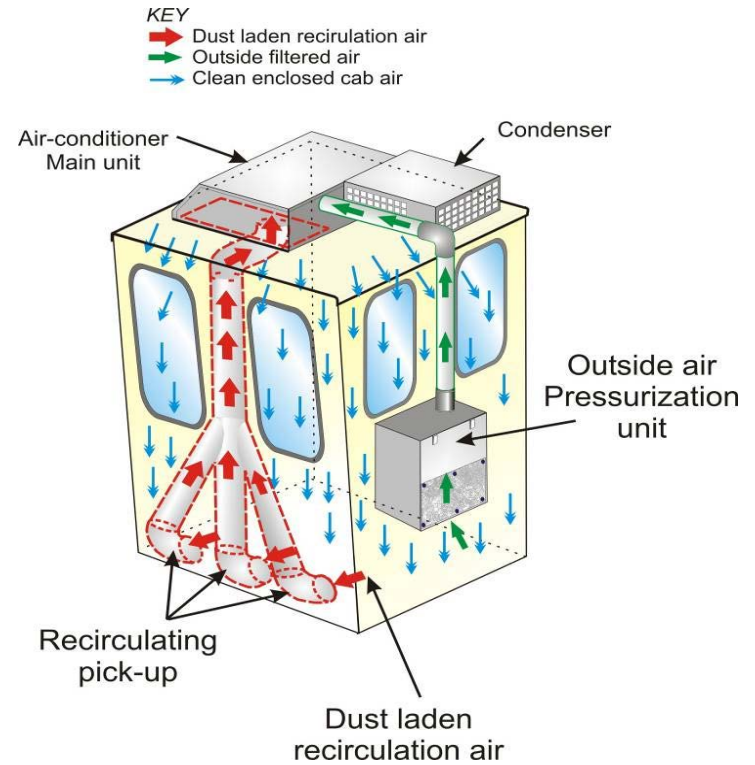


Using Enclosed Cabs for Reducing DPM Exposures

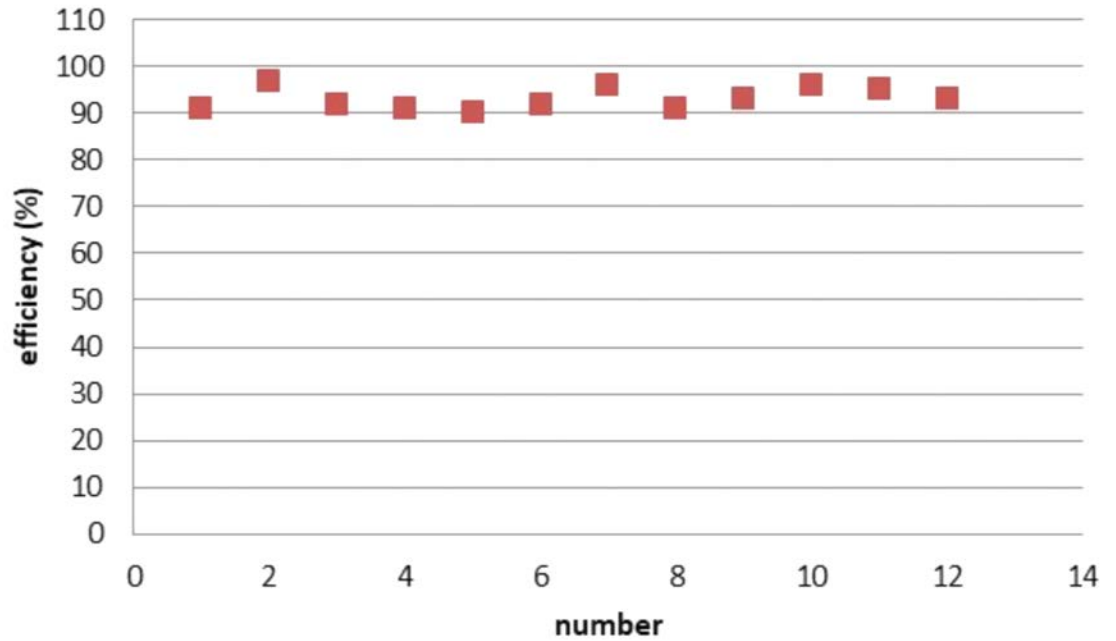
James Noll
NIOSH



Equipment can have pressurized cab



Cabs can be very efficient in reducing DPM exposures



Two Key Components

- **Effective Filtration**
- **Cab Integrity**



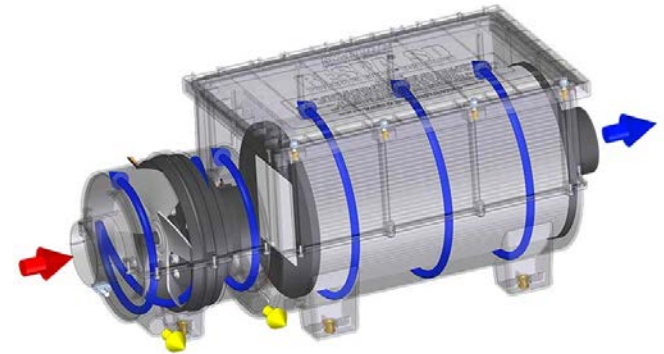
