

# Asbestos & Lead Paint Considerations for Brownfields Redevelopment

*Presented by:*

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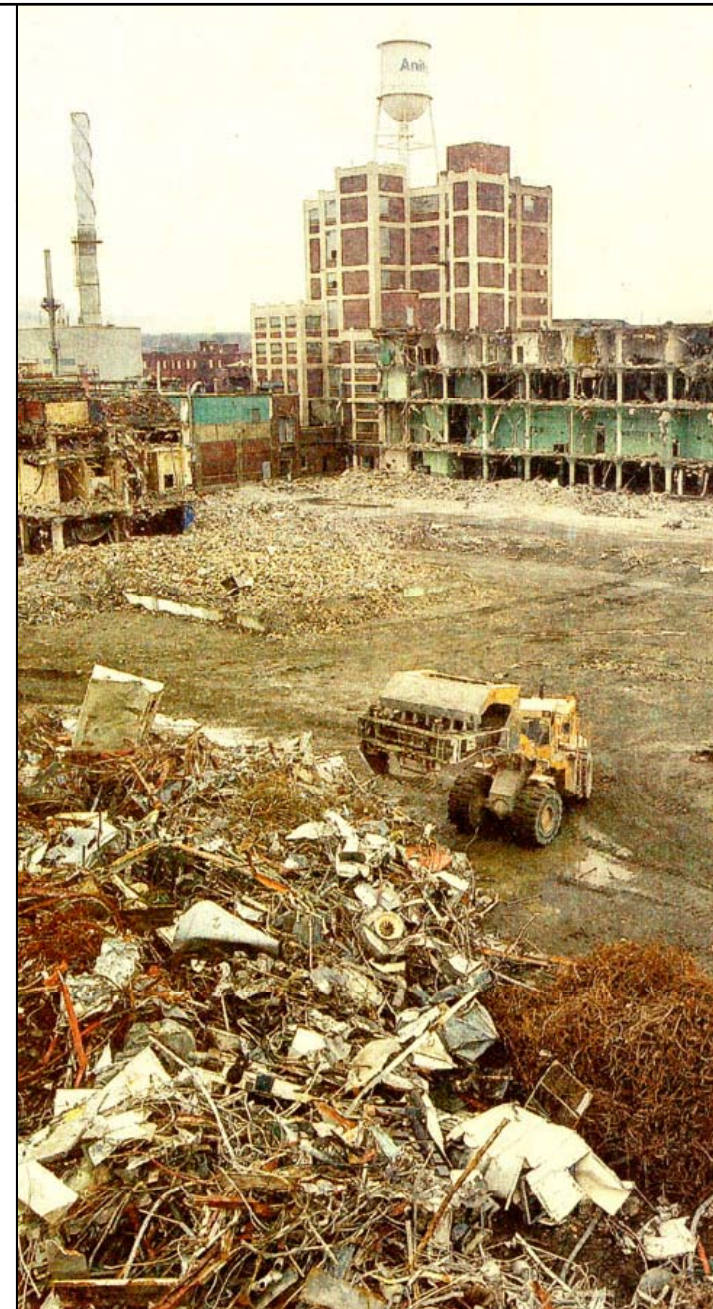
**Kansas Brownfields Workshop**

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# Small Business Liability Relief and Brownfields Revitalization Act of 2002

*Real property*,  
the expansion, redevelopment,  
or reuse of which may be  
complicated by the presence or  
potential presence of a  
*hazardous substance,*  
*pollutant, or contaminant.*



# Why Manage Asbestos?

## Regulatory & Health Considerations

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### ✓ Legal & Regulatory Considerations

- **Statutory Authority:** Asbestos Hazard Emergency Response Act of 1986 (AHERA)  
TSCA Amendments (Title 2)
- **Regulations & Policy:** National Emissions Standards for Hazardous Air Pollutants (NESHAP Regulations)  
Section 112 of Clean Air Act; 40 CFR Part 61, Subpart M – *demolition/renovation*
- **OSHA!** – Asbestos Standard & Worker Safety **29 CFR 1910 & 1926**
- State of Kansas – KDHE Asbestos Program, Bureau of Air & Radiation; state arm to implement federal NESHAP  
Requires 10-day notification for abatement work  
***K.S.A. Chapter 65, Article 68; K.A.R. 28-50***
- Regulatory structure may require KDHE reviews outside of Brownfields and/or Voluntary Cleanup Programs for opinion of risk



