



Mr. Glenn [REDACTED]  
Tundra Oil & Gas Limited  
[REDACTED]  
Winnipeg, MB [REDACTED]

**RE: Sinclair Unit No. 19 – WF Order & Third Tier EOR Factor**

Cc: Administration, Winnipeg  
Virden Office

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

Tundra Oil &amp; Gas Limited Sinclair Unit No. 19

Unit	Sinclair Unit No. 19
Operator	Tundra
LSDs	192
Effective Date of Third EOR Production	01-Jan-18
Cumulative Unit Production to June 30, 2017 (m <sup>3</sup> )	413,280.0
Primary Recoverable Reserves (m <sup>3</sup> )	536,976.0
Incremental EOR Rec. Reserves (IERR) (m <sup>3</sup> )	215,400.0
Total Remaining Rec. Reserves (TRES) (m <sup>3</sup> )	339,096.0
Third Tier EOR Factor (TTEF)	0.6352



**Minister of  
Growth, Enterprise and Trade**

Legislative Building  
WINNIPEG, MANITOBA, CANADA  
R3C 0V8

**MINISTERIAL ORDER**

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

**WATERFLOOD ORDER NO. 64**

**Pertaining to Waterflood Operations  
In Sinclair Unit No. 19**

- 1.0 The Unit Operator shall conduct waterflood operations by injecting water into the Bakken-Torquay Pool underlying the Sinclair Unit No. 19 ("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 7 500 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.

- 2.3 The Unit Operator shall advise the Petroleum Branch of the suspension of water injection at any well, any indication of channelling or breakthrough of injected water to a producing well or out of zone and any other detrimental effects that may be attributable to the waterflood operations.
- 3.0 The Unit Operator shall file a report of production or injection for each well in the Unit in accordance with Section 120 of the Regulation.
- 4.0 The Unit Operator shall file an annual waterflood progress report in accordance with Section 73 of the Regulation.
- 5.0 Only Bakken-Torquay Formation and/or Lodgepole Formation and/or Mannville Formation water sources are approved to be injected into the Unit. Any other source of water must be approved by the Petroleum Branch prior to injection.

[REDACTED]  
Date

[REDACTED]  
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A/Director of Petroleum for  
Minister Growth, Enterprise and Trade

PETROLEUM DOCUMENT REGISTRY

Docum [REDACTED]

Regi [REDACTED]

Petroleum Registrar [REDACTED]

**SCHEDULE A**

**WATERFLOOD ORDER NO. 64**

**SINCLAIR UNIT NO. 19**

**WATER INJECTION WELL(S)**

<b>WELL NAME</b>	<b>LSD</b>	<b>SEC</b>	<b>TWP</b>	<b>RGE</b>
Sinclair Unit No. 19 Prov. HZNTL WIW	13	04	09	29
Sinclair Unit No. 19 HZNTL WIW	16	03	09	29

