

# *Moving Maps to GIS*



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# Overview



- Georeferencing\*
- Digitizing
- Capturing and Attributing Information

# *Georeferencing*

- Find surface control points on detailed mine maps that correspond to points on 7.5” USGS Topographic maps
  - Road intersections,
  - Bridges and stream intersections, etc
- This is easy for index maps that are drawn on USGS Topo maps, but more difficult for detailed maps.

# *Georeferencing (Continued)*

- Use at least four control points to Register and Rectify the image using ArcInfo.
  - In the past we used ArcInfo workstation and ArcView 3.2a for georeferencing.
  - ArcInfo Desktop 8.3 has a much simpler interface with the Georeferencing Toolbar.
- When rectifying an image, our goal is to get an RMS error of less than 10.
  - This has proven effective for our purposes.

# *Georeferencing (Continued)*

- Georeferencing Tips:
  - A low RMS value does not necessarily yield a more accurately georeferenced map.
  - Start by georeferencing the map with the best control points and build from that map.
  - Localize the area that you georeference if you do not have mining data on the whole map.

# *Digitizing*

- Done by our Mining Specialists
- We also use interns to digitize
  - Only a few, well-trained interns.
  - Under close supervision
  - Mining Specialists always Quality Control the data
- Usually digitizing several themes, such as:
  - Permit Boundary
  - “Mined Out” Areas
  - Longwall Panels (Active Mining)

# *Capturing and Attributing Information*

- Done by our Mining Specialists
- Usually attribute information is input as a mine is digitized.
- All mines:
  - Mine Name
  - Operator
  - Coal Seam
  - County
  - Permit Number
- Active longwall mines:
  - Panel Identification
  - Status (active/complete)
  - Date of Completion (month/year)

# *Capturing and Attributing Information (Continued)*

- One of our most important themes is our Mine Subsidence Insurance (MSI) Claims theme.
- This theme contains information such as:
  - General Claim info (Claimant, Claim #, etc)
  - Status of Claim (Open, Supported, Denied, etc)
  - Investigation Info (Investigator, Date, etc)
  - Mining Info (Mine Name, Mapping Source, Cover, etc)
- This theme is updated every time we open or close a claim (almost daily).

## *Conclusion*

- Georeferencing is more of an art than a science.
- Digitizing the data makes it easier to use and more efficient.
- Attribute information is one of the main reasons to use a GIS to store, edit, and view data.