



DIESEL PARTICULATE MATTER EXPOSURE OF UNDERGROUND METAL AND NONMETAL MINERS



Background

- ❖ Rule published in FR on January 19, 2001
- ❖ Legal challenge filed January 29, 2001
- ❖ All parties agreed to attempt to negotiate mutually acceptable settlement
- ❖ 2 partial settlement agreements thus far:
 - Fuel, maintenance, engines, training, and record-keeping in effect July 5, 2001 and March 29, 2002
 - DPM interim limit, compliance determination, environmental monitoring in effect July 20, 2002
- ❖ 2nd partial settlement agreement altered compliance sampling procedures
- ❖ New rulemaking initiated

Background

- ❖ Provisions effective as of July 20, 2002:
 - §57.5060(a) Interim concentration limit
 - §57.5061 Compliance determinations
 - §57.5065(a) and (b) Fueling
 - §57.5066 Maintenance
 - §57.5067 Engines
 - §57.5070 Miner training
 - §57.5071 Environmental monitoring
 - §57.5075 Diesel particulate records

Background

- ❖ Provisions not effective at this time:

Stayed provisions

- §57.5060 (d) working in concentrations of DPM that exceed interim limit
- §57.5060 (e) and (f) restricting or prohibiting PPE and administrative controls as means of complying with interim limit
- §57.5062 DPM control plans

Provisions scheduled to become effective after January 19, 2006 (may be changed)

- §57.5060(b) final concentration limit
- §57.5060(c) special extensions

Background

- ❖ Other terms of July 15, 2002 partial settlement agreement:
 - MSHA will provide compliance assistance (DPM baseline sampling and information on DPM controls) until July 19, 2003
 - Violations of interim limit will be cited beginning July 20, 2003
 - Feasible engineering or administrative controls required
 - ◆ PPE may also be required, but
 - ◆ Job rotation not allowed for compliance

Background

- Mine operators must develop and implement written compliance strategy
- MSHA may take “appropriate enforcement action” against mine operators who do not take good faith steps toward developing and implementing written compliance strategy

Scope and Application

- ❖ Covers all MNM mine operators that use diesel equipment underground
- ❖ Independent contractors considered mine operators under Mine Act
 - Maintenance and engine requirements do not apply if contractor presence is infrequent, short duration, irregular (same for delivery trucks)
- ❖ Customers and customer vehicles not covered

§57.5060(a) Interim DPM Limit

- ❖ Mine operator must limit exposure to DPM by restricting average 8-hr equivalent full-shift airborne concentration of total carbon to:

400_{TC} µg/m³

- ❖ Why limit total carbon ?
 - Can't sample/analyze DPM
 - DPM consistently 80%-85% total carbon
 - Sampling/analysis for total carbon meets NIOSH accuracy criteria at low concentration

§57.5060(a) Interim DPM Limit

- ❖ Per settlement agreement, restricting exposures requires mine operators to use “Hierarchy of Controls”
 - Feasible engineering and administrative controls, including work practice controls, must be implemented first (job rotation not allowed as means of compliance);
 - If exposures continue to exceed established limit . . . ;
 - . . . use of personal protective equipment (respirators) is required

§57.5060(a) Interim DPM Limit

- ❖ Standard is “Performance Oriented”
 - Mine operator chooses engr and/or admin controls best suited to local conditions
- ❖ Engineering controls eliminate hazard through substitution, isolation, enclosure, and ventilation. Examples:
 - DPM exhaust “soot” filters
 - Low emission engines
 - Environmental cabs (filtered breathing air)
 - Ventilation upgrades (main or auxiliary)
 - Alternate fuels, fuel additives

§57.5060(a) Interim DPM Limit

- ❖ **Administrative, including work practice controls, change the way work tasks are performed to reduce or eliminate hazard**
 - **Job rotation (an administrative control) as a means of compliance expressly prohibited**
 - **Limits on unnecessary idling**
 - **Limits on lugging (low speed, high load)**
 - **Speed limits, one-way travel**
 - **Limits on equipment (or hp) in area or split**
 - **Areas designated “off limits” for personnel or for diesel equipment**

§57.5060(a) Interim DPM Limit

- ❖ **If exposure exceeds interim limit despite implementation of all feasible engineering and administrative controls, PPE required as means of compliance**
- ❖ **PPE also required while engr and admin controls being established**
- ❖ **When PPE required, respiratory protection program per ANSI Z88.2 also required (written SOP's, fit testing, storage/cleaning training, inspection, surveillance)**

§ 57.5071 Environmental Monitoring

- ❖ Mine operators must monitor as often as necessary to effectively determine if any miners are overexposed to DPM
- ❖ If overexposure identified, mine operator must promptly post notice of, and promptly complete corrective action
- ❖ MSHA will not cite for DPM overexposure based on mine operator's monitoring
- ❖ Violation only if mine operator monitoring indicated an overexposure, and no corrective action taken

SUMMARY

- ❖ Provisions in effect since July 5, 2001 and March 29, 2002 continue to be effective without change
- ❖ Interim DPM limit of $400 \mu\text{g}/\text{m}^3$, compliance determination, and environmental monitoring in effect since July 20, 2002
- ❖ Feasible engineering and administrative controls required
 - Job rotation not allowed for compliance

SUMMARY

- ❖ **MSHA will provide compliance assistance until July 20, 2003**
 - Interim DPM limit will not be enforced until after July 20, 2003 at mines that cooperate in good faith with MSHA
- ❖ **Compliance assistance will consist of**
 - DPM baseline sampling - all UG mines
 - Information on feasible DPM controls
- ❖ **Mine operators must develop and implement written compliance strategy**

SUMMARY

- ❖ **If DPM exposure exceeds limit despite all feasible engineering and administrative controls, respirators and respiratory protection program per ANSI Z88.2 are required**
- ❖ **After compliance assistance period, mine operators must conduct monitoring for DPM and control exposures accordingly**