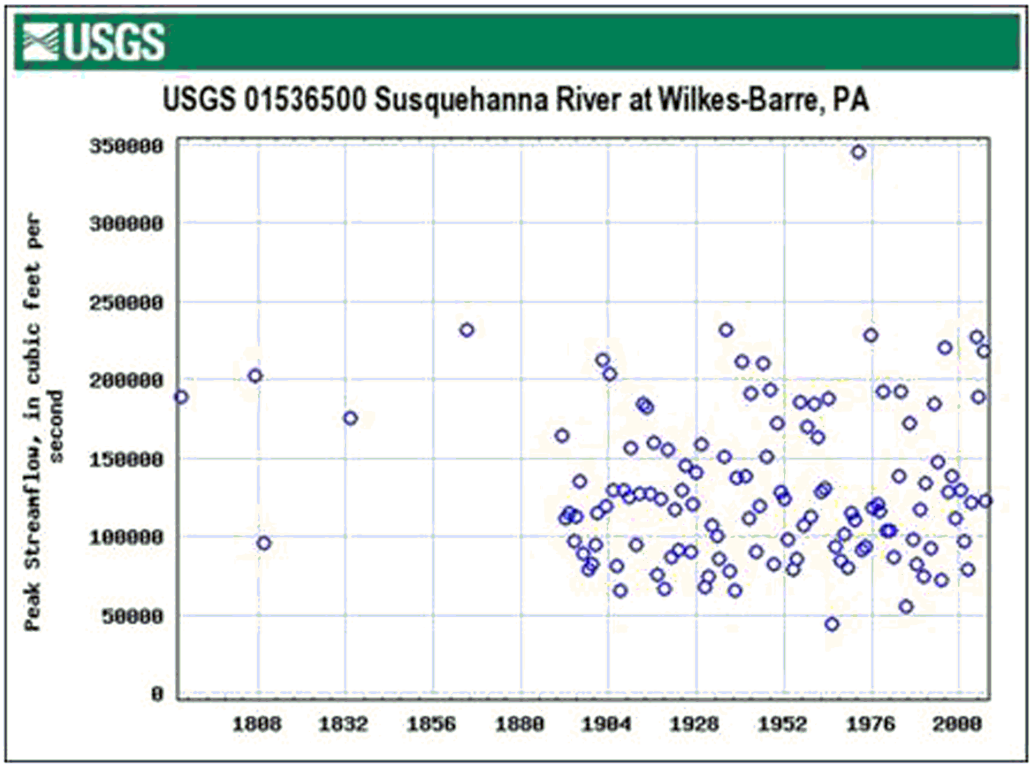
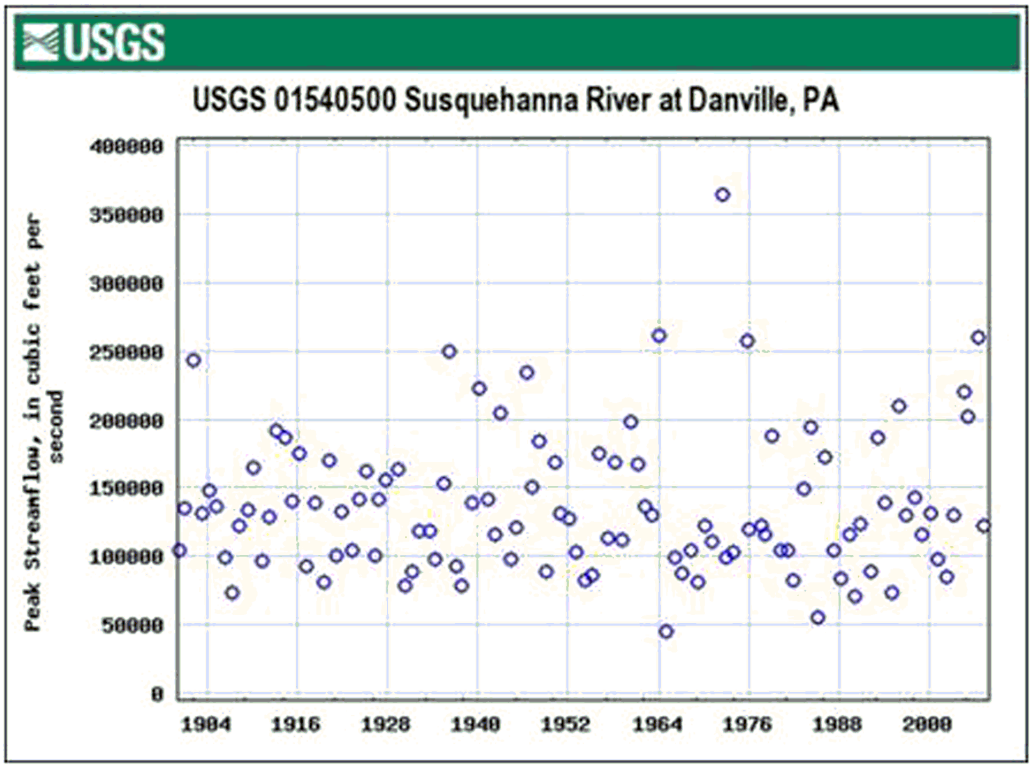
Figure 2.4-20 {Peak Streamflow at Wilkes-Barre and Danville Gauging Stations}



Source: USGS, 2008a



Source: USGS, 2008b

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Figure 2.4-21 {Sub-basin Site Drainage Delineation}

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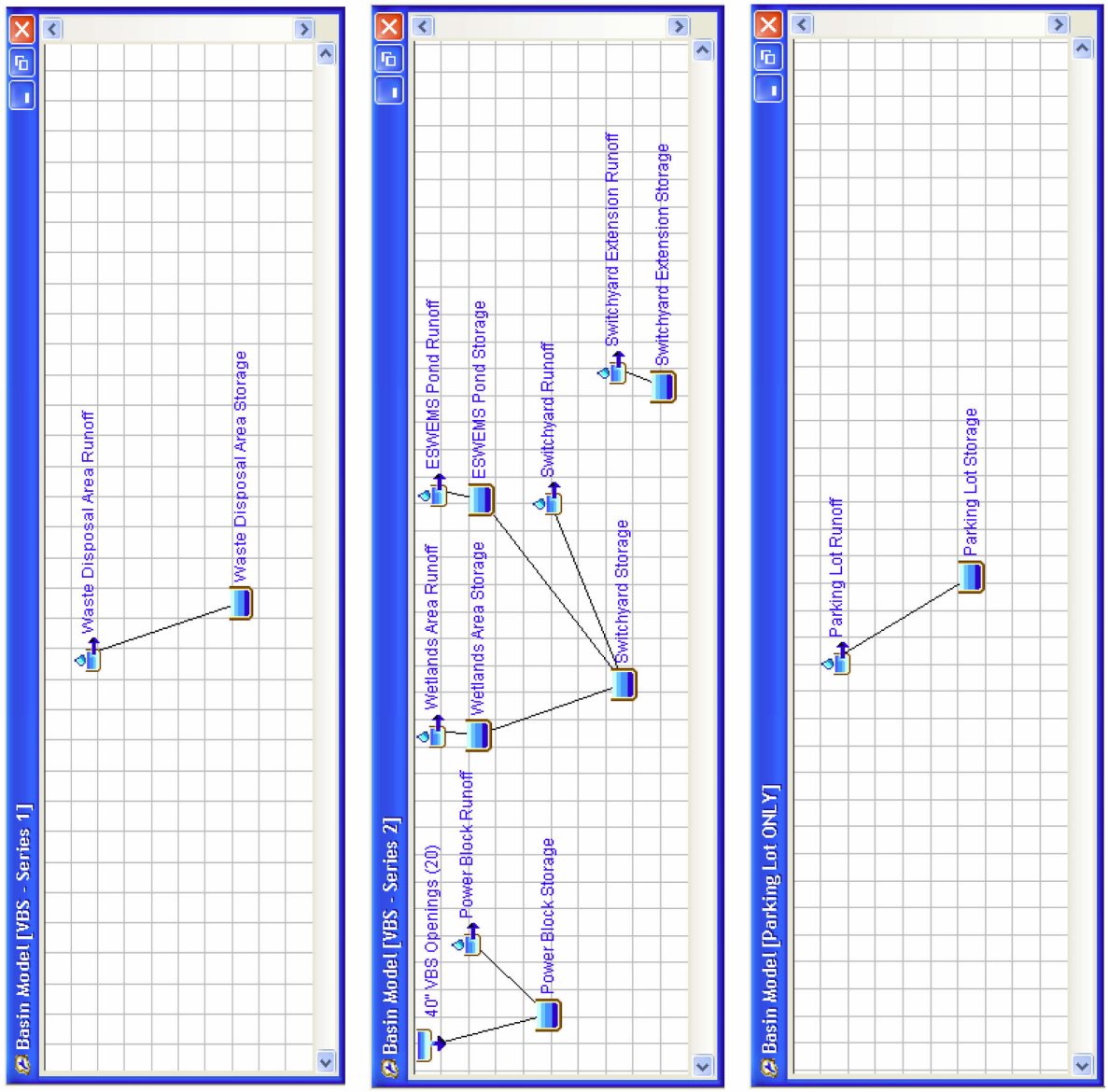

Figure 2.4-22 {HEC-HMS Hydrologic Diagram}

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Figure 2.4-23 {BBNPP Site Location}

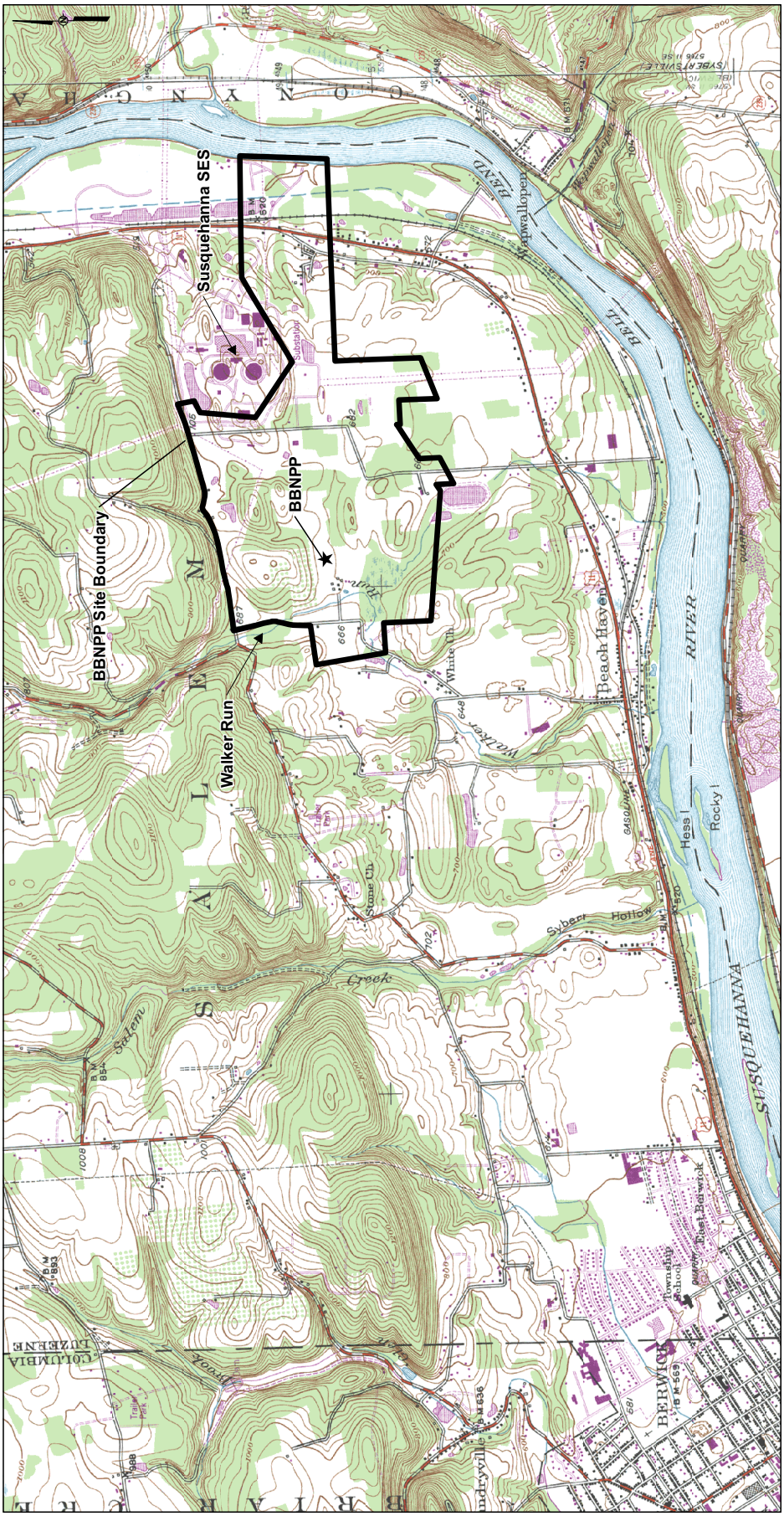

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Figure 2.4-24 {HEC-HMS Model Setup of Walker Run Watershed}

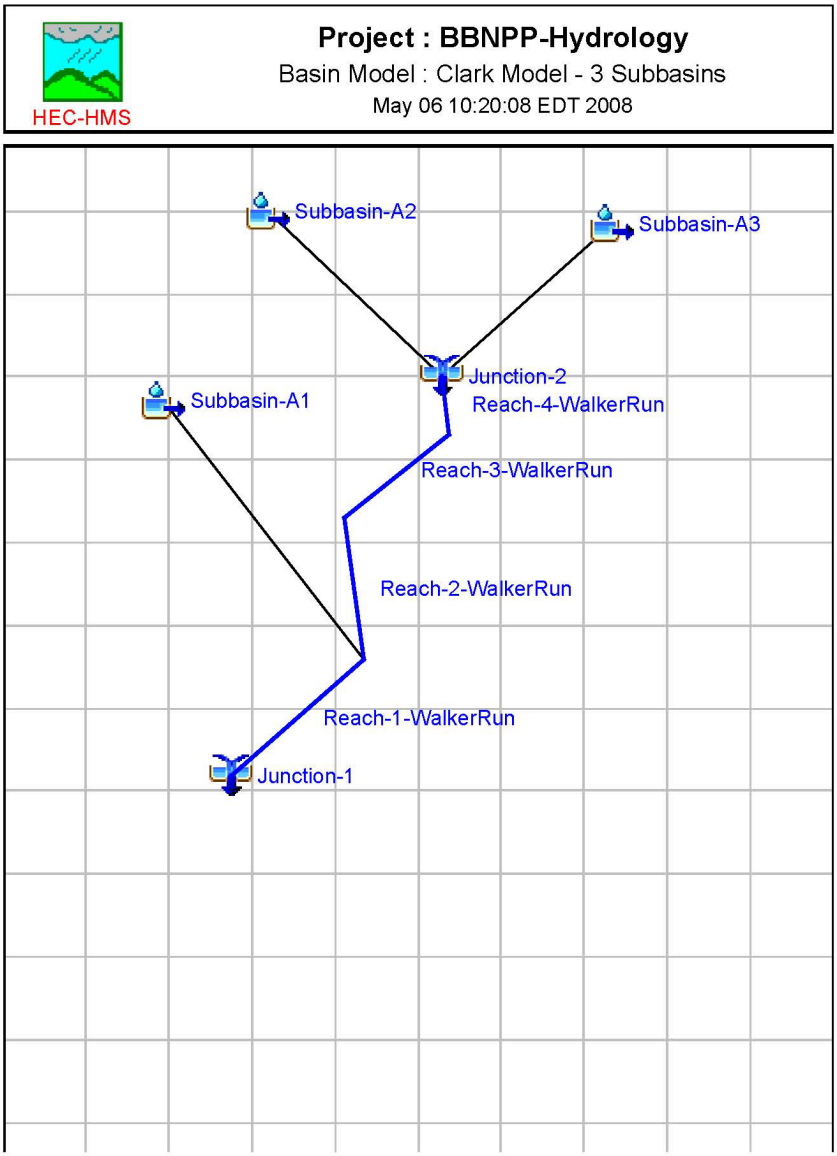

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Figure 2.4-25 {Junction 1 Hydrograph}

Junction Element "Junction-1" Results for Run "PMF-Clark-3 subbasins-1"

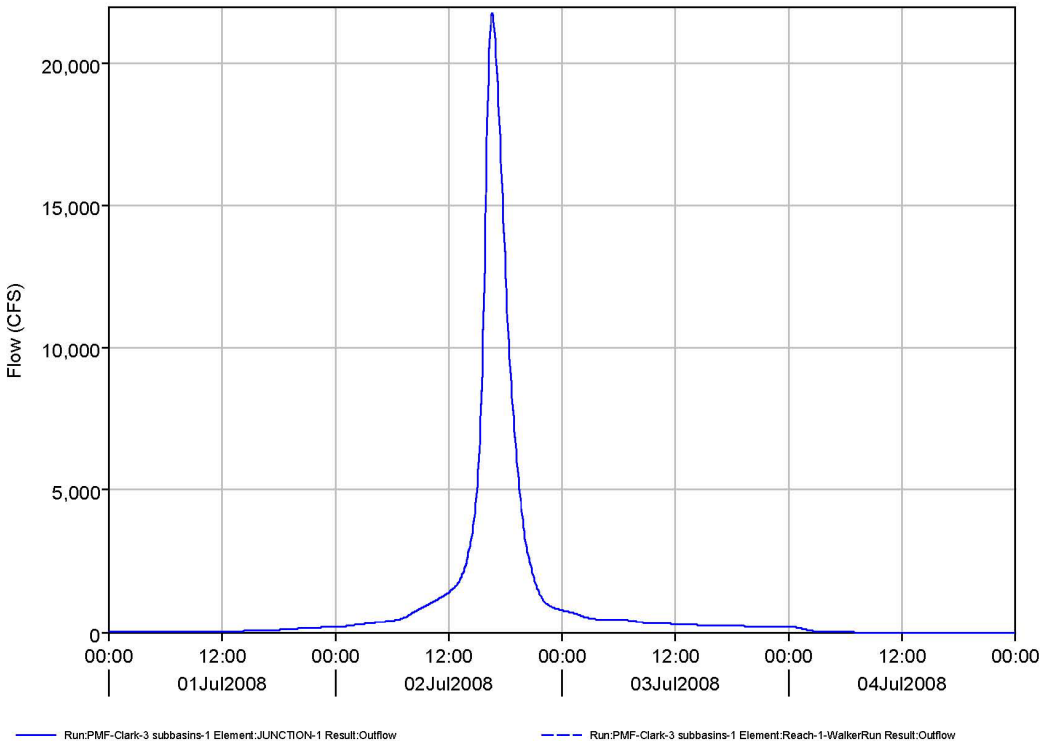

Figure 2.4-26 {Junction 2 Hydrograph}

Junction Element "Junction-2" Results for Run "PMF-Clark-3 subbasins-1"

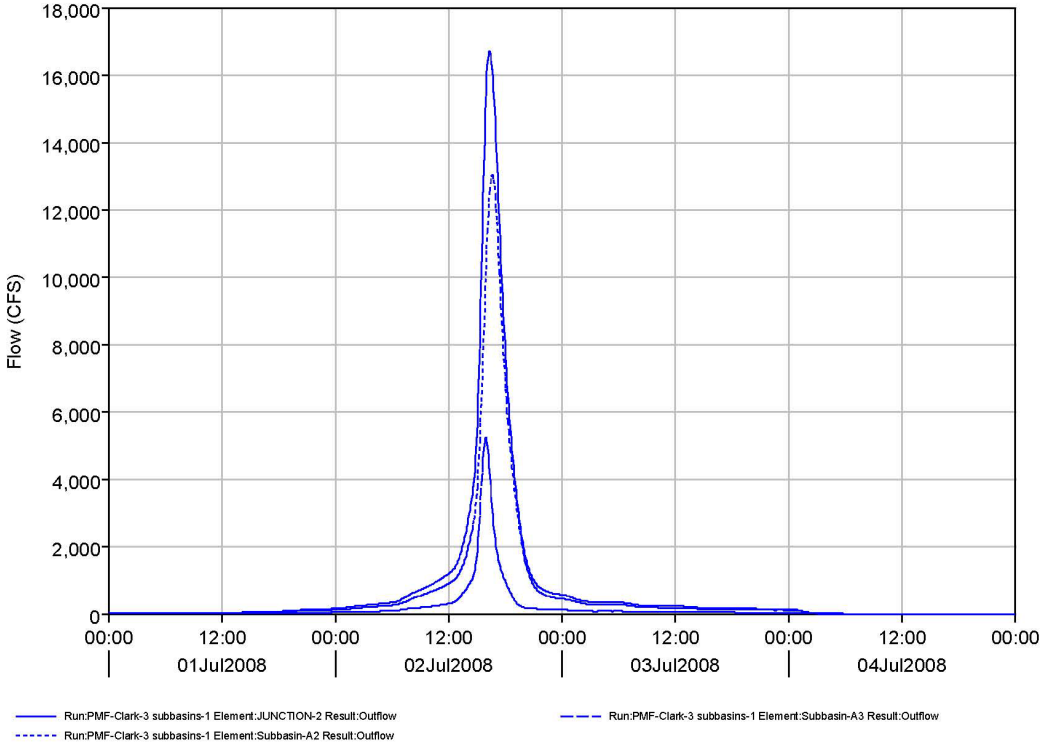

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Figure 2.4-27 {Sub-Basin A1 Hydrograph}

