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1 May 2002

Harold Miller
Chief, Underground Mining Section
PADEP - Bureau of Mining and Reclamation
P.O. Box 8461
Harrisburg, PA 17105-8461

In re: Comments on Draft Technical Guidance 563-2000-655

Dear Mr. Miller:

This letter is to provide comments on the proposed Draft Technical Guidance 563-2000-655 entitled, "Surface Water Protection - Bituminous Underground Mining Operations". These comments are provided as a public service and not on behalf of any client. They are based on my experience during more than 20 years as a private-sector environmental consultant during which time I have worked closely with various PADEP regulatory programs and processes.

As a general comment, I believe it is beneficial for PADEP to elucidate the procedures that are to be followed by staff in the Bureau of District Mining Operations (DMO) in reviewing applications for underground bituminous coal mines. It is useful both for the DMO reviewers and for the regulated public to understand current policy regarding the protection of streams, wetlands, and other bodies of water.

On one level, I fully appreciate the need for this guidance, given the general lack of protection that has been afforded to surface water resources to date in the context of underground mining regulation. On a deeper level, however, it is unclear to me why this policy is being formulated only now, more than 20 years after these very same responsibilities were delegated to the Bureau of Mining and Reclamation (BMR). On 5 October 1981, an agreement was formalized between the BMR and the Bureau of Dams and Waterways Management, assigning to BMR responsibility for the administration and enforcement of the Dam Safety and Encroachments Act of 1978 for all mine-related operations. A copy of that agreement is enclosed.

My specific comments are presented below and follow the order presented in the Draft Technical Guidance document. Most typographical errors and punctuation mistakes are not addressed in these comments.

DEFINITIONS

1) The wording of the description in longwall mining seems overly specific. I suggest changing "...panels, may be up to 1,100 feet wide or 15,000 feet long" to "... panels, may be **1,000 feet or wider and 15,000 feet or longer**". This will prevent any confusion about whether panels *larger than* the stated dimensions are to be regulated as longwall mining.

2) In the definition of Mitigation, the final phrase "and its implementation" in (i)(A) is unclear, and probably redundant in light of the phrase "the action".

3) In the definition of Mitigation, the wording of part (ii) is rather cryptic. It appears to apply to mitigation which is not onsite or *in situ*. This presumably would include offsite wetland creation, which I could understand and find acceptable, but *only IF* it were to be required within the same watershed (where it may have some chance of replacing the lost functions), and at some premium rate, such as 2:1 or 3:1 (so that it offers a *disincentive* for the impact). I find it hard to imagine the intentional creation of a new stream or spring somewhere offsite as mitigation for the destruction of those resources onsite (and if a spring is *unintentionally* displaced or created someplace else, it could become a nuisance rather than a benefit).

The *type* of mitigation that might be allowable has the potential to be a major loophole in this policy, one which essentially will subvert (or, to use a more relevant term, *undermine*) any environmental protection that this policy otherwise pretends to achieve. Part (ii) refers to "providing substitute resources or environments", which is not very specific and presumably could include a whole range of things (many of which may not be appropriate). **The issue of mitigation is one that should not receive mere lip service. If a wetland/stream impact cannot be avoided or truly minimized, or if it is unlikely to be restored to its**

former condition, it generally should not be allowed. It should be considered unacceptable to allow out-of-kind mitigation or monetary contributions/ donations as the price of resource destruction.

The *sequence* during the review process, that is, *when* mitigation is to be addressed, also is an important consideration. The *need* to cause the impact at all, and the inability to avoid or minimize the impact, must be addressed first. Applicants should not be allowed to blithely make an upfront contribution to the Pennsylvania Wetland Replacement Project Fund for any and all wetland and stream impacts in lieu of any real effort to avoid or minimize impacts. If a monetary donation is to be allowed as compensation for the physical loss of the functions and values of a wetland or other surface water ecosystem, it should be only as a last resort. Furthermore, the amount of the monetary contribution should be based not on the minimum cost to PADEP to replace the resource in a more convenient location, if it can find an agreeable landowner somewhere; rather, it should be based on the economic gain to be derived by the applicant for being allowed to destroy the resource. In general, there should be few circumstances under which a mining company would be allowed to make a monetary donation in-lieu-of actual wetland creation, given the large tracts of land they control and their adeptness in moving huge amounts of earth.