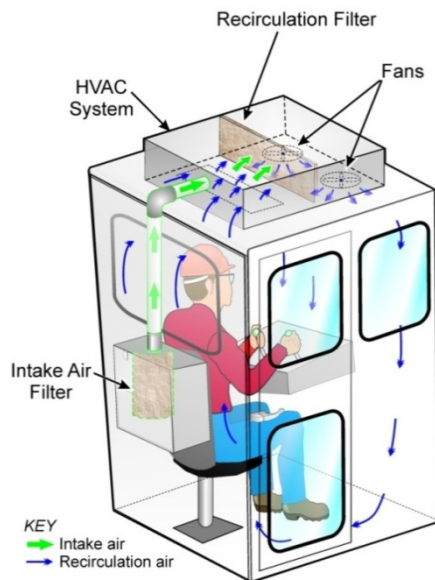
Effective Filtration

1. Pressurized Intake
2. Recirculated Cab Air

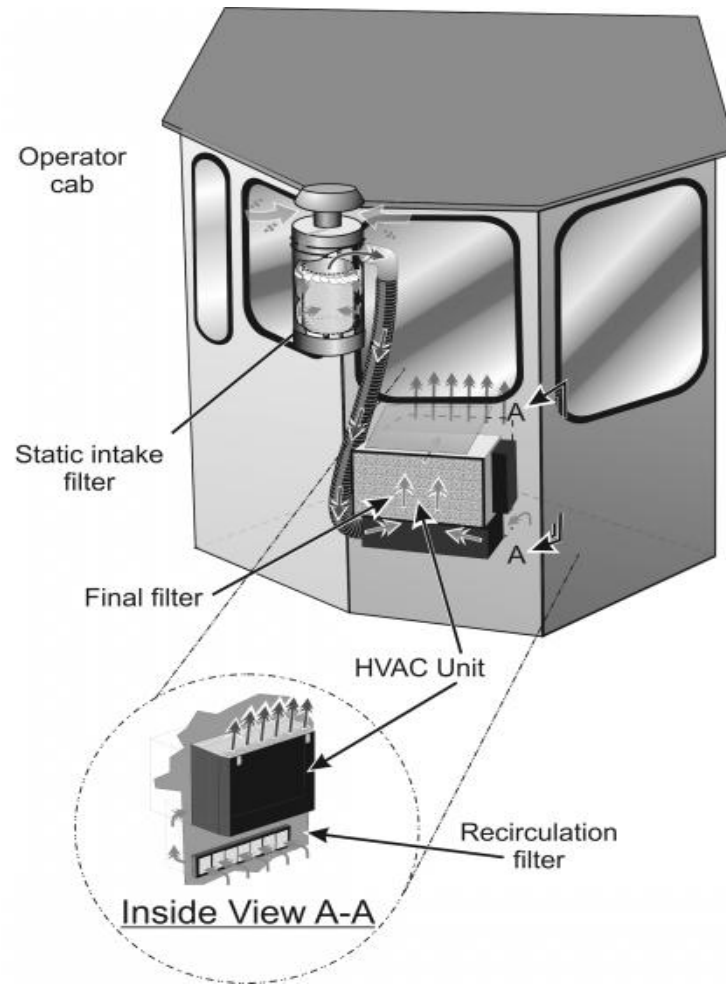


Pressurized Intake (Outside) Air

- **40 – 140 cfm**
- **At least 25 cfm per worker to dilute CO₂**
- **MERV-16 mechanical filter**
- **Powered Unit : Self-cleaning or centrifugal design**



