

December 2, 2015

4470-8200-32640-02

Bryan Wright, P.L. Eng  
Production Engineer  
Endurance Energy Ltd.  
Suite 800, 215 – 9<sup>th</sup> Ave S.W.  
Calgary AB T2P 1K3

Dear Mr. Wright,

**RE: EXTENDED INJECTION TEST  
ENDURANCE HZ ELLEH a-43-E/94-I-12; WA# 14202  
GUNNELL CREEK AREA, JEAN MARIE "A" POOL**

Commission staff have reviewed your application, dated October 8, 2015, for approval to conduct an extended injection test to verify disposal capability, for a well located in the Gunnell Creek field – Jean Marie "A" pool. The Jean Marie is typically a low permeability low water saturation formation, historically developed utilizing underbalanced drilling. However, recent wells have achieved gas production with slickwater hydraulic fracture stimulation.

Continued field development is predicated on economic disposal of flow-back fluid. The subject well is being investigated as a potential disposal candidate due to tenure, reservoir quality and depletion at this location. Thought a low rate producer, production decline analysis of the well a-43-A indicates some remaining reserves potential.

Attached please find **Order 15-02-015**, designating an area in the Gunnell Creek field, Jean Marie "A" pool as a Special Project under section 75 of the Oil and Gas Activities Act, for the temporary operation and use of a storage reservoir for the injection of fresh water. This authorization does not warrant that a future disposal approval will be issued, as there remains requirement for wellbore integrity logging, setting of a packer and submission of data as conditioned in this Order, that would support continued disposal operation.

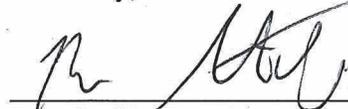
This Order includes a maximum wellhead injection pressure of 9,450 kPa, based on the maximum operating pressure of the pipeline to the disposal well. The total volume for the injection test is limited to 3,000 m<sup>3</sup> of fresh water.

Endurance Energy Ltd. is encouraged to pursue alternative disposal formations, such as the Slave Point, as a viable option to support long term field development.

Additional general information regarding disposal wells is available on the Commission's website at <http://www.bcogc.ca/industry-zone/documentation/Subsurface-Disposal>.

Should you have any questions, please contact Michelle Gaucher at (250) 419-4482 or Ron Stefik at (250) 419-4430.

Sincerely,



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

Attachments



IN THE MATTER of a submission from Benoit Regulatory Compliance on behalf of Endurance Energy Ltd (Endurance), to the Oil and Gas Commission (Commission) dated October 8, 2015 for the temporary operation and use of a storage reservoir:

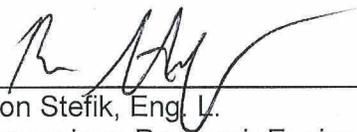
**ORDER 15-02-015**

1 Under Section 75(1)(d) of the *Oil and Gas Activities Act*, the Commission designates the temporary operation and use of a storage reservoir for the injection of fresh water in the Gunnel Creek field – Jean Marie “A” pool as a special project in the following area:

NTS 94-I-02 Block E Unit 43.

2 Under section 75(2) of the *Oil and Gas Activities Act*, the special project designation in this Order is subject to the following conditions. The Permit Holder shall:

- a) Inject fresh water only into the well Endurance HZ Elleh a-43-E/94-I-12; WA# 14202 Jean Marie formation, 1559.2 - 2600.4 mCF MD.
- b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 9,450 kPag or the pressure required to fracture the formation, whichever is lesser.
- c) The total volume of injected fresh water must not exceed 3,000 m<sup>3</sup>.
- d) Continually measure and record the wellhead casing and tubing pressures electronically.
- e) Conduct a bottom hole reservoir pressure test prior to injection.
- f) Conduct a bottom hole reservoir pressure test following injection, of duration required to establish the static reservoir pressure.
- g) Measure the casing pressure, during the injection test, at the following wells:
  - i) Endurance HZ Elleh c-68-F/94-I-12; WA# 16884
  - ii) Endurance HZ Gunnell d-A39-F/94-I-12; WA# 27206
  - iii) Endurance HZ Elleh a-A40-F/94-I-1; WA# 17050
- h) Submit a report summarizing all pressure and injection data from this injection test to the Commission within 30 days of completing the final reservoir pressure measurement.

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

DATED AT the City of Victoria, in the Province of British Columbia, this 2<sup>nd</sup> day of December, 2015.