAUG to promote the use of CCPs and remove the barriers prohibiting utilization, such as deed recording in highway road construction projects. TCAUG was instrumental in getting state legislation passed in 1991 (Senate Bill [SB] 1340) that encouraged recycling and required state and local governments to amend their specifications for road and bridge construction to include CCPs. In 1993, TCAUG was again influential in getting language added to SB 1051 which established the Recycling Market Development Board (RMDB) and charged this body with developing a study to identify economic and regulatory incentives and disincentives for recycling and identifying existing and potential markets for, among other materials, CCPs. As part of SB 1051, the Texas General Land Office (GLO) prepared two market studies entitled “Texas Recycles: Marketing Our Neglected Resources” and “Texas Recycles II: Marketing Our Neglected Resources,” to lay the groundwork for strategies to develop and expand recycling industries and markets in Texas (Akers, 2004b).

The GLO report issued in 1994 identified regulatory barriers at the Texas Natural Resources Conservation Commission (TNRCC) (predecessor agency to TCEQ) as one of the major impediments to increased CCP utilization. As a result, the TNRCC, GLO, TCAUG, and TxDOT formed a task force to study the issue. TCAUG hired EPRI to present technical information to the task force, and Texas university professors provided case studies where CCPs were used successfully. The result of this cumulative effort was an issuance of a coproduct regulatory guidance letter in 1995 by the TNRCC that recognized that CCPs utilized in many construction applications could be best accomplished if the materials were not considered a solid waste (see Appendix D). With this letter, recycling of CCPs in Texas began to increase substantially (Akers, 2004b).

Finally in 2001, TCEQ formed a working group to meet with TCAUG to draft an agency rule that would convert the 1995 guidance letter into an agency rule. This effort took several months of negotiation and drafting and ultimately produced what is commonly referred to as the "Eight Waste Criteria Rule" (30 Texas Administrative Code [TAC] Chapter 335) (Akers, 2004b).

The collaborative effort between TCAUG, TCEQ, TxDOT, and the GLO resulted in proactive regulations that cleared the way for coal ash recycling in Texas. TCAUG used a push-pull strategy in its approach, by consulting many levels at each of the state agencies. In addition, TCAUG presented one universal voice from industry to state agencies. TCAUG attributes its success to these strategies and its tenacity over a 10-year period.

Key 2: Proactive Regulatory Developments in Texas

TCEQ is the second largest environmental agency in the world, second only to EPA. TCEQ 1) regulates the disposal of solid waste; 2) enforces prohibitions against unauthorized discharges of contaminants to any water in the state; 3) enforces prohibitions against unauthorized emissions of air contaminants or activities that contribute to or that cause air pollution; and 4) promotes waste minimization and pollution prevention activities throughout the state of Texas.

Under previous TCEQ regulations, a facility that provided written notification of a particular beneficial use was not required to provide additional notification. In some cases, numerous uses were recognized by the state as the result of research presented by industry groups (see Appendix D) or individual companies. Those approved uses are still valid under current regulations.

In an effort to develop a single beneficial use rule for solid wastes, TCAUG and a similar association from the steel industry approached TCEQ to revise its solid waste rules. It was decided that taking a statewide approach would be the most effective way to get a solid waste rule approved that applied to a number of industries. As a result of these efforts, the following proactive regulation was adopted by TCEQ.

Amendment to 30 TAC Chapter 335 – Industrial Solid Waste and Municipal Wastes

Proposed on October 27, 2000, and adopted on April 20, 2001, the amendment to TAC Title 30 Chapter 335, commonly referred to in Texas as the “eight-waste criteria rule” but through rulemaking became a seven-waste criteria rule, was perhaps the most influential rule that opened the doors for coal ash use in Texas by omitting utilized CCPs from the state’s definition of solid waste so long as the material continues to meet all of the following criteria:

1. A legitimate market exists for the recycling material as well as its products.
2. The recycling material is managed and protected from loss, as would be raw materials or ingredients or products.
3. The quality of the product is not degraded by substitution of raw material or product with the recycling material.
4. The use of the recycling material is an ordinary use, and it meets or exceeds the specifications of the product it is replacing without treatment or reclamation. Or if the recycling material is not replacing a product, the recycling material is a legitimate ingredient in a production process and meets or exceeds raw material specifications without treatment or reclamation (note: treatment may impact future flue gas desulfurization (FGD) utilization; this is in another section of the report).
5. The recycling material is not burned for energy recovery, used to produce a fuel, or contained in a fuel.
6. The recycling material is a legitimate ingredient in a production process and meets or exceeds raw material specifications without treatment or reclamation.
7. The recycling material must not present an increased risk to human health, the environment, or waters of the state when applied to the land or used in products which are applied to the land (Akers, 2004a).

The rule (30 TAC 335.1 Subchapter R) classifies industrial solid wastes into the following three categories:

- Class I – Any industrial waste that is toxic; corrosive; flammable; a strong sensitizer or irritant; a generator of sudden pressure by decomposition, heat, or other means; or may pose a substantial present or potential danger to human health or the environment. Besides nominal exceptions, CCPs produced in Texas are not categorized as Class I wastes.
- Class II – Any industrial waste which cannot be described as hazardous under Class I or does not meet the criteria for Class III. The majority of CCPs produced in Texas are categorized as Class II wastes.

- Class III – Inert and essentially insoluble industrial waste. Some bottom ashes produced in Texas are categorized as Class III and are, therefore, not subject to the TCEQ’s eight-waste criteria rule.

TCEQ’s classification is a self-classification system, meaning utilities classify their own materials. Data generated by the utility to classify its materials are subject to TCEQ audit. The vast majority of CCPs produced in Texas are exempt from solid waste classification. As a result, CCPs are able to compete in the marketplace like any other raw or manufactured material. No permits or prior approvals are required as long as the CCPs meet the eight-waste criteria rule.

If CCPs are stored or disposed as wastes, the General Prohibitions in 30 TAC 335.4 apply along with other solid waste regulations in Chapter 335. All wastes must be properly tested and classified (30 TAC 335.503). All wastes disposed of must be deed-recorded (30 TAC 335.5), and related waste management units must be listed on the facility Notice of Registration. Technical guidelines (30 TAC 335.3) provide the basis for proper siting and design of landfills. The TCEQ requires groundwater monitoring for landfills and surface impoundments.

Key 3: Legislative Provisions

The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 et seq., and its state counterparts regulate the generation, storage, treatment, and disposal of hazardous wastes. Section 3001(b)(3)(A)(i) of RCRA, the Bevill Exemption, excluded certain large-volume wastes, including CCPs, from regulation under Subtitle C as hazardous wastes. EPA is currently drafting regulations under Subtitle D of RCRA (nonhazardous solid wastes) for CCPs disposed of in landfills or surface impoundments. The need for and scope of RCRA regulation of CCPs used as fill in surface or underground mines are still being evaluated.

The majority of state requirements regarding CCPs are designed to regulate disposal. A few states have adopted laws governing CCP use, but requirements vary widely among states. Applications for permission to use CCPs are frequently handled on a case-by-case basis or under generic state recycling regulations. States that do specify acceptable use applications for CCPs are the states where the most progress has been made regarding ash utilization. The Texas legislature adopted the following three provisions that drastically impacted coal ash utilization in Texas.

Texas Water Code 26.12 – Unauthorized Discharges Prohibited

Texas has a prohibition in its Texas Water Code (TWC) 26.121 that allows TCEQ to take corrective action if any action (e.g. the use of a product like CCPs) harms the waters of the state. The law states that no person may discharge waste that causes pollution of any water in the state. Corrective action is taken in the enforcement of the prohibition.

SB 1340 – CCP Use in Road and Bridge Construction

Texas SB 1340 was passed in 1991 to encourage recycling and the use of recycled products, with the objective to minimize the landfilling or incineration of solid wastes. One of the waste streams cited for minimization in this bill is “fossil fuel combustion recycled material”

(Section 15) or, herein, CCPs. The bill required that state, county, and municipal entities amend their specifications by January 1, 1992, to allow CCP use in road and bridge construction if technically appropriate and economically justified (TCAUG, 1994).

SB 1051 – Establishment of the Recycling Market Development Board

Texas SB 1051 was passed in 1993 and established the RMDB, which consists of heads of the TCEQ, Texas Building and Procurement Commission (TBPC), and TxDOT. The board was charged with coordinating the recycling activities of all state agencies and pursuing an economic development strategy that focuses on the state's waste management priorities and development of recycling industries and markets (RMDB, 2004). RMDB efforts regarding CCPs are primarily focused on fly ash use in concrete.

Key 4: Newly Adopted TxDOT Specifications

TxDOT's role is to write specifications for construction defining how CCPs are to be incorporated into TxDOT projects. TxDOT was one of the last state agencies to adopt coal ash specifications, adopting its rules in August 2004. Until that time, TxDOT granted special specifications and provisions on a district and statewide basis. From 1982 to 1996, TxDOT only incorporated CCPs into 41 roadway applications (Year of the Recycled Roadway Materials, 1999). However, a dramatic increase in fly ash utilization was observed once TxDOT made the materials use a priority. Since January 1996, TxDOT used fly ash in approximately 2600 projects. In 8 months of 2004, it used fly ash in about 80 projects.

The coal ash industry generally agrees that once TxDOT decided to write specifications, it adopted specifications that helped incorporate CCPs into more TxDOT projects. However, there was some concern from industry regarding TxDOT's specification of a minimum of 20% fly ash and maximum of 35% fly ash use in concrete. Some in the coal ash industry would like TxDOT to move toward adopting more performance-based specifications. There were also some reservations from industry about TxDOT allowing its specifications to be used at the discretion of its 25 district engineers. TxDOT believes this approach is effective because each district has its own issues that need to be addressed on an individual, case-by-case basis.

DMS-4610 – Fly Ash

This product qualification specification was revised in August 2004 (formally DMS-8900) and establishes the requirements, test methods, and the Fly Ash Quality Monitoring Program (FAQMP) for Class C, Class F, and ultrafine fly ash used in concrete products.

TxDOT has a prequalified list of suppliers of 35 Class C and Class F fly ashes. TxDOT accepts the product suppliers' certifications of fly ash quality; however, it does reserve the right to conduct random sampling of prequalified materials for testing and to perform random audits of test reports.

DMS-4615 – Fly Ash for Soil Treatment

This product qualification specification was adopted in August 2004 and establishes the requirements and test methods for Class C and Class F fly ash used in subgrade or base treatment. It also describes the FAQMP.

DMS-11000 – Evaluating and Using Nonhazardous Recyclable Materials

This specification was adopted in August 2004 and covers the process for evaluating the environmental factors associated with nonhazardous recyclable materials (NRM) not addressed in other department specifications. Fly and bottom ash are considered NRMs because they have established histories of use by the TxDOT.

Product Application Specifications and Special Provisions

TxDOT adopted several product application specifications in June 2004 allowing CCP use. Some of those applications include the following:

- Item 247 – Flexible Base
- Item 265 – Fly Ash or Lime–Fly Ash Treatment (Road-Mixed)
- Item 334 – Hot-Mix Coal-Laid Asphalt Concrete Pavement
- Item 341 – Dense-Graded Hot-Mix Asphalt (QC/QA)
- Item 344 – Performance-Designed Mixtures
- Item 346 – Stone-Matrix Asphalt
- Item 401 – Flowable Backfill
- Item 421 – Hydraulic Cement Concrete

In addition, TxDOT issued special specifications and provisions for CCP use including the following:

- Special Specification 3157 – Cold Processed – Recycled Paving Material for Use as Aggregate Base Course (1993)
- Special Provision to Item 421 Portland Cement Concrete (1993)

Key 5: Strong Building Industry Coupled with Green Building Initiatives

According to the U.S. Census (2004), Texas populations in 1980, 1990, and 2000 were 14,229,000, 16,986,000, and 20,852,000, respectively. Overall construction activity in Texas was low in the 1990s, but as the recession lifted, the construction industry flourished. The cement shortage and building boom in the 1990s helped make fly ash concrete widely accepted throughout the state. In addition, the state has a long construction cycle because of its warm climate, which in turn abates long-term fly ash storage issues.

Coupled with the strong building industry and demand for building materials such as concrete, the state is rather progressive with regard to green building. Austin is leading the green

building movement in Texas with its Austin Energy Green Building program. The city wanted to promote energy conservation, and thus the green building movement was born. Austin offers incentives such as rebates for energy conservation in buildings and technical support to those wanting to build green. In addition, the U.S. Green Building Council's LEED (Leadership in Energy & Environmental Design) program is gaining popularity in the state. Texas has 55 registered LEED projects and ranks ninth in the country for the number of LEED-accredited projects (Folliard, 2004). The LEED program encourages CCP recycling by offering points for products containing recycled materials. It has become a benchmark for sustainability, and 18 of LEED's 69 possible assessment points are related to concrete.

Key 6: Texas Utilities Generally Produce Good-Quality Fly Ash

Quality requirements for fly ash vary from state-to-state depending on the intended use. Fly ash quality is affected by fuel type and various aspects of the combustion and emission control processes. Texas utilities primarily burn Powder River Basin (PRB) subbituminous and Texas lignite coals, which generally produce high-quality Class C and Class F fly ashes appropriate for use in concrete. By producing a consistent, high-quality product, Texas has been able to develop a mature fly ash concrete market in most areas of the state. However, as the state implements the federal government's pollution control requirements, the quality of the fly ash, particularly those produced from burning Texas lignite, may be negatively impacted and may no longer be suitable for use in certain applications.

Key 7: Development of Statewide Online Recycling Resources

TxDOT and TCEQ developed the following programs online recycling resources that promote the use of recycled materials, including CCPs. These resources demonstrate the agencies' willingness to promote CCPs as a recycled material.

- TxDOT's Road to Recycling Initiative – In 1999, TxDOT highlighted CCPs in its "Year of the Road to Recycling" campaign. The campaign included the development of a 46-page CCP summary document that includes a material overview, research summaries, case studies, a list of TxDOT specifications currently allowing use of CCPs, material sources, and a summary of TxDOT experience with the material (www.dot.state.tx.us/gsd/recycle/mat.htm).
- TCEQ's Resource Exchange Network for Eliminating Wastes (RENEW) – This network assists industries and business to market their surplus materials and by-products to other areas (www.renewtx.org).
- TCEQ's Recycle Texas Online – This database allows companies who handle recycled materials to post product information (www.tnrcc.state.tx.us/exec/sbea/rtol/).

REPORTED BARRIERS TO INCREASING CCP UTILIZATION IN TEXAS

The following barriers were identified during the Texas state review process. The authors believe the barriers are listed in order of significance.

Barrier 1: Education and Attitude

Attitude and education were mentioned as key barriers by virtually all of the utilities, ash marketers, and ready-mix producers interviewed. Ignorance or unwarranted negative feelings toward CCPs were cited among district and local highway personnel, architects, engineers, and contactors. The lack of education can be attributed to the fact that engineers coming out of college receive, on average, less than 18 hours of concrete training in their materials class. In those 18 hours, CCPs are briefly mentioned, and professors often reference old data. It was suggested that negative feelings could often be attributed to one bad experience using the material. In most instances, if CCPs were used in a project that failed, the CCPs were typically blamed for the failure even if CCPs were not the cause. This reaction typically occurs when users are not educated about the material. Negative feelings and lack of education are interconnected and can have detrimental impacts on coal ash use. For example, at one time, the Austin concrete market almost turned to an all-cement market because of one misuse resulting from a lack of education about the material. However, TxDOT did cite instances where CCPs were initially blamed for a failure, and TxDOT's laboratory subsequently confirmed the correct reason for the failure. These types of corrections are imperative to overcoming education and attitude barriers.

During the review, TxDOT did note that it was interested in increasing education efforts among district offices because large variations of use were noted between offices. This could be because highway personnel tend to be more familiar with lime and cement and, therefore, use these materials more often. TxDOT and the Federal Highway Administration (FHWA) influence local offices by setting specifications and offering technical assistance as requested. TxDOT and FHWA have conducted demonstration projects and made the results available to local offices. TxDOT and FHWA also perform outreach activities such as technical presentations and host annual short courses for local offices. Educational tools used by FHWA include its "Fly Ash Facts for Highway Engineers" manual and "User Guidelines for Waste and Byproduct Materials in Pavement Construction" located online at www.rmrc.unh.edu/Partners/UserGuide/begin.htm.

A contradictory statement regarding education was heard between ash marketers and ready-mix producers. The ash marketers stated that ready-mix producers themselves were sometimes a barrier, but the ready-mix producers interviewed appeared to have a technical knowledgebase on proper CCP use and stated they did not require technical support from their ash marketers.

Individual conflicts among architects, engineers, and contractors are where ash marketers and ready-mix producers are making the most progress in overcoming attitude and education barriers. Ready-mix producers, in particular, feel this group is easier to approach than municipalities and state agencies. An effective method used by ready-mix producers to get fly ash concrete incorporated into a project is to hold a joint meeting with the architect, engineer, contractor, and buyer and describe the economic, performance, and environmental benefits of using the material. One ready-mix producer even goes as far as to say that decision makers have

an ethical obligation to use fly ash concrete because it reduces CO₂ emissions. At this meeting, decision makers should describe how they want the concrete to perform, and the ready-mix producer will design a mix to meet those performance specifications.

Barrier 2: Consistency of Supply

Recently, plants burning lignite coals are beginning to blend lignite with western coals. Plants burning predominantly lignite coals generally produce Class F ash, and those burning predominantly western coals produce Class C ash. Both generally produce high-quality ashes appropriate for use in concrete, but consistency varies from plant to plant.

CCP generators and ash marketers each have stringent quality assurance/quality control (QA/QC) protocols, yet TxDOT and ready-mix producers indicated that fly ash storage is limited and the quality on a truck-by-truck basis is inconsistent. If there is a change on the combustion side, there is a resulting change in ash quality, making it difficult to produce a consistent product. In addition, TxDOT noted instances when fly ash was specified for a project but was not available. The limited storage capacity could be attributed to the fact that Texas has a long construction cycle and typically sells ash as it is produced.

A blended ash (Class C and Class F) may alleviate these issues. Marketers and ready-mix producers said they were pursuing the possibility of producing a blended ash and expect one to enter the marketplace in the next 18 months.

Barrier 3: Liability

Liability was a prevailing word mentioned in all of the review sessions. By classifying CCPs as products, the material has the same advantages as all other recycled materials. However, liability lies primarily with generators and users because generators assume the responsibility of classifying the material in accordance with 30 TAC 335.4 Subchapter R and users take on the liability of using the material properly.

TCEQ tends to be more risk tolerant than other state environmental agencies because it has a rule in place that allows it to take corrective action if waters of the state are harmed (see Texas Water Code § 26.121 page 13). This law moves the liability from TCEQ to the persons responsible for using the material.

In certain applications (i.e., remediation activities), liability concerns are more prevalent than others. CCP generators will not allow their by-products to be sold for applications they do not approve of because of liability. If someone misuses their product, they fear they will be liable for cleanup costs and damages. These fears are warranted because there have been cases in Texas where builders were awarded “future damages” in cases where the material may have been misused.

Barrier 4: Limited Markets for FGD Material and Bottom Ash

The fly ash concrete market in Texas is mature; however, FGD material and bottom ash are not fully utilized. Bottom ash competes with the state's abundant natural resources (i.e., sand, gravel, aggregates), and because of transportation costs, bottom ash is often more expensive than natural resources. West Texas is an exception because it does not have an abundance of these resources. The presence of pyrite in bottom ash also limits the potential for beneficial use. Marketing bottom ash for some applications requires process changes to prevent pyrites from being intermingled with bottom ash. Bottom ash is used for structural fill on a limited basis, but this application is not as widely accepted in Texas because the use constitutes disposal. Some bottom ash is also used in clay brick manufacturing and other commercial products. It is estimated that 25% of CCPs produced in Texas are FGD materials. There is an effort under way on the combustion side of utilities to make wallboard-ready FGD gypsum (lower moisture and chloride contents). However, TCEQ's eight-waste criteria rule prohibits any treatment of recycled materials. This stipulation could dramatically impact the use of FGD material if, for instance, the chlorides in the material have to be removed to make the material suitable for wallboard. Removing the chlorides is a simple process but could be interpreted by TCEQ as treatment, thereby preventing the material from being recycled under the exemption.

Barrier 5: Transportation and Infrastructure Issues

Transportation costs are often the deciding factor to use CCPs in a potential project. Power plants are located in areas that are not heavily populated, so transportation is necessary to get CCPs to major markets. Some utilities also have poor infrastructure, making it difficult to transport their material by anything other than trucks. In many instances, it is simply not economical to use CCPs. For example, in the case of using CCPs in road building, it is not economically advantageous to use CCPs if the ash has to be hauled a long distance.

In some remote areas of Texas, fly ash is not available through small local ready-mix suppliers. Ready-mix producers interviewed were large-volume producers and did state that it is not economically feasible for some smaller producers to have a fly ash silo.

Barrier 6: Local and Abundant Asphalt Supply

Texas leads the United States in on-shore oil and natural gas production and, therefore, has a plentiful supply of asphalt. According to the National Asphalt Association (NAA) (2004), about 94% of the nation's roads and highways are surfaced with asphalt. NAA also concludes that numerous studies within the United States and Europe have shown that asphalt pavements generally have a lower life cycle cost than concrete. Conversely, ready-mix producers in Texas agree that although asphalt has a lower initial cost, it has a longer life cycle cost because asphalt has to be replaced more often than concrete. Regardless of cost, Texas has an abundant and local supply of asphalt, and its big oil industry promotes the use of asphalt paving in Texas.

POTENTIAL THREATS THAT COULD IMPACT FUTURE CCP UTILIZATION IN TEXAS

Texas currently has a thriving coal ash industry, but several potential threats were identified during the review that could hinder the future of CCP utilization in Texas. Based on review discussions, the authors believe the following threats are listed in order of importance.

Threat 1: New Pollution Control Requirements

The U.S. electric utility industry has been addressing air emission issues for many years, and the coal-fired power plants in Texas are no exception. When federal regulation requires reduction of various air emissions, power plants have necessarily responded. The responses frequently have had a subsequent impact to the type, quantity, and quality of the solid materials produced at a specific power plant. One example of these types of impacts is the requirement to reduce sulfur dioxide emissions, which has primarily been accomplished through installations of FGD systems. These FGD systems generally produce a high-volume CCP, but the quality and characteristics of the product are dependent on the specific system. More recently, many coal-fired power plants have had to reduce nitrogen oxide (NO_x) emissions, and a variety of NO_x control technologies have been implemented across the United States. It was noted that several Texas power plants that previously produced a high-quality ash currently produce a fly ash with a noticeable decline in quality, namely, the presence of unburned carbon at varying levels. Typical of the broader U.S. experience, the fly ash exhibiting increased levels of unburned carbon inhibits the production of concrete with the air entrainment needed to produce concrete that performs well under freeze-thaw conditions. Plants burning subbituminous coal have not exhibited an increase in unburned carbon even where NO_x reduction strategies have been implemented, but plants burning Texas lignite have had varied results. Already, the reduced supply of quality fly ash has been noted as a threat to inclusion in TxDOT projects where high volumes of consistent fly ash are needed over the duration of large, long-term projects.

Potential threats to the quality and quantity of fly ash available in Texas include the implementation of controls for mercury emissions. While the technologies for each of these types of controls are still in development and demonstration phases, the utility industry indicated some concerns about how the installation of these new technologies will impact the Texas CCP markets, especially the fly ash market for concrete. Typical demonstration-scale mercury emission controls incorporate the addition of an activated carbon sorbent to collect mercury present in flue gases. If this activated carbon is combined with the fly ash at a power plant, it is expected to result in an even greater impact to the quality of the fly ash as it relates to concrete use with similar technical issues as noted above. It should be noted, however, that there are mercury capture technologies that do not use activated carbon. In many mercury control technology scenarios, various CCP streams will have increased concentrations of mercury. Questions regarding whether this material will continue to meet the TCEQ's exemption criteria and the ultimate fate and transport of entrained contaminants will need to be addressed.

Threat 2: Ability to Retain Institutional Knowledge at TCEQ and TxDOT

It may be difficult for TCEQ and TxDOT to retain institutional knowledge of CCPs as staff is turned over. TCEQ's rules, in particular, are subjective in their interpretation, and TCAUG worries that regulations may be interpreted differently by new staff who are not as educated on CCP issues as the current staff. Unless a specific rule is adopted, staff knowledge and acceptance of the benefits from these materials may be lost when staff turnover occurs. Reeducation may be required in the future.

Threat 3: Class C vs. Class F Issues Related to ASR

Classifications (Class C vs. Class F) play a large role in the ability to use fly ash for concrete applications. Sulfate attack has significantly reduced the use of Class C fly ash as a portland cement replacement in Texas concrete. Last year, a Texas ready-mix supplier switched to all Class F fly ash because of alkali silica reactivity (ASR) issues. Class C fly ash is no longer being used in areas of Texas that have sulfate-rich soils. However, it is important to note that, in some cases, more Class C ash may mitigate ASR. For example, a 10%–15% use of Class C can pass American Society for Testing and Materials (ASTM) C618 requirements for sulfate resistance. A 1997 study also indicated that the use of Class C fly ash, rather than contributing to ASR, actually reduces ASR to acceptable levels when using high-alkali cements (Styron, 1997).

Threat 4: EPA Could Reconsider Its RCRA Determination

Additional pressure from special interest groups and studies evaluating the health effects of coal ash utilization could prompt EPA to reconsider its RCRA determination of CCP classification as nonhazardous wastes. EPA's active Deputy Administrator stated, "If the states and industry do not take steps to address these wastes adequately in a reasonable amount of time or if EPA identifies additional risks to public health, EPA will revisit this decision to determine whether a hazardous waste approach is needed" (Schimmoller, 2000).

ROAD MAP TO INCREASED CCP UTILIZATION IN TEXAS

The following activities were suggested during the reviews as actions that would help increase CCP utilization in Texas. The proposed actions are to be implemented by a variety of CCP players, including governments at the federal, state, and local level; utilities; ash marketers; ready-mix producers; academia; and industry groups. The suggested actions were generated by interviewees and are listed in order of significance.

Action 1: Adopt Performance-Based Concrete Specifications

Texas ready-mix producers indicated a strong need to develop performance-based concrete specifications, rather than having material-based specifications that do not consider performance.

Initiatives on the federal, state, and local level will be required to adopt performance-based concrete specifications. Federal entities such as AASHTO and ASTM, as well as private and

government entities, must first demonstrate the long-term substantiality of concrete developed according to performance specifications. Following the demonstrations, an education process from industry to government will need to be initiated.

Action 2: Develop Profitable Markets for FGD Material and Bottom Ash That Consider Transportation Costs

The fly ash market is well developed in Texas, but FGD material and bottom ash are underutilized. Ash marketers find it difficult to find profitable markets for these materials considering the transportation costs involved with getting the material to the end user. The cost to transport bottom ash to markets is often cost-prohibitive because bottom ash has to compete with locally available natural resources. In addition, FGD material has numerous handling issues that can be costly. Wet FGD has a moisture content from 30% to 60%, thus requiring the transportation of water along with solid particles. To alleviate this issue, the moisture content at the time of transport should be minimized.

One way to resolve transportation issues is for manufacturing facilities (i.e., bricks, aggregate, wallboard) that use CCPs as a primary raw material to locate manufacturing facilities in close proximity to the power plant. This practice is conducted in Texas on a limited basis. During the reviews, it was suggested that C²P² could help identify markets where bottom ash and FGD material could be used as raw materials to manufacture products.

Action 3: Exempt Beneficial Reuse from Federal Toxic Release Inventory (TRI) Reporting

During the review, the question was raised, "Why do you have to report beneficial uses of CCPs as 'releases to land' under federal TRI?" It was suggested that TRI should exempt beneficially reused material and only require reporting of material that is sent to a disposal site. EPA offers site-specific exemptions but said that in order to get an exemption for all utilities, there would have to be a large test case from a large utility with support from industry groups such as ACAA. Some industry representatives interviewed believe this change is necessary because some definitions of release contradict the goals of C²P². In addition, TRI reporting takes considerable effort, and this change would be an incentive for the power plant manager to reuse more material.

Action 4: Change How the Material Is Perceived

CCPs can be defined using a variety of terms, such as coal combustion and utilization by-products, coal combustion wastes, or just simply coal ash. The industry debates that since utilities are not in business to produce coal ash (a product), then coal ash must be considered a by-product. Others proclaim that if a material is used or recycled, then it must be a product. Conversely, others believe that the material should be termed a waste, no matter whether it is disposed of or beneficially utilized. Nevertheless, the names "by-product" and "waste" have powerful effects on consumers. TCEQ was able to develop a rule that puts CCPs in the same category as other recycled materials such as plastic, aluminum, and paper by defining any reused CCP as a product. However, there are situations in Texas where the material, whether it is reused

or disposed of, is still perceived of as a waste. If the industry as a whole could change how legislative bodies perceive coal ash, it could put coal ash on the same platform as other recycled materials.

Action 5: Build Off of LEED's Success

The LEED program has been successful in the United States by simply defining what it means to “build green” and by offering recognition to those who build green. It was suggested that the coal ash industry should develop a similar program led by FHWA which defines what it means to build green roads and offer recognition to those who do it successfully. Some interviewed believe that to build green roads, the contractor must use every “environmentally friendly” source available, while considering the performance specifications and economics.

