ARIPPA Meeting with The Office of Management and Budget Meeting November 12, 2009

Regarding USEPA Proposal to Regulate Coal Combustion Byproducts under SubTitle C of RCRA

CONCERNS

- If COAL COMBUSTION BYPRODUCTS are regulated as hazardous waste under Subtitle C, then it will have a devastating impact on Pennsylvania's Waste Coal Plants.
- If CCBs are classified as a hazardous waste and by some chance EPA were to allow the use of CCBs in mine land reclamation, the stigma of a hazardous waste classification for CCBs will seriously impact the potential to obtain authorizations to utilize the CCBs in mine land reclamation
- The Waste Coal Power Plants have burned over 150 million tons of waste coal and utilized the CCBs in reclaiming over 4500 acres of mine land. What is the Permittee's exposures if CCBs are regulated as a hazardous waste?
- The leaching characteristics of the CCBs would result in the CCBs not being classified as a hazardous waste under EPA regulations.
- Assuming one could locate a Subtitle C disposal site, the cost of disposal of the CCBs will ***most likely exceed the revenues of the plant***
- With the cost of disposal of CCBs under Subtitle C costing more than the plant revenues, there will a loss of direct and indirect jobs.
- The regulating of CCBs under Subtitle C will cause concerns to the banks and the bond holders.

Concerns Continued

- Under Pennsylvania's Alternative Energy Portfolio Standards, Pennsylvania recognized Waste Coal as TIER II Alternative Energy as part of the program.
- If CCBs are regulated under Subtitle C of RCRA, the Waste Coal Plants would not be economically viable.
- The loss of this generation impacts Pennsylvania's Alternative Energy Portfolio Standards thus creating a compliance problem.

Pennsylvania's Abandoned Coal Mining Legacy

- Unreclaimed Abandoned Mine Lands
- Mine Drainage
- Erosion and Sediment
- Mine Fires and Refuse Fires
- Abandoned Structures

Unreclaimed Abandoned Mine Lands

Mine Drainage

Erosion

Burning Coal Refuse Pile

Extinguishing a gob pile fire. This 2002 photo is from the Brier Ridge burning gob pile in Dillonvale, Ohio

Refuse Fires – Red Dog

Abandoned Structures

Unreclaimed, Erosion and Sedimentation Problems, Mine Drainage, Past Burning, Abandoned Coal Refuse Site

(A Source of Waste Coal)

Abandoned Mine Land Problem

- Pennsylvania's Abandoned Coal Mining's Environmental Legacy Has A Remediation Cost of Greater Than **$16 Billion.**
- The Federal AML Program will provide approximately **$1.5 Billion**.
- Pennsylvania looks to alternatives that will help it address this problem.
- Pennsylvania's Waste Coal Power Industry had played a major role in addressing this problem.
- A critical element is the utilization of CCBs from Circulating Fluidized Bed Facility as an integral part of this effort.

Pennsylvania's Waste Coal Industry

Background and Overview

Public Utilities Regulatory Policies Act of 1978

- Provides Incentives that lead to the Development of Cogeneration and Small Power Production Facilities through Non Utility Generation Companies
  - For Pennsylvania (West Virginia, Utah, and Montana), these plants were developing burning waste coal

Pennsylvania –West Virginia Waste Coal Industry

- There are 16 Waste Coal Plants that are fueled by waste coal (Anthracite culm and Bituminous refuse)
- The waste coal varies in Btus from 3500 to 7500 Btus/lb and ash content in the 35% to 60%
- The waste coal is burned in a Circulating Fluidized Bed Combustor and co-fired with limestone.
- There is a significant amount of Coal Combustion Byproducts produced which are returned to the mine site as part as Pennsylvania's Remining Program

Pennsylvania-West Virginia Waste Coal Industry Continued

- The Electrical Output from these facilities varies from 30 MW to 521 MW.
- The Total Direct Employees is approximately 1,160 and Total Indirect Employees is approximately 3,575.
- Many have fixed price Power Purchase Agreements.
- For some, the PPAs have expired or well be expiring in the near future and others in 10 to 15 years.

Waste Coal Industry

- The Waste Coal Industry has integrated its fuel and ash management programs to produce power from waste and to reclaim mine lands utilizing the ash in an environmentally safe and sound manner.
- The State Mining and Environmental Regulatory Program recognized and approved of this approach provided that the physical, chemical, and leaching characteristics of the CCBs met certain criteria.

