

# South Dakota Asbestos Requirements for Building Renovations & Demolitions

SD DANR Waste Management Program

Anthony Wagner – Pierre Office

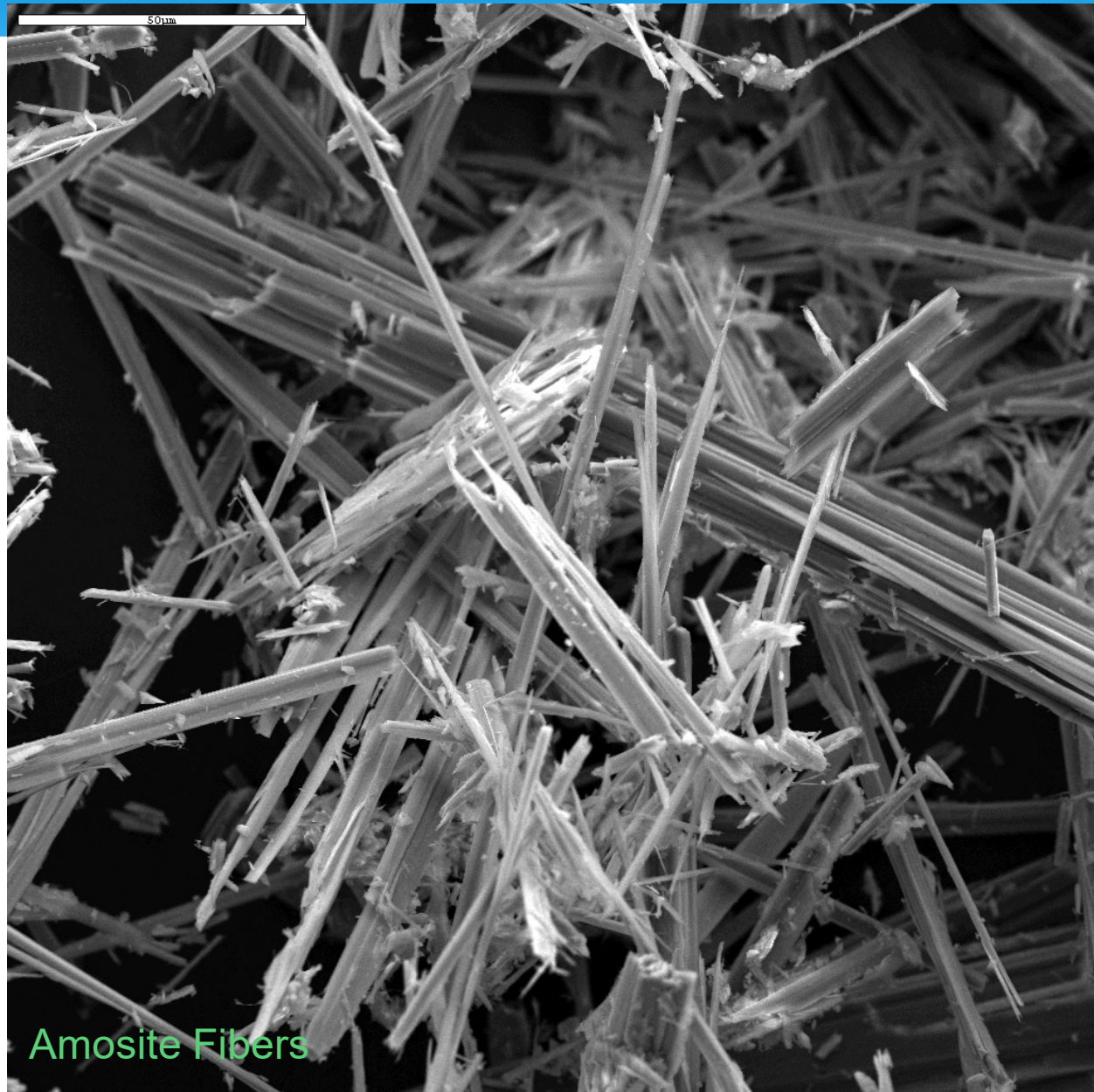
Austin Michels– Sioux Falls Office

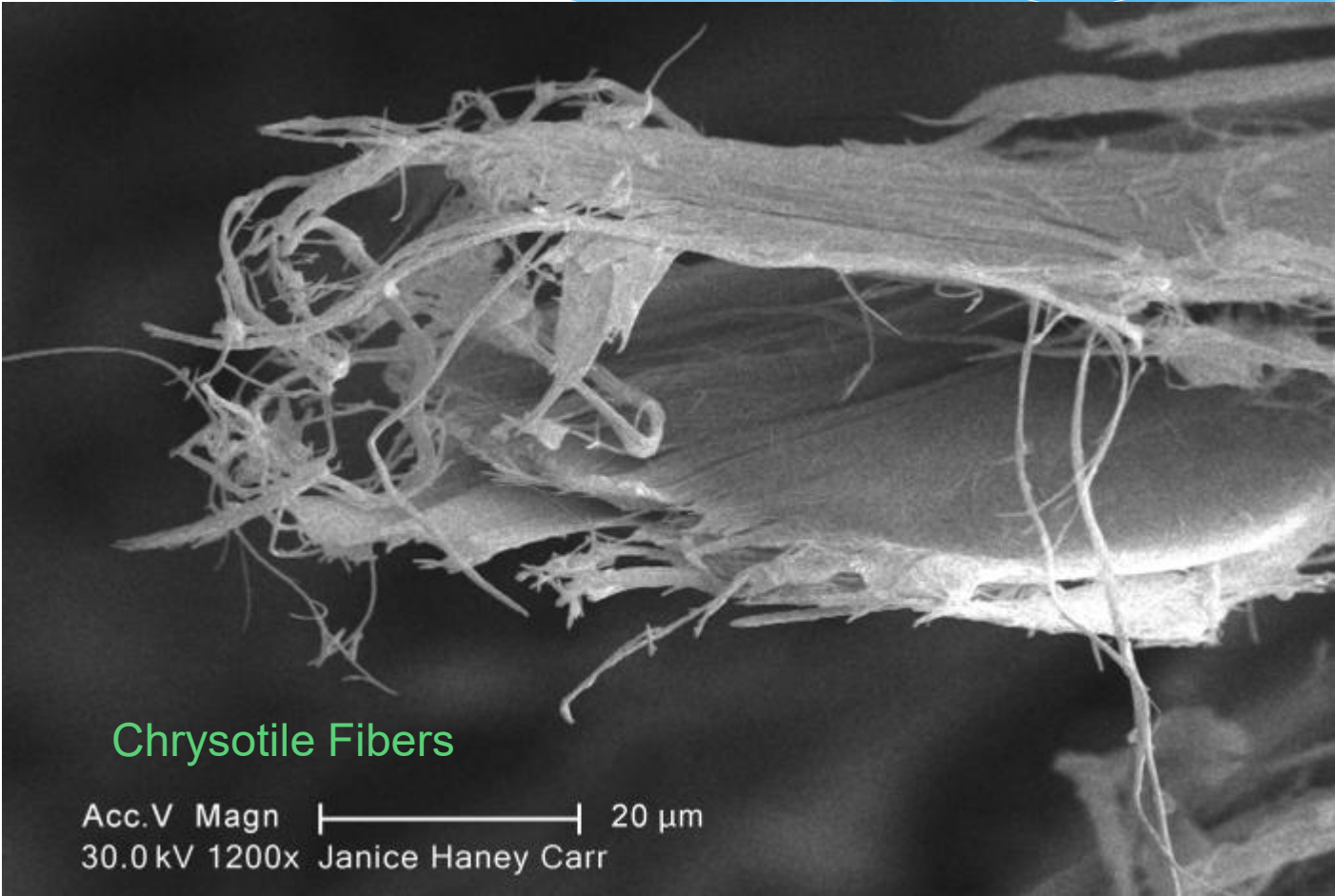


# Hazards of Asbestos



- Airborne hazard – asbestos fibers are very aerodynamic, too small to exhale, and can cause serious lung disease
  - Asbestosis – scarring of the lung
  - Pleural plaques, thickening, effusions
  - Lung Cancer
  - Mesothelioma – cancer of the lining of the lung





Chrysotile Fibers

Acc.V Magn |-----| 20 μm  
30.0 kV 1200x Janice Haney Carr

# Asbestos Fiber Facts

Because asbestos fibers are so small, once released into the air, they may stay suspended there for hours or even days.