It was further suggested that the current LEED system does not favor the use of fly ash in concrete from a percent content standpoint. The ready-mix producers noted several projects that were LEED certified that did not use fly ash as portland cement replacements in the concrete. In addition, a popular green building conference held in Austin did not address coal ash. Ready-mix producers do not understand why LEED does not say that concrete must contain fly ash. To address these issues, it was suggested that there should be a coal ash voice in the LEED program, perhaps the American Concrete Institute or ACAA.

Action 6: Promote Industry Successes Outside of the CCP Industry

The Texas coal industry has an abundance of success stories, so many, in fact, that many groups interviewed did not identify any particular success stories. Large-scale, high-profile success stories noted in a document provided by TCAUG (Akers, 2004a) include the following:

- The City of San Antonio’s new multipurpose sports and convention arena (Alamo Dome) was constructed using more than 6000 tons of fly ash as a substitute for portland cement in structural concrete. Construction was completed in 1993.
- The Lower Colorado River Authority’s (LCRA’s) new headquarters as built in 1992 and included 20% direct replacement of portland cement in construction concrete.
- Fly ash was used to replace portland cement in concrete during the construction of the Hemisfair Arena Parking Garage in San Antonio.
- About 2300 tons of fly ash concrete was used to construct the River Center Marriott Hotel, located on the Riverwalk in San Antonio.
- Fly ash (7200 tons) was used as a direct replacement for portland cement for the construction of taxiways for the San Antonio International Airport. An additional 600 tons of fly ash was used to backfill the open trench around the drainage culvert.
- Direct replacement of portland cement with fly ash in concrete was used to construct several roadways in Texas, including State Highway 71 and Dallas Central Expressway.

- The 10,475-foot-long cable-stayed bridge over the Houston Ship Channel will be constructed using 8000 tons of fly ash. The use of Class F fly ash will reduce the cost of the concrete and improve the workability and sulfate resistance of the finished product.
- Fly ash and FGD gypsum were used in Harris County to form a solid roadbase for street repairs.
- Other noteworthy projects include the use of 12,100 yd³ of CCP pellets to stabilize reef substrate and enable attachment of oyster spat by Reliant Energy, the Port of Houston Authority, and the National Marine Fisheries Service

Promoting successes should go beyond successful utilization projects. The overall benefits associated with CCP use should also be promoted, including decrease in the demand for landfill space, conservation of natural resources, reduced carbon dioxide emissions, economic savings for end users, reduced overall cost of generating electricity, and production of better products.

Success may be commonplace to those intimately involved with coal ash in Texas, but there are audiences that have not heard the message yet. The green building movement in Texas has helped to promote successes outside of the immediate coal ash industry; however, more can be done to reach other audiences.

Federal programs are doing more to promote the industry's successes. For example, EPA's C²P² program plans to highlight successful case studies online and reward the industry for its achievements in promoting, using, and researching CCPs. The C²P² program strives to bring the industry together to reduce barriers and promote increased CCP use.

Action 7: Produce a Hybrid Blended Fly Ash

Texas has experienced issues with Class C fly ash causing ASR; thus the product cannot be marketed to the concrete industry. Interviewees said that, within the next 18 months, it is anticipated that a hybrid ash will be introduced into the marketplace that will not meet ASTM C618 but will be sold as a performance-based concrete admixture. There may be acceptance issues, particularly by TxDOT, with regard to using a hybrid blended ash. It is not known yet if the new material will be accepted in the marketplace.

Action 8: Develop Markets for Low-Quality Fly Ash

As the quality of fly ash produced declines as a result of new emission control technologies, new markets need to be developed that use lower-quality CCPs. It was suggested that high-volume, low-quality markets such as flowable fill should be pursued.

Action 9: Provide Economic Incentives for Using Recycled Materials

The environmental benefits of utilizing CCPs are well known, but perhaps more could be done to promote using recycled materials. It was suggested that end users could receive emission credits for using fly ash as a partial replacement for portland cement because by using fly ash,

the user is preventing CO₂ emission from cement production. During the review, the consensus was that economic incentives would need to be subsidized by the federal government. However, one might argue that state governments can and should provide such economic incentives on their own. Montana already provides such tax incentives. If California can restrict CO₂ emissions in the absence of federal mandates, then it follows that states can also provide tax incentives in the absence of federal action (Aljoe, 2004).

TRANSFERRING THE INFORMATION FROM THE TEXAS EXPERIENCE TO OTHER STATES

With the information gained from the review of CCP stakeholders in Texas, it is reasonable to initiate a description of how the successes in Texas may be translated to other states. Preliminary recommendations can be made, understanding that the following caveats hold true in Texas and may not be true in other states:

- Texas experienced a building boom in the 1990s, helping to make fly ash concrete widely accepted throughout the state. In addition, the state has a long construction cycle because of its warm climate, which, in turn, abates long-term fly ash storage issues.
- CCPs can be recycled as long as the application does not present an increased risk to human health, the environment, or waters of the state when applied to land or used in products applied to the land. Texas has regulations in place that require remediation of activities, including CCP utilization, where damage to waters of the state has occurred.
- A relatively large number of coal-fired power plants in Texas produce good-quality CCPs.

Actions that were noted as key to successful CCP utilization in Texas that may translate to other states are summarized as follows:

- The formation of a CCP industry group provides a forum for industry to work together to educate government agencies, potential users, and other CCP stakeholders. The CCP industry group can seek and coordinate with other state industry groups working on recycled material issues.
- The CCP industry group can develop a comprehensive guide to beneficial uses for CCPs within the state and use the guide to educate both the environmental and transportation departments to initiate the development of environmental regulations and transportation specifications that promote the beneficial use of CCPs.
- The CCP industry can support demonstration projects to develop the type of technical information that government agencies identify as necessary for CCP use to move from the demonstration to the commercial phase.

The actions noted require commitment and leadership by the CCP industry. It is less likely that a state environmental department will take the initiative to develop approvals, policies, or regulations to facilitate CCP utilization without the impetus of an industry-sponsored effort to bring the opportunity of CCP utilization to the attention of the agency. DOTs may be more assertive in evaluating applications that incorporate CCPs because of the potential for improved performance and cost savings, but industry participation and support in these potential DOT efforts are likely to guarantee successful projects and experience from which DOT representatives can draw upon to develop specifications.

The reviewers can make the following recommendations to environmental and transportation officials in states where CCPs are underutilized:

- Review the environmental regulations governing recycled materials that are currently in place in Texas.
- Evaluate the types of CCP applications allowed by TxDOT and the TxDOT specifications for CCPs.
- Refer to the Fly Ash Facts for Highway Engineers published by FHWA for information on transportation-related applications for CCPs.
- Relay questions on CCP utilization to local or national industry groups or a university-based research group that specializes in the area of CCP utilization.

CONCLUSIONS

Based on the review sessions and supplemental information presented in this report, the following conclusions can be drawn:

- The formation of TCAUG was the driving force for increased CCP utilization in Texas. TCAUG approached groups at numerous levels at state agencies and pursued them for over 10 years. It was this multilevel approach and its tenacity that TCAUG attributes to its success.
- TCEQ's eight-waste criteria rule and its ability to enforce the state water code paved the way for increased CCP utilization by putting CCPs on the same level as other recyclable materials.
- TCEQ's TWC 26.121 allows it to be more flexible on exempting coal ash from the definition of solid waste by serving as a safety net. If coal ash is used improperly, TCEQ can go back to TWC 26.121 and correct the problem.
- TxDOT adopted new specifications in 2004 that specify CCP use on a percent replacement basis. TxDOT said the largest barrier to using more coal ash is an air entrainment issue from too much carbon in the ash and an inconsistent supply.

- The utilities and ash marketers said the most beneficial action C²P² could take is to find more beneficial use applications for FGD material and bottom ash. This group also felt strongly that TRI reporting requirements are overly burdensome and inappropriate in many instances.

REFERENCES

- Akers, P. Coal Combustion Products (CCPs) General Information, Pictures, Recycling Applications, Presented at the EPA Listening Meeting, April 13, 2004a, Dallas, TX.
- Akers, P. Review of State Regulations, Standards, and Practices Related to the Use of Coal Combustion Products, TCAUG Responses, Unpublished work, 2004b.
- Aljoe, B. U.S. Department of Energy. Personal Communication, 2004.
- American Coal Ash Association. 2003 Coal Combustion Product Production and Use Survey. Oct 2004.
- American Coal Ash Association. *State Solid Waste Regulations Governing the Use of Coal Combustion Products (CCPs)*; Aug 1998.
- CCPOhio Extension Program. The Ohio State University. <http://ccpohio.eng.ohio-state.edu/ccpohio> (accessed Aug 2004).
- Energy Information Administration, Coal Use by State – 2003, October 2004.
- Folliard, K. Coal Ash and Sustainability. Presented at the C²P² Workshop, Sept 16, 2004, Austin, TX.
- National Asphalt Association. Asphalt Industry Update and Overview. Jan 2002, www.hotmix.org/view_article.php?ID=10 (accessed Oct 2004).
- Pflughoeft-Hassett, D.P.; Sondreal, E.A.; Steadman, E.N.; Eylands, K.E. Dockter, B.A. Barriers to the Increased Utilization of Coal Combustion/Desulfurization By-Products by Government and Commercial Sectors – Update 1998; Topical report for U.S. Department of Energy National Energy Technology Center Cooperative Agreement No. DE FC21-93MC30097; EERC Publication No. 99-EERC-07-08; July 1999.
- Railroad Commission of Texas, Texas Energy Planning Council. *Texas Energy Overview*; March 2004, <http://www.rrc.state.tx.us/tepc/TexasEnergyOverview.pdf> (accessed Oct 2004).
- Recycling Market Development Board. www.rmdb.state.tx.us/ (accessed Sept 2004).
- Rubinkam, M., Associated Press. Pennsylvania Agency Backs Plan to Dump River Muck and Coal Ash into Abandoned Mines. *Environmental News Network*, Nov 11, 2003.

Schimmoller, B. Not Hazardous. . . for Now. *Power Engineering*, 2000 June.

Styron, R.W.; Dixon, D.E.; Manz, O. Use of Class C Fly Ash & Alkali Silica Reaction,
Presented at the American Concrete Institute 1997 Fall Convention, Atlanta, Georgia.

Texas Coal Ash Utilization Group. Responses to General Land Office Questions Regarding Coal
Combustion By-Product Utilization. Texas Coal Ash Utilization Group, June 1994.

U.S. Census Statistical Abstract. Statistical Abstract of the United States.
www.census.gov/prod/www/statistical-abstract-02.html (accessed Sept 2004).

Year of the Recycled Roadway Materials, November Coal Combustion Products,
ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/yrr_nov.pdf (accessed Sept 2004).

APPENDIX A
ADVISORY BOARD AND REVIEW TEAM
MEMBERS

**REVIEW OF STATE REGULATIONS, STANDARDS, AND PRACTICES RELATED
TO THE USE OF COAL COMBUSTION PRODUCTS**

Texas State Review
September 13–15, 2004
Advisory Board Members

Mr. William Aljoe
Project Manager
U.S. Department of Energy
National Energy Technology Laboratory
626 Cochran Mill Road
PO Box 10940 MS 922-273C
Pittsburgh, PA 15236-0940
Phone: (412) 386-6569
Fax: (412) 386-5917
E-mail: aljoe@netl.doe.gov

Mr. Richard Bye
President
Texas Coal Ash Utilization Group
c/o Texas Genco
12301 Kurland Drive
Houston, TX 77034
Phone: (713) 945-8201
Phone 2: (713) 817-0272
Fax: (713) 945-8069
E-mail: rbye@txgenco.com

Ms. Susan (Susi) Ferguson
Manager, Environmental Policy, Policy
and Regulations Division
Texas Commission on Environmental
Quality
PO Box 13087, MC 205
Austin, TX 78711-3087
Phone: (512) 239-2320
Fax: (512) 239-6195
E-mail: sferfuso@tceq.state.tx.us

Mr. David Goss
Executive Director
American Coal Ash Association
15200 East Girard Avenue Suite 3050
Aurora, CO 80014-3988
Phone: (720) 870-7897
Fax: (720) 870-7889
E-mail: dggoss@acaa-usa.org

Mr. Jason Harrington
Federal Highway Administration
Office of Pavement Technology
400 7th Street Southwest Room 3118
Washington, DC 20590
Phone: (202) 366-1576
Fax: (202) 493-2070
E-mail: Jason.Harrington@fhwa.dot.gov

Mr. James Roewer
Executive Director
Utility Solid Waste Activities Group
701 Pennsylvania Avenue Northwest
Washington, DC 20004-2696
Phone: (202) 508-5645
Fax: (202) 508-5150
E-mail: jim.roewer@uswag.org

Mr. Jerry Smith
Area Vice President
Headwaters Incorporated
157 West Shadowpoint Circle
The Woodlands, TX 77381
Phone: (281) 298-9359
Mobile: (713) 865-0910
Fax: (281) 367-1713
E-mail: jsmith@isgresources.com

Mr. Kimery Vories
Office of Surface Mining
501 Belle Street
Alton, IL 62002
Phone: (618) 463-6463, ext. 103
E-mail: kvories@osmre.gov

**REVIEW OF STATE REGULATIONS, STANDARDS, AND PRACTICES RELATED
TO THE USE OF COAL COMBUSTION PRODUCTS**

Texas State Review
September 13–15, 2004
Review Team Members

Ms. Tera Buckley
Marketing Research Specialist
Energy & Environmental Research Center
PO Box 9018
Grand Forks, ND 58202
Phone: (701) 777-5296
Fax: (701) 777-5181
E-mail: tbuckley@undeerc.org

Ms. Debra Pflughoeft-Hassett
Senior Research Advisor
Energy & Environmental Research Center
PO Box 9018
Grand Forks, ND 58202
Phone: (701) 777-5161
Fax: (701) 777-5181
E-mail: dphassett@undeerc.org

Mr. Richard Bye
President
Texas Coal Ash Utilization Group
c/o Texas Genco
12301 Kurland Drive
Houston, TX 77034
Phone: (713) 945-8201
Phone 2: (713) 817-0272
Fax: (713) 945-8069
E-mail: rbye@txgenco.com

Mr. John Sager
Environmental Protection Specialist
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
(MC 5306W)
Washington, DC 20460
Phone: (703) 308-7256
Fax: (703) 308-8686
E-mail: sager.john@epa.gov

Ms. Lisa Kost
Lloyd, Gosselink, Blevins Rochelle and
Townsend, P.C.
111 Congress Avenue Suite 1800
Austin, TX 78701
Phone: (512) 322-5859
E-mail: lkost@lglawfirm.com

APPENDIX B
TEXAS REVIEW GUIDE

**REVIEW OF STATE REGULATIONS, STANDARDS, AND PRACTICES RELATED
TO THE USE OF COAL COMBUSTION PRODUCTS
TEXAS REVIEW GUIDE
SEPTEMBER 13–15, 2004**

Purpose

The primary goal is to review factors related to the use of coal combustion products (CCPs) in Texas and develop a roadmap/model that may help Texas and other states increase the use of CCPs in an environmentally sound manner. Texas was selected as the pilot state for an in-depth review of its CCP programs, policies, and use practices because of its progressive approach to CCP utilization and its support network to implement such activities. Following the review, a deployment package of presentations, reports, and other documentation will be assembled for distribution to the projects' advisory board members. This review is intended to be a pilot program and may provide impetus to the U.S. Environmental Protection Agency (EPA) to perform additional state reviews.

Scope

The scope of the Texas review, as identified by the project's advisory board members, is to evaluate the various factors related to CCP use in Texas. In order to focus the study on current practices, which are most readily transferable, the Texas review will highlight various CCP use practices including highway construction and building practices and will not consider the use of CCPs at mine sites. This is not to diminish the use of CCPs at mine sites but to recognize the national regulatory debate on the use of CCPs at mine sites, which is being conducted independently of this review.

Process

The review team will travel to Texas to visit state agencies and other key players involved in CCP utilization. Five discussion groups will be formed to answer questions posed by the review team. The discussion groups include the following:

- Government agencies – directors and other key personnel of state or regional transportation and environmental agencies
- Marketers/end users – CCP marketers and ready-mix suppliers
- CCP generators – utilities/producers of CCPs
- Special interest -- environmental and citizen groups, research institutions
- Open meeting – open

Instructions

Please come to the review prepared to answer the following list of questions, and assemble all applicable information prior to the review. Your participation will help provide a fair and balanced characterization of the state's CCP issues. Please answer the questions as completely as is reasonably possible without stating proprietary information. For questions that do not apply to your specific situation, answer not applicable. If you would prefer to answer questions in writing as well, please provide written comments to Tera Buckley at tbuckley@undeerc.org. The time allotted for the review is noted at the beginning of each questionnaire. All questions must be answered within the scheduled time frame. The corresponding role call (to be provided at the review) must be completed at the beginning of the review. The review will be recorded.

GOVERNMENT AGENCIES**Time allotted: 3 hours**

1. What is your agency's role in the use of CCPs?
2. What type of infrastructure (i.e., employees, programs) does your agency have dedicated to CCP management?
3. Please list and explain any successful projects/applications using CCPs. Why were they successful?
4. Please list and explain any problematic projects/applications using CCPs. Explain the problems encountered and any instances where the use of CCPs was precluded in a project.
5. Please list and explain any cases in Texas where the use of CCPs has caused environmental damage or resulted in violations of environmental requirements. Describe any corrective actions, monitoring, and follow-up employed to address the issue.
6. In your opinion, what is the biggest obstacle hindering the increased use of CCPs in Texas? How could this obstacle be addressed?
7. How would changes to the chemical or physical composition of CCPs impact your agency's role in the generation, use, or disposal of CCPs? For example, new air pollution control requirements may increase the mercury content of CCPs.
8. For which of the following CCPs does your agency have guidelines, guidance documents, material specifications, regulations, orders, or statutes? If applicable, provide references for and dates of the specific guidelines, guidance documents, material specifications, regulations, orders, or statutes related to CCPs.
 - a. Fly ash
 - b. Bottom ash
 - c. Flue gas desulfurization material
 - d. Boiler slag
 - e. Cenospheres
 - f. Fluidized-bed combustor ash
 - h. Other _____
 - i. Other _____

9. Which of the following sources of information does your agency rely on in approving the use of CCPs in particular applications?

- a. _____ Surveys of current practices (federal or state)
- b. _____ Demonstration projects
- c. _____ Internal (agency) testing and evaluations
- d. _____ Technical report submitted by qualified consultants
- e. _____ Research projects or reports by other agencies, research institutions,
or consultants
- f. _____ Other _____
- g. _____ Other _____

10. What further research, laboratory work, or policy initiatives would be necessary to assist your agency in overcoming barriers?

11. In general, how do you perceive the position Texas has taken toward CCPs in comparison to other states?

CCP GENERATORS**Time allotted: 3 hours**

1. Are there any operational or business issues that impact the way you process or handle CCPs?
2. What types of quality assurance/quality control procedures are employed at your company with regard to CCPs?
3. How would changes to the chemical or physical composition of CCPs impact your company's role in the generation, use, or disposal of CCPs? For example, new air pollution control requirements may increase the mercury content of CCPs.
4. Are there any environmental policies, permits, regulations, or statutes that impact the way you process and handle CCPs?
5. Are you or your CCP users (marketers/contractors) provided the flexibility to make the decision to utilize CCPs when the material meets standard specification requirements or does the state require additional approvals and testing?
6. Please list and explain any successful projects/applications using CCPs. Why were they successful?
7. Please list and explain any problematic projects/applications using CCPs. Explain the problems encountered and any instances where the use of CCPs was precluded in a project. Describe any corrective actions, monitoring, and follow-up employed to address the issue.
8. Provide details of any ongoing or completed research and demonstration projects regarding CCPs.
9. In your opinion, what is the biggest obstacle hindering the increased use of CCPs in Texas? How could this obstacle be addressed?
10. What barriers has your company overcome to increase the use of CCPs? How?
11. What further research, laboratory work, or policy initiatives would be necessary to assist your company in overcoming barriers?
12. In general, how do you perceive the position Texas has taken toward CCPs in comparison to other states?

MARKETERS/END USERS**Time allotted: 3 hours**

1. Provide a general description of CCP use in Texas, including production, markets, and prices. Specifically, describe the current state of CCP use in road building and commercial and residential building construction projects.
2. Please indicate your thoughts on the current specifications or guidelines that you are aware of in the state of Texas related to CCPs. Are there any environmental policies, permits, regulations, or statutes that impact the way you process and handle CCPs? What specifications or guidelines do you feel promote or restrict CCP utilization? What changes would you like to see made to the current specifications and guidelines?
3. Please list and explain any successful projects/applications using CCPs. Why were they successful?
4. Please list and explain any problematic projects/applications using CCPs. Explain the problem encountered and any instances where the use of CCPs was precluded in a project. Describe any corrective actions, monitoring, and follow-up employed to address the issue.
5. How would you describe the competition between traditional raw materials and CCPs? (i.e., portland cement vs. fly ash; natural gypsum vs. flue gas desulfurization [FGD] gypsum)?
6. What is the use ratio between spec and nonspec ash? What barriers do you encounter in selling nonspec ash?
7. How would changes to the chemical or physical composition of CCPs impact your company's role in the generation, use, or disposal of CCPs? For example, new air pollution control requirements may increase the mercury content of CCPs.
8. In your opinion, what is the biggest obstacle hindering the increased use of CCPs in Texas? How could this obstacle be addressed?
9. What barriers exist that prohibit the use of CCPs in Texas? What state or federal regulations could be implemented to overcome these barriers?
10. What further research, laboratory work, or policy initiatives would be necessary to overcoming barriers to CCP utilization?
11. In general, how do you perceive the position Texas has taken toward CCPs in comparison to other states?

SPECIAL INTEREST

Time allotted: 90 minutes

1. In your experience, what are the significant factors impacting the use of CCPs in Texas?
2. Please indicate your thoughts on the current specifications or guidelines that you are aware of in the state of Texas related to CCPs. What specifications or guidelines do you feel promote or restrict CCP utilization? What changes would you like to see made to the current specifications and guidelines?
3. How would changes to the chemical or physical composition of CCPs impact your association's/company's role in the generation, use, or disposal of CCPs? For example, new air pollution control requirements may increase the mercury content of CCPs.
4. Provide details of any ongoing or completed research or demonstration projects regarding CCPs. Specify any successes or problems.
5. In your opinion, what is the biggest obstacle hindering the increased use of CCPs in Texas? How could this obstacle be addressed?
6. What further research, laboratory work, or policy initiatives would be necessary to overcoming barriers to CCP utilization?
7. In general, how do you perceive the position Texas has taken toward CCPs in comparison to other states?

OPEN MEETING

Time allotted: 2 hours

1. In your experience, what are the significant factors impacting the use of CCPs in Texas?
2. Please indicate your thoughts on the current specifications or guidelines that you are aware of in the state of Texas related to CCPs. What specifications or guidelines do you feel promote or restrict CCP utilization? What changes would you like to see made to the current specifications and guidelines?
3. How would changes to the chemical or physical composition of CCPs impact your association's/company's role in the generation, use, or disposal of CCPs? For example, new air pollution control requirements may increase the mercury content of CCPs.
4. Provide details of any ongoing or completed research or demonstration projects regarding CCPs. Specify any successes or problems.
5. In your opinion, what is the biggest obstacle hindering the increased use of CCPs in Texas? How could this obstacle be addressed?
6. What further research, laboratory work, or policy initiatives would be necessary to overcoming barriers to CCP utilization?
7. In general, how do you perceive the position Texas has taken toward CCPs in comparison to other states?

APPENDIX C
PARTICIPANT LIST AND FINAL AGENDA

**REVIEW OF STATE REGULATIONS, STANDARDS, AND PRACTICES RELATED
TO THE USE OF COAL COMBUSTION PRODUCTS**

**Texas State Review
September 13–15, 2004
Final Participant List***

ALAMO CONCRETE PRODUCTS, LTD.

Mr. Chris Slate
Director – Quality Assurance
Alamo Concrete Products, Ltd.
PO Box 34210
San Antonio, TX 78265-4210
Phone: (210) 208-1780
Fax: (210) 208-1786
Pager: (800) 537-2431 ID#1088
E-mail: cslate@alamoconcrete.com

AMERICAN COAL ASH ASSOCIATION

Mr. David Goss
Executive Director
American Coal Ash Association
15200 East Girard Avenue Suite 3050
Aurora, CO 80014-3988
Phone: (720) 870-7897
Fax: (720) 870-7889
E-mail: dcgoss@acaa-usa.org

AMERICAN ELECTRIC POWER

Mr. Gregory H. Keenan
Manager, CCP Marketing
American Electric Power
PO Box 16036
Columbus, OH 43216-0036
Phone: (614) 583-7459
Mobile: (614) 204-2017
Fax: (614) 583-1619
E-mail: ghkeenana@aep.com

**BORAL MATERIAL TECHNOLOGIES,
INC.**

Mr. Russell L. Hill
Vice President, Technology
Development and Marketing

Boral Material Technologies Inc.
45 Northeast Loop 410, Suite 700
San Antonio, TX 78216
Phone: (210) 349-4069
Fax: (210) 979-6110
E-mail: russell.hill@BORAL.com

Mr. Harry C. Roof
Manager, Utility Services
Boral Material Technologies Inc.
45 Northeast Loop 410, Suite 700
San Antonio, TX 78216
Phone: (210) 349-4069
Mobile: (210) 241-9857
Fax: (210) 349-8512
E-mail: harry.roof@BORAL.com

Mr. Gary D. Shelton
Senior Vice President, Sales
Boral Material Technologies Inc.
45 Northeast Loop 410, Suite 700
San Antonio, TX 78216
Phone: (210) 349-4069
Phone 2: (800) 292-5354
Fax: (210) 349-2986
E-mail: gary.shelton@BORAL.com

CENTEX MATERIALS LLC

Mr. Doug Farrell
Technical Director
Centex Materials LLC
3801 South Capital of Texas Highway
Suite 250
Austin, TX 78704
Phone: (512) 693-2710
Mobile: (512) 422-3874
Fax: (512) 444-9809
E-mail: ctdirector@aol.com

Mr. Bryon Piper
 Concrete Production Manager
 Centex Materials LLC
 3801 South Capital of Texas Highway
 Suite 250
 Austin, TX 78704
 Phone: (512) 460-3003, ext. 231
 Mobile: (512) 751-3299
 Dispatch: (512) 460-3033
 Fax: (512) 444-9809
 E-mail: bpiper@eaglematerials.com

Mr. Doug Westbrook
 Vice President – Sales
 Centex Materials LLC
 3801 South Capital of Texas Highway
 Suite 250
 Austin, TX 78704
 Phone: (512) 460-3003
 Mobile: (512) 422-5915
 Fax: (512) 444-9809
 E-mail: dwestbrook@eaglematerials.com

**FEDERAL HIGHWAY
 ADMINISTRATION**

Mr. Jim Cravens
 Federal Highway Administration
 300 East 8th Street
 Austin, TX 78701

Mr. Jason Harrington
 Federal Highway Administration
 Office of Pavement Technology
 400 7th Street Southwest Room 3118
 Washington, DC 20590
 Phone: (202) 366-1576
 Fax: (202) 493-2070
 E-mail: Jason.Harrington@fhwa.dot.gov

HEADWATERS RESOURCES, INC.

Mr. Perry Bryan
 Headwaters Resources
 10653 South Riverfront Parkway, Suite 300
 South Jordan, UT 84095

LATTIMORE MATERIALS COMPANY

Dr. Richard S. Szecsy
 Vice President of New Product
 Development and Risk Management
 Lattimore Materials Company
 1700 Redbud Boulevard, Suite 200
 McKinney, TX 75069
 Phone: (972) 221-4646
 Mobile: (214) 202-1379
 Fax: (972) 221-9647
 E-mail: szecsy1@lmctx.com

**LOWER COLORADO RIVER
 AUTHORITY**

Mr. Joe Bentley
 Environmental Program Manager,
 Wholesale Power Services
 Lower Colorado River Authority
 PO Box 220, MS L320
 Austin, TX 78767-0220
 Phone: (800) 776-5272 ext 3272
 Phone 2: (512) 473-3272
 Fax: (512) 473-3579
 E-mail: jbentley@lcra.org

Mr. Monte Gottier
 Senior Engineering Associate
 Environmental Supervisor,
 Fayette Power Project
 Lower Colorado River Authority
 PO Box 519
 La Grange, TX 78945
 Phone: (800) 776-5272, ext. 8340
 Phone 2: (979) 249-8340
 Pager: (512) 205-7256
 Fax: (979) 473-249-8392
 E-mail: mgottier@lcra.org

MINERAL RESOURCE TECHNOLOGIES, INC.

Mr. Jim Hicks
 Mineral Resource Technologies, Inc.
 2700 Research Forest Drive
 Suite 150
 The Woodlands, TX 77381-4226
 Phone: (281) 362-1060
 Phone 2: (800) 615-1100
 Fax: (281) 362-1809
 E-mail: jhicks@mrtus.com

SIERRA CLUB

Dr. Neil J. Carman
 Clean Air Program Director
 Lone Star Chapter of Sierra Club
 54 Chicon Street
 Austin, TX 78702-5431
 Phone: (512) 472-1767
 Fax: (512) 477-8526
 E-mail: Neil_Carman@greenbuilder.com

SOUTHERN STAR CONCRETE, INC.

