

June 20, 2014

SUBJECT

Middle Bakken/Three Forks Formations

Bakken – Three Forks B Pool (01 62B)

Daly Sinclair Field, Manitoba

Proposed Unitization of Section 21 and the S/2 of Section 28-7-28W1

Application for Enhanced Oil Recovery Waterflood Project

INTRODUCTION

The Sinclair portion of the Daly Sinclair Oil Field is located in Ranges 28 and 29 W1 in Townships 7 and 8. Since discovery in 2004, the main oilfield area was developed with vertical 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, 2, 3, 5, 6, 7, 8, 10 and 11 and Ewart Units 1, 2, 3 and 4 as shown on **Figure 1**.

In the eastern 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 Ewart Unit No. 6 (Section 21, S/2 of Section 28-7-28W1) 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 01-62B Bakken-Three Forks Pool of the Daly Sinclair Oilfield (**Figure 3**).

CONCLUSIONS

1. The proposed Ewart Unit No. 6 will include 6 producing horizontal wells within 24 Legal Sub Divisions (LSD) of the Middle Bakken/Three Forks producing reservoir. The project is located east of Sinclair Unit No. 2 and Ewart Unit No. 2 (Figure 2).
2. Total Net Original Oil in Place (OOIP) in Ewart Unit No. 6 has been calculated to be **651.7 E³m³** (4098.9 Mbbbl) for an average of **27.2** net E³m³ OOIP per 40 acre LSD.
3. Cumulative production to the end March 2014 from the 6 wells within the proposed Ewart Unit No. 6 project area was **38.4 E³m³** (241.9 Mbbbl) of oil, and **63.1 E³m³** (396.6 Mbbbl) of water, representing a **5.9%** Recovery Factor (RF) of the Net OOIP.
4. Estimated Ultimate Recovery (EUR) of Primary Proved Producing oil reserves in the proposed Ewart Unit No. 6 project area has been calculated to be **54.9 E³m³** (345.5 Mbbbl), with **16.5 E³m³** (103.6 Mbbbl) remaining as of the end of March 2014.
5. Ultimate oil recovery of the proposed Ewart Unit No. 6 OOIP, under the current Primary Production method, is forecasted to be **8.4%**.
6. Figure 4 shows the production from the Ewart Unit No. 6 which peaked in March 2012 at 62.4 m³ of oil per day (OPD). As of March 2014, production was 15.9 m³ OPD, 28.4 m³ of water per day (WPD) and a 65.5% watercut.
7. In March 2012, production averaged 10.4 m³ OPD per well in Ewart Unit No. 6. As of March 2014, average per well production has declined to 2.6 m³ OPD. Decline analysis of the group primary production data forecasts total oil to continue declining at an annual rate of approximately **33.4%** in the project area.
8. Estimated Ultimate Recovery (EUR) of proved oil reserves under Secondary WF EOR for the proposed Ewart Unit No. 6 has been calculated to be **76.9 E³m³** (483.7 Mbbbl), with **38.4 E³m³** (241.8 Mbbbl) remaining. An incremental **22.0 E³m³** (138 Mbbbl) of proved oil reserves, or **3.4%**, 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 Ewart Unit No. 6 is estimated to be **11.8%**.
10. Based on 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 within the proposed Ewart Unit No. 6 to complete waterflood patterns with effective 40 acre spacing. Ewart Unit No. 6 will be the first horizontal line drive at 40 acre spacing in the Daly Sinclair Field.

DISCUSSION

RESOURCE POTENTIAL IN PROPOSED EWART UNIT NO. 6

The proposed Ewart Unit No. 6 project area is located within Township 7, Range 28 W1 of the Daly Sinclair oil field. The proposed Ewart Unit No. 6 currently consists of 6 producing horizontal wells within an area covering Section 21 and the S/2 of Section 28-7-28W1 (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 1. The section runs W to E through the area along the Southern edge of the proposed Unit where vertical well control is present. The producing sequence in descending order consists of the Upper Bakken Shale, Middle Bakken Siltstone, Lyleton A Siltstone, 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/Lyleton B 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 Ewart Unit 2) Appendix 2.

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 ranges from 1.5m on the west side to just over 4.0m in the northeast (Appendix 3).

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 has a limited occurrence in that it pinches out along the Southwestern edge of the proposed unit (Appendix 4). The Lower Lyleton A pinches out just slightly east of the Upper Lyleton A, and as such, has a greater presence in the proposed unit, but has been eroded away in the Southeast portion (Appendix 5).

The Red Shale Marker can form an aquitard between the overlying Middle Bakken and the underlying Lyleton B reservoir. It consists of brick red dolomitic siltstone which is highly water soluble. The Red Shale Marker is about 3.5m thick on the West side and thins to less than 1.0m on the East side of the proposed unit and erodes away completely in the Southeastern corner (Appendix 6). The effectiveness of the Red Shale Marker unit as a permeability barrier is reduced from West to East across the proposed unit area in direct correlation with the reduction in thickness of the Red Shale. As such, over most of the Eastern half of the proposed unit, the Red Shale Marker is most likely not an effective barrier to flow between the Middle Bakken and the Lyleton B.

The Lyleton B reservoir consists of buff to tan very 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 very fine grained siltstone which is generally non-reservoir. The Lyleton B is approximately 5m thick within the proposed unit remaining consistent over the area from West to East (Appendix 7).

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

Structure:

Structure contour maps are provided for the top of each major unit (Appendices 8 through 13). The structure within the proposed unit area generally consists of an overall gentle dip to the SW but a local high in Section 21 causes a slight dip away from the peak. Structural variations in the area are interpreted as being caused by dissolution of the underlying Prairie Evaporites. Structural variations caused by dissolution are common in the Sinclair Field but do not appear to represent continuous barriers to lateral fluid flow within the reservoir as they do not appear to interrupt the lateral continuity of the reservoir beds (Appendix 1).

Reservoir Continuity:

Lateral continuity of the reservoir units is an essential requirement of a successful waterflood. As demonstrated by the cross-section (Appendix 1) and the isopach maps, the lateral continuity of the reservoir within the proposed unit is very good.

Vertical continuity between the Middle Bakken and underlying Lyleton B reservoir is also good in LSD 01-21-08-28W1 where they are in direct contact. There is no evidence that the contact between the two

units will reduce flow between the two zones. The only possible break in vertical continuity between the Middle Bakken and Lyleton B would be in the Southeast quarter section of 21-08-28W1 from the presence of the Red Shale between these zones. The planned injection wells will be completed with multi-stage fracture treatments and as such, vertical communication across the less than 1m thick Red Shale is anticipated.

Reservoir Quality:

Permeability (k-h in mD*m) and porosity (Phi-h in por*m) maps for all four reservoir units are provided (Appendix 14 through 21). These maps are generated using core data and are generated as follows. First the core is divided into the reservoir units present. This data is then subject to a permeability cutoff. Intervals that meet or exceed the cutoff are multiplied by the interval thickness and then summed to get the total value for the Phi-h or k-h for that particular reservoir unit. The value of the permeability cutoffs for each formation are the same values used by GLJ for third party reserve evaluations on Tundra's Sinclair properties. The permeability cutoffs applied are as follows:

- Middle Bakken = 0.5 md
- Upper Lyleton A = 1.0 md
- Lower Lyleton A = 1.0 md
- Lyleton B = 0.5 md

As can be noted from the Phi-h and k-h maps the bulk of the reservoir in the proposed unit is contained in the Middle Bakken and Lyleton B formations. It is important to note that the 0.5 md cutoff effectively ignores pore volume with permeability between 0.2 and 0.49 md that may contain moveable oil.

Fluid Contacts:

The oil/water contact for the Middle Bakken and Lyleton reservoir is estimated from production to be at about -525 m subsea. In tight reservoirs such as these the transition zone could be considerable and the top of the transition zone is estimated to be at about -490 m subsea based on production and simulation studies of the reservoir. The postulated oil/water contact at -525 m subsea is below the lowest contour on any of the attached structure contour maps.

OOIP Estimates

OOIP was calculated by Tundra Geologists Barry Larson and Todd Neely. Barry holds a BSc. in Geology from the U of S and has 35 years of industry experience, 19 of which are in the Williston Basin. Todd Neely holds a BSc. in Geology from the University of Manitoba, and has 15 years of industry experience, 4 of which are in the Williston Basin. The dataset used to determine the OOIP values for Ewart Unit 6 was originally compiled by Barry Larson. It consists of conventional core analysis of all available core in the Sinclair area. Todd took over Barry's dataset in 2012. Ultimately, OOIP values for Ewart Unit 6 were generated by Todd, using Barry's original dataset.

Total volumetric OOIP for the Middle Bakken and Lyleton B within the proposed unit has been calculated to be **651.7 E³m³** (4098.9 Mbbl) using Tundra internally created maps. Maps used were generated from core data from 316 wells available in the greater Sinclair area (Appendix 22).

Net pay for each cored well is calculated using the formation specific permeability cutoff discussed above. Representative intervals that had a measured permeability greater than the formation specific cutoff were considered pay. The weighted average porosity (ϕ) of all pay intervals for each formation was calculated for each cored well. The height of pay (h) was derived by summing the heights of each representative sample that met the permeability cutoff. From these two parameters, a $\phi \cdot h$ value was calculated for all four productive horizons in all wells with core over each respective formation.

The $\phi \cdot h$ values for all cored wells were contoured using Golden Software's "Surfer 9" program using a 500 m grid node spacing. $\phi \cdot h$ values for each LSD were calculated off the associated Surfer 9 grid by determining the values at the center of each LSD.

Tabulated parameters for each LSD from the calculations can be found in [Table 4](#).

OOIP values were calculated using the following volumetric equation:

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

or

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

or

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

where

OOIP	= Original Oil in Place by LSD (Mbbl, or m3)
A	= Area (40 acres, or 16.187 hectares, per LSD)
$h * \phi$	= Net Pay * Porosity, or $\phi * h$ (ft, or m)
Bo	= Formation Volume Factor of Oil (stb/rb, or sm^3/rm^3)
Sw	= Water Saturation (decimal)

The initial oil formation volume factor was adopted from a PVT taken from the 3-3-8-29 Sinclair Bakken well, thought to be representative of the fluid characteristics in the reservoir.

A listing of Middle Bakken/Three Forks formation rock and fluid properties used to characterize the reservoir are provided in [Table 5](#).

Historical Production

A historical group production history plot for the proposed Ewart Unit No. 6 is shown as [Figure 4](#). Oil production commenced from the proposed Unit area in August 2009 and peaked during March 2012 at 62.4 m³ OPD.

As of March 2014, production was 15.9 m³ of OPD, 28.4 m³ of WPD and a 65.5% watercut. From peak production in March 2012 to date, oil production is declining at an annual rate of approximately **33.4%** under the current Primary Production method.

The field's production rate indicates the need for pressure restoration and maintenance, and waterflooding is deemed to be the most efficient means of re-introducing energy back into the reservoir system and to provide areal sweep between wells.

UNITIZATION

Unitization and implementation of a Waterflood EOR project is forecasted to increase overall recovery of OOIP to **11.8%**. The basis for unitization is to develop the lands in an effective manner that will be conducive to waterflooding. Unitizing will enable the reservoir to have the greatest recovery possible by allowing the development of additional drilling and injector conversions over time, in order to maintain reservoir pressure and increase oil production.

Unit Name

Tundra proposes that the official name of the new Unit covering Section 21, S/2 of Section 28-7-28W1 shall be Ewart Unit No. 6.

Unit Operator

Tundra Oil and Gas Partnership (Tundra) will be the Operator of record for Ewart Unit No. 6.

Unitized Zone

The Unitized zone(s) to be waterflooded in the Ewart Unit No. 6 will be the Middle Bakken and Three Forks formations.

Unit Wells

The 6 horizontal wells to be included in the proposed Ewart Unit No. 6 are outlined in **Table 3**.

Unit Lands

Ewart Unit No. 6 will consist of 24 LSD as follows:

Section 21 of Township 7, Range 28, W1M
South Half of Section 28 of Township 7, Range 28, W1M

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

Tract Factors

The proposed Ewart Unit No. 6 will consist of 24 Tracts based on the 40 acre LSD's containing the existing 6 horizontal producing wells.

The Tract Factor contribution for each of the LSD's within the proposed Ewart Unit No. 6 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 LSD's 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 Ewart Unit No. 6. Tundra Oil and Gas Partnership holds a 100% WI ownership in all the proposed Tracts. The Crown is the lessor.

Tundra Oil and Gas Partnership will have a 100% WI in the proposed Ewart Unit No. 6.

WATERFLOOD EOR DEVELOPMENT

Technical Studies

The waterflood performance predictions for the proposed Ewart Unit No. 6 Bakken project are based on internal engineering assessments. Project area specific reservoir and geological parameters were utilized and then compared to Sinclair Unit No. 1 parameters, yielding the WF EOR response observed there to date.

As Tundra has a direct comparison of waterflood performance in Sinclair Unit 1, Tundra does not feel it is crucial to construct a simulation model for this area.

Pre-Production of New Horizontal Injection Wells

Primary production from the horizontal producing wells in the proposed Ewart Unit No. 6 has declined significantly from peak rate indicating a need for secondary pressure support. Three (3) of the existing producing horizontal wells will be converted to injection wells upon approval as shown in [Figure 5](#). This will result in an effective 40 acre line drive waterflood pattern within Ewart Unit No. 6. Since the proposed horizontal injection wells have already been on production for a period of time there will not be a need for an additional pre-production period within this unit.

Tundra monitors reservoir pressure, fluid production and decline rates in each pattern to determine the best time for each well to be converted to water injection.

Reserves Recovery Profiles and Production Forecasts

The primary waterflood performance predictions for the proposed Ewart Unit No. 6 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.

Primary Production Forecast

Cumulative production to the end March 2014 from the 6 wells within the proposed Ewart Unit No. 6 project area was 38.4 E³m³ of oil, and 63.1 E³m³ of water, representing an 5.9% Recovery Factor (RF) of the calculated Net OOIP.

Ultimate Primary Proved Producing oil reserves recovery for Ewart Unit No. 6 has been estimated to be **54.9 E³m³**, or an **8.4%** Recovery Factor (RF) of OOIP. Remaining Producing Primary Reserves has been estimated to be **16.5 E³m³** to the end of March 2014. The expected production decline and forecasted cumulative oil recovery under continued Primary Production is shown in [Figures 7 and 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 Ewart Unit No. 6, while maximizing reservoir knowledge ([Table 6](#)).

Criteria for Conversion to Water Injection Well

Three (3) water injection wells are required for this proposed unit as shown in **Figure 5**.

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 schedule allows for the proposed Ewart Unit No. 6 project to be developed equitably, efficiently, and moves to project to the best condition for the start of waterflood as quickly as possible. 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

Secondary Waterflood plots of the expected oil production forecast over time and the expected oil production v. cumulative oil are plotted in **Figures 9 and 10**, respectively. Total Secondary EUR for the proposed Ewart Unit No. 6 is estimated to be **76.9 E³m³** with **38.4 E³m³** remaining representing a total secondary recovery factor of **11.8%** for the proposed Unit area. An incremental **22.0 E³m³** of oil, or an incremental **3.4%** 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 a fracture pressure gradient range of 18.0 to 22.0 kPa/m true vertical depth (TVD). Tundra expects the fracture gradient encountered during completion of the proposed horizontal injection well will be somewhat lower than these values due to expected reservoir pressure depletion.

WATERFLOOD OPERATING STRATEGY

Water Source

The injection water for the proposed Ewart Unit No. 6 will be supplied from the existing Sinclair 3-4-8-29W1 Battery source and injection water system. All existing injection water is obtained from the Lodgepole formation in the 102/16-32-7-29W1 licensed water source well. Lodgepole water from the 102/16-32 source well is pumped to the main Sinclair Units Water Plant at 3-4-8-29W1, filtered, and pumped up to injection system pressure. A diagram of the Sinclair water injection system and new pipeline connection to the proposed Ewart Unit No. 6 project area injection wells is shown as **Figures 12 and 13**.

Produced water is not currently used for any water injection in the Tundra operated Sinclair Units and there are no current plans to use produced water as a source supply for Ewart Unit No. 6.

Since all producing Middle Bakken/Three Forks wells in the Daly Sinclair area, 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 102/16-32 source Lodgepole water, by a highly qualified third party, prior to implementation by Tundra in Sinclair Unit 1. 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 Ewart Unit No. 6 have been drilled, are currently producing and plans are in progress to re-configure the wells for downhole injection after approval for waterflood has been received (**Figure 11**). The horizontal injection wells 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.

The new water injection wells will be placed on injection after approval to inject. 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 Ewart Unit No. 6 horizontal water injection well rate is forecasted to average **10 – 25 m³** WPD, based on expected reservoir permeability and pressure.

Reservoir Pressure

No representative initial pressure surveys are available for the proposed Ewart Unit No. 6 project area in the Bakken formation because the horizontal wells were completed with cemented liners.

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

Ewart Unit No. 6 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 Ewart Unit No. 6 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 Ewart Unit No. 6.

On Going Reservoir Pressure Surveys

For each openhole horizontal injection well, a measured reservoir pressure will be obtained prior to water injection. These pressures will be reported within the Annual Progress Reports for Ewart Unit No. 6 as per Section 73 of the Drilling and Production Regulation.

Economic Limits

Under the current Primary recovery method, existing wells within the proposed Ewart Unit No. 6 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 cutoff 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 Ewart Unit No. 6 waterflood operation will utilize the existing Tundra operated source well supply and water plant (WP) facilities located at 3-4-8-29 W1M which supplies the existing Sinclair Units.

A complete description of all planned system design and operational practices to prevent corrosion related failures is shown in **Figure 14**.

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 Ewart Unit No. 6. 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 Ewart Unit No. 6 Application.

Ewart Unit No. 6 Unitization, and execution of the formal Ewart Unit No. 6 Agreement by affected Mineral Owners, is expected during Q3 2014. Copies of same will be forwarded to the Petroleum Branch, when available, to complete the Ewart Unit No. 6 Application.

Should the Petroleum Branch have further questions or require more information, please contact Abhy Pandey at 403.767.1247 or by email at abhy.pandey@tundraoilandgas.com.