# Historical Uses For Asbestos

- Thermal Insulation
- Surfacing Materials
  - Fireproofing
  - Acoustical and decorative plaster
- Miscellaneous
  - Cement-type products
  - Asphalt roofing materials
  - Vinyl floor coverings



# Asbestos – Where is it found?

- Pipe insulation
- Duct Insulation
- Duct joint wrap
- Boiler insulation
- Fireproofing materials
- Ceiling tiles
- Linoleum paper backing
- Popcorn ceilings
- Acoustical texture
- Transite boards
- Joint compound
- Plaster
- Asphalt roofing
- Asbestos-cement pipe
- Caulk and putty
- Roofing felts, tar, flashings
- Electric wire insulation
- Gaskets, packings
- Commercial/Specialty paper
- Paint
- Floor tiles & mastic
- Fire doors
- Fire Blankets
- Filters for industry
- Brake pads/clutch facings

# Potential for Fiber Release

- Intact materials in good condition are not considered an exposure hazard until disturbed
- Potential fiber release highest for friable materials and less for nonfriable materials
- Friable – material can be crumbled pulverized, or reduced to powder by hand pressure

# Thermal System Insulations



Tank Insulation



Pipe Insulations and Wraps



Pre-formed, Felt-paper, and Corrugated Pipe Insulation and Wraps





Spray-On Acoustical Texture

Plasters on Walls and Ceilings





<http://www.hse.gov.uk/asbestos/gallery.htm>

## Ceiling Tiles



## Vermiculite Insulation





Joint Compound on Drywall



Spray-on Fireproofing

# Nonfriable Asbestos-Containing Material

- **Nonfriable: any material containing more than 1% asbestos, that, when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure**
- **Separated into two categories**
  - **Category I**
  - **Category II**

# Examples of Category I Nonfriable



Vinyl Asbestos Tile

Paper Backing May be Friable



Vinyl Sheet Flooring/Linoleum

Roofing (Category I) –  
Usually Not Friable



# Examples of Category II Nonfriable



Corrugated Asbestos-Cement Sheets



Asbestos Cement Ceiling Panels





## Asbestos Cement Siding & Shingles



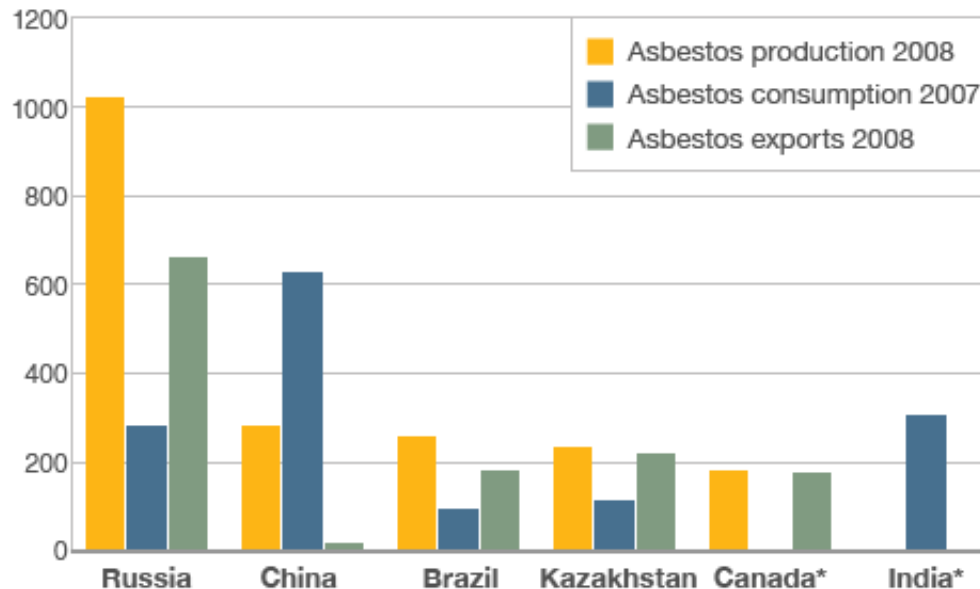
# Asbestos Usage in US (USGS)

## United States Consumption

- 2016 – 340 tons
  - 100% diaphragms for chloralkali industry
- 2010 – 1040 tons
- 2000 – 14,600 tons
- 1990 – 41,300 tons
- 1980 – 359,000 tons
- 1973 – 803,000 tons
- 1941 – 398,000 tons
- 1920 – 153,000 tons
- 1910 – 46,400 tons
- 1900 – less than 1,000 tons

