The Use of Field Computing GPS/GIS Technology at the WVDEP, Division of Mining and Reclamation

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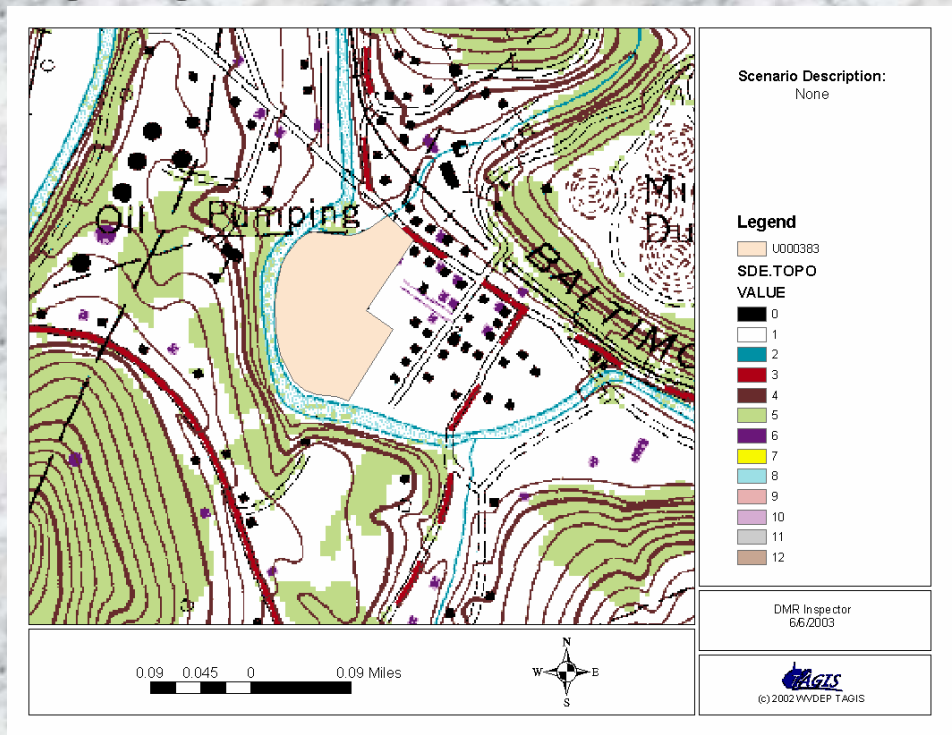
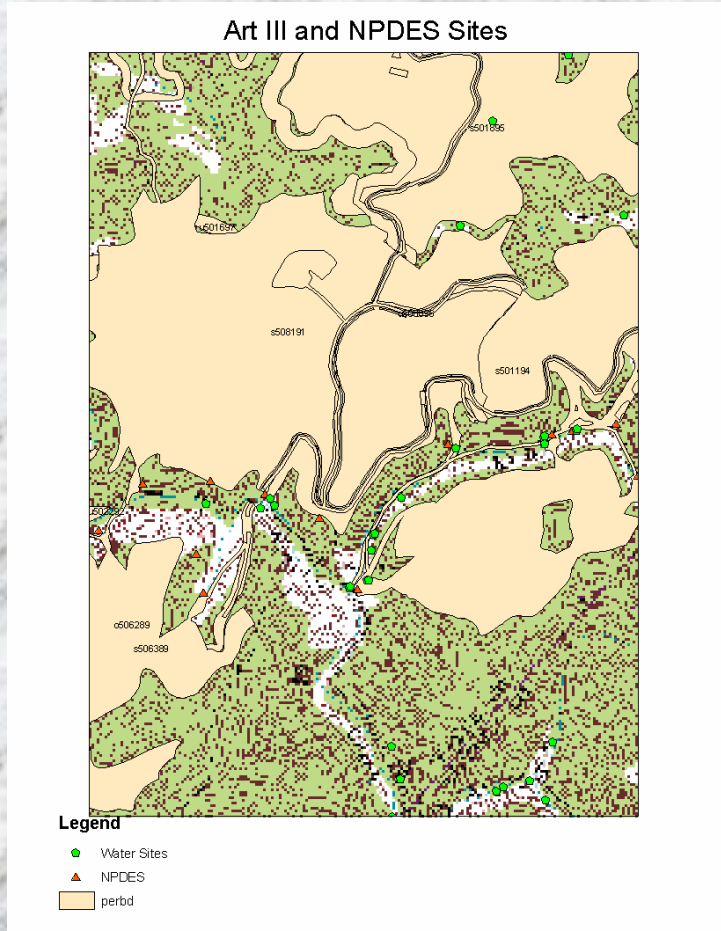
Introduction

- Many databases of GIS shape files and water quality data exist to help the Title V permit reviewer.



GIS is key to looking at the Cumulative Hydrologic Impact”

Inter-relating Shapefiles - Databases



WVDEP/TAGIS Database

- For WDEP access (gis on '172.17.100.48')
- Internet http://gis.wvdep.org/
- UTM 1983
- DRGs and other state data.
  - State Geology
  - State Quads
  - Roads, Streams, etc.

http://gis.wvdep.org/

EP

Well Search
e Mapping
p Cleanup Projects
to Browser

stations
e Conversion
ease Inventory
(DEP Only)
it

Division of Mining and Reclamation Data

All data have been projected to UTM zone 17, NAD83. Click on the icon to view metadata.

adjacent permits

auger mining

drainage control structures

underground mining limits

mineral removal area

NPDES outlets

overburden core holes

permit boundaries

roads

valley fills

water sample locations

mountaintop removal area (from WVGES)