TUNDRA OIL & GAS PARTNERSHIP

Original Signed by Abhy Pandey, Exploitation Engineer, June 20, 2014

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Proposed Ewart Unit No. 6

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R30

R29

R28W1

Figure No. 1

DALY UNIT 6 & 7

CROMER UNIT 1

EBOR UNIT 2

EWART UNIT 5
Gas Injection

UNIT 6

EWART UNIT 4

EWART UNIT 3

UNIT 7

UNIT 1

UNIT 10

UNIT 3

UNIT 5

EWART UNIT 1

UNIT 8

UNIT 11

EWART UNIT 2

UNIT 2

UNIT 4

T9

T9

T8

T8

T7

T7

R30

R29

R28W1

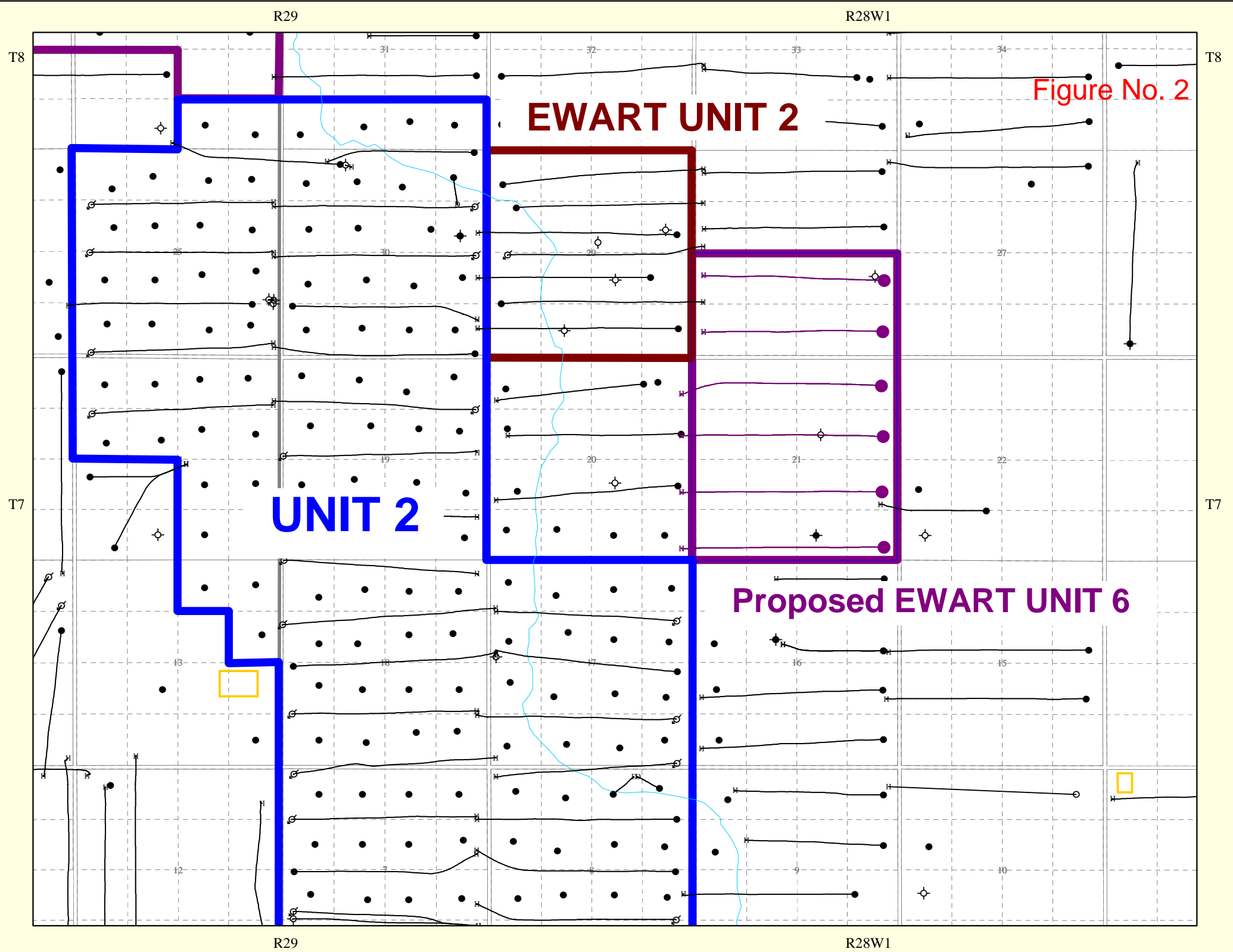


Figure No. 2

EWART UNIT 2

UNIT 2

Proposed EWART UNIT 6

Figure No. 3

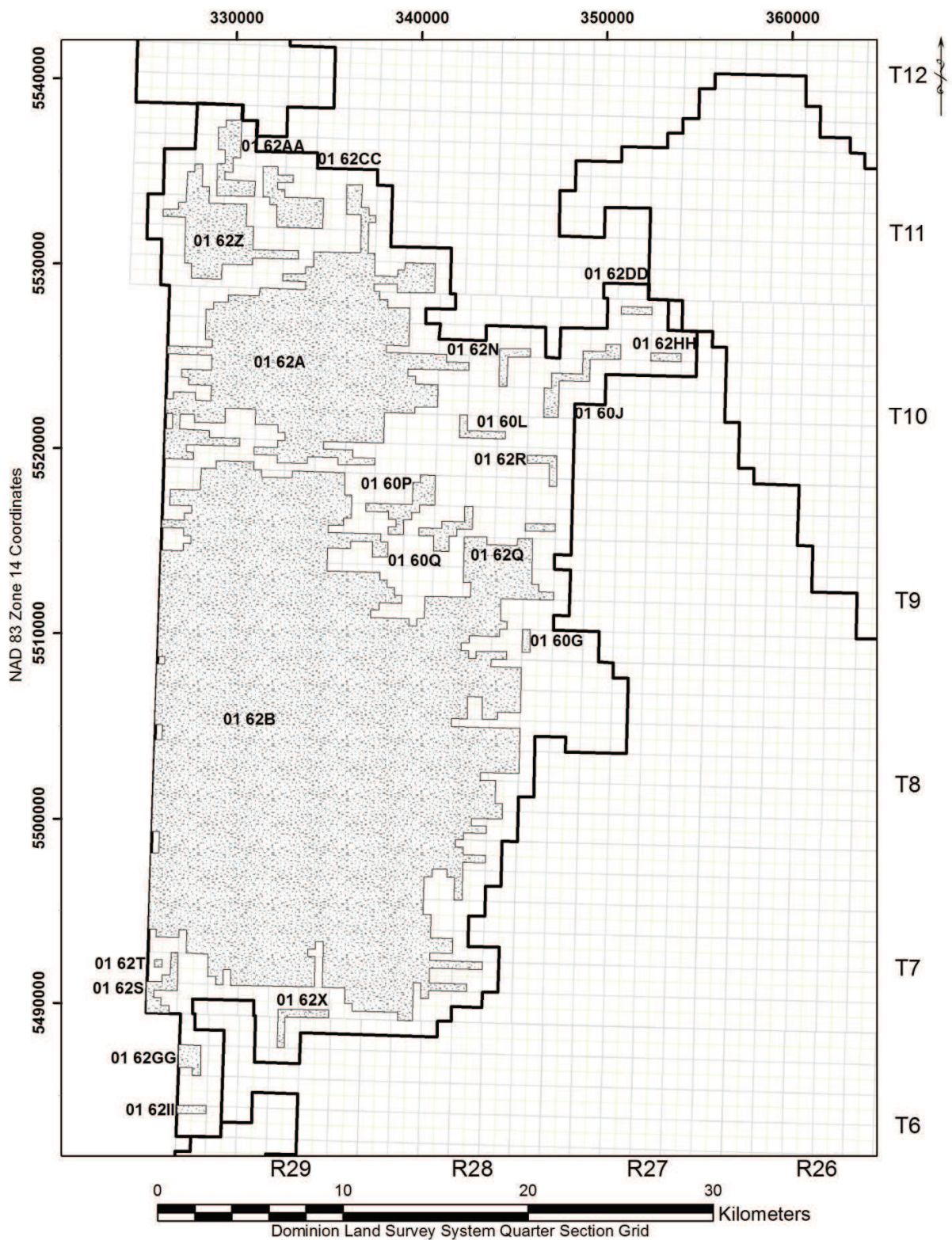


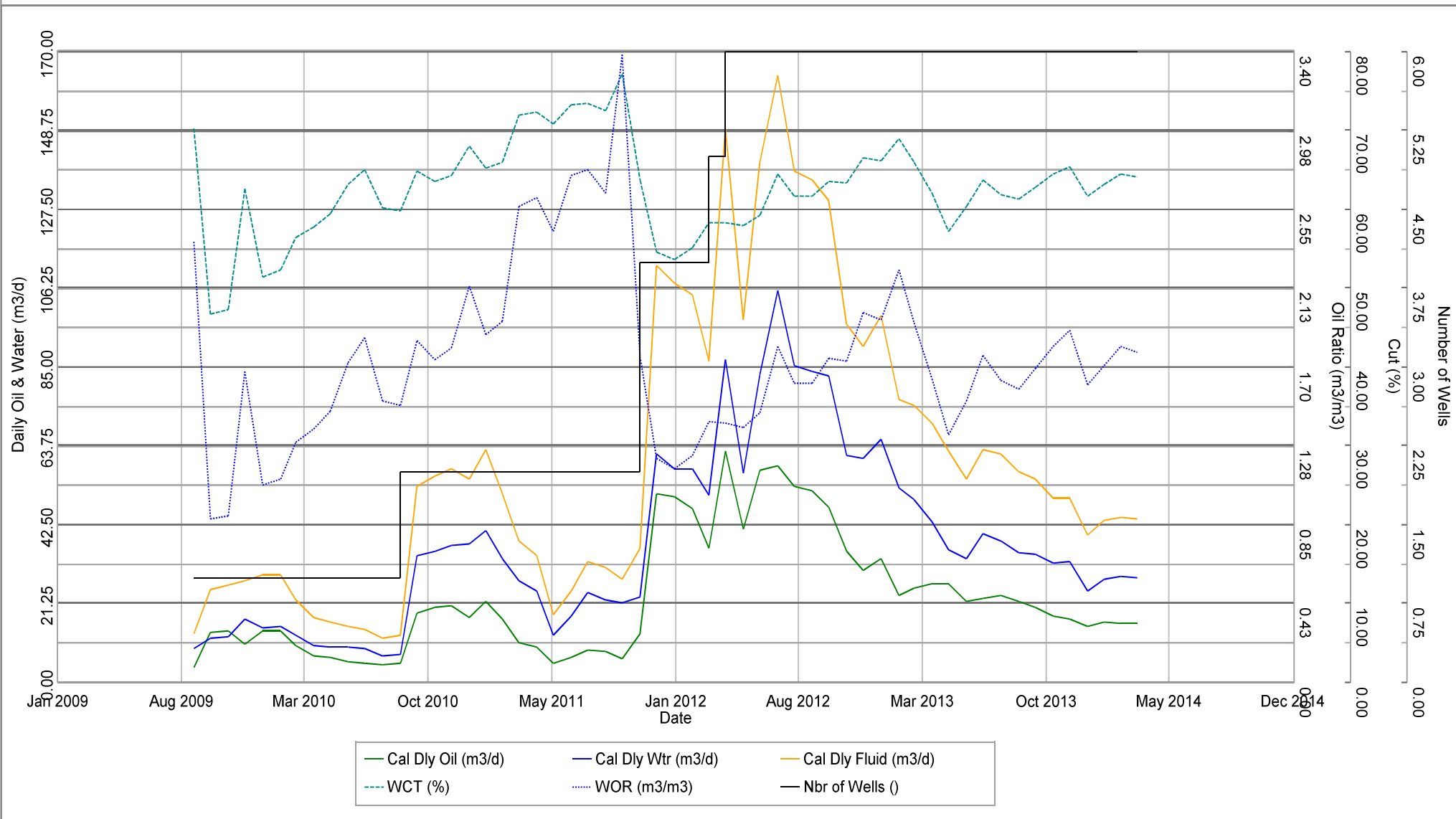
Figure 13 - Daly Sinclair Bakken & Bakken-Three Forks Pools
(01 60A - 01 60BB & 01 62A - 01 62II)

Ewart Unit No. 6

Figure No. 4

Production Graph

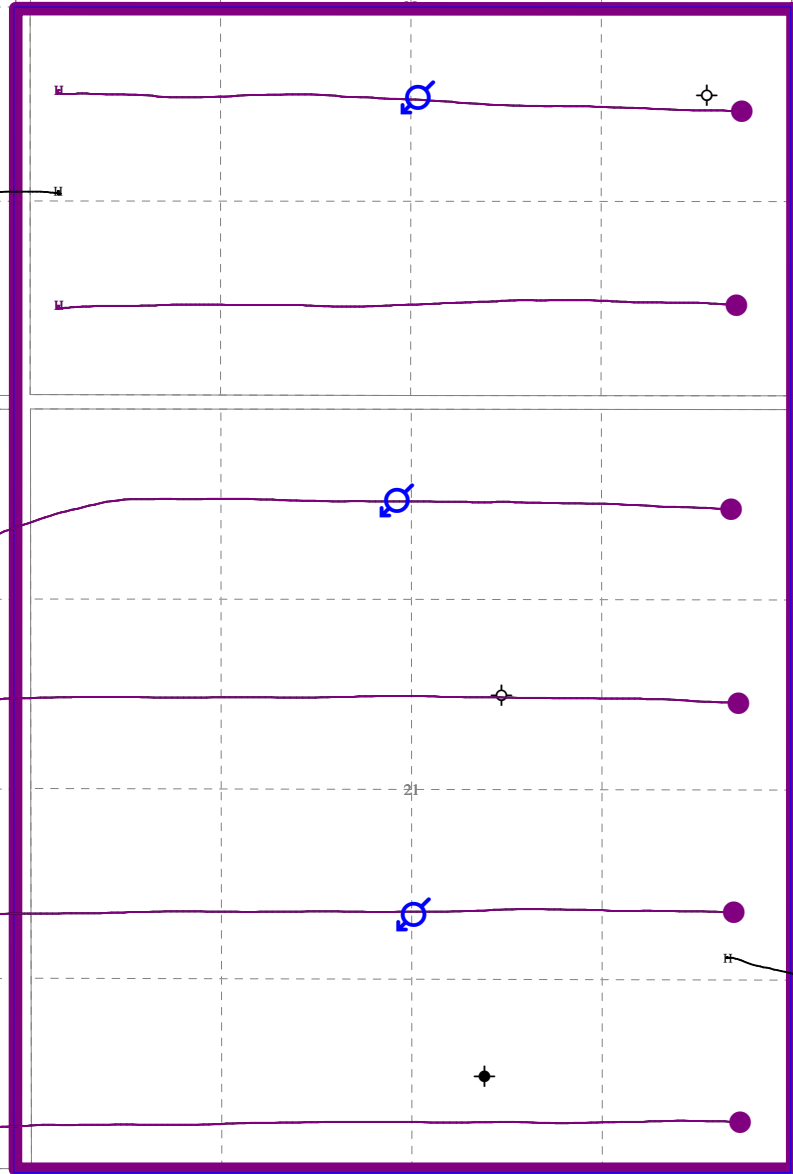
# of Wells:	6	Prod Zone:	BAKKEN; TORQUAY	On Prod:	2009-08 to 2014-03
Fluid:	Oil	Field:	DALY (1)	Cum Oil:	38432.7 m3
Mode:	Producing	Pool Code:	62B	Cum Gas:	0.0 E3m3
		Unit Code:		Cum Wtr:	63055.4 m3



— Cal Dly Oil (m3/d) — Cal Dly Wtr (m3/d) — Cal Dly Fluid (m3/d)
- - - WCT (%) - - - WOR (m3/m3) — Nbr of Wells ()

T7

T7



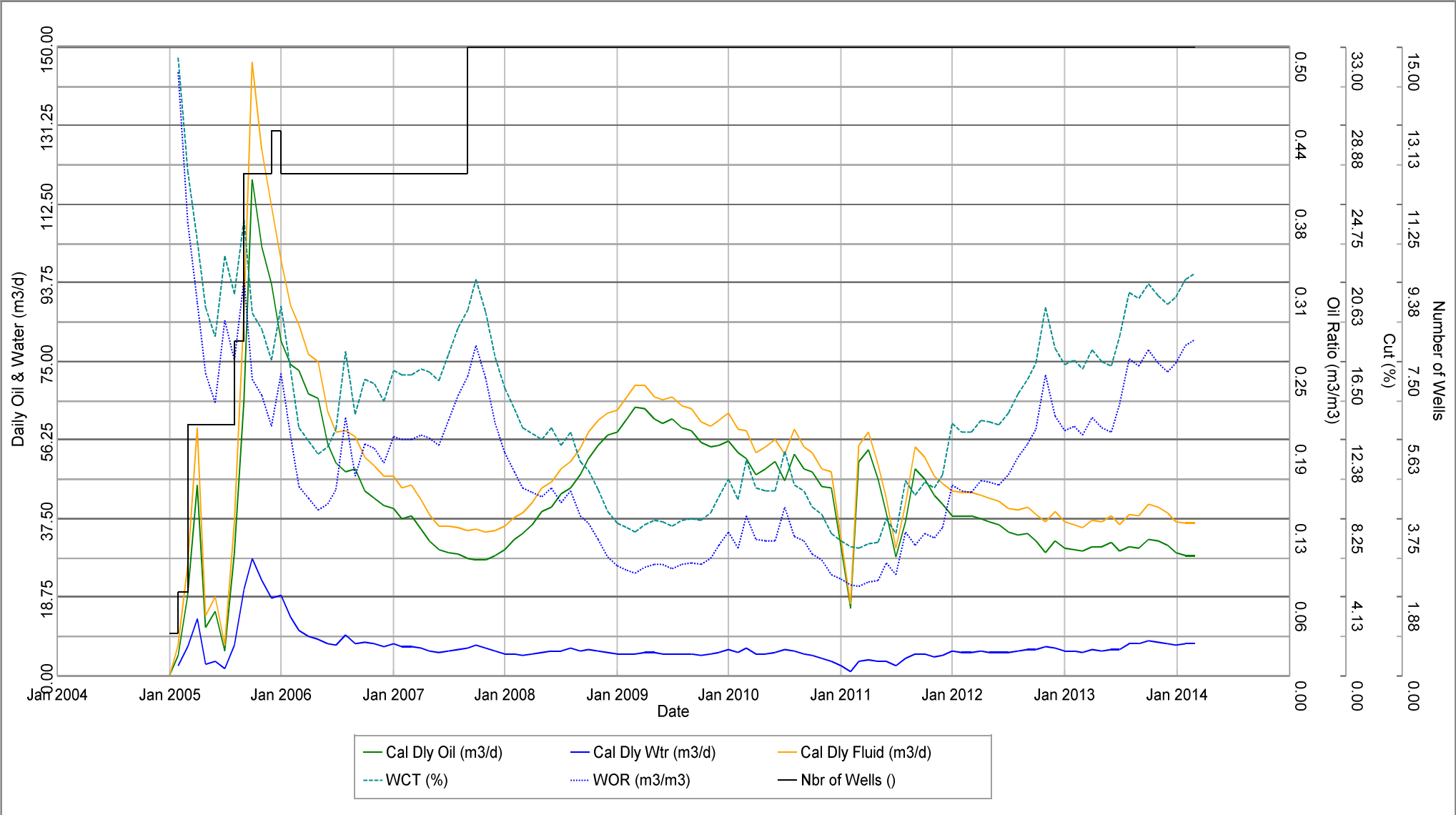
Proposed EWART UNIT 6 Development

Sinclair Unit No. 1 Analog

Figure No. 6

Production Graph

# of Wells:	16	Prod Zone:	BAKKEN; TORQUAY	On Prod:	2004-12 to 2014-02
Fluid:	Oil; Water Injection	Field:	DALY (1)	Cum Oil:	145249.5 m3
Mode:	Producing; Injection	Pool Code:	62B	Cum Gas:	0.0 E3m3
		Unit Code:	162B01	Cum Wtr:	22626.7 m3



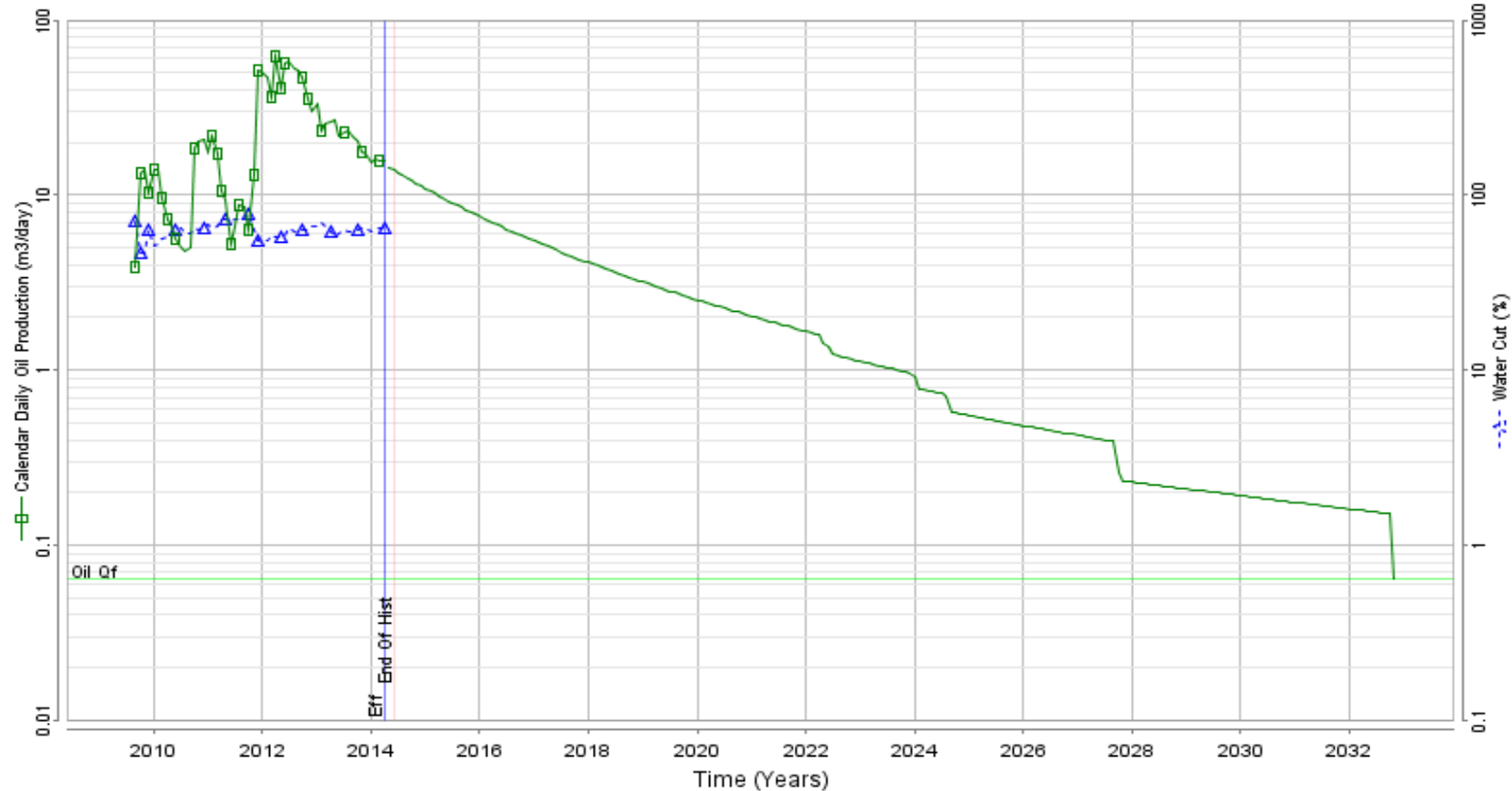
— Cal Dly Oil (m3/d) — Cal Dly Wtr (m3/d) — Cal Dly Fluid (m3/d)
- - - WCT (%) . . . WOR (m3/m3) — Nbr of Wells ()

Figure No. 7

Province: Manitoba
 Field: DALY SINCLAIR
 Pool: BAKKEN-THREE FORKS B
 Unit: multi zone (6)
 Status: n/a
 Operator: Tundra O&G Ptnshp

