

June 22, 2021

8120-2010-32640-02

Russ Brausse, P.Eng.  
Manager, COA Infrastructure & Water  
Ovintiv Services Inc.  
500 Centre Street SE, PO Box 2850  
Calgary, Alberta T2P 2S5

Dear Mr. Brausse,

**RE: PRODUCED WATER DISPOSAL & WATER SOURCE  
RESERVOIR PRESSURE MANAGEMENT  
SUNRISE FIELD – PADDY-CADOTTE FORMATION**

The BC Oil and Gas Commission (Commission) and Ovintiv Canada ULC (Ovintiv) have had several communications on the management of reservoir pressure of the Paddy-Cadotte formation in the area of the Sunrise field. The most recent presentation by Ovintiv to Commission staff was on Wednesday May 26, 2021.

The Paddy-Cadotte appears to be a continuous reservoir over a large area which was below normal hydrostatic pressure at the time of discovery. The Commission has issued Special Project Orders, under section 75 of the *Oil and Gas Activities Act*, for the disposal of produced water into this reservoir. Ovintiv also operates several dedicated water source and observation wells completed in the same reservoir.

Water sourcing and produced water disposal operations have been ongoing for several years, with reservoir pressure testing, monitoring and reporting occurring in disposal, source and observation wells. Testing results indicate good reservoir transmissibility and far field source wells exhibit pressure communication from disposal wells but continue to remain below the maximum approved pressure. As this formation is subject to dynamic activity of injection and withdrawal, instantaneous measurement of reservoir pressure at specific locations varies significantly. This information, together with geologic mapping and petrophysical and reservoir parameters have been used by Ovintiv to construct a 3-dimensional reservoir model.

Management of the Paddy Cadotte average reservoir pressure will be achieved through:

- Measurement of sourcing (withdraw) and disposal volumes,
- Monthly pressure measurement and reporting from source wells,
- Initial pressure measurement at any new Cadomin disposal or source wells,
- At an interval of no more than two years, conduct field wide quiescent pressure stabilization and measurement, with the first to be during the summer of 2021,
- Ensure disposal volume and pressure data from other permit holders is accounted for in ongoing pressure measurement, modeling, and forecasts,
- Updated 3-dimensional reservoir modelling and fall-off predictions as additional data becomes available.
- Annual presentation and reporting of reservoir performance including model updates to the Commission, with the first presentation occurring by Dec 31, 2021.

It is incumbent upon Ovintiv to manage the Cadotte injection scheme such that operators in the area looking to develop resources should be able to drill with reasonable and practicable mud weights that would enable well control and borehole stability.

As an 'open system' reservoir with dynamic use of both disposal and sourcing, this unique approach to regulation of the Paddy-Caddote is appropriate. Any significant change to reservoir performance understanding, or failure to provide annual scheduled updates to the Commission, may be grounds for amendment to approvals or reversion to a stricter interpretation of current reservoir pressure monitoring requirements.

The conditions of OGAA section 75 approval orders for disposal wells remain in effect, with the understanding that this dynamic reservoir management strategy will result in the wells being within the approved reservoir storage pressure prior to their decommissioning.

Should you have any questions, please contact the undersigned at (250) 419-4430.

Sincerely,



---

Ron Stefik, P.L.Eng.  
Supervisor, Reservoir Engineering  
Oil and Gas Commission