Mr. Tim Kaiser
 Manager of Quality Services
 Southern Star Concrete, Inc.
 240 Singleton Boulevard
 Dallas, TX 75212
 Phone: (214) 651-8020
 Mobile: (214) 674-4774
 Fax: (214) 651-1810
 E-mail: tim.kaiser@southernstarconcrete.com

TEXAS A&M UNIVERSITY

Dr. Don Saylak
 Director Byproduct Utilization & Recycling
 Transportation & Materials
 Engineering Division
 Texas A&M University
 College Station, TX 77843-3136
 Phone: (979) 845-9962
 Fax: (979) 845-0278
 E-mail: d-saylak@tamu.edu

TEXAS COAL ASH UTILIZATION GROUP

Ms. Patty Akers
 Attorney at Law
 Bickerstaff, Heath, Smiley, Pollan, Kever &
 McDaniel LLP
 1700 Frost Bank Plaza
 816 Congress Avenue
 Austin, TX 78701-2443
 Phone: (512) 472-8021
 Fax: (512) 404-7758
 E-mail: pakers@bickerstaff.com

TEXAS COAL COMBUSTION PRODUCTS COALITION

Mr. Michael J. Nasi
 Attorney at Law
 Lloyd Gosselink Blevins Rochelle &
 Townsend, P.C.
 111 Congress Avenue, Suite 1800
 Austin, TX 78701
 Phone: (512) 322-5800
 Phone 2: (512) 322-5859
 Fax: (512) 472-0532
 E-mail: mnasi@lglawfirm.com

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Ms. Susan (Susi) S. Ferguson
 Manager, Environmental Policy, Policy and
 Regulations Division
 Texas Commission on Environmental
 Quality
 MC-205, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-2320
 Fax: (512) 239-4808
 E-mail: sferguso@tceq.state.tx.us

Mr. Pat Fontenot
 Waste & Emergency Response Program
 Manager
 Office of Compliance and Enforcement
 Texas Commission on Environmental
 Quality
 MC-174, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-2220
 Fax: (512) 239-0404
 E-mail: pfonteno@tceq.state.tx.us

Mr. M. Scott Green
 Waste Analyst
 Technical Analysis Team
 Waste Evaluation Section
 Registration & Evaluation Division
 Texas Commission on Environmental
 Quality
 MC-129, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-6381
 Fax: (512) 239-6383
 E-mail: sgreen@tnrcc.st.tx.us

Mr. Conrad A. Kuharic
 Project Manager
 Industrial and Hazardous Waste Permits
 Texas Commission on Environmental
 Quality
 MC-130, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-0998
 Fax: (512) 239-6383
 E-mail: ckuharic@tceq.state.tx.us

Mr. G. Michael Lindner
 Program Specialist
 Texas Commission on Environmental
 Quality
 MC-112, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-3045
 Fax: (512) 239-1065
 E-mail: mlindner@tnrcc.state.tx.us

Ms. Merrie Smith
 Waste Program Liaison
 Field Operations Division
 Texas Commission on Environmental
 Quality
 MC-174, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-5051
 Fax: (512) 239-0404
 E-mail: mersmith@tceq.tx.us

Ms. Sharon J. Smith
 Senior Attorney
 Environmental Law Division
 Texas Commission on Environmental
 Quality
 MC-173, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-3672
 Fax: (512) 239-0606
 E-mail: ssmith@tnrcc.state.tx.us

Mr. Les Trobman
 Staff Attorney
 Texas Commission on Environmental
 Quality
 MC-173, PO Box 13087
 Austin, TX 78711-3087
 Phone: (512) 239-6056
 Fax: (512) 239-0626
 E-mail: ltrobman@tceq.state.tx.us

**TEXAS DEPARTMENT OF
 TRANSPORTATION**

Mr. Rodney Conciene
 Operations and Maintenance
 Environmental Division
 Texas Department of Transportation
 125 East 11th Street
 Austin, TX 78701-2483
 E-Mail: env-spec.rconcie@dot.state.tx.us

Ms. Caroline H. Herrera
Geotechnical, Soils and Aggregates
Branch Director
Materials and Pavements Section
Construction Division
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483
Phone: (512) 506-5907
Fax: (512) 506-5915
E-mail: cherrer@dot.state.tx.us

Ms. Elizabeth Lukefahr
Concrete/Cement Engineer
Materials and Pavements Section
Construction Division
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483
Phone: (512) 506-5858
Fax: (512) 506-5865
Pager: (888) 787-0621
E-mail: elukefa@dot.state.tx.us

Mr. A.A. "Tony" Tijerina Jr.
Recycling Program Specialist
Recycling & Recycled Products Program
General Services Division
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483
Phone: (512) 302-2423
Fax: (512) 302-2428
E-mail: ttijerin@dot.state.tx.us

TXU ENERGY COMPANY

Mr. Greg Jackson
Project Engineer
TXU Energy Company
1601 Bryan Street Suite 18118
Dallas, TX 75201-3411
Phone: (214) 812-8894
E-mail: greg.jackson@txu.com

*Participants either attended a review session
in Texas, participated in the makeup
conference call, or provided written
comments.

Review of State Regulations, Standards, and Practices Related to the Use of Coal Combustion Products Texas State Review Agenda Lloyd Gosselink Blevins Rochelle and Townsend, P.C. 111 Congress Ave., Suite 1800 Austin, Texas			
	Monday, September 13, 2004	Tuesday, September 14, 2004	Wednesday, September 15, 2004
	Review Team A	Review Team A	Review Team A
	Review Team B	Review Team B	Review Team B
8:00 a.m.			
8:30 a.m.			
9:00 a.m.			
9:30 a.m.			
10:00 a.m.			
10:30 a.m.			
11:00 a.m.	Review Team Kick-Off Meeting		
11:30 a.m.			
12:00 p.m.			
12:30 p.m.			
1:00 p.m.			
1:30 p.m.	Government Texas Department of Transportation		
2:00 p.m.			
2:30 p.m.			
3:00 p.m.	Government Texas Commission on Environmental Quality		
3:30 p.m.			
4:00 p.m.			
4:30 p.m.			
5:00 p.m.			
	Review Team A: Debra Pflughoeft-Hassett, Rick Bye, Lisa Kost Review Team B: Tera Buckley, John Sager		

Users Alamo Concrete Products, Centex Materials, Lattimore Materials Company, Southern Star Concrete	Open Meeting American Coal Ash Association, Texas Coal Ash Utilization Group, Texas Commission on Environmental Quality
Special Interest Texas Sierra Club	Review Team Re-Cap Meeting
Review Team Lunch	
CCP Generators/Marketers American Electric Power, Boral Mateial Technologies, Inc., Lower Colorado River Authority, Texas Coal Ash Utilization Group, Texas Coal Combustion Products Coalition	
Review Team Wrap-Up Meeting	

APPENDIX D

**1995 LETTER TO COAL ASH UTILIZATION
GROUP FROM TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION**



Pam Reed, Commissioner
R. B. "Ralph" Marquez, Commissioner
Dan Pearson, Executive Director

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 25, 1995

Ms. Patty L. Akers, Chair
Regulatory Subcommittee
Texas Coal Ash Utilization Group
c/o Lower Colorado River Authority
P.O. Box 220
Austin, TX 78763

RE: Coal Combustion By-Products and Texas Natural Resource
Conservation Commission Regulations

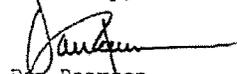
Dear Ms. Akers:

I would like to thank you and your association for inviting this agency to become involved with the Texas Coal Ash Utilization Group's (TCAUG) efforts to explore and promote the safe and legitimate use of coal combustion by-products within the state of Texas. Information submitted by your association and the Electric Power Research Institute (EPRI) has been invaluable in helping agency staff better understand the coal ash by-product uses being explored as well as the potential disincentives agency rules pose to such uses.

The purpose of this letter is to convey to the TCAUG, in writing, the agency's position on certain coal combustion by-product uses that constitute co-product uses for particular fly ash, bottom ash and flue gas desulfurization (FGD) materials which would be considered Class 3 or Class 2 waste if disposed. This information can be found in the enclosed attachment.

If you have any questions regarding this letter, please do not hesitate to contact Minor Hibbs, Director of the Industrial and Hazardous Waste Division at (512) 239-6592 or Nancy Worst of the Office of Intergovernmental Affairs at (512) 239-6093. If Mr. Hibbs or Ms. Worst is unavailable, you may also contact Scott Green or Vanessa Schiller of Mr. Hibbs' division at (512) 239-6832.

Sincerely,


Dan Pearson
Executive Director

103-9

DP\SG\mac

COAL COMBUSTION BY-PRODUCTS
WASTE VS. NONWASTE ISSUES
BROUGHT FORWARD BY THE
TEXAS COAL ASH UTILIZATION GROUP
(July 1995)

The Texas Coal Ash Utilization Group (TCAUG) and the Electric Power Research Institute (EPRI) has submitted a variety of information to the agency regarding fly ash, bottom ash and flue gas desulfurization (FGD) materials which would be considered Class 3 or Class 2 waste if disposed. Of those considered Class 2, they could be considered Class 3 except for elevated total dissolved solids levels and/or leachable metals when submitted to the 7-Day Distilled Water Leachate Test.

Based upon our review of that information and in order to clarify misconceptions that we have discovered during our review, we would like to state the following.

In regards to recycling, let us first dismiss the misconception that just because a material comes from an industrial site, it is a waste. Many materials coming from industrial sites are legitimately reused/recycled and are never considered industrial wastes or wastes at all. It is true that some of these materials will eventually be disposed; however, their industrial or nonindustrial status will be determined at the time of disposal.

Secondly, the agency recognizes that many recycling opportunities are legitimate, beneficial and do not constitute waste management. After reviewing and evaluating the coal combustion by-product uses information TCAUG and EPRI provided, we feel that the following coal combustion by-products (when used in the following ways) are co-products and not wastes when legitimately used in a manner consistent with recognized local, state, and federal standards or general industry practice or standards:

CO-PRODUCT USES			
APPLICATIONS	FLY ASH	BOTTOM ASH	FGD MATERIAL
Concrete and Concrete Products	X	X	
Cement/Fly Ash Blends	X	X	
Raw Feed for Cement Manufacture	X	X	X
Precast Concrete Products	X	X	
Lightweight and Concrete Aggregate	X	X	
Roller Compacted Concrete	X	X	
Soil Cement	X	X	
Flowable Fill	X	X	
Oil Well Cementing	X		

Coal Combustion By-Products
Page 2

Roadbase, Subbase and Subgrade Material When Covered By A Wear Surface	X	X	X
Road Construction Material (Unsurfaced)		X	
Masonry	X	X	X
Blasting Grit		X	
Roofing Material	X	X	
Insulation Material	X	X	
Wallboard/Sheetrock			X
Artificial Reefs	X	X	
Road Surface Traction Material		X	
Mineral Filler (e.g. plastics, paint, rubber matting, carpet backing, bricks and asphalt)	X	X	
Waste Stabilization and Solidification	X		

We would also like to note that, in accordance with the definition of a waste, coal combustion by-products, that would be considered Class 3 if disposed, are not considered wastes if they are legitimately used to construct roads. This is so because the agency recognizes roads as one type of surface improvement.

If the agency were questioning the legitimacy of a use/reuse activity, it would evaluate specific criteria as it related to the material and the recycling activity. In other words, the following criteria would be used to distinguish between a material that is discarded (waste) and a co-product.

1. A. Each constituent found in the material is also normally found in the raw material it is replacing.

OR

- B. If any constituent is not normally present in the material it is replacing, it must not present an increased risk to human health and/or the environment and/or waters of the state.
2. A legitimate market exists for the material as well as its products.
3. The material is managed and protected from loss as would be raw materials and/or ingredients.
4. The material can be used as a product itself or to produce a product as it is generated without treatment or reclamation.

Coal Combustion By-Products
Page 3

For example, a Class 1 material treated to meet the Class 2 classification criteria could not be considered eligible for a co-product designation.

5. A. The use of the material is an ordinary use and it meets and/or exceeds the specifications of the product it is replacing.

OR

- B. The material is a reasonable ingredient in a production process and meets and/or exceeds raw material specifications.
6. The quality of the product is not degraded by substitution of raw material with the material.

While we recognize that responsible use of coal combustion by-products results in beneficial products and substitutions, we are also aware that coal combustion by-products could be used inappropriately. Mismanagement of these materials could result in some degree of risk to human health and the environment.

Should such an unfortunate event occur, Chapter 26 of the Texas Water Code would still be applicable and enforced. It is the obligation of the coal combustion by-product producer and user to ensure that the material is being used in a safe, legitimate and responsible manner.

Please also be reminded that if nonhazardous coal combustion by-products were to be considered wastes, they could still be recycled or used under the regulations of 30 Texas Administrative Code (TAC) Section (§)335.24 (Requirements For Recyclable Materials and Nonhazardous Recyclable Materials).

These recycling regulations require the following:

1. A 90 day prior notification of intent to recycle which includes a description of:
 - A. the waste;
 - B. the recycling process; and
 - C. any storage prior to recycling

AND

2. A prohibition against the threatening of the waters of the state, the creation and maintenance of a nuisance, and/or the endangerment of the public health and welfare.

Coal Combustion By-Products
Page 4

There would be no deed recordation requirements (30 TAC §335.5 (Deed Recordation)) if the material were legitimately recycled, even if it were applied to or placed on the land.

In regards to the 90 day prior notification, it is possible that once TCAUG has provided information on a new coal combustion by-product use, its members would not need to wait an additional 90 days before recycling the material.

Again, we would like to thank the TCAUG for its efforts in exploring uses for coal combustion by-products. We would like to continue working with TCAUG on the status of coal combustion by-products in other uses as they arise and as resources permit.

Attachment B

Standard Specification for

Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

AASHTO Designation: M 295-11

ASTM Designation: C 618-08a



1. SCOPE

- 1.1. This specification covers coal fly ash and raw or calcined natural pozzolan for use in concrete where cementitious or pozzolanic action, or both, is desired, or where other properties normally attributed to finely divided coal fly ash and raw or calcined natural pozzolans may be desired or where both objectives are to be achieved.

Note 1—Finely divided materials may tend to reduce the entrained air content of concrete. Hence, if a fly ash or natural pozzolan is added to any concrete for which entrainment of air is specified, provision should be made to ensure that the specified air content is maintained by air content tests and by use of additional air-entraining admixture or use of an air-entraining admixture in combination with air-entraining hydraulic cement.

- 1.2. The values stated in SI units are to be regarded as the standard.

2. REFERENCED DOCUMENTS

- 2.1. *ASTM Standards:*
- C 125, Standard Terminology Relating to Concrete and Concrete Aggregates
 - C 311, Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

3. TERMINOLOGY

- 3.1. *Definitions:*

- 3.1.1. The terms used in this specification are defined in ASTM C 125.

- 3.1.2. *fly ash*—finely divided residue that results from the combustion of ground or powdered coal and that is transported by flue gasses.

Note 2—This definition of fly ash does not include, among other things, the residue resulting from: (1) the burning of municipal garbage or any other refuse with coal; (2) the injection of lime directly into the boiler for sulfur removal; or (3) the burning of industrial or municipal garbage in incinerators commonly known as “incinerator ash.”

4. CLASSIFICATION

- 4.1. *Class N*—Raw or calcined natural pozzolans that comply with the applicable requirements for the class as given herein, such as some diatomaceous earths; opaline cherts and shales; tuffs and volcanic ashes or pumicites, calcined or uncalcined; and various materials requiring calcination to induce satisfactory properties, such as some clays and shales.
- 4.2. *Class F*—Fly ash that meets the applicable requirements for this class as given herein. This class fly ash has pozzolanic properties.
- 4.3. *Class C*—Fly ash that meets the applicable requirements for this class as given herein. This class of fly ash, in addition to having pozzolanic properties, also has some cementitious properties.
Note 3—Class F fly ash is typically produced from burning anthracite or bituminous coal, but may also be produced from subbituminous coal and from lignite. Class C fly ash is typically produced from burning lignite or subbituminous coal, and may also be produced by anthracite or bituminous coal. Class C fly ashes contain total calcium contents, expressed as calcium oxide (CaO), higher than 10 percent.
-

5. ORDERING INFORMATION

- 5.1. The purchaser shall specify any supplementary optional chemical and physical requirements.
- 5.2. The purchaser shall indicate which procedure, A or B, shall be used when specifying requirements for effectiveness in contribution to sulfate resistance under Table 4.
-

6. CHEMICAL COMPOSITION

- 6.1. Fly ash and natural pozzolans shall conform to the requirements as to chemical composition prescribed in Table 1.

Table 1—Chemical Requirements

	Coal Fly Ash and Raw or Calcined Natural Pozzolan Class		
	N	F	C
Silicon dioxide (SiO ₂) plus aluminum oxide (Al ₂ O ₃) plus iron oxide (Fe ₂ O ₃), min percent	70.0	70.0	50.0
Sulfur trioxide (SO ₃), max percent	4.0	5.0	5.0
Moisture content, max percent	3.0	3.0	3.0
Loss on ignition, max percent	5.0	5.0	5.0

Table 2—Supplementary Optional Chemical Requirement

	Coal Fly Ash and Raw or Calcined Natural Pozzolan Class		
	N	F	C
Available alkalis, or equivalent, as Na ₂ O, max percent ^a	1.5	1.5	1.5

^a Applicable only when specifically required by the purchaser for mineral admixture to be used in concrete containing reactive aggregate and cement to meet a limitation on content of alkalis.

Note 4—The chemical component determinations and the limits placed on each do not predict the performance of the fly ash or natural pozzolan with hydraulic cement in concrete, but collectively help describe composition and uniformity of the material.

7. PHYSICAL PROPERTIES

7.1. Fly ash and natural pozzolans shall conform to the physical requirements prescribed in Table 3. Supplementary optional physical requirements are shown in Table 4.

Table 3—Physical Requirements

	Coal Fly Ash and Raw or Calcined Natural Pozzolan Class		
	N	F	C
<i>Fineness:</i>			
Amount retained when wet-sieved on 45- μ m (No. 325) sieve, max percent ^a	34	34	34
<i>Strength activity index:</i> ^b			
With portland cement, at 7 days, min percent of control	75 ^c	75 ^c	75 ^c
With portland cement, at 28 or 56 ^d days, min percent of control	75 ^c	75 ^c	75 ^c
Water requirement, max percent of control	115	105	105
<i>Soundness:</i> ^e			
Autoclave expansion or contraction, max percent	0.8	0.8	0.8
<i>Uniformity requirements:</i>			
The density and fineness of individual samples shall not vary from the average established by the 10 preceding tests, or by all preceding tests if the number is less than 10, by more than:			
Density, max variation from average, percent	5	5	5
Percent retained on 45- μ m (No. 325) sieve, max variation, percentage points from average	5	5	5

^a Care should be taken to avoid the retaining of agglomerations of extremely fine material.

^b The strength activity index with portland cement is not to be considered a measure of the compressive strength of concrete containing the coal fly ash and raw or calcined natural pozzolan. The strength activity index with portland cement is determined by an accelerated test, and is intended to evaluate the contribution to be expected from the coal fly ash and raw or calcined natural pozzolan to the longer strength development of concrete. The mass of coal fly ash and raw or calcined natural pozzolan specified for the test to determine the strength activity index with portland cement is not considered to be the proportion recommended for the concrete to be used in the work. The optimum amount of coal fly ash and raw or calcined natural pozzolan for any specific project is determined by the required properties of the concrete and other constituents of the concrete and should be established by testing. Strength activity index with portland cement is a measure of reactivity with a given cement and is subject to variation depending on the source of both the coal fly ash and raw or calcined natural pozzolan and the cement.

^c Only applicable when testing at 56 days is specified.

^d If the coal fly ash and raw or calcined natural pozzolan will constitute more than 20 percent by mass of the cementitious material in the project mix design, the test specimens for autoclave expansion shall contain that anticipated percentage. Excessive autoclave expansion is highly significant in cases where water to coal fly ash and raw or calcined natural pozzolan and cement ratios are low, for example, in block or shotcrete mixes.

^e Meeting the 7-day, 28-day, or 56-day (if specified) strength activity index will indicate specification compliance.

Table 4—Supplementary Optional Physical Requirements

	Coal Fly Ash and Raw or Calcined Natural Pozzolan Class		
	N	F	C
Increase of drying shrinkage of mortar bars at 28 days, max difference in percent over control ^a	0.03	0.03	0.03
<i>Uniformity requirements:</i>			
In addition, when air-entrained concrete is specified, the quantity of air-entraining agent required to produce an air content of 18.0 vol percent of mortar shall not vary from the average established by the 10 preceding tests or by all preceding tests if less than 10, by more than, percent	20	20	20
<i>Effectiveness in controlling alkali-silica reaction:^b</i>			
Expansion of test mixture as percentage of low-alkali cement control, at 14 days, max percent	100	100	100
<i>Effectiveness in contributing to sulfate resistance:^c</i>			
Procedure A:			
Expansion of test mixture:			
For moderate sulfate exposure after 6 months of exposure, max percent	0.10	0.10	0.10
For high sulfate exposure after 6 months of exposure, max percent	0.05	0.05	0.05
Procedure B:			
Expansion of test mixture as a percentage of sulfate resistance cement control after at least 6 months of exposure, max percent	100	100	100

^a Determination of compliance or noncompliance with the requirement relating to increase in drying shrinkage will be made only at the request of the owner.

^b Coal fly ash and raw or calcined natural pozzolans meeting this requirement are considered as effective in controlling alkali aggregate reactions as the use of the low-alkali control cement used in the evaluation. However, the coal fly ash and raw or calcined natural pozzolan shall be considered effective only when the coal fly ash and raw or calcined natural pozzolan are used at percentages by mass of the total cementitious material equal to or exceeding that used in the tests and when the alkali content of the cement to be used with the coal fly ash and raw or calcined natural pozzolan does not exceed that used in the tests by more than 0.05 percent. See Appendix X1, ASTM C 311.

^c Fly ash or natural pozzolan shall be considered effective only when the fly ash or natural pozzolan is used at percentages, by mass, of the total cementitious material within 2 percent of those that are successful in the test mixtures or between 2 percentages that are successful, and when the C₁A content of the project cement is less than or equal to that which was used in the test mixtures. See Appendix X2 of ASTM C 311.

Note: These optional requirements apply only when specifically requested.

8. METHODS OF SAMPLING AND TESTING

- 8.1. Sample and test the coal fly ash and raw or calcined natural pozzolan in accordance with the requirements of ASTM C 311.
- 8.2. Use cement of the type proposed for use in the work and, if available, from the mill proposed as the source of the cement, in all tests requiring the use of hydraulic cement.

9. STORAGE AND INSPECTION

- 9.1. The coal fly ash and raw or calcined natural pozzolan shall be stored in such a manner as to permit easy access for proper inspection and identification of each shipment.
- 9.2. Inspection of the material shall be made as agreed upon by the purchaser and the seller as part of the purchaser contract.

10. REJECTION

- 10.1. Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing.

- 10.2. Packages varying more than 5 percent from the stated mass may be rejected. If the average mass of the packages in any shipment, as shown by determining the mass of 50 packages taken at random, is less than that specified, the entire shipment may be rejected.
- 10.3. Any coal fly ash and raw or calcined natural pozzolan in storage prior to shipment for a period longer than 180 days after testing may be retested and may be rejected if it fails to meet the fineness requirements.

11. PACKAGING AND PACKAGE MARKING

- 11.1. When the fly ash or natural pozzolan is delivered in packages, the class, name, and brand of the producer and the mass of the material contained therein shall be plainly marked on each package. Similar information shall be provided in the shipping invoices accompanying the shipment of packaged or bulk material.

12. KEYWORDS

- 12.1. Coal fly ash; raw or calcined natural pozzolan; pozzolans.

Attachment C

DMS - 4610**FLY ASH**

EFFECTIVE DATE: MARCH 2009

4610.1. Description. This Specification establishes the requirements, test methods, and the Fly Ash Quality Monitoring Program (FAQMP) for Class C, Class F, Ultra-Fine (UFFA), and Modified F (MFFA) fly ash used in concrete products. Fly ash is the finely divided residue or ash that remains after burning finely pulverized coal at high temperatures.

4610.2. Units of Measurements. The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

4610.3. Material Producer List. The Materials and Pavements Section of the Construction Division (CST/M&P) maintains the material producer list (MPL) of all materials conforming to the requirements of this Specification. Materials appearing on the MPL, entitled "Fly Ash," require no further testing, unless deemed necessary by the Project Engineer or CST/M&P.

4610.4. Bidders' and Suppliers' Requirements. The fly ash must be pre-qualified and accepted into the FAQMP in accordance with the requirements of this Specification before supplying to a contract.

4610.5. Pre-Qualification Procedure.

A. Pre-Qualification Request. Prospective producers interested in submitting their product for evaluation must submit a written request to participate in the FAQMP to the Texas Department of Transportation, Construction Division, Materials and Pavements Section (CP51), Cement Laboratory, 125 East 11th Street, Austin, Texas 78701-2483

Include the following information with the request:

- Name, address, and contact information of the supplier
- Name and location of the power plant
- Coal origin and classification being used by the power plant
- Class of fly ash being collected
- Capacity of the storage facilities
- Six months of weekly physical and chemical test data meeting ASTM C 618 or AASHTO M 295 and Article 4610.6 of this Specification
- Details of the supplier's Quality Control Program, including measures taken to ensure that fly ash meeting the requirements of this Specification is kept separate from fly ash that does not, including, but not limited to, fly ash produced during power plant shutdown, start-up, or other transient operational periods

Fly ash sources will be pre-qualified for the specific class of fly ash as stated in the written request. Any change in the class of the fly ash produced will require re-qualification of the source under the new class.

- B. Sampling and Testing.** Sampling will be in accordance with Tex-733-I. Testing will be in accordance with the requirements of ASTM C 618 and the additional requirements specified in Article 4610.6. Sampling is at the mutual convenience of the Department and the supplier.

The Department or a designated Department representative will take pre-qualification samples at a frequency of at least one sample per week for 5 weeks. For each fly ash on the FAQMP, producers will submit monthly composite samples at the beginning of each month. Monthly QM samples should be received by the 15th of each month. The Department reserves the right to conduct random sampling of materials for testing and to perform random audits of test reports.

Department representatives may sample material from the plant, terminal, transportation containers, and concrete plants to verify compliance with Article 4610.6.

- C. Criteria for Acceptance.** The laboratory or laboratories performing the physical and chemical tests for the supplier must participate in the Cement and Concrete Reference Laboratory Pozzolan Proficiency Program.

The supplier must have a permanent location and:

- Be located in the State of Texas
- Maintain an established terminal within Texas through which all fly ash must pass or
- Agree to reimburse the Department for all sampling expenses based on mileage and per diem costs for Department personnel traveling outside the State or for direct costs of sampling and shipping when sampling is accomplished through third-party agreements

- D. Evaluation.** CST/M&P will notify prospective bidders and suppliers after completion of material evaluation.

1. **Qualification.** If approved for use by the Department, the material will be accepted to the FAQMP and added to the MPL.
2. **Failure.** Producers not qualified under this Specification may not furnish materials for Department projects and must show evidence of correction of all deficiencies before reconsideration for qualification.

Costs of sampling and testing are normally borne by the Department; however, the costs to sample and test materials failing to conform to the requirements of this Specification are borne by the Contractor or supplier. This cost will be assessed at the rate established by the Director of CST/M&P and in effect at the time of testing.

Amounts due the Department will be deducted from monthly or final estimates on contracts or from partial or final payments on direct purchases by the State.

E. Reporting Requirements. Submit the following:

- Monthly mill certificate that shows the fly ash complies with the Specification requirements
- Monthly test report with the following information:
 - coal origin
 - test date
 - results of all specified physical and chemical requirements, except available alkalis, but including 'Supplementary Specification Requirements' and
- Monthly split sample from the same material used to generate the monthly test report

Note—The split sample size must be approximately 1 pt., or 2.5 lbs., of fly ash. Mail the sample with a Material Safety Data Sheet (MSDS) to the Texas Department of Transportation, Construction Division, Materials and Pavements Section, Cement Laboratory (CP51), 9500 Lake Creek Parkway, Austin, Texas 78717.

Notify the Department when a change in production occurs. This includes, but is not limited to, changes in a coal source or major alteration of plant operations.

F. Periodic Evaluation. The Department reserves the right to conduct random sampling of pre-qualified materials for testing and to perform random audits of test reports and material management records. Department representatives may sample material from the plant, terminal, transportation containers, and concrete plants to verify compliance with Article 4610.6 of this Specification.**G. Disqualification.** The Department may remove the source or supplier from the FAQMP for any of the following reasons:

- Any change in production procedures impacting fly ash quality or composition
- Failure of any sample to meet Specification requirements
- Failure to meet reporting and testing requirements as detailed in Article 4610.6 of this Specification
- Inactivity or not supplying fly ash to Department projects for a period of 1 year

H. Re-Qualification. To re-qualify to the FAQMP, submit a written request for re-qualification to the address listed in Sub Article 4610.5.A. Detail the corrections or changes made that warrant reinstatement. If approved, all costs of pre-qualification sampling must be borne by the supplier.**4610.6. Material Requirements.**

- A. Class C and Class F.**
- Base classification of the fly ash on chemical composition. Both classes of fly ash must meet all the physical and chemical requirements of both ASTM C 618 and Table 1.

Table 1
Supplementary Specification Requirements

Item	Limit
Calcium oxide (CaO) variation in percentage points of CaO from the average of the last 10 samples (or less, provided 10 have not been tested) must not exceed \pm	4.0
Moisture content, maximum, %	2.0
Loss on ignition, maximum, %	3.0
Increase of drying shrinkage of mortar bars at 28 days, maximum, %	0.03

- B. Ultra Fine.** Ultra-fine fly ash must conform to the requirements listed above for Class F fly ash with the exceptions and additions listed in Table 2.

