Figure 2.5-28—{Site Vicinity Geologic Map 25-Mile (40-Km) Radius Unit Descriptions}

Explanation

Maryland
(Cleaves, et al., 1968)

Quaternary — Pleistocene to recent
- Qdu — Quaternary undivided - sand
- Ql — Lowland deposits - gravel
- Qu — Upland deposits (Eastern Shore) - gravel

Pliocene(?)
- QTu — Quaternary and Tertiary deposits (undifferentiated) - gravel

Chesapeake Group

Miocene
- Ts — St. Marys Formation - clay
- Tch — Choptank Formation - sand
- Tc — Calvert Formation - sand

Eocene
- Tn — Nanjemoy Formation - sand

Paleocene
- Ta — Aquia Formation - sand

Virginia
(Rader and Evans, 1993)

Quaternary
- sb — Beach and dune sand deposits
- al — Quaternary, alluvium
- Qtip — Lynnhaven and Poquoson members undifferentiated (Tabb Formation) - sand
- Qtl — Lynnhaven Member (Tabb Formation) - sand
- Qts — Sedgefield member (Tabb Formation) - sand
- QTu — Tertiary-Quaternary deposits undifferentiated - sand
- Qsh — Shirely Formation (Omar Fm equivalent) - gravel
- Qcc — Charles City Formation - sand

Pliocene
- Tm — Moorings unit of Oaks and Coch (1973) - sand
- Tb1 — Bacons Castle Formation - gravel
- Tb2 — Bacons Castle Formation - sand
- psg — Pliocene sand and gravel

Chesapeake Group

Miocene
- Tc — Chesapeake group - sand

Prince George's County
(Glaser, 2003a)

Quaternary — Holocene
- Qal — Alluvium - interbedded sand silt-clay and subordinate gravel

Quaternary — Pleistocene
- Qt — Terrace deposits (informal unit) - interbedded sand gravel and silt-clay

Upper Miocene — Pliocene
- Tu — Upland deposits (informal unit) - sand pebbly sand and gravel capped by sandy pebbly loam in places

Chesapeake Group

Lower to Middle Miocene
- Tc — Calvert Formation - fine- to very fine-grained sand and silt, as well as diatomaceous silt

Lower Eocene
- Tn — Nanjemoy Formation - clay and minor interbedded silt

Paleocene
- Tm — Marlboro clay, clay or silty clay; sparse lenses silt
- Ta — Aquia Formation, sand (variably glauconitic)

Charles County
(McCartan, 1989a)

Quaternary — Holocene
- Qh — Holocene deposits undivided - sand gravel silt and clay
- Czcu — Cenozoic colluvium undivided - clay to cobble-sized material; poorly sorted

Quaternary — Pleistocene
- Qk — Kent Island Formation - silty sand (fine-to medium-grained)
- Qm — Maryland Point Formation - sand, silty clay, and clay
- Qo — Omar Formation - mud and muddy fine sand grading downward to fine gravel
- Qcx — Chicamuxen Church Formation - silty clay and muddy fine sand grading downward to pebbly mud and sand

Pliocene
- Tp — Park Hall Formation, silty sand, sand, and clay interbedded with coarse sand, pebbles, and boulders
- Tug4 — Upland gravel 4, sand; lenses of muddy sand and clay grading downward to gravelly mud or coarse sand
- Tug3 — Upland gravel 3 - mainly interbedded sand and gravel with coarse sand matrix

Chesapeake Group

Middle Miocene
- Tch — Choptank Formation - fine sand to silty sand interbedded with silty clay
- Tc — Calvert Formation - very fine sand and fine sandy clay; rare medium to coarse sand

Lower Eocene
- Tn — Nanjemoy Formation - glauconitic sand (fine- to med-grained) and silty clay

- Tm — Marlboro clay, clay and minor interbedded silt
- Ta — Aquia Formation, micaceous glauconitic sand (fine- to coarse-grained)

Broomers Island and Cove Point Quadrangles
(modified from Glaser, 2003 b and c)

Quaternary — Holocene
- af — Artificial fill - heterogeneous unstratified materials, such as sand, gravel, clay, slag, construction debris, and dredge spoil
- Qal — Alluvium - interbedded sand, gravel, and silt-clay; organic matter in places; rare thin peats
- Qb — Holocene beach deposits - loose, cross stratified sand and marshes
- Qz — Lowland deposits (informal unit) - interbedded sand, silt-clay and minor pebbly sand; fossiliferous in places; thin gravels at base

