Panel II
Capturing Geological Data
from Mine Maps
and
Geological Database Essentials

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Geologic Data on Mine Maps

- ◆ **Point source**
  - ▪ **Posted elevations**
  - ▪ **Posted thicknesses**

- ◆ **Non-point source**
  - ▪ **Structural contours**
  - ▪ **Geologic features**
    - • Paleochannels (miner's 'faults')
    - • Geologic faults
    - • Bad roof or floor
    - • Split bed or excessive parting

Handling Data

♦ **Inventory presence/absence in the mine map database**

♦ **Capture the data in a geologic database**

♦ **Do both**

LJ HUGHES & SONS, INC.

DIAMOND CORE DRILLING
Pressure Grouting, Foundation & Soil Borings
320 Turnpike Road, Summersville, West Virginia 26651 (304) 872-1111

277-001

PERMIT: U-3042-91

Montgomery
7.5'
WVA COORDINATES
1,908,050 E.
446,750 N.

DRILL HOLE NO. K-3-91   DRILLER: LOWELL RITCHIE

DRILLING FOR: CANNELTON INDUSTRIES, INC., CHARLESTON, WEST VIRGINIA   (SZN)

SURFACE ELEVATION: 1456.76   STARTED: MAY 15, 1991
                                    COMPLETED: MAY 22, 1991

Other Point Types:
Geologist's core log
Surface section
O&G driller's log
O&G e-log
UG mine el. only
UG mine thk. only
UG mine el. & thk.

LOCATION: WEST VIRGINIA, KANAWHA COUNTY

Point Type = Driller's core log

| FORMATION	STRATA THICKNESS	DEPTH FROM SURFACE
CASING	20.00	20.00
GRAY SHALE	21.60	41.60
BROWN SANDY SHALE	4.20	45.80
GRAY AND BROWN SHALE	7.40	53.20
BROWN AND GRAY SANDSTONE	1.30	54.50
GRAY SHALE	7.20	61.70
BLACK SHALE	0.20	61.90
BONE	0.30	62.20
COAL	3.80	66.00
GRAY SHALE	3.00	69.30

No. 6 Block Coal

Other Geologic Data

- **Coal Quality**
- **Rock chemistry**

Capturing Elevations and Thicknesses from Mine Maps

◆ **From postings within the mine workings**

◆ **From posted core hole locations**

◆ **From structural contours**

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File Edit View Insert Selection Tools Window Help

Editor

Georeferen

Map Map Points Entry Form

Point Type
- ○ Elevation Only
- ● Thickness Only
- ○ Elevation And Thickness

Point Source
- ● Discrete Data Point
- ○ Core Location
- ○ Point from Structural Contour

Source Map ID: 384362

Coal Bed: 5 POCAHONTAS   Splits: MS

BOC_Elev: 0 (Feet)   NDBNUM 1234

DHDepth: 4.6666666 (Feet)   SEQ NUM 001

Surface Elevation: 4.6666666 (Feet)   User Acct coaluser

Stratigraphy

Thickness
(In inches)   Primlith   Lithmod   Add

9.5	COAL	
1.5	NR	PTG
29	COAL	
1.5	NR	PTG
7.5	COAL	

Delete

Clear

Point ID: 384362-001   Assign Point ID

Display

Drawing

Select source layer   -305.01 1000 Unknown Units

2230

C 9.5
R 1.5
C 29
R 1.5
C 7.5
R 7

2229.70

B I U A

start   Pegasus Mail   WVGES response to...   Address Book - Mai...   Untitled - ArcMap - ...   9:10 AM

