

ABSTRACT

ANR Storage Company Experience with and Utilization of Swath and 3D Seismic in the Development of Devonian Reef Gas Storage, New York State

ANR Storage Company, on behalf of our partnership with Arlington Exploration Co. and d.b.a. Steuben Gas Storage Company, has utilized a swath seismic acquisition method with 2-D processing for the development of the Adrian gas storage field. After drilling, the data set was binned and gridded for 3-D processing. Also, Steuben has acquired and processed a conventional 3-D seismic program for aiding the future field development and conversion of the Thomas Corners gas field to gas storage service.

Both fields are Devonian aged Onondaga reefs in New York state and represent two of seven of this reservoir type discovered in New York and Pennsylvania from the late sixties and through the mid seventies. Both fields have produced dry gas via pressure depletion production. As in common with the Niagaran reefs of the Michigan basin, production developments of the pools typically involve the drilling of only a few wells and the areal boundaries of the pools are defined by seismic data interpretation. In addition, reefs commonly have a highly variable internal structure with the porosity development or preservation varying laterally and vertically.

With that said, the two most important problems to resolve prior to development of the New York Onondaga reef fields to which a solution was sought using the swath and the 3-D seismic were:

- 1) Accurate interpretation of the reef edges, and;
- 2) Understanding areal distribution of the porous and tight reef facies.

Our development experience at the Adrian field provided ample evidence to support the usage of relative seismic amplitude techniques to characterize the porosity distribution within Onondaga reefs. Also, we viewed clear edges of these reefs on time slice displays.