

## Exploring New and Established Plays in the Central Ridge, Offshore Newfoundland and Labrador: The Hampden K-41 Case Study

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The Hampden K-41 exploration well was drilled by the ExxonMobil and QatarEnergy joint venture on exploration license EL1165A (formerly EL1134) between May 2020 through August 2022 (Figure 1). Riserless operations were completed by Seadrill's West Aquarius semi-submersible rig in May 2020 and operations were completed in the summer of 2022 by the Stena Forth drillship. Unlike the preceding Harp L-42 well, Hampden K-41 experienced no significant operational issues and had no weather- or ice-related non-productive time (NPT), highlighting the importance of targeted seasonal drilling in the north Atlantic. The well was designed to evaluate stacked objectives in a relatively underexplored area of the Central Ridge in 1,180 m water depth. Hampden K-41 was executed safely and reached a TD of 3,700 m measured depth after successfully drilling through all objective intervals.

The primary objective of the well was a Berriasian reservoir that is considered age-equivalent to the prolific Hibernia Formation in the Jeanne d'Arc basin to the south-west. On the Hampden structure this reservoir exhibits a multi-cycle seismic response with attributes consistent with good reservoir quality. The well encountered good quality, water-wet reservoir in this interval. The absence of retained hydrocarbons is likely the result of a poorly developed hydrocarbon system that requires moderate distance lateral migration to charge the Hampden structure. However, since the Berriasian relies on a modified stratigraphic trap for success, seal failure cannot be entirely ruled out as a failure mechanism.

In addition to the Berriasian objective, the Hampden K-41 well tested two new plays in the shallower Cretaceous section. Both intervals were interpreted pre-drill to comprise deep water reservoir facies based on reflection geometries and amplitude map patterns. Despite convincing seismic attributes, the shallowest of the two was devoid of reservoir and comprised a sequence of interbedded silts and muds that on close inspection contain textures consistent with contourite deposits. The deeper interval found excellent quality reservoir, but no indications of retained hydrocarbons. Failure mechanisms are likely the same as for the Berriasian.

The results of the Hampden well offer some encouragement for continued exploration in the Central Ridge area. The identification of a new deep-water reservoir play and the presence of a well-developed Hibernia-equivalent reservoir in the Berriasian are both positive outcomes. Rock properties suggest that detailed mapping and quantitative attribute analysis could be the key to further de-risking these plays.

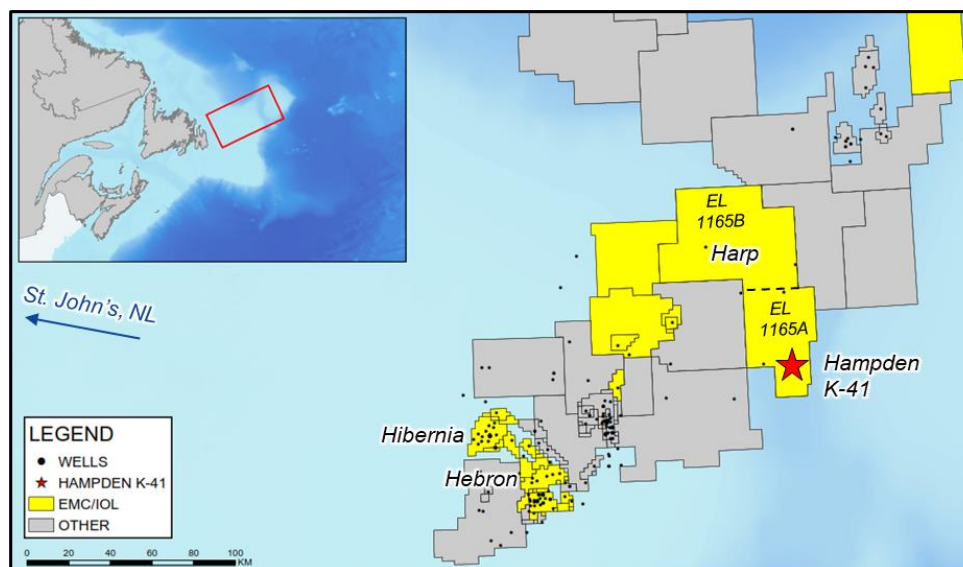


Figure 1: Location of the Hampden prospect referenced against 2022 industry acreage positions.