Unusual Magnetic-Pressure Response of an $S = 1$ Antiferromagnetic Linear-Chain near the $D/J \approx 1$ Critical Point.\textsuperscript{1} M. K. PEPRAH, P. A. QUINTERO, J. S. XIA, J. M. PÉREZ, M. W. MEISEL, Dept. of Physics and NHMFL, Univ. of Florida, A. GARCIA, S. E. BROWN, Dept. of Physics, UCLA, J. L. MANSON, Dept. of Chemistry, Eastern Washington Univ. — An $S = 1$ chain, [Ni(HF$_2$)(3-Clpy)$_4$]BF$_4$ (py = pyridine), has been identified to have nearest-neighbor antiferromagnetic interaction $J/k_B = 4.86$ K and single-ion anisotropy $D/k_B = 4.3$ K, while avoiding long-range order to 25 mK.\textsuperscript{2} With $D/J = 0.88$, this system is close to the $D/J \approx 1$ gapless quantum critical point between the Haldane and Large-$D$ phases. The magnetization was studied at $50 \text{ mK} \leq T \leq 1$ K and with $B \leq 10$ T.\textsuperscript{3} Using a magnetometer equipped with a pressure cell, the low-field (0.1 T), high temperature ($T \geq 2$ K) magnetic susceptibility was studied to 1.47 GPa. These data suggest the response at ambient pressure\textsuperscript{2} changes between 0.24 GPa and 0.35 GPa. These studies are being extended by $^1$H NMR experiments capable of varying the pressure and of spanning from 300 K to below 100 mK.

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\textsuperscript{2}J.L. Manson et al., Inorg. Chem. 51 (2012) 7520.

\textsuperscript{3}J.-S. Xia et al., arxiv.1409.5971 (2014).