Table 2
Additional Ultra-Fine Specification Requirements

Item	Limit
Pozzolanic activity index	
• 7-day, minimum, % of control	85
• 28-day, minimum, % of control	95
Particle size distribution, as measured by laser particle size analyzer	
• particles less than 3.25 microns, minimum, %	50.0
• particles less than 8.50 microns, minimum, %	90.0
Fineness, amount retained when wet-sieved on 45- μ m sieve, maximum, %	6.0
Moisture content, maximum, %	1.0
Loss on ignition, maximum, %	2.0

- C. Modified F.** Modified F fly ash must consist of Class F fly ash blended by grinding with no more than 10% cementitious material with or without approved accelerating and water-reducing admixtures and conform to the requirements listed above for Class F Fly Ash, with the exceptions and additions listed in Table 3.

Table 3
Additional Modified F Specification Requirements

Item	Limit
Pozzolanic activity index	
• 3-day, minimum, % of control	70
• 28-day, minimum, % of control	95
Alkali Content, maximum, %	1.5

4610.7. Archived Versions. Archived versions are available.

Attachment D

STANDARD SPECIFICATIONS

STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

2010

PUBLISHED BY
DEPARTMENT OF TRANSPORTATION



Copies of this book may be obtained from:

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PUBLICATION DISTRIBUTION UNIT
1900 ROYAL OAKS DRIVE
SACRAMENTO, CALIFORNIA 95815-3800
Telephone (916) 263-0822
Fax (916) 263-0470
Publication Unit Web site: <http://caltrans-opac.ca.gov/publicat.htm>

- determined under AASHTO T 105.
- 2. Autoclave expansion must not exceed 0.50 percent.

Type III portland cement may be used only if specified or authorized.

90-1.02B(3) Supplementary Cementitious Materials

Each SCM must be one of the following:

- 1. Fly ash complying with AASHTO M 295, Class F, and either of the following:
 - 1.1. Available alkali as $\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$ must not exceed 1.5 percent when tested under ASTM C 311.
 - 1.2. Total alkali as $\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$ must not exceed 5.0 percent when tested under AASHTO T 105.
- 2. UFFA complying with AASHTO M 295, Class F, and the chemical and physical requirements shown in the following 2 tables:

Chemical property	Requirement (percent)
Sulfur trioxide (SO_3)	1.5 max
Loss on ignition	1.2 max
Available alkalis as $\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$	1.5 max

SECTION 90

CONCRETE

Physical property	Requirement (percent)
Particle size distribution Less than 3.5 microns Less than 9.0 microns	50 90
Strength activity index with portland cement 7 days 28 days	95 (min percent of control) 110 (min percent of control)
Expansion at 16 days when testing project materials under ASTM C 1567 ^a	0.10 max

^aIn the test mix, at least 12 percent, by weight, of the Type II or V portland cement must be replaced with UFFA.

3. Raw or calcined natural pozzolans complying with AASHTO M 295, Class N, and either of the following:
 - 3.1. Available alkali as Na₂O + 0.658 K₂O must not exceed 1.5 percent when tested under ASTM C 311.
 - 3.2. Total alkali as Na₂O + 0.658 K₂O must not exceed 5.0 percent when tested under AASHTO T 105.
4. Metakaolin complying with AASHTO M 295, Class N, and the chemical and physical requirements shown in the following 2 tables:

Chemical property	Requirement (percent)
Silicon dioxide (SiO ₂) + aluminum oxide (Al ₂ O ₃)	92.0 min

Senator INHOFE. Thank you, Mr. Kezar, exactly 5 minutes.
Mr. GRAY.

**STATEMENT OF DANNY GRAY, EXECUTIVE VICE PRESIDENT,
CHARAH INC. ON BEHALF OF THE AMERICAN COAL ASH AS-
SOCIATION**

Mr. GRAY. Good morning, Chairman Inhofe, Senator Boxer and members of the Committee. My name is Danny Gray. I am Executive Vice President of Charah, Inc., one of the Nation's leading managers of coal combustion byproducts.

I also represent the American Coal Ash Association, ACAA, an organization that champions the beneficial use of coal ash as a preferable alternative to disposal.

Thank you for the opportunity to testify regarding one of America's best recycling success stories and how that success depends on regulatory certainty. There are few other issues where the environmental mission of this committee intersects so directly with its public works mission. By encouraging the safe and responsible use of coal ash in our Nation's infrastructure, we reduce coal ash disposal while creating infrastructure that is more durable and environmentally sustainable.

There are numerous reasons to view coal ash as a resource rather than a waste. Beyond the conservation advantages gained when using coal ash minerals to manufacture products, the products improve the quality of the finished product or goods such as highway pavements while reducing production cost.

The environmental and performance benefits of coal ash utilization are most pronounced in the public sector projects. This sector consumes approximately one-third of all the concrete poured in the United States because coal ash improves the strength and durability of concrete. Its use has become ubiquitous in the construction of roads, bridges, runways, dams, water treatment facilities and a variety of other infrastructure projects.

In 2011, a study by the American Road and Transportation Builders Association found without coal ash in the construction of transportation projects, the cost to build roads, runways and bridges would increase by an estimated \$104.6 billion over 20 years.

These benefits are not limited to States where coal is mined or consumed to generate electricity. For instance, California was an early adopter and a leader in the use of coal ash in concrete public works projects, despite the fact that no concrete specification quality coal ash is produced in the State.

Caltrans requires the addition of coal ash in concrete pavement in order to mitigate reactive aggregates and improve the long-term durability of the concrete. California's ash is supplied by power plants in Arizona, Utah, Wyoming and as far away as Texas, all by rail.

Charah and ACAA appreciate EPA's final decision to regulate coal ash as a non-hazardous material. We believe this decision puts science ahead of politics and helps clear the way for beneficial use to begin growing again.

However, we are painfully aware that EPA has made the final coal ash decision before only to reverse the course in the future. A

hazardous versus non-hazardous debate occurred prior to the agency's 2000 final regulatory determination which 8 years later turned out to be not so final.

Additionally, the 2015 rule's preamble states that the rule defers to final Beville determination. We feel that 34 years of study, two reports to Congress, two formal regulatory determinations and a final rule issued after 6 months in a rulemaking process all confirming that coal ash does not warrant hazardous waste regulation should be enough to declare the issue resolved and make the final rule truly a final decision. This would provide the long term certainty to the beneficial use industry that science says is warranted.

Bills previously passed by the House of Representatives and H.R. 1734 now under review would resolve this issue permanently. These bills would put primary enforcement responsibility and authority in the hands of professional State regulators and create new authority for EPA to step in if States do not do their jobs.

In conclusion, despite the changing landscape in American electricity generation, our Nation will continue to produce large volumes of coal ash for the foreseeable future. Decades of ash storage represent a future opportunity to reclaim valued mineral resources for beneficial use if proper regulations are in place.

Developing the capability to use more coal ash requires investment in processing facilities, ash storage and distribution facilities and transportation assets. Attracting the necessary investment requires real long term final regulatory certainty that legislation can provide.

It is important to keep beneficial use at the forefront of U.S. coal ash management policy to ensure we utilize this unique mineral resource in building more durable infrastructure. The best solution for coal ash disposal problems is to quit throwing it away.

The best roads, bridges, runways and dams are built with coal ash as an ingredient. Here we have the opportunity for a true win-win for America's environment and public works.

Thank you.

[The prepared statement of Mr. Gray follows:]

Statement of Danny Gray, Executive Vice President, Charah, Inc.

U.S. Senate Environment & Public Works Committee

Oversight of the Environmental Protection Agency's Final Rule to Regulate Disposal of Coal Combustion Residuals from Electric Utilities

June 17, 2015

Mr. Chairman and honorable members of the Committee, my name is Danny Gray. I am Executive Vice President of Charah, Inc. – one of the nation's leading managers and marketers of coal ash. I also represent the American Coal Ash Association (ACAA) – an organization that champions the beneficial use of coal ash as a preferable alternative to disposal.

I would like to thank you for the opportunity to testify regarding one of America's greatest recycling success stories and how that success depends on regulatory certainty. I believe you will find that there are few other issues where the environmental mission of this Committee intersects so directly with its public works mission. By encouraging the safe and responsible use of coal ash in our nation's infrastructure, we simultaneously reduce impacts of coal ash disposal and create infrastructure that is more durable and environmentally sustainable.

About Charah and ACAA

Founded in 1987, Charah, Inc., based in Louisville, Kentucky, is one of the largest providers of coal combustion product (CCP) management, CCP sales and marketing, and power plant support services for the coal-fueled electric utility industry. Our services include landfill design, construction, management, operations and closure; fly ash, bottom ash and gypsum sales and marketing; ash pond management and closure; structural fill projects; power plant support services including limestone supply and FGD operations; SUL4R-PLUS® product and other products for the agricultural market; and Integrated Gasification Combined Cycle (IGCC) slag beneficiation and other innovative solutions.

ACAA was established almost 50 years ago, in 1968, as a trade organization devoted to beneficially using the mineral materials created when coal is burned to produce electricity. ACAA's members comprise the world's foremost experts on coal ash (fly ash and bottom ash), and 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 trade organization. It is headquartered in Farmington Hills, Michigan, and has only two full-time employees. ACAA relies on volunteer members like myself to pursue an agenda that is mostly technical. For instance, to develop formal comments on EPA's 2010 Proposed Rule for regulating coal ash disposal, ACAA's members devoted more than 14,000 volunteer hours to reading, analyzing, and drafting a response. ACAA's membership is comprised of a diverse array of stakeholders, including academic professors and scientists, research scientists within businesses associated with CCPs, former regulators, consultants, engineers, cement companies, wallboard manufacturers, coal ash marketers, CCP technology companies, international representatives within the CCP industry and utility representatives. While the ash recycling industry is a niche industry, the impacts of ash utilization touch many manufacturing industries and ash minerals are key components in products found in most households and our transportation networks. Industrial minerals are essential components in products affecting every life in America and coal ash minerals have unique qualities that make them a reliable substitute for mined or manufactured minerals often improving the final manufactured product because of the unique characteristics.

I would like to emphasize that many of ACAA's members are small businesses comprised of people who have dedicated entire careers to the cause of beneficial use and improving our environment. It is these small businesses that were hurt most by the regulatory uncertainty EPA created in 2009 when it suggested the possibility of an unwarranted "hazardous waste" designation for coal ash when it is disposed.

About Coal Ash Beneficial Use

Coal remains the largest fuel source for generating electricity in America and produces large volumes of coal ash — the generic term for several solid mineral materials left over from the combustion process.

There are many good reasons to view coal ash as a resource, rather than a waste. Using it conserves natural resources, saves energy and significantly reduces greenhouse gas emissions from the manufacturing of products that are replaced. Those environmental benefits are measured in the millions of tons.

A 2009 study by the Recycled Materials Resource Center at the University of Wisconsin at Madison applied life cycle analysis methodologies to quantify the benefits of using coal ash in sustainable construction. Comparisons were made between energy consumption, water use, and greenhouse gas emissions associated with conventional building materials and procedures and those utilizing coal ash. Using 2007 coal ash use data, energy consumption was reduced by 162 trillion BTUs, water consumption was reduced by 32 billion gallons, and greenhouse gas emissions were reduced by 11 million tons CO₂ equivalent.

In comparative terms, the reduction in energy consumption is commensurate with the energy consumed by 1.7 million homes (a large U.S. city), the water saved is equal to 31 percent of the annual domestic water use in California, and the reduction in greenhouse gas emissions is comparable to removing 2 million automobiles from the road.

The study also identified benefits achieved by avoiding coal ash disposal: 3.7 trillion BTUs of energy are saved (\approx 38,600 households) and CO₂ equivalent emissions are reduced by 0.3 million tons (\approx 46,300 automobiles) by not disposing coal ash in landfills.

It's important to note that achieving these significant conservation and greenhouse gas emissions reduction benefits does not cause product quality to suffer. In many cases, products made with coal ash perform better than products made without it. For instance, coal ash makes concrete stronger and more durable; roofing shingles more resistant to cracking; and concrete masonry block lighter to reduce weight of high rise buildings

Other major beneficial uses include synthetic gypsum utilized in wallboard and agricultural applications; boiler slag used for blasting grit and roofing granules; and fly ash and bottom ash used in a variety of geotechnical applications. . In every case, coal ash minerals are less expensive than minerals requiring mining and processing to reach the same quality as recycled byproduct coal ash.

Our public works infrastructure lasts longer because of beneficially used coal ash. Our fields are more productive and shed fewer pollutants because of beneficially used synthetic gypsum. These are all benefits worth protecting.

The Beneficial Use / Public Works Nexus

The environmental and performance benefits of coal ash utilization are most pronounced in the public works sector. Because coal fly ash improves the strength and durability of concrete, its use has become ubiquitous in the construction of roads, bridges, runways, dams, water treatment facilities, and a variety of other structures.

A 2011 study by the American Road & Transportation Builders Association's Transportation Development Foundation (ARTBA-TDF) estimated that the cost to build roads, runways and bridges would increase by an estimated \$104.6 billion over 20 years if coal fly ash were no longer available as a transportation construction building material.

According to ARTBA-TDF, the excess \$5.23 billion annual direct cost of building without coal fly ash includes a \$2.5 billion increase in the price of materials and an additional \$2.73 billion in pavement and bridge repair work due to the shorter pavement and service life of conventional concrete.

To put the \$5.23 billion figure in perspective, it is almost \$2 billion per year more than the federal government currently invests in the Airport Improvement Program and about 13

percent of the federal government's annual total annual aid to the states for highway and bridge work.

The ARTBA Foundation study also explored how states would have to forego the potential additional benefits and savings derived from using fly ash in new, high performance concrete pavements. Fly ash is a key component of high performance concrete pavement designed for a lifespan of 30 to 60 years for concrete roads, compared to the current average of 20 to 25 years. According to the study's findings, the estimated savings from the increased durability of various fly ash concrete life spans would be:

- \$25 billion over 20 years (\$1.2 billion per year average) if all concrete roadways were designed with fly ash concrete materials to last 35 years, compared to the current national average of 20 to 25 years.
- \$33.5 billion over 20 years (\$1.7 billion per year) if all concrete roadway repair and reconstruction work used fly ash concrete with a 40-year life span.
- \$51.5 billion over 20 years (\$2.6 billion per year) if all concrete roadway repair and reconstruction work used fly ash concrete with a 50-year life span.
- \$65.4 billion over 20 years (\$3.2 billion per year) if all concrete roadway repair and reconstruction work used fly ash concrete with a 60-year life span.

These benefits are not limited to states where coal is consumed to generate electricity. Coal ash is routinely transported long distances to meet the needs of public works projects nationwide. For instance, California was an early adopter of the use of coal ash in concrete pavement despite the fact that no concrete-quality coal ash is produced there. The California Department of Transportation requires the addition of coal fly ash in concrete pavement in order to improve its durability. California's coal ash is supplied by power plants in Arizona, Utah, Wyoming, and even as far away as Texas.

In the Appendix to this testimony, I have included analysis from the 2011 ARTBA-TDF study showing highway department utilization of coal ash for each of the states represented by members of this Committee.

A second study by ARTBA-TDF is expected this summer. The new study will provide analysis of historical coal ash production and use trends, as well as a forecast for future coal ash availability. Despite coal's declining share of U.S. electricity generation, our nation is expected to continue consuming large volumes of coal and annually producing millions of tons of coal ash that must either be utilized or disposed. The new study will also point out that the impending closure of historic disposal facilities presents an opportunity for reclamation of coal ash that could be beneficially used. Ash disposal regulations should be implemented in a manner that allows for long-term access to ash if it can be reclaimed for beneficial use.

About Coal Ash Regulatory History

The 1980 Bevill Amendment to the Resource Conservation and Recovery Act (RCRA) instructed the U.S. Environmental Protection Agency (EPA) to "conduct a detailed and comprehensive study and submit a report" to Congress on the "adverse effects on human health and the environment, if any, of the disposal and utilization" of coal ash. In two Reports to Congress (1988 and 1999) EPA recommended that coal ash should not be regulated as a hazardous waste. A 1993 EPA Regulatory Determination found regulation as a hazardous waste "unwarranted." A 2000 EPA Final Regulatory Determination concluded coal ash materials "do not warrant regulation [as hazardous waste]" and that "the regulatory infrastructure is generally in place at the state level to ensure adequate management of these wastes."

Responding to the failure of a Tennessee coal ash disposal facility in December 2008, the EPA re-opened the coal ash regulatory debate proposed options for regulating coal ash disposal in proposed rules issued in June 2010. One of those options called for regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA), which is the section that covers "hazardous waste." The proposal quickly became controversial. More than 450,000 public comments were received. Environmental Non-Governmental Organizations (ENGOS) and a handful of companies that compete with recycled coal ash favored the Subtitle C "hazardous waste" regulatory approach. A large and diverse body of organizations opposed it – including every affected federal agency (other than EPA) that reviewed the proposal; state environmental regulators, departments of transportation, public service commissions, governors and mayors; utilities; ash recyclers; ash users and building materials standard setting organizations; labor unions; and more.

Given the controversy, the EPA rulemaking effort bogged down. Eventually, the Agency was sued by ENGOS and two of ACAA's marketing members to force a deadline to conclude the rulemaking. On December 19, 2014 – nearly six years after the Tennessee incident that triggered the rulemaking effort – EPA met its court directed deadline and correctly announced a Final Rule under the "non-hazardous" Subtitle D section of RCRA.

Under the Final Rule, **coal ash beneficial use** – as defined by EPA-developed legitimacy criteria – continues to be exempt from regulation. But as history shows, being exempt from regulation does not exempt coal ash from market impacts of disposal regulation.

About Coal Ash Material Characteristics

It is important to remember that coal ash has never qualified as a hazardous waste based on its toxicity. It contains trace amounts of metals. Those metals are found at levels similar to the levels in soils and hundreds of items around your home. A 2012 ACAA study analyzed recent U.S. Geological Survey information to show that concentrations of metals in coal ash, with few exceptions, are below environmental screening levels for residential soils and are similar in concentration to common dirt. Despite a drumbeat of publicity by anti-coal environmental groups, coal ash is no more "toxic" than the manufactured materials it replaces.

It's also important to remember that during the recent EPA rulemaking on coal ash disposal, the Agency's proposed landfill engineering specifications were essentially the same under both the "hazardous" and "non-hazardous" proposals. EPA's "hazardous waste" approach was not, therefore, "more stringent" from an engineering standpoint. The main difference between the "hazardous" and "non-hazardous" approaches boiled down to enforcement authority – direct federal enforcement with a "hazardous" designation versus citizen suit enforcement with the "non-hazardous" designation. This protracted debate was never about engineering or the nature of the material. It was mainly an argument over who gets to enforce the rules.

Disposal Regulations Affect Beneficial Use

Unfortunately, this argument had real world negative consequences for the beneficial use of coal ash. When EPA began discussing a potential "hazardous waste" designation for coal ash in 2009, the Agency cast a cloud over beneficial use that caused coal ash users across the nation to decrease beneficial use activities. Simply put, end users did not want to undertake the potential liabilities or risks of using a material that could be designated "hazardous waste" on the property of the people who produced it. People resisted committing capital to expand beneficial use capabilities in light of the regulatory uncertainty.

Beginning in 2009, beneficial use markets were affected negatively in at least three ways:

- Consumers of coal combustion products began 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. For instance, the Los Angeles Unified School District prohibited the use of coal fly ash in its concrete "until the EPA confirms fly ash to be a non-hazardous toxic waste." 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 time and money to defend even unjustified lawsuits.
- Manufacturers of products that compete with beneficially used coal ash began fanning the flames by citing the potential EPA "hazardous waste" designation. This 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.
- Commercial liability insurance policies that contain exclusions for companies using products that contain fly ash began to appear. Examples of this disturbing development – as well as more examples of the other forms of stigma mentioned above – were 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>

Supporters of the “hazardous waste” designation said that recycling rates would 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.)

Effects of the Most Recent Regulatory Uncertainty

Coal ash beneficial use stalled after 2008 as EPA reopened its coal ash regulatory agenda. Volume utilization coal ash has been lower than 2008 in every year since.

The decline in beneficial use volumes stands in stark contrast to the previous decade’s trend. In 2000, when the recycling volume was 32.1 million tons, the EPA issued its Final Regulatory Determination that regulation of ash as a ‘hazardous waste’ was not warranted. Over the next eight years, EPA also began actively promoting the beneficial use of coal ash through the Coal Combustion Products Partnership “C2P2” program and the recycling volume soared to 60.6 million tons. (EPA abruptly terminated the C2P2 program when it reopened its coal ash regulatory agenda.)

According to ACAA’s most recently released “Production and Use Survey,” 51.4 million tons of Coal Combustion Products were beneficially used in 2013 – down from 51.9 million tons in 2012 and well below the 2008 peak. In the closely watched category of fly ash used in concrete, utilization increased only slightly to 12.3 million tons, up by 577,705 tons over 2012, but still below 12.6 million tons in 2008.

The greatest irony of the lengthy debate over coal ash disposal regulations is that the debate caused more ash to be disposed. If the past five years had simply remained equal with 2008’s utilization, we would have seen 26.4 million tons less coal ash deposited in landfills and impoundments.

Analysis of historic production and use data reaffirms that the recent decline in coal ash recycling is largely attributable to regulatory uncertainty and not general economic trends. During five recessionary periods since 1973, fly ash utilization out-performed overall concrete production in all but the most recent economic downturn. The current fly ash market continues to be depressed, even as ready mixed concrete volumes began to increase as early as 2010. In previous economic downturns, we actually saw fly ash utilization increase as concrete producers sought less expensive materials in an effort to reduce costs. That did not happen in our most recent economic downturn as regulatory uncertainty trumped economic incentives.

Factors like cost of disposal have little to do with whether coal ash gets beneficially used. Coal ash disposal costs did not change much between the 1990s and 2000s. What caused the dramatic growth of beneficial use in the 2000s was regulatory certainty that encouraged people to invest in recycling rather than disposal and a supportive EPA that actively encouraged beneficial use.

Permanent Regulatory Solutions are Needed

Charah and ACAA appreciate EPA's final decision to regulate coal ash as a "non-hazardous" material. We believe this decision puts science ahead of politics and clears the way for beneficial use of ash to begin growing again – thereby keeping ash out of landfills and disposal ponds in the first place.

We are also painfully aware, however, that EPA has made final decisions before only to reverse course in the future. A "hazardous vs. non-hazardous" debate occurred prior to the Agency's 2000 Final Regulatory Determination – which eight years later turned out to be not so final. Additionally, the 2015 Final Rule's preamble states that: "This rule defers a final Bevill Regulatory Determination with respect to CCR that is disposed in CCR landfills and CCR surface impoundments until additional information is available on a number of key technical and policy questions." We feel that 34 years of study, two reports to Congress, two formal regulatory determinations, and a Final Rule issued after a six-year rule making process – all confirming that coal ash does not warrant hazardous waste regulation -- should be enough for EPA to declare this issue resolved and make the rule a truly Final Decision. This would provide the long term certainty to the recycling industry that science says is warranted. If the same landfill and impoundment protective standards are required for disposal under either Subtitle C & D today, why should the regulatory uncertainty continue when states have clearly demonstrated they can regulate large waste streams successfully?

It may be time to recognize that there's a reason coal ash regulation remains controversial even after decades of study and regulatory activity. RCRA as currently configured may not be well suited to regulating a material characterized by very low toxicity but huge volumes. Specifically, the citizen suit enforcement mechanism available to EPA under the existing RCRA Subtitle D has been criticized by both sides of the debate.

Bills previously passed by the U.S. House of Representatives – and HR 1734 which is under House consideration now – would resolve these issues permanently. The bills would put primary enforcement responsibility and authority in the hands of professional state environmental regulators and create new authority for EPA to step in if states don't do the job. The landfill and impoundment protective standards that were proposed regardless of the enforcer will be incorporated as finalized by EPA.

ACAA is on record by formal resolution supporting coal ash disposal regulation that avoids an unwarranted "hazardous waste" designation. Regulation of ash disposal is necessary,

appropriate, and should be structured as effectively as possible. For that reason, ACAA has also supported and will continue to support actions by Congress to create a more effective regulatory structure than EPA can create with its existing toolbox.

In Conclusion

Despite the changing landscape for American electricity generation, our nation will continue to produce large volumes of coal ash for the foreseeable future. Furthermore, the impending closure of disposal sites that have collected coal ash for decades represents an opportunity to reclaim valued mineral materials for beneficial use. However, developing the capability to use more ash requires investment in technologies for improving and ensuring ash quality, ash storage and distribution facilities, and transportation logistics. Attracting the necessary investment requires real, long term regulatory certainty.

Thank you, Mr. Chairman and members of this Committee, for your attention to this timely issue. It is important to keep beneficial use at the forefront of U.S. coal ash management policy – both in protecting our environment and in utilizing this unique mineral resource in building more durable infrastructure.

The best solution to coal ash disposal problems is to quit throwing it away. The best roads, bridges, runways, and dams are built with coal ash as an ingredient. Here we have an opportunity for a true win-win for America's Environment and Public Works.

XXX

APPENDIX – Coal Ash Beneficial Use for Public Works by State

In September 2011, the American Road & Transportation Builders Association's Transportation Development Foundation (ARTBA-TDF) issued a report entitled "The Economic Impacts of Prohibiting Coal Fly Ash Use in Transportation Infrastructure Construction." The report estimated that the cost to build roads, runways and bridges would increase by an estimated \$104.6 billion over 20 years if coal fly ash were no longer available as a transportation construction building material. The following pages excerpted from that report show highway department utilization of coal ash for each of the states represented by members of the Environment and Public Works Committee.

Coal ash is beneficially used in every state. While the ARTBA-TDF report focused on highway and runway applications, coal fly ash is also used in a wide variety of other public works projects – including dams and water treatment facilities – as well as residential, commercial and industrial construction of all sizes.

For instance, in the Chairman's state of Oklahoma, recent high profile construction projects utilizing coal ash include the Oklahoma City Crosstown Expressway and the entire new I-35 corridor from the Texas State line to Ardmore. Coal ash was used in runway projects at Tinker Air Force Base, Altus Air Force Base, and the Tulsa Airport. Coal ash was also used in the Red River Bridge project and for expansion of spillway structures at the Canton Lake Dam.

In the Ranking Member's state of California, recent construction projects utilizing coal ash include all Caltrans paving and structures. Coal ash was used in bridge construction for the Bay Area Bridge, Carquinez Straits Bridge, Benicia Bridge, Antlers Bridge (Lake Shasta,) and Gerald Desmond Bridge (under construction.) Coal ash was used in construction of Metro Link tunnels, Central Subway in San Francisco, and Trans Bay transit terminal, and is being used in High Speed Rail construction project. Dam projects using large volumes of coal ash include the Olivenhain Dam, Folsom Dam, Silver Lake Reservoir, Prado Dam rise, and San Vicente Dam rise. High profile commercial projects containing coal ash include the Apple Computer Campus, GAP World Headquarters, the new ARCO Arena at Sacramento, the new CalPERS building, and Levi's Stadium. The "Cathedral of Our Lady of the Angels" in Los Angeles was designed with a 400-year concrete life cycle with several high volume coal fly ash mix designs. The Wilshire Grand Tower currently under construction in Los Angeles utilized coal fly ash to accomplish a record-breaking continuous concrete placement for its foundation.

The Use of Fly Ash in Alabama's Transportation Construction

Alabama currently has 23,988 miles of roadway in the Federal-aid Highway System, of which two percent is concrete. There are 1,201 bridges in the state, of which 33 percent or 394, contain primarily concrete. Approximately 10 percent of highway spending in Alabama is spent on concrete products each year, based on ARTBA analysis of bid tab data.

What are your state's fly ash specifications?

Alabama uses up to 20 percent of class F fly ash replacement of Portland cement and up to 30 percent class C fly ash in concrete mixes.

How would a "hazardous building material" label affect your state?

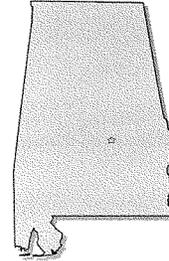
Experts within the Alabama Department of Transportation (ALDOT) expect that if the EPA labels fly ash a "hazardous building material," Alabama would not continue to allow fly ash use in concrete. This, in turn, would result in an increase in the cost of projects, as alternative pozzolans are significantly more expensive. Fly ash has provided ALDOT with an incredible cost-savings, low long-term maintenance costs, and concrete that is superior in strength.

How prevalent is fly ash in your transportation projects?

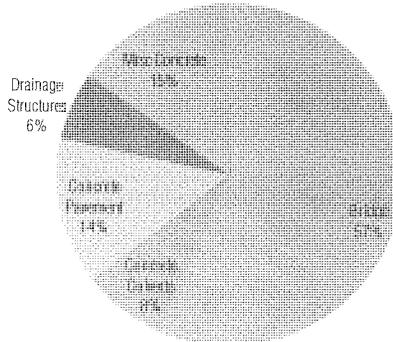
Fly ash is used extensively throughout the state. Engineers reported that the largest ready-mix concrete producer in the state provided an estimated 82,000 cubic yards of concrete. Each cubic yard of this concrete contained between 125 and 140 pounds of fly ash. Thus, its use is state-wide in Alabama.

What are your state's sources of fly ash?

The only approved fly ash source in the state of Alabama are the Headwaters Resources facilities at power plants in Quinton and Wilsonville.