Quaternary — Pleistocene
- Qcx — Chicamuxen Church formation - interbedded sand and gravel; uppermost 4 to 5 feet consist of silty clay or silty fine sand
- Qt — Terrace deposits (informal unit) - sand and gravel

Pliocene
- Tp — Park Hall Formation - interbedded sand and minor clay-silt and pebbly sand and gravel
- Tu — Upland deposits (informal unit) - sand, gravel and minor clay-silt

Chesapeake Group

Middle Miocene
- Tcsm — Choptank and St. Marys Formations undivided - sand, sandy clay and clay; variably fossiliferous
- Tcp — Calvert Formation, Plum Point marls - sand and clayey sand; fossiliferous at several horizons yet sparingly fossiliferous throughout
- Tcf — Calvert Formation, Fairhaven member - sand and diatomaceous silt with clay - diatomaceous silt in lower portion; homogeneous sand and silty sand in upper portion (mapped in subsurface only)

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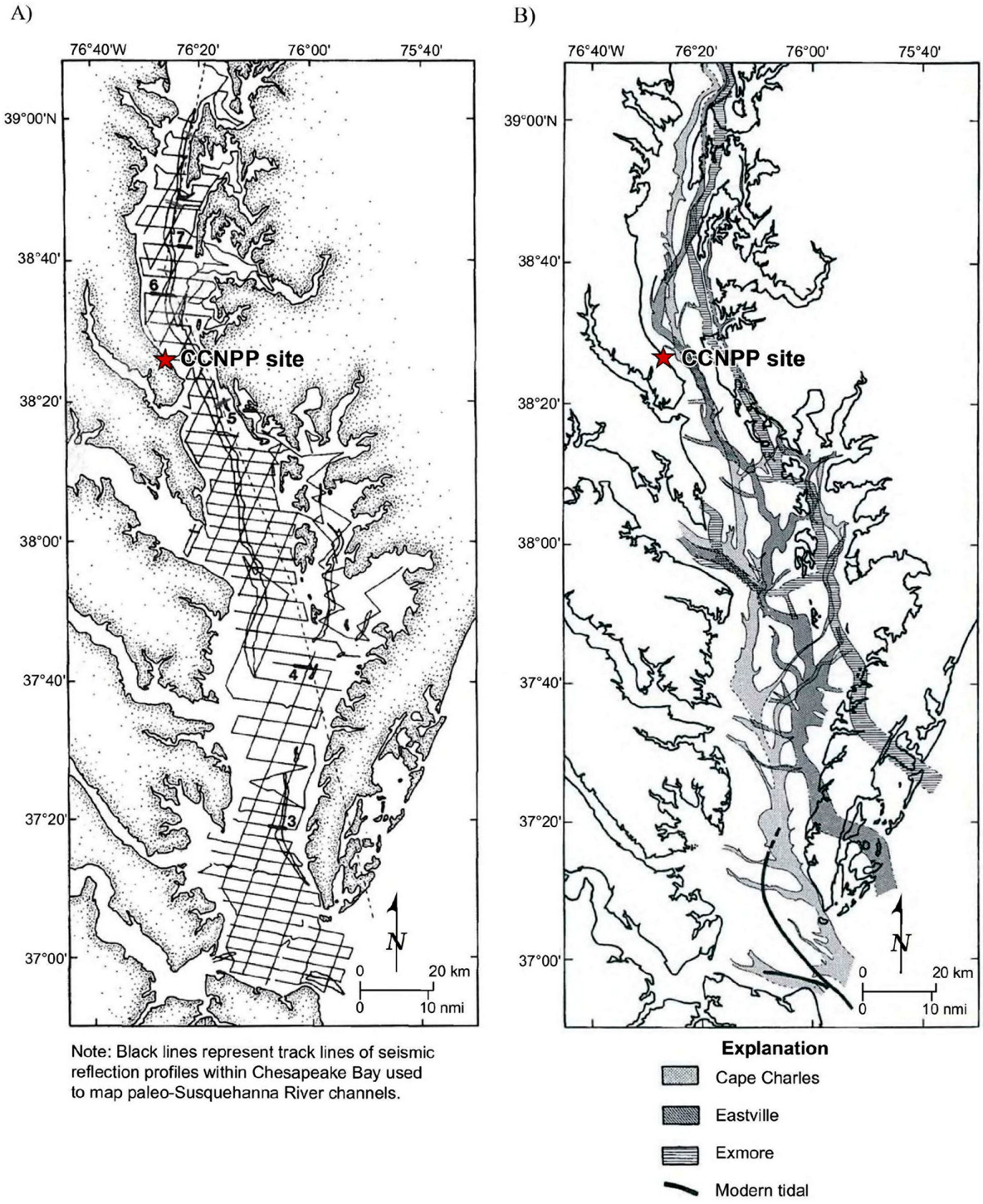
Figure 2.5-29—{Map of Seismic Lines (A) and Channels (B)}



Note: Black lines represent track lines of seismic reflection profiles within Chesapeake Bay used to map paleo-Susquehanna River channels.

