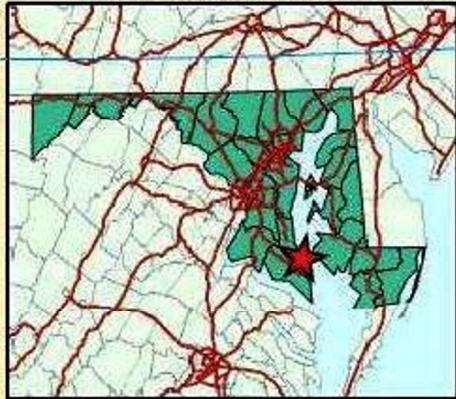


FIGURE 2.3.1-24 **Rev. 0**
COMBINED ANNUAL SUSPENDED LOADS AND
RELATION TO ANNUAL FLOW FROM THE
SUSQUEHANNA, POTOMAC AND JAMES
RIVERS NEAR THE FALL LINE
CCNPP UNIT 3 ER

Maryland



Legend

- ★ CCNPP Unit 3 Site
 - Calvert Cliffs Site Boundary
 - Calvert Cliffs Plant Grid
 - Shoreline
 - Lake or Pond
- Soil Erosion Rates
- 1 - Slight Change: +2 to -2 ft/yr
 - 2 - Low Change: -2 to -4 ft/yr
 - 3 - Moderate Change: -4 to -8 ft/yr
 - 4 - High Change: less than -8 ft/yr
 - 5 - Stabilized

Projection: Maryland State Plane
 Datum: North American Datum 1927
 Display: Calvert Cliffs Plant Grid



FIGURE 2.3.1-25 Rev. 0

ESTIMATED CHESAPEAKE BAY SHORELINE
 EROSION RATES NEAR CCNPP UNIT 3 SITE

CCNPP UNIT 3 ER

COVE POINT QUADRANGLE
MARYLAND
7.5 MINUTE SERIES (ORTHO PHOTOQUAD)



State of Maryland
Farris N. Glendening, Governor
Kathleen Kennedy Townsend, Lt. Governor
Department of Natural Resources
F. Charles Fox, Secretary
Karin M. White, Deputy Secretary
Resource Assessment Service
Paul O. Mancini, Director
Maryland Geological Survey
Emory T. Cleaves, Director

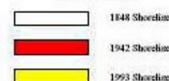
Shoreline Changes
Cove Point Quadrangle, MD

Compiled by:

Maryland Geological Survey
Coastal and Estuarine Geology Program
2900 St. Paul Street
Baltimore, Maryland 21218
Telephone: (410) 554-5500
Website: www.mgs.md.gov

2001

LEGEND



SOURCES OF DATA

Base Maps

Orthophotoquad (38076-D4-OQ-024) produced by the U.S. Geological Survey from the following 1:40000 scale aerial (NAVF) photograph.

NAVF Photo ID	Date of Photography
30-15	4/20/1959
30-50	4/20/1959
30-52	4/20/1959

Shorelines

1848 - Historical Shorelines CDM Map 97A Maryland Geological Survey, 1979; digitized using AutoCAD

1942 - National Oceanic and Atmospheric Administration, National Ocean Service T-shorelines listed below; digitized using GISMAP or AutoCAD

T-shore	Field Edit	Date of	Photography
T-8111	none	1842	
T-8544	none	1942	

1993 - orthophotoquad shoreline extracted from a Maryland Department of Natural Resources (DNR) digital wetlands delineation based on photo interpretation of DNR digital orthophoto quarter quads (Cove Point - NW, SE, SW) flown on April 8, 1993

ACKNOWLEDGMENTS

This map was prepared using the geographic information system TINTIME by MicroImage, Inc.

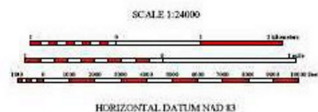
Partial funding was provided by a grant from the National Oceanic and Atmospheric Administration (Award No. NA07OZ0118), administered by the Maryland Department of Natural Resources, Coastal Zone Management Program (CDM Grant M01-056 CDM 040).

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This document is available in alternative format upon request from a qualified individual with a disability.

North American Datum of 1983 (NAD 83)
Projection and 1000-meter grid ticks:
Universal Transverse Mercator, zone 18

The North American Datum of 1927 (NAD 27)
shown as dashed corner ticks.