Untitled - ArcMap - ArcInfo
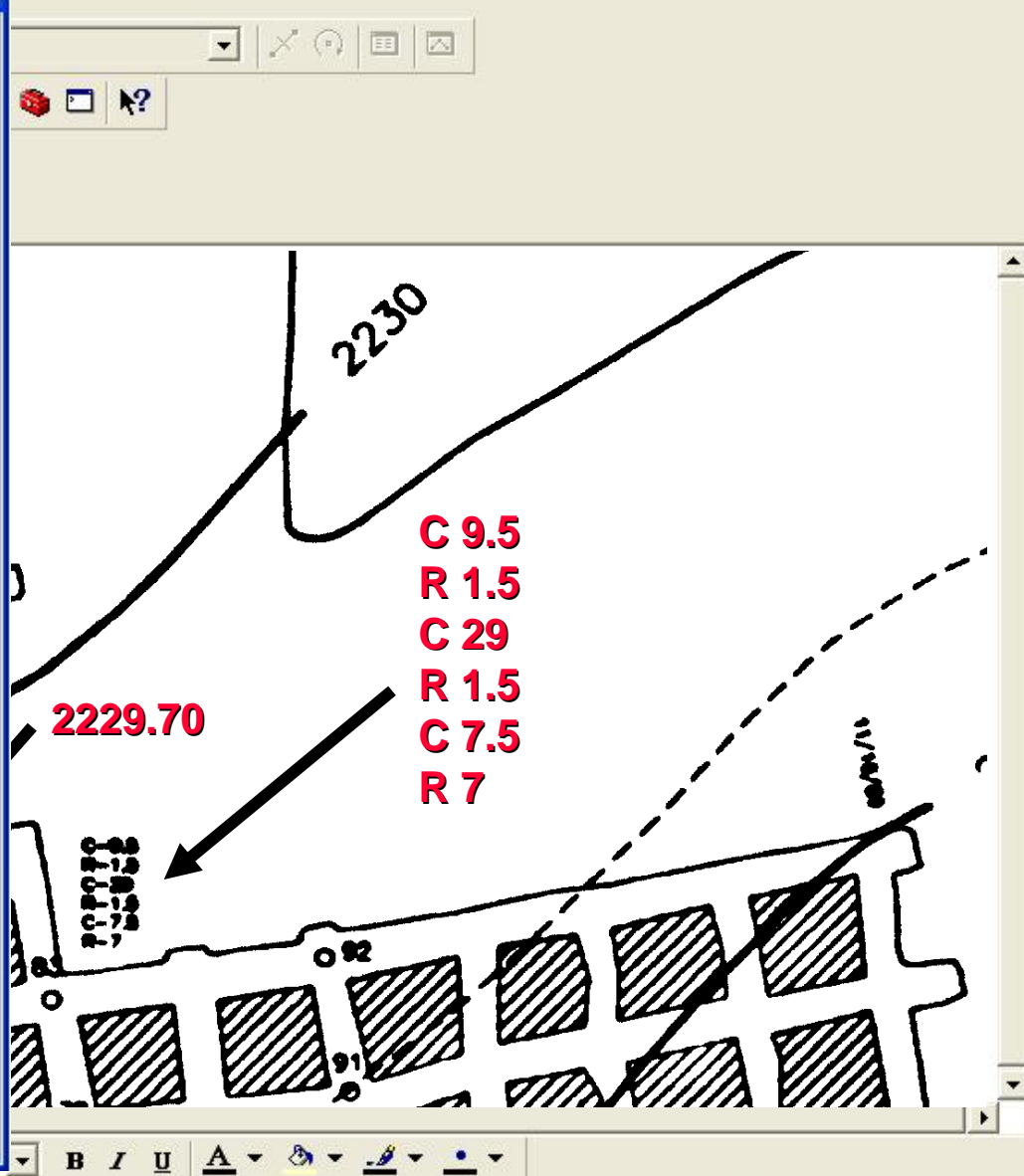
File   Edit

Editor ▼

Georefere...