# Why Manage Asbestos?

## Regulatory & Health Considerations

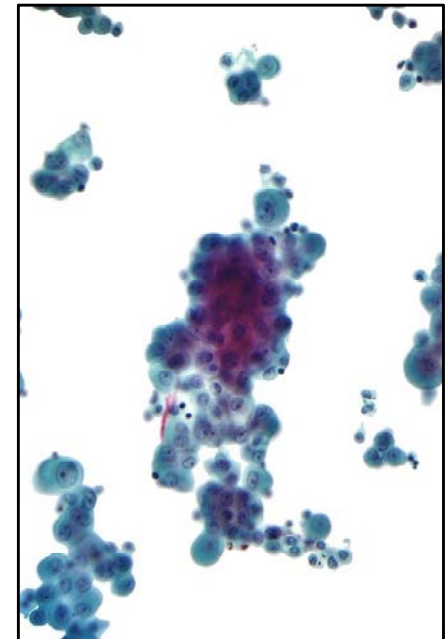
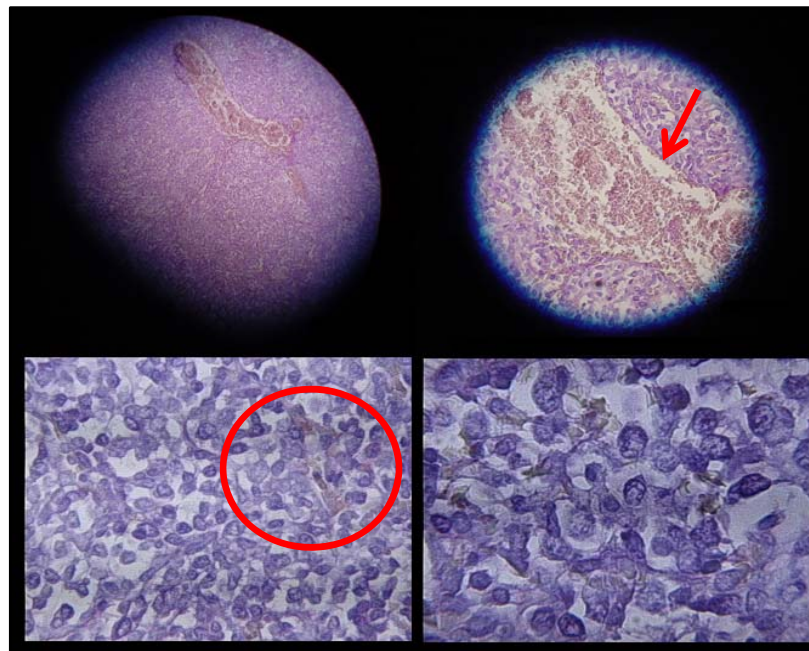
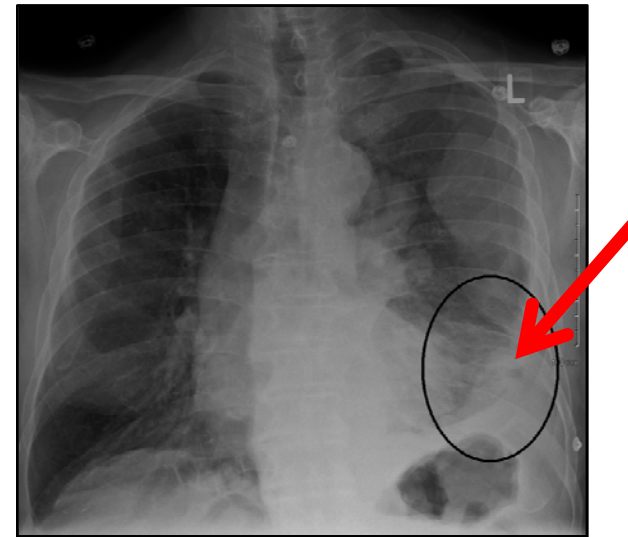
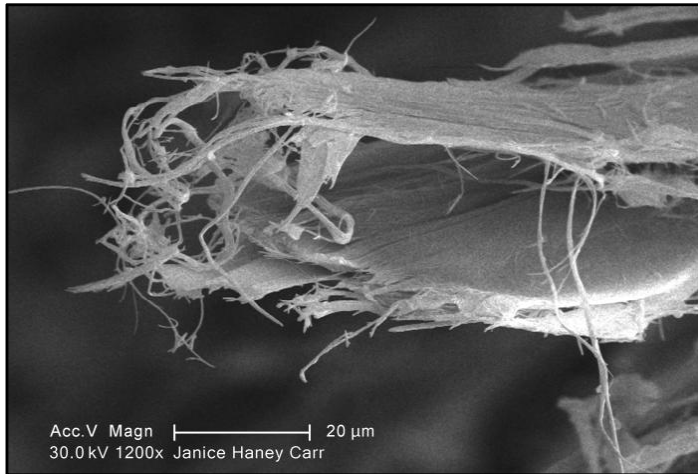
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### ✓ Health & Environmental Considerations

