

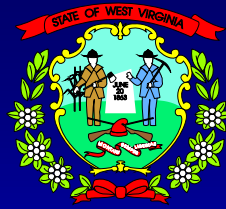
The Underground Mine Map Project: An Update



***West Virginia Office
of Miners' Health, Safety,
and Training***



***West Virginia Geological
and Economic Survey***



Monte Hieb
J.D. Higginbotham



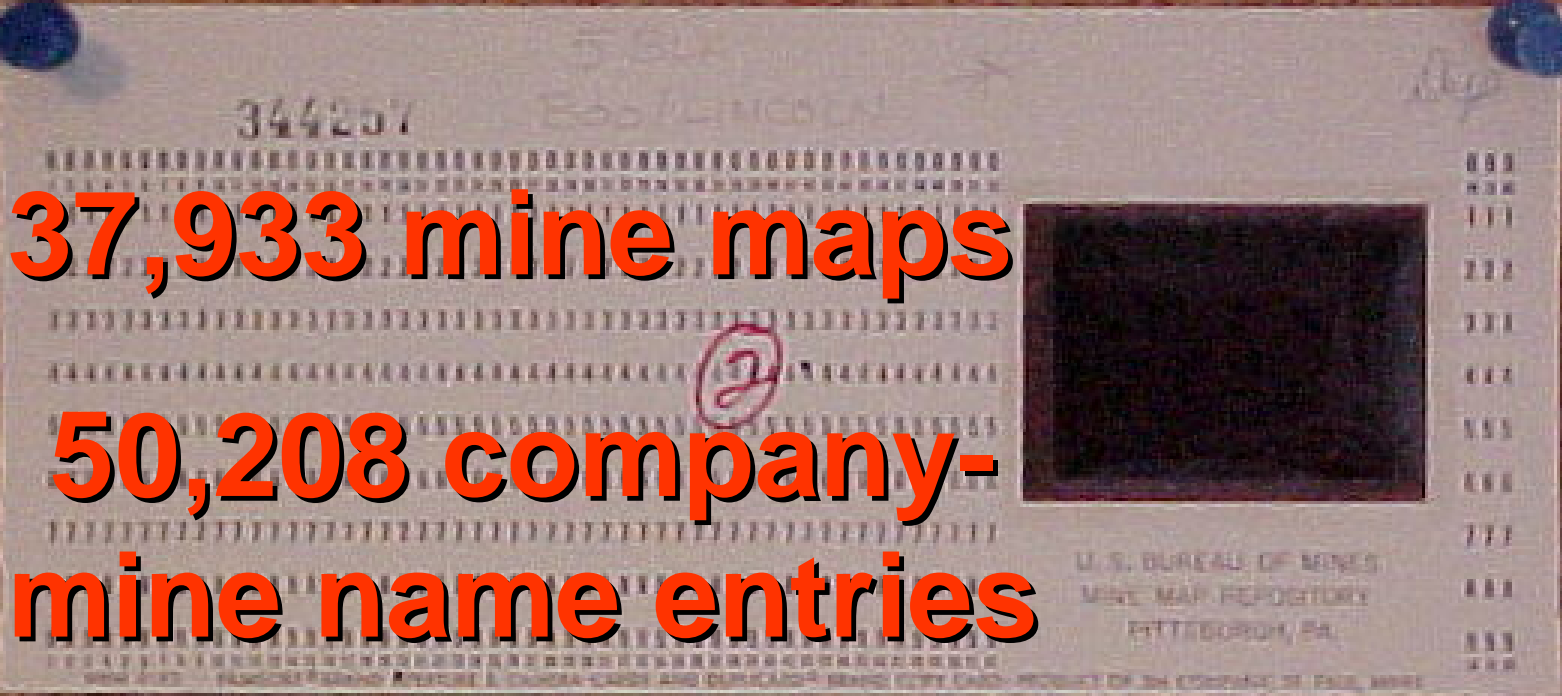
Nick Fedorko

Project History

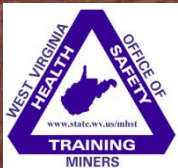
- Queecreek mine inundation & rescue
- The question:
 - Who in each State knows about mine maps?
- In WV:
 - MHST: receives and archives maps
 - GES: maps mined areas by bed



OSM Mine Map Repository



100,000 abandoned mines



Project History

MSHA funding

— MHST awarded \$1.2 million in October, 2003

- Funds split evenly between MHST and GES

MHST tasks

- Locate, collect, process, and permanently archive mine maps not in the collection

GES task

- Map the underground mines by bed in a GIS format



Summer Map Interns- 2004







Taskbar: Start, System, DeLone XMap® 4.5 - W, Microsoft Excel - Fayette, Adobe Photoshop

Microsoft Excel - Fayette [Read-Only]

367567	POWELLTON NO. 1	UNDERGROUND	K & C COAL CO	84	UNK	L KITTA	UNG	UNK
335895	LARESE NO 1	UNDERGROUND	K & C COAL CO-LES	170	UNK	CPOWE	TON	UNK
335355	K & E	COMBINATION	K & E COAL CO	158	UNK	MODDEN	2 GAS	UNK
335872	K & H NO 1	COMBINATION	K & H COAL CO	285	UNK	SEWELL	ARON	UNK
335661	K & M NO 1	UNDERGROUND	K & M COAL CO	285	UNK	SEWELL	ARON	UNK
335873	K & M NO 1	UNDERGROUND	K & M COAL CO	334	UNK	POCAHON	S NO 6	UNK
340020	HAWKS NEST NO 1	UNDERGROUND	K & M COAL CO	168	UNK	MODDEN	2 GAS	UNK
344329	K & M NO 4	COMBINATION	K & M COAL CO	318	UNK	FIRE CREEK	OCAM 11	UNK
374677	K & M NO 4	UNDERGROUND	K & M COAL CO	318	UNK	FIRE CREEK	OCAM 11	UNK
335876	K & V NO 1	COMBINATION	K & V COAL CO	334	UNK	POCAHON	S NO 6	UNK
335871	K D G NO 2	UNDERGROUND	K D G MINING CO	167	UNK	PEERLESS	BELL CR	UNK
335718	K P PROPOSED	COMBINATION	K P COAL CO	318	UNK	FIRE CREEK	OCAM 11	UNK
			MAWA EAGLE COAL CO	176	UNK	BIG EAGL	EAGLE	UNK
			KAYMOOR COALS INC	285	UNK	SEWELL	ARON	UNK
			KAYMOOR COALS INC	285	UNK	SEWELL	ARON	UNK
			KEENEY COAL CO	285	UNK	SEWELL	ARON	UNK
			KEITH COAL CO	285	UNK	SEWELL	ARON	UNK
			KEITH COAL CO	285	UNK	SEWELL	ARON	UNK
			KEITH COAL CO	UNK	UNK	UNKNOWN M	E SEAM	UNK
			KEITH COAL CO	285	UNK	SEWELL	ARON	UNK
			KEITH COAL CO	285	UNK	SEWELL	ARON	UNK
			KEITH COAL COMPANY	285	UNK	SEWELL	ARON	UNK
			KELLY BROS COAL CO	285	UNK	SEWELL	ARON	UNK
				285	UNK	SEWELL	ARON	UNK
				285	UNK	SEWELL	ARON	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
				168	UNK	MODDEN	2 GAS	UNK
				318	UNK	FIRE CREEK	OCAM 11	UNK
				285	UNK	SEWELL	ARON	UNK
				318	UNK	FIRE CREEK	OCAM 11	UNK
				318	UNK	FIRE CREEK	OCAM 11	UNK
				318	UNK	FIRE CREEK	OCAM 11	UNK
				334	UNK	POCAHON	S NO 6	UNK
				334	UNK	POCAHON	S NO 6	UNK
				334	UNK	POCAHON	S NO 6	UNK
				285	UNK	SEWELL	ARON	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
			KING COAL CO	285	UNK	SEWELL	ARON	UNK
			KING COAL CO	285	UNK	SEWELL	ARON	UNK
				176	UNK	BIG EAGL	EAGLE	UNK
				169	UNK	POWELL	(A)	UNK
				170	UNK	CPOWE	ON	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
				170	176	CPOWE	ON	UNK
				168	UNK	MODDEN	2 GAS	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
				170	UNK	CPOWE	ON	UNK
				168	UNK	MODDEN	2 GAS	UNK
				168	UNK	MODDEN	2 GAS	UNK
				170	UNK	CPOWE	ON	UNK
				168	UNK	MODDEN	2 GAS	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
				UNK	UNK	UNKNOWN M	E SEAM	UNK
				170	UNK	CPOWE	ON	UNK
				170	UNK	CPOWELLTON	UNK	UNK
				168	UNK	MODDEN	2 GAS	UNK
				169	UNK	POWELLTON	(A)	UNK
				176	UNK	BIG EAGL	EAGLE	UNK