permits, point locations

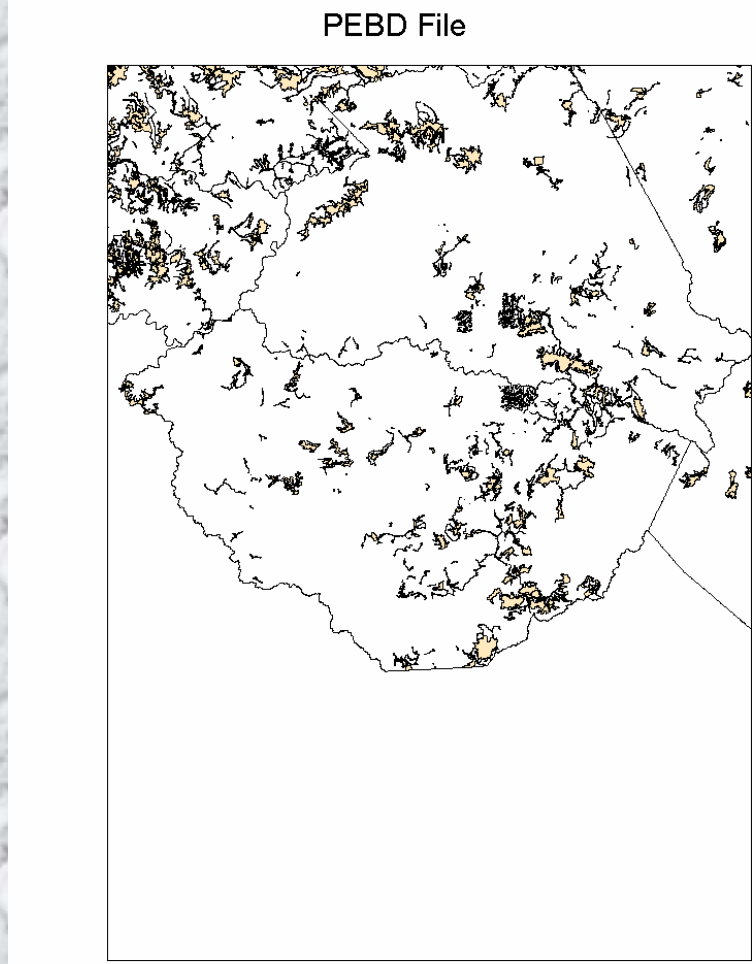
mining related impoundments, point coordinates