Proposed Ewart Unit 6
 Ewart 6 for Unit App
 Base

Primary Recovery



Cum Oil(m3):	38,433	Cum Gas(E3m3):	0	Cum Water(m3):	63,055	Cum Cond(m3):	0
Forecast Start:	04/01/2014	Calculation Type:	Undefined	Est. Cum Prod (m3):	38,433	Decline Exponent:	0.000
Forecast End:	10/31/2032	O'VP (m3):	0	Remaining (m3):	16,468	Initial Decline (%/yr):	0.0
Initial Rate (m3):	14.4	Recovery Factor:	0.000				
Final Rate (m3):	0.1	Ult. Recoverable (m3):	54,900				

Figure No. 8

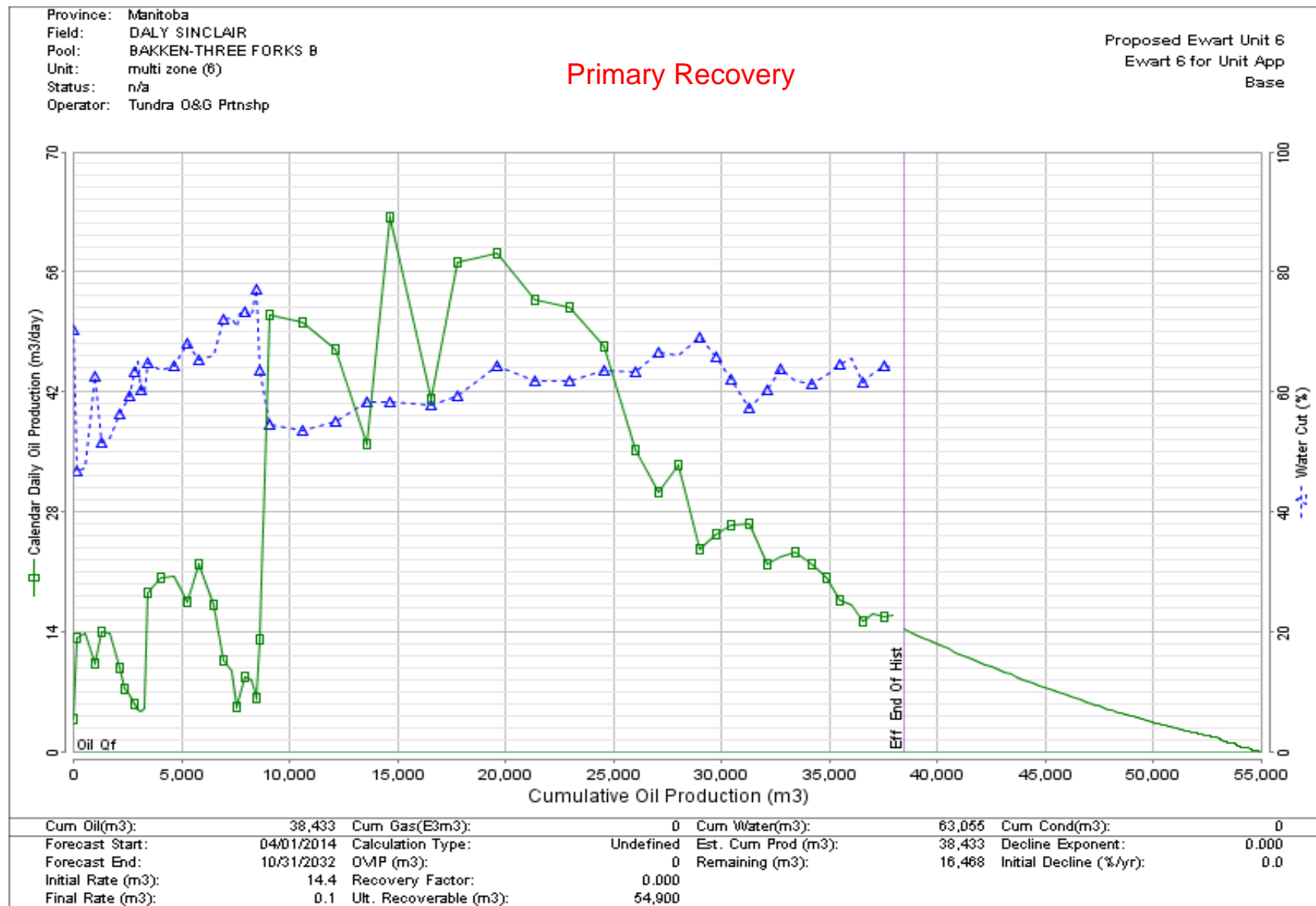
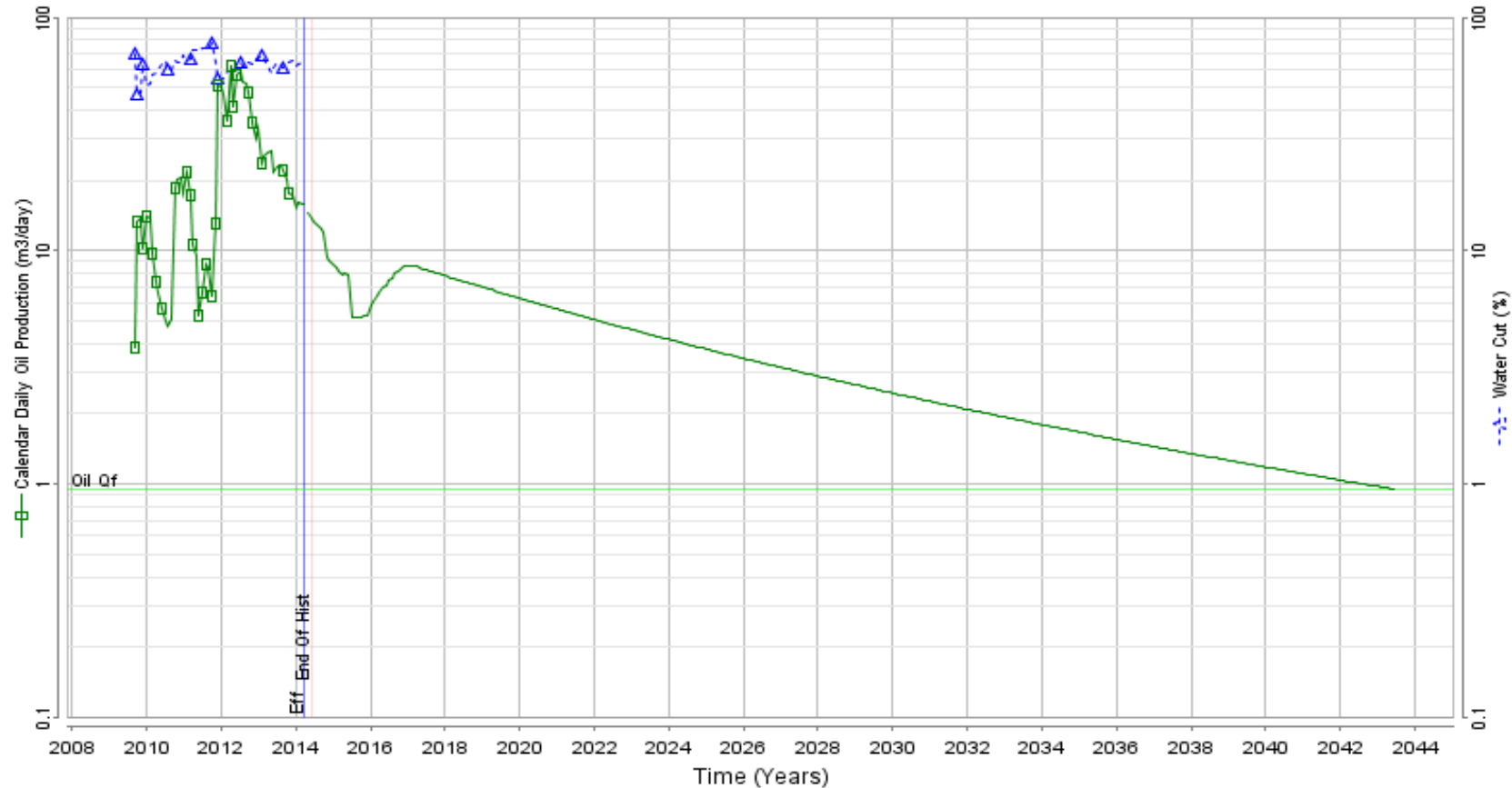


Figure No. 9

Province: Manitoba
 Field: DALY SINCLAIR
 Pool: BAKKEN-THREE FORKS B
 Unit: multi zone (6)
 Status: n/a
 Operator: Tundra O&G Ptnshp

Proposed Ewart Unit 6
 Ewart 6 for Unit App
 Base + Growth 1

Primary + Secondary Recovery



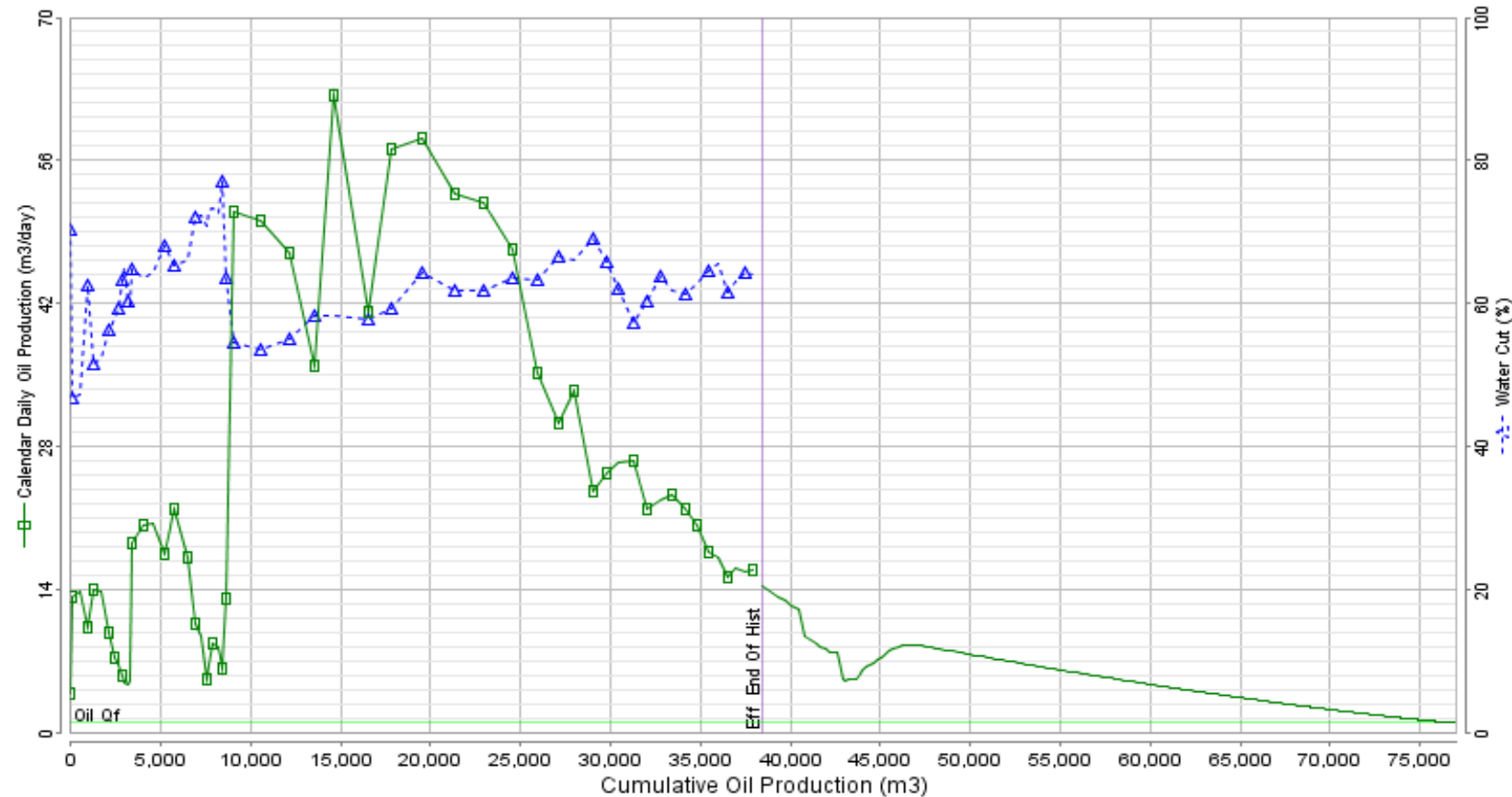
Cum Oil(m3):	38,433	Cum Gas(E3m3):	0	Cum Water(m3):	63,055	Cum Cond(m3):	0
Forecast Start:	04/01/2014	Calculation Type:	Undefined	Est. Cum Prod (m3):	38,433	Decline Exponent:	0.000
Forecast End:	05/06/2043	OVP (m3):	0	Remaining (m3):	38,428	Initial Decline (%/yr):	0.0
Initial Rate (m3):	14.4	Recovery Factor:	0.000				
Final Rate (m3):	1.0	Ult. Recoverable (m3):	76,860				

Figure No. 10

Province: Manitoba
 Field: DALY SINCLAIR
 Pool: BAKKEN-THREE FORKS B
 Unit: multi zone (6)
 Status: n/a
 Operator: Tundra O&G Ptnshp

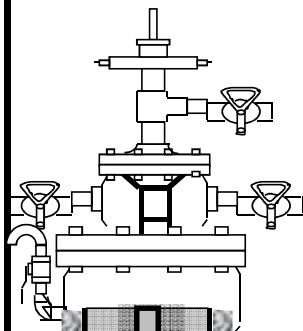
Proposed Ewart Unit 6
 Ewart 6 for Unit App
 Base + Growth 1

Primary + Secondary Recovery



Cum Oil(m3):	38,433	Cum Gas(E3m3):	0	Cum Water(m3):	63,055	Cum Cond(m3):	0
Forecast Start:	04/01/2014	Calculation Type:	Undefined	Est. Cum Prod (m3):	38,433	Decline Exponent:	0.000
Forecast End:	05/06/2043	OVP (m3):	0	Remaining (m3):	38,428	Initial Decline (%/yr):	0.0
Initial Rate (m3):	14.4	Recovery Factor:	0.000				
Final Rate (m3):	1.0	Ult. Recoverable (m3):	76,860				

TYPICAL CEMENTED LINER WATER INJECTION WELL (WIW) DOWNHOLE DIAGRAM



WELL NAME: Tundra Ewart Unit 6 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:				Length	Top @
Item	Description	K.B.--Tbg. Flg.		0.00	m KB
	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:

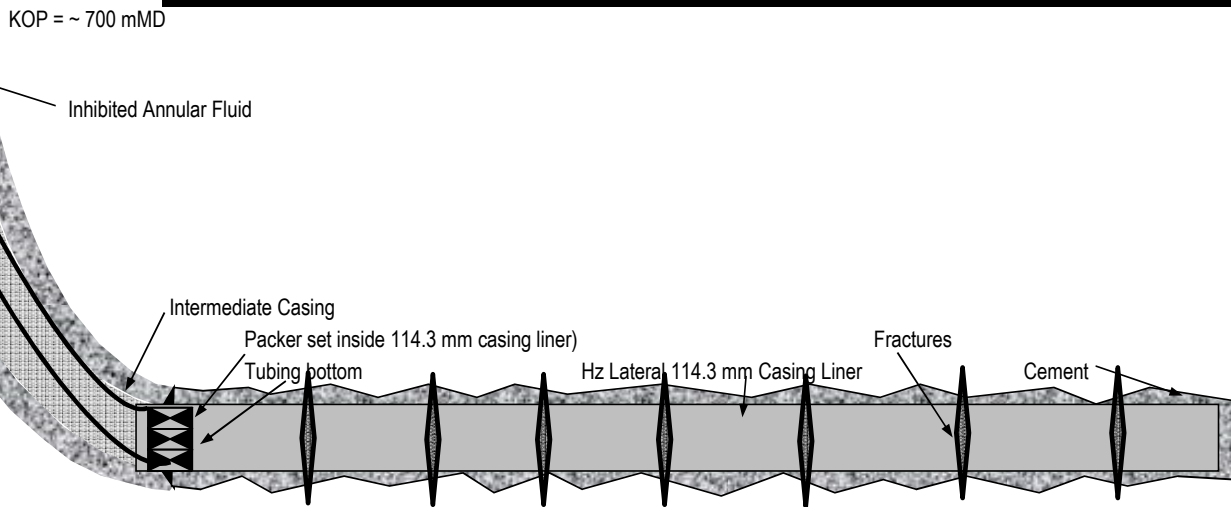
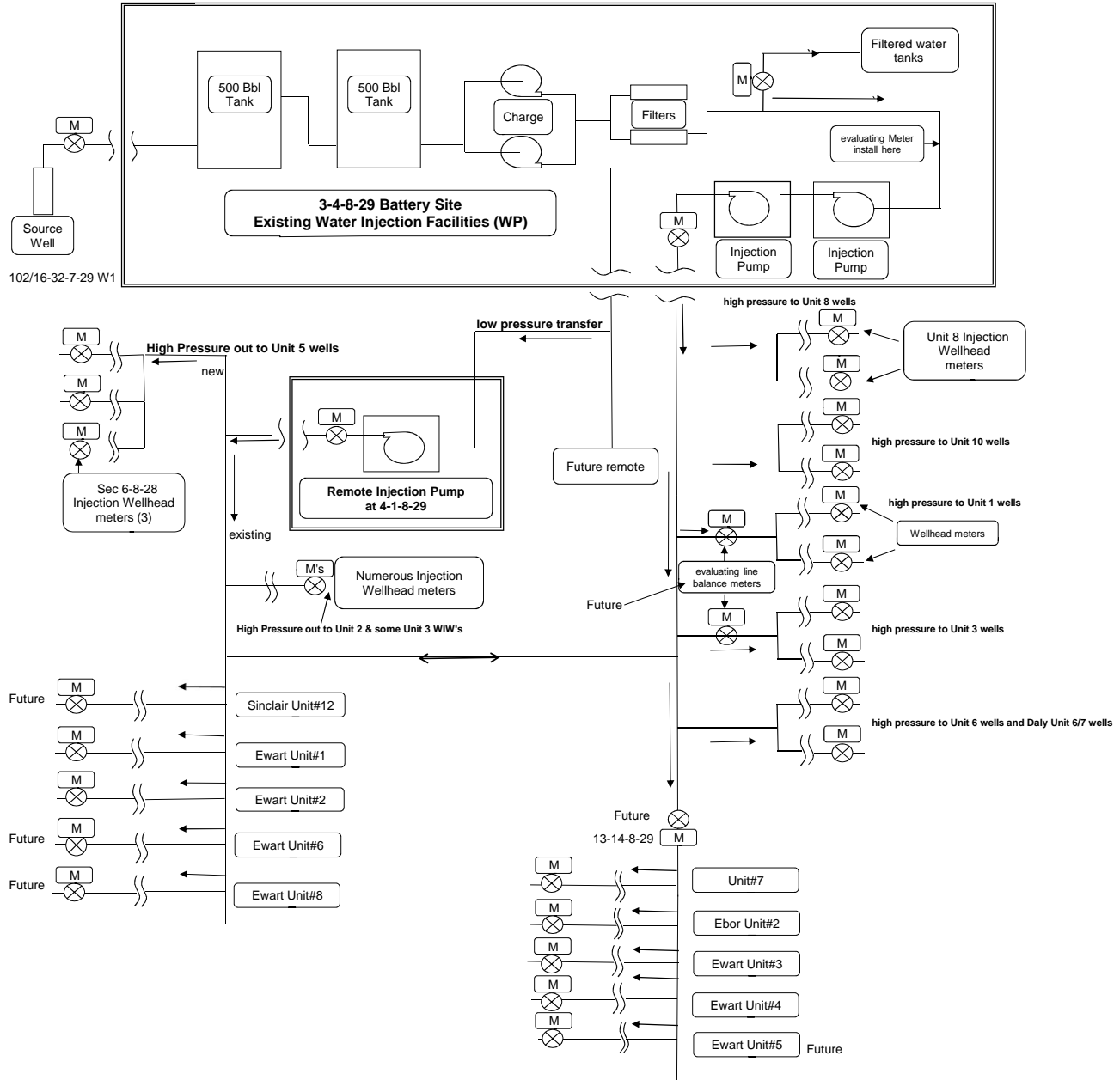


