

# Mine Fire Engineering

Mining for coal and other precious resources is a major industry in global economies, despite increasing regulation and social responsibility concerns. The large mining infrastructures that support the industry are faced with production challenges that need sustainable solutions. GAI Consultants provides cost-effective engineering consulting for mine owners and operators.

**A formidable background in mine fire control means detailed subsurface investigations that support reclamation.**

Our award-winning team has included some of the nation's foremost authorities on mine fires, mine reclamation, and acid mine drainage treatment. We have a dedicated team of environmentalists, engineers, geologists, hydrogeologists, archaeologists, agronomists, and economists

that keep abreast of regulatory developments and investigate groundwater, acid mine drainage, waste disposal, environmental impacts, and cultural resources for mine lands and mining operations.

GAI is uniquely qualified to address any aspect of mine fire diagnosis and control. Our team of mine fire specialists and technical support staff design controls for fires in active and abandoned underground mines and refuse banks in the U.S. and around the world.

GAI's subsurface investigations for mine fires determine the limits of active cinder bank fires and proper location for fire cutoff trenches. Whether designing for fire remediation in flat-lying coal seams or steeply sloping mined seams, our concern for public health and environmental impacts is reflected in the risk assessment and air pathway analyses we conduct at every site.

Over the years, our geotechnical and geological



gai consultants®

## Service Profile



professionals have been responsible for reclaiming hundreds of acres of mine lands, and bringing more than 85 underground mine and refuse bank fires under control. GAI's high-profile work in mining and mine fire extinguishment has taken our crews from the mountains of West Virginia to the burning Jharia mine fires in India. We collaborate with mine owners and governmental agencies to maintain mining operations that support a healthy industry.

### Mine Fire Engineering Services

- Mine fire investigations and abatement
- Fire control measures
- Multispectral thermal infrared fire mapping imagery
- Geology, mining, and hydrology interpretation
- Underground ventilations studies
- Overburden characterization
- Mine atmosphere gas characterization
- Mine backfill studies
- Construction monitoring

### GAI Services Summary

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| ■ Airport Planning and Design                        | ■ Impoundment and Landfill Permitting and Design |
| ■ Bridge and Structure Inspection and Design         | ■ Land Development Engineering                   |
| ■ Coal Combustion Residuals Management               | ■ Landscape Architecture and Design              |
| ■ Construction Inspection and Management             | ■ Master Planning and Urban Design               |
| ■ Cultural Resources Management                      | ■ Mechanical, Electrical, Structural Engineering |
| ■ Economic Analyses and Strategies                   | ■ Natural Gas FERC Certification and Permitting  |
| ■ Electric Transmission Design and Siting            | ■ Nuclear Energy Engineering Support             |
| ■ Environmental Engineering                          | ■ Right of Way and Appraisal Support             |
| ■ Environmental Studies, Species Studies, Permitting | ■ Land Surveying and Mapping                     |
| ■ Gas Pipeline Surveying and Mapping                 | ■ Transportation Planning and Design             |
| ■ Geographic Information Systems (GIS)               | ■ Utility Management Consulting                  |
| ■ Geotechnical Engineering and Geology               | ■ Water, Stormwater, Wastewater Management       |

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