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Harold Miller, P.G.
PADEP – Bureau of Mining and Reclamation
P.O. Box 8461
Harrisburg, PA 17105-8461

In re: Comments on Draft Technical Guidance Document 563-2000-655 Surface Water Protection - Underground Bituminous Coal Mining

Dear Mr. Miller:

This letter is to provide comments on the Draft Technical Guidance Document entitled "Surface Water Protection – Underground Bituminous Coal Mining Operations" (# 563-2000-655), which was made available on 26 February 2005. These comments are provided as a public service and not on behalf of any client. They are based on my professional experience during more than 25 years as a private-sector environmental consultant, during which time I have worked closely with Pennsylvania regulatory programs relating to wetlands, water quality, and mining.

Currently, the biggest obstacle to the protection of wetlands and other surface resources during longwall mining is not a *lack* of laws and regulations, it is the longstanding and consistent *failure to implement* the existing laws and regulations fully and uniformly. Based on my review of hundreds of mine permit files (see Schmid & Company, Inc., "Wetlands and Longwall Mining: Regulatory Failure in Southwestern Pennsylvania", July 2000), it is clear that mine applicants have not been providing, and that the PADEP has not been requiring, adequate pre-mining inventories and assessments for wetlands and other waters. This problem was raised in the first Act 54 Report, and it is highlighted repeatedly in the second Act 54 Report. If the information requirements specified in this latest draft of the subject technical guidance document are applied diligently and consistently, it will help not only to minimize the impacts, but also to provide a background database against which future reviews and assessments can be measured.

Overall, I believe that the Department is to be commended for drafting a guidance document on this matter that has a reasonable chance for reducing the adverse impacts to surface waters and wetlands from longwall mining, provided of course that it is faithfully and consistently implemented.

This draft represents a significant improvement over previous versions which I have seen (including one dated 6 April 2002, on which I provided detailed comments dated 1 May 2002; and another dated 27 March 2004). I am pleased to see that some of the better recommendations from the second Act 54 Five-Year Report, prepared for the Department by California University of Pennsylvania, have been incorporated into this draft guidance document.

My comments address items in the order in which they are presented in the guidance document.

1) The expanded list of defined terms and the expanded descriptions of those terms (pages 2 to 4) are useful.

2) I disagree with the Department's conclusions (last sections of pages 4 and 5) regarding the applicability of the Dam Safety and Encroachments Act (DSEA) and PADEP Chapter 105 regulations to subsidence associated with longwall mining. During longwall mining the actual *coal extraction* may occur "beneath" the surface of the ground, but the *subsidence* does not. Subsidence is an unavoidable, intentional, and integral aspect of longwall mining, in sharp contrast to traditional room-and-pillar extraction. Subsidence is not limited to the section of the mine roof that falls into the mine void, but rather includes the cracks that develop in the rock and soil above the mine, in many cases all the way to the surface. When a subsidence crack opens in the bottom of a stream or a wetland, or when the entire bottom of the stream or wetland is shifted several feet vertically, those actions clearly are happening "in" the stream or wetland. At minimum, the longwall mining subsidence is "projecting into" the stream or wetland and changing its cross-section, often drastically.

Furthermore, as I pointed out in my comments on an earlier draft of this Technical Guidance Document in 2002, a Delegation Agreement was formalized on 5 October 1981 between the Bureau of Mining and Reclamation (BMR) and the Bureau of Dams and Waterways Management, assigning to BMR responsibility for the administration and enforcement of the DSEA of 1978 for all mine-related operations. BMR has avoided that responsibility for nearly 25 years. (A copy of that Agreement, and the subsequent 18 January 1982 "Delegation of Authority", both of which remain in effect, were provided with my May 2002 comments.)

Whether or not a separate Chapter 105 <u>permit</u> is required for underground mining activities that impact waters of the Commonwealth due to

subsidence, at minimum the Department has an obligation to *apply* the Chapter 105 criteria to proposed impacts on water resources in the course of reviewing mining applications. Thus, I am pleased to see the statement (last sentence of page 5) that "the Department will apply the substantive provisions of Chapter 105 to certain mitigation activities…". But by singling out "certain mitigation activities", the guidance implies that the Department will not apply those same substantive provisions of Chapter 105 to the "*adverse effects*" (see definitions) of mining, which if true clearly contradicts the basic intent of this Technical Guidance. Thus, I suggest that this provision be clarified.

3) Stream protection provisions (pages 6 to 13): I appreciate the additional clarity provided by specifying "required demonstrations" by the applicant and "Department responsibilities". The expanded lists of information that is to be provided in applications also are appropriate and helpful.

