Virginia City Hybrid Energy Center
Response to Data Request
Bruce Buckheit, Member, Virginia Air Pollution Control Board

Question (Page No. 7):

A better environmental argument might be made where coal waste and gob have not been well managed in the past and are causing a specifically identifiable problem in the community. Blending limited amounts of such materials might be appropriate depending on the overall emission performance of the control devices. If there are specific locations where coal waste and gob might be causing an environmental harm that is significantly greater for the waste piles generally, a specific exclusion for such wastes might be appropriate. Please identify any such locations and estimate the quantities involved as well as any relevant time frames when cleanup of those specific locations might occur. Again, if there is no readily available data, simply report that fact.

Response:

Dominion has already performed emissions analyses based on the blending of waste coal with ROM coal to a specific design value. Unregulated waste coal piles (those generated prior to August 1977) are prevalent throughout southwest Virginia. These piles leach HAP-containing sediments, dissolved solids and acids into the adjacent watersheds. Miles of streams and rivers throughout the coal mining areas of the Appalachian Mountains have been and continue to be adversely impacted by abandoned waste coal piles. These abandoned waste piles also pose a threat of catching fire and burning uncontrolled.

Dominion contacted the Virginia Department of Mines, Minerals and Energy's (DMME) expert on waste coal, Richard Davis, as well as John Meehan, the waste coal pile reclamation coordinator for the Commonwealth of Pennsylvania to gain a better understanding of unregulated waste coal piles and their impact on the environment. Both Mr. Davis and Mr. Meehan describe unregulated waste coal piles as a major ongoing environmental problem. Mr. Meehan stated that Pennsylvania officials have called waste coal an environmental disaster in that state. Both Mr. Davis and Mr. Meehan said that in no case is it a better idea to leave an abandoned waste coal pile in place than remove it. From a DMME report (Attachment 1), "DMME has long held that the best reclamation for gob piles is complete removal down to natural ground." In addition, the report discusses the potential fire hazard from abandoned waste coal piles:

> Gob pile fires result in serious impacts to local air quality and pose the threat of igniting forest fires. The national abandoned mine land inventory denotes such problems as surface burning, and defines this as any AML-related continuous combustion of mine waste material resulting in smoke, haze, heat, or venting of hazardous gases located within close distance to a

> populated area, public road, or other public use area and posing a danger to the public. Coal refuse material normally ignites when people burn trash or debris on gob material. The combustion can result in smoke, haze, heat, or venting of hazardous gases that can pose a danger to people or animals in the area.
>
> Extinguishing gob pile fires is both tremendously difficult and expensive. It also poses a significant risk to the construction workers involved in the reclamation. In addition to high temperatures and gases, there may be unknown voids resulting from combustion in the pile. It is far more cost effective and environmentally beneficial to totally reclaim gob piles before they might ever be ignited.
>
> DMME personnel have also contacted the Virginia Department of Forestry (DOF) to understand their experience with gob pile fires. A DOF forester stated, "Once these things catch on fire they are a problem for years." Gob pile fires can ignite forest fires, endangering public health and property.

Dominion contracted Appalachian Technical Services (ATS) out of Wise County, Virginia to compile a list of known abandoned waste coal piles within a 50 mile radius of St. Paul, Virginia. ATS developed a map of the 158 known waste coal piles (in Virginia) within 50 miles of St. Paul (Attachment 2). These piles cover almost 640 acres. According to Mr. Davis, there are far more abandoned coal piles in the region that have not been catalogued. He estimates upwards of 400 abandoned piles total. These 400 piles do not include the permitted waste coal sites which would double or triple the total acreage. There is no question from persons knowledgeable about waste coal that with few exceptions, abandoned waste coal piles have caused and will continue to cause adverse environmental impacts. Both DMME (Attachment 1) and ATS (Attachment 3) prepared reports assessing the environmental harm and potential environmental harm caused by waste coal piles. Also included is testimony (Attachment 4) on Waste Coal Incentives from Kathleen McGinty the Secretary of the Pennsylvania Department of Environmental Protection before the Senate Environmental Resources and Energy Committee on September 8, 2004 as well as several slides from Reliant Seward in Pennsylvania touting the facility's ability to consume waste coal (Attachment 5).

It is not possible at this time to speculate as to when the cleanup of these piles may take place or how long it might take. However, if there was a power generating facility in the region capable of consuming waste coal, the potential to remove these hazards in a relatively inexpensive manner at a much accelerated pace would greatly increase.

ATTACHME T 1

Virginia Department of Mines, Minerals and Energy's Experiences with Abandoned Coal Mine Land Gob Piles

By

Richard Davis
April 18, 2008

The Virginia Department of Mines, Minerals and Energy (DMME) has a unique perspective on gob piles in the Virginia coalfields. Having been involved in the reclamation of numerous piles and having maintained Virginia's inventory of abandoned mine lands, DMME's statements on gob piles are authoritative and factually based.

Mining operations conducted prior to the Surface Mining Control and Reclamation Act of 1977 (SMCRA) resulted in hundreds of coal waste or gob piles. Although the actual derivation of the word "gob" is unknown, there is one reference to "gob" being an acronym for garbage of bituminous. The piles consist of waste rock associated with the coal seams along with coal that was unmarketable at the time of mining. Many of the piles are situated along streams, and some streams actually run through piles.

Beginning in the late 1970s and continuing through the early 1980s, the Virginia Department of Conservation and Economic Development, (later DMME), conducted an inventory of abandoned coal mine lands in Virginia. The focus of the inventory was identifying abandoned mine land features that impacted human health and safety and general welfare. Very large gob piles adjacent to houses often were designated as dangerous piles and embankments. Other piles only impacting the environment were designated simply as gob. DMME's inventory estimates there are over 400 identified gob piles in southwest Virginia, although there are many additional piles that were not inventoried.

DMME's reclamation of gob piles has routinely been to grade the pile to a stable configuration, provide drainage control, cover with soil, and revegetate. Even though this is a simplistic reclamation outline, such methods are very expensive. DMME's most expensive reclamation projects have been to reclaim gob piles. Even with establishing a vegetative cover on the surface, the pile and its inherent problems still remain. There are potential problems with instability and ground and surface water contamination. There is also a potential for combustion of the pile.

DMME has long held that the best reclamation for gob piles is complete removal down to natural ground. Along with this is placement of unmarketable material in a permitted refuse disposal site. This eliminates potential problems with stability and combustion, and ensures that water quality will not be impacted. Through total removal, DMME can implement the establishment of a forest of native hardwood trees.

DMME acknowledges that some gob piles consist of non-toxic material that allows natural establishment of plant cover and initiation of ecological succession. However, our program's experience has proven that piles with a vegetative cover are still subject to combustion through spontaneous means or through human actions. Long-term stability is also a concern with such naturally vegetated piles.

Gob pile fires result in serious impacts to local air quality and pose the threat of igniting forest fires. The national abandoned mine land inventory denotes such problems as surface burning, and defines this as any AML-related continuous combustion of mine waste material resulting in smoke, haze, heat, or venting of hazardous gases located

within close distance to a populated area, public road, or other public use area and posing a danger to the public. Coal refuse material normally ignites when people burn trash or debris on gob material. The combustion can result in smoke, haze, heat, or venting of hazardous gases that can pose a danger to people or animals in the area.

Extinguishing gob pile fires is both tremendously difficult and expensive. It also poses a significant risk to the construction workers involved in the reclamation. In addition to high temperatures and gases, there may be unknown voids resulting from combustion in the pile. It is far more cost effective and environmentally beneficial to totally reclaim gob piles before they might ever be ignited.

DMME personnel have also contacted the Virginia Department of Forestry (DOF) to understand their experience with gob pile fires. A DOF forester stated, "Once these things catch on fire they are a problem for years." Gob pile fires can ignite forest fires, endangering public health and property.

A note from a DMME environmental document is attached to explain our concern with surface burning of gob piles:

- Virginia's AML program has expended 1.75 million to abate surface burning (SB) features. DMME has accomplished much of this reclamation as emergency projects or extreme danger situations. DMME personnel have learned in over 30 years of experience that cover does not completely eliminate the possibility of surface burning. One example is the Linden Gob Pile, an F 89 project near Appalachia in Wise County, Virginia. Here, a pile was partially covered with soil and rock from a surface mine but still caught fire and became a Priority 2 SB feature. Another example is the F 98 Richmond Hollow Burning Refuse Emergency in Buchanan County, Virginia. Here, a forest fire ignited a mixture of coal and spoil. A DMME field inspector also recalled an instance of a forest fire igniting a previously reclaimed gob pile in Tazewell County, Virginia.

A web search provided the following information on burning gob piles:

National Park Service
Preliminary Comments on the Greene Energy
Prevention of Significant Deterioration (PSD) Permit Application March 2005

<u>Environmental Impacts of Waste Coal Combustion</u>

Garbage of Bituminous (gob) is a waste product resulting from the removal of unwanted impurities from coal prior to combustion. Large quantities of gob can be found in many coal-mining areas, and the presence of gob piles can result in water pollution as minerals are leeched by rainwater. In some instances, gob piles have caught fire spontaneously, resulting in serious localized air pollution. For these and other reasons, it is desirable to remove gob piles from the environment.

