PROPOSED SINCLAIR UNIT NO. 24

Application for Enhanced Oil Recovery Waterflood Project

Middle Bakken/Three Forks Formations

Bakken – Torquay Pool (01 62A)

Daly Sinclair Field, Manitoba

February 19, 2020
Tundra Oil and Gas Limited

INTRODUCTION

The Sinclair portion of the Daly Sinclair Oil Field is located in Ranges 28 and 29 W1 in Townships 7 and 8 (Figure 1). Since discovery in 2004, the main oilfield area was developed with vertical and horizontal wells at 40 acre spacing on Primary Production. Since early 2009, a significant portion of the main oilfield has been unitized and placed on Secondary Waterflood (WF) Enhanced Oil Recovery (EOR) Production, mainly from the Lyleton A & B members of the Three Forks Formation. Tundra Oil and Gas (Tundra) currently operates and continues to develop Sinclair Units 1-3, 5-8, 10-14 and 17-21.

In the southern part of the Sinclair field, potential exists for incremental production and reserves from a Waterflood EOR project in the Three Forks and Middle Bakken oil reservoirs. The following represents an application by Tundra to establish Sinclair Unit No. 24 (LSDs 4, 5 Section 4-7-28W1, LSDs 1-8 Section 5-7-28W1 and LSDs 1, 8 Section 6-7-28W1) and implement a Secondary Waterflood EOR scheme within the Three Forks and Middle Bakken formations as outlined on Figure 2.

The proposed project area falls within the existing designated 01-62A Bakken-Torquay Pool of the Daly Sinclair Oilfield (Figure 3).

SUMMARY

1. The proposed Sinclair Unit No. 24 will include 1 horizontal well and 4 vertical wells within 12 Legal Sub Divisions (LSD) of the Middle Bakken/Three Forks producing reservoir. The project is located south of Sinclair Unit No. 2 (Figure 2).

2. Total Net Original Oil in Place (OOIP) in Sinclair Unit No. 24 has been calculated to be **591.2** e^3m^3 (3,718 Mbbl) for an average of **49.3** net e^3m^3 (309.8 Mbbl) OOIP per 40 acre LSD based on a 0.5 md cutoff.

3. Cumulative production to the end of November 2019 from the 5 wells within the proposed Sinclair Unit No. 24 project area was **14.3** e^3m^3 (89.8 Mbbl) of oil, and **33.9** e^3m^3 (213.7 Mbbl) of water, representing a **2.4%** Recovery Factor (RF) of the Net OOIP.

4. Figure 4 shows the production from the Sinclair Unit No. 24 peaked in August 2013 at 8.07 m^3 of oil per day (OPD). As of November 2019, production was 1.41 m^3 OPD, 4.97 m^3 of water per day (WPD) and a 77.9% watercut.

5. In August 2013, production averaged 1.61 m^3 OPD per well in Sinclair Unit No. 24. As of November 2019, average per well production has declined to 0.47 m^3 OPD. Decline analysis of the group primary production data forecasts total oil to continue declining at an annual rate of approximately **20%** in the project area.

6. Estimated Ultimate Recovery (EUR) of Primary Proved Producing oil reserves in the proposed Sinclair Unit No. 24 project area has been calculated to be **24.6** e^3m^3 (155.1 Mbbl), with **10.3** e^3m^3 (64.9 Mbbl) remaining as of the end of November 2019.

7. Ultimate oil recovery of the proposed Sinclair Unit No. 24 OOIP, under the current Primary Production method, is forecasted to be **4.2**%.

8. Estimated Ultimate Recovery (EUR) of proved oil reserves under Secondary WF EOR for the proposed Sinclair Unit No. 24 has been calculated to be **52.3** e^3m^3 (274.8 Mbbl), with **37.9** e^3m^3 (238.6 Mbbl) remaining. An incremental **27.6** e^3m^3 (173.7 Mbbl) of proved oil reserves, or **4.7%**, are forecasted to be recovered under the proposed Unitization and Secondary EOR production vs the existing Primary Production method.

9. Total RF under Secondary WF in the proposed Sinclair Unit No. 24 is estimated to be **8.8%**.

10. Based on the waterflood response in the adjacent main portion of the Sinclair field, the Three Forks and Middle Bakken Formations in the proposed project area are believed to be suitable reservoirs for WF EOR operations.

11. Existing horizontal wells, with multi-stage hydraulic fractures, will be converted to injection wells (Figure 5) within the proposed Sinclair Unit 24, to complete waterflood patterns with effective 20 acre spacing. This unit will be a hybrid of horizontal injectors flooding vertical producers and horizontal producers.

DISCUSSION

The proposed Sinclair Unit No. 24 project area is located within Township 7, Range 28 W1 of the Daly Sinclair Oil Field. The proposed Sinclair Unit No. 24 currently consists of 1 horizontal well and 4 vertical wells, within an area covering 12 LSDs in Sections 4-6 Township 7 Range 28W1 (Figure 2). A project area well list complete with recent production statistics is attached as Table 3.

Tundra believes that the waterflood response in the adjacent main portion of the Sinclair field demonstrates potential for incremental production and reserves from a WF EOR project in the subject Middle Bakken and/or Three Forks oil reservoirs.

Geology

Stratigraphy:

The stratigraphy of the reservoir section for the proposed unit is shown on the structural cross-section attached as Appendix 2. The section runs west to east through the proposed Unit area. The producing sequence in descending order consists of the Upper Bakken Shale, Middle Bakken Siltstone, Lyleton A Siltstone (broken into Upper and Lower members), the Red Shale Marker, Lyleton B Siltstone and the Torquay Silty Shale. The reservoir units are represented by the Middle Bakken, Lyleton A and Lyleton B Siltstones. The Upper Bakken Shale is a black, organic rich, platy shale which forms the top seal for the underlying Middle Bakken and Lyleton reservoirs. The reservoir units in the proposed unit are analogous to the Bakken / Lyleton producing reservoirs that have been approved adjacent to the proposed unit (Sinclair Unit 2 and Pending Ewart Unit 17) as noted on the Offsetting Units Map at Appendix 1.

Sedimentology:

The Middle Bakken reservoir consists of fine to coarse grained grey siltstone to fine sandstone which may be subdivided on the basis of lithologic characteristics into upper and lower units. The upper portion is very often heavily bioturbated and is generally non-reservoir. These bioturbated beds often contain an impoverished fauna consisting of well-worn brachiopod, coral and occasional crinoid fragments suggesting deposition in a marginal marine environment. The lower part of the Middle Bakken is generally finely laminated with alternating light and dark laminations with occasional bioturbation. Reservoir quality is highly variable within the Unit area. Within the proposed unit, the Middle Bakken thickness ranges from 0.9m to 3.4m (Appendix 4).

The Lyleton A reservoir within the proposed unit area consists of buff to tan medium to coarse siltstone (occasionally fine sandstone) made up of quartz, feldspar and detrital dolomite with minor mica and clay mostly in the form of clay clasts or chips. Clays do not generally occur as pore filling material, but rather as discrete grains within the siltstone. The Upper part is generally well bedded and shows evidence of parallel lamination with occasional wind ripples. The coarser siltstones are interbedded with finer grained grey-green siltstone similar in composition to the reservoir siltstone, but generally with lower permeability (i.e. < 0.1mD). These finer grained siltstones show evidence of haloturbation producing smeared siltstone clasts floating in a fine-grained grey-green siltstone matrix. The lower part of the Lyleton A generally shows a greater proportion of the grey-green fine-grained siltstone than the Upper and is generally a poorer reservoir. It also tends to exhibit greater amounts of haloturbation and pseudo-breccia of siltstone clasts in a finer grained siltstone matrix. Because of the fine-grained matrix in this pseudo-breccia the connectivity between the clasts is much lower than the bedded siltstone and the Lower part of the Lyleton A is generally a poorer reservoir than the Upper part of the Lyleton A. Within the proposed unit area, the Upper Lyleton A ranges from 0m, cropping out entirely, up to over 4.3m (Appendix 5). The Lower Lyleton A in the proposed unit area ranges from 3.5m to 0m (Appendix 6).

The Red Shale Marker lies between the overlying Middle Bakken / Lyleton A and the underlying Lyleton B reservoir. It consists of brick red dolomitic siltstone which is highly water soluble and has low permeability. The Red Shale Marker is fairly consistent throughout the proposed unit area at about 3.5m thickness. The effectiveness of the Red Shale Marker unit as a permeability barrier is significantly decreased by induced hydraulic fracturing. As such, the Red Shale Marker is not an effective barrier to flow between the Middle Bakken and the Lyleton B over the proposed unit area.

The Lyleton B reservoir consists of buff to tan fine grained siltstone (occasionally very fine siltstone) made up of quartz, feldspar and detrital dolomite with minor mica and clay mostly in the form of clay clasts or chips. The Lyleton B is generally well bedded and shows evidence of parallel lamination with occasional wind ripples. The coarser siltstones are interbedded with dark grey-green or red very fine-grained siltstone which is generally non-reservoir. The Lyleton B is between 4.4m-4.8m thick within the proposed unit (Appendix 7).

The Torquay (Three Forks) forms the base of the reservoir sequence and is a brick red or mint green dolomitic very fine siltstone similar to the Red Shale Marker and it forms a good basal seal to the Lyleton B reservoir.

Structure:

The structure within the proposed unit area is relatively consistent, dipping toward the south (Appendix 3).

Gross OOIP Estimates

Total volumetric OOIP for the Middle Bakken Lyleton A and Lyleton B within the proposed unit has been calculated to be **591.2** e^3m^3 (**3,718** Mbbl) using Tundra internally created maps. Maps used were generated from core data from wells available in the greater Sinclair area (Appendix 8).

An average net to gross ratio was calculated for each reservoir formation using pressure decay profile permeameter data (PDPK) with a cut off of 0.5mD on surrounding cored wells. To determine net pay these ratios are then applied to each formation thickness from isopach maps based on logs. Porosity is calculated in the same way, using an average for each formation, from surrounding core data after a 0.5mD cutoff.

Tabulated parameters for each LSD from the calculations can be found in Table 4.

OOIP values were calculated using the following volumetric equation:

$$OOIP = \frac{Area * Net\ Pay * \ Porosity * (1 - Water\ Saturation)}{Initial\ Formation\ Volume\ Factor\ of\ Oil}$$

or

$$OOIP(m3) = \frac{A * h * \emptyset * (1 - Sw)}{Bo} * \frac{10{,}000m2}{ha}$$

or

$$OOIP(Mbbl) = \frac{A * h * \emptyset * (1 - Sw)}{Bo} * 3.28084\frac{ft}{m} * 7{,}758.367\frac{bbl}{acre * ft} * \frac{1Mbbl}{1{,}000bbl}$$

where

OOIP	= Original Oil in Place by LSD (Mbbl, or m3)
A	= Area (40acres, or 16.187 hectares, per LSD)
h * Ø	= Net Pay * Porosity, or Phi * h (ft, or m)
Bo	= Formation Volume Factor of Oil (stb/rb, or sm3/rm3)
Sw	= Water Saturation (decimal)

The initial oil formation volume factor was adopted from PVT information taken from the 100/02-17-009-29W1 and 100/13-19-009-28W1 Bakken wells and is thought to be representative of the fluid characteristics in the reservoir.

Historical Production

A historical group production history plot for the proposed Sinclair Unit No. 24 is shown as Figure 4. Oil production commenced from the proposed Unit area in January 2008 and peaked during August 2013 at 8.07 m^3 (OPD). As of November 2019, production was 1.41 m^3 OPD, 4.97 m^3 of water per day (WPD) and a 77.9% watercut.

From peak production in August 2013 to date, oil production is declining at an annual rate of approximately 20% under the current Primary Production method.

The remainder of the field's production and decline rates indicate the need for pressure restoration and maintenance. Waterflooding is deemed to be the most efficient means of secondary recovery to introduce energy back into the system and provide areal sweep between wells.

UNITIZATION

Unitization and implementation of a Waterflood EOR project is forecasted to increase overall recovery of OOIP from the proposed project area.

Unit Name

Tundra proposes that the official name of the new Unit shall be Sinclair Unit No. 24.

Unit Operator

Tundra Oil and Gas (Tundra) will be the Operator of record for Sinclair Unit No. 24.

Unitized Zone

The Unitized zone(s) to be waterflooded in Sinclair Unit No. 24 will be the Middle Bakken and Three Forks formations.

Unit Wells

The 1 horizontal well and 4 vertical wells to be included in the proposed Sinclair Unit No. 24 are outlined in Table 3.

Unit Lands

The Sinclair Unit No. 24 will consist of 12 LSDs as follows:

LSDs 4, 5 Section 4 of Township 7, Range 28, W1M
LSDs 1-8 Section 5 of Township 7, Range 28, W1M
LSDs 1, 8 Section 6 of Township 7, Range 28, W1M

The lands included in the 40 acre tracts are outlined in Table 1.

Tract Factors

The proposed Sinclair Unit No. 24 will consist of 12 Tracts based on the 40 acre LSDs containing the existing horizontal and vertical wells.

The Tract Factor contribution for each of the LSD's within the proposed Sinclair Unit No. 24 was calculated as follows:

- Gross OOIP by LSD, minus cumulative production to date for the LSD as distributed by the LSD specific Production Allocation (PA) % in the applicable producing horizontal or vertical well (to yield Remaining Gross OOIP)
- Tract Factor by LSD = the product of Remaining Gross OOIP by LSD as a % of total proposed Unit Remaining Gross OOIP

Tract Factor calculations for all individual LSDs based on the above methodology are outlined within Table 2.

Working Interest Owners

Table 1 outlines the working interest (WI) for each recommended Tract within the proposed Sinclair Unit No. 24. Tundra Oil and Gas Limited holds a 100% WI ownership in all the proposed Tracts.

Tundra Oil and Gas Limited will have a 100% WI in the proposed Sinclair Unit No. 24.

WATERFLOOD EOR DEVELOPMENT

Technical Studies

The waterflood performance predictions for the proposed Sinclair Unit No. 24 Bakken project are based on internal engineering assessments. Project area specific reservoir and geological parameters were utilized and then compared to Sinclair Unit No. 2 parameters, yielding the WF EOR response observed there to date.

Reserves Recovery Profiles and Production Forecasts

The primary waterflood performance predictions for the proposed Sinclair Unit No. 24 are based on oil production decline curve analysis, and the secondary predictions are based on internal engineering analysis performed by the Tundra reservoir engineering group using Sinclair Unit No. 2 as an analogy for the vertical producers waterflood response because it is developed with a similar waterflood pattern design of a horizontal injector with offsetting vertical producers at 40 acre spacing. Sinclair Unit No. 5 was used as an analogue for the horizontal injector to horizontal producer waterflood response, as development in that unit is analogous to the proposed horizontal waterflood development.