Additional consideration needs to be given in this policy statement to the *types* of mitigation that may be allowed, and the *circumstances* under which they will be allowed. There may be an opportunity here to create mitigation banks, which could consolidate mitigation projects into large, readily manageable, and potentially successful undertakings. However, the prospect of mitigation should not become a *quid pro quo* for wetland destruction.

4) In the definition of Perennial stream, the term "body of water" should be replaced with the word "**stream**" or "**watercourse**". Otherwise, a perennial stream will be defined as a lake, pond, swamp, etc. flowing in a channel.

BACKGROUND

5) In general, PADEP's "Background" discussion is fairly good. For the most part, it accurately describes the various PADEP environmental regulations that have applicability to mining activities. It also does an acceptable job describing the different methods of underground mining and how they can affect surface waters. I am gratified to see a great deal of overlap between this section's discussion of regulatory requirements and potential impacts and the concerns that I raised on behalf of the Raymond Proffitt Foundation in "Wetlands and Longwall Mining: Regulatory Failure in Southwestern Pennsylvania" (July 2000), even though the RPF report is not included among the References Cited for this guidance document.

6) In the first paragraph on Page 7 is a reference to Bai and Kendorski (1996) which is not found in the References Cited section. The work is referred to as "more recent articles", and it is cited as the basis for using "30 times the extraction height" as the upper limit distance of the zone of deep fracturing associated with longwall mining, in contradiction to published literature which is said to indicate distances up to 58 times the extraction height. The "published literature" is not referenced. More important, however, there is no rationale provided as to *why* such a low upper limit (30t) has been selected over something closer to 58, which presumably would begin to provide a greater margin of protection in evaluating surface water flow losses.

7) In the discussion on Page 8 entitled "Surface water flow loss resulting from groundwater diversion", several problems associated with groundwater diversion as a result of subsidence are mentioned. One problem that has been overlooked, and which should be added to the discussion, is the widespread groundwater contamination that results when septic systems above longwall mines are damaged. This aspect of mine subsidence has serious public health implications and needs to be addressed.

8) In the middle of Page 9, PADEP states that an applicant is required to submit an encroachment permit application [*only*] when "the operation plan predicts that there will be a change in the course, current,

or cross-section" of a surface water. This should be changed to say that **"Every application for full-extraction mining, and any application for room-and-pillar mining that may cause any loss of surface water, shall be required to submit an encroachment permit application"**.

If the suggested wording change is not made, PADEP has no assurance that the applicant's operation plan has correctly identified those instances where there will be a change in the "course, current, or cross-section" of a regulated surface water. Indeed, longwall mines are so large that it is inconceivable for them *not* to threaten streams, springs, and wetlands.

The basis for this suggested wording change is the PADEP discussion on Page 8 (Surface water flow loss resulting from groundwater diversion), which mentions several important considerations that apparently have not been brought together and translated into the recommended policy. The discussion on Page 8 accurately states that subsidence from full-extraction mining can divert surface water flow away from streams and wetlands (a regulated activity under Chapter 105), that the loss can be either short-term or long-term, and that it can be associated with full-extraction mining at any depth. It further states that losses of springs as a consequence of full-extraction mining are well documented. These factors suggest that every full-extraction mine application potentially involves a change in the "course, current, or cross-section" of a regulated surface water and thus needs to comply with the Chapter 105 application criteria.

9) In the middle of Page 9, PADEP states that if the operation plan predicts potential water loss due to mining, then the applicant must either submit an encroachment permit application or agree not to mine under the stream or wetland. Two questions come to mind on this point.

First, is the referenced "encroachment permit application" to be the same Chapter 105 joint permit application currently used for other proposed activities that will affect wetlands and waterways throughout the Commonwealth? Operationally it is not clear how the Chapter 105 encroachment permit review is to be integrated into the ongoing mine application review process, if at all.

Second, what assurance does the Department have that any or all wetlands that potentially may be impacted by mining have been identified? To state that an applicant may "agree not to mine under" a wetland assumes that the applicant has first *identified* all wetlands above the proposed mining operation. This draft policy statement nowhere makes clear (as it should) that **all wetlands above a proposed mining operation must be delineated**. Furthermore, this draft policy statement nowhere mentions (as it should) that **the method to be used for all wetland delineations is that which has been adopted in accordance with Section 105.451, namely, the 1987 Corps of Engineers Wetland Delineation Manual**. It would be appropriate to go further and specify the onsite methodology of the 1987 Manual.

