

Proposed Sinclair Unit No. 5

Application for Enhanced Oil Recovery Waterflood Project

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Appendix 11

Proposed Sinclair Unit No. 5

LYLETON / THREE FORKS FORMATION ROCK & FLUID PARAMETERS

Formation Pressure	9500 kPa	Initial Average Reservoir Pressure
Formation Temperature	30°C	
Saturation Pressure	2,034 Kpa	Bubble Point
GOR	6 - 10 m3/m3	Gas Oil Ratio
API Oil Gravity	40	
Swi (fraction)	0.45	Initial Water Saturation
Produced Water Specific Gravity	1.08	
Produced Water pH	7.1 - 7.3	
Produced Water TDS	125,000	
Wettability	Moderately oil-wet	
Average Air Permeability*	Middle Bakken Lyleton A Lyleton B	From Core Data
Average Porosity (fraction)*	Middle Bakken Lyleton A Lyleton B	Core Derived Average Porosity
	0.22 mD 0.62 mD 1.42 mD	
	0.148 0.146 0.176	

* Wt ave from cores at 09-06 and 12-06-008-28WV1M

TUNDRA OIL & GAS LIMITED
SINCLAIR UNIT NO. 5 (PROPOSED)
ORIGINAL OIL-IN-PLACE AND PRELIMINARY
WATERFLOOD RECOVERY ESTIMATES

Effective May 01, 2010

Prepared by
T. Mark Jobin, P. Geol.
Amy N. Woldum, P. Eng.
Myron J. Hladyshevsky, P. Eng.



Principal Officers:

Harry Jung, P. Eng.
President, C.E.O.
Dana B. Laustsen, P. Eng.
Executive V.P., C.O.O.
Keith M. Braaten, P. Eng.
Executive V.P.

Officers / Vice Presidents:

Terry L. Aarsby, P. Eng.
Jodi L. Anhorn, P. Eng.
Neil I. Dell, P. Eng.
David G. Harris, P. Geol.
Myron J. Hladyshevsky, P. Eng.
Bryan M. Joa, P. Eng.
John H. Stilling, P. Eng.
Douglas R. Sutton, P. Eng.
James H. Willmon, P. Eng.

May 18, 2010

Project 1100325

Mr. Justin Robertson
Tundra Oil & Gas Limited
1000, 715 - 5th Avenue S.W.
Calgary, Alberta T2P 2X6

Dear Mr. Robertson

**Re: Sinclair Field, Manitoba
Sinclair Unit No. 5 (Proposed)
Original Oil-In-Place and
Preliminary Waterflood Recovery Estimates**

At your request, GLJ Petroleum Consultants Ltd. (GLJ) has prepared original oil-in-place (OOIP) and preliminary waterflood recovery estimates for the Sinclair Unit No. 5 (Proposed). The OOIP estimates have been determined based on volumetric calculations using GLJ's pore volume mapping for the "A" zone of the Upper Devonian age Lyleton Formation and GLJ audited versions of Tundra Oil & Gas Limited's pore volume mapping for the Lyleton "B" and Mid Bakken zones. The analysis incorporates well, core and log data available to May 1, 2010.

A brief discussion of the methodology, reserves estimates and geological considerations, as well as pore volume mapping, is included in the attached report.

We trust this meets your current requirements. Should you have any questions regarding this analysis, please contact either of the undersigned.

Yours truly,

GLJ PETROLEUM CONSULTANTS LTD.

"ORIGINALLY SIGNED BY"

T. Mark Jobin, P. Geol.
Manager, Geology

"ORIGINALLY SIGNED BY"

Amy N. Woldum, P. Eng.

