

Project Gob Pile

Final Project Report

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Western Pennsylvania Coalition for Abandoned Mine Reclamation

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Introduction

Project Gob Pile was generated by the need to create statewide working model leading to the removal of mine refuse piles (or banks) that have a negative impact on Pennsylvania's environment and quality of life. The mission was to provide a practical and easily understood tool for public and private organizations and individuals working on reclamation and reuse of pile/bank sites. The model includes suggested procedures, equipment, personnel considerations, funding sources, and evaluation and ranking criteria.

The Western Pennsylvania Coalition of Abandoned Mine Reclamation (WPCAMR), involved in reducing abandoned mine drainage problems in 24 Western Pennsylvania counties, requested a Growing Greener grant to set up a demonstration project in Westmoreland County. The funding was used to locate, evaluate and prioritize more than 100 piles in the county and pursue ways to obtain traditional and non-traditional funding for removal, reclamation and reuse involving 10 priority sites. (See enclosed proposal) An EPA/DEP Growing Greener grant of \$48,000 was approved in October of 2000. The scope of work was divided into four phases: assessment, criteria for prioritization, application of that criterion, and development of a strategic investment plan. A steering committee was organized. A project manager, field inspectors and a GIS specialist were hired and the one-year project was underway. Later a St. Vincent College professor conducted a "sensitivity analysis" to determine the validity of the prioritization and a consultant, Delta Development Group, Inc., was engaged to come up with an investment plan.

Acknowledgments

WPCAMR would like to acknowledge the considerable support we received from many representatives in the Pennsylvania Department of Environmental Protection (Watershed manager Jeff Fliss was the state's advisor). We also received assistance from: The Westmoreland Conservation District (our in-kind partner) and other conservation districts: Natural Resource Conservation Service (NRCS); the Farm Service Agency (FSA); Office of Surface Mining (OSM) (intern Ed Smail was instrumental in all aspects of the model); Penn State Cooperative Extension Service (PSCES); the U. S. Geological Survey (USGS) and the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR). Saint Vincent College, the University of Pittsburgh and Westmoreland County Community College helped with expertise and interns. We received assistance from municipal officials, watershed associations, fuel suppliers and processors, co-generation plant operators, and landowners. Ryan Harr provided invaluable assistance with our GIS system. Handling field evaluations and ranking were Abby Planinsek, Lisa Overly, Justin Kontir and Ed Smail. Linda Boxx of the McKenna Foundation came up with the original concept. Delta Development Group handled the investment plan. St. Vincent Professor Dr. Andrew R. Herr provided a "sensitivity analysis." Many citizens provided pertinent information and many other forms of support.

History

The economy boomed when coal was king in Pennsylvania. The “black gold” fueled America’s industrial revolution and contributed to the nation’s strength as a world power. But today the Commonwealth is paying an environmental and socio-economic price for those “good old days.” Millions of tons of abandoned coal refuse were left behind to pollute streams, have a negative impact on flora and fauna, create health and safety hazards, reduce property values, and generally mar the landscape.

Thousands of piles were once scattered across Pennsylvania’s landscape. In Westmoreland County, the pilot project area, an estimated 150 piles existed in the early 1900s. Surveys conducted by the DEP’s Bureau of Abandoned Mine Reclamation and the U.S. Department of Agriculture’s Soil Conservation Service (now NRCS) in the early 1980s listed about 100 mine dumps, problem areas and spoil piles (not necessarily Gob piles). Many have been reclaimed by Mother Nature (mostly tree-covered) or via public and private efforts as previously outlined. Pile/bank sites have become industrial parks, shopping centers, soccer fields, housing developments, and pasture. Quite a few reclaimed piles are unused fields.

How were the piles created? When coal was extracted from underground mines, a certain amount of unwanted material was also extracted. A necessary activity once this product reached the surface was to separate the pure coal from the waste. The cleaned coal went to coke ovens and other uses, while, in most cases, the waste was piled up near deep mine sites, transported a short distance by conveyors, rail cars, and trucks. Sometimes it was used to fill natural gullies or pushed into mining pits.

The resulting mine refuse dumps took on many names and meanings, “Gob”, “Boney”, “Culm”, “Slag”, “Mine Dump”, “Slate”, “Spoil”, and “Red Dog,” to list a few. The process of separating the coal from the waste was less than perfect and invariably a percentage of coal was included in the waste piles. Often the name given to a pile was linked to the content of coal and hence the amount of useful energy still available in the pile. The content often depended on mining methods (from hand-picked and floating or washing to machine separation methods). Piles with sufficiently high coal content might even ignite spontaneously and could continue to burn for decades.

Generally the older, smaller the piles contain the higher coal/energy content (measured in BTU’s) than more modern piles or banks. Older piles in the west tend to be scattered over the landscape. In the east, the banks tend to be larger and located in a more condensed manner along the valleys. Western piles (averaging about 70 feet high and 300 yards long, range from a few thousand tons up to a few million, with an average of around 250,000 tons. Eastern banks can go several hundred feet high to a mile or more in length with tonnage ranging easily into the millions.

Some environmental impacts of the piles are well documented. Nearby streams and lakes are usually impacted by erosion and sedimentation. Both acid and alkaline pollution drain into nearby waterways. Erosion from the piles is massive. Sedimentation fills creeks and ponds the adverse chemical content and lack of nutrients prevents re-vegetation.

It takes years (decades) for Mother Nature to “recapture” the barren “moonscape-like” piles and banks. We are finding certain plants and animals adapt to “adversity.”

Quite often the piles are located near “coal patch” villages or towns created in the late 1800s and early 1900s. The resulting loss of property value and community pride has also been documented. But property value history is hard to come by. In too many cases the piles serve as unwanted legacy or identification markers for a town or area. Quite a number of piles and banks have become havens for illegal dumping, hunting and shooting. Vandalism and wild parties are all too commonplace. Historically, the steep sides of the piles attract all terrain vehicles and motorbikes resulting in erosion, noise, dust, injuries and sometimes death. Casualty statistics are difficult to pin down, but neighbors, rescue/fire personnel and police indicate the average per pile may run to two or three cases annually. Although there are fewer fatalities, one rescue helicopter pilot noted he sees “at least two or three a year” on Westmoreland’s 100 piles.

These eyesores have also had a negative impact on the local economy, from tourism to development into more constructive land uses. Moving or flattening a pile often increased environmental damage, sometimes resulting in violations of local, state and federal laws. Building on a flattened pile also has its risks. Some neighbors would object to the noise and dust of trucks and other equipment used in reclamation work.

Many public and private sector efforts have been made to reduce or eliminate the piles and banks. Government efforts, in the 1970s, ranged from reclamation projects by the state Bureau of Abandoned Mines to the federal Rural Abandoned Mine Program (RAMP). For wide-ranging economic, political and personal reasons many piles and banks have not been reclaimed. Public and private resources for pile reduction have dwindled. The rise of co-generation power plants capable of burning gob pile material, boosted by laws forcing utilities to buy the power produced by burning “waste,” resulted in some private reclamation operations. The law, known as the Public Utility Regulatory Policies Act (PURPA), designed to diversify the power industry and to reduce America’s dependence of foreign energy sources, has pretty well faded into history, but co-generators have survived and some are thriving as energy costs rise. Priorities governing removal and reclamation ranged from safety and health to environmental concerns in the governmental arena, to BTU/Sulfur/moisture content plus transportation costs in the private sector.

Historically, requiring mining permits to remove piles has hampered removal. The resulting impact on time and money was prohibitive. More recently, the ability for owners, processors and suppliers to remove the piles under waste permits has boosted reclamation work.

Technology is also advancing the cause. The co-generators are finding ways to burn the “waste” at lower BTU levels (as low as 3,000 and 4,000) and handle pollutants within the material such as sulfur, metals and moisture. They are also finding ways to dispose of the fly ash burn product in an environmentally friendly manner.

Options for Remediation

The potential for remediation of gob piles falls into these basic categories:

1. Pile Removal
2. Adaptive Reuse
3. No remediation

Each will be discussed in the sections to follow.

Pile Removal

In the ideal case pile removal is the preferred form of remediation for most piles. But given the enormity of some of the piles, the expense associated with removal may very well carry a very high (or prohibitive) price tag. Fortunately some of the piles have an economic value, mainly due to the presence of residual coal. We can therefore classify piles by their economic value as follows:

1. piles with sufficient economic value such that private industry may play a significant part in the remediation solution.
2. piles with little or no economic value where their removal will warrant considerable expense.

Removal of piles with economic value

The amount and quality of the coal in the pile material may make a pile attractive enough as a fuel. A relatively new power generation technology known as co-generation has proven to be an economically viable and environmentally acceptable means of burning lower grade fuels. Co-generation is perhaps the single most significant hope for gob-pile remediation for the foreseeable future. Co-generation is currently being used to produce electricity by burning gob pile materials in over a dozen locations in Pennsylvania.

Not all gob piles are created equal. Among the economic factors a co-generation operator must consider in deciding the value of material of a gob pile are:

1. **Energy content of the pile** – (usually measured in BTU's per ton of material) This value should exceed about 5000 BTU's per ton to be useful.
2. **pollutant levels** - If significant amounts of pollutants such as sulfur or heavy metals are present in the material, either additional pollution handling equipment must be present at the co-generation plant or the material may not be acceptable.
3. **Transportation costs** may be a significant factor in the economic viability of using a particular pile's material. The closer the pile is to the plant the better.
4. **moisture content** – If the material has an excessive moisture content, the moisture must first be removed before burning, adding an additional cost. Obviously the lower the moisture the better.

5. **clay content** – excessive clay in the gob pile material causes the material to stick together in a way detrimental to burning it. Clay may necessitate an expensive pre-wash step. The material is far more desirable with low clay content where washing is either not need or is minimal.
6. **raw material acquisition cost** - the cost per ton to obtain the raw material is an obvious economic consideration
7. **access to the pile** - accessibility to a pile is crucial so that the material can be loaded onto trucks. If site improvements are needed for accessibility, the costs go up.
8. **permits / legal costs** – Permitting and other legal costs are very site specific. The operator wants these costs to be as low as possible.
9. **environmental concerns** - If special environmental factors are associated with the gob pile site, additional costs may be incurred.
10. **fly ash reuse** - The product of burning the material is fly ash which must be disposed. If this fly ash can be used in some useful way (such as a neutralizing agent for acidic mine drainage) the costs associated with disposal can be eliminated or reduced.
11. **cost of site remediation following pile removal** – Once the material has been fully removed, additional site remediation will undoubtedly be required to meet environmental and aesthetic concerns. The operator would obviously prefer these costs to be as small as possible.
12. **potential for land reuse once site is remediated** – If the remediated site of a removed pile has a significant value, the operator will have additional economic incentive to use pile material.

These items represent a partial list of considerations that go into the decision-making process of using materials from a particular gob pile. In the end, the removal of the material with all that is associated with it has to make good economic sense to the co-generation operator.

Removal/remediation of piles with little economic value

The reality of the situation is that if a particular pile has little economic value, it has a much smaller chance for remediation. In this case the pile would have to represent a clear and present danger to public safety to get the attention of government for removal. Perhaps co-generation use could still be a possibility if a way is found to change the economics through a subsidy. Another possibility is to redistribute the pile material into nearby valleys or depressions in the landscape. However, a considerable demonstration of local public will would be required to garner the resources necessary.

Adaptive Reuse

In some (rare) instances, adaptive reuse of a pile may be possible. For instance, one pile was actually converted into a feature of a golf course. In another instance, a pile was used as an ATV park. Creativity is the key to turning an eyesore into an asset.

No remediation

As mentioned above piles having little economic value may not stand a good chance for remediation. If the co-generation economics don't make sense and sufficient public will is not present to find other avenues for remediation, the pile will likely be a feature of the landscape for the foreseeable future.



Gob Piles in Yukon, PA were given high priority for removal.

