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High Pressure Kondo-like Behavior in Quaternary Rare Earth Transition Metal Arsenide Oxide¹ W.O. UHOYA, G.M. TSOI, Y.K. VOHRA, UAB, S.T. WEIR, LLNL, M.A. MCGUIRE, A.S. SEFAT, B.C. SALES, D.G. MANDRUS, ORNL — High pressure electrical resistance studies at low temperatures have been performed on a quaternary rare earth transition metal arsenide oxide (NdCoAsO) to 70 GPa and a temperature of 10 K using designer diamond anvils. A resistance minimum at low temperatures exhibiting Kondo-like behavior was observed at temperature $T_K = 17$ K at ambient pressure. The Kondo temperature was observed to increase with increasing pressure and rising to 30 K at a pressure of 70 GPa. High pressure x-ray diffraction studies were performed using a synchrotron source to a pressure of 35 GPa at ambient temperature. The ambient pressure tetragonal phase (P4/nmm, $Z = 2$) was observed to transform to a low-symmetry phase at a pressure of 27 GPa. The Kondo-like behavior was observed to persist in NdCoAsO to the highest pressure and the superconducting transition was not observed to a pressure of 70 GPa.

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