APPENDIX 7

OFFICE OF SURFACE MINING
REPORT ON
CERTIFICATIONS

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OFFICE OF SURFACE MINING (OSM)
REPORT ON
CERTIFICATIONS

PREPARED IN RESPONSE TO THE OCTOBER 11, 2000,
IMPOUNDMENT BREAKTHROUGH
AT
MARTIN COUNTY COAL CORPORATION (MCCC)
BIG BRANCH SLURRY IMPOUNDMENT

This report was prepared by OSM as a part of its review of the MCCC 2000 breakthrough. This report addresses the impoundment certifications of construction and the annual maintenance certifications. The MCCC certifications from 1994 to 2000 were reviewed for this report.

The Department for Surface Mining Reclamation and Enforcement's (DSMRE) regulation at 405 KAR 16:100 Section 1(9) requires regular inspections during the construction of the impoundment, upon completion, and annually thereafter. The inspections must be made by a qualified registered professional engineer or other qualified professional specialist, under the direction of the professional engineer. The regulation also requires certified reports, by a qualified, registered professional engineer, that the impoundment has been constructed and maintained as designed. The reports shall include:

- Discussion of any appearances of instability, structural weakness, or other hazardous conditions
- Depth and elevation of any impounded waters
- Existing storage capacity
- Any existing or required monitoring procedures and instrumentation
- Any other aspects of the structure affecting stability

DSMRE requires Certification of Construction Form SME-21 and Certification of Maintenance Form SME-22, to be submitted with the certification reports.

The annual certification prepared on August 15, 1995, (1995 Certification) by Ogden Environmental and Energy Services (Ogden) was chosen to judge its completeness and compliance in relation to the regulations. The 1995 and 1996 Certifications were also reviewed because they cover the period during which MCCC conducted activities under the Impoundment Sealing Plan (sealing plan). The sealing plan was developed after the 1994 breakthrough in order to minimize the potential for future breakthroughs. GEO/Environmental Associates, Inc. (GAI) prepared the annual certifications after 1995. The two consultants used nearly identical formats for their annual certifications.

The 1995 annual certification has the following basic outline:

Report Cover: Mine Health and Safety Administration (MSHA) mine identification number, MSHA impoundment identification number, DSMRE permit number, certification period, and location.

Recent Construction and Monitoring: Events that occurred during the reporting period, comments on the construction of the embankment, comments on piezometers, phreatic level, construction phase, and storage capacity discussion.

Comments: Compliance with safety factors, the runoff capacity, and summary of discussions and comments on the certifiability of the structure. Also included are DSMRE's certification of construction and maintenance forms SME-21 and SME-22.

Instrumentation Records: Graphical representation of the piezometer readings. (Graphical representation of the construction levels, and a table for construction data, are included in GAI annual certifications but not included in Ogden's.)

As-Built Plan View and Baseline Profile: An as-built drawing of the baseline profile and an as-built drawing of the plan view are included.

The following is a line-by-line comparison of the 1995 Certification and the DSMRE regulation.

The report shall include discussion of any appearance of instability, structural weakness or other hazardous condition ...

Two sections address hazardous conditions. Section No. 1 of Certification of Maintenance Form SME-22 asks, "Are there signs of instability, structural weakness, excessive settlement, or hazardous conditions? If YES, attach a description of the condition, the remedial measures needed, and any necessary emergency procedures." Section No. 8 of the form asks, "Is there any evidence of leakage? If YES, attach a description of the location and the amount of leakage and discuss implications for stability and safety." The answer to No. 8 was YES, but the author omitted the necessary discussion. This is clearly a mistake on this certification.

The report shall include...depth and elevation of any impounded waters...

Section No. 2 of SME-22 addresses depth and asks, "What is the approximate present depth of impounded water at the deepest point?" The answer was 20 feet on August 11, 1995. Section No. 3 addresses elevation and asks, "What is the current elevation of the surface water level, in relation to the permanent pool elevation shown on the as-built plan?" The answer was 1,006 feet on June 27, 1995.

The report shall include...existing storage capacity...

Section No. 4 of SME-22 addresses storage capacity and asks, "Are the capacities of the sediment storage pool, permanent pool, and storm pool, substantially the same as the approved design?" The section of the annual certification labeled Recent Construction and Monitoring provides information on the storage capacity.

The report shall include discussion of...existing or required monitoring procedures and instrumentation...

Section No. 9 of SME-22 addresses monitoring and instrumentation and asks, "Are there any existing or required monitoring procedures and instrumentation other than KPDES? If YES, attach description." The answer was YES, and the report contained the piezometer monitoring information. However, upon review of the weekly inspection reports, it was noticed that the dam inspector for the consultant was monitoring the flows out of the South Mains Portal. This monitoring should have been included in the annual certification.

Additional comments with regard to the annual certification required by regulations:

During MSHA's interviews concerning the MCCC breakthrough, the GAI technician who conducted the weekly inspections was interviewed. The technician revealed that during February 1998 bubbles were noticed in the 1994 breakthrough area. The area associated with the bubbles appeared to be 100 to150 feet in length. The technician checked the mine openings and didn't see any change in water flow. This hazardous condition was reported to MCCC and his supervisor. MCCC responded by pushing additional material into the area where the bubbles were noticed. The reporting of the bubbles and the resulting corrective action demonstrated the possibility of leakage from the impoundment. Therefore, the 1998 annual certification should have addressed this hazard condition as mandated by DSMRE's regulations *"the report shall include discussion of any appearance of instability, structural weakness or other hazardous condition..."*

The sealing plan, as contained in permit revision number 5, is essentially a modification of the Big Branch impoundment plan previously approved by DSMRE. The sealing plan contained two primary components--construction of a seepage barrier and construction of bulkheads to prevent a future breakthrough from draining into the active underground mine. The Kentucky and federal regulations require that impoundment designs be certified and that the construction of the impoundments be certified. As such, certifications of design and construction should have been submitted for the bulkheads and seepage barrier. However, certifications of design were not submitted with the permit revision, and the certification of construction, as addressed below, was not complete.

With regard to construction certification, the July 15, 1996, annual certification for the impoundment, contains a completed Certification of Construction Form SME-21. The form and supporting narrative do not address the bulkheads. It should be noted that normally, in the case of the underground ventilation seals and bulkheads, certifications of design and construction are not required by OSM and DSMRE since these structures are generally not covered by the OSM and DSMRE permitting provisions.

With regard to the certification of construction of the seepage barrier, the 1996 annual certification narrative notes that the seepage barrier was constructed during the review period. However, the annual certification does not provide any details on its construction other than the submittal of a contour map. OSM's review of the contour map found that the seepage barrier was constructed with a 3-to-1 slope while the permit stated that the barrier would be constructed

with at least a 2-to-1 slope. The annual certification should have included an as-built design certification in consideration that 1) the constructed barrier varied considerably from the design and 2) the barrier's stability may have been affected because the constructed barrier extends farther over the slurry than the designed barrier.

Summary:

In summary, the annual maintenance certifications from MCCC complied with the DSMRE regulations except for the failure to address leakage in the 1995 certification; the failure to address possible adverse conditions in the 1998 certification; and the failure to analyze drainage from the South Mains Portal.

Also, the construction certifications did not address the construction of the bulkheads and did not contain an as-built analysis of the seepage barrier. An as-built analysis should have been prepared because of the difference between the design and constructed seepage barrier.