Adobe Photoshop: 305224.tif @ 16.7% (Stamp)

Map Data: USGS, PHOT, FAIR, PHONE, XDATA, INFO, INTL, K14

Secondary Map: XData Databases, Mine Points from XMap Map-12p, Draw Files, Index_15m_M03, Roads.Layer2, 3070 Data Series, Reference Data, USA Street Network 2004 Data Series

Layers: index_15m_M03, Roads.Layer2, 3070 Data Series, Reference Data

Properties: 1913 377319 KING POWELLTON NO 2, 1914 377320 KING POWELLTON NO 4, 1916 333783 KING OWEN NO 1

Ready



System tray: 2:45 PM

Taskbar: DeLone XMap 4.5 - W, Microsoft Excel - Fayette, Adobe Photoshop

Microsoft Excel - Fayette [Read-Only]

G	H	I	J	K	L	M	
367567	POWELLTON NO 1	UNDERGROUND	K & C COAL CO	84	UNK	L KITTANNING	UNK
335895	LARESE NO 1	UNDERGROUND	K & C COAL CO-LES	170	UNK	C POWELLTON	UNK
335355	K & E	COMBINATION	K & E COAL CO	158	UNK	MODDENNO 2 GAS	UNK
335872	K & H NO 1	COMBINATION	K & H COAL CO	285	UNK	SEWELL/SHARON	UNK
335661	K & M NO 1	UNDERGROUND	K & M COAL CO	285	UNK	SEWELL/SHARON	UNK
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335718	K P PROPOSED	COMBINATION	K P COAL CO	318	UNK	FIRE CREEK/POCAH 11	UNK
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			KEITH COAL CO	285	UNK	SEWELL/SHARON	UNK
			KEITH COAL CO	285	UNK	SEWELL/SHARON	UNK
			KEITH COAL CO	UNK	UNK	UNKNOWN MINE SEAM	UNK
			KEITH COAL CO	285	UNK	SEWELL/SHARON	UNK
			KEITH COAL CO	285	UNK	SEWELL/SHARON	UNK
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			KELLY BROS COAL CO	285	UNK	SEWELL/SHARON	UNK
				285	UNK	SEWELL/SHARON	UNK
				285	UNK	SEWELL/SHARON	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				318	UNK	FIRE CREEK/POCAH 11	UNK
				285	UNK	SEWELL/SHARON	UNK
				318	UNK	FIRE CREEK/POCAH 11	UNK
				318	UNK	FIRE CREEK/POCAH 11	UNK
				318	UNK	FIRE CREEK/POCAH 11	UNK
				334	UNK	POCAHONTAS NO 6	UNK
				334	UNK	POCAHONTAS NO 6	UNK
				285	UNK	SEWELL/SHARON	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
			KING COAL CO	285	UNK	SEWELL/SHARON	UNK
			KING COAL CO	285	UNK	SEWELL/SHARON	UNK
				170	UNK	BIG EAGLE/EAGLE	UNK
				169	UNK	POWELLTON(A)	UNK
				170	UNK	C POWELLTON	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
				170	UNK	C POWELLTON	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
				170	UNK	C POWELLTON	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				170	UNK	C POWELLTON	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
				UNK	UNK	UNKNOWN MINE SEAM	UNK
				170	UNK	C POWELLTON	UNK
				169	UNK	POWELLTON(A)	UNK
				170	UNK	C POWELLTON	UNK
				168	UNK	MODDENNO 2 GAS	UNK
				169	UNK	POWELLTON(A)	UNK
				176	UNK	BIG EAGLE/EAGLE	UNK

Adobe Photoshop: 305224.tif @ 16.7% (Stamp)

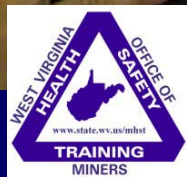
Map Data: Verduvill, Holden

Map Layers: 3070 Data Series, Reference Data, USA Street Network 2004 Data Series

Map Tools: Pan, Zoom, etc.