Primary Production Forecast

Cumulative production in the Sinclair Unit No. 24 project area, to the end of November 2019 from 5 wells, is **14.3** e^3m^3 of oil and **33.9** e^3m^3 of water for a recovery factor of **2.4%** of the calculated Net OOIP.

Ultimate Primary Proved Producing oil reserves recovery for Sinclair Unit No. 24 has been estimated to be **24.6** e^3m^3, or a **4.2**% Recovery Factor (RF) of OOIP. Remaining Producing Primary Reserves has been estimated to be **10.3** e^3m^3 at the end of November 2019.

The expected production decline and forecasted cumulative oil recovery under continued Primary Production is shown in Figures 7 & 8.

Pre-Production Schedule/Timing for Conversion of Horizontal Wells to Water Injection

Tundra will plan an injection conversion schedule to allow for the most expeditious development of the waterflood within the proposed Sinclair Unit No. 24, while maximizing reservoir knowledge.

Criteria for Conversion to Water Injection Well

One (1) dedicated water injection well is required for this proposed unit as shown in Figure 5. There will also be an interunit injector split between Sinclair Unit 2 and the proposed Sinclair Unit 24.

Tundra will monitor the following parameters to assess the best timing for each individual horizontal well to be converted from primary production to water injection service.

- Measured reservoir pressures at start of and/or through primary production
- Fluid production rates and any changes in decline rate

- Any observed production interference effects with adjacent vertical and horizontal wells
- Pattern mass balance and/or oil recovery factor estimates
- Reservoir pressure relative to bubble point pressure

The above allows for the proposed Sinclair Unit No. 24 project to be developed equitably and efficiently. It also provides the Unit Operator flexibility to manage the reservoir conditions and response to help ensure maximum ultimate recovery of OOIP.

Secondary EOR Production Forecast

The proposed project oil production profile under Secondary Waterflood has been developed based on the response observed to date in the Sinclair Unit No. 5 and Sinclair Unit No. 2 Waterflood (Figure 6).

Secondary Waterflood plots of the expected oil production forecast over time and the expected oil production vs. cumulative oil are plotted in Figures 9 & 10, respectively. Total Secondary EUR for the proposed Sinclair Unit No. 24 is estimated to be **52.3** e^3m^3 with **37.9** e^3m^3 remaining, representing a total secondary recovery factor of **8.8%** for the proposed Unit area. An incremental **27.6** e^3m^3 of oil, or a **4.7%** recovery factor, are forecasted to be recovered under the proposed Unitization and Secondary EOR production scheme vs. the existing Primary Production method.

Estimated Fracture Pressure

Completion data from the existing producing wells within the project area indicate an actual fracture pressure gradient range of 18.0 to 22.0 kPa/m true vertical depth (TVD).

WATERFLOOD OPERATING STRATEGY

Water Source

The injection water for the proposed Sinclair Unit No. 24 will be supplied from the existing Sinclair 4-1-8-29W1 Battery source and injection water system. All existing injection water is obtained from the Mannville formation in the 100/14-30-7-28W1 (100/14-30) licensed water source well. Mannville water from the 100/14-30 source well is pumped to the main Sinclair Units Water Plant at 4-1-8-29W1, filtered, and pumped up to injection system pressure. A diagram of the Sinclair water injection system and new pipeline connection to the proposed Sinclair Unit No. 24 project area injection wells is shown as Figure 11.

Produced water is not currently used for any water injection in the Tundra operated Sinclair Units due to technical and economic factors that limit Tundra's ability to filter down to the necessary particle size for this tight formation. Therefore, there are no current plans to use produced water as a source supply for Sinclair Unit No. 24.

Since all producing Middle Bakken/Three Forks wells in the Daly Sinclair areas, whether vertical or horizontal, have been hydraulically fractured, produced waters from these wells are inherently a mixture of Three Forks and Bakken native sources. This mixture of produced waters has been extensively tested for compatibility with 100/14-30 source Mannville water, by a highly qualified third party, prior to implementation by Tundra. All potential mixture ratios between the two waters, under a range of temperatures, have been simulated and evaluated for scaling and precipitate producing tendencies. Testing of multiple scale inhibitors has also been conducted and minimum inhibition concentration requirements for the source water volume determined. At present, continuous scale inhibitor application is maintained into the source water stream out of the Sinclair injection water facility. Review and monitoring of the source water scale inhibition system is also part of an existing routine maintenance program.

Injection Wells

The water injection wells for the proposed Sinclair Unit No. 24 will be current producing wells configured downhole for injection as shown in Figure 12. The horizontal injection wells will have been stimulated by multiple hydraulic fracture treatments to obtain suitable injection. Tundra has extensive experience with horizontal fracturing in the area, and all jobs are rigorously programmed and monitored during execution. This helps ensure optimum placement of each fracture stage to prevent, or minimize, the potential for out-of-zone fracture growth and thereby limit the potential for future out-of-zone injection.

Wellhead injection pressures will be maintained below the least value of either:

- the area specific known and calculated fracture gradient, or
- the licensed surface injection Maximum Allowable Pressure (MOP)

Tundra has a thorough understanding of area fracture gradients. A management program will be utilized to set and routinely review injection target rates and pressures vs. surface MOP and the known area formation fracture pressures.

All new water injection wells are surface equipped with injection volume metering and rate/pressure control. An operating procedure for monitoring water injection volumes and meter balancing will also be utilized to monitor the entire system measurement and integrity on a daily basis.

The proposed Sinclair Unit No. 24 horizontal water injection well rate is forecasted to average **10 - 30** m^3 WPD, based on expected reservoir permeability and pressure.

Reservoir Pressure

No recent or representative initial pressure surveys are currently available for the producing wells within the proposed Sinclair Unit No. 24 project area in the Bakken formation. The long shut-in and build-up times required to obtain any possible representative surveys from the producing wells are economically prohibitive. Tundra will make all attempts to capture a reservoir pressure survey in the proposed horizontal injection wells during the completion of the wells and prior to injection or production.

Reservoir Pressure Management during Waterflood

Tundra expects it will take 2-4 years to re-pressurize the reservoir due to cumulative primary production voidage and pressure depletion. Initial monthly Voidage Replacement Ratio (VRR) is expected to be approximately 1.25 to 2.00 within the patterns during the fill up period. As the cumulative VRR approaches 1, target reservoir operating pressure for waterflood operations will be 75-90% of original reservoir pressure.

Waterflood Surveillance and Optimization

Sinclair Unit No. 24 EOR response and waterflood surveillance will consist of the following:

- Regular production well rate and WCT testing
- Daily water injection rate and pressure monitoring vs target
- Water injection rate/pressure/time vs. cumulative injection plot
- Reservoir pressure surveys as required to establish pressure trends
- Pattern VRR
- Potential use of chemical tracers to track water injector/producer responses
- Use of some or all of: Water Oil Ratio (WOR) trends, Log WOR vs Cum Oil, Hydrocarbon Pore Volumes Injected, Conformance Plots

The above surveillance methods will provide an ever-increasing understanding of reservoir performance and provide data to continually control and optimize the Sinclair Unit No. 24 waterflood operation. Controlling the waterflood operation will significantly reduce or eliminate the potential for out-of-zone injection, undesired channeling or water breakthrough, or out-of-Unit migration. The monitoring and surveillance will also provide early indicators of any such issues so that waterflood operations may be altered to maximize ultimate secondary reserves recovery from the proposed Sinclair Unit No. 24.

On Going Reservoir Pressure Surveys

Any pressures taken during the operation of the proposed unit will be reported within the Annual Progress Reports for Sinclair Unit No. 24 as per Section 73 of the Drilling and Production Regulation.

Economic Limits

Under the current Primary recovery method, existing wells within the proposed Sinclair Unit No. 24 will be deemed uneconomic when the net oil rate and net oil price revenue stream becomes less than the current producing operating costs. With any positive oil production response under the proposed Secondary recovery method, the economic limit will be significantly pushed out into the future. The actual economic cut off point will then again be a function of net oil price, the magnitude and duration of production rate response to the waterflood, and then current operating costs. Waterflood projects generally become uneconomic to operate when Water Oil Ratios (WOR’s) exceed 100.

WATER INJECTION FACILITIES

The Sinclair Unit No. 24 waterflood operation will utilize the existing Tundra operated source well supply and water plant (WP) facilities located at 4-1-8-29W1 Battery. Injection wells will be connected to the existing high pressure water pipeline system supplying other Tundra-operated Waterflood Units.

A complete description of all planned system design and operational practices to prevent corrosion related failures is shown in Figure 13.

NOTIFICATION OF MINERAL AND SURFACE RIGHTS OWNERS

Tundra is in the process of notifying all mineral rights and surface rights owners of this proposed EOR project and formation of Sinclair Unit No. 24. Copies of the notices and proof of service, to all surface and mineral rights owners will be forwarded to the Petroleum Branch when available to complete the Sinclair Unit No. 24 Application.

Sinclair Unit No. 24 Unitization, and execution of the formal Sinclair Unit No. 24 Agreement by affected Mineral Owners, is expected during Q1 2020. Copies of same will be forwarded to the Petroleum Branch, when available, to complete the Sinclair Unit No. 24 Application.

Should the Petroleum Branch have further questions or require more information, please contact Eric Fraser at 587.747.5363 or by email at eric.fraser@tundraoilandgas.com.

TUNDRA OIL & GAS LIMITED

Original Signed by Eric Fraser, February 19, 2020 in Calgary, AB

Proposed Sinclair Unit No. 24

Application for Enhanced Oil Recovery Waterflood Project

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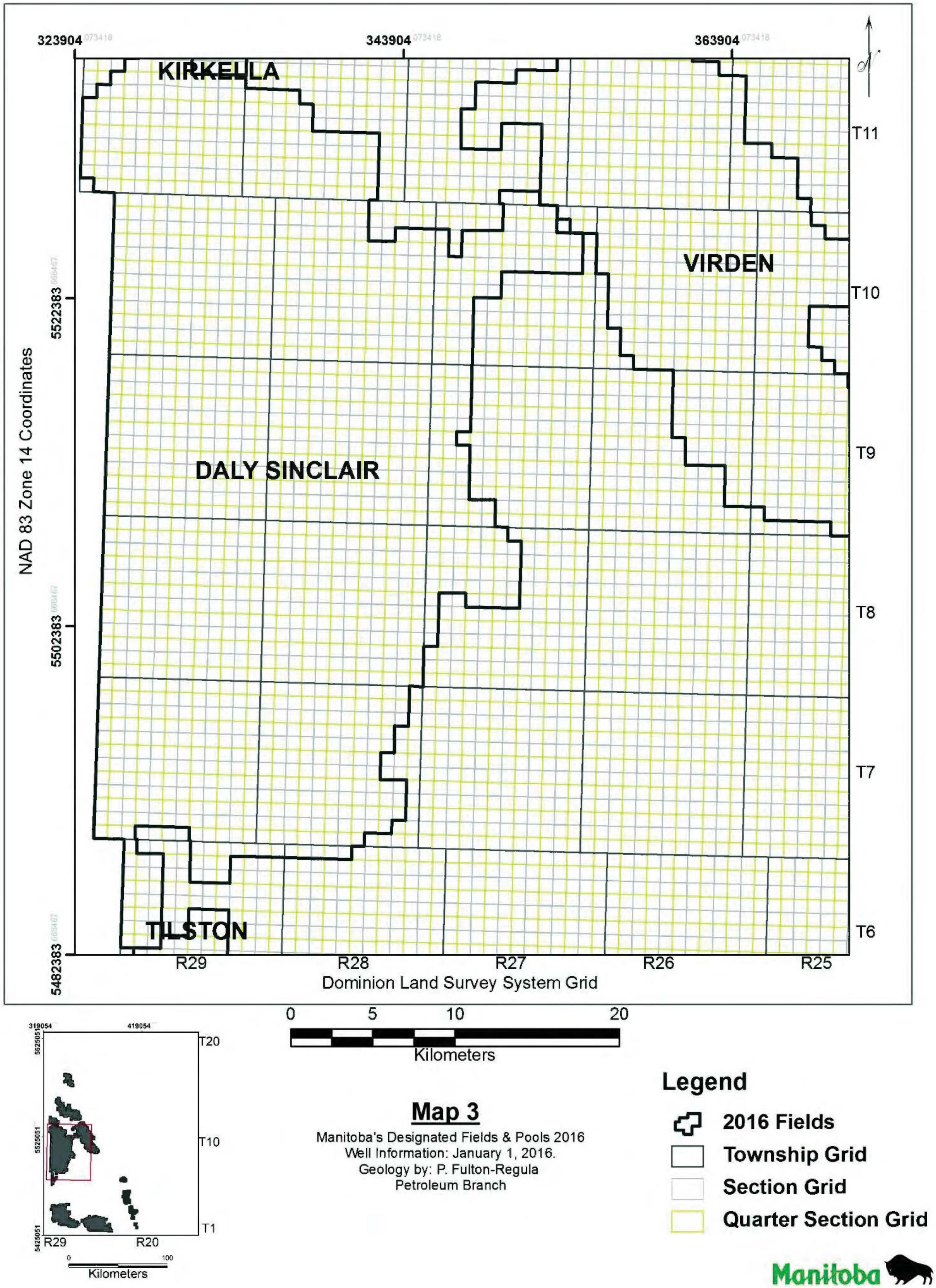
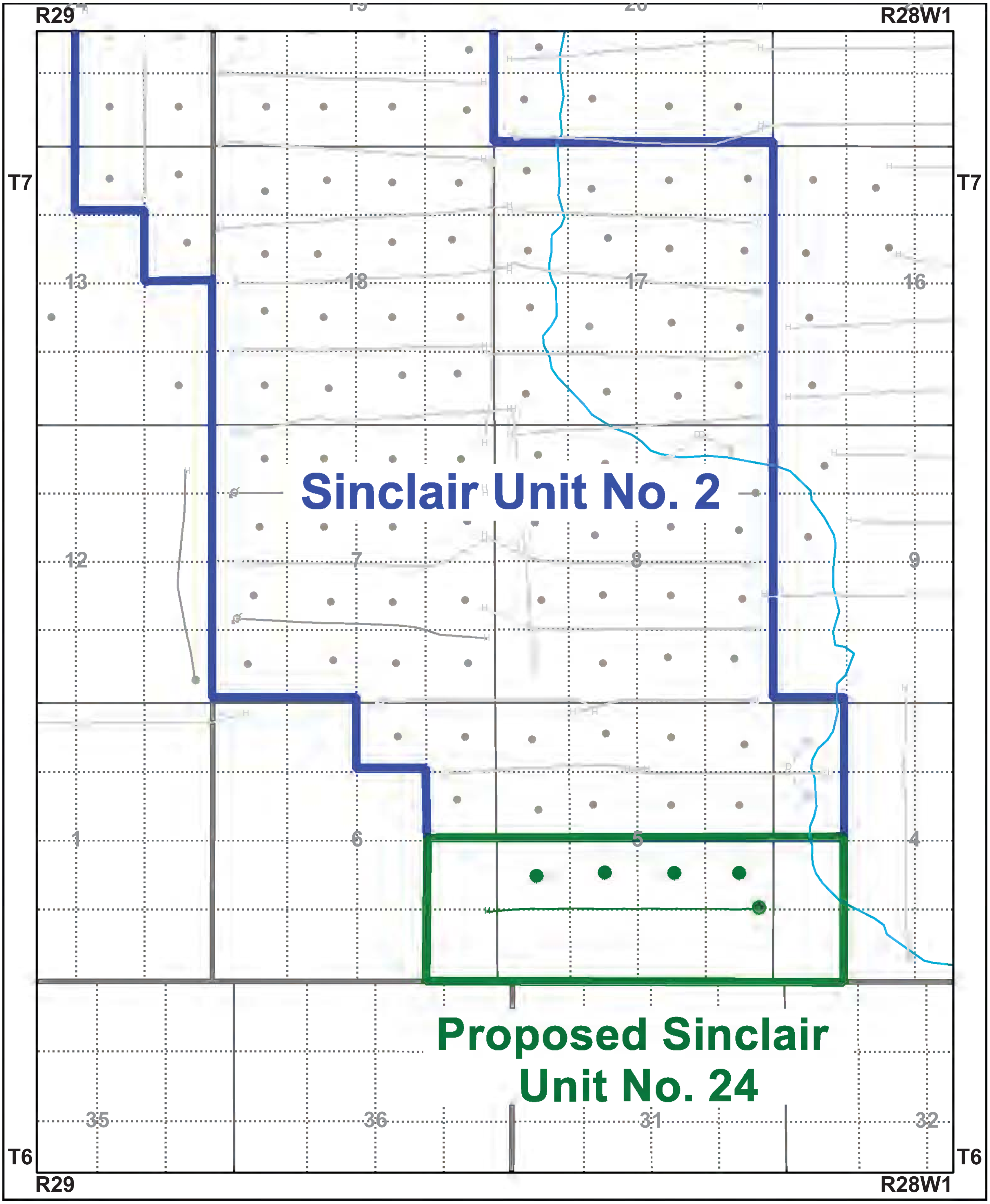
Figure No. 1