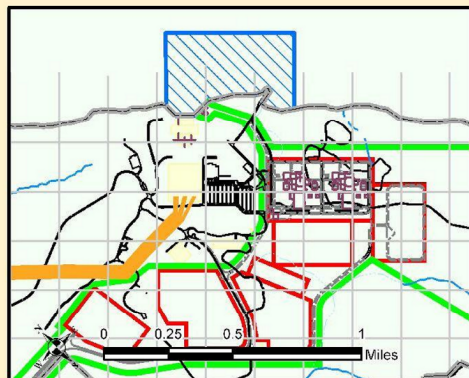
1	Potomac River
2	Chesapeake Bay
3	Rocky Point
4	Chesapeake Island
5	Taylor Island
6	Holly Island
7	Solomons Island
8	Blanco Island

INDEX TO ADJOINING 7.5 MAPS

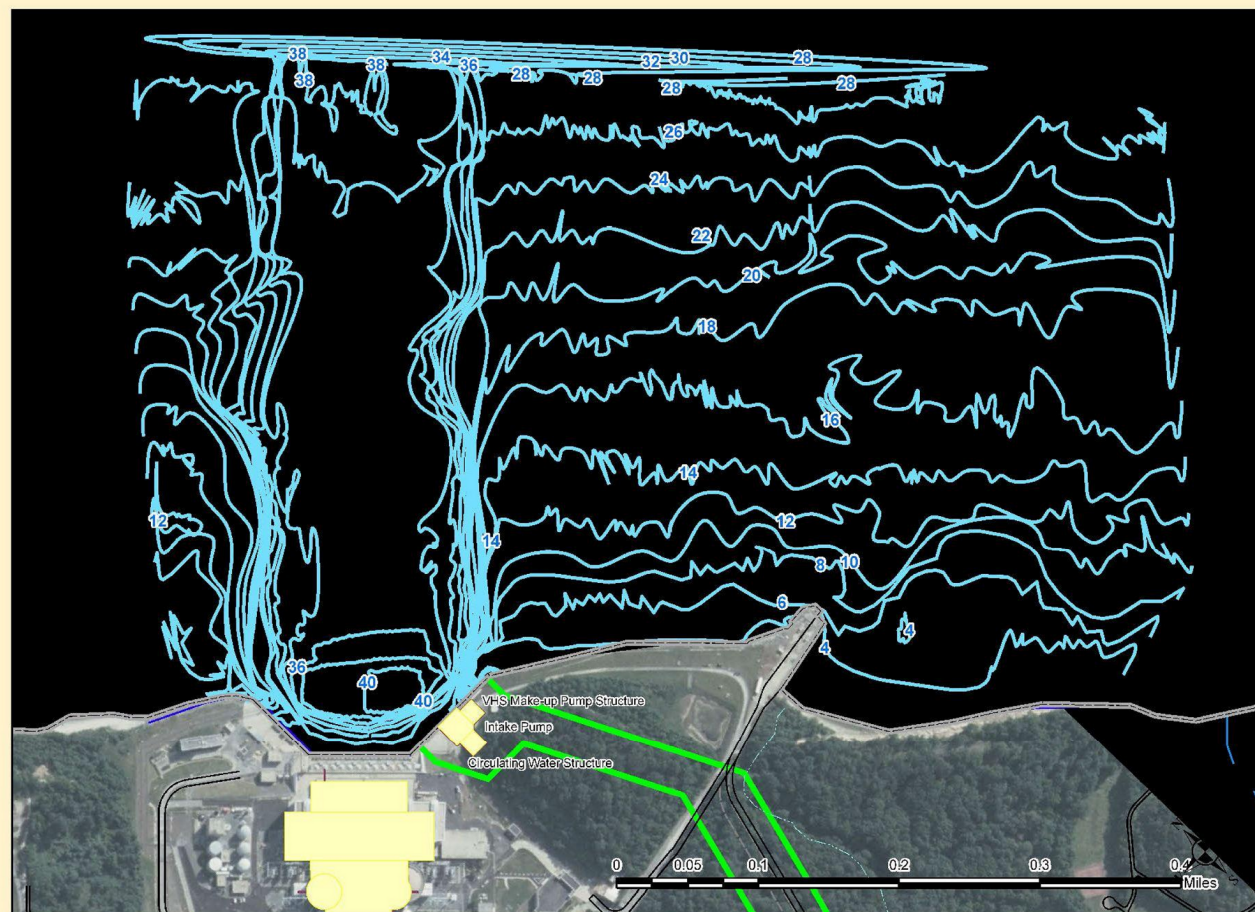
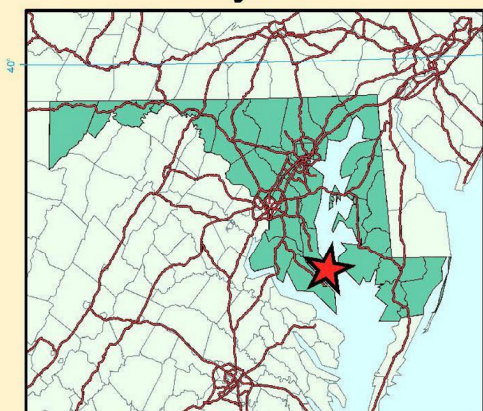