Pennsylvania's Integrated

Remining and CCB Management Program

Beneficial Use of Coal Combustion Byproducts

- Act 186 was signed into Law in December of 1986.
- The Act define "coal ash", amended the definition of solid waste to exclude coal ash, and provide the Department authority to allow for the beneficial use of coal ash, and allowed the establishment of criteria, including chemical, physical, and leaching characteristics of the ash.
- The Department promulgated regulations under its solid waste regulatory program.
- If the regulatory requirements for beneficial use of ash in mine land reclamation were met, then the ash could be managed under the State's Regulatory Program for coal mining.

NOTE

- Pennsylvania has been delegated primary jurisdiction of the regulatory program for coal mining. THUS, PERMITS ISSUED UNDER THE FEDERALLY APPROVED COAL MINING PROGRAM ARE ***FEDERALLY ENFORCEABLE***.

Pennsylvania's Program Summary

- Two Step Program
  - Step 1 insuring that the characteristics of the CCBs are amenable to mine land reclamation
    - IF the CCBs meet the existing regulatory requirements allows for the use of the CCBs in mine land reclamation.
  - Step 2 insures that the placement of the CCBs, as part of the Mining and Reclamation Program Approvals.
    - The use of CCBs in mine land reclamation are tied to the Federal Surface Mining and Reclamation Act of 1977 and thus are Federally Enforceable.

EPA's Coal Remining BMP Guidance Manual*

EPA's Water Quality Effluent Guideline Branch in developing its "Coal Remining BMP Guidance Manual" recognizes the value of burning waste coal and allowing the Coal Combustion Byproducts to be utilized as part of the abatement program and for alkaline addition. They acknowledge that you need to have an understanding of the leaching characteristics of the CCBs.

**Coal Remining Best Management Practices Guidance Manual*
United States Environmental Protection Agency – Office of Water -
EPA-821-B-01-010 – December, 2001

CCB Leaching Analysis

- The CCBs are leached to determine the potential impact and to be compared with different standards as to how the CCBs are managed.
- The three basic regulatory standards that the leaching analysis are compared to are:
  - Hazardous Waste
  - Residual Waste
  - Beneficial Use Criteria

Comparisons

- The typical leaching analysis of CCBs are less than the leachate characteristics that would result in the CCBs being classified as Hazardous Waste under the Hazardous Waste Definition and Criteria
- There is a percentage of CCBs that would be regulated as a residual waste.
- Interestingly, CCBs from CFBs (burning waste coal) produce a leachate that would qualify the material for beneficial use in mine land reclamation and for structural fills.
- Thus, CCBs should not be regulated under Subtitle C of RCRA and further the use of CCBs in mine land reclamation should be supported.