TAGIS Database

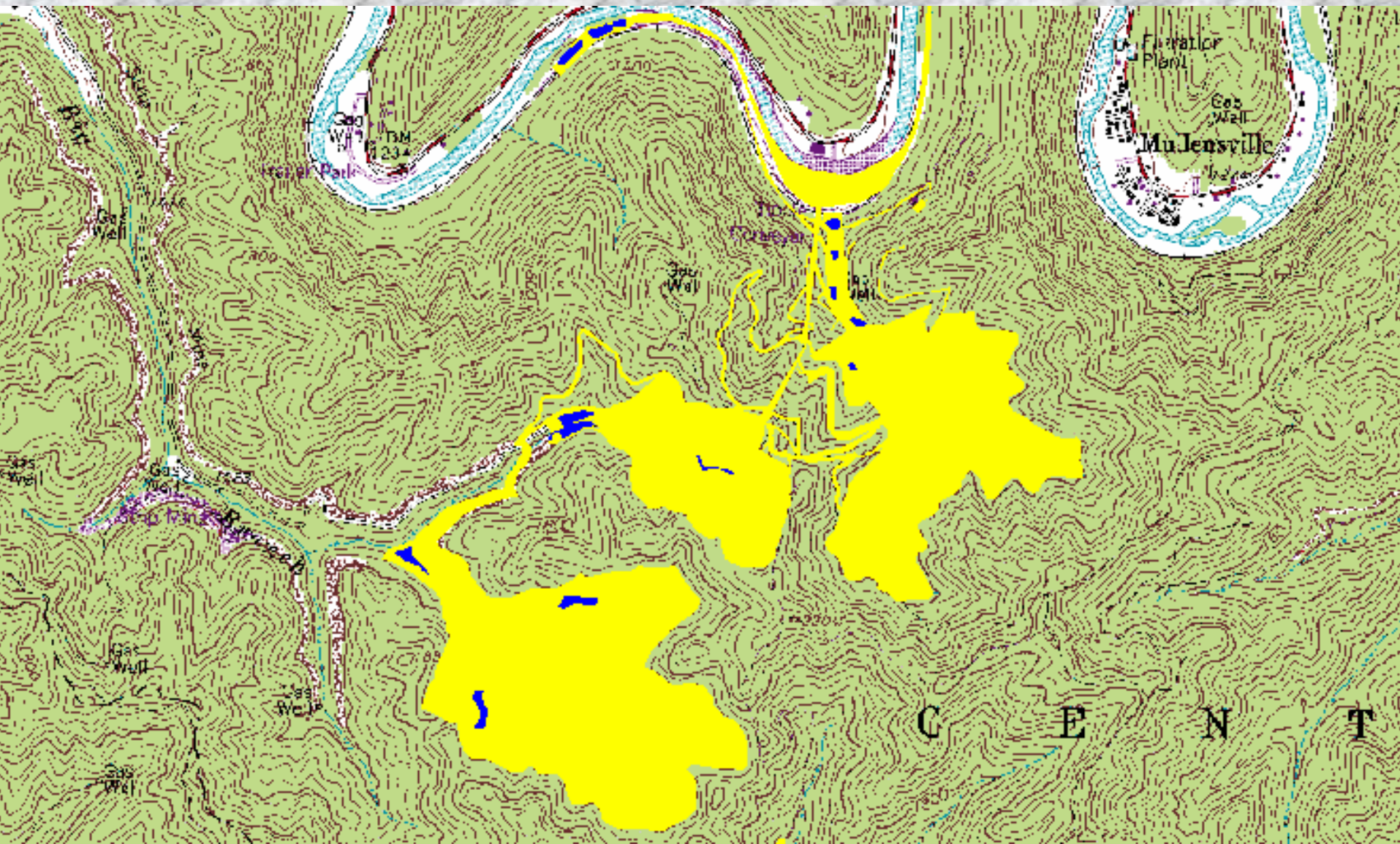
Permit Data

WCMS Scanned Maps

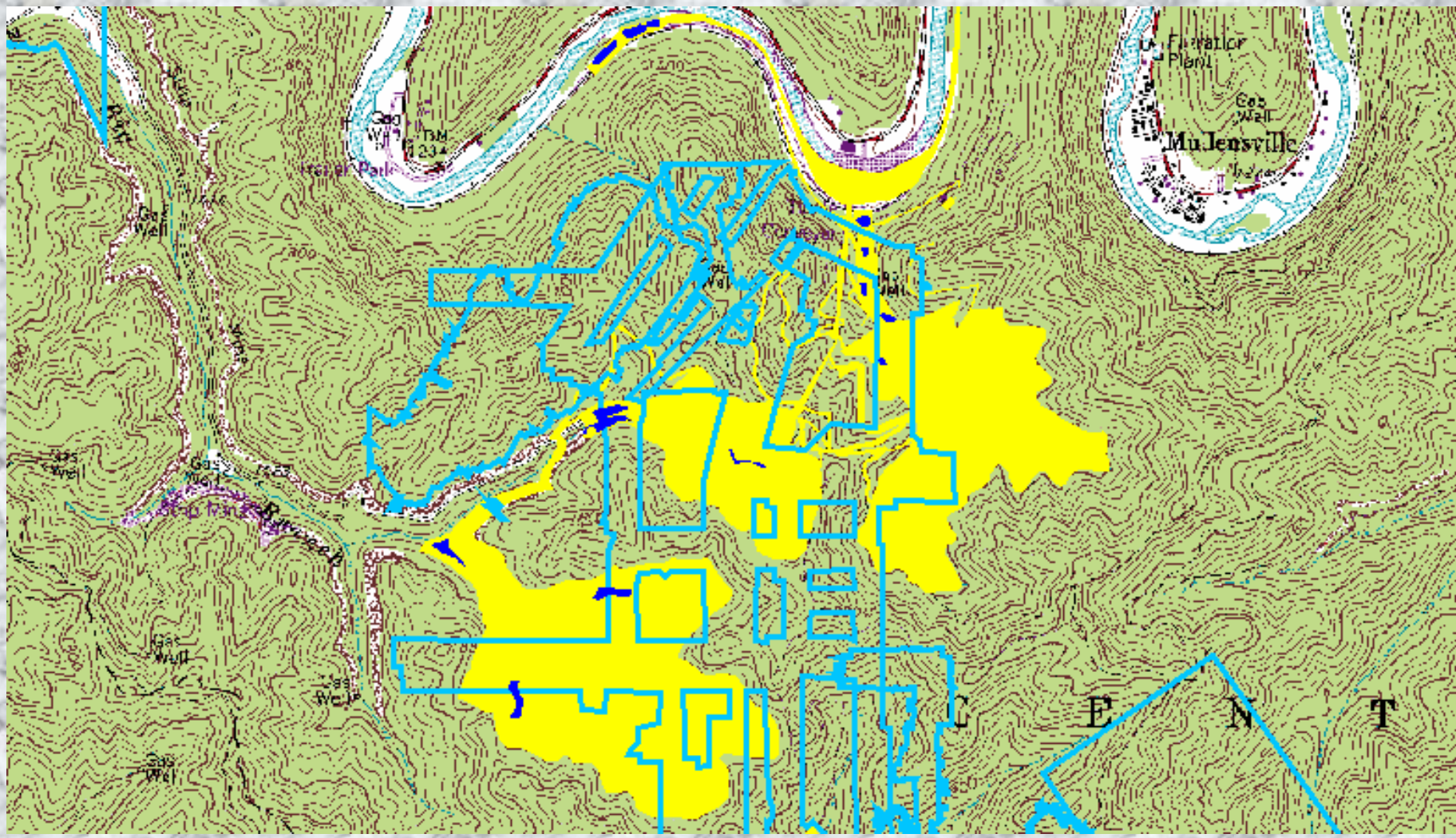
PERBD. MINLI, Etc.