Recirculated Cab Air



Recirculated Cab Air

- **Effectiveness is by multiple passes through filter media**
- **Substantial reduction in cleaning time from in-cab dust sources**
- **MERV 14 -16 rated filter media**
- **3-4 times the intake airflow quantity (200-300 cfm typical)**



Cab Integrity

Installing new doors gaskets and seals/plugging and sealing cracks and holes



Pressure Monitoring Testing

Outside tubing location
for pressure monitor



Data logger and Pressure Monitoring System



Dwyer
DM-2000
Pressure Transmitter
PRESSURE 1
ZERO UNITS

OFF RUN START
EMERGENCY STOP

NO HYD OIL
HIGH HYD OIL TEMP
LOW HYD OIL
RH PSI FILTER
LH PSI FILTER

MUTE
MOBILE ALARM

JHP #399410

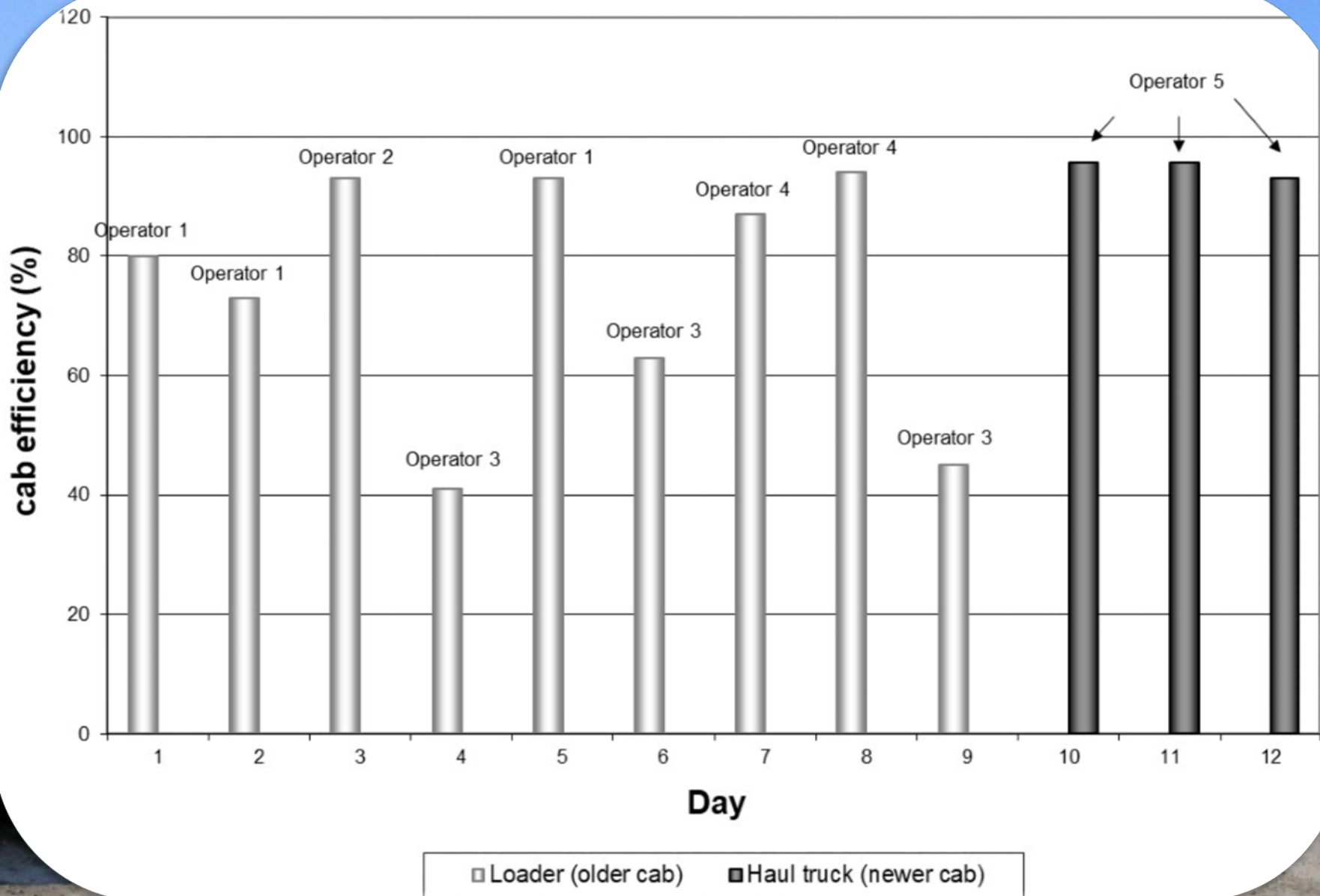
Columbus
Equipment
Company

IRON
LIFE

17

Effect of work practices





Evaluation of Enclosed Cabs



