What is the NMMR?

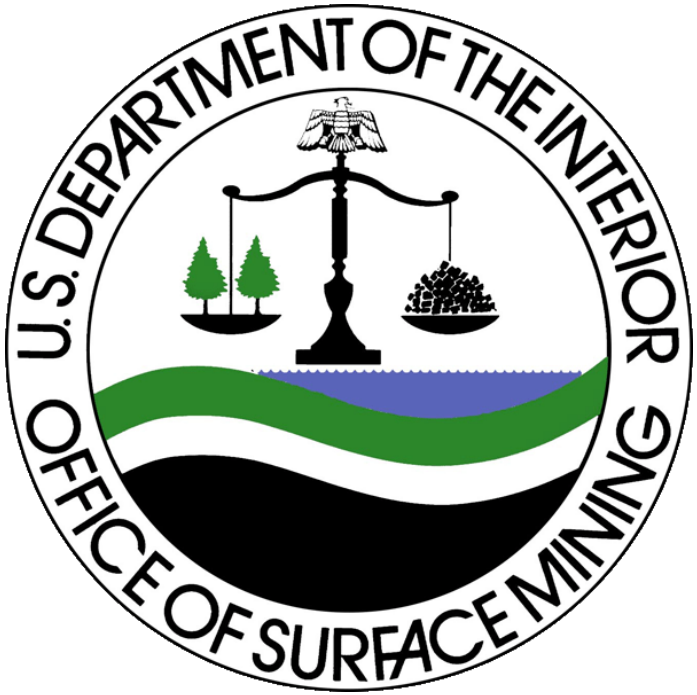
The National Mine Map Repository (NMMR), a Federal office, part of:

Technical Support Division (TSD)

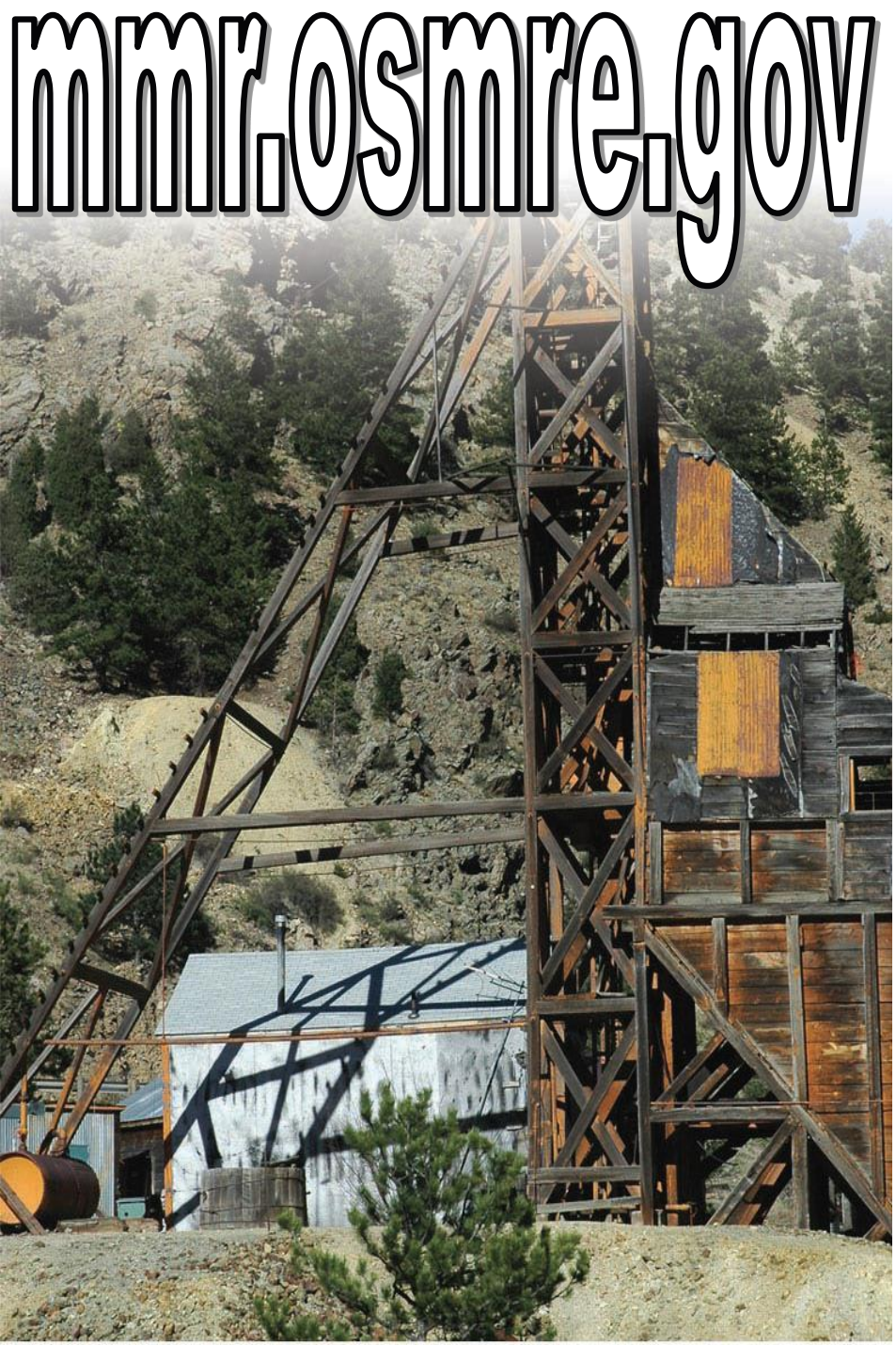
Technology Services Branch (TSB)

Office of Surface Mining Reclamation and Enforcement (OSMRE)

Department of the Interior (DOI)



mmr.osmre.gov



National Mine Map Repository

NMMR

A resource for geological & mining information:
The National Mine Map Repository,
Department of the Interior

National Mine Map Repository

- The National Mine Map Repository (NMMR) is part of the Department of the Interior's Office of Surface Mining, Reclamation and Enforcement (OSMRE). The NMMR, established by Congress in 1969, is located in Pittsburgh, PA. It is responsible for collecting, inventorying, scanning, and processing maps from abandoned mines across the United States. The NMMR contains in its archive, in both microfilm and digital formats, over 140,000 abandoned mine maps that date from 1859 to the present day. It also serves as a location for mine map retrieval in an emergency. The archive is a source of geological, engineering, environmental, and mining information from both surface and underground mines throughout the United States. Information contained in the NMMR archive includes: 1) coal, metal, and non-metal mine maps, 2) geological information (bed name, bed thickness, depths, drill-hole data, cross-sections, elevation contours, structures, outcrops, mineralized zones, and mineral assays), 3) mine locations, 4) mine and company names, 5) mine plans, 6) geological, mining, and engineering reports, 7) geographical data (abandoned railroad lines and stations, mining towns, surface facilities, roads, ponds, streams, and property survey points), and 8) gas well and drill-hole locations. All research, retrieval, and shipments of mine map data are free to the public.

History of the NMMR

- Created by Congress in 1969
- Originally maintained by the Bureau of Mines
  - 2 facilities east of the Mississippi River: Pittsburgh (states east of the Mississippi) and Wilkes-Barre, Pennsylvania (anthracite fields)
  - 2 facilities west of the Mississippi River: Denver, Colorado's Intermountain Field Operation Center (west of the Mississippi + Minnesota & Louisiana except for the northwest states) and Spokane, Washington (northwestern states and California)
- Responsibility for the Pittsburgh and Wilkes-Barre Repositories was transferred to the Office of Surface Mining Reclamation & Enforcement in 1982
- BOM dissolved in 1996 & all remaining BOM archive maps were transferred to OSM's Pittsburgh office
- In 2011 the Wilkes-Barre Mine Map Repository was closed and the archive was transferred to the NMMR in Pittsburgh
- Maps are stored both digitally and in microfilm, their archival format
- NMMR's index system is a significant mining information reference
- All info archived at the NMMR is available to the public
- The archives are increasingly being copied into easy-to-reference digital format (though microfilm is still required for archival purposes)
- The NMMR has become a leading high-tech scanning facility with the latest in map & microfilm scanning, digital transferring, and increased digital storage space

NMMR Goals

- collect, reproduce, and maintain a national inventory of mine maps and supporting documentation
- provide economic data
- assess potential risk associated with underground mining
- serve private and public sectors
  - aid in industrial and commercial development
  - highway construction
  - preservation of public health, safety, and welfare

NMMR Services

- digital images of scanned mine maps
  - 200 dpi to 600 dpi (recently acquired maps: scanned full color)
  - CDs, DVDs, HDs
- microfilm prints
- appointments to pick up requested materials, ask questions
  - information on obtaining mine subsidence insurance,
  - research assistance,
  - copies of indices listing the NMMR inventory,
  - mine map and topographical map interpretations

Who uses the NMMR?