A Comparison of Numbers

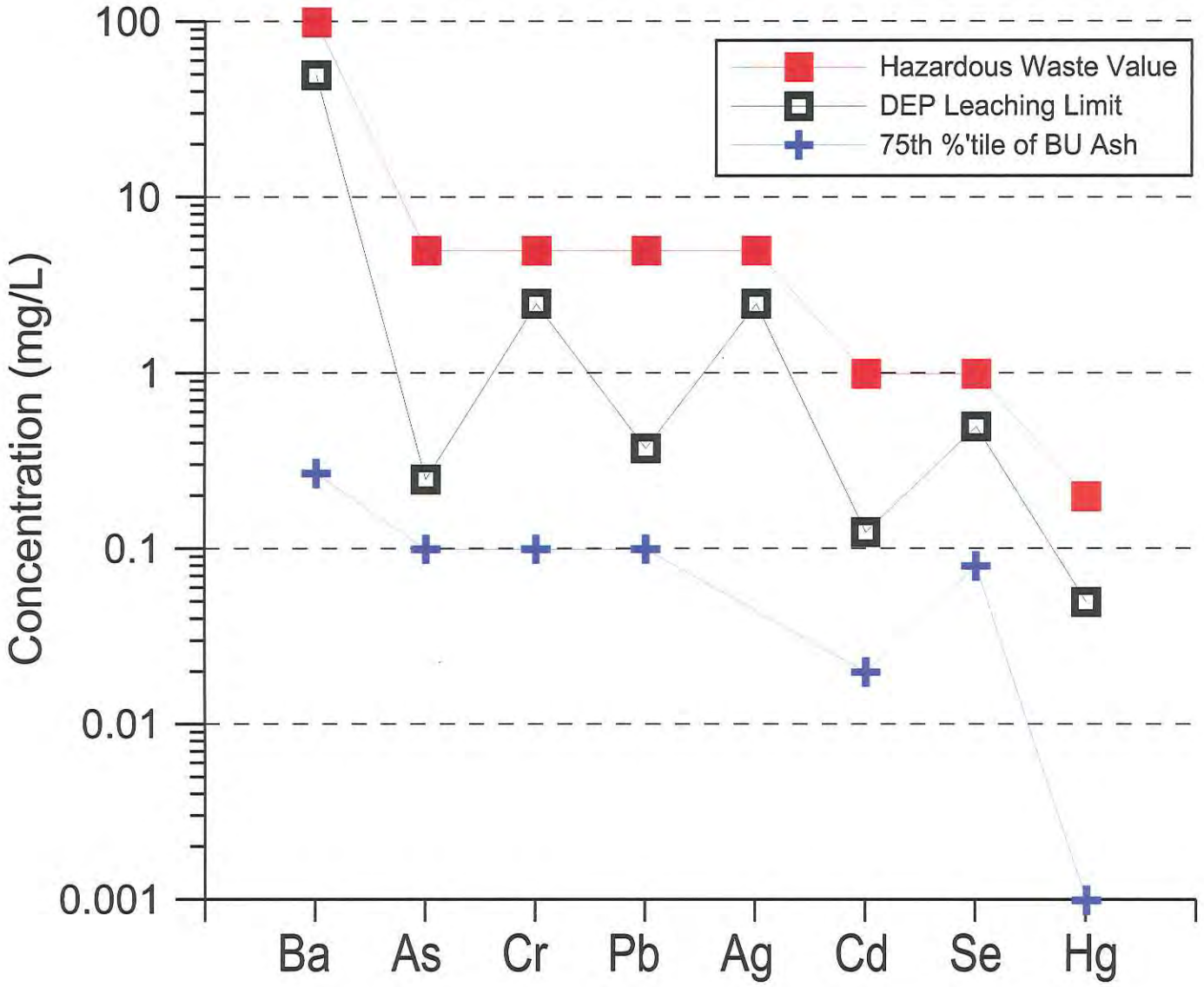
Parameter	Hazardous	DEP	75th Percentile		
	TCLP	SPLP	PC	A-FB	B-FB
Arsenic	5.0	0.25	0.10	0.05	0.05
Barium	100	50	0.25	0.26	0.27
Cadmium	1.0	0.125	0.005	0.02	0.02
Chromium	5.0	2.5	0.08	0.10	0.08
Lead	5.0	0.375	0.05	0.1	0.1
Mercury	0.2	0.05	0.0002	0.0004	0.001
Selenium	1.0	0.5	0.08	0.05	0.06
Silver	5.0	2.5	not enough data yet		