Daly Sinclair, Virden & Tilston Fields

Figure No. 2



R29
R28W1
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Proposed Sinclair
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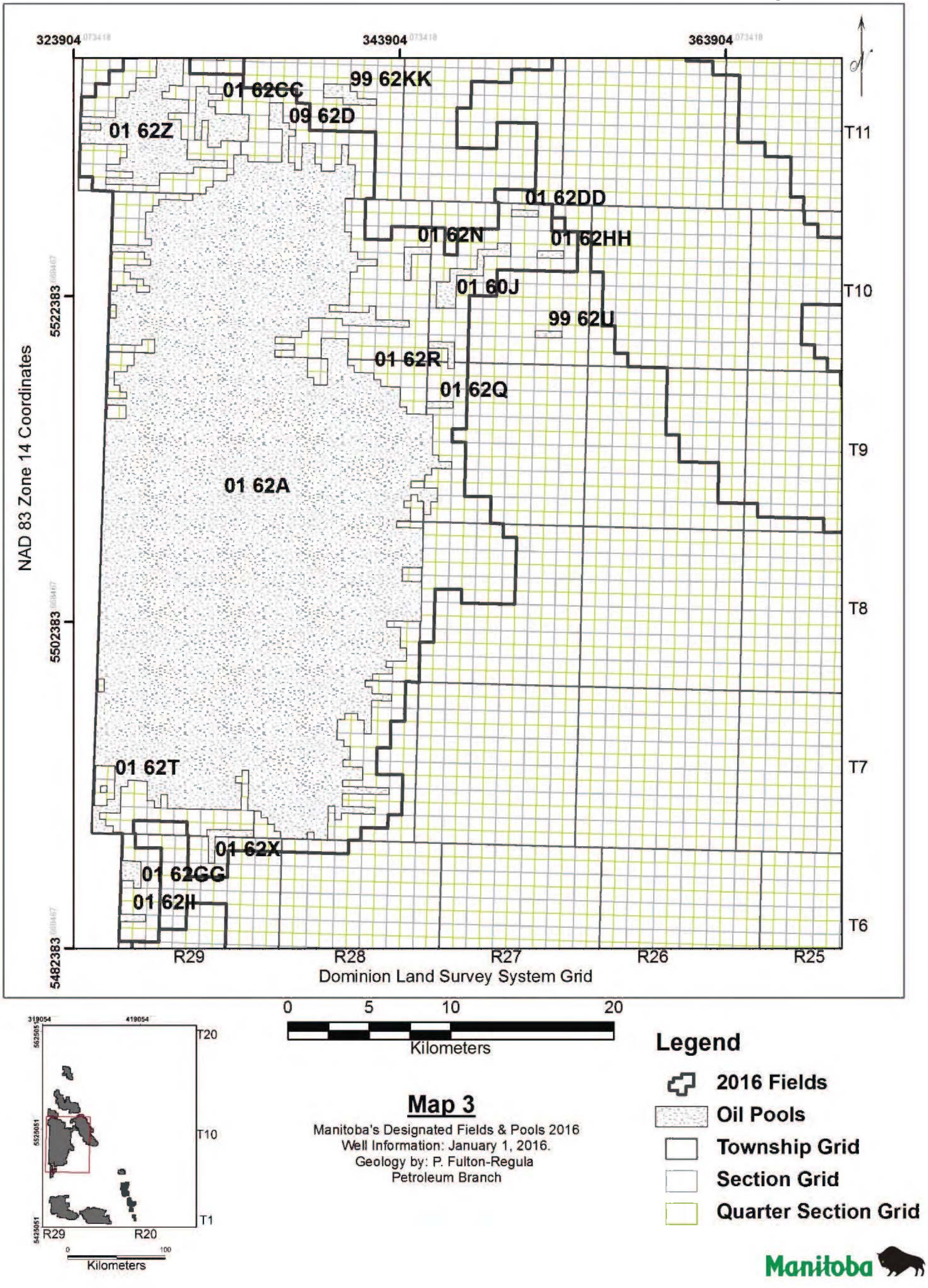
32
T6
T6
R29
R28W1

Figure No. 3



Bakken & Bakken Torquay Formation Pools (60 & 62)

Well Information as of 11/5/2019 - Group Well Report

Figure No. 4

Production Graph

Group:	sinclair unit no 24 well list.lwell	**On Prod:**	2008-01 to 2019-08	**Cum Oil:**	14139.2 m3
# of Wells:	5	**Prod Form:**	BAKKEN; THREEFK	**Cum Gas:**	0.0 E3m3
Fluid:	Oil	**Field:**	DALY (MB1)	**Cum Wtr:**	33513.6 m3
Mode:	Producing	**Pool Code:**	MB000162A	**Cum Inj Oil:**	0.0 m3
		Unit Code:		**Cum Inj Gas:**	0.0 E3m3
				Cum Inj Wtr:	0.0 m3

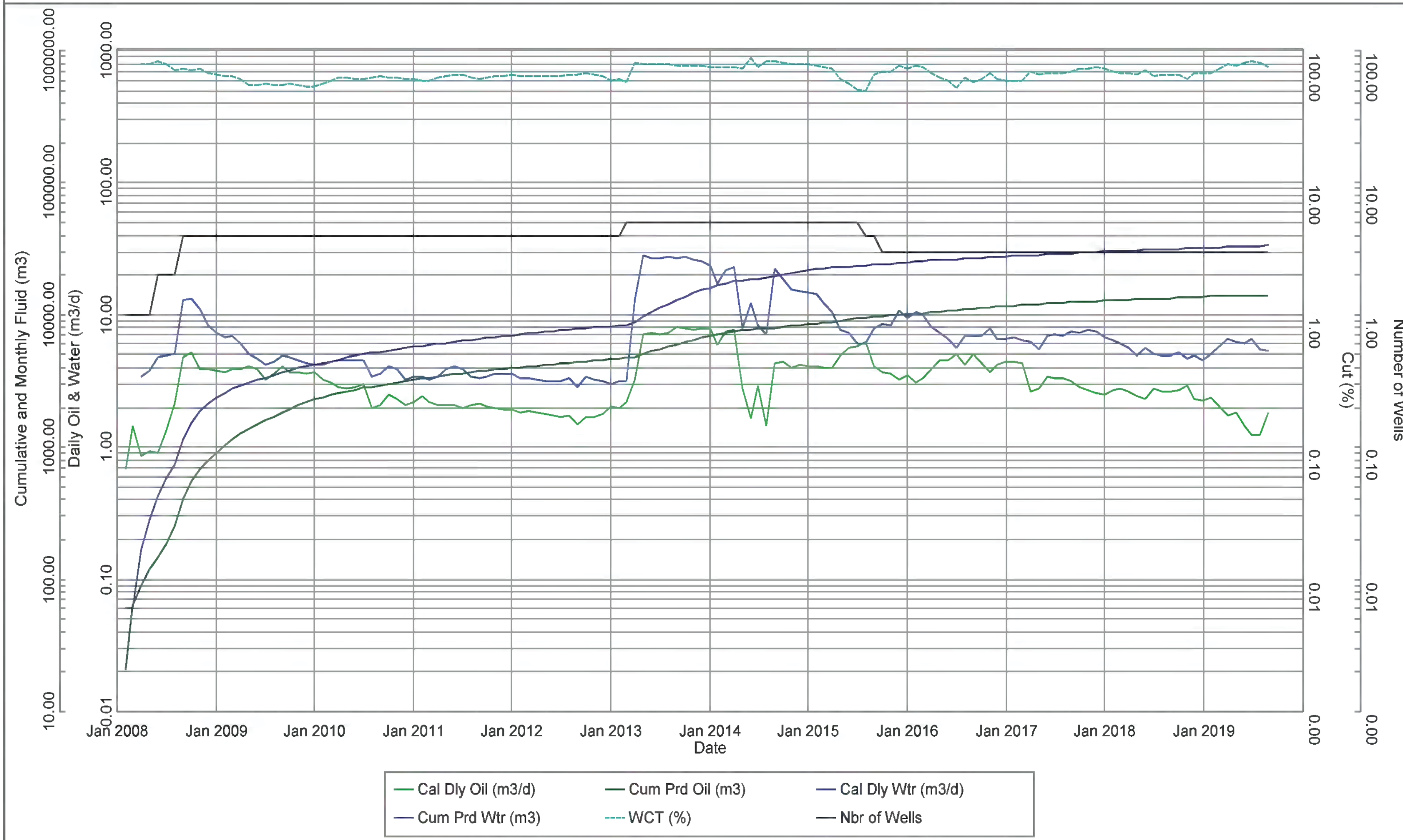
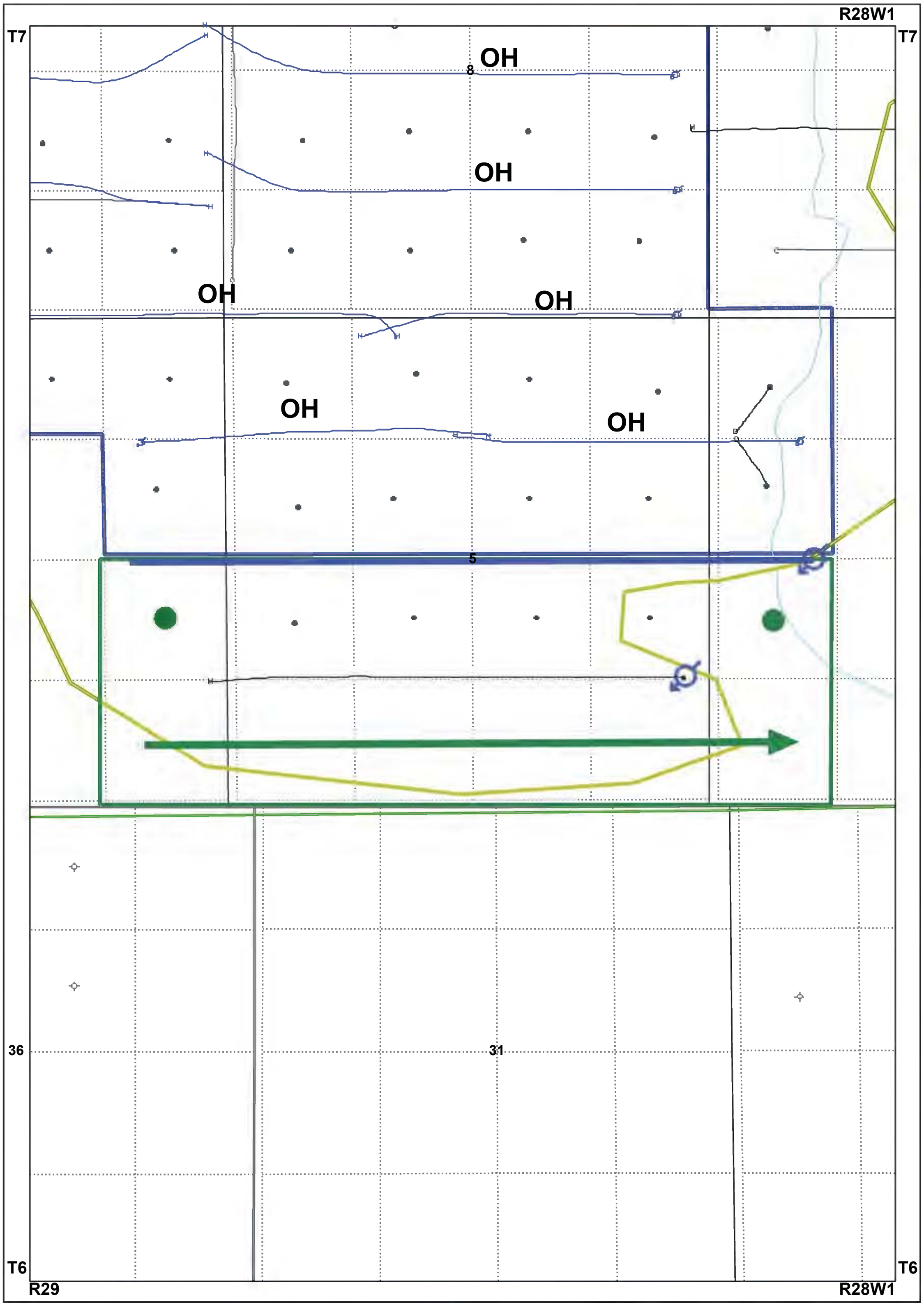


Figure No. 5



Map Title

Datum: NAD27 Projection: Stereographic DLS Version AB: ATS 2.6, BC: PRB 2.0, SK: STS 2.5, MB: MLI07