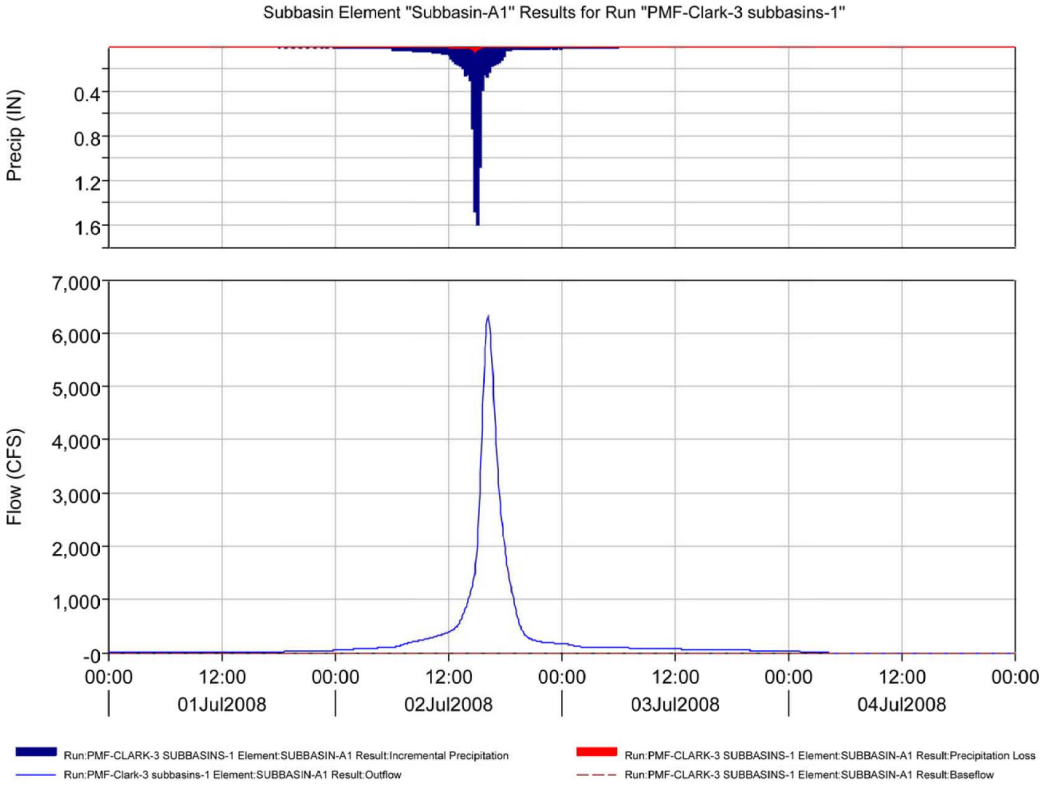

Figure 2.4-28 {Sub-Basin A2 Hydrograph}

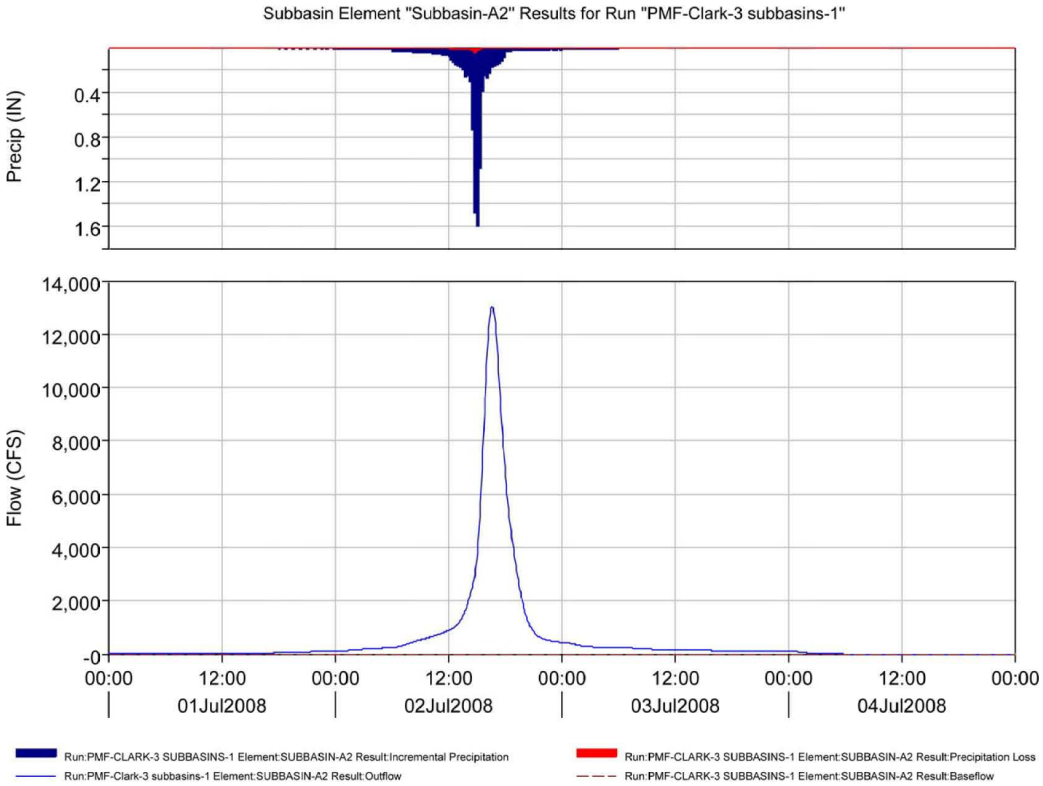

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Figure 2.4-29 {Sub-Basin A3 Hydrograph}

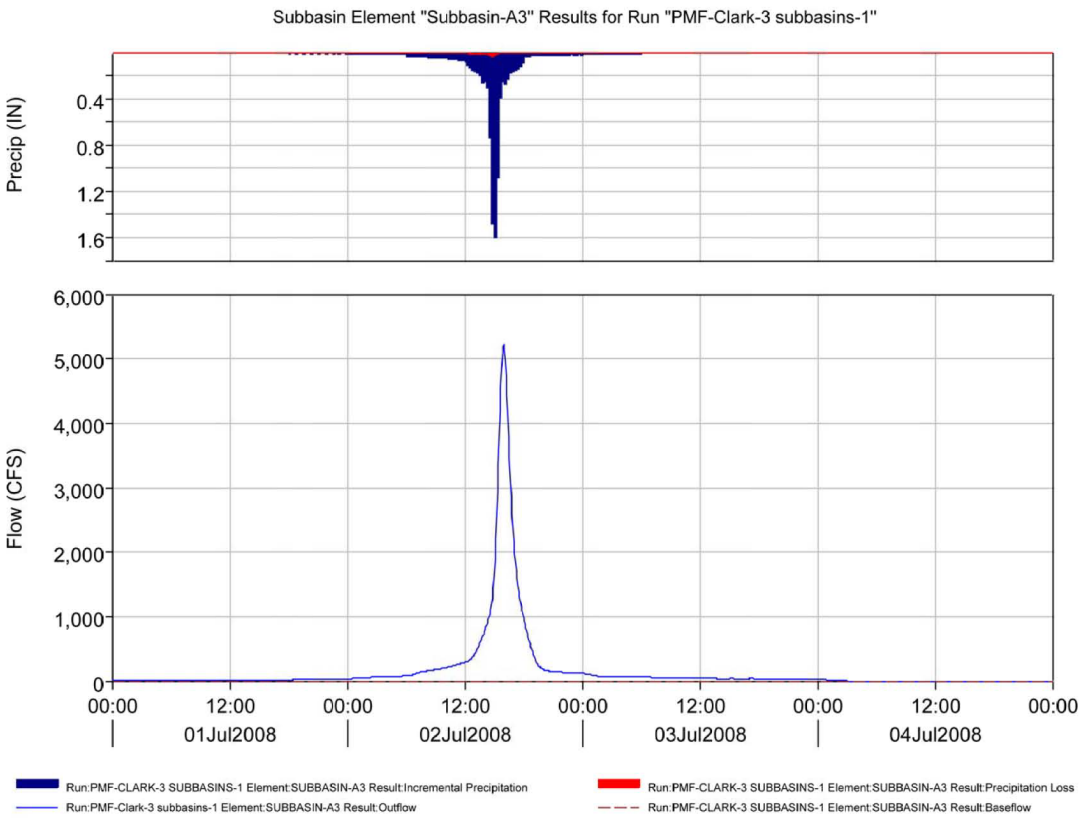

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Figure 2.4-30 {HEC-RAS Cross Section Locations Near Power Block}

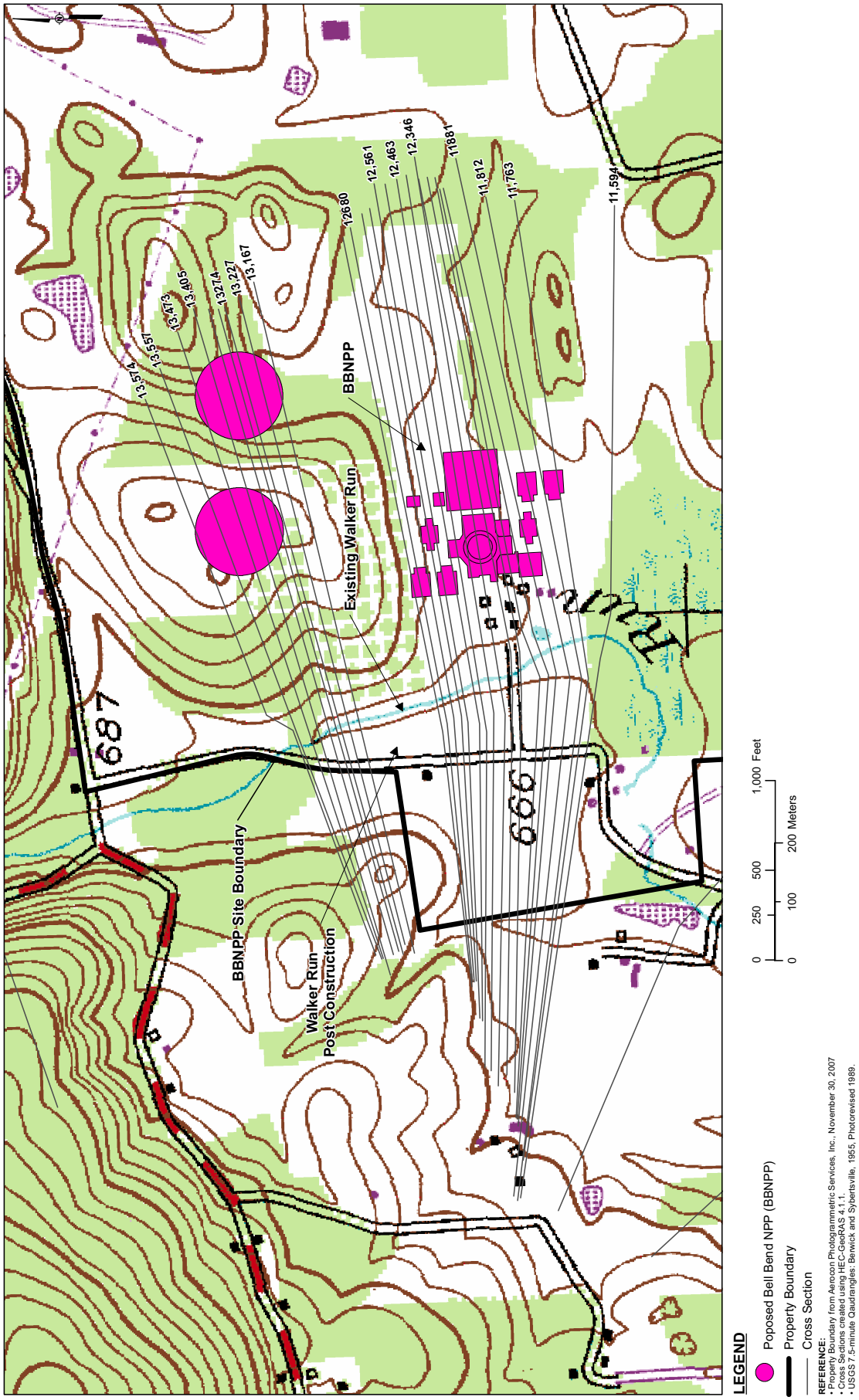

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Figure 2.4-31 {HEC-RAS Cross Section Locations}

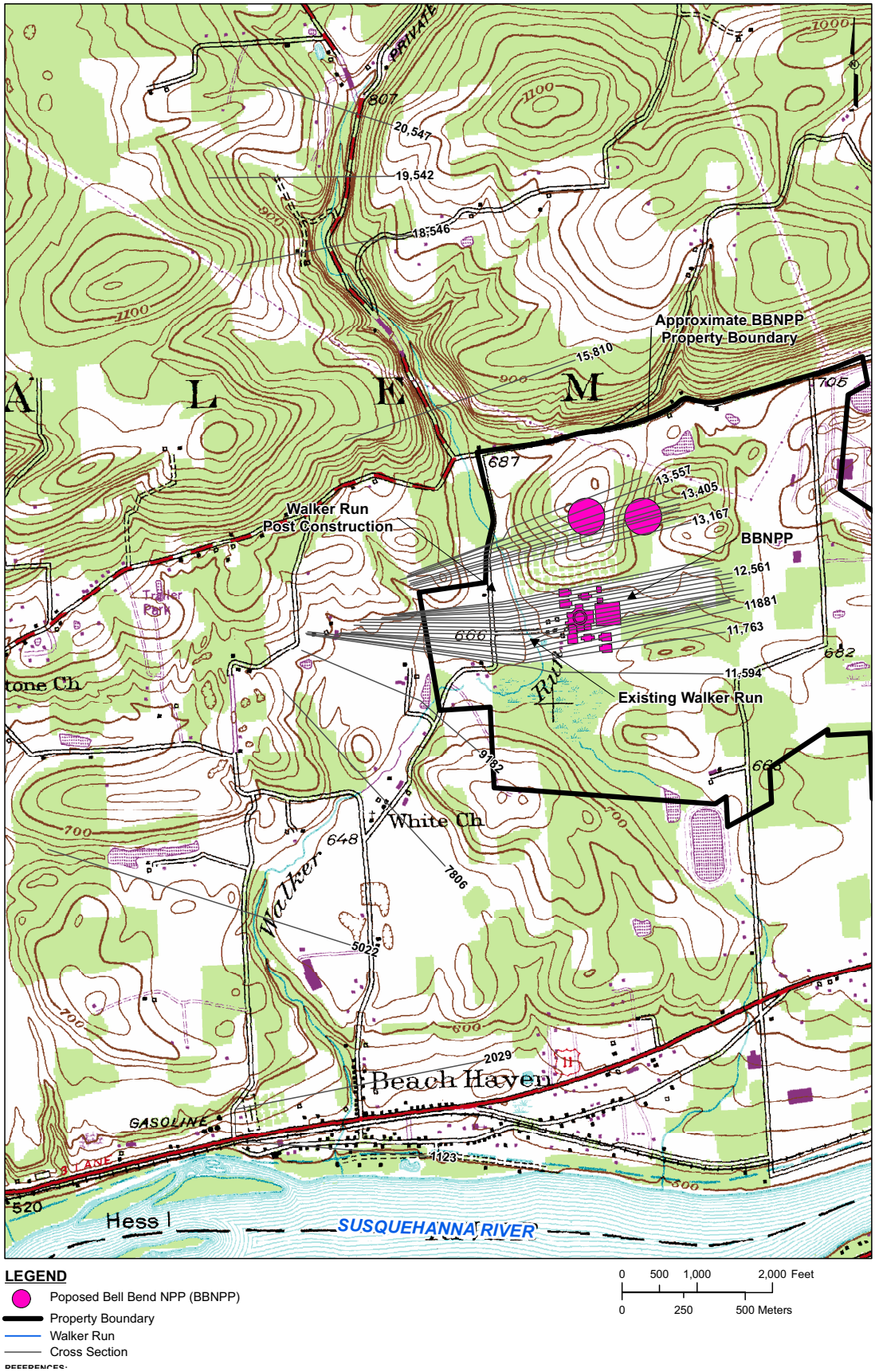

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Figure 2.4-32 {Complete HEC-RAS Cross Section Locations}

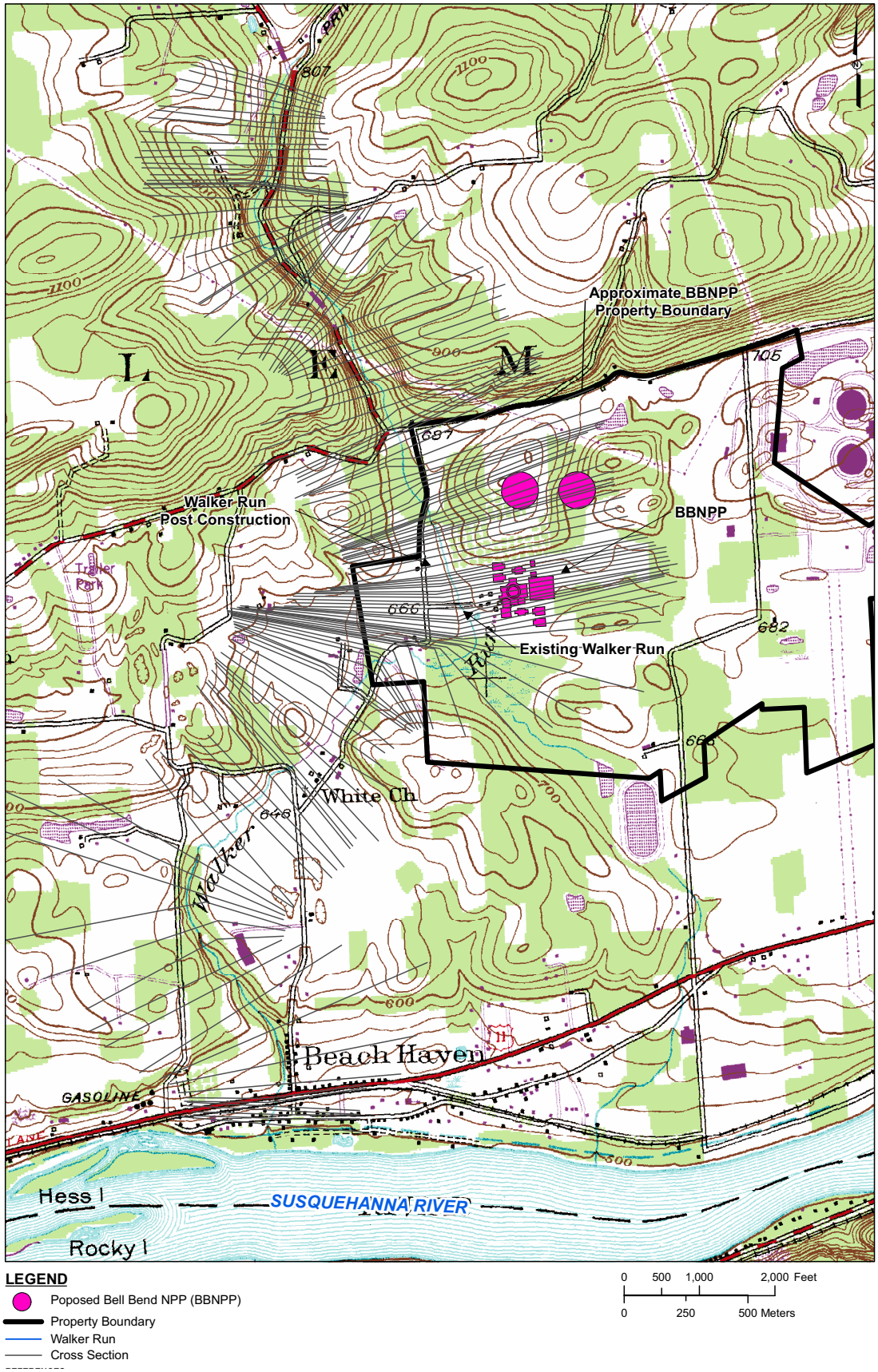

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Figure 2.4-33 {Walker Run PMF Water Surface Profile}

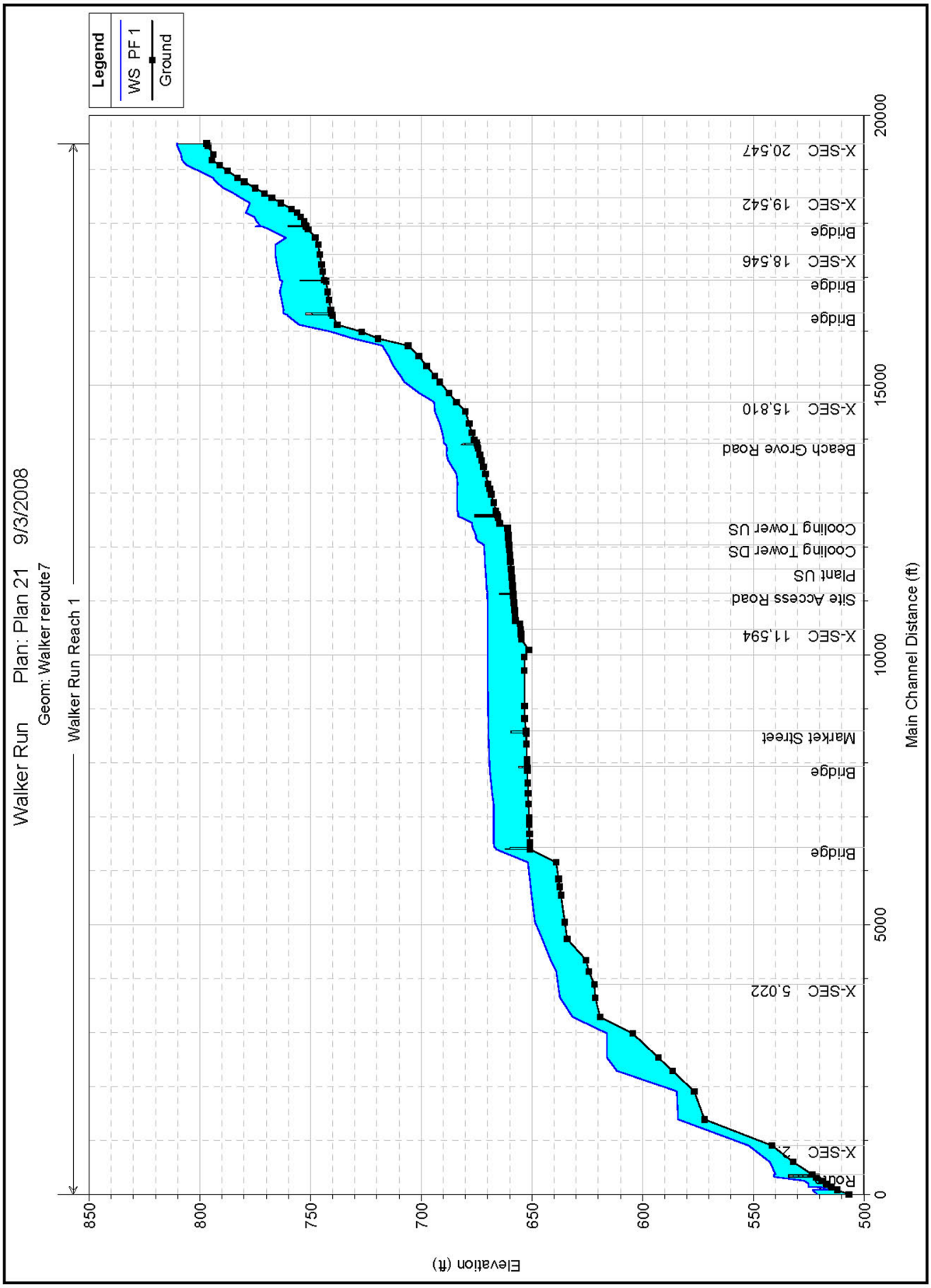

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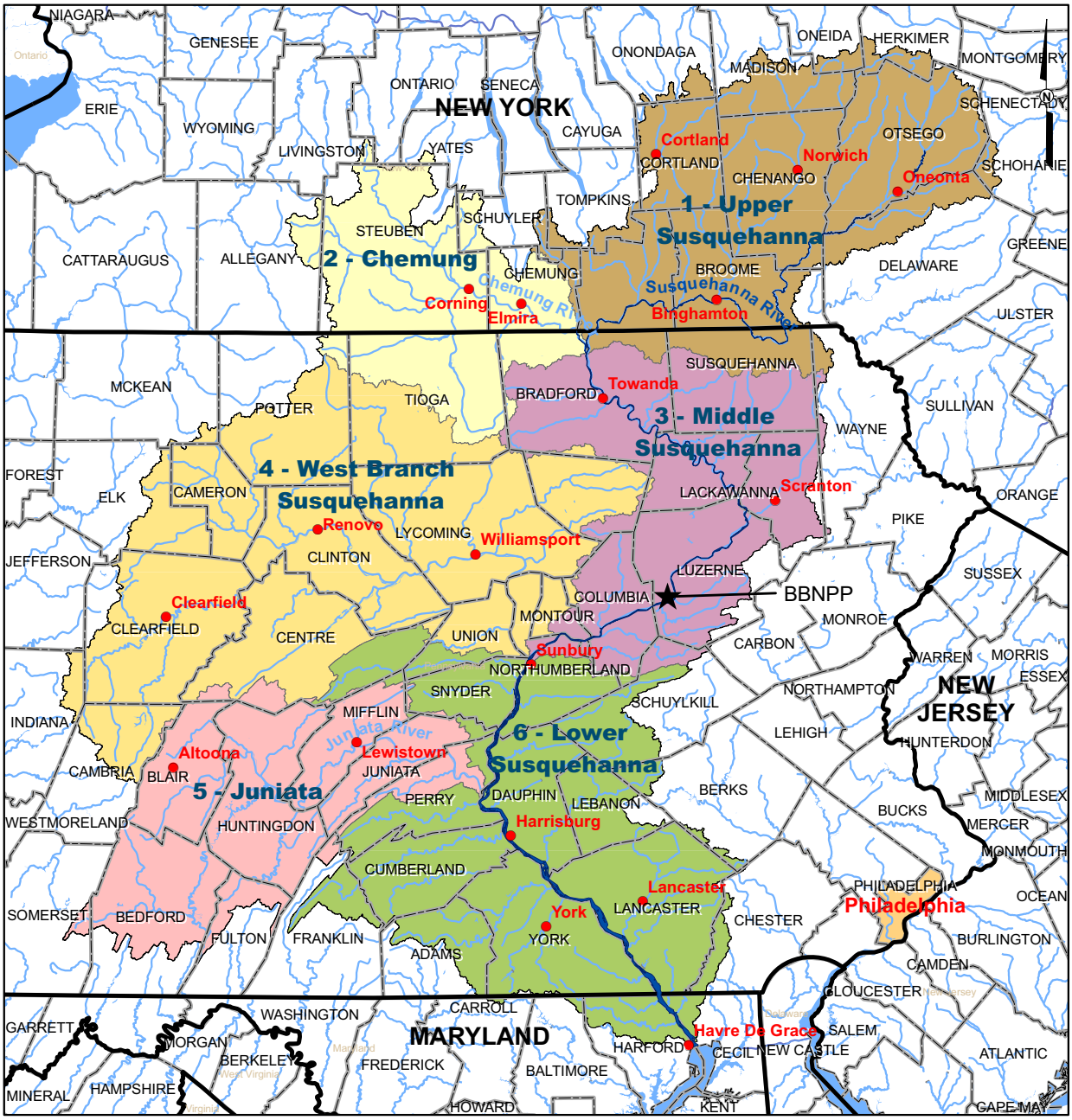
Figure 2.4-34 {Susquehanna River Basin and Sub-Basins}