Notes: 1. Shading marks paleochannel extents.
2. Paleo-channel ages described in text.

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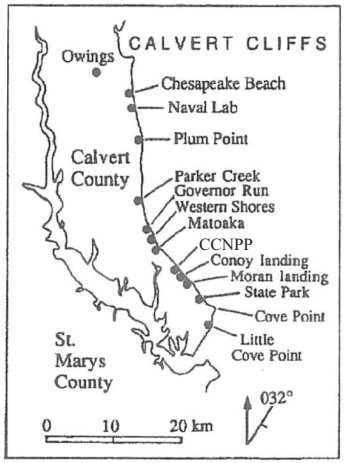
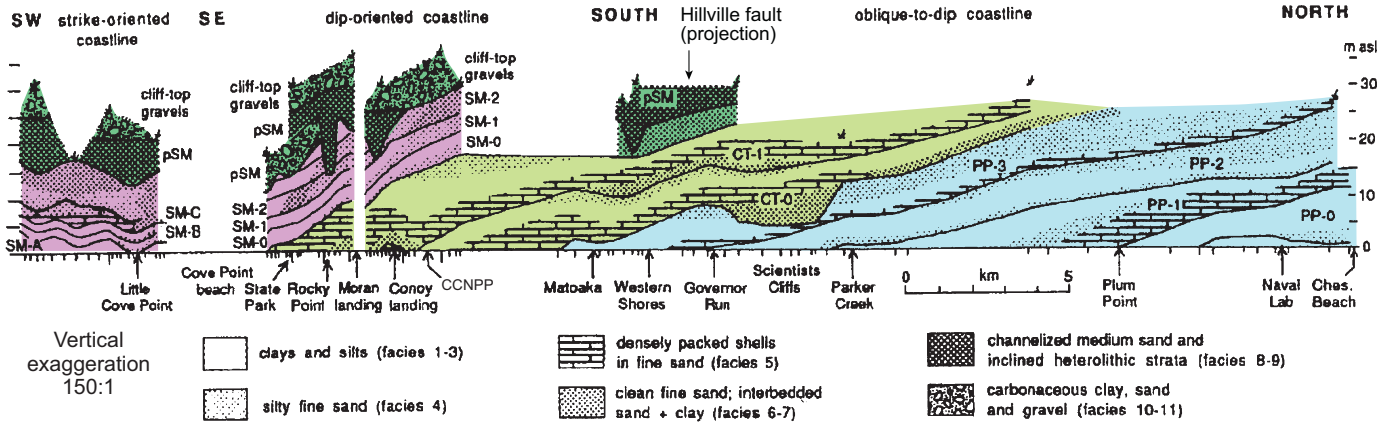
Figure 2.5-30—{Location Map (A) and Cross Section (B) of Calvert Cliffs, Maryland}

A)



Location of landmarks along the Calvert Cliffs (refer to Figure 2.5-26).

B)



Cross section of the Calvert Cliffs showing disconformity-bounded units. PP, Plum Point Member of the Calvert Formation; CT, Choptank Formation; SM, St. Marys Formation; pSM, post-St. Mary's Neogene strata.

Figure 2.5-30 – {Location Map (A) and Cross Section (B) of the Calvert Cliffs, Maryland}