10) The statement at the bottom of Page 9 ("The most reliable way to assess the effect of either flow loss or changes in channel profile is to document baseline conditions and compare the same parameters after mining.") is excellent. It appears to acknowledge the need for a proper baseline inventory of surface water resources in order to evaluate impacts to those resources. Appropriately, in the section "Supplementary surveys and measurements" on Page 11, PADEP lists "Wetland delineation and evaluation of functions and values of wetland systems." What should be added here, as pointed out in Comment #8 above, is a statement that **all wetlands above a proposed mining operation must be delineated, and the wetlands should be delineated in accordance with the onsite methodology of the 1987 Corps of Engineers Wetland Delineation Manual**.

Furthermore, to ease the burden on the limited DMO staff with biological/ecological expertise, it would be both reasonable and appropriate to require that all wetland delineations be reviewed and confirmed by the Army Corps of Engineers, a procedure that typically is done in conjunction with other types of projects involving wetlands (and which need Chapter 105 approval) elsewhere in the Commonwealth.

11) Several of the thresholds mentioned on Page 11 are at odds with similar thresholds discussed on Page 7. For example, on Page 7, PADEP states that the "potential for direct interception is significant to a depth of 100 feet and remains a concern to a depth of about 175 feet", yet

the recommendation on Page 11 is to avoid mining only at depths less than 100 feet beneath streams/wetlands. **The suggested depth should be changed from 100 to at least 175 feet.**

Likewise, full-extraction mining is suggested to be avoided in the zone of deep fracturing, which is stated to be 30t, whereas on Page 7 PADEP states that published literature indicates that this zone could be 24t to 58t (see also my Comment #6 above). **The suggested distance should be changed from 30t to 58t.** Likewise on Figure 8, Page 27, the "30t+50" should be changed to **58t+50'**.

12) At the bottom of Page 11, the following statement is made: "Avoid full extraction in areas that are likely to result in loss of significant feeder springs". Since there is no definition of, or any other way to determine, what feeder springs are or which may be "significant", the word "significant" should be deleted. As stated on Page 8, "spring losses associated with full extraction mining are well documented"; thus, **the prudent policy would be to avoid full extraction in all such areas** of vital resources important to the public.

PROCEDURES

13) The title of the first section ("Permitting actions and approvals relating to stream protection") should be changed to "... stream **and wetland** protection", or more generally, to "... **protection of surface water resources**". Likewise, several of the subsequent specific references to *streams* should be expanded to include the other classes of surface water resources regulated under the CSL and DSEA:

Line 5, Page 13: change "...approvals to subside stream channels..." to "... approvals to subside **or diminish surface water resources**..."

Line 7, Page 13: change "...current or cross-section of a stream..." to "...current or cross-section of a **watercourse, floodway or body of water**..."

Line 41, Page 13: change "... of any planned stream restoration work" to "... of any planned stream **or wetland** restoration work".

14) In the three paragraphs in the middle of Page 13 (lines 20 through 35), PADEP is to be commended for properly addressing the need to protect and restore, if necessary, both streams and wetlands.

15) Inasmuch as stream and wetland impacts now are proposed to be assessed as part of the mine application review, it makes sense that the DMO will have the lead and primary responsibility for those assessments. However, unless DMO staff is supplemented with ecologists or other professionals with wetland expertise, it is doubtful that the assessments will be meaningful. Given the practical difficulty of adding to staff in these times of tight budgets, I suggest that the wetland assessments be circulated to qualified staff in the PADEP Regional Office until such time as the DMO is able to incorporate qualified staff. The limited resources within DMO to review and evaluate wetland impacts is another practical reason why all wetland delineations should first be confirmed as accurate by the Corps of Engineers (see Comment #9).

16) As written, the last sentence at the bottom of Page 13 offers little actual protection. The sentence should be re-written to clearly state: **"The operation plan for each application must identify all surface waters above and within 1,000 feet of proposed underground mining activities, and predict the probable hydrologic consequences to them."** As drafted, the sentence states that the *consequences* must be identified and predicted, which is subtly different because it merely assumes that all surface water resources have first been *identified*. The absence of data in mining applications on the type and location of wetlands and other water resources has precluded an accurate prediction of consequences heretofore.

17) The sentence on Page 14 (lines 4 through 7) offers an opportunity to make clear how wetlands are to be delineated (*i.e.*, using the 1987 Corps Manual). The sentence should be revised as follows: **"For wetlands, it should include a delineation performed in accordance with the onsite methodology of the 1987 Corps of Engineers Wetland Delineation Manual, and confirmed by the Corps, a description of ..."**.