FIGURE 2.3.1-26 Rev. 0
CHANGE IN THE CHESAPEAKE BAY
SHORELINE POSITION NEAR THE CCNPP
SITE BETWEEN 1848, 1942 AND 1993
CCNPP UNIT 3 ER

Calvert Cliffs



Maryland



Legend

- Bathymetry Contour (2 Foot Intervals)
- Calvert Cliffs Site Boundary
- Calvert Cliffs Sheet Grid
- Cowling "L" Area
- Transmission Line
- Road Existing
- Road Proposed
- Power Block
- Steamer's Promenade
- Steamer's mooring area
- Shoreline
- Old Bank/Gold
- Structure Footing
- Take or Pay
- Recreational Areas

Projection: Maryland State Plane
Datum: North American Datum 1927
Display: Calvert Cliffs Plant Grid

Note: The vertical elevation refers to the Mean Lower Low Water (MLLW) at the site.

The nearest location to the site where a datum relationship is available is Cove Point, MD, at which point the NAVD 83 datum is 0.01 ft below the Mean Lower Low Water (MLLW).

FIGURE 2.3.1-27 Rev. 0
CHESAPEAKE BAY BATHYMETRY NEAR THE
EXISTING CCNPP UNITS 1 and 2 STRUCTURE
AND THE EXISTING INTAKE CHANNEL
CCNPP UNIT 3 ER

