The Late Triassic (Norian) Dan River Basin, is a continuous gas assessment unit A. The rift-lacustrine basin, formed from the opening of the Atlantic Ocean, is filled with Triassic strata divided into five formations that in ascending stratigraphic order are: (1) the Pine Hall, (2) Walnut Cove, (3) Dry Fork, (4) Cow Branch, and (5) Stoneville formations. The NCGS’s 2015 Town of Walnut Cove SO-C-01-15 was continuously cored to a depth of 1477 feet ending in metamorphic basement rocks (Reid and others, 2015). The core hole investigated the basins unconventional hydrocarbon resource potential, apparently cored all the Pine Hall Formation, and afforded the opportunity to designate its type section. We designated the Pine Hall Fm. type section from a depth of 423.7 feet to 1451.2 feet, including a basal pebble conglomerate from a depth of 1414.5 ft to 1451.2 feet immediately above the unconformable Paleozoic metamorphic basement contact.

Most of the Pine Hall Fm. consists of recurring fining upward packages of gray, medium- to coarse-grained sandstone frequently calcareous deposited as 4-6-inch high foreset cross bed packages 1-10 feet-thick capped by either red siltstone, or gray to black, organic-rich siltstone or mudstone with diverse pedogenic features. Moderate porosity and permeability suggests the Pine Hall Fm. as a potential reservoir for continuous hydrocarbon accumulations. The shale and siltstone beds that are interbedded with coarser-grained strata may act as effective seals. Previous workers did not designate a type section due to lack of stratigraphically informative, continuous sections. Olsen and others (2015) designated a lectostratotype from 573.0-806.2 foot core depth in nearby core hole SO-C-02-81, where it consists primarily of red clastic rocks with abundant carbonate nodules and mottled strata of pedogenic origin.
abundant carbonate nodules and mottled strata of pedogenic origin. We designated the Pine Hall Formation type section from a depth of 423.7 ft to 1,451.2 ft, (Reid and others, 2015). The core hole investigated the basin’s unconventional hydrocarbon re-

The Late Triassic (Norian) Dan River basin, is a continuous gas assessment unit (AU). The rift-

The Deep River basin stratigraphy is from Reinemund (1955), and the stratigraphy


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Sedimentary facies diversity in the Pine Hall Formation provides evidence that the basin

Organic analyses, mineralogy, rock mechanics data, and high pressure air / mercury capillary

About 325 ft of organic lacustrine sediment (apparently the entire Walnut Cove Formation)

The deep core-drill on the type section of the Pine Hall Formation, 1,284 ft at depth, and the upper part of the section is shown in the Figure. It contains a sequence of red sandstone, siltstone, and mudstone with a much lower frequency of red mudstone. This transition can be made up of a series of red mudstone intervals, each about 200 m thick in the area of its lectostratotype (below).

The contact with the overlying Walnut Cove Formation is marked by the presence of gray

The upper part of the depositional sequence may be red or black reflecting the

Organic analyses, mineralogy, rock mechanics data, and high pressure air / mercury capillary

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When active sand deposition ceased, silt and mud started to be deposited in shallow,

The gray- to black organic-rich mudstone average about 1-3 feet in thickness. They are

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