

## ACTION PLAN FOR MRAB ORPHAN MINE DISCHARGE TASK FORCE RESOLUTIONS

### TECHNOLOGY:

**1. DEP to prepare and issue a RFP for the demonstration of new or improved technology related to mine pool water. Categories to be considered include, but are not limited to:**

- ➤ **In-situ treatment**
- ➤ **In-situ abatement**
- ➤ **Ex-situ treatment**
- ➤ **Infiltration reduction**
- ➤ **Economical metals recovery**

#### *Action Plan:*

*The DEP will issue a request for proposals (RFP) soliciting proposals for the above 5 items (June 2004). The RFP may require that the proposal identify the specific project or need and will state that the Department may no- select any proposal for funding. In addition, there are several projects underway or in the planning stages that will advance the technology in several of these areas. Specifically:*

- A. In-situ treatment- The DEP is working on an agreement with the Black Lick Creek Watershed Association and Arcadis, Inc. to evaluate the ability of sulfate reducing bacteria to treat acid mine drainage (AMD) within an underground mine. The mine selected is the Tide Mine in Indiana County with a 10 to 15 acre mine pool. Alcohols and sugars will be injected into the mine as a carbon source for bacteria. The Babbs Creek Watershed Association has an ongoing project to evaluate the ability of limestone sand to provide in-situ treatment to AMD within the Rattler Mine in Tioga County. The injection is completed and monitoring of the system is underway. GAI, Inc. was awarded an EPA grant to investigate the feasibility of using underground mines for temporary storage of combined storm sewage overflows during high rainfall events. This may also have a positive side effect of in-situ treatment of AMD by sulfur reducing bacteria.*
- B. In-situ abatement- The DEP is working with Reliant Energy and others on a proposal for in-situ abatement of AMD within an underground mine using a mixture of FBC and Class F fly ash from the Seward and Conemaugh power plants. The 500+ acre Nineva mine near Johnstown has been selected as the target mine. The feasibility study has been completed and the project is about to enter the design phase.*
- C. Ex-situ treatment- The Southern Alleghenies Conservancy is presently evaluating three different mine drainage treatment techniques aimed at AMD treatment and metals recovery. The DEP will be closely monitoring the progress of this study. The discharge being tested is the St. Michaels discharge. This discharge has the potential for pump-storage electricity generation if treatment costs can be reduced.*
- D. Infiltration reduction- The DEP has demonstrated the ability of expandable polyurethane foam grout to reduce infiltration from streams into underground mines. This was done is a solo effort at Brandy Camp and in conjunction with the*

*U. S. Department of Energy (DOE), U. S. Geological Survey (USGS), and U.S. Army Corps of Engineers (ACOE) at Nanti-Coke Creek. In addition, the DEP continues to pursue the use of impermeable caps for the reclamation of surface mines using materials such as fbc ash from fluidized bed power plants and short fiber material from paper recycling.*

- E. Economic Metals Recovery- Hedin Environmental continues to work on the recovery of ferric hydroxide and the effort at St. Michaels should increase the knowledge base.*

**2. DEP to invest in modern Geotechnology, such as airborne geophysics, to map underground mine pools where existing mine maps are insufficient to determine mine extents and where there is a need to determine the underground extent of a given mine pool.**

Action Plan:

*The DEP has funded two projects through Growing Greener Grants where airborne geophysics was employed to map underground mine pools. One project was along the Youghiogheny River and the other was in the Kettle Creek area in Clinton County. Both projects were successful in showing the extent of underground mine pools. In addition to this effort, Mine Safety Health Administration (MSHA) is funding a significant series of projects to examine the ability of different geophysical methods to delineate underground mines beneath coal slurry impoundments. The DEP tends to follow this research effort.*

*Mapping is available for the majority of underground mines within the Commonwealth and the Bureau of Deep Mine Safety (BDMS) has an ongoing effort to find, catalogue, and scan those maps. Where these maps are present, a hydrogeologist can reasonably determine the extent of mine pool flooding with a minimum of additional information. Where mapping is absent and there is a need to determine mine pool extents, the DEP can and will rely on the geophysical methods where applicable.*