Basic Preparations

Success of projects of this nature hinges, to a great degree, on consensus. Certain questions should be asked and answered before launching reclamation efforts. Is there wide perception and agreement a mine refuse problem exists? Is that feeling shared by most of the community or at least held by people who can do something about removing the piles/banks and finding new, more constructive uses for the land? If not, is there a good chance that consensus can be created? Can key people... business people, economic development, groups, politicians, public officials, landowners ... be persuaded to respond? Assuming positive responses prevail, the first step is to find leadership ... an organization willing and capable of pursuing funding and implementing a project. Usually these leaders begin with some form of strategic planning: conceiving a mission or vision statement, objectives and a plan of action which lie at the base of any proposal or scope of work. Teamwork is required ... structured or unstructured. In the case of Project Gob Pile, the Western Pennsylvania Coalition for Abandoned Mine Reclamation was asked by citizen Linda Boxx to assume the leadership role and the EPA/DEP responded with a grant. In the Westmoreland pilot, an informal team was formed to pursue the grant and it later evolved into a steering committee. Once the grant was approved, the WPCAMR's regional coordinator hired the project manager. The manager then took the following steps (not in the scope of work) before evaluating and prioritizing piles:

1. Studied the proposal, scope of work, grant agreements, and other documents involving the project.
2. Gained information from pile/bank processors/blenders, fuel supply managers, pile/bank owners, truckers, and others involved with mine refuse disposal/reclamation.
3. Worked with government professionals, from DEP's District Mining Office, Bureau of Abandoned Mine Reclamation to the USDA's Natural Resource Conservation Service and a number of conservation districts..
4. Met with appropriate electric power company people and co-generation plant and fuel supply managers.
5. Gathered information on abandoned mine drainage pollution from the WPCAMR, EPCAMR and other sources.
6. Discovered locating piles was assumed but not mentioned in the scope of work. Searched for and found a number of sources of information concerning pile locations and their history. Information on the history of mining (especially mining methods) was useful.
7. Sent out letters to municipal officials and watershed groups to get information on piles and gain their support.
8. Worked with the Westmoreland Conservation District, our in-kind partner, to establish a solid, cooperative relationship.
9. Talked extensively with the DEP advisor on procedures and other issues.
10. Created accounting procedures and forms.
11. Established internal communication procedures (calendar etc...). Set up filing system, contact lists, phone and addresses etc....

Hiring

Procedure tips:

Carefully set job specifications for each position because they will serve as conditions for employment and lie at the base of the basic understanding between your organization and employees. The specs should run parallel to the scope of work. You must follow any grant conditions for employment as required by anti-discriminatory law, minimum wage law etc. Also look for specific or unique requirements: Example: interns must carry a minimum 2.5 GPA: manager must have experience in.... etc. Keep salaries, wages and grant administration within budgetary limits. Be sensitive to those limits as you hire people in each category, fitting function with relative value.

Establish a system of accountability that follows grant stipulations to make sure procedures are understood by employees (time and mileage sheets, for example). Also make sure all employees understand the line of authority within your organization that connects to the project.

Recruiting methods range from networking and web page sites to newsletters and newspaper ads. Interview with pre-set questions to permit effective comparative analysis. In the cases of the manager include other professionals with expertise during this process.

Manager

A Gob Pile Project Manager...should immediately think up a better name for him or herself...or develop a self-effacing sense of humor.

Using existing personnel in your organization is preferred, but not mandatory. Experience in some form or shape of management helps...especially applying an understanding of human dynamics. A specific or specialized degree isn't as mandatory as experience. The manager should be a person willing to go and "work the piles" to get first-hand knowledge concerning evaluation and the obstacles to be overcome.

Familiarity with the conservation movement, government operations, mining, (particularly mining history, reclamation, reprocessing and blending), basic chemistry and biology, co-generation, trucking and heavy equipment, land use planning and development, maps and GIS systems, and basic business operation can go a long way. Try to hold on to professionalism by avoiding political pressures during hiring process. Desirable skills and characteristics include: above average social/communicative abilities; basic computer competency; business/economic, accounting knowledge; environmental concern; and community pride.

Field Inspector

Variety is the spice of life. Variety among inspectors results in quality evaluation. The variables should encompass geographic location, occupational/educational background and skills/talents. College students are good, but require more intense training and supervision. Retired people are excellent, but climbing piles can be a challenge. Some folks live on part-time jobs, but often have time management problems. Those with mining experience or an understanding of environmental/economic impact are the best, but are relatively rare. Desirable knowledge/skills include: Some knowledge

of the local area helps plus the basic ability to read maps; above average social skills, average verbal and writing skills; a basic understanding of chemistry and biology; the ability to calculate the volume of an irregular shape or at least have enough math background to learn how; able to use Geographic Positioning System (GPS) and water monitoring devices; computer capabilities including knowing how to operate a Geographic Information System (GIS) and manipulating data bases.

Desirable character traits or attitudes; methodical, persistent, dependable, concerned about the environment and a sense of community service.

GIS Specialist

The GIS specialist often ends up doing more than working with computers. He or she helps with coordination. The specialist sets up inspection assignments, trying to geographically group piles to reduce mileage and time. Knowledge of the area, for example, helps in working with field inspectors as they search for piles. Often the specialist helps communications between manager and inspectors on a wide range of issues.

Skills should include a command of GIS software, digitizing, creating and editing files; handling projection adjustments; importing and exporting databases; and handling query data. A working knowledge of Microsoft Access, Excel or similar database software is needed, especially in creating a new database and extracting information from other sources.

Others

We used a professor to validate our ranking or prioritization procedures and we hired a consultant to develop a strategic investment plan. The validation may not be necessary if the model's ranking criteria or something like it is followed. The development consultant's section of this model should help with resource development and implementation.

Depending on the size of the project, either the GIS specialist or another computer competent person may be needed to input data and help with inputting ranking/prioritizing. Clerical and accounting personnel may be required.

Equipment

Equipment requirements depend on the scope of work. Basic requirements include for field work include:

- Safety equipment such as brightly colored vests, proper (old) attire such as safety or waterproof hiking boots, first aid kit, flash lights, flares, cellular phone, vehicular travel kit, bottled water, pen knife, length of rope.
- All those involved were expected to provide transportation. Four-wheel drive is recommended.
- Equipment used in locating piles ranged from road maps to a Global Positioning System. The Coalition purchased three GPS units and borrowed others when needed. Maps taken from the Geographic Information System (GIS) showing sites, topography, and roads were very helpful. Tax maps also helped. Training is often needed to use these devices.
- Several pH (water monitoring) meters were given to inspectors. A kit of pH buffers used for calibration also was provided. For more in-depth sampling, the inspectors should carry small, clean containers to collect water samples.
- A clipboard with waterproof paper or notebook was supplied.

Important! The inspectors should be armed with a letter from the project manager certifying them as representatives of the Coalition. An identification badge or hat would also be helpful.

Many pile owners became interested in the subject of reclamation. However the inspectors generally did not have the resources to give them the information that they needed. To correct this a list of contacts (co-generators, DEP, etc.) would be useful to the inspectors.

Each inspector should have access to a camera for photographic documentation.

Access to a personal computer, photocopier, typewriter, and office supplies is strongly recommended.

Resource materials should include soil inventory or survey book, existing information on pile/bank sites, and laws and regulations governing reclamation. Texts on mining (especially history), co-generation, refuse reprocessing, waste disposal, stream biology, land development and land use economics would be helpful.

A computer at the office supported the field work. The software applications supporting this project were the applications included with the Microsoft Office Professional 2000 suite. We used Word, Excel, PowerPoint, Access, and Outlook to manage our work flow. We also used ARCVIEW 3.0 (ESRI, Inc.) GIS software for mapping. All of the mentioned software is compatible with most any modern personal computer (circa 2000), although we suggest having at least 128Mbyte of memory and a 20 Gigabyte hard disk. A CD burner was very useful as was a larger 19" monitor (the bigger the better for mapping purposes). The only "exotic" hardware we used was a large format plotter (HP DesignJet 750) capable of producing 36" wide maps. (A run of the mill ink-jet printer sufficed for producing smaller maps.)

Locating piles/banks

Outside of initial and basic preparations such as hiring personnel, establishing office space and organizing procedures, locating the piles was the first major step in launching Project Gob Pile. It was inadvertently left out of the scope of work, but it took considerable time and money. Location became a big factor in evaluating piles. The critical elements range from adjacent land uses to removal transportation costs. (See evaluation and prioritization.)

We were fortunate to find a U. S. Soil Conservation Service (now NRCS) 20-year-old study of abandoned mine sites for Westmoreland County and were led to believe other Pennsylvania counties have similar studies. The study was designed around the soil inventory, using topographical/aerial photographs. We then discovered the Pennsylvania Department of Environmental Protection's Bureau of Abandoned Mine Reclamation (BAMR) had database created during Operation Scarlift and part of the National Abandoned Mine Land Inventory System. It indicated mine problem sites with evaluation data (also very outdated). Although the narratives were old, they were very useful, especially in evaluating and ranking piles. Physical descriptions of location although changed by time, helped us zero-in on some sites. WPCAMR had some difficulty in adapting the data to our ARCView GIS system, but were able to use it with other sources. Those sources included 3D TOPO quads, USGS quads, tax maps, soil inventory information and a PennDOT digitized road map. Each source had some inaccuracies or inadequacies. For example, a number of the "problem areas" with the BAMR data did not involve mine refuse piles and some of the GPS readings were incorrect. Eyeballing each and every possible site became mandatory. Old deep mining maps could be another useful source. The knowledge and memory of old coal miners were invaluable. We also tried to talk to owners before visiting piles and they would help us with location. Municipal officials, watershed association members, policemen, firemen, hunters, fishermen and many other people helped us locate additional piles. Even with all this help, we often had to "hone in" on the piles with GPS units, binoculars, and a great deal of luck. The work became increasingly more difficult as the foliage blossomed in the spring. And, in some cases, we eventually found many of the piles were simply not there. Map reading skill is important. Each evaluation assignment was accompanied by a GIS map, but sometimes roads were not clearly indicated. The GIS specialist tried to assign piles in geographic groups to save mileage and time. Up-to-date road maps are a must. Asking questions at every turn along the way was a good idea. Westmoreland County is about the size of Rhode Island with thousands of miles of hilly and curvy roads. Rolling hills, forested landscape, a variety of rivers and streams, and a general distrust of "government officials" (the residents of the home of the Whiskey Rebellion believe all strangers are "revenueurs" or worse) made locating piles challenging. We ended up locating and visiting more than 120 sites (some reclaimed) in about five months.

Evaluation

Evaluating piles/banks depends greatly on how the gathered information will be used. Our goal, of course, was removing and/or reclaiming the piles. But the relevancy of the information gathered by our field inspectors depended on who was going to initiate or pay for individual improvement projects. Later, we found accuracy relied heavily on judgmental observation and whether owner's information was accurate.

So we began to create an evaluation procedure and form built on conversations with those involved ... pile owners, neighbors, processors, fuel suppliers, co-generators, conservation professionals, municipal leaders, government officials. Of course, there was a wide variety of interest ... sometimes conflicting. Owners, fuel managers, processors and the like are driven by market conditions and profit while neighbors, politicians and conservationists are driven by "quality of life" concerns. Thus our evaluation reflects the priorities of both camps. We also used GPS units to verify location and pH meters for water conditions. Some information came from the narratives provided by BAMR field inspectors who looked at the piles/banks about 20 years ago.

The resulting evaluation or assessment form is enclosed. For many it might be considered too long and complex. Some of the questions and resulting information may not be useful or appropriate to eastern Pennsylvania anthracite culm banks. We are only offering a guide that can and should be adjusted to fit provincial realities.

We adjusted to our realities (or capabilities). For example, although we felt the piles/banks created reductions in nearby property values, it was simply not feasible to develop a comprehensive and credible comparative analysis. We found it difficult to come up with a history of property values. We do not know what they were before, during and after the piles were created and reclaimed in the past, only what they are worth today. We did record comments from neighbors and residents that clearly indicate they feel the banks and piles adversely impact on values and resale. Field inspectors also noticed the difference in appearance between properties near the piles and the rest of the community. But this anecdotal evidence falls far short of empirical evidence.

Evaluation depended to a large degree on pile owner cooperation. Some knew a great deal about their pile or piles. Fuel suppliers or processors had approached them. Others had professional assessments based on core drillings. Some were dreamers who often exaggerated energy content information. Many considered themselves burdened by a family inheritance and knew very little about their property. If they were convinced the field inspectors were not regulators or an opportunity to get money, they were very cooperative in assisting with the evaluation. Some owners lived out of state.

We found many piles partially or completely reclaimed. Although some of these are damaging the environment and have a negative impact on the quality of life, they did not rank high in our prioritization. As indicated in the "lessons" part of this model, in future evaluations they should be evaluated and ranked in a different category. It is irresponsible to ignore them completely.

The evaluation or assessment was divided into several major categories: Owner; Location; History; Economic/social conditions; Neighborhood Survey, Physical, Water Impact and Other Activities. The idea was to first establish identity ... who, what, where, when, and how. History was important because types of mining often determined length

of environmental damage (Younger piles tend to have acidic drainage, whereas the older piles tend to evolve into having alkaline drainage as an example.) They also determine energy content, density and combustibility of a pile/bank. The economic/social conditions section looks at a wide range of issues, from community concerns to aesthetic impact. Water and plant and animal observations were obviously important, and as we gained knowledge we later felt we should have been more detailed in our recording. We duplicated this consideration under “water impact” and “other activities.” Fire concerns were duplicated under “history” and “other activities.” Criminal activity such as illegal dumping was duplicated under “history” and “other activities.” We also asked about energy content under “history” and “physical.” So elimination of duplication and some condensation may be in order.

We also were sensitive to adjacent land use, zoning, access (roads, weight limits, etc..) and other factors involved in putting the sites to good use, following removal and reclamation. But we did not try to determine what the use should be. We did not get into sewage and water lines. Beyond lack of adequate pile content information, we are worried about the validity of the following points of evaluation:

Water quality: Although we took pH readings on streams above and below piles, we were unable to separate the impact of abandoned mine drainage from pile affect. To our surprise we found that drainage many piles had decent 6-7 pH readings. Sometimes it appeared acid AMD was neutralized as it flowed by an alkaline-generating pile. This created a dilemma in the environmental damage rankings because the pile may actually have an environmental benefit. We also took only one reading during a site visit, knowing very well that it was an incomplete picture. Obviously, readings should cover at least one full year. Quality assessment did not cover a complete chemical picture ... minus metals, bacteria etc...

Socio-economic measurements relied heavily on a very small and narrow survey of nearby residents. We were mildly surprised to find a great deal of apathy. Sadly, we knew from the outset many people were unaware or did not care about environmental impact, but they also displayed little concern over property values, aesthetics, and impacts on the economy, such as tourism. Most were angry about motorbikes, ATVs, wild parties, illegal dumping and the like ... which did lift the rankings on certain piles.

Political concern was somewhat easier to measure, but still very ambiguous and hard to record on the evaluation sheet and apply later on to prioritization. If people had complained loud and long enough to generate some response among the municipal officials or state representative we were able to record a higher mark. But, again, this was difficult to evaluate.

Even though major factors in removal and reclamation, such as energy content and ownership and other legal considerations, were sketchy, we moved on to prioritization.

Prioritization

Prioritization or ranking the piles/banks was designed to help determine which removal or reclamation projects could or should come first. The steering committee linked the evaluation form to a ranking scale consisting of five considerations totaling 150 points. The scale was divided into section titled: Socio-economic; Environmental; Health and Safety; Development and Removal Potential. (See enclosed)

The Socio-Economic section covered social impact and/or interest, political interest, population density, adjacent land use, tourism impact, and economic conditions. The Environmental section ranked flora/fauna and stream impact. Health and safety covered fire, slopes, illegal dumping and other activities, and ATVS/motorbikes. The Development Potential section dealt with the pile's legal status, energy content, pollutant content (e.g. sulfur in the coal), topography, available adjoining space, and access. Bonus points were given for inclusion in heritage or river plans. (Very few piles were given bonus points.)

The weight given each consideration was arbitrarily determined by the committee, and probably will vary on each gob pile project. Socio economic factors totaled 40 points, environmental, 35; health and safety, 25; developmental, 40; and bonus points totaled 10. Objective ranking is difficult. For example, those involved in our ranking were very environmentally and socially conscious. But pile removal and reclamation may be driven more by developmental potential and economic considerations, than by concerns over environmental damage or negative social impact. So project managers, staff and steering committees must try to apply their judgment to the ranking or prioritization approach based on regional realities, such as intensity and type of development pressure.

Using the evaluation forms, each pile was ranked separately by three individuals, starting with the on-site field inspector. The final ranking total is an average of these three findings. The goal was to improve objectivity. But it was very difficult to rank piles using evaluation sheets ... without actually visiting sites. The validity of our overall objectivity was the purpose of the sensitivity analysis.

It must be pragmatically noted that no matter what our priorities may be, pile/bank owners make the final determination. Many might have to be persuaded to see the reasoning behind our prioritization. We might safely assume this persuasion will be greatly enhanced by offers of financial support. And that consideration is covered in our "strategic investment plan" section.

St. Vincent College Professor Andrew R. Herr studied the prioritization (see Sensitivity Analysis) and validated the model's approach. It would be wise to use a similar expert once during the ranking process.

Database

One of the main accomplishments of Project Gob Pile was the creation of a database containing data on all of the evaluated gob piles. The evaluation and ranking information was placed in spreadsheet form, providing fast and simple access. A preliminary database was burned to CD-ROM and the demand from processors, co-generators and landowners has been strong. A refined version of the original is included on the final report distribution CD.

The database was set up in two formats to reach the greatest audience: Microsoft Access and Microsoft Access. In both, information for the roughly 100 piles identified in the study was stored in tabular form, with each row representing a particular pile. The information on each pile includes location, ownership, historical, physical, and social data as well as the scoring information.

The Access form of the database is based on a central Piles table, with a number of supporting tables constructed for efficiency and good database design practice. Two forms are intended as the database's primary human interface:

1. **A Tabular Piles Form** - giving thumbnail information for each of the piles with primary identification information, scoring, and reclamation status. Also included is a button to bring up a second form with detailed information presented on a pile by pile basis. This is the default form presented when the database is started.
2. **The Detailed Piles Form** – presenting all of the individual fields of the Piles table for a single pile. This form is organized as a tabbed set broken down by the following categories: location, ownership, physical, social, and scoring.

The Excel form of the database contains the same information as the Access database, but is contained as a single table. Because of the large number of fields incorporated into the table, printing the table is unwieldy and was not attempted. We recommend on-line viewing.

A description of the individual fields is given in the appendix.

Sensitive Analysis

(This is the executive summary of Dr. Andrew R. Herr's "Sensitive Analysis of Mine Refuse Pile Rating System, July 2001.)

Project Gob Pile is sponsored by the Western Pennsylvania Coalition for Abandoned Mine Reclamation (WPCAMR). The primary purpose of this project is to identify, assess, and prioritize the mine refuse piles within Westmoreland County. Thus far, WPCAMR has identified, assessed and ranked 102 piles. In order to prioritize the piles, WPCAMR has developed a ranking system that incorporates 19 criteria. These criteria cover social-economic, environmental, and health and safety factors, as well as the development and removal potential of the piles. Each criterion has been assigned a maximum point score (ranging from 5 to 25 points) based on the perceived importance of the criterion. Based on this point scale, the maximum total score possible for any pile is 150 points. The purpose of this report is to evaluate the ranking system used by WPCAMR to prioritize the piles, particularly the weights applied to the 19 criteria. Many aspects of the ranking system, including the list of criteria, the point scale, and the numeral rating of the piles necessarily involve subjective human judgments. Such subjectivity cannot be avoided in a project that attempts to prioritize a list of sites; however, it is prudent to explore the sensitivity of the final rankings to subjective framework by which the piles are ranked. This report evaluates the extent to which the final rankings are sensitive to maximum point scales assigned to each of the 19 rating criteria. I used a two-step process to evaluate the WPCAMR ranking system. First, I eliminated from consideration piles that did not have a reasonable chance of being selected for reclamation. At the present time, WPCAMR is attempting to identify roughly 15 piles for reclamation, and most of the piles do not score high enough on the criteria to have a reasonable chance of being selected among the top 15. After eliminating piles from consideration, 40 piles remained for further examination.

I developed two alternative measures for ranking the remaining 40 piles. Both of these alternative measures are "weight free" in the sense that neither involves placing differentiated weights on the 19 criteria. By comparing the new rankings arising from the weight-free measurers to the original rankings, we can observe the extent to which the original rankings are sensitive to the specific weights applied to each criterion. If the new rankings closely correspond to the original rankings, then we can conclude that the original ranking system is robust to changes in the weights. On the other hand, if the new rankings deviate substantially from the original, then we conclude that the original ranking system is sensitive to the chosen weights. This would not necessarily imply that the original ranking system is flawed, however, it would suggest that we should be very careful to ensure that the weights specified for each criterion are defensible.

A comparison of the original rankings resulting from the alternative measurers suggests that the original ranking system is quite robust to changes in the maximum point scales, particularly with regard to the highly ranked piles. More specifically, 12 of the top 15 piles from the original rankings also rank in the top 15 of both the alternative measures. Furthermore, two of the three exceptions missed the top 15 in the dominance rankings by only one place on one of the two measurers. The strong correlation between

the original 14 rankings and the alternative measurers breaks down somewhat after the top 15. Only one of the five piles originally ranked between 16 and 20 in the original rankings also ranks in the top 20 of both alternative measures. The exception is Fitz Henry pile, which ranks 13th and 14th in the equal weighting and dominance measurers, respectively.

Given the fact that the WPCAMR hopes to reclaim only about 15 piles at the present time, these results strongly support the use of the original ranking system as a means of prioritizing the mine refuse piles. In addition, I would suggest that the WPCAMR consider adding the Fitz Henry pile to the priority list of piles to be reclaimed. This site, which ranked 17th in the original ranking scored well in both of the alternative measurers.

Professor Herr's complete study is found in the addendum material.

Investment Plan

Development of Recommendations - Process

Project Gob Pile is designed to help communities, agencies, companies and individuals remove mine refuse piles, reclaim and reuse the land. Delta Development Group, Inc. was selected to provide a strategic investment plan to help accomplish this goal. Delta Development investigated remediation and redevelopment options for a number of sites within Westmoreland County with the larger goal of developing funding and procedural recommendations that would apply to all counties within the Commonwealth. A series of actions were taken in investigating the redevelopment options for each of the example sites and to identify potential funding sources on all levels of the government.

First, pile owners were contacted to discuss previous redevelopment efforts and pending actions or plans. Although several owners were contacted, these communications were challenged by ownership information that was out of date and/or wariness on the part of the located owner to disclose information. Establishing a comfort level with owners required a significant educational effort for the consulting team. The key to building a successful rapport with owners is to outline and understand the specific incentives needed to entice owners to remediate and redevelop. While monetary gain is an obvious attraction to such activities, other incentives can be of use. Among these are job creation capability in struggling communities, positive publicity (mainly for corporate ownership) and environmental gains that serve the community at large. These incentives can make remediation and the efforts needed to attract develop to the site, worthwhile. While funding programs are discussed within this report, it became quite clear that the most successful redevelopment projects are founded in public/private partnerships.

It should also be made clear that pile owners have a number of resources available to them. Specifically, pile owners interested in pursuing remediation should first contact their regional office of the Department of Environmental Protection, local municipal officials, conservation group or watershed organization. These groups should have a better knowledge of funding sources and agencies available for these types of activities, and in many cases, pile owners can not pursue assistance without the sponsorship of these organizations. Conversely, the development community or energy companies interested in participating in the remediation of piles, should also turn to the local organizations. Additionally, professional organizations, such as the PA Coal Association, the National Mining Association or even the local Chamber of Commerce can be contacted for guidance. These organizations should assist in identifying the realities of potential sites and their redevelopment potential, as well as provide an introduction to pile owners and funding agencies. It should be the role of these local offices to guide interested and motivated parties through the process. Pile owners should feel relieved to have such a resource close at hand.

Secondly, contact was established with federal, state and county officials to discuss previous redevelopment efforts, including attempts to obtain funding for such efforts. Discussions were held with agency officials and elected officials who may have secured capital budget redevelopment funds for any or all of the locations. This was an attempt to understand program and policy options and guidelines available for a number of activities relating to site clean up and development. This review showed that funding agencies are interested in funding projects with future land use potential.

A site visit was conducted for each of the priority piles. Municipalities were also contacted to uncover recommendations that any of the municipal planners may have for any of the sites. This investigation revealed that municipal planners had little knowledge or information about gob pile sites. Many did not recognize the composition of the piles and many assumed the piles were part of the natural topography of the area. As a footnote, there should be an educational effort to educate municipal planners of existing gob piles in the County.

Discussions regarding zoning designation and land use restrictions were held, and information from Municipal Act 537 plans was reviewed to identify current and planned infrastructure, as these issues directly impact the ability to develop the area. Surrounding land uses, road access and network, land use plans, and infrastructure availability were assessed. Land use recommendations were based on the best information available.

The addendum of this report will provide information on how to contact each of the organizations mentioned within this narrative. Most government agencies have regional offices and it is recommended that individuals interested in locating their regional office should contact their county's administrative offices for guidance. It should be noted that at times, a regional office may be located in a neighboring county or state. Location should not deter individuals from contacting those offices.

Land Use Recommendations and Funding Options

The following chart lists the recommended land uses for each site as well as potential funding sources in conjunction with the recommended development type. Detailed information pertaining to each site, the recommended land use, and program specifications for the funding sources, is available in the addendum of this report. In some instances, it is recommended that piles close in proximity to each other should be consolidated into a consortium prior to seeking funding or regulatory assistance. This will expedite resource contact and research, increase development potential and reduce competition for funding.

| PILE | MUNICIPALITY | LOCATION | LAND USE RECOMMENDATION | POTENTIAL FUNDING SOURCES |
|-----------------------------|---------------------|---------------------|---|--|
| Carbon | Hempfield | US 119/ US 30 | Industrial/Commercial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Bovard | Hempfield | US 119/ US 30 | Light Industrial/Commercial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Yukon | South Huntingdon | Exit 25A of I-70 | Recreational/Commercial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Adamsburg | Hempfield | US 30 | Residential/Recreational | EDA, EPA, USDOT, DCED, DEP, DCNR, PennDOT |
| Wendel | Hempfield | US 30 | Residential | HUD, EPA, USDOT, DEP, DCNR, PennDOT |
| Sharon | North Huntingdon | I-76 | Residential | HUD, EPA, USDOT, DEP, DCNR, PennDOT |
| Darragh | Hempfield | S.R. 136 | Commercial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Buckeye | Mount Pleasant | S.R. 819/ US 119 | Recreational | HUD, EPA, USDOT, DEP, DCNR, PennDOT |
| Drive-In Theatre | New Kensington | S.R. 366 | Commercial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Fitz Henry | South Huntingdon | Exit 23 of I-70 | Industrial | EDA, EPA, USDOT, DCED, DEP, PennDOT |
| Mount Joy | Mount Pleasant | Slope Hill Road | Agricultural | EPA, USDA |
| Seger | Derry | S.R. 217 | Agricultural | ÉPA, USDA |
| Bell Point | Washington | S.R. 66 | Residential | HUD, EPA, USDOT, DEP, DCNR, PennDOT |
| Delmont | East Huntingdon | I-76 | Low Density Residential/Agricultural | EPA, HUD, USDA, DCED, DCNR, DEP |

Note: The addendum contains a complete list of funding opportunities available from the U.S. Department of Agriculture (USDA)

Explanation of Financing Options & Nontraditional Funding Sources

In 1977, the Surface Mining Control and Reclamation Act (SMCRA) established the Abandoned Mine Reclamation Fund, a fund dedicated to the remediation of environmental contamination at abandoned mine lands. The Fund supports clean-up efforts at mines abandoned prior to August 3, 1977. The SMCRA also established new regulatory procedures that require active mine operators to post reclamation bonds prior to receiving a coal mining permit. If reclamation is not completed to the satisfaction of state regulatory agencies, the bond funds are used to pay for site reclamation.

Traditional AML Programs: Regulatory History: SMCRA specified a formula distribution for dispersing the reclamation funds: 50% States/Tribal (pending establishment of approved reclamation program); 10% Rural Abandoned Mine Program (administered by the USDA); 20% State/Tribal Supplemental Grants for Priority 1 and 2 problems; 20% Federal Expenditures. Expenditures from this fund rely upon congressional appropriations. Recognizing the discrepancy between the cost for reclamation and available funding, members of the Pennsylvania General Assembly recently requested that Congress release \$1.5 billion in AML funds. Due to funding constraints, the US Department of Agriculture is not accepting proposals for its flagship program, the Rural Abandoned Mine Program (RAMP) because it has not received a Congressional allocation since 1995.

Market Incentives & Regulatory Constraints: Pennsylvania's most powerful reclamation tool has been the Government Financed Construction Contract (GFCC). GFCCs are preferred alternatives for addressing coal refuse sites that do not qualify as high priorities through the State's Abandoned Mine Land Program. GFCCs permit companies to extract coal or remine coal waste without securing a traditional surface mining permit. As with a surface mining permit, a pre-application field meeting is required to determine the value of the bond amount. Bonding is required for all (re)mining activity to ensure that all sites are reclaimed in an appropriate manner. While bonding requirements still apply to a GFCC, operators are not held liable for any discharge created through the course of operations. As the market for independent power production has expanded, the opportunities for remining have grown. State and federal agencies are reluctant to expend limited AML funds on sites that have such economic potential.

State policy does not currently recognize abandoned mine sites as "brownfields." Because many abandoned mines were once the hub of active surface and deep mining operations, they meet the popular definition of a "brownfield." Yet, because these sites often lack the infrastructure (e.g. buildings, sewer, and water connections) to support redevelopment, they do not receive brownfield funding. With the exception of the Department of Environmental Protection (DEP), state agencies will not participate in site redevelopment until a release from liability has been secured. Recognizing the large funding shortfall for mine reclamation, a growing number of individuals and agencies are adopting the term "greyfields" when discussing abandoned mine lands. Although funding for greyfields is currently limited, efforts are underway to open funding for the redevelopment of these sites.

The Ridge Administration's Growing Smarter strategy emphasizes sound land use principles, such as downtown revitalization, joint planning, and brownfields redevelopment. The unprecedented funding levels dedicated to abandoned mine land reclamation through the DEP's Growing Greener program is a testament to that strategy. Organizations can successfully position AML sites for redevelopment by partnering with other organizations to market commercial opportunities.

Federal and state programs, such as the 319 Nonpoint Source Management Program, have been successfully utilized to address contamination from abandoned coal sites. However, a multi-pronged strategy is required to achieve long-term goals: eliminating abandoned mine lands and their associated impacts. Strategies that can support greyfield remediation may include:

- (1) **TEA-21 Funding** (US Department of Transportation) - When the Transportation Equity Act for the 21st Century (TEA-21) was signed in 1998, it established several mandatory factors that metropolitan planning organizations (MPOs) need to consider when developing transportation improvement programs. Environmental enhancement was among these factors. Surface transportation funds can be a source of flexible financing for environmental restoration that is necessary to advance a highway, bridge, or transit project. In addition to surface transportation dollars, TEA-21 authorized funds for a newly created competitive grant program – the Transportation, Community and System Preservation (TCSP) Pilots. The initiative supports projects that integrate community livability and transportation planning. Non-traditional partnerships are encouraged.
- (2) **Section 206 Funding** (US Army Corps of Engineers) - The Section 206 program, created by the Water Resources and Development Act of 1996, is part of the Continuing Authorities Program administered by the US Army Corps of Engineers. As authorized by the Water Resources & Development Act of 1996, the Corps can undertake projects that advance aquatic ecosystem restoration and protection. To request Section 206 funds, a project sponsor must submit a formal request to the Corps requesting a study of the impacted area. Although a non-federal interest must provide 35 percent of the total project costs, state partnerships can reduce the local match requirement. Additionally, the Corps is working to develop new regulations that will enable the Agency to improve aquatic habitat and support opportunities for redevelopment. The Corps is currently administering approximately six AMD-related projects with Section 206 funds within the Baltimore District, where Pennsylvania is situated.

Two notable 206 projects in Pennsylvania are the Dents Run project in Elk County and the Nanticoke Creek project in Luzerne County. (More detailed information for these projects can be found in the addendum.) Each project is currently in the feasibility stage, which can range from 1-3 years depending upon the size of the project. Both have received Corps support because AMD problems were evident in the watershed. Local waterways are virtual “dead zones” – areas where aquatic life cannot be supported – due to the high metal content in the water and streambeds.

- (3) **Brownfields Economic Development Initiative** (HUD) - This grant program helps entitlement communities redevelop abandoned, idle, or underutilized industrial and/or commercial property where perceived or real environmental contamination exists. A BEDI grant must be used in conjunction with a Section 108 loan guarantee, which uses a community's CDBG allocation as loan security. In fiscal years 2000 and 2001, Congress appropriated \$25 million to the program, which is administered by the US Department of Housing & Urban Development (HUD).
- (4) **Demonstration Pilots/Revolving Loan Funds** (US EPA) - Since 1995, the EPA has awarded grants to States and political subdivisions to undertake brownfield assessment pilots. Funded up to \$200,000, pilot projects may include site assessment and characterization, planning, and community involvement activity. In addition to demonstration pilots, the EPA will award up to \$500,000 over five (5) years to capitalize revolving loan funds intended to support environmental remediation.
- (5) **Clean Water State Revolving Funds** (PENNVEST) - The US EPA provides grants to states to capitalize their Clean Water State Revolving Funds. The states utilize these funds to provide low-interest loans and/or grants for water quality improvements, namely wastewater treatment facilities. However, these funds can also be utilized for other source water protection activities.
- (6) **Growing Greener** (DEP) – The Environmental Stewardship and Watershed Protection Act, commonly referred to as “Growing Greener,” authorized unprecedented funding to address Pennsylvania’s environmental priorities. When enacted in 1999, the legislation authorized over \$645 million to be appropriated over a five-year period to the State’s primary resource organizations, including the Department of Environmental Protection (DEP). Over the next three years, the DEP should receive over \$150 million in federal and state funds to support watershed-based conservation efforts. DEP utilizes a single application process to administer its “Growing Greener” grant program, which provides funds to watershed organizations, conservation districts, local governments, and other non-profits. Eligible grant activities include organizational development, education, and implementation projects designed to mitigate non-point source pollution and acid mine drainage.

The SMCRA stipulates that federal Abandoned Mine Land funds may only be used to address hazardous conditions. This federal regulation is a barrier to redevelopment because it assumes that the developer community will invest in these speculative sites if market conditions are favorable. However, a more proactive strategy is needed to educate pile owners and to aggressively market these sites. Because the Growing Greener program is largely supported with State funds, it can be utilized to support such local initiatives.

Leveraging Public-Private Partnerships: As tax-exempt entities, local governments, conservation districts, and watershed organizations are eligible for a wide array of publicly and privately administered environmental programs. With few exceptions, private companies are not considered eligible applicants. As a result, developers have little incentive to redevelop sites with known or suspected environmental contamination,

particularly if these sites are located in unpopulated areas. This private sector barrier, however, can be transformed into a public sector opportunity.