Asbestos production, consumption and export

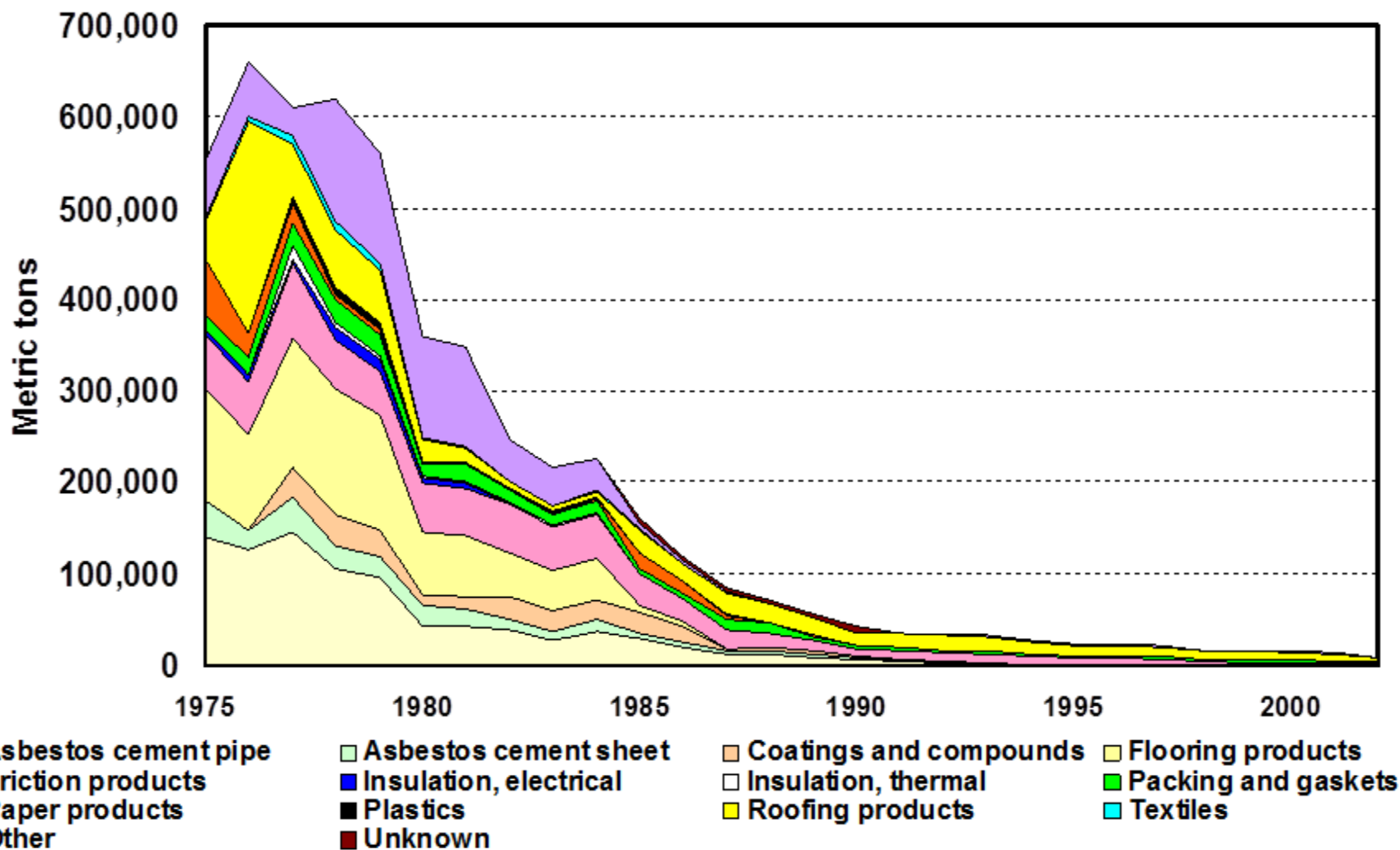
Thousand tonnes



\* Some data not available

Source: ICIJ

## End Uses of Asbestos



USGS, 2005

# South Dakota Asbestos Rules

## Asbestos NESHAP

- \* **40 Code of Federal Regulation, Part 61, Subpart M**
  - \* **Adopted in full by State ARSD 74:36:08:02**
- \* **Standards for Asbestos Emissions from Demolition & Renovation Projects & For Asbestos Waste Handling and Disposal**

