PROPOSED VIRDEN ROSELEA UNIT NO. 4

APPLICATION FOR ENHANCED OIL RECOVERY WATERFLOOD PROJECT

LODGEPOLE FORMATION

VIRDEN, MANITOBA

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Corex Resources Ltd.

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INTRODUCTION

The Virden Lodgepole B Pool is located in Townships 9 to 11 Ranges 25 to 26 W1M. The field was originally developed with vertical wells but recent exploitation has shifted to horizontal development. Corex Resources Ltd. (Corex) drilled the first horizontal well on the proposed unit lands at 102/06-24-010-26W1M and has an additional two (2) Lodgepole horizontal wells planned in the second half of 2017.

Corex is proposing a unit be created in the SW/4 of Section 24 in Township 10 Range 26 W1M and believes the potential exists for incremental production and reserves from an Enhanced Oil Recovery (EOR) waterflood project in the Lodgepole formation. Currently, Corex is the operator of the lands within the proposed unit that contains 1 horizontal well, and 5 vertical wells (all are currently abandoned and one of these vertical wells was a Cretaceous disposal well). We anticipate converting one (1) of the future horizontal wells into an injector when implementing the EOR waterflood project. Corex plans to produce the newly drilled wells for a year before converting them to injectors. Corex hereby submits an application to establish Virden Roselea Unit No. 4 and implement an EOR Waterflood Project within the Lodgepole formation (Figure 1).

The proposed Virden Roselea Unit No. 4 falls within the Virden Lodgepole B Pool (Figure 2).

SUMMARY

1. The proposed Virden Roselea Unit No. 4 is to include six (6) wells (4 vertical wells that were previously producing, 1 abandoned disposal well, and 1 producing horizontal well) within the 4 legal subdivisions (LSD) that were completed in the Lodgepole formation (Figure 1).

2. The original oil in place (OOIP) for the proposed Virden Roselea Unit No. 4 is calculated as 831.8 10^3m^3 (5,232 Mbbl), for an average of 208 10^3m^3 (1,308 Mbbl) per LSD.

3. Cumulative production in the proposed Virden Roselea Unit No. 4 to the end of December 2016 is 15.6 10^3m^3 (98.2 Mbbl) of oil. This represents a 1.9% recovery factor of the total OOIP.

4. In September 1956, the wells in the proposed Virden Roselea Unit No. 4 had an oil production rate of 7.6 m^3/d (47.7 b/d), along with 22.5 m^3/d (141.7 b/d) of water. The corresponding water cut is 74.9% (Figure 3). The last production from the original vertical wells was in August 2010. Currently, all four vertical wells and the vertical disposal well are abandoned. Presently (December 2016), the proposed Virden Roselea Unit No. 4 is producing 13.9 m^3/d (87.3 b/d) of oil and 6 m^3/d (37.7 b/d) of water. This is due to the drilling of a horizontal well within the proposed unit.

5. The Estimated Ultimate Recovery (EUR) of oil on primary production within the proposed Virden Roselea Unit No. 4 using decline analysis and a reservoir model is 39.8 10^3m^3 (250.2 Mbbl), with 24.2 10^3m^3 (152.2 Mbbl) remaining as of December 2016. The Estimated

Ultimate Recovery Factor (EURF) would be 4.8% of the total OOIP in the Lodgepole section.

6. With the implementation of a waterflood within the Scallion member of the Lodgepole formation, incremental reserves of 23.6 10^3m^3 (148.7 Mbbl) are expected while the incremental recovery factor is expected to be 2.8% for a total recovery factor of 7.6%.

7. The development plan will be to continue producing the existing horizontal well and in the second half of 2017 drill the remaining two horizontal wells. One horizontal well will be converted into water injection and the waterflood will be initiated in late 2018 (Figure 4). This timing is contingent upon the approval of the unitization and EOR waterflood application. All horizontal wells in the proposed Virden Roselea Unit No. 4 are completed openhole.

GEOLOGY

Stratigraphy

The Lodgepole formation in the proposed unit area conformably overlies the Bakken formation and contains a number of hydrocarbon-bearing intervals. It was deposited in a gently sloping carbonate ramp setting and has been subdivided by Corex into a series of laterally continuous, shallowing upwards cycles. In ascending order, the sequence consists of a non-reservoir cycle, the Routledge Shale, which is overlain by three reservoir cycles, the Scallion, the Sandhill/Oolites and the Virden, and is then capped by another non-reservoir cycle, the Whitewater Lake. The Flossie Lake member of the Lodgepole has been eroded in the proposed unit area. The Lodgepole formation is unconformably overlain by the red silts and shales of the Lower Amaranth, which are in turn overlain by the anhydrites and shales of the Upper Amaranth that form the top seal for the Lodgepole hydrocarbon system. The stratigraphy of the Lodgepole formation is shown on a structural cross section which runs west to east through the proposed unit (Appendix I).

Sedimentology

Starting at the base of the Lodgepole section and working upwards, the first cycle immediately overlying the Bakken formation is the Routledge Shale. The Routledge Shale is a black to dark grey to, occasionally, brown fissile calcareous shale. This shale cycle was deposited in a relatively deep, low energy, distal ramp environment. The Routledge Shale is non-reservoir and it is capped by the Scallion.

The overlying Scallion is the first reservoir quality cycle deposited within the Lodgepole Formation. It is comