Former ASARCO Smelter
The Texas Custodial Trust: Project Overview

Presented to
Open Space Advisory Committee

March 2, 2011
Worked approximately 11,000 field man-hours to date with ZERO INJURIES
Take Away Points

- Trust’s Mission
- Stakeholder Buy-in
- Asset Recovery Optimization
- Innovative, Sustainable, Green Remedy
- End Vision Compatible with City Master Plan
Trust Purpose and Objectives

- **Purpose**
  - Carry out the requirements of the Texas Custodial Trust
    - Addressing contamination on and in structures, soils, surface water and groundwater
    - Remediating the Site to standards that are protective of human health and the environment with the oversight of TCEQ and EPA
    - Ultimately to sell, transfer or otherwise dispose of the property

- **Objectives**
  - Implement a technically rigorous remedy
  - Ensure a viable and beneficial final site end use
  - Facilitate community participation
  - Effective management of site assets to increase remediation fund
  - Efficient and objective procurement of project resources
Trust Property

ASARCO Property Boundary

Being verified by survey

www.RecastingtheSmelter.com
# Available Trust Funding for Remedy (TCEQ Estimate)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition of Construction</td>
<td>$8,883,799</td>
</tr>
<tr>
<td>Groundwater Construction and Operation</td>
<td></td>
</tr>
<tr>
<td>- Groundwater Construction</td>
<td>$7,095,000</td>
</tr>
<tr>
<td>- Long-term Operation of Groundwater System</td>
<td>$14,773,372</td>
</tr>
<tr>
<td>Asphalt Paving</td>
<td>$9,815,000</td>
</tr>
<tr>
<td>Fencing</td>
<td>$68,628</td>
</tr>
<tr>
<td>Engineering Design and Construction of Disposal Unit Cell 4</td>
<td>$5,848,000</td>
</tr>
<tr>
<td>Long Term Monitoring of Engineering Control and Groundwater</td>
<td>$3,284,095</td>
</tr>
<tr>
<td><strong>SUBTOTAL FOR WASTE MANAGEMENT</strong></td>
<td><strong>$49,767,894</strong></td>
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<tr>
<td>Other Identified Costs</td>
<td>$2,237,293</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$52,005,187</strong></td>
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</tbody>
</table>

Source: TCEQ, 2009
The Community Effort

The Community Outreach effort has been higher than anticipated due to diverse stakeholders, a high level of community involvement, local government involvement and various community activist groups.

Avenues for Community Input

- **Website**: [www.RecastingTheSmelter.com](http://www.RecastingTheSmelter.com)
  - The website is aimed at providing the public with current site information and activities.

- **Blog**:
  - Gives the community a forum to post their opinions and input.

- **Access to media**:

- **Ex-ASARCO Employee Group**:
  - Intensive One-on-one interaction (site tours, meetings, written communications, incorporation of concerns into work plan)

- **Elected Officials**:
  - Frequent briefings to federal, state, and local officials

**El Paso Based Contractors**

- We Have Utilized Local Labor & Resources As Much As Possible, ~$1.5MM to date
# List of Trustee’s Meetings: 2010-2011