System tray: Dell logo





Status of MHST Work

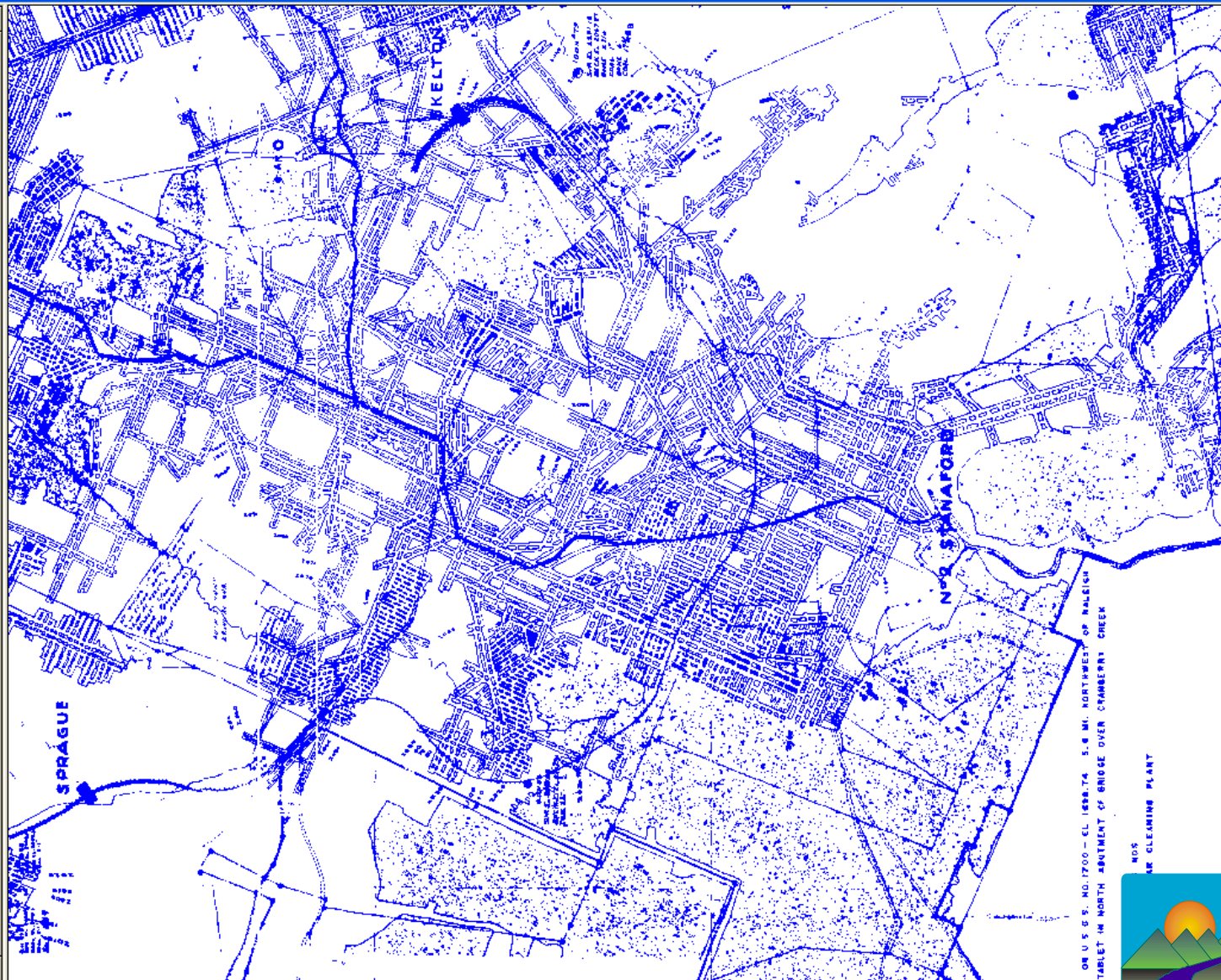
- **Established offices:**
 - Oak Hill: 3 F/T and 5 P/T employees and two supervisors
 - Fairmont: 2 F/T employees, 1 P/T and 1 supervisor
- **Reconciled microfilm collection with database, database downloadable**
 - www.wvminesafety.org/minemaps.htm
- **Examined 20 collections, 10 more committed**
- **Reviewed 24,000 maps**
- **Added 2,600 new mines to archive**





02. Beckley mine map georeferencing

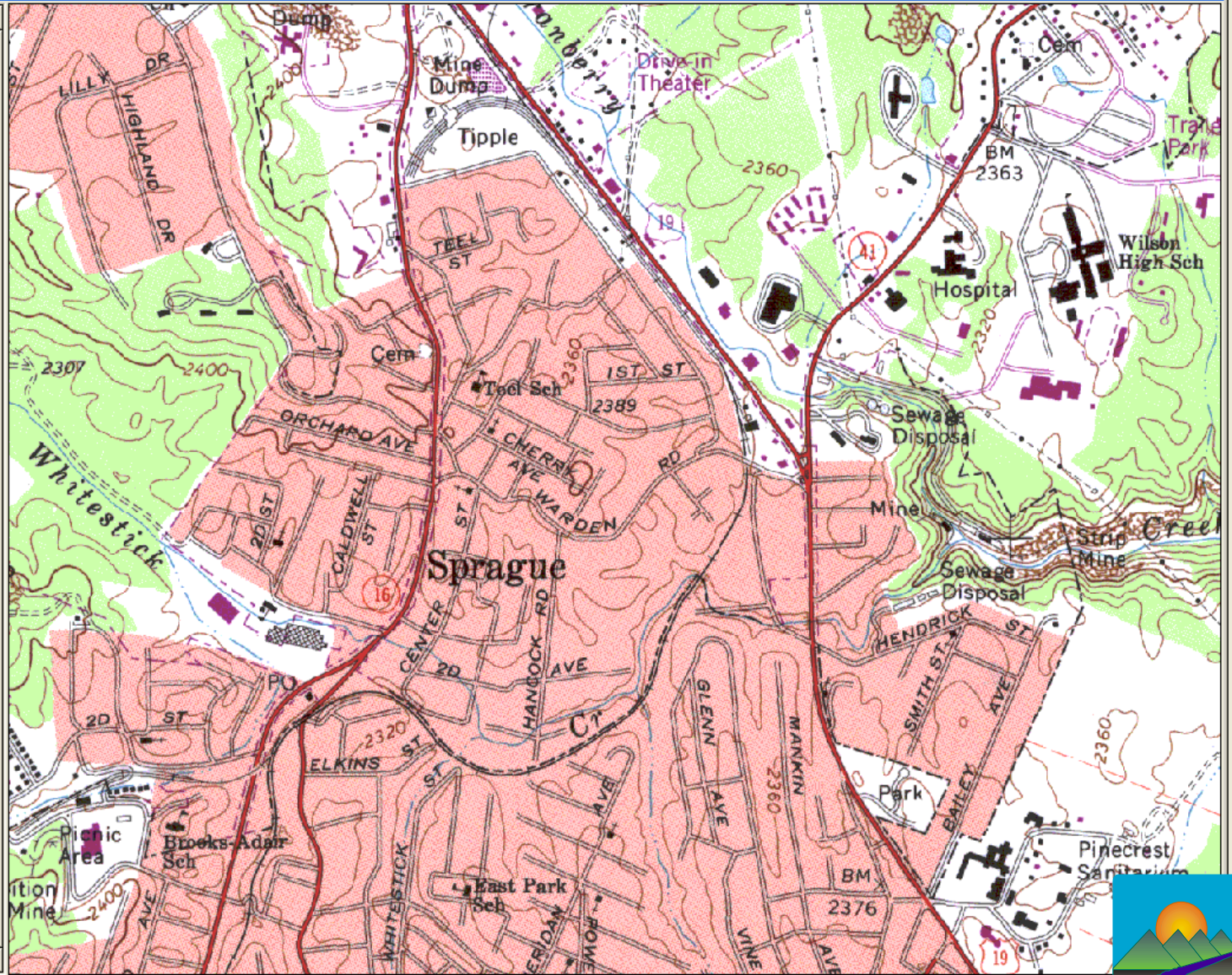
- Beckley mine outlines
- 383395
- Beckley quad