Gob piles can have significant impacts to groundwater and surface water. Even though most of the gob piles in Virginia do not contain large amounts of acid forming materials, we have documented acid mine drainage even from reclaimed gob piles. There are continuing groundwater impacts from the Meade Fork Gob Pile, a site in Wise County that DMME reclaimed twenty-five years ago. There is also potential for increases in total dissolved solids as water migrates though the pile. Surface water impacts include increased settable solids and sedimentation through severe erosion from gob piles.

The Tax Relief and Health Care Act of 2006 reauthorized AML fee collection through September 30, 2021. The legislation also revised the distribution of AML fee collections so that eastern states with a legacy of historic mining will receive significantly increased funding. Although payouts of AML funds are subject to a number of factors, one payout scenario projects Virginia to receive over 160 million in AML funds through 2025.

The optimistic payout scenarios, in themselves, will not be sufficient to reclaim all of Virginia's abandoned coal mine lands. This is especially the case for many of the lower priority gob piles, as the focus of our reclamation will continue to be eliminating human health and safety problems resulting from past mining. DMME must remain innovative and employ all opportunities to reclaim its AML problems to eliminate human health and safety problems and also eliminate environmental impacts from past mining. The simple fact is that many gob piles will continue to impact human health and safety and the environment unless DMME acts to totally remove the piles. If presented with opportunities, DMME must act to totally remove gob piles if our agency is to accomplish reclamation of abandoned mine lands.

DMME's recent actions with a gob pile fire outside of the coalfields in Lee County, Virginia are illustrative of the impacts and problems associated with gob pile fires. An individual had illegally hauled gob material from a permitted mine site and placed the material to fill a sinkhole in karst topography. Actions of the landowner resulted in combustion of the gob material. uickly realizing the scope of the problem, the landowner contracted for two excavators to remove the gob material. Material temperatures were extremely high. Local fire departments and the Virginia Department of Emergency Management assisted in extinguishing the material as it was removed. Impacts to groundwater in the karst topography are not yet known. Carbon monoxide from the fire rose to levels that warranted advisories to local citizens.

Photographs of typical gob piles and reclamation are attached. In many of these cases, the reclamation consists of grading, drainage improvements, and revegetation. Although surficial reclamation has been successful, potential and actual impacts remain. The final photograph is the feature DMME strives to avoid.

Middle Fork Gob Pile before reclamation. This stream flowed over 8-to-10 feet of gob material. The stream is a tributary of the Cranes Nest River in Dickenson County.

Middle Fork Gob Pile after reclamation. This project totally removed the gob pile.

Straight Hollow Gob Pile before reclamation. This site is at Dante in Russell County. The stream is currently on Virginia's 303d list of impaired streams. This is a Clinch River tributary.

Straight Hollow Gob Pile after reclamation. The actual pile remains in place.

Stream impacts from a gob pile along Toms Creek in Wise County. Toms Creek is a tributary of the Guest River, which flows into the Clinch River.

Toms Creek eroding the base of a gob pile. Most of this pile has been reclaimed through a 2007 AML enhancement project.

Unnamed tributary of Toms Creek. The stream is flowing over several feet of gob pile.

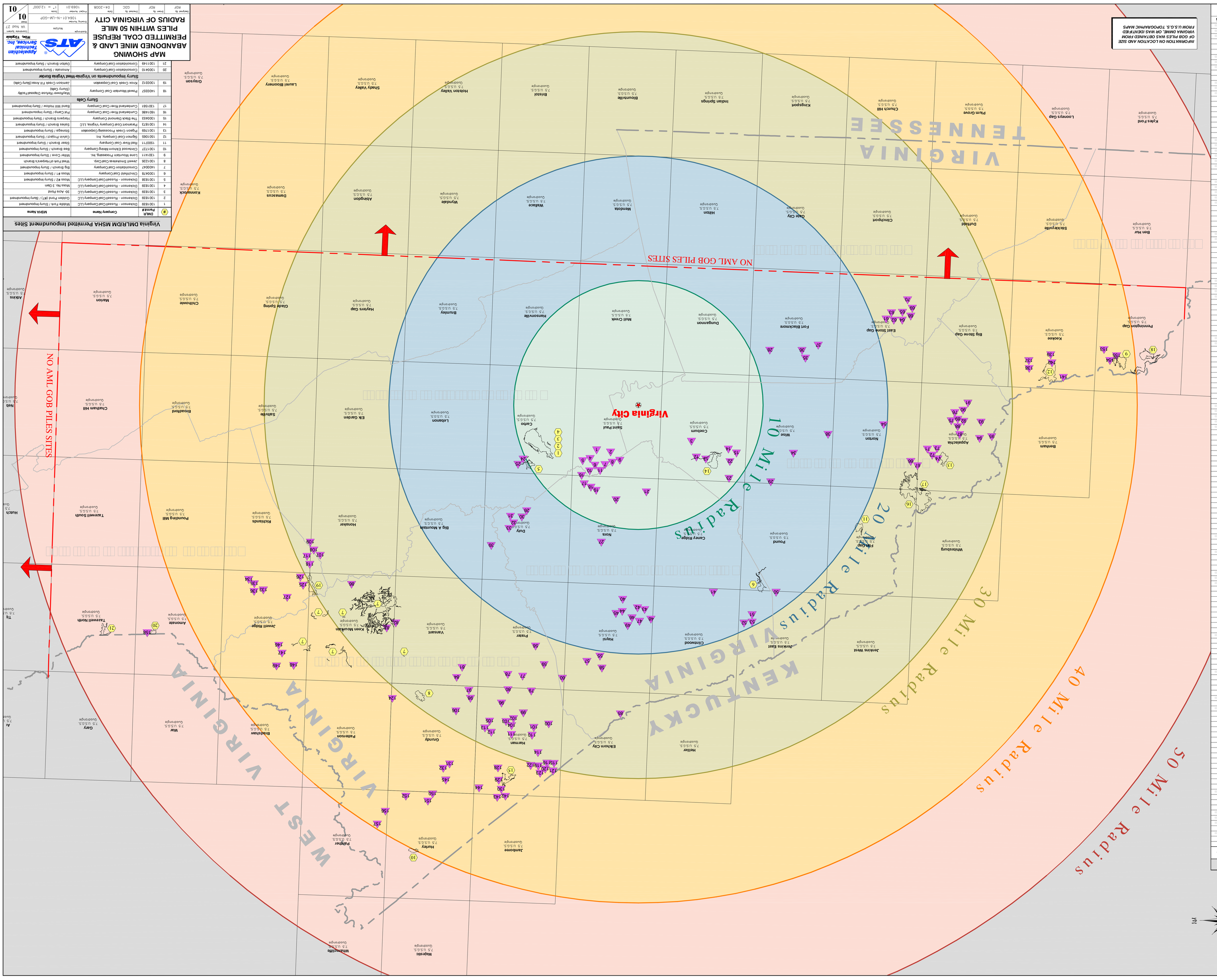
Highly eroded access road through gob material to the Hurricane Fork Gob Pile in Russell County.

Outslope and toe of the Hurricane Fork Gob Pile. The stream is Hurricane Fork of Dumps Creek. Dumps Creek is included on Virginia's 303d list of impaired streams and is a tributary of the Clinch River.

Aerial photograph of the highly eroded Hurricane Fork Gob Pile.

Burning gob pile

ATTACHME T 2


MAP SHOWING
ABANDONED MINE LAND &
PERMITTED COAL REFUSE
PILES WITHIN 50 MILE
RADIUS OF VIRGINIA CITY
ATS
Appalachian Technical Services, Inc.
Wise, Virginia
Drawing Number 1064.01-N-LM-00P
Sheet 01
Date 04-2008
Scale 1" = 12,000'
Virginia City
10 Mile Radius
20 Mile Radius
30 Mile Radius
40 Mile Radius
50 Mile Radius
NO AML GOB PILES SITES
NO AML GOB PILES SITES
VIRGINIA
KENTUCKY
VIRGINIA
WEST VIRGINIA
VIRGINIA
TENNESSEE
INFORMATION ON LOCATION AND SIZE OF GOB PILES WAS OBTAINED FROM VIRGINIA DMME, OR WAS IDENTIFIED FROM U.S.G.S. TOPOGRAPHIC MAPS
TOTAL ACRES 636.75
Virginia DMLDM SMA Permitted Impoundment Sites
Virginia AML GOB Pile Sites

ATTACHME T 3

Appalachian Technical Services, Inc.

