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The action of the projective general linear group on the variety of complete quadrics gives rise to an action of the Richardson-Springer monoid associated to the symmetric group on sets of generalized involutions. We study the associated weak Bruhat order of this action and characterize the maximal chains. We apply this characterization to cohomological calculations modeled after the Lascoux-Schutzenberger divided difference calculus. (Received November 22, 2011)