- **Private Citizens/Homeowners:** Inquire about past mining activity underlying their residence/community to assess potential property hazard information related to past coal mining. They may also request information pertaining to mine subsidence insurance. There is no charge to private citizens and homeowners for the services of the NMMR.

- **Consultants:** Identify specific project areas and request information on various mine seams, mine depth, extent of mine, closure dates, detailed maps of mine workings, and mine operators to use as a basic source of geological and engineering data.

- **Government Agencies:** Request for information on subsidence, abandoned mine drainage, highway and bridge construction, mine maps for public display at municipal buildings, and maps for local town meetings, mine fires, and mine rescue operations. The information may also be requested to conduct health and safety activities, such as mine rescue operations or to correct adverse environmental impacts resulting from landslides, subsidence, mine fires, etc. There is no charge to government agencies for the services of the NMMR.

- **Developers & Contractors:** Request mine maps to determine extent of mine workings and mine depth before construction. They require information on coverage over mines to determine a need for support structures or to assist in making decisions relative to land use, foundation design, etc.

- **Architects:** Utilize mine map information in their design of structures. The information is necessary for decisions on the types of foundations and weight displacements.

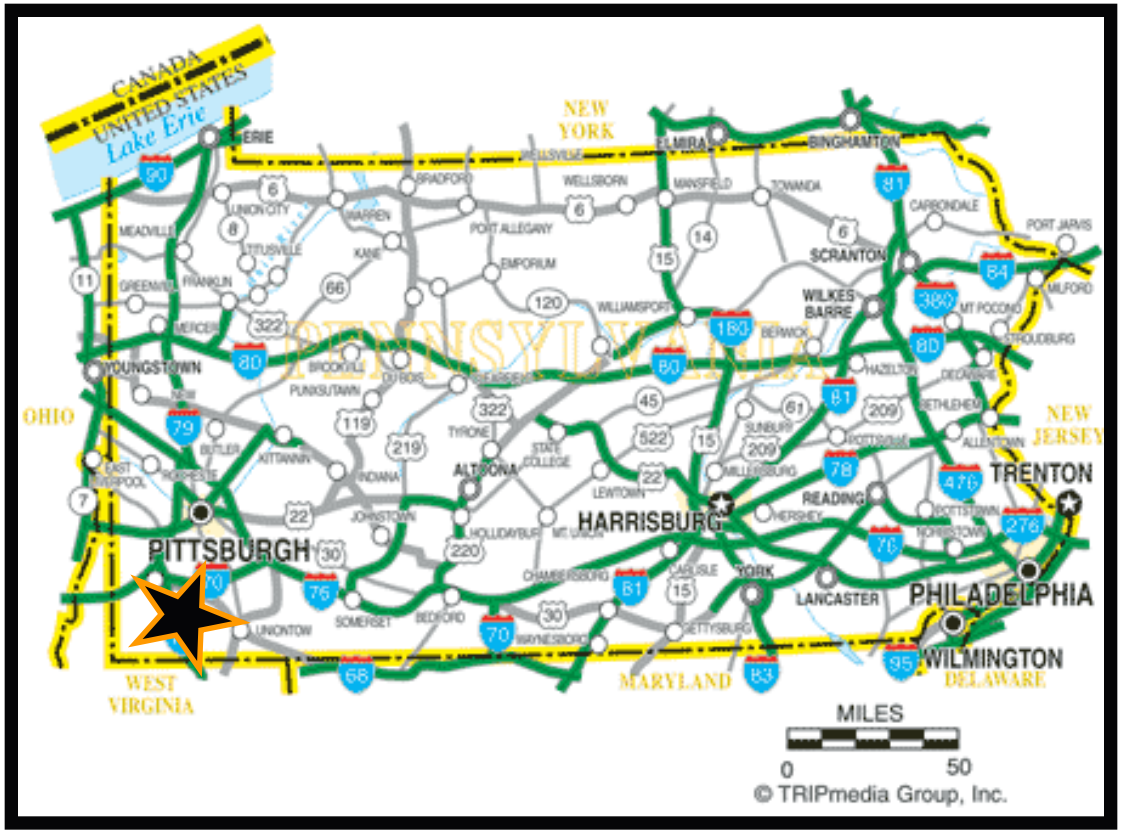
- **Realtors:** Request information on abandoned mines within a given municipality. Their primary concern is to identify the distance to mines that underlie individual homes and whether information on mine subsidence insurance is necessary.

- **Mining Companies:** Utilize mine maps to prepare mine permit applications for new or existing mines. Consume considerable time researching map files and request mine map copies for further evaluations.

Where is the NMMR located?

OSMRE's NMMR is located in Green Tree (Pittsburgh), Pennsylvania

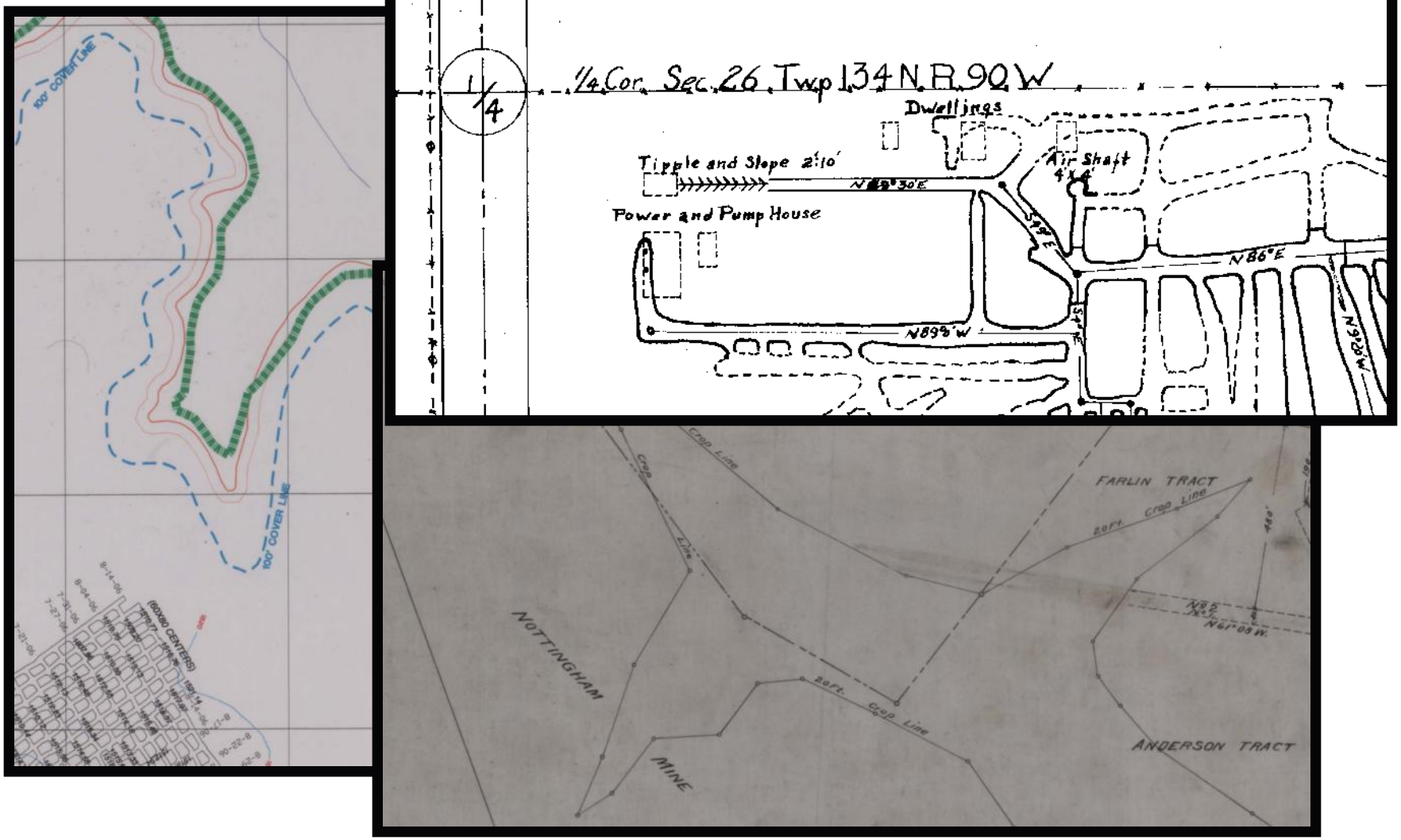
- **collects and maintains mine map information for the entire country**