LEGEND

★ Center Point of Proposed Bell Bend NPP (BBNPP)

Susquehanna River Subbasins

- Chemung
- Juniata
- Lower Susquehanna
- Middle Susquehanna
- Upper Susquehanna
- West Branch Susquehanna

- Waterbody
- County Boundary
- State Boundary

0 17.5 35 70 Miles

0 17.5 35 70 Kilometers

REFERENCES:

ESRI StreetMap Pro [CD-ROM], 2007, Waterbody, Roads, County, Boundary, and City.
Susquehanna River Basin Commission, 2006, Susquehanna River Basin Subbasins

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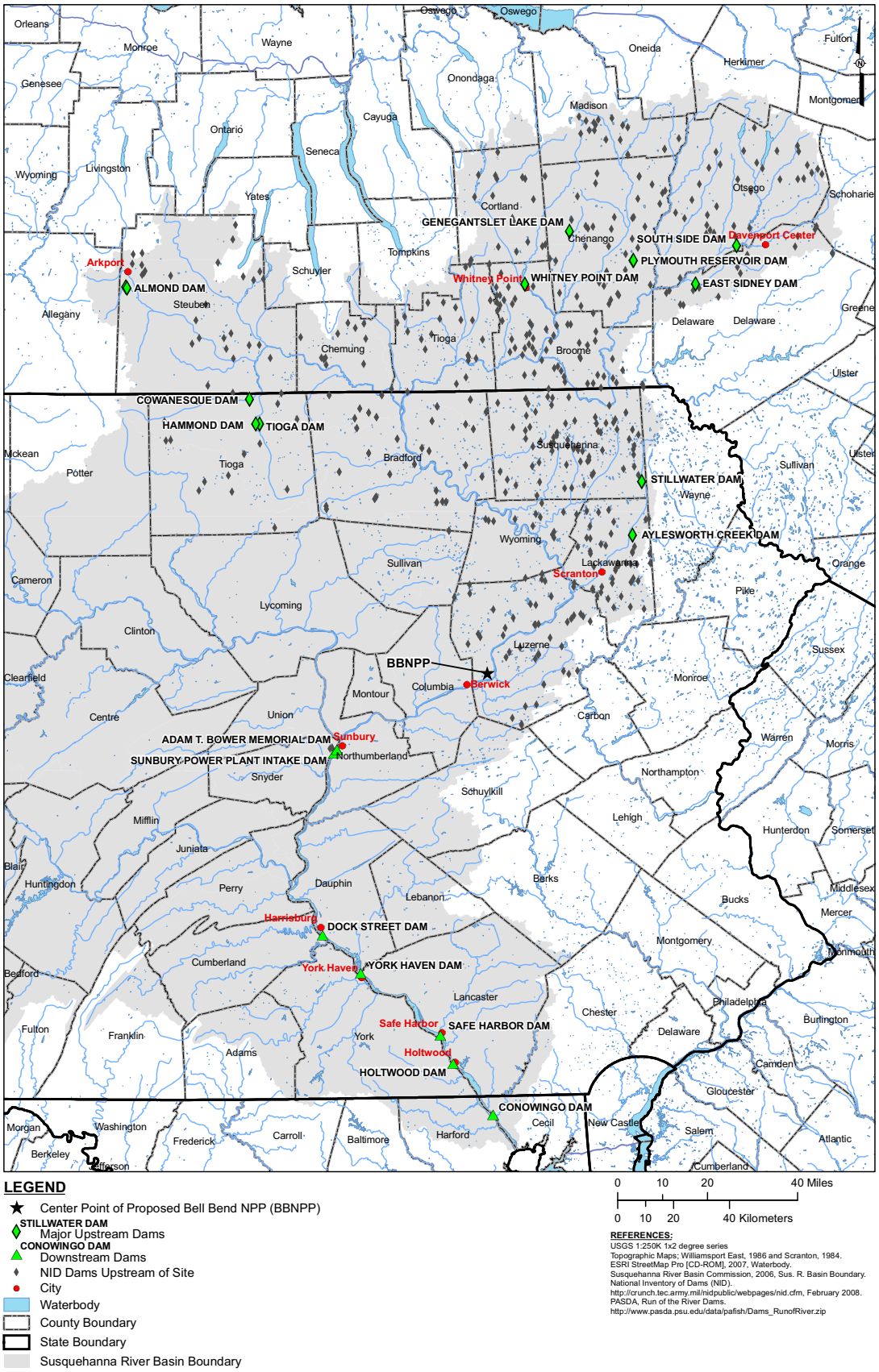
Figure 2.4-35 {Major and Minor Dams Upstream from BBNPP}



LEGEND

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- STILLWATER DAM ◆ Major Upstream Dams
- CONOWINGO DAM ▲ Downstream Dams
- ♦ NID Dams Upstream of Site
- ● City
- Waterbody
- County Boundary
- State Boundary
- Susquehanna River Basin Boundary

REFERENCES:
USGS 1:250K 1x2 degree series
Topographic Maps; Williamsport East, 1986 and Scranton, 1984.
ESRI StreetMap Pro [CD-ROM], 2007, Waterbody.
Susquehanna River Basin Commission, 2006, Sus. R. Basin Boundary.
National Inventory of Dams (NID).
http://crunch.tec.army.mil/nidpublic/webpages/nid.cfm, February 2008.
PASDA, Run of the River Dams.
http://www.pasda.psu.edu/data/pafish/Dams_RunofRiver.zip

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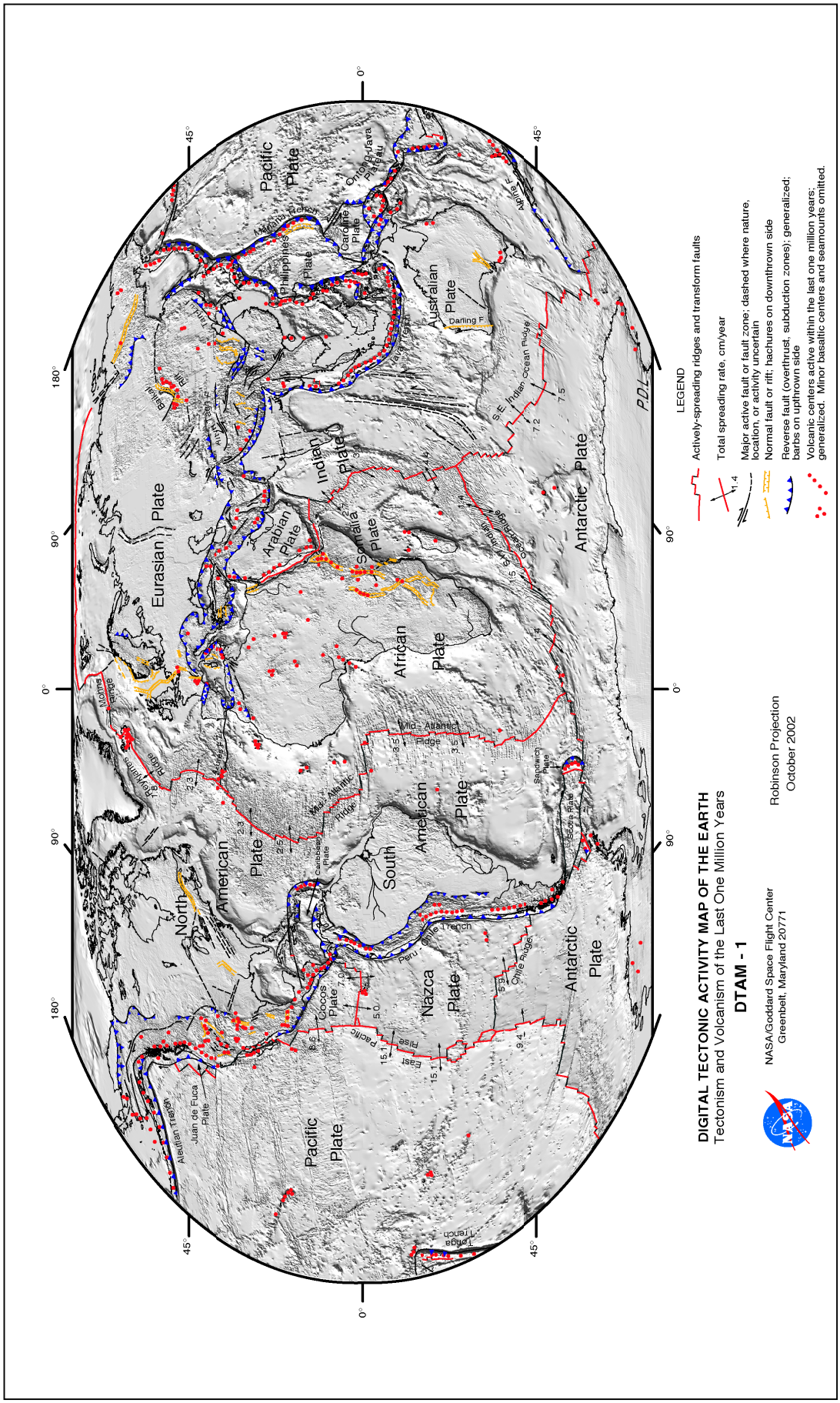
Figure 2.4-36 {Digital Tectonic Activity Map of the Earth}



Source: **NASA, 2008**

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Figure 2.4-37 {Pennsylvania Landslide Susceptibility}

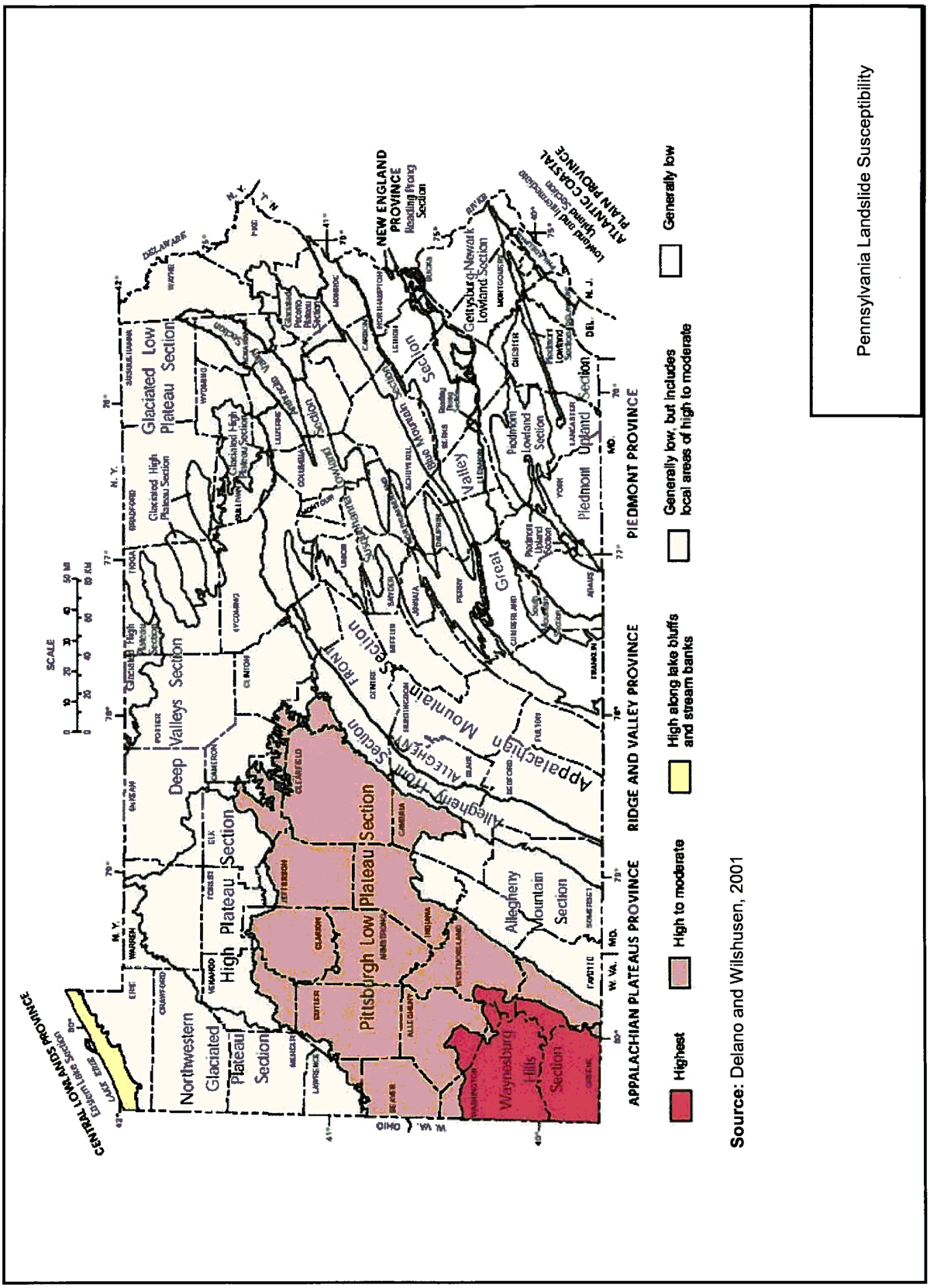

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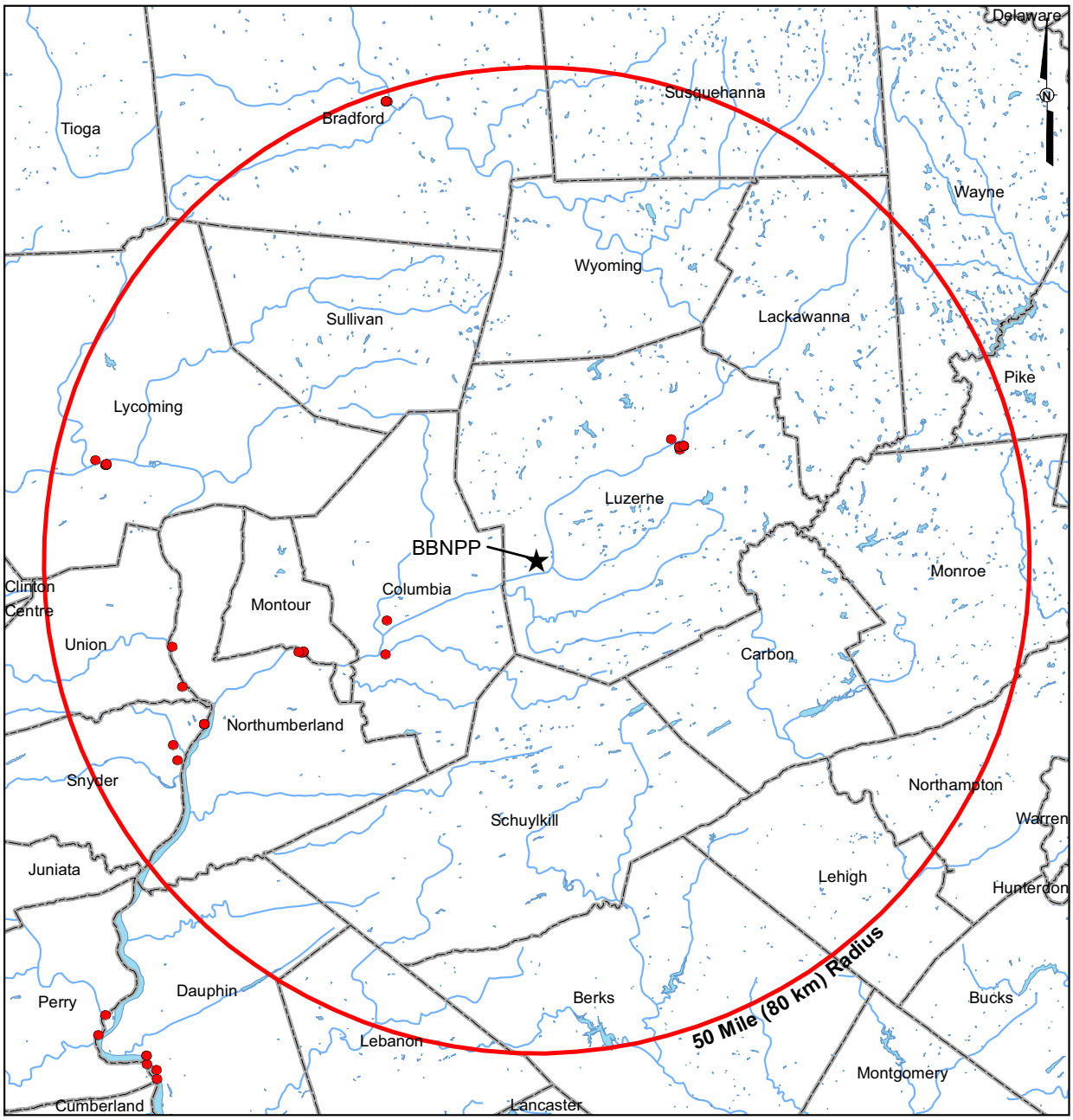
Figure 2.4-38 {Ice Jams within 50 Mile (80 km) Radius}



LEGEND

0 7.5 15 30 Miles

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- ● Ice Jams
- Unit 1 Reactor 50 Mile (80 Km) Radius
- County Boundary
- Streams and Rivers
- Waterbody

REFERENCE
ESRI StreetMap Pro [CD-ROM], 2007, River, Waterbody, and County Boundary
Army Corps of Engineers, Ica Dam Database. Accessed February 2008.