"ORIGINALLY SIGNED BY"

Myron J. Hladyshevsky, P. Eng.
Vice-President

TMJ/ANW/MJH/jem
Attachments

DISCUSSION

GLJ Petroleum Consultants Ltd. (GLJ) has prepared original oil-in-place (OOIP) estimates for the Sinclair Field on an annual basis since the initial discovery well was drilled by Tundra Oil & Gas Limited (Tundra) in 2003. The OOIP estimates have been prepared as part of an annual independent reserves evaluation conducted by GLJ on the composite Tundra portfolio.

In 2006, Section 09-008-29W1 was unitized to form Sinclair Unit No. 1 (Unit 1) and in 2007 Unit 1 was expanded to include Section 04-008-29W1. Water injection commenced in Section 09 in July 2006 and in Section 04 in August 2007, and favorable production response has been observed. Effective January 1, 2009, Unit 1 was expanded to include an additional seven sections of land in Township 008, Range 29 W1M and additional horizontal injector wells were drilled and placed on-stream during 2009 to complete the line drive waterflood pattern.

Tundra has continued unitization efforts for future waterflood implementation outside of Unit 1 and approval has recently been granted for Sinclair Unit No. 2 (Unit 2) and Sinclair Unit No. 3 (Unit 3), with effective dates of January 1, 2010 and November 1, 2009, respectively. Unit 2 consists of 146 LSDs in Township 007, Ranges 28 to 29 W1M and Unit 3 consists of six sections of land in Township 008, Range 29 W1M.

Based on positive waterflood response seen to date from Unit 1, and similar performance expectations from Units 2 and 3, Tundra is proposing further unitization in the Sinclair Field. Sinclair Unit No. 5 (Proposed) (Unit 5) will consist of Section 06-008-28W1 as outlined on Maps 1 through 3. A well list and production summary for Unit 5 is provided in Table 1. At Tundra's request, GLJ has prepared OOIP and preliminary waterflood recovery estimates for these lands, incorporating data available to May 1, 2010.

Geology

Oil production in the Sinclair Field is mainly obtained from the Upper Devonian age Lyleton Formation of the Three Forks Group, with minor production coming from the overlying Middle Member of the Mississippian age Bakken Formation. A large number of wells drilled to date were cored and core analysis data was used to establish net oil pay in the Lyleton. Net oil pay in these cored wells has been estimated based on a 1.0 millidarcy permeability cutoff. In the absence of core data, net pay values have been determined from log analysis utilizing a 12 percent porosity cutoff. This porosity cutoff is based on a Kmax vs porosity cross plot from some of the early-

cored wells, which indicated that core porosity 12 percent, equates to a permeability of approximately 1.0 millidarcy. Average porosity values in logged wells have been estimated from a cross plot of the neutron and density logs. Generally, a water saturation cutoff of 55 percent has been applied in determining net pay, although this has been increased to as high as 60 percent to include intervals that have tested oil. Consideration is also given to the spontaneous potential, gamma-ray and resistivity log responses as well as test data in establishing a net pay value.

Sinclair Unit No. 5 (Proposed)

Volumetric calculations of OOIP for Unit 5 were based on pore volume (porosity times net pay thickness ($\phi \cdot H$)) mapping. Average pore volume mapping of the “A” zone of the Upper Devonian age Lyleton Formation (Map 1) has been prepared by GLJ. This map incorporates all wells within the Unit boundaries and adjacent wells in which there is either core data or a full suite of open hole well logs over the productive Lyleton section. Tundra has prepared pore volume mapping for the Lyleton “B” and the Mid Bakken zones using available core data and GLJ has audited and, after slight contour adjustments, planimetered these maps and incorporated the results into the OOIP calculations for Unit 5. Pore volume maps for the Lyleton “B” and Mid Bakken Formations are included as Maps 2 and 3, respectively.

The OOIP for each of the three intervals was estimated based on volumetric calculations using the pore volume mapping and was subsequently tabulated on an LSD basis as detailed in Table 2. An average water saturation value of 45 percent has been estimated for Unit 5 and the initial oil formation volume factor (B_{oi}) of 1.018 RB/STB was applied as determined from a Hycal Reservoir Fluid Study (well 01-04-008-29W1 – January 25, 2006). The total OOIP for the Sinclair Unit No. 5 (Proposed) was estimated to be 2.0 MMSTB.

