

November 1, 2023

6460-4800-32640-02

Bruce Gigg
Vice President, Engineering
Kelt Exploration (LNG) Ltd.
Suite 300, 311 - 6th Avenue SW
Calgary, Alberta T2P 3H2

Dear Mr. Gigg:

**RE: PRODUCED WATER DISPOSAL SPECIAL PROJECT APPROVAL
KELT LNG HZ OAK D6-35-86-18 (WA #44197)
OAK FIELD – HALFWAY 'A' POOL**

The BC Energy Regulator has reviewed the application submitted by VZFOX Canada Ltd. on behalf of Kelt Exploration (LNG) Ltd. (Kelt) dated April 19th, 2023, requesting approval for disposal of produced water into the Oak field Halfway 'A' pool via the subject well.

The subject well was purpose-drilled for disposal and completed in the depleted Halfway 'A' pool in March of 2023. There has been no production from the pool since July of 2022 and there has been disposal into the pool via nearby disposal well Kelt LNG Oak A6-35-86-18 (WA 40189) since July of 2021.

Attached please find **Order 23-02-004**, designating an area in the Oak field, Halfway 'A' pool, as a Special Project under section 75 of the Oil and Gas Activities Act, for the operation and use of a storage reservoir for the injection of produced water. This Order includes a number of detailed operational, measurement and reporting conditions. Disposal wells are subject to regular field inspection and audit. Contravention of a condition of this Order may be subject to enforcement under section 62 of OGAA, or suspension or cancellation of the Order under section 75(2)(b).

For the inspection requirement of Order condition 2m), please arrange via email to pipelines.facilities@bc-er.ca.

Disposal of fluid with high total dissolved solids content requires adjustment of the wellhead injection pressure to remain below formation fracture pressure. It is the responsibility of the permit holder make adjustments to wellhead injection pressure.

Should you have any questions, please contact Logan Gray at (250) 419-4465 or the undersigned at (250) 419-4430.

Sincerely,



Ron Stefik, P.L.Eng.
Supervisor, Reservoir Engineering
Energy Regulator

Attachment



IN THE MATTER of the application from VZFOX Canada Ltd. on behalf of Kelt Exploration (LNG) Ltd. to the BC Energy Regulator dated April 19th, 2023, requesting disposal approval:

ORDER 23-02-004

1. Under Section 75(1)(c.1) of the *Energy Resources Activities Act*, the Regulator designates the operation and use of a storage reservoir for produced water, including flowback from fracturing operations, in the Oak field – Halfway ‘A’ pool as a special project in the following area:

DLS Twp 86 Rge 18 W6M Section 35 – LDSs 3 - 6

2. Under section 75(2) of the *Energy Resources Activities Act*, the special project designation in this Order is subject to the following conditions. The Permit Holder shall:
 - a) Inject water into the well Kelt LNG HZ Oak D6-35-86-18; WA# 44197 Halfway ‘A’ pool from 1,389.0 – 1,396.0 mKB.
 - b) Not exceed an injection pressure, measured at the wellhead on the subject well, of 14,125 kPag or the pressure required to fracture the formation, whichever is lesser.
 - c) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - d) Continually measure and record the wellhead casing and tubing pressures electronically.
 - e) Alarm the casing-tubing annulus pressure monitoring system to indicate when casing pressure varies outside the normal operating range.
 - f) Include the disposal operating hours and the maximum injection pressure value on the monthly Petrinex disposal report.
 - g) Cease injection and notify the Regulator at Reservoir@bc-er.ca immediately if there are any indications that hydraulic isolation is lost in the wellbore or formation.
 - h) Conduct and submit an annual Surface Casing Vent Flow test to the Regulator within 30 days of the completion of the test.
 - i) Conduct an annual reservoir pressure test on the formation in the subject well, with a shut-in period of sufficient length to provide data for calculation of the reservoir pressure, and submit a report of the test within 60 days of the end of the test.
 - j) Cease injection upon reaching a maximum formation pressure of 9,580 kPaa, measured at 1,392.5 mKB TVD.
 - k)
 - i) Perform a casing inspection log on the subject well and submit results to the Regulator within 30 days of the completion of logging, at an interval of not more than every 10 years, commencing from the date of initial disposal.
 - ii) Perform a hydraulic isolation temperature log on the subject well and submit results to the Regulator within 30 days of the completion of logging, at an interval of not more than every 5 years, commencing from the date of initial disposal.
 - l) Not conduct a hydraulic fracture stimulation on any formation in the subject well without prior Regulator approval.
 - m) Complete an inspection, satisfactory to the Regulator, within 4 weeks of initial disposal operations.

Ron Stefik, P.L.Eng.
Supervisor, Reservoir Engineering
BC Energy Regulator

DATED AT the City of Victoria, in the Province of British Columbia, this 1st day of November 2023.



Advisory Guidance for Order 23-02-004

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion and frost inhibiting fluids, as per section 16(2) of the Drilling and Production Regulation.
- II. Annual packer isolation tests are required to be conducted and the associated report must be submitted to the Regulator within 30 days of test completion, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered and the injection pressure measured at the wellhead, as per section 74 of the Drilling and Production Regulation.
- IV. A monthly disposal statement must be submitted to the Regulator via Petrinex not later than the 20th day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.
- V. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.