Map Map Points Entry Form

Point Type
- ○ Elevation Only
- ○ Thickness Only
- ● Elevation And Thickness

Point Source
- ○ Discrete Data Point
- ● Core Location
- ○ Point from Structural Contour

Source Map ID: 385353   Drill Hole ID: RE-97-32

Coal Bed: 7 POCAHONTAS   Splits: MS

BOC_Elev: 1495 (Feet)   NDBNUM: 1235

DHDepth: 2.741666 (Feet)   SEQ NUM: 001

Surface Elevation: 1497.741 (Feet)   User Acct: coaluser

Stratigraphy

Thickness
(In inches)   Primlith   Lithmod

[   ] [   ] [   ] Add

| 2.7 | NR | PTG |
| 30.2 | COAL | |

Delete

Clear

Point ID: **385353-001-DH-RE-97-32**   Assign Point ID
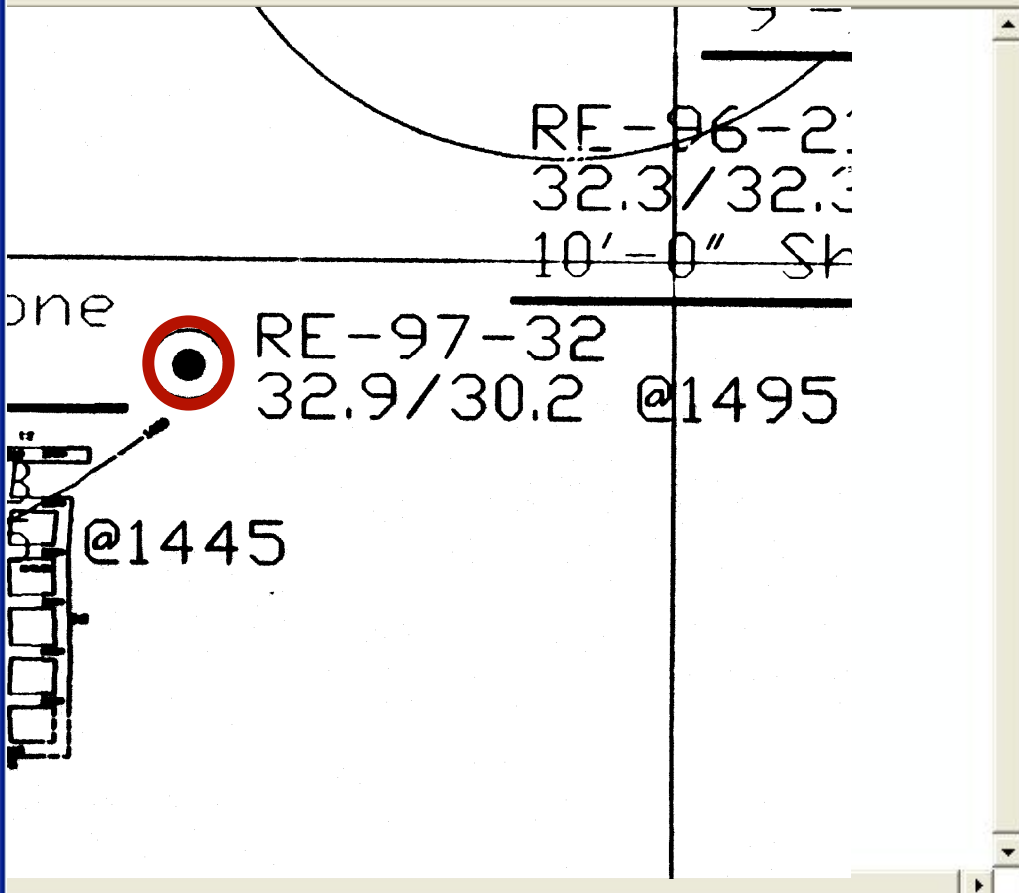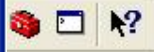
Display

Drawing ▼   Arial   10   B I U

Select source layer   -305.01 1000 Unknown Units

start   Pegasus Mail   WVGES response to...   Address Book - Mai...   Untitled - ArcMap - ...   9:10 AM