ENGINEERING, ARCHITECTURE, SURVEYING & ENVIRONMENTAL SCIENCE

VIRGINIA CITY HYBRID ENERGY CENTER

DISCUSSION OF WASTE COAL IN SOUTHWEST VIRGINIA

APRIL 2008

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FAX (276) 623-8202

ATS Project No. 1069.01

CLIENT COPY

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Exhibits

Exhibit 1 **Map Showing Gob Pile Locations (Separate Sleeve)**

Exhibit 2 **Table 9.12 from approved TMDL plan** **Page 34**

Exhibit 3 **List of Impoundments permitted under the SMCRA program in Virginia** **Page 36**

References **Page 41**

Background

There are a number of terms that are used when referring to the material that has historically been separated from run-of-mine coal and disposed of in either abandoned mine land sites or in sites that have been permitted under the 1 77 Surface Mine Control and Reclamation Act **SMCRA** . gob , slate , refuse , coal waste piles , scalp rock , combined refuse , and slurry are just a few of the terms. For the purposes of this report, we will utili e the word **gob** to refer to sites that we identify as having any of these components.

Coal mining in the Southwestern region of Virginia dates back to the late 1800's. Mining was labor intensive, and the techni ue for separating the coal the final end product and everything else created from the mining gob involved laborers picking anything that did not look like coal rock from the run-of-mine product and separating it out from the saleable coal. This often subjective method resulted in much of the gob from the early days of mining being composed of a large percentage of coal. Virtually every mine from the beginning of the twentieth-century until the late 1 0's early 1 70's separated the run-of-mine product in this manner. Conse uently, there e ists innumerable locations of abandoned mine sites in Southwestern Virginia that have gob piles associated with them.

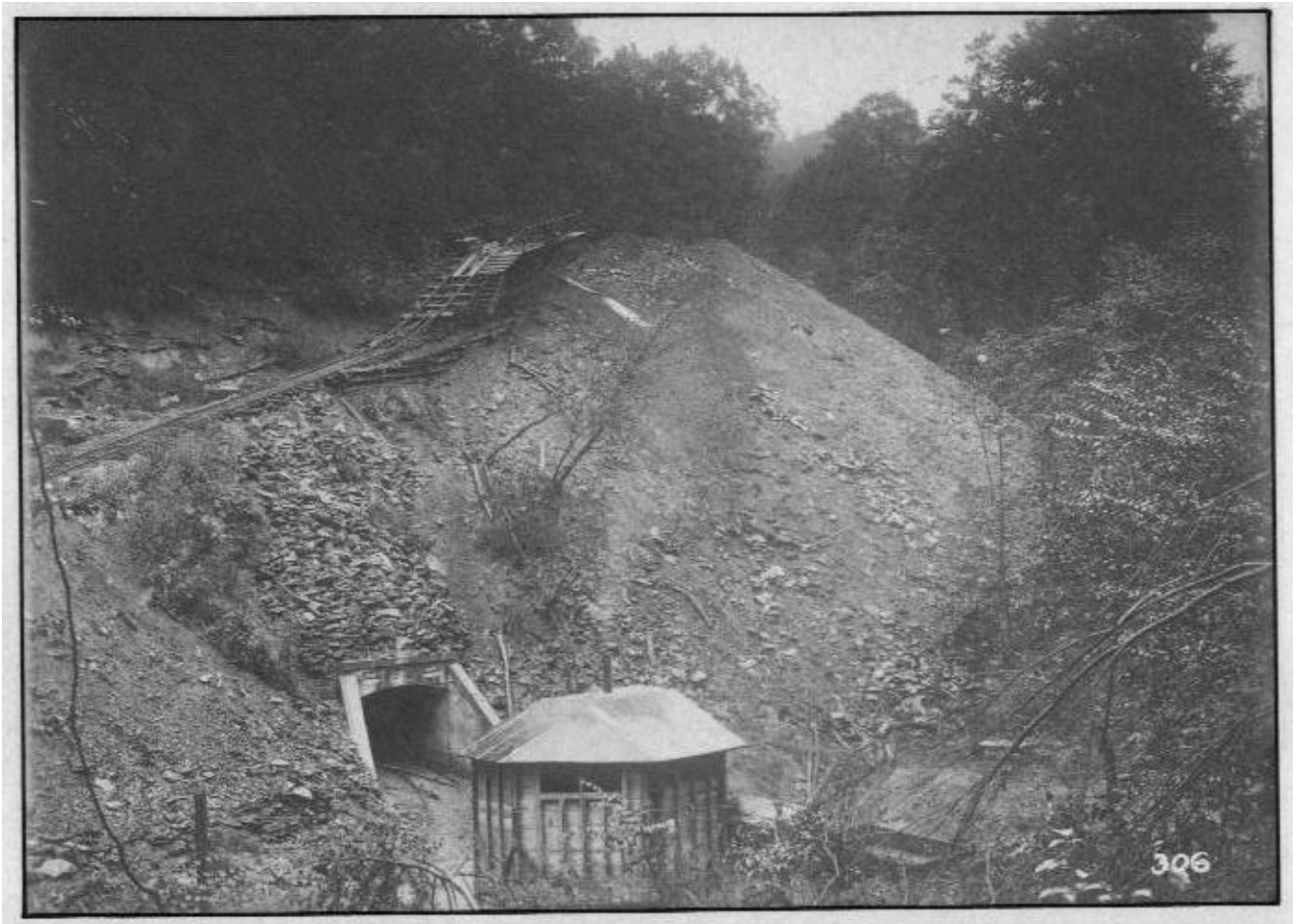
This separation by hand eventually evolved into some form of mechani ation. Regardless of the form of separation, the gob product was located as close to the mine as possible. Mechani ation meant that the gob was often transported by rail or conveyor belt to the disposal sites.

The following photos were taken from a collection contained in the Stonega Coal and Coke Company Annual Reports

Historical Photo from 1920 in the Stonega, Appalachia Virginia area

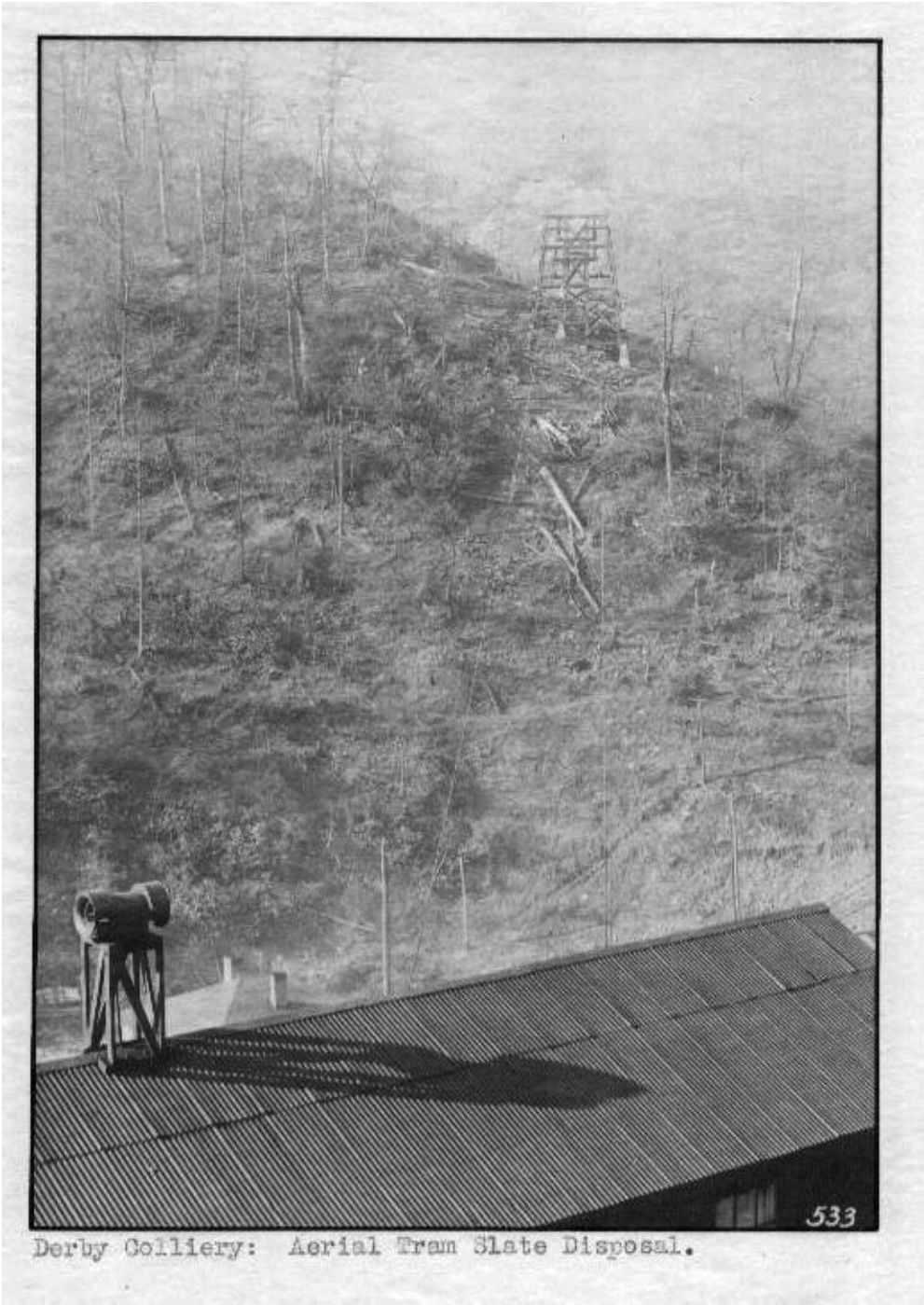
Stonega Colliery: Slate dumping machine.