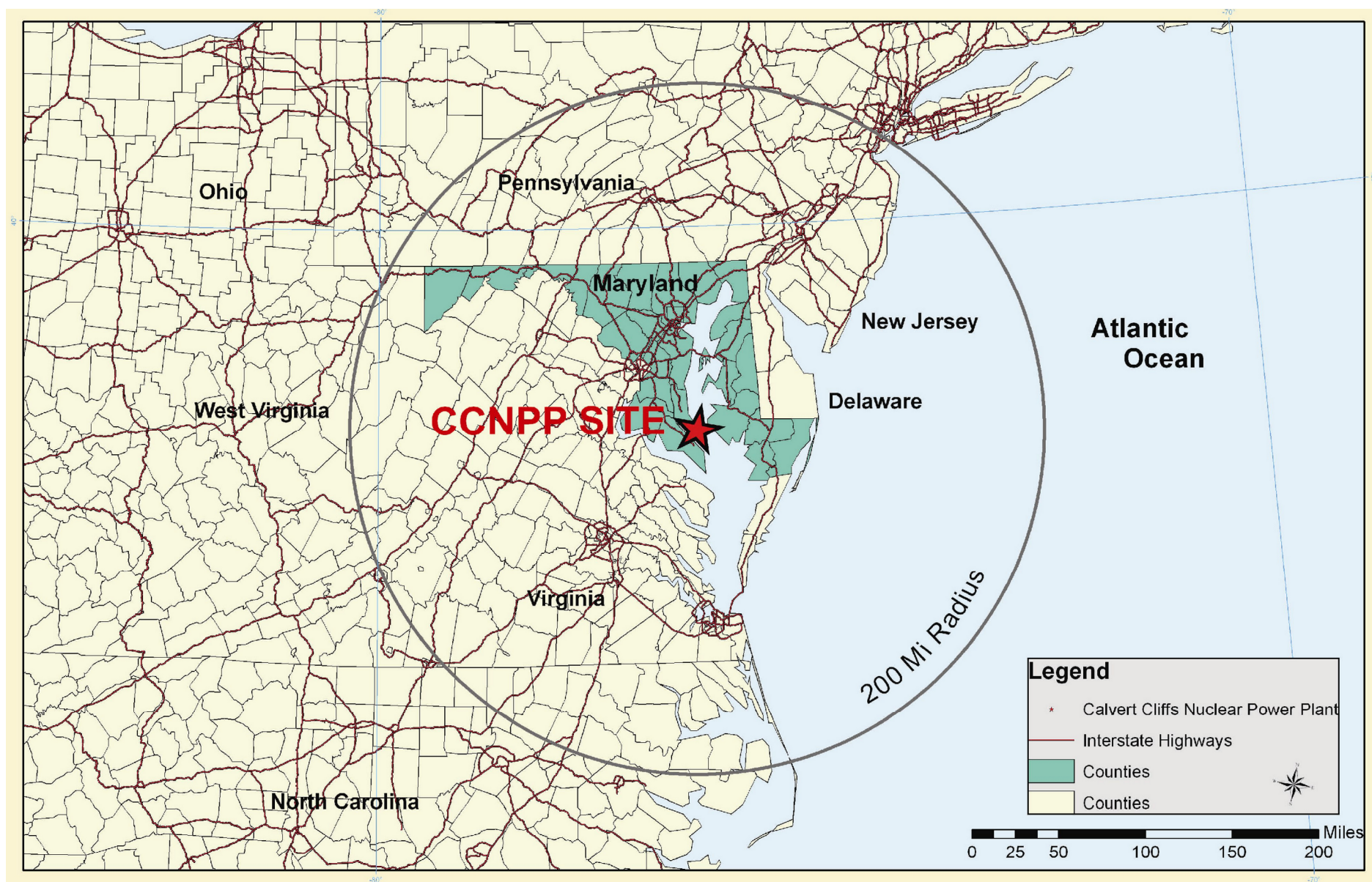


FIGURE 2.3.1-28 Rev. 0
LOCATION OF CCNPP AND 200 MILE
RADIUS FROM THE PLANT SITE
CCNPP UNIT 3 ER

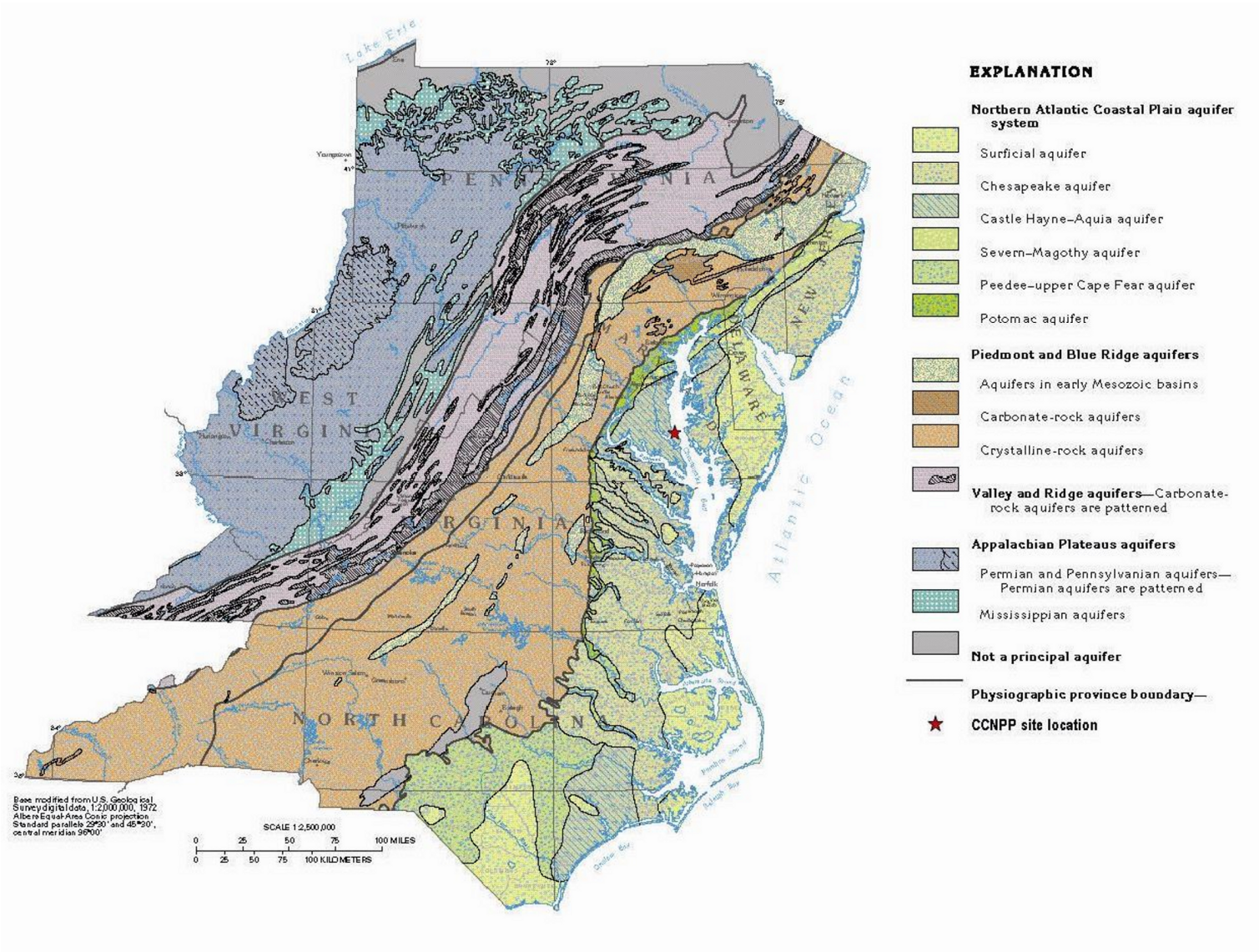


FIGURE 2.3.1-29 Rev. 0

MID-ATLANTIC REGIONAL PHYSIOGRAPHIC PROVINCES AND HYDROSTRATIGRAPHIC UNITS

CCNPP UNIT 3 ER

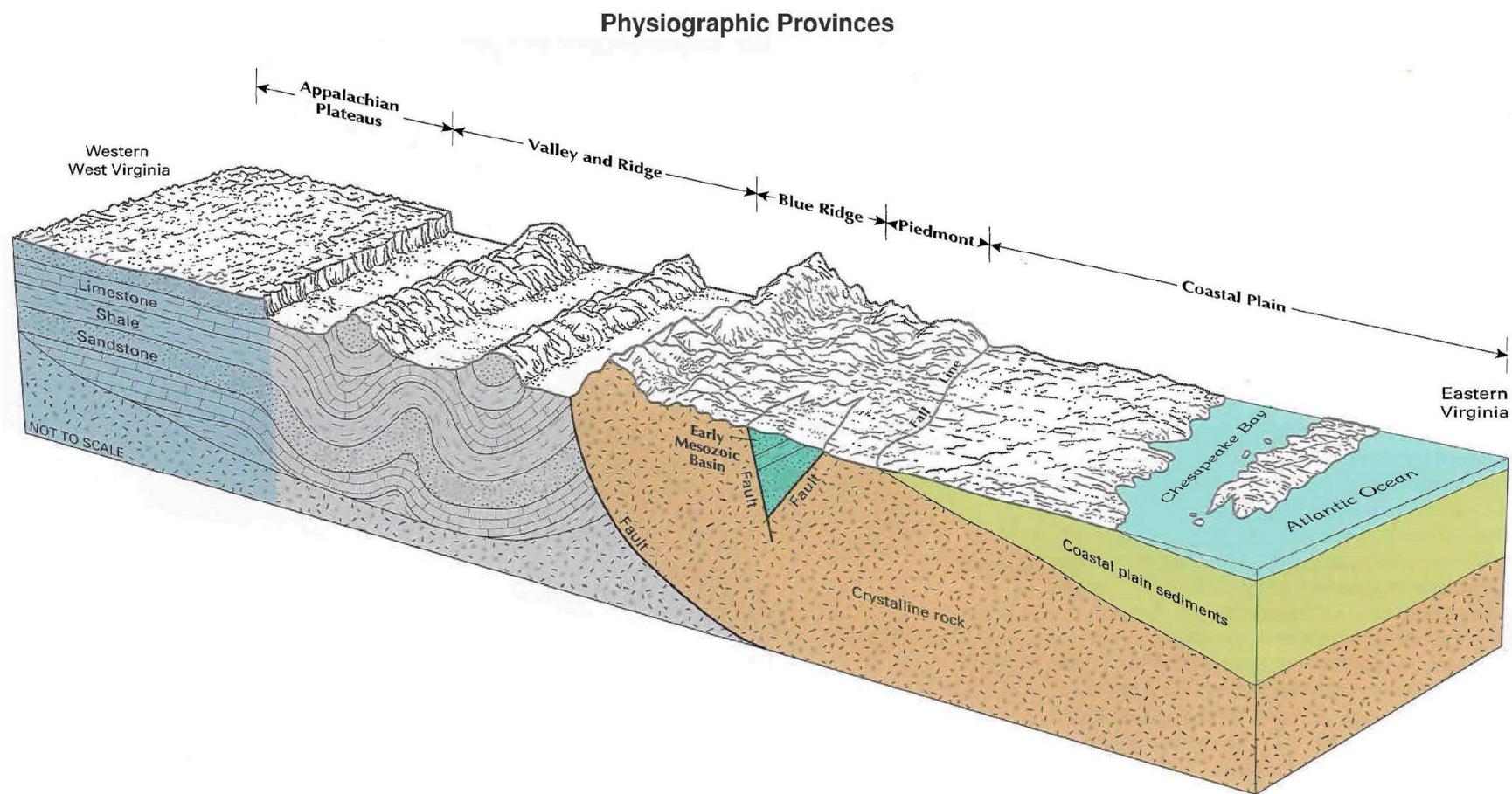


FIGURE 2.3.1-30 Rev. 0
 SCHEMATIC GEOLOGIC CROSS SECTION
 THROUGH THE MID-ATLANTIC REGION
CCNPP UNIT 3 ER

ERATHEM	SYSTEM	SERIES	FORMATION		THICKNESS (feet)	LITHOLOGY	HYDROSTRATIGRAPHIC UNIT		
CENOZOIC	QUATERNARY	Holocene & Pleistocene	Lowland deposits		0-150	Sand, gravel, sandy clay, and clay.	SURFICIAL AQUIFER		
	NEOGENE	Pliocene	Upland deposits		0-85	Irregularly stratified cobbles, gravel, sand, and clay lenses.			CHESAPEAKE CONFINING UNIT
			Miocene	Chesapeake Group	St. Mary's Fm.	0-335	Sand, clayey sand, and sandy clay; fossiliferous and diatomaceous.		
		Choptank Fm.							
		Calvert Fm.							
