Remediation and Redevelopment of Historical Smelters

03

Rita R. Kottke, Ph.D.
Oklahoma Department of Environmental
Quality

Smelter Cleanup



- Is actually a cleanup of the entire smelter town due to the wide use of the smelter waste as fill and gravel
- No records were kept of where the smelter waste was taken
- We look for visible smelter waste and use extensive sampling methodologies (wet chemistry, XRF)
- Often one of the biggest issues is getting permission from the land owner to sample and/or clean up their property

Smelters in Oklahoma

- DEQ has located 17 smelters in Oklahoma
- Some operated side by side and were acquired by a larger neighbor
- Therefore, there are only 13 smelter "sites" on which to concentrate cleanup efforts
- - **3** Bartlesville
 - **3** Blackwell
 - Henryetta

Cleanup Programs

- Four different cleanup programs have been used to oversee smelter cleanups
 - The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLIS, aka Superfund)
 - The Resource Conservation and Recovery Act (RCRA, aka Hazardous Waste law)
 - **S** Voluntary Cleanup Program
 - **S** Brownfields Program

Responsible Parties



- Major mining companies
 - Cyprus Amax
 - Phelps Dodge
 - S Freeport MacMoRan Gold and Copper
 - **S** ASARCo
- Some small entities just closed shop
 - ∨ No surviving corporation or responsible parties

Redevelopment Potential

03

Location, Location

Metal contamination easy to contain

Location

- Access to roads, rail, ports, airports, and customers
- Developers are interested in good locations
- □ Developers are worried about the unknowns associated with contaminated property
 - What is hidden?
 - How much will it cost?
 - What is the liability?

In Oklahoma

- Six smelter sites have been cleaned up

- One smelter has proven difficult to locate
- One smelter is within the Tar Creek Superfund site and will be addressed during that cleanup
- One smelter has been investigated but did not score high enough on the HRS to warrant Superfund action and no viable responsible party has be identified

Four Smelter Sites Have Been Redeveloped

- Two smelter sites were incorporated into the same Superfund cleanup in Henryetta, Oklahoma

 Now adeveloping industrial park
- The Blackwell Smelter site was developed into an Industrial Park prior to cleanup
 - Cleanup occurred around the active businesses
- - **©** Cimarron Center
 - **Keystone Corridor**

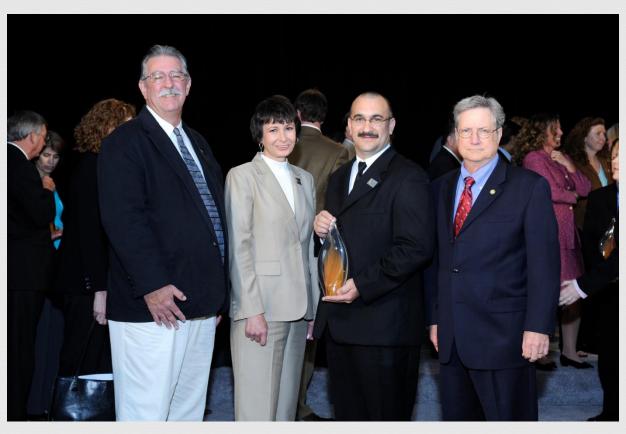
Henryetta





2007 Region 6 Phoenix Award





Successful Because

- The project had a local "champion"
- Cocation US Hwy 75 and I-40
- Removal Program

Federated Metals





Cimarron Center





2004 Region 6 Phoenix Award



Successful Because

03

- Responsible Party paid for the cleanup
- Developer worked with Responsible Party and portions of the development are part of the remediation, i.e., the parking lot is the final cap to the disposal cell

CRITION

It is next to the only bridge over the Arkansas River for miles.

Keystone Corridor

- Across the street from Cimarron Center
- □ Used to be a contaminated neighborhood
- Once Cimarron Center took off, this property became highly desirable for additional retail development
- City acquired the property, conducted additional environmental work, and made it available for development
- Several retail and services have located on the property and it continues to develop.

Why Smelters Can Be Easily Redeveloped

- Most metals do not migrate under normal conditions; once placed in a disposal cell they do not move
- Often the wastes are on the surface and the soil and groundwater are relatively clean under the waste
 Only one smelter in Oklahoma has a groundwater issue
- Real The smelter wastes are earthen and support weight
- Representation of the control of the
- Responsible parties may have a vested interest in cooperating with a community to clean up the property so it can be redeveloped
- The development of the property adds a comfort level that the property will be maintained

Problems



- The contamination is usually widespread and many property owners must be involved
- Costs can be high if there is no Responsible Party
- - **Superfund**
 - **3** Third Party
- **R** Time

Presumptive Remedies

CS

- Consolidate and cap on site



On-Site Disposal Cells

CB

- Must be maintained forever
- □ Deed Restrictions on digging
- What happens if they fail?
 - Long Term Stewardship

Questions?

CB

Rita R. Kottke, Ph.D.
Remediation Programs Manager
Land Protection Division
405-702-5156

rita.kottke@deq.ok.gov