A close-up view of the disposal directly above the mine site at Stonega. Notice the date 1918 at the portal entrance



Stonega Colliery: Slate dump.

The gob pile was extended further away from the site through the use of rail haulage



Eventually the gob piles extended off-site, through the use of "aerial trams"

Since removal of coal involved digging, blasting, or cutting of the coal seam, it brought with it some of the rock on the bottom and top of the coal seam, as well as any parting or rock impurities contained within the coal seam, thus these gob piles were generally made up of shales and clay. These constituents broke down over time due to weathering, and created very fine particles that were highly erodible.

The physical separation of run-of-mine product during this era meant that no chemical separation techni ues were employed, so none of these sites have any e traneous chemical components as a result of the coal separation process. However, since coal does have a pyritic component, the natural weathering process sometimes resulted in conditions which created acid mine drainage AMD .

A photo of runoff containing a high level of iron and Total Dissolved Solids (TDS) from a typical AML gob pile

The mid-20th century saw the utili ation of cleaning plants, or coal preparation plants, to enhance coal recovery. This changed the composition of some of the newer sites to a higher percentage of fine coal, and led to the creation of slurry impoundments for the storage of the fine coal reject product. The coal preparation plants use chemical agents to enhance the separation of coal from the waste product. This results in there being some chemical constituent to the slurry material that is stored in coal slurry impoundments. These sites, however, are almost entirely post-SMCRA sites that are permitted through the Virginia Division of Mined Land Reclamation see the attached cel spreadsheet, labeled **Exhibit III** .

Dominion Power plans to construct a modern coal-fired power plant at Virginia City near St. Paul in Wise County . The proposed plant will be capable of burning both gob coal recovered from the types of piles previously discussed as well as run-of-mine coal shipped directly from local mines. The following report outlines the environmental benefits of using these alternative fuel supplies at the Virginia City facility and addresses selected comments from the Air Pollution Control Board as provided by NSR Corporation.

COMMENTS FROM
STATE AIR POLLUTION CONTROL BOARD
AS PROVIDED BY
ENSR CORPORATION

Summari e readily available **data** concerning adverse environmental impacts of coal waste piles, especially as that data may distinguish between newly generated waste piles and historic waste piles. f there is no such data, simply indicate that fact.

dentify current management practices for newly generated coal waste and gob - if they are being properly managed there would not seem to be an environmental benefit to allow Dominion to burn unwashed coal.

A better environmental argument might be made where coal waste and gob have not been well managed in the past and are causing a specifically identifiable problem in the community. Blending limited amounts of such materials might be appropriate depending on the overall emission performance of the control devices. f there are specific locations where coal waste and gob might be causing an environmental harm that is significantly greater for the waste piles generally, such that a specific e clusion for such wastes might be appropriate, please identify such locations and estimate the uantities involved as well as any relevant time frames when cleanup of those specific locations might occur. Again, if there is no such data, simply report that fact.

To what e tent are the waste coal and gob orphan wastes as that term is used in the Superfund conte t Where there is no financially viable party that is responsible for waste materials different public policies may apply. Here, it may be that the effect of permitting burning waste materials is a shift of long term cost for management of waste materials from coal mine operators to the ratepayers. f there is no readily available information, simply identify that fact.

COMMENT RESPONSES

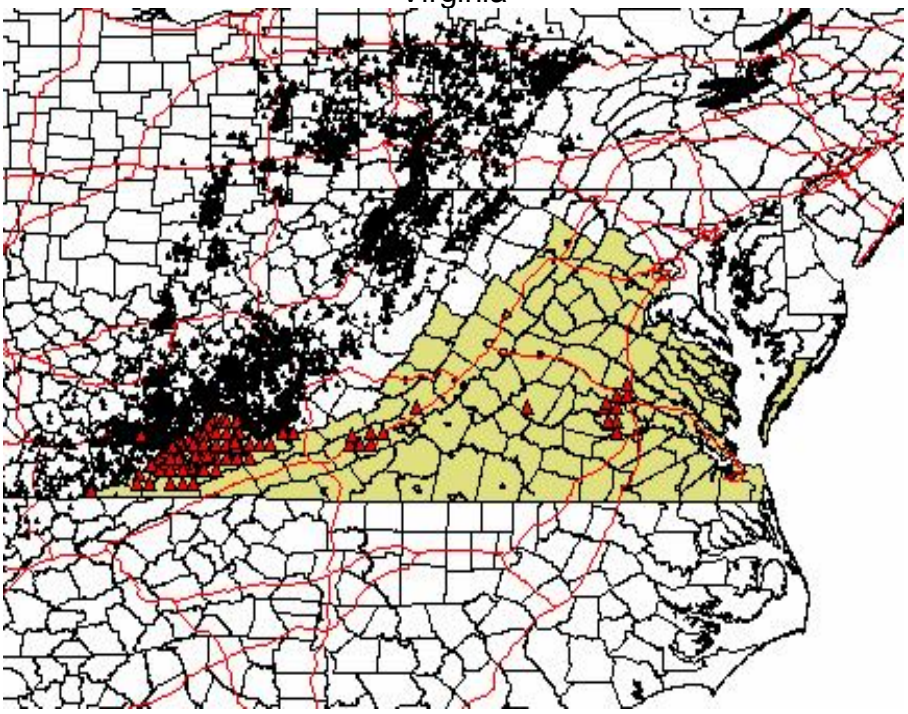
Summari e readily available **data** concerning adverse environmental impacts of coal waste piles, especially as that data may distinguish between newly generated waste piles and historic waste piles. f there is no such data, simply indicate that fact.

All coal producing States in the United States have an inventory of Abandoned Mine Land sites, which include statistics and data on the acreages and estimated cost of reclaiming the sites. These sites are categorized and identified as to the type of problem (see "*Definition of Problem Type*" below).

Shown below is the Department of Interior's Office of Surface Mining data for AML sites in Virginia (the "*AML Inventory*"). As can be seen by the highlighted row, for the category "Dangerous Piles and Embankments", there remains 127.6 Units of these which have not been reclaimed. Since Virginia's coal counties lie contiguous to each other in Southwestern Virginia, virtually all of the sites would lie within 50 miles of Virginia City. A few sites have been identified in the Montgomery County area around Blacksburg and Newport which would be outside the 50 mile radius.

Abandoned Mine Land Program

Virginia



Coal Mining Related Abandoned Mine Land Problems

Cost Summary Million High Priority Priority 1 2

Completed	Funded	Unfunded	Total
71	2	10	17

Unit and Cost Summary by Problem Type

	Completed		Funded		Unfunded		Total	
Problem Type	**Units**	**Costs ($)**	**Units**	**Costs ($)**	**Units**	**Costs ($)**	**Units**	**Costs ($)**
Vertical Opening	0.0	0	0.0	0	0.0	0	0.0	0
Clogged Streams	7 .	, 8 , 32	.1	3 ,100	137.	11, 28,08	21 .	21,311,821
Clogged Stream Lands	20.3	1 , , 1	8.0	123,000	1, 71.	1 ,0 ,2 8	2, .7	3 , 1 ,17
Dangerous Highwalls	30,1 0.0	, ,0 8	3, .0	718,01	81,1 .0	10, 1 ,881	11 , 7 .0	1 ,72 , 3
Dangerous mpoundments	2 .0	1,7	1 .0	130,000	22.0	37,71	2.0	1, 1 , 81
Dangerous Piles & Embankments	**261.2**	**7,507,524**	**0.0**	**0**	**127.6**	**6,465,158**	**388.8**	**13,972,682**
Dangerous Slides	2 3.	1 ,7 , 1	0.2	10,000	123.0	10,3 0, 1	37 .	2 ,1 7,
Ha ardous uipment Facilities	22 .0	23,807	.0	1, 00	3.0	, 72,	8 .0	, 37,801
Ha ardous Water Body	3.0	10 , 1	0.0	0	1 .0	3, 02	18.0	1,100,01
ndustrial Residential Waste	2.0	1	0.0	0	1.0	10,000	3.0	10,001
Portals	0.0	2, 7 ,810	2.0	20 ,7 0	1,1 7.0	3, 8, 8	2,1 .0	,331,
Polluted Water Agri. ndus.	0.0	0	0.0	0	201.0	,000,000	201.0	,000,000
Polluted Water Human Consumption	1, 8 .0	, ,021	1 .0	1 ,8 2	1,22 .0	,3 2, 7	2,82 .0	1 , 3, 2
Subsidence	11.	1,187, 3	0.0	0	1 .3	1, 78,000	2 .8	2,8 , 3
Surface Burning	0.	1, 7 , 1	0.0	0	.0	180,000	.	1, , 1
Underground Mine Fire	0.0	0	0.0	0	0.0	,037, 00	0.0	,037, 00
Vertical Opening	108.0	1,0 3, 2	0.0	0	711.0	21, 28,2	81 .0	22, 72,172
Total for Virginia		**70,792,185**		**1,794,266**		**106,474,322**		**179,060,773**

NOTE: UNITS REFERRED TO IN HIGHLIGHTED ROW IS IN "ACRES"

Definitions of Problem Types

Following are descriptions and photos of some of the ha ards associated with abandoned mine land which may relate to gob piles.