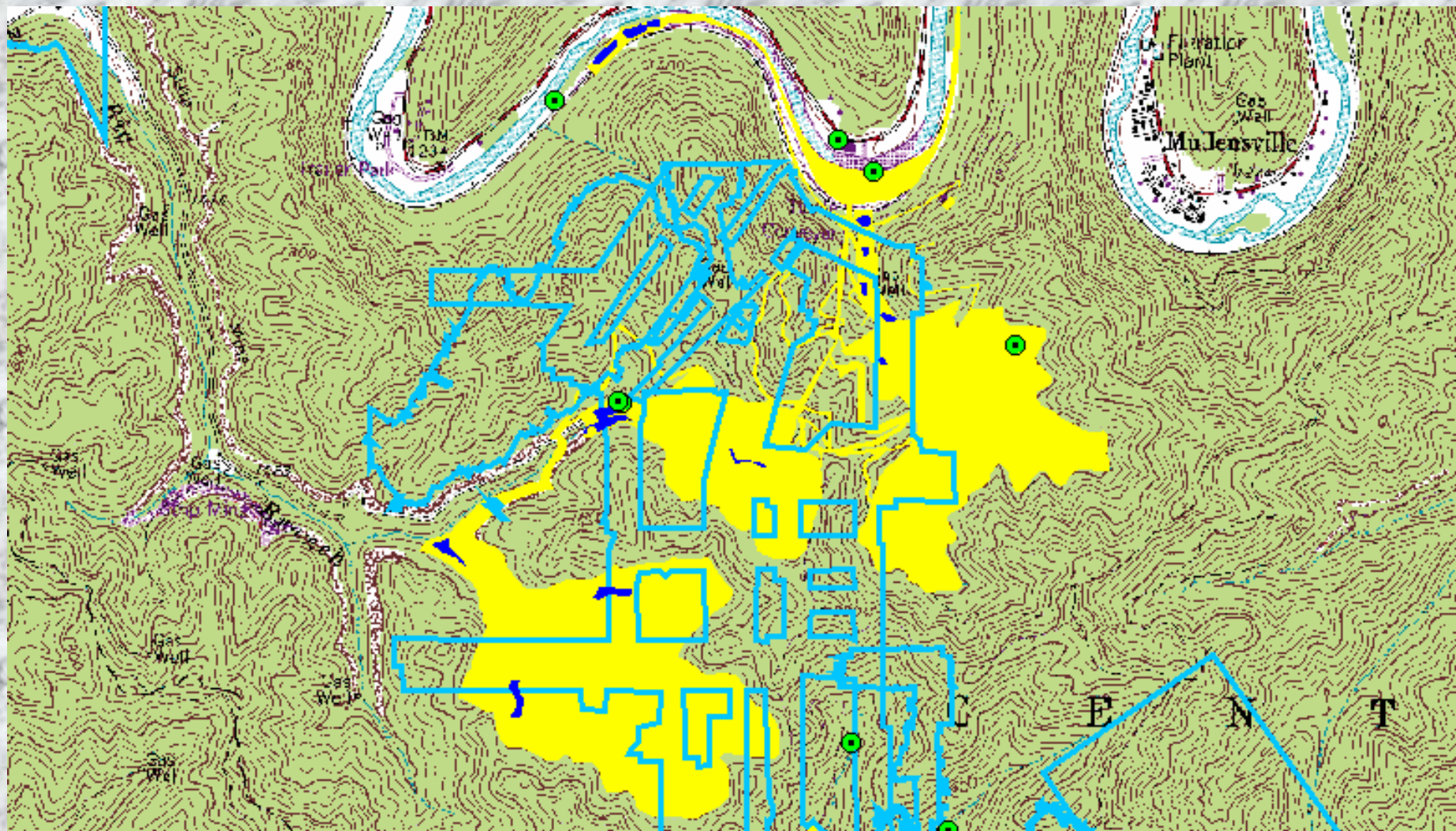
Permit Boundary



Mine Limits

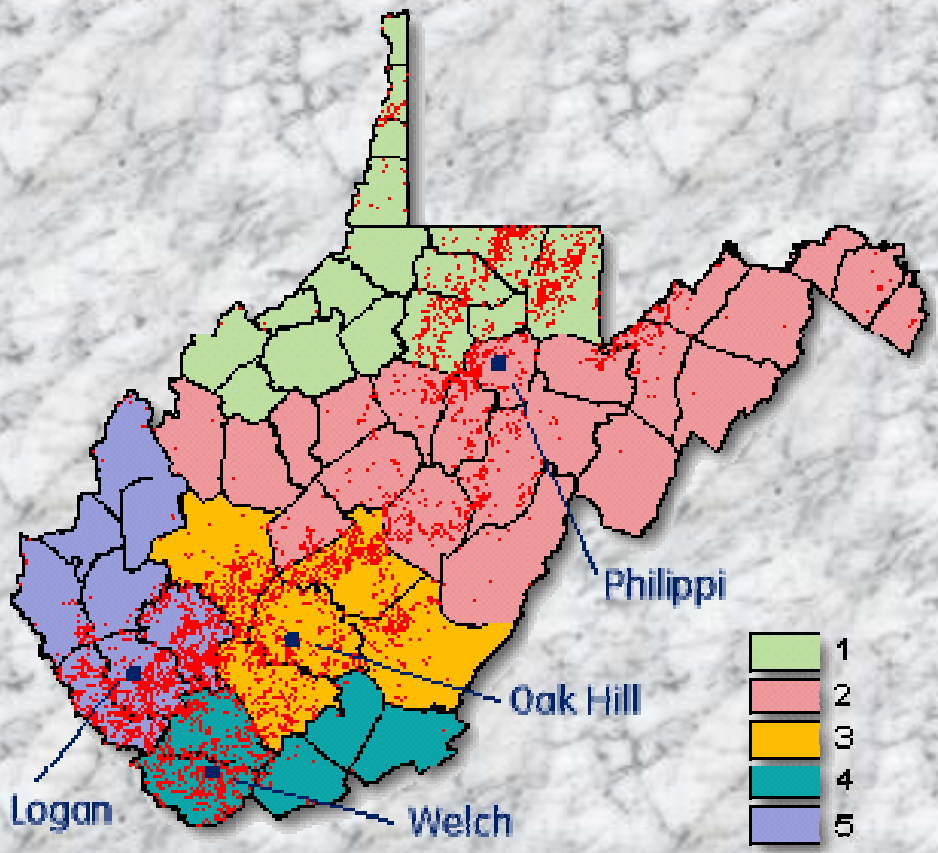


Water Sample Sites



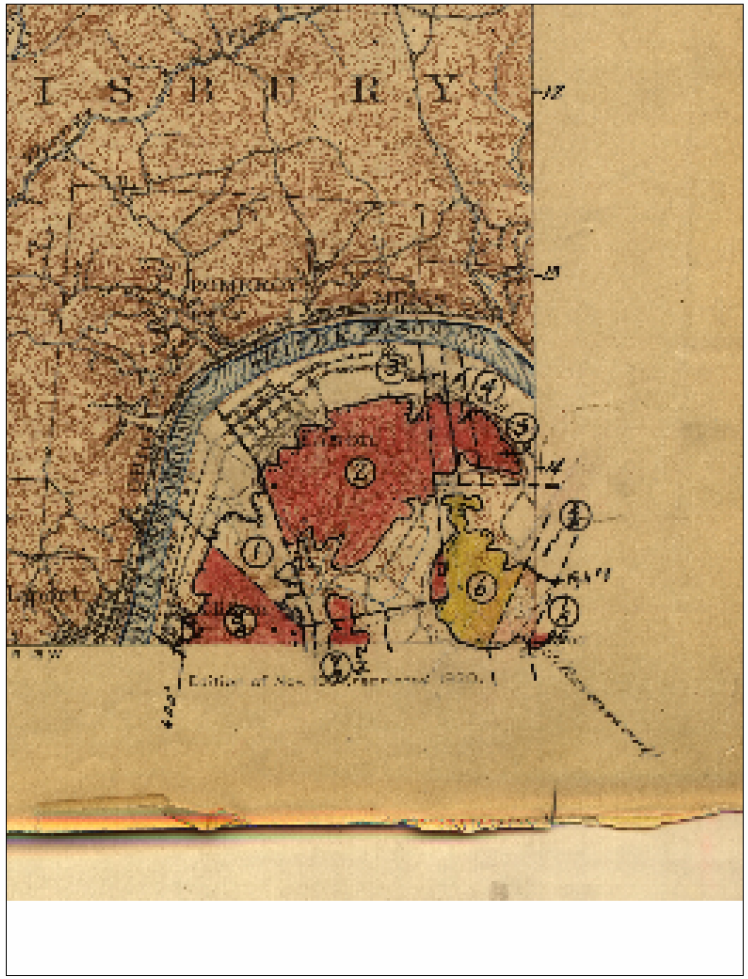
TAGIS Database Permit Data

- Oracle/ERIS based point data.
  - Article III
  - NPDES



TAGIS Database

- Historic Maps
  - 15 Minute Quads
  - Mine Atlas
  - Old County Geology Maps



TAGIS Database

