Explanation

Faults

- Paleozoic faults
- Mesozoic faults
- Cenozoic faults, includes postulated East Coast Fault System
- Shear zones

Lithotectonic Units

JURASSIC

- Plutonic rocks of unknown origin
- Continental rift basins and magmatism related to formation of the Atlantic Basin

CARBONIFEROUS

- Carboniferous to Permian plutonic rocks
- Lower Mississippian to Lower Permain maily terrestrial clastic sedimentary rocks that form westward transgressive wedges includes minor cratonal facies near base.

DEVONIAN

- Middle Devonian to earliest Carboniferous plutonic rocks
- Mainly Middle to Upper Devonian dominantly terrestrial clastic sedimentary rocks deposited on the west flank (Catskill clastic wedge) and on interior portions of the Appalachian Orogen; includes minor carbonate rocks.

SILURIAN

- Syn-acadian sedimentary and magmatic rocks
- Extensional basin and cover rocks; Upper Ordovician to Lower Mississippian clastic sedimentary rocks and diamictite lying unconformably on unit 4.
- Mid-paleozoic clastic wedge and time-equivalent rocks; Middle Ordovician to Lower Devonian, generally thin, shallow marine to terrestrial, clastic sedimentary wedge with subordinate carbonate rocks and chert. Includes unit 33 in southernmost Appalachians and carbonate rocks that are either the cratonward equivalent of unit 6 or lie unconformably on rocks deformed during the Taconic Orogeny.

ORDOVICIAN

- Mid-paleozoic magmatism mainly in Axial realm; Middle Ordovician to Lower Silurian plutonic rocks and orthogneiss mainly confined to the Piedmont domain
- Marine basin; Upper Ordovician slate, schist, quartzite, and conglomerate with minor metavolcanic rocks.
- Tactonic foreland basin; Westward-transgressive clastic wedges mainly derived from an eastern source and associated carbonate rocks. Locally includes mélange
- Unseparated schist, gneiss and migmatite; may include rocks as young as Silurian. Contains detrital zircon populations distinct from those of units 7 and 9.
- Unseparated schist, gneiss and migmatite; may include rocks as young as Silurian. Contains detrital zircon populations distinct from those of units 7 and 9.
- Composite magmatic arc and other magmatic rocks

- Metamorphic rocks of unknown origin; high-grade paragneiss, orthogneiss and amphibolite of unknown affinity that structurally overlie ca. 1 Ga basement of unit 1. Locally contains small bodies of Devonian orthogneiss

CAMBRIAN

- Lower Paleozoic basal transgressive clastic sequence and overlying dominantly carbonate platform sequence containing local clasic rocks
- Continental slope-and-rise facies; locally may contain oceanic volcanic rocks and rift-facies rocks
- Multiply tectonized accretionary complex; Neoproterozoic to Lower Paleozoic mainly clastic metasedimentary rocks, schist, and gneiss containing metaclastic mélanges and subordinate amphibolite, meta-ultramafic rocks, and eclogite. Locally associated to units 1, 3, 4, 5, 6, 8 and 9.
- Infrastructural magmatic-arc/oceanic rocks; gneiss, schist, metavolcanic rocks, and amphibolite, with local mélange and ultramafic bodies. Locally yield Neoproterozoic to Cambrian radiometric ages.
- Suprastructural magmatic-arc and associated rocks

PRECAMBRIAN

- Lapetus rft facies; Meoproterozoic to Cambrian mainly clastic sedimentary rocks filling rift basins and associated magmatism related to lapetan rifting. Locally contains fragments of oceanic crust
- Lapetus rft facies; encratonic magmatic rocks (ca. 750-680 Ma.) and associated sedimentary rocks; southern Appalachians
- Grenville basement of Laurentian including ca. 1 Ga inliers within the hinterland; gneiss, schist, and plutonic rocks affected by the Grenille Orogeny and associated post-orogenic granitoid bodies.

Modified from Hibbard et al. (2006)

WLS COL 2.5-1

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Explanation of Lithotectonic Map of Appalachian Orogen

FIGURE 2.5.1-204b Rev 0