Average Alabama Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Alabama Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete as % of Total Bids
2005	\$76.0	\$631.4	12.0%
2006	\$49.6	\$577.8	8.6%
2007	\$76.5	\$714.4	10.7%
2008	\$42.4	\$592.1	7.2%
2009	\$71.1	\$776.9	9.2%
2010	\$81.9	\$703.3	11.6%
Average	\$66.3	\$666.0	9.9%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Alabama Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$39.48	\$28.53	\$26.14	\$34.73	\$32.80	\$63.39
Concrete Culverts	\$14.53	\$1.62	\$3.67	\$4.40	\$1.85	\$4.86
Concrete Pavement	\$9.60	\$4.77	\$14.29	\$0.66	\$23.98	\$2.46
Drainage Structures	\$1.89	\$11.28	\$4.12	\$1.05	\$6.71	\$0.46
Misc. Concrete	\$10.51	\$3.43	\$28.31	\$1.55	\$5.78	\$10.71
Total	\$76.00	\$49.62	\$76.54	\$42.39	\$71.12	\$81.87

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Alaska's Transportation Construction

Alaska currently has 2,672 miles of roadway in the Federal-aid Highway System, of which there is no concrete mileage. There are 1,201 bridges in the state, of which 33 percent or 394, contain primarily concrete.

What are your state's fly ash specifications?

Alaska uses up to 20 percent of class F fly ash replacement of Portland cement and up to 30 percent class C fly ash in concrete mixes. Typically type C and F are used, depending on the mix design.

How would a "hazardous building material" label affect your state?

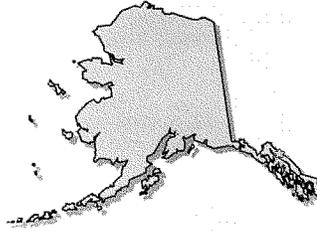
Alaskan Department of Transportation experts interviewed stated, "It is not in the best interest of the Department to have fly ash regulated as 'hazardous building material,' as it is recycled and has many cost-effective applications in the transportation construction industry." They recognize the importance of fly ash in counteracting alkali-silica reactions in concrete. Fly ash has also helped strengthen concrete structures against the extreme weather conditions experienced in Alaska.

How prevalent is fly ash in your transportation projects?

Fly ash is imported, and thus very costly. It is used on an as-needed basis. The Department does not have information or records on fly ash usage.

What are your state's sources of fly ash?

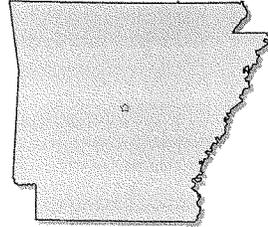
As previously stated, fly ash is imported. While Alaska does have coal-fired power plants, a higher quality fly ash is needed for transportation construction projects.



Editor's note: Data on concrete use profile from state transportation bid tabs is not available.

The Use of Fly Ash in Arkansas' Transportation Construction

Arkansas currently has 21,513 miles of roadway in the Federal-aid Highway System, of which two percent is concrete. There are 12,542 bridges in the state, of which 58 percent or 7,307, contain primarily concrete. Approximately 15 percent of highway spending in Arkansas is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

Arkansas Department of Transportation standard specifications allow up to 20 percent replacement of Portland cement with classes C and F fly ash. Other amounts are treated on a job-by-job basis.

How would a "hazardous building material" label affect your state?

Transportation experts interviewed feared the label could raise bids and increase the total cost of projects. However, since the state's total usage of fly ash was largely unknown, the possible ramifications were somewhat unclear. Nonetheless, experts do not support the possible labeling of fly ash as a "hazardous building material." Experts also pointed out the structural benefits of using fly ash in concrete as a means of achieving longer-lasting structures.

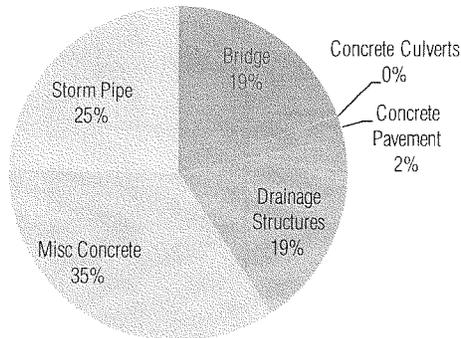
How prevalent is fly ash in your transportation projects?

The Arkansas Department of Transportation, when interviewed, did not know the amount of fly ash used in their state. The Department has a set of state fly ash specifications and contractors must follow. Records of the amount of fly ash, or the specific Portland cement replacement percentages are not kept.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at http://www.arkansashighways.com/materials_division/Division%20500%20Portland%20Cement%20Concrete%20Pavement/50102%20Fly%20Ash.pdf

Average Arkansas Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Arkansas Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$57.3	\$394.0	14.5%
2006	\$42.0	\$386.3	10.9%
2007	\$47.6	\$376.4	12.6%
2008	\$56.9	\$387.1	14.7%
2009	\$77.9	\$507.6	15.4%
2010	\$105.9	\$582.5	18.2%
Average	\$64.6	\$439.0	14.7%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Arkansas Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$4.09	\$9.95	\$4.81	\$7.74	\$25.36	\$23.09
Concrete Culverts	\$0.09	\$0.12				
Concrete Pavement	\$2.21	\$0.08	\$0.45	\$3.06	\$2.20	\$0.53
Drainage Structures	\$19.88	\$2.91	\$17.25	\$6.71	\$5.05	\$22.14
Misc. Concrete	\$20.68	\$9.42	\$19.53	\$17.84	\$24.94	\$41.63
Storm Pipe	\$10.38	\$19.56	\$5.51	\$24.61	\$19.54	\$16.82
Total	\$57.32	\$42.04	\$47.55	\$59.96	\$77.09	\$104.22

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in California's Transportation Construction

California currently has 54,809 miles of roadway in the Federal-aid Highway System, of which four percent is concrete. There are 24,409 bridges in the state, of which 85 percent or 20,843, contain primarily concrete. Approximately 19 percent of highway spending in California is spent on concrete products each year, based on ARTBA analysis of bid tab data. This percentage is among the highest of all the states.



What are your state's fly ash specifications?

California uses 15 to 25 percent of class F fly ash replacement of Portland cement in mixes. Specifications sometimes allow for the use of other pozzolanic materials and ground granulated blast furnace slag, another type of coal ash.

How would a "hazardous building material" label affect your state?

Experts within the California Department of Transportation (Caltrans) expressed their concerns with the EPA's proposed action, as their primary pozzolan in cement is fly ash. Furthermore, they emphasized the economic benefits of fly ash, and feared that a "hazardous building material" label would threaten its beneficial use. Caltrans uses fly ash extensively throughout the state, and contributes to significant cost-savings on projects.

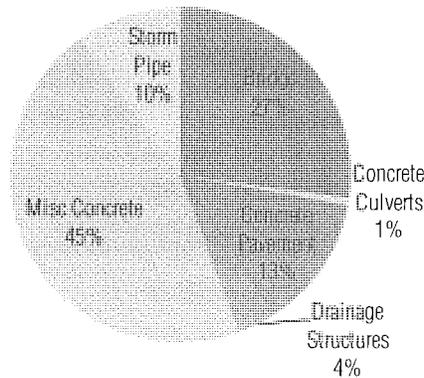
How prevalent is fly ash in your transportation projects?

Fly ash is used in virtually all concrete supplied to Caltrans construction contracts. It has also been extensively used on private construction works.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at http://www.dot.ca.gov/hq/esc/approved_products_list/

Average California Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

California Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$447.6	\$2,030.2	22.0%
2006	\$585.4	\$4,534.2	12.9%
2007	\$524.3	\$2,587.1	20.3%
2008	\$622.0	\$2,890.1	21.5%
2009	\$509.3	\$2,314.2	22.0%
2010	\$578.1	\$2,515.2	23.0%
Average	\$544.4	\$2,811.8	19.4%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in California Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$167.15	\$208.37	\$162.13	\$132.74	\$94.34	\$120.73
Concrete Culverts	\$0.18	\$2.54	\$15.00	\$3.54	\$0.28	
Concrete Pavement	\$103.90	\$23.78	\$45.85	\$83.84	\$17.11	\$147.57
Drainage Structures	\$17.53	\$4.47	\$35.54	\$45.15	\$16.77	\$1.68
Misc. Concrete	\$110.15	\$281.23	\$256.55	\$265.45	\$318.94	\$257.21
Storm Pipe	\$48.83	\$67.38	\$21.66	\$94.80	\$47.11	\$47.38
Total	\$447.75	\$587.77	\$536.72	\$625.52	\$494.56	\$574.57

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, side-walks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Delaware's Transportation Construction

Delaware currently has 1,526 miles of roadway in the Federal-aid Highway System, of which eight percent is concrete. There are 857 bridges in the state, of which 43 percent or 376, contain primarily concrete. Approximately eight percent of highway spending in Delaware is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The Delaware Department of Transportation (DELDOT) specifications dictate that contractors can replace Portland cement with fly ash with a replacement rate up to 20 percent.

How would a "hazardous building material" label affect your state?

Experts at DELDOT explained that they have used fly ash successfully in concrete and embankments as a cost-saving mechanism in projects. Furthermore, they recognize the importance of fly ash to counteract alkali-silica reactions in concrete. Experts are on record against the EPA's proposal to consider fly ash as a hazardous material. The use of alternative concrete strengthening agents, such as lithium, is possible. However, these are considerably more expensive than fly ash and would drive up the cost of projects.

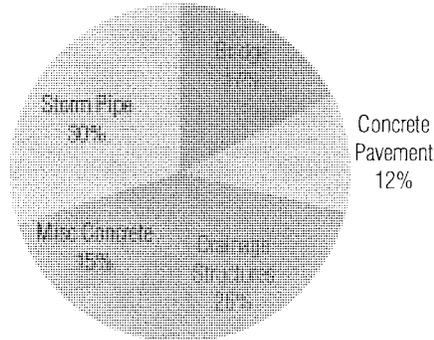
How prevalent is fly ash in your transportation projects?

The use of fly ash is widespread in Delaware.

What are your state's sources of fly ash?

Pioneer Concrete of Wilmington, Delaware is the primary supplier of concrete that has provided the state with fly ash. This fly ash is purchased from a company in Baltimore, Maryland named Separation Technologies Inc.

Average Delaware Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Orman Systems Inc.

Delaware Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$10.9	\$144.2	7.6%
2006	\$4.1	\$78.3	5.2%
2007	\$18.9	\$203.2	9.3%
2008	\$9.6	\$131.0	7.3%
2009	\$4.9	\$97.1	5.0%
2010	\$10.1	\$127.9	7.9%
Average	\$9.7	\$130.3	7.5%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Delaware Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$3.06	\$0.64	\$1.54	\$1.03	\$2.07	\$1.83
Concrete Pavement	\$3.44	\$0.31	\$0.64	\$0.90	\$0.41	\$0.96
Drainage Structures	\$0.91	\$1.30	\$8.50	\$3.18	\$0.55	\$0.84
Misc. Concrete	\$1.45	\$1.00	\$3.01	\$2.20	\$0.56	\$0.57
Storm Pipe	\$2.03	\$0.80	\$5.23	\$2.27	\$1.31	\$5.90
Total	\$10.90	\$4.05	\$18.93	\$9.57	\$4.90	\$10.11

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Idaho's Transportation Construction

Idaho currently has 9,577 miles of roadway in the Federal-aid Highway System, of which two percent is concrete. There are 4,125 bridges in the state, of which 69 percent or 2,866, contain primarily concrete. Approximately 11 percent of highway spending in Idaho is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The Idaho Transportation Department (ITD) typically uses around a 25 percent class F fly ash replacement of concrete in mixes. Technically, the specifications dictate use of only class F between 20 and 25 percent. Also, ITD does allow some not qualifying class F ashes as mineral filler.

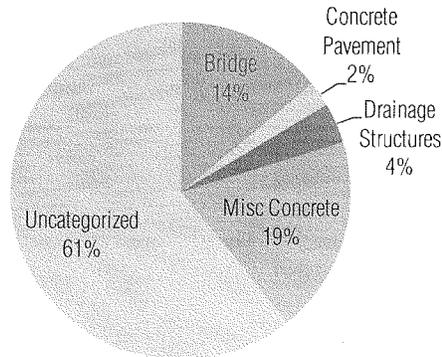
How would a "hazardous building material" label affect your state?

ITD allows other strengthening agents in concrete, such as lithium, granulated blast furnace slag and silica fume. However, these alternatives are significantly more expensive than fly ash, and do not possess all of the beneficial attributes of fly ash. ITD experts interviewed emphasized the differences in workability and permeability properties. A "hazardous building material," according to experts at ITD, would be very detrimental to the infrastructure system and their ability to complete projects.

How prevalent is fly ash in your transportation projects?

Roughly 60 to 65 percent of the ITD projects currently use fly ash. In the Boise area this year ITD is conducting four major concrete paving jobs, with another three underway in other parts of the state. Each of these projects uses fly ash in the concrete. Next year, two or three concrete paving projects are anticipated statewide, all using fly ash.

Average Idaho Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

What are your state's sources of fly ash?

Typically, vendors supply from the Navajo Power Plant and the ENX Corporation based in British Columbia. Several suppliers from the past no longer provide class F ash, such as Centralia in Washington.

Idaho Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$18.1	\$225.0	8.0%
2006	\$13.7	\$157.9	8.7%
2007	\$13.1	\$220.5	5.9%
2008	\$45.1	\$393.1	11.5%
2009	\$68.1	\$421.6	16.2%
2010	\$27.2	\$268.0	10.1%
Average	\$30.9	\$281.0	11.0%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Idaho Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$1.10	\$1.59	\$0.76	\$3.47	\$11.28	\$7.68
Concrete Pavement	\$0.84	\$1.82	\$1.27	\$0.52		
Drainage Structures	\$5.17	\$1.02	\$0.71	\$0.23		
Misc. Concrete	\$3.20	\$3.94	\$6.59	\$9.66	\$8.71	\$3.20
Uncategorized	\$7.77	\$7.12	\$5.02	\$30.12	\$47.88	\$15.05
Total	\$18.09	\$15.49	\$14.35	\$43.99	\$67.88	\$25.93

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Louisiana's Transportation Construction

Louisiana currently has 13,189 miles of roadway in the Federal-aid Highway System, of which 13 percent is concrete. There are 12,320 bridges in the state, of which 70 percent, or 9,374, contain primarily concrete. Approximately 24 percent of highway spending in Louisiana is spent on concrete products each year, based on ARTBA analysis of bid tab data. This percentage is among the highest of all the states.



What are your state's fly ash specifications?

The Louisiana Department of Transportation and Development (DOTD) currently allows up to 25 percent fly ash replacement of cementitious material for pipe production, up to 20 percent fly ash for minor structures and pavement applications, and up to 15 percent fly ash for structural concrete. The replacement is on a pound for pound basis.

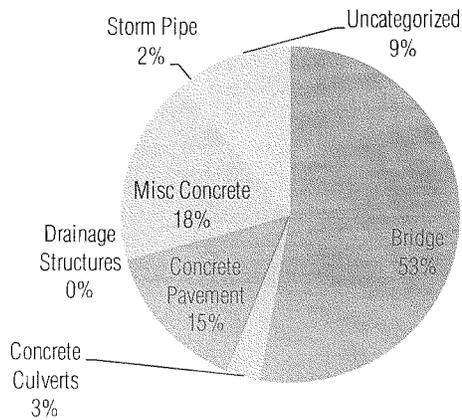
How would a "hazardous building material" label affect your state?

An expert from DOTD interviewed stated that the possible "hazardous building material" label of fly ash would, "definitely raise the cost of doing business for DOTD considerably," as the strengthening agent is used extensively in the state. According to the expert, this potential change comes at an inconvenient time as they are "currently revising the standards and specifications and are planning on allowing ternary cementitious combinations that will significantly increase our use of fly ash for all concrete applications."

How prevalent is fly ash in your transportation projects?

Nearly every pavement project has fly ash use incorporated into the bid prices. A great majority of the structural concrete does, as well. Its use is widespread throughout the state.

Average Louisiana Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at <http://www.dotd.louisiana.gov/highways/construction/lab/qpl/qpl%2050%20fly%20ash.pdf>

Louisiana Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$261.9	\$991.6	26.4%
2006	\$679.9	\$1,757.6	38.7%
2007	\$155.2	\$1,470.6	10.6%
2008	\$389.0	\$1,550.8	25.1%
2009	\$234.0	\$1,108.0	21.1%
2010	\$206.5	\$1,086.2	19.0%
Average	\$321.1	\$1,327.5	24.2%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Louisiana Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$163.16	\$529.43	\$58.66	\$114.01	\$109.50	\$43.63
Concrete Culverts	\$20.53	\$24.41	\$0.55	\$0.78	\$14.04	\$2.09
Concrete Pavement	\$14.92	\$40.26	\$21.59	\$79.65	\$31.09	\$92.40
Drainage Structures	\$0.03					
Misc. Concrete	\$24.41	\$44.41	\$17.35	\$178.31	\$58.10	\$29.41
Storm Pipe	\$8.23	\$10.43	\$16.65	\$0.80	\$3.13	\$0.72
Uncategorized	\$30.63	\$30.96	\$40.43	\$15.48	\$18.10	\$38.22
Total	\$261.91	\$679.90	\$155.23	\$389.02	\$233.97	\$206.47

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Maryland's Transportation Construction

Maryland currently has 7,766 miles of roadway in the Federal-aid Highway System, of which one percent is concrete. There are 5,168 bridges in the state, of which 34 percent or 1,754, contain primarily concrete. Approximately four percent of highway spending in Maryland is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

Specifications dictate that the Maryland Department of Transportation (MDOT) can replace Portland cement at a rate between 20-25 percent for with class F fly ash.

How would a "hazardous building material" label affect your state?

MDOT experts were unavailable for comment.

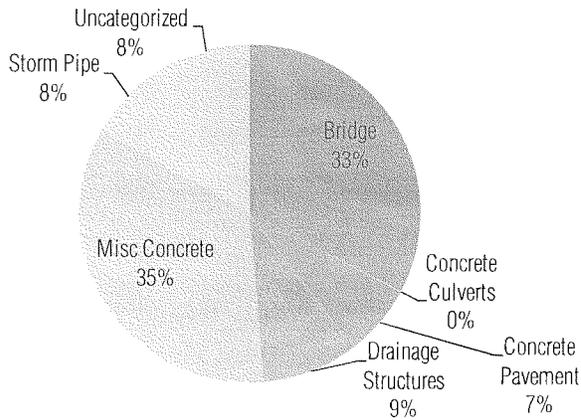
How prevalent is fly ash in your transportation projects?

While experts from MDOT were unable for an interview, neighboring state's experts speculated that Maryland's usage of fly ash was extensive and state-wide.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at <http://www.mde.state.md.us/programs/Land/SolidWaste/CoalCombustionByproducts/Documents/www.mde.state.md.us/assets/document/Fact-SheetCCBSites.pdf>

Average Maryland Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Maryland Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$58.1	\$630.0	9.2%
2006	\$23.7	\$982.7	2.4%
2007	\$24.4	\$1,083.8	2.2%
2008	\$36.5	\$1,074.0	3.4%
2009	\$25.8	\$515.9	5.0%
2010	\$25.5	\$416.5	6.1%
Average	\$32.3	\$783.8	4.1%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Maryland Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$24.72	\$8.25	\$5.64	\$14.32	\$3.54	\$6.97
Concrete Culverts	\$0.16					
Concrete Pavement	\$2.07	\$3.61	\$2.13	\$1.36	\$3.78	\$0.34
Drainage Structures	\$6.64	\$1.54	\$4.59	\$1.00	\$0.64	\$2.98
Misc. Concrete	\$23.50	\$5.70	\$7.70	\$10.27	\$8.76	\$11.12
Storm Pipe	\$1.17	\$3.95	\$2.66	\$4.02	\$2.41	\$1.81
Uncategorized	\$0.03	\$0.65	\$1.47	\$5.49	\$6.69	\$2.24
Total	\$58.29	\$23.70	\$24.20	\$36.47	\$25.82	\$25.46

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Massachusetts' Transportation Construction

Massachusetts currently has 10,787 miles of roadway in the Federal-aid Highway System, of which there is less than one percent concrete mileage. There are 5,042 bridges in the state, of which 35 percent or 1,788, contain primarily concrete. Approximately five percent of highway spending in Massachusetts is spent on concrete products each year, based on ARTBA analysis of bid tab data.



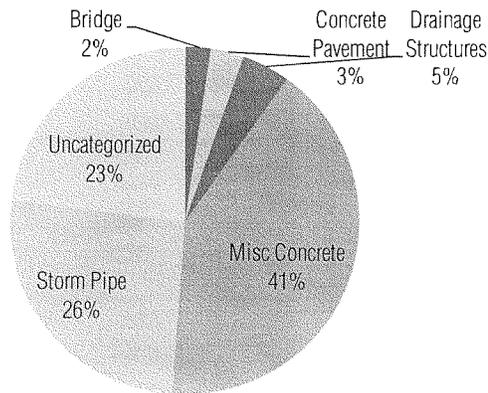
What are your state's fly ash specifications?

The Massachusetts Department of Transportation (MassDOT) specifications allow concrete producers to replace 15 to 30 percent of portland cement with class F fly ash.

How would a "hazardous building material" label affect your state?

Experts from MassDOT said they have recently been dealing with a shortage of fly ash due to a power plant shut-down. The lack of locally supplied fly ash has proven to be an expensive hurdle for projects. In the absence of fly ash, concrete producers will have to pursue other concrete strengthening agents. The labeling of fly ash as "hazardous" would have detrimental effects, experts believe. Based on this fly ash shortage within the last couple of weeks, MassDOT experts have experienced first-hand the economic benefits to fly ash in concrete.

Average Massachusetts Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

How prevalent is fly ash in your transportation projects?

Over the last few years, experts at the MassDOT have seen approximately 75 percent of approved concrete mix designs utilizing fly ash. Last year, projects utilized over 9 million pounds of fly ash in cement concrete products.

What are your state's sources of fly ash?

Typically, the primary source of class F fly ash is from Headwaters Resources Inc. from the Brayton Point power station located in Somerset, Massachusetts.

Massachusetts Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$25.2	\$466.5	5.4%
2006	\$15.0	\$334.7	4.5%
2007	\$17.3	\$511.8	3.4%
2008	\$52.3	\$839.0	6.2%
2009	\$26.4	\$656.1	4.0%
2010	\$31.4	\$609.0	5.2%
Average	\$27.9	\$569.5	4.9%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Massachusetts Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$0.30	\$1.92	\$1.24	\$0.26	\$0.19	
Concrete Pavement	\$1.56	\$0.07	\$0.35	\$0.59	\$0.23	\$2.41
Drainage Structures	\$1.79	\$0.40	\$0.07	\$2.40	\$1.36	\$1.44
Misc. Concrete	\$13.44	\$3.55	\$9.10	\$24.02	\$9.19	\$9.89
Storm Pipe	\$6.26	\$8.08	\$3.65	\$12.17	\$7.36	\$5.76
Uncategorized	\$1.90	\$2.86	\$4.08	\$11.24	\$7.07	\$11.67
Total	\$25.23	\$16.87	\$18.50	\$50.68	\$25.40	\$31.17

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Mississippi's Transportation Construction

Mississippi currently has 21,141 miles of roadway in the Federal-aid Highway System, of which three percent is concrete. There are 17,024 bridges in the state, of which 81 percent or 13,793, contain primarily concrete. Approximately 13 percent of highway spending in Mississippi is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

Currently The Mississippi Department of Transportation (MDOT) specifications allow up to 25 percent of either class F or class C fly ash replacement of cementitious material, however typical mixes utilize 20 percent class C ash.

How would a "hazardous building material" label affect your state?

An expert interviewed within the Department informed us that "MDOT is very concerned as to the impact the potential labeling of fly as a 'hazardous building material' would have on our ability to provide economical concrete mix designs." Experts within MDOT feared that the label would result in the loss of the additive in concrete, which could come at the expense of the state's budget and the quality of the concrete structures state-wide.

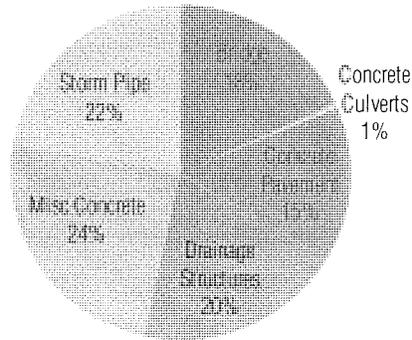
How prevalent is fly ash in your transportation projects?

All concrete mixes utilize ash and approximately 5 to 10 percent of soil stabilization projects utilize fly ash in Mississippi.

What are your state's sources of fly ash?

No sources were identified by MDOT.

Average Mississippi Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Mississippi Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$89.5	\$484.6	18.5%
2006	\$41.5	\$349.9	11.9%
2007	\$87.7	\$627.6	14.0%
2008	\$22.7	\$323.1	7.0%
2009	\$76.0	\$627.8	12.1%
2010	\$65.3	\$533.2	12.3%
Average	\$63.8	\$491.0	13.0%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Mississippi Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$3.42	\$15.26	\$21.86	\$0.59	\$17.68	\$10.60
Concrete Culverts	\$0.41	\$1.33				
Concrete Pavement	\$31.01	\$4.31	\$9.29	\$0.71	\$2.89	\$7.99
Drainage Structures	\$28.89	\$16.06	\$1.21	\$6.25	\$17.04	\$7.56
Misc. Concrete	\$7.62	\$4.35	\$34.22	\$6.03	\$18.02	\$22.67
Storm Pipe	\$18.12	\$1.50	\$21.08	\$9.16	\$20.34	\$15.19
Total	\$89.47	\$42.82	\$87.66	\$22.73	\$75.98	\$64.01

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Nebraska's Transportation Construction

Nebraska currently has 15,759 miles of roadway in the Federal-aid Highway System, of which 12 percent is concrete. There are 15,471 bridges in the state, of which 42 percent or 6,463, contain primarily concrete. Approximately 25 percent of highway spending in Nebraska is spent on concrete products each year, based on ARTBA analysis of bid tab data. This percentage is among the highest of all the states.



What are your state's fly ash specifications?

The Nebraska Department of Roads (NDOR) specifications dictate that contractors can replace Portland cement at a rate at 25 percent for with both class F fly ash. Class C fly ash may be used at variable rates.

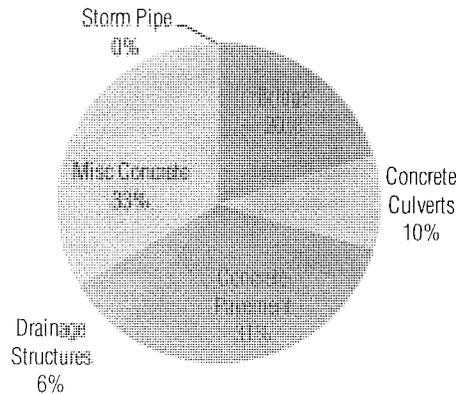
How would a "hazardous building material" label affect your state?

Experts within NDOR explained that the inability to use fly ash would be extremely detrimental. Engineers view fly ash not as a waste product, but as an extremely useful and cost-effective concrete. They also recognize the importance of fly ash to counteract alkali-silica reactions in concrete. Furthermore, due to the climate in Nebraska, concrete structures are placed under more environmental stress than other geographic regions. The addition of fly ash in concrete mixes plays an enormous role in strengthening structures and ensuring a long-life for the concrete.

How prevalent is fly ash in your transportation projects?

Over 417,314 cubic yards of concrete were placed in pavements, driveways, sidewalks and bridges. It is estimated that 141 lbs per cubic yard (25 percent class F fly ash) is added to each cubic yard to mitigate ASR. Based on that percentage, over 29,421 tons of class F ash is used in Nebraska each year.

Average Nebraska Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at <http://www.nebraskatransportation.org/mat-n-tests/newapl/construction/concrete/flyash.pdf>

Nebraska Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$111.5	\$363.5	30.7%
2006	\$41.4	\$251.5	16.5%
2007	\$95.5	\$401.4	23.8%
2008	\$40.4	\$189.6	21.3%
2009	\$102.0	\$416.6	24.5%
2010	\$109.4	\$375.8	29.1%
Average	\$83.4	\$333.1	25.0%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Nebraska Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$12.44	\$4.74	\$52.69	\$7.25	\$8.10	\$15.24
Concrete Culverts	\$6.58	\$18.05	\$1.04	\$0.65	\$2.51	\$19.31
Concrete Pavement	\$60.27	\$6.44	\$14.16	\$18.19	\$36.71	\$17.81
Drainage Structures	\$0.03	\$0.60	\$1.08	\$0.14	\$1.95	\$26.19
Misc. Concrete	\$32.18	\$11.58	\$26.58	\$14.18	\$51.92	\$29.26
Storm Pipe	\$0.86	\$1.62				
Total	\$112.37	\$43.03	\$95.54	\$40.40	\$101.19	\$107.82

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in New Jersey's Transportation Construction

New Jersey currently has 10,183 miles of roadway in the Federal-aid Highway System, of which one percent is concrete. There are 6,474 bridges in the state, of which 39 percent or 2,536, contain primarily concrete. Approximately 18 percent of highway spending in New Jersey is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The New Jersey Department of Transportation (NJDOT) specifications dictate that contractors can replace Portland cement at a rate between 15 and 25 percent with class F fly ash.

How would a "hazardous building material" label affect your state?

Experts within NJDOT predict that a, "hazardous building material," label on fly ash would result in an uptick in the price of concrete. Currently, fly ash provides NJDOT with significant cost-savings, and the increased amount of cement needed to be purchased would have serious financial implications.