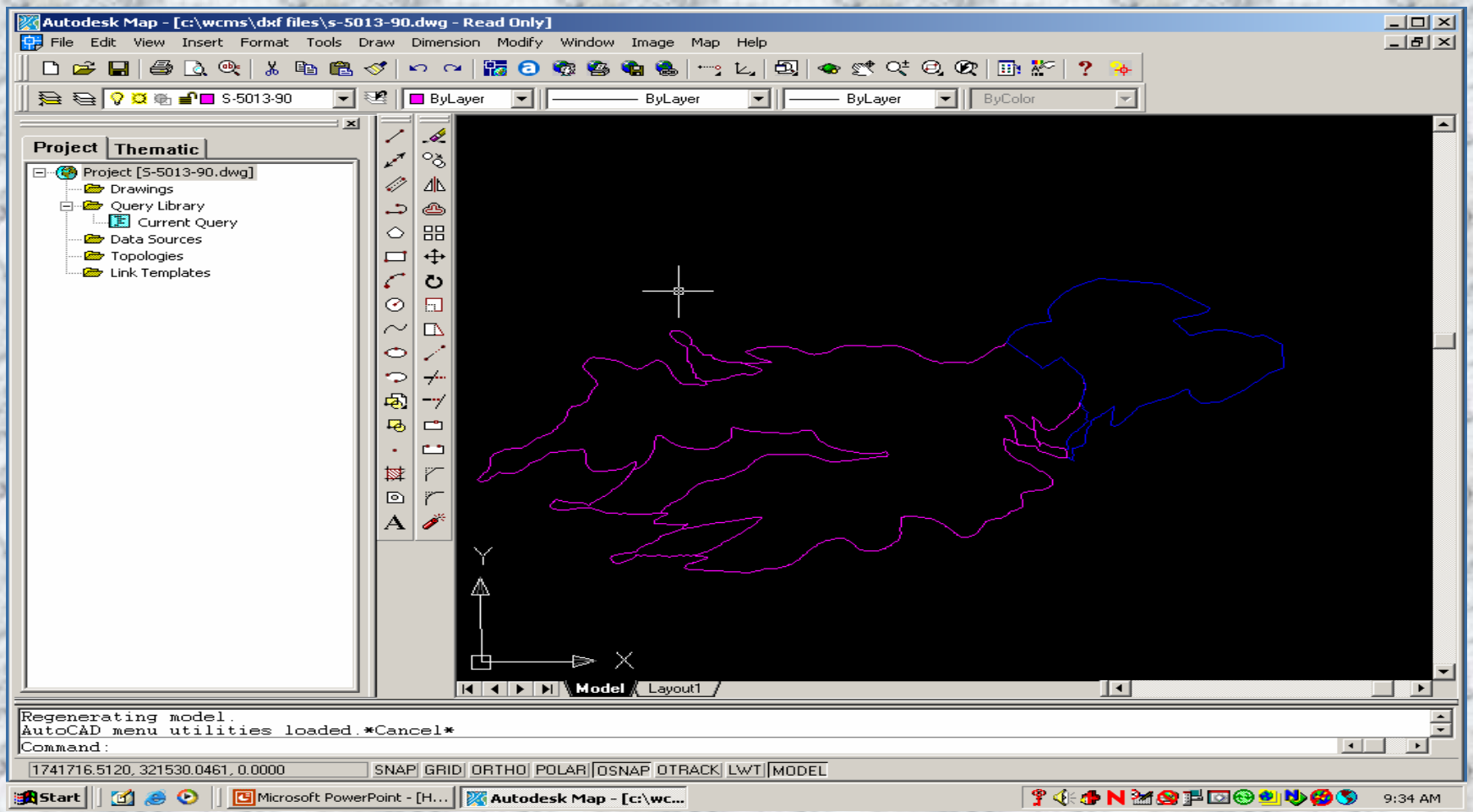
Ariel and Satellite

DOQ's

LU/LC

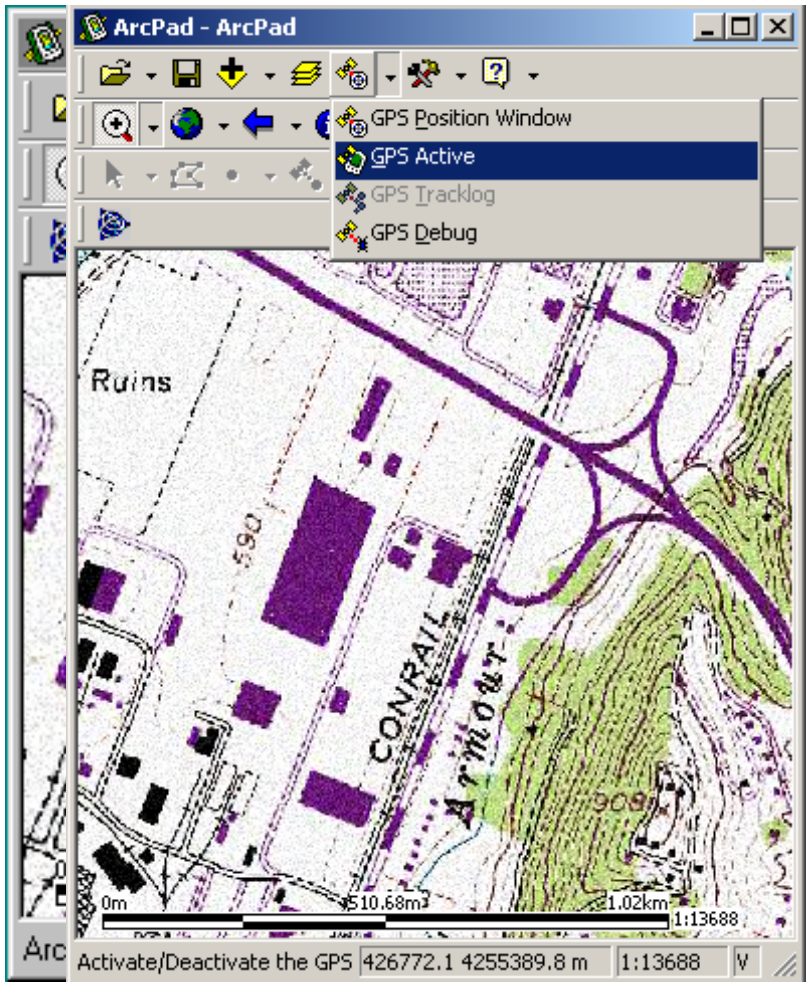
Satellite

GIS Database Maintenance
CAD to ESRI conversion



Getting GIS data into the field

Getting GIS Data in the field



Components

- iPAQ h5450
- Extended Sleeve
  w/battery pack
- PC Cards
  - Storage Card (5 GB)
  - Secure Digital (128MB)
  - Serial Card (Com 4)