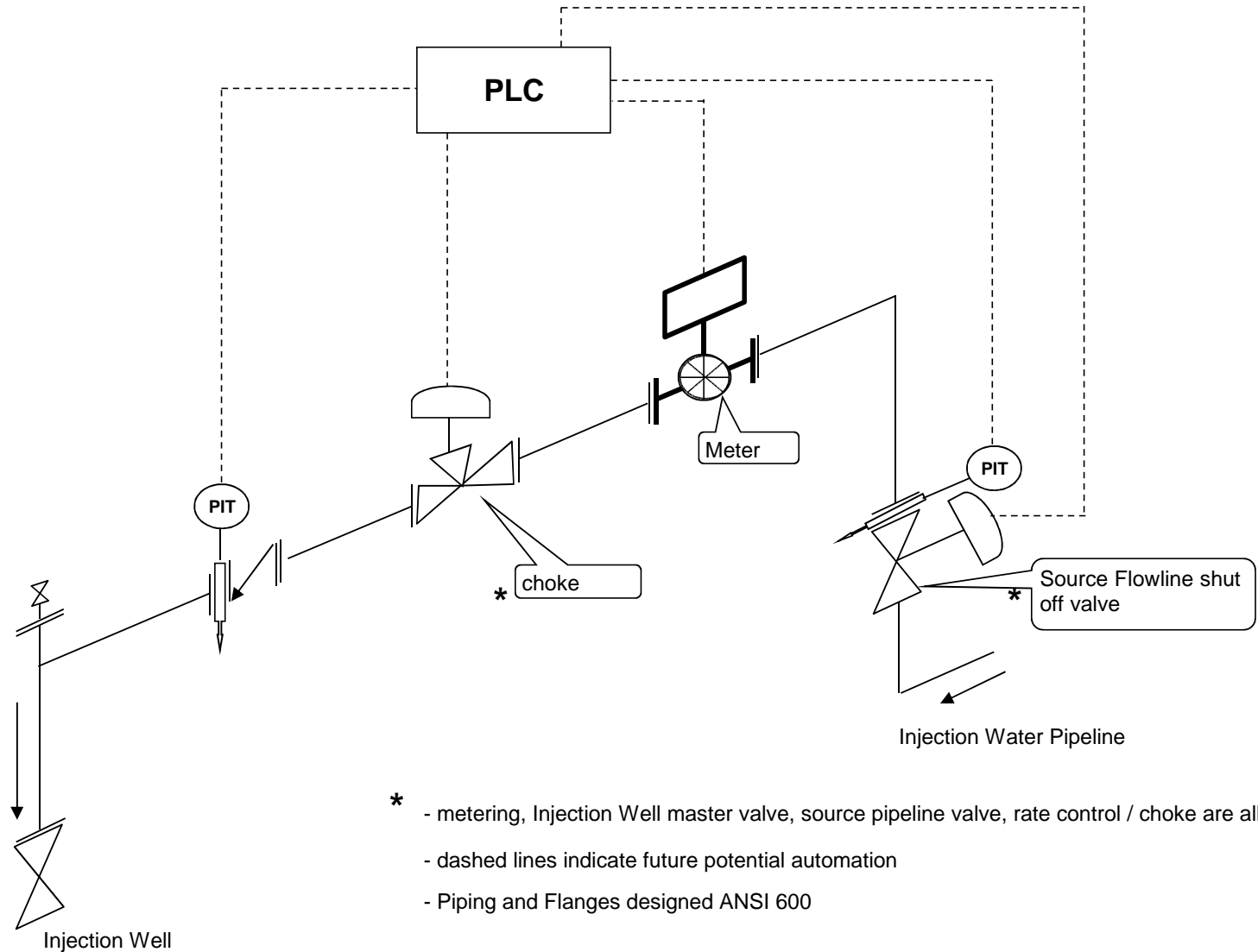
FIGURE NO. 12

Sinclair Water Injection System



Ewart Unit No. 6

Proposed Injection Well Surface Piping P&ID



Ewart Unit No. 6

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 14

** subject to final design and engineering

EXHIBIT 'A': TRACT PARTICIPATION

Table 1

Proposed EWART UNIT NO. 6

Attached to and made part of an Agreement Entitled
Ewart Unit No. 6 - Unit Agreement

Working Interest				Royalty Interest		Tract Participation %
Tract No.	Land Description	Owner	Share (%)	Owner	Share (%)	
1	LSD 1-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	4.125722187
2	LSD 2-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	3.881267880
3	LSD 3-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	4.675593186
4	LSD 4-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	3.754890877
5	LSD 5-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	3.678519921
6	LSD 6-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	4.253722404
7	LSD 7-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	4.707473904
8	LSD 8-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate)	16.67% 16.67% 16.67% 16.66% 16.66% 16.67%	3.932274716
9	LSD 9-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	5392951 Manitoba Ltd. Craig Michael Buffington William Douglas Buffington Dale Ray Vandever (Estate)	50% 12.5% 12.5% 25%	4.932069099
10	LSD 10-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	5392951 Manitoba Ltd. Craig Michael Buffington William Douglas Buffington Dale Ray Vandever (Estate)	50% 12.5% 12.5% 25%	4.506437576
11	LSD 11-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate) James Porter Owen Senior (Estate)	8.33% 8.33% 8.33% 8.34% 8.34% 8.33% 50%	4.017740990

Working Interest				Royalty Interest		Tract Participation %
Tract No.	Land Description	Owner	Share (%)	Owner	Share (%)	
12	LSD 12-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate) James Porter Owen Senior (Estate)	8.33% 8.33% 8.33% 8.34% 8.34% 8.33% 50%	3.443196036
13	LSD 13-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate) James Porter Owen Senior (Estate)	8.33% 8.33% 8.33% 8.34% 8.34% 8.33% 50%	3.422482508
14	LSD 14-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	Melvin Ballantyne (Estate) Thomas James Brady (Estate) 6622934 Manitoba Ltd. Walker Northwest Ltd. Walkermay Ltd. Harry N. Savelkoul (Estate) James Porter Owen Senior (Estate)	8.33% 8.33% 8.33% 8.34% 8.34% 8.33% 50%	3.933335294
15	LSD 15-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	5392951 Manitoba Ltd. Craig Michael Buffington William Douglas Buffington Dale Ray Vandever (Estate)	50% 12.5% 12.5% 25%	4.496646620
16	LSD 16-21-7-28 WPM	Tundra Oil & Gas Partnership	100%	5392951 Manitoba Ltd. Craig Michael Buffington William Douglas Buffington Dale Ray Vandever (Estate)	50% 12.5% 12.5% 25%	4.856149735
17	LSD 1-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	4.741812351
18	LSD 2-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	4.356343150
19	LSD 3-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	3.789646668
20	LSD 4-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	3.343809301
21	LSD 5-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	3.512421464
22	LSD 6-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	4.045941947
23	LSD 7-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	4.588538429
24	LSD 8-28-7-28 WPM	Tundra Oil & Gas Partnership	100%	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA	100%	5.003963757

100.00000000

TABLE NO. 2: TRACT FACTOR CALCULATIONS
TRACT FACTORS BASED ON OIL-IN-PLACE (OOIP) LESS CUMULATIVE OIL PRODUCED METHOD

PROPOSED EWART UNIT NO. 6							
LSD-SEC	TWP-RGE	UWI	OOIP (m3)	Hz Cum Prodn Mar 2014 (m3)	Vertical Cum Prodn Mar 2014 (m3)	OOIP Minus Cum Oil Prodn (m3)	Tract Factor (%)
01-21	007-28W1	100/01-21-007-28W1/0	27834	2533	0	25300	4.125722187
02-21	007-28W1	100/02-21-007-28W1/0	26445	2644	0	23801	3.881267880
03-21	007-28W1	100/03-21-007-28W1/0	31313	2641	0	28672	4.675593186
04-21	007-28W1	100/04-21-007-28W1/0	25456	2430	0	23026	3.754890877
05-21	007-28W1	100/05-21-007-28W1/0	24261	1703	0	22558	3.678519921
06-21	007-28W1	100/06-21-007-28W1/0	27898	1813	0	26085	4.253722404
07-21	007-28W1	100/07-21-007-28W1/0	30684	1816	0	28868	4.707473904
08-21	007-28W1	100/08-21-007-28W1/0	25792	1678	0	24114	3.932274716
09-21	007-28W1	100/09-21-007-28W1/0	31613	1368	0	30245	4.932069099
10-21	007-28W1	100/10-21-007-28W1/0	29082	1447	0	27635	4.506437576
11-21	007-28W1	100/11-21-007-28W1/0	26082	1444	0	24638	4.017740990
12-21	007-28W1	100/12-21-007-28W1/0	22467	1352	0	21115	3.443196036
13-21	007-28W1	100/13-21-007-28W1/0	21747	759	0	20988	3.422482508
14-21	007-28W1	100/14-21-007-28W1/0	24932	811	0	24121	3.933335294
15-21	007-28W1	100/15-21-007-28W1/0	28386	811	0	27575	4.496646620
16-21	007-28W1	100/16-21-007-28W1/0	30515	735	0	29780	4.856149735
01-28	007-28W1	100/01-28-007-28W1/0	30851	1773	0	29078	4.741812351
02-28	007-28W1	100/02-28-007-28W1/0	28613	1898	0	26715	4.356343150
03-28	007-28W1	100/03-28-007-28W1/0	25142	1903	0	23239	3.789646668
04-28	007-28W1	100/04-28-007-28W1/0	21527	1021	0	20505	3.343809301
05-28	007-28W1	100/05-28-007-28W1/0	22445	906	0	21539	3.512421464
06-28	007-28W1	100/06-28-007-28W1/0	26481	1669	0	24811	4.045941947
07-28	007-28W1	100/07-28-007-28W1/0	29811	1672	0	28139	4.588538429
08-28	007-28W1	100/08-28-007-28W1/0	32290	1604	0	30686	5.003963757
TOTAL			651668	38433	0	613236	100.000000000

TABLE NO. 3

Proposed Ewart Unit 6 Well List

<i>UWI</i>	<i>License Number</i>	<i>Type</i>	<i>Pool Name</i>	<i>Producing Zone</i>	<i>Mode</i>	<i>On Prod Date</i>	<i>Prod Date</i>	<i>Cal Dly Oil (m3/d)</i>	<i>Monthly Oil (m3)</i>	<i>Cum Prd Oil (m3)</i>	<i>Cal Dly Water (m3/d)</i>	<i>Monthly Water (m3)</i>	<i>Cum Prd Water (m3)</i>	<i>WCT (%)</i>
100/01-21-007-28W1/0	008152	Horizontal	BAKKEN-THREE FORKS B	BAKKEN	Producing	10/1/2011	2014-03	4.9	151.7	10248	4.2	129	10719	46
100/08-21-007-28W1/0	008513	Horizontal	BAKKEN-THREE FORKS B	BAKKEN	Producing	2/1/2012	2014-03	4.3	133	7010	4.9	152.7	7469	53.4
100/09-21-007-28W1/0	008154	Horizontal	BAKKEN-THREE FORKS B	TORQUAY	Producing	10/1/2011	2014-03	2.3	70.9	5611	3.5	107	8420	60.1
100/16-21-007-28W1/0	008500	Horizontal	BAKKEN-THREE FORKS B	BAKKEN	Producing	3/1/2012	2014-03	1.5	46.5	3118	6.1	187.7	10125	80.1
100/01-28-007-28W1/0	007389	Horizontal	BAKKEN-THREE FORKS B	TORQUAY	Producing	8/1/2010	2014-03	1.7	51.4	6595	4.2	129.4	15770	71.6
102/08-28-007-28W1/0	006971	Horizontal	BAKKEN-THREE FORKS B	BAKKEN	Producing	8/1/2009	2014-03	1.2	38.7	5852	5.5	170.9	10553	81.5
										38433			63055	

TABLE NO. 4: OOIP Calculation

UWI	MBKKN OOIP 0.5 md (m3)	Lyleton UA OOIP 1.0 md (m3)	Lyleton LA OOIP 1.0 md (m3)	Lyleton B OOIP 0.5 md (m3)	TOTAL OOIP GLJ Cut-Offs (m3)	MB Pih 0.5 md	UA Pih 1.0 md	LA Pih 1.0 md	LB Pih 0.5 md
01-21-007-28W1M	15,066	0	0	12,768	27,834	0.173155	0.000000	0.000000	0.133714
02-21-007-28W1M	13,200	0	0	13,245	26,445	0.153399	0.000000	0.000000	0.138717
03-21-007-28W1M	11,743	0	5,950	13,621	31,313	0.121240	0.000000	0.062313	0.142654
04-21-007-28W1M	6,598	0	5,137	13,721	25,456	0.082041	0.000000	0.053798	0.143702
05-21-007-28W1M	6,504	0	4,939	12,818	24,261	0.076144	0.000000	0.051727	0.134248
06-21-007-28W1M	9,217	0	5,816	12,865	27,898	0.104927	0.000000	0.060914	0.134735
07-21-007-28W1M	11,383	0	6,653	12,647	30,684	0.131401	0.000000	0.069678	0.132457
08-21-007-28W1M	13,661	0	0	12,131	25,792	0.156393	0.000000	0.000000	0.127046
09-21-007-28W1M	12,437	0	7,673	11,504	31,613	0.142349	0.000000	0.080361	0.120475
10-21-007-28W1M	10,662	0	6,639	11,782	29,082	0.121742	0.000000	0.069528	0.123389
11-21-007-28W1M	8,647	0	5,864	11,572	26,082	0.098894	0.000000	0.061418	0.121192
12-21-007-28W1M	6,484	0	5,268	10,715	22,467	0.074555	0.000000	0.055177	0.112218
13-21-007-28W1M	6,428	0	5,408	9,911	21,747	0.073547	0.000000	0.056640	0.103802
14-21-007-28W1M	8,220	0	5,731	10,981	24,932	0.094073	0.000000	0.060019	0.115007
15-21-007-28W1M	10,527	0	6,469	11,390	28,386	0.119427	0.000000	0.067754	0.119290
16-21-007-28W1M	11,951	0	7,288	11,276	30,515	0.136955	0.000000	0.076332	0.118091
01-28-007-28W1M	12,578	0	7,067	11,206	30,851	0.142682	0.000000	0.074016	0.117365
02-28-007-28W1M	10,879	0	6,071	11,662	28,613	0.122463	0.000000	0.063584	0.122142
03-28-007-28W1M	8,207	0	5,386	11,550	25,142	0.093753	0.000000	0.056405	0.120964
04-28-007-28W1M	5,676	0	5,102	10,748	21,527	0.065471	0.000000	0.053437	0.112572
05-28-007-28W1M	5,005	0	4,341	13,099	22,445	0.057359	0.000000	0.045466	0.137191
06-28-007-28W1M	8,603	0	4,748	13,130	26,481	0.097272	0.000000	0.049723	0.137516
07-28-007-28W1M	11,715	0	5,416	12,680	29,811	0.131048	0.000000	0.056724	0.132799
08-28-007-28W1M	14,071	0	6,603	11,616	32,290	0.157935	0.000000	0.069158	0.121657
					651,668				
					4,098,870 BBL				

TABLE NO. 5

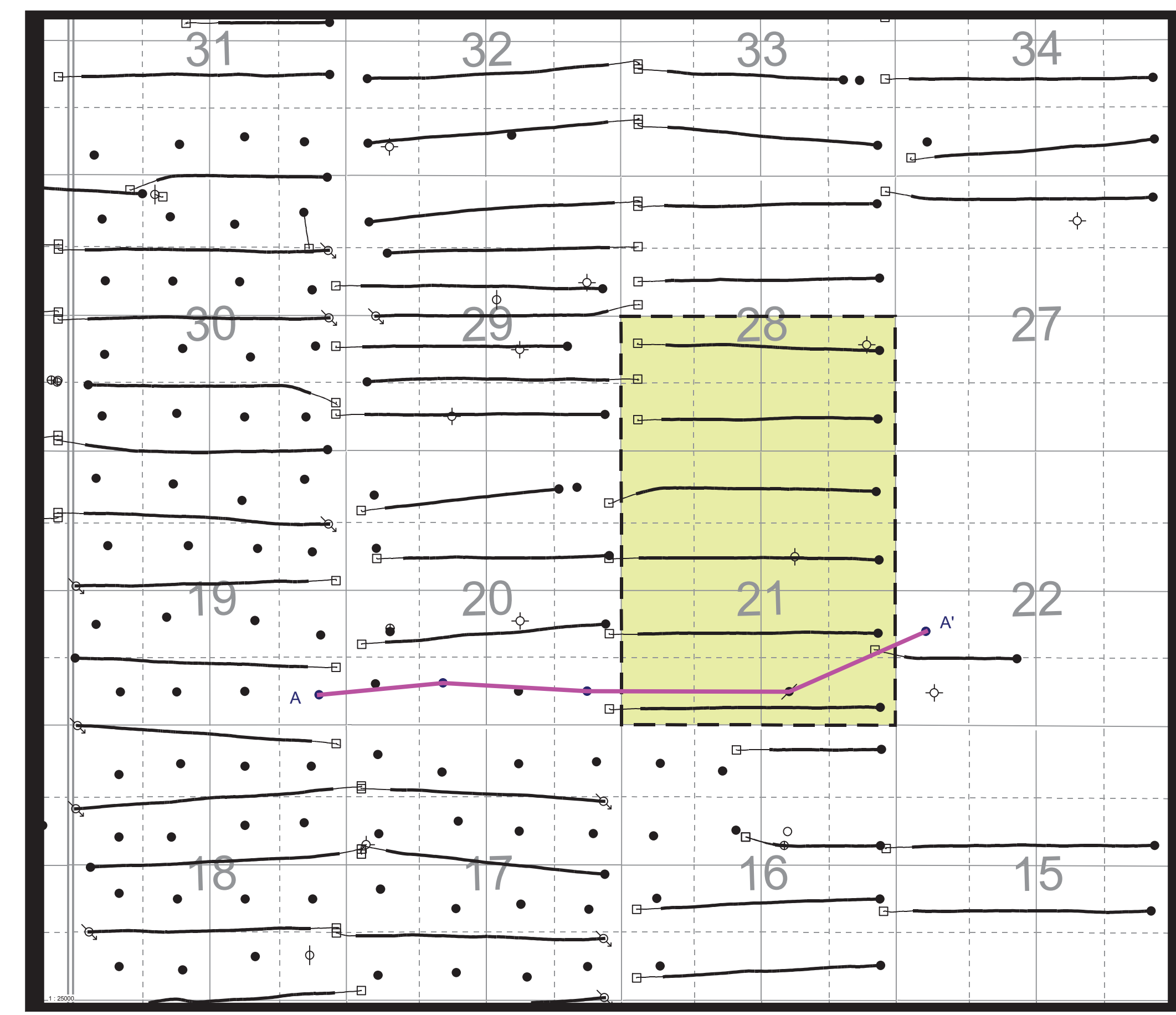
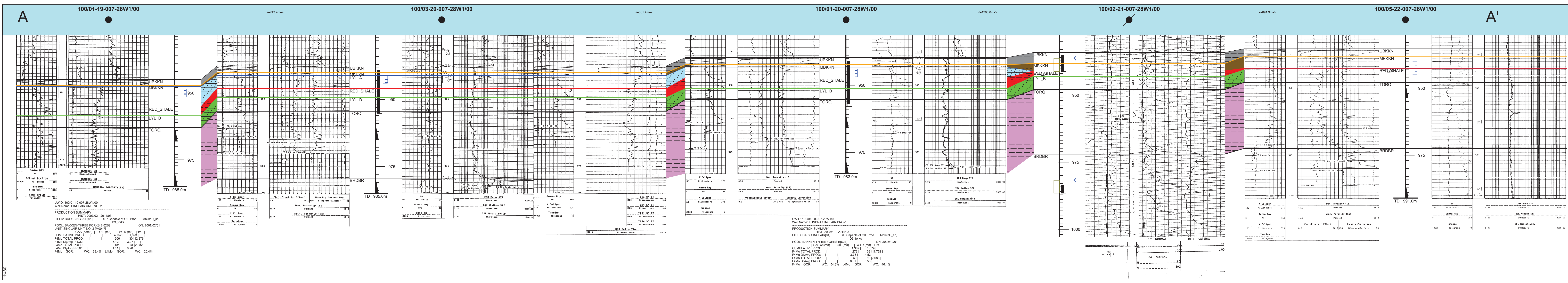
Ewart Unit 6 - Section 21-007-28W1M
Middle Bakken/Three Forks Fm (Lyleton) Rock and Fluid Properties

Formation Pressure		9,400 kPa @ -452 mSS	Initial Average Reservoir Pressure
Formation Temperature		32°C	
Saturation Pressure		2034 kPa	Bubble Point
GOR		6-10 m ³ /m ³	Gas-Oil Ratio
API Oil Gravity		36-38	
Swi (fraction)		0.4	Initial Water Saturation
Produced Water Sp. Gr.		1.11	
Produced Water pH		7.1-7.3	
Produced Water TDS (mg/L)		150,000-156,000	
Wettability		Moderately oil-wet	
Average Air Permeability	Middle Bakken	0.902	Wt. Average Core Data
	Lyleton A	0.834	(kmax>1 mD)
	Lyleton B	1.399	
Average Porosity (Fraction)	Middle Bakken	0.148	Wt. Average Core Data
	Lyleton A	0.148	(kmax>1 mD)
	Lyleton B	0.152	

Wt Average from all MBKKN/Lyleton Cores in Section 29-7-28W1M plus 1 section around Section 29

Table No. 6: Ewart Unit No. 6 Project Schedule

Timing	Injectors		
	Drilled	Future	Conversion
Q3 2014			
Q4 2014			2
Q1 2015			
Q2 2015			1
Q3 2015			
Q4 2015			
Q1 2016			



Tundra Oil and Gas Ltd

Structural Cross Section A - A'

