 retrogression of mafic minerals, chlorite or epidote-coated slickensides, and close-spaced ages of 1188 to 1182 Ma (Volkert and others, 2010b).

geochemical compositions that are high in TiO$_2$, P$_2$O$_5$, Zr, and light rare-earth elements, subdivided into the Middle Paleozoic rocks of the Green Pond Mountain Region and Lower bedrock geologic relationships, based in part on detailed bedrock mapping, major and trace ed, within-plate, tectonic setting (Volkert, 2004a). Contacts between diabase dikes and the west at 30$^\circ$ to 90$^\circ$ and averages 65$^\circ$. Northwest-striking foliation dips gently to moderately rocks, and toward the northwest or southeast at an average of 43$^\circ$ in the Lower Paleozoic postdate the development of crystallization foliation. Characteristic fold patterns are broad, northeast.

of bedding in Lower Paleozoic rocks of the Kittatinny Valley sequence is N.46$^\circ$. Mesoproterozoic rocks along the eastern side of the Wallkill Valley, north of Morris Lake, Crystallization foliation, formed by the parallel alignment of mineral grains in the Me-

from the Proterozoic that indicate normal, right-lateral strike slip, and reverse movement, reverse, although dip-slip normal movement is predominant south of the map area. The 

Hill mine.

(ZChian Region, Geological Society of America Memoir 206, p. 307-346.

Baum, J.L., 1967, The Tranquility prospect, Sussex County, New Jersey: New Jersey Zinc 

Association of New Jersey, p. 27-51.

Spencer, A.C., Kümmel, H.B., Salisbury, R.D., Wolff, J.E., and Palache, Charles, 1908, De-


rocks in the New Jersey Highlands: Northeastern Geology and Environ-

New insights from SHRIMP Sr and Nd isotopic compositions, age and petrogenesis of A-type granitoids of the 

Regional Geology of the Franklin Quadrangle, Sussex and Morris Counties, New Jersey 

by Richard A. Volkert and Donald H. Macdonald 2010