One typographical correction is needed in this same sentence: change "...whether and wetlands meet..." to "... whether **any** wetlands meet...".

18) Several of the paragraphs on Page 14 suggest that *the reviewer* should evaluate one matter or another. In fairness to the reviewers, it should be the applicant's responsibility (not the reviewer's) to provide all of the necessary information and to make all of the appropriate demonstrations; the reviewer should primarily ensure that the required information has been provided and that the demonstrations and justifications made by the applicant are reasonable.

19) On Page 14 (line 9), the 175-foot depth limitation is only relevant to room-and-pillar mining (per the previous discussion on Page 11); for full-extraction mining, a depth of 400 feet is the relevant limitation. The sentence should be changed as follows: "... at shallow depths (175 feet **for room-and-pillar mining, or 400 feet for full-extraction mining**) beneath ...".

20) The following revisions should be made:

line 18 (Page 14): "... be provided for streams **and wetlands** where full extraction...".

line 23 (Page 14): "... all anticipated effects on streams **and wetlands.**"

21) After the sentence on Page 14 (lines 19-21) that states: "The application should include descriptions ... of streams and wetlands that are expected to subside.", the following sentence should be added: "**The application should provide information explaining the basis for concluding why certain streams and wetlands are *not* expected to subside or experience diminished flow.**"

22) The last paragraph on Page 14 is a good discussion of how other state and federal resource agencies are to be involved in the review. Given the admittedly limited resource personnel in DMO with ecological expertise, it is entirely appropriate to utilize the expertise within these sister agencies whenever necessary.

23) The statement is made on Page 15 (lines 21-23) that "Full extraction ... may be allowed if supported by an affirmative demonstration that significant flow losses are not anticipated." First, there is no definition of what constitutes a "significant" flow loss in terms of percentage loss or duration of loss. Furthermore, **some specific method of monitoring should be implemented (by the applicant) to determine whether flow losses that were "not anticipated" actually occur. If any such flow losses do occur, then there should be some appropriate regulatory penalty imposed.**

24) The section "Potential for flow loss due to groundwater diversion" (Page 15) is nothing more than mere window dressing. While it may sound reasonable to say that evaluations of potential flow losses due to full-extraction mining beneath streams, wetlands, and springs (lines 32-32) should be based on "observed effects" in "similar settings", **the unfortunate fact is that there have been almost no data collected in this regard to date (certainly not for wetlands).** To further qualify it by saying these evaluations should be done "whenever possible" only makes it that *much less likely* to be done or to yield anything of substance. PADEP guidance should clearly state what it requires of applicants.

25) The section "Potential for subsidence-related stream channel and wetland changes" (Pages 15-16) is unlikely to be operationally effective. Who is supposed to do the evaluations referenced in this section - the applicant or the reviewer? Even if these evaluations are to be set up and demonstrated by the applicant (as would be appropriate), it is too much to expect that DMO mine engineers will be able to properly review and assess potential changes in wetland functions and values. As in Comment #23 above, **this section is mere lip service.**

26) Each report of surface water flow loss (Page 16) is to be investigated by a hydrogeologist and a biologist working as a team. First, is the "biologist" a new position to be created in the DMO office as a result of this new policy, or will someone be "borrowed" from another DEP office? Second and more important, **this procedure reflects a faulty mind set: if a wetland dries up and no one reports it, then no impact has occurred.** Applicants should be required to monitor the streams, wetlands, and springs that are to be undermined for a period of at least

two years prior and at least five years after the mining. This will begin to establish a database of real information about the effects of mining on surface water resources, which can be used as a basis for making future regulatory adjustments.

27) The public notice (Page 17) should identify not "... the names and locations of all streams or wetlands that will be subsided..." because these cannot be known with certainty beforehand. Rather, the notice should include "... the names, locations, **and extent** of all streams and wetlands **within the permit area**", because all of them potentially are at risk of water loss due to mining or subsidence.

28) The flowchart on Page 19 needs a **new box** in the second position from the top that is described as: "**Identification of each watercourse, floodway, and other body of water above the permit area of the mine**". Unless *all* of these surface water resources (wetlands are included among "body of water") are specifically identified and included on the mine maps, any policy that purports to protect them is meaningless.