Proposed Ewart Unit 6

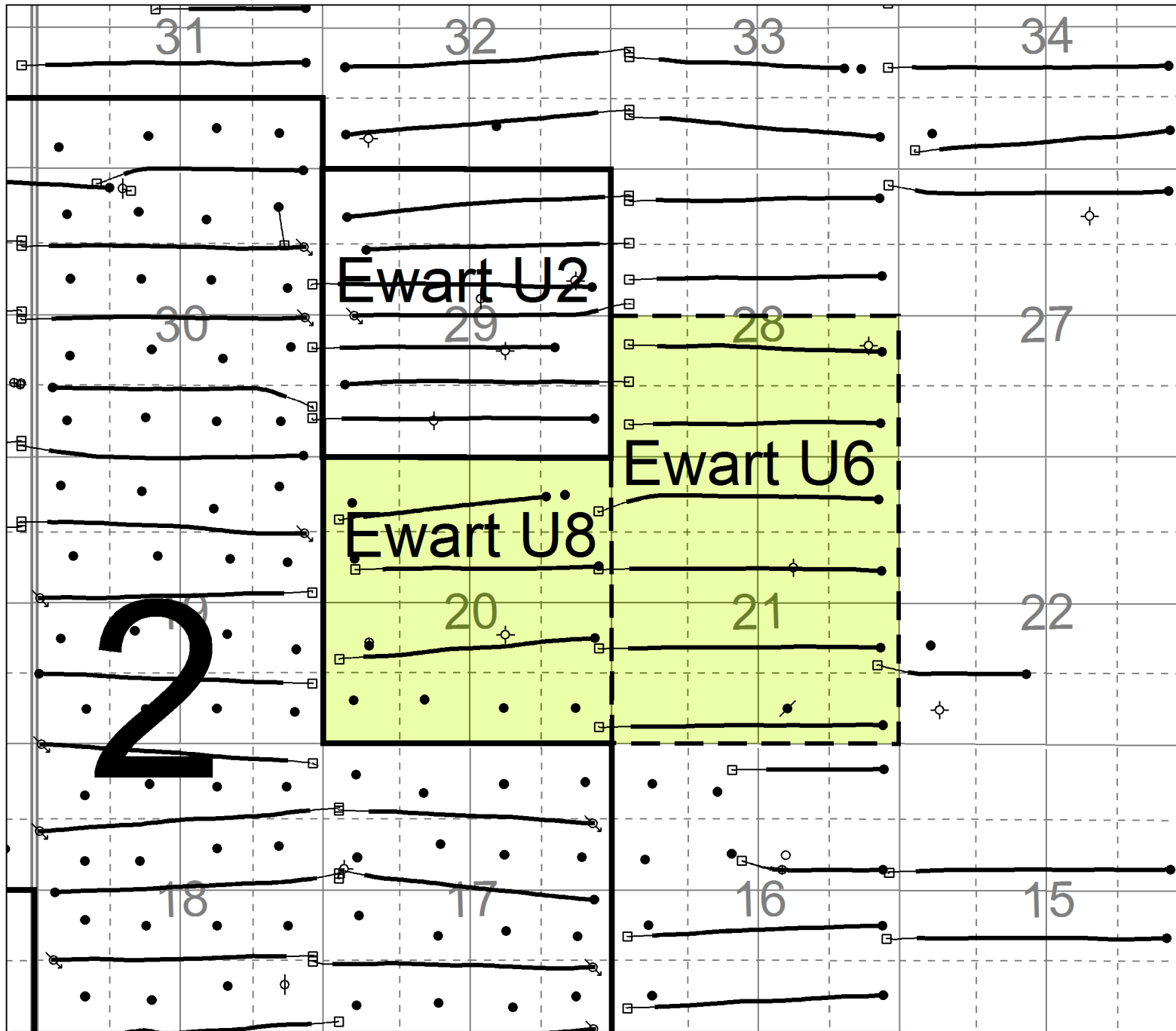
APPENDIX 1

Licensed to: Tundra Oil and Gas Ltd

geoSCOUT www.geologic.com	Date: 2014/05/23 Datum: Sea Level Ref: 0.0 (m) Interval: From UBKKN to BRDBR	By: Hackert Scale = 1:480
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R29

R28W1



R29

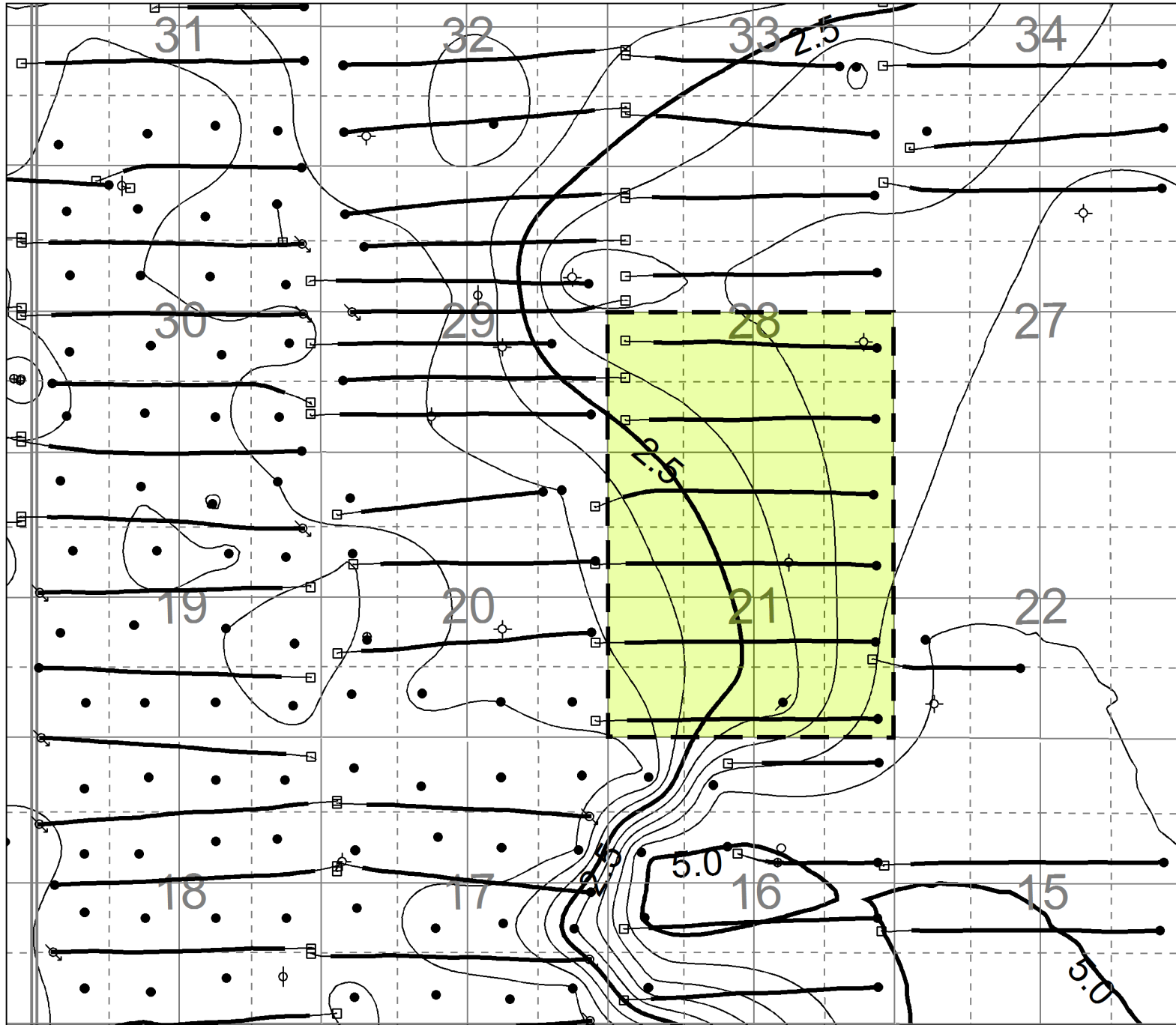
R28W1

Tundra Oil & Gas Partnership
 EWART UNIT No. 6
 Offsetting Units
 APPENDIX 2

gPSCOUT	Rev: 1.0	Date: 2014/05/22
Scale: 1:32000	Drawn: Sinclair	Plot:

R29

R28W1



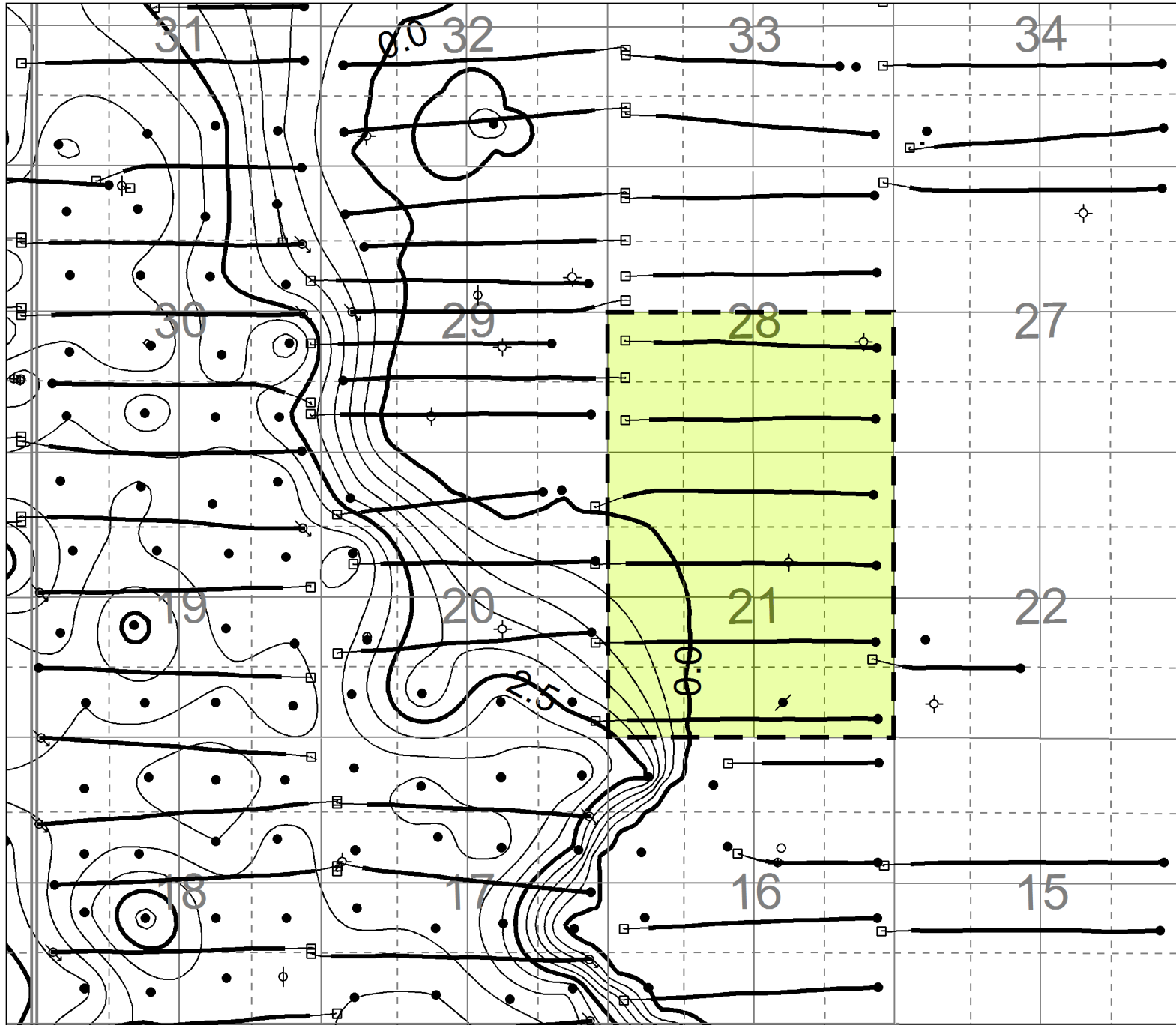
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Middle Bakken Isopach CI=0.5m	
APPENDIX 3	
By: HAZOP	Date: 2016/06/21
Scale: 1:10000	Project: 2016-06-21

R29

R28W1



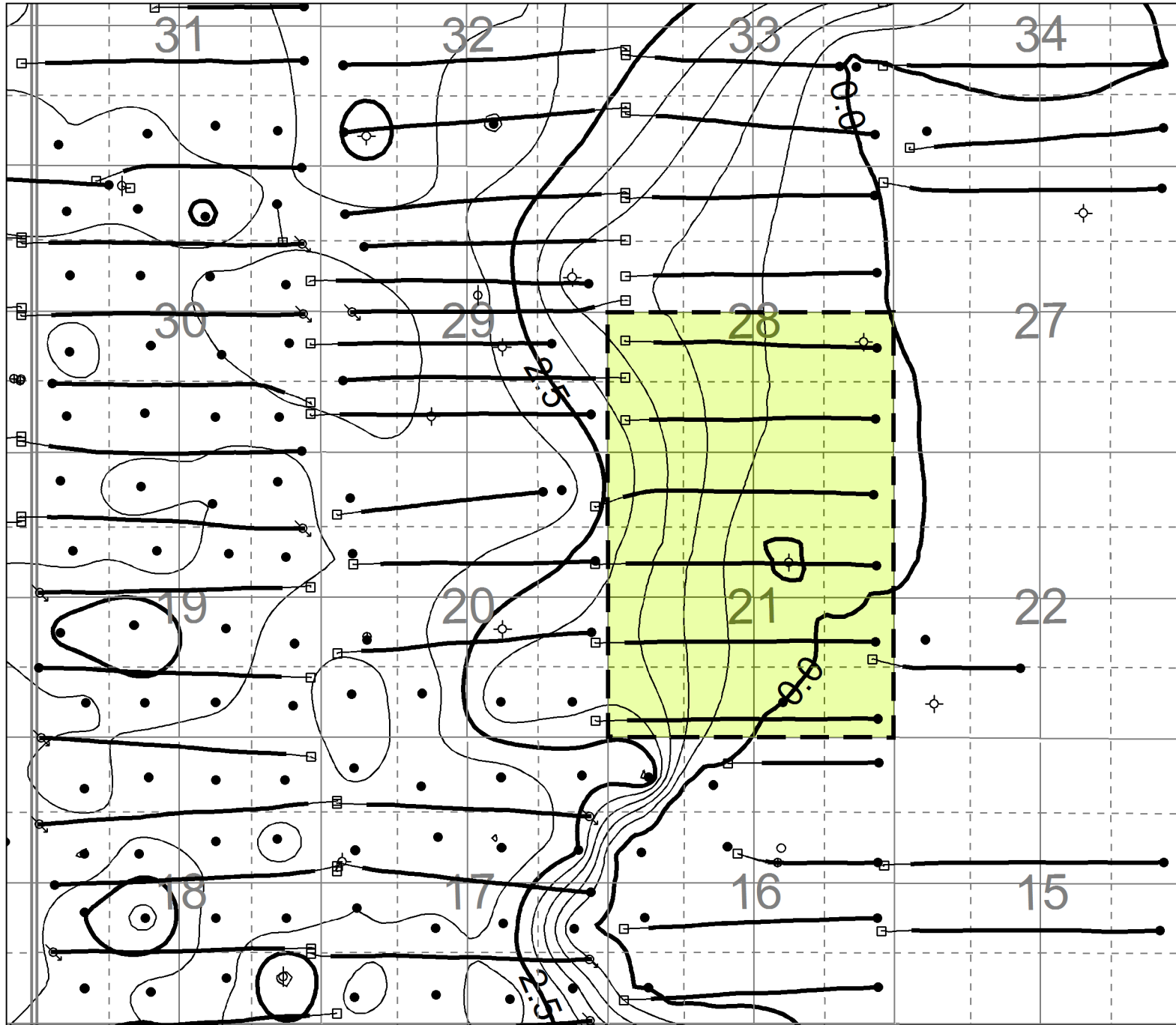
R29

R28W1

Tundra Oil & Gas Partnership
 EWART UNIT No. 6
 Lyleton Upper A Isopach CI=0.5m
 APPENDIX 4
 Licensed to: Tundra Oil and Gas Ltd
 Date: 11/09/2014
 Scale: 1:10000
 Project: SGP00000001

R29

R28W1



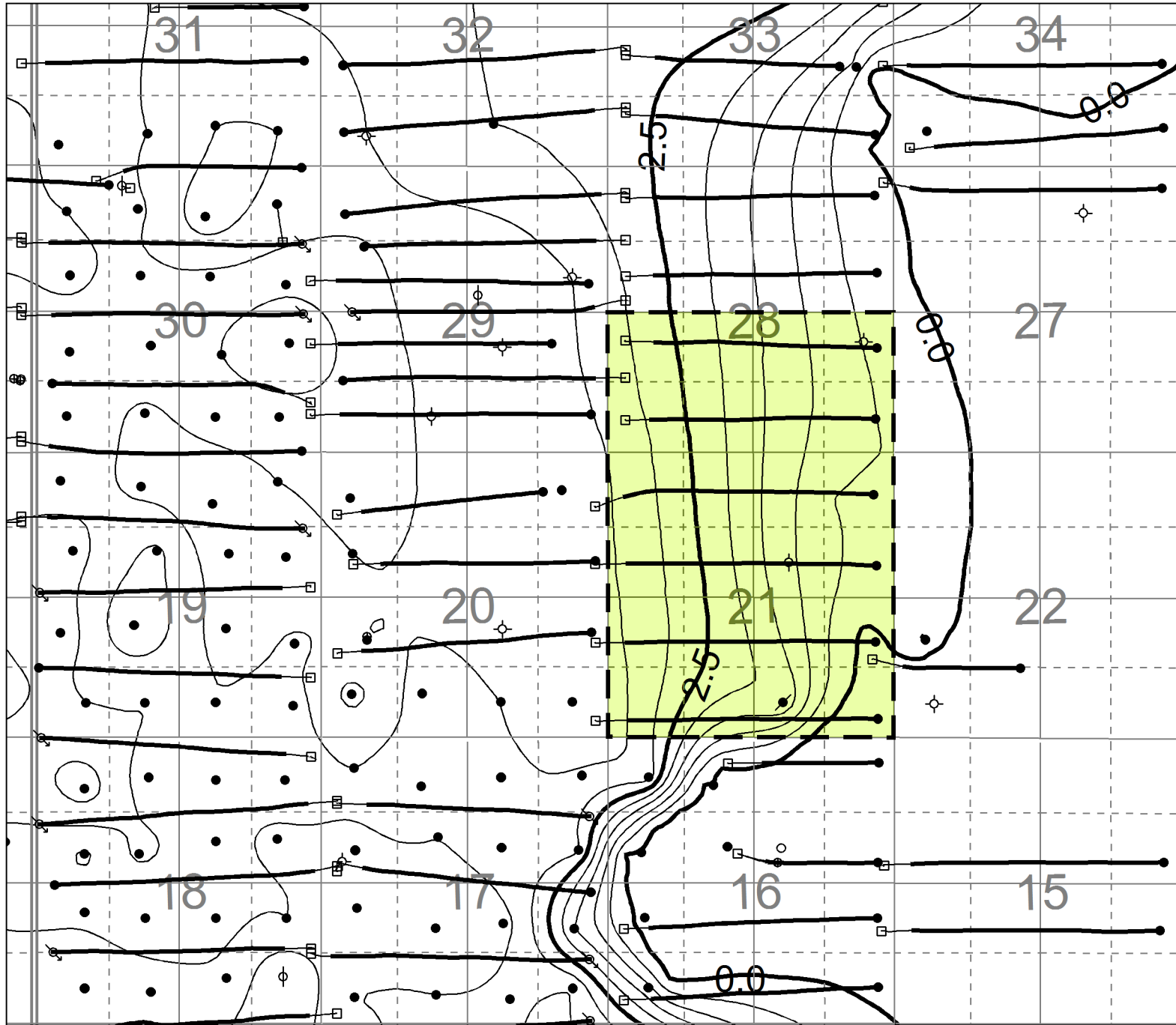
R29

R28W1

Tundra Oil & Gas Partnership
 Ewart Unit No. 6
 Lyleton Lower A Isopach CI=0.5m
 APPENDIX 5
 Licensed to: Tundra Oil and Gas Ltd.
 Date: 11/09/2018
 Scale: 1:10000
 Project: SGP-001-01