RE-96-2
32.3/32.3
10'-0" Sk

one

RE-97-32
32.9/30.2 @1495

@1445
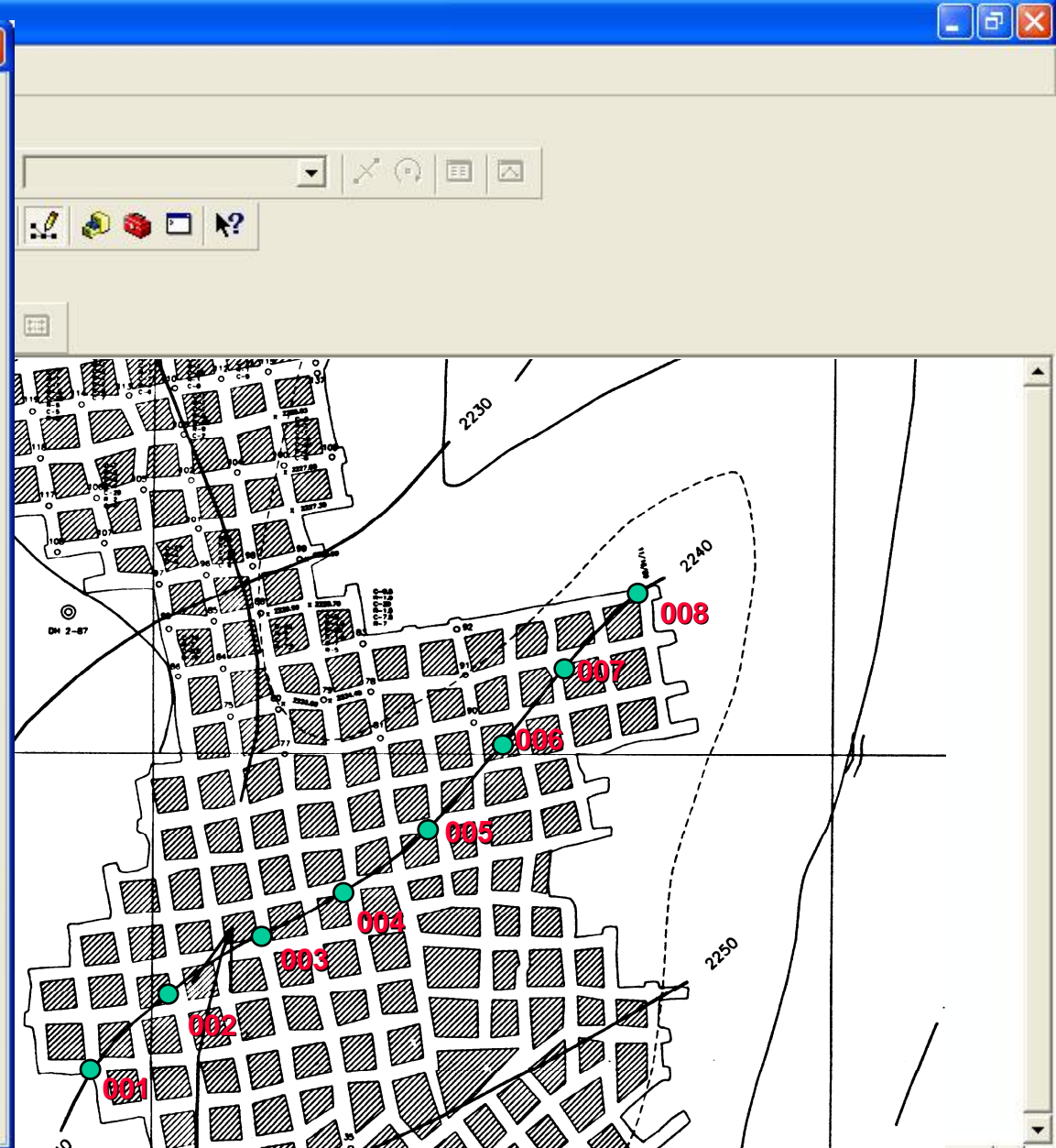
Discontinuities feature class (by coal bed)
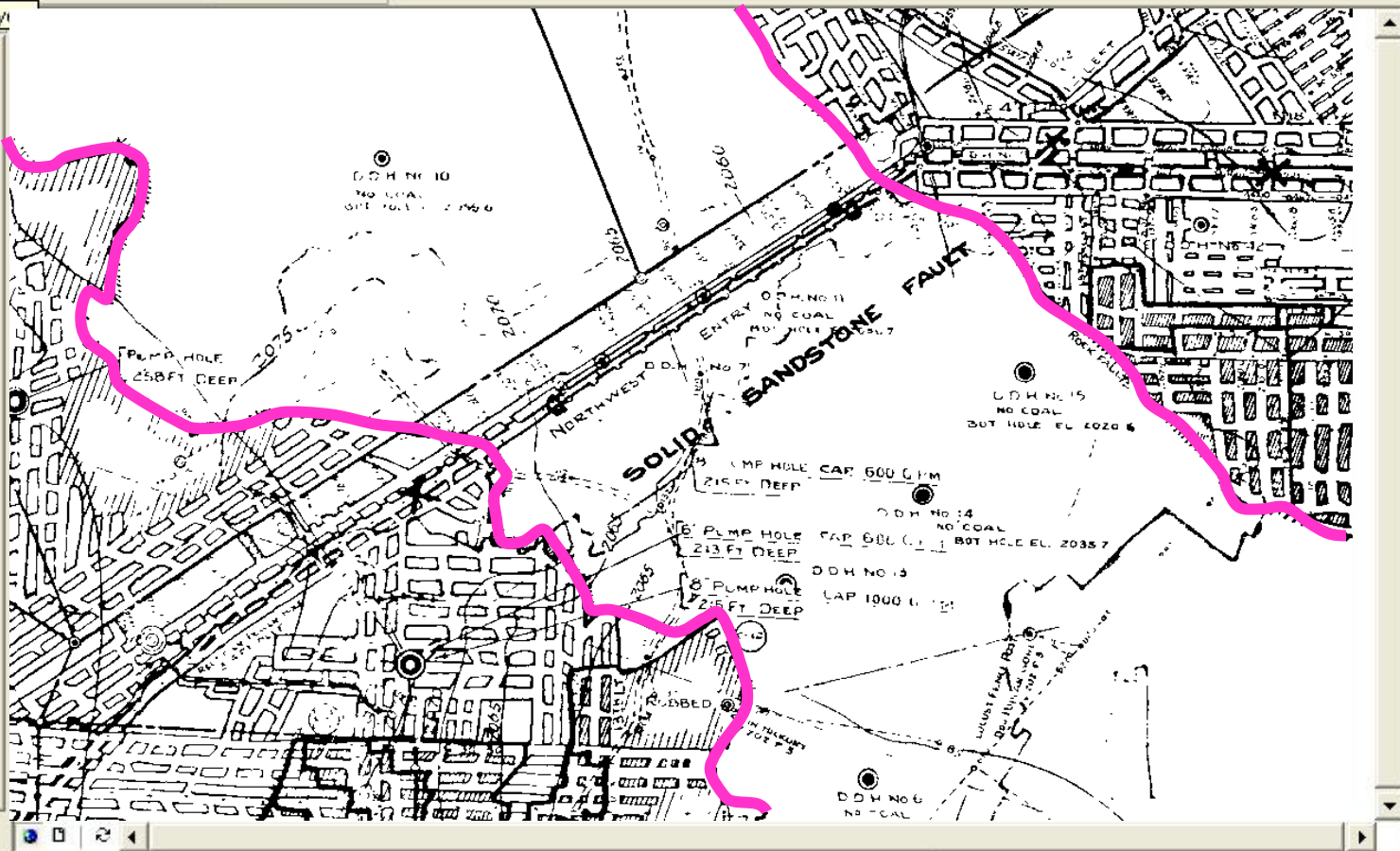
New Database System Components

♦ **Oracle RDBMS – Linux server**
♦ **Java-based Oracle database forms**
♦ **Spatial Database Engine (SDE) (Java interface)**
  - ▪ **For storage and management of point locations**
♦ **ESRI Map objects**
  - ▪ **Map display of data**
♦ **Java-based graphics applications**
  - ▪ **Interactive on-screen stratigraphic cross sections**
  - ▪ **Plotted output**
    - Cross sections
    - Strip logs
    - Data locations