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MONTH</th>
<th>MEETING DESCRIPTION</th>
</tr>
</thead>
</table>
| 2010 | January | El Paso Chamber of Commerce  
UTEPE: Vice President Richard Adauto  
Representative Beto O’Rourke  
Representative Sue Byrd  
Representative Rachel Quintana  
Representative Steve Ortega  
Mayor John Cook  
Representative Emma Acosta  
Senator Shapleigh  
TXDOT  
City Manager Joyce Wilson  
Deputy City Manager for Development and Infrastructure Pat Adauto  
Director of Economic Development Kathy Dodson  
Director of Environmental Services Ellen Smyth  
Deputy Director, Development Services Department Mathew McElroy  
El Paso County Historical Commission  
Hispanic Chamber of Commerce  
Get the Lead Out Group |
| 2010 | February | Congressman Silvestre Reyes  
International Boundary & Water Commission: Gilbert Anaya and Daniel Borunda  
Sierra Club Presentation  
Representative Beto O’Rourke  
City Manager Joyce Wilson  
UTEPE Special Collections  
El Paso County Historical Commission  
El Paso Museum of History  
Texas Legal Aid Office |
| 2010 | March | Paso Del Norte Group Presentation  
International Boundary & Water Commission: Gilbert Anaya  
Senator Shapleigh  
Meeting with Environmental Engineering Bidders  
City Representative Ann Morgan Lilly |
| 2010 | April | 26th - District 8 Constituent Breakfast meeting with State Representative, Joseph E. Moody  
27th - Paso Water Utilities  
28th - Interviews with RFP Bidders |
| 2010 | May | 10th - El Paso Historical Commission  
19th - Contractor interviews at the site  
20th - Constituents of Representative Ann Morgan Lilly: Edward Johnson, Johnson Trube & Associates  
Constituents of Representative Emma Acosta  
21st - TXDOT Commissioner Houghton  
25th - City Manager Joyce Wilson, TXDOT and TCEQ  
26th - Tour with the City’s Master Plan Consultant: Presentation to the Community Scholars Students |
| 2010 | June | 16th - Ex-ASARCO Workers Group  
17th - City Charrette Process: Kick-Off meeting  
18th - One-on-one meeting with Dover Kohl, Wall Street Journal Reporter  
UTEPE – Richard Adauto  
19th - City Charrette Process: Hands-on Design Session > Presentation by the Site Trustee  
30th - EPA at site: City of El Paso Charrette Process: Work in Progress Presentation, Main Library Auditorium - 501 N. Oregon |
| 2010 | July | 1st - IBWC meeting at the site  
Site tour for Community Scholars  
9th - Congressman Reyes meeting  
12th - Meeting with the constituents of Representative Steve Ortega  
Juan Garza at the site  
13th - Rescheduled Ex-ASARCO Workers Group – Site tour and information session at the site  
Meeting and interview with El Paso, Inc. |
<table>
<thead>
<tr>
<th>YEAR</th>
<th>MONTH</th>
<th>MEETING DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>August</td>
<td>16th - Meeting with UTEP, Special Collections Department, Discussion on potential donation of historical documents&lt;br&gt;Community Scholars&lt;br&gt;17th - TXDOT&lt;br&gt;El Paso Central Business Association&lt;br&gt;UTEPE with Dr. Natalicio, President of UTEP&lt;br&gt;UTEPE, Trustee is speaking to the Administrative Forum Group 3.&lt;br&gt;21st - Asarco Site Tour - United Way Young Leaders Society.&lt;br&gt;The Young Professionals Capitol Retreat</td>
</tr>
<tr>
<td>September</td>
<td></td>
<td>10th - Leadership El Paso – Environmental Impact Session, Chamber of Commerce&lt;br&gt;Dr. Hargrove (UTEP) at the Site&lt;br&gt;28th - TCEQ at the Site</td>
</tr>
<tr>
<td>October</td>
<td></td>
<td>6th - Representative Ortega&lt;br&gt;Mayor John Cook&lt;br&gt;Representative Ann Morgan Lilly&lt;br&gt;City Manager Joyce Wilson&lt;br&gt;Representative O’Rourke&lt;br&gt;Representative Robinson&lt;br&gt;7th - Representative Byrd&lt;br&gt;Representative Acosta&lt;br&gt;12th - Ex-ASARCO Group&lt;br&gt;19th - Senator Shapleigh, El Paso State Senate Office&lt;br&gt;City of El Paso, Planning Dept. regarding SmartCode rezoning applications&lt;br&gt;Community Meeting in the El Paso Downtown Public Library&lt;br&gt;26th - Telecom with Museums &amp; Cultural Affairs Department (MCAD), Sean McGlynn, Director</td>
</tr>
<tr>
<td>December</td>
<td></td>
<td>6th - Site Tour for the UTEP Environmental Education Class&lt;br&gt;7th - UTEP Administration</td>
</tr>
<tr>
<td>2011</td>
<td>January</td>
<td>18th - City Council Meeting&lt;br&gt;20th - Breakfast Meeting for Representative Lilly’s Constituents&lt;br&gt;UTEP Special Collections Department at the Site</td>
</tr>
<tr>
<td>February</td>
<td></td>
<td>2nd - International Boundary Water Commission Meeting&lt;br&gt;7th - Environmental Restoration, LLC&lt;br&gt;15th - OSHA (Occupational Safety and Health Administration)</td>
</tr>
<tr>
<td>June</td>
<td></td>
<td>22nd - El Paso Branch of the American Society of Civil Engineers</td>
</tr>
</tbody>
</table>
Constant Outreach with University of Texas El Paso (UTEP) Including:

1. **Internships**
   - We have developed 3 UTEP Student Internships with UTEP’s Center for Environmental Resource Management (CERM). Students are currently working on the project.