R29

R28W1



T7

T7

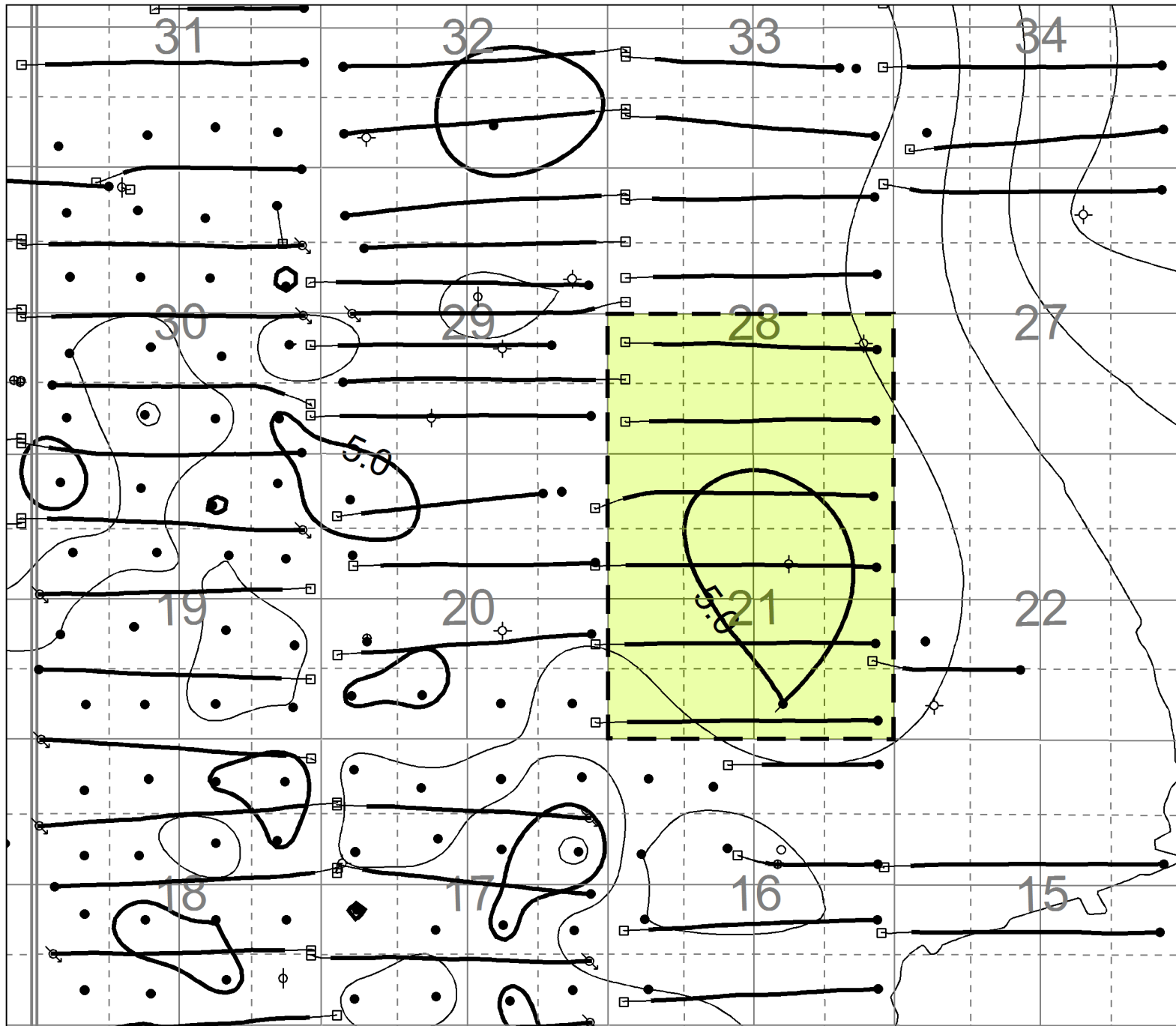
R29

R28W1

Tundra Oil & Gas Partnership		
EWART UNIT No. 6		
Red Shale Isopach CI=0.5m		
APPENDIX 6		
<small>Historical: Tundra Oil and Gas Ltd.</small>		
<small>By: HANCOCK</small>	<small>Date: 2011/05/24</small>	
<small>gESCOUT</small>	<small>Scale: 1:125000</small>	<small>Project: SCS-010-01</small>

R29

R28W1



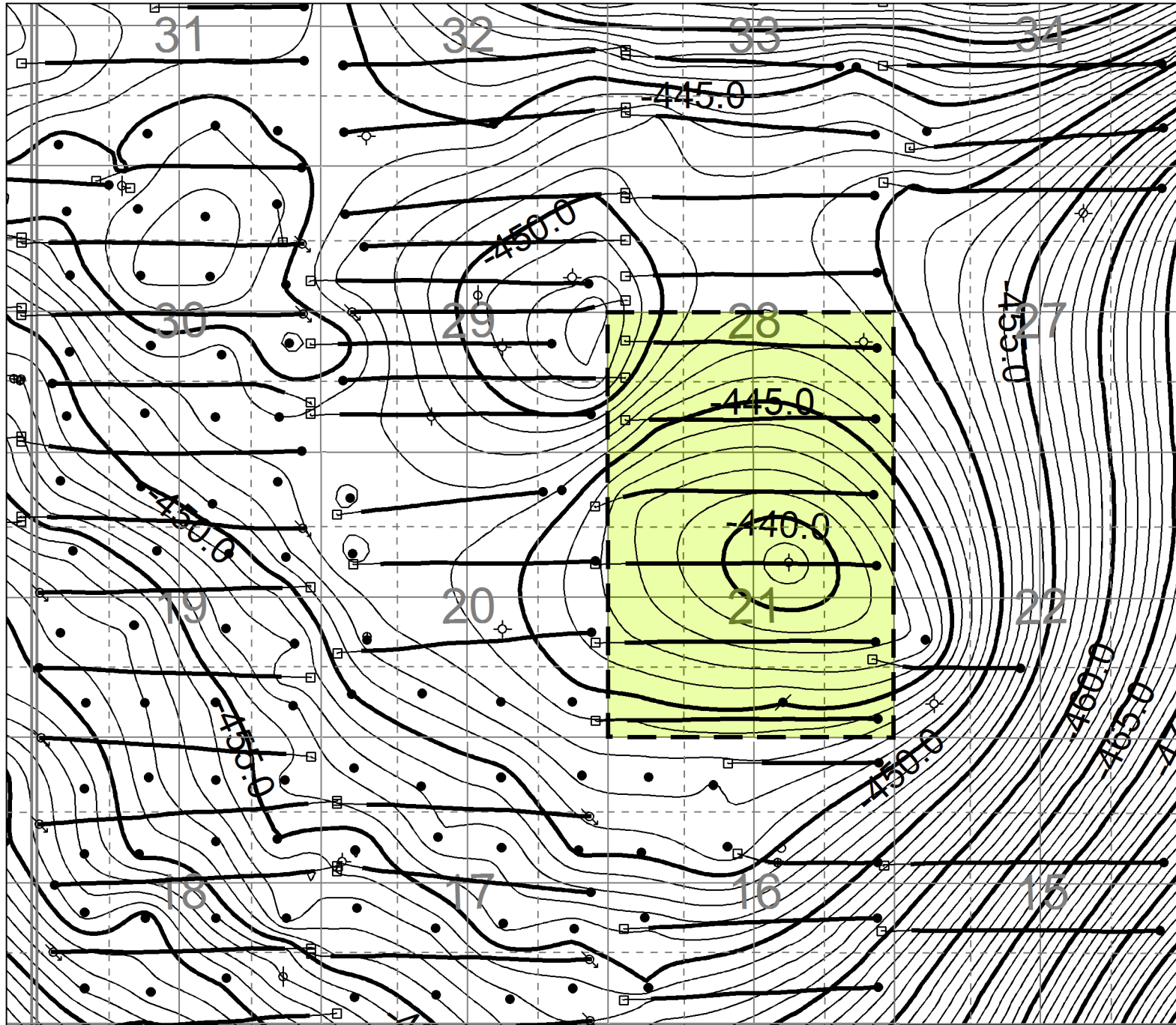
R29

R28W1

Tundra Oil & Gas Partnership		
EWART UNIT No. 6		
Lyleton B Isopach CI=0.5m		
APPENDIX 7		
<small>© 2014 Tundra Oil & Gas Partnership</small>		
<small>gESCOUT</small>	<small>By: [unclear]</small>	<small>Date: 2014/05/21</small>
<small>Scale: 1:12500</small>	<small>Project: [unclear]</small>	

R29

R28W1



T7

T7

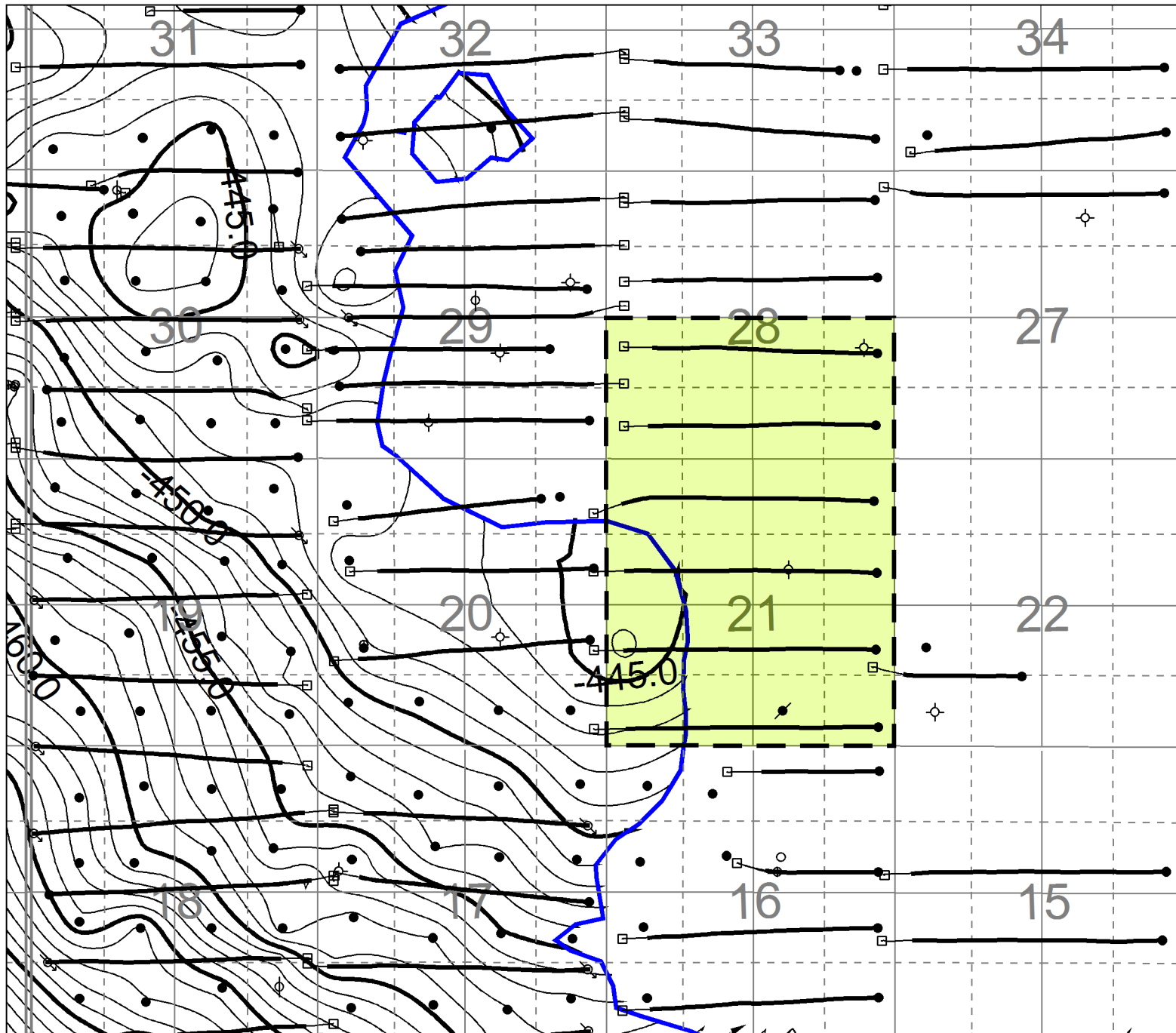
R29

R28W1

Tundra Oil & Gas Partnership
 EWART UNIT No. 6
 Middle Bakken Structure CI=1m
 APPENDIX 8
 Licensed by: Tundra Oil and Gas Ltd
 By: [Signature] Date: 09/11/2023
 Scale: 1:25000 Project: 2023-01-01

R29

R28W1



T7

T7

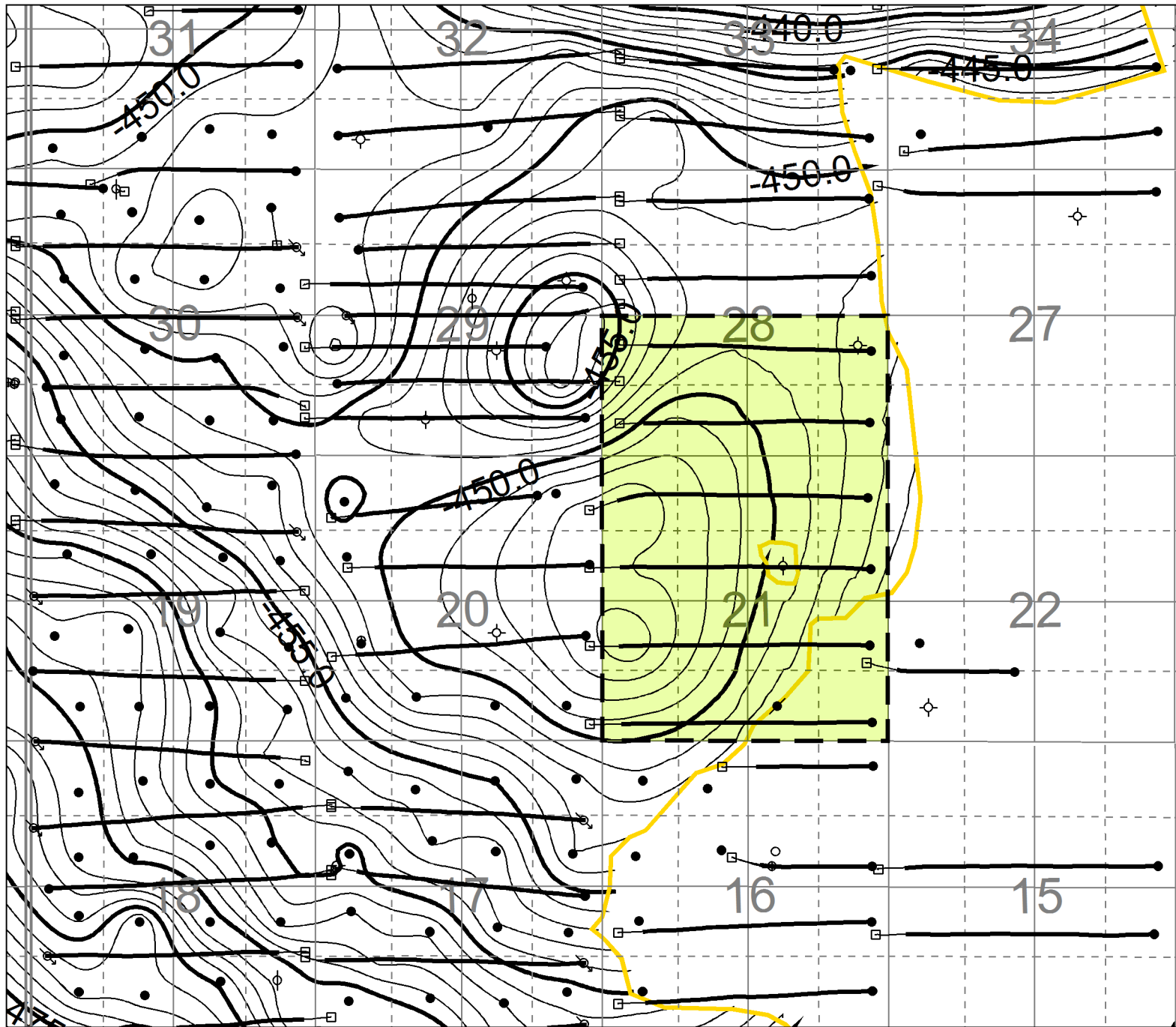
R29

R28W1

Tundra Oil & Gas Partnership
 Ewart Unit No. 6
 Lyleton Upper A Structure CI=1m
 APPENDIX 9
 Licensed to: Tundra Oil & Gas Partnership
 By: 11/20/2019 Date: 2019/05/29
 Scale: 1:50,000 Project: Structure Data

R29

R28W1



T7

T7

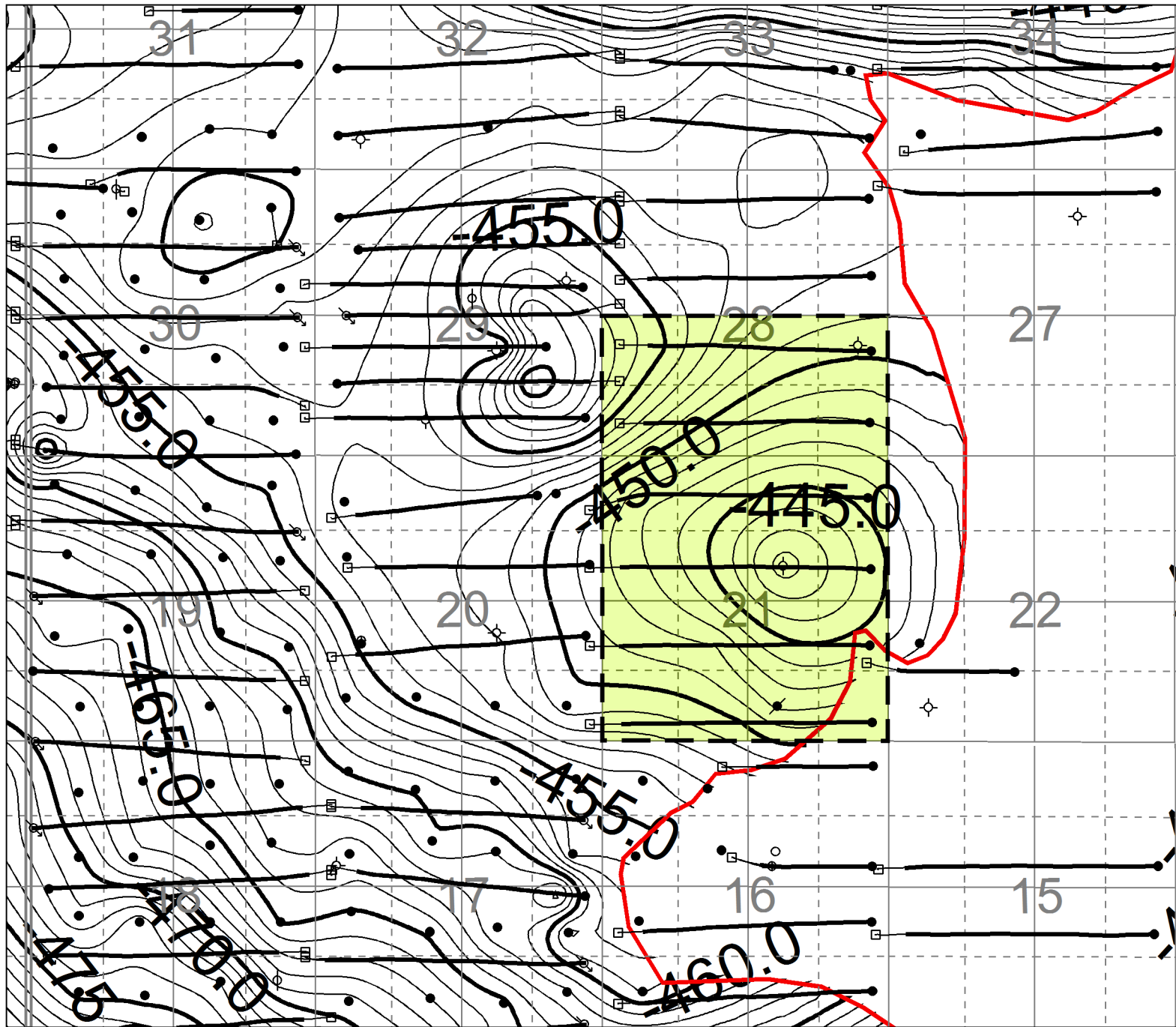
R29

R28W1

Tundra Oil & Gas Partnership
 EWART UNIT No. 6
 Lyleton Lower A Structure CI=1m
 APPENDIX 10
 Licensed to: Tundra Oil & Gas Partnership
 By: 11/20/2010 Date: 2011/05/26
 Scale: 1:50000 Project: Structure Data
 gSCOUT