4) In documenting pre-mining flow conditions, seasonal variations, and fish and macroinvertebrate communities [page 9, Section d (ii), (iii), and (iv)], applicants are offered the opportunity to extrapolate from measurements in control streams or a core group of similar streams. This provision should be revised to state that, unless measurements of *actual pre-mining conditions* in each stream to be undermined by longwall methods are submitted, the highest quality reference stream(s) in the region must be used as the "control" stream(s). In other words, applicants may elect to forego actual pre-mining stream measurements, but only with the understanding that the post-mining evaluation of all such undermined streams must apply the standards for the highest quality streams. That will help ensure that this provision does not become a loophole whereby applicants are allowed to choose inappropriate "controls".

5) The requirement for a public notice identifying stream segments where mitigation may occur [page 11, Section (xi)] is commendable. A public notice also should be required identifying all stream segments likely to sustain *adverse effects*.

6) Separately describing the provisions for wetland protection (pages 13 to 17) and those for stream protection is logical, and it is beneficial in terms of clarity.

7) Only one "required demonstration" (page 13) is listed for wetland protection, whereas five are listed for stream protection (page 6). The one

wetland demonstration, “that a net loss of wetlands will not occur”, is far too simplistic, because A) wetland impacts can be qualitative, not just quantitative, and B) an overall “no net loss” demonstration could inappropriately encourage attempts at wetland mitigation, when avoidance and minimization of wetland impacts may be warranted. Furthermore, the proposed “no net loss” demonstration is not clearly articulated, and it appears to place a greater than necessary burden on the Department to verify the applicants’ information.

I suggest that additional “required demonstrations” for wetlands should be included, as follows:

- Plans for longwall mining should identify the location and extent of all wetlands with respect to mining and subsidence areas. All wetlands should be identified by field delineation conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual (and supplemental guidance). All wetland delineations should be confirmed by a formal agency JD (“jurisdictional determination”), as is done routinely for all other development activities in the Commonwealth. NWI maps and soil survey maps should be used and reported, but only as sources of collateral information when preparing to delineate and document actual wetland boundaries.

- All delineated wetlands should be described in terms of size, type, biota, functions, and values.

- If mining is likely to cause *adverse effects* (see definitions) to any wetland, plans should demonstrate whether an alternative mining technique could be employed to avoid or minimize the adverse effects.

- If mining is likely to cause *adverse effects* to any wetland, plans should demonstrate that feasible mitigation will be provided and implemented prior to, or concurrent with, the adverse effect, with appropriate monitoring to document replacement of lost functions and values.

8) It is appropriate for the Department to verify wetland inventories using field visits [2.b(i), page 13]. It is unclear, however, what the Department expects to be able to verify using desktop resources, except perhaps the location on a mine map of NWI-mapped ponds or wetlands. The wetlands identified by the NWI do not include all wetlands. The NWI

maps are not, and never were intended to be, accurate for regulatory purposes. The NWI mapping was compiled from high-altitude aerial photography, and was field-verified only in very few spots. In this region, most ponds are identified by NWI maps, but many forested wetlands are not. In my more than 25 years experience in wetland delineation, I have found that the NWI maps consistently under-represent the actual number and extent of jurisdictional wetlands. Many researchers at Penn State and Wilkes University have documented this finding in Pennsylvania.

Indeed, the second Act 54 Five-Year Report, released February 2005, clearly illustrates the gross under-reporting of wetlands by NWI with an example from one small section of the Bailey Mine (page VIII-7). The NWI maps had identified only two wetlands (one of which was a pond) above Panels 8C, 9C, and 10C proposed for longwall mining. Consultants for the mine operator, based on field delineations conducted during 2000, identified 24 to 31 wetlands within the same 1 square mile area. The consultants' wetland delineations are not known to have been documented or confirmed by any agency JD, so they too may have under mapped the actual extent of wetlands. **If this pattern is typical and applies elsewhere within the coalfield, then more than 91% of actual wetlands are <u>not</u> identified by the NWI maps.**

9) As with subsection (x) on page 14, the sentence at subsection (i) at the bottom of page 13 should be expanded to state that the Department should consult with the PA Game Commission, PA Fish & Boat Commission, Army Corps of Engineers, and the US Fish and Wildlife Service, as appropriate, to verify in the field the delineated location and extent of all existing wetlands during each and every permit review. Everywhere else in the Commonwealth, an agency-verified delineation is required routinely as part of a permit application for regulated activities in wetlands. Longwall mine applicants should be required to do so as well.

10) On page 15, Section d) (i), the two bulleted items should be connected with the word "and", so that applicants do not get the mistaken impression that *either* a desktop review *or* a field survey will be acceptable. To be perfectly clear, another sentence should be added stating that a field survey (field *delineation*) in accordance with the 1987 Corps Manual (including documentation on standard data forms) should be performed for every application to identify <u>all</u> wetlands above proposed longwall mine operations.