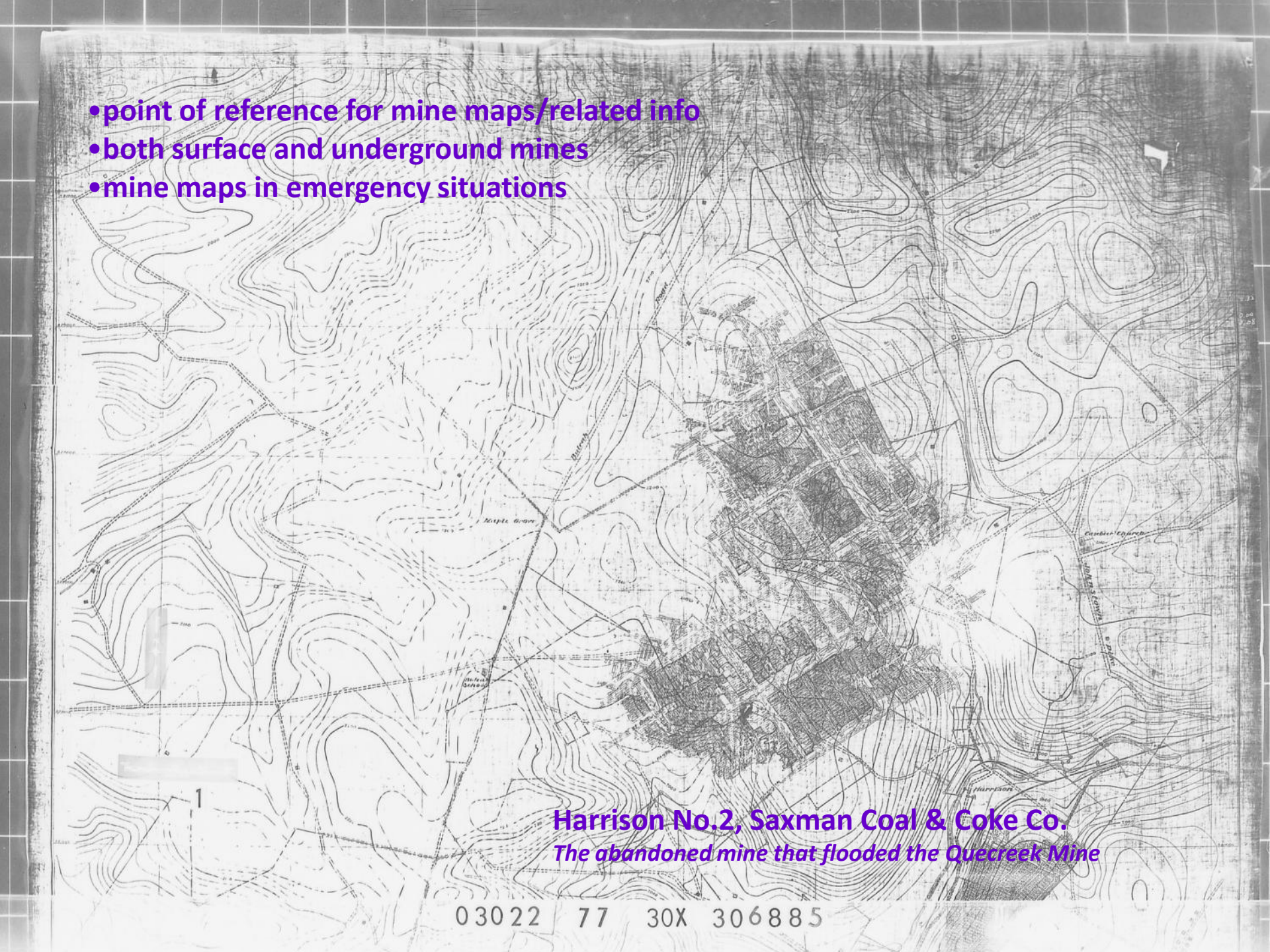


Available Information

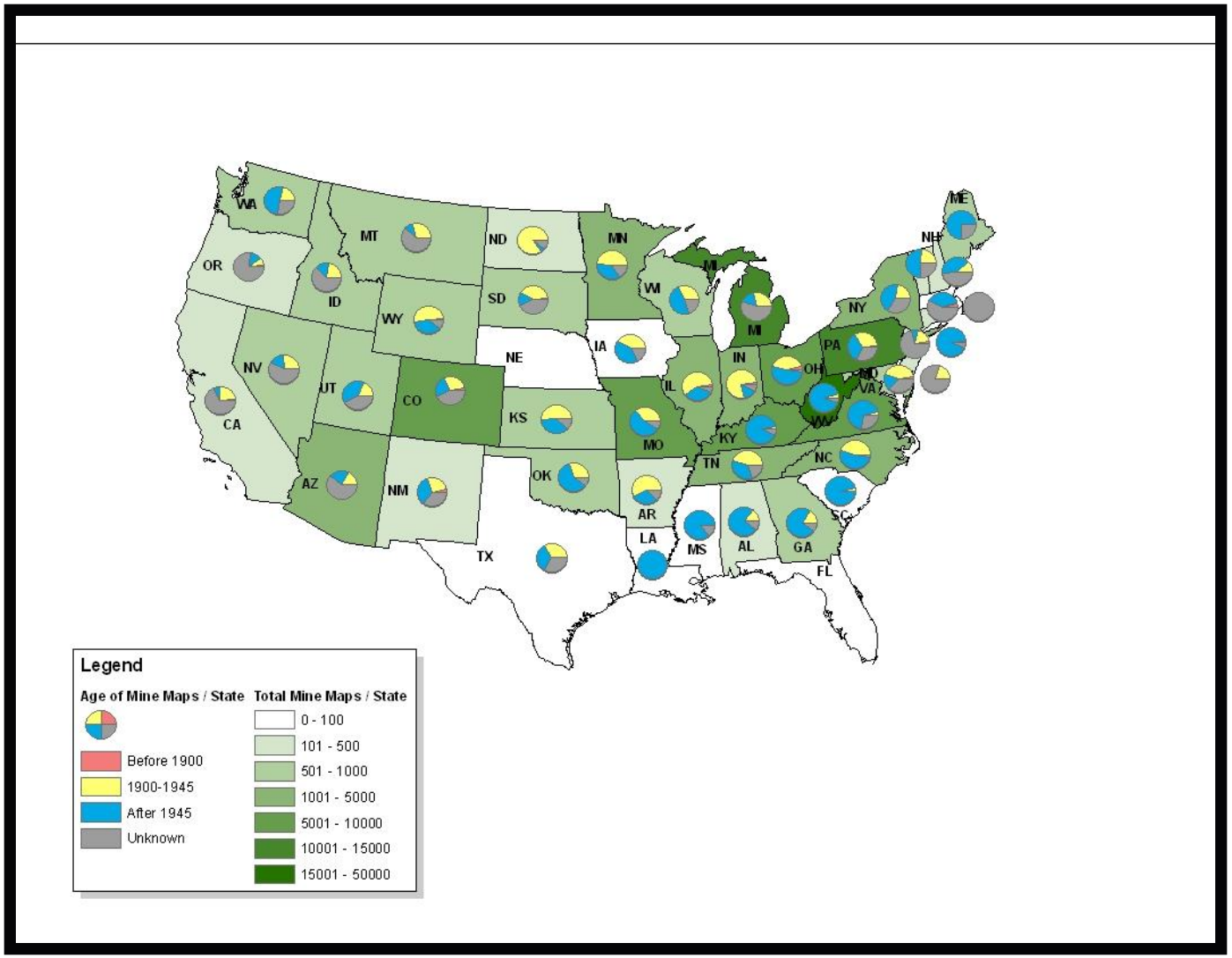
Some of the information that can be found in the repository includes:

- **Mine and company names**
- **Mine plans including mains, rooms, and pillars**
- **Closure maps**
- **Adjacent mines**
- **Man-ways, shafts, mine surface openings**
- **Geological information**
  - **bed name, bed thickness, depth, drill-hole data, cross-sections, elevation contours, structures, coal quality data, outcrops, and mineral assays**
- **Geographical data**
  - **abandoned railroad lines and stations, coal towns, surface facilities, roads, ponds, streams, and property survey points**
- **Gas well and drill-hole locations**

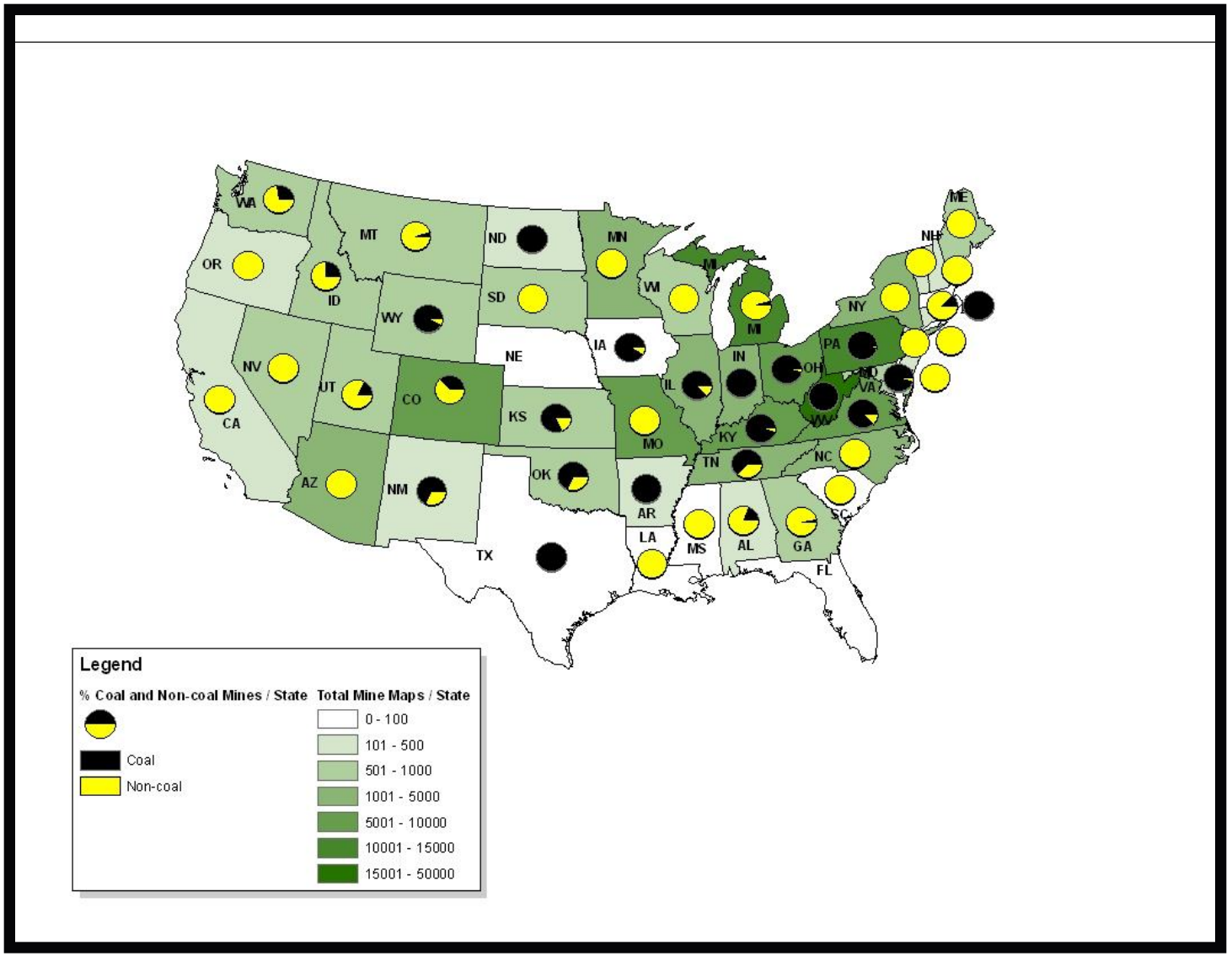

100' COVER LINE
100' COVER LINE
1/4
1/4 Cor. Sec. 26 Twp 134 N. R. 90 W
Dwellings
Tipple and Slope 2:10'
N82°30E
Air Shaft 4'x4'
Power and Pump House
S8°E
N86°E
N89°W
N86°E
Crop Line
Crop Line
FARLIN TRACT
20ft. Crop Line
NOTTINGHAM
MINE
20ft. Crop Line
ANDERSON TRACT


•point of reference for mine maps/related info
•both surface and underground mines
•mine maps in emergency situations
Harrison No.2, Saxman Coal & Coke Co.
The abandoned mine that flooded the Quecreek Mine
03022 77 30X 306885