2. **Archive Donation**
   - Deed of Gift: Donations to the UTEP Special Collections Department
     - Additional donations to: El Paso Historical Commission and El Paso Museum of History
   - Materials included: old records, payroll ledgers, photographs, maps, blueprints, and equipment manuals.

3. **Faculty Forum**
   - To exchange ideas and potential technologies for the Site
   - To provide an avenue for research at the site for UTEP students, (i.e. if the geology department would like to take samples)
   - Forums are held every quarter
Asset Recovery Funnel

El Paso Smelter Asset Gross Sales Summary

Stage 1 - Identify
- Converters, Motors, Transformers, Tube Units, Nonferrous Scrap
- $1,860,000

Stage 2 - Go / No Go
- $0

Stage 3 - Propose
- Contop, Reverb Matte
- $8,000,000

Stage 4 - Contract
- Oxygen Plant
- $1,900,000

Stage 5 - Sold
- Slag Pots, Cryogenic Liquid Oxygen Tanks, Railroad, Misc. Scrap, Misc. Equipment
- $643,100

Potential Gross Value
- $12,403,100
Current Value of Metals is Driving Our Asset Recovery

Dismantling of the reverberatory furnace.

Copper matte exposed in the bottom of the furnace.

Reference: www.infomine.com
Remedy Development –
Existing Data Review and Quality

- Extensive Data Set From Prior Work by ASARCO
- Samples collected using accepted practices
- Samples properly handled by field personnel and laboratories
- Certified laboratories performed the requested analyses
- Laboratory data validated by an independent third party
- Existing database streamlined and available to project team and public
- Database quality is sufficient for decision making
Smelter Data Gap Evaluation

- Reconstruct historical smelting processes
- Document Inputs to the processes
  - Ores and Concentrates
  - Encycle materials
- Recognize chemical reactions and products
- Document Outputs
  - Metal products, Slag, Trace metals
- Recommend future investigations
  - Define Analytes of Interest
  - Define potential pathways and sampling locations
Inputs

Chalcopryite, CuFeS$_2$
Galena, PbS
Sphalerite, ZnS
Primary Copper Smelting (415,000 tons/year)

\[
\text{CuFeS}_2 \text{ (Sb, As, Bi, Cd, Co, Cr, Mo, Ni, Pb, Zn, Fe)} + \text{SiO}_2 + \text{heat (>2730° F)} + \text{O}_2
\]

\[
\rightarrow
\]

\[
\text{Cu(metal)} + \text{Fe}_2\text{SiO}_4\text{(crystalline slag, containing trace metals(Sb, As, Bi, Cd, Co, Cr, Mo, Ni, Pb, Se, Ag, Zn)) + dust containing trace metals)} + \text{flue gas (SO}_2\text{)}
\]
Secondary Smelting Records Review

- USEPA Region 6 Website
  - ENCYCLE Records (46,486 tons, 1992-1997)
  - 17 records, 2176 pages
  - 300 Manifests

- Get the Lead Out Website
  - No Additional Information

- Smelter Records
  - 37 Records
  - One Manifest (14.9 tons, April 1998)
## Secondary Smelting

### Waste Codes Shipped to ENCYCLE (Majority)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description/Contains</th>
</tr>
</thead>
<tbody>
<tr>
<td>D001</td>
<td>Ignitable</td>
</tr>
<tr>
<td>D002</td>
<td>Corrosive</td>
</tr>
<tr>
<td>D003</td>
<td>Reactive</td>
</tr>
<tr>
<td>D005</td>
<td>Barium</td>
</tr>
<tr>
<td>D006</td>
<td>Cadmium</td>
</tr>
<tr>
<td>D007</td>
<td>Chromium</td>
</tr>
<tr>
<td>D008</td>
<td>Lead</td>
</tr>
<tr>
<td>D010</td>
<td>Selenium</td>
</tr>
<tr>
<td>D011</td>
<td>Sliver</td>
</tr>
<tr>
<td>F006</td>
<td>Wastewater treatment sludge, electroplating</td>
</tr>
<tr>
<td>F039</td>
<td>Leachate from waste treatment</td>
</tr>
<tr>
<td>K002</td>
<td>Wastewater treatment sludge, chromium</td>
</tr>
<tr>
<td>K046</td>
<td>Wastewater treatment sludge, lead</td>
</tr>
</tbody>
</table>