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**3. DEP to develop a database to track the on-going status of existing or potential surface mine or mine pool discharges. This will include discharges currently being treated by public and private parties, discharges that are not being treated or discharges that are likely to occur as mine pools fill. Emphasis and priority is to be placed on those discharges that have the potential for recycling and reuse (i.e. high volume) and those that have the potential for third party treatment or abatement using waste or co-product materials. The database should include information such as location, elevation, flow and chemistry of the discharge. Where appropriate, mine maps indicating the extent of mining and mine pool levels will be included. This information to be prepared in a GIS format suitable for distribution.**

Action Plan:

*The USGS provided the Bureau of Abandoned Mine Reclamation (BAMR) with GIS coverage of the discharges in the Anthracite region showing location, flow rate and chemistry of the discharges. This same template will be used for the Bituminous region. BAMR is in the process of quantifying over 400 potential high volume discharges noted in the National*

*Abandoned Mine Land Inventory System (NALIS) database occurring on abandoned sites. Once verified, these will be added to the GIS coverage. In addition, high volume discharges from active operations will also be added. BAMR will burn county-wide GIS coverages to a CD for distribution the various redevelopment authorities, the Department of Community and Economic Development (DCED), and other interested parties. The DEP will also explore ways to make this information available on the web.*

#### **4. DEP to articulate its strategy for anticipating and addressing mine pool discharges that may occur**

##### Action Plan:

- A. *District Mining Operations (DMO) will continue to apply basic concepts for preventing post mining discharges when reviewing permit applications for new mines and renewal applications for existing mines. These include:*
  1. *Evaluating mine plans using established hydrogeologic and geochemical models.*
  2. *Promoting mine designs that allow for maximum postclosure inundation while avoiding the potential for surface discharges and contamination of shallow water supply aquifers.*
  3. *Restricting mining in the proximity of natural groundwater discharge zones.*
  4. *Prohibiting mining that would capture streams or other surface waters through subsidence fractures.*
  5. *Requiring plans for the sealing of all slopes, shafts, drifts, boreholes and exploratory drill holes to reduce the flow of groundwater into the mine after closure.*
  6. *Ensuring that mine designs incorporate perimeter barriers sufficient to prevent:*
    - a. *Discharges from adjacent underground mines.*
    - b. *Contributions to existing discharges from adjacent underground mines.*
    - c. *Discharges from adjacent surface mines.*
    - d. *Discharges along downgradient outcrops of the mined seam and adjacent aquifers.*
    - e. *Denying permits for shallow mines that are likely to produce acidic drainage and contribute directly to groundwater pollution.*
- B. *DMO will make use of other available tools for predicting the potential of a post mining discharge, including the flow model that has been developed for the underground mine complex west of the Monongahela River.*
- C. *DMO will require mine operators to establish trust funds for all mines that are recognized as having the potential to develop postmining discharges.*
- D. *The Bureau of Mining and Reclamation (BMR) will continue to gather information relating to underground mine pools, barriers and sealing techniques for purposes of refining mine design standards.*

- E. BMR will continue to maintain liaison with West Virginia University Hydrologic Resource Center to ensure that the Monongahela Basin Model is maintained and updated.*
- F. BMR will analyze information on abandoned mine discharges to develop projections as to the length of time underground mine discharges are likely to require treatment.*
- G. BMR will promote the development of additional models, similar to the one developed for the Monongahela River Basin, for use in other heavily mined areas. (State and federal initiatives on abandoned mine mapping may facilitate this effort.)*

**5. DEP to coordinate the assimilation of mine discharge data with other federal, state and local agencies.**

*Action Plan:*

*Most of the data that will form the database already resides within DEP. In addition to field verification of discharges within the NALIS database, watershed assessment reports compiled by watershed organizations will also be checked for high volume discharges. Once this information is placed on the web, it will be available to other federal, state, and local organizations. In addition the DEP plans to have a discharge reporting form that someone knowledgeable of a high volume discharge not reported on the database to provide that information to the Department.*

**6. DEP assemble a database of waste materials or co-products that may be beneficial in the treatment or abatement of mine discharges.**

*Action Plan:*

- A. BMR, will access the Bureau of Land Recycling and Waste Management (BLRWM) general permits and co-products database to identify materials authorized for beneficial use under the Residual and Municipal Waste Management Regulations for treating or abating mine discharges. This database will be expanded to further identify the type and source of the materials, quantities available from each source, financial considerations for its use and a company contact responsible for distribution of the material. The database will be updated on a quarterly basis and will be used to generate a list of the materials for beneficial use in mine discharge treatment or abatement that are co-products or covered under general permits. This list and related information will be made available on the Department's WEB site and on an annual Fact Sheet.*
- B. This project will require approximately one-half man-year effort. It is anticipated that the initial development of the database will be completed by late October 2004.*