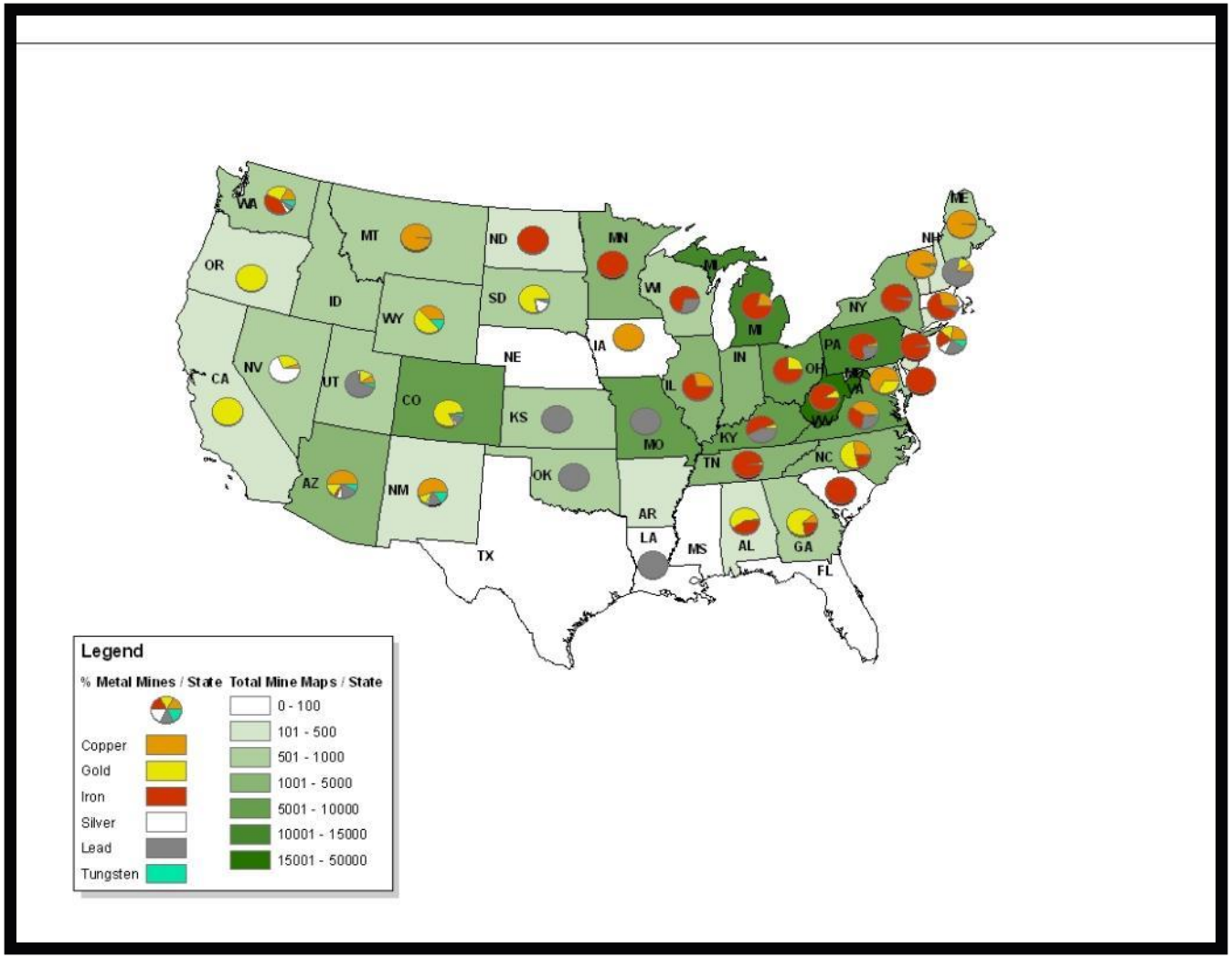
Breakdown of Maps Archived at the NMMR: Age of Mine Maps per State



Breakdown of Maps Archived at the NMMR: Coal vs. Non-coal per State



Breakdown of Maps Archived at the NMMR: Types of Metal Mines per State



Expand Our Collection

- **Always seeking donations**
- **Vigorous outreach program**
  - **State & Federal environmental agencies (cooperative agreements)**
  - **MSHA**
  - **Mining/surveying/consulting companies**
  - **Universities**
  - **Private citizens**


Quill.com

NMMR mine map search page

A mine map can be searched for by any one of the parameters on the screen. The results can be exported to an Excel spreadsheet.

Example of mine map data available from Gunnison County, Colorado

Doc Num	Year	Company Name	State	County	Quad	Mine Name	Commodity 1	Commodity 2	Commodity 3	Commodity 4	Bed Name1	Longitude	Latitude	Township	N/S	Range	E/W	Section	Scale
382665	1997	BEAR COAL CO	CO	GUNNISON	MINNESOTA PASS	BEAR NO 3	COAL BITUM				B (CARBONDALE FIELD/COAL BASIN B)	-107.481	38.7403	15	S	90	W	17	300'
400661	1946	CALLAHAN ZINC-LEAD CO	CO	GUNNISON	GARFIELD	AKRON	ZINC				UNKNOWN MINE SEAM	-106.398	38.5358						NA
401428	1919	ROCKY MTN ENERGY CO (U P COAL CO)	CO	GUNNISON	MOUNT AXTELL	FLORESTA(RUBY)	COAL ANTHR				UNKNOWN MINE SEAM	-107.122	38.8422						NA
400021	1951	CALLAHAN ZINC-LEAD CO	CO	GUNNISON	GARFIELD	AKRON	LEAD				UNKNOWN MINE SEAM	-106.391	38.5378						NA
402118	1963	S L STAPLES(OPERATOR)	CO	GUNNISON	SQUIRREL CREEK	OHIO CREEK #2	COAL BITUM				B/NO 3/BEAR RIVER/SUN	-107.001	38.7453						NA
402356	1952	BERYLLIUM MINING CO INC	CO	GUNNISON	PARLIN	WILLOW CREEK	BERYLLIUM				UNKNOWN MINE SEAM	-106.624	38.5825						NA
402371	1952	U S TUNGSTEN INC	CO	GUNNISON	PITKIN	HUBNERITE	TUNGSTEN				UNKNOWN MINE SEAM	-106.483	38.6881						NA
403253	1948	USBM	CO	GUNNISON	POWDERHORN	TITANIFEROUS FE	IRON				UNKNOWN MINE SEAM	-107.17	38.1997						NA
403340	1953	AMERICAN SMELTING & REFINING	CO	GUNNISON	ALMONT	KEYSTONE MINE	URANIUM				UNKNOWN MINE SEAM	-107.038	38.8689						50
425624	1937	NONE	CO	GUNNISON	MARBLE	BLACK EAGLE	COPPER	LEAD	ZINC	SILVER	NONE	-107.111	39.0353						2640
425624	1937	NONE	CO	GUNNISON	SNOWMASS MOUNTAIN	BENNET TUNNEL	SILVER	NONE	NONE	NONE	NONE	-107.111	39.0353						2640

Archiving Procedures

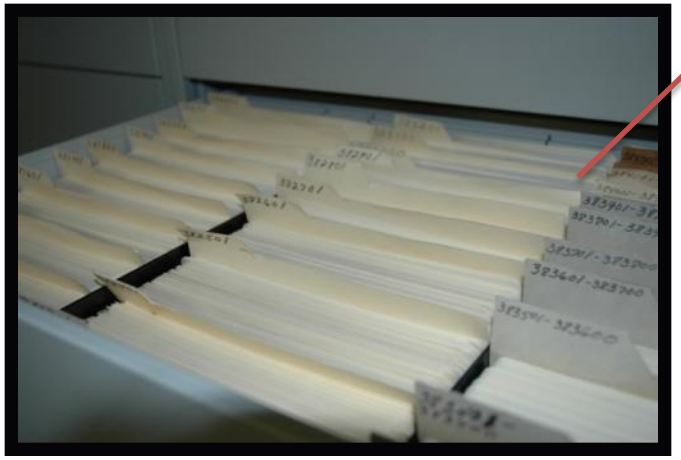
When a map is received…

- **Scanned using our state-of-the-art scanners**
- **Data extracted from the map & entered into index system**
- **Scan transferred onto microfilm & mounted onto aperture card**
- **Aperture card entered**