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Figure 2.4-39 {ESWEMS Schematic Layout}

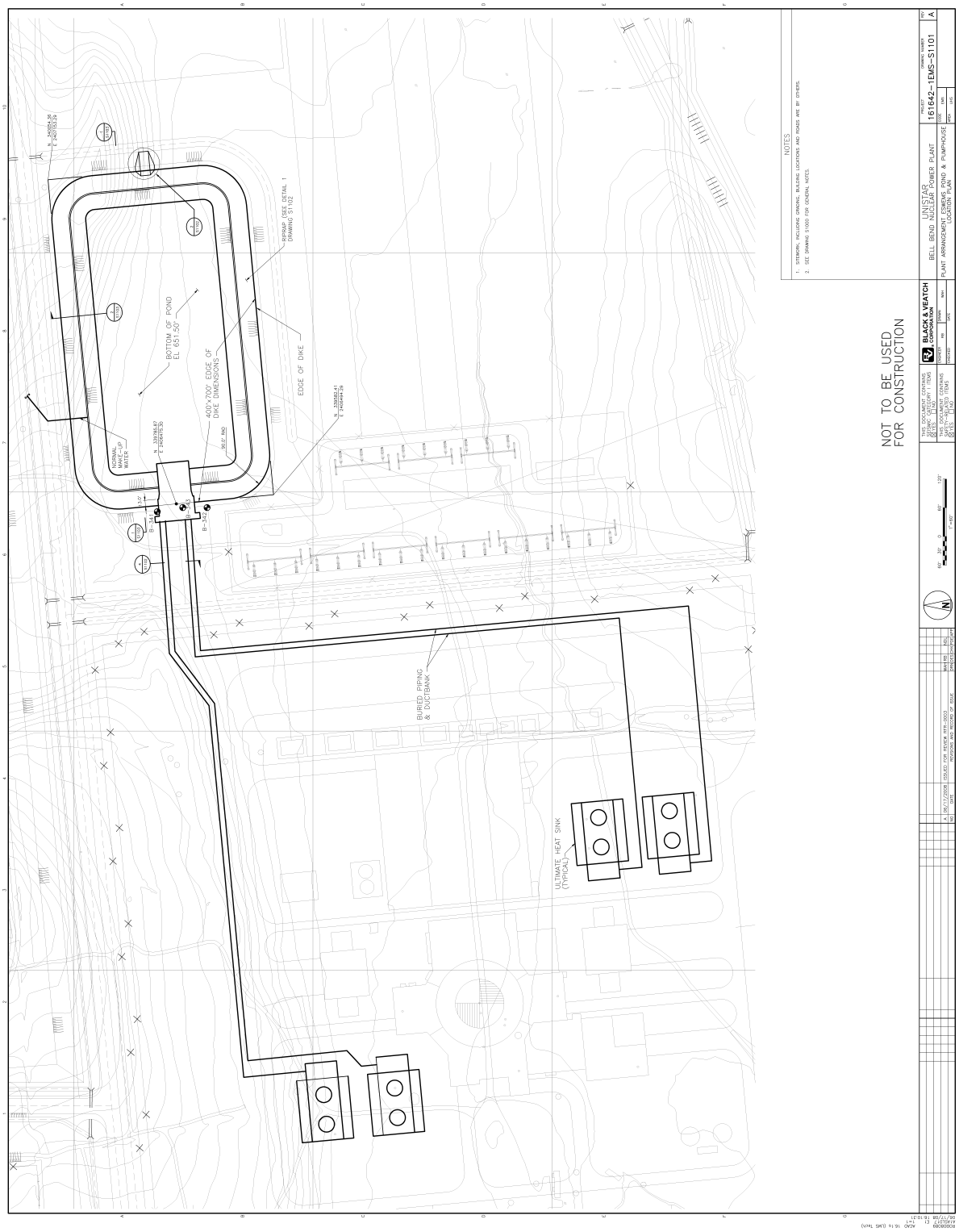

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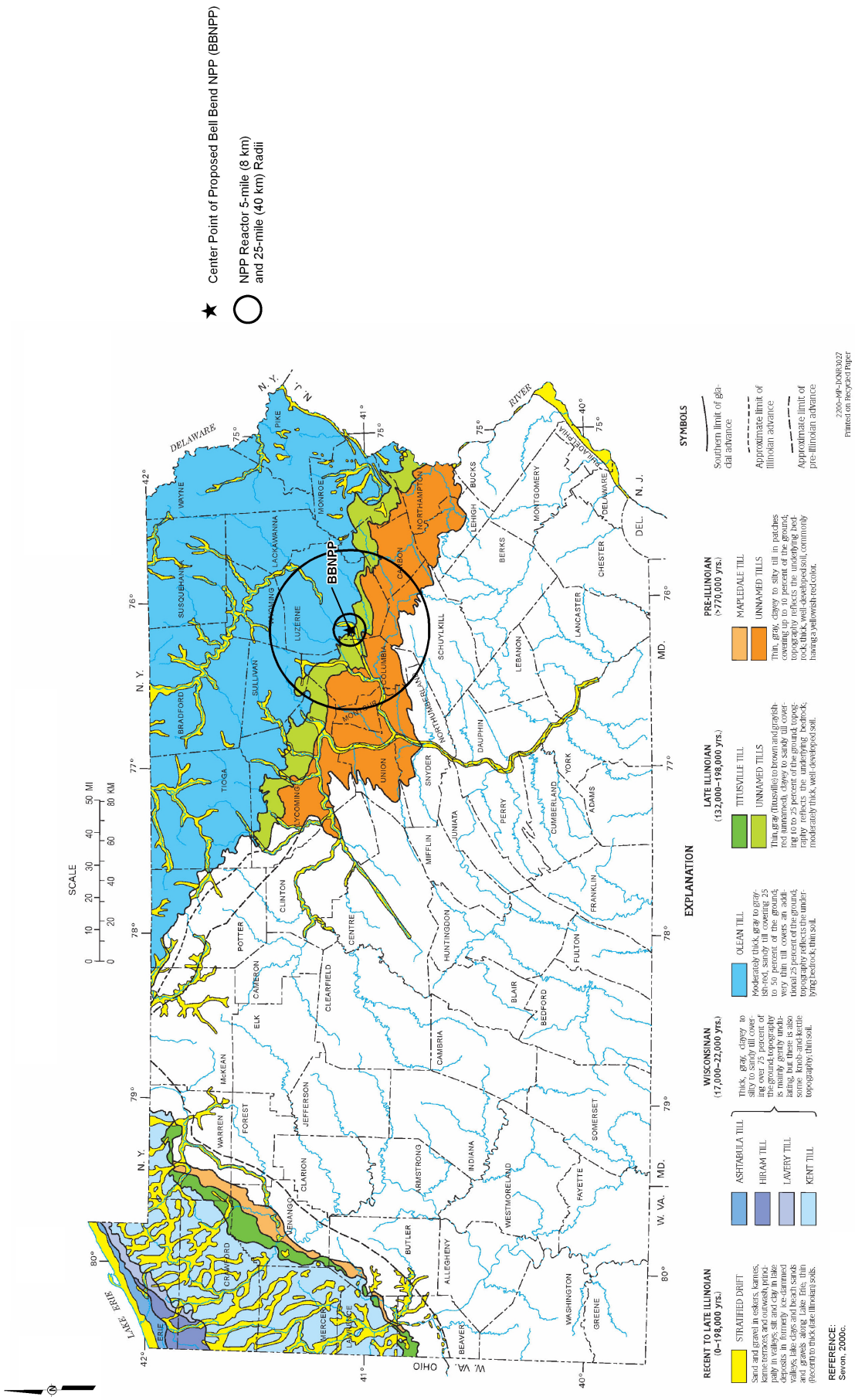
Figure 2.4-40 {Glacial Deposits of Pennsylvania, 25-mile (40 km) and 5-mile (8 km) Radii}



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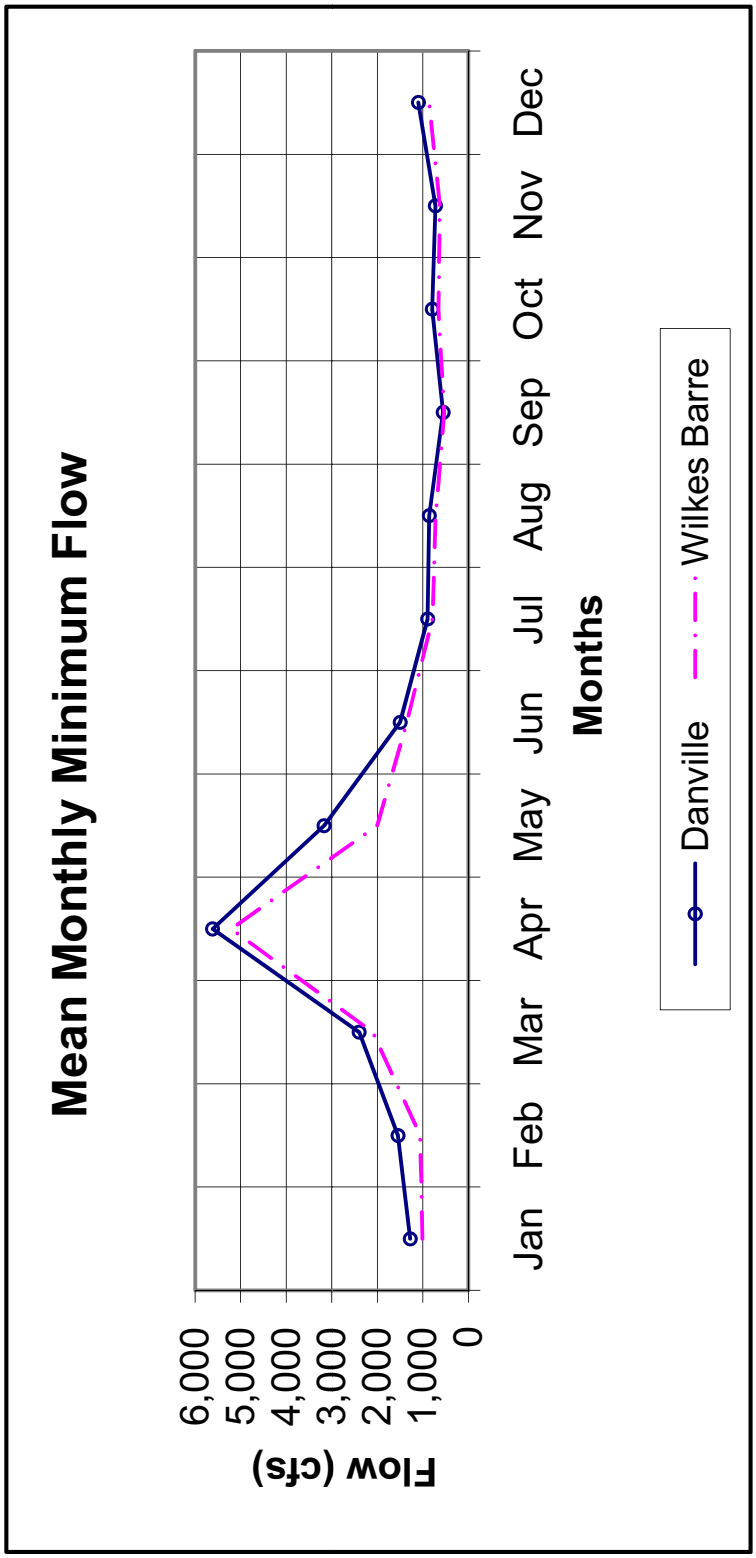

Figure 2.4-41 {Mean Monthly Minimum Streamflows, 1905 to 2006}

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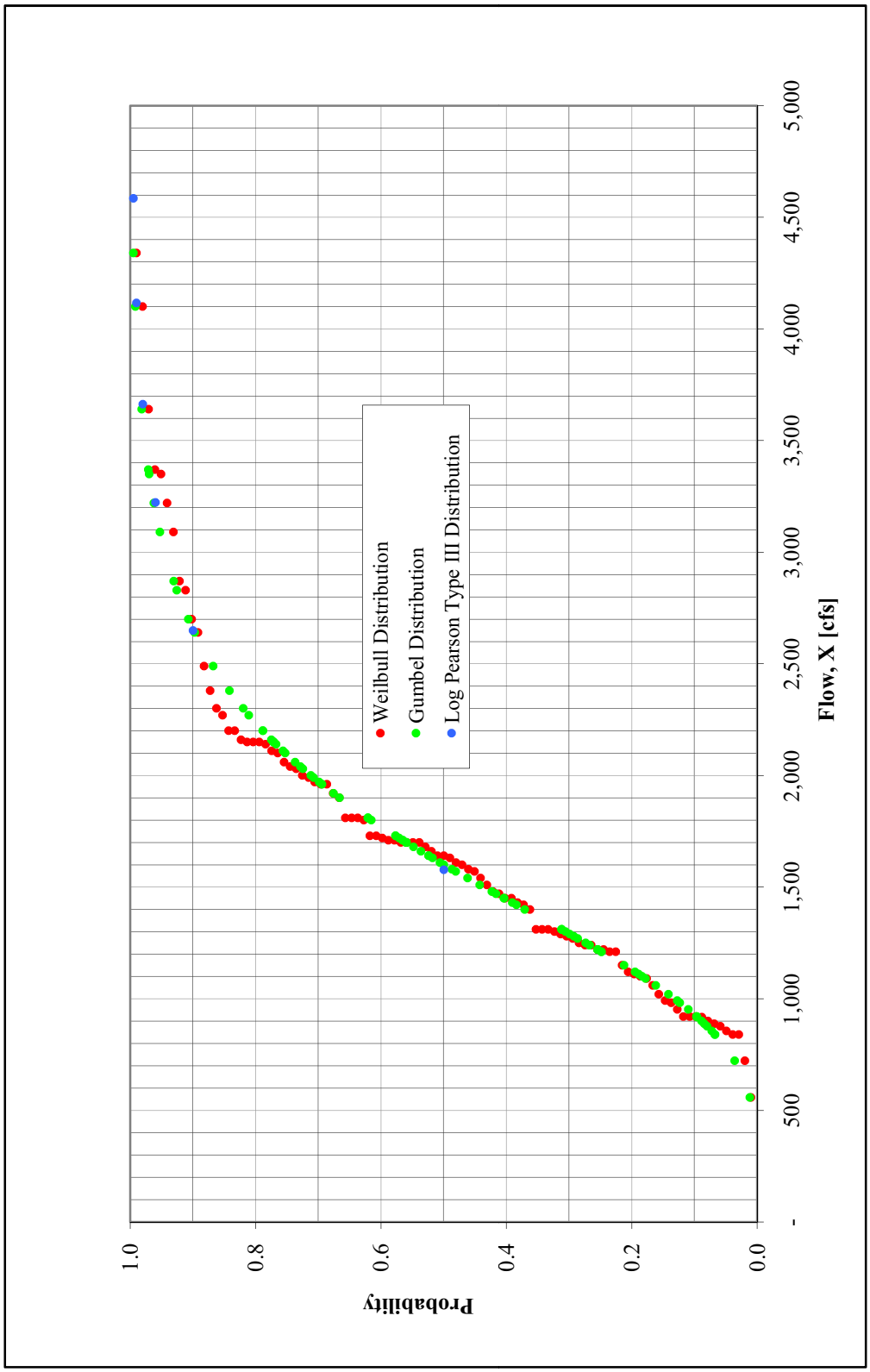
Figure 2.4-42 {Low Flow Frequency Distribution for Danville Station}



Reference: 2008b.

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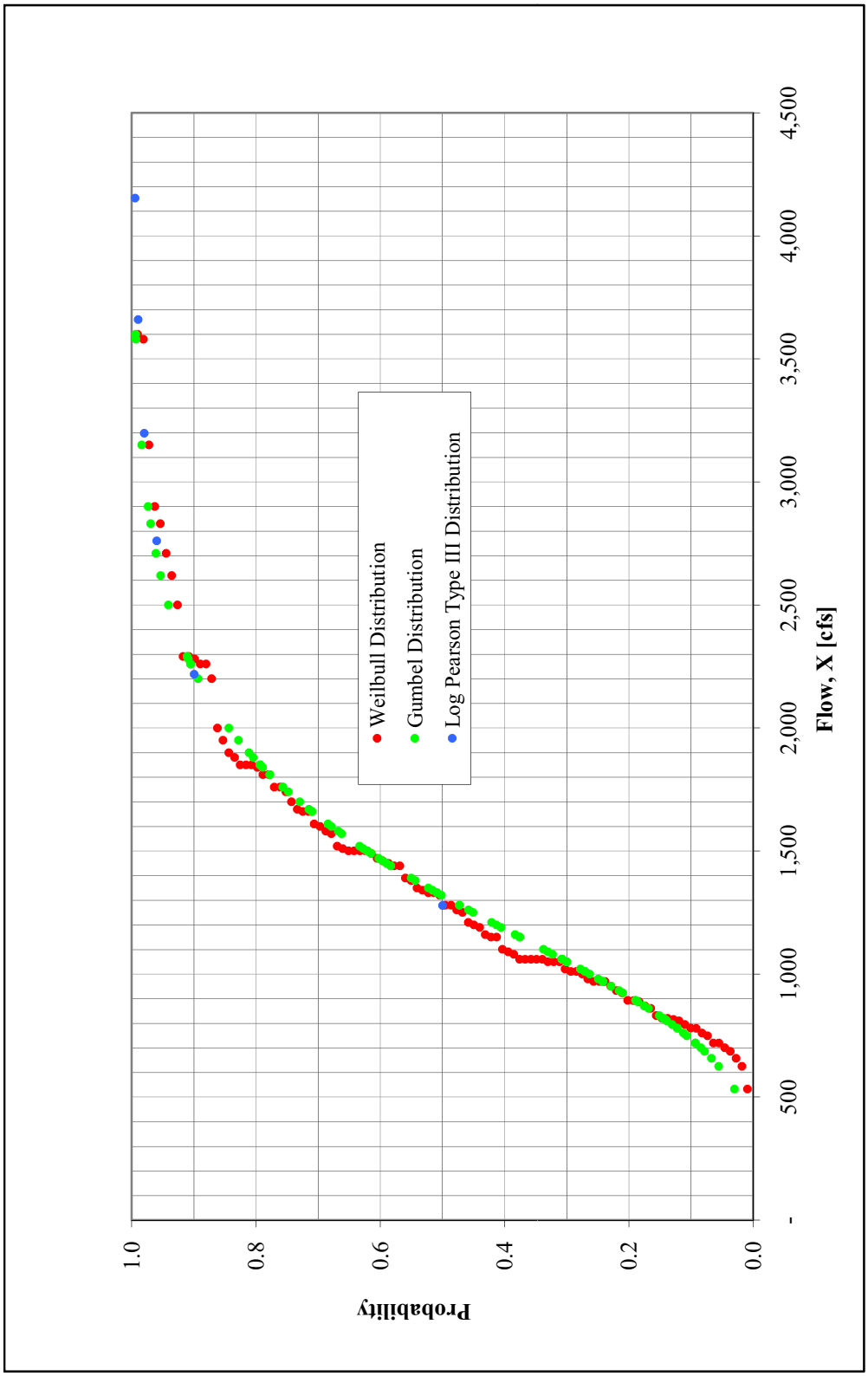
Figure 2.4-43 {Low Flow Frequency Distribution for Wilkes-Barre Station}



Reference: USGS, 2008a

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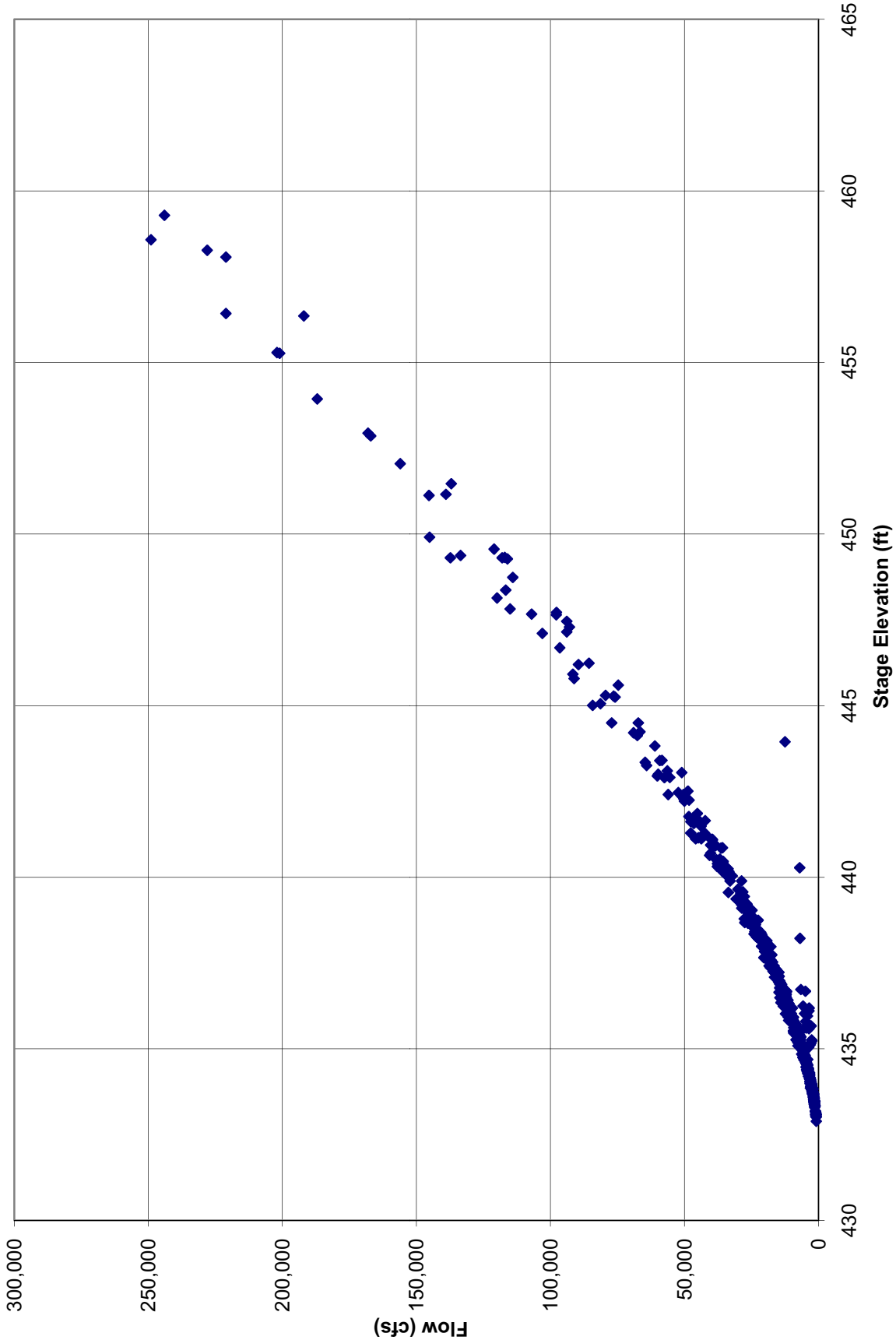

Figure 2.4-44 {Flow Discharge Curve for Danville Station}

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Figure 2.4-45 {Flow Discharge Curve for Wilkes-Barre Station}

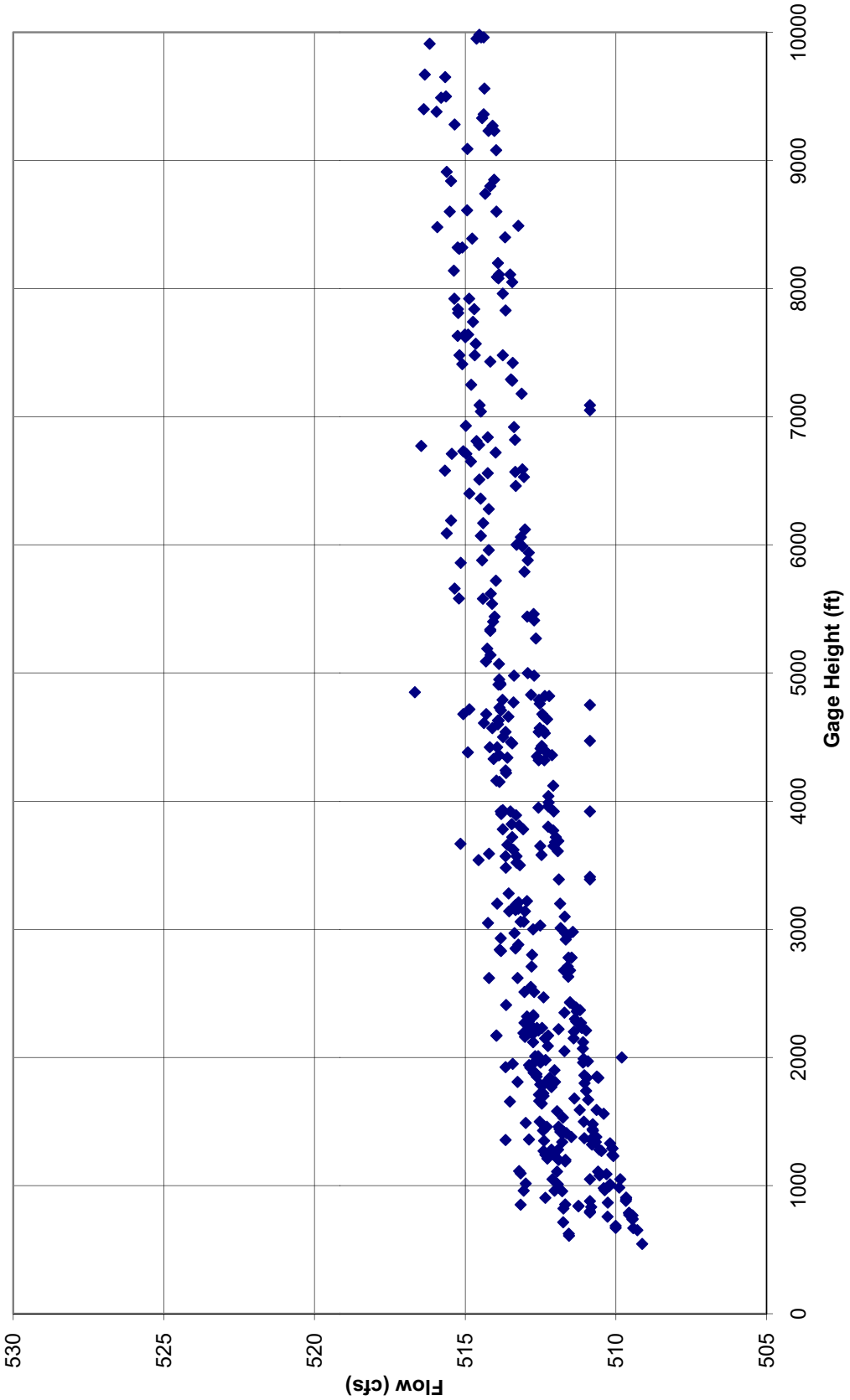

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Figure 2.4-46 {SRBC Water Consumptive Use}