## **OUTREACH:**

**7. DEP to form partnerships with other state and local agencies as well as the mining industry to assist in the marketing of mine pool discharges where the opportunity exists for recycling and reuse.**

### *Action Plan:*

*The DEP is responding to inquiries from interested parties and will aggressively pursue forming partnerships with interested stakeholders in the marketing of mine pool discharges. The partnerships formed between the AMD Reclamation, Inc., DEP, Pennsylvania Infrastructure Investment Authority (PennVEST), and DCED in the pumping and treatment of the Shannopin Mine pool is a prime example of what can be accomplished in a partnership mode.*

**8. DEP develop a public relations plan to inform the public and, where appropriate, seek input. The plan should address available media approaches, target audiences and message development.**

### *Action Plan:*

#### ***MEDIA PLAN FOR PROMOTING THE RE-USE OF MINE POOL WATER***

*The following is a public relations plan developed to enable the Department to effectively promote the re-use of water found in abandoned mine pools throughout the Commonwealth. Out of necessity, this plan will be flexible enough to take into consideration situation-specific factors such as the ability of DEP staff – including the secretary – to participate in news conferences and other events promoting specific mine pool projects, etc.*

- A. *Identify the Resources to be Promoted.*
  1. *The billions of gallons of acidic and metals-laden mine water that exists in the abandoned mine pools throughout the Commonwealth pose a serious threat both to the surface waterways of the Commonwealth and to those municipalities and other customers who rely upon such waterways for water supplies or recreational use.*
  2. *However, while these mine pools pose a threat, they also hold tremendous potential not only as a water resource themselves, but also as a source of other materials, be they iron or other metals that can be used in industrial processes.*
  3. *The Department should identify ways in which the water could be treated and used as a resource.*
    - a. *Examples include the possible treating of mine pool water from the Shannopin Mine in Greene County for use in a power plant proposed by GenPower LLC in West Virginia, and Exelon's pumping mine water from the active Wadesville Pit into the Schuylkill River in order to use the water for its Limerick nuclear power generating plant downstream.*
    - b. *Other possible uses include pumping quarry water into municipal water systems to benefit both residential and industrial water users and to supplement the municipal supplies during times of drought.*

4. *In addition to the water itself, other resources are contained in the water collected in the Commonwealth's various mine pools. Efforts should be made to identify which resources may exist in the waters contained within these mine pools in order that we may encourage outside potential users to examine these resources for potential recovery.*
    - a. *As an example, St. Mary's Pressed Metals is attempting to produce bearings from iron oxide recovered from mine water treatment systems.*
    - b. *Other organizations have recovered iron from iron sludge and acid mine drainage for use in dyes and pigments.*
- B. *Identify Potential Users of these Resources and Initiate Marketing Plan to Inform them of these Potential Resources.*
1. *After identifying these resources, efforts could be made to identify which type of manufacturers could benefit from using these materials.*
  2. *A marketing plan targeting these industrial sectors could be initiated to generate interest among these companies and to offer the Department's assistance in providing them with information pertaining to these resources. Said plan could include:*
    - a. *News releases/Letters to the Editor aimed at media outlets throughout the Commonwealth in order to spur interest among companies unknown to the Department.*
    - b. *News releases aimed at trade publications that service appropriate manufacturing sectors throughout the mid-Atlantic and northeast regions of the country. These releases could:*
      1. *Highlight other companies that have taken advantage of both the water contained within Pennsylvania's abandoned mine pools and the iron and other resources contained within that water, and*
      2. *Provide information on the advantages of tapping into abandoned mine pools, such as increasing companies' options when locating target plant sites and possible state assistance for projects that include the re-use of abandoned mine pool water.*
    - c. *Press conferences and other events. These events could be initiated to specifically promote this marketing plan, or mention of the plan could be made by the governor and DEP secretary at other events involving the reuse of natural resources or other related topics.*
      1. *Talking points at these events could include the same points highlighted in news releases in order to both maintain a consistent message and to reinforce that message whenever possible.*
      2. *Press events could be conducted either at sites where AMD reuse is being conducted successfully or at AMD discharge points. These events could include the governor or the secretary as well as members of industry who have already committed to the reuse of AMD, and they could stress the economic as well as the environmental benefits of AMD reuse. They could also highlight, or even be focused on, announcing government incentives toward company's who commit to AMD reuse.*