  into archive/catalog →→
- **Copy of scan sent to**

  donor (if requested)
- **Map returned to donor**

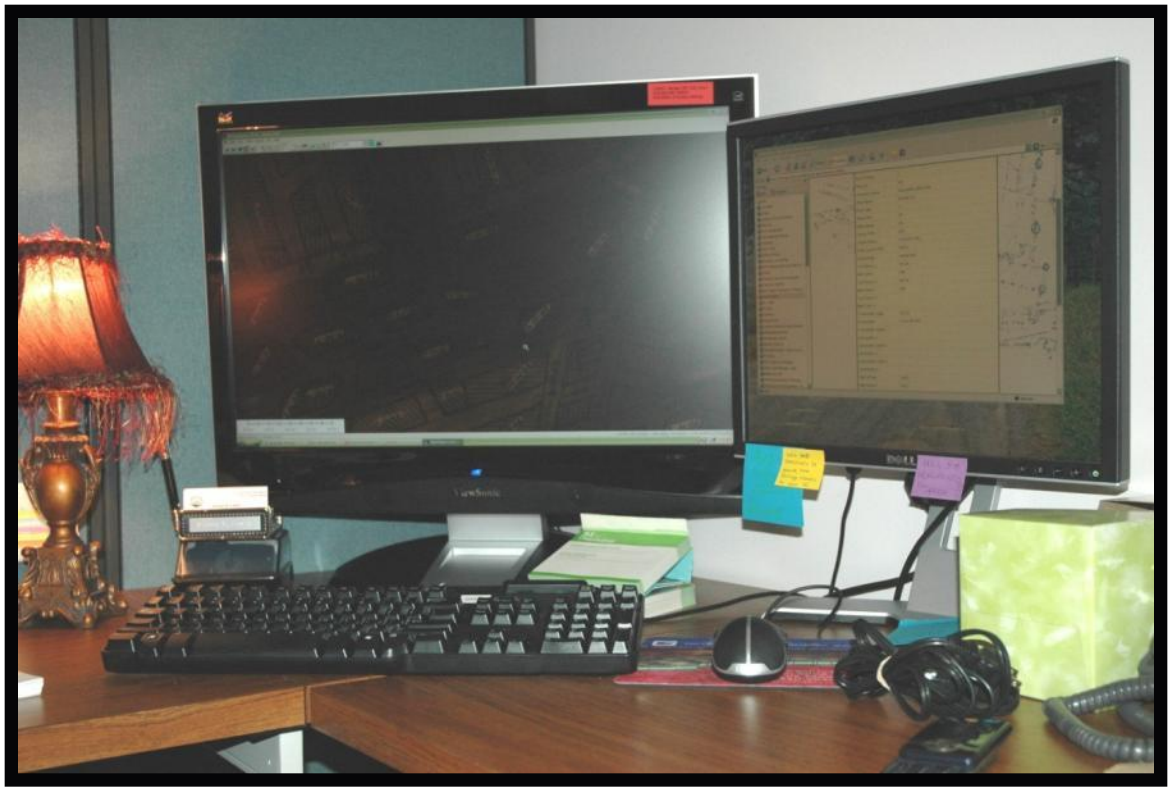
  or sent to off-site storage



The Green Tree facility provides and stores, in microfilm and digitally, over 140,000+ abandoned mine maps, dated from the 1850s to the present.

Equipment

- Dual Monitors to view & enter mapping data
- Top-of-the-line scanners for
  - aperture cards
  - maps of all sizes
- Map plotters