29) The 7th box on the left is nothing more than an escape clause. Simply stating "... unless mining is modified" is unclear. Better wording would be "... unless mining is modified **to prevent water losses from all streams, springs, and wetlands.**"

IMPACT ANALYSIS

30) This two-page analysis appended to the draft technical guidance addresses the impacts of the proposed policy on PADEP and on the regulated public. It is most revealing in what it does *not* say. Repeated references are made to "streams", but not once in the entire two pages is the word "wetland" or the word "spring" used. This analysis should be revised to replace the word "stream(s)" with "stream(s), **spring(s), and wetland(s)**" every time it is used.

In discussing the economic impacts on the regulated public (item #4), the analysis ignores completely the positive environmental benefits that will

result if this policy is implemented, which presumably was the reason for drafting the policy in the first place. If wetlands are prevented from drying up; if streams are allowed to flow freely; if springs are allowed to flow at all; if the livestock, fish, birds, and other wildlife whose lives are dependent on surface water systems are allowed to flourish; and if all of the people who like to drink, bathe, fish in, wade in, or otherwise enjoy the surface water resources of this Commonwealth are allowed to continue to pursue those interests, these all will be positive outcomes of implementing this policy. If the few mine companies who profit from the sale of bituminous coal removed from beneath these precious water resources must begin to bear more of the environmental costs of that extraction as a result of this policy, that is a positive benefit as well.

31) Will this policy, that already is more than 20 years late, have any effect in preventing impacts to surface water resources due to underground coal mining? I truly hope so, but it is hard not to be skeptical when noting not one, but two, blatant qualifiers right up front in the one-page summary:

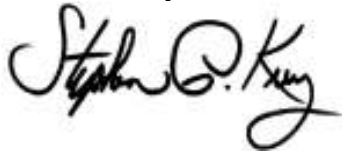
1) "*The Department WILL DEVIATE (emphasis added) from this position only if it is presented with information affirmatively demonstrating the impacts will be short-lived [whatever that means] or can be effectively remedied by proposed mitigation activities.*" Given this statement, I feel certain that every new mine application will include at least a brief section labeled "Affirmative Demonstration" which will suffice to satisfy the "letter" of this new policy even if it provides nothing of substance.

2) "*DISCLAIMER: The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department to give these rules [rules?] that weight or deference. The Department reserves the discretion to deviate from this policy statement if circumstances warrant.*" If PADEP really is serious about preventing impacts to surface waters from underground mining, it would incorporate the procedures described herein into the mining regulations, and not simply leave them as discretionary policy. Up to now, PADEP has habitually ignored the myriad existing, promulgated regulations that involve wetland/water protection in the context of underground mining. It

may be unreasonable to expect that this new policy will be followed faithfully and consistently.

Thank you for the opportunity to provide these comments. I recommend that these suggestions be incorporated into the final draft of this policy document. If a comment/response document is compiled, kindly send me a copy.

Yours truly,

A handwritten signature in black ink that reads "Stephen P. Kunz". The signature is written in a cursive style with a large, looping 'S' and 'K'.

Stephen P. Kunz
Certified *Senior Ecologist* (Ecological Society of America)
Professional Wetland Scientist (Soc. of Wetland Scientists)

Enclosure

cc: Citizens Advisory Council
DEP Secretary David E. Hess

DELEGATION OF CERTAIN REGULATORY AUTHORITY FROM
BUREAU OF DAMS AND WATERWAYS MANAGEMENT
TO BUREAU OF SURFACE MINING

Whereas, the Office of Resources Management, through its Bureau of Dams and Waterways Management (BDWM) is charged with the administration and enforcement of the Act of 1978, P.L. 1375, No. 325, as amended, (Dam Safety and Encroachments Act) and Act of 1978, P.L. 851 (Flood Plain Management Act);

Whereas, the Office of Environmental Protection, by its Bureau of Mining and Reclamation (BMR) is charged with the administration and enforcement of the Act of 1945, P.L. 1198, as amended, (Surface Mining Conservation and Reclamation Act), the Act of 1968, P.L. 1040 (Coal Refuse Disposal Control Act), the Act of 1966, 1st Sp. Sess. P.L. 31 (Bituminous Mine Subsidence and Land Conservation Act), and, insofar as it relates to coal mining and processing, the Act of 1937, P.L. 1987 (The Clean Streams Law); and

Whereas, the Office of Resources Management is committed to the expeditious processing of applications for the construction and operation and maintenance of dams, water obstructions and encroachments relating to surface mining activities, and a "one step" permit system;

Whereas, it is in the interest of cost saving, public relations and prompt permit processing that certain classifications of dam and all types of water obstruction and encroachment relating to surface mining and reclamation, coal refuse disposal, coal processing facilities and other

related facilities be reviewed and processed by the Office of Environmental Protection through the Bureau of Mining and Reclamation.

