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**Pennsylvania Technical Advisory Committee  
On Diesel Powered Equipment**

**Paul Borchick**

(412) 736-9105 (Cell)  
(412) 831-4414 (Office)  
Email: paulborchick@consolenergy.com

**Ron Bowersox**

(724) 726-8987 (Home)  
(724) 479-8692 (Office)  
Email: [umwarbowersox@yahoo.com](mailto:umwarbowersox@yahoo.com)

July 7, 2008

Joseph Scaffoni, Director  
Bureau of Mine Safety  
Fayette County Health Center  
100 New Salem Road, Room 167  
Uniontown, Pa. 15401

RE: Brookville Equipment Corporation Model ULPC 15 Man / 9 Ton Locomotive  
with a Deutz BF4M2012 100 HP Diesel Engine request for Alternate Emissions  
Test Procedure for Sections 217-A and 218-A.

Dear Mr. Scaffoni:

Article II-A of the Pennsylvania Bituminous Coal Mine Act (the act) provides for the use of diesel-powered equipment in underground bituminous coal mines. Section 224-A of the act created a Technical Advisory Committee ("TAC") for the purpose of advising the Department regarding implementation of Article II-A and evaluation of alternative technology or methods for meeting the requirements of Article II-A.

**Background**

On May 29, 2008, Brookville Equipment Corporation (Brookville) submitted a request to the Bureau of Mine Safety for an alternative test procedure for the five minute carbon monoxide (CO) tests required under Sections 217-A and 218-A of the act for the Brookville Model ULPC 15 Man / 9 Ton Locomotive with a Deutz BF4M2012 100 HP Diesel Engine and M30 DST Management System. On June 4, 2008 the Director requested the TAC to advise the Department concerning Brookville's request for an alternate test procedure for CO tests required under Sections 217-A and 218-A of the Act. The engine and emission system was previously approved as a unit by the Department based upon the TAC's recommendation and assigned a BOTE-DEES Approval No. 36-06.

## **Investigation**

On June 26, 2008 the TAC members traveled to the Brookville facilities to evaluate Brookville's request for the need for an alternate test procedure. Both 5 minute and 90 second tests were observed and the results recorded (Attachment 1).

The 5 minute CO test was conducted first without the use of an external water cooler for the transmission oil. The test was run for the full 5 minutes and the results were recorded. Three minutes and three seconds into the test the Transmission Oil Temperature warning light came on. This warning was set at 240 degrees F. At 4 minutes and 5 seconds into the test the Transmission Oil Shutdown temperature (250 degrees F) was reached and the bypass button was held to finish the 5 minute test. The maximum transmission oil temperature recorded was 260 degrees F, which exceeded the manufacturer's recommendations. Based on these observations and information provided by Brookville on the readings obtained, the need for the Alternate 90 second CO test was shown.

During this time the maximum surface temperature observed was 260 degrees F. The maximum engine exhaust temperature observed was 173 degrees F.

The 90 Second alternate Tests were conducted and the results are shown in Attachment 1. The results of the 5 minute and 90 second tests were comparable.

## **Recommendation**

The TAC recommends approval of the Alternate 90 Second Test Procedure for the Brookville Model ULPC 15 Man / 9 Ton Locomotive with Deutz BF4M2012 100 HP diesel engine and M30 DST Management System. The TAC believes that need for the Alternate Test Procedure was shown and the results of both CO tests were comparable. The General Specifications list (Attachment 2) should be strictly adhered to.

Also should the Operator request temporary approval to use this equipment prior to the next TAC meeting, the TAC recommends temporary approval if the Director so agrees.

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Paul Borchick

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Ron Bowersox