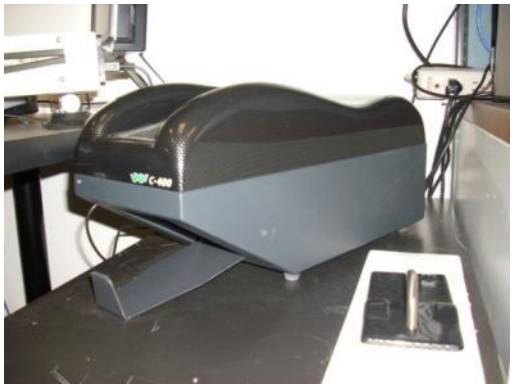


Wicks and Wilson C –series Aperture card scanners

True 100 dpi - 400 dpi; black and white; grayscale

Ability to set reduction ratios

Output: Tiffs, Jpegs, BMP, PNG, PDF

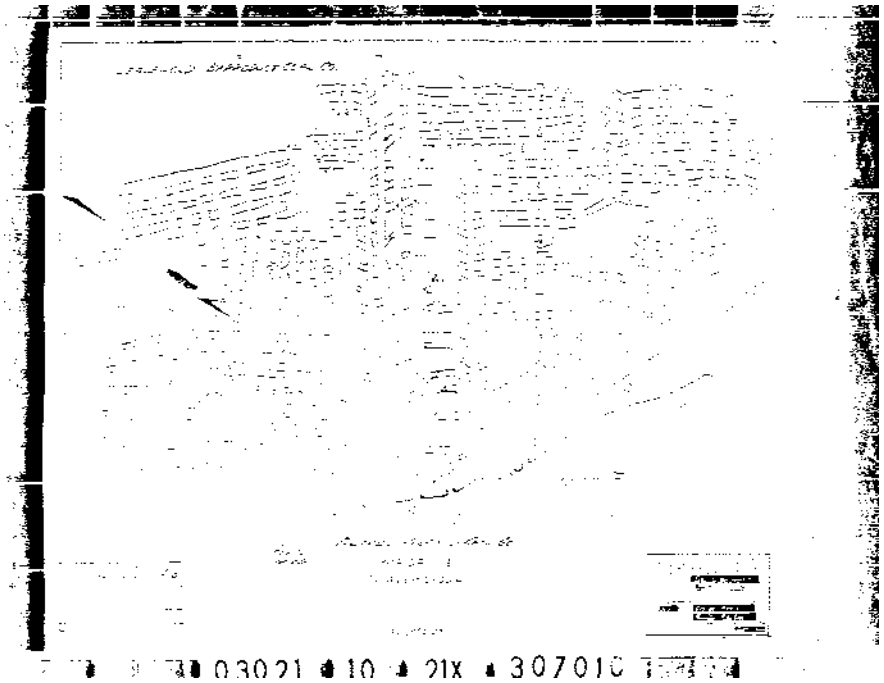


C-400 Wicks and Wilson Scanner

C-250 Wicks and Wilson Scanner

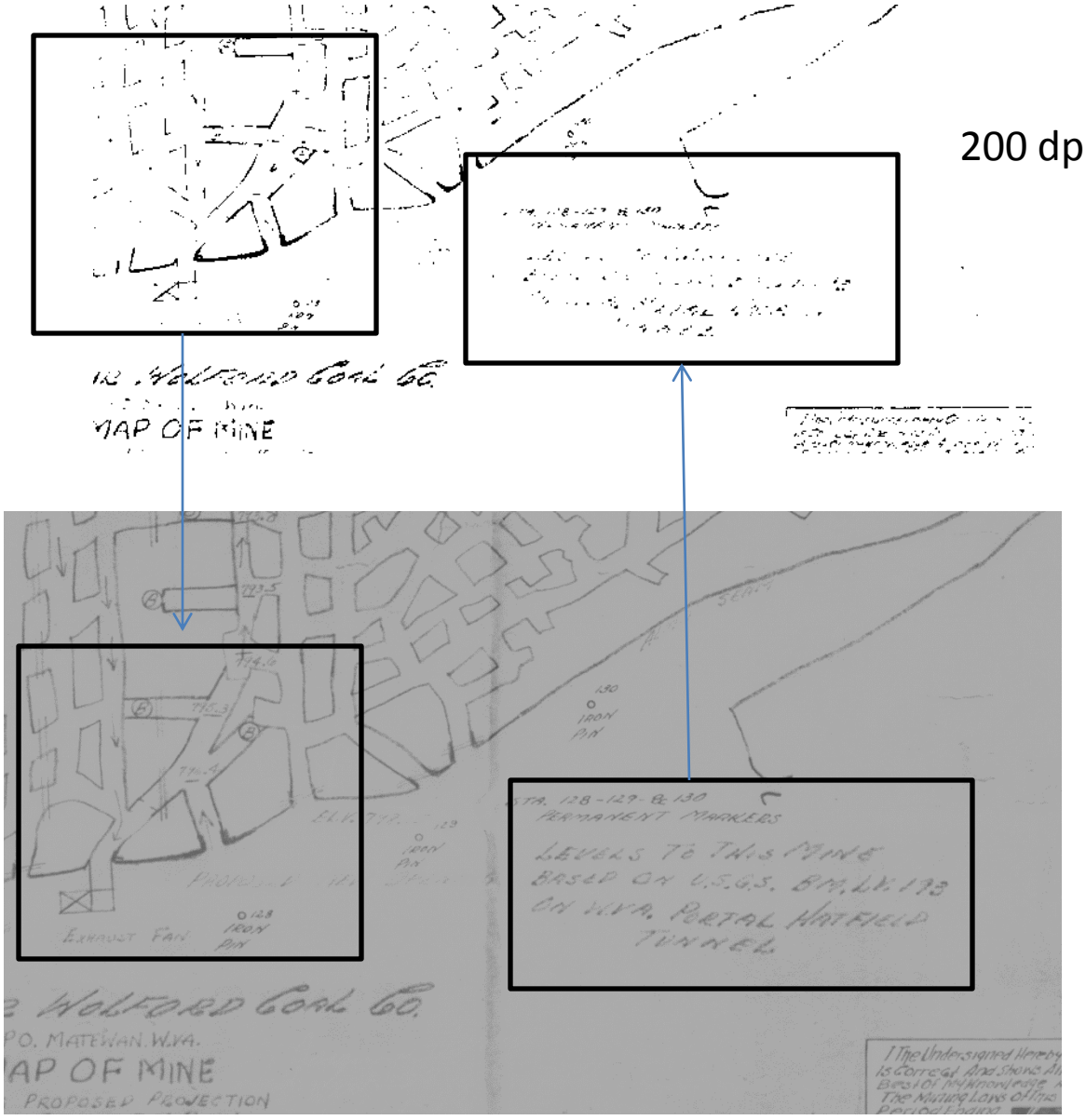
C-Drive Wicks and Wilson Scanner

Comparison of microfilm scans from old vs. new scanners



200 dpi black/white
state-of-the-art in 2004

300 dpi 8-bit grayscale scanned with a
Wicks and Wilson scanner



200 dpi black/white

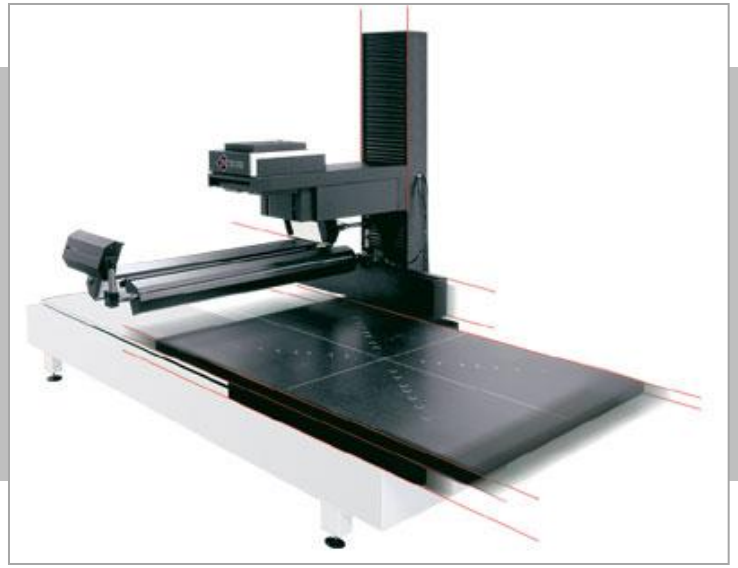
300 dpi 8-bit grayscale

NMMR mine map scanners

Two Cruse table top scanners:

1) CS 220/1100 ST-FA Cruse scanner
   48”X72” scanning area 1.1GB head
2) CS 285 ST-FA Cruse scanner
   60”X90” scanning area 1.1GB head

- Both scanners are equipped with vacuum tables
- Able to scan from 220 dpi to 600 dpi
- Ability to scan up to 48-bit color, 16-bit grayscale or b/w



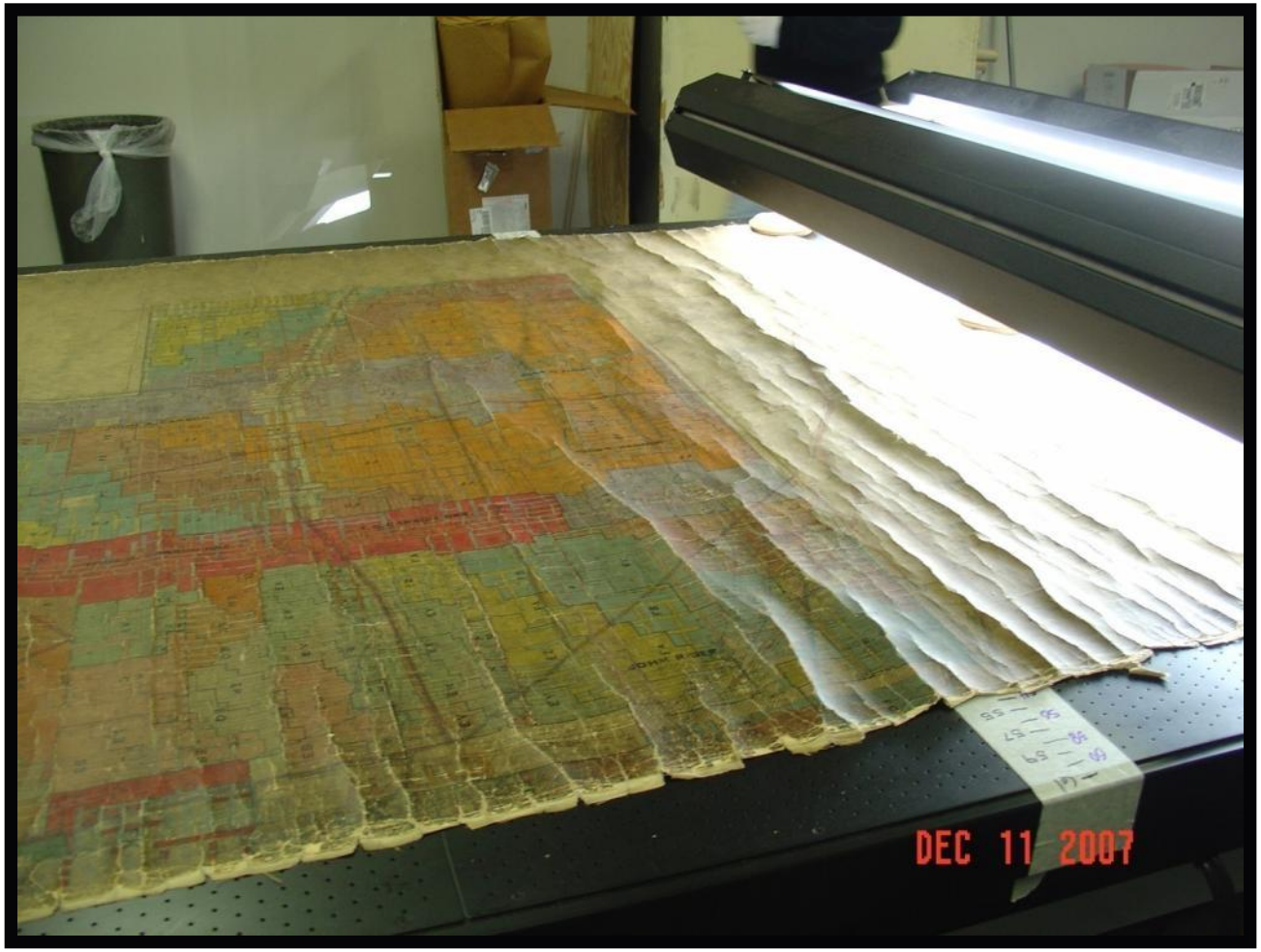
Colortrac SmartLF Gx+ 56 scanner

Up to 600 dpi 48-bit color, 16-bit grayscale or black/white

Cruse Table Scanner CS 285/1100 ST/FA

Size 58" x 90", black and white, 8 or 16 bit grayscale;
24- or 48-bit color; 220 dpi-600 dpi; files size 1.1 GB

Example of the physical shape of some of the maps received in the NMMR

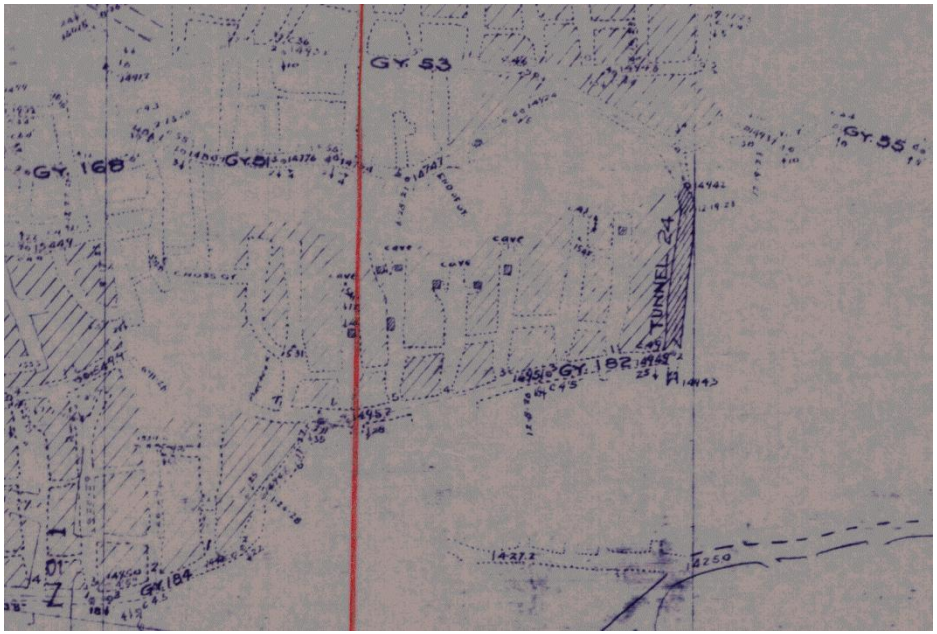


To scan this map, it will be covered with Mylar, and the vacuum table will be used.

