Environmental Tracking Team Members

Roger Gibson, Program Manager
Pat Phillips, Consulting Epidemiologist
Patty Osman, Administrator for Lead Surveillance
Pam Brauner, Liaison for Application Development
Jeff Patridge, GIS Analyst
Robert Schneider, Research Analyst
Kris Schwartz, Research Analyst
Marilyn Nobbman, Office Support Assistant

Collaborative Partners

DHSS-Section for Environmental Public Health
Missouri Department of Natural Resources
Missouri Department of Agriculture
Background
## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

### JANUARY 1 THROUGH JUNE 30, 2003

<table>
<thead>
<tr>
<th>Distributor</th>
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<th>U.S. Sieve Fraction, %</th>
<th>Fineness</th>
<th>Pounds/Ton</th>
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<td>+8</td>
<td>-8+40</td>
<td>-40+60</td>
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<table>
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<tr>
<th>Contaminants</th>
<th>Range</th>
<th>Mean</th>
<th>Screening Value &amp; Source</th>
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<tr>
<td>Lead (^1) (&gt;90 samples)</td>
<td>851 - 11,600</td>
<td>4,392</td>
<td>260 Tier 1 STARC (^3)</td>
</tr>
<tr>
<td>Lead (^2) (3 samples)</td>
<td>1,500 - 8,600</td>
<td>5,067</td>
<td>260 Tier 1 STARC (^3)</td>
</tr>
<tr>
<td>Cadmium (^1) (&gt;90 samples)</td>
<td>19.8 - 202</td>
<td>103</td>
<td>110 Tier 1 STARC (^3)</td>
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<tr>
<td>Cadmium (^2) (3 samples)</td>
<td>53 - 130</td>
<td>101</td>
<td>110 Tier 1 STARC (^3)</td>
</tr>
<tr>
<td>Zinc (^1) (&gt;90 samples)</td>
<td>108 - 11,900</td>
<td>5,482</td>
<td>38,000 Tier 1 STARC (^3)</td>
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<tr>
<td>Zinc (^2) (3 samples)</td>
<td>2.90 - 8,400</td>
<td>6,400</td>
<td>38,000 Tier 1 STARC (^3)</td>
</tr>
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</table>

\(^1\) Wixson B., Gale N., Davies B. A study on the possible use of chat and tailings from the old lead belt of Missouri for agricultural limestone. 1983 December.


\(^3\) Missouri Department of Natural Resources, Clean-Up Levels for Missouri (CALM), September 2001.

\(>\) = greater than
<table>
<thead>
<tr>
<th>Piles</th>
<th>Samples</th>
<th>Lead</th>
<th>Mean</th>
<th>Cadmium</th>
<th>Mean</th>
<th>Zinc</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td>Elvins</td>
<td>91</td>
<td>851 - 11,600</td>
<td>4,392</td>
<td>19.8 - 202</td>
<td>103</td>
<td>108 - 11,900</td>
<td>5,482</td>
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<tr>
<td>Bonne Terre</td>
<td>88</td>
<td>1,300 - 7,000</td>
<td>3,515</td>
<td>3.0 - 29.5</td>
<td>13.9</td>
<td>51.3 - 967</td>
<td>541</td>
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<tr>
<td>National</td>
<td>93</td>
<td>1,640 - 9,283</td>
<td>3,508</td>
<td>2.0 - 87</td>
<td>7.2</td>
<td>81 - 5,055</td>
<td>457</td>
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<tr>
<td>Leadwood</td>
<td>98</td>
<td>597 - 17,000</td>
<td>2,444</td>
<td>9.3 - 1,870</td>
<td>267</td>
<td>633 - 25,800</td>
<td>5,009</td>
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<tr>
<td>Federal</td>
<td>Not Listed</td>
<td>580 - 2,830</td>
<td>Not Listed</td>
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<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
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<tr>
<td>Big River</td>
<td>90</td>
<td>100 - 5280</td>
<td>1,099</td>
<td>1.0 - 31</td>
<td>13</td>
<td>160 - 1,820</td>
<td>808</td>
</tr>
</tbody>
</table>

Source: ATSDR Preliminary Public Health Assessment: Big River Mine Tailings Desloge (a/k/a St. Joseph Minerals)
Area farmers critical of EPA ruling

By LEROY SIGMAN\Daily Journal Staff Writer

PARK HILLS -- There was heavy criticism directed toward the U.S. Environmental Agency for banning the sale of mine tailings for use as agricultural lime during a public meeting here Thursday night at Central High School concerning the cleanup of the Elvins chat pile and tailings field.

David Moore, a farmer from the Bismarck area, said the EPA action halting the sale of tailings for agricultural use was done without any scientific information to support such a move. He called on the federal agency to come up with a solution to the problem at the Elvins chat pile that would allow the continued use of material for agricultural lime.

"Farmers have used tailings for agricultural lime for 75 years," Moore said, noting that until recently there have been no concerns expressed by the government.

The ban imposed in August has made it necessary for local farmers to go to more expensive alternative measures to control the acid content of soil. This is an added expense, Moore said, that small farmers cannot afford. He said they are already struggling and this is just one more additional cost they should not have to bear.