For a complete description of Priority 1 and 2 problem types, visit the Office of Surface Mining's web page at www.osmre.gov/aml/inven/zp12typ3.htm. For a description of Priority 3 problem types, visit www.osmre.gov/aml/inven/zp3typ3.htm.

ACID MINE DRAINAGE

Water that is discharged from mining or mine-related operations which contain high levels of dissolved iron and aluminum sulfates in conjunction with pH values less than . acidic . t is produced when o ygen dissolved in water reacts with pyritic iron sulfide materials found in association with most coal deposits. Acid mine drainage AMD degrades the water uality of streams and water supplies, often to the point of eliminating all biological activity within the stream contaminated with AMD.

CLOGGED STREAM

The filling of a stream bed with AML-originated silt and debris sedimentation carried downstream by surface runoff. The sedimentation causes a blockage of the stream resulting in the flooding of roads and or residences and posing a danger to improved property and the public.

CLOGGED STREAM LANDS

Any AML-related surface mining spoil pile and bank, mine waste, or earth material disturbed by mining activity that would be eroded and carried downstream by surface runoff and deposited in a stream bed thus causing a clogged stream .This silt erosion contributes to stream sedimentation and causes local flooding resulting in property damage and a human health, safety, and general welfare threat.

DANGEROUS IMPOUNDMENT

Any AML-related large-volume water impoundment such as a mine waste embankment, sedimentation pond, or underground mine water pool which poses a threat of flooding and catastrophic destruction to downstream property and human health, safety, and general welfare in the event of rupture or breach of the water retention structure.

DANGEROUS PILE AND EMBANKMENT

An AML-related mine waste pile or bank located within close distance to a populated area, public road, or other area of intense visitation, and posing a danger to public health, safety and, general welfare by adverse effect resulting from an unstable steep slope or wind-blown particulate matter.

DANGEROUS SLIDE

Any AML-related land mass slide of surface-subsurface soil, mine waste pile or bank, or surface mine spoil due to instability of its own weight or lubricating effects of mine drainage water, that endangers human health, safety, and general welfare and destruction of improved property located uphill or downhill from the land mass.

GOB PILES

The refuse or waste removed from an underground mine. This includes mine waste, rock, pyrites, slate, or other unmarketable materials that are separated during the cleaning process. Gob piles are generally found at coal load-out and processing facilities.

SURFACE BURNING

Any AML-related continuous combustion of mine waste material resulting in smoke, ha e, heat, or venting of ha ardous gases located within close distance to a populated area, public road, or other public use area and posing a danger to the public.

dentify current management practices for newly generated coal waste and gob if they are being properly managed there would not seem to be an environmental benefit to allow Dominion to burn unwashed coal.

Looking broadly at the term "coal waste and gob", if that is intended to mean the waste from coal processing, then it would consist of both fine and coarse refuse material that must be placed in a SMCRA permitted facility, more than likely a refuse fill consisting of coarse refuse only (waste rock), a combined coal refuse fill (waste rock and coal fines that have been dewatered) or a coal slurry impoundment (waste rock and coal fines that have had either no dewatering or minimal dewatering).

There would be environmental benefit to burning *"unwashed coal"* because it would eliminate the processing and reduce the amount of surface area necessary for the three primary disposal facilities outlined in the previous paragraph.

This reduction in volume of fine and coarse refuse that would normally have to be placed into a visible surface fill area lessens the chances of having to utilize a coal slurry impoundment.

Additional benefits include the energy savings from not washing the coal and the elimination of coal losses from multiple handling and preparation plant inefficiencies (5-10% of total volume). This means more "energy" is actually delivered to the power plant for a given investment of energy to extract and transport the coal. These increased efficiencies would actually decrease environmental impacts for a given quantity of fuel transported to the power plant.

A better environmental argument might be made where coal waste and gob have not been well managed in the past and are causing a specifically identifiable problem in the community. Blending limited amounts of such materials might be appropriate depending on the overall emission performance of the control devices. f there are specific locations where coal waste and gob might be causing an environmental harm that is significantly greater for the waste piles generally, such that a specific e clusion for such wastes might be appropriate, please identify such locations and estimate the uantities involved as well as any relevant time frames when cleanup of those specific locations might occur. Again, if there is no such data, simply report that fact.

Coal refuse "gob" piles have been an environmental problem for years and as identified by the Commonwealth of Virginia in its AML inventory which is shown above in relation to the question regarding "*adverse environmental impacts of coal waste piles*", they continue to be recognized and characterized as problem areas. These only represent the highest priority sites (Priorities 1 and 2) that have been identified by the Commonwealth. There are many sites that exist, but had not been identified.

The age of many of these gob piles is such that some vegetation and trees have managed to shroud the underlying coal refuse. Many times leaf litter and other surface growth create a very shallow layer, and a mere moving of an inch or two of this covering reveals a thick layer of black or gray gob material below, as seen in the following photo:

This photo was taken in the summer of 2007 on a gob pile in Wise County that was not even identified as an AML problem area due to the aforementioned shrouding effect of some surface vegetation.
Research on this particular site revealed it to be an AML eligible site that had existed for over 50 years.

An aerial photograph taken by the Soil Conservation Service in 1953 shows that this particular site was close to 50 acres at one point in time.

Obviously a great deal of material from the original site still remains and is an AML eligible site that will be reclaimed. That reclamation will eliminate the potential erosion of tens of thousands of tons of coal refuse directly into a TMDL stream. Calculations show that 12.3 million kg of material have eroded from this gob pile since 1978 (Mullins, 2007)

This photo shows the depth of the gully that has been eroded over many years, flowing directly into a TMDL stream. It also shows that material still exists that would continue to be eroded and deposited into the stream.

Another view of the material that can potentially be eroded and deposited into the stream

Aerial photo from United States Soil Conservation Service, dated March, 1953 showing massive gob pile

Picture showing a portion of the Abandoned Mine Land gob pile. This pile will be removed and reprocessed.

A "before" photo of an AML gob pile prior to reclamation work

An "after" photo of the same gob pile after reclamation work

More before (above) and after (below) photos of abandoned gob piles in Virginia

Additional before and after pictures of abandoned gob piles in Virginia

To what e tent are the waste coal and gob orphan wastes as that term is used in the Superfund conte t Where there is no financially viable party that is responsible for waste materials different public policies may apply. Here, it may be that the effect of permitting burning waste materials is a shift of long term cost for management of waste materials from coal mine operators to the ratepayers. f there is no readily available information, simply identify that fact.

The vast majority of waste coal and gob pile sites are AML sites and many have been identified as such under Title IV of the Surface Mining Control and Reclamation Act of 1977. There are also large numbers of abandoned sites that do not show up on the AML inventory at this point in time, due to the fact that they were missed in the initial inventorying process. The remainder actively are permitted sites under SMCRA.

There would be no shift of management responsibilities on these sites. The responsibility still falls squarely upon the AML program in Virginia (Title IV of SMCRA) or upon the enforcement of Title V of SMCRA by the Virginia Department of Mines, Minerals and Energy, Division of Mined Land Reclamation.

Prior to the recent reauthorization of the Abandoned Mined Land Program for a 15 year period, the Virginia Department of Mines and Minerals, Division of Mined Land Reclamation, had this to say regarding AML sites:

"Over 71,000 acres of land in Virginia have been affected by coal mining. It is estimated that it would take approximately 55 years at the present rate of funding and reclamation construction to reclaim the remaining Priority 1 and Priority 2 Abandoned Mine Land (AML) sites. In addition, it would cost

more than $313 million to reclaim the identified Priority 3 sites. One way to accelerate reclamation of AML is through remining.

Since many of the gob pile sites may not necessarily rise to the level of a Priority 1 or 2 category, or they were sites that were not initially identified by the AML Inventory process, a means of accomplishing the reclamation was identified by Virginia and has been utilized to remove hundreds of acres of gob piles. As can be seen by the attached map identifying the number of gob piles within a 50 mile radius of Virginia City, there remains hundreds of acres that can yet be reclaimed.