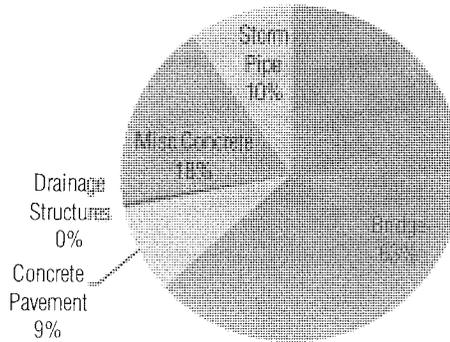
How prevalent is fly ash in your transportation projects?

Approximately 45 percent of all projects containing concrete used fly ash last year. It is important to note that slag is also extensively used as a pozzolan in New Jersey.

What are your state's sources of fly ash?

No sources were identified by NJDOT.

Average New Jersey Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

New Jersey Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2007	\$9.9	\$0.0	
2008	\$57.1	\$0.0	
2009	\$145.0	\$190.5	76.1%
2010	\$66.7	\$459.5	14.5%
2011	\$12.2	\$1,008.2	1.2%
Average	\$48.5	\$276.4	17.5%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in New Jersey Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge			\$5.68	\$21.06	\$104.11	\$45.45
Concrete Pavement			\$0.61	\$10.32	\$12.00	\$0.99
Drainage Structures			\$0.09	\$1.30		
Misc. Concrete			\$3.26	\$16.23	\$13.80	\$16.24
Storm Pipe			\$0.31	\$9.50	\$15.08	\$2.71
Total			\$9.95	\$58.41	\$144.98	\$65.39

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in New York's Transportation Construction

New York currently has 27,408 miles of roadway in the Federal-aid Highway System, of which four percent is concrete. There are 17,366 bridges in the state, of which 33 percent or 5,678, contain primarily concrete. Approximately eight percent of highway spending in New York is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The New York State Department of Transportation (NYSDOT) specifications dictate that contractors can replace Portland cement at a rate of up to 20 percent with class F fly ash.

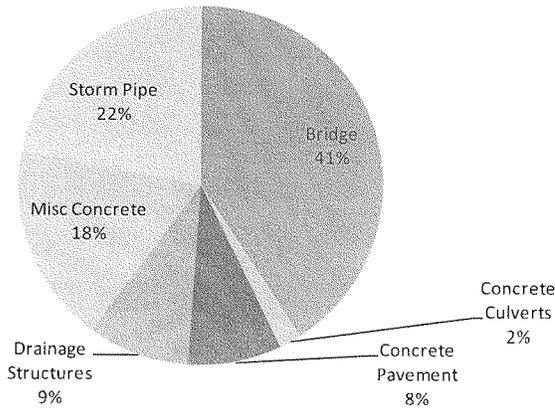
How would a "hazardous building material" label affect your state?

Experts interviewed within NYSDOT weren't sure of the effects, but expected that the state would use more expensive, alternative pozzolans that would decrease the cost-savings seen on each concrete project. Furthermore, sources recognized the importance of fly ash to counteract alkali-silica reactions in concrete, as its use in concrete leads to longer-lasting structures with lower long-term maintenance costs.

How prevalent is fly ash in your transportation projects?

Pozzolan use is required in New York when there are reactive aggregates combined with high alkali cements. Fly ash usage varies geographically around the state. Typically pozzolans are used in about 70 percent of all the concrete produced for NYSDOT. From the last recorded summary of recycled materials use compiled in 2007, the fly ash use in concrete totaled about 8,100 tons per year.

Average New York Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at https://www.nysdot.gov/divisions/engineering/technical-services/technical-services-repository/alme/con_min.html

New York Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$156.7	\$1,273.9	12.3%
2006	\$93.7	\$1,217.3	7.7%
2007	\$96.4	\$1,202.5	8.0%
2008	\$88.5	\$1,268.8	7.0%
2009	\$139.2	\$1,929.8	7.2%
2010	\$108.5	\$1,271.7	8.5%
Average	\$113.8	\$1,360.7	8.4%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

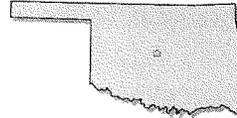
Concrete Use by Type in New York Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$45.13	\$43.14	\$55.13	\$30.77	\$64.82	\$39.42
Concrete Culverts	\$4.24	\$0.84	\$2.48	\$2.31	\$2.05	\$1.49
Concrete Pavement	\$9.16	\$7.15	\$6.19	\$5.20	\$9.58	\$19.56
Drainage Structures	\$5.12	\$11.81	\$11.40	\$13.00	\$5.60	\$14.62
Misc. Concrete	\$12.92	\$17.10	\$12.00	\$28.20	\$32.85	\$19.73
Storm Pipe	\$80.15	\$13.63	\$9.15	\$9.06	\$24.31	\$13.65
Total	\$156.72	\$93.67	\$96.36	\$88.53	\$139.20	\$108.46

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Oklahoma's Transportation Construction

Oklahoma currently has 29,355 miles of roadway in the Federal-aid Highway System, of which six percent is concrete. There are 23,591 bridges in the state, of which 57 percent or 13,545, contain primarily concrete. Approximately 21 percent of highway spending in Oklahoma is spent on concrete products each year, based on ARTBA analysis of bid tab data. This percentage is among the highest of all the states.



What are your state's fly ash specifications?

The Oklahoma Department of Transportation (ODOT) specifications dictate that contractors can replace Portland cement at a rate between 15 to 20 percent with class C or class F fly ash. Typically class C is used at 20 percent.

How would a "hazardous building material" label affect your state?

According to ODOT experts, without fly ash the Department would have to consume 20 percent more cement, which could lead to higher prices for concrete and a shortage of cement. Furthermore, the source pointed out that the structural benefits of fly ash are second-to-none. While somewhat similar concrete additives exist, none can provide the strength at the extremely low cost that fly ash does.

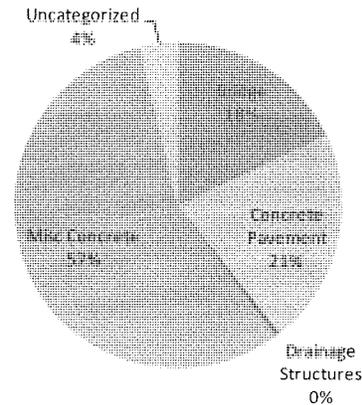
How prevalent is fly ash in your transportation projects?

Almost all (approximately 95 percent) concrete projects within Oklahoma use class C fly ash at a replacement rate of 20 percent.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at <http://www.okladot.state.ok.us/materials/htm-smap/11062p-FLY.htm>

Average Oklahoma Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Oklahoma Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$70.0	\$374.1	18.7%
2006	\$116.8	\$594.1	19.7%
2007	\$120.6	\$622.1	19.4%
2008	\$136.2	\$683.9	19.9%
2009	\$280.3	\$1,252.9	22.4%
2010	\$171.4	\$847.3	20.2%
Average	\$149.2	\$729.0	20.5%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

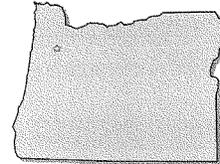
Concrete Use by Type in Oklahoma Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$8.01	\$18.81	\$30.66	\$25.94	\$43.67	\$34.02
Concrete Pavement	\$16.80	\$22.22	\$17.93	\$31.17	\$65.30	\$36.61
Drainage Structures	\$0.01	\$2.26	\$1.41	\$0.26		
Misc. Concrete	\$45.24	\$75.79	\$66.91	\$57.87	\$159.73	\$100.52
Uncategorized	\$2.85	\$19.81	\$11.62			
Total	\$72.90	\$138.89	\$128.53	\$115.25	\$268.71	\$171.15

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Oregon's Transportation Construction

Oregon currently has 17,182 miles of roadway in the Federal-aid Highway System, of which one percent is concrete. There are 7,292 bridges in the state, of which 76 percent or 5,524, contain primarily concrete. Approximately 12 percent of highway spending in Oregon is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The Oregon Department of Transportation (ODOT) specifications dictate that contractors can replace Portland cement at a rate up to 30 percent with class C, F, or N fly ash.

How would a "hazardous building material" label affect your state?

ODOT is concerned about the availability of fly ash over the next decade as the traditional, long-standing sources go off line. Experts interviewed feared that if the EPA labeled fly ash as a "hazardous building material," this could accelerate the process. Furthermore, the extensive use of fly ash throughout Oregon makes this a large, state-wide issue.

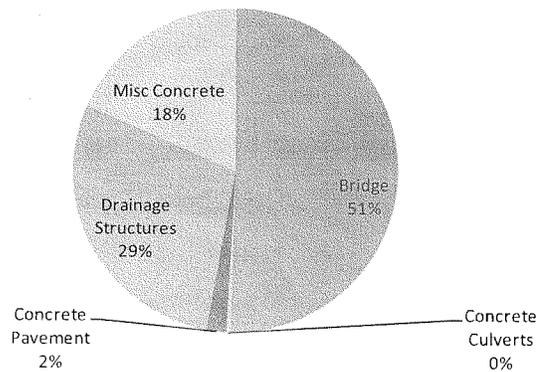
How prevalent is fly ash in your transportation projects?

Fly ash is used extensively throughout the state.

What are your state's sources of fly ash?

Oregon has two sources for the fly ash: Boardman, Oregon, which is shutting down in 2020 and Centralia, Washington, which is shutting down in 2025.

Average Oregon Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Orman Systems Inc.

Oregon Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$44.5	\$332.5	13.4%
2006	\$64.2	\$426.6	15.0%
2007	\$49.0	\$356.0	13.8%
2008	\$32.5	\$314.5	10.3%
2009	\$35.6	\$437.8	8.1%
2010	\$32.4	\$352.1	9.2%
Average	\$43.0	\$369.9	11.6%

Source: Analysis of state DOT bid tab data provided by Orman Systems Inc.

Concrete Use by Type in Oregon Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$26.94	\$33.04	\$21.19	\$25.48	\$13.19	\$11.89
Concrete Culverts	\$0.14	\$0.14	\$0.22	\$0.42	\$0.15	
Concrete Pavement	\$0.49	\$0.77	\$0.18	\$0.58	\$3.08	
Drainage Structures	\$10.62	\$25.53	\$22.67	\$2.17	\$5.66	\$8.78
Misc. Concrete	\$6.31	\$4.67	\$4.95	\$4.82	\$16.11	\$11.02
Total	\$44.51	\$64.15	\$49.21	\$33.48	\$38.18	\$31.68

Source: Analysis of state DOT bid tab data provided by Orman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Rhode Island's Transportation Construction

Rhode Island currently has 1,704 miles of roadway in the Federal-aid Highway System, of which one percent is concrete. There are 741 bridges in the state, of which 313 percent or 42, contain primarily concrete. Approximately eight percent of highway spending in Rhode Island is spent on concrete products each year, based on ARTBA analysis of bid tab data.

What are your state's fly ash specifications?

The Rhode Island Department of Transportation (RIDOT) specifications dictate that contractors can replace Portland cement at a rate up to 15 percent with various classes of fly ash.

How would a "hazardous building material" label affect your state?

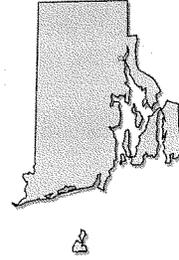
RIDOT engineers were very unsure of how the possible label would affect the Department. Furthermore, they cited the fact that there were "only a few, limited suppliers" of fly ash in the state. Contacts interviewed feared that such an EPA labeling would result in an increase in costs of concrete, which would undoubtedly drive up the costs of projects across the board.

How prevalent is fly ash in your transportation projects?

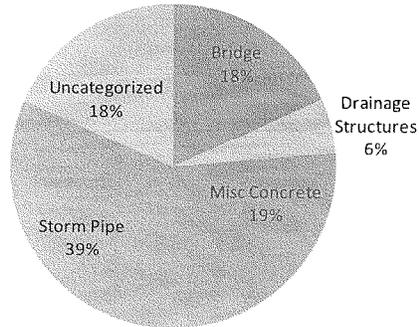
Experts interviewed reported that fly ash was used in approximately 33 percent of all concrete projects. It should be noted that other pozzolans, such as slag, are used more extensively in Rhode Island than in many other states.

What are your state's sources of fly ash?

No sources were identified by RIDOT.



Average Rhode Island Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Rhode Island Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$47.3	\$279.2	16.9%
2006	\$3.4	\$49.8	6.8%
2007	\$12.4	\$89.4	13.8%
2008	\$2.0	\$45.7	4.5%
2009	\$17.4	\$462.7	3.8%
2010	\$9.2	\$168.2	5.5%
Average	\$15.3	\$182.5	8.4%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

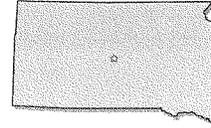
Concrete Use by Type in Rhode Island Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$11.90	\$0.53	\$0.74	\$0.78	\$1.56	\$1.33
Drainage Structures	\$0.72	\$1.94	\$0.70	\$0.10	\$1.61	\$0.11
Misc. Concrete	\$0.21	\$0.65	\$0.61	\$0.73	\$13.11	\$1.96
Storm Pipe	\$21.90	\$0.01	\$8.97	\$0.04	\$0.43	\$5.32
Uncategorized	\$12.53	\$0.28	\$2.08	\$0.43	\$1.50	\$0.25
Total	\$47.26	\$3.41	\$13.10	\$2.07	\$18.21	\$8.97

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, tightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in South Dakota's Transportation Construction

South Dakota currently has 14,994 miles of roadway in the Federal-aid Highway System, of which ten percent is concrete. There are 5,920 bridges in the state, of which 65 percent or 3,850, contain primarily concrete. Approximately six percent of highway spending in South Dakota is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The South Dakota Department of Transportation (SDDOT) specifications dictate that contractors can replace Portland cement at a rate between 15 to 20 percent with classes C and class F fly ash.

How would a "hazardous building material" label affect your state?

Experts interviewed expressed their apprehension about labeling fly ash as a hazardous material. They said, "Trying to find an economical alternative to fly ash for mitigation alkali-silica reactions would be difficult." These alkali-silica reactions in concrete are damaging to the strength of the concrete and the overall structure. The addition of fly ash mitigates this and leads to longer life-cycles with lower long-term maintenance costs. SDDOT has not determined what other products might replace fly ash, or if more concrete would be placed with straight cement.

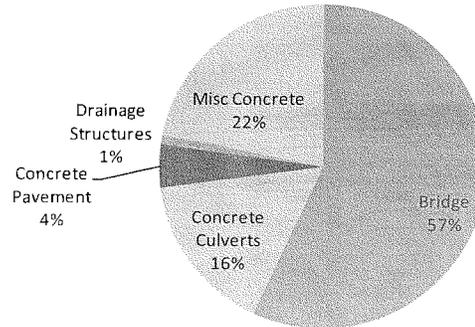
How prevalent is fly ash in your transportation projects?

On average, experts estimate that the amount of fly ash used in the state accounts for 15 percent of the total amount of concrete.

What are your state's sources of fly ash?

The primary source of class F fly ash comes from the Coal Creek, North Dakota.

Average South Dakota Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

South Dakota Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$12.6	\$207.7	6.1%
2006	\$13.9	\$228.7	6.1%
2007	\$15.3	\$211.9	7.2%
2008	\$15.1	\$242.4	6.2%
2009	\$19.0	\$368.0	5.2%
2010	\$23.8	\$376.9	6.3%
Average	\$16.6	\$272.6	6.1%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in South Dakota Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$7.81	\$6.88	\$9.60	\$8.02	\$11.39	\$13.05
Concrete Culverts	\$1.38	\$2.07	\$1.70	\$2.88	\$3.43	\$4.48
Concrete Pavement	\$1.06	\$0.08	\$0.78	\$0.29	\$0.35	\$1.73
Drainage Structures	\$0.12	\$0.16	\$0.29	\$0.01	\$0.41	\$0.01
Misc. Concrete	\$2.24	\$4.72	\$2.96	\$3.89	\$3.40	\$4.53
Total	\$12.62	\$13.92	\$15.32	\$15.09	\$18.98	\$23.79

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Vermont's Transportation Construction

Vermont currently has 3,842 miles of roadway in the Federal-aid Highway System, of which there is less than one percent concrete mileage. There are 2,715 bridges in the state, of which 32 percent or 877, contain primarily concrete. Approximately six percent of highway spending in Vermont is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The Vermont Agency of Transportation (VTrans) specifications dictate that contractors can replace Portland cement with class F, N, or C fly ash at a 20 percent rate.

How would a "hazardous building material" label affect your state?

Experts interviewed within VTrans were unavailable for comment on this matter.

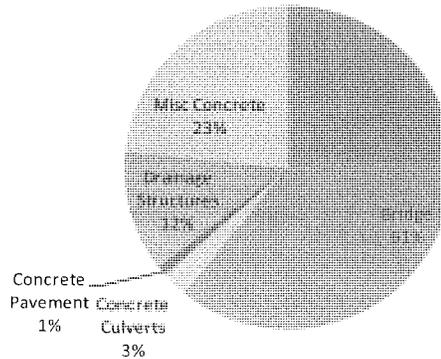
How prevalent is fly ash in your transportation projects?

VTrans does not track fly ash usage in its state, and were unable to provide any data on its usage.

What are your state's sources of fly ash?

VTrans was unable to identify any sources.

Average Vermont Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Vermont Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$9.4	\$96.8	9.7%
2006	\$7.1	\$75.1	9.4%
2007	\$6.8	\$120.8	5.6%
2008	\$6.9	\$109.0	6.3%
2009	\$9.0	\$198.8	4.5%
2010	\$4.7	\$148.6	3.2%
Average	\$7.3	\$124.8	5.8%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Vermont Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$7.96	\$3.99	\$2.38	\$4.90	\$5.51	\$2.24
Concrete Culverts	\$0.66	\$0.07	\$0.17	\$0.06	\$0.17	
Concrete Pavement	\$0.45					
Drainage Structures	\$0.15	\$0.17	\$3.68	\$0.25	\$0.76	\$0.35
Misc. Concrete	\$1.28	\$1.79	\$0.65	\$2.01	\$3.03	\$1.62
Total	\$10.50	\$6.02	\$6.89	\$7.22	\$9.47	\$4.21

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in West Virginia's Transportation Construction

West Virginia currently has 10,420 miles of roadway in the Federal-aid Highway System, of which five percent is concrete. There are 7,044 bridges in the state, of which 51 percent or 3,565, contain primarily concrete. Approximately 14 percent of highway spending in West Virginia is spent on concrete products each year, based on ARTBA analysis of bid tab data.



What are your state's fly ash specifications?

The West Virginia Department of Transportation (WVDOT) specifications dictate that contractors can replace Portland cement with fly ash with a replacement rate between 15 to 19 percent with class C and F fly ash.

How would a "hazardous building material" label affect your state?

Experts interviewed stated that it would be detrimental to WVDOT if fly ash was not used in projects. In many areas of West Virginia, it is more cost effective to use fly ash rather than any other alternative pozzolan. The use of fly ash is very widespread in the state, and it is used more commonly than any other type of concrete-strengthening mechanism.

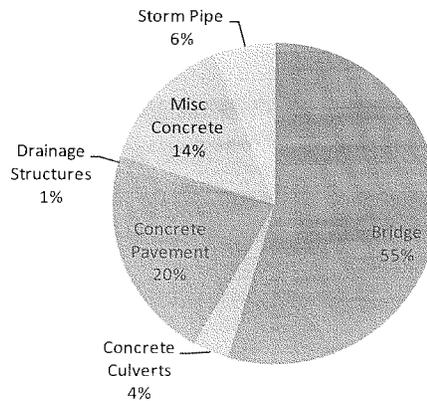
How prevalent is fly ash in your transportation projects?

According to experts interviewed, West Virginia uses a significant amount of fly ash in concrete. Fly ash is used extensively in projects state-wide.

What are your state's sources of fly ash?

A listing of the sources of fly ash can be found at <http://www.transportation.wv.gov/highways/mcst/Pages/707.4pozzolansources.aspx>

Average West Virginia Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

West Virginia Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$40.2	\$387.6	10.4%
2006	\$72.3	\$505.6	14.3%
2007	\$84.0	\$459.5	18.3%
2008	\$86.6	\$609.5	14.2%
2009	\$56.7	\$455.5	12.4%
2010	\$54.7	\$498.4	11.0%
Average	\$65.7	\$486.0	13.5%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in West Virginia Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$13.78	\$41.47	\$61.08	\$36.54	\$29.19	\$33.67
Concrete Culverts	\$0.68	\$0.53	\$2.47	\$8.26	\$0.30	\$2.04
Concrete Pavement	\$17.18	\$8.36	\$1.51	\$31.31	\$13.96	\$8.39
Drainage Structures	\$0.09	\$0.04	\$1.27	\$0.67	\$2.01	\$0.23
Misc. Concrete	\$7.72	\$15.67	\$1.09	\$9.64	\$12.50	\$8.57
Storm Pipe	\$0.73	\$6.26	\$16.55	\$0.17	\$0.73	\$0.03
Total	\$40.18	\$72.33	\$83.96	\$86.59	\$58.68	\$52.92

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

The Use of Fly Ash in Wyoming's Transportation Construction

Wyoming currently has 7,819 miles of roadway in the Federal-aid Highway System, of which four percent is concrete. There are 3,033 bridges in the state, of which 49 percent or 1,496, contain primarily concrete.

What are your state's fly ash specifications?

The Wyoming Department of Transportation (WYDOT) specifications dictate that contractors can replace Portland cement with fly ash with a replacement rate at a maximum of 20 percent on small concrete projects, and 20 to 25 percent replacement on larger-scale projects.

How would a "hazardous building material" label affect your state?

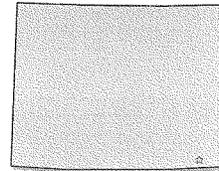
WYDOT experts interviewed felt the most detrimental part of fly ash restriction would be the potential loss of quality in concrete products. Several areas in Wyoming have aggregates that are highly reactive when exposed to the alkali in cement, causing the concrete to deteriorate quickly if the reaction is not mitigated. The chemical properties of fly ash in Wyoming's concrete provide excellent strengthening properties.

How prevalent is fly ash in your transportation projects?

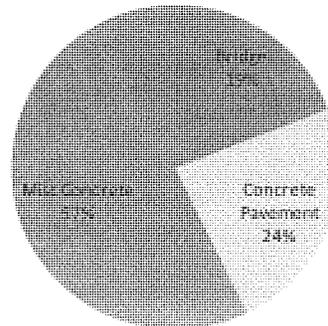
Fly ash is used extensively, state-wide throughout Wyoming.

What are your state's sources of fly ash?

The sources of fly ash for Wyoming include the Headwaters and Boral power plants.



Average Wisconsin Concrete Use by Type



Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Wyoming Annual Summary of Concrete Use in Bid Tabs (\$ Millions)

Year	Total Value of Concrete Materials	Value of Total Bids	Concrete Cost as % of Total Bids
2005	\$14.9	\$199.7	7.4%
2006	\$25.4	\$246.8	10.3%
2007	\$16.2	\$237.3	6.8%
2008	\$29.9	\$382.1	7.8%
2009	\$33.7	\$336.4	10.0%
2010	\$17.0	\$323.1	5.3%
Average	\$22.9	\$1,725.4	1.3%

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc.

Concrete Use by Type in Wyoming Bid Tabs (\$ Millions)

Category Name	2005	2006	2007	2008	2009	2010
Bridge	\$2.76	\$1.68	\$0.35	\$9.73	\$6.47	\$5.21
Concrete Pavement	\$1.65	\$0.53	\$5.67	\$6.88	\$16.56	\$0.97
Misc. Concrete	\$10.47	\$23.20	\$10.21	\$13.27	\$10.69	\$10.81
Total	\$14.88	\$25.42	\$16.23	\$29.88	\$33.71	\$16.99

Source: Analysis of state DOT bid tab data provided by Oman Systems Inc. Misc. Concrete category includes concrete used for curbs and barriers, sidewalks, lightposts, guardrail anchors and concrete used for making repairs.

Senator INHOFE. That is an excellent statement. Thank you, Mr. Gray.

I assume you think they made the right call on the determination of non-hazardous when they made that determination?

Mr. GRAY. Yes.

Senator INHOFE. You spent a lot of your time talking about transportation infrastructure. It could not be more timely here and now, because we are now marking up on the 24th, next week, the transportation reauthorization bill, a 6-year and very extensive bill.

I look at that and at the statement you just made. You already talked about the importance of coal ash in road and infrastructure projects. If you are talking right now about contracts starting to be let, could this be a problem if this changed and they were not able to use the coal ash as it is being used today? Could this affect people making determinations right now on contracts?

Mr. GRAY. It could. As we all know, coal ash is a substitute for cement in the manufacture of ready mix concrete. It is exempted under the current rules under Subtitle D.

However, the State DOTs have a certain amount of uncertainty right now in terms of the reliability of supply going forward and whether or not sufficient quantities of good quality coal ash will be available. They view it as a resource. Coal ash was used in the manufacture of concrete for many, many years prior to the environmental benefits being recognized.

Senator INHOFE. You also mentioned some of the discussions in the House would rectify that, would take out some of the uncertainty, correct?

Mr. GRAY. Yes.

Senator INHOFE. Tell us the challenges States are expecting to have? We are talking about October as a date. Is that going to be enough time? What kind of problems will there be because you are rushing into something that is unknown at this time?

Ms. DUNN. Under the final rule, States need kind of a work-around. Because the program cannot be delegated, they are asked to open up and amend their State's solid waste management plans, reference the final rule in the State's solid waste plans, and get those approved by EPA.

There is really no process in place for that. We are not sure how long it would take the agency to do that. We also do not know how long it would take States to actually go through the process of updating their State solid waste management plans.

If we follow the process in the rule, we are probably looking at a year to 18 months to get to final approval by EPA. That is why we believe a program that would allow things to be delegated to the States through a permitting program is a more effective use of probably the same amount of time.

It would take States about 18 months to put a new permitting program in place, but instead of having this kind of shaky foundation of an EPA approved State plan, which has no legal standing at all, you would have an actual delegated State implemented program which is much more sound.

Senator INHOFE. Mr. Kezar, under the current law, the EPA does not have the authority to approve State permitting programs for

coal ash disposal and the technical requirements in the EPA's rules are enforceable only through citizen suits.

Do you think this makes sense or would it be better for electric utilities and coops if Congress enacted legislation to address this? Is this addressed in what is being proposed in the House right now?

Mr. KEZAR. To answer your question, yes, it would be very desirable for the coops and the utilities to have that certainty. It is my understanding that is being addressed in the House bill.

The concern we have is, although as Alexandra said, States will submit their solid waste management plan to EPA for review and approval, that still does not allow the State to operate a permitting program in lieu of the Federal guidelines. It creates a situation where you have potentially duplicative and possibly conflicting oversight at the Federal and State levels.

We believe the program that exists under all other regulatory environmental schemes whereby the State submits a plan, EPA approves it and then the State implements that program in lieu of the Federal program, the EPA establishing the minimum requirements, is far preferable.

Senator INHOFE. Last, Mr. Gray, your organization does represent interests of the recycling industry. Tell me what would happen to the recycling industry in the event they change that from non-hazardous to hazardous?

Mr. GRAY. In order to have access to raise money for capital to invest in the projects to enhance and grow the recycling side of the business, we need certainty and we need the material to be labeled properly as a non-hazardous material.

For us, the key is being able to make long-term investments in order to get the assets, the processing equipment in order to make ash usable in concrete, and process that ash if necessary for these long term contracts and long term investments.

Senator INHOFE. We hear the term uncertainty quite a bit up here. This is one of the problems out there with a lot of the rules and regulations.

Senator Boxer.

Senator BOXER. I ask unanimous consent to place in the record a letter from 290 public interest groups led by the nurses who support the rule who oppose the House bill that a lot of you have mentioned.

Senator INHOFE. Without objection.

[The referenced information follows:]

April 14, 2015

The Honorable Fred Upton
Chairman
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

The Honorable Frank Pallone
Ranking Member
Committee on Energy and Commerce
2322A Rayburn House Office Building
Washington, DC 20515-6115

Re: Opposition to "H.R. 1734, Improving Coal Combustion Residuals Regulation Act of 2015"

Dear Chairman Upton and Ranking Member Pallone:

The undersigned 290 public interest groups, private and concerned citizens, and state legislators strongly oppose "H.R. 1734, the Improving Coal Combustion Residuals Regulation Act of 2015" which threatens health, safety and the environment while relieving owners of coal-fired power plants of their responsibility to safely dispose of toxic coal ash. This proposal greatly increases the potential for harm to communities in the United States and its territories by amending the Resource Conservation and Recovery Act (RCRA), to remove critical and long-awaited safeguards established by the U.S. Environmental Protection Agency (EPA) on December 19, 2014 in their final coal ash rule.

The EPA's first-ever coal ash rule was a compromise that went to great lengths to address the concerns of industry, recyclers and states by characterizing coal ash as non-hazardous, does not ban the continued operation of coal ash ponds, exempts the beneficial use of coal ash, and establishes generous timeframes for compliance and closure. Despite these generous concessions, the bill further guts the new EPA rule of public health protections and places American communities at increased risk of toxic exposure and catastrophic disasters in the following ways:

H.R. 1734, the "Improving Coal Combustion Residuals Regulation Act of 2015" will:

- **DELAY** many of the rule's new health and safety protections- potentially for more than 10 years;
- **WEAKEN** the rule's mandate to close inactive (contaminated and abandoned) ponds by extending the deadline for closure, allowing these legacy ponds to operate without safeguards for at least 6 years;
- **ELIMINATE** the rule's guarantee of public access to information and public participation;
- **ELIMINATE** the rule's ban on storing and dumping coal ash in drinking water;

- **REMOVE** the rule's national standard for drinking water protection and cleanup of coal ash-contaminated sites;
- **REMOVE** the rule's national minimum standard for protection of health and the environment and allow state programs to eliminate critical safety requirements;
- **PROHIBIT** effective federal oversight of state programs; and
- **PROHIBIT** EPA enforcement of state program requirements unless invited by a state.

