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Pennsylvania Technical Advisory Committee Diesel Powered Equipment

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Joseph Scaffoni, Director
Bureau of Deep Mine Safety
Fayette County Health Center
100 New Salem Road, Room 167
Uniontown, Pa 15402

Re: Section 201-A

Dear Mr. Scaffoni:

Per your request, the TAC has examined the diesel powered emergency fire fighting equipment used by the Emerald and Cumberland Mines to determine whether this equipment is in compliance with the Diesel Powered Equipment Act of Pennsylvania.

Investigation

The Cumberland Mine has a Foam Generator that is powered by a 56 hp Isuzu C240MA diesel engine, MSHA Approval # 7E-B085-0, that is located on the surface of the Cumberland Mine for emergency use by RAG or other coal mines. The specifications of this unit are as follows:

- Hour Meter: 5.5 hrs of operation
- MSHA Ventilation Plate Quantity: 2500 cfm
- Hi idle: 4000 rpm
- Particulate Index: 3000
- Timing: 14 degrees
- Fuel Pump: 10143-9370, 180 cubic centimeters

This unit uses Stepanform 1090.63 surfactant for foam generation. The unit does not have an after-treatment system for the raw diesel emissions nor does it have a Pennsylvania State approval for electrical equipment.

We conducted raw emission numbers on this unit, for informational purposes only, and recorded the following:

<u>Fan Engaged</u>	<u>Fan Not Engaged-high idle</u>	<u>Fan Not Engaged-Low Idle</u>
C0: 120 ppm	288 ppm	585 ppm
C02: 7.4 %	3.8 %	2.5 %
O2: 10.7 %	16.9%	17.6%
N0: 390 ppm	138 ppm	69 ppm
N02: 3 ppm	2 ppm	57 ppm
RPM: 2200	3000	800

The TAC finds this unit to be in compliance with the Diesel Powered Equipment Act of Pennsylvania. An after-treatment system for this unit is not required as long as the unit is used specifically for emergency fire-fighting. We would suggest that the monthly checks performed by Cumberland, which are not required by the Act, be performed at 2200 rpm with the fan engaged so that the monthly checks are performed in the same manner by all personnel. This unit uses regular high sulphur yard fuel and we would recommend that low sulphur underground diesel fuel be used. We would recommend a fuel stabilizer be used in this unit since the fuel in the tank is not used in a timely fashion. This unit is state of the art and is very well maintained by the mine personnel and is an asset to the mine and the industry.

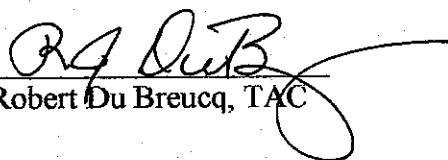
The Emerald Mine has three identical Water Pumpers powered by a 30 hp Deutz F2L1011F diesel engine, MSHA Approval # B091. The unit does not have an after-treatment system for the raw diesel emissions nor does it have a Pennsylvania State approval for electrical equipment. The raw diesel exhaust from the engine exhausts into the water tank and is then vented to the atmosphere and emissions testing was not conducted. The unit has a MSHA Ventilation Plate Quantity of 2000 cfm.

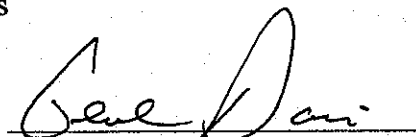
The TAC finds these units to be in compliance with the Diesel Powered Equipment Act of Pennsylvania. An after-treatment system for these units is not required as long as the unit is used specifically for emergency fire-fighting. We recommend that these units use low sulphur underground diesel fuel. We would recommend a fuel stabilizer be used in these units since the fuel in the tank is not used in a timely fashion.

Summary

The diesel powered units at the Cumberland and Emerald Mines are in compliance with the Diesel Powered Equipment Act of Pennsylvania and do not require an after-treatment system for the raw diesel emissions as long as the units are used only for emergency fire-fighting.

If these units are kept underground, we would recommend -as best practices- that when the units are operated in a non-emergency status, when performing maintenance and monthly examinations, that the units be located in an area where the diesel emissions can be ventilated directly to the return. If it would not be possible to vent these units directly into a return air course, we would then recommend, as a best practice, constant monitoring for CO, NO, and NO₂ during any period these diesel engines are operated in a non-emergency. By monitoring these gases we could insure a healthful workplace for the personal assigned the task of maintaining these units


Robert Du Breucq, TAC


Gene Davis, TAC