11) On page 15, Section d) (ii), it is stated that it may be appropriate to show the surveyed location and limits of each inventoried wetland on the Environmental Resource Map required in application Module 6.2. I agree that that would be an appropriate map for showing this information, and I recommend that Module 6.2 be revised to reflect the additional details specified in this technical guidance document.

12) Footnote #7 on page 15 (regarding vegetated wetlands) is somewhat confusing. It is true that the Department regulates as part of a *stream* any vegetated wetlands within the banks of that stream (as opposed to regulating them as *wetlands*). The Army Corps of Engineers, however, regulates vegetated wetlands within the stream channel as *wetlands* (which it designates "special aquatic sites"), and it might be best to state this to avoid confusing the regulated public.

13) On page 15, Section d(iii), reference is made to Appendix B and C (wetland inventory sheet). I recommend the following minor additions to this form that would make it more useful:

- The title of the form should be changed from "Inventory" to "Wetland Inventory".
- A column should be added next to Wetland Number, and that column should be labeled "Date of Field Survey".
- A line should be added for "Name of wetland delineator"

14) Inasmuch as all identified wetlands are to be delineated in the field using the 1987 Corps Manual, it would be appropriate to require that applicants submit, as an attachment to the Wetland Inventory sheet, copies of the field data sheets compiled for each wetland. The instructions also should require that a copy of a JD letter from the Corps (or PADEP) confirming the wetland delineation be attached to the Wetland Inventory sheet.

15) On page 16, Section D, *Wetland function* should be "Wetland functions" (plural), so as to indicate that a given wetland may (and usually does) have more than one function.

16) On page 16, Section E, the sentence should be extended to say "… and explanation of why or why not."

17) On page 16, Section F, a sentence should be added stating that if compensatory wetland replacement is proposed, the proposed location and name of the owner of the mitigation site should be identified. (This is explained further in Comment 18 below.)

18) On the top of page 17, subsection g), the Department offers mine operators "credit" for wetlands created by subsidence. This may be appropriate, but only if any such wetlands are created on surface land owned or controlled by the mine operator. Some surface landowners may not appreciate having their backyard, or farmfield, or pasture turned into wetland, especially without their consent and/or some sort of monetary compensation. Furthermore, provision should be made to ensure that created wetlands *remain* wetlands (if credit is to be given); otherwise there will be a "net loss". This section should be expanded to include the following points:

- "credit" for wetland creation will only be offered for wetlands created on a mine operator's land, or with the expressed permission and acknowledgement of the owner of the surface land.

- "credit" will only be given if the mine operator (or landowner) formally acknowledges the regulatory significance and restrictions associated with the newly created wetland, and agrees to deed-restrict the newly created wetland against any future disturbance without first obtaining a Chapter 105 and/or a Section 404 permit, as applicable.

- "credit" will only be given if the mine operator agrees to monitor the condition of the newly created wetland for a period of five years to ensure that it retains its wetland characteristics, particularly its wetland hydrology. The award of "credit" should only become final upon the Department's approval of the permitee's documentation at the end of the 5-year monitoring period that a functional wetland has been successfully established.

- "credit" will only be given if the area of the newly created wetland can be demonstrated to have been non-wetland previously. (Credit for creating a wetland would be wrongly awarded if a wetland area was not acknowledged to be a wetland before undermining begins. This easily could happen, for example, if a mine operator was allowed to rely on the NWI maps as the basis for "existing" wetlands, and then conveniently "found" more wetlands upon field inspection after mining has passed through the area.)

19) On page 17, Section h(ii), the first mention is made of the Department's technical guidance for wetland mitigation ("Design Criteria for Wetland Replacement"). It is discussed here in the context of post-mining summary reports on mitigation success. I suggest that it would be more appropriate to first mention the "Design Criteria" guidance in section C(v) on page 16, where the need to provide "detailed mitigation plans and schedules" is discussed. Repeating mention of it in this section is proper, inasmuch as the same criteria should be used to evaluate mitigation success as are used in mitigation design.

Again, I commend the Department for a much improved version of this technical guidance document. Most of my comments simply involve additional fine tuning which I am pleased to offer based on many years experience with wetland delineation and with State and Federal wetland regulatory programs. If surface waters and wetlands are accurately inventoried, and their conditions assessed, both prior to and subsequent to mining, the actual effects on them from longwall mining can be determined more precisely. If the provisions of this technical guidance document are applied diligently and consistently, the Department could be able to announce the actual protection of wetlands and surface waters from longwall mining in its third Act 54 Report.

Thank you for the opportunity to provide comments.

Yours truly,

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Senior Ecologist (ESA)

cc: Susan Wilson, Citizens Advisory Council
PADEP Secretary Kathleen A. McGinty