*DEP SPLP Standards are for Beneficial Use of CCBs

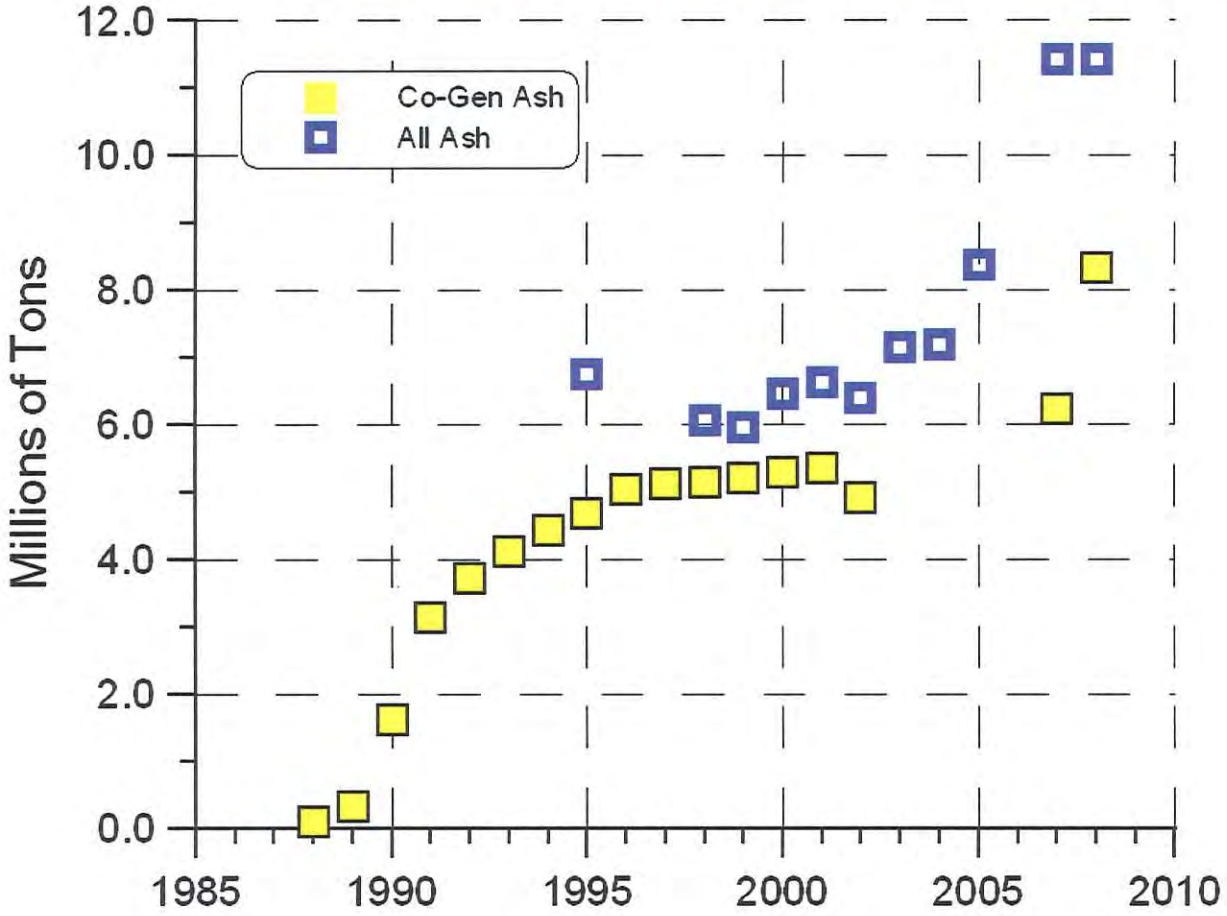
Units are mg/L

Is Beneficially Used Ash Toxic? The answer is NO.

Coal ash is more than an order of magnitude less than "toxic" values



CCBs from Waste Coal (aka Co-Gen Ash)



Mine Land Reclamation

Examples

COLVER REFUSE SITE

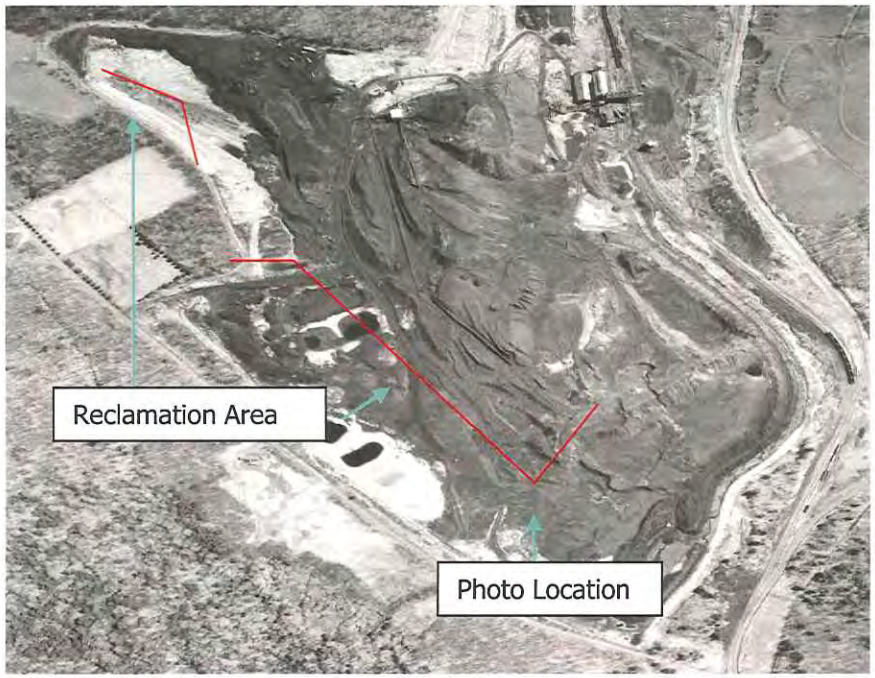
Barr and Blacklick Townships, Cambria County