Well Legend

Abandoned Gas	Gas Injection		Suspended Heavy Oil
Abandoned Heavy Oil	Heavy Oil		Suspended Oil
Abandoned Oil	Injection		Suspended Oil & Gas
Abandoned Oil & Gas	Location	Lists	
Abandoned Service	Oil		Wells - Bakken Conversions - 2020
Canceled	Oil & Gas		Wells - Bakken Injectors
Drilling	Service or Drain		Wells - Bakken Producers
Dry & Abandoned	Suspended		Wells - Bakken Wells
Gas	Suspended Gas		

Center: 49.5373, -101.2469

Scale: 1:13,581

0 0.1 0.2 0.3 0.4 0.5 km

0 0.1 0.2 0.3 mi

N W E S

Map Title

Description

Eric Fraser, February 18, 2020

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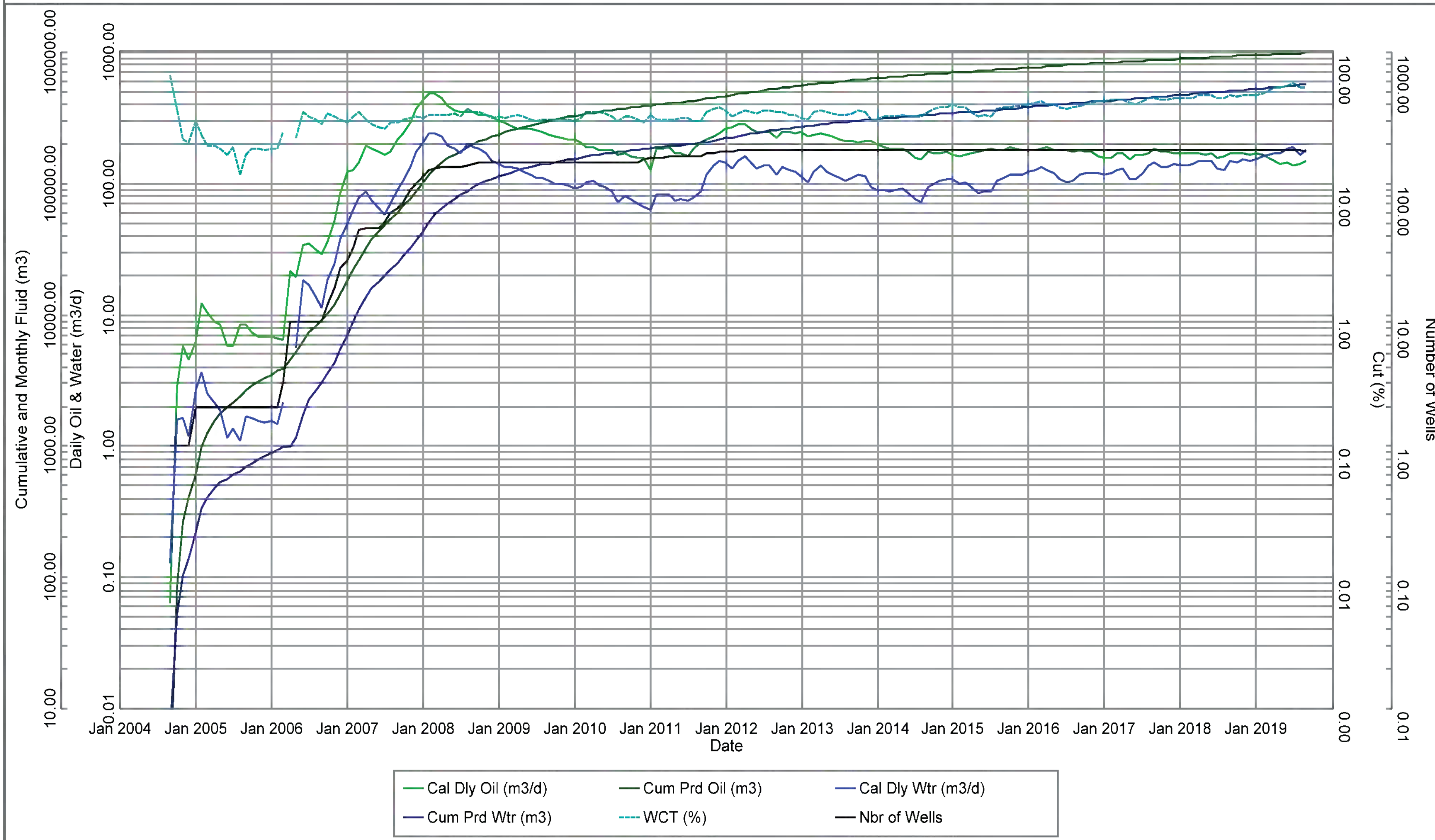
Well Information as of 11/5/2019 - Group Well Report

Figure No. 6

Production Graph

Group:	sinclair unit no. 2 well list.lwell	**On Prod:**	2004-08 to 2019-08	**Cum Oil:**	986876.7 m3
# of Wells:	183	**Prod Form:**	BAKKEN; BAKKENM; TORQUAY; THREEFK	**Cum Gas:**	0.0 E3m3
Fluid:	Oil; Water Injection	**Field:**	DALY (MB1)	**Cum Wtr:**	567298.7 m3
Mode:	Producing; Injection; Drilled & Cased; Suspended	**Pool Code:**	MB000162A	**Cum Inj Oil:**	0.0 m3
		Unit Code:	162A2	**Cum Inj Gas:**	0.0 E3m3
				Cum Inj Wtr:	1189915.8 m3

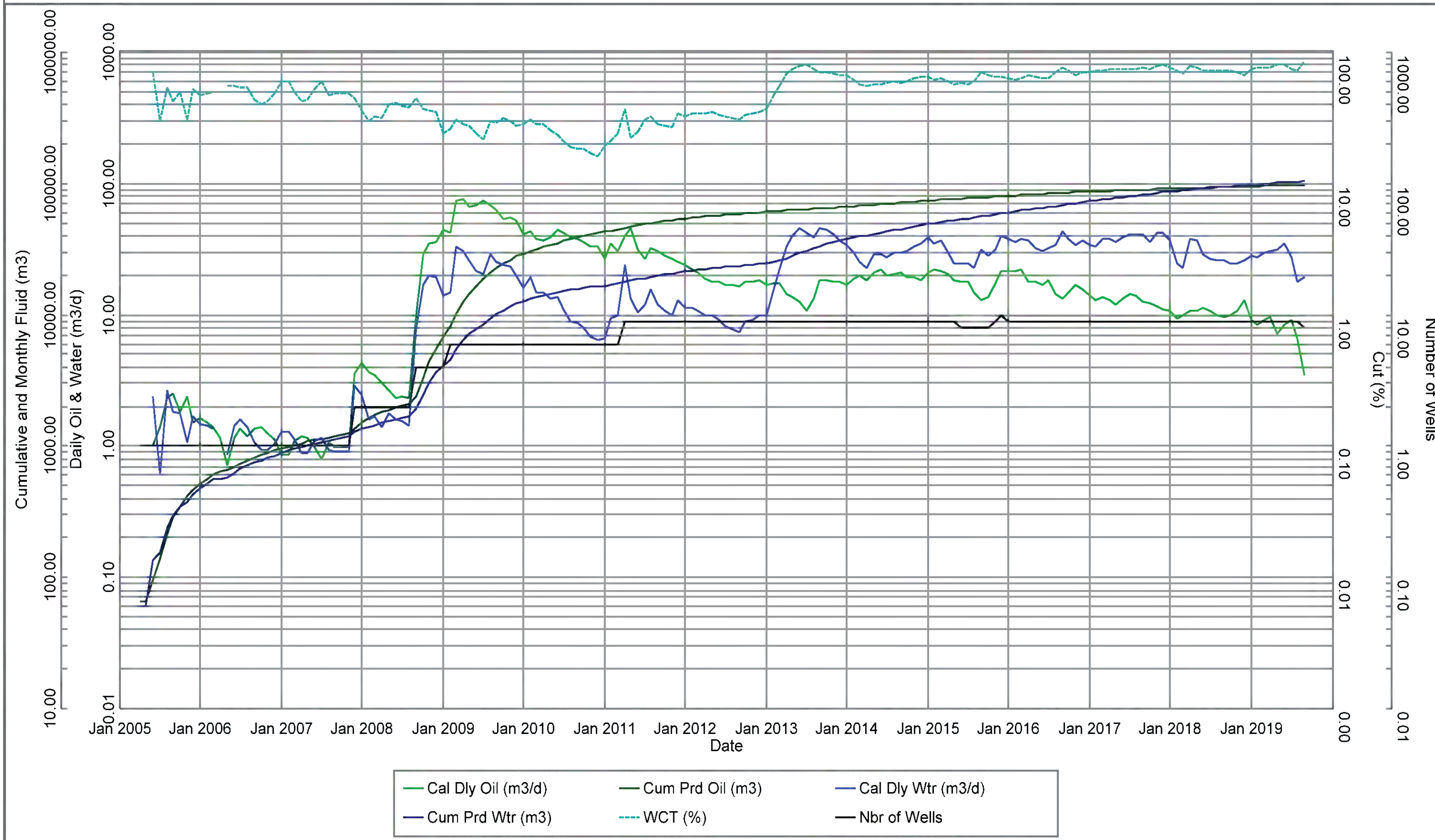


Well Information as of 11/5/2019 - Group Well Report

Figure No. 6

Production Graph

Group:	sinclair unit no. 5 well list.lwell	On Prod:	2005-03 to 2019-08	Cum Oil:	97091.4 m3
# of Wells:	11	Prod Form:	BAKKENM; BAKKENU; TORQUAY; BAKKEN	Cum Gas:	0.0 E3m3
Fluid:	Oil; Water Injection	Field:	DALY (MB1)	Cum Wtr:	103898.0 m3
Mode:	Producing; Injection; Suspended	Pool Code:	MB000162A	Cum Inj Oil:	0.0 m3
		Unit Code:	162A5	Cum Inj Gas:	0.0 E3m3
				Cum Inj Wtr:	131554.9 m3



Primary Recovery - Rate vs Time

Figure No. 7

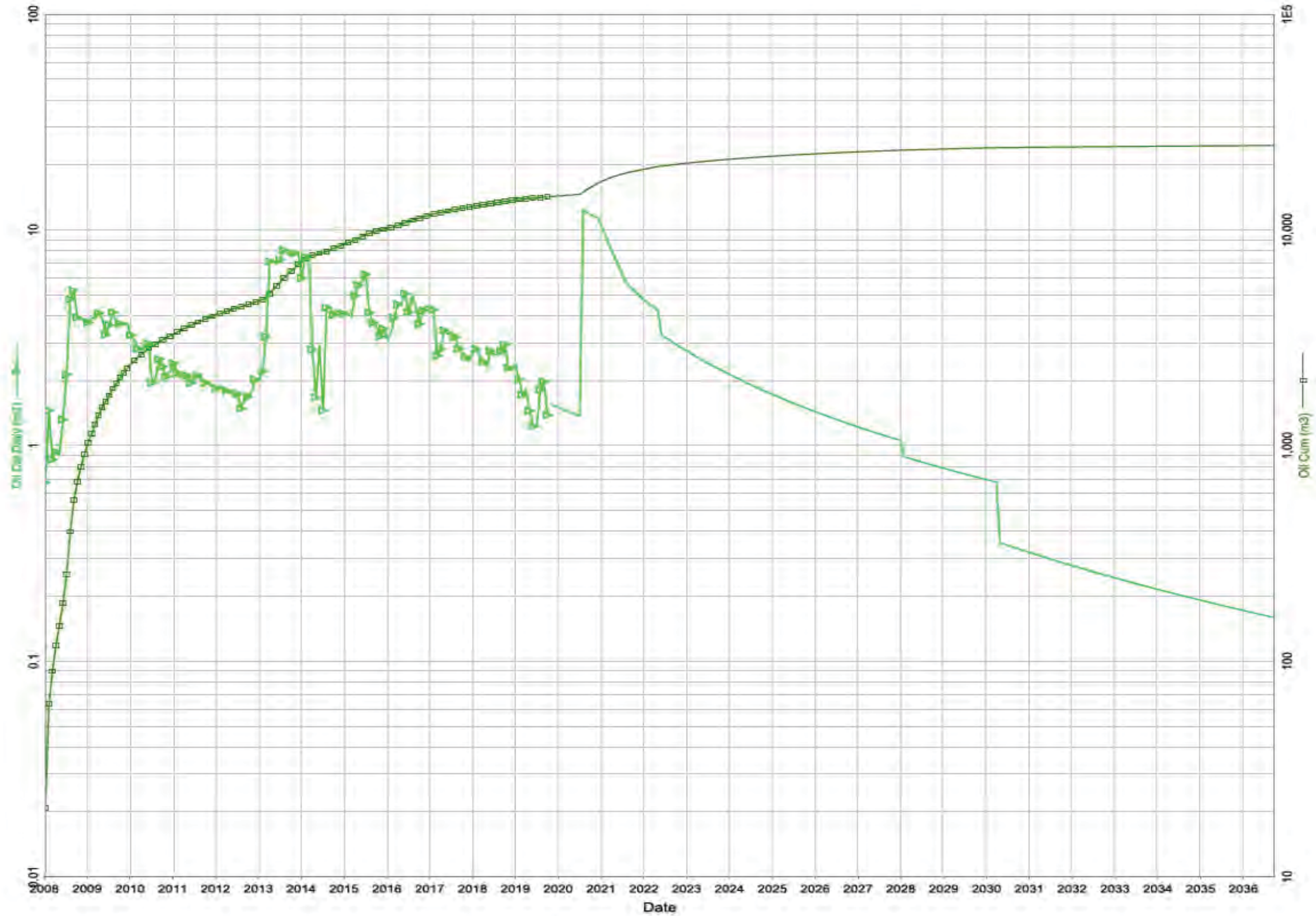
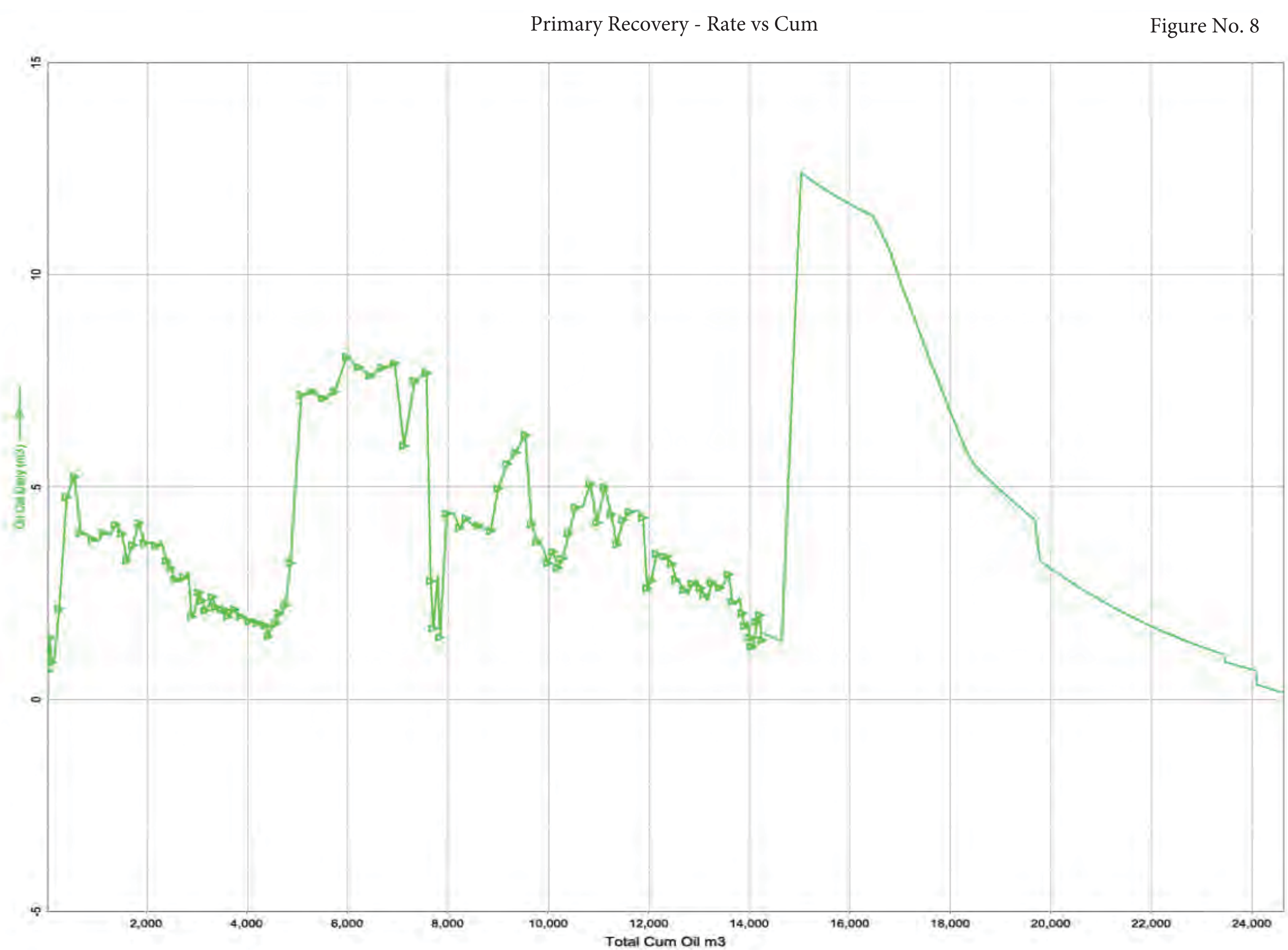


