

**RE: Directive on Diesel-Powered Equipment
Flame Arrestors**

The Bureau of Mine Safety is issuing the following **directive** for guidance concerning diesel-powered equipment as referred to in Chapter 4 of the Pennsylvania Bituminous Coal Mine Safety Act. A recent investigation of a flame exiting the flame arrestor of a piece of diesel-powered equipment has led to the following requirements:

- *During equipment design, exhaust piping and bends outby the flame arrestor are to be avoided when possible.*
- *Exhaust piping should not be installed outby an end-of-the-line flame arrestor if the pipes length exceeds 18 inches or contains more than one elbow which shall not exceed 45 degrees.*
- *Flame arrestors on all equipment must be checked for signs of failure at least every 500 hours.*
- *A pin gauge of the appropriate size of the triangular openings be used to check random openings that appear visually inconsistent with other openings. Should any separation of the flame arrestor cell from its housing or any openings exceed its approved size be found, replacement of the flame arrestor will be required.*
- *Unless approved otherwise, all flame arrestors must be as approved with .064-inch triangular openings.*
- *All flame arrestors be permanently marked or identified with the triangular opening size easily identifiable.*

For all systems where exhaust piping exceeding the above specification is required to be installed outby an end-of-the-line flame arrestor;

- *An additional temperature sensor must be installed as close as possible to the outby side of the flame arrestor. This sensor will shut down the engine at a maximum temperature of 350 degrees Fahrenheit.*
- *Exhaust piping must be cleaned as part of the 100-hour maintenance procedure and more often if excessive smoking of the material in the exhaust pipe is experienced*
- *For all future equipment approvals, the temperature sensor must be installed outby the filter assembly and outby the flame arrestor if possible, in an area that will capture total exhaust emissions.*

Additionally, if a fire or flame should be observed, the equipment should be shut down immediately. The canister for the dry paper filter should not be opened until the equipment has cooled down. If substantial burning of the paper filter is observed or

flames are observed exiting the flame arrestor or piping of any diesel powered equipment, the equipment should be immediately removed from service and the Bureau of Deep Mine Safety contacted so that an investigation can be conducted. All of the information above should be incorporated into the annual retraining program for each mine.