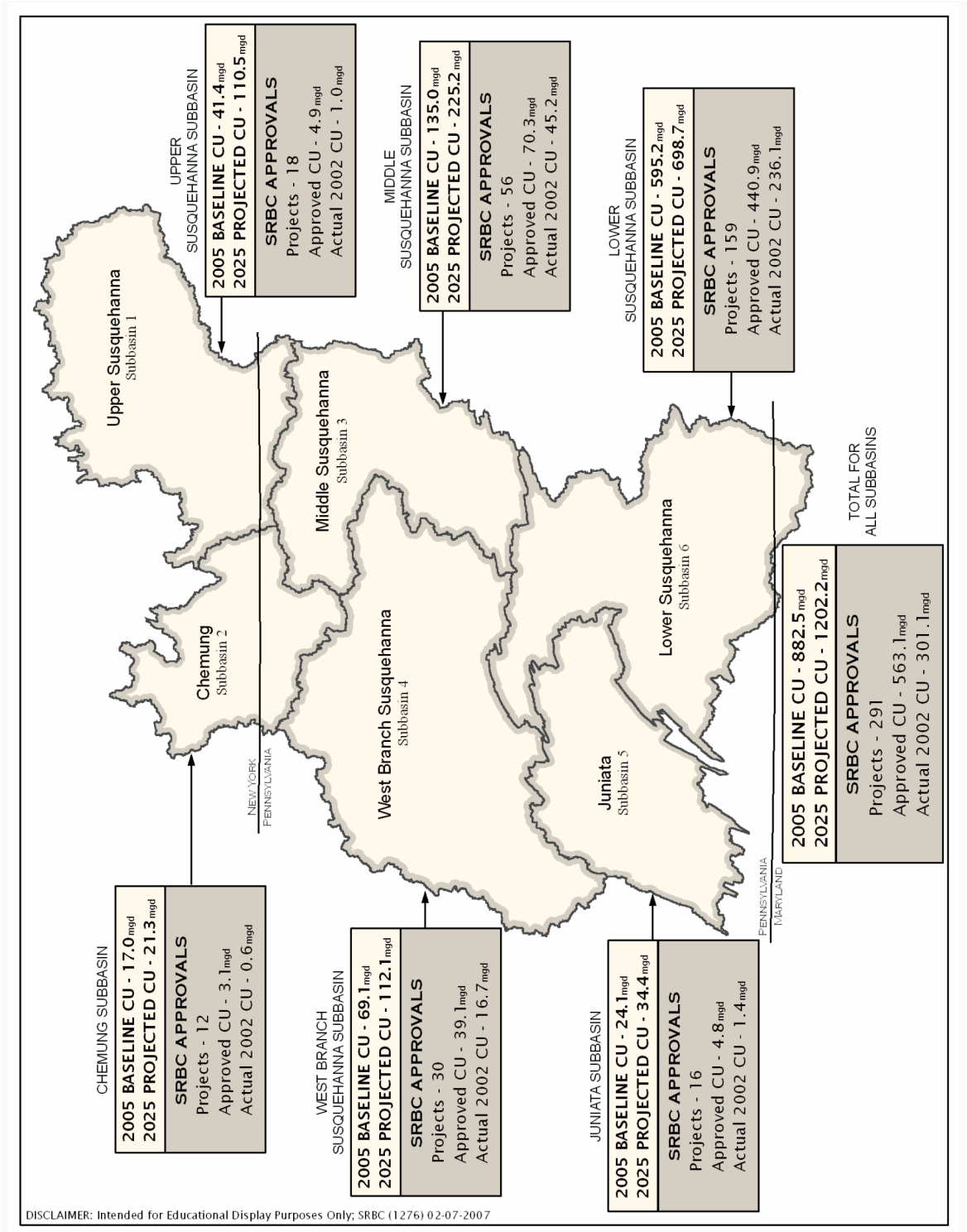

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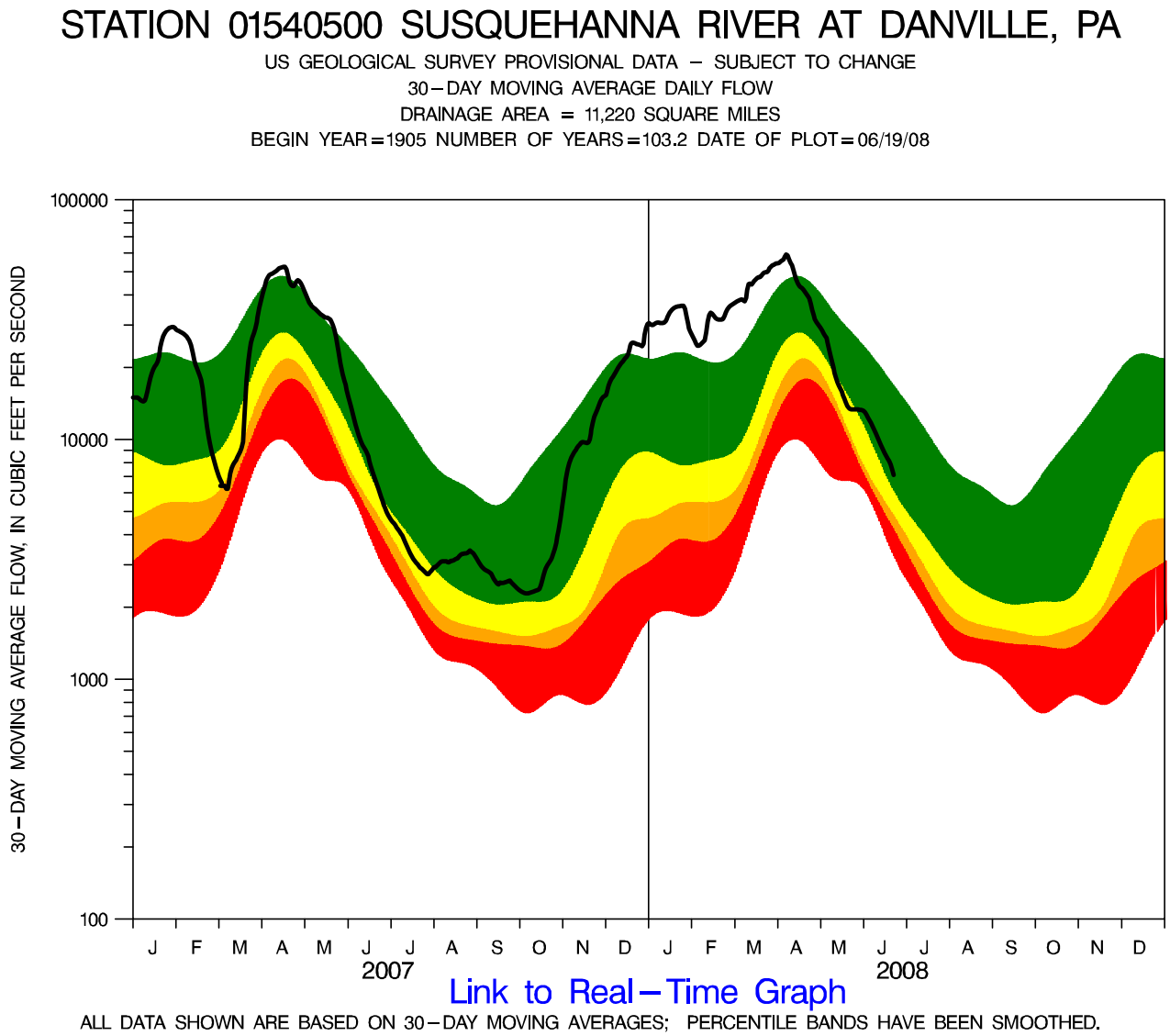
Figure 2.4-47 {30-Day Moving Average for Danville Station}



ALL DATA SHOWN ARE BASED ON 30–DAY MOVING AVERAGES; PERCENTILE BANDS HAVE BEEN SMOOTHED.

SOLID LINE = 30–DAY MOVING AVERAGE OF CURRENT DAILY VALUE FLOW

GREEN (TOP) BAND = 25– TO 75–PERCENTILE FLOWS (NORMAL CONDITIONS)
YELLOW BAND = 10– TO 25–PERCENTILE FLOWS (DROUGHT WATCH CONDITIONS)
ORANGE BAND = 5– TO 10–PERCENTILE FLOWS (DROUGHT WARNING CONDITIONS)
RED (BOTTOM) BAND = 0– TO 5–PERCENTILE FLOWS (DROUGHT EMERGENCY CONDITIONS)

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Figure 2.4-48 {30-Day Moving Average for Wilkes-Barre Station}

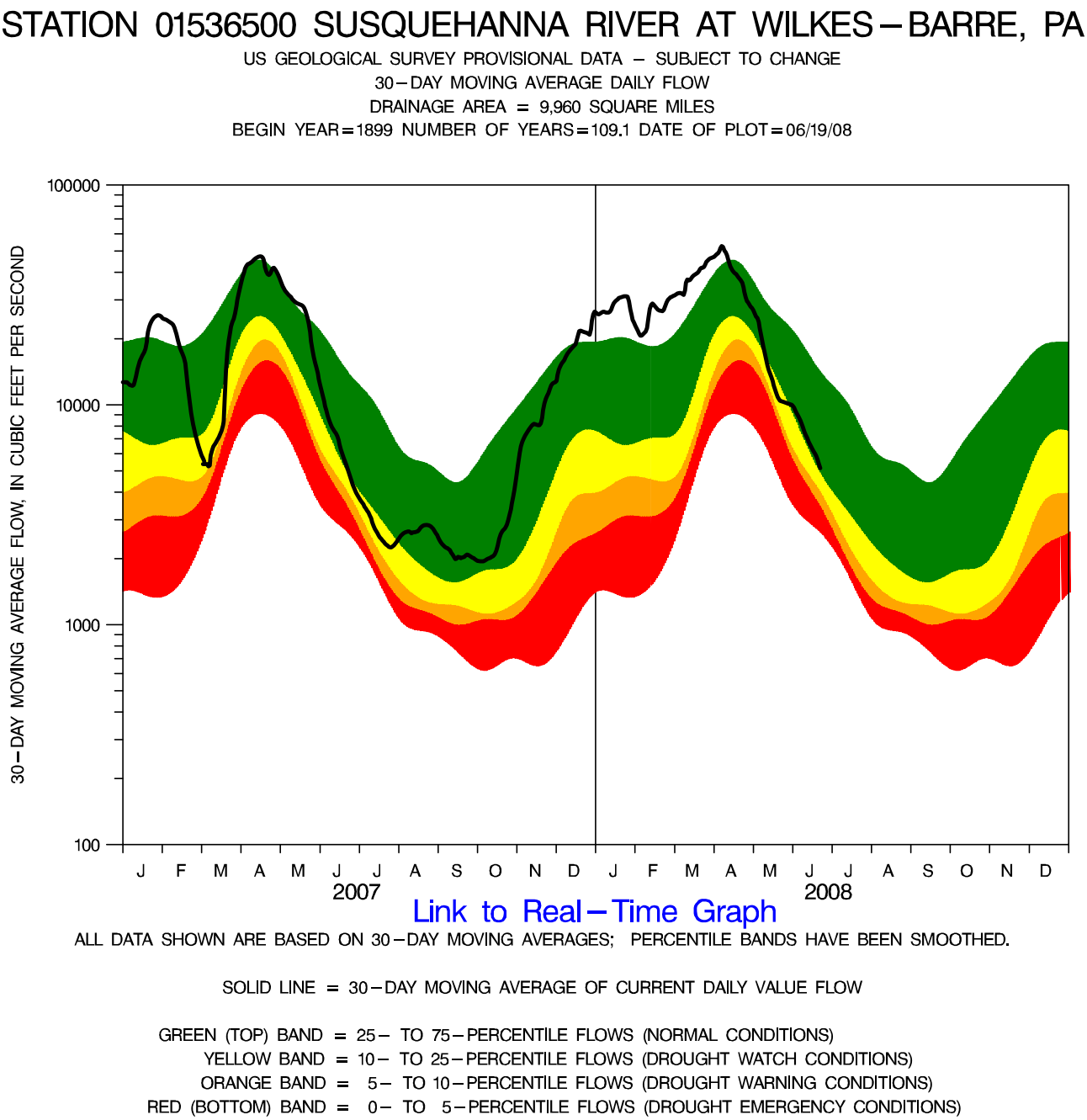

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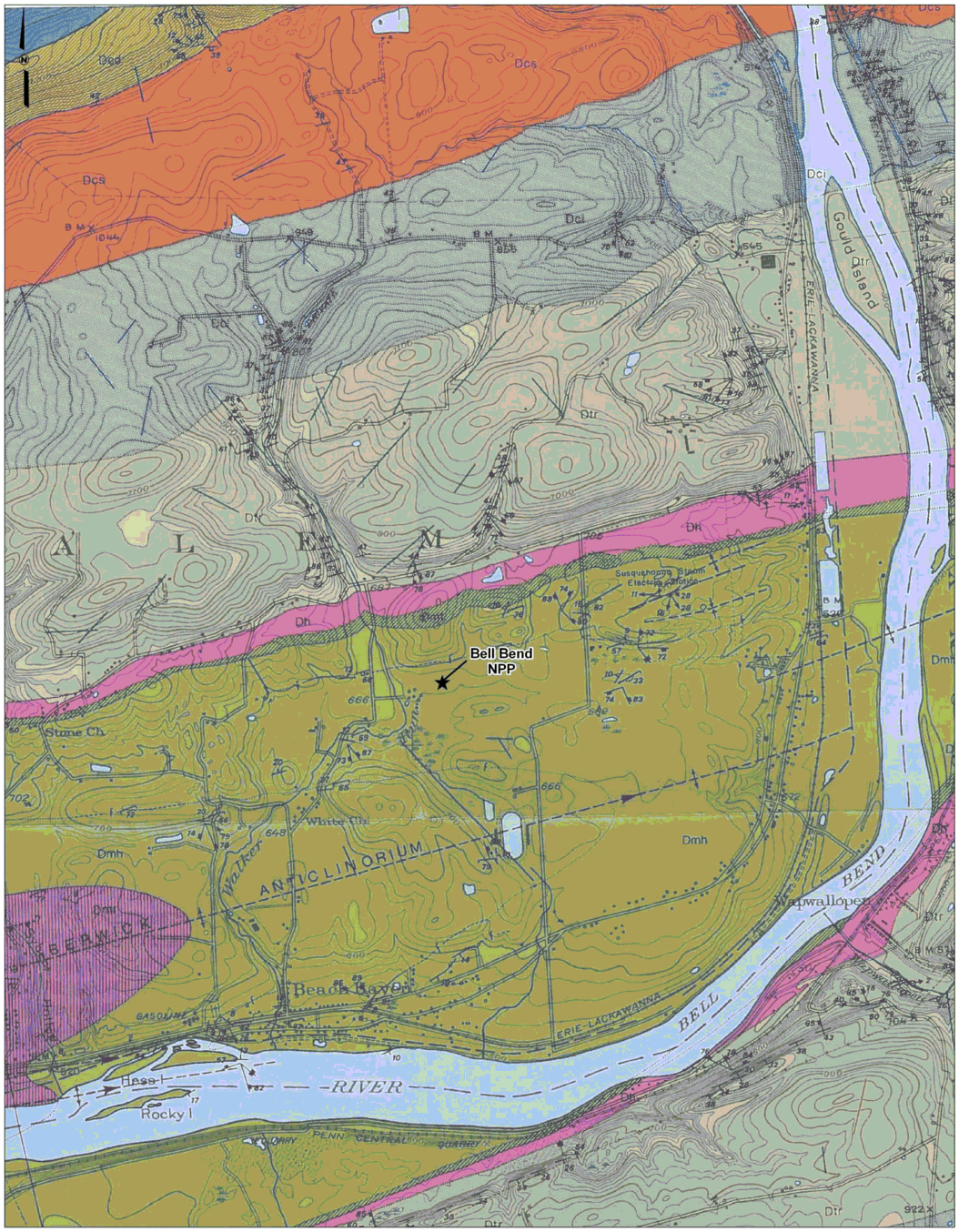
Figure 2.4-49 {Geologic Map of the BBNPP Site and Vicinity}



LEGEND:

★ Proposed Center Point of Bell Bend NPP

0 305 610 Meters

0 2,000 4,000 Feet

Additional legend information for this figure is presented in Figure 2.4.12-2

REFERENCE:
Department of Environmental Resources, 1978, Bedrock of Berwick Quadrangle.

Geologic Map of the BBNPP Site and Vicinity
{BBNPP} FSAR

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Figure 2.4-50 {Stratigraphy and Geologic Cross Section of Berwick Anticlinorium}

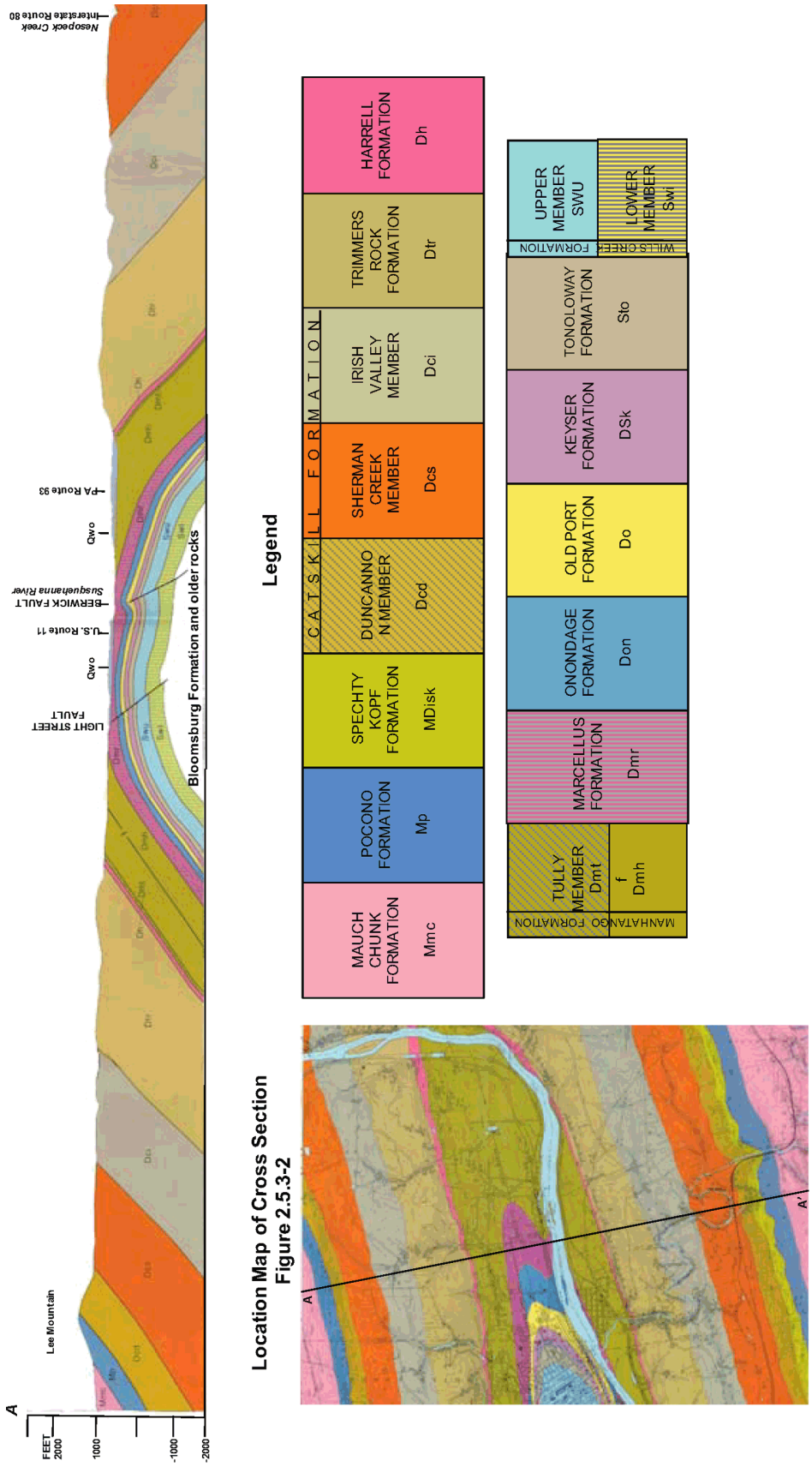

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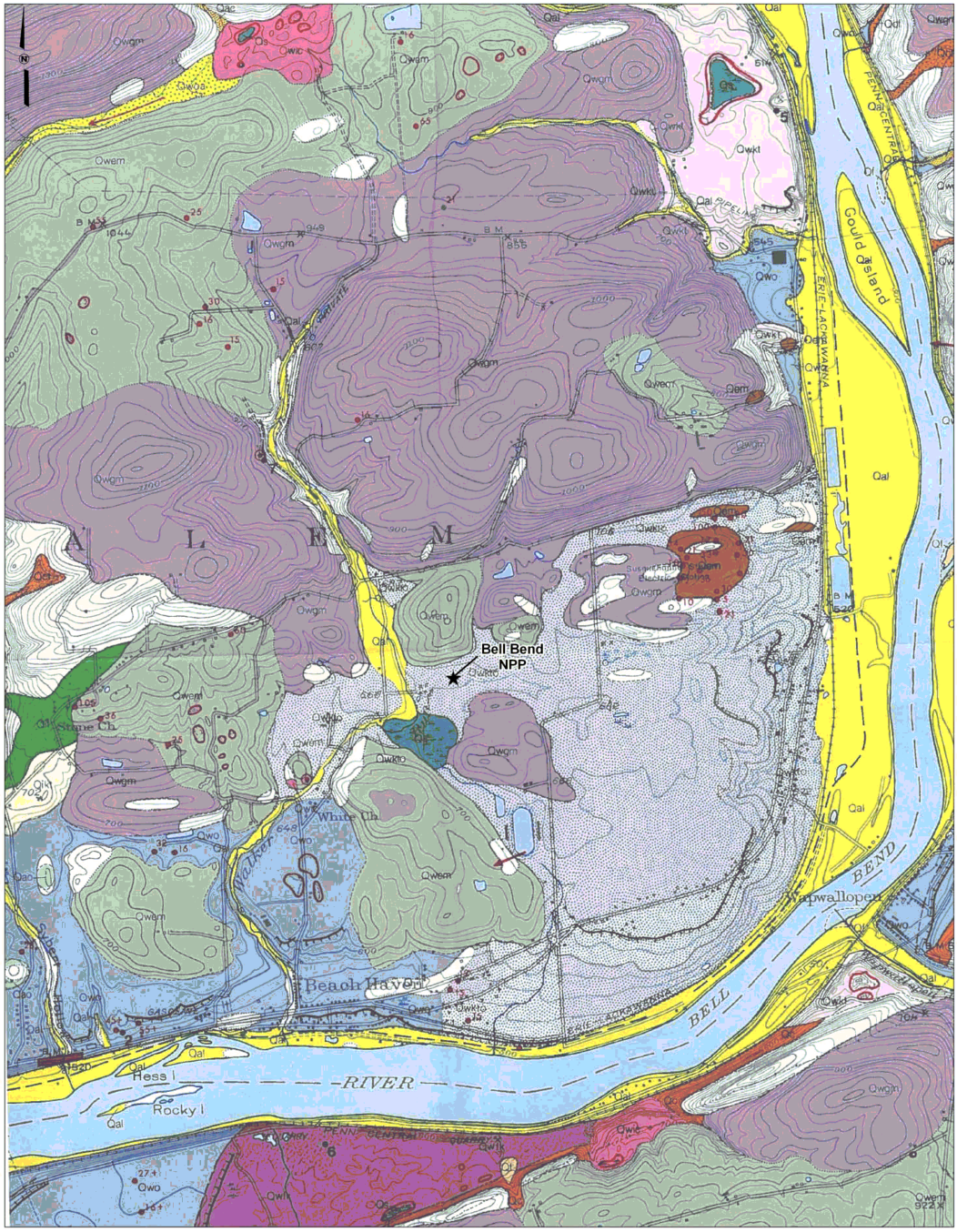
Figure 2.4-51 {Surficial Deposits at BBNPP Site and Vicinity}



LEGEND:

★ Proposed Center Point of Bell Bend NPP

0 305 610 Meters

0 2,000 4,000 Feet

Additional legend information for this figure is presented in Figure 2.4.12-4

REFERENCE:
Department of Environmental Resources, 1978, Surface Deposits of Berwick Quadrangle.