	PALEOGENE	Oligocene	Pamunkey Group	Unnamed Oligocene Beds	0-5	Patchy distribution; clayey, glauconitic sand.	PINEY POINT-NANJEMOY AQUIFER		
		Eocene		Piney Point Fm.	0-90	Sand, slightly glauconitic, with intercalated indurated layers; fossiliferous.			
				Nanjemoy Fm.	0-240	Glauconitic sand with clayey layers.			
		Paleocene		Marlboro Clay	0-30	Pink and gray clay.	NANJEMOY CONFINING UNIT		
				Aquia Fm.	30-205	Glauconitic, greenish to brown sand with indurated layers; fossiliferous.	AQUIA AQUIFER		
Brightseat Fm.				0-40	Gray to dark-gray micaceous silty and sandy clay.	BRIGHTSEAT CONFINING UNIT			
MESOZOIC	CRETACEOUS	Upper	Monmouth Group	Formations undifferentiated	20-105		Sandy clay and sand, dark gray to black, with minor glauconitic; fossiliferous.	BRIGHTSEAT CONFINING UNIT	
									Matawan Group
			Magothy Fm.		0-230		Light gray to white sand and fine gravel with interbedded clay layers; contains pyrite and lignite. Includes two sand units in southern Anne Arundel County where the formation is the thickest.	MAGOTHY AQUIFER	
		Lower	Potomac Group	Patapsco Fm.	0-1,200		Interbedded sand, clay, and sandy clay; color variegated, but chiefly hues of red, brown and gray; consists of several sandy intervals that function as separate aquifers.	Patapsco aquifer system	UPPER PATAPSCO CONFINING UNIT
									UPPER PATAPSCO AQUIFER
				Arundel Fm.	0-400		Red, brown, and gray clay; in places contains ironstone nodules, carbonaceous remains, and lignite.		MIDDLE PATAPSCO CONFINING UNIT
									LOWER PATAPSCO AQUIFER
		Patuxent Fm.		100-600	Interbedded gray and yellow sand and clay; kaolinized feldspar and lignite common. Locally clay layers predominate.		ARUNDEL CONFINING UNIT		
									PATUXENT AQUIFER
		PALEOZOIC	Undifferentiated pre-Cretaceous consolidated-rock basement				Unknown	Igneous and metamorphic rocks; sandstone and shale.	NOT RECOGNIZED
PRECAMBRIAN									

FIGURE 2.3.1-31 Rev. 0

SOUTHERN MARYLAND SCHEMATIC
HYDROSTRATIGRAPHIC SECTION

CCNPP UNIT 3 ER