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Negative Exposure Assessments for Railroad Bridge Maintenance:

Application, techniques, and benefits

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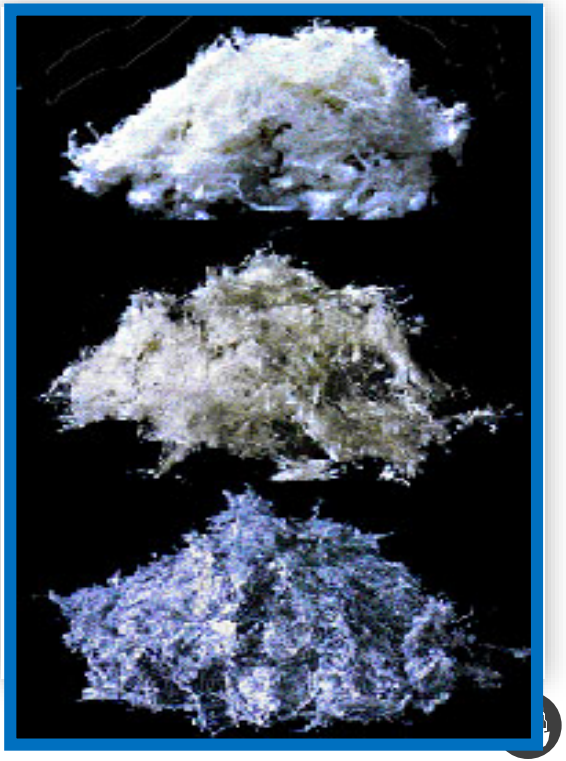
Outline

- Asbestos exposure levels
- Negative Exposure Assessment (NEA)
  - Applicability of NEAs
  - NEAs for railroad maintenance and repair activities
- Procedures developed for UP Bridge Personnel
- Summary

How Much Asbestos is OK?

- OSHA standards say that an unprotected person cannot be exposed to more than 0.1 f/cc over an 8-hour period.
- The levels over a 30-minute period should not exceed 1.0 f/cc.
- If these levels are exceeded, then special work practices and protective equipment may be required.



Negative Exposure Assessment

For any one specific asbestos job, which will be performed by employees who have been trained in compliance with the standard; the employer may demonstrate that employee exposures will be below the PELs in accordance with:

- Initial exposure monitoring of the current job indicate airborne levels for asbestos below the PEL or EL.
- Asbestos-related jobs for which a negative exposure assessment is documented do not need a respirator and PPE.

Procedures Developed for UP Personnel

Purpose, Scope & Responsibilities: Bridge components

Negative Exposure Assessments
Pile Pad Removal

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Pile Pad Removal

Negative Exposure Assessments
Pile Pad Removal

Negative Exposure Air Sampling Results

- Ten sampling events on different bridges to determine if asbestos was above the PEL
- All personal air samples for all ten events determined that there was no exposure to asbestos
- TEM results did not detect any asbestos fibers

Procedures Developed for UP Personnel

Purpose, Scope & Responsibilities: Pile Pad Removal

Negative Exposure Assessments

Stringer Removal

Negative Exposure Assessments
Stringer Removal

Negative Exposure Assessments
Stringer Removal

Negative Exposure Assessments
Stringer Removal

Negative Exposure Assessment

- Five sampling events over five days to determine if asbestos was above the PEL
- All personal air samples (for all five days) determined that there was no exposure to asbestos above the OSHA PEL
- TEM results detected 1 fiber on one worker and 2 fibers on another worker; Exposure was determined to be 0.002 f/cc and 0.004 f/cc by TEM respectively.
- OSHA standard is 0.1 f/cc

Procedures Developed for UP Personnel

Purpose, Scope & Responsibilities: Stringers

Bridge Demolition – Case I

NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

- 15 personal samples were collected during bridge demolition to determine if asbestos was above the PEL
- All personal air samples determined there was no exposure to asbestos
- TEM results did not detect any asbestos in the air on the personal samples

Bridge Demolition- Case II

NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Bridge Demolition
NEA

Results of NEA

- 5 personal samples were collected to determine if asbestos was above the PEL
- All 5 personal samples determined that there was no exposure to asbestos
- TEM results did not detect any asbestos in the air on the personal samples

Bridge Demolition
NEA

- Piles, caps, stringers contain asbestos
- Seven personal and one Excursion sample
- Results indicate no asbestos structures by TEM

Procedures Developed for UP Personnel

Purpose, Scope & Responsibilities: Demolition

Additional Tests

NEAs

NEA
Pile Pad Removal

- Wet removal of pile pad
- Pile pads contain 15% Chrysotile
- 3 personal and 1 excursion sample collected
- One pile removed
- No asbestos structures by TEM

Summary

- 139 Personal and Excursion Samples Collected
- Three samples determined to contain asbestos by TEM
- One fiber detected on one worker during stringer removal; sample exposure calculated to be 0.002 f/cc
- Two fibers detected on one worker during stringer removal; sample exposure calculated to be 0.004 f/cc
- Negative exposure assessments have endorsed existing maintenance and repair procedures.

Thank you

Questions?

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