02. Beckley mine map georeferencing

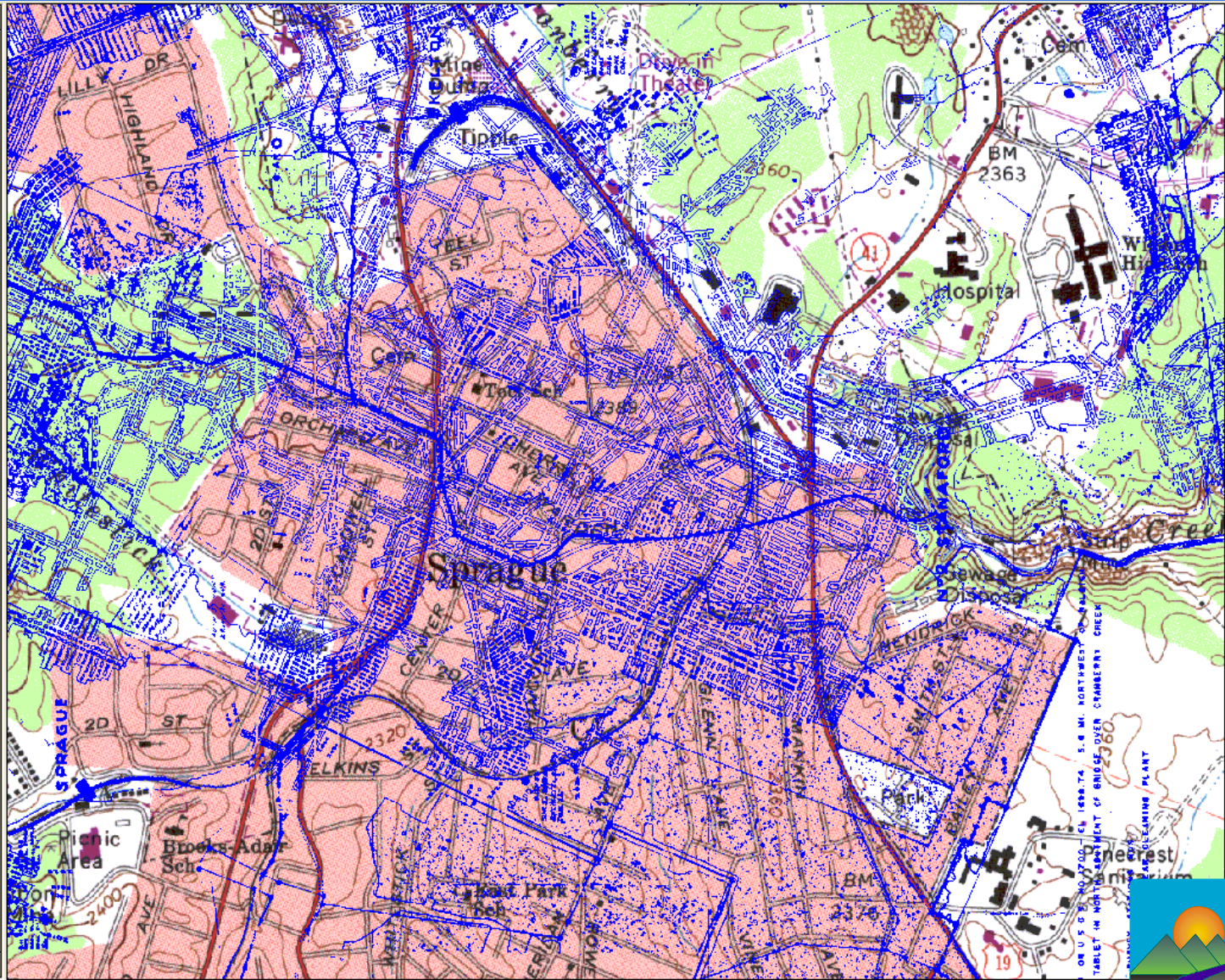
- Beckley mine outlines
- 383395
- Beckley quad





02. Beckley mine map georeferencing

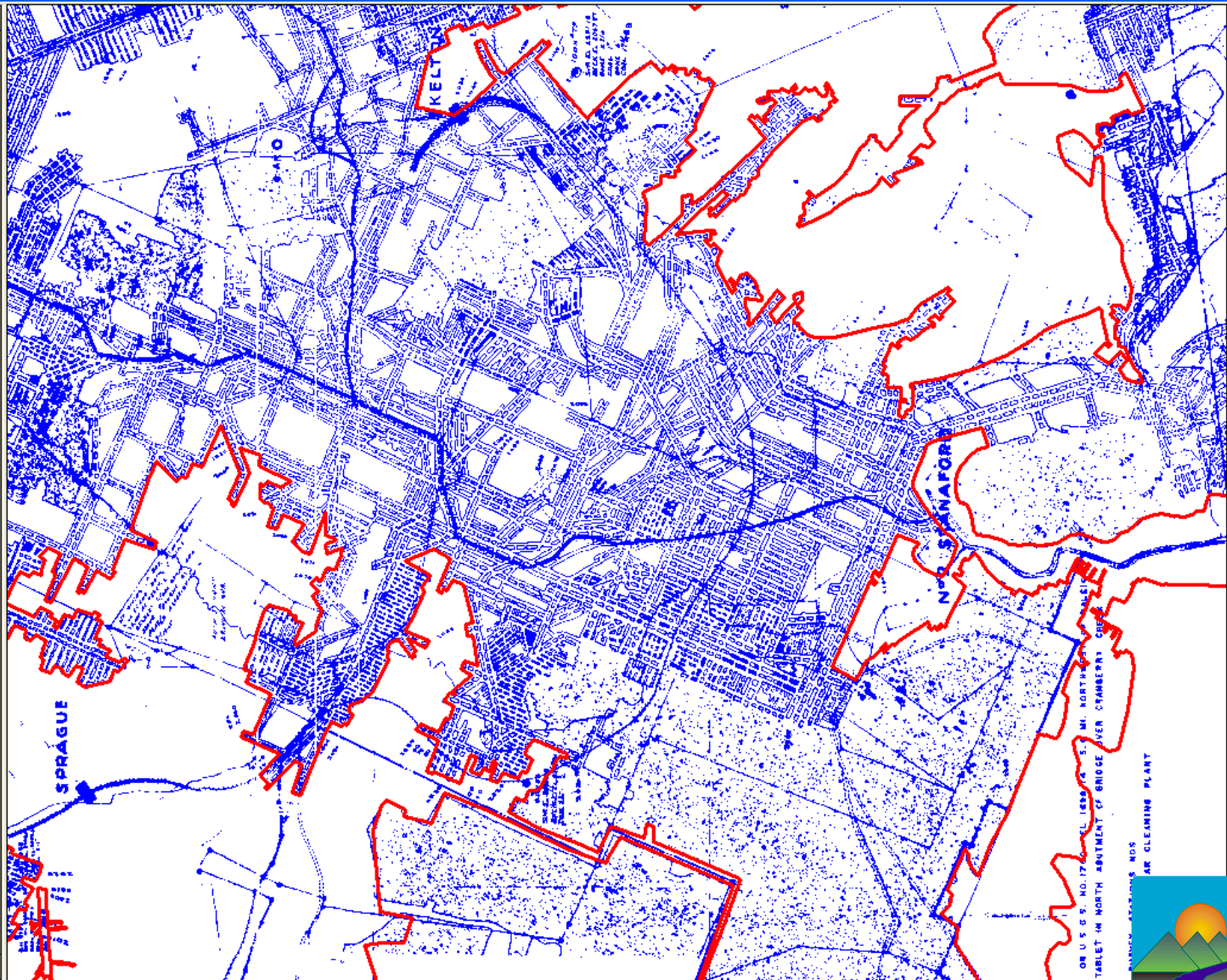
- Beckley mine outlines
- 383395
- Beckley quad