Unit 5 consists of two vertical and four horizontal producing oil wells. Producing reserves were determined primarily based on decline analysis with regards to type curve analysis for the horizontal well assignments. Recovery factors were back calculated based on the OOIP as discussed above using the extrapolated ultimate reserves from decline analysis. Ultimate reserves totaled 371 and 444 MSTB in the proved producing and proved plus probable producing reserves categories, respectively. The resulting recovery factors were determined as 18.8 and 22.5 percent in the proved producing and proved plus probable producing categories, respectively.

Tundra has plans to implement waterflood operations in Unit 5 by drilling three horizontal water injection wells in a line drive pattern, similar to the waterflood development plan carried out in the majority of the sections in Unit 1. Ultimate recovery factors of 27 and 33 percent have been estimated for Unit 5 under waterflood, which results in ultimate reserves of 533 and 652 MSTB in

the total proved and total proved plus probable reserves categories, respectively. The recovery factors were estimated based on the expected recovery from Section 04-008-29W1, from which almost three years of production history is now available since commencement of water injection. Slightly higher recovery factors were estimated for Unit 5 due to anticipated improved areal and vertical sweep from horizontal producers as opposed to vertical producers, improved primary recovery seen to date, and potential drainage of currently undeveloped lands outside of the Unit 5 boundary.

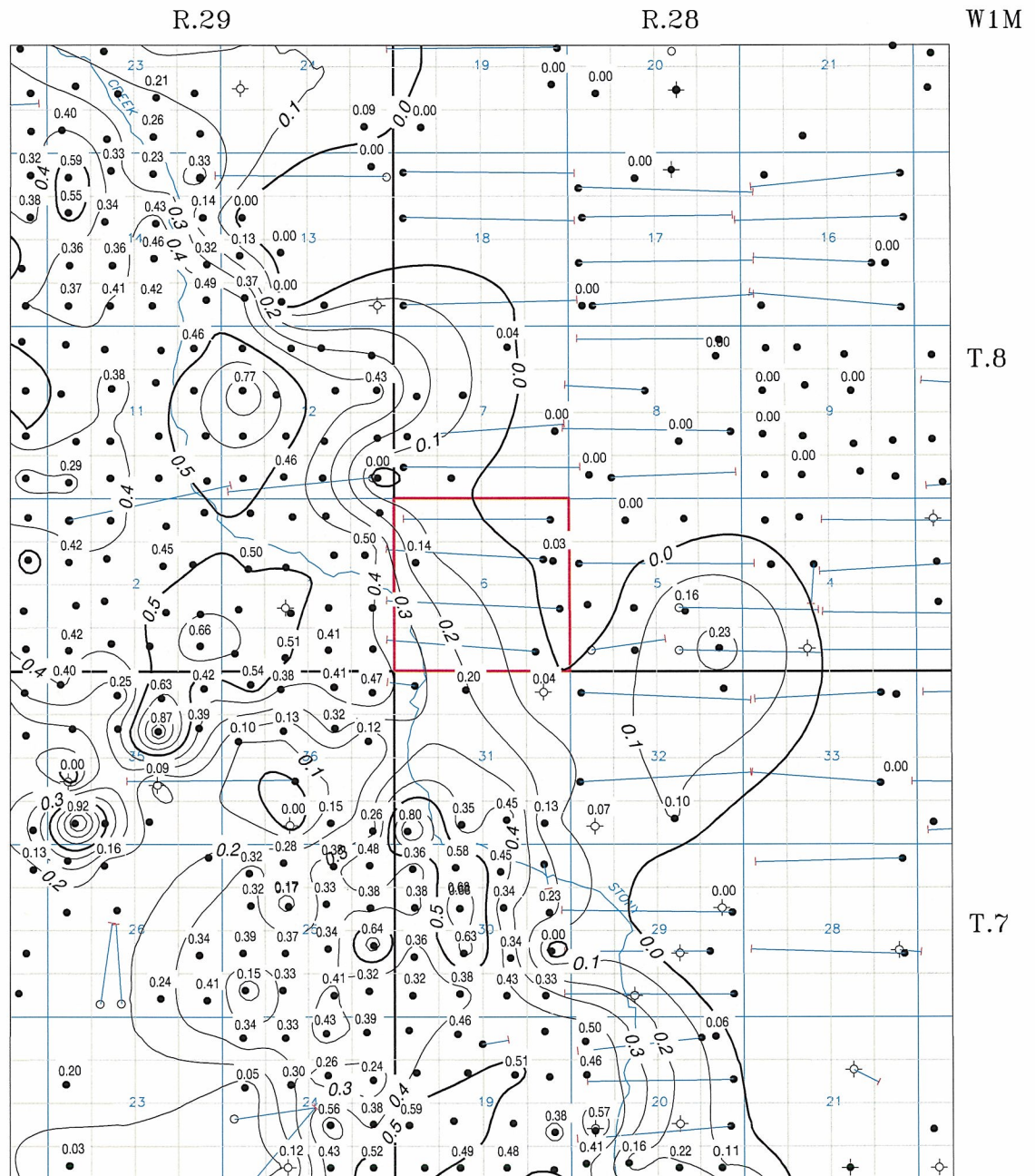
It should be noted that GLJ's recovery factor estimates and oil production forecasts are preliminary and depend in part on operational factors controlled by Tundra such as injection rates and timing of injection well drilling. The production forecasts for the total proved and total proved plus probable reserves cases have been based primarily on analogy to waterflood response seen in the more mature areas of the reservoir, specifically Section 04-008-29W1, and have not been based on any simulation study results. Consequently, actual production response may be materially different than what is forecast in this report.