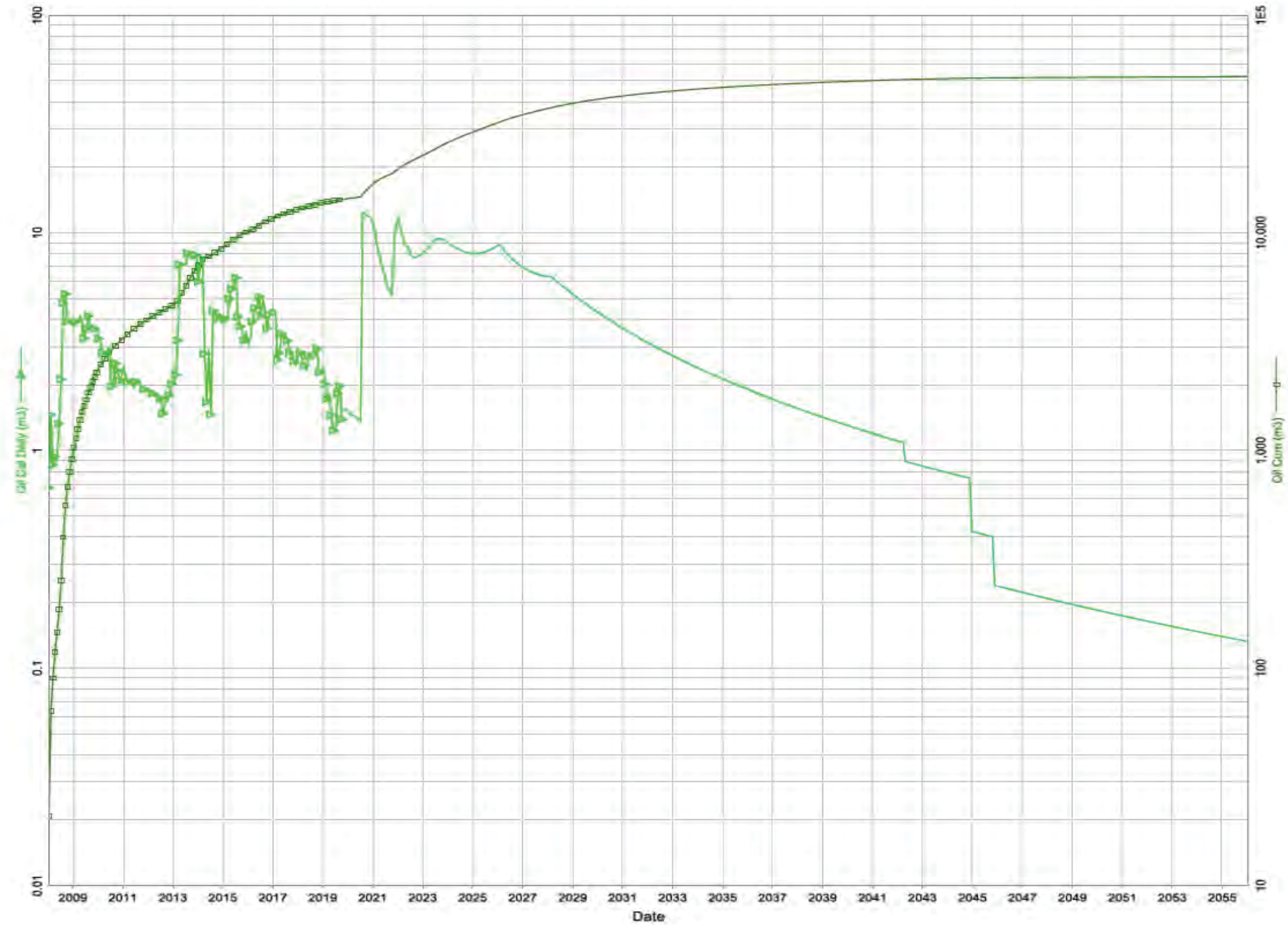
Figure No. 8



Primary Recovery - Rate vs Cum
15
10
5
0
-5
Oil Cal Daily (m3)
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
22,000
24,000
Total Cum Oil m3

Primary + Secondary Recovery - Rate vs Time

Figure No. 9



Primary + Secondary Recovery - Rate vs Cum

Figure No. 10

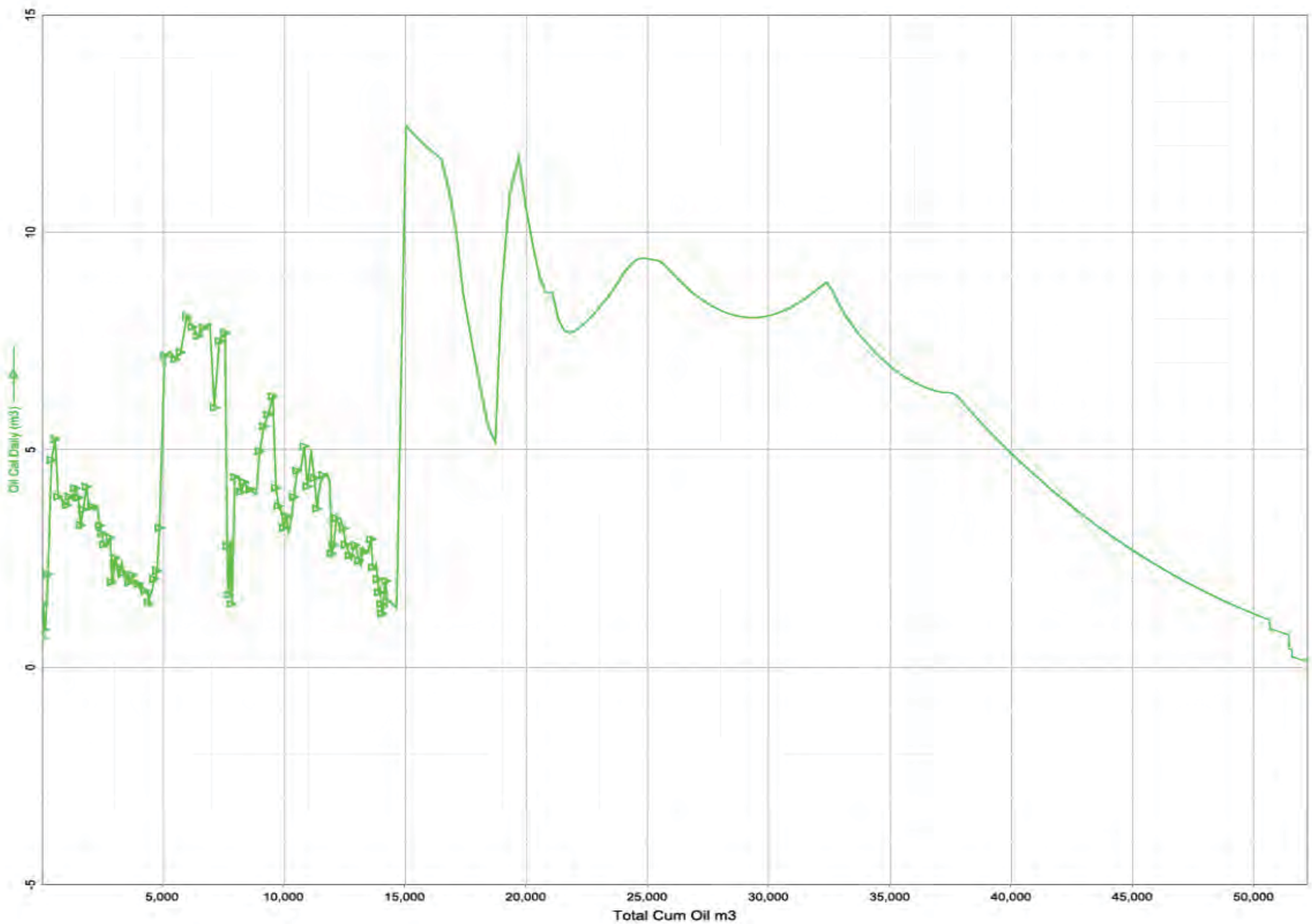


FIGURE NO. 11

Sinclair Water Injection System

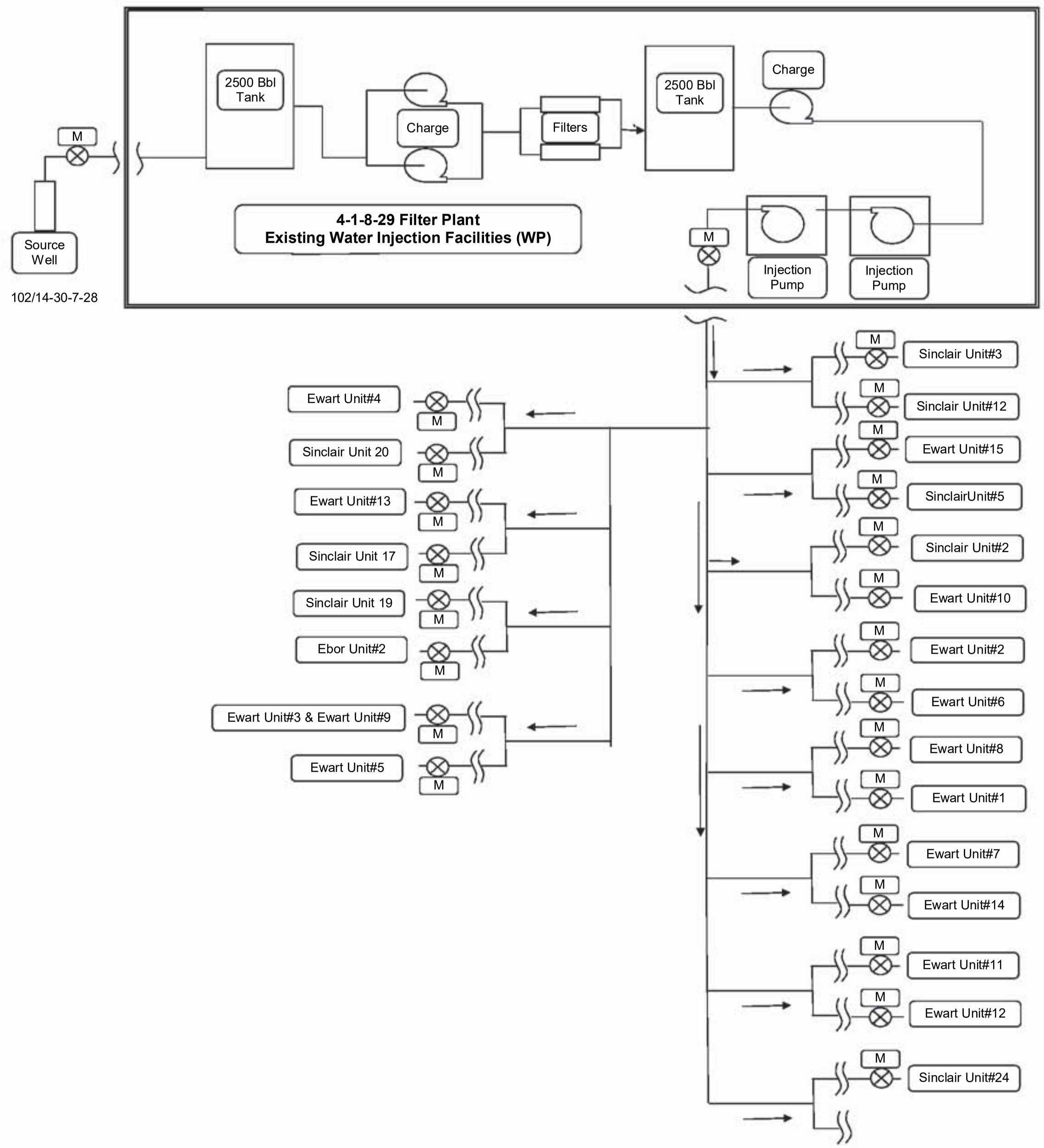


Figure No. 12

Tundra Oil And Gas Limited

TYPICAL CEMENTED LINER WATER INJECTION WELL (WIW) DOWNHOLE DIAGRAM

WELL NAME:	Tundra Sinclair Unit 24 HZNTL Cemented Liner WIW			**WELL LICENCE:**		
Prepared by	WRJ	(average depths)		Date:	2012	
Elevations :						
KB [m]			KB to THF [m]		TD [m]	2400.0
GL [m]			CF (m)		PBTD [m]	
Current Perfs:	**Cemented Casing / Liner**			950.0	to	2400.0
Current Perfs:					to	
KOP:	700 m MD		Total Interval		to	
Tubulars	**Size [mm]**	**Wt - Kg/m**	**Grade**	**Landing Depth [mKB]**		
Surface Casing	244.5	48.06	H-40 - ST&C	Surface	to	140.0
Intermed Csg (if run)	177.8	34.23 & 29.76	J-55 - LT&C	Surface	to	950.0
Production Liner	114.3	17.26	L-80	Surf or from Intermed Csg to		2400.0
Tubing	60.3 or 73.0 - TK-99	6.99 or 9.67	J-55	Surface	to	940.0

