

## **Production operations: Artificial lift design, facility philosophy, H<sub>2</sub>S production challenges (from where and how much)**

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All FCOG operations require the installation of artificial lift at some point in the productive life of a Duvernay well. Lift has evolved both as a result of changes in the drilling and completion operations but also as a result of development of best practices. Due to the wide range of fluid production within the Duvernay fairway, there are multiple options available to assist the wells in unloading hydrocarbons (from velocity stings and plunger lift in the gassy areas, to rod pump and gas lift in the oil rich portions of the play). As production has grown, facilities have likewise expanded and in some cases now have 100% dedicated Duvernay facilities. Variable amounts of H<sub>2</sub>S are found within the production stream and this creates further complexity when looking at facility design and operability. The source of the H<sub>2</sub>S has been largely identified but the concentration of H<sub>2</sub>S and when souring occurs remains uncertain.

In this section we will present a comprehensive picture of how the artificial lift practices have evolved to the current practices.....and look ahead a bit as to where they might go. Similarly, we will trace the development of production facilities as they have expanded to handle the increase in production from the area. Lastly, we will return to the geological part of the story and delve into the source of the H<sub>2</sub>S production and the efforts to minimize it.