NOW, THEREFORE, the Director of the Bureau of Mining and Reclamation, by and through his staff and regional offices, will process and coordinate surface mining and reclamation, coal refuse disposal, and coal processing operations involving certain dams, water obstructions and encroachments in the following manner:

A. Water Obstruction and Encroachments

1. EMR will receive and process applications and issue or deny permits for all water obstructions and encroachments located in, along, or across, or projecting into any watercourse, floodway or body of water required for development or operation of surface mining and coal refuse disposal sites. EMR will coordinate as required with other state agencies, interstate water basin commissions and federal agencies.

2. EMR will forward to BDWM for review and comment on all projects that may imperil life or constitute significant hazard to property or environment, or requires submerged land lease agreements.

3. EMR will inspect those structures or activities processed and permitted in accordance with A.1 and A.2 under Policy (Responsibilities). If there are problems, BDWM will provide technical assistance as requested.

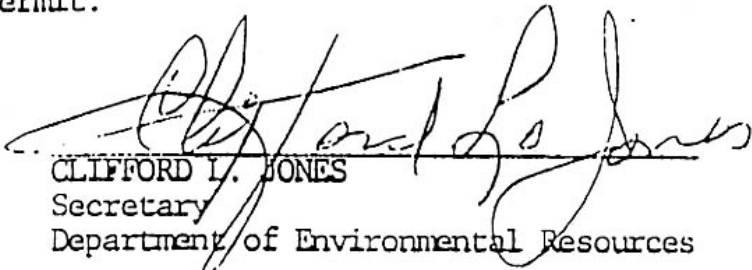
4. EMR will coordinate enforcement actions for those structures for which they issue or deny a permit. EMR will respond to complaints for all water obstructions and encroachments relating to surface mining and coal refuse disposal operations.

B. Dams

1. EMR will refer all permit applications for dams and reservoirs to BDWM for permitting except dams that:
 - a. have a contributory drainage area of 100 acres or less; the greatest depth of water at maximum storage elevation of 15 feet or less; and a maximum impounding capacity of 50 acre-feet or less, or
 - b. are Size Classification C, Hazard Potential Classification 3, and are regulated by MSHA in accordance with 30 CFR 77.216-1 and 2, or
 - c. are Hazard Potential Classification 3 and are temporary in nature (i.e., will be removed at the completion of mining).
2. BDWM will review, provide comments and recommendations to EMR for temporary Hazard Potential Classification 3 dams.
3. EMR will inspect those structures for which they permit. If there are problems, BDWM will provide technical assistance as requested.
4. EMR will coordinate enforcement actions for those structures for which they issue or deny a permit.

Date:

10-5-81


CLIFFORD L. JONES
Secretary
Department of Environmental Resources



COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL RESOURCES
 P.O. Box 2063
 Harrisburg, PA 17120



The Secretary

DELEGATION OF AUTHORITY

The Chief of Technical Services and Permitting Section of Mining and Reclamation is hereby authorized to issue permits and approve or disapprove plans as authorized by the following Acts, Codes and Chapters insofar as that authority is vested, assigned, or delegated to the Department of Environmental Resources or to the Secretary of the Department of Environmental Resources. This authorization is to be exercised in accordance with all applicable laws, rules, and regulations of the Commonwealth.

The Act of May 31, 1945, P.L. 1198, No. 418, as amended
 (Surface Mining Conservation and Reclamation Act).

The Act of June 22, 1937, P.L. 1987
 (The Clean Streams Law).

The Act of July 1, 1937, P.L. 2681, (Storage, Handling and
 Use of Explosives).

The Act of July 10, 1957, P.L. 685 (Use of Explosives).

Act of September 24, 1968, P.L. 1040
 (Coal Refuse Disposal Act).

The Act of 1978, P.L. 1375, No. 325, as amended
 (Dam Safety and Encroachment Act).

The Act of 1978, P.L. 851 (Flood Plain Management Act).

Federal Surface Mining Control and Reclamation Act,
 P.L. 95-87.

Federal Clean Water Act, P.L. 95-217.

Administrative Code 1901-A and 1920-A, P.L. 177

Title 25, Pennsylvania Code, Chapters 77, 99, 100, 125,
 207, 209, 210, 211 and 401.

Date

1/18/82

PETER S. DUNCAN

Assistant Mining Manager