Permit #11900201 – Maple Coal Company

Receiving Stream: Elk Creek to North Branch of Blacklick Creek to Blacklick Creek to Conemaugh River to Kiskiminetas River to Allegheny River to Ohio River

27.8 Acres reclaimed 2,091,092 clean tons removed thru 2/28/07

APRIL 10, 1987



DURING RECLAMATION

BAKERTON SITE
West Carroll Township, Cambria County
Permit #11950201 – Ridge Energy Company
Receiving Stream: West Branch of Susquehanna River to Susquehanna River to Chesapeake Bay
14.2 Acres 130,856 tons removed (1996 – 1998)

BEFORE RECLAMATION

AFTER RECLAMATION

SOUTH FORK SITE

Adams Township and South Fork Borough, Cambria County

Permit #11960102 – Dunamis Resources, Inc.

Receiving Stream: Unnamed Tributary to South Fork of the Little Conemaugh River to Conemaugh River to Kiskiminetas River to Allegheny River to Ohio River

12 Acres 32,924 tons removed

BEFORE RECLAMATION

AFTER RECLAMATION

ST. MICHAEL SITE

Adams Township, Cambria County

Permit #11940201 – Senate Coal Mines, Inc.

Receiving Stream: Unnamed Tributary to South Fork of the Conemaugh River to Little Conemaugh River to Conemaugh River to Kiskiminetas River to Allegheny River to Ohio River

26 Acres reclaimed 211,079 tons removed

BEFORE RECLAMATION

AFTER RECLAMATION

ERNEST SITE

Rayne Township, Indiana County

Amerikohl Mining, Inc.

