

Good Duvernay Water Management Plan Key To Ensuring Access To Water And Social Licence

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Encana Corporation has developed a Duvernay water management strategy to ensure access to water, as well as to maintain its social licence.

"We take a responsible water management approach to protecting groundwater, and in this we do baseline groundwater testing where required," said Jon Remmer, manager of the company's Duvernay infrastructure and planning team. "Looking at the water sourcing in volumes, we take a strategic, collaborative and a regional approach between all the different sources available."

Encana's Duvernay water infrastructure includes a centralized system with a water pipeline connecting most of the company's regional land base, Remmer told last week's Canadian Society for Unconventional Resources (CSUR) Duvernay conference. "That water pipeline is in the same right-of-way as our production and fuel-gas lines."

The company designed its area-specific water management strategy with four main points in mind — reducing freshwater use, actively exploring alternative sources, actively maximizing the recycling and reuse of produced water, and also collaborating with other water users.

"In the exploration phase early on in the play, the main water source is surface water," he said, adding the company draws from such sources as smaller bore pits and reservoirs. "As we move into evaluation and development, we look at other sources — surface water, shallow groundwater, deep groundwater, and water reuse."

He added: "One source we have found is Belly River. It is about 100 metres deep. It is still freshwater, but it is non-potable. It is not suitable for domestic use due to high [total dissolved solids], chlorine and sodium. We have proven that it is disconnected from ... any freshwater source as well. With one of these [wells], it is able to deliver about 500 cubic metres per day, and so it is not a bad source. We'll do a few more of those in the area in the future."

Paskapoo is a fairly good water source for the greater Kaybob area, Remmer told the conference. However, he said, it is still freshwater and Encana aims to move away from freshwater use as much as possible. Further, he added, this source also does not provide substantial water rates.

"[With] typical [Paskapoo] wells we will see 200 to 500 cubic metres per day out of them, which really does not satisfy a greater development plan. So what we are looking for is deeper wells with horizontals that can give us the 3,000 to 5,000 cubic metres per day range. I know quite a few operators in the area do have shallow Paskapoo water wells, and some of them rely on them quite heavily."

Regarding water reuse, Encana has set up a system with flowback to its main facilities where the water is separated out at the front end and separated out at the plant. Currently, the water goes into a large tank and, with some treatment, can be reused in completions. In Encana's last pad the company used 100-per-cent produced water in pump-down operations, and up to 20-per-cent produced water in certain portions of the hydraulic fracturing.

"Unfortunately, right now we do that through trucking, and so it is not as cost efficient as we would like it to be," Remmer said, adding the company is looking to pilot several

different ways to transport non-freshwater through above-ground temporary lines. "We would rather reuse this water, but if not, then we will send it to disposal wells."

With well construction, Remmer noted, Encana takes measures to ensure wellbore integrity and that there is no impact to nearby groundwater. For additive selection, the company has a responsible products program where it identifies and ensures it passes all tests for hydraulic fracturing.

Reducing water use intensity rather than absolute water used is important for oilsands operators, added Dan Wicklum, chief executive of Canada's Oil Sands Innovation Alliance (COSIA).

"Intensity is really how many barrels of water are used per barrel of bitumen produced. It is divorced from an absolute production rate, because production ramps up and down depending on a whole bunch of factors. But by using an intensity metric, you can really understand how innovative this sector is being, and divorces it from all the other factors that influence absolute production rates, not the least of which is the price of oil."

During his keynote presentation at last week's Duvernay conference, Wickum said in the oilsands one collective production goal is to reduce freshwater use intensity 50 per cent by 2022, and COSIA's 13 member companies have set loose their experts to find technical opportunities in order to achieve this reduced-intensity goal.

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