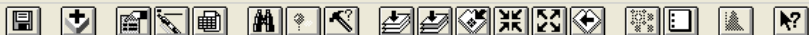


02. Beckley mine map georeferencing

- Beckley mine outlines
- 383395
- Beckley quad

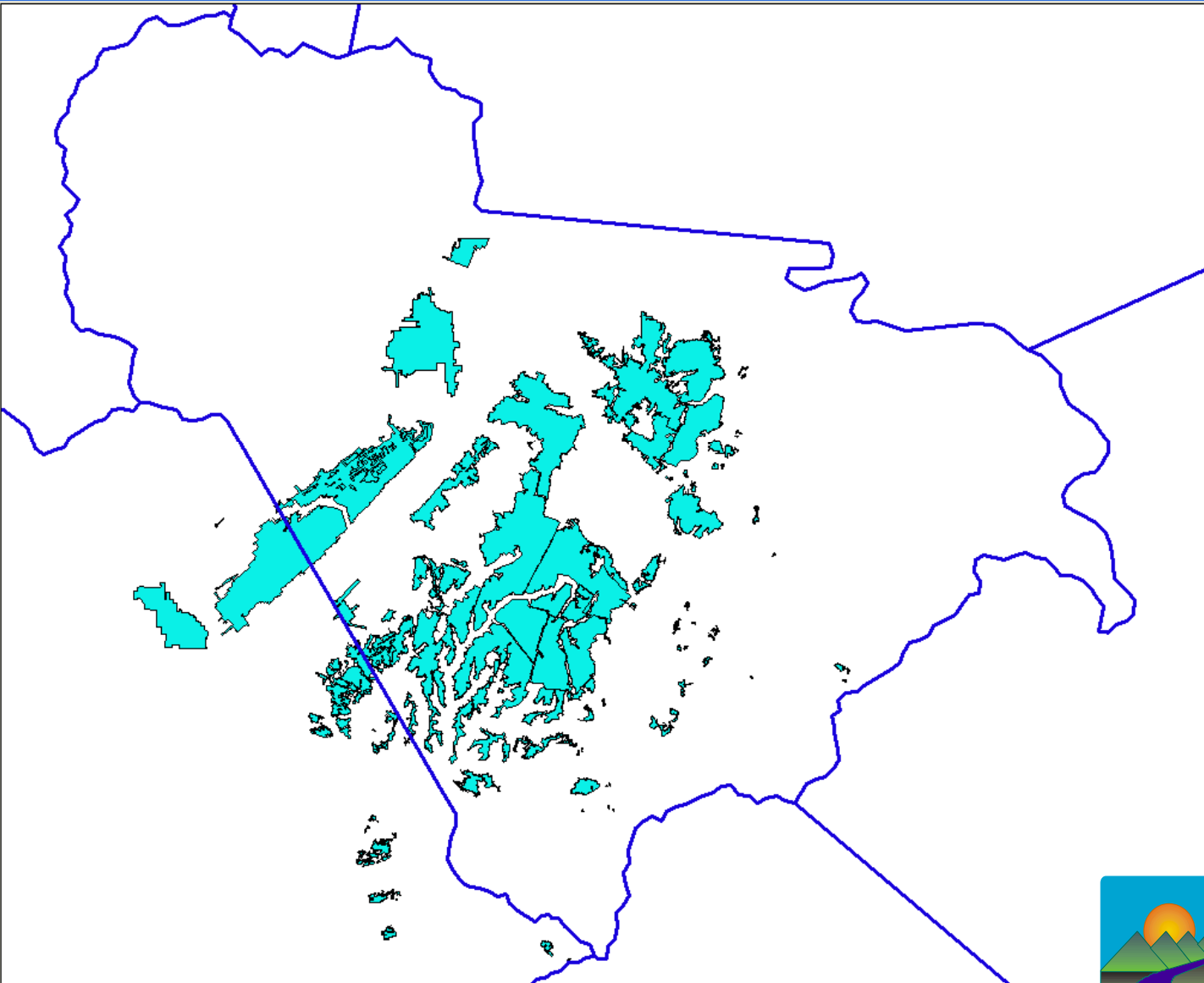


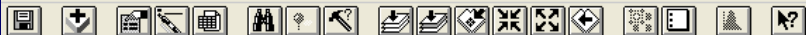
Sets the view's Area Of Interest for library-based themes



05. All UG mines to date

- Chilton
- Fireclay upper split 1
- Fireclay current
- Fireclay
- Cedar Grove
- Williamson
- Peerless current
- Peerless
- No. 2 Gas current
- No. 2 Gas
- Powellton current
- Powellton
- Lower Powellton
- Eagle A current
- Eagle A
- Eagle current
- Eagle
- Ltl Eagle current
- Little Eagle
- Middle War Eagle
- Lower War Eagle
- Sewell
- Beckley
- Beckley lower split
- Fire Creek
- No. 7 Pocahontas
- No. 6 Pocahontas
- No. 5 Pocahontas
- No. 4 Pocahontas
- No. 3 Pocahontas
- No. 2 Pocahontas





