



November 29, 2019

8157-2800-59240-09

Hannah (Wentzell) Lewis, M.Sc., BIT  
ESG Specialist & Project Planner  
Catapult Environmental Inc.  
Suite 1620, 700 – 9<sup>th</sup> Ave SW  
Calgary, AB T2P 3V4

Dear Hannah Lewis:

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL  
HYDRAULIC FRACTURE STIMULATION  
CATAPULT TOWER 9-28-81-17; WA# 20897  
TOWER LAKE FIELD – CADOMIN FORMATION**

Approval for disposal of produced water, Order 18-02-008 as a Special Project under section 75 of the Oil and Gas Activities Act (OGAA), was issued for the subject well, Cadomin formation, on November 1, 2018.

An application was received via email, dated November 26<sup>th</sup>, 2019, to fracture stimulate the well to increase injectivity.

Condition 2j) of Order 18-02-008 Amendment #1 states:

- j) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Commission approval.

Simulation results of the hydraulic fracture program indicate that resulting fractures should not extend into any porous zones, except the Cadomin and Nikanassin.

The Commission hereby approves a maximum fracture stimulation size of 40T for the first stage and 80T for the second stage, executed approximately as per the program submitted as an attachment to the email dated November 26<sup>th</sup>, 2019 from Catapult Environmental Inc. This approval is conditional upon the requirement that a hydraulic isolation temperature log be conducted following fracture stimulation and prior to the resumption of disposal operation. A limited volume may be injected as required to provide diagnostic results for the temperature log. Log results and interpretation must be submitted to the Commission once available.

Note that an outcome of loss of formation isolation can result in cancellation of the disposal approval, under OGAA section 75(2)(b)(iv), and where a risk to the environment, safety or resource recovery may result, the Commission may issue an order necessitating remedial actions, which can include formation fluid flowback to reduce pressure.

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

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ron Stefik', is written over a horizontal line.

Ron Stefik, EngL  
Supervisor, Reservoir Engineering  
Oil and Gas Commission