## Asbestos Certifications

- \* **State ARSD Article 74:31; SDCL Chapter 34-44**
- \* **Requires Asbestos Certification for Contractors**
  - \* **Inspectors, Management Planners, Designers, and Abatement Workers**
- \* **Requirements for Asbestos Training Courses**

# State asbestos rules apply to facility renovation and demolition projects



## Buildings which are a **facility**

- Institutional
- Industrial
- Commercial
- Public
- Residential installations, condominiums, and apartments with more than 4 dwelling units



## Exempt buildings

- Single-family residences
  - Residential buildings having 4 or fewer dwelling units

# Renovation or Demolition of more than one home?

- Regulated if demolition project also includes public or commercial buildings
- Regulated if demolition project includes multiple homes under the control of the same owner or contractor
- Nuisance properties individually owned?



# Requirements for Renovation & Demolition Projects

## Inspection

- Thoroughly inspect all areas affected by renovation/demolition

## Notification

- Demo Projects
- Renovations >160/260 RACM

## Emission Control Waste Disposal



# Asbestos Inspection

## ➤ Facility Inspections

- Certified Asbestos Inspector
- All building materials affected by renovation or demolition must be inspected prior to the project start
- Suspect asbestos-containing materials are sampled and analyzed to determine if they contain asbestos

## ➤ Asbestos Inspection Report

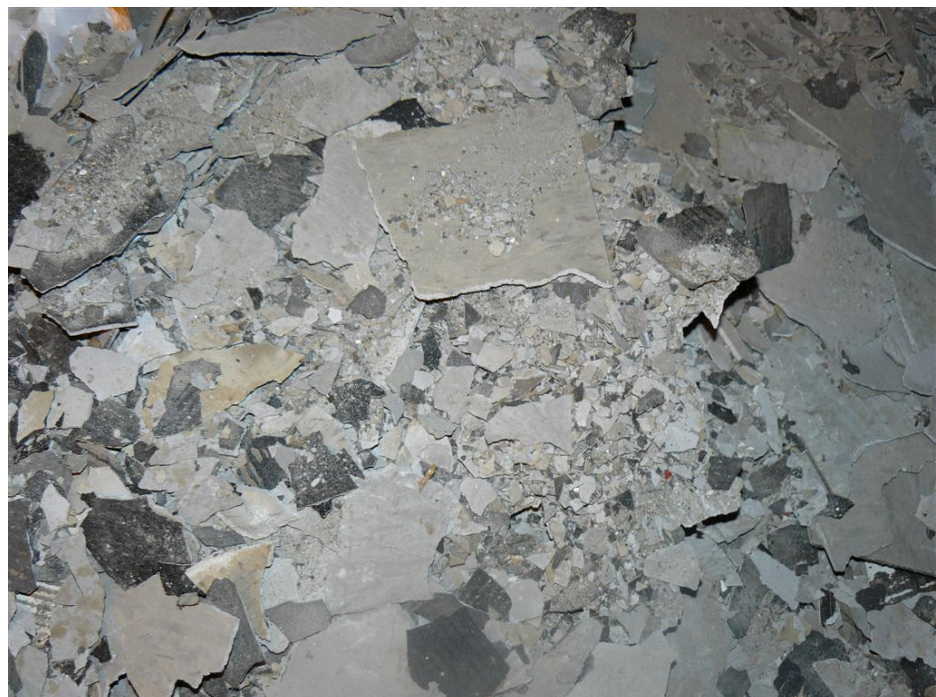
- Identifying the type, location, and quantity of asbestos-containing materials identified
- The report also needs to show the type of materials sampled, sample location, and sample analysis results

# ACM Removal

- All asbestos-containing material that would be disturbed as part of a renovation or demolition must be properly removed before impacting the material.
- Nonfriable ACM may remain in place during demolition provided the materials are not in poor condition and the probability is low they will become crumbled, pulverized, or reduced to powder
- Workers removing regulated asbestos-containing materials must be certified and licensed through DENR