Ben Davis, a livestock consultant with the University of Missouri Extension Center, said a study conducted by the University of Missouri-Rolla shows that use of tailings for agricultural lime does not pose a health hazard. He said the study indicates lead in the tailings is not absorbed by the plants grown in those fields. The study also did not find any environmental hazards created by the use of tailing on farm land.

According to Davis, the study suggests "agricultural lime is the best way to get rid of the chat piles." If nothing more, Davis and several in the audience suggested, the EPA should conduct further studies to determine if this would not be the best direction to go.

Bruce Morrison, the EPA's project manager for St. Francois County, suggested he does not have a lot of faith in the findings of the study. He said he does not believe it was done scientifically and did not look at all of the factors that should be considered.

While he is not disputing the finding that plants do not absorb the lead from the tailings when it is used as agricultural lime, Morrison said the EPA's concern is about its uncontrolled use. Local farmers might be aware of the lead and cadmium content of the tailings, but those not in this area might not know about that and thus not be aware of the risks involved.
County Information

STARVED BY LACK OF PLANT FOOD

NOURISHED ON PHOSPHATE AND LIME
LAND USE / LAND COVER

AGRICULTURAL FACTS

Total Acres: 287,877
Total Cropland (acres): 60,660
  * Harvested 29,661
  * Pature Land 28,049
  * Other 2,950
Total Farms: 649
  * Average Size (acres) 174
  * Percentage of acres 39.2%

Source: 1997 Census of Agriculture
Soil Erosion Profile

Legend

- Open Water
- Not Highly Erodible Land
- Potentially Highly Erodible Land
- Highly Erodible Land
Soil Erosion Profile: Prime Farmland

Legend
- Not highly erodible land
- Potentially highly erodible land
- Highly erodible land
ELEVATED BLOOD LEAD LEVELS IN CHILDREN
Blood Lead Tests and Rates: Children Under 72 Months Of Age: 2001

Legend

<table>
<thead>
<tr>
<th>Tests per 100 Children</th>
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<tr>
<td>01.00 - 10.00</td>
<td>Green</td>
</tr>
<tr>
<td>10.01 - 20.00</td>
<td>Green</td>
</tr>
<tr>
<td>20.01 - 30.00</td>
<td>Yellow</td>
</tr>
<tr>
<td>30.01 - 40.00</td>
<td>Orange</td>
</tr>
<tr>
<td>40.01 - 50.00</td>
<td>Red</td>
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</tbody>
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Blood Lead Tests and Rates: Children Under 72 Months Of Age: 2002
Blood Lead Tests and Rates: Children Under 72 Months Of Age: 2003
Elevated Blood Lead Cases and Rates: Children Under 72 Months Of Age: 2001
Elevated Blood Lead Cases and Rates: Children Under 72 Months Of Age: 2002
Elevated Blood Lead Cases and Rates: Children Under 72 Months Of Age: 2003

[Map showing areas with elevated blood lead cases and tests on crop and pasture lands]
## SUMMARY OF FINDINGS

### TESTS

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL TESTS</th>
<th>% UNDER 72 MONTHS</th>
<th>URBAN</th>
<th>% OF TESTS</th>
<th>NON-URBAN</th>
<th>% OF TESTS</th>
<th>NON-URBAN TESTS ON CROP LAND</th>
<th>% of NON-URBAN TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>612</td>
<td>15%</td>
<td>443</td>
<td>72%</td>
<td>169</td>
<td>28%</td>
<td>118</td>
<td>70%</td>
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<tr>
<td>2002</td>
<td>719</td>
<td>18%</td>
<td>479</td>
<td>67%</td>
<td>240</td>
<td>33%</td>
<td>168</td>
<td>70%</td>
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<tr>
<td>2003</td>
<td>709</td>
<td>18%</td>
<td>487</td>
<td>69%</td>
<td>222</td>
<td>31%</td>
<td>153</td>
<td>69%</td>
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### EBL

<table>
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<tr>
<th>YEAR</th>
<th>ELEVATED</th>
<th>% OF TESTED</th>
<th>URBAN</th>
<th>% OF ELEVATED</th>
<th>NON-URBAN</th>
<th>% OF ELEVATED</th>
<th>NON-URBAN EBL ON CROP LAND</th>
<th>% OF NON-URBAN EBL</th>
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<td>75</td>
<td>12%</td>
<td>64</td>
<td>85%</td>
<td>11</td>
<td>15%</td>
<td>7</td>
<td>64%</td>
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<td>66%</td>
<td>12</td>
<td>34%</td>
<td>8</td>
<td>67%</td>
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That the process of selling mine tailings for agricultural lime not resume until it has been determined that it does not pose a health risk or the appropriate controls, including handling, transportation, and application of the material have been developed and a long-term stewardship plan for the properties has been developed and put in place.
• DHSS/ATSDR will work with St. Francois County Health Department to target rural portions of the county for blood lead screening.

• DHSS/ATSDR will work with the interested parties to participate in determine if the use of tailings materials as agricultural lime poses a health risk.

• DHSS/ATSDR will provide input into the development of appropriate controls, including handling, transportation, and application of tailings as agricultural lime. Additionally, we will assist in the development of a long-term stewardship plan for the properties that have had tailings applied as agricultural lime.
The End

For further information on anything seen in this presentation please contact:

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Missouri Department of Health and Senior Services
Office of Surveillance
930 Wildwood Drive
Jefferson City, MO 65109-0570

Email: patrij1@dhss.mo.gov