Date of Tubing Installation:

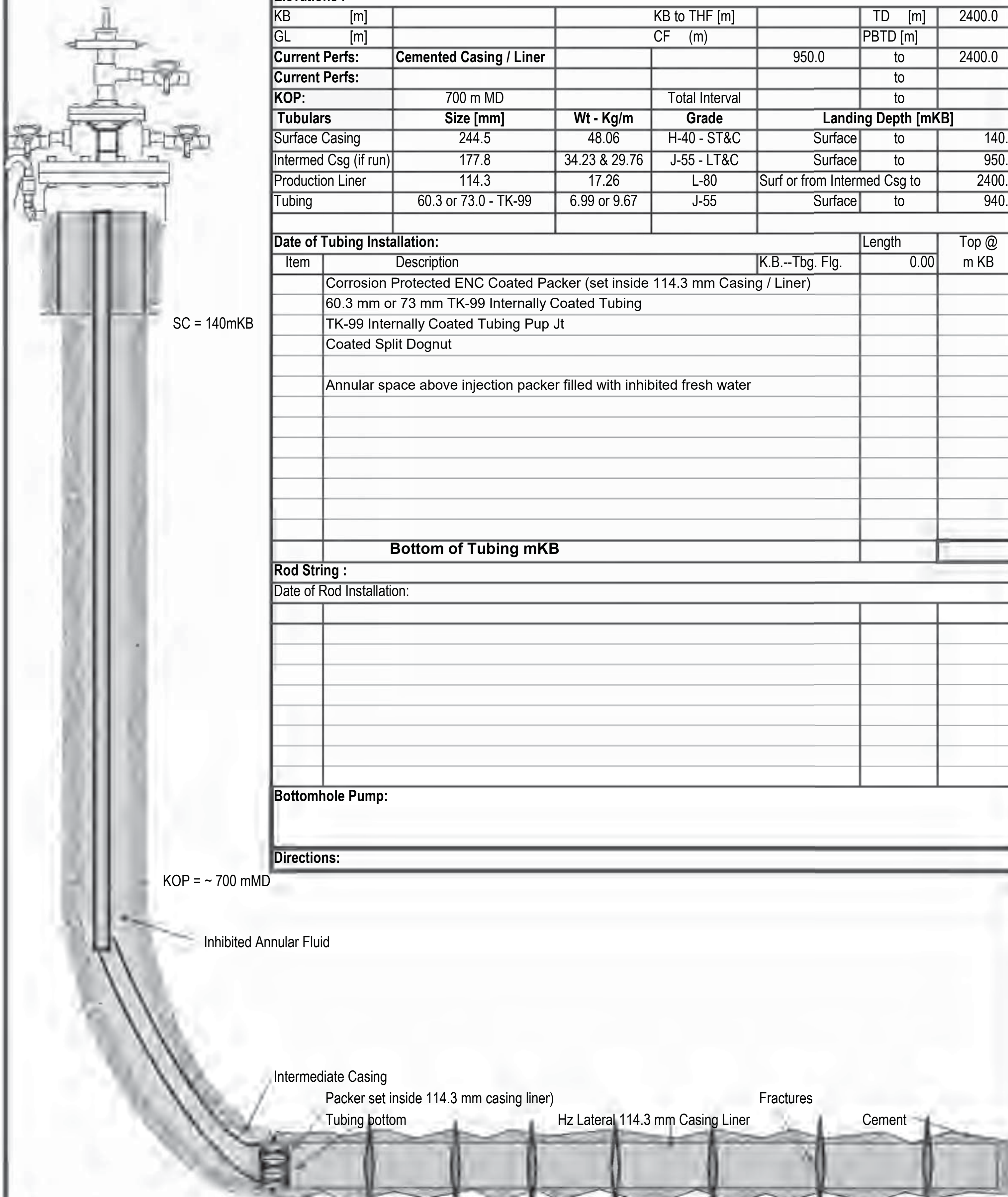
Item	Description	K.B.--Tbg. Flg.	Length	Top @ m KB
			0.00	
	Corrosion Protected ENC Coated Packer (set inside 114.3 mm Casing / Liner)			
	60.3 mm or 73 mm TK-99 Internally Coated Tubing			
	TK-99 Internally Coated Tubing Pup Jt			
	Coated Split Dognut			
	Annular space above injection packer filled with inhibited fresh water			
	Bottom of Tubing mKB			

Rod String :

Date of Rod Installation:

Bottomhole Pump:

Directions:



Sinclair Unit No. 24

EOR Waterflood Project

Planned Corrosion Control Program **

Source Well

- Continuous downhole corrosion inhibition
- Continuous surface corrosion inhibitor injection
- Downhole scale inhibitor injection
- Corrosion resistant valves and internally coated surface piping

Pipelines

- Source well to 3-4-8-29 Water Plant – Fiberglass
- New High Pressure Pipeline to Unit 9 injection wells – 2000 psi high pressure Fiberglass

Facilities

- 3-4-8-29 Water Plant and New Injection Pump Station
  - Plant piping – 600 ANSI schedule 80 pipe, Fiberglass or Internally coated
  - Filtration – Stainless steel bodies and PVC piping
  - Pumping – Ceramic plungers, stainless steel disc valves
  - Tanks – Fiberglass shell, corrosion resistant valves

Injection Wellhead / Surface Piping

- Corrosion resistant valves and stainless steel and/or internally coated steel surface piping

Injection Well

- Casing cathodic protection where required
- Wetted surfaces coated downhole packer
- Corrosion inhibited water in the annulus between tubing / casing
- Internally coated tubing surface to packer
- Surface freeze protection of annular fluid
- Corrosion resistant master valve
- Corrosion resistant pipeline valve

Producing Wells

- Casing cathodic protection where required
- Downhole batch corrosion inhibition as required
- Downhole scale inhibitor injection as required

Figure 13

** subject to final design and engineering

Proposed Sinclair Unit No. 24

Application for Enhanced Oil Recovery Waterflood Project

List of Tables

Table 1 Tract Participation

Table 2 Tract Factor Calculation

Table 3 Current Well List and Status

Table 4 Original Oil in Place and Recovery Factors

TABLE NO. 2: TRACT FACTOR CALCULATIONS FOR SINCLAIR UNIT NO. 24

TRACT FACTORS BASED ON OIL-IN-PLACE (OOIP) - CUMULATIVE PRODUCTION TO NOVEMBER 2019

LS-SE	Tract	OOIP (m3)	HZ Wells Alloc Prod (m3)	Vert Wells Cum Prodn (m3)	Sum Hz + Vert Alloc Cum Prodn	OOIP - Cum	OOIP - Cum Tract Factor	Tract
04-04	04-04-007-28W1M	28,375	0.0	0.0	0.0	28,375	4.917962325%	04-04-007-28W1M
05-04	05-04-007-28W1M	30,455	0.0	0.0	0.0	30,455	5.278413763%	05-04-007-28W1M
01-05	01-05-007-28W1M	36,352	936.9	0.0	936.9	35,415	6.138140237%	01-05-007-28W1M
02-05	02-05-007-28W1M	42,581	967.1	0.0	967.1	41,614	7.212396875%	02-05-007-28W1M
03-05	03-05-007-28W1M	46,004	963.5	0.0	963.5	45,040	7.806264203%	03-05-007-28W1M
04-05	04-05-007-28W1M	44,355	916.7	0.0	916.7	43,438	7.528583115%	04-05-007-28W1M
05-05	05-05-007-28W1M	71,271	824.9	832.6	1,657.5	69,614	12.065271205%	05-05-007-28W1M
06-05	06-05-007-28W1M	76,173	888.2	692.9	1,581.1	74,592	12.928065997%	06-05-007-28W1M
07-05	07-05-007-28W1M	74,944	884.7	2962.1	3,846.8	71,097	12.322332308%	07-05-007-28W1M
08-05	08-05-007-28W1M	45,001	836.0	2578.5	3,414.5	41,587	7.207731293%	08-05-007-28W1M
01-06	01-06-007-28W1M	39,630	0.0	0.0	0.0	39,630	6.868593647%	01-06-007-28W1M
08-06	08-06-007-28W1M	56,118	0.0	0.0	0.0	56,118	9.726245032%	08-06-007-28W1M
		591,258	7,218.0	7,066.1	14,284.1	576,974	**100.000000000%**	

Table No. 3: Sinclair Unit No. 24

UWI	*License Number*	*Type*	*Pool Name*	*Producing Zone*	*Mode*	*On Production Date*	*Prod Date*	*Cal Dly Oil (m3/d)*	*Monthly Oil (m3)*	*Cum Prd Oil (m3)*	*Cal Dly Water (m3/d)*	*Monthly Water (m3)*	*Cum Prd Water (m3)*	*WCT (%)*
100/01-05-007-28W1/0	009072	Horizontal	BAKKEN-THREE FORKS A	BAKKEN	Producing	2/28/2013	Nov-2019	0.60	18.00	7218.00	3.48	104.40	21940.50	85.29
100/05-05-007-28W1/0	006718	Vertical	BAKKEN-THREE FORKS A	BAKKEN	Producing	8/18/2008	Jun-2015	0.02	0.60	832.60	0.12	3.50	2908.80	85.37
100/06-05-007-28W1/0	006610	Vertical	BAKKEN-THREE FORKS A	BAKKEN	Producing	5/31/2008	Aug-2015	0.01	0.30	692.90	0.09	2.70	2520.20	90.00
100/07-05-007-28W1/0	006726	Vertical	BAKKEN-THREE FORKS A	BAKKEN,THREEFK	Producing	8/15/2008	Nov-2019	0.35	10.50	2962.10	0.62	18.60	2755.10	63.92
100/08-05-007-28W1/0	006535	Vertical	BAKKEN-THREE FORKS A	BAKKEN	Producing	1/27/2008	Nov-2019	0.46	13.70	2578.50	0.87	26.00	3844.30	65.49
										14284.1			**33968.9**	

Table No. 4: OOIP Calculation

UWI	Area (m2)	Middle Bakken Isopach (m)	Upper Lyleton A Isopach (m)	Lower Lyleton A Isopach (m)	Lyleton B Isopach (m)	OOIP (m3)	OOIP (bbl)
4-4-7-28W1	162908	2.9	0.0	0.5	4.4	28375	178453
5-4-7-28W1	162876	2.4	0.0	1.1	4.5	30455	191532
1-5-7-28W1	163112	2.3	0.3	1.6	4.5	36352	228620
2-5-7-28W1	162915	1.7	0.8	1.9	4.6	42581	267790
3-5-7-28W1	160415	1.5	1.2	1.8	4.7	46004	289317
4-5-7-28W1	160227	1.7	0.9	2.0	4.8	44355	278946
5-5-7-28W1	160806	1.2	2.9	2.9	4.8	71271	448224
6-5-7-28W1	160994	1.1	3.5	2.5	4.8	76173	479050
7-5-7-28W1	162824	0.8	3.3	2.8	4.7	74944	471320
8-5-7-28W1	163021	1.7	0.5	3.0	4.7	45001	283013
1-6-7-28W1	164342	2.2	0.3	2.0	4.8	39630	249233
8-6-7-28W1	163796	1.7	1.5	2.7	4.8	56118	352926

Sw	0.35
Phi	0.157
Boi	1.1

N/G

Mid Bkn	0.180
Upr Lyl A	0.791
Lwr Lyl A	0.335
Lyl B	0.270

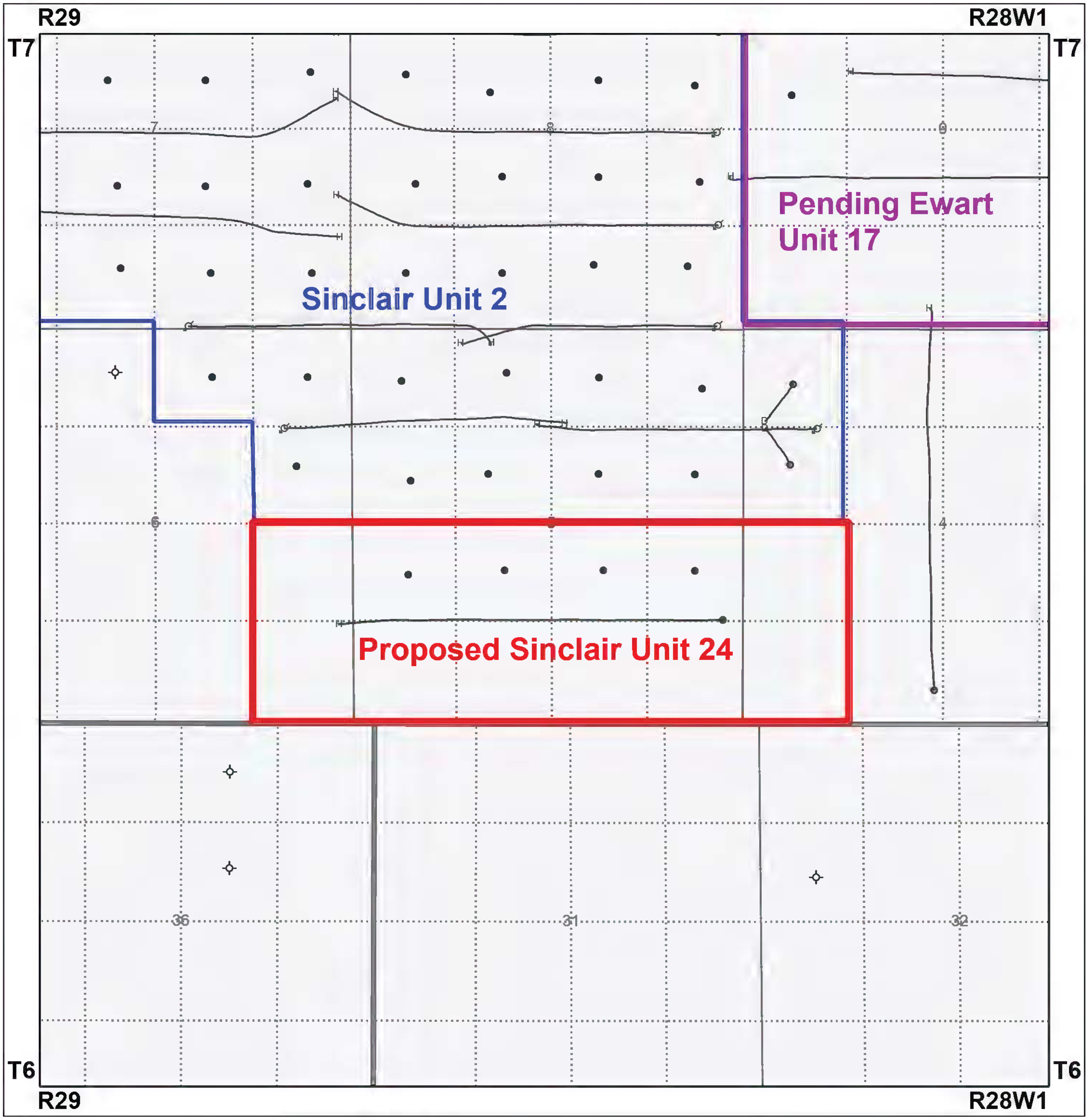
Proposed Sinclair Unit No. 24

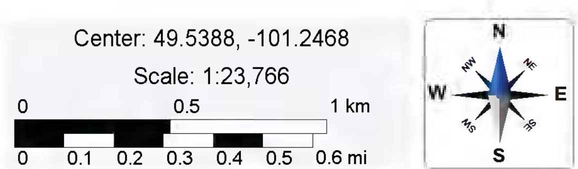
Application for Enhanced Oil Recovery Waterflood Project