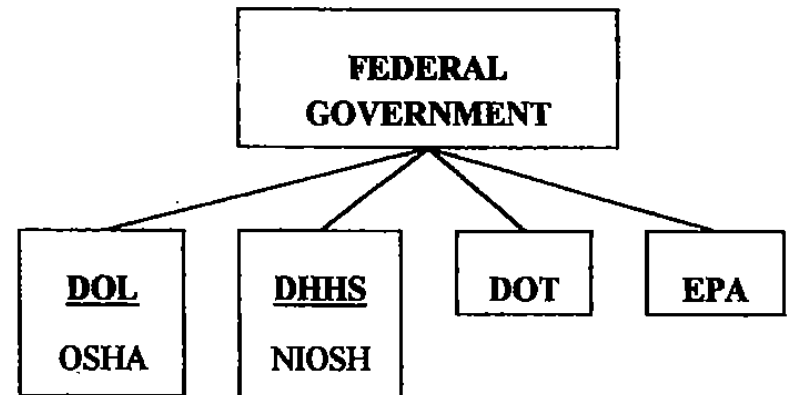
# Regulated Asbestos-Containing Material (RACM)

- Friable asbestos material
- Cat I nonfriable that has become friable
- Cat I nonfriable that will be or has been subjected to sanding, grinding, cutting, or abrading, or
- Cat II nonfriable that has a high probability of becoming or has become crumbled, pulverized or reduced to powder



# Additional Regulatory Considerations

- OSHA General Industry Standard – 29 CFR 1910.1001
  - Custodial Workers/Automotive Brake & Clutch Work
- OSHA Construction Industry Standard – 29 CFR 1926.1101
- EPA's Worker Protection Rule
  - Extends OSHA asbestos Standards to State and local government employees



Several federal agencies which regulate asbestos

Appropriate level of asbestos awareness training provided to maintenance and custodial staff

# Managing Disasters or Potential Disasters

And other unexpected demolitions?



Buildings impacted  
by accidental fires  
and severe storms





Structurally unsound  
buildings in danger of  
imminent collapse



# Structurally unsound buildings in danger of imminent collapse

## Asbestos Requirements

- Notification (no later than next business day)
- Properly manage RACM removed from building (wet & containerize in leak-tight wrapping)
- Ensure a certified asbestos contractor manages the project when RACM is disturbed
- Adequately wet portions of the building that contain RACM during wrecking operations (unless  $< 32^{\circ}\text{F}$ )
- Ensure asbestos-containing waste materials remain wet until properly disposed of

# Asbestos Inspection

## Prior to demo

- RACM – including demo debris mixed with RACM needs to be wetted during wrecking and remain wet until disposed at MSW
- Asbestos contractor required when RACM is disturbed
- Demo debris (not mixed with RACM) can be disposed of at a restricted use site

## No inspection

- Asbestos Contractor required on-site at all times
- Building is required to be wetted during wrecking
- All demo debris needs to be assumed to be mixed with RACM and remain wet until disposal
- All demo debris must go to an MSW and disposed of as asbestos waste