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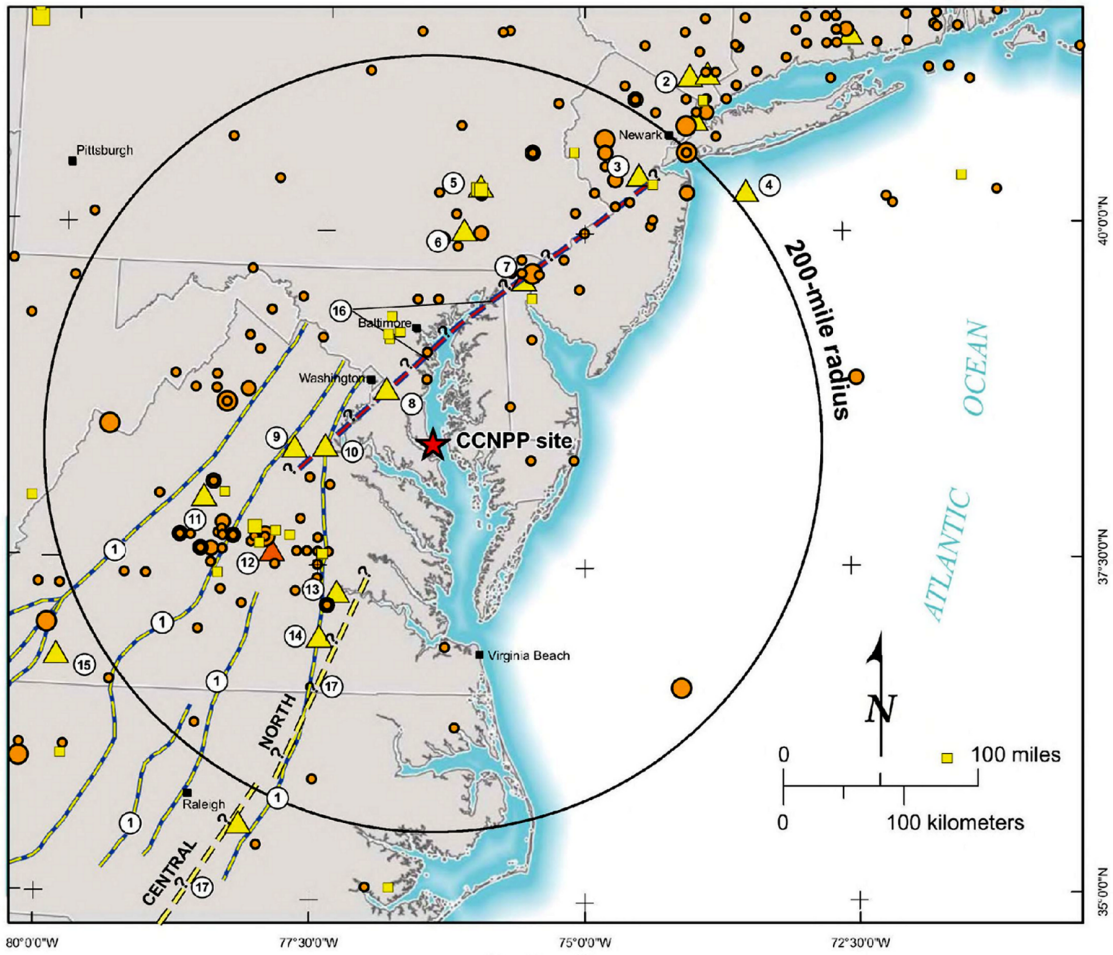
Figure 2.5-31—{Potential Quaternary Features in the Site Region}



Explanation

Features* compiled from Crone and Wheeler (2000) and Wheeler (2005)

Class

- A
- C
- C East coast fault system (Marple and Talwani, 2000)
- C Weems fall lines (1998) (Marple, 2004)
- C Stafford fault system (Marple, 2004)

Earthquake Epicenters (by magnitude, Emb)

EPRI Catalog (1627 - 1984)	*Eastern U.S. Seismicity (1985 - 2006)*
3.00 - 3.99	3.00 - 3.99
4.00 - 4.99	4.00 - 4.99
5.00 - 5.99	5.00 - 5.21
6.00 - 6.99	
7.00 - 7.49	

*Refer to table below for feature names

1. Fall lines (Weems, 1988)
2. Ramapo fault system
3. Kingston fault
4. New York Bight fault (offshore)
5. Cacoosing Valley earthquake
6. Lancaster seismic zone
7. New Castle County faults
8. Upper Marlboro faults
9. Everona fault-Mountain Run fault zone
10. Stafford fault (Mixon et al., 2000)
11. Lebanon Church fault
12. Central Virginia seismic zone
13. Hopewell fault
14. Old Hickory faults
15. Stanleytown-Villa Heights faults
16. Stafford fault system of Marple (2004)
17. East Coast fault system (Marple and Talwani, 2007)

Note: Emb is an equivalent body wave magnitude explained in Section 2.5.2.1.

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