The National Mine Map Repository Story

The Office of Surface Mining Reclamation and Enforcement's National Mine Map Repository (NMMR), serves as a clearinghouse for all closed or abandoned mine map data, including hard rock and coal, in the United States.

NMMR was established by the Coal Mine Health and Safety Act of 1969 to maintain an abandoned mine map archive. Its creation was in response to the Hominy Falls mine disaster of 1968, a flooding event that trapped several miners and claimed the lives of four in Nicholas County, West Virginia.

NMMR's mission is to provide Federal, State and local partners as well as private industry with the best geographic data on old mines. The archived maps help NMMR's clients avoid health and safety risks and aid in making informed economic and land use decisions. The NMMR is the only office of its kind in the nation.

History

NMMR was originally established under the Department of Interior's Bureau of Mines (BOM) in 1970. The Office of Surface Mining Reclamation and Enforcement (OSMRE) acquired responsibility for NMMR from BOM in 1982.

According to 30 U.S.C. 1211 § 201(c)(8), OSMRE, through NMMR, must, "develop and maintain an Information and Data Center on Surface Coal Mining, Reclamation, and Surface Impacts of Underground Mining, which will make such data available to the public and the Federal, regional, State, and local agencies conducting or concerned with land use planning and agencies concerned with surface and underground mining and reclamation operations."

Today the entire NMMR collection is located in Pittsburgh. NMMR's vast collection of historic mine maps has helped coal companies identify previously unknown mines and prevent further accidents.

Archived maps are also commonly used for:

- Environmental remediation
- Construction projects
- Actuarial analysis for mine subsidence insurance
- Resource extraction planning
- Mining disaster support
- Historical preservation

NMMR by the Numbers: Archived Maps by State

Use the map on the right for an interactive visual of the mine count information for each state

Technology

The NMMR utilizes industrial scanners and aperture cards to help accomplish its mission of protecting and preserving mine maps for future generations. Below is some of the equipment used at the NMMR.

The three large Cruse scanners are used to convert the physical maps received from various sources into digital copies. Once the NMMR receives a collection, the maps are scanned using the aperture card scanner and converted to microfilm, and placed in the archive. The NMMR is unique in its ability to scan large and delicate mine maps, and is among a select group of Federal and State mine map offices with the capability to scan microfilmed map collections. Maps are permanently backed up by microfilm so there is always a second copy on file to prevent any loss of maps.

Cataloging

Each map is assigned a unique document number. During the data collection phase pertinent information is recorded such as the coordinate location, company name, mine name, state, county, mine type, and coal bed name and is then uploaded into a database. This allows NMMR employees to readily track down mine information.

Customer Request

The NMMR is a public archive, serving customers daily. Clients span a wide range from homeowners wanting to know whether their land has been undermined, to current mining, engineering, reclamation, and environmental companies researching and area for environmental impacts. The repository's information is accessible online and free to the public. However, a fee is administered to private industry customers for research time.

In this example, a map was created for a customer who wanted to know if a gas well was located above a mine. By utilizing GIS mapping capabilities and mine maps

from the NMMR archive, the team was able to produce a map that determined the location of coal mines below the gas well.

For those interested in finding mines, the NMMR offers two platforms from which to search.

- The NMMR Text Search page, which is available to both private and public customers and allows users to perform a text search for mines using a combination of various information fields such as mine name and location.
- The second searching interface is the NMMR Web Map that provides a spatial querying functionality to locate mines.

For more information and to request specific maps the public may contact the repository directly for assistance.

Mine Maps: Making a Difference

Other frequent clients of NMMR are State, Federal, and tribal agencies. NMMR serves as a one-stop hub for all mine maps for the entire country. Their one of a kind collection includes surface and underground mines, metal and non-metal mines, and is the only archive of its type in the United States. An example of the NMMR serving another federal agency is during the Gold King Mine disaster in 2015.

Gold King Mine Disaster

Prior to the disaster, the Environmental Protection Agency designated the Animas River near Silverton, Colorado a superfund site to prevent further environmental damage to the area. The Silverton area is home to hundreds of metal mines, many of which have been abandoned. The EPA singled out the Gold King mine for reclamation efforts. Through combined cooperation with other Federal and State agencies and local stakeholder groups, an attempt was made to stabilize a failing adit (horizontal mine entrance). While attempting to drain the toxic water behind the collapsed adit, the structure failed, causing the polluted water to be released into the nearby Cement creek.

For more information of the spill incident check here

Gold King Continued

NMMR maps were used to create a 3D rendering of the Gold King mine and surrounding mine complex in order to fully understand the interconnected nature of the mine pool within the water table. This contribution has aided in preventing further environmental contaminants from leaching into our waterways. The NMMR is the only facility in the U.S. that collects and stores these invaluable hard rock mine maps.

The Quest for More Mine Maps

The NMMR Staff is known to travel far and wide to get its hands on new collections of maps. Some of those trips call for extra precaution.

Lehigh Coal and Navigation

Lehigh Navigation and Coal (LCN) was an anthracite coal mining company based out of Pottsville in Eastern Pennsylvania. LCN operated strip mines in the Panther Creek Valley, which contained large tracts of coal deposits in Lansford, Tamaqua, and Coaldale. The company operated in the area from 1818 up until 1964 and became very successful due to their advanced delivery system: becoming the first coal company to use railroad and also constructing canals to transport large amounts of coal on coal barges.

Due to their longstanding business in the coal industry, LCN produced thousands of mine maps over the years to record their coal workings and aid in prospecting. This presented a great opportunity for the National Mine Map Repository to make a new source and to add many more maps to the archival database. The NMMR team drove out to Coaldale, PA to access the LCN mine map vault where they stored decade's worth of their maps, some of which dated back to the mid-1800s. Due to the lack of maintenance over the years, the vault was flooded with two inches of water and many of the mine maps had mold growing on and around them. A large portion of the maps were still salvageable, so the NMMR team suited up in tyvec suits to minimize toxic exposure and inventoried the maps that met the standards for the repository database. After investigating the entire vault and selecting the quality maps to be cleaned, the NMMR team came out with over seven thousand maps to be scanned and processed for the repository.

Connect with OSMRE NMMR

Stay connected with the OSMRE National Mine Map Repository by visiting https://mmr.osmre.gov/.

OSMRE NMMR on Social Media: YouTube; Twitter https://twitter.com/minemaps; Facebook https://www.facebook.com/osmre

Phone: (412) 937-2833
Fax number: 412-937-2888
Email: Paul Coyle, pcoyle@osmre.gov
Mailing Address:
Office of Surface Mining Reclamation and Enforcement
National Mine Map Repository
3 Parkway Center
Pittsburgh, PA 15220

Special thanks to the contributors of this story:
Sean Chisholm, Brianne Cassidy, and Sami Grimes