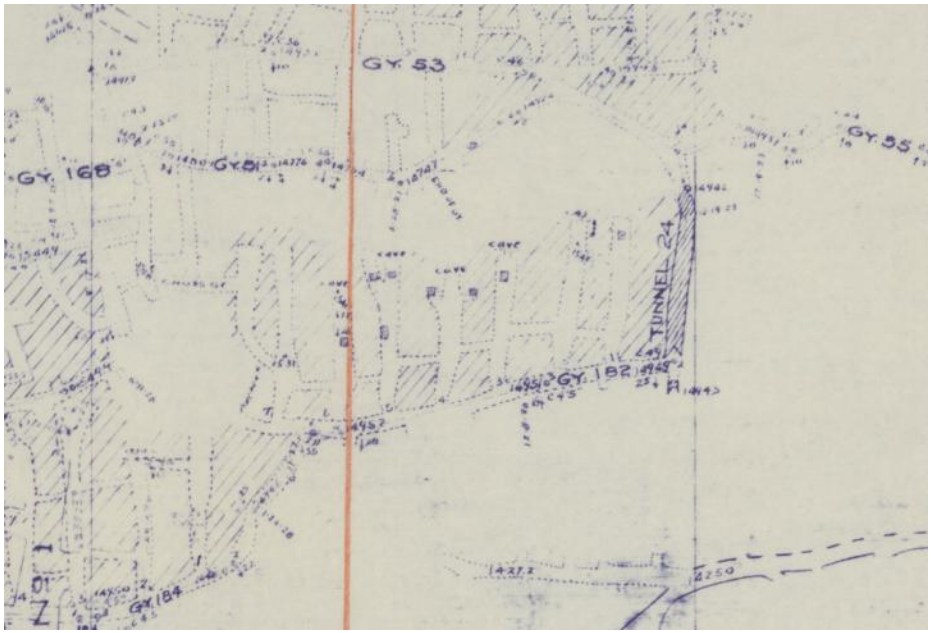
Cruse Scanner Tabletop Vacuum

Off

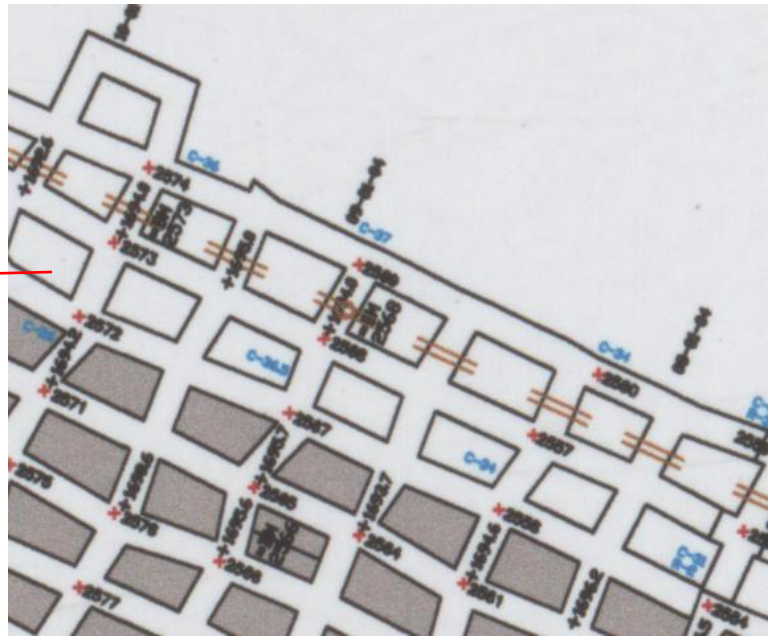
On

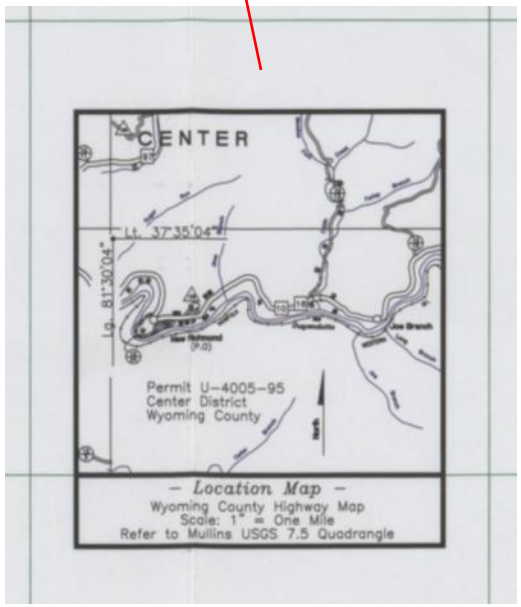


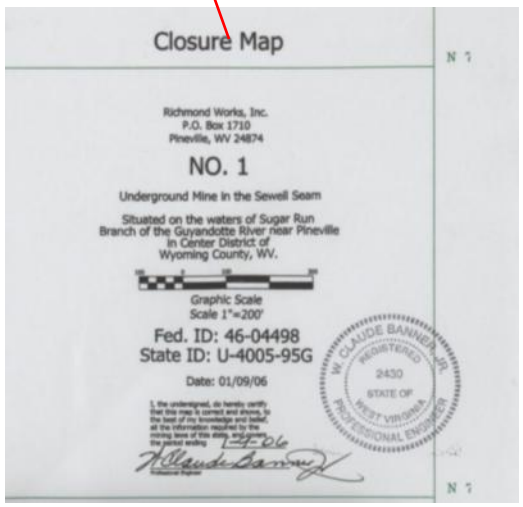
mine map scanned @
200 dpi 8-bit color



same map rescanned @
400 dpi 24-bit color on
the Colortrac scanner







mine map scanned @
230 dpi 24-bit color
on Cruse table scanner

Digital Storage Capacity

The NMMR now has 400+ TB of digital storage capacity

TouchTable TT 45 System

The TouchTable TT45 is a small group collaboration system for visualization, navigation, and analysis of data.

Functioning as a mobile presentation and input device, the TT45 displays data on a touch-sensitive table surface.

Office of Surface Mining, Reclamation and Enforcement Disclaimer

Office of Surface Mining, Reclamation and Enforcement disclaimer: Mine maps within the Office of Surface Mining, Reclamation and Enforcement's (OSMRE) National Mine Map Repository (NMMR) are not guaranteed to be accurate, correct, or complete.

All maps in the NMMR have been donated to OSMRE. The information contained therein cannot be verified and so cannot be guaranteed.

OSMRE's inability to guarantee includes, but is not limited to, the following:

- The accuracy of the mine maps within the NMMR.
- The reliability of findings based upon data from the maps.
- The reliability of findings from digital mapping programs.
- The completeness of the maps, as they may not reflect prior or more recent mining.
- The accuracy of any georeferenced mine maps found in the NMMR.

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