

**Fayette County Health Center
100 New Salem Road, Room 167
Uniontown, PA 15401
August 12, 2009**

Bureau of Mine Safety

724-439-7469
Fax 724-439-7324

Mr. Eli Schmader
Brookville Equipment Corporation
175 Evans Street
P. O. Box 130
Brookville, PA 15825

RE: Brookville Equipment Corporations request to replace the catalyst in a previously approved power package that utilized a Syncat Corp. Model M150-301-01 catalyst with an Air Flow Catalyst System CCCA-100-MB-C catalyst in Brookville's Model 7M100D, Model 4M100DMV, and Model ULPC, all powered by a Daimler Chrysler Model OM 904 LA – 100 HP diesel engine with a M30 DST Management System.

Dear Mr. Schmader:

The standards and procedures for using diesel-powered equipment in Pennsylvania's underground bituminous coal mines are established by Chapter 4 of the Pennsylvania Bituminous Coal Mine Safety Act (Act). Section 424 of the Act establishes the Technical Advisory Committee on Diesel-Powered Equipment (TAC) whose duties include reviewing requests to use alternative technologies or methods to comply with the requirements of the Act. Any alternative technology or methods recommended by the advisory committee and approved by the Secretary shall not reduce or compromise the level of health and safety protection afforded by the Act.

On May 29, 2009 you requested a modification of the approved BOTE-DEES 135-06 engine exhaust treatment system used in the 4M100DMV, 7M100D, and ULPC equipment supplied by Brookville Equipment Corporation. The specific modification was to replace the existing Syncat Corp. Model M150-301-01 catalyst with an Air Flow Catalyst System CCCA-100-MB-C catalyst. This approval application was processed as a new approval because a new BOTE-DEES number had to be assigned because the catalyst was changed making this system a unique engine-emissions system. On June 16, this request was forwarded to the TAC for evaluation.

On July 7, the TAC and the representatives of the Department traveled to the Bailey Mine Crabapple Portal to inspect and evaluate the Brookville Model 7M100D- 7 man Personnel Carrier equipped with an Air Flow Catalyst System CCCA-100-MB-C catalyst. This diesel engine and emission system is now comprised of a:

- o Daimler Chrysler Model OM 904 LA – 100 HP diesel engine (MSHA Certification No.7E-B098-0)(Part 7)
- o Air Flow Catalyst System CCCA-100-MB-C catalyst
- o Paas Tech M150-301-01 Heat Exchanger
- o Dry Systems Technology M30 DPM Filter (96% Efficient)

Emissions testing of the engine and after-treatment system were performed. The exhaust gas temperature was monitored and a stall test procedure was conducted.

Monitoring of the exhaust gas temperature produced a high exhaust gas temperature reading of 178° F, which is well below the 302° F allowed by Section 403. The maximum surface temperature detected was 249 ° F which is also below 302° F. The maximum engine oil temperature measured was 200° F.

A 90 second emission stall test was performed. The results of the emission tests showed the engine was performing within MSHA's approval specifications; however these tests also showed an increase in the NO₂ emissions as compared to the previous emission tests for this engine and emission system. This increase was expected due to the change in chemical composition of the new catalyst.

In addition to the testing that was conducted, the investigation and observations confirmed that the diesel power package is capable of meeting all requirements of Section 403 of Chapter 4 of the Act without reducing or compromising the level of health or safety afforded by the Act.

The TAC recommended approval of the above described diesel power package. This recommendation is provided with the understanding that the General Specification Sheets (Attachments 1, 2, and 3) be strictly adhered to and that periodic tests be conducted within the passenger compartment to ensure compliance with the emission requirements. These tests are required due to the location of the exhaust outlet on this equipment. Newer models are equipped with deflectors that deflect the exhaust away from the passenger compartment. The older models without the deflectors require this additional testing.

Based on the information provided and the TAC recommendation, the Department *approves* the requested engine emissions package consisting of the Air Flow Catalyst System CCCA-100-MB-C catalyst in combination with the Daimler Chrysler Model OM 904 LA – 100 HP diesel engine (MSHA Certification No.7E-B098-0)(Part 7), the Paas Tech M150-301-01 Heat Exchanger and the Dry Systems Technology M30 DPM Filter. **BOTE-DEES No. 115-09 has been assigned to this engine emissions system.** The General Specification Sheets (Attachments 1, 2, and 3) are to be strictly adhered to. The mine operators should conduct periodic emission examinations within the passenger compartment of the older models of this equipment and add a deflector if emission tests confirm the need for this device. A record of these examinations should be kept according to the requirements of Sections 414 and 419.

The Department approves the TAC recommendations because the alternative method will not reduce or compromise the level of health and safety protection afforded by Chapter 4 of the Act. The PA ventilation rate for this engine is 4,500 cfm.

Should you have any questions regarding this approval, contact my office at 724-439-7469.

Sincerely,

Joseph A. Scaffoni
Director
Bureau of Mine Safety

cc: Ron Bowersox/TAC
Paul Borchick/TAC

bcc: Martin
McCaffrey
Bookshar
Ceschini
Gaida
Pacconi
Keruskin
Carson
Stowinsky
Gardner
TAC File/Dunn

JAS/WBB/cd

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