



**NORTH CAROLINA**  
Department of Transportation

**CarolinasAGC**  
Building Your Business



# 2020 AGC/NCDOT WORKSHOP

DAVIDSON

MARCH 5, 2020

DAVIDSON

# Safety

- Fall Protection
- Crane Safety
- Excavation & Trenching
- Equipment Safety
  - Respirable Crystalline Silica



# Durham Trench Collapse

January 15, 2020

## Gas Station Construction

- Approximately 10 feet deep
- 4 workers in trench
- 1 fatality





# Excavation Hazards

- Cave-ins are the greatest risk
- Other hazards include:
  - Asphyxiation due to lack of oxygen
  - Inhalation of toxic materials/fumes
  - Water accumulation
  - Machinery moving near edge of excavation causing a collapse
  - Severing underground utility lines
  - Falls



# Trenching & Excavation Safety

- 5 feet or deeper require a protective system
- A competent person must be on site
- 4 feet or deeper requires a means of egress within 25 feet of all workers
- Surcharge loads must be at least 2 feet from trench edges
- Check for hazardous fumes and toxic gases

# Respirable Crystalline SiO<sub>2</sub>

- Contained in sand, brick, concrete, mortar, ceramics, and stone
- Can effect lungs (cancer/silicosis), immune system, and kidneys



# 29 CFR 1926.1153

- Went into effect September 23, 2017
- Decreased permissible exposure limit (PEL) from  $\sim 200 \mu\text{g}/\text{m}^3$  to  $50 \mu\text{g}/\text{m}^3$  over 8-hour TWA





# Respirable Crystalline Silica

- Awareness training for NCDOT/CEI inspectors

RIGHT



WRONG







## SILICOSIS Prevention



**Cherie Berry**  
Commissioner of Labor

Silicosis is caused by exposure to respirable crystalline silica dust. Crystalline silica is a basic component of soil, sand, granite and most other types of rock, and it is used as an abrasive blasting agent. Silicosis is a progressive, disabling and often fatal lung disease. Cigarette smoking adds to the lung damage caused by silica.

### Effects of Silicosis

- Bronchitis/chronic obstructive pulmonary disorder.
- Possible renal disease.
- **Lung cancer**—silica has been classified as a human lung carcinogen.
- **Tuberculosis**—silicosis makes an individual more susceptible to TB.
- **Scleroderma**—a disease affecting skin, blood vessels, joints and skeletal muscles.

### Symptoms of Silicosis

- Shortness of breath; possible fever.
- Fatigue; loss of appetite.
- Chest pain; dry, nonproductive cough.
- Respiratory failure, which may eventually lead to death.

QC23

### Sources of Exposure

- Sandblasting for surface preparation.
- Crushing and drilling rock and concrete.
- Masonry and concrete work (e.g., building and road construction and repair).
- Mining/tunneling; demolition work.
- Cement and asphalt pavement manufacturing.

### Preventing Silicosis

- Use all available engineering controls and local exhaust ventilation. Avoid using compressed air for cleaning surfaces.
- Use water sprays, wet methods for cutting, chipping, drilling, sawing, grinding, etc.
- Substitute noncrystalline silica blasting material.
- Use respirators approved for protection against silica; if sandblasting, use abrasive blasting respirators.
- Do not eat, drink or smoke near crystalline silica dust.
- Wash hands and face before eating, drinking or smoking away from exposure area.

*Adapted from OSHA Quick Card 3266-09N-05, U.S. Department of Labor.*

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# WORK ZONE TRAFFIC CONTROL