- Chrysotile (white asbestos) most common & accounts for ~95% of ACM in U.S.
- White, fibrous silicate-based mineral; strong, durable, fire-resistant, excellent insulator
- Physical Properties – easily crumbled (friable); fibers become airborne (“feathery”), sometimes for days, with exposure via inhalation
- Known human carcinogen – lung cancer / mesothelioma; enters at lining of lungs and can penetrate to the cellular level affecting DNA/chromosomes



# Asbestos & Mesothelioma



# Asbestos in Building Materials

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- ✓ Widespread use in industry and construction prior to 1986

Physical properties, availability and cost; ubiquitous in older structures

- ✓ Example ACM:

- Cement pipes wallboard & siding
- Floor tile (vinyl tile, vinyl sheeting)
- Construction Mastics (floor tile, carpet, etc.)
- Ceiling tile & textured paints/coatings
- Various insulation & fireproofing (HVAC, pipe wrap, etc.)
- Elevator brake shoes & equipment panels
- Heating & Electrical Ducts
- Roofing materials
- Caulking, putties, adhesives & joint compounds
- Wall coverings



# Asbestos in Building Materials

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# Asbestos in Building Materials

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# Asbestos in Building Materials

## The Usual Suspects...

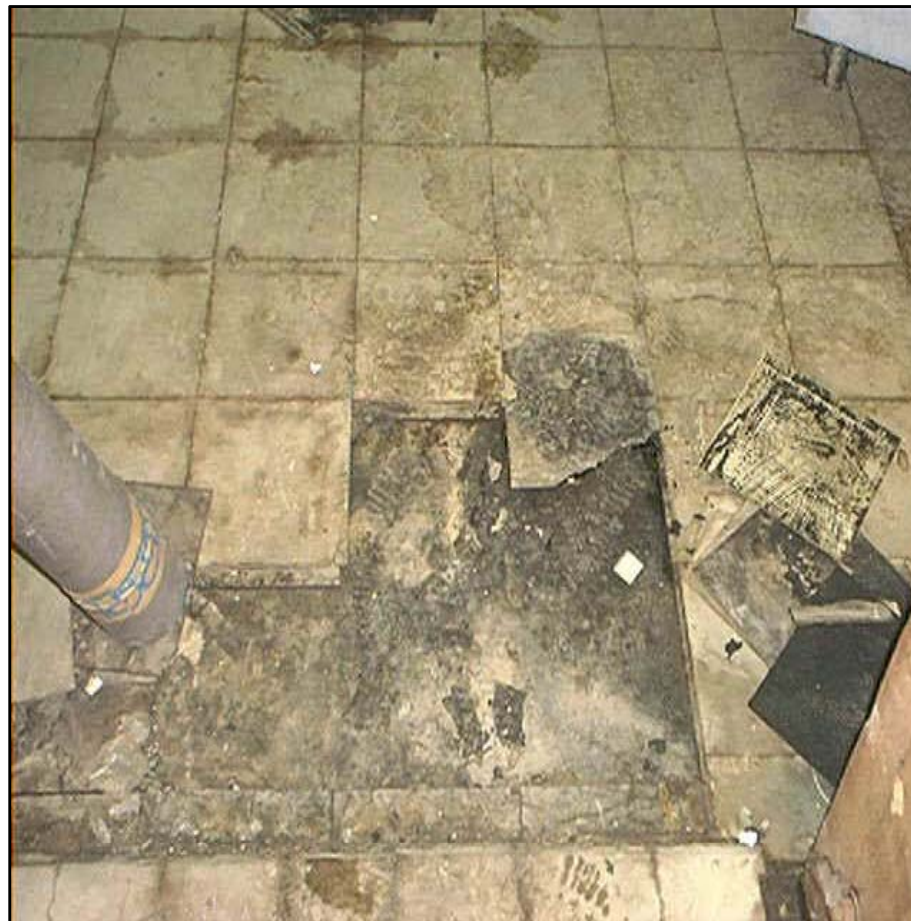
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# Asbestos in Building Materials