Surficial Deposits at the BBNPP Site and Vicinity
BBNPP FSAR

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Figure 2.4-52 {Legend for Figure 2.4-51}

REFERENCE:
Inners, 1978

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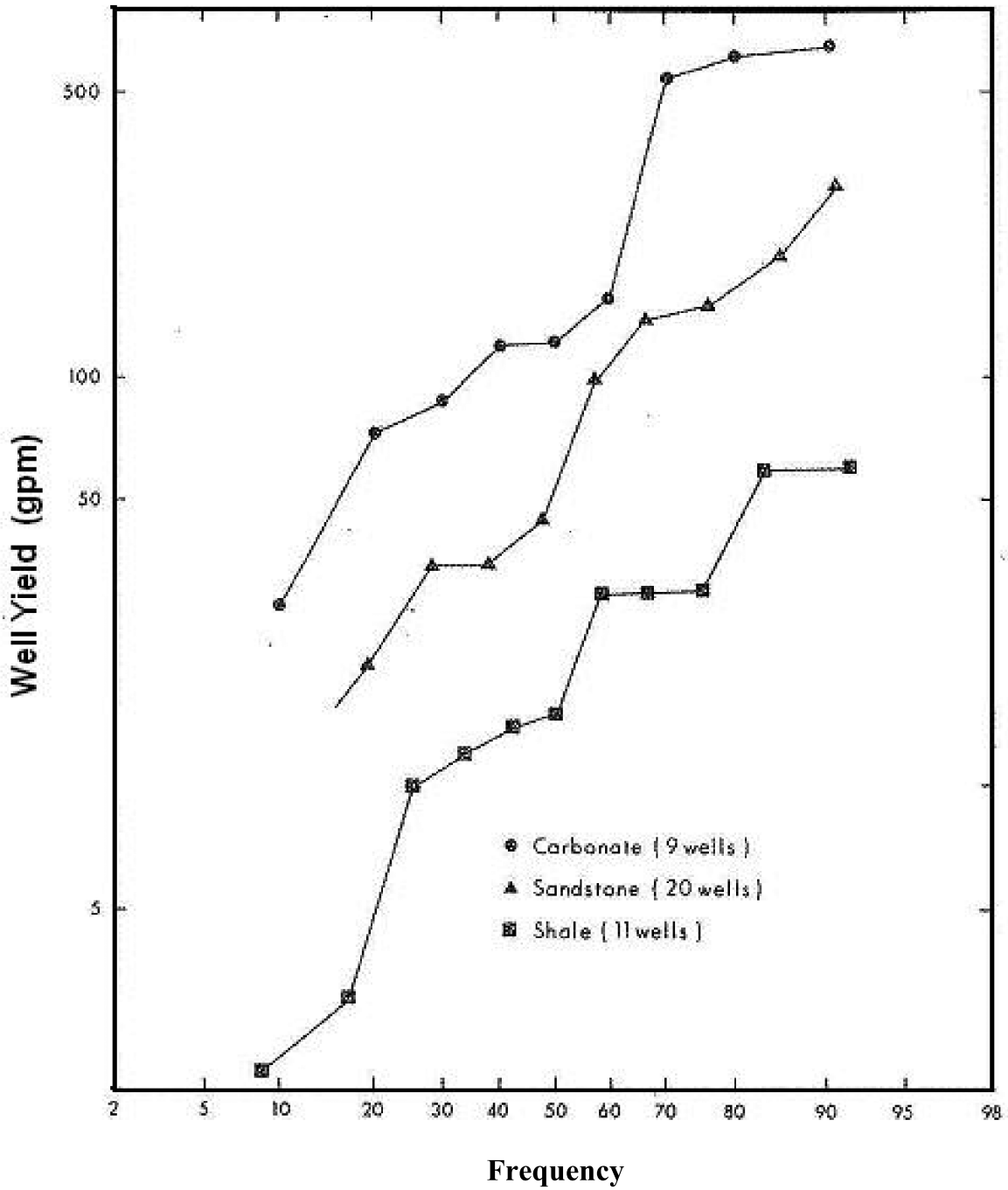
Figure 2.4-53 {Frequency Distribution of Nondomestic Well Yields Grouped According to Dominant Rock Type}



Reference: Taylor, 1984

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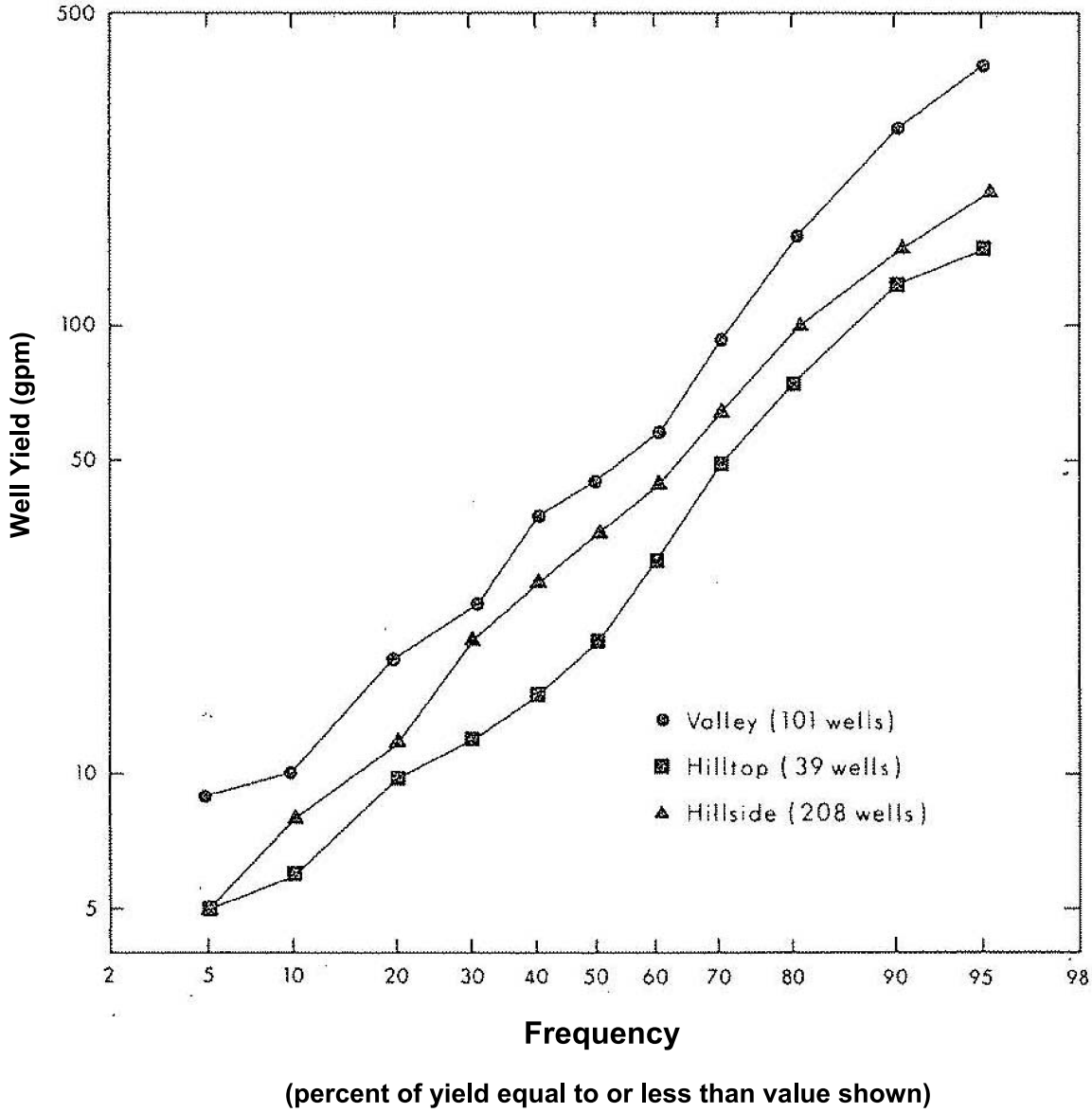
Figure 2.4-54 {Frequency Distribution of Nondomestic Well Yields Grouped According to Topographic Setting}



Reference: Taylor, 1984

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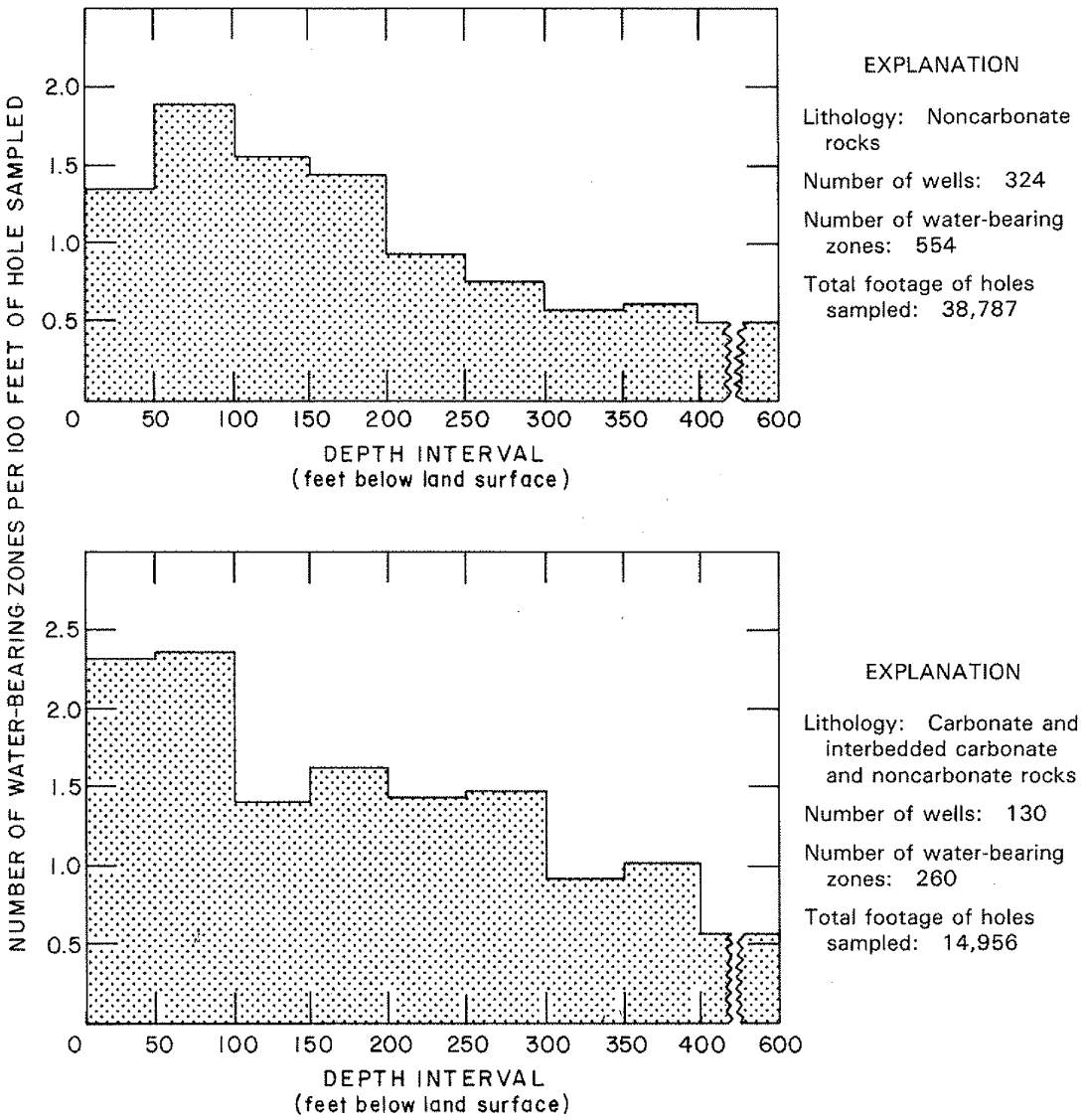
Figure 2.4-55 {Distribution of Water-Bearing Zones with Depth}



Reference: Williams, 1987

Distribution of Water-Bearing Zones With Depth

BBNPP FSAR

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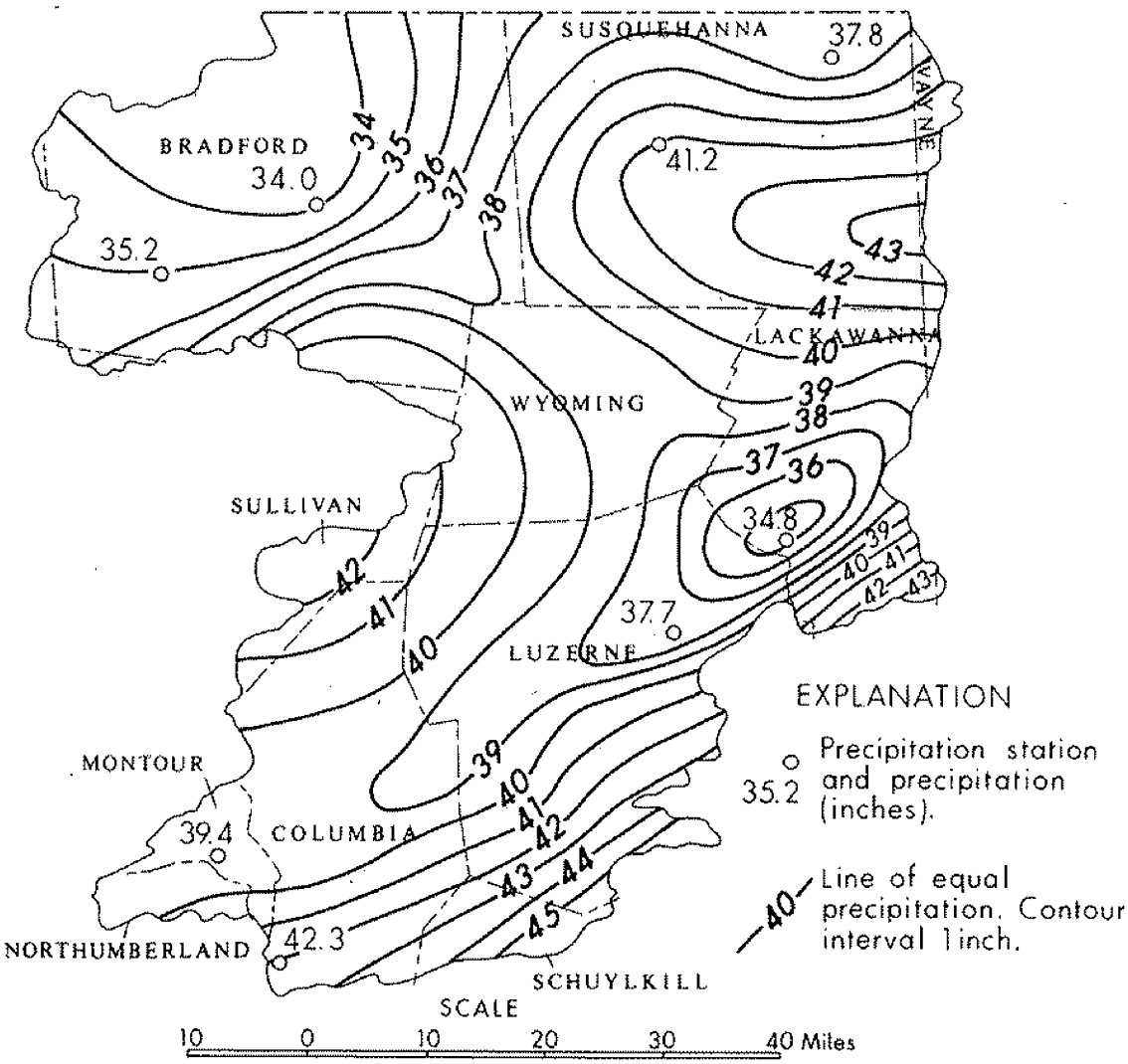
Figure 2.4-56 {Average Annual Precipitation in the North Branch Susquehanna River Basin (1941-1970)}



Reference: Taylor, 1984

Average Annual Precipitation in the North Branch Susquehanna River Basin, 1941 - 1970

BBNPP FSAR

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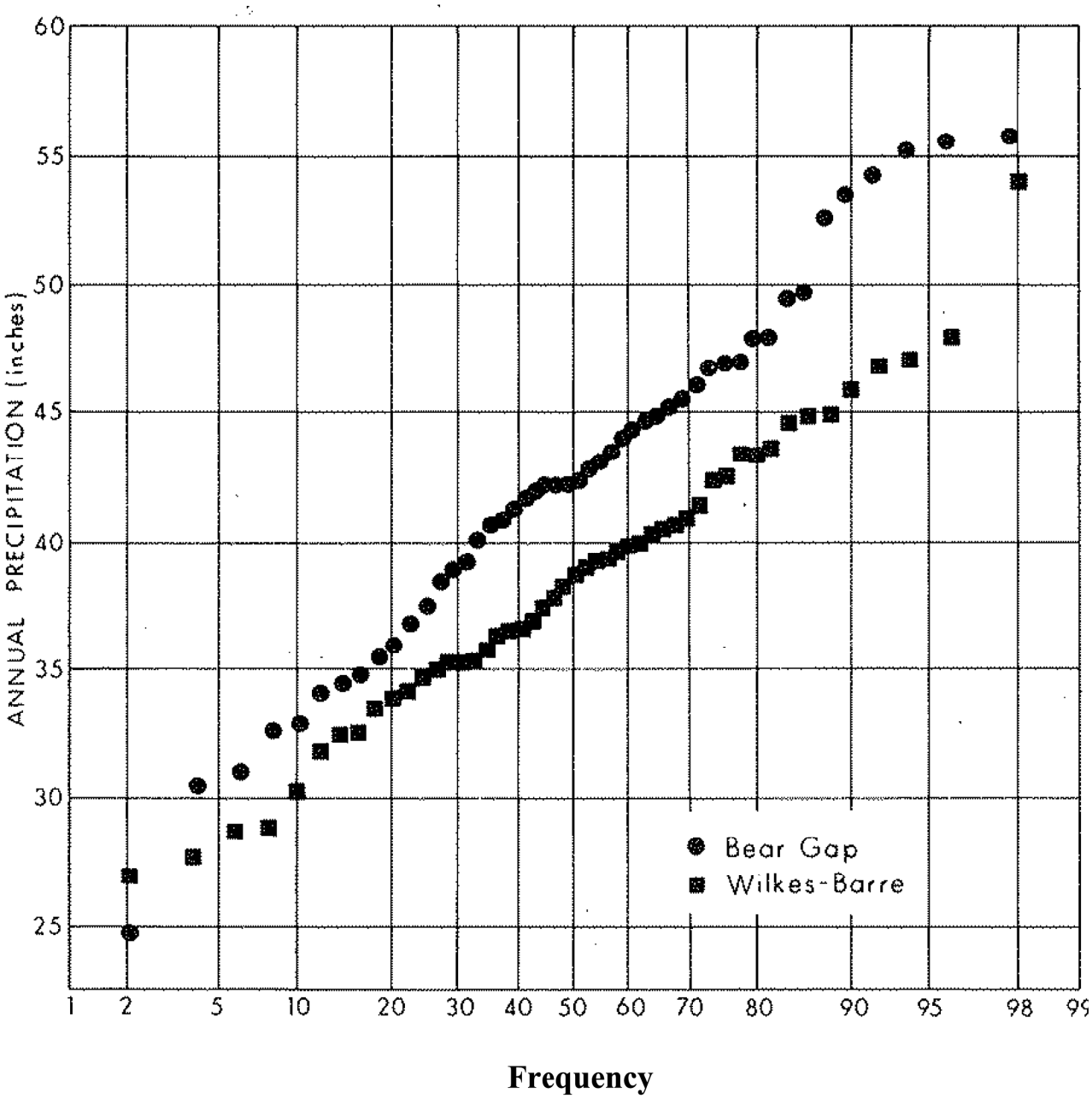
Figure 2.4-57 {Percent Frequency Distribution of Annual Precipitation in the Southern Part of the North Branch Susquehanna River Basin (1931-1980)}



Reference: Taylor, 1984

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Figure 2.4-58 {Locations of Drainage Basins Where Long-Term Water Budget Analyses Have Been Performed}