In summary, we oppose H.R. 1734, the "Improving Coal Combustion Residuals Regulation Act of 2015" because it places the health of our communities and environment in great danger and fails to guarantee consistent nationwide protection. The proposal would particularly harm the nation's most vulnerable communities, since coal ash ponds are disproportionately located in communities of color and low-income neighborhoods. Relief from coal ash dumping is long overdue:

- Three major coal ash disasters have occurred since 2008 (including the largest toxic waste spill in our nation's history);
- U.S. utilities operate more than 300 high and significant-hazard earthen coal ash dams that can significantly harm communities and their environment if they fail;
- More than 200 coal ash sites have already contaminated water in 37 states, and
- Communities across the nation are threatened by toxic dust from coal ash dumpsites.

The EPA's 2014 coal ash rule will help provide immediate protection to our most vulnerable communities and our irreplaceable water resources. Congress must refrain from causing irreparable harm by denying and delaying such protection, and consequently we respectfully request that you oppose H.R. 1734, the "Improving Coal Combustion Residuals Regulation Act of 2015."

Respectfully submitted,

National

Alliance of Nurses for Healthy Environments
 American Rivers
 Center for Biological Diversity
 Clean Air Task Force
 Clean Water Action
 Defenders of Wildlife
 Earthjustice
 Environment America
 Environmental Integrity Project
 Friends of the Earth U.S.
 Greenpeace USA
 League of Conservation Voters
 National Association for the Advancement of Colored People
 National Environmental Law Center
 Natural Resources Defense Council (NRDC)
 Physicians for Social Responsibility (PSR)

Public Citizen
 Sierra Club
 WE ACT for Environmental Justice

State Legislators

Representative Lori Ehrlich, Massachusetts
 Senator Mike Woodard, North Carolina
 Senator Terry Van Duyn, North Carolina
 Senator Mike Woodard, North Carolina
 Minority Leader Larry Hall, North Carolina
 Representative Pricey Harrison, North Carolina
 Representative John Ager, North Carolina
 Representative Bobbie Richardson, North Carolina
 Representative Graig Meyer, North Carolina
 Representative Ralph Johnson, North Carolina
 Representative Brian Turner, North Carolina
 Representative Rick Glazier, North Carolina
 Representative Darren Jackson, North Carolina
 Representative Yvonne Holley, North Carolina
 Representative Robert Reives, North Carolina
 Representative Paul Luebke, North Carolina
 Representative Susan C. Fisher, North Carolina
 Representative Grier Martin, North Carolina
 Representative Becky Carney, North Carolina
 Representative Carla Cunningham, North Carolina
 Representative Cecil Brockman, North Carolina
 Representative Brad Salmon, North Carolina
 Representative Shelley Willingham, North Carolina
 Representative Duane Hall, North Carolina
 Representative Joe Sam Queen, North Carolina
 Representative Tricia Cotham, North Carolina
 Representative Howard Hunter III, North Carolina

Alaska

Alaska Community Action on Toxics
 Resurrection Bay Conservation Alliance

Alabama

Alabama Environmental Council
 Alabama Rivers Alliance
 Alabama Water Watch Association
 Black Warrior Riverkeeper
 Cahaba River Society
 Choctawhatchee Riverkeeper, Inc.
 Esther Calhoun, Black Belt Citizens Fighting for Health and Justice
 Flint River Conservation Association

Friends of the Locust Fork River
GASP (this is our name)
Private Citizen
Tennessee Riverkeeper
William Deutsch, PRIVATE CITIZEN
Cahaba Riverkeeper
Mobile Baykeeper

Arkansas

Copley H. Smoak, Private Citizen

Arizona

Barbara H. Warren, MD, MPH
Physicians for Social Responsibility, AZ Chapter
As You Sow

California

KyotoUSA
Label GMOs
Our Children's Earth Foundation
Julian Fisher, Private Citizen

Florida

Apalachicola Riverkeeper
Florida Wildlife Federation
Matanzas Riverkeeper
Physicians for Social Responsibility - Florida Chapter
St. Johns Riverkeeper
Suncoast Waterkeeper, Inc.

Georgia

Altamaha Riverkeeper
Fall-line Alliance for a Clean Environment (FACE)
GreenLaw
Interfaith Power and Light – Georgia

Illinois

Bill & Kay Ahaus
Canton Area Citizens for Environmental Issues, Canton Lake & its watershed
Carole Spencer
Chris Krusa
Citizens Against Longwall Mining
Citizens Against Ruining the Environment-C.A.R.E.
Committee on the Middle Fork Vermilion River
Cynthia McCormick
Diane Todd, private citizen

Eco-Justice Collaborative
 Environmental Law & Policy Center
 Faith in Place
 Faith in Place - Central Illinois
 Friends of Bell Smith Springs
 Rebecca Bierbaum, Illinois citizen
 Elizabeth, Scrafford, Impacted citizen
 Sara McGibany, Impacted Citizen
 Vanette McConahey, Impacted Citizen
 Barbara Fry, Impacted Citizen
 Jenica Hopkins
 John A. Slosar, Jr, Private Citizen
 Kevin Fahey, Private Citizen
 Metro East Green Alliance
 Piasa Palisades Group of the Sierra Club
 Prairie Rivers Network
 Cindy Phegley, Private Citizen
 David Beile, Private Citizen
 Carol L. Curtis, Private Citizen
 Ramona Cook
 Roger Glotfelty
 Sierra Club -Alton Chapter
 Sierra Club Piasa Palisades Group
 Sierra Club-Illinois Chapter
 Stand Up To Coal
 William Toole, Impacted citizen

Indiana

American Indian Movement of Kentucky and Indiana
 Banks of the Wabash
 Hoosier Environmental Council
 Indiana Forest Alliance
 Indiana National Association for the Advancement of Colored People - Environmental Climate Justice
 People in Need for Environmental Safety
 Samuel E. Flenner III, Private Citizen
 Save the Dunes
 Sustainable Earth
 Valley Watch, Inc.

Kentucky

American Indian Movement of Kentucky and Indiana
 Cumberland Chapter Sierra Club
 Kentuckians for the Commonwealth
 Kentucky Environmental Foundation
 KY Jobs with Justice

Wallace McMullen, US Citizen

Louisiana

Afchafalaya Basinkeeper
Gulf Coast Center for Law & Policy

Massachusetts

Clean Water Action Massachusetts
Conservation Law Foundation
Healthlink
Jan Schlichtmann, Private Citizen
Toxics Action Center Campaigns

Maryland

Henry S. Cole & Associates, Environmental Inc.
Rachel Carson Council

Michigan

Karol Walker, private citizen
Lone Tree Council

Missouri

Alan Ranford, Private Citizen
Amy Bonsall, Impacted Citizen
Anthony M. Ramspott, Impacted Citizen
Butch Drury, Private Citizen
Charles Tussey, Impacted Citizen
Christine Alt, Impacted Citizen
Corinne McAfee, Impacted Citizen
Darrell Wyatt, Private Citizen
Dave Greeley, Impacted Citizen
Earth Ethics of the Ethical Society of St. Louis
Elizabeth Schmidt, Impacted Citizen
Gail Greeley, Impacted Citizen
George and Rita Schuba, Impacted Citizen
Jan Brennan, Impacted Citizen
Jeffrey Owens, Private Citizen
Jon George, Impacted Citizen
Kate Holloway, Impacted Citizen
Labadie Environmental Organization
Mid-Missouri Peaceworks/Missourians for Safe Energy
Midwest Coalition for Responsible Investment
Missouri River Communities Network
Petra Haynes, Impacted Citizen
Polly Rutherford, Private Citizen
Pat McHugh, Private Citizen

Rita Wirts, Private Citizen
Ronald S. Holloway, Impacted Citizen
Ronald Wirts, Private Citizen
Sharon Poe, Impacted citizen
Sierra Club - Missouri Beyond Coal Campaign
Steve H. Johnson, Impacted Citizen
Steven Carrico, Impacted Citizen

Montana

Montana Environmental Information Center
Northern Plains Resource Council
Western Organization of Resource Councils

North Carolina

Appalachian Voices
Catawba Riverkeeper
Center for Community Action (CCA)
Clean Air Carolina
Clean Water for North Carolina
Climate Voices US
Colin P. Osborne, III, Private Citizen
David and Donna Scott, Private Citizens
Elizabeth Burton, Private Citizen
Environment North Carolina
French Broad Riverkeeper
Greenpeace - North Carolina Chapter
Greenpeace Charlotte
MountainTrue
NC Interfaith Power & Light
NC WARN
New River Conservancy
North Carolina Conservation Network
North Carolina League of Conservation Voters
Patricia Sellers, Impacted Citizen
Sandra Diaz, Private Citizen
Richard Fireman, MD, Impacted Citizen
River Guardian Foundation
Southern Alliance for Clean Energy
Southern Environmental Law Center
The Lumber River Conservancy
Verla Insko, Private Citizen
Walter H. Dodge Jr., Impacted citizen
Western North Carolina Chapter, Physicians for Social Responsibility
Yadkin Riverkeeper, Inc.

New Jersey

Raritan Riverkeeper

New Mexico

Amigos Bravos
Diné Citizens Against Ruining our Environment
New Energy Economy
New Mexico Environmental Law Center
Western Environmental Law Center
WildEarth Guardians

Nevada

Leland Swain, Private Citizen
Moapa Band of Paiutes

New York

Academy Heights Neighborhood
Allyson Kestler, Impacted Citizen
Cath Kestler, Impacted Citizen
Concerned Residents of Portland, NY + People Like Us (Crop Plus)
Diane Hofner, Impacted Citizen
Linda Warner, Private Citizen
Minda Rae Amiran, Private Citizen
Robert C Kestler, Impacted Citizen
Sarah Kestler, Impacted Citizen
The Educational Foundation of America
The Marable Group, LLC
Waterkeeper Alliance

Ohio

Christopher James Cuic, Impacted Citizen
Communities United for Responsible Energy
Concerned Citizens of Lake Township/Uniontown IEL Superfund Site
Concerned Citizens of Medina County
Leann Ramirez, Impacted Citizen
Mary Ellen Berger, Private Citizen
Ohio Citizen Action
Ohio Organizing Collaborative

Oregon

Southern Oregon Climate Action Now

Pennsylvania

Andrew Liebhold, Private Citizen
Center for Coalfield Justice
Citizens Coal Council
Clean Air Council

Delaware Riverkeeper Network
Gary Conniff, Impacted Citizen
George W. Hawes, RA, Impacted Citizen
Judith Rock, Private Citizen
Kathleen Ujhazy, Private Citizen
Kathy Gadinski LPT, Impacted Citizen
Mountain Watershed Association
PennEnvironment
Residents Against the Power Plant (RAPP)
Robert Gadinski, P.G., Impacted Citizen
Robert Schmetzer, Impacted Citizen
Sally Slotterback, Impacted Citizen
William D. Lockwood, Private Citizen

Puerto Rico

Comite Dialogo Ambiental, Inc.

South Carolina

Save Our Saluda
South Carolina Coastal Conservation League
Upstate Forever
Waccamaw Riverkeeper Program of Winyah Rivers Foundation
William D. Anderson, Jr., Private Citizen
Winyah Rivers Foundation

Tennessee

Axel C. Ringe, Private Citizen
Hunter Oppenheimer, Private Citizen
John Todd Waterman, Impacted Citizen
Dr. Cliff Cockerham, Private Citizen
Rocky Swingle, Impacted Citizen
Southern Alliance for Clean Energy
Tennessee Clean Water Network

Texas

Bastrop County Environmental Network

Utah

HEAL Utah
Utah Physicians for a Healthy Environment

Virginia

Concerned Citizens of Giles County
James River Association
Mary Jane Reyes, Private Citizen
Roanoke River Basin Association

Shenandoah Riverkeeper
Virginia Conservation Network

Wisconsin

Clean Wisconsin
Milwaukee Riverkeeper

West Virginia

Carrie Bodnar, Impacted Citizen
Debbie Havens, Impacted Citizen
Deedy L Hebrock, Private Citizen
John and Petra Wood, Private Citizens
Keith Bodnar, Impacted Citizen
Little Blue Regional Action Group (LBRAG)
Ohio Valley Environmental Coalition
WV Highlands Conservancy
Curtis Havens, Impacted Citizen

Wyoming

Powder River Basin Resource Council

Senator BOXER. Thank you.

Mr. Gray, you are absolutely right. In California, we really want to use this coal ash and we use it. What we do not want in our State is to see this, we do not want to see the ash stored in a way where it can explode and be like a landslide and have someone open their front door and this is what they see. I know you do not want it either. I know that.

The question is, how do we assure that this never happens? Duke Energy said they would do the right thing. They did not do the right thing. It is most unfortunate and now there is a criminal probe, am I right, Mr. Holleman?

Mr. HOLLEMAN. That is correct.

Senator BOXER. I do not want to see that. I would say, Mr. Kezar and Ms. Dunn, I do respect your view with the duplicative situation. I have asked my staff, this is really not that different from so many other laws where we do not have time to talk to you about it.

Whether it is the Clean Water Act or the Safe Drinking Water Act, there are minimum Federal standards. We love it if the State wants to go further. I would love to work with you. If you want to talk about permitting, I would be happy to work with you to make that fix if necessary.

Ms. Cave, in your testimony, you describe how the unlined coal ash ponds at the power plant in your community had been leaking arsenic into the groundwater and was a threat to the Waccamaw River which supplies drinking water to you and your neighbors. What was the reaction of your community when they found out the coal ash pond was leaking arsenic into your drinking water supply? Was the call for the power company to remove the coal ash ponds from the river bank supported by the entire community?

Ms. CAVE. To say the least, when we learned that the coal ash was leaking arsenic, there was great concern. I get my drinking water from the Waccamaw River. It was an education. As people became educated as to what was happening, they became first greatly concerned, and then angry. Why would the State-owned utility endanger its own customers? Why haven't they done anything and why didn't the State do anything to stop this?

Senator BOXER. I am going to interrupt you because of time. I am assuming you support the part of the rule that says there has to be public disclosure?

Ms. CAVE. Absolutely.

Senator BOXER. It is really important for the people who are supporting the House bill. They do not allow public disclosure. It is very complicated. That is something I would hope we could all agree on.

If my kid is living along a river and arsenic is in there or lead and can damage their brains, I would sure like to know.

Mr. Holleman, during the rulemaking process, EPA confirmed 157 cases where coal ash disposal has caused damage to peoples' health and the environment. EPA expects that additional damage cases will be identified in response to the installation of groundwater monitoring required under the rule.

You have looked at a lot of coal ash disposal sites. What does monitoring data at coal ash sites show regarding contamination?

Mr. HOLLEMAN. It shows shocking levels of contamination that the community becomes very concerned about once they learn about it. As Nancy pointed out, right in the center of Conway, right next to the city marina, the levels of arsenic in the groundwater have reached 300 times the legal limit.

In North Carolina, just recently, the State has begun testing all the drinking water wells around these coal ash sites. Over 90 percent of the people who have been using these wells for years have now been told to stop drinking their water.

Senator BOXER. I am going to stop you there. You believe as this monitoring continues, we are going to find more problems in these communities?

Mr. HOLLEMAN. Yes, and that is what we have seen over the last 4 years.

Senator BOXER. Any effort to stop that is a strike against our families, in my opinion. This is not about Democrats or Republicans. This is about our families.

My last question is to you, Ms. Dunn. As an adjunct law professor and an attorney, you have written and taught on the subject of environmental justice. In their comments to EPA on the proposed coal ash rule, environmental justice organizations noted that 70 percent of coal ash dumps are located in low income, disadvantaged communities.

Do you agree these communities deserve to know if coal ash ponds are leaking toxic substances into their drinking water? Do you think they have the right to know what is in their drinking water? Why would you support a House bill that really limits the right to know?

Ms. DUNN. We absolutely support transparency and are working very hard with EPA to look at data bases. I believe requirements in the rule would have Internet posting of this type of information.

Senator BOXER. The rule is fine. You say you support the law in the House.

Ms. DUNN. Generally.

Senator BOXER. You generally support. I hope you will go after the parts because you have lived your life fighting for environmental justice. People need to know.

Ms. DUNN. State regulators believe in transparency.

Senator BOXER. I am glad they do but this bill limits the right to know. That is outrageous. I do not care who you are or what side of the issue you are on.

Thank you.

Senator INHOFE. Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

Ms. Dunn, I certainly agree with you when you talk about the States being very diverse and very unique. Even within States, there is such diversity that I believe the best solutions are made at the local level, at the State level, because they understand that uniqueness within their own boundaries.

I also agree with your comment that this now puts States on the sidelines because the citizen suits are the only mechanism that is provided for enforcement of the rule.

Could you please go into more detail on the potential impact these suits would have for utilities, for agencies, but ultimately on American families. What is the impact there?

Ms. DUNN. I believe that we really need to think about how we are spending our resources. We heard from the witnesses that citizen groups can bring concerns of the community to regulatory agencies' attention. That is fully appropriate.

Then I think we need to think about what is the best way to resolve those concerns. State regulators have the ability to work collaboratively with industry, to work in a less collaborative way, a more enforcement-oriented way. But this rule takes that power sort of away and really puts it in the role of pure citizen suit, leaving the State expertise on monitoring, on gathering information on the science and on what type of technical requirements would make sense for that facility to add the protection the citizens want.

The State becomes a side player as opposed to a primary player. We believe if the States could take the technical requirements of EPA's rule as the minimum standards, as they often do in Federal programs that are delegated, add the State specific requirements that are more intense or stringent for the special State conditions, we can then have a very good, effective program.

States already have effective programs. Now what we have is an overlaying Federal program with the only enforcement in EPA's own words being by citizen suits. It is an odd structure.

Senator FISCHER. I think there would be more accountability and more transparency at the State level as well. When you have a government that is closer to the people and to be able to be on the ground and be available for citizens, I just think we would be able to have more accountability. Do you agree with that?

Ms. DUNN. I do, and we can always find the egregious cases, those who work in environment. There are always going to be those cases that surprise us, that show a lack of effectiveness of the existing regulatory system.

The majority of the facilities in the Country, there are over 200 of them in 33 States, are not having the catastrophic incidents we have heard a little bit about today. There will always be those that take us by surprise.

Senator FISCHER. We need to address those.

Ms. DUNN. We do need to address them. I do not think we are saying that we should not. It is a failure on all parts, Federal, State and the citizens to have those incidents occur. I do not think that means that States are incapable of effectively regulating these facilities well and at the ground level.

Senator FISCHER. Thank you.

Mr. Gray, you talked about recycling of coal ash. Can you explain the effects on the willingness of customers to use that coal ash in their products if we do not have certainty on how the EPA is going to classify it?

Mr. GRAY. Certainly customers that use ash are cognizant of whether people refer to it as hazardous or non-hazardous and the negative image that would come with using the hazardous.

We all know using fly ash in concrete is one of the best places you could put it, regardless of what label you place on it. That is the best place you can put fly ash because it improves the quality

of the concrete, it saves the customers and the citizens of the United States money because concrete is less expensive for everyone.

Senator FISCHER. Mr. Kezar, when you talk about the utility and the challenges you face there, when we are not seeing that certainty with the decision made by the EPA on if this is a hazardous or non-hazardous material, what is the economic impact of that? How is that going to impact utilities?

In Nebraska, we happen to be 100 percent public power. As citizens of the State, we are affected by the impact on the utility. We are also impacted as taxpayers and as citizens, as consumers. How are we going to make sure that utilities can have reliable and affordable electricity when there is so much uncertainty out there?

Mr. KEZAR. As public power, electric coops do not have a profit motive, so our concern is providing reliable and affordable power to our members, many of whom are below the poverty level or on fixed incomes. San Miguel entered into a partnership with Boral, one of the members Mr. Gray would represent, to install and at Boral's capital cost, facilities to classify ash to be used for beneficial road projects throughout the State. Boral made that investment based upon their understanding of the rules as they went forward.

The Texas Department of Transportation tested the ash based upon their understanding of the rules as they existed and entered into use of that ash on road projects. A change in classification would put a chill on both of those entities, I would think.

From a personal perspective, as the manager of a facility, I would feel very uncomfortable managing a product outside the facility that later would be determined to be hazardous. That would give me a great deal of concern. It would be a problem. The safer course, quite honestly, would be to dispose of it locally rather than beneficially reuse it.

Senator FISCHER. Of course the question is, what do you do with it? My time is up but that is the looming question out there. If we are not able to make good use of a non-hazardous product that is beneficial, what happens?

Thank you.

Senator INHOFE. Thank you, Senator Fischer. Senator Markey.

Senator MARKEY. Thank you, Mr. Chairman.

The lack of a uniform Federal standard requiring the safe disposal of coal ash has resulted in over 200 cases of water contamination in addition to major, major spills. For the first time, the EPA has issued a Federal rule that would govern the disposal of toxic coal ash, after a 5-year long, stakeholder process, EPA has issued a rule that would be put in place in October of this year. Although the EPA rule is not as robust as what I or many others would have liked, it does, for the first time, create a Federal standard to protect human health and environment.

Mr. Gray, you testified in support of the House bill that would give enforcement responsibility and authority over coal ash disposal to the States. Is it not true that under the House proposal, household waste could be regulated more stringently than coal ash in some or all States, since there is an existing Federal floor on how stringently household waste should be regulated, but the

House bill does not have a Federal floor for how stringently coal ash waste should be regulated? Is that not accurate?

Mr. GRAY. The House bill incorporates the EPA minimum standards and would basically establish the same sets of national guidelines for managing coal ash. Those standards would apply as a part of the House bill if it were passed.

Senator MARKEY. But there is no uniform enforcement, Mr. Gray.

Mr. GRAY. The bill we are supporting would give the enforcement to the States and would give EPA the right to step in, which is not there under Subtitle D as of today. It would give the EPA additional power to step in and take over if the States did not enforce. We feel the enforcement is sufficient.

Senator MARKEY. Mr. Holleman, do you agree with that?

Mr. HOLLEMAN. No, Senator, of course I do not agree with that.

Senator MARKEY. Make the case, Mr. Holleman.

Mr. HOLLEMAN. The whole point of the House bill from the industry viewpoint is to eliminate or weaken those national standards and leave it to the States who have in the past simply refused and failed to effectively enforce the law to the extent that one of the State agencies has been investigated by a Federal criminal grand jury.

As you say, the new rule does not go as far as it might have, but at least it puts in place some minimum national standards which we are familiar with in virtually every area of the economy. This would not be unique or anything different.

The States then are free to expand on it, as Senator Boxer said, and enforce their own rules that are in excess of these rules if they want to.

Senator MARKEY. A company in central Illinois used coal ash to fill a ravine for a decade ending in 2005. Runoff draining and leaching from the ash-filled ravine contaminated nearby drinking water wells with arsenic, chromium, lead and other toxic chemicals. Is it not true that there is nothing in the House bill that would prohibit disposal of coal ash directly into drinking water aquifers?

Mr. HOLLEMAN. Yes, it is my understanding in the last version of the House bill, prohibition in the EPA rule was taken out. In South Carolina, as Nancy Cave pointed out, we had one situation where the coal ash is 18 feet into the groundwater.

Senator MARKEY. For each witness, do any of you disagree that coal ash should be prohibited from being dumped into drinking water sources? Do any of you disagree with that? Let the record show that no one does disagree.

Ms. Dunn, your testimony states that the EPA rule will result in a duplicative program because States already have effective programs for managing coal ash residuals. However, EPA found in its 2015 regulatory impact analysis for this rule that 18 of the top 34 coal ash-generating States have none of the basic pollution control requirements for coal ash ponds contained in EPA's rule. Do you disagree with this EPA finding?

Ms. DUNN. I would assume that EPA's finding is accurate. We support the setting where States would fold the Federal standards into a State program. We are supporting the States upgrading their

existing programs. Some State programs exceed the technical requirements.

Senator MARKEY. Is it true that the State of Tennessee, home of the legendary breach of coal ash disposal pond that released 1.1 billion gallons of toxic coal ash sludge that literally buried more than 300 acres and filled nearby waterways, still does not regulate coal ash ponds?

Ms. DUNN. I am not able to talk exactly to the State of Tennessee's regulations but I would be happy to get back to you on those.

Senator MARKEY. Mr. Holleman, do they regulate, Tennessee?

Mr. HOLLEMAN. Tennessee did not put in place any new rules for its coal ash lagoons. In fact, we just have had a proceeding ourselves in Tennessee where, after we sent a 60-day notice on the Clean Water Act, the Tennessee agency had to admit that TVA is now and has been for years violating other Tennessee laws at Galatin, and the State agency has not done anything to stop it.

Senator MARKEY. In the town of Pines of northern Indiana, hundreds of thousands of tons of coal ash was used to landscape peoples' backyards. EPA found that the coal ash leached arsenic and other heavy metals into drinking water wells.

Mr. Holleman, if we eliminated EPA's rule, would States be required to ensure that coal ash could not be used to landscape peoples' backyards in ways that threaten drinking water?

Mr. HOLLEMAN. No, sir, that is another problem. As some of the witnesses have pointed out, it can be a good thing to use coal ash in concrete, but you do not want it scattered across the landscape in unlined fill.

That is what we have seen threatened around the Country and actually occur in places like the instance you point out. There is a golf course in Virginia where there was a catastrophe as well.

Senator MARKEY. Thank you.

Mr. Chairman, I thank you.

Senator INHOFE. Thank you, Senator Markey. Senator Capito.

Senator CAPITO. Thank you.

I thank the witnesses for being here. I thank the Chair and Ranking Member as well.

Mr. Kezar, if you are a rural electric utility, I am assuming you have sited or at least some of the members of the national have sited coal ash impoundments or lagoons or whatever before. That is the usual process for a coal-fired power plant, correct?

Mr. KEZAR. Depending on the type of facility, we do not have lagoons as they have been discussed today. We do not.

Senator CAPITO. But your other members would?

Mr. KEZAR. Other members would, yes.

Senator CAPITO. I would imagine that the intent of siting one of these lagoons is not to leach arsenic into drinking water. I do not think anybody has that as a goal or certainly as a result.

Mr. KEZAR. No, ma'am.

Senator CAPITO. Maybe I should direct this question to Ms. Dunn since she is overseeing and working with all the different State regulators. What other processes or other regulators would come into play?

I am from a coal State. We have coal ash lagoons, I am sure. I think there are 404 permits, the EPA, the DEP State regulator and the Corps of Engineers who are in on all this. Do all these other agencies interplay as you are looking to site a coal ash impoundment? Am I correct in assuming that?

Ms. DUNN. You are correct. There would be a lot of interaction between different agencies on siting a new facility. The EPA rule has now requirements for where those facilities can be sited that will make future sitings much more selective than they were in the past. That is part of the evolution of our environmental regulatory system. We will be making better decisions in the future.

Senator CAPITO. Based on the rule that was just moved forward?

Ms. DUNN. Yes.

Senator CAPITO. Would that change under the House bill, in your opinion?

Ms. DUNN. In our opinion, the House attempted to take the good technical work of the EPA rule and allow States to have it delegated to operate as a State program in lieu of the Federal program. As EPA's own fact sheet says, no matter what they can do under the existing law, they do not have the statutory authority to let the State program operate in lieu of the Federal program. We are going to have two programs.

You all work on a lot of environmental programs and that is something we generally try to avoid, overlapping and duplicative regulation, given the lack of resources at the Federal level and the State level.

Senator CAPITO. Mr. Gray, we go to all kinds of celebrations, so I was celebrating the 50 year birthday of a dam in West Virginia. I was really amazed to find many, many years ago it was constructed with coal ash. It is still very fortified and has the beneficial uses that I think we have all acknowledged, whether transportation, dams or new construction and those kinds of things.

If this were to move forward and coal ash could not be recycled, what would we do with the 50 percent of the coal ash that is recycled? Is that an accurate figure? What would we do? This would increase the size of these ponds and maybe could hazard more danger, I would imagine.

Mr. GRAY. Yes, if you are not utilizing it, you are going to be disposing of it, so it is going to end up in landfills, is where it will end up. The case that you cite of using ash in a dam, concrete that goes into dams needs to utilize coal ash because it gives it unique characteristics. It slows down the set of hydration as an example.

When you talk about mass pours in dams, a common structure, you actually need the value of the fly ash specifically for that purpose, to avoid cracking of the concrete. As we all know, cracks in dams are not good to have, so it has a unique performance additive for that reason. We would need that product going forward or we would have to manufacture some product to take its place. It is one of those cases where the byproduct actually serves an excellent performance method.

Senator CAPITO. Let me ask one final question, a chemistry sort of question. We have thermal coal, we have metallurgical coal. Is all fly ash created equal or are there more that maybe have arsenic properties or other properties? Do you know the answer to that?

Mr. GRAY. Any chemicals or trace elements that happen to be in the coal usually transition into the ash. In general, that is a true statement, so slightly different.

Senator CAPITO. It would be according to where the coal is coming from, is it lignite or something else that would have different characteristics?

Mr. GRAY. That is correct.

Senator CAPITO. Some more hazardous than others?

Mr. GRAY. Correct.

Senator CAPITO. Thank you.

Senator INHOFE. Thank you, Senator Capito. Senator Carper?

Senator CARPER. Welcome. I am a native of West Virginia who learned to fish at Bluestone Dam right on the New River.