46,486 tons shipped to El Paso, 1992-1997
## Secondary Smelting

### Rocky Mountain Arsenal - Waste Codes Shipped to ENCYCLE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description/Contains</th>
</tr>
</thead>
<tbody>
<tr>
<td>F039</td>
<td>Leachate/Brine</td>
</tr>
<tr>
<td>F001</td>
<td>Spent halogenated solvent</td>
</tr>
<tr>
<td>F002</td>
<td>Spent halogenated solvent</td>
</tr>
<tr>
<td>F003</td>
<td>Spent non-halogenated solvent</td>
</tr>
<tr>
<td>K033</td>
<td>Wastewater and scrub water, chlordane</td>
</tr>
<tr>
<td>K097</td>
<td>Vacuum stripper discharge, chlordane</td>
</tr>
<tr>
<td>P051</td>
<td>Endrin</td>
</tr>
<tr>
<td>P071</td>
<td>Methyl Parathion</td>
</tr>
<tr>
<td>U130</td>
<td>Hexachlorocyclopentadiene</td>
</tr>
</tbody>
</table>

- **Approximately 4,200 tons**

- **Pie Chart**:
  - Yellow: ENCYCLE
  - Green: RMA
  - Red: RMA Single
Constituents of Concern

From RCRA Facility Investigation and Agreed Order

- Arsenic
- Cadmium
- Copper
- Chromium
- Iron
- Lead
- Selenium
- Zinc
Analytes of Interest Added by the Trust

- Antimony, Barium, Cobalt, Mercury, Molybdenum, Nickel, Silver, Hexavalent chromium (in select areas)
- Chlordane, endrin, hexachlorocyclopentadiene, methyl parathion
- Tetrachloroethylene, trichlorethylene, methylene chloride
- 1,1,1-Trichloroethane, 1,1,2-trichloroethane, carbon tetrachloride
- Chlorobenzene, ortho-dichlorobenzene, trichlorofluoromethane
- 1,1,2-Trichloro-1,2,2-trifluoroethane, dichlorodifluoromethane
- Xylene, acetone, ethyl acetate, ethyl benzene
- Ethyl ether, methyl isobutyl ketone
- n-Butyl alcohol, cyclohexanone, and methanol
Supplemental Investigations – West Side

[Map of the area with various labeled locations such as Fines pile,former cadmium plant,Transformer staging area, etc.]

**LEGEND**
- Property boundary
- Proposed soil boring location
- Proposed soil sampling location (surface)
- Previous soil sampling location

**BUILDING KEY**
1. Unloading building
2. Bedding building
3. Converter building
4. Reverbatory furnace
5. Contop
6. Antimony smelter

[Scale: 1" = 400' Feet]
Supplemental Investigations – East Side
Groundwater Remedy

- **ASARCO Proposed Remedy**
  - Cut-off Wall in Floodplain
  - Containment with Pump and Treat
  - No Source Control
  - End Vision: Smelter

- **Trust Proposed Remedy**
  - Groundwater to Surface Water Diversion (keeping clean water clean)
  - Point Source Removal and Treatment
  - In-situ groundwater treatment
  - Remediation of Rio Grande Floodplain
  - End Vision: Redevelopment as part of City of El Paso Master Plan

For this to happen Parker Brothers Arroyo must be addressed
Parker Brothers Arroyo Status

- Currently slag filled arroyo located north of the main plant site
- No money allocated in the budget to address rehabilitation
- Waste landfills will be part of the final landscape
- Objectives are:
  - Remove/contain the slag,
  - Create surface water conveyance,
  - Make the arroyo more natural in appearance, and
  - Reduces groundwater flux.
- Arroyo rehabilitation is keeping with the City Master Plan
- Seeking additional funding sources to accomplish full redevelopment vision
Site Condition at Completion of Remedial Activities
City Master Plan Vision for East Side
City Master Plan for West Side
Questions and Comments