R29

R28W1



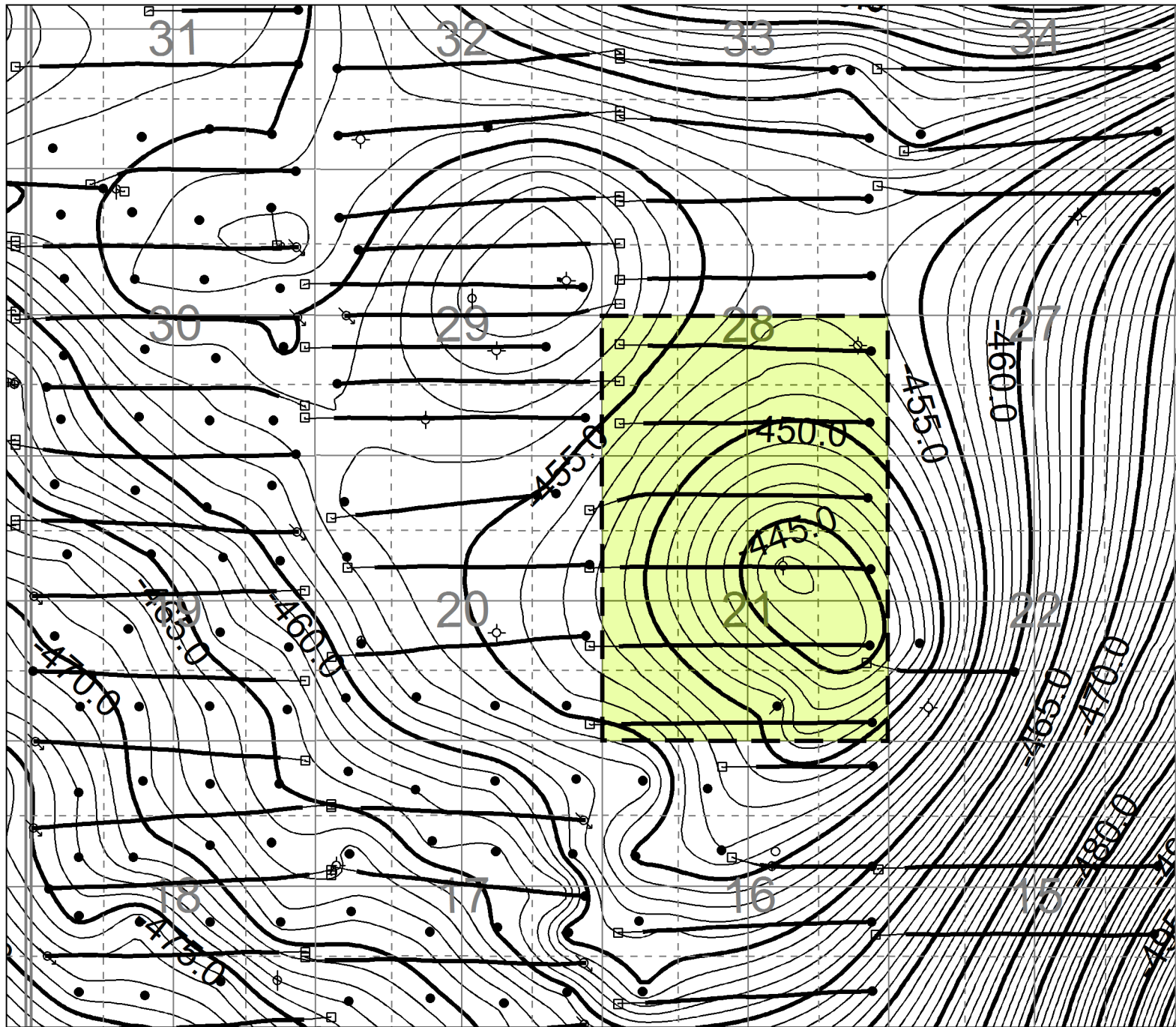
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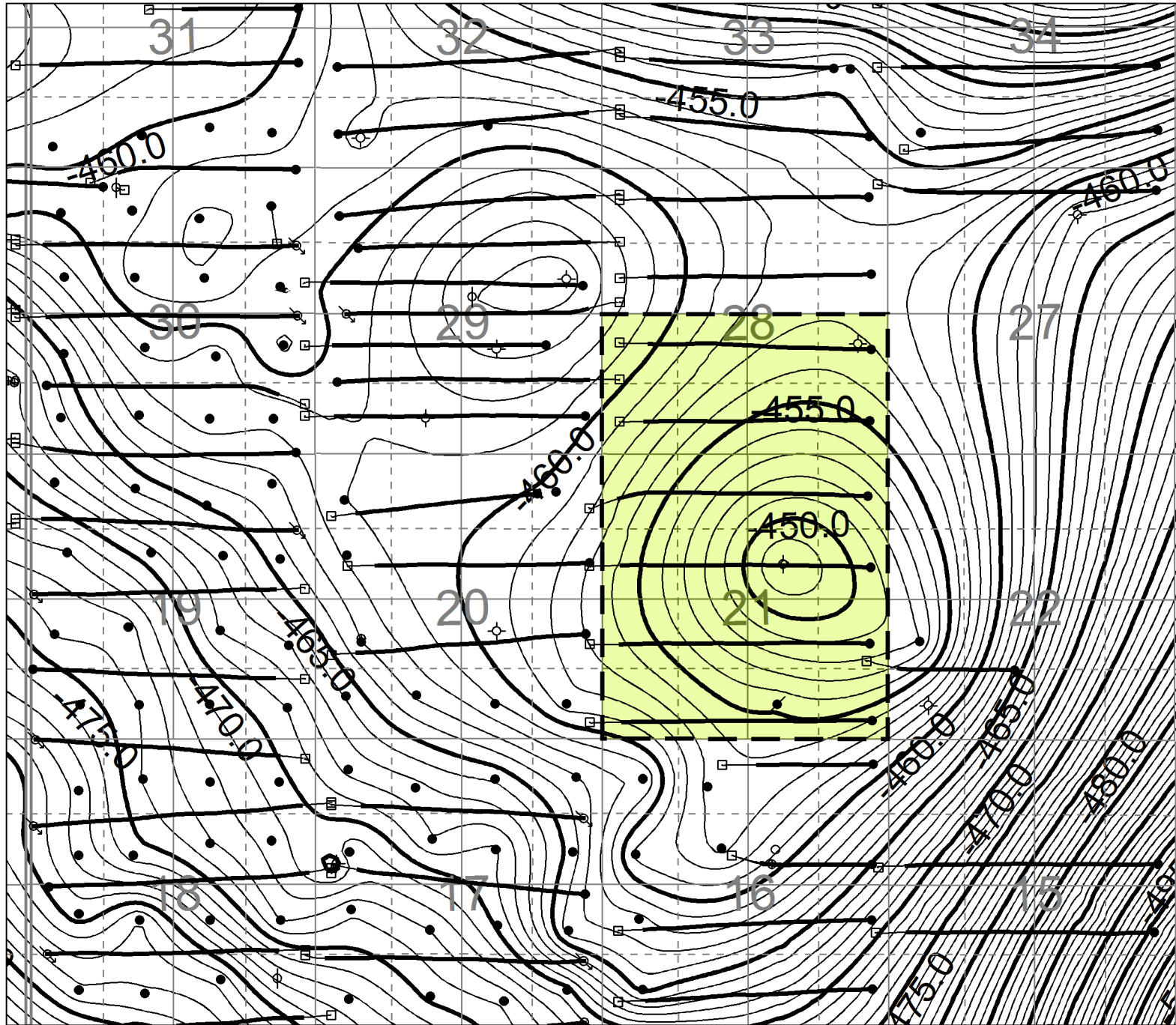
T7

R29

R28W1

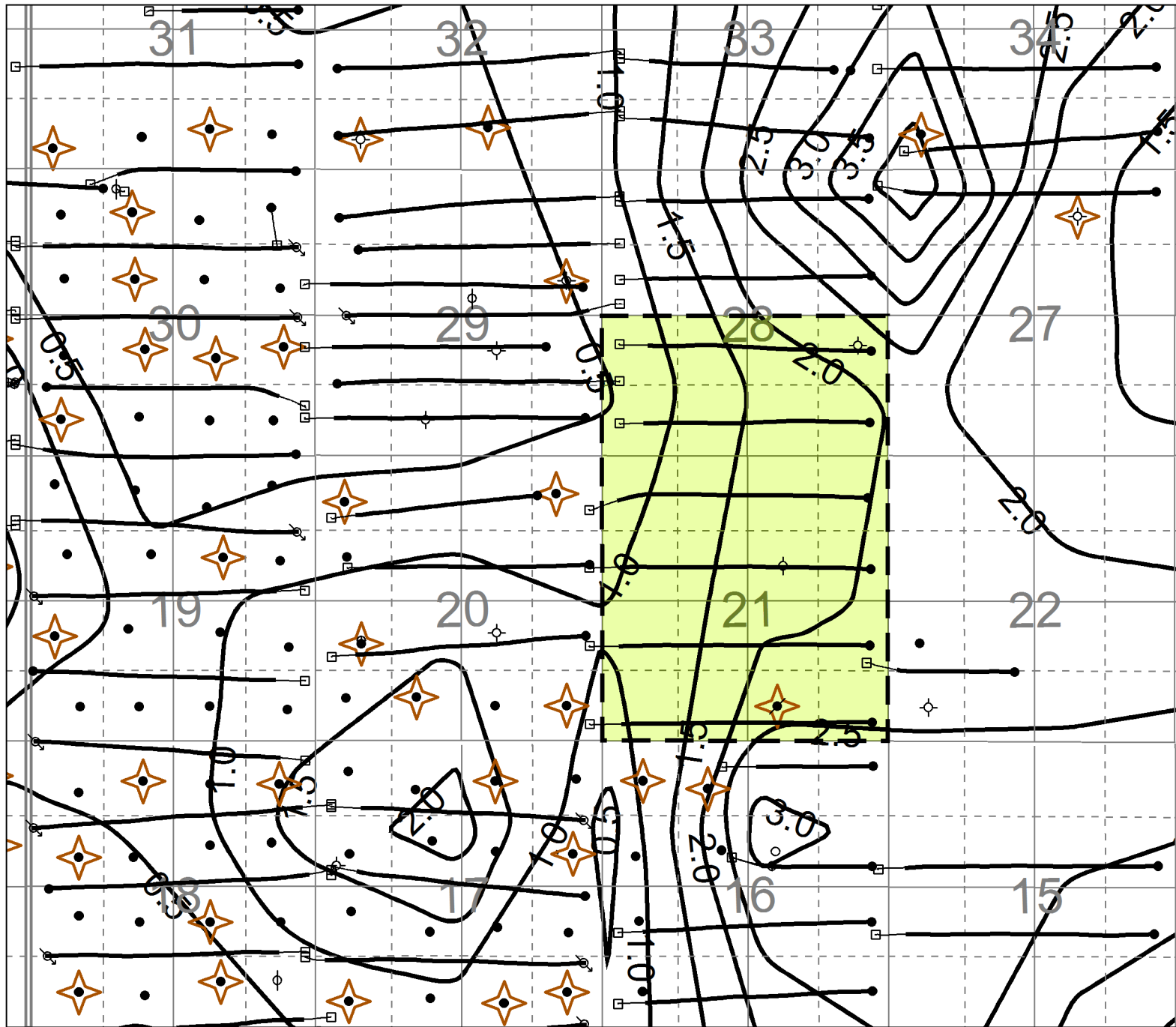
Tundra Oil & Gas Partnership
 EWART UNIT No. 6
 Red Shale Structure CI=1m
 APPENDIX 11
License to: Tundra Oil & Gas Partnership
gSCOUT





R29

R28W1



T7

T7

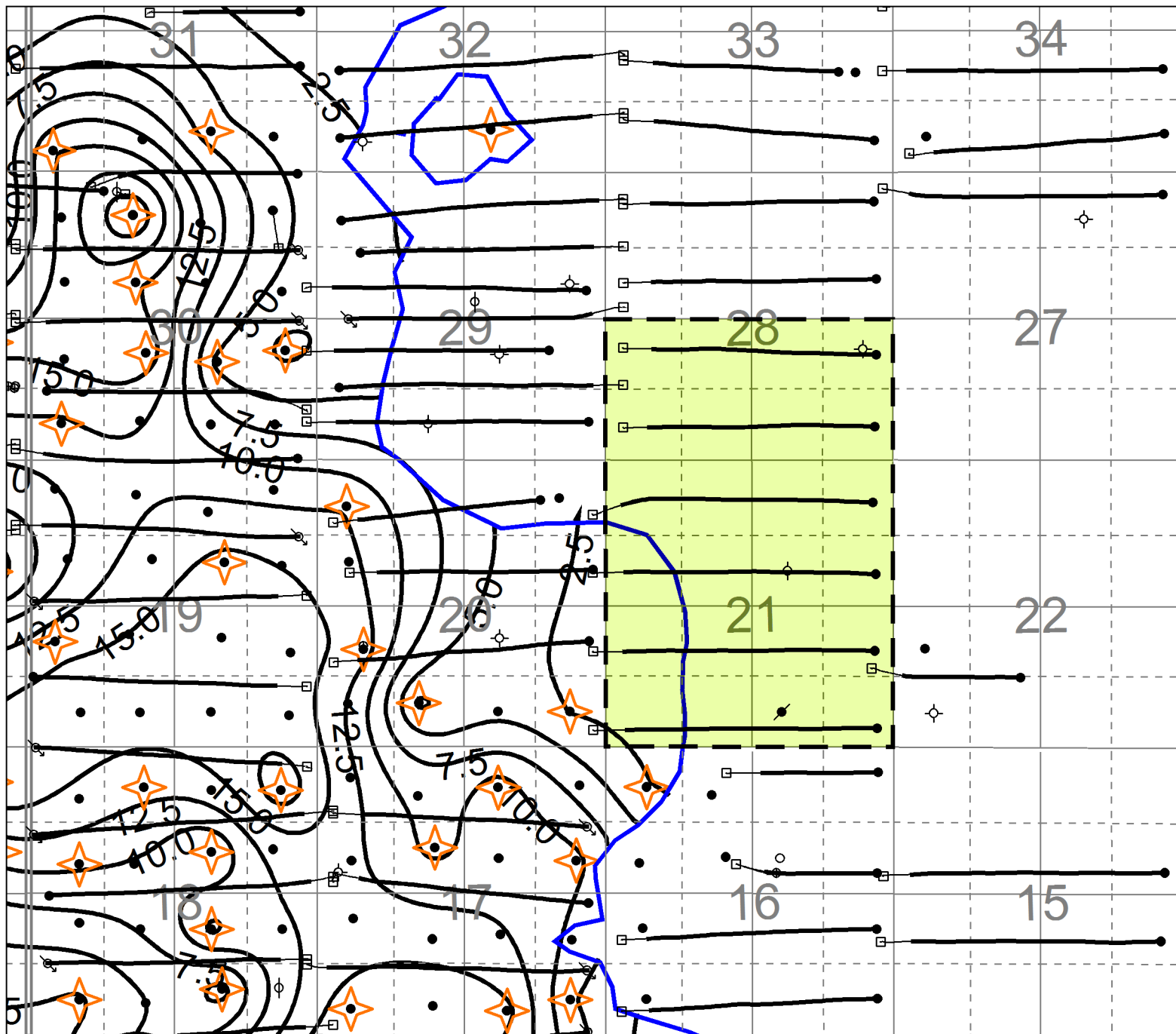
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Middle Bakken k-h@0.5mD CO CI=0.5	
APPENDIX 14	
Licensed by: Tundra Oil & Gas Partnership	
By: [unclear]	Date: 2014/02/21
Scale: 1:12500	Project: [unclear]

R29

R28W1



T7

T7

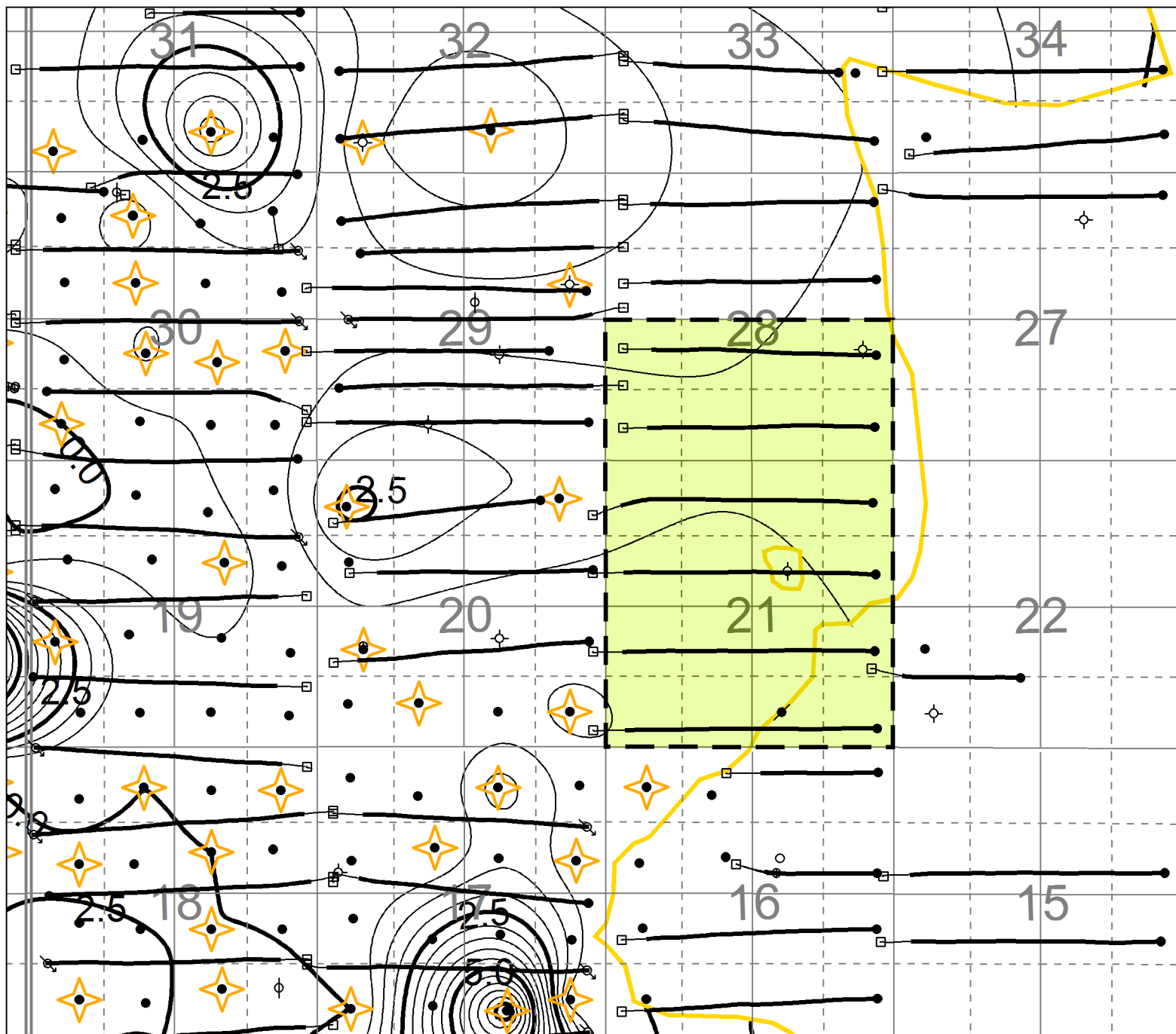
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Lyleton Upper A k-h@1.0mD CO CI=2.5	
APPENDIX 15	
By: [Signature]	Date: 2014/05/29
Scale: 1:10000	Project: Section 15

R29

R28W1



T7

T7

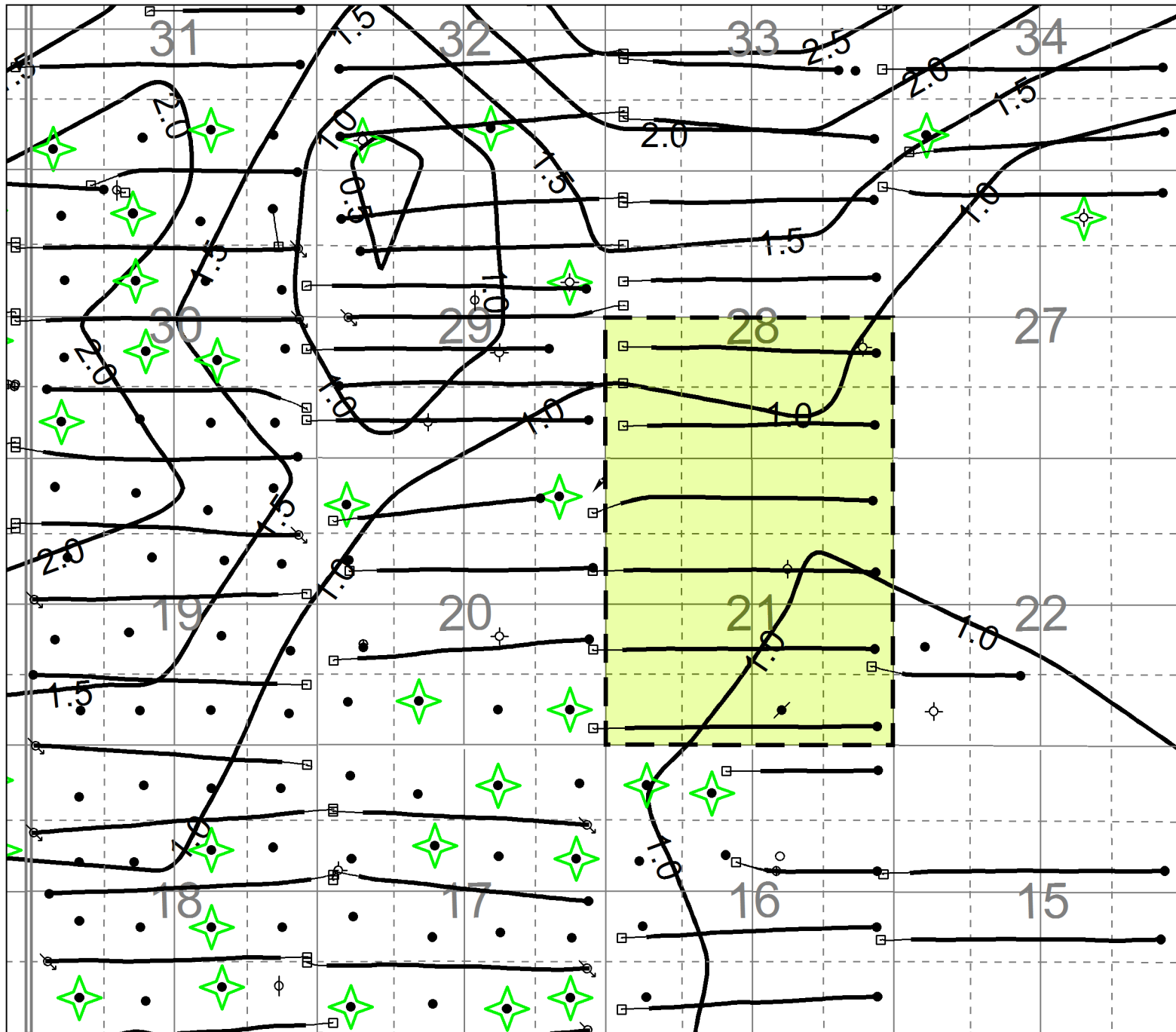
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Lyleton Lower A k-h@1.0mD CO CI=0.5	
APPENDIX 16	
<small>License No. Tundra Oil & Gas Partnership</small>	<small>Page 28/40/59</small>
<small>By: [unclear]</small>	<small>Print: [unclear]</small>
<small>Scale: 1:10000</small>	<small>Project: [unclear]</small>

