Silica Dust: Seismic
It will take your breath away

Enform’s Exposure Control Plan (ECP)
Outline

• What is silica?
• Why should I care?
• Exposure risk
• Exposure control
• Enform’s approach
• Questions?
What is silica

- Silica is naturally occurring and can be found everywhere (SiO₂)
- Silica can be crystalline (quartz) or non-crystalline (amorphous)
- Crystalline silica can be found in:
  - Rock
  - Sand
  - Products like cement, etc.

Why should I care?

- Silica is a hazard (primarily chronic) when it is breathed deep into the lungs (respirable)
- Silica causes the following illnesses:
  - Silicosis - lung scar tissue
  - Lung cancer
  - Bronchitis
  - Kidney disease
- Irreversible and progressive

[link to video: silica-win.wmv]
Exposure risk

• Silica’s OEL
  – 8-hour TWA
  – What does that mean?
  – 2X lower than lead (0.05 mg/m$^3$)
  – 400X lower than nuisance dust (10 mg/m$^3$)

– If it’s silica and it’s visible, overexposure is just a matter of time!
Exposure risk

• How do we re-think our perceptions of risk?
Exposure risk

• You may be thinking that I am exposed for only a few days, weeks or months, I will be ok, right?

• A worker at 100X the Silica OEL
  – With no respirator they get a working lifetime in 90 days
    • Even at 100X, acute health effects may not provide adequate warning
    • After 100X, risks are likely not linear,
      – i.e. high exposures for even short periods have more risk
Seismic - Exposure Sources

• Main source is hard rock such as sandstone, granite and shale
  – Depends on shot hole parameters
    • Depth and diameter of hole
  – Wet or Dry Environment
    • Up on hill or next to river
Controls - Engineering

• The answer to many silica exposures is engineering and administrative controls
  – This does not have to be expensive/difficult
    • Wet materials
    • Distance/time etc.

• Look for opportunities to make a difference!
  – Take some action (action = caring)
Controls - PPE

- Different dust levels = different protection levels
  - Respirator protection factors
    - Half-face - 10
    - Full-face - 50 and 100
    - PAPR or Supply Air - 1,000
  - Why? Leakage, where the respirator meets the face
  - Coveralls
So what do I need to do?

- Air-hammer Drilling
  - Engineering controls
    - Venturi
    - Vacuum
    - Water injection
    - Blower fan
  - Stay upwind of dust when ever possible
  - Use a respirator
    - No engineering controls? You may need a full-face respirator
Enform’s Approach

- Silica ECP template
  - Modular approach
- Guidance Sheets
  - Sources
  - Controls
  - Hazard Assessment
Summary

• Silica is not nuisance dust!
• Silica is everywhere
• What you don’t know will still hurt you
• Enform has the answers you need
• Solutions by industry - for industry
Is your worker’s future clear?

Healthy Lung

Silicosis Lung

Questions

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