

Gas Storage in Bedded Salt – Saltville Virginia

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Abstract

The salt deposits near Saltville, Virginia are the only known deposits of rock salt in the Southern portion of the Appalachian Basin of the United States. The Saltville area was a leading salt producer from the late 1700s to 1970s. The salt bearing formations, although technically “bedded salt”, have been sharply folded and overturned, presenting a “U”-shaped structure in which both the shallower upper limb and deeper lower limb have utilized multiple solution mining techniques to create caverns for various uses.

This paper will briefly review the geology, and over 200 years of salt mining history in the Saltville area. Brine mining techniques and impacts including subsidence will be discussed.

This paper also reviews the development for gas storage that began in the late 1990s and the gas storage operations which continue to this day. The combination of uncommon geology, long complex history, rubble-filled caverns, and subsidence, has created unique challenges in operating the Saltville Gas Storage facility that have been met with creative solutions for well construction, maintenance, integrity monitoring, and mitigation of subsidence impacts, to ensure the continued safe operation of the facility.

Key words: salt caverns, bedded salt, historic salt production, Appalachian salt, shallow brinefields, subsidence, well workovers, cavern integrity monitoring.