## Floor Tile!

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# Why Manage Lead Paint?

## Regulatory & Health Considerations

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### ✓ Legal & Regulatory Considerations

- **Statutory Authority:** Residential Lead-Based Paint Hazard Reduction Act of 1992  
Title X of the Housing & Community Development Act  
Also under TSCA through amendment
- Recently amended under the Lead Renovation, Repair and Painting Rule (June 2008); child-occupied and “target” housing constructed before 1978 – further amended by Clearance Rule in July 2011
- **Regulations & Policy:** Various rules and regulations under **40 CFR Part 745**; includes specific requirements such as hazard standards for lead in paint and dust, worker training/certification, disclosure requirements, debris disposal; OSHA & RCRA implications, etc.
- Implementation at federal level expanded by HUD regulations, technical guidelines & program requirements (e.g. funding)  
**24 CFR Part 35**

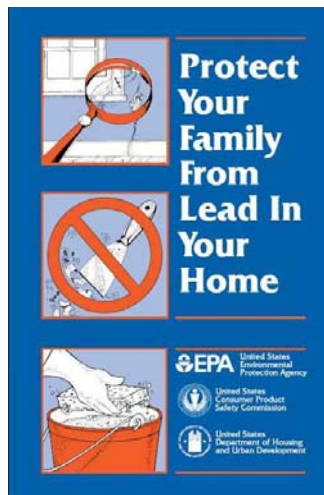


# Why Manage Lead Paint?

## Regulatory & Health Considerations

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- ✓ **Legal & Regulatory Considerations (cont.)**
  - **State of Kansas Regulations & Oversight** – KDHE Lead Hazard Prevention Program, KDHE Bureau of Environmental Health
  - KDHE adopts the Lead Renovation, Repair and Painting Rule [40 CFR Part 745] under **K.A.R. 28-72**
  - Regulatory structure may require KDHE reviews outside of Brownfields and/or Voluntary Cleanup Programs for opinion of risk



# Why Manage Lead Paint?

## Regulatory & Health Considerations

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### ✓ Health Considerations:

- Inorganic lead prevalent in household paint prior to 1978; increased durability , decreased drying time, better pigmentation, etc.
- Exposure thru dermal contact, inhalation or ingestion of lead paint; may result in elevated blood lead levels
- Lead Exposure to Children affects function of brain and central nervous system; linked to behavior and learning disorders, slowed growth, hearing problems and headaches
- Children at Greater Risk due to size and absorb more lead relative to adults; brain and nervous systems are more sensitive
- Lead Exposure to Adults is linked to reproductive problems (male & female), hypertension, nerve disorders, memory and concentration problems, and muscle/joint pain

*Lead poisoning may have brought down Roman Empire!*



# PHOTOS – Lead Based Paint



# Brownfields Development & Risk Management Grant and Program Eligible Activities

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## ✓ Brownfields Assessment:

