Adding certain multi-spin interactions of strength Q to the standard 2D Heisenberg model with exchange J (the J-Q model) leads to the destruction of Neel order and a transition into a valence-bond-solid (VBS) state [1]. Large-scale quantum Monte Carlo (QMC) simulations of this system reveals scaling behavior at the Neel-VBS transition consistent with a continuous quantum critical point, in agreement with the theory of “deconfined” quantum criticality [2]. There are, however, significant scaling corrections, possibly logarithmic [3], that had not been anticipated. These corrections may actually be a fingerprint of deconfined spinons [4]. I will discuss the latest QMC evidence for a continuous ground state transition as well as signatures of spinon deconfinement in thermodynamic properties.