

Disposal of Oil and Gas Waste Fluids: Trends of the Past, Present and Future – It’s all About the Rocks

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Summary

A key component in the cycle of oil and gas exploration, development, and production is waste fluid management and disposal. This fluid is generated through all phases of an oil and gas project, starting from the drilling of a well, completion, and the flowback of fluids after fracs, right through to the produced water over the life of the production and waste generated from production operations, facilities and landfills.

The volume of oil and gas related water and waste fluid generated in the three Western Provinces is staggering (468 million m³ annually or 1.28 million m³/day in 2019). Even with technological advances along with renewed efforts to recycle and re-use this fluid, the volumes to be disposed of are anticipated to be very large for many years to come.

Just as the hydrocarbon resource is finite in the western Canada’s sedimentary basins, so is the disposal resource.

Some topics for discussion include:

- What volumes are being disposed of in each of the western Provinces?
- Where is the fluid being disposed in western Canada, and into which geological formations?
- What constitutes a “good” disposal formation?
- What are some of the trends and challenges relating to disposal?

One of the biggest challenges over the last 12 years has been dealing with large and growing volumes of water and waste fluid generated by high profile unconventional resource plays in the Montney, Duvernay and Deep Basin (mainly in northwest Alberta and northeast British Columbia). The pending LNG Canada natural gas export project at Kitimat will result in a significant increase in production (initial export capacity of 1.7 bcf/day) to supply this project starting in 2025. A main contributor to new natural gas production volumes to service this long-term project will come from the Montney formation. Along the Montney depositional trend, good quality disposal formations and disposal capacity are already at a premium.

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