- d. *Website: A webpage could be developed that could link off of one of the pre-existing DEP pages that could provide information on mine pools, the resources existing in those pools (water, iron, etc.) and our marketing efforts to attract potential clientele. It could also include news releases, information on upcoming press events pertaining to the marketing plan, and information about companies already using mine pool water or the metals contained within as a resource.*
3. *Specific companies that could benefit from AMD reuse could also be identified for direct contact. Direct contact would provide the opportunity for DEP staff to formulate a message designed to attract that company's attention and tailored to that company's needs.*

## **FINANCIAL:**

### **9. DEP assemble a database on orphan and abandoned mines and estimate cost of treatment of same.**

#### Action Plan:

*The Federal Office of Surface Mining (OSM), in cooperation with others, has developed AMD Treat. AMD Treat is a free software program that calculates the costs to treat discharge, both in terms of initial capitalization and operation and maintenance. The DEP supports the adoption of this program as the official tool for calculating costs. The Department's experience has shown, however, that treatment cost calculations for a particular discharge can vary widely depending upon the input parameters. This is due to the flexibility that is put into the program to provide for specific site conditions. Rather than calculate costs up front for each discharge, the Department prefers to provide a link to the software to allow calculation of costs when needed and tailored to the conditions of the person(s) proposing to provide the treatment.*

### **10. DEP to seek partnerships with other state, local, and federal agencies and the private sector to secure adequate funding for demonstration projects.**

#### Action Plan:

*This item was previously discussed under outreach.*

### **11. DEP to partner with DCED and conduct a market study on a market based approach to mine water treatment and sale of cleaned water.**

#### Action Plan:

*The United Mine Workers of America Career Centers, Inc. (UMWACC) submitted a proposal that could significantly expand remediation and restoration of Pennsylvania's abandoned mine lands by mobilizing private capital. To the extent that this effort is successful, it would form a model market based approach to mine water treatment and sale of cleaned water. The DEP intends to fund this venture. Their initial efforts would be centered in Washington and Fayette Counties. On a county-by-county basis they plan to:*

- A. *Complete detailed environmental and economic assessments of the county's AMD sites.*
- B. *Develop budgets and work plans for sites where the combined revenue streams generated from coal sales, direct reuse of reclaimed water, environmental remediation benefits, land reuse value, and economic development credits make reclamation feasible.*

*Their program will complete these evaluations for priority sites and develop site specific business plans that can effectively utilize funding from outside the DEP budget, primarily economic development funds, based on the analysis of returns to the community in jobs and revenue.*

*Project deliverables include:*

- *An updated database of AML sites for each participating county*
- *A generic site-specific remediation business plan*
- *Completed business plans for five sites in each participating county.*

**12. DEP to study revenue sources to subsidize water treatment where market users need assistance to ensure treatment.**

*Action Plan:*

*The DEP is looking into revenue sources and report back to the MRAB when an action plan for this resolution is completed..*

**13. DEP to partner with local government, non-profits, and authorities in ownership at treatment plants for economic development.**

*Action Plan:*

*Economic revitalization and reuse of mine water is key on the Governor's agenda. The partnerships formed with AMD Reclamation, Inc., the DEP, DCED, and PennVEST for the construction of the Shannopin serve as a model for this type of effort.*

- A. *DEP currently provides grant support to nonprofit watershed organizations, local governments, and municipal authorities for acid mine abatement projects, under the Growing Greener Act (Act 68 of 1999) and other statutes. The Department encourages projects that promote economic development.*
- B. *DEP could make a more concerted effort to work with these groups to target potential economic development opportunities. The Department is developing a legislative proposal to facilitate cooperation with DCED and local economic development authorities to maximize abandoned mine reclamation efforts for projects with economic development components (both grant and contract projects).*
- C. *DEP is also working on a legislative proposal that will promote the use and treatment of underground mine pool water for industrial and commercial purposes, by removing legal impediments to the withdrawal and transportation of the water.*
- D. *The Environmental Good Samaritan Act (EGSA) (also Act 68 of 1999) provides protection from liability for organizations and governmental entities that voluntarily provide access, equipment, materials, or services to AMD treatment projects. This should help those entities wishing to undertake such projects in order to promote economic development. However, liability protection under the EGSA is not available*



