

# Asbestos Hazards and Controls – Joplin /Duquesne Tornado USACE Recovery Mission

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US Army Corps of Engineers  
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# Background

- May 22, 2011 – EF5 tornado struck the towns of Joplin and Duquesne, MO
- Damage: \$2.8 billion
- 161 fatalities
- Miles of debris
- Corps of Engineers assigned the debris removal mission by FEMA



# Debris & ACM

- Primarily Residential
  - ▶ Transite Siding
  - ▶ TSI (1 case)
  - ▶ Other
- Intermingled with other debris



# Transite Siding



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# Transite Siding



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# Intermingled Debris



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# Removal Procedures

- Development
- Abatement or remediation?
- Implementation
  - ▶ Identification
  - ▶ Categorization
  - ▶ Segregation
  - ▶ Removal
  - ▶ Disposal



# Identification

- Bulk sampling – not feasible
- Building permits
  - ▶ Pre 1980 construction
  - ▶ Limitations
- GIS mapping
- Visual identification
  - ▶ Right of way
  - ▶ Right of entry teams



# Category 1

- Construction and demolition debris
  - ▶ Building materials
  - ▶ Vegetative debris
- Removed from curb/property and taken to disposal site
- No markings



# Category 1 Removal



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# Category 2

- Debris which contained asbestos that can be relatively easy segregated and removed.
- Marked “C2”
- Primarily Transite cement panel and siding
- Once removed – lowered to Category 1



# Category 2 Removal

- Transite
  - ▶ Segregated
  - ▶ Misted
  - ▶ Bagged
  - ▶ Transported
  - ▶ Disposed
- PPE
  - ▶ Modified Level D  
(double nitrile gloves)
- Decontamination
- Disposal



# Category 2 Removal



# Category 2 Removal



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# Category 2 Removal



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# Category 2 Removal



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# Category 2 Removal

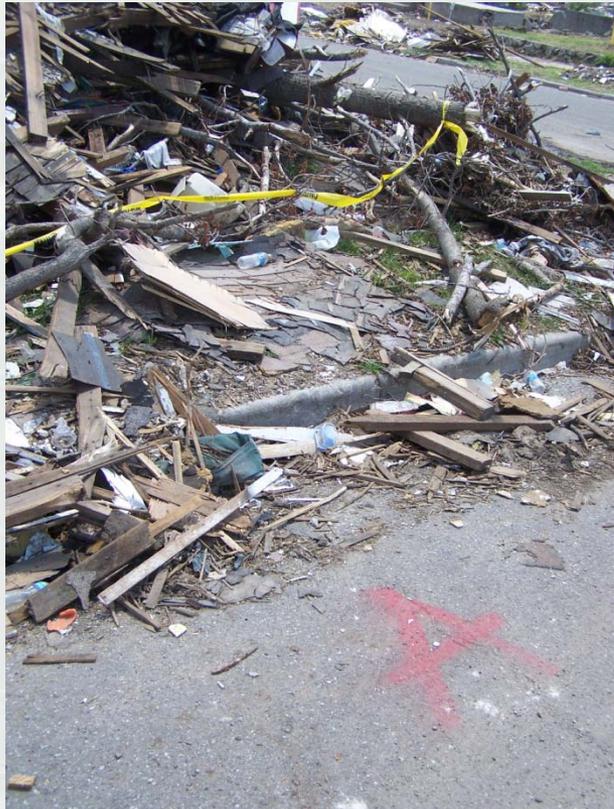


# Category 3

- Not practical to segregate ACM
- All debris treated as ACM
- Markings
  - ▶ “C3”
  - ▶ Red A
  - ▶ Yellow caution tape



# Category 3



# Category 3 – Removal Process

- Removal
  - ▶ Signs
  - ▶ Water Mist
  - ▶ Plastic lined roll off boxes
  - ▶ Plastic sealed once full
  - ▶ Transported to landfill
  - ▶ All nonessential personnel upwind
- PPE
  - ▶ Modified Level D (double nitrile gloves)
- Decontamination
- Disposal



# Category 3 Removal



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# Category 3 Removal



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# Air Monitoring

- Personal/Area air sampling
  - ▶ Contractor
  - ▶ USACE employees
- Over 1900 samples
  - ▶ All barely above detection limit
  - ▶ All below PEL's
- PCM analysis
- TEM confirmation

\*Bob Stout, USACE RFO IH\*

8 Aug 2011



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# USACE Training

- Asbestos awareness
  - ▶ Mandatory – all QA's
  
- Previous training
  - ▶ Asbestos Inspector
  - ▶ Asbestos Supervisor



# Other Issues

- Degradation of markings
- Degradation of plastic during transport
- Non-USACE operations
  - ▶ Volunteers
  - ▶ Private Contractors
  - ▶ Homeowners
- General safety issues
- Pressure for progress



# Other Issues



# Other Issues



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# Other Issues



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# Other Issues



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# Lessons Learned

- Communication
- Flexibility
- Every mission is different!



# Questions?



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