The process that is being utilized to remove the gob piles is referred to as "AML Enhancement". The Virginia Department of Mines and Minerals, Division of Mined Land Reclamation describes the process as such:

> ***"AML Enhancement Rule – This would entail the use of AML funds to contract with an operator to reclaim, through remining, an area of remnant coal that ordinarily could not be mined. There is a possibility that these projects would not require a coal surface mining permit. This rule would remove the required 50% government funding before any coal could be removed from the project and sold. The removal and sale of any coal from the site could then be used to help finance the project."***

If a coal power plant has the capability of burning the material from these gob piles, it would create a "win-win-win" for the environment, the consumer and the power company. The environment would be improved by the removal of these hundreds of acres of highly erodible, poorly vegetated, combustible and in some instances unstable gob piles. The consumer would see benefits from the removal of material that has been shown to contribute sediment to TMDL streams (the attached Exhibit 2 is Table 9.12 from the TMDL report for Callahan Creek and it shows that AML

has a sediment loading rate of 17.69 Mg/hectare/year, or roughly 7,100 kg per acre per year), which must be reclaimed through the utilization of public funds. The power company can utilize a product that is readily available within the region.

EXHIBIT 2

The sediment loads existing at the time of impairment were modeled for Callahan Creek and the reference watershed Middle Creek. The existing condition for the Callahan Creek watershed is the combined sediment load, which compares to the target TMDL load under existing conditions for the area-adjusted reference watershed Middle Creek (Table 9.12). The target sediment TMDL load for Callahan Creek is the average annual load in metric tons per year (Mg/yr) from the area-adjusted Middle Creek watershed under existing conditions minus the Margin of Safety (MOS) (Table 9.12).

Table 9.12 Existing sediment loads for the impaired and area-adjusted reference watersheds.

Sediment Source	Callahan Creek		Reference Watershed Middle Creek Area-Adjusted	
	(Mg/yr)	(Mg/ha/yr)	(Mg/yr)	(Mg/ha/yr)
Abandoned Mine Lands	2,573	17.69	0.00	0.00
Commercial Impervious	4.19	0.24	3.66	0.22
Commercial Pervious	2.27	0.74	2.32	0.79
Cropland	2,359	101.5	2,341	67.96
Forest	1,693	0.28	697.6	0.10
Forest Disturbed	11,787	30.73	3,644	17.42
Pasture/Hay	102.25	2.76	26.62	0.44
Reclaimed Mine Area-not permitted	0.00	0.00	991.9	3.90
Residential Impervious	0.49	0.24	0.93	0.22
Residential Pervious	7.43	0.50	4.15	0.13
NPS loads	**18,530**	**154.7**	**7,712**	**91.2**
Permitted Mining:				
Reclaimed Mine Area	2.62	0.03	0.00	0.00
Active Mine Area	105.2	0.17	0.00	0.00
VAR103468	0.24			
VA002212	5.39			
VA400340	0.04	0.05		
Straight Pipes	18.99		0.00	0.00
PS loads	**132.5**	**0.25**	**0.00**	**0.00**
Channel Erosion	2.18		1.27	
Watershed Total Loads	**18,664**	**155**	**7,713**	**91.2**

EXHIBIT 3

	PERM ED C A RR MP NDMEN RR CE N V R N A					
	Company Name	**DM R Permit**	**M HA**	**M HA acility D**	**DM R tatus**	**M HA Name DM R Name ype o mpoundment**
1	**Dickenson Russell Coal Company C**	1301839	44-02277	1211-VA5-0010-01G	Active	Middle Fork Slurry Impoundment
2	**Dickenson Russell Coal Company C**	1301839	44-02277	1211-VA5-0010-0II	Prelaw	Golden Pond(7) Slurry Impoundment
3	**Dickenson Russell Coal Company C**	1301839	44-02277	1211-VA5-0010-01A	Active	30-Acre Pond
4	**Dickenson Russell Coal Company C**	1301839	44-02277	1211-VA5-0010-81	Active	Moss o. 3 Dam
5	**Dickenson Russell Coal Company C**	1301838	44-06007	1211-VA5-0002-01A	Active	Moss 2 Slurry Impoundment
6	**Clinch ield Coal Company**	1300478	44-00271	1211-VA5-0021-01A	Active	Moss 1 Slurry Impoundment
7	**Consolidation Coal Company**	1400047	44-04856	1211-VA5-0162-01A	Active	Big Branch Slurry Impoundment
8	**e ell mokeless Coal Corp.**	1301226	44-00649	1211-VA5-0022-81	Active	West Fork of Harpers s Branch
9	**one Mountain Processing, nc.**	1301411	44-05898	1211-VA5-0174-81	Active	Miller Cove Slurry Impoundment
10	**Clint ood Elkhorn Mining Company**	1301727	44-03010	1211-VA5-0120-81	Active	Bee Branch Slurry Impoundment
11	**Red Ri er Coal Company**	1500711	44-06199	1211-VA5-0025-01A	Active	Steer Branch Slurry Impoundment
12	**igmon Coal Company, nc.**	1501065	44-06230	1211-VA5-0202-01A	Active	Calvin Project Slurry Impoundment
13	**Pigeon Creek Processing Corporation**	1301769	44-03088	1211-VA5-0015-06A	Active	Stonega Slurry Impoundment
14	**Paramont Coal Company Virginia, C**	1301873	44-05270	1211-VA5-0133-01A	Active	Sallies Branch Slurry Impoundment MSHA list has Sallies Creek
15	**he Black Diamond Company**	1300453	44-04212	1211-VA5-0048-81	Active	Harpers Branch Slurry Impoundment
16	**Cumberland Ri er Coal Company**	1601486	44-05014	1211-VA5-0286-82	Active	Pot Camp Slurry Impoundment
17	**Cumberland Ri er Coal Company**	1301561	44-06786	1211-VA5-0286-81	Active	Band Mill Hollow Slurry Impoundment
	RR CE					
1	**Po ell Mountain Coal Company**	1400357	44-05605	1211-VA5-0159-01	Active	Mayflower Refuse Disposal Facility (Slurry Cells)
2	**no Creek Coal Corporation**	1300312	44-05236	1211-VA5-0142-01	Active	Jamison Creek Fill Area
	MP NDMEN N V R N A E V R N A B RDER					
1	**Consolidation Coal Company**	1300410	46-05449	1211-WV4-0737-01	Active	Amonate Slurry Impoundment
2	**Consolidation Coal Company**	1301149	46-02380	1211-WV4-0008-01	Inactive	Dalton Branch Slurry Impoundment

The contractors who agree to remove and process gob piles must adhere to a set of conditions that are written into their contracts. Even if a contractor were to completely remove an existing AML gob pile in its entirety and haul it offsite to a power plant or a processing facility, they would have to agree to these conditions. Here is a set of conditions taken from a contract document created by the Virginia Department of Mines, Minerals and Energy, Division of Mined Land Reclamation.

CERTIFICATIONS: *The* ***COMPANY*** *certifies to the* ***DMME*** *that it is, to the best of its knowledge and belief, in compliance, and shall continue in compliance, and it shall require that its Contractors conform, to the following Acts, as amended:*

1. *State and Local Government Conflict of Interests Act;*
2. *General Assembly Conflict of Interests Act;*
3. *Virginia Freedom of Information Act;*
4. *Virginia Fair Employment Contracting Act;*
5. *Virginia Governmental Frauds Act;*
6. *Virginia Public Procurement Act;*
7. *Virginians with Disabilities Act;*
8. *Americans with Disabilities Act;*
9. *Federal Immigration Reform and Control act of 1986; and*
10. *Federal statutes relating to nondiscrimination, including but not limited to:*

    Title VI of the Civil Rights Act of 1964 (P.L. 88-352) (prohibits discrimination on the basis of race, color or national origin);

    Title IX of the Education amendments of 1972, as amended (20 U.S.C. Sections 1681-1683, and 1685-1686) prohibits discrimination on the basis of sex;

    Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C., Section 794) prohibits discrimination on the basis of handicaps;

    The Age Discrimination Act of 1975, as amended (42 U.S.C., Sections 6101-6107) which prohibits discrimination on the basis of age;

    The Drug Abuse Office and Treatment Act of 1972 (P.L. 93-255), as amended, relating to non-discrimination on the basis of drug abuse;

    The Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism:

Sections 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C., 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records;

Title VIII of the Civil Rights Act of 1968 (42 U.S.C., Section 3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; and/or

Any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made, and the requirement on any other nondiscrimination statute(s) which may apply to the AML AWARD or this Agreement.

11. *Federal Lobbying Act, 31 U.S.C.A., Section 1352 (entitled, "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions, and the Virginia Lobbying Disclosure and Regulation Act, Sec. 2.1-779 through 2.1-794, Code of Virginia, 1950 as amended, including, without limitation, obtaining and delivering to the* ***DMME*** *all necessary certifications and disclosures.*
12. *Title II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interest in real property acquired for Project purposes regardless of Federal participation in purchases.*
13. *Hatch Act (5 U.S.C., Sections 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.*
14. *Copeland Act (40 U.S.C., Section 276c and 18 U.S.C., Section 874), the Contract Work Hours and Safety Standards Act (40 U.S.C., Sections 327-333) regarding labor standards for federally assisted construction sub-agreements.*
15. *Flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.*
16. *Environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in flood plains in accordance with EO 11988: (e) assurance of Project's consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C., Sections*

1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176 (c) of the Clean Air Act of 1955, as amended (42 U.S.C., Section 7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).