GFCC 32-00-04

32.2 Acres reclaimed 711,736 clean tons removed

BEFORE RECLAMATION

AFTER RECLAMATION

REVLOC REFUSE SITES

Cambria Township, Cambria County

Permit Nos. 11960202 & 11880201

Ebensburg Power Company

86.3 Acres are being reclaimed

Over 3,500,000 tons removed since May of 1989

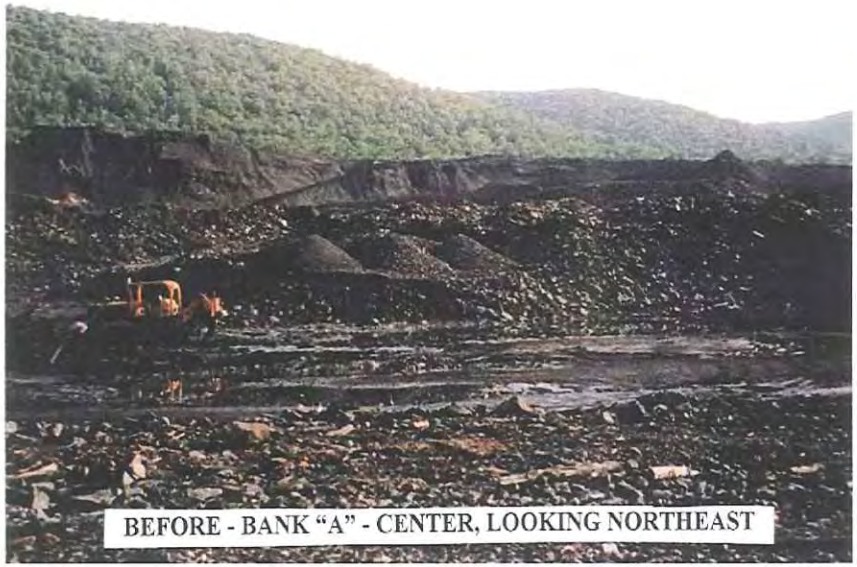
BEFORE RECLAMATION

AFTER RECLAMATION

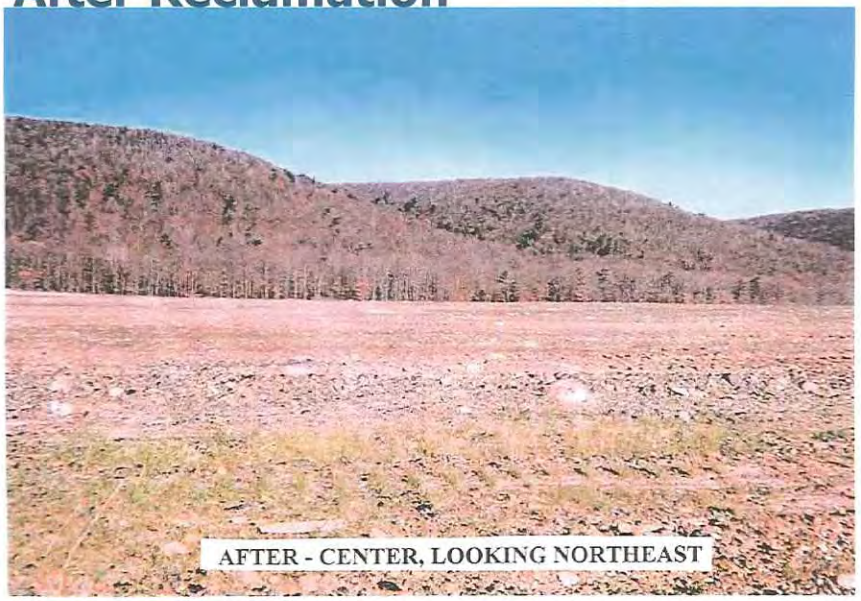
Revloc Reclaimed

Panther Creek

Before Reclamation



After Reclamation



Reclaiming Leechburg

1994/1995

LPI - LEECHBURG PROPERTIES, INC.
Reclaimed

Water Quality Improvement

Reclaimed Affected Areas

pH increases, LPI ranging between 4.5 to 6.5 pH, CPI increased to 5.95 pH

High concentrations of metals drops

Heavy siltation from site is stopped

Additional Conclusions and Recommendations

- Management of CCBs under Subtitle C is unnecessary, inappropriate and cost prohibitive. CCBs do **not** exhibit the characteristics of Subtitle C hazardous waste.
- Even if mine fills are excluded from the proposed regulation, it is doubtful that mine filling and other beneficial uses will remain viable options, if there is a classification of CCBs under Subtitle C of RCRA.
- EPA should go back and do what was recommended in the Clinton Administration –PROMULGATE REGULATIONS TO MANAGE CCBs UNDER SUBTITLE D OF RCRA.
- EPA can structure a Subtitle D rule that will allow a federally enforceable permit program as well as improve CCB management nationwide.

Conclusions

- If an EPA proposal to regulate CCBs under Subtitle C is implemented, the economic impacts on the waste coal industry and surrounding communities could be significant; including:
  - Loss of up to 4,700 direct and indirect jobs.
  - Loss of no-cost remediation of abandoned coal mine sites, with a reclamation value of up to $15 billion.
  - Losses sustained by lenders and investors in waste coal power plants
  - Loss of more than 2,000 MW of cost-effective generating capacity
- OMB needs to address all of these economic losses in it's evaluation of EPA's proposed CCB regulations

Summary – Other Items

- Data from leachate tests conclusively show that CCBs should not be classified as Hazardous Waste under Subtitle C but should be regulated under Subtitle D of RCRA.
- If the Waste Coal Plants have to meet the criteria established under Subtitle C, the costs to comply by the Waste Coal Plants will be cost prohibitive as revenues from the power sales will be less than the cost of CCB management.
- The Waste Coal Plants were Non-Recourse Financed utilizing Tax Exempt Bonds that would impact the bondholders, if these plants can not operate economically.

Summary

- EPA had proposed to regulate CCBs under Subtitle D of RCRA.
- EPA did ***not*** propose or finalize this regulatory program as they had reported to Congress.
- There was no concept of Federally enforceable permit presented in EPA's Report to Congress.
- National Academy of Science recommended federally enforceable permits for the placement of CCBs in coal mining operations and suggested that this could be accomplished by OSM proposing and implementing a regulatory program to cover the management of CCBs in coal mines.
- EPA has a multitude of options to enforce permits related to managing CCBs in their "TOOL-BOX" that they can use without creating a serious problem relating to managing and reuse of CCBs. Once, the specter of Subtitle C is out, Pandora'sBox is opened and will not be able to be closed!