Reference: Taylor, 1984

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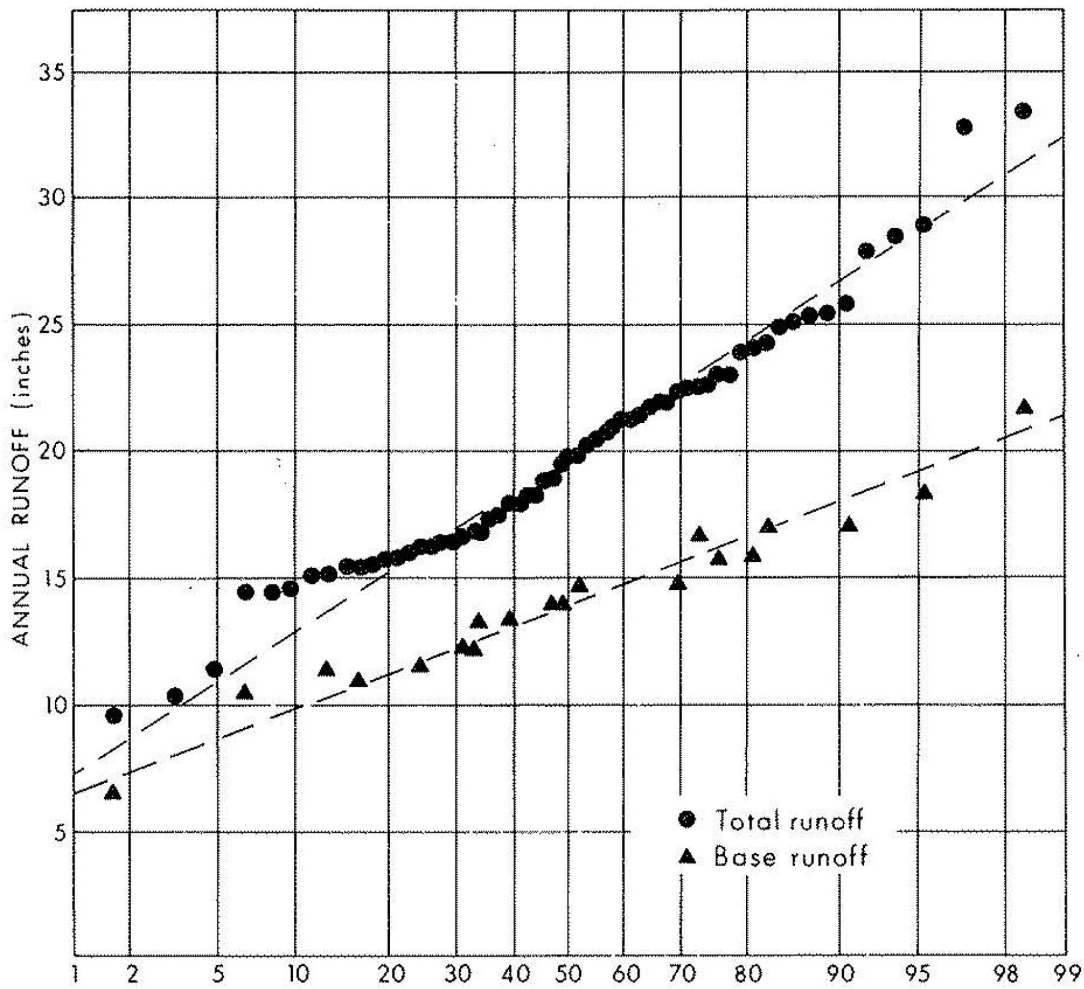
Figure 2.4-59 {Percent Frequency Distribution of Annual Runoff from Wapwallopen Creek, Pennsylvania (1920-1980}



Frequency

(percent of years that runoff is equal to or less than value shown)

Reference: Taylor, 1984

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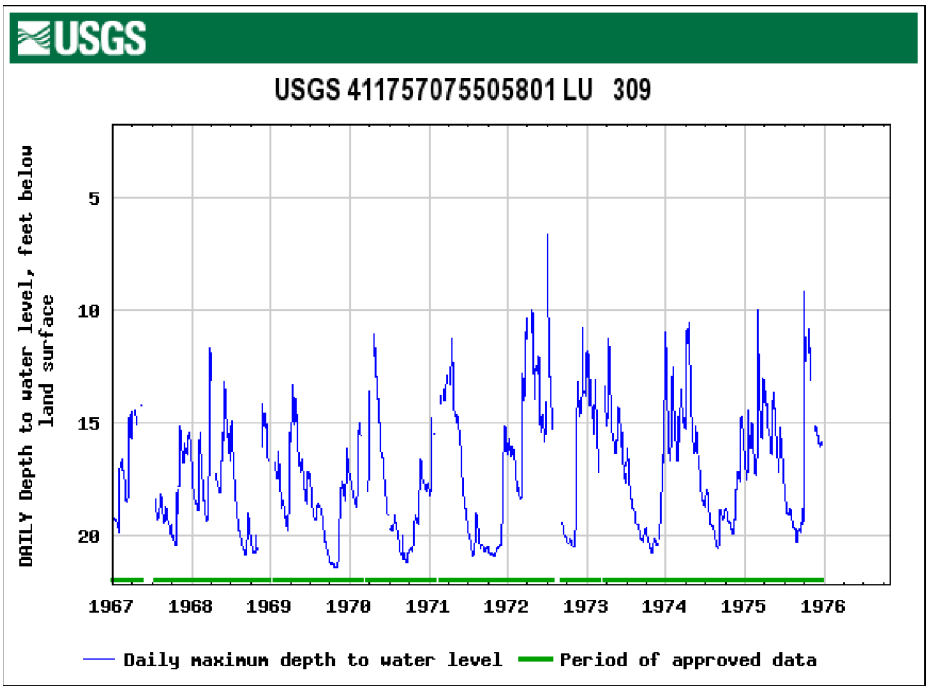
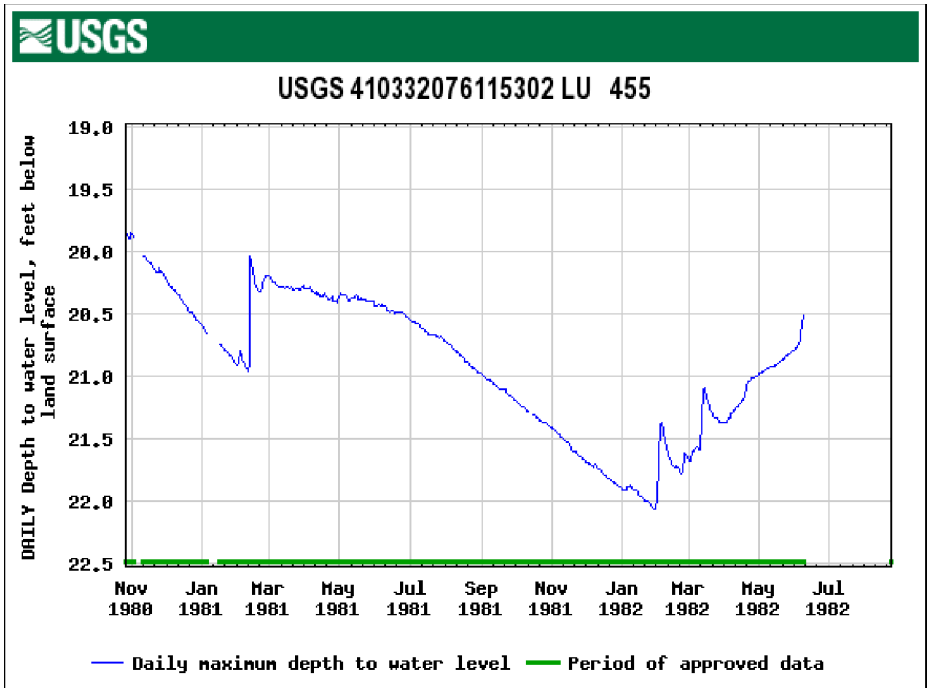
Figure 2.4-60 {Hydrographs of Two USGS Monitoring Wells in Luzerne County Screened in Glacial Overburden}





Reference: USGS, 2008j

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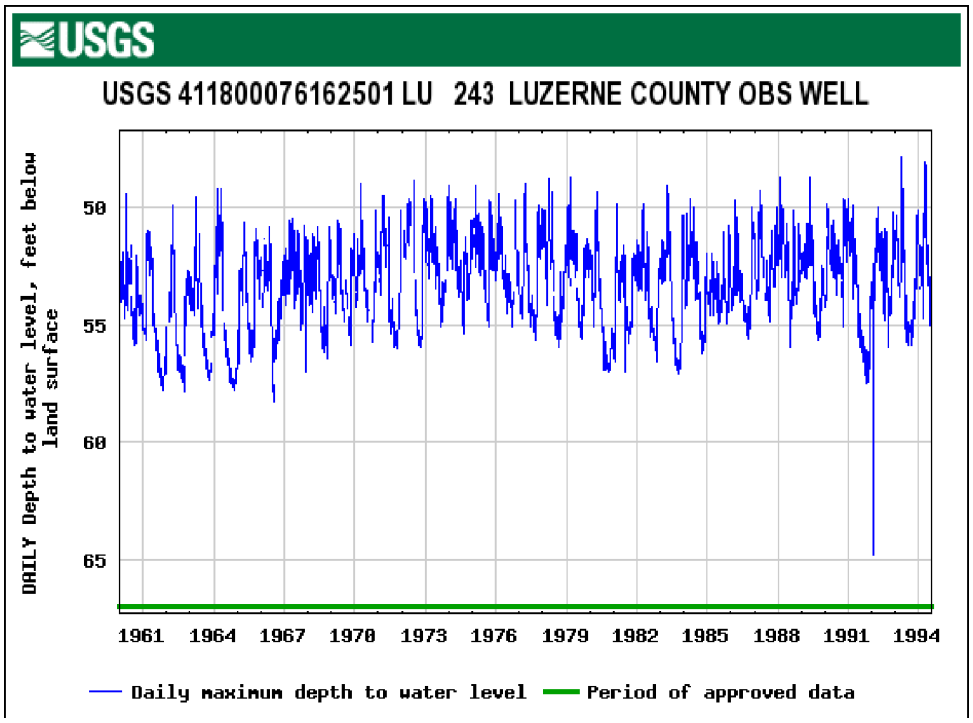
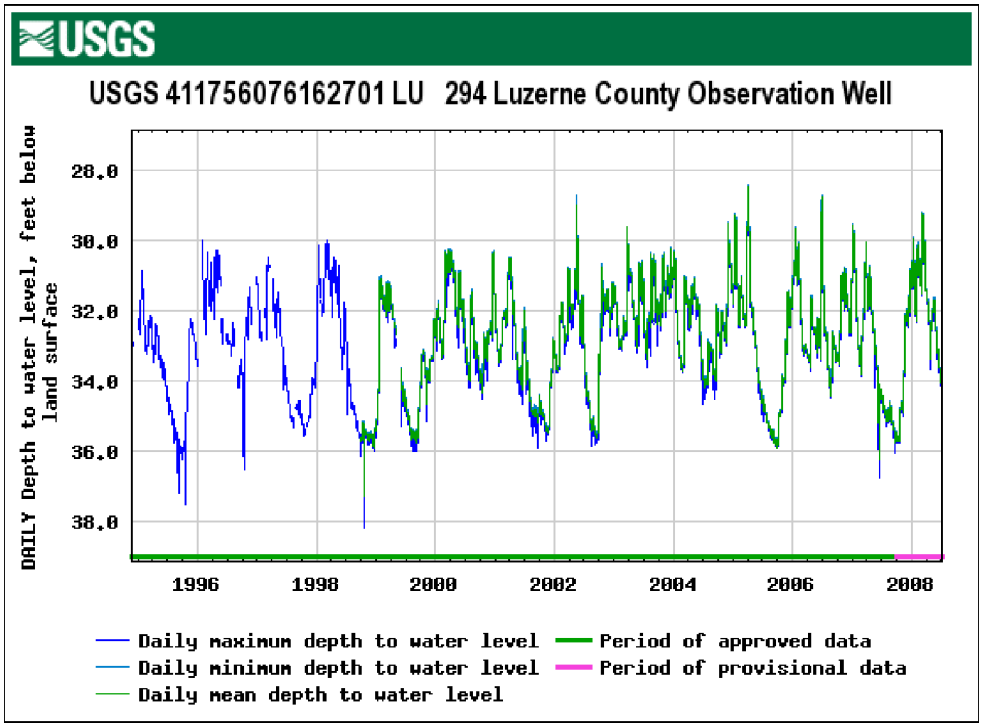
Figure 2.4-61 {Hydrographs of Two USGS Monitoring Wells in Luzerne County Screened in the Catskill Formation}





Reference: USGS, 2008j

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Figure 2.4-62 {Locations of Groundwater Monitoring Wells}

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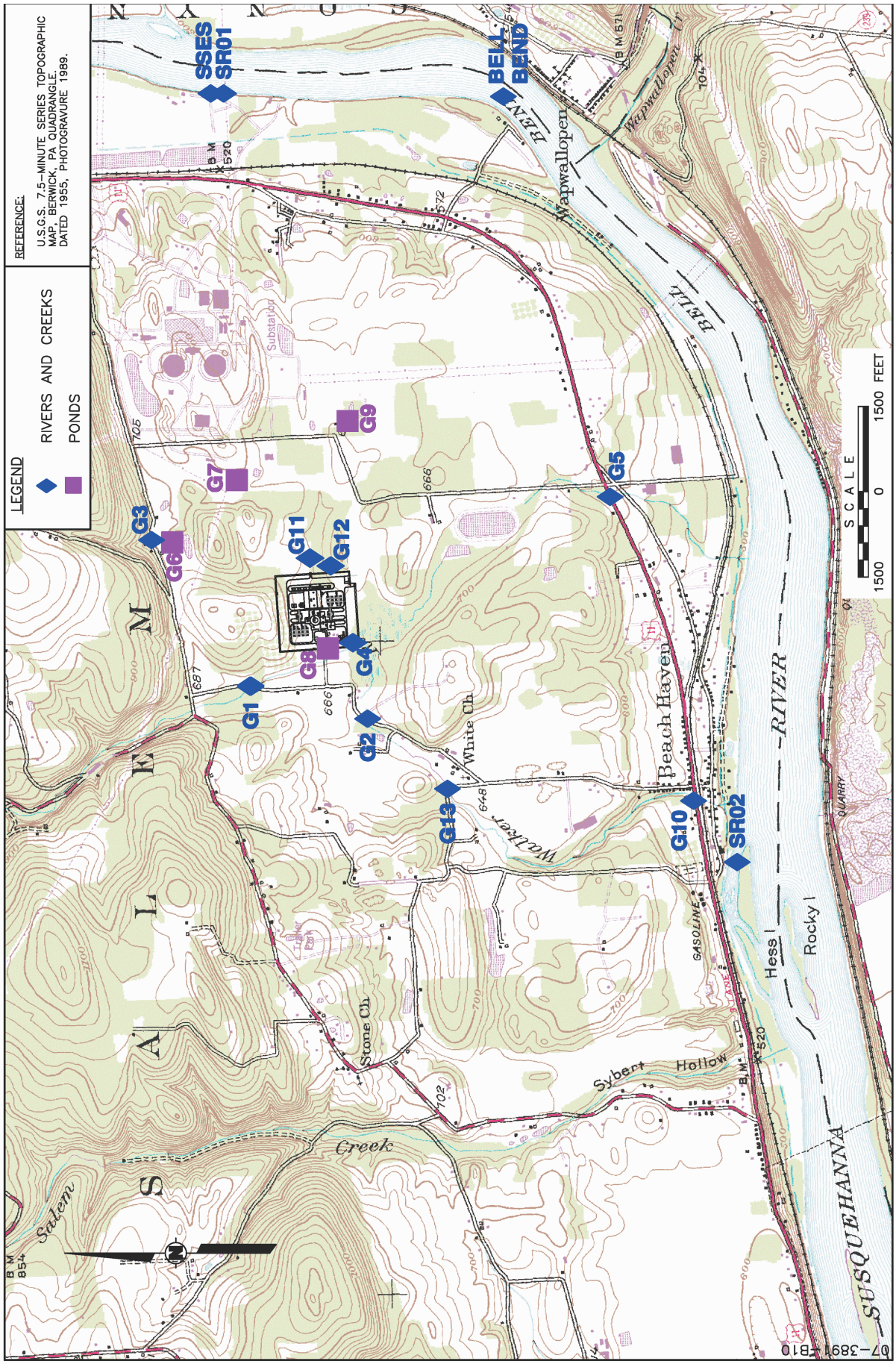
Figure 2.4-63 {Locations of BBNPP Surface Water Monitoring Stations}



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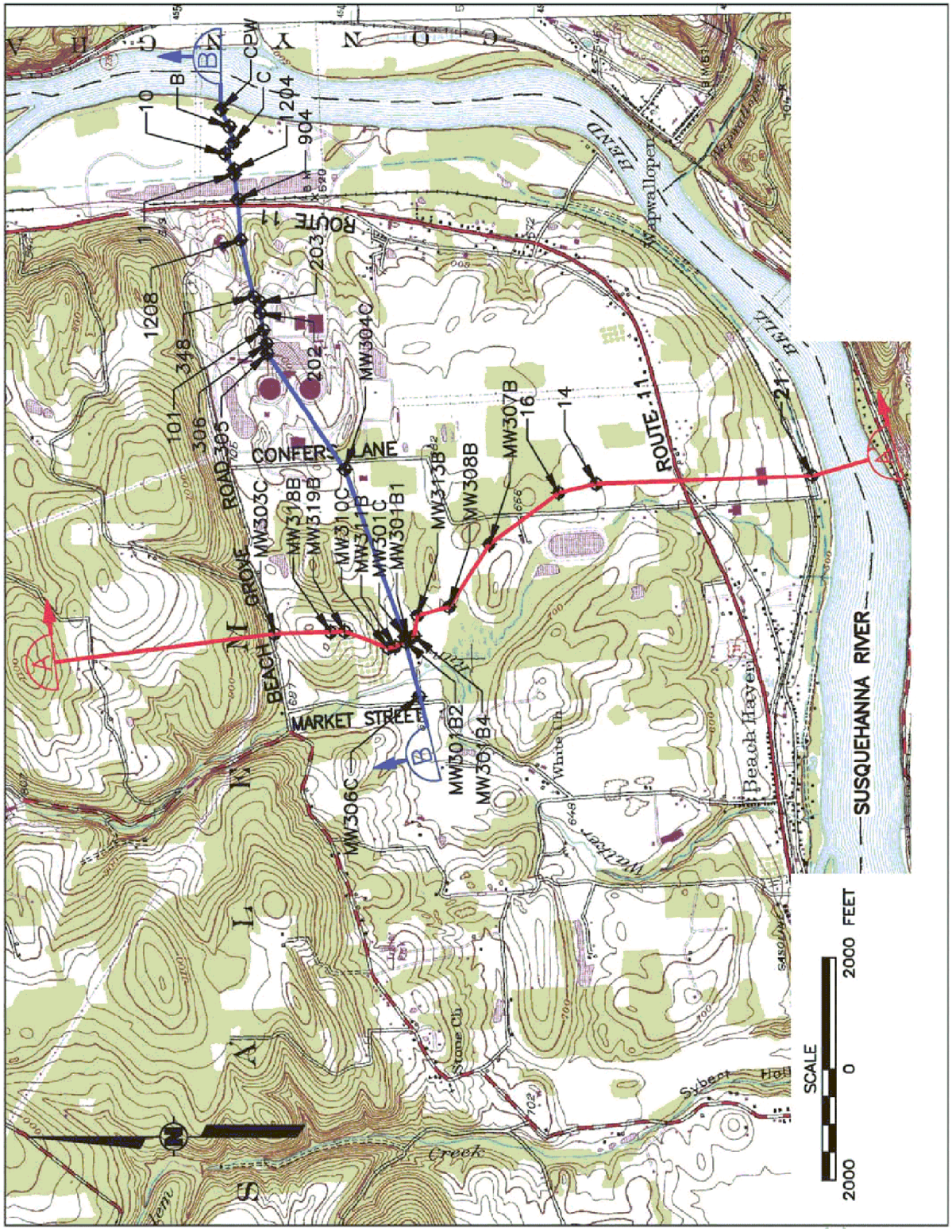

Figure 2.4-64 {Location of Hydrogeological Cross Sections}

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Figure 2.4-65 {Hydrogeological Cross Section A-A'}

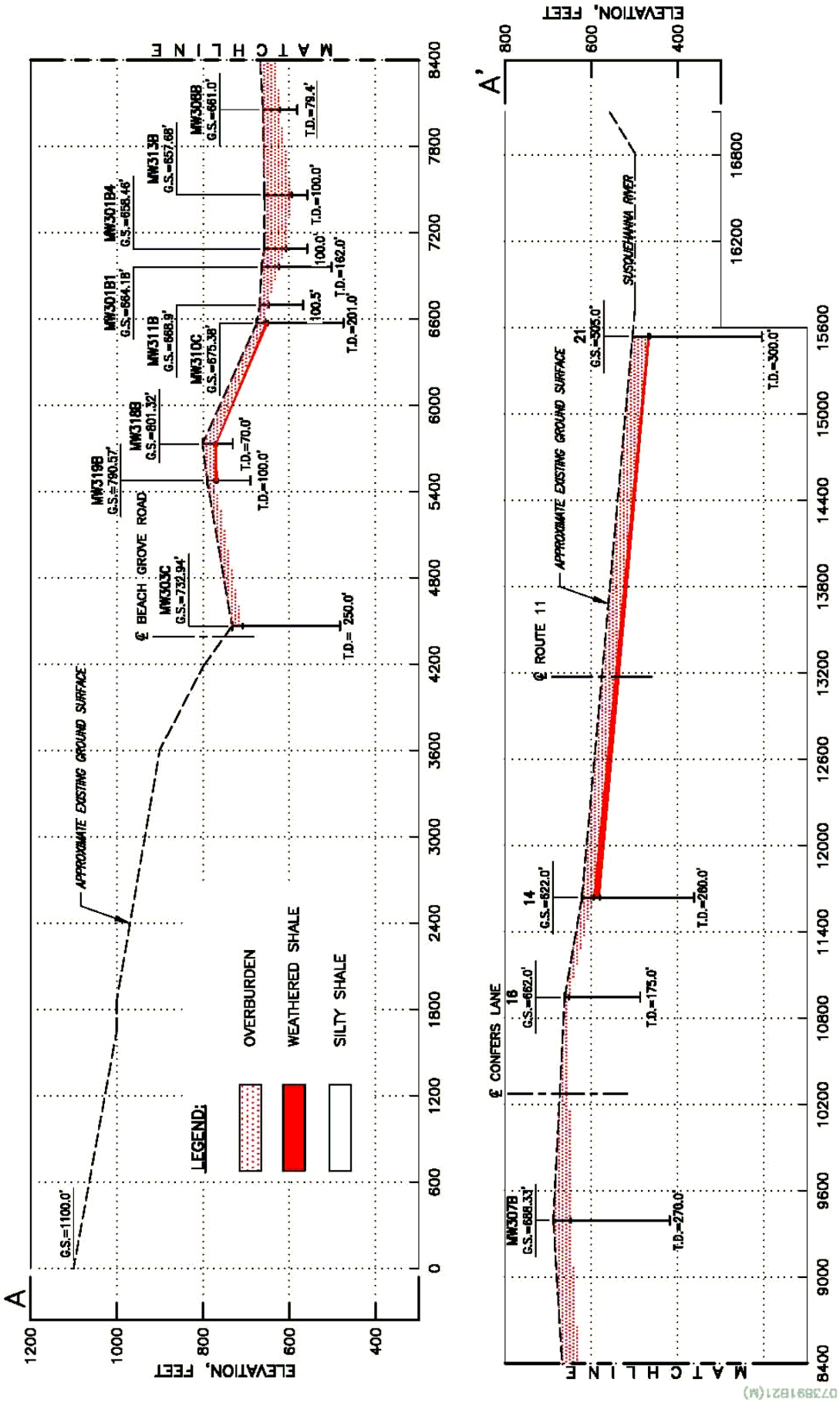

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Figure 2.4-66 {Hydrogeological Cross Section B-B'}