The Growing Greener program gives non-profit organizations an opportunity to leverage public funding and reduce a company's bottom line. Only counties, conservation districts, watershed organizations, and other 501(c)(3)s are considered eligible applicants under this program. By engaging fuel processors and power producers as partners in the remediation process, non-profit organizations can secure Growing Greener grants to supplement the high cost of transporting coal refuse. For sites that exhibit redevelopment potential, Growing Greener can be used to reimburse a property owner for site preparation costs, such as soil compaction and regrading, activities that are not reimbursable under the federal Abandoned Mine Land (AML) program.

To take advantage of these new funding opportunities, owners should work with economic development entities that exhibit a working knowledge of business financing and that have established relationships with the real estate and developer community. Trade associations can also play a critical role in the remediation process. For instance, the Anthracite Region Independent Power Producers Association (ARIPPA) represents the interests of waste coal plants and co-generation plants throughout Pennsylvania. By marketing viable sites to the Association's membership, pile owners and non-profits can broaden the market for their coal refuse. Non-profit organizations can best serve their community by focusing acquisition efforts on piles that meet one or more of the following criteria:

1. Piles with a documented history of safety hazards;
2. Piles located near primary transportation arteries and population centers;
3. Piles with known content and high BTU values; and
4. Piles situated within a reasonable distance of waste coal operations.

Nontraditional/Private Sources of Funding: Under most federal programs, including the Corps's Continuing Authorities Program, local sponsors are required to contribute 35 percent toward the total project. This includes all real estate acquisition, planning, engineering, and design work. Because State agencies cannot be local project sponsors, non-profit organizations (i.e. watershed associations, conservancies) must be involved. Even with the injection of Growing Greener dollars, many organizations do not have the financial resources to complete multi-million dollar restoration projects. The Pennsylvania Environmental Defense Foundation works to aid, assist and educate Pennsylvanians on the rights to a cleaner environment. Where environmental laws grant citizens the right to enforce the law by means of litigation, the Foundation will help individuals and environmental organizations exercise the citizen's suit provisions of the law. Using the public safety component as the basis of their participation, the Foundation has worked on coal mine remediation projects in the past.

Perhaps the best source of private sector funds, however, is the co-generation industry, which holds promise for recovering abandoned mine lands in Western Pennsylvania. Power companies have recently expressed their willingness to participate in these types of projects and have illustrated their commitment to partnering with local agencies. While these types of partnerships are relatively new to the industry, it is recommended that contacting the companies serving the region is a necessary first step. The

partnerships are positive for all parties: the local sponsoring agency obtains some private money that can leverage government funds in the name of remediation; the power companies can utilize some of the materials from the sites and win some public recognition for good environmental practices, as well. It should be noted that sites with negligible amounts of recoverable coal or limited accessibility might not have commercial remaining activity as an option. Limited public dollars will be directed to projects that pose an immediate threat to the environment or have significant redevelopment potential. Land banking and active site promotion is essential. Partnerships with economic development organizations can identify potential prospects and secure the necessary funding for site remediation. In the absence of remediation, most (if not all) developers will avoid these sites due to concerns about personal liability.

To leverage private sector commitment toward remediation, corporate image and stakeholders should be considered. Stakeholders include host communities, regulatory agencies, chambers of commerce, and even realtors associations who may be negatively impacted by contaminated property. By working with the region's stakeholders to develop a shared vision, the remediation effort will gain broad-based support and lend itself to funding opportunities that might otherwise go unnoticed.

Recommendations to State Agencies

A critical first step to remediating and redeveloping gob piles is to accurately identify property ownership. While we were able to contact a handful of the local owners for the Westmoreland County study, a number of the property owners were unreachable. Some of the properties had recently changed hands, some owners were unavailable for comment, and others were either not on public record or the information was incorrect. In order to expedite future efforts in this vein, the time and labor-intensive tasks of compiling and contacting an accurate and comprehensive database of land and pile owners must be completed.

A second issue that needs to be addressed before any future steps are taken is the education of local officials on the definition and existence of gob piles within their area. During various contacts with members of the local and county governments, including planning officials, it quickly became apparent that many of them were unaware of the nature or definition of a gob pile and/or that some piles are present in their own backyards. Whether the state government or local watershed groups address this matter is of secondary concern because support of the local and county governments is critical to moving forward with remediating and redeveloping these properties. Such support can only be expected once all parties involved are fully informed. State agencies may want to continue the education process by making presentations at conferences such as the Pennsylvania Planning Association, the County Commissioners Association of Pennsylvania, and other municipal organizations. In addition, DEP may want to work with DCED's Center for Local Government Services to provide funding for site inventory of Gob piles as part of the Land Use and Planning Technical Assistance Program (LUPTAP).

While these issues were roadblocks to our investigations, they are not insurmountable obstacles for a long-term project. That being said, these issues must be addressed before any further steps are taken to remediate and redevelop abandoned coal piles in order to make the most effective use of time and resources.

There is recognition of the value of rehabilitating brownfield sites in Pennsylvania. Several success stories demonstrate the economic value of reclamation and redevelopment. Translating this success to “greyfield” sites will be key if further redevelopment is to occur. In addition, a willing property owner, developer, and municipal entity are paramount to successful redevelopment efforts. This includes interagency agreements and partnerships to establish funding strategies for success. We believe this can be accomplished for key projects.

The Growing Greener legislation provided unprecedented funding for abandoned mine land reclamation in Pennsylvania. A lesser known, but equally important component of the legislation was the Environmental Good Samaritan Act, a measure that established new liability protections for owners of unreclaimed lands. If such owners voluntarily provide equipment, materials or services “at no charge or at cost” for a reclamation project or water pollution abatement project that is approved by DEP, they will be immune from civil liability. While this measure does not relieve permitted waste coal operators or fuel suppliers from their abatement obligations, it does protect the private landowner from future liability. To encourage reclamation of coal refuse piles, the State must educate the public about the protections afforded them in the Growing Greener legislation. The project team believes that more property owners would actively market their sites to fuel suppliers if they could be assured liability protection.

General Guidelines

Budget

1. Make sure to allocate enough money in the budget for equipment. Depending on the scope of work, the list should include mandatory equipment such as safety gear (see enclosed material), GPS devices, water sampling devices, software, blank disks, first aid kits, maps, pencils and notebooks. Optional equipment considerations range from binoculars to compasses.
2. Don't underestimate travel costs. Searching for piles or banks and their owners often require many miles. Driving to and from meetings also adds to mileage and time costs. Fuel costs climbed considerably during the project.
3. Labor costs, especially in positions requiring skill (GIS operation etc.) depend on supply and demand. Look for other sources of revenue for help. We received an Office of Surface Mining internship that helped us quite a bit.
4. Make sure you have start up money. Some government agencies do not provide advances, resulting in cash flow problems. Allow for interest costs if you have to borrow to cover initial expenses, if allowed.
5. If you don't have an adequate start up fund, try to establish monthly reimbursement because non-salaried people usually require monthly payments. Reimbursement can be extremely slow, crunching cash flow.
6. Allocating money for determining pile/bank content will result in better measurement of environmental impact and the possibility for removal. But core drilling and other assessment methods can be costly.
7. Do not overlook liability insurance costs and other legal considerations.
8. Try to set up enough money in the budget for distribution of the model and/or database.

Goals and objectives

1. Clearly define each objective in the proposal. For example, allot enough time and money for locating the piles/banks. Finding owners and making content is also time-consuming. Some sources were outdated and/or inaccurate. Others did not differentiate between the various types of piles/banks. We tried to combine and compare information before taking off to look for sites.
2. Include the creation of a useful database as a project goal.
3. Emphasize determining pile content. This goal may add considerably to costs, evaluations and rankings without content information are less credible and reduce the potential for removal.

Procedures

1. Gob Pile Projects should be handled on a watershed rather than political subdivision bases. The overall social, economic and environmental impact of a pile/bank extends far beyond its municipal and county boundaries. For example, water quality usually transcends provincial considerations.

2. The investment plan consultant and the designer of the econometric/sensitivity analysis should work on the project from the very beginning to make sure the data pursued and obtained is valid and useful.
3. Distribution of the model and/or database should be in the proposal and scope of work.
4. Establishment of the “chain of command” or authority and the relationships with partners is critical to success. Make sure in-kind services are clearly defined and values set before project is launched. Memorandums of understanding are constructive.
5. Safety should be emphasized and included in daily operations.
6. Field inspectors indicated a need for some form of exterior identification, like a badge or hat. Each carried a credential letter, but they reported no one ask them to see the document.
7. The best time for hunting for, visiting and evaluating piles, is when there is little or no foliage: during the late fall, winter and early spring. Projects should start in the summer, to permit preparations and hiring.
8. Accountability must be built into the operation. We established monthly expenditure spread sheets. Everyone signed off when they received their pay/mileage checks. Equipment take-out and return sheets are recommended. Allow time for the necessary paperwork and communications. Remember government folk tend to keep changing the rules or creating new ones as they go along. Be patient and try to respond, even if the lack of logic and efficiency overwhelms the scene.
9. Employee training lies at the base of success, especially as it applies to dealing with the public and safety. Learning to use GPS devices, pH meters, and other equipment takes time. Some people have trouble reading maps and getting information from people. The manager must make herself/himself constantly and immediately available in a supportive role.
10. Get the word out early and often. Establish media relations once the project manager is in the job. Public participation is important. News stories help locate piles and gain owner cooperation. Advertising helps in the hiring process.
11. We sometimes gave pile owners the names of fuel suppliers, processors and others involved in reclamation, especially if they expressed an urgent desire to eliminate the pile. Make sure field inspectors have that list.
12. Making contact with GIS experts helped us solve many problems. This continuing exchange of information among computer specialists is critical to such projects.
13. Separate evaluation forms for reclaimed and partially reclaimed banks and piles are a good idea. Some of the sites were improperly reclaimed and are still damaging the environment and hurting the community. But they usually don't rank high in most prioritizing models, and should be placed in another category.

Summary and recommendations

We believe Project Gob Pile provides a practical model for processes leading to the removal of accumulations mine refuse (gob/boney piles and culm banks) and to the removal, reclamation and reuse of sites in Pennsylvania and elsewhere.

Although the creation of the model took place in Westmoreland County, the development of location, evaluation, prioritization and the investment procedures are designed for statewide and national application.

Participants in the creation of the model, from fuel processors and suppliers to landowners and government officials, worked together to assure its pragmatic usefulness. The Western Pennsylvania Coalition for Abandoned Mine Reclamation, based in Greensburg, Pa. (724) 837-5271 and the Eastern Pennsylvania for Abandoned Mine Reclamation, based in Shanertown, Pa. (570) 674-7993, stands ready to help those who might require assistance in this type of removal and reclamation work.

Watershed groups and others have been pressing to obtain a copy of this model to pursue similar projects. There also has been considerable demand for the database we have gathered and organized, especially from co-gen fuel managers, suppliers, refuse processors/blenders and pile/bank owners.

As outlined in our acknowledgments, all those who are involved in the piles/banks have been cooperative. Field inspectors found little resistance although some landowners and operators thought they were either regulators of a source for government funding. Project Gob Pile workers soon discovered some basic factors:

1. Most of the existing information about the piles was outdated. Many piles have been partially or completely reclaimed. There is the possibility some Rural Abandoned Mine Program (RAMP) and Bureau of Abandoned Mine reclamation projects buried BTU-rich piles. Another study to identify these sites is in order. In all cases, on-site visits and evaluations are mandatory.
2. Examining more than 100 piles took more time than proposal authors estimated. The number jumped from 70 to more than 100 as we looked at various data sources. There's a good chance funding proposals underestimate the number and types of piles.
3. Location has a big impact on evaluation. First, hauling costs to nearest co-generation plant or disposal site determines the economic feasibility of removal. Other factors include population density, adjacent land use, zoning, infrastructure (water/sewage, power), access (including road/bridge weight limitations), topography, and possible space for spreading or processing/blending.
4. Pile/bank content is critical to removal. Mine refuse with high energy (BTU) readings and containing better than 20 percent of combustible "burnable" materials has a far better chance for removal. Although our ability to ascertain content was very poor, we received quite a variety of BTU/sulfur/moisture assessments from owners and others involved.
5. Water quality was a mixed bag. Piles with higher burnable materials tend to contribute more pollution to nearby streams. Although some of the nearby

streams had acid readings, many were alkaline. Older, more stable piles, were often near neutral pH.