17. *Wild and Scenic Rivers Act of 1968 (16 U.S.C., Sections 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.*
18. *The **COMPANY** shall assist the **DMME** in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470), EO 11593 (identification and preservation of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.).*
19. *40 CFR 122-EPA Storm Water Regulations; PL 92-500, Section 404 – Utility Crossings of Navigable Waters – U.S. Army Corps of Engineers; Code of Virginia, Title 10.1, Chapter 5, Article 4 - Erosion and Sediment Control Law – Soil and Water Conservation Commission; VR 625-02-00 – Erosion and Sediment Control Regulations; Code of Virginia, Title 62.1, Chapter 3.1, Article 44 – State Water Control Law; VR 680-15-02 – Virginia Water Protection Permit; Code of Virginia, Title 62.1, Chapter 3 – Sub-aqueous Bed Permit – Marine Resources Commission.*

This list of assurances would serve to protect the citizens of the Commonwealth from any transference of costs and liability from the federally funded, State administered AML program to the ratepayers.

REFERENCES

Mullins, Phillip, TMDL Offset Proposal Letter to DMLR for Application 1003342 dated October 8, 2007

National Association of Abandoned Mine Land Programs

Stonega Coal and Coke Company Annual Reports

United States Department of the Interior, Office of Surface Mining, Abandoned Mine Lands

Virginia Department of Environmental Quality, TMDL Report for Callahan Creek

Virginia Department of Mines, Minerals and Energy, Division of Mined Land Reclamation, contract document for Abandoned Mine Land contractors

Virginia Department of Mines, Minerals and Energy, Division of Mined Land Reclamation, Abandoned Mine Land gob pile photos

ATTACHME T 4

The Honorable Kathleen A. McGinty
Secretary
Pennsylvania Department of Environmental Protection
Testimony - Waste Coal Incentives
Before the Senate Environmental Resources and Energy Committee
September 8, 2004

Chairman White and members of the Committee it is my privilege to be here today to discuss the administration's efforts to reclaim land and mitigate and eliminate the environmental impacts of waste coal piles while making use of this potential energy resource. I would especially like to thank Senator Stout for holding this timely hearing in his district and calling specific attention to this very important matter and opportunity.

Pennsylvania is a remarkable state with abundant natural riches, including a tremendous heritage of coal production that fueled the industrial revolution and provided hardworking residents with opportunities for a better life. Unfortunately, that legacy also left significant parts of our state scarred from past mining activities.

Travel the back roads of our Commonwealth and it's not uncommon to see refuse piles of unused coal and rock. These waste coal mixtures, commonly called gob or boney piles in the western half of Pennsylvania and culm in the eastern coal fields, are a significant problem in Pennsylvania, which has some 220,000 acres of abandoned mine lands and more than 2,200 miles of streams impaired by polluted mine drainage.

Western Pennsylvania in particular has a significant and proud coal-mining heritage, but as we will hear today from members of this Committee, other speakers and our tour of the Champion waste coal site, this part of Pennsylvania has been especially impacted by the legacy of waste coal disposal. As I will discuss further below, we look at this legacy not as a liability to be mitigated but as an opportunity to be exploited and I will outline proposals that we are developing to take advantage of this unique Pennsylvania resource.

While Pennsylvania's coal economy has indeed contributed greatly to the economic expansion of this country and its success in two world wars, it has left behind numerous scars across the landscape. According to DEP estimates, as of Dec. 2003, there were an estimated 8,529 acres of unreclaimed coal refuse piles throughout Pennsylvania. These piles include at least 258 million tons of waste coal that cause polluted mine drainage, scar the landscape and, in some cases, result in coal refuse fires which contribute to air pollution. Coal refuse piles are also used regularly as dumping piles for trash and other waste. Just one example of the magnitude of these sites is the coal refuse pile that we are going to tour, the Champion site, which, at 500 acres, is the biggest coal refuse pile east of the Mississippi River.

As you know, the department has initiated numerous programs to address the environmental impacts caused by waste coal. One of the most successful programs is the remining program, where mining companies re-mine, or remove the culm banks, screen the material, and transport the suitable refuse material to fuel nearby power generation plants. This removes much of the pyritic material left behind by past coal mining activity that contributes to acid mine drainage, one of the leading causes of stream degradation in the Commonwealth.

When the refuse is burned in the plant, alkaline material is commonly added, and the resulting coal ash -- high in alkalinity -- is then returned to the refuse sites to help reclaim those areas. This prevents any leftover pyritic material from causing acid mine drainage. The removal of the refuse piles can also result in cleaner air due to the elimination of dust sources and, in some cases, uncontrolled burning of the piles. Removing the piles also removes unregulated dumping areas, because people often access these piles through construction access roads in order to dump garbage and other waste.

The Commonwealth has analyzed coal ash and coal ash leachate (water run-off from ash) from many different sources of ash, and has determined that coal ash -- when used appropriately -- is safe to use in mine reclamation projects. This is in part due to the fact that when coal ash is placed at a mine site in an appropriate fashion, it is placed above the ground water table to prevent direct contact with water. In addition, coal ash is usually capped with topsoil -- in many cases up to a four-foot layer -- and that topsoil is then re-vegetated and graded with a three-percent slope. This ensures that rainwater will run off of the site before it

comes in direct contact with the placed coal ash. Even if water permeated the topsoil, the compaction of the ash would likely prevent the permeation of water through the ash. The capping with topsoil, sloping of the ash and the compaction of the ash also prevents the rainwater from contacting the pyritic material left behind from the mining operation, so acid mine drainage is never formed.

In addition, leachate tests have shown that even when coal ash comes in contact with water, the metals and other constituents found in coal ash tend not to leach out. This is due to the fact that the chemical make-up of the alkaline coal ash binds up the metals and other constituents in the ash. In addition, the alkalinity of the coal ash prevents the development of acid, which would promote leaching (the coal ash is alkaline due to the addition of alkaline material during the combustion process).

The re-use of this material is a prime example of one of the main environmental themes of the Rendell Administration, namely viewing environmentally harmful material as a potential resource that can be re-used rather than remain as a liability. In 2003 alone, DEP issued mining permits which resulted in the removal of nearly a half-million tons of coal refuse in southwestern Pennsylvania.

Of course, government can't pursue the goal of industrial re-use alone. These efforts are a result of the advent of new boiler technology used by power generation plants called "Circulating Fluidized Beds." These plants burn coal refuse and other fuels that have far less "heating value" (BTU's, or British Thermal Units) than the types of boilers used by the large utilities to burn regular coal.

CFB's are also inherently cleaner than pulverized coal-fired boilers. For more than 30 years, the Department has collected company specific information necessary to obtain estimates for all toxic pollutants. This data demonstrates that dioxin levels were approximately four times lower and most metals, with the exception of mercury, were ten times lower per gigawatt hour than pulverized coal-fired generation. Further, CFBs could achieve very high-levels of mercury control, up to 95%, for very low relative costs should mercury standards be set at the federal level. By comparison, mercury controls on pulverized units would achieve lower-levels of control at higher costs.

Similarly, emissions of NOx and SO2 were also lower than pulverized coal-fired boilers. It should be noted that newly built pulverized coal-fired units would be able to achieve similar emissions levels for S02 due to the installation of scrubbers under Best Available Control Technology determinations. Therefore, newly constructed electric generating combusters of either waste coal or coal would emit at comparable levels because both would be employing very similar BACT for all pollutants. We have attached a comparative analysis of waste coal emissions developed by our Bureau of Air Quality, which provides more details on this matter.
MS Word PDF

There are 15 plants burning coal mining refuse in CFB's located in Pennsylvania. The first of these plants came on line in Pennsylvania in 1988. According to ARIPPA, a trade organization representing 13 of the CFB plants in the Commonwealth, from 1988 through the end of 2003, coal refuse plants in Pennsylvania consumed 88.5 million tons of coal refuse, mostly from abandoned refuse piles. Approximately 19 million tons of that were burned in coal refuse plants in the southwest region of the Commonwealth. ARIPPA's records show that the plants in the Commonwealth burn an average of about 7.5 million tons of coal refuse per year, mostly from abandoned coal refuse piles.

The coal refuse that fuels these plants is removed -- or remined -- from the refuse piles under the regulation of DEP. Thanks to DEP's remining program, there have been numerous success stories in southwestern Pennsylvania in the effort to reclaim coal refuse piles. One of these examples is the scheduled removal of 60 million tons of coal refuse from over 40 different coal refuse piles in seven counties, including Allegheny, Westmoreland, Indiana, Cambria, Armstrong, Huntingdon and Somerset. These piles are scheduled to be removed and burned in the newly-constructed Reliant Energy plant, a 500-megawatt fluidized bed coal refuse-burning power plant at Seward in East Wheatfield Township, Indiana County. Reliant received $400 million in tax-exempt financing (bonds) from the Pennsylvania Department of Community and Economic Development for this project. It is estimated there is an additional 10-20 million tons to be found in piles that are still on a list to be explored and evaluated for possible use by Reliant.

