Exploration and Recent Discoveries in the Central Utah Fold-Thrust Belt of the Rocky Mountains, Western USA.


Following forty years of exploration failure in the fold and thrust belt of central Utah, Wolverine Gas and Oil Corporation drilled the Kings Meadow Ranch 17-1 well resulting in the Covenant Field discovery in December, 2003. According to the AAPG Explorer (April, 2005), the Covenant field discovery opened up “…the most promising new onshore play in the United States in recent memory”. Despite earlier success in the fold and thrust belt of Wyoming, located to the north of central Utah along the same orogenic trend, the central Utah thrust belt proved to be a significantly more difficult play to prove and develop. Geological complications within central Utah included Cretaceous contractional tectonics, evaporate diapirism, syn- to late-tectonic sedimentary covering of Cretaceous fold and thrust structures, Tertiary extensional tectonics related to the development of the Basin and Range province of the western US, and Tertiary volcanism. In addition, the primary source rocks recognized along the Wyoming thrust belt are absent in central Utah and, until the Wolverine discovery, no potential source rock was known to exist along the central Utah thrust belt. Generally poor seismic imaging along the central Utah deformation front, along with a lack of previous hydrocarbon discoveries in the area, resulted in the central Utah thrust belt being considered one of the riskiest plays in North America. Since the Wolverine discovery, however, the central Utah fold and thrust belt has been the site of extensive exploration activity, including detailed geological studies, 2D and 3D seismic acquisition, and the drilling of both dry and successful wells. Developing geological models to assist in hydrocarbon exploration and additional discoveries in central Utah remains a high priority for Wolverine Gas and Oil Corporation, despite the difficulties encountered in what is arguably one of the most difficult hydrocarbon exploration provinces in the world.