Quantum critical behavior in the 1D Heisenberg linear chain system Rb$_2$PbCu(NO$_2$)$_6$\textsuperscript{1} MICHAEL HOCH, JIN JUNG KWEON, LIANYANG DONG, TIGLET BESARA, ARNEIL REYES, PHILLIP KUHNS, National High Magnetic Field Laboratory, THEO SIEGRIST, Chemical and Biomedical Engineering, Florida State University — The quantum critical region of the phase diagram of the 1D spin Heisenberg linear chain system Rb$_2$PbCu(NO$_2$)$_6$ has been investigated using $^{87}$Rb NMR measurements on a polycrystalline sample. The low J value (2.6 K) leads to a low value for the saturation field. The $^{87}$Rb frequency shifts and spin-lattice relaxation rates, determined as a function of temperature and applied field, provide information on the transition to the Tomanaga-Luttinger-liquid phase. Scaling behavior in accordance with quantum criticality is examined.

\textsuperscript{1}NSF DMR-1157490, NSF DMR-1534818