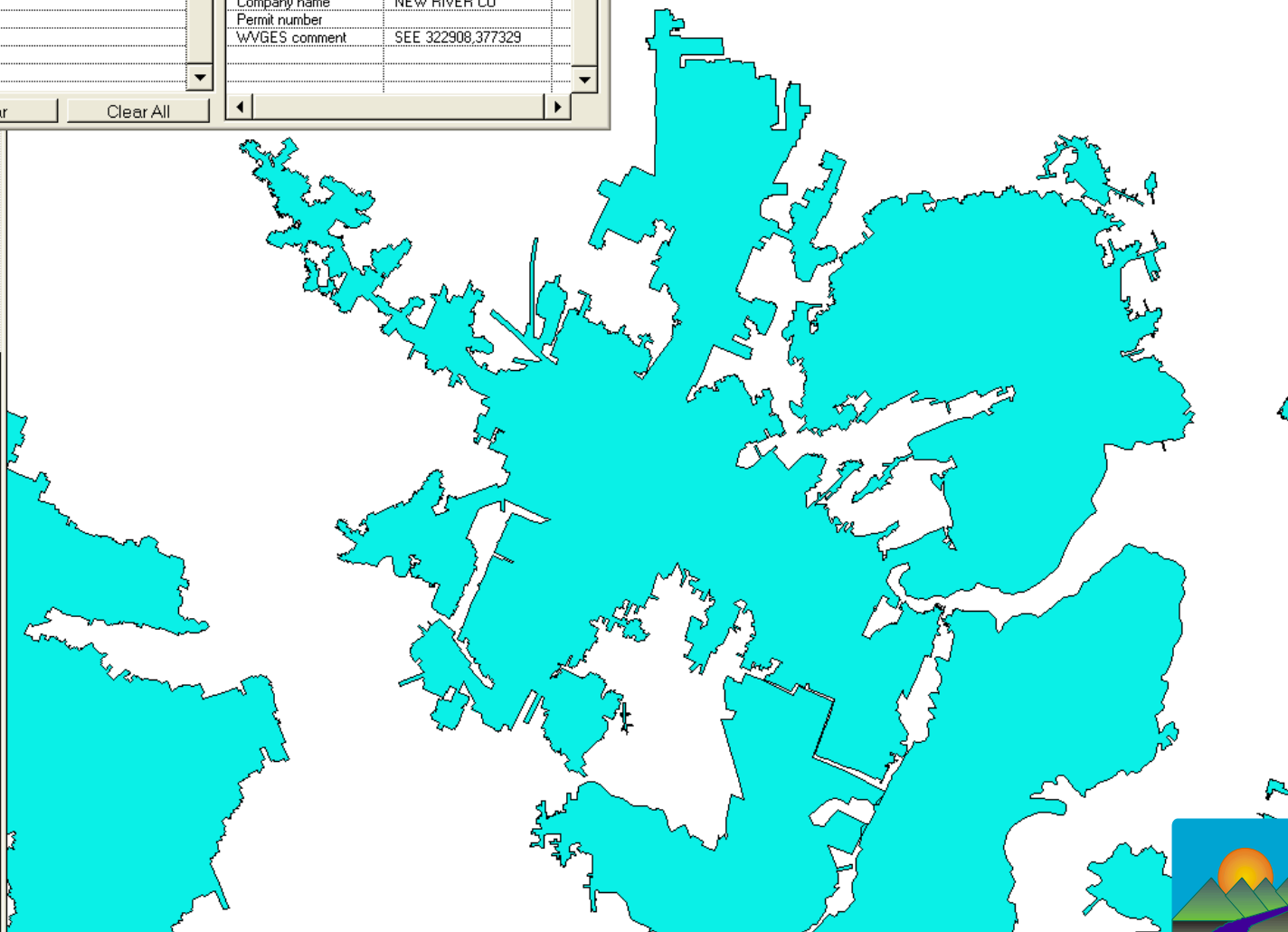
05. All UG mines to date

- Chilton
- Fireclay upper split 1
- Fireclay current
- Fireclay
- Cedar Grove
- Williamson
- Peerless current
- Peerless
- No. 2 Gas current
- No. 2 Gas
- Powellton current
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- Eagle current
- Eagle
- Ltl Eagle current
- Little Eagle
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- Lower War Eagle
- Sewell
- Beckley
- Beckley lower split
- Fire Creek
- No. 7 Pocahontas
- No. 6 Pocahontas
- No. 5 Pocahontas
- No. 4 Pocahontas
- No. 3 Pocahontas
- No. 2 Pocahontas

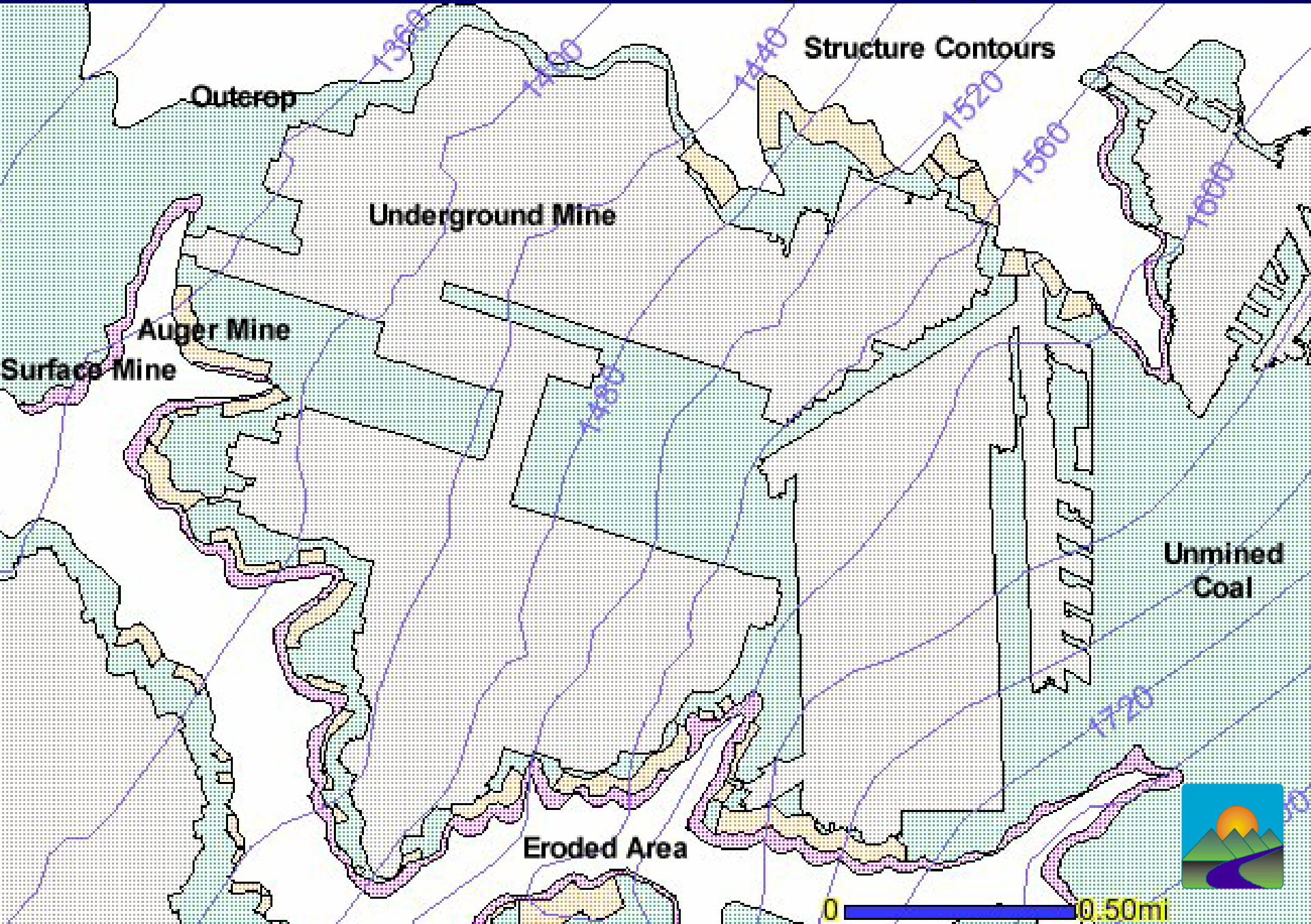
Identify Results

1: Beckley - SKELTON	Document number	383395A
	Mine name	SKELTON
	Year	0.00000
	Company name	NEW RIVER CO
	Permit number	
	WVGES comment	SEE 322908,377329