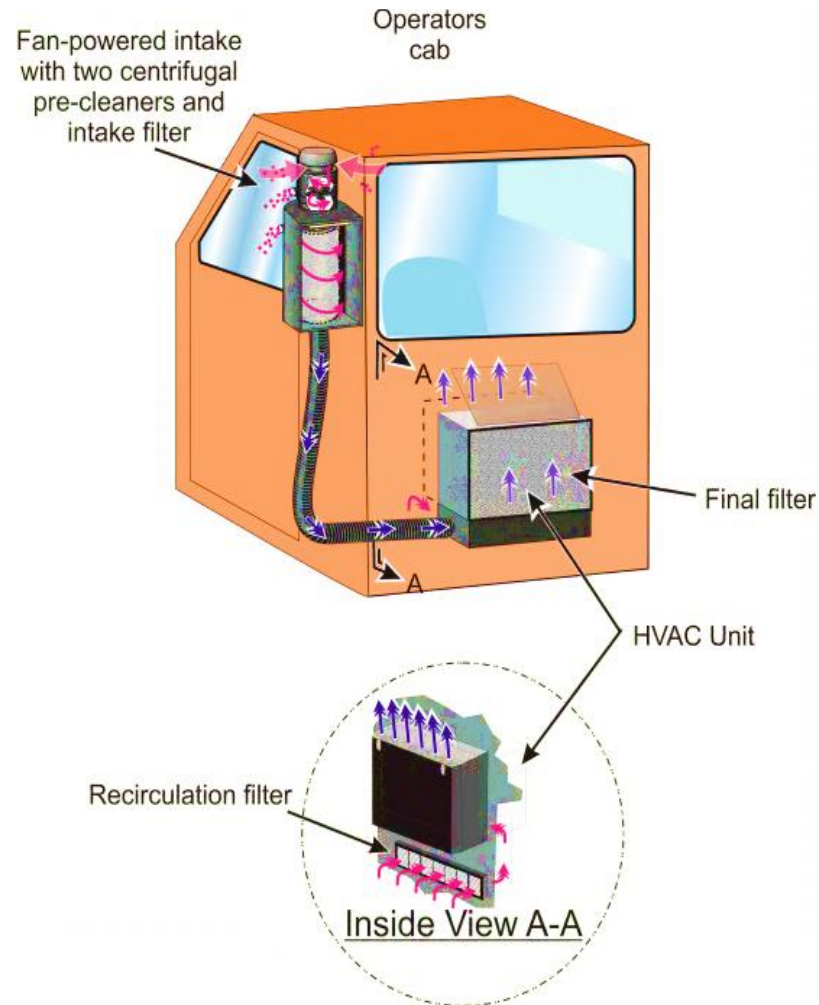
Bolter



Drill

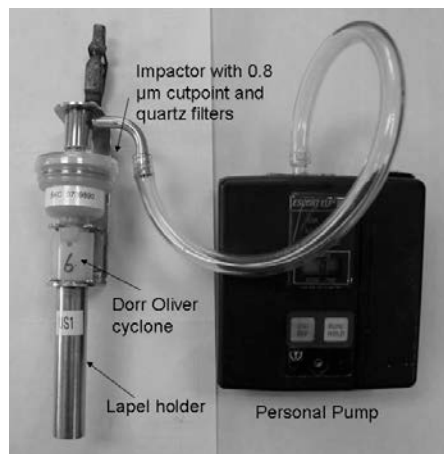


Enclosed cab design





PRESSURE

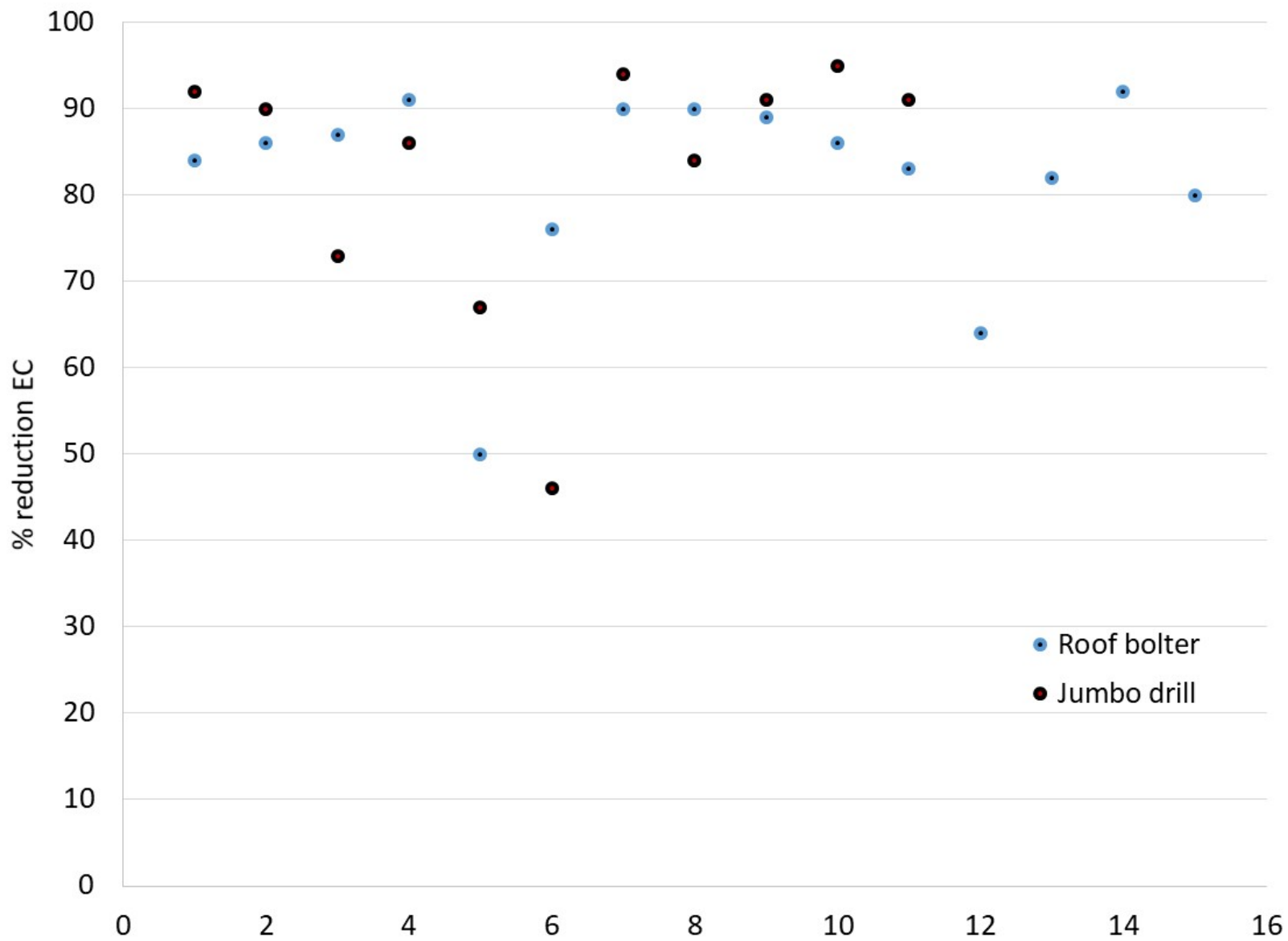


NIOSH 5040 EC/TC

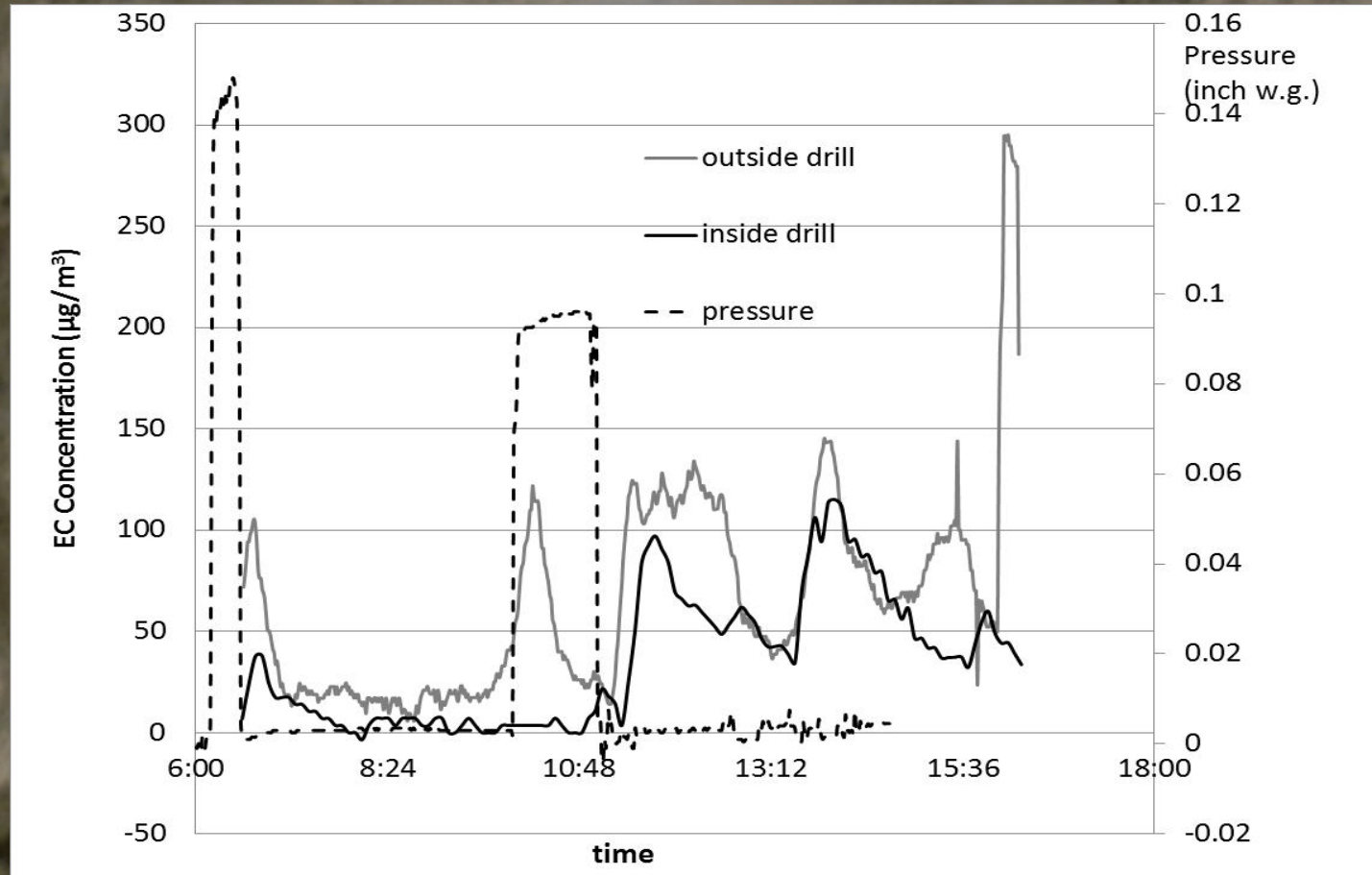


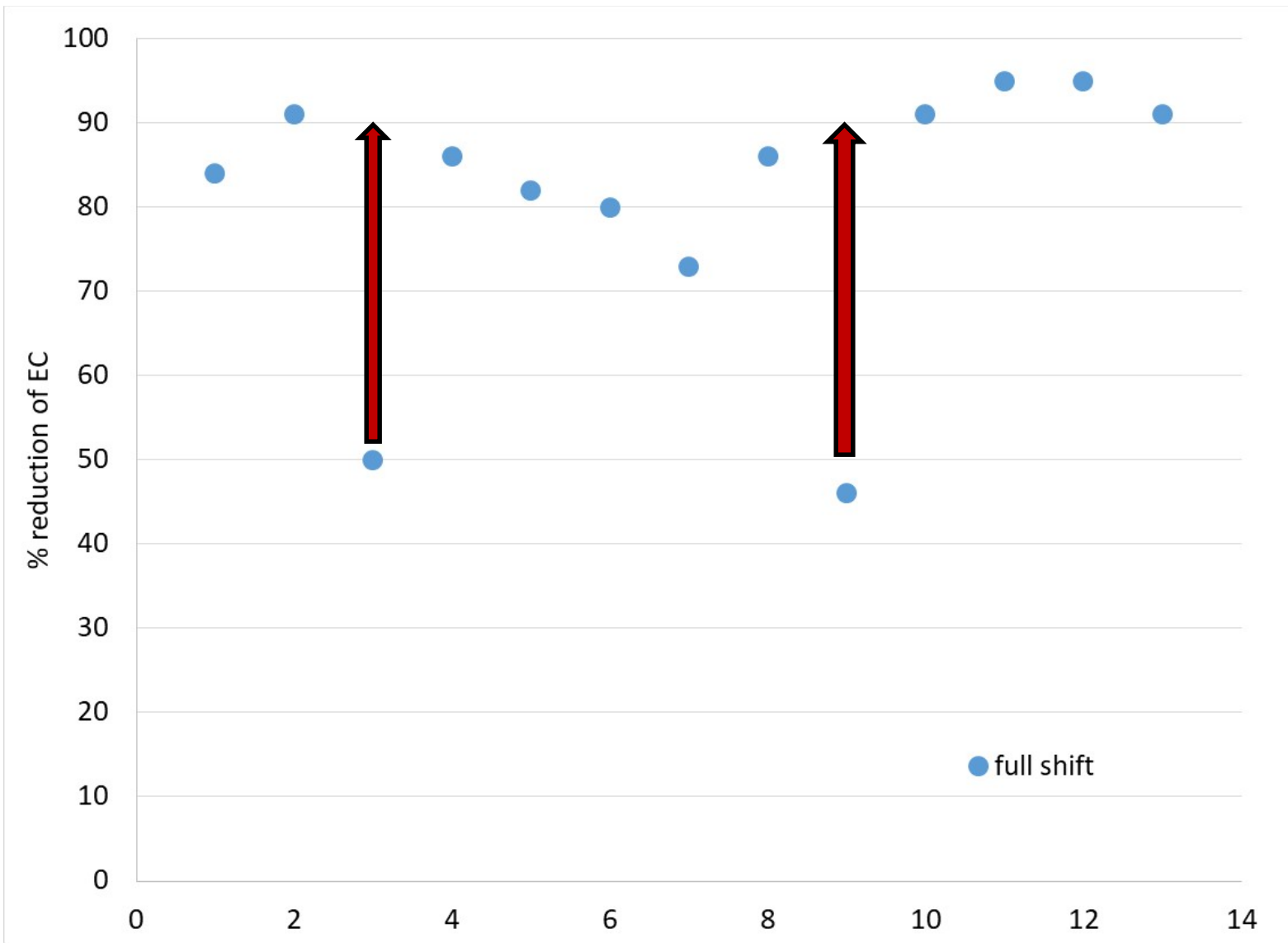