LIST OF APPENDICES

Appendix 1	Sinclair Unit No. 24 – Offsetting Units
Appendix 2	Sinclair Unit No. 24 - Structural Cross Section
Appendix 3	Sinclair Unit No. 24 – Upper Bakken Structure
Appendix 4	Sinclair Unit No. 24 – Middle Bakken Isopach
Appendix 5	Sinclair Unit No. 24 – Upper Lyleton A Isopach
Appendix 6	Sinclair Unit No. 24 – Lower Lyleton A Isopach
Appendix 7	Sinclair Unit No. 24 - Lyleton B Isopach
Appendix 8	Core PDPK Data

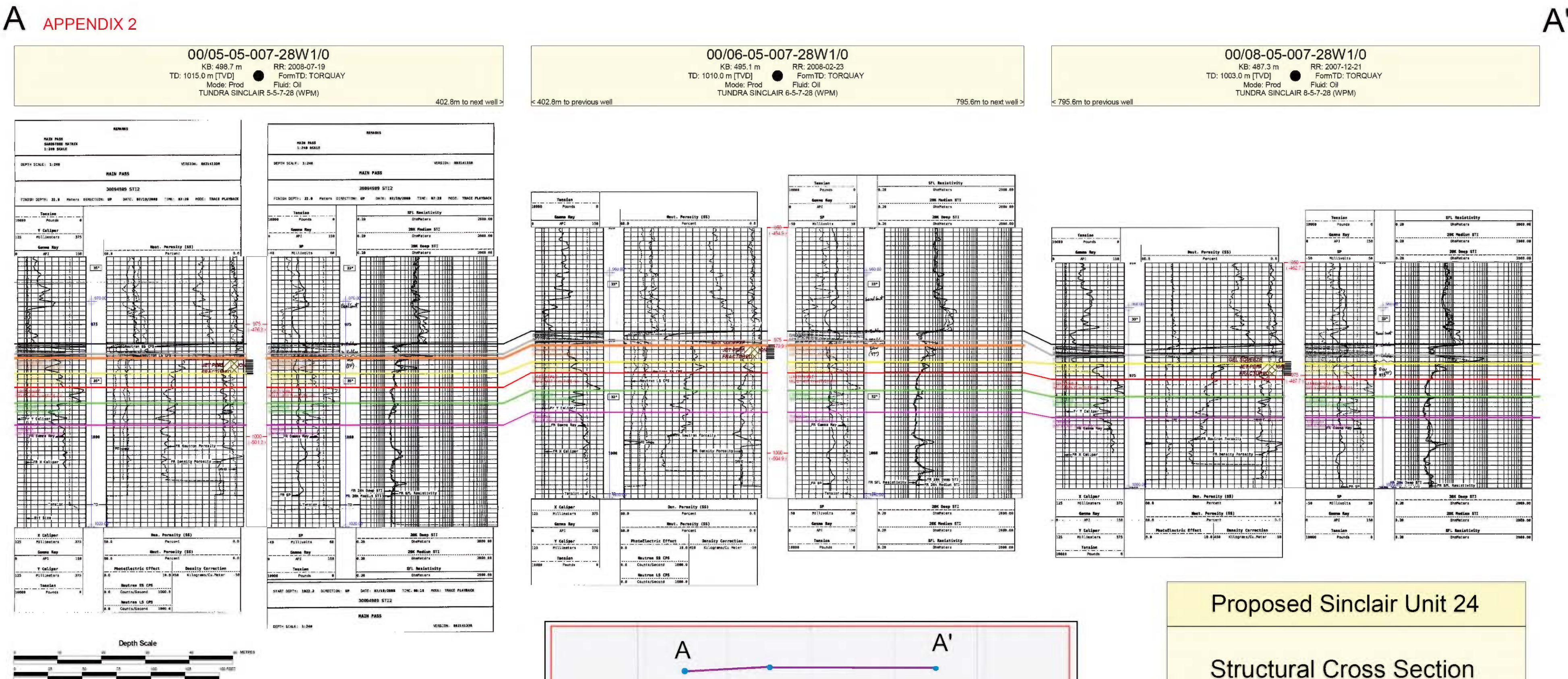
APPENDIX 1





Proposed Sinclair Unit 24
Offsetting Bakken Units

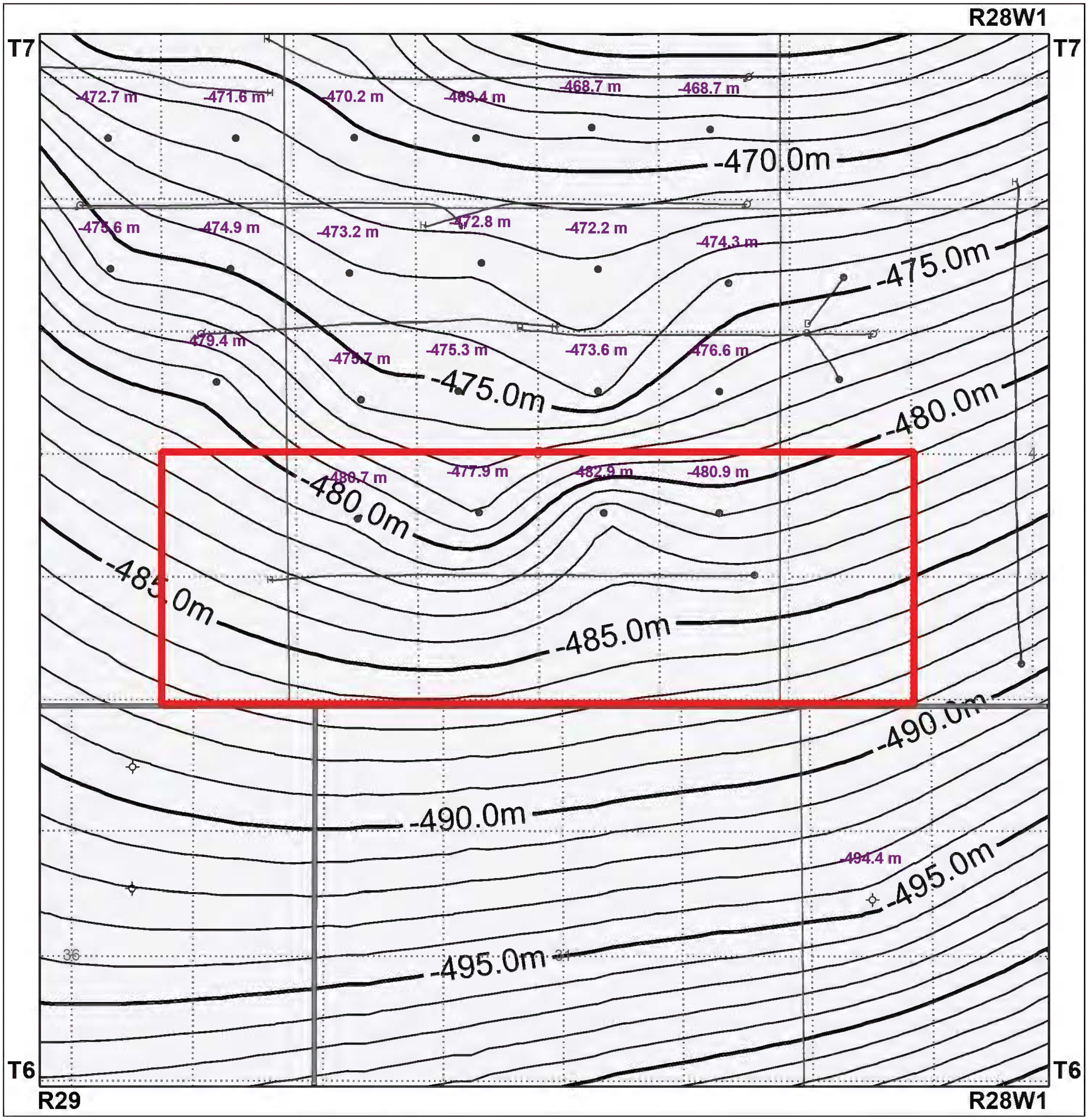
APPENDIX 2



Proposed Sinclair Unit 24

Structural Cross Section
West to East
Through Proposed Unit Area

APPENDIX 3



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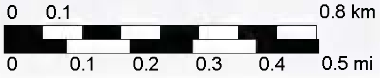
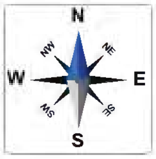
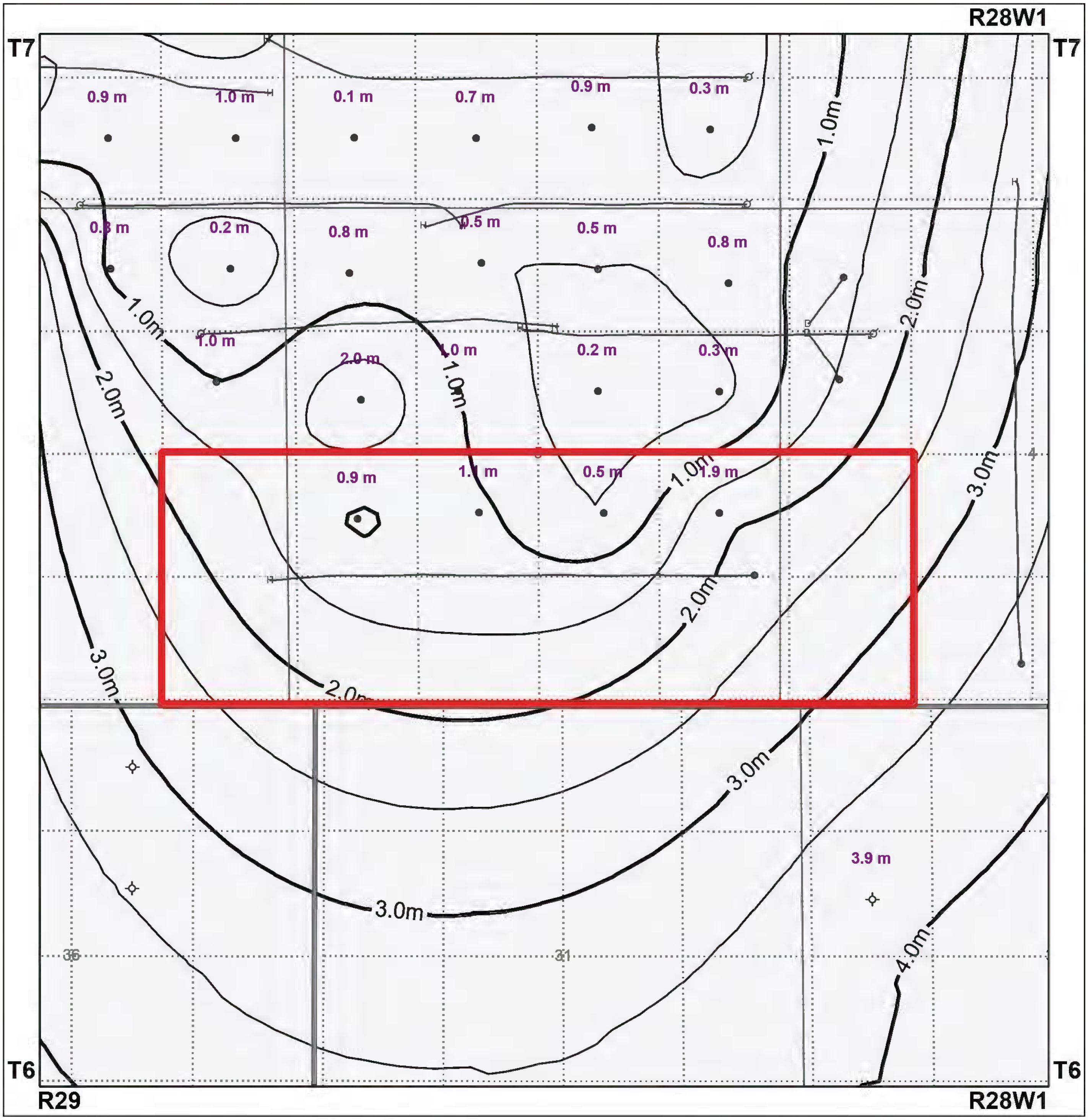
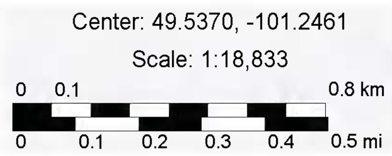


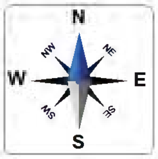


Proposed Sinclair Unit 24
Upper Bakken Structure
(mSS)