Clear Clear All



No. 2 Gas Coal, Raleigh County

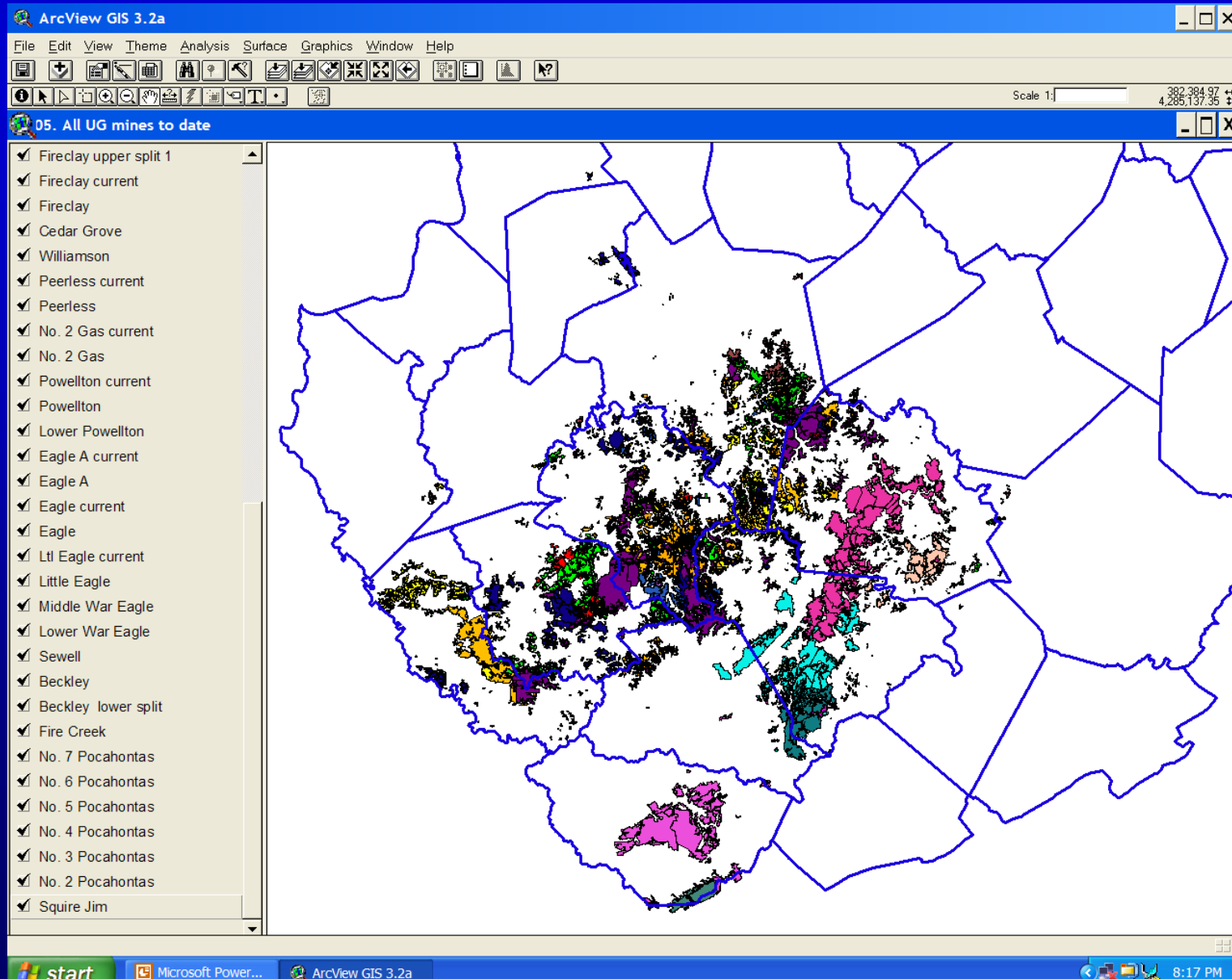


Status of GES Work

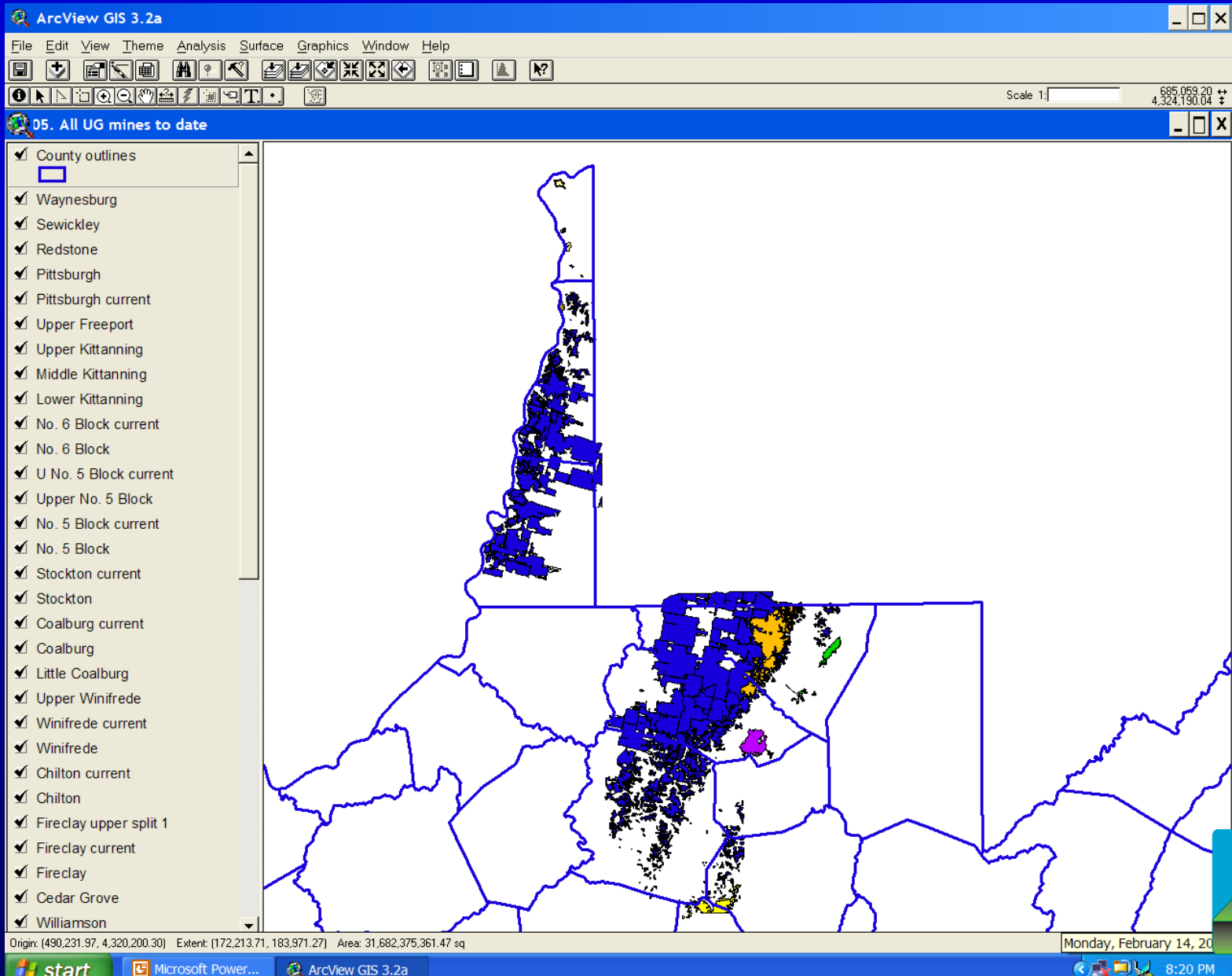
- **Three F/T staff since March 2004**
 - McDowell, Wyoming, Logan, Mingo
- **Worked on 40 beds in 26 counties**
 - Includes CBMP work since 1995
- **Compilation 'complete' in 13 counties**