Volumetric and decline parameters for Unit 5 for all reserves categories are included in Tables 2.1 and 2.2, respectively. Total Unit 5 production history plots consisting of oil rate versus time on a semi-log scale and oil rate versus cumulative production on a coordinate scale are included as Plots 1 and 2. It should be noted that GLJ has assessed Unit 5 to determine the OOIP and preliminary reserves estimates only and has not verified the economic feasibility of the project.

Map 1
 Sinclair Unit No. 5 (Proposed)
 Lyleton Formation
 "A" Zone

Company: Tundra Oil & Gas Limited
 Property: Sinclair Unit No. 5 (Proposed)

Effective Date: May 1, 2010
 Scale: 1:65,000 s1100325/p01m01



LEGEND:

SINCLAIR UNIT NO. 5 (PROPOSED)

0.80 ΦH (porosity X Thickness(m))

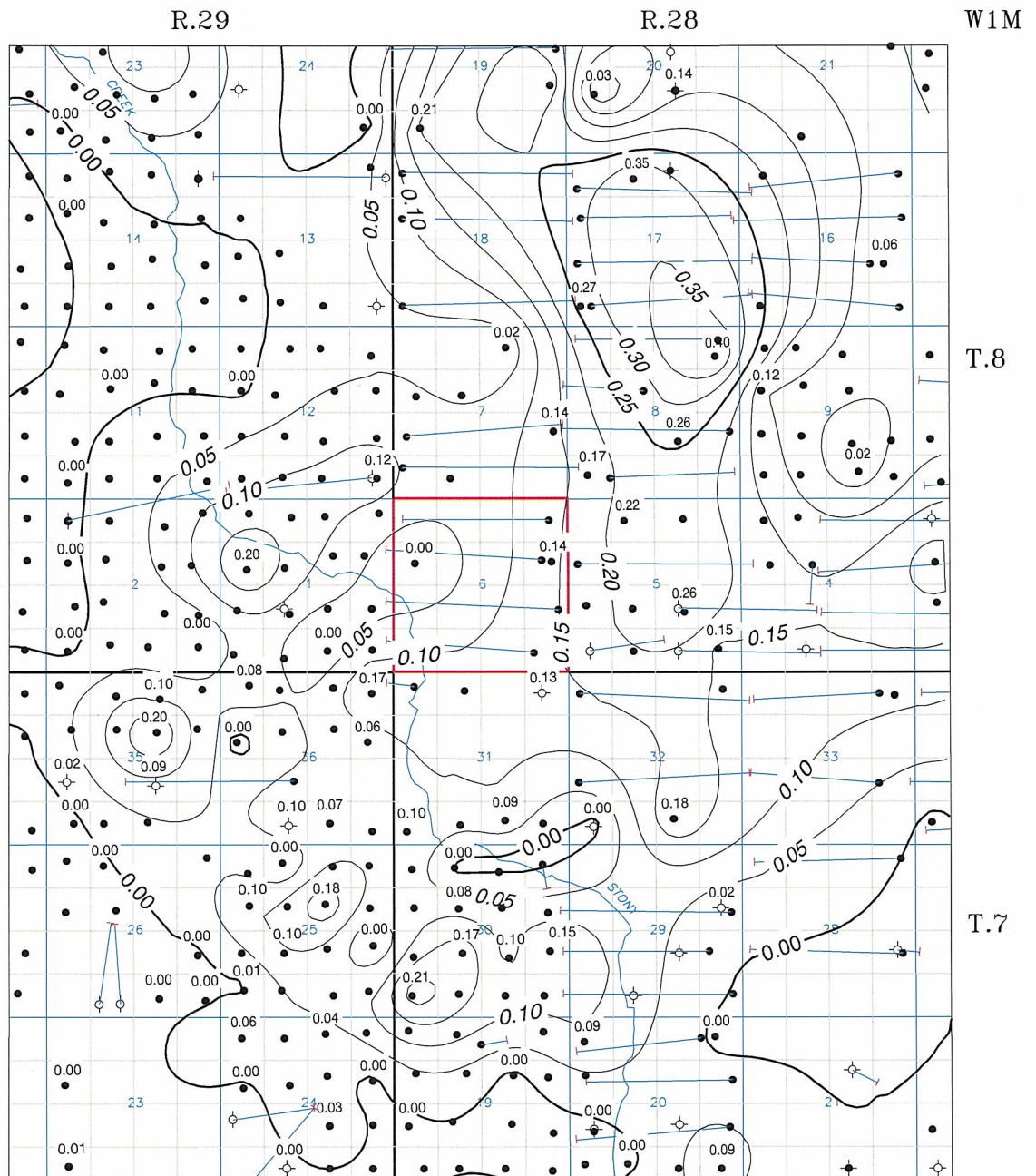
*

CONTOUR INTERVAL = 0.1 metres

Map 2
Sinclair Unit No. 5 (Proposed)
Lyleton Formation
"B" Zone

Company: Tundra Oil & Gas Limited
Property: Sinclair Unit No. 5 (Proposed)

Effective Date: May 1, 2010
Scale: 1:65,000 s1100325/p01m02



LEGEND:

SINCLAIR UNIT NO. 5 (PROPOSED)