# Best management practices? Lead, mold, sewage, etc



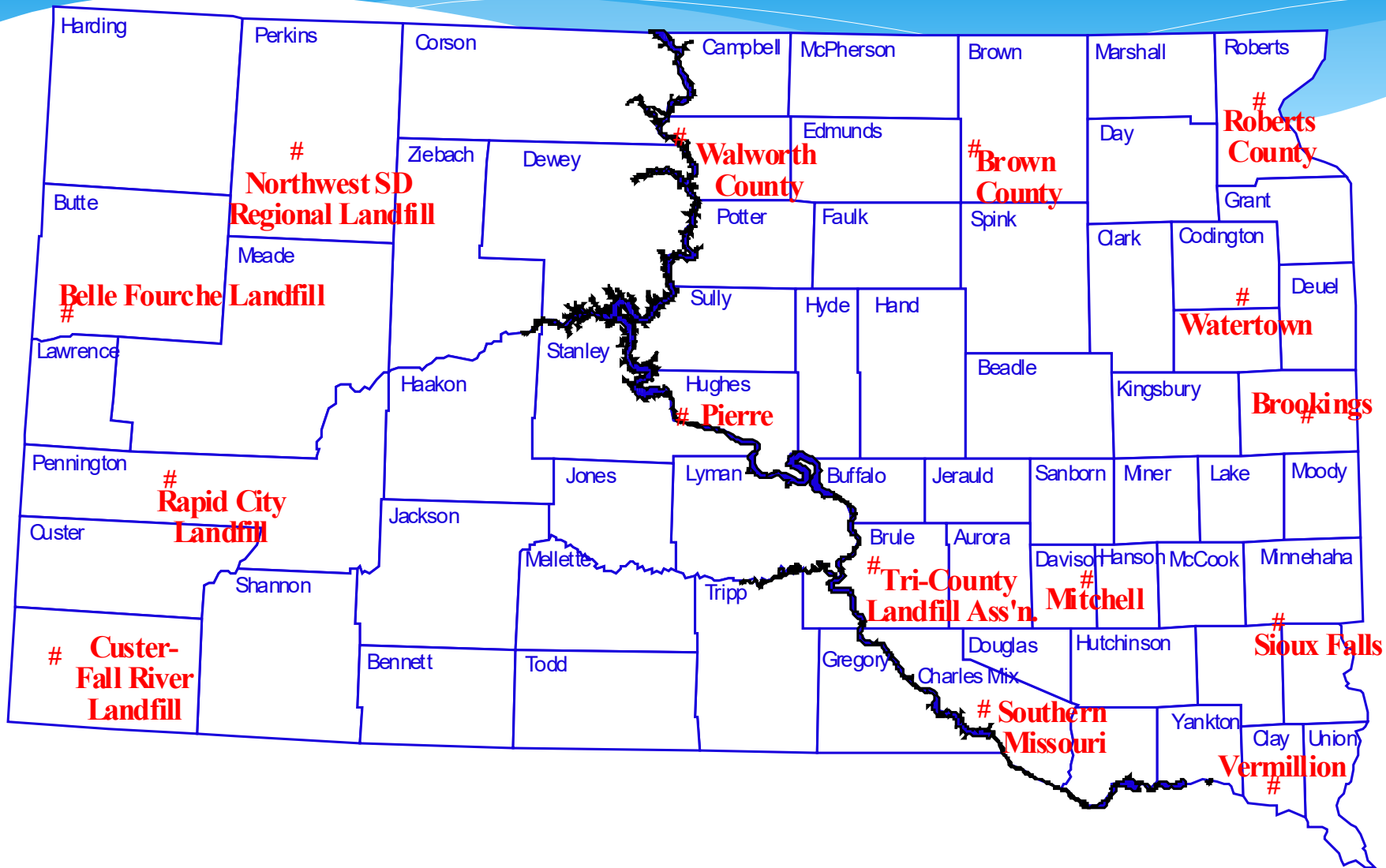
In addition to the immediate safety hazards from unstable building

- Wet the building materials during wrecking, debris consolidation, and loading and control run-off
- Crowd control
- restrict people downwind of site
- OSHA requirements?

# Building Debris Disposal Options

- Municipal Solid Waste Landfills – 15 regional landfills statewide
- Restricted Use Solid Waste Disposal Facilities





# Construction & Demolition Debris

## What is it?

- Concrete, brick, stonework, etc.
- Asphaltic concrete
- Roofing materials
- Painted or stained wood
- Attached insulation
- Pipe
- Furniture, carpet, mattresses, flooring, etc.



## What isn't it?

- RACM
- Household garbage
- Chemically treated wood
- Contaminated soil
- Waste tires
- Grass clippings, leaves, etc.
- Loose insulation, plastic, paper and other debris that will blow and create litter

# Accidental Fire - Special Disposal Considerations



[http://www.keloland.com/NewsDetail6162.cfm/Miller\\_Grain\\_Elevator\\_Catches\\_Fire/?Id=130870](http://www.keloland.com/NewsDetail6162.cfm/Miller_Grain_Elevator_Catches_Fire/?Id=130870)

# Asbestos & Debris Disposal Help

## DANR Waste Management Program

(605) 773-3151

<https://danr.sd.gov/Environment/WasteManagement/Asbestos/default.aspx>

- Jim Wendte– Administrator
- Carrie Jacobson– Hazardous Waste
- Steven Kropp – MSW Landfills
- Nick Emme – Recycling Coordinator
- Austin Michels – Asbestos Sioux Falls Office
- Anthony Wagner – Asbestos Pierre Office