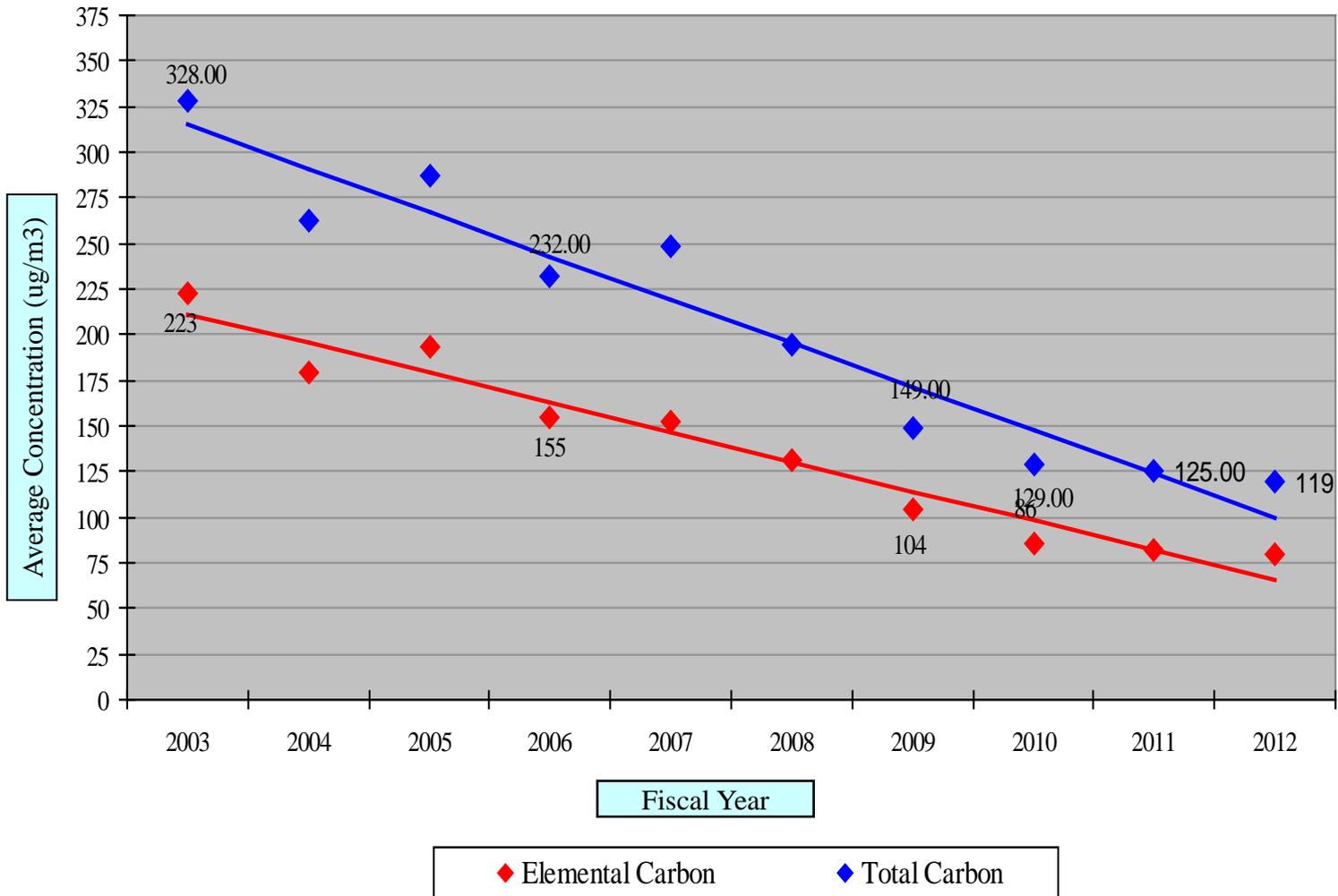


# DIESEL PARTICULATE MATTER

Metal/Nonmetal

Coal

# Underground Metal/Nonmetal Mines Average DPM Concentration by Fiscal Year



# COAL DIESEL EXHAUST GAS EVALUATION/ISSUES

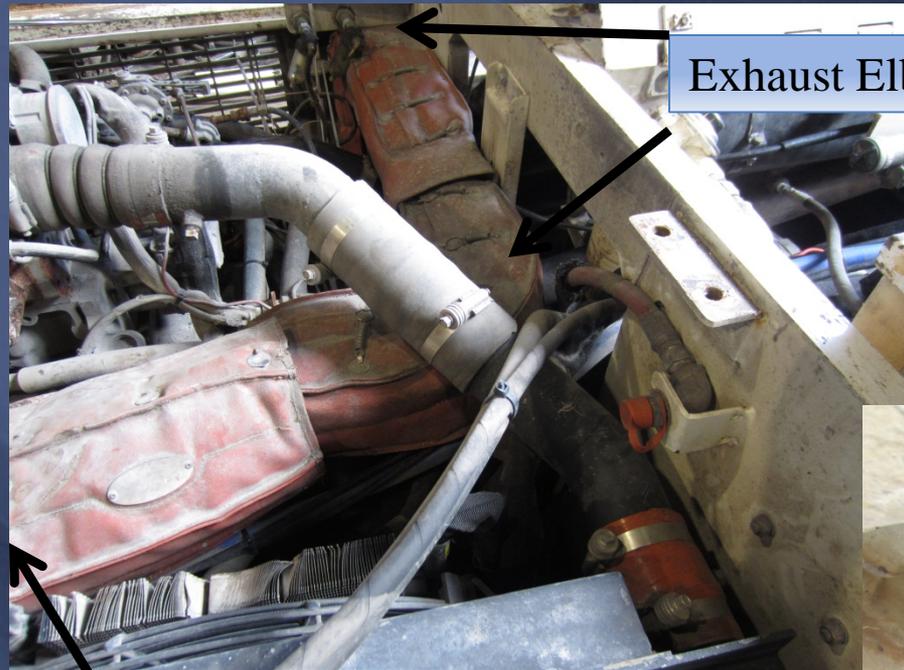
# RESULTS OF RECENT TESTING

- ▣ NO<sub>2</sub> - multiple overexposures noted for exceeding the 5 ppm ceiling limit
- ▣ NO<sub>2</sub> concerns when equipment is operated in high air quantities during testing that exceed the approval air quantity

