Abandoned Underground Mine Inventory and Risk Assessment (AUMIRA) Overview

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Special Projects Coordinator
Office of Geotechnical Engineering
The Abandoned Underground Mine Inventory and Risk Assessment (AUMIRA) process was conceived as a proactive response to the need to locate and assess the risk of all mapped or otherwise identified roadway sites beneath which abandoned underground mines exist.

Interstate 70 in Guernsey County

March 1995
AUMIRA is authorized under ODOT Policy # 27-006(P) and Standard Procedure # 509-001 (SP).

AUMIRA Flow Chart

Process is comprised of two portions:

- Inventory
- Risk Assessment
The primary source of information utilized to define AUMIRA sites are underground mine obtained from ODNR, Division of Geological Survey and the U.S. Department of Interior, Office of Surface Mining. ODNR is currently geo-referencing these mine maps for ODOT AUMIRA locations.
Site Inventory
Initial Site Investigation
Three Levels of Risk Assessment
STATEWIDE GIS DATABASE

AUMIRA
Abandoned Underground Mine Inventory and Risk Assessment

March 2000
Ohio Department of Transportation
PAST PROJECT AREAS

- Mine-related problems have been occurring since 1995.

- Most of these problem areas have become emergency mine remediation projects.
Discharging slope entry on shoulder of ATH-13-5.00.
## State-Wide Projected Distribution of AUMIRA Sites

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>Estimated Number of AUMIRA Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 2</td>
<td>3</td>
</tr>
<tr>
<td>District 3</td>
<td>17*</td>
</tr>
<tr>
<td>District 4</td>
<td>114*</td>
</tr>
<tr>
<td>District 5</td>
<td>222*</td>
</tr>
<tr>
<td>District 8</td>
<td>1*</td>
</tr>
<tr>
<td>District 9</td>
<td>77*</td>
</tr>
<tr>
<td>District 10</td>
<td>169*</td>
</tr>
<tr>
<td>District 11</td>
<td>717*</td>
</tr>
<tr>
<td>District 12</td>
<td>3</td>
</tr>
</tbody>
</table>

**State-Wide Total:** 1323

*NOTE:* Site count from District AUMIRA Coordinator (DAC) or ODNR, Division of Geological Survey (DGS)

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Approximate Construction Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>GUE-70-14.10</td>
<td>$3.6 million</td>
</tr>
<tr>
<td>1995</td>
<td>GUE-70/77-9.61/7.12</td>
<td>$4.7 million</td>
</tr>
<tr>
<td>1995</td>
<td>GUE-660-2.20</td>
<td>$30,000</td>
</tr>
<tr>
<td>1996</td>
<td>BEL-470-5.90</td>
<td>$3.0 million</td>
</tr>
<tr>
<td>1997</td>
<td>SCI-52-25.32</td>
<td>$20,000</td>
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<tr>
<td>1998</td>
<td>JAC-32-18.65</td>
<td>$5.0 million</td>
</tr>
<tr>
<td>1999</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>2000</td>
<td>None</td>
<td>$0</td>
</tr>
<tr>
<td>2001</td>
<td>SUM-77-2.50</td>
<td>$7.9 million</td>
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<tr>
<td></td>
<td>STA-30-0.65</td>
<td>$1.8 million</td>
</tr>
<tr>
<td>2002</td>
<td>None</td>
<td>$0</td>
</tr>
</tbody>
</table>

**1995-2002 State-Wide Total:**

$26.1 million

**Historic Average number of Projects/Year:**

8 projects/ 8 years = 1 project/year

**Historic Average Annual Expenditures for Emergency Mine Remediation:**

$3.3 million

**Historic Average cost per project:**

$3.3 million
SUMMARY

EXPECTED BENEFITS

- **Public Safety:** The process will minimize the possibility of sudden abandoned underground mine subsidence in roadways, which could result in fatalities or bodily injuries.

- **Reduced Liability:** The process will identify and prioritize high risk sites permitting a systematic response.

- **Budgetary Mechanism:** This process will identify levels of risk and associated costs. This information can be used to develop budgets to reduce risks to a predetermined level. This is a proactive process to identify high risk locations. Accordingly, these locations with the highest risk of failure will be identified and remediated first resulting in fewer instances of sudden collapses requiring emergency treatment.

- **Informational Resource:** This process will create a new database of information available to all staff. This database will be a tool which can be utilized to avoid or anticipate potentially unstable underground conditions during project planning, design, construction and maintenance.
SUMMARY

GOVERNING PRINCIPLES

- Working on the highest risk identified site at all times.

- Being as informed as possible before committing resources to a site.

- Being prepared to encounter “worst case” conditions for the nature of the site to be investigated or remediated.

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DISTRICT AUMIRA COORDINATORS (DAC’s)

Districts 1, 6, and 7
No participation required based on DGS report of no underground mines of no abandoned underground mines beneath state roadways in District

**District 2** DAC: Jorey Provo, Production 419/ 353-8131 Jorey.Provo@dot.state.oh.us

**District 3** DAC: Rex Yarger, P.E., Highway Management 419/ 207-7158 rex.yarger@dot.state.oh.us

**District 4** DAC: Jim Bruner, Planning 330/ 297-0801, Ext.230 Jum.Bruner@dot.state.oh.us

**District 5** DAC: George Beiter, P.E., Planning 740/ 323-5192 gbeiter@dot.state.oh.us

**District 8** DAC: Mark Clark, Planning 513/ 933-6595 mark.clark@dot.state.oh.us

**District 9** DAC: Darrel Armstrong, Highway Management 740/ 773-2691 Ext. 212 Darrel.Armstrong@dot.state.oh.us

**District 10** DAC: Alan Craig, Production 740 / 373-0212 Ext. 415 Alan.Craig@dot.state.oh.us

**District 11** DAC: James R.Graham, P.E., Highway Management 330/308-3980 Jim.Graham@dot.state.oh.us

**District 12** DAC: Jim Bruner, Planning, District 4 DAC 330/ 297-0801, Ext.230 Jum.Bruner@dot.state.oh.us

PPT_DAC_LIST.WPD 12/24/03
AUMIRA can help take the mine-related surprises out of Project Development and Project Construction.