One of the things I think is attractive about the regulation the EPA is proposing is they chose not to classify this substance as a toxic substance. Rather, the idea is to make it non-hazardous so that we can actually use it for recycling purposes. I co-chair with Senator Boozman the Senate Caucus on Recycling, so we are excited about the idea to continue being able to recycle whether it is dams in West Virginia or projects in other States.

I have a question for Mr. Holleman and Ms. Cave. Ms. Dunn mentioned in her testimony that States are "familiar with the devastating environmental property and human health impacts coal impoundment releases can cause. However, in the past decade we have seen devastating coal ash spills such as the Duke spill in North Carolina and the TVA spill in Kingston, Tennessee, partly because the States were not doing their part to protect public health."

I speak as a recovering Governor for the State of Delaware, a former chairman of the National Governors Association and have huge respect for the States, Governors and others.

How does the EPA regulation ensure States do the minimum to ensure that coal ash impoundments are safe? If this regulation were to be voluntary for States or removed altogether, how would that be different than before the final rule where we saw some of the devastating spills I alluded to?

Mr. HOLLEMAN. First of all, let me say about recycling, there is not one word in this EPA rule that prevents or hinders in any way the recycling of ash for concrete.

Senator CARPER. That is good.

Mr. HOLLEMAN. In all the cases we worked on, we have reached agreements that encourage, allow and foster that. That is a total red herring issue.

On the question you asked, I am from South Carolina. I understand the issue of States' rights. We once had an official name, States' Rights, in our State, so I understand that concept.

I also have to live in the real world of communities and people and neighborhoods of all types. The reality is that the State agencies are very reluctant and will not enforce the law we have seen by themselves against the most politically powerful and wealthy institutions in the State legislative capitals, which are these utility monopolies.

Senator CARPER. Hold it right there. Thank you, sir.

Ms. Cave.

Ms. CAVE. I think what is so important about the EPA rule for an organization like mine is the absolute necessity of information, because it is the people who must be able to make the decision as to what they want the utility to do with the coal ash that is sitting in lagoons.

I think information and protective action are important. South Carolina is in the process of trying to get rid of the law that allows the right of personal action. If we do not have that in EPA law, then we cannot get that coal ash out of the lagoons.

Senator CARPER. Thank you.

I have another question for Mr. Holleman and Ms. Cave, a brief answer as well. Do you feel that the EPA rule is a compromise between industry and the environment and health community?

Mr. HOLLEMAN. Yes, it is definitely a compromise. It did not have everything we wanted in it, but at least it gives every community, that does not have a nonprofit group fighting for them, some basic protection for their clean water in their community.

Senator CARPER. Thanks.

Ms. Cave.

Ms. CAVE. I would agree. I feel this final rule is something that must be maintained and not diminished. It is a tool which we can use to keep our citizens safe. I personally cannot trust my State to do that for us.

Senator CARPER. Thank you.

Ms. Dunn, in your testimony, you expressed concerns about coal ash being regulated as a non-hazardous substance under Subpart D of RCRA. Do you have the same concerns for other non-hazardous substances? Do States have trouble implementing Subpart D of RCRA as a whole? If not, why is coal ash different than other non-hazardous substances? Please be brief.

Ms. DUNN. Briefly, States are very capable of regulating non-hazardous wastes. They do so under many programs, so I do not think we have a problem managing the coal ash facilities. We are willing to step up to the plate; we are willing to raise our game to include these Federal requirements.

I think the most important thing is EPA's own statement where it says under RCRA as currently drafted, EPA has no formal role in implementation nor can it enforce the requirements. When have we heard a Federal agency put out a final rule that states in black and white that it cannot enforce or implement?

It is a creature of the statute right now. That is why we are before you hoping that we can reconcile the fact that EPA and the States are somewhat left ineffective because we made the non-hazardous determination which was the right determination.

Senator CARPER. Thank you.

We have another hearing going on in the Homeland Security Committee and I am bouncing back and forth, so I cannot stay for long. I very much appreciate your being here. This is an important issue. We appreciate your input.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator Carper.

Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Mr. Kezar, in South Dakota, we have one coal-fired plant, the Big Stone plant, that disposes of coal ash in South Dakota. For more than three decades, this plant and the State of South Dakota have responsibly managed the disposal of coal combustion residues by recycling most of it while disposing of some CCR in a dry tomb landfill.

However, EPA's rule establishes a minimum, one size fits all standard for the operation of coal ash disposal and management facilities. I am concerned this approach does not take into account the various factors involved in coal ash disposal at different facilities across the Country.

Do you have examples in your area or are you aware of examples of any of the standards that do not make sense for your coop compared to ones that might operate in other parts of the Country? By that, I mean does it make sense to require a composite liner for landfills in places like our area where compacted clay liners are the norm?

Mr. KEZAR. Yes, I do have some examples. By the way, I am a native South Dakotan, so I am familiar with the facility and disposal.

We have heard some discussion about coal ash being placed near drinking water aquifers. Just to look at the situation at San Miguel, we dispose of ash, ash that we cannot recycle. It is placed in pits within the adjacent surface mine.

The closest drinking water aquifer is over 2,000 feet below the surface of the land. We live in an area where the hydrology, the shallow aquifers are very saline and are not usable. That is a very different situation. The likelihood that ash is ever going to get into a drinking water aquifer is almost non-existent.

In addition, the native soil is high clay content. It has been tested by the State environmental quality agency and that native soil is actually less permeable than the requirements for a compacted clay liner.

As you mentioned, requiring a composite liner in that type of setting just would not make any sense. That is why we support the EPA setting minimum guidelines that the State then would implement in a permitting program.

The State has the technical expertise and the site specific knowledge to work on a permit that takes into account those different circumstances for the different areas where the permits are being granted.

Senator ROUNDS. I will followup with this. In the preamble to the final rule, the EPA says its approval of revised State solid waste management programs will signal the State program meet minimum Federal standards.

In South Dakota, the State has had a strong solid waste program in place for decades. Accordingly, the Big Stone coal plant complies with all of the State regulations for CCR disposal. I would express concern about the impact citizen suits could have on the States' ability to regulate coal ash disposal.

Under the EPA rule, if a facility is operating in accordance with the State program, will that protect it from citizen suits?

Mr. KEZAR. No, because under the rule, the State program will not be able to be implemented in lieu of Federal guidelines. The potential Ms. Dunn mentioned is still there.

Senator ROUNDS. Thank you.

Mr. Holleman, you testified about the importance of protecting the ability of citizens to file lawsuits to enforce EPA's coal ash rule. Does the bill currently under consideration in the House, H.R. 1734, contain a savings clause that incorporates the RCRA citizen suit provision without any change?

Mr. HOLLEMAN. That is true. The original proposal did not. We testified over there and they put that provision in. The way you got something like that is you reduce the standards that are to be enforced so that the right of enforcement does not have much meaning anymore.

You can still keep the right of enforcement, but if the standards are not meaningful to be enforced, then you have just played a legislative shell game. That is what we are concerned about. We want to have adequate minimum standards that the citizens can enforce if the bureaucrats do not. We want the combination of the two.

Senator ROUNDS. Would you care to comment?

Ms. DUNN. I think we may in some ways be talking past each other because we also agree there are some very good minimum standards in the Federal rule. We also agree there needs to be some flexibility that Congress can provide, and a little flexibility for the States to adapt and maybe change some of those liner requirements.

It could be perceived as a rollback but really it should be perceived as a site specific application of a national standard to the local conditions. We are not advocating taking away elements of EPA's rule in any way.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator Rounds. Senator Boozman?

Senator BOOZMAN. Thank you, Mr. Chairman.

I really just have a question for you, Mr. Kezar. Given the mission and customer base for rural co-ops and public power producers, tell me about the timeline. Do you think the timelines in the EPA rule are reasonable as far as being able to be met?

Mr. KEZAR. I think Ms. Dunn testified earlier that it is going to be very, very difficult. We will have to make our best guess, step out. We are already expending funds now in anticipation of what is going to be coming, but the timelines are very, very challenging.

Senator BOOZMAN. Can you comment also, Ms. Dunn? Because I think this is very important. It does not matter which side of the issue you are on, this is a practical thing that has great impact to reliable electricity.

Ms. DUNN. Absolutely, Senator. What States have to do right now is operate on two pathways, not knowing what will happen with the House and Senate. They are moving forward now to assess and opening up their State solid waste management plans, going through that process and investing the resources in that.

That whole process could play out over some time without legislative intervention. That same time and State energy could be

spent working to implement an actual delegable State program with EPA. That would be a better use of the time.

Senator BOOZMAN. Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator Boozman.

Without any further members here, we are adjourning this meeting. I appreciate very much all five of you. It has been very enlightening and educational for me and I certainly think for the rest of us also. Thank you so much.

[Whereupon, at 10:53 a.m., the committee was adjourned.]

[Additional material submitted for the record follows.]



*ASTSWMO, providing pathways to our
Nation's environmental stewardship since 1974*

July 1, 2015

The Honorable James Inhofe
Chairman
U.S. Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510-6175

The Honorable Barbara Boxer
Ranking Member
U.S. Senate Committee on Environment and Public Works
456 Dirksen Senate Office Building
Washington, D.C. 20510-6175

Re: June 17, 2015 Hearing, "Oversight of the Environmental Protection Agency's
Final Rule to Regulate Disposal of Coal Combustion Residuals from Electric
Utilities"

Dear Senators Inhofe and Boxer,

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) is submitting this letter for the record for the hearing held by the Senate Committee on Environment and Public Works on June 17, 2015 entitled, "Oversight of the Environmental Protection Agency's Final Rule to Regulate Disposal of Coal Combustion Residuals from Electric Utilities".

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 program experts with individual responsibility for the regulation and management of solid and hazardous wastes.

We appreciate the Committee's examination of implementation of the final Coal Combustion Residuals (CCR) rule issued by the U.S. Environmental Protection Agency (EPA). ASTSWMO is in full agreement with EPA's issuance of the final rule under Subtitle D of the Resource Conservation and Recovery Act (RCRA). We appreciate the Agency's work in

developing minimum federal requirements for CCR landfills and surface impoundments, and providing a mechanism within the confines of its RCRA Subtitle D Part 257 authority for implementation of the rule by the States. However, we do have concerns with certain aspects of the final rule, which echo those expressed by the Environmental Council of the States (ECOS) in their testimony before the Committee on June 17.

ASTSWMO's concerns relate to the self-implementing construct of the rule. As EPA explains in the rule's preamble, due to its existing statutory authority under RCRA to establish federal minimum criteria for coal combustion residuals, EPA has issued the rule under 40 CFR Part 257, which is self-implementing. As further noted in the preamble, self-implementing means that owners/operators of facilities can comply with the federal minimum criteria "without the need to interact with a regulatory authority". In this way, EPA's authority under Part 257 is unlike the RCRA statutory basis for the 40 CFR Part 258 Criteria governing municipal solid waste landfills, which includes a requirement for States to develop and implement a permit program to incorporate the federal criteria, and for EPA to determine whether those permit programs are adequate to ensure compliance with the criteria.

ASTSWMO's concerns with the EPA final rule can be summed up as follows:

- The rule's self-implementing requirements will set up the situation of a dual State and federal regulatory regime, in which the owner or operator of a CCR disposal facility would need to fully comply with the self-implementing national minimum standards and existing State requirements, even if the State requirements meet or exceed the national minimums.

In our comments to EPA on the 2010 proposed CCR rule, ASTSWMO recommended that a final rule under Part 257 include explicit language that EPA views compliance with a State program that meets or exceeds the federal minimum criteria as compliance with the federal criteria. In the final rule, EPA identified the State Solid Waste Management Plan (SWMP) as the mechanism to deal with the issue of dual State and federal regulatory authority.

- The SWMP does not fully eliminate dual implementation of CCR regulatory programs, because even after EPA review and approval of the State plans, as stated in the preamble of the final rule, "EPA approval of a State SWMP does not mean that the state program operates 'in lieu of' the federal program." Thus, the plans would not fully alleviate dual implementation of State and federal standards.
- The ability of States to establish regionally appropriate standards, as allowed under RCRA Subtitle D Part 258 for municipal solid waste landfills, is constrained by the rule's self-implementing requirements.

- The rule does not include a requirement for financial assurance. Financial assurance is an important component in State waste programs, and ASTSWMO supported the inclusion of financial assurance as a key program element in a final EPA CCR rule under Subtitle D.

Since our concerns with the final EPA rule stem from the constraints of EPA's statutory authority, ASTSWMO encourages the Committee to consider legislation similar to the House bill, H.R. 1734, to facilitate State implementation of the rule. Overall, ASTSWMO believes that legislation such as H.R. 1734 has successfully captured the essential parts of the EPA rule that are germane to the protection of the environment and public health, and has modified or added those areas that improve upon the rule. Legislation similar to the House bill would address our main concerns regarding EPA's final rule in the following ways:

1. First, it would eliminate dual State and federal regulatory authority by giving States the authority to adopt and implement a CCR permit program.
 - a. Many States already have successful CCR permit programs. For States that choose to adopt and implement the permit program, it assures State primacy through the single permit program provision that is enforceable by the State. If a State does not choose to adopt a CCR permit program, then EPA would have authority to adopt, implement and enforce a CCR permit program in that State. There would thus be a clear and consistent understanding of State and federal implementation and enforcement roles. This clarity will serve to enhance the effective implementation of the final EPA rule.
 - b. In addition, a certification process similar to that under H.R.1734 could allow for expedited State implementation of the EPA rule's technical requirements, by allowing immediate implementation by States that already have EPA approved Subtitle D municipal solid waste landfill permit programs or authorized Subtitle C programs. Most States have long-established, through the Subtitle D Part 258 and Subtitle C approval and implementation processes, their capabilities to implement effective and protective waste management programs similar to the CCR program. States with such existing approvals that submit certifications to EPA at the outset would not need EPA pre-approval of their CCR permit program to begin implementation.
2. Second, such legislation would eliminate the ambiguity and uncertainty of the use of the SWMP as the implementation mechanism by directly giving States the authority or, in the case of States that do not choose to adopt the rule, EPA the authority to implement a CCR permit program.

ASTSWMO Letter re: June 17, 2015 Senate EPW Committee Hearing on the EPA CCR Rule
Page 4 of 4

- a. In the preamble, EPA states that a facility that operates in accordance with an approved SWMP will be able to beneficially use that fact in a citizen suit brought to enforce the federal criteria. This is subjective and speculative as no one with absolute certainty can predict a court decision. Further, citizen suits filed in different jurisdictions could result in individual courts interpreting the plan and rule differently, thus rendering different decisions that lead to inconsistent implementation of the rule.
3. Third, it would allow, through the establishment of a State permit program for CCR, flexibility for States to have regionally appropriate standards that would allow modification of certain requirements based on site-specific, risk-based factors with State regulatory oversight. States are not looking to this flexibility in order to undermine the safeguards built into the rule. Rather, this flexibility is critical to the successful implementation of the rule due to the wide variety of climatic, geographical and geological conditions present across the nation. The provision for regionally appropriate standards would mirror the same flexibility that is already available in the Part 258 municipal solid waste landfill regulations that States have been implementing successfully for decades.
4. Fourth, such legislation would provide for financial assurance, including financial assurance for post-closure care of inactive surface impoundments to ensure long term compliance with environmental and public health requirements.

In conclusion, we believe that legislation similar to H.R. 1734 would address problematic State implementation issues with the final EPA rule and produce a viable, workable and protective result in managing CCR.

Thank you for your consideration of our views. If you have any questions, please contact me at 202-640-1061.

Sincerely,



Dania E. Rodriguez
Executive Director, ASTSWMO



COLORADO
 Department of Public
 Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

July 1, 2015

Honorable Michael F. Bennet
 261 Russell Senate Office Building
 Washington, DC 20510
 c/o Brian Appel, Legislative Director
brian_appel@bennet.senate.gov

Honorable Cory Gardner
 354 Russell Senate Office Building
 Washington, DC 20510
 c/o Curtis Swager, Legislative Director
curtis_swager@gardner.senate.gov

Dear Senator Bennet and Senator Gardner:

The Colorado Department of Public Health and Environment supports congressional efforts to address problematic regulatory confusion created by the Final Rule for the Disposal of Coal Combustion Residuals from Electric Utilities, issued by the Environmental Protection Agency (EPA) in December 2014. As you know, coal combustion residuals (CCRs) are the byproducts of electricity generation from coal sources. EPA's final rule would regulate CCRs as a non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA). Colorado applauds EPA's decision to regulate CCRs as non-hazardous solid waste under RCRA Subtitle D. We also support EPA's decision not to regulate the beneficial reuse of CCRs.

Unfortunately, EPA's final rule produces an unintended regulatory consequence in that it creates a dual federal and state regulatory system. This is because EPA is not allowed under RCRA Subtitle D to delegate the CCR program to states in lieu of the federal program. Also, the rule does not require facilities to obtain permits, does not require states to adopt and implement new rules, and cannot be enforced by EPA. The rule's only compliance mechanism is for a state or citizen group to bring a citizen suit in federal district court under RCRA section 7002. This approach marginalizes the role of state regulation, oversight and enforcement.

Colorado has an effective regulatory infrastructure in place to operate as the principal regulatory authority over CCR. Furthermore, we can ensure protection of human health and the environment through the safe and secure management of CCRs under our state solid waste management authority. Legislation such as H.R. 1734 recognizes that states are in the best position to implement EPA's rule for CCR regulation and reinforces the appropriate role of states in regulation, oversight and enforcement. We strongly encourage the Senate to draft legislation utilizing an approach that accomplishes the goals of H.R. 1734.

Thank you for your consideration.

Sincerely,

Larry Wolk, MD, MSPH
 Executive Director and Chief Medical Officer

cc: Honorable James Inhofe, Washington, DC
 Honorable Barbara Boxer, Washington, DC





Pete Ricketts
Governor

STATE OF NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Jim Macy

Director

Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: <http://deq.ne.gov>

July 10, 2015

The Honorable Deb Fischer
U.S. Senate Committee on Environment & Public Works
383 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Fischer,

I am writing you to convey Nebraska's support for Congressional action to improve the management of Coal Combustion Residuals (CCR). As you know, coal combustion residuals (CCRs) are the byproducts of electricity generation from coal sources. The U.S. Environmental Protection Agency (EPA) finalized rules regulating coal combustion residuals as non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA) in December, 2014. I support this approach in lieu of regulation as a hazardous waste; however the construct of the rule is rigid and takes a "one size fits all" approach. It does not recognize Nebraska's unique physical characteristics or allow the state's tailored regulatory approach.

Nebraska has developed its own regulatory approach to disposal area liner design, construction, operating procedures, groundwater monitoring, post closure care and financial assurance requirements, and corrective action in the event of a release of contaminants to groundwater. These regulations are protective of the environment and allow flexibility to tailor requirements to specific facilities based upon the variation of hydrogeology and geography found across the state. I don't believe the prescriptive EPA regulatory approach is in the best interest of Nebraska.

Another concern with the EPA regulation is the manner in which it is implemented and enforced. Under the current statutory construction of the Resource Conservation and Recovery Act (RCRA), the EPA regulation is a self-implementing rule overseen by the regulated parties and interested citizens. The rule's only compliance mechanism is for a state or citizen group to bring a citizen suit in federal district court. This approach marginalizes the role of state regulation, oversight and enforcement. Nebraska overlies the largest aquifer in the nation. We have a significant stakeholder interest in setting Nebraska standards to protect the aquifer as well as restore it in the event of contamination from a disposal area. Nebraska should have the lead role in regulating these facilities.

Thank you for considering Nebraska's position and your support on this important issue. Please feel free to contact me if you should have questions.

Sincerely,

Jim Macy
Director



June 15, 2015

The Honorable James Inhofe
Chairman
Committee on Environment & Public Works
United States Senate
Washington, DC 20510

The Honorable Barbara Boxer
Ranking Member
Committee on Environment & Public Works
United States Senate
Washington, DC 20510

Dear Chairman Inhofe and Ranking Member Boxer:

Thank you for holding today's hearing, "Oversight of the Environmental Protection Agency's Final Rule to Regulate Disposal of Coal Combustion Residuals from Electric Utilities." As the nation's biggest recyclers of coal combustion residuals (CCRs), the below signed organizations involved in the production of concrete have a distinct interest in ensuring the continued beneficial use of this valuable material.

CCRs - one of which is known as fly ash - are a vital component for improving the durability of concrete structures. Fly ash in concrete mixtures improves compressive strengths and reduces permeability, resulting in longer lasting roads, bridges and buildings. These structures enhance the standard of living around the world by providing sustainable and resilient platforms for shelter, transportation, and economic growth.

For decades fly ash use has been on the rise. The cement and concrete industry currently recycle more than 17 million tons annually. This is good for the environment and its use has important economic benefits: recycling this material keeps it from being diverted to landfills, and the Environmental Protection Agency (EPA) estimates direct and indirect impacts to be as much as

\$23 billion. Indeed, according to a 2010 study, the value of fly ash in transportation projects alone has been estimated to save state DOT's \$2.5 billion per year¹.

In late 2014, EPA decided to regulate CCRs under the flexible solid waste provisions of the Resource Conservation and Recovery Act (RCRA). While we support this decision, we are concerned that the agency's action may be vulnerable to legal challenges and future revisions. In fact, despite former EPA Administrator Carol Browner's "Final Determination" that CCRs did not warrant management as a hazardous waste, the Agency now concedes that it may revisit the issue. This would unnecessarily put the continued recycling of this important material in jeopardy.

In June, a bipartisan group of House lawmakers is expected to consider H.R. 1734, the "Improving Coal Combustion Residuals Regulation Act of 2015," codifying EPA's solid waste classification. We encourage the Senate Committee on Environment & Public Works to consider similarly styled legislation. Memorializing EPA's decision into law would help ensure this important material continues to be used in a way that that is both good for the environment and the economy.

Sincerely,

American Coal Ash Association

American Concrete Pipe Association

American Concrete Pumping Association

American Society of Concrete Contractors

Concrete Foundations Association

Concrete Reinforcing Steel Institute

Interlocking Concrete Pavement Institute

National Precast Concrete Association

National Ready Mixed Concrete Association

Portland Cement Association

Tilt-Up Concrete Association

¹ "The Economic Impacts of Prohibiting Coal Fly Ash Use in Transportation Infrastructure Construction," the American Road and Transportation Builders Association, September 2011.



Pamela J. Williams
 Senior Vice President
 of Corporate Services
 (843) 761-7043
 fax: (843) 761-7037
pjwillia@santeecooper.com

June 29, 2015

The Honorable Jim Inhofe
 Chairman, Senate Committee on Environment and Public Works Committee
 410 Dirksen Senate Office Building
 Washington, DC 20510-6175

Re: Hearing on Oversight of the EPA's Final Rule to Regulate Disposal of CCR's from Electric Utilities June 17, 2015, Senate Committee on Environment and Public Works

Dear Chairman Inhofe:

On June 17, 2015, your committee heard testimony related to Santee Cooper's environmental commitment. In response, I would like to offer this letter for the record in order to share relevant information related to Santee Cooper's strong record of environmental stewardship.

Santee Cooper, South Carolina's state-owned electric and water utility, has long been a leader in installing emissions-control technology on our generating stations, beneficially reusing coal combustion residuals, generating electricity from renewable resources and promoting energy efficiency through rebates and other customer-focused programs.

Santee Cooper's vision for and innovation in recycling coal combustion residuals is second to none. We began recycling coal ash in the early 1980s, and we have recycled millions of tons of ash and gypsum over the years. In good economic years when the construction market is strong, we've recycled more than 90 percent of our fly ash.

Until recently, ash customers could only work with dry fly ash, but as Santee Cooper announced plans to close some stations in 2012 we began working with these customers on new processes and technologies that, I'm proud to say, are now making the recycling of wet pond ash economically viable too. Santee Cooper announced a new program in 2013 to excavate for beneficial use the ash in ponds at three generating stations, an initiative that has been held up nationally as a model to follow.

Our CCR recycling emphasis has also attracted construction of two South Carolina manufacturing facilities, a wallboard manufacturer that uses our gypsum and an ash processing plant that just built a new facility in Georgetown that utilizes patented technology to process our dry and wet ash together for reuse in a number of markets. The capital investment and jobs at these facilities means our decades-old CCR recycling program is not only environmentally beneficial but also an economic win.

Even before we launched our ash recycling, Santee Cooper installed South Carolina's first scrubber on a generating unit. Today, our three fossil stations are fully equipped with comprehensive emissions control technology.

The Honorable Jim Inhofe
June 29, 2015
Page 2

Santee Cooper was also the first utility in South Carolina to generate electricity from renewable resources and provide it to our customers. We opened our first Santee Cooper Green Power generating station in September 2001. Located at the Horry County (SC) landfill, the station converted naturally occurring methane gas at that landfill into a fuel to generate electricity, and in the process providing the added benefit of removing an extremely potent greenhouse gas from the atmosphere. Santee Cooper now provides Green Power at six landfill gas generating stations across the state, as well as more than two dozen demonstration solar installations across the state and South Carolina's largest solar farm, in Walterboro. We also contract with biomass producers for additional renewable electricity across the state. We maintain the state's largest portfolio of renewable generation, and it all comes from South Carolina resources.

Meanwhile, Santee Cooper is aggressively promoting energy efficiency to our customers, through rebates and incentives directed and residential and commercial customers alike. We set a goal in 2007 to provide 40 percent of our customers' energy needs by 2020 through non-greenhouse gas emitting resources, biomass, conservation and energy efficiency, and we are on track to achieve that goal. Along the way, our efforts have earned several state recycling and renewable awards, most recently being named South Carolina's Solar Utility of the Year in 2013.

In summary, Santee Cooper has demonstrated time and again our proactive and innovative approaches to protect the environment, as part of our mission to be the state's leading resource for improving the lives of all South Carolinians. Our record speaks for itself.

Thank you for the opportunity to provide these comments.

Sincerely,



Pamela J. Williams

PJW:alh



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

July 1, 2015

The Honorable James M. Inhofe
Chairman, U.S. Senate Committee on Environment & Public Works
Dirksen Senate Office Building 456
Washington, DC 20002

The Honorable Barbara Boxer
Ranking Member, U.S. Senate Committee on Environment & Public Works
Dirksen Senate Office Building 456
Washington, DC 20002

Dear Chairman Inhofe and Senator Boxer:

Re: Support for Congressional action to
improve the management of Coal
Combustion Residuals (CCR)

Indiana believes that the U.S. Congress has an opportunity to improve protection of human health and the environment by passing federal legislation concerning the management of coal combustion residuals (CCR). Indiana recommends that any final action by the Congress should consider an approach that accomplishes the goals of the House of Representatives bill on this subject.

Indiana supports the U.S. Environmental Protection Agency's (EPA's) regulation of coal combustion residuals (CCR) as non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA). Indiana also supports the final rule's recognition that states are in the best position to regulate CCR units. We further believe that provisions of the final rule would be enhanced, clarified, and made more permanent through federal legislation. I have personally represented the Environmental Council of the States (ECOS) in testimony to the House in support of CCR legislation.

The main advantage that federal legislation could provide is to allow the states to have an effective and meaningful role in monitoring and conducting any required enforcement related to improper management of CCR. As a result of the current statutory construction in the Resource Conservation and Recovery Act (RCRA), U.S. EPA's correct determination that coal ash is not a hazardous waste has resulted in a self-implementing rule overseen by the regulated parties and interested citizens. The

only enforcement mechanism is through the citizen suit provisions of RCRA. The various states, including Indiana, have well developed administrative enforcement processes that are much faster and more efficient in addressing the violations of environmental regulations than the federal court process. By passing a law that accomplishes the goals of the House bill on this subject, Congress can give the states a meaningful role in protecting the citizens of the United States from the issues associated with the improper management of CCR.

Thank you for considering Indiana's position on this important issue. If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Easterly', with a long horizontal flourish extending to the right.

Thomas W. Easterly
Commissioner

cc: Dan Coats, Indiana United States Senator
Joe Donnelly, Indiana United States Senator

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711



July 3, 2015

The Honorable James M. Inhofe
Chairman, US Senate Committee on Environment and Public Works
205 Russell Senate Office Building
Washington, D.C. 20510-3603

The Honorable Barbara Boxer
Ranking Member, US Senate Committee on Environment and Public Works
112 Hart Senate Office Building
Washington, D.C. 20510

Dear Chairman Inhofe and Senator Boxer:

The Wisconsin Department of Natural Resources (WDNR) is aware of the December 2014 U.S. Environmental Protection Agency's (EPA's) coal combustion residuals (CCRs) rule. While the WDNR supports the EPA's scientifically based determination that CCRs should be regulated as non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA) and the technical specifications contained within the rule, the WDNR has concerns with the self-implementing federal program [defined in EPA's final CCR rule under Subtitle D Part 257 of RCRA], which is largely duplicative of the state's program.

The State of Wisconsin has an effective program to manage CCRs. The WDNR would support federal legislative efforts to retain the technical specifications of EPA's CCR rule, but allow States to enforce their own rules, subject to EPA approval. The WDNR feels that amending RCRA to delegate oversight of CCRs to states with effective programs will allow states, as well as EPA, to more effectively regulate CCR facilities.

If you have questions regarding EPA's CCR rule and/or Wisconsin's CCR regulatory program, please contact the WDNR's Waste and Materials Management Program Director, Ann Coakley, at 608-516-2492.

Sincerely,

A handwritten signature in cursive script that reads 'Ann Coakley'.

Ann Coakley, Director
Bureau of Waste and Materials Management

cc: Honorable Tammy Baldwin
Honorable Ron Johnson