GEOLOGIC MAP OF THE FUQUAY-VARINA 7.5-MINUTE QUADRANGLE, WAKE AND HARNETT COUNTIES, NORTH CAROLINA

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF LAND RESOURCES
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NORTH CAROLINA GEOLOGICAL SURVEY
OPEN FILE REPORT 2001-XX

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DRAFT MAP - 10/28/08

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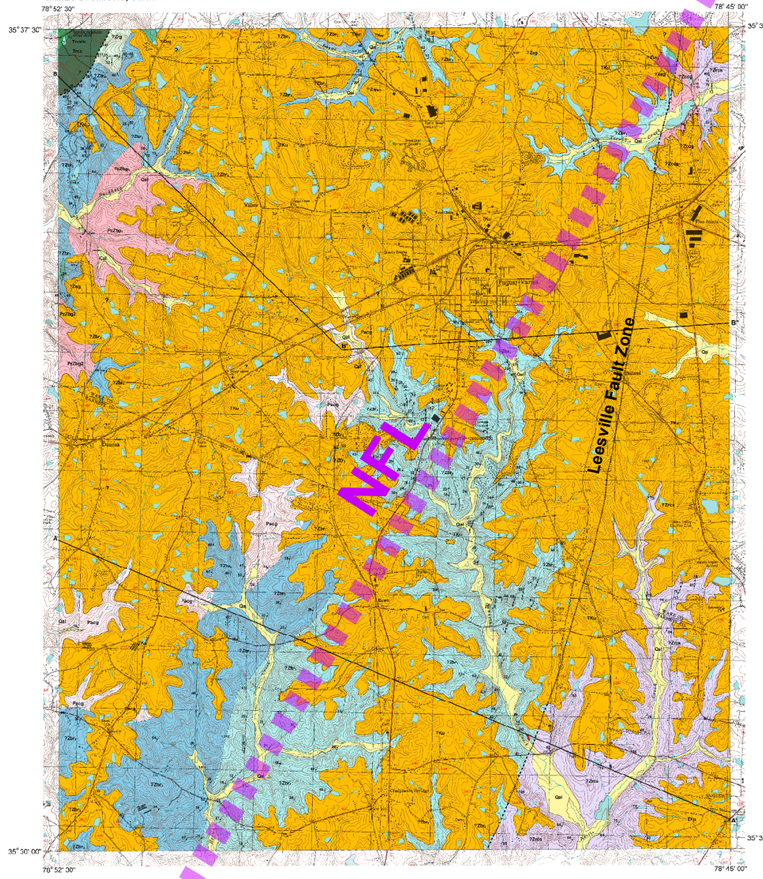

Description of Map Units

Sedimentary/Surficial Units

- Qal – Quaternary alluvium: unconsolidated, poorly sorted and poorly stratified tan to light gray stream deposits of gravel, sand, silt, and clay. Similar to terraces along streams.
- TKu – coastal plain sediment, undifferentiated: Unconsolidated, to poorly consolidated, fine- to medium-grained arkosic sands and clayey sands with local gravel and clay beds.
- Triccl – conglomerate: reddish-brown to dark brown, irregularly bedded, poorly sorted, cobble to boulder conglomerate.
- Trcsslc – sandstone w/interbedded conglomerate: reddish-brown to dark brown, irregularly bedded, poorly sorted, coarse-grained to pebbly, muddy lithic sandstones with interbedded pebble to cobble conglomerate.

Lithofacies Arkosic III

Igneous Units

- Jd – diabase dikes: steeply dipping to subvertical dikes of gray to bluish-black, fine- to medium-grained diabase that may be olivine bearing. Solid lines where observed; dotted lines where inferred from aeromagnetic data.
- Pwcg – granite of the Averys Creeks type: Light gray to pinkish gray, fine- to medium-grained granite composed mainly of quartz, microcline perthite, and granophyre, with accessory biotite, garnet, magnetite, and muscovite; generally massive, but locally foliated near contacts. The granite is characterized by low color index (percentage of dark-colored minerals, generally less than 2, and ranging from 1 to 5), and by an abundance of perthitic alkali feldspar. Plagioclase occurs almost entirely as a component of perthite, so the rock is a hypersolvus granite. It occurs mainly in a large pluton exposed along Averys Creek in the southeastern part of the quadrangle and extending into the Fuquay-Varina quadrangle to the east and the Mamers quadrangle to the south. The age is uncertain, but it appears to be younger than the granites listed below and may be middle to late Paleozoic.