APPENDIX 4

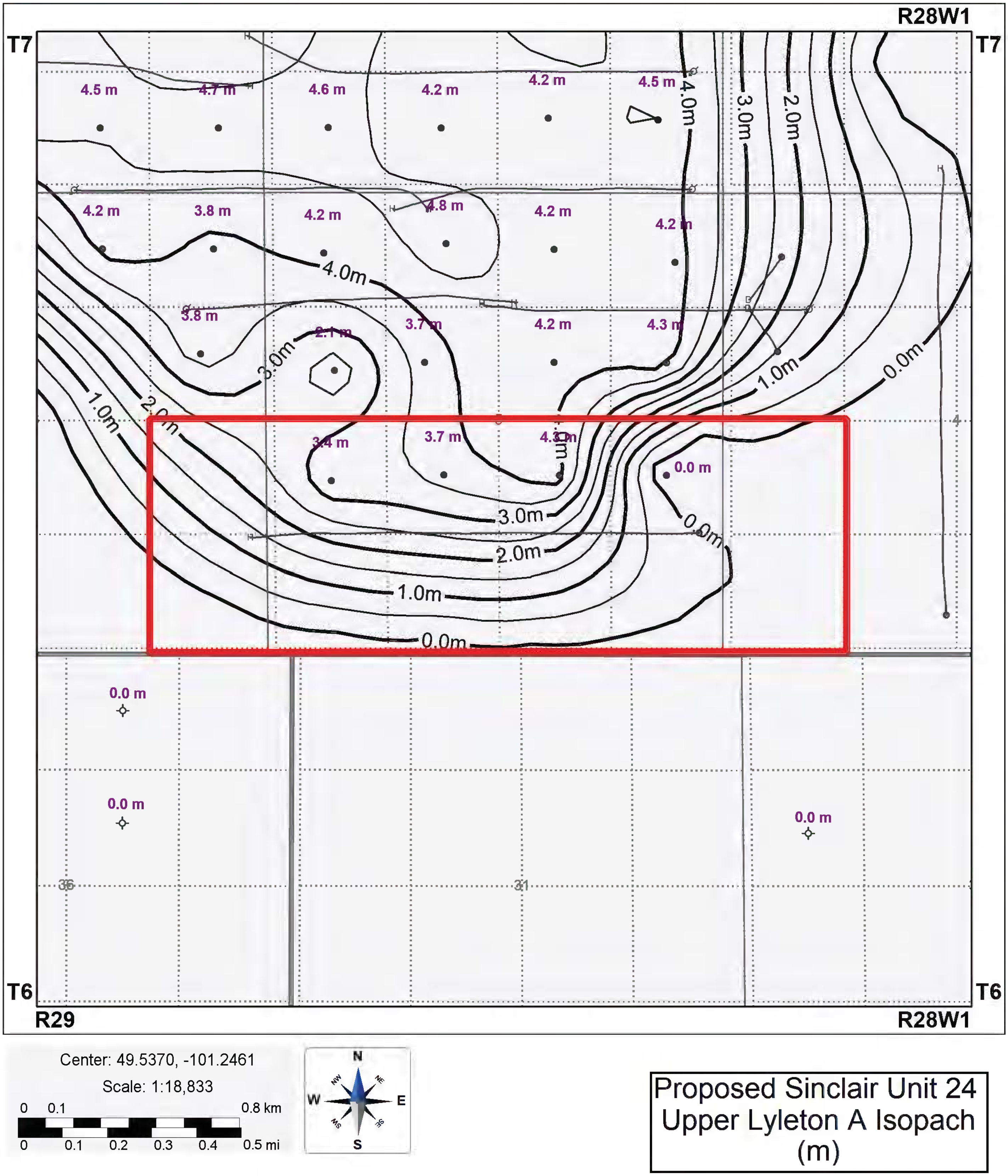






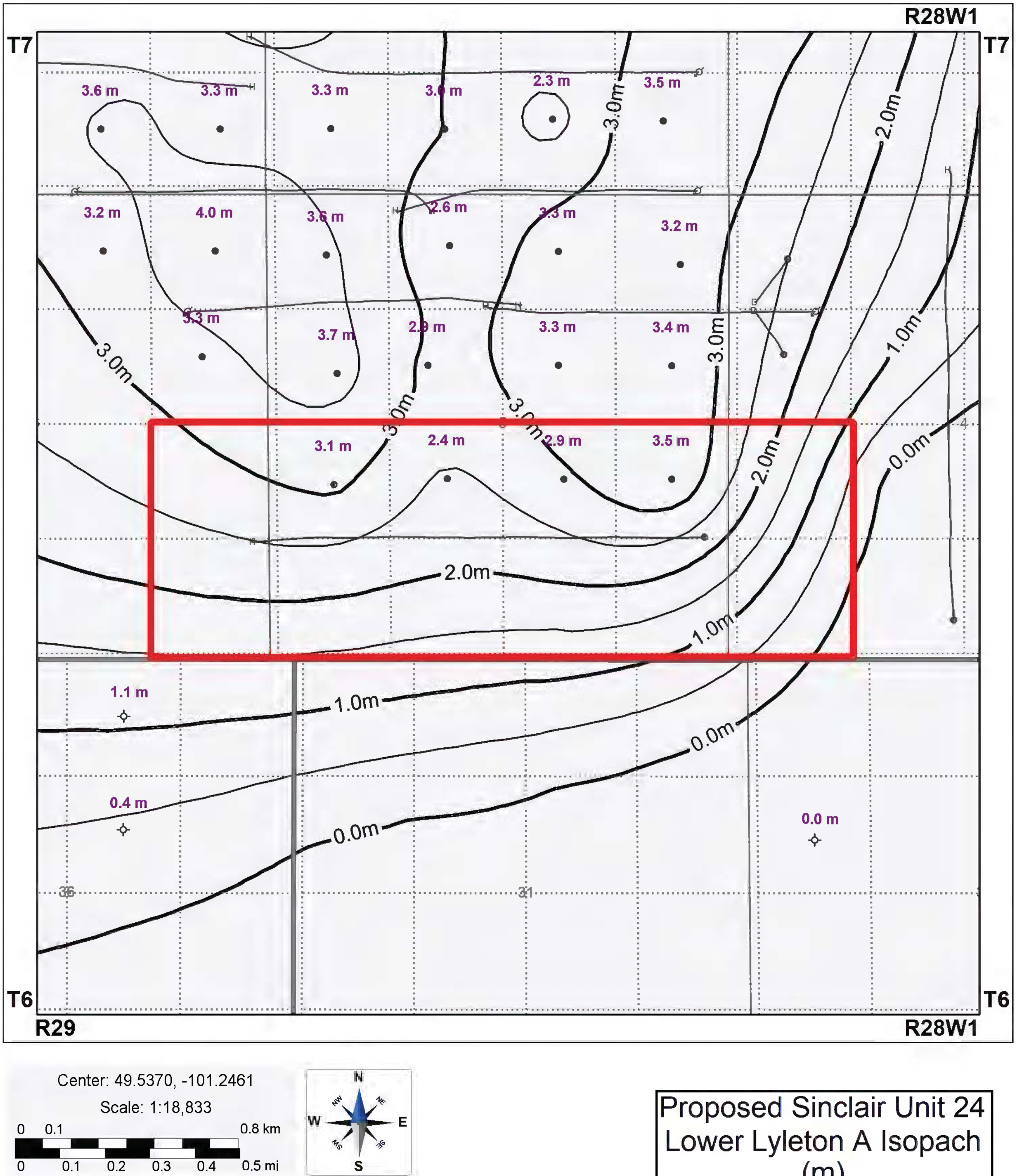
Proposed Sinclair Unit 24
Middle Bakken Isopach
(m)

APPENDIX 5



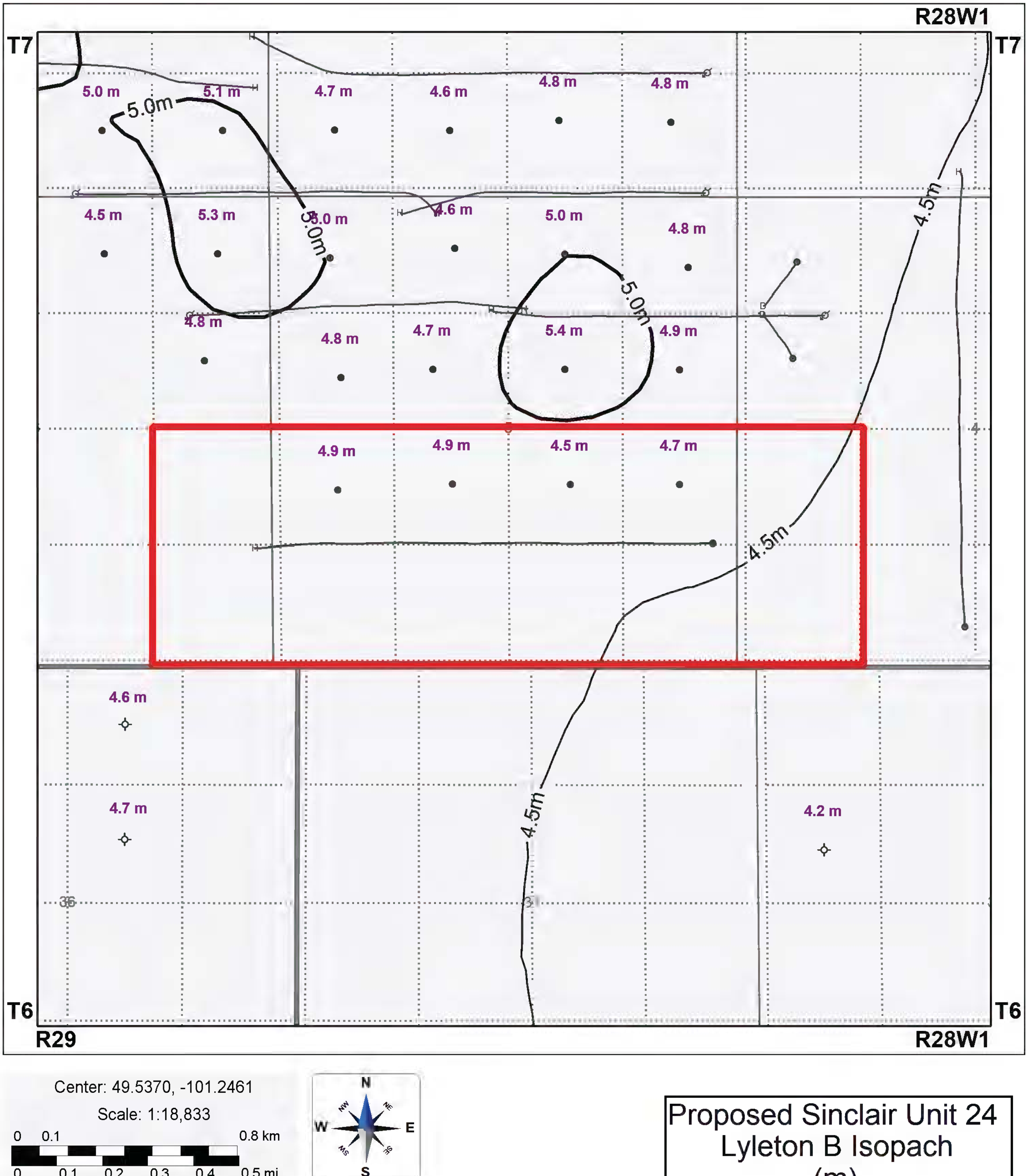
Proposed Sinclair Unit 24
Upper Lyleton A Isopach
(m)

APPENDIX 6



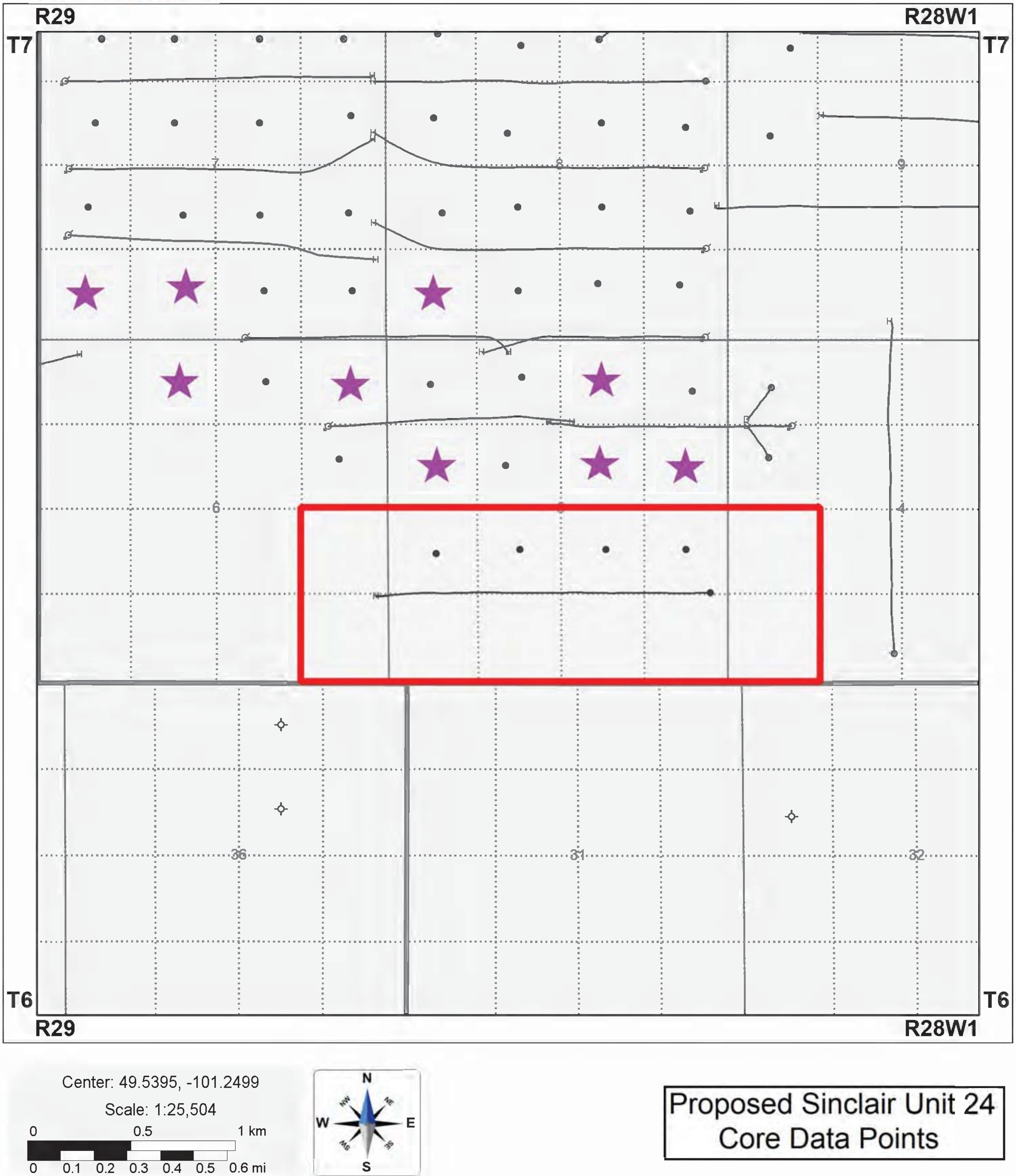
Proposed Sinclair Unit 24
Lower Lyleton A Isopach
(m)

APPENDIX 7



Proposed Sinclair Unit 24
Lyleton B Isopach
(m)

APPENDIX 8



Proposed Sinclair Unit 24
Core Data Points