R29

R28W1



T7

T7

R29

R28W1

Tundra Oil & Gas Partnership

EWART UNIT No. 6

Lyleton B k-h@0.5mD CO CI=0.5

APPENDIX 17

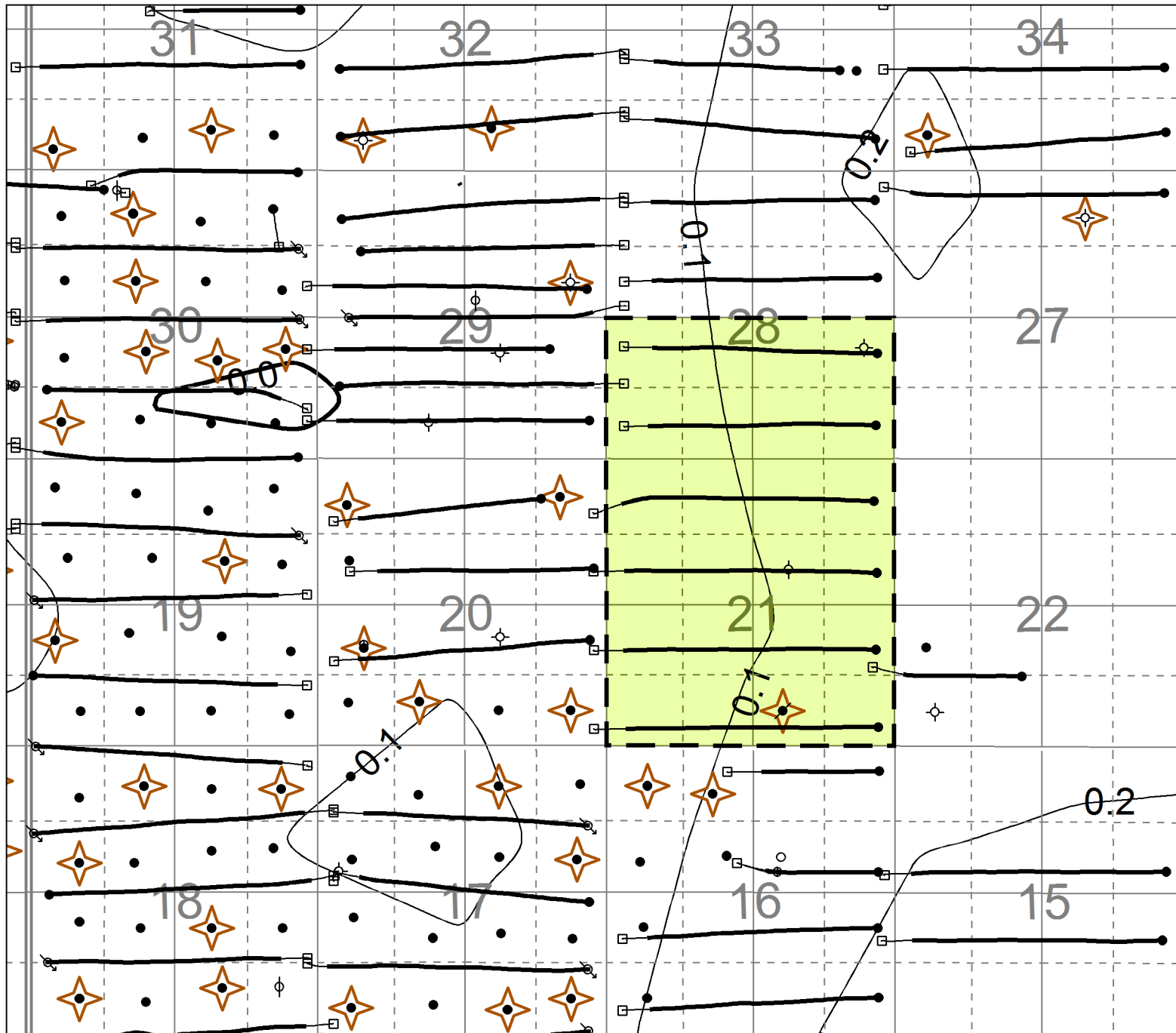
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gSCOUT

R29

R28W1



T7

T7

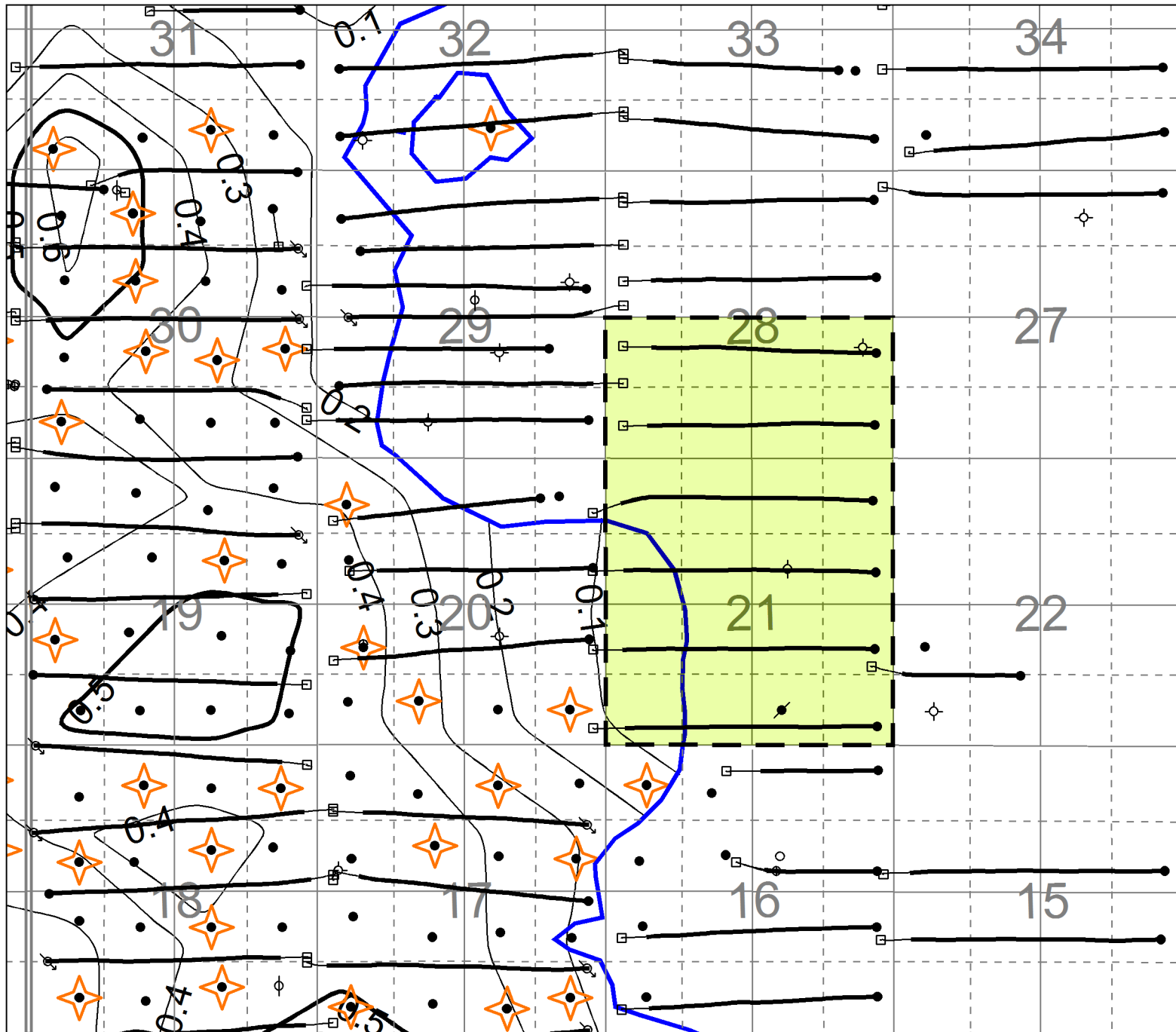
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Middle Bakken phi-h@0.5mD CO CI=0.1	
APPENDIX 18	
<small>License No. Tundra Oil & Gas Partnership</small>	<small>Page: 20/110/020</small>
<small>By: 11/2017</small>	<small>Scale: 1:10000</small>
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R29

R28W1



T7

T7

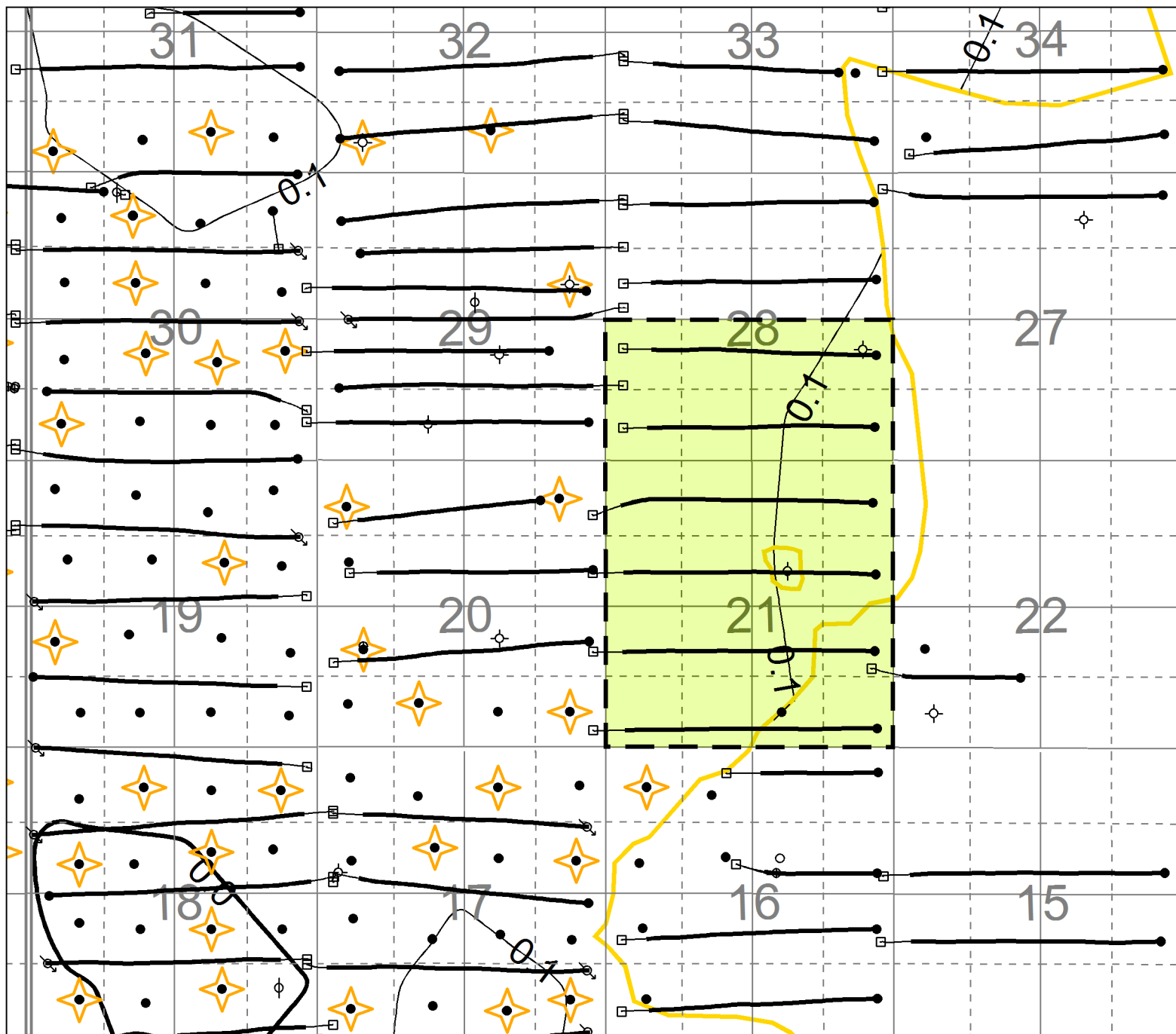
R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Lyleton Upper A phi-h@01.0mD CO CI=0.1	
APPENDIX 19	
By: [Signature]	Date: 2017-02-09
Scale: 1:10000	Project: 200001-000

R29

R28W1



T7

T7

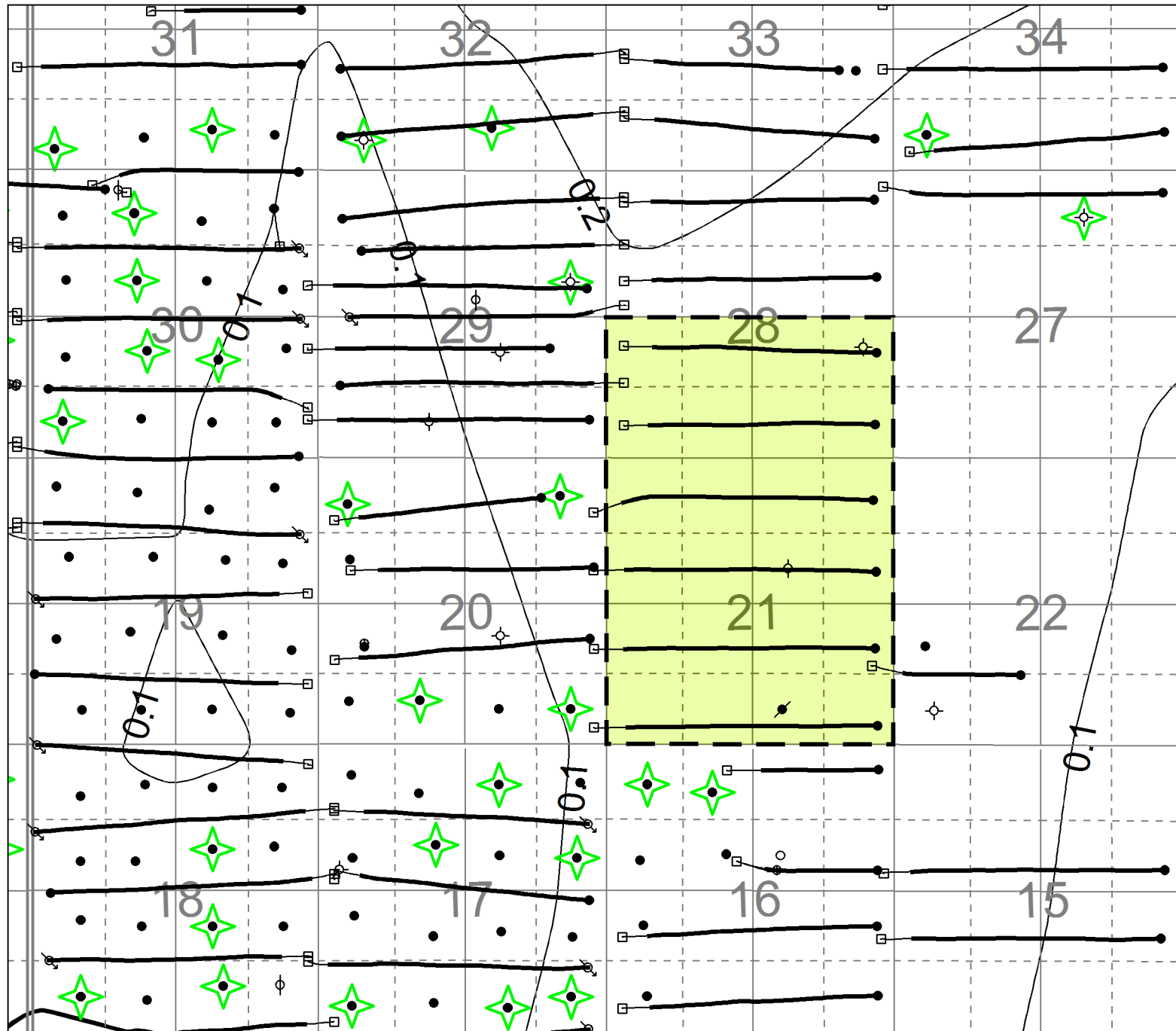
R29

R28W1

Tundra Oil & Gas Partnership	
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By: [Signature]	Date: 2017-02-09
Scale: 1:50000	Project: 200001-000

R29

R28W1



T7

T7

R29

R28W1

Tundra Oil & Gas Partnership	
EWART UNIT No. 6	
Lyleton B phi-h@0.5mD CO CI=0.1	
APPENDIX 21	
Prepared by: Tundra Oil & Gas Partnership	Date: 2014/02/20
By: [Signature]	Scale: 1:5000
Project: [Signature]	Project: [Signature]



R29

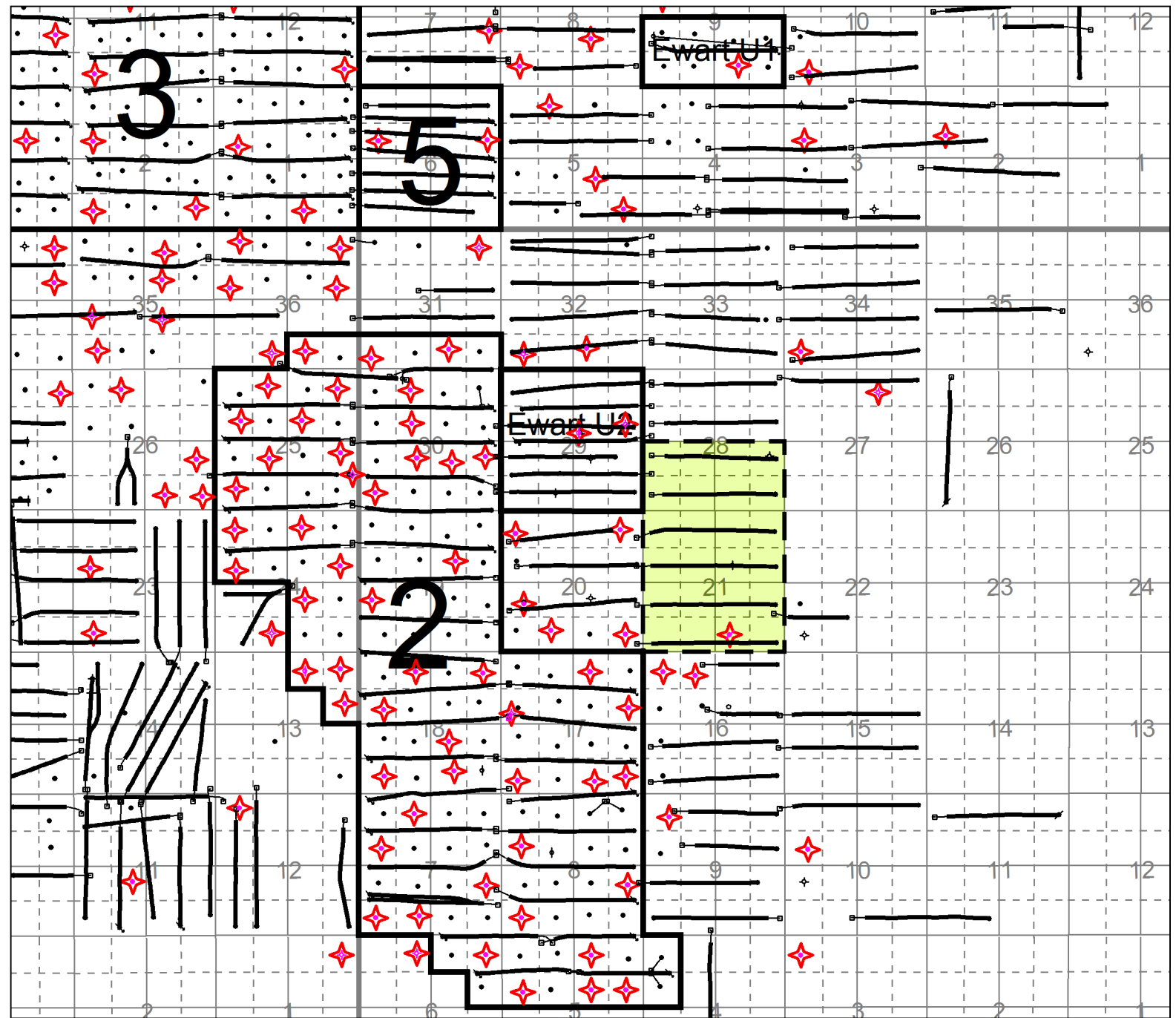
R28W1

T8

T8

T7

T7



R29

R28W1