Metamorphic Units

CAROLINA TERRANE

Meta-igneous Units

Leesville Meta-intrusive Suite

- ?Zrg – Reedy Creek metagranodiorite: leucocratic (CI<10) light tannish-gray, medium-grained to porphyritic, foliated and lineated to massive, mylagranodiorite. Locally white mica rich and or contains blue quartz phenocrysts and clots of biotite and epidote.
- PzZbg1, PzZbg2 – ????????: Mixed facies of dark gray to bluish-gray, fine- to medium-grained, weakly to moderately foliated, leucocratic (CI<25) garnet-bearing biotite metagranite and light pinkish-tan, fine- to medium-grained, weakly to moderately foliated, leucocratic (CI<5) magnetite-biotite metagranite.

Metavolcanic and Metasedimentary Units

Cary Mafic Metamorphic Suite

- ?Zp – Coles Branch phyllite: tan to dark silvery gray, fine-grained, well foliated, leucocratic white mica phyllite locally containing quartz and plagioclase phenocrysts or compositional layering including mesocratic white mica-chlorite-biotite phyllite and greenstone.
- ?Zbr – Big Lake-Ravan Rock schist 1: light tan to white, fine- to medium-grained white mica quartzitic schist containing abundant relict phenocrysts of blue quartz and plagioclase or local white to gray lapilli and rock clasts.
- ?Zbr1 – Big Lake-Ravan Rock schist 2: light tan to white, fine- to medium-grained, well foliated white mica schist containing fragmental texturs including white to gray lapilli tephra and rock clasts.
- ?Zbr2 – Big Lake-Ravan Rock schist 3: Light tan to orange-brown, fine- to medium-grained, white mica schist to gneiss.
- ?Zsg – Sycamore Lake greenstone: variably lig'rt green to dark black-green to gray-green, fine- to medium-grained, unfoliated to well foliated, epidote actinolite chlorite greenstone and chlorite + biotite + actinolite phyllite.

CRABTREE TERRANE

Meta-plutonic Units

Crabtree Creek Gneiss

- ?Zccg – Crabtree Creek gneiss: leucocratic (CI=5-10) green-ish-gray to pink, medium- to coarse-grained, well foliated and lineated, porphyriclastic granite orthogneiss facies containing elliptical to rod-shaped quartz ocpiads, and white mica.

Metavolcanic and Metasedimentary Units ????????????

Crabtree Mafic Metamorphic Suite

- ?Zcrs – Richland Creek schist: mixed unit of silver-gray, fine- to medium-grained, well foliated, pelitic garnet + staurolite + tourmaline + white mica + biotite phyllitic schist and tan to white, fine grained, moderately foliated felsic gneiss. Contains layers of ?Zwgs.

CONTACTS

Lithologic contacts - Solid where location known, dashed where inferred, dotted where concealed.

FAULTS

Late brittle normal (?) faults suggested by the occurrence of vuggy quartz and breccia. D indicates downthrown side. Location of in situ vuggy quartz and breccia shown by orange triangles. Where in situ fault plane features were observed.

STRUCTURAL SYMBOLS

Observation sites are centered on the strike bar or are at the intersection point of multiple symbols.

- inclined beds
- inclined foliation (Sm)
- vertical foliation (Sm)
- inclined shear foliation
- vertical shear foliation
- to be determinec
- to be determinec
- to be determinec
- Lc Mineral Stretching Lineation

0.5 0 0.5 1 1.5 Miles

2000 0 2000 4000 6000 Feet

1000 0 1000 2000 3000 Meters

N

1:24 000 SCALE
CONTOUR INTERVAL 10 FEET
Base topographic map is digital raster graphic image of the Fuquay-Varina 7.5-minute quadrangle ( ).
North Carolina State Plane NAD 83 meters projection.

LOCATION OF THE FUQUAY-VARINA 7.5-MINUTE QUADRANGLE, NORTH CAROLINA

ACKNOWLEDGEMENTS

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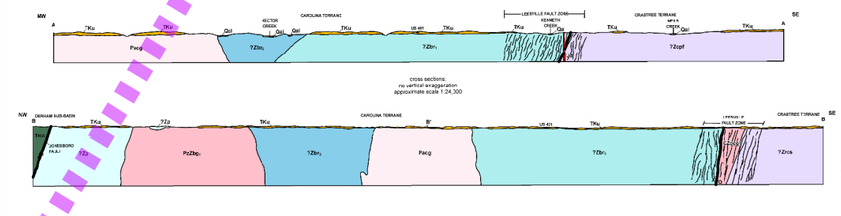
INDEX TO GEOLOGIC MAPPING



LEGEND

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W E
S

Postulated Fall Lines (Weems, 1998)
CPFL - Central Piedmont Fall Line
DFL - Durham Fall Line
NFL - Nutbush Fall Line
TFL - Tidewater Fall Line

Progress Energy Carolinas
Shearon Harris Nuclear Power Plant
Units 2 and 3
Part 2, Final Safety Analysis Report
New Hill, North Carolina

Geologic Map of the Fuquay-Varina Quadrangle

RAI 02.05.01-12 Figure 5

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