# CONCERNS RELATED TO NO<sub>2</sub> ISSUES

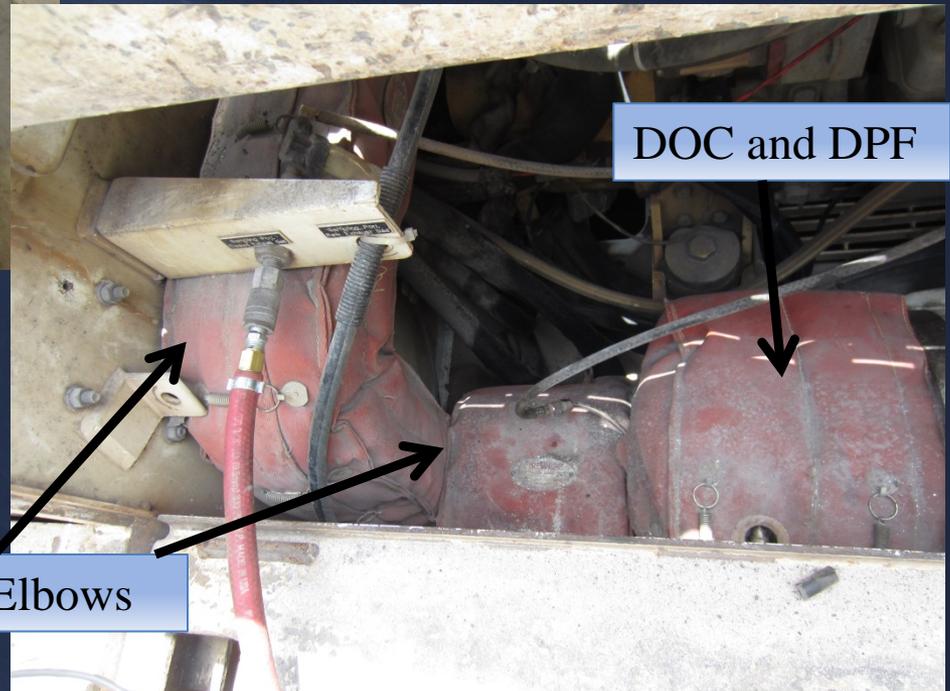
- ▣ Current issues related to an aftertreatment that is improperly sized for the engine
- ▣ Larger aftertreatment device is producing more NO<sub>2</sub> than needed in handling DPM resulting in excess NO<sub>2</sub> being released into the mine environment
- ▣ Configuration of exhaust system may contribute to problem of using wrong size aftertreatment due to concerns for engine backpressure limits

# Oversized DPF to Maintain BP due to Exhaust Route



Exhaust Elbows

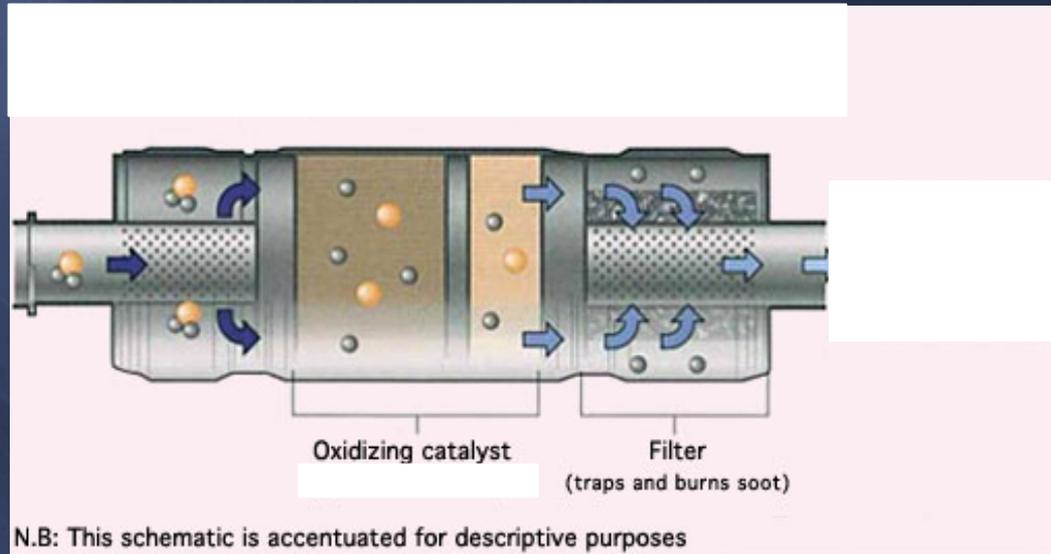
Engine Out



DOC and DPF

Exhaust Elbows

# DOC with DPF



DOC/DPF



# RECOMMENDATIONS

- ▣ Mine operators test diesel equipment outfitted with a platinum catalyst aftertreatment
- ▣ Remove from service those not meeting the approval; correct deficiencies
- ▣ Ensure DPF purchased is appropriate for the engine
- ▣ Can contact the following persons at MSHA's Approval and Certification Center for assistance in the selection of appropriate diesel aftertreatment.
  - ▣ Phil McCabe                      304-547-2315
  - ▣ Jeffrey Moninger                304-547-2324