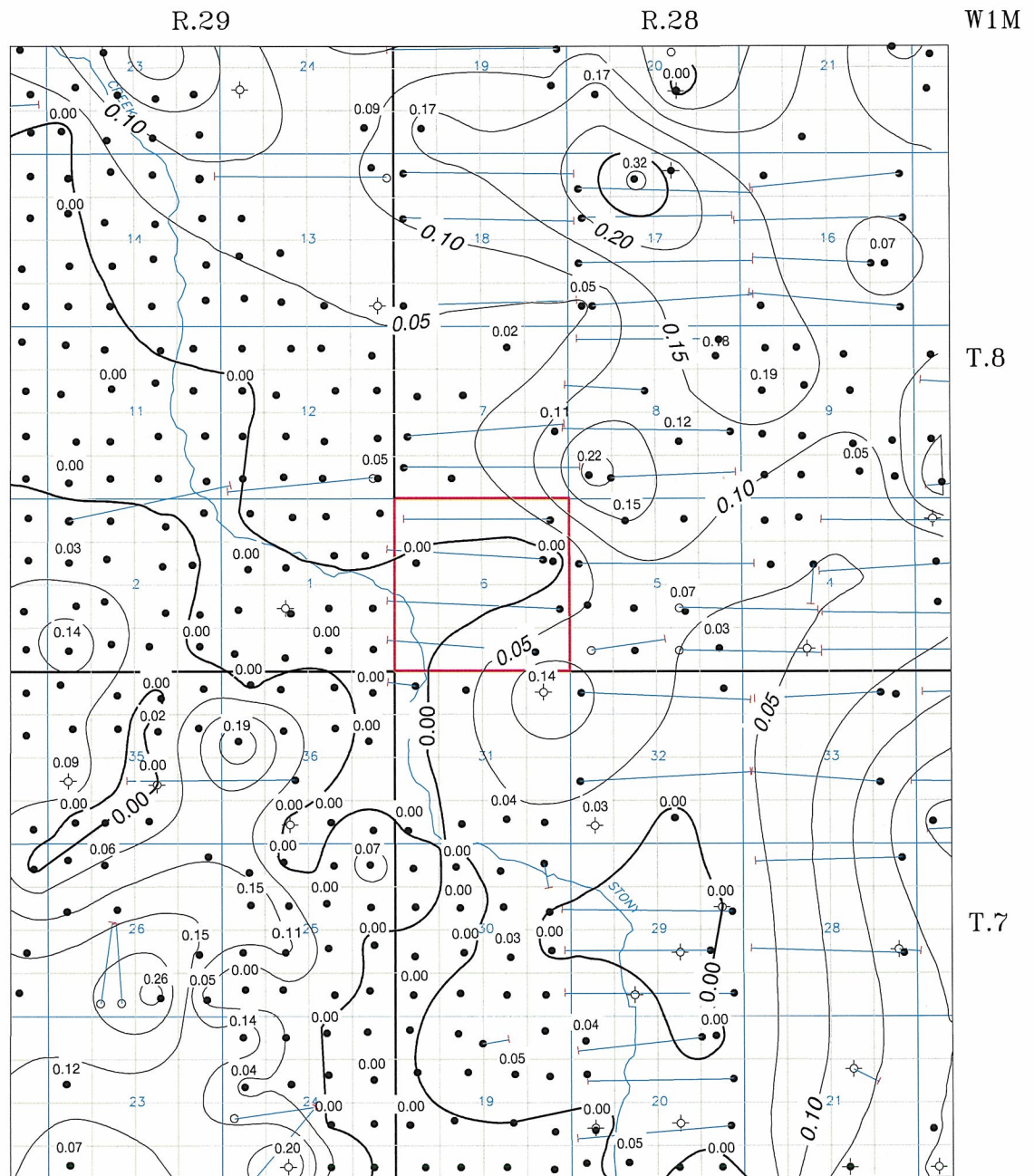
0.80 ΦH (porosity X Thickness(m))

CONTOUR INTERVBL = 0.1 metres

Map 3
Sinclair Unit No. 5 (Proposed)
Mid Bakken Formation

Company: Tundra Oil & Gas Limited
Property: Sinclair Unit No. 5 (Proposed)

Effective Date: May 1, 2010
Scale: 1:65,000 s1100325/p01m03



LEGEND:

SINCLAIR UNIT NO. 5 (PROPOSED)

0.80 Φ H (porosity X Thickness(m))



CONTOUR INTERVAL = 0.1 metres