*to organizations or governments that profit from their efforts -- services or material must be provided free of charge or at cost.*

- E. I could not find any official DEP guidance to assist groups in forming nonprofits to undertake AMD projects. However, a couple of years ago, in connection with a watersheds conference, it was suggested that groups could find guidance in a manual prepared by the Community Legal Defense Foundation: <http://www.celdf.org/gats/gats1.asp>, or from the Canaan Valley Institute: <http://canaanvi.org/assistance.asp>.*
- F. BMR and Bureau of Regulatory Counsel (BRC) will inventory existing DEP information, fact sheets, etc. the purpose of which is to aid citizen groups in the formation of 503(c) non-profit corporations. (April 2004). If existing information is inadequate, BMR and BRC will identify or develop suitable written pamphlets and/or fact sheets that can be useful to citizen groups in this regard. (Draft - May 2004; Final - July 2004).*
- G. BMR will inventory existing information, fact sheets, etc. designed to advise citizen groups and 503(c) non-profit corporations how to maintain themselves as viable, effective, long-term organizations. (April 2004). If existing information is inadequate, BMR will identify or develop suitable written pamphlets and/or fact sheets to be used in this regard. (July 2004).*
- H. BMR and BRC will research and summarize the legal liabilities of citizen groups, local governmental agencies, industrial/economic development corporations, redevelopment authorities, etc. that become involved in the treatment and/or distribution of water from orphan AMD discharges or mine pools. This will include an analysis of the Environmental Good Samaritan Act and other relevant statutes. (May 2004).*
- I. BMR and BRC will assure that the implementation of this Action Plan remains compatible, to the extent necessary and appropriate, with the ongoing development of "grayfields" legislation. (ongoing).*
- J. The DMOs will identify opportunities for the productive use of water from orphan AMD discharges or mine pools. This will involve the collection, comparison, and integration of the following types of information, some of which is already available or in the process of being collected. BMR will provide assistance to the DMOs in coordinating these efforts.*
  - 1. Complete and verify the inventory of orphan discharges. (October 2004).*
  - 2. Identify, by watershed, groups and entities that may be willing to participate in the treatment and/or distribution of AMD water. (April 2004).*
  - 3. Identify areas where economic development is currently - or likely to become - inhibited by a lack of potable water or water uncontaminated by AMD. (July 2004).*
  - 4. Identify existing large water users (industrial, irrigation, cooling, etc.), their sources of supply, and the potential for substituting treated or untreated AMD water. (August 2004).*
  - 5. Survey local and county industrial/economic development corporations and redevelopment authorities to identify areas where development is desirable or likely to occur. Use this information to help identify potential future uses for AMD water. (July 2004).*

**14. Request DEP to properly fund and staff the effort needed to carry out these recommendations.**

Action Plan:

*The Department will take a look to determine both the short and long term staffing and funding needs.*

**LEGAL AND LEGISLATIVE:**

**15. DEP to prepare a legal opinion to evaluate impediments to the use of alternative criteria, including best professional judgment standards for manganese on a case by case basis, to allow passive treatment where a higher manganese limit could be feasibly attained without compromising the use of surface waters, aquatic life or human health.**

Action Plan:

*DEP to prepare a legal opinion to evaluate impediments to the use of alternative criteria, including best professional judgment standards for manganese on a case by case basis, to allow passive treatment where a higher manganese limit could be feasibly attained without compromising the use of surface waters, aquatic life or human health.*

- A. *The Bureau of Mining and Reclamation, will work with regulatory council to prepare a legal opinion on alternate effluent criteria. BMR will also work with the necessary federal agencies that would need to approve any change in effluent limits. Pennsylvania regulations are derived from federal Environmental Protection Agency (EPA) regulations. Addressing this issue will require EPA to review their requirements for manganese effluent standards and to amend their laws and regulations.*
- B. *This issue is of interest to other states (including West Virginia) and the federal Office of Surface Mining. A work group has been formed within the Acid Drainage Technology Initiative composed of EPA, OSM, industry and state representatives to look into the technical aspects of manganese effluent limits. Technical aspects include: Is manganese a surrogate for heavy trace metals? What are the toxicity effects of manganese?*
- C. *Preliminary findings suggest that EPA did not include manganese effluent limits to serve as a surrogate, but included manganese because it is not removed with iron removal. Even if manganese is a surrogate, technological improvements in water analytical procedures now permit sampling of a wide suite of parameters at a reduced cost compared to when the rules were promulgated. Thus specific trace metals can now be individually identified and dealt with if necessary. Additional information since the promulgation of the EPA rules (in the 1970s) suggests that limits based on manganese toxicity need to be reexamined. In addition to the legal and technical issues, the outcome of a rule change could also have significant financial benefits to industry, states, citizens groups and anyone else treating mine drainage. Treating for manganese requires treating to a high pH, which has its own set of negative consequences, including redissolving some metals, such as aluminum.*