6. Older piles were usually smaller and more loosely compacted, but have higher percentages of “burnable” materials because mining methods were less efficient. The older piles tended to have more fires (red dog). Many had stabilized to the point where they create less pollution (chemical and sediment). Mother Nature often reclaims better than man-made systems.

Gob Pile project teams should become consultants for future, similar operations. For example, we received a lot of help learning to use GIS systems, and we are willing to share what we know. Our field inspectors developed techniques that could be used by their peers in other areas. Westmoreland’s Project Manager is willing to travel to new project areas to provide free advice.

There are provincial differences in approaching pile/bank removal. Although evaluation probably will remain consistent, prioritizing/ranking could vary considerably because of environmental, economic, social and political realities. For example, high population density and pressure for development surround most banks in the anthracite region. Realtors said local people do not hesitate to build new large homes in the shadow of the banks, but they added outsiders reject them for homes and commercial sites. So adjacent land use is a critical factor in prioritizing the banks for removal and reclamation.

Reclamation techniques also differ in the east with the availability of mining pits and the lack of space to spread the huge banks out into a larger and lower configuration.

The constants far outweigh the variables, however, although bituminous piles differ from their anthracite brothers, the environmental and socio-economic impacts are similar in most aspects.

For example, drivers of off-the-road vehicles love to use the piles and banks much to the intense dislike of neighbors, owners, police, conservationists, and municipal officials. Besides the noise, dust and parties, deaths and injuries are increasing as a result of this activity. There has been a statewide effort to designate strategically located piles/banks for this recreational use.

Lying at the base of reclamation success are the pile/bank owners. Their attitudes are critical. If they have no interest in removing piles and reclaiming the land for passive or active uses, there is very little that can be done outside of enforcing existing laws (from local nuisance ordinances to environmental regulations). Some costly civil suits, mainly involving health and safety incidents, have resulted in removal and reclamation of unwanted waste piles and banks.

We found considerable lack of understanding about piles and banks. Some neighbors didn’t know they were anything else but big mounds. Owners did not know where to look for reclamation help and were fearful/distrustful of reaching for environmental agencies. They were also distrustful of developers, speculators, processors, and power industry representatives. Quite a few municipal officials were unaware of the problem or solutions. They did talk about complaints they received about ATVs, motorbikes, target shooting and the like. State and county officials were equally ill equipped to deal with the piles/banks.

So gob pile/culm bank projects will require considerable educational effort, not only in the media arena, but also among private and public leaders. Attitudes and values must change to gain any degree of success.

Conservation districts working with both coalitions can begin to reach out to the landowners, public and private community leaders, and state and federal officials to provide the much needed coordination for pile removal, reclamation and redevelopment.

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Glossary of Terms

Acidic - having a pH less than 7; the smaller the value the more acidic. See pH.

Alkaline - having a pH greater than 7; the larger the value the more alkaline. See pH.

Anthracite – nearly pure carbon “hard coal” found almost exclusively in the east

AMD – Abandoned Mine Drainage, but can take on the names Acid Mine Drainage or Alkaline Mine Drainage depending on the pH. Abandoned Mine Drainage is the more inclusive term.

ARCVIEW – Computer software to display a geographic information system.

ATV – all terrain vehicle

BAMR – Bureau of Abandoned Mine Reclamation (PaDEP)

Bituminous – containing bitumen (volatile hydrocarbons), otherwise known as “soft coal.”

BTU – British Thermal Unit, quantity of heat energy required to raise one pound of water one degree Fahrenheit.

Co-generation - A form of electrical power generation that is able to burn low grade fuels in an environmentally acceptable manner.

Culm bank – Eastern PA term for gob pile or mine refuse pile, usually composed of anthracite mining refuse.

DEP – Pennsylvania Department of Environmental Protection

EPCAMR – Eastern Pennsylvania Coalition for Abandoned Mine Reclamation

EPA – Environmental Protection Agency

FSA – Farm Service Agency

Gigabyte – 1,073,741,824 bytes of computer storage where a byte is roughly equivalent to the amount of space required to store a single character (like “A” or “7” or “\$”). Roughly 1 billion bytes.

GIS – Geographic Information System

GPS – Global Positioning System; also refers to the hand-held devices used to determine longitude, latitude, and elevation at any place on earth by using information supplied by a constellation of earth-orbiting satellites.

Gob pile – Mine refuse pile material comprised mainly of shale, coal and other impurities; also known as Boney or Red Dog Pile, Slate, Slag or Mine Dump.

Legal status – ownership, leases, permits, liens, pending law suits, financial encumbrances.

Megabyte – 1,048,576 bytes of computer storage where a byte is roughly equivalent to the amount of space required to store a single character (like “A” or “7” or “\$”). Roughly 1 million bytes.

Neutral (pH) – having a pH of 7, the pH of absolutely pure water. (See pH)

PennDOT – Pennsylvania Department of Transportation

OSM – Office of Surface Mining (US)

pH -- a measure of the hydrogen ion concentration in water. The range of concentrations hydrogen ion can take on is extraordinarily large. If a water sample has a very high concentration of hydrogen ions, the pH value will be low (less than 7) and the sample is said to be an **acidic**. The lower the value, the stronger the acidic nature of the sample. When a sample has a very small hydrogen ion concentration, the pH of the sample will have a higher value. Samples having a pH greater than 7 are said to be **alkaline** or basic. The pH of absolutely pure water (neither acidic or alkaline) is 7 and is said to be **neutral**.

PSES – Penn State Extension Service

PURPA – Public Utilities Regulatory Policies Act

RAMP – Rural Abandoned Mine Program

Red dog – Material remaining and resulting from a fire that consumes the coal in a gob pile.

Sensitivity analysis – A study as to the objectivity and accuracy of the processes used in ranking piles.

TOPO quads – Topographical GIS overlays by quadrant; a topographical map created by the USGS which is about 6.7 miles wide by 8.7 miles long with area of about 58 square miles. All land within the U.S. is represented on a unique quad.

USDA NRCS - United State Department of Agriculture Natural Resources Conservation Service

USGS – United States Geological Survey

Personnel job descriptions

Manager

The part-time manager coordinates all efforts of in-house personnel and field workers. Most of his time is spent in the office, but he often evaluates sites and visits private and public organizations and agencies. He is involved in purchasing and record-keeping.

Computer Programmer

Computer programmer works in office as a part-time contractor to develop computerized information. He helps field workers and serves public and private sector people requiring that information..

Field Workers

Field inspectors are part-time workers who travel throughout the region to implement projects, working with private and public organizations and citizens. Field inspectors work on project sites ... evaluating, gathering information and communicating data.

HISTORY

Original use of the land:

Former owners:

When was the pile created (start and stop):

Pile came from what coal seam:

What was the type of mining used (process for separation):

How was refuse brought to pile (truck, rail, conveyor etc...):

Type and frequency of reprocessing:

Legal status (forfeitures, liens, permits ... approved/disapproved):

Contents in terms of BTUs, sulfur, percentage of burnable material:

Location of buried settling ponds:

Attempts to remove pile:

Uses of materials in pile (red dog roads, fill, etc...):

Evidence or reports of fire:

Evidence of archeological or historic value:

History of accidents (ATVs, motorbikes, etc...):

Criminal activity (vandalism, illegal dumping, dope dealing etc...):

Other relevant information:

d. Would they accept trucking, processing and other activities to achieve removal?

PHYSICAL

Size (volume or dimensions):

Estimate degree of slope:

Contents (also see history section):

Soil inventory information (types to topography):

Any signs of reprocessing and/or removal:

Water impact

a. Take sample and record results:

b. Erosion impact in the water:

c. Flora and fauna conditions near the water:

Air (evidence of smoke and/or dust impact):

Other activities

ATVs, motorbikes, four-wheelers:

Hunting and/or target shooting:

Illegal dumping:

Lovers lane etc...:

Kids using area as playground or other uses:

Material being used for fill or other uses:

Existing conservation practices:

Flora and fauna on or near the pile:

Is there a fire on the site:

Available space to spread or move pile (nearby depression):

Space to install reprocessing or co-generation plan (10 acres or more)

Security measures (fences, gates, etc...):

Credential Letter

To Whom It May Concern:

_____ is working as a field investigator for the Western Pennsylvania Coalition for Abandoned Mine Reclamation. We are evaluating and prioritizing mine waste piles throughout Westmoreland County.

The purpose of “Project Gob Pile” is to create a statewide model that will help us remove the piles and/or reclaim the sites. The investigator is not involved in regulatory enforcement or funding removal or reclamation.

If you have any questions, recommendations or complaints contact the Coalition office in Greensburg at (724) 837-5271.

Paul Heyworth
Project Manager

Gob Pile Points Scale

| Factors | Points |
|--|------------|
| Socio-economic | |
| Social impact and/or interest | 10 |
| Political interest and/or activity | 5 |
| Population density within ¼ mile | 10 |
| Adjacent land use | 5 |
| Tourism impact and potential | 5 |
| Economic conditions in community impacted by pile | 5 |
| Environmental | |
| Flora/fauna (vegetative cover, wildlife) | 10 |
| Stream proximity and impact on water (ph/sediment) | 25 |
| Health and safety | |
| Fire (former and existing) | 5 |
| Steep slopes | 5 |
| Illegal dumping and other activities | 5 |
| ATVs, motorbikes etc... | 10 |
| Development and removal potential | |
| Legal status (bonds, permits, zoning) | 5 |
| BTU/sulfur values | 20 |
| Topography | 5 |
| Available space | 5 |
| Access (including weight limits) | 5 |
| Bonus points | |
| Natural Heritage Inventory within ¼ mile | 5 |
| River Conservation Plan | 5 |
| Total | 150 |

Gob pile procedures manual (and evaluation form)

This procedural outline and evaluation form are designed as a guide for evaluating gob piles (also known as mine refuse, slag, boney, slate dump, red dog, ash). They are considered waste piles consisting of carbon (coal), non-combustibles (rock, metals, chemicals like sulfur and calcium), and volatile materials (usually gases).

We are evaluating them as to their environmental, economic, and social impact ... good and bad. Our mission is to assess, prioritize and find ways for reduction and removal. Evaluators are representatives of the Western Pa. Coalition for Abandoned Mine Reclamation based in the Westmoreland Conservation District Office in the Donohoe Center near Westmoreland Mall. The office number is (724) 837-5271. Their supervisor is Paul Heyworth of Greensburg. They work under a DEP/EP A Growing Greener grant. The people contacted may express fear or unreasonable expectation. Fear may result from the belief evaluators are government regulators bent on taking legal action against them or they may think evaluators are a door to money for them. BOTH ARE UNTRUE. Evaluators are simply gathering, recording and analyzing information.

Behavior

1. Act in an objective and professional manner.
2. Avoid expressing opinions that could lead to misunderstandings
3. Avoid revealing private or confidential information.
4. Avoid arguments and confrontation. Refer challenges or objections to the office.
5. Avoid putting information on the record that may be confidential, slanderous or potentially damaging to others.
6. Do not act or appear to act in a discriminatory or prejudicial manner concerning race, religion, nationality, age and or sex.
7. Do not indulge in sexual harassment.

Records

1. Document time spent on the job, travel distance, and any other expenses you may incur.
2. Fill out the evaluation form provided in this package and provide any other information you deem important. :
3. Submit the form and information to the office after each trip ... that day or the next.

Recommended equipment

- a. GPS device
- b. GIS generated map showing pile locations
- c. Local road map
- d. Water sampling package
- e. Containers for samples
- f. First Aid Kit
- g. Safety vest.
- h. Proper attire... hiking boots to head gear.
- i. Cell phone or enough petty cash to make calls from pay phones.
- j. Note books, pens and pencils.
- k. Calculator.
- l. Bottled water and a snack
- m. Typical automobile travel kit is a good idea

Information sources

- A. DEP GIS disc
- B. Coalition data base disc
- C. Project Gob Pile grant application and scope of work
- D. Westmoreland County soil inventory
- E. Abandoned mine study
- F. Tax maps
- G. Pile owners
- H. Pile processors
- I. Contractors and trucking companies
- J. Material Users - co-generation plants, road crews, contractors
- K. DEP, BAMR, EP A, DCNR, and other government officials
- L. Neighbors
- M. Municipal leaders
- N. Police and firemen
- O. Local librarians and historians
- P. ATV/motorbike users of pile
- Q. Hunters and nature lovers
- R. Barbers, barkeeps, gas station/store personnel

Operation

After training, interns will be assigned geographic areas of responsibility. They will be asked to evaluate several piles in a given area. Each pile should take about two or three hours to complete. Some in-office paper work may add to this time. Depending on the number of piles, the sections may take one to five days for completion. They will pass their work to the Project Manager for review on a weekly basis. Interns will also report hours worked and miles traveled on a weekly basis. They are not to work more than 20 hours per week. They must call in to the office if they cannot work.

Interns will also be involved in helping the Project Manager analyze and prioritize piles and participating in other aspects of the project. Operational and safety equipment will be provided by coalition.

Complaints or grievances can be submitted to Heyworth, Mark Killar or Jeff Fliss of DEP.

Methods

- Evaluators must eyeball each pile and physically walk the sites. Windshield observation is not enough.
- Try to learn as much as you can about a site before you make the actual visit.
- Methodical documentation lies at the base of our success.
- Safety is a top consideration before, during and after inspections.
- Talking to owners and/or operators is critical. We must get permission to go on each site. Owners may have critical information, particularly about the contents of the pile, the coal seam, reprocessing, history and so forth.
- Talking to neighbors, community leaders, and local business people is important as inspectors fill out the economic and social impact section of the evaluation form.
- Using the "source list" may be useful in filling in many of the blanks not covered by the GIS, owners and neighbors.

Database Description

Table: tblPiles

| <u>Field Name</u> | <u>Description</u> |
|----------------------|--|
| Gob ID | Primary key, based on BAMR identification |
| PA Name | BAMR name given to pile |
| Problem Area | BAMR code identifying problem |
| GIS_ID | BAMR code to GIS data |
| Soil Map ID | Soil map containing the pile |
| Local Name | The local name given to the pile |
| MunicipalityID | An ID for the various municipalities, linked with tblMunicipalities |
| ZoningID | Code for the various zonings, Industrial, Commercial, Industrial, Agricultural, Residential, No zoning, unknown |
| Owner's Name | Pile Owner info |
| Owner's Phone | " " " |
| Owner's Address 1 | " " " |
| City | " " " |
| State | " " " |
| Zip | " " " |
| EvaluatorID | ID of person doing pile field work |
| Notification | A field designating how the pile came to be known by this study |
| PileConditionID | The reclamation status of the pile |
| Created | The time period the pile came into existence |
| Type of Mining | The method of mining used in creating the pile |
| CoalSeamID | Code to the coal seam mined producing the coal: Pgh, Freeport, Kittanning |
| BTU | The approximate energy content of the pile material per ton |
| Sulfur | The sulfur content of the pile material (ppm) |
| Pile Material | A general indicator of the amount of burnable material in the pile. |
| Fire | Whether or not a fire was known to have occurred (Yes/No) |
| Removal/Reprocessing | Whether or not the pile has been removed or reprocessed (Yes/No) |
| Accidents | Whether or not an accident was known to have occurred (Yes/No) |
| Crimes | Codes of crimes committed at pile location |
| Recreational | Codes of recreational activities at pile location |
| Org land use | What land use was prior to pile |
| Size | Approximate size of pile in tons |
| Slope | Average Slope in degrees of pile |
| Water PH | pH of water draining the pile |
| vegetation | Codes of vegetation types growing on pile |
| site topo | Topography suitable for reclamation work |
| complaints | Codes of complaints about piles |
| support for removal | Whether or not local support exists for pile removal. |
| trucking accepted | Whether or not trucking activities would be tolerated in pile removal. |
| Score | Score given to the pile as a site for reclamation (150 pts max) |
| NarrativeLink | hyperlink to MS Word narrative |
| MapLink | hyperlink to map (jpg format) |
| PictureLink | hyperlink to pile picture (jpg format) |
| Latitude | Latitude of pile (decimal degrees) |
| Longitude | Longitude of pile (decimal degrees) |
| Nearest Village | Name of Nearest Village |
| Nearest Road 1 | Name of Nearest Road 1 |
| Nearest Road 2 | Name of Nearest Road 2 |
| weight limit 1 | Hauling weight limit (tons) for road 1 |
| weight limit 2 | Hauling weight limit (tons) for road 2 |
| PileAccessID | Code for accessibility to pile |
| WatershedID | Code of local watershed, relates to Watersheds table |
| Nearest Stream | Name of nearest stream (UNT = unnamed tributary) |
| Stream Distance | Distance to nearest stream (feet) |

Additional Information Regarding Financing Options & Nontraditional Funding Sources

Market Incentives & Regulatory Constraints

Many states have developed incentives to engage the private market in abandoned mine land reclamation. As discussed in the narrative, one of Pennsylvania's reclamation tools is the Government Financed Construction Contract (GFCC). These contracts have been used to successfully remine a number of coal refuse piles that have limited amounts of recoverable coal. As the market for independent power production has expanded, the opportunities for remining have grown.

Government Financed Constructed Contracts (GFCCs) are a preferred alternative to address abandoned mine land problems that do not qualify as high priorities. According to federal standards, the Priority 1 and Priority 2 sites must pose an eminent threat to the public's health, safety, and welfare to qualify for funding assistance. Unless an emergency situation exists, applicants for AML funding must submit a host of background data to substantiate the value of each remediation project. Most non-profit resource organizations rely upon private contributions and volunteer support to conduct their water quality-monitoring program. A majority do not have the financial resources to compile the data necessary to secure AML funding. In the case of the Westmoreland pilot study, sedimentation from several coal refuse sites is thought to impair local streams. In other instances, bank erosion is creating unsafe conditions on local roadways. These Priority 1 conditions may secure a listing on the State's Abandoned Mile Land Inventory, but it is unlikely that most sites will be remediated with State AML funds.

Obstacles to AML Remediation

Federal statute dictates that a state's #1 priority for remediation is "high priority" sites – areas that pose a hazard to the public's health, safety, and general welfare. Dangerous highwalls, large strip pits, and burning refuse piles all qualify as high priority sites. Coal refuse piles do not rate well on Pennsylvania's abandoned mine land inventory, unless an active fire constitutes an emergency response. Even when the State is addressing hazards at a high priority site, its Department of Environmental Protection (DEP) is constrained by the AML funding, which can only be used to alleviate a dangerous condition. Federal AML funds cannot be used to compact the soil in anticipation of development. In some circumstances, DEP has matched AML funds with Growing Greener funds to address this shortfall. In many instances, a private developer and/or industrial development authority has owned the property in question and is actively pursuing implementation of a redevelopment plan.

“Greyfields” – Definitions and Examples

Remediation roadblocks are compounded by State policy that does not recognize abandoned mine lands as “brownfields.” With the exception of the Pennsylvania Department of Environmental Protection (DEP), State agencies will not participate in site redevelopment until an Act 2 release from liability has been secured. Many abandoned mine lands exist within a virtual “no man’s land,” often because the following conditions exist:

- The documented health and safety problems do not qualify the site as “high priority” for remediation through the State’s AML program;
- The market value of recoverable coal is negligible – the sites may have commercial potential, but end-users have not been identified
- Few State or Federal agencies have the funding to support site assessment and remediation, a necessary prerequisite to support redevelopment

It is appropriate that a growing number of individuals and agencies are adopting the term “greyfields” when discussing abandoned mine lands. Although funding for redeveloping greyfields is limited, efforts are underway to redevelop these sites, particularly when economic development and job creation are at stake. The Mericle Properties Inc. project in Hanover Township, Luzerne County demonstrates the value of public-private partnerships. Located within a State-designated Keystone Opportunity Zone, the site contained 31 acres of abandoned strip mine and nearly 4,000 feet of dangerous highwall. To support the expansion of an existing business park, the strip pits needed to be backfilled, the highwall eliminated, and the soil compacted. Although the site was identified on the AMLIS as a high priority site, the DEP had added incentive to participate in this reclamation effort: capital investment and job creation. Several organizations worked cooperatively to advance the project, including the Wilkes-Barre Industrial Development Authority, the DEP’s Bureau of Abandoned Mine Reclamation (BAMR) and the developer. In fact, Mericle Properties Inc. hired its own contractor to compact the site once DEP’s contractor had completed its phase of the project. Site preparation work was completed within ninety (90) days and is anticipated to create 300 new jobs for the region.

Section 206 Funding – Dents Run and Nanticoke Creek project examples

The Army Corps of Engineers’ 206 Program has promise for addressing known sources of AMD. However, under current Agency policy, conservation easements must be negotiated before the Corps will implement a 206 project. In the Dents Run case study, nearly 90 percent of the impacted property is owned by the Pennsylvania Game Commission and will remain undeveloped into perpetuity. However, in the Nanticoke Creek project, local stakeholders want to deliver jobs to the region. The Corps is working to develop new easement language that will enable the Agency to improve aquatic habitat and support opportunities for redevelopment. The Nanticoke project has proven to be a difficult balancing act – one that the Corps is still working to resolve.

Westmoreland County Gob Piles - Priority Sites Land Use Assessment

Methodology

A site visit was conducted for each of the priority gob pile sites. The purpose of the site visits was to determine potential future land uses for each gob site upon remediation. To determine future land uses, Delta Development Group assessed surrounding land uses, road access and network, land use plans, and infrastructure availability. One of the challenges of completing this assessment was that municipal and county planners had little knowledge or information about gob pile sites. Land use recommendations were based on the best information available.

In the following section, each site is identified with land use recommendations. These recommendations are generally based (e.g. residential, commercial/industrial, or recreation), with the purpose of better linking land use recommendations to categories of funding resources as identified in the project narrative on page 2.

Priority Sites Land Use Assessments

- **Carbon 029 and 031:** The Carbon piles are located in Hempfield Township less than one-half mile from U.S. 119 and U.S. Route 30 in a highly developed area southwest of Greensburg. The piles are currently zoned industrial. Based on the road access and infrastructure availability, this site should be redeveloped as an industrial or commercial use. These piles are located in a very densely populated area compared to the other candidate piles.

Recommendation: Industrial/Commercial

- **Bovard 021 and 022:** Both of the Bovard piles are located near heavily populated areas of Hempfield Township east of Greensburg between U.S. Route 119 and U.S. Route 30 off George's Station Road. The sites are currently zoned heavy industrial by the Township. Reuse of these sites, because of their proximity to existing neighborhoods should be a light industrial or commercial use. Heavy industrial or more intensive reuse may not be appropriate for this populated area. The site enjoys good access and should be the focus of a redevelopment strategy.

Recommendation: Light Industrial or Commercial

- **Yukon 088, 089, 090, and 091:** The Yukon Sites are located in South Huntingdon Township near the village of Yukon, approximately two (2) miles north of Exit 25A of Interstate 70. The Township does not have zoning or a current land use plan. Road access to the site is poor. The sites are adjacent to an existing recreational park and could be remediated for recreation and potentially commercial along State Route 3012 and Yukon Road.

Recommendation: Recreation and Commercial

- **Adamsburg:** The Adamsburg piles are located about one-half mile south of U.S. Route 30 near the village of Adamsburg in Hempfield Township. This site has rail access and can be accessed by Buckstown and Edna Roads. The surrounding land use is predominately residential. Redevelopment of the site should be a residential or recreational use because of the extent of residential development in the area.

Recommendation: Residential or Recreation

- **Wendel:** This site is located in a highly populated area of Hempfield Township. There is good road access to the site and the site is in proximity to the Irwin Exit of the Pennsylvania Turnpike. The Wendel site is currently zoned for Residential and should be redeveloped as such. Public infrastructure is in proximity to the site.

Recommendation: Residential

- **Sharon 027 and 028:** The Sharon piles are located in North Huntingdon Township and currently zoned industrial. The site sits along the railroad and Brush Creek about

one mile north of the Irwin Exit of the Pennsylvania Turnpike. This is another gob pile in a highly developed area. Road access is poor and requires crossing an active railroad.

Recommendation: Residential

- **Darragh:** The Darragh site is located off of State Route 136 eight (8) miles west of Greensburg in Hempfield Township. This site has excellent road access and could be developed for a commercial or potentially light industrial use. Initial investigation does not reveal any public water or sewer at the site.

Recommendation: Commercial

- **Buckeye:** The Buckeye site is located in Mount Pleasant Township less than one mile southeast of the S.R. 819 and U.S. Route 119 intersection in the village of Buckeye. The gob pile site is located near a new strip commercial development and Wal-Mart Store. This commercial development has public sewer and water access. There is also a pump station located across the street from the gob pile site. One of the land use concerns is that the site appears to be in the wetland area of Jacobs Creek. This gob pile site could be remediated into a recreational use. There is an existing recreational facility in proximity to the gob pile site.

Recommendation: Recreation

- **Drive-In-Theater:** This site is located on the border of New Kensington and Lower Burrell near a highly developed area in the northern portion of Westmoreland County. The site is off State Route 366 and approximately six (6) miles east of Pennsylvania Turnpike Exit #5. Commercial development exists in close proximity to the site and the Darragh site warrants redevelopment as a commercial use.

Recommendation: Commercial

- **Fitz Henry:** Fitz Henry is located off of Exit #23 of Interstate 70 in the western portion of the county in South Huntingdon Township. This site is currently located in an agricultural area. However there is an expanding industrial park with public infrastructure that presents a development opportunity. The Fitz Henry site may be one of the most developable sites of all the ranked gob piles.

Recommendation: Industrial

- **Mount Joy 010 and 085:** The Mount Joy site is located off of Slope Hill Road in Mount Pleasant Township. This is a rural portion of the Township with predominately agriculture and low density residential uses. There is no public sewer or water at the Mount Joy site. The site should remain low density residential or agriculture.

Recommendation: Agriculture

- **Seger:** Seger is located in Derry Township approximately a mile west of State Route 217 near the village of Seger. There are no land use controls in Derry Township. However, the site is surrounded by agriculture use and low density residential. There are fire hydrants in proximity to site indicating a level of public water service. This site should remain agriculture because of its poor road access and location

Recommendation: Agriculture

- **Bell Point West 035:** The Bell Point West site is located east of S.R. 66 and west of S.R. 819 between the villages of North Washington and Bell Point. This is a remote site from any state routes. There is a golf course in proximity to the site and redevelopment could take the form of a combined residential and golf course development. The current owners of the pile have expressed this intention and this site may hold the most promise for immediate redevelopment.

Recommendation: Residential

- **Delmont Mine:** This site is located less than two miles southwest of the New Stanton Exit of the Pennsylvania Turnpike near Hunker. Although the site is located near major interstates, it is a very remote site and does not have a lot of redevelopment potential. The site has railroad access but poor road access. Surrounding land use is agricultural or low density residential.

Recommendation: Low Density Residential or Agriculture

- **Wilpen:** The Wilpen site is located in Ligonier Township near the village of Wilpen off of Calvary Road. This site is isolated with limited public infrastructure. Redevelopment is more of a public safety concern than a development opportunity. Any development of the site should be in concert with the surrounding agricultural and low density residential character.

Recommendation: Agriculture or Residential

Site: Bell Point West (also known as Marco Mine)

Owner Name: Frank Callizi

Location (GPS): Longitude – 79/33/50.25
Latitude – 40/32/26.44

Suggested Use: Residential/Recreational

Current Status: In discussion with coal companies and developers; looking for money for transportation costs associated with hauling away gob material.

Comments: A phone interview was conducted with Mr. Frank Calizzi on September 19, 2001. In that interview he described the history and future plans for his site. In the past, there have been several safety issues surrounding the site. The most recent example was an injured teenage ATV rider that was flown to the hospital by medical helicopter after illegally riding on the gob piles. In addition, there was a small amount of acid mine drainage identified at one point, but that problem has been addressed and neutralized. Further environmental study of the site would be necessary.

Currently, Mr. Calizzi is actively pursuing the clean up of his site for future development efforts. He has been negotiating with several coal companies to haul away the waste piles and wash it at their facilities. Transportation costs of moving the coal refuse from the site to the reprocessing center have played a key role in inhibiting these talks to date. Gap financing would promote refuse removal and lay the groundwork for redevelopment. According to Mr. Calizzi, once the refuse is removed, several developers have expressed interest in pursuing a residential/recreational project adjacent to his present golf course. The plot of land to be developed would cover up to 650 acres with 2 creeks and beaver dams.

Mr. Calizzi was very willing to work with efforts to investigate remediation and redevelopment of gob piles in Westmoreland County. He expressed significant interest in being a part of future efforts at implementation.

DIRECTORY OF CONTACTS

GOVERNMENT AGENCIES

Department of Environmental Protection

Southeast Regional Office

Ste. 6010, Lee Park
555 North Lane
Conshohocken, PA 19428-2233
(610) 832-6000

Northcentral Regional Office

208 West Third Street
Williamsport, PA 17701
(570) 327-3636

Northwest Regional Office

230 Chestnut Street
Meadville, PA 16335-3481
(814) 332-6945

Northeast Regional Office

2 Public Square
Wilkes-Barre, PA 18711-0790
(570) 826-2511

Southwest Regional Office

400 Waterfront Drive
Pittsburgh, PA 15222-4745
(412) 442-4000

Southcentral Regional Office

909 Emerton Avenue
Harrisburg, PA 17110-8200
(717) 705-4700

Department of Conservation and Natural Resources

Southeast Regional Office

908 Philadelphia State Office Building
1400 Spring Garden Street
Philadelphia, PA 19130
(215) 560-1182

Northcentral/Southcentral Regional Office

Room 551 Forum Building
Harrisburg, PA 17120
(717) 772-4361

Northeast Regional Office

201 Samters Building
101 Penn Avenue
Scranton, PA 18503-2025
(570) 963-4973

Northwest Regional Office

1200 Lovell Place
Erie, PA 16503
(814) 871-4190

Southwest Regional Office

1405 Pittsburgh State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222
(412) 565-7803

Department of Community and Economic Development

Southeast Regional Office

200 South Broad Street, 11th Floor
Philadelphia, PA 19102
215-560-2374 or 610-530-8223

Northeast Regional Office

4184 Dorney Park Road, Suite 101
Allentown, PA 18104
610-530-5718

Northcentral Regional Office

4th Floor, Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120-0225
570-742-2107 or 717-783-1402

Southwest Regional Office

1403A State Office Building
300 Liberty Avenue
Pittsburgh, PA 15222
(412) 565-5002

Northwest Regional Office

100 State Street, Suite 202
Erie, PA 16507
814-871-4191

Southcentral Regional Office

4th Floor, Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120-0225
888-223-6837

WATERSHED ORGANIZATIONS

There are several hundred watershed organizations located within Pennsylvania. To gain contact and access information of any of the watershed organizations, please contact the numbers listed below or go to www.pawatersheds.org/WatershedDirectory on the internet.

PA Association for Watersheds and Rivers

PO Box 765
North Front Street
Harrisburg, PA 17108-0765
Phone: (717) 234-7910

Western PA Coalition for Abandoned Mine Reclamation (WPCAMR)

Donahoe Center
RD 12, Box 202B
Greensburg, PA 15601
(724) 837-5271

Eastern PA Coalition for Abandoned Mine Reclamation (EPCAMR)

485 Smith Pond Road
Shavertown, PA 18708
(570) 674-7993

CONSERVATION DISTRICTS

PA State Conservation Commission

Agricultural Building Room 407
2301 North Cameron Street
Harrisburg, PA 17110
(717) 787-8821

Pennsylvania Association of Conservation Districts Region Directors and Advisors:

Northwest

Phyllis Hoople, Crawford CD 814-724-2157
Gerald Rafeew, DEP 814-332-6942

Northcentral

Karen Hovey, Union CD 570-966-9129
William Kahler, DEP 570-327-3571
Jennifer Werzinsky, DEP 570-327-3667

Southcentral

Harry Stokes, Adams CD 717-337-9820
Jay Braund, DEP 717-657-6393

Southeast

Harold Kulp, Chester CD 610-323-2409
John Schueller, DEP 610-916-0100

Southwest

William Slosky, Washington CD 412-938-3432
Charles Kubasik, DEP 724-942-7253

Central

Clair Dumm, Cambria CD 814-344-8170
Bill Zett, DEP 814-949-7906

Northeast

Victor Cappucci, Wyoming CD 717-833-5007
Karl Dymond, DEP 717-826-2009

PROFESSIONAL ASSOCIATIONS

Pennsylvania Coal Association – The Association represents bituminous coal producers and their suppliers. It addresses policies, legislation, and regulatory issues that advance the interests of its membership.

PA Coal Association
212 N, Third Street, Suite 102
Harrisburg, PA 17101
e-mail: pacoal1@aol.com

American Coal Foundation
1130 17th Street, NW, Suite 220
Washington, D.C. 20036-4604

Air and Waste Management Association

One Gateway Center, 3rd Floor
Pittsburgh, PA 15222

Association

601 Dempsey Road
Westerville, OH 43081

National Groundwater

National Association of Industrial and Office Parks
501 Holiday Drive
Pittsburgh, PA 15235
(412) 928-8303

International Council on Shopping Centers 1221 Avenue of the Americas New York, NY 10020-1099

ICSC.org: www.icsc.org

Anthracite Region Independent Power Producers Association

Billie Ramsey, Esq.

1802 Market Street, First Floor
Camp Hill, PA 17011
Phone – (717) 763-7635
www.arippa.org

ENERGY COMPANIES and ENERGY CONSULTANTS

CONSOL Energy

1800 Washington Road
Pittsburgh, PA 15241
<http://www.consolenergy.com/>

Hill & Associates

222 Severn Avenue
Annapolis, MD 21403
<http://www.hillandassoc.com>

National Engineering & Contracting Generating

12608 Alameda Drive
Strongsville, OH 44136
<http://www.natlengr.com>

Strategic Energy, LLC

Two Gateway Center
Pittsburgh, PA 15222

2E, Inc.

7472 Old Quarry Lane
Brecksville, OH 44141

GAI Consultants, Inc.

570 Beatty Road
Monroeville, PA 15146

John Cassandro International Sales

8775 Norwin Avenue
North Huntingdon, PA 15642

Reading Anthracite Co.

200 Mahantongo Street
P.O. Box 1200
Pottsville, PA 17901-7200

Original Fuels, Inc.

P.O. Box 343
Punxsutawney, PA 15767

Duke Energy

PO Box 1006
Charlotte, NC 28201-1006
<http://www.duke-energy.com>

Meridian Energy Corporation

1266 Furnace Brook Parkway
Quincy, MA 02169

PG&E Energy Trading-Power, LP

7500 Old Georgetown Road
Bethesda, MD 20814

Allegheny Energy Solutions

RR 12 Box 1000
Roseytown Road
Greensburg, PA 15601
<http://www.alleghenyenergy.com>

Johnson Energy

9056 Humberstone Avenue N.W.
North Canton, OH 44720

Motion Dynamics Group

Box 97
Freeland, PA 18224

State Industries, Inc.

P.O. Box 1022
Kittanning, PA 16201

Hazleton Standard Fuel Company

962 N. Laurel Street
Hazleton, PA 18201-1998

Northampton Generating Co.

1 Horwith Drive
Northampton, PA 18067