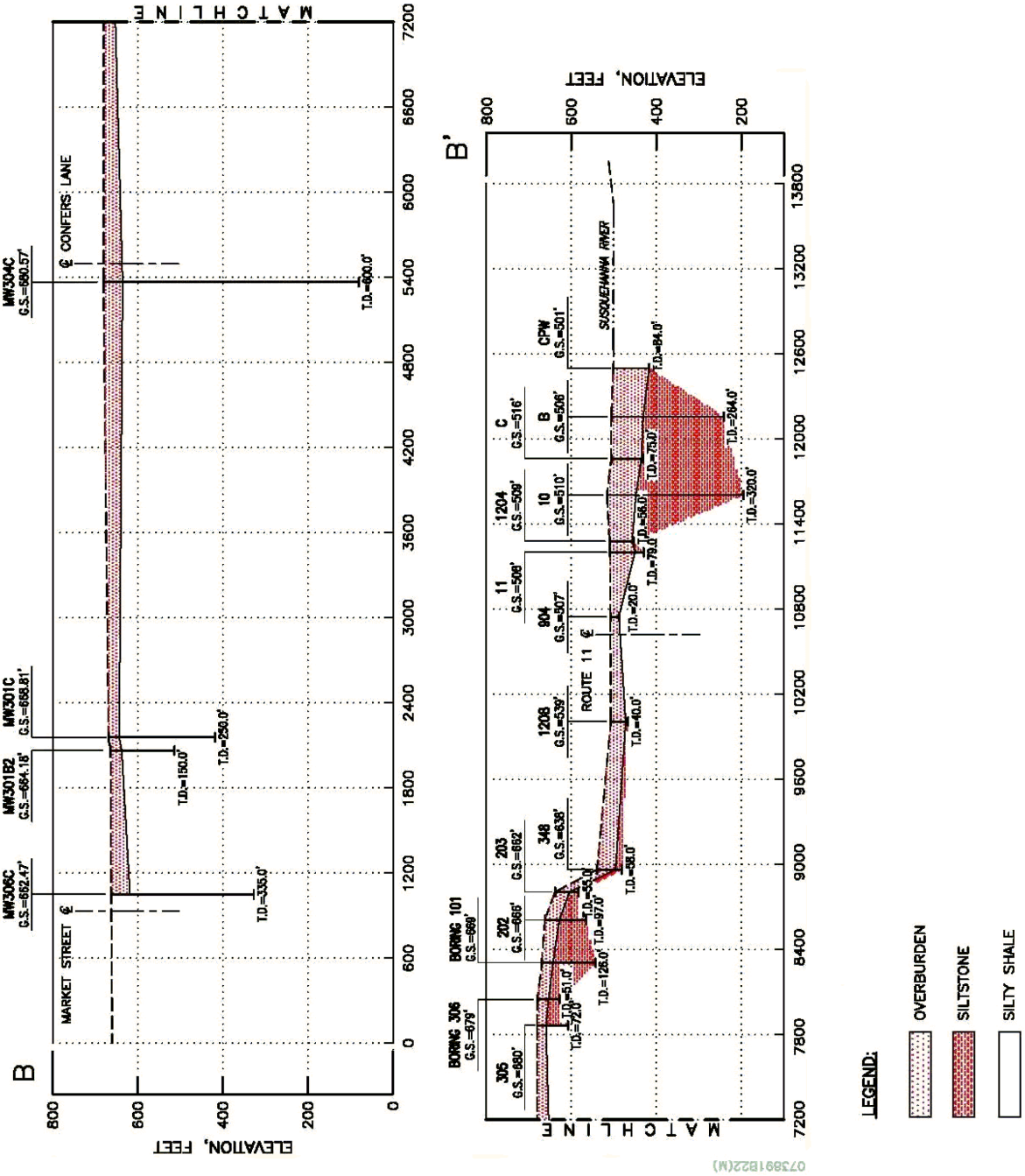

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Figure 2.4-67 {Saturated Thickness Map of the Glacial Overburden Aquifer}

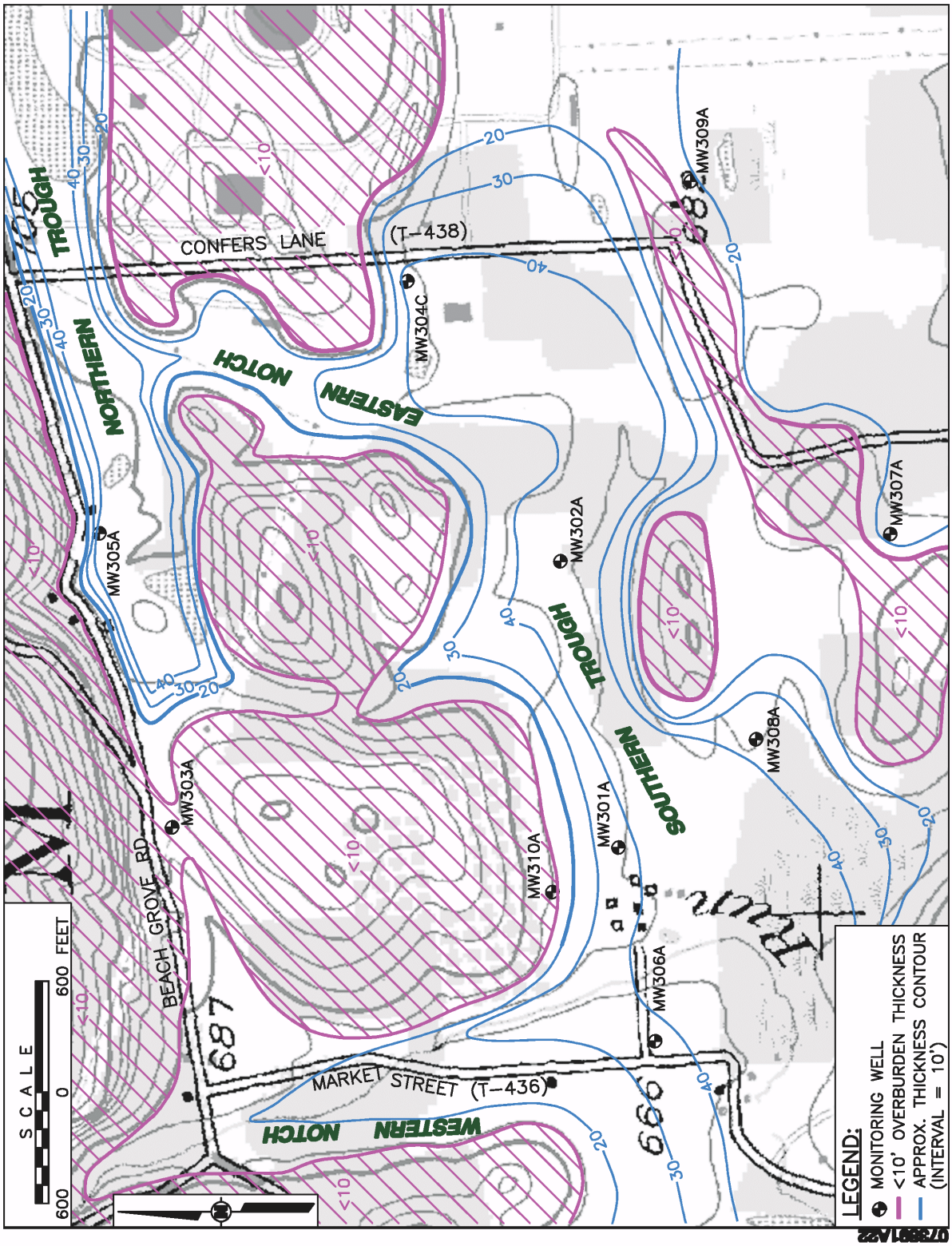

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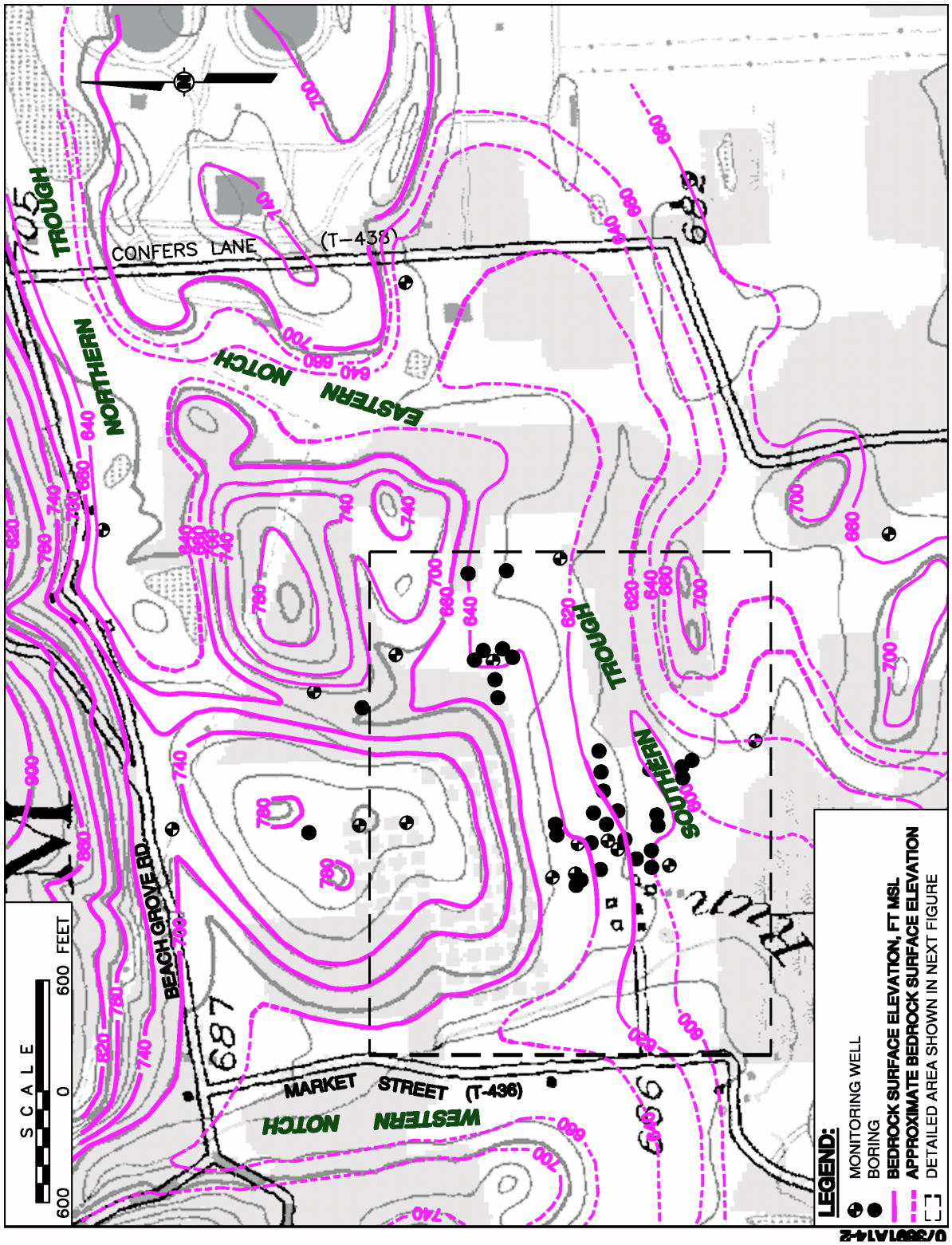
Figure 2.4-68 {Topography of the Bedrock Surface}



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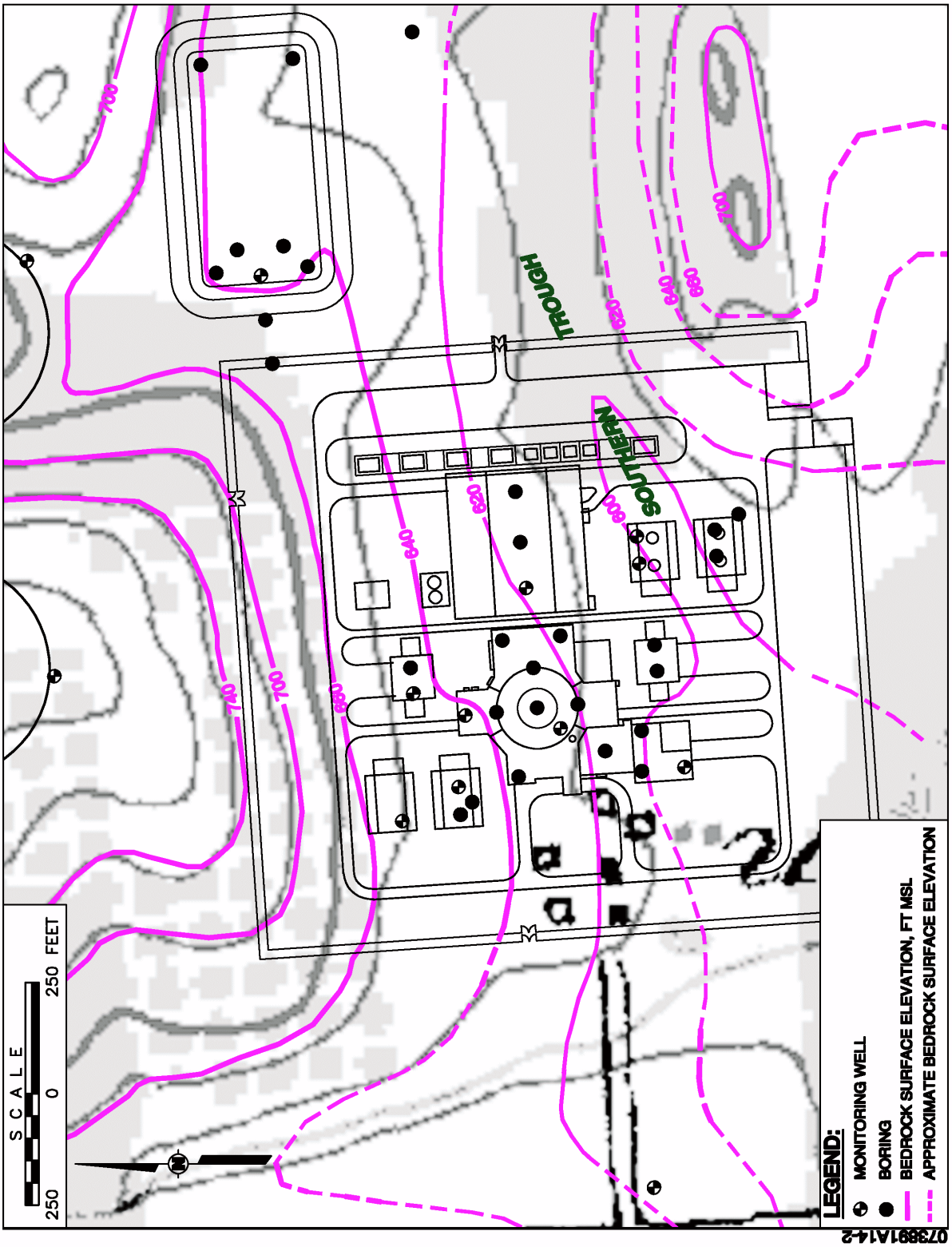

Figure 2.4-69 {Topography of the Bedrock Surface in the Power Block Area}

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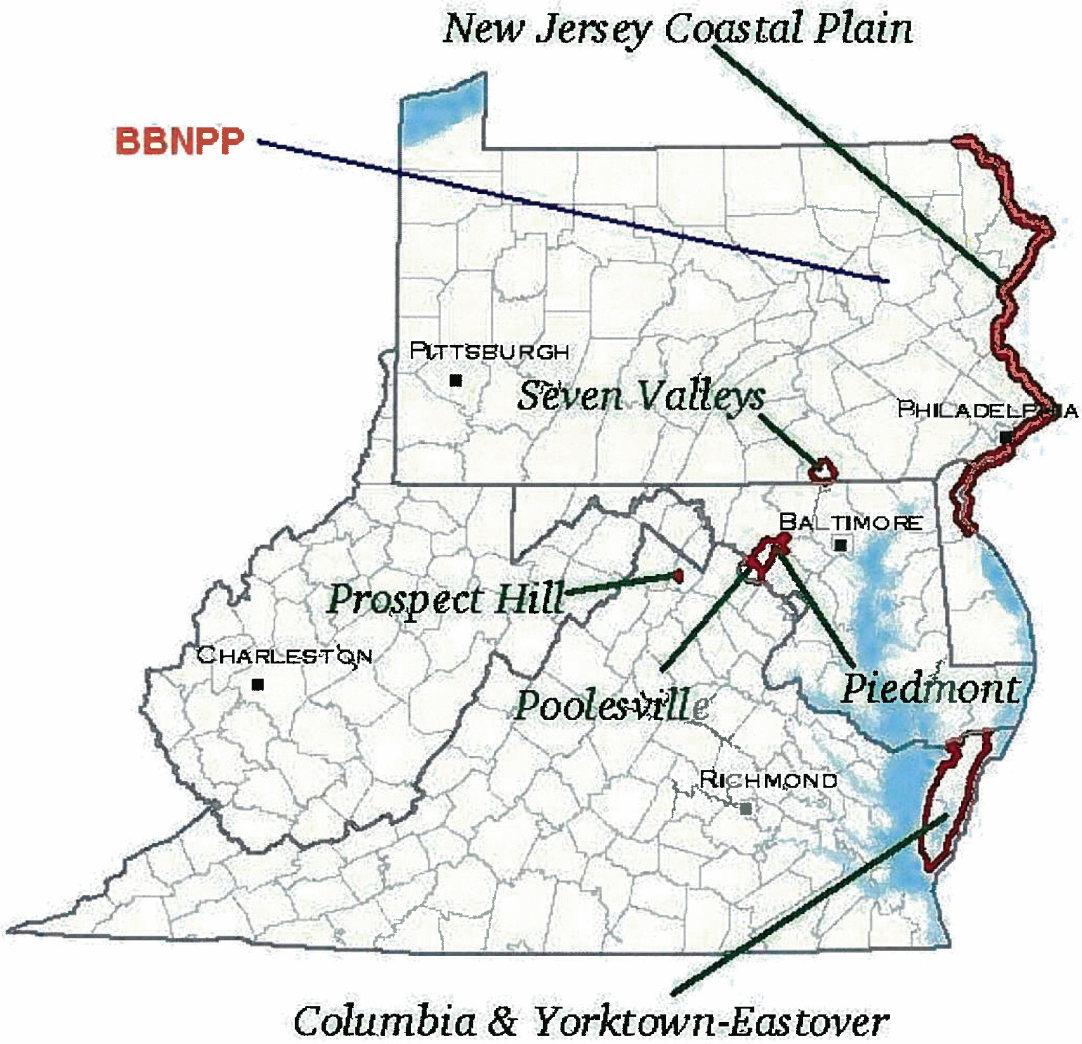
Figure 2.4-70 {Sole Source Aquifers Located in USEPA Region 3}



Reference: USEPA, 2008d

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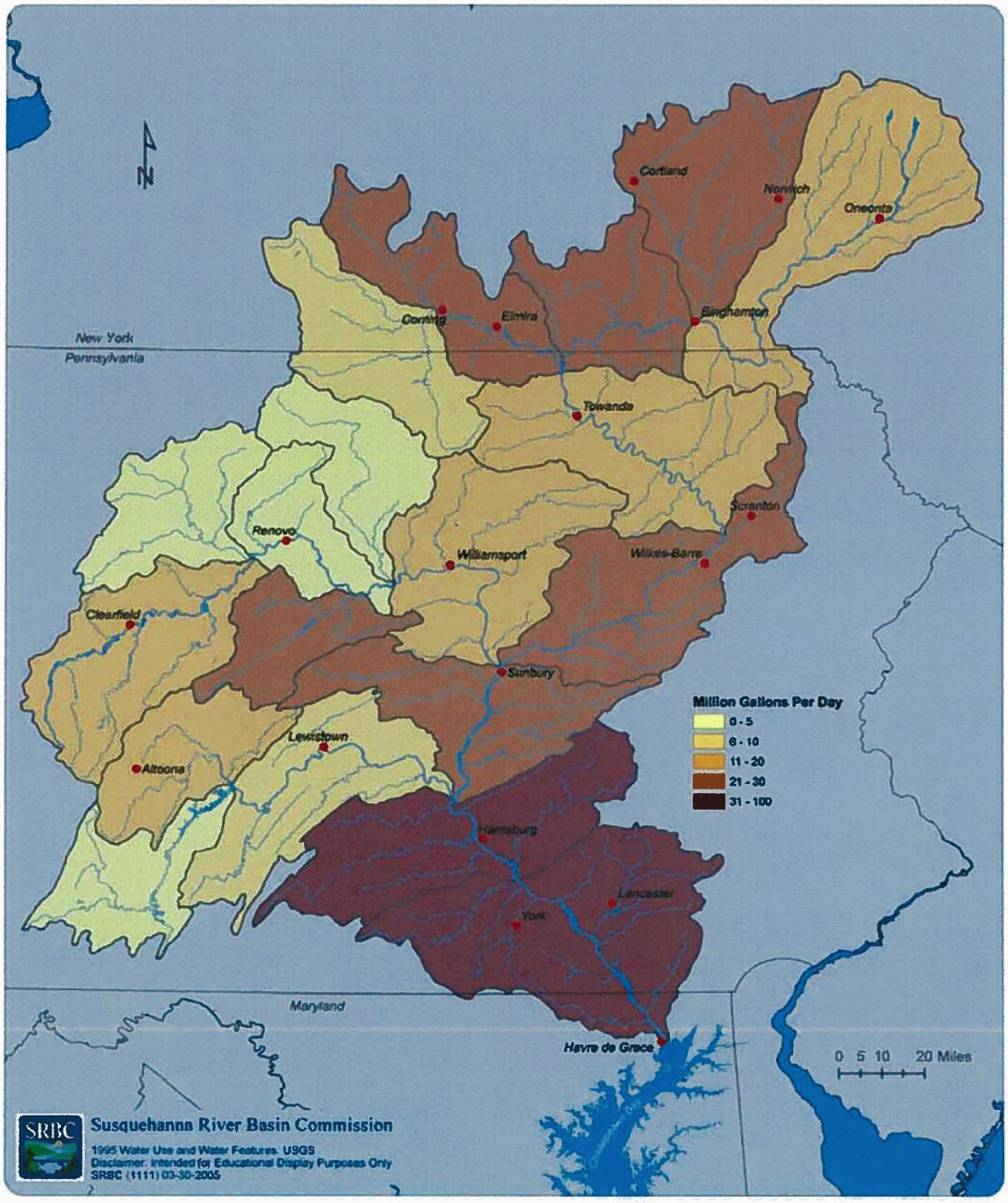
Figure 2.4-71 {Groundwater Use in the Susquehanna River Basin 1995}



Reference: SRBC, 2005

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