Components

- Trimble’s Pocket GPS receiver
  - GPS Antenna

- Cables/Adapter
  - 9 pin D shell male
  - Null Modem Cable

Components

- Software used by Handheld (PDA)/PC
  - ActiveSync (Microsoft)
  - ArcPad (ESRI)
  - ArcGIS (ESRI)
  - GPSCorrect (Trimble)
  - Pathfinder Controller (Trimble)
  - Pathfinder Office (Trimble)

PDA/GPS “Issues”

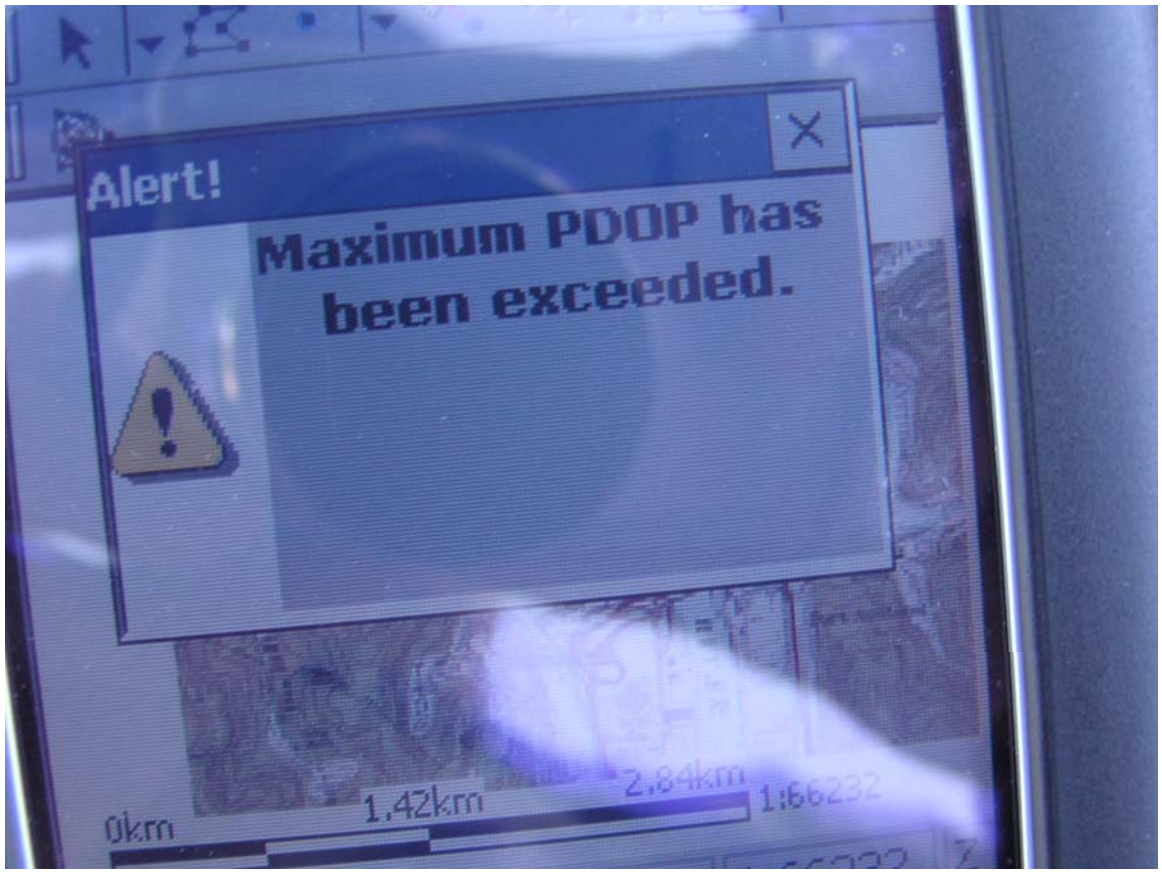
- Training
  - ArcGIS
  - ArcPAD
  - GPS
  - PDA

Issues

- Stability of ArcPAD

Issues

- Satellite reception in the real world.

