



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement
1027 Virginia Street, East
Charleston, West Virginia 25301

AUG 29 2011

Thomas L. Clarke, Director
Division of Mining and Reclamation
West Virginia Department of
Environmental Protection
601 57th Street
Charleston, West Virginia 25304

Re: TDN X11-111-440-002
Violations (1) and (2)

Dear Mr. Clarke:

We have concluded our review of the West Virginia Department of Environmental Protection's (WVDEP) August 5, 2011, final response to violation # 1 dealing with the potential for liquefaction, and the various clarifying reports and conversations discussed below leading up to your final response. We find that the WVDEP has taken appropriate action in finding that no violation currently exists based on available information while it continues to monitor company testing efforts. We previously advised you that WVDEP had taken appropriate action on violation # 2 alleging compaction is not being achieved. Therefore, TDN X11-111-440-002 is considered resolved.

However, as you are aware, both our agencies have procured independent consultants for the testing of coarse coal waste embankment lift compaction at this facility and other facilities. The results of this review could cause reopening of a review of the issues in this TDN. This is because, as noted in your letter, the safeguards against liquefaction relate largely to following the design criteria that are modeled for this potential in accordance with the May 2009 Mine Safety and Health Administration's (MSHA) Engineering and Design Manual for Coal Refuse Disposal Facilities. The drilling and testing mentioned in the WVDEP August 5, 2011, response should also prove helpful in assuring the dam is being constructed as designed if a statistically valid sampling of the underlying slurry is tested.

In addition, the complainant has requested that my office consider violations written by MSHA and has provided a copy of a CD of related records. Although this may be duplicative of records WVDEP may already have under its memorandum of understanding with MSHA, we have included a copy of the CD. As our agencies complete the embankment lift compaction study we

suggest our staffs jointly review this information along with WVDEP records that may be related to lift construction.

As mentioned in my opening and also noted in your letter, our joint staffs had several discussions about this dam in relation to the meaning of the State regulatory programs requirement (Title 38 series 2 Section 22.3.j) to describe the potential for liquefaction and provide safeguards against the development of this condition. A brief summary of significant portions of those discussions and records that has influenced my decision that the State response is appropriate follow.

We had several discussions concerning the models and the type of analysis used to estimate the safety factors in the area where the piezometers indicated elevated pore pressures. WVDEP's final response states that these are in an area being developed for future additional phases and do not serve as the load-bearing portion of the dam. The regulations do not use terms such as load – bearing nor specify that areas under construction do not have to meet safety factors. However, we find the WVDEP is acting reasonably in its interpretation that the area being developed does not have to meet the same standards as the dam already approved as long as any failure in the construction area would not compromise the structural integrity of the dam at the currently approved slurry level. In this particular case, the Brushy Fork dam's wide crest (800 feet) helps support the conclusion that a failure in the area of the elevated pore pressures would not compromise the dam.

We also had several discussions on what should be considered as safeguards against liquefaction. My office questioned WVDEP's April 29, 2011, response primarily because the liquefaction assessment (referenced in that response as MOD.20) stated that the tests indicated that the fine refuse was not liquefiable while OSM's examination of the same test data did not support this conclusion. It then became necessary for all parties to concentrate on what should be considered as appropriate safe guards against liquefaction.

As noted in WVDEP's August 5, 2011, response, we met with WVDEP officials and the design engineer for the facility and began discussions as to whether the design at Brushy Fork met the State's requirement for safeguards against liquefaction by following the requirements for "Seismic Screening Analysis" under the assumptions allowed in MSHA's May 2009 Engineering and Design Manual for Coal Refuse Disposal Facilities. We wish to clarify that the meeting with MSHA officials was not specifically about Brushy Fork as could be inferred from the WVDEP August 5, 2011, letter. The meeting with MSHA was simply to determine if MSHA's "Seismic Screening Analysis" considered various potential failure modes that could occur with liquefaction. MSHA advised that the methods provided in the Engineering and Design Manual for Coal Refuse Disposal Facilities were developed with peer reviewed science and provided protective measures if followed.

We do not concur with WVDEP's assertion that the facility has been designed using the most conservative design criteria or that OSM's concerns are unfounded. Upstream construction by its very nature is not the most conservative approach to dam construction and the elevated pore pressures are an indication of elevated risks. As noted above, we have accepted WVDEP's

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explanation based on existing information that the completed and certified portion of the dam would not be compromised in this case.

The current question before OSM is whether or not WVDEP has acted appropriately on an alleged violation. WVDEP has advised that the operator is using design criteria approved by MSHA which also considers seismic impact. WVDEP is restricting increases in dam height until the pore pressures drop to previously determined acceptable design levels. WVDEP is planning more monitoring and working with the operator on further testing which is appropriate for the regulatory authority's discretion for any remaining questions. Therefore, we find the WVDEP has provided an acceptable rationale for concluding there is not currently cause for issuing a violation of the State requirement for providing safeguards against liquefaction.

We are providing a copy of this response to the complainant who will be given the opportunity to appeal my decision. Should you have any questions please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Calhoun", written in a cursive style.

Roger W. Calhoun, Director
Charleston Field Office

Enclosure