



**AGRICULTURE AND RESOURCE DEVELOPMENT**

Petroleum Branch

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January 16, 2020

Eric [REDACTED]  
Tundra Oil & Gas Limited  
1000 [REDACTED]  
Calgary, [REDACTED]

Dear Mr. Nelson,

**RE: Cromer Unit No. 5 – Waterflood Order & Third Tier EOR Factor**

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With reference to our letter dated June 7, 2019, please find attached Waterflood Order No. 79 which applies to the unit. Tundra is reminded that separate conversion applications are required for any existing horizontals to be converted to injectors within this new Unit.

The Waterflood order requires Tundra to conduct annual pressure surveys and submit an annual progress report. Tundra is reminded that the 2020 report is to be submitted to the Director within 60 days after the end of the calendar year.

Cromer Unit No. 5 will qualify for a Third Tier EOR Factor (TTEF). The Branch has calculated a proposed TTEF of 0.6140 to apply to all tracts in the unit. Table 1 shows the TTEF calculation. The TTEF is based on summed estimates of remaining primary recoverable reserves and incremental EOR recoverable reserves for unit. Please provide the Branch with any comments on the proposed TTEF by February 16, 2020.

If you have any questions in respect of the approvals or the TTEF calculations please contact Leo [REDACTED] at (204) 945-6570.

Yours truly,

[REDACTED]  
Peter [REDACTED]  
Director

Cc: Administration, Winnipeg  
Virden Office

**Table 1. Third Tier EOR Factor Calculation**

Cromer Unit #5

Unit	Cromer Unit No. 5
Operator	Tundra Oil & Gas Limited
Legal Subdivisions	72
Effective Date of Third EOR Production	February 1, 2020
Cumulative Unit Production to September 30, 2019 (m <sup>3</sup> )	87,872.0
Primary Recoverable Reserves (m <sup>3</sup> )	163,050.0
Incremental EOR Rec. Reserves (IERR) (m <sup>3</sup> )	119,570.0
Total Remaining Rec. Reserves (TRES) (m <sup>3</sup> )	194,748.0
Third Tier EOR Factor (TTEF)	0.6140



**Minister of  
Agriculture and Resource Development**

Legislative Building  
WINNIPEG, MANITOBA, CANADA  
R3C 0V8

**MINISTERIAL ORDER**

**Subsection 116(2)  
THE OIL AND GAS ACT**

**WATERFLOOD ORDER NO. 79**

**Pertaining to Waterflood Operations  
in Cromer Unit No. 5**

- 1.0 The Unit Operator shall conduct waterflood operations by injecting water into the Daly Sinclair Bakken-Torquay Pool underlying Cromer Unit No. 5 ("the Unit") through the wells listed in Schedule A. The Director may approve the conversion of additional wells in the Unit to water injection.
- 1.1 Every injection well shall be completed as approved under Section 47 of the Drilling and Production Regulation ("the Regulation").
- 1.2 The maximum wellhead pressure at which water may be injected is 9 000 kPa.
- 1.3 The Director may, from time to time, establish a maximum or minimum rate at which water may be injected into a well.
- 1.4 The annulus of each injection well shall be pressure tested in accordance with Section 50 of the Regulation.
- 2.0 The Unit Operator shall conduct an annual survey to determine the level and distribution of reservoir pressure in the Unit. A summary of the results of any pressure surveys conducted during the year are to be included in the annual waterflood progress report required under Section 73 of the Regulation.
- 2.1 The frequency of pressure surveys may be reduced where the Director is satisfied that more frequent surveys will not assist the Unit Operator in monitoring the effectiveness of the waterflood.
- 2.2 The Unit Operator is responsible for monitoring the effectiveness of the waterflood and for collecting such reservoir data and other information as is necessary to evaluate and optimize waterflood performance.

- Date \_\_\_\_\_

[illegible]

**SCHEDULE A**

**WATERFLOOD ORDER NO. 79**

**CROMER UNIT NO. 5**

**WATER INJECTION WELLS**

<b>WELL NAME</b>	<b>LSD</b>	<b>SEC</b>	<b>TWP</b>	<b>RGE</b>
Cromer Unit No. 5 HZNTL WIW	1	26	9	28
Cromer Unit No. 5 HZNTL WIW	4	27	9	28
Cromer Unit No. 5 HZNTL WIW	5	27	9	28
Cromer Unit No. 5 HZNTL WIW	8	26	9	28