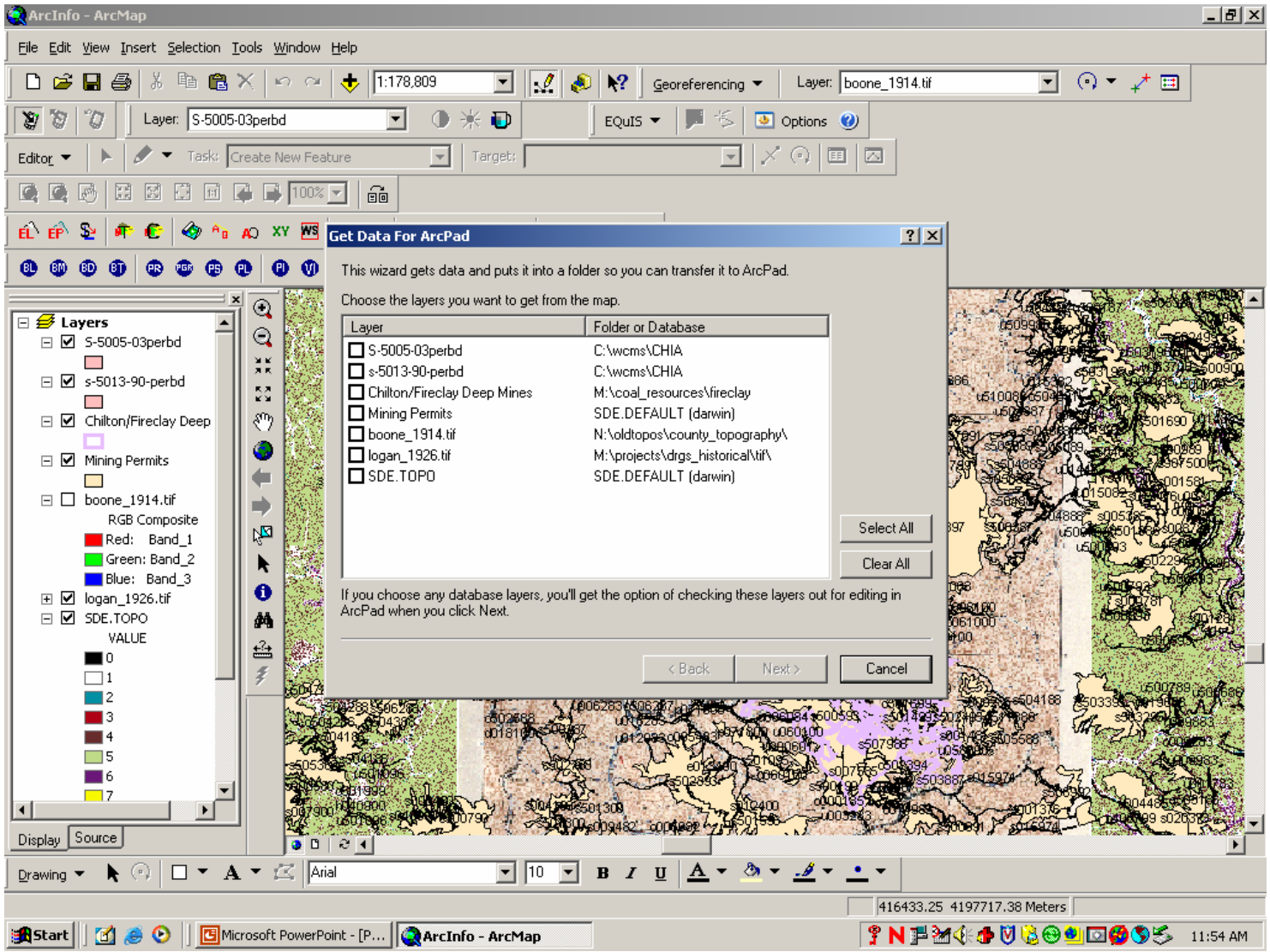


Issues

- Too many batteries!