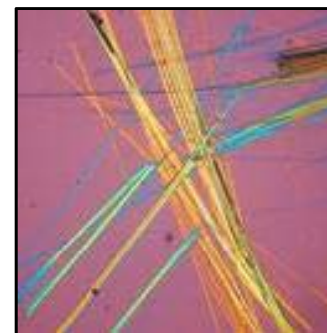
- Preliminary surveys (visual) with Phase I Due Diligence
- Comprehensive asbestos and LBP building/structure surveys that characterize the nature, extent, and condition of all suspect materials
  - *NESHAP regulations require before demo or renovation*
  - *Lead paint requirements not as clear – worker safety and disposal-driven*
- Cleanup Planning
  - Analysis of Brownfields Cleanup Alternatives (usually 3 alternatives)
  - Preliminary Bid Specification & Cost Analysis
  - Draft cleanup plans
  - Disposal Profiling
  - Outreach
- Critical Interim Measures – e.g. for safe access, etc.

# Brownfields Assessment Asbestos & Lead Paint Investigation



- ✓ Bulk Asbestos & Paint Chip Sampling

*ACM by PLM Method  
Lead by ICP & TCLP*



- ✓ In-situ XRF Analysis



- ✓ Test Kits for Lead



# Brownfields Assessment Asbestos & Lead Paint Investigation



✓ Air Monitoring/Sampling



✓ Microvac & Dust Wipe Sampling



# Brownfields Development & Risk Management Grant and Program Eligible Activities

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## ✓ Brownfields Cleanup:

- ***Interim Measures*** such as safety controls and material stabilization
- ***Program Applications*** (VCP) and regulatory oversight fees
- ***Supplemental Characterization*** for Brownfields Cleanup design – e.g. disposal profiling, verify disposal volumes, etc.
- **Expanded *Cleanup Planning***
  - **Revise and/or finalize ABCA as needed**
    - Usually initiated during Brownfields Assessment
    - Finalize Preferred Alternative and technical approach following public comment
  - ***Bid Specification* and Contractor *Solicitation for Bid***
  - **Finalize Remedial Action or *Voluntary Cleanup Plan***
- ***Implement Cleanup* Plan with *Verification Testing***

# Grant and Program Eligible Activities

## Proactive Measures to Facilitate Redevelopment

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- ✓ **Horace Mann School, Kansas City**
  - **Interim Measures to support building stability & safety**  
*e.g. roof, windows, structural engineering reviews*
  - **Historical Preservation Coupled with Cleanup Plan (Tax Credits)**
  - **Renovation Feasibility Assessment**
  - **ABCA, Risk Management Plan, and Bid Specifications**



# Brownfields Cleanup Grant and Program Eligible Activities

## ✓ Asbestos & Lead Paint Abatement: Option 1 – Removal



### ✓ Approach Summary:

- Physically remove contaminated materials
- Wet removal & negative pressure controls
- Can be costly but permanent solution
- Air monitoring with clearance sampling
- Most direct with no subsequent controls/limitations
- Waste generation & disposal considerations

# Brownfields Cleanup

## Grant and Program Eligible Activities

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- ✓ **Asbestos & Lead Paint Management In Place:  
Option 2 – Encapsulation & Encasement / Enclosure**



- ✓ **Approach Summary:**

- Encapsulate using epoxy primer & sealant
- Sealed enclosure – e.g. vinyl drywall, pipe chases, etc.
- Clearance sampling still required
- May significantly minimize waste & reduce cost if properly applied
- Operations & Maintenance Plan with institutional controls



# Brownfields Assessment & Cleanup

## Case Study Examples

### Cedar Rapids Flood Restoration

#### ✓ Project Summary:

- Cedar River flooded downtown Cedar Rapids and surrounding areas in June 2008  
*>5,000 hoses damaged; >1,000 businesses*
- Project began with FEMA funding and subsequently carried on using multiple supplemental sources including Brownfields
- ***Our role*** – Flooding of buildings destroyed HVAC systems; system replacement efforts encountered ACM as duct wrap and other similar materials. New HVAC using same duct work poses significant risks if ACM is not appropriately characterized and removed.
- Following abatement (initial or follow-up), clearance criteria demonstrated thru systematic micovac and/or indoor air sampling & testing in the field (TEM Method)
- Various levels of oversight including Iowa OSHA;  
*Residential also subject to regulation in this case*