REAL TIME EC

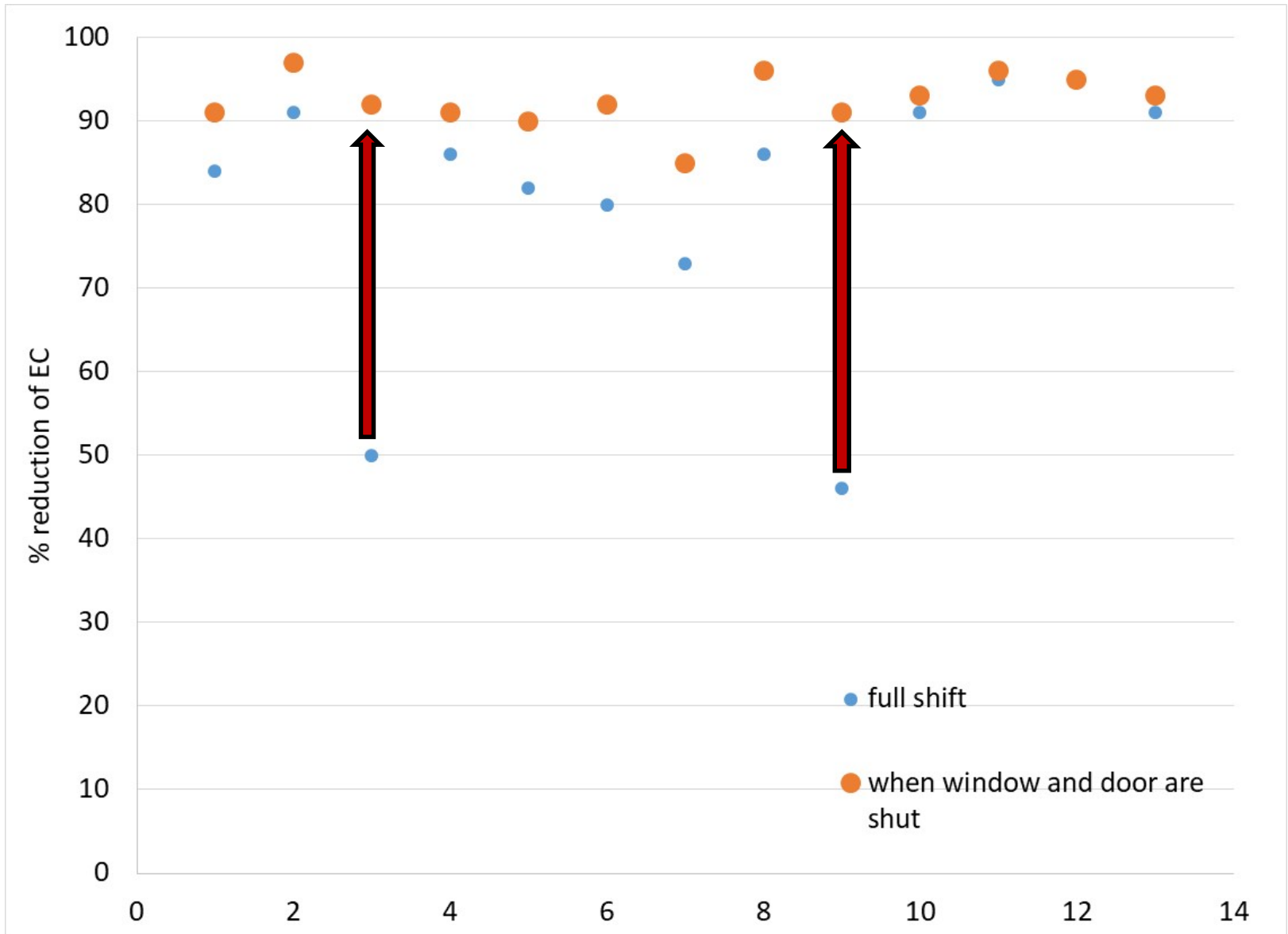




Cab Door Opening







Limitations



- **Maintenance**
 - Change filters
 - Cab integrity



Limitations



- Maintenance
 - Change filters
 - Cab integrity
- **Not all vehicles have an effective enclosed cab**
 - **Size**
 - **Visibility**



Limitations



- Maintenance
 - Change filters
 - Cab integrity
- Not all vehicles have an effective enclosed cab
 - Size
 - Visibility
- **Not all miners can work in enclosed cabs**



Questions???



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