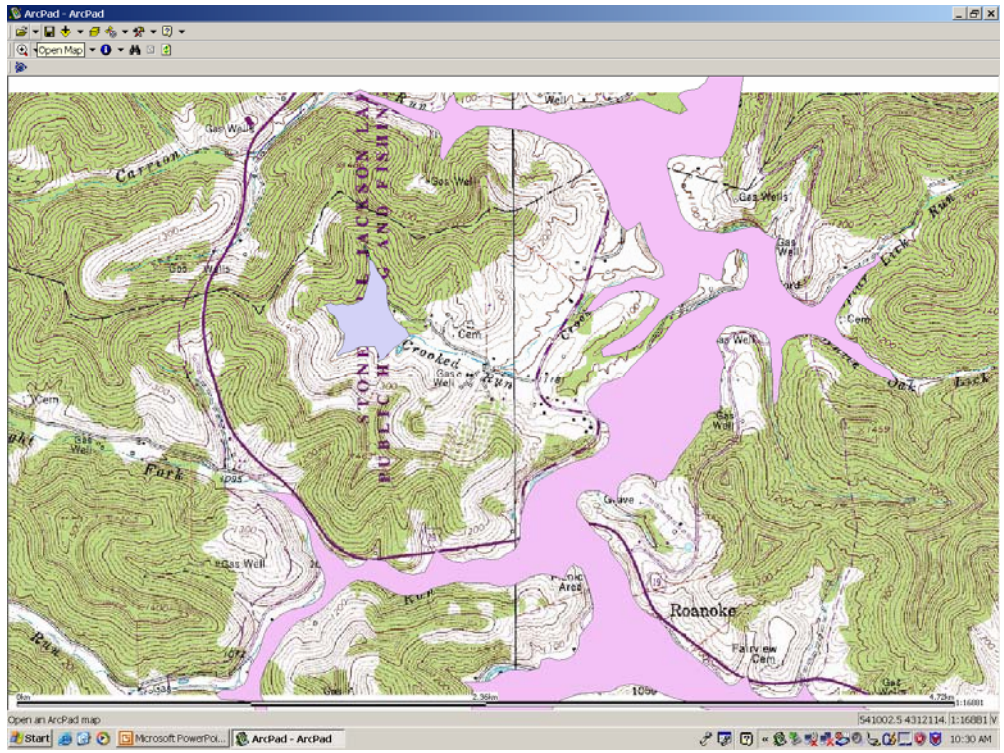
Issues

- ArcGIS 8.3 Bugs



New Horizons

- View any geo-referenced shapefile in the field



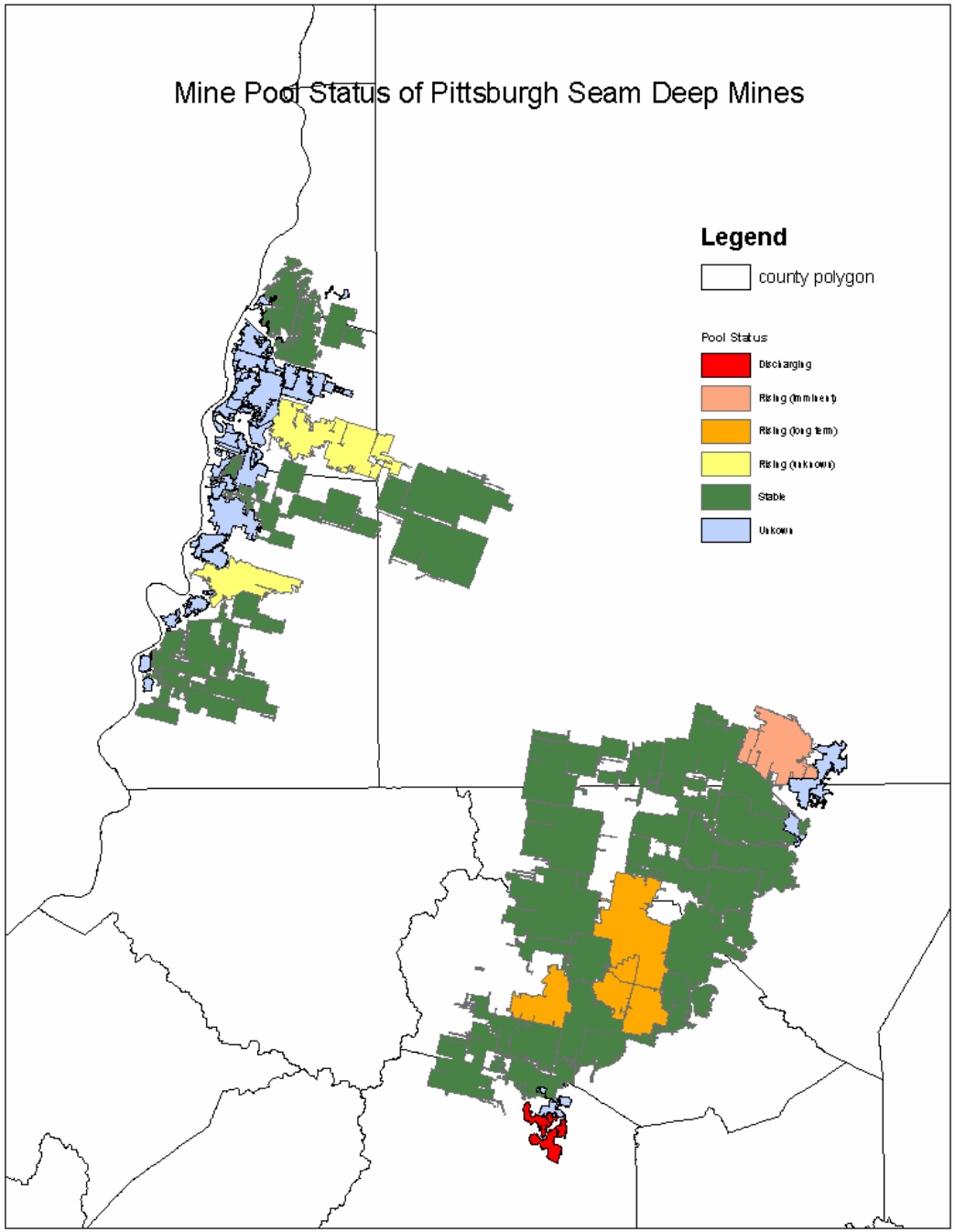
New Horizons

- Create Polygons, lines and points in the field.
  - You can also modify shapefiles
  - Try to keep its simple

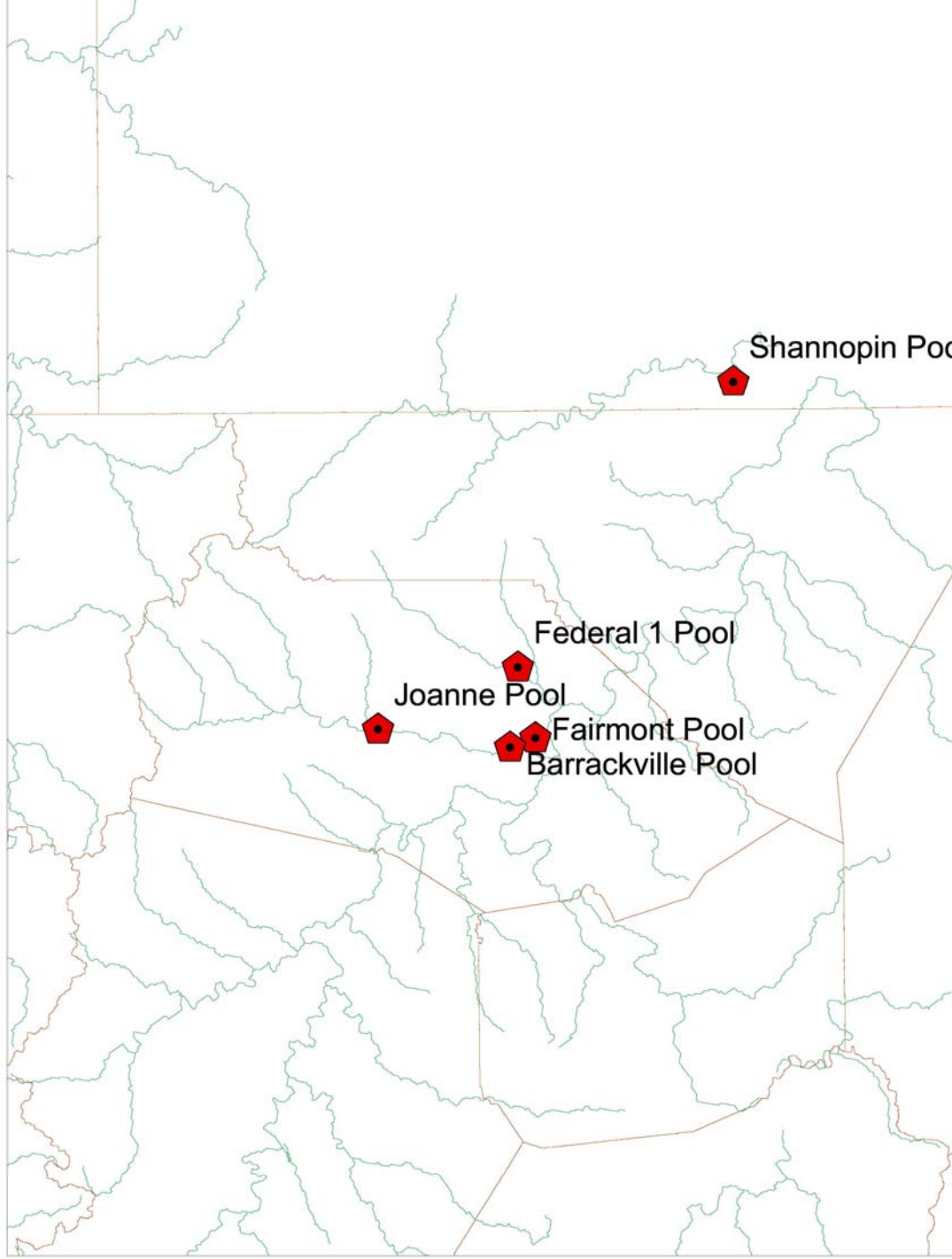
New Horizons

- Hydrologic Investigations
- Permit Review
- Inspection and Enforcement

Pittsburgh Mine Pools



Future known discharges



New Horizons

- Going Wireless

New Horizons

Wireless Old School