# Brownfields Assessment & Cleanup

## Case Study Examples – Linneus Historical Museum

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### ✓ Project Summary:

- Former Jail listed on the Historical Registry
- Renovations ongoing as museum
- Assessment & cleanup under the Missouri B/VCP
- RLF Subgrant for Cleanup thru the MDNR  
*Environmental Improvement & Energy Resources Authority*
- ABCA Evaluations recommended removal of significantly damaged/loose LBP with encapsulation of other areas
- Solicitation for Bid prepared using Brownfields funding
- Less extensive asbestos and pigeon wastes also addressed
- ~\$60,000 in Brownfields funding acquired by Linneus Historical Museum from multiple sources



# Brownfields Assessment & Cleanup Case Study Examples – WaterOne

## ✓ Project Summary:

- Former tower site supporting local utility
- Decades of sandblasting lead-based paint
- Proposed redevelopment as a park facilitated Phase I / Phase II ESA (KDHE BTA Program)
- Phase II identified lead in surface soil – *good example of lead paint impacts to soil*
- ABCA Soil removal following application to VCP
- KDHE Subgrant used to facilitate cleanup in partnership with WaterOne (in coordination with scheduled demo)
- ~\$80,000 in KDHE Brownfields funding; No Further Action determinations issued for two properties following cleanup





# Brownfields Development & Risk Management

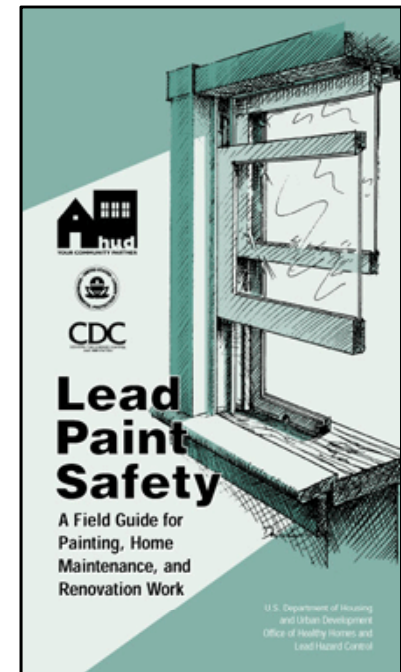
## Final Considerations for Successful Abatement Projects

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- ✓ By statutory definition, ***Brownfields Assessment and Cleanup extends beyond the land.*** Construction materials and electrical components often contain hazardous materials. These materials should be characterized and addressed as potentially contaminated media.
- ✓ Don't test regulatory limits. Specific training/licensing, site characterization, waste generation & handling, and waste disposal requirements apply.

***Various levels of regulatory oversight – federal, state, and sometimes local. Compliance with one regulatory standard does not ensure compliance with all; consult a professional before disturbing suspect materials...lead paint, asbestos or otherwise.***

***NOTE:  $\geq 1\%$  asbestos is considered positive and subject to regulation HUD considers lead concentrations  $\geq 0.5\%$  by weight (5,000 mg/kg) as lead paint subject to child occupancy standards***

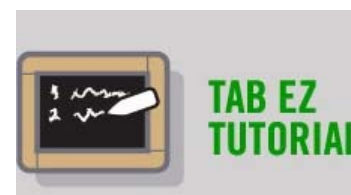


# Brownfields Development & Risk Management

## Final Considerations for Successful Abatement Projects

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- ✓ Evaluate all funding resources and tax credits that may apply – Brownfields (both EPA and HUD Programs), Historical Preservation Tax Credits, etc.
- ✓ Use partnerships to expand technical resources and funding
- ✓ Initiate building surveys early in the due diligence process and incorporate anticipated abatement in redevelopment plan
- ✓ Assess cost over time in addition to capital costs – cheap solutions today may cost tomorrow...





## GSI Brownfields Team Contact Information

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**THANK YOU!!!**