While the project will result in the elimination of harmful coal refuse piles, it is also contributing to the creation of over 300 much-needed jobs throughout southwestern Pennsylvania. This underlies another major tenet of the Rendell Administration: spurring job creation and economic growth. The ability to create jobs while simultaneously cleaning up environmental scars from the past is a double-win for the Commonwealth. It's also important to note that without industry involvement, this type of success in all probability would not be happening: it's unlikely government would have the resources available to reclaim many of these coal refuse piles.

DEP also issues reclamation contracts to mine operators to reclaim refuse piles, such as the nearly 19-acre Crucible Pile in Greene County that is currently being reclaimed, and has granted funds through the Growing Greener program to various organizations to reclaim waste coal piles. For example, DEP awarded two Growing Greener grants for a total of approximately $4.6 million to the Greene County Industrial Development Authority to reclaim the Mather coal refuse pile in Greene County. That project is still under way and includes the removal of material and the capping of the area with on-site material such as top soil. That project should be completed within a year.

In addition to the environmental and economic benefits derived from the re-use of waste coal, the Commonwealth's 15 waste coal power plants generate enough electricity to power approximately 1 million homes annually. They do this with relatively low air emissions, adding to the environmental success of cleaning up waste coal piles that cause water and air pollution.

According to ARIPPA, since 1988 Pennsylvania's waste coal industry has reclaimed approximately 3,429 acres of abandoned mine lands. The Department estimates the cost of government-sponsored reclamation to be between $20,000 to $40,000 per acre. Consequently, these efforts have saved the taxpayers of this Commonwealth between $68 million and $137 million since1988, an amount equal to approximately three to six years of federal abandoned mine land appropriations to our state.

Even the residual ash from electric generation at these facilities provides a benefit for Pennsylvania as it is used to fill strip mine pits with dangerous highwalls. Similarly, because the ash is mixed with limestone, the alkaline mixture makes it effective for use to remediate the acidic drainage that pollutes streams and threatens drinking water supplies.

Using waste coal to produce energy is an innovative process that will attract new investment and help to create the jobs we critically need while ensuring the highest standards of environmental protection and public health. Pennsylvania exports more than $20 billion a year to import energy fuels--that's nearly as much as our entire state budget. Yet, indigenous energy development has a multiplier effect in the economy that may generate as much as 1.6 times more revenue than from imports. Keeping energy dollars in state clearly is an important step in retaining and generating more jobs in Pennsylvania.

The Rendell administration has recently initiated two actions to help support and promote Pennsylvania's waste coal industry. During his January budget address Governor Rendell announced that the Commonwealth would purchase ten percent of its electricity from clean, advanced energy sources, including waste coal. I am pleased to note that we recently completed this purchase, which includes 10,000 megawatt hours of waste coal -- out of a total of 100,000 megawatt hours of clean, advanced electricity.

In April Governor Rendell reestablished the dormant Pennsylvania Energy Development Authority, PEDA. As many of the members of this Committee know, PEDA was first established to encourage the development of Pennsylvania's energy resources. PEDA possesses $300 million in tax-exempt bonding authority and in the past this capability has been used to finance waste-coal power plants, notably the Ebensburg, Cambria facility. PEDA will work in concert with the Pennsylvania Economic Development Financing Authority, thereby expanding the financing capabilities of the Commonwealth. As you know, PEDFA financing was instrumental in enabling the re-powering of the Seward, Reliant power plant to utilize waste coal.

We are currently in discussions with developers seeking to deploy state-of-the-art advanced coal gasification technology, which in some cases will be able to utilize waste coal as a fuel.

Projects utilizing waste coal are also a focus of the Pennsylvania Energy Harvest Grant

Program. This $5 million annual grant program provides funding to projects that improve the environment through advanced energy solutions. Last year, Energy Harvest funded two waste coal projects. The first is a joint project with the U.S. Department of Energy and CO Inc. to demonstrate the utilization of coal fines. The process, termed "Granu Flow," adds asphalt emulsion, or a similar, binder to agglomerate the coal fines. Once these fines are bound together they will be able to be utilized as fuel in waste coal power plants. Energy Harvest also provided funds to the River Hill Power Company Project in Clearfield County for preliminary environmental and fuel quality analysis for their proposed waste coal power plant. Together, Energy Harvest provided nearly $400,000 for these two projects.

In addition to the tools provided by the Commonwealth's electricity purchase PEDA, and Energy Harvest the Governor has also advocated for an Advanced Energy Portfolio Standard that would include waste coal as an eligible resource. I know this Committee has already held several hearings on this subject so I will refrain from covering the basics of portfolio standards and the Governor's proposal in general and, instead, will focus my remarks specifically on the role waste coal can play as an eligible resource.

As you know, many portfolio standards limit eligibility to renewable resources. We do not feel that this is the best approach for Pennsylvania. As I discussed earlier in my testimony, Pennsylvania's unique history and geology mean that we should take a broader view to include other resources, such as fugitive coal-mine methane and waste coal, that while not considered "traditional" renewables, still provide a net environmental benefit to the Commonwealth.

Therefore, the Governor has proposed a two-tiered portfolio standard, an Advanced Energy Portfolio Standard, which includes waste coal as an eligible resource in the second tier. The first tier would be made-up of traditional renewables, energy efficiency, energy conservation, efficiency upgrades at existing power plants, recycled energy and electricity generated from fugitive coal-mine methane. The second tier would include emissions offsets and electricity generated from fuel cells powered by non-renewable fuel, and waste coal.

Because participation in an Advanced Energy Portfolio Standard will provide economic benefits to qualifying facilities, by making power purchase contracts with those facilities more attractive to electric distribution companies and electric generation suppliers and through the sale of advanced energy credits, we believe that the qualifying facilities should be attaining the highest possible environmental standards. As such, we are proposing that qualifying facilities should meet the highest attainable emissions standards for nitrogen oxide, sulfur dioxide, particulates, and volatile organic compounds. By including an emissions standard we will ensure that our unique Pennsylvania energy resources are utilized in a way that protects the health and environmental quality of all the Commonwealth's citizens.

To clarify, this standard would not replace any facilities existing air quality permits. Facilities would still be in compliance so long as they are meeting the standards set in their current operating permits. These standards would be the requirement, essentially a higher bar, which facilities would need to meet in order to qualify for eligibility as part of the Advanced Energy Portfolio Standard.

In order for waste coal to be a meaningful part of the Advanced Energy Portfolio Standard we believe the portfolio standard targets set for the second tier should be sufficient to include both the existing power plants and to provide incentives for some new plants to be built. As was demonstrated in my testimony earlier, Pennsylvania's existing waste coal industry has and continues to provide tremendous environmental and economic benefits to the Commonwealth's citizens. However, because many of the smaller merchant facilities have power purchase agreements that will expire, in many cases, by 2013 we believe there is a need to continue to incentivize their existence and the reclamation work they are doing.

Still, as we will see later today when we visit the Champion refuse pile, there are still many areas of the state that would greatly benefit from reclamation resulting from waste coal utilization that currently have no outlet for existing abandoned waste coal piles. As such, we believe that a portfolio standard that includes waste coal should consider a target that will also incentivize new projects. We can discuss what such a target should be as we move forward in developing legislative drafts, however, for starters we believe that a second tier target of ten percent in ten years makes sense. Pennsylvania's existing and projected waste coal power plants will likely generate enough electricity to meet as much as 8% of the Commonwealth's projected electricity demand ten years from now. Thus, a ten percent overall goal would be keeping in line with the Governor's original proposal for a three percent second tier to

incentivize new projects.

We believe in the view that the waste coal many individuals may see as liabilities can truly be an asset if we use our imagination for innovative solutions. The incentives that we are proposing above will provide both the policy framework and the financial tools to turn these opportunities and solutions into a reality. Again, I thank the Committee for the opportunity to present to you today. I would be happy to answer any questions that you have at this time.

ATTACHME T 5

Reliant Energy™

A Tour Of The Seward Power Plant

Powering Pennsylvania for Generations

elcome to the e ard Po er Plant

Reliant nergy's newest power plant is an environmental and engineering marvel.

 t is the largest waste-coal fired generating station in the world and the largest merchant plant of its kind in the United States.

 t recently won a prestigious industry award 200 Plant of the ear by Platts POW R maga ine.

In a moment, we'll take a tour of Seward.
But first, let's learn what makes it so unique

e ard Burns aste Coal

Unlike most coal-fired power plants, Seward burns waste-coal.

n the early days of coal mining, waste-coal was discarded because poor uality coal could not be burned using the technology of the day.

Much of this refuse was left in large waste piles near the coal mines.

These waste piles are up to 300 feet tall and can run for thousands of feet.

e ard Burns aste Coal

These piles are a significant source of the acid runoff that pollutes local rivers.

There is an estimated 3 0 million tons of discarded coal in the state of Pennsylvania.

Because Seward burns coal with no commercial value, it is e pected to be one of the lowest cost power plants in the region.

Now, let's start our tour of the Seward Power Plant. One item will immediately stand out.