33 beds, Squire Jim to Pittsburgh



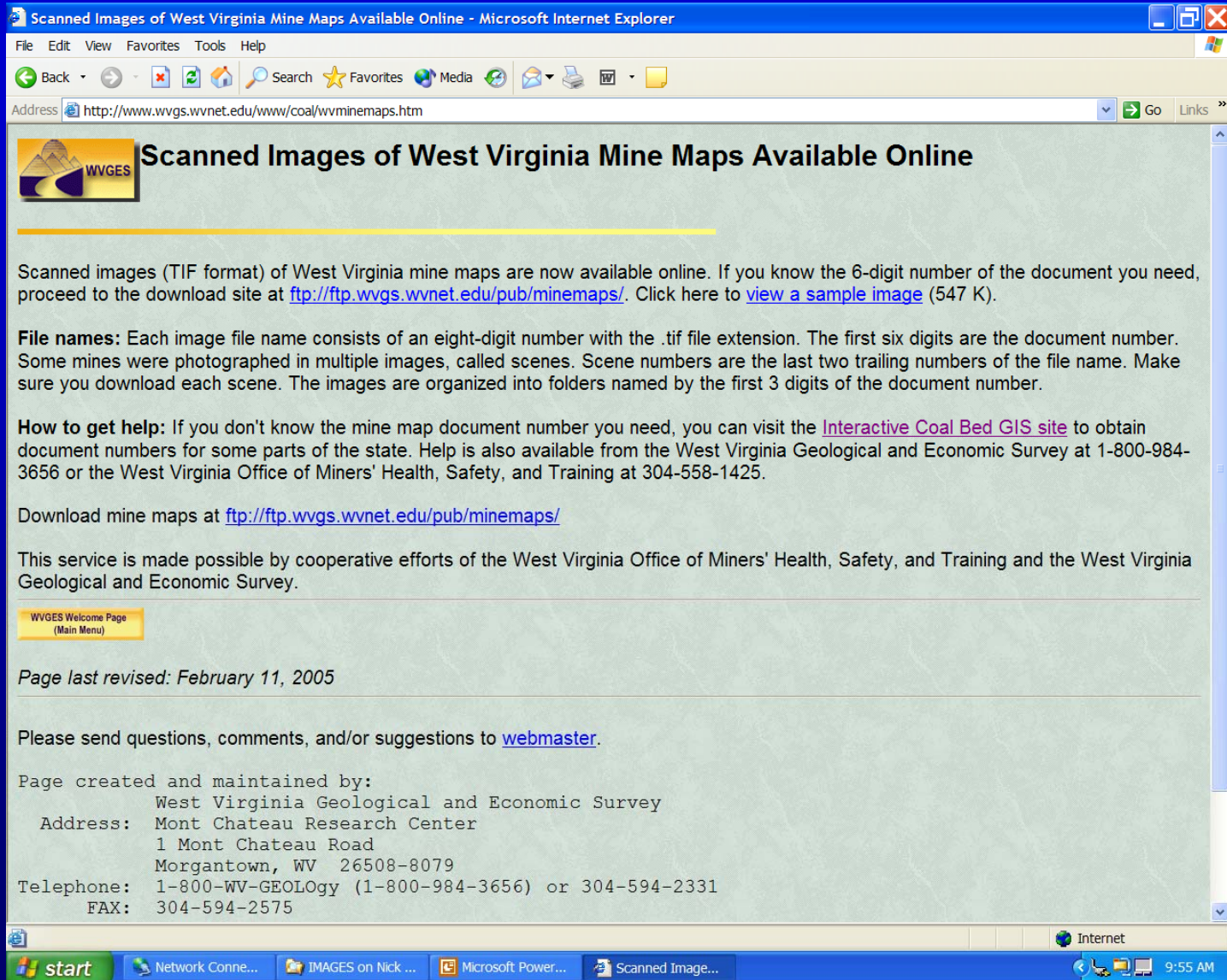
8 beds: Lower Kittanning to Waynesburg



Additional Goals

- **Complete scanning of OSM microfilm archive**
 - Accomplished summer 2004
- **Provide on-line, searchable database**
 - In-the-works
 - www.wvminesafety.org/minemaps.htm
- **Provide images of abandoned mine maps on-line**
 - Now available





Scanned Images of West Virginia Mine Maps Available Online - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS

Address <http://www.wvgs.wvnet.edu/www/coal/wvminemaps.htm> Go Links

Scanned Images of West Virginia Mine Maps Available Online

Scanned images (TIF format) of West Virginia mine maps are now available online. If you know the 6-digit number of the document you need, proceed to the download site at <ftp://ftp.wvgs.wvnet.edu/pub/minemaps/>. Click here to [view a sample image](#) (547 K).

File names: Each image file name consists of an eight-digit number with the .tif file extension. The first six digits are the document number. Some mines were photographed in multiple images, called scenes. Scene numbers are the last two trailing numbers of the file name. Make sure you download each scene. The images are organized into folders named by the first 3 digits of the document number.

How to get help: If you don't know the mine map document number you need, you can visit the [Interactive Coal Bed GIS site](#) to obtain document numbers for some parts of the state. Help is also available from the West Virginia Geological and Economic Survey at 1-800-984-3656 or the West Virginia Office of Miners' Health, Safety, and Training at 304-558-1425.

Download mine maps at <ftp://ftp.wvgs.wvnet.edu/pub/minemaps/>

This service is made possible by cooperative efforts of the West Virginia Office of Miners' Health, Safety, and Training and the West Virginia Geological and Economic Survey.

WVGES Welcome Page
(Main Menu)

Page last revised: February 11, 2005

Please send questions, comments, and/or suggestions to [webmaster](#).

Page created and maintained by:
West Virginia Geological and Economic Survey
Address: Mont Chateau Research Center
1 Mont Chateau Road
Morgantown, WV 26508-8079
Telephone: 1-800-WV-GEOLOGY (1-800-984-3656) or 304-594-2331
FAX: 304-594-2575

start Network Conne... IMAGES on Nick ... Microsoft Power... Scanned Image... Internet 9:55 AM



ftp://ftp.wvgs.wvnet.edu/pub/minemaps/

The screenshot shows a Microsoft Internet Explorer window displaying an FTP directory listing. The address bar shows the URL `ftp://ftp.wvgs.wvnet.edu/pub/minemaps/`. The main content area displays a grid of folders, each represented by a yellow folder icon and a numerical label. The folders are arranged in rows and columns, with the first folder in the first row labeled `300-304` and the last folder in the last row labeled `384-385`. The left sidebar shows the 'Other Places' section with links to 'pub', 'My Documents', 'Shared Documents', and 'My Network Places'. The bottom status bar indicates the user is 'Anonymous' and the connection is over 'Internet'. The Windows taskbar at the bottom shows the 'start' button and several open applications, including 'Network Connections', 'IMAGES on Nick...', 'Microsoft Power...', 'Scanned Image...', and the current FTP window. The system clock shows the time as 9:59 AM.

Folder Name	Folder Name	Folder Name	Folder Name	Folder Name	Folder Name	Folder Name
300-304	305-306	307-309	310-314	315-319	320-323	324
325-326	327	328	329	330-331	332	333-334
335	336	337	338	339	340	341
342-349	350-354	355-358	359-364	365	366	367
368	369	370	371	372	373	374-375
376	377	378	379-380	381	382	383
384-385						



ftp://ftp.wvgs.wvnet.edu/pub/minemaps/

Name	Size	Type	Modified
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30047302.tif	63.0 KB	Corel PHOTO-PAINT 8...	9/16/2004 10:09 AM
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Image File Name Format

- 30642401.tif: first six digits are the document number
- 30642401.tif: trailing two numbers are the scene numbers
- Make sure you get all the scenes



Summary

- **Striving to provide most complete archive and mapping of abandoned mines possible**
 - **Mine safety**
 - **Abandoned mines issues**
 - **Resource and reserve evaluation**
 - **Infrastructure development**



**Thanks
for your
cooperation!**

ISLAND CREEK COAL CO.
HOLDEN, WEST VIRGINIA
No. 17 MINE
IN
LOWER CEDAR GROVE SEAM
SCALE

*Ret. Ed. 1/27/07
D-1108-1-11/09*



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