Summary Continued

- EPA could describe certain types of CCB handling systems as problematic and look to address these practices under other Environmental Statutes and Regulations (i.e., sluicing or wet handling of CCBs under the NPDES Program and Safe Drinking Water Act)
- EPA/ACOE can address the dam issues under the Federal Clean Water Act and through its Emergency Response Programs
- Dam Issues can be further control via MSHA and OSHA as well as other Federal Programs

Summary Continued

- As EPA attempts to address costs related to the Utility Sector, it has not fully examined the cost implications across the board by the other Sectors.
- Further, EPA's "Cost to the Public" considers only the cost impacts on electricity used and paid for by the Citizen directly. This "Cost to the Public" is not analyzed in the sense of increased Taxes, Tuitions, and Cost of Health Care based on increased costs of electricity and energy associated with
  - **Government and Governmental Services (Local, County, State, and Federal)**
  - **Education (Public and Private)**
  - **Healthcare (Public and Private)**

Summary Continued

- EPA appears to focusing on the "utility sector" but there is a large number of facilities that produce CCBs that will be impacted by regulating CCBs under Subtitle C of RCRA:
  - Government (Local, County, State and Federal)
  - Industrial Sector
  - Educational Sector
    - Public and Private Schools –Grades K-12
    - Public and Private Schools of Higher Education
  - Health Care
    - Hospitals – Public and Private – Including Federal VA System

Addition Impacts

- Corporate Liability Insurance will increase significantly
- Bond ratings will drop impacting the project economics
- Environmental Insurances will increase

Other Impacts

- Transportation Costs Increase
  - Hauler must be certified and have specialized equipment to transport the CCBs
  - Equipment must meet certain criteria to prevent spills
  - Insurance Policy for Hauling Hazardous Waste are Increased

IMPACT OF A Subtitle C RCRA Classification

- The stigma of a Subtitle C Classification will impact ones ability to permit sites for the management of CCBs
- A Subtitle C Classification for CCBs triggers the sitting criteria related to permitting a Hazardous Waste Site.
- For Pennsylvania, you can not locate a Hazardous Waste Landfill over areas where deep mining has occurred. (Deep Mines under the site exclude the site from being permitted in Pennsylvania.)
- The primary source of waste coal and their locations are related to underground coal mines.
- Thus, there is limited areas where a site can be located and permitted.

Impacts

- Assuming 92% Capacity and an average revenue of $50/MWh, the impacts are:

	Output	Revenues	Managed	Managed	Managed
		Ave	As Mine Fill	Sub D Landfill	Sub C Landfill
	MW	$50/MWh	$3.45/MWh	$30/MWh	$108.24/MWh
All	97 MW	$39,087,120	$2,607,011	$23,452,272	$84,615,797
ARIPPA	66 MW	$26,595,360	$1,835,080	$15,957,216	$57,573,635

Cost of CCB Management

- Cost of CCB Management is based on the following:
  - Used Beneficially in mine land reclamation - $3.45/MWh
  - Managed in a Subtitle D lined Landfill - $30/MWh
  - Managed in a Subtitle C lined Landfill - $108.24/MWh

Pennsylvania Waste Coal Generation

- Waste Coal Plants have a range of 30 MW to 521 MW.
- The average of all waste coal plants is 97 MW.

- The ARIPPA Plants have a range of 30 MW to 102 MW.
- The Average ARIPPA Plant is 66 MW

Pennsylvania Waste Coal CCB Production

- The Waste Coal Plants CCB Production average generation pending on plant size varies between 261,100 Tons to 2,642,139 Tons per year.
- ARIPPA Waste Coal Plants CCB Production varries between 261,100 Tons to 1,248,345 Tons Per Year

Impact of Subtitle C Classification on CCB Management

- The projected costs regarding CCB management is tied to being allowed to utilized CCBs in mine land reclamation vs SubTitle D RCRA Landfill vs SubTitle C RCRA Landifll

Reclamation Cost Savings

- DEP's contracts to regrade, provide cover and revegatate coal refuse disposal sites has been in the $30,000 to $50,000 range (average of $40,000 per acre). (This cost did not address abatement or amelioration of mine drainage.)
- The Waste Coal Plants have reclaimed 4,500 acres. Based on an average reclamation rate of $40,000 per acre equates to $180,000,000 in reclamation.
- If the mine drainage remediation is included, the value of the reclamation is increased by several $100 million.

Northampton – Huber Site

Before Reclamation

After Reclamation

Water Quality Improvement

Reclaimed Affected Areas

pH increases, LPI ranging between 4.5 to 6.5 pH, CPI increased to 5.95 pH

High concentrations of metals drops

Heavy siltation from site is stopped