*D. The technical aspects will be done by the Bureau of Mining and Reclamation in conjunction with the Office of Surface Mining and the work team for the Acid Drainage Technology Initiative (ADTI). A technical study should be completed by the end of 2004. The legal aspects, such as obtaining a federal rule change, will require years. The rule change will have to be made at both the federal and state level and will require publication in the Federal Register, the Pennsylvania State Bulletin, and will require comment periods and public hearings. DEP met with US EPA Region 3 Staff and discussed this is an issue. EPA Region 3 pledged their support.*

**16. DEP to request legal opinions on ownership of mine water, access rights and liability issues.**

Action Plan:

*We are fairly certain about the basic concepts regarding ownership of mine water, but it would probably be best to respond to the MRAB with a plan for this Bureau to develop this information in a definitive fashion.*

*The Department is working on a legislative proposal (also part of the Grayfields concept) that would establish a procedure insuring that people and entities that propose to withdraw contaminated water from underground mine pools and treat for industrial purposes would have the legal right to use or sell that water off-site*

*BRC and BMR will research existing statutes and court decisions based upon them and common law as they pertain to mine water ownership, access rights and related liability issues. BRC will develop a written document identifying legal issues, questions and options. The document will contain pertinent citations to statutes, regulations and case law. It will be written in a manner so as to serve as a practical tool for decision making by entities inside and outside DEP that are implementing the other Action Plans contemplated under these Resolutions. (Draft document – April 2004; final document - May 2004).*

**17. DEP should evaluate, solicit and develop a pilot project on mine discharge effluent trading.**

Action Plan

- A. BMR to request the Office of Policy and Communications to include mine drainage effluent in their effluent trading discussions with EPA.*
- B. BMR to identify mine drainage effluent trading initiatives/studies in other states.*
- C. BMR to coordinate a meeting with BMR, DMO, BAMR and legal staff to identify possible trading scenarios, hurdles, potential candidates to establish a limited scope for the pilot.*
- D. BMR to identify regulatory agencies that would be involved in the approval process (i.e. DEP Bureaus, Federal agencies and interstate commissions, etc)*
- E. BMR to develop a pilot project and distribute to DMOs and BAMR for comment. Pilot would include:
  - 1 Limited geographical area**

2. *Limits on type of trading*
  3. *An approval process(s) for different types of trading scenarios.*
  4. *Expected benefits*
  5. *Success measurements*
- F. *BMR to solicit input from MRAB (by February 2005)*
  - G. *BMR to submit pilot project plan to Deputy Secretary for MRM for approval.*
  - H. *If necessary, BMR will submit pilot project plan to EPA and any other agency identified as requiring approval.*
  - I. *DMO to solicit participants/proposals and work schedules for the approved pilot project..*
  - J. *If necessary, BMR to finalize pilot project plan and request and receive final EPA approval.*
  - K. *DMO/BMR to implement pilot project (by December 2005)*
  - L. *DMOs to monitor pilot (December 2005 to November 2007)*
  - M. *BMR to prepare an interim status report (December 2006)*
  - N. *Prepare draft evaluation report for comment to MRM, (by May 2008).*

**18. DEP should promote and assist agriculture and energy industries in taking advantage of carbon, effluent trading or other credit trading opportunities that could enhance incentives for projects that reduce the risk from or magnitude of mine pool discharges.**

Action Plan:

*The DEP is working on the concept of effluent trading credits. It is premature to speculate how this may fit into the framework of the larger concept, but will be considered. The DEP will report back to the MRAB once an action plan is developed for this resolution. This issue was also discussed with US EPA Region 3 staff.*

**19. DEP should promote federal legislation to establish Good Samaritan protection in federal regulations.**

Action Plan:

*DEP met with US EPA Region 3 Staff and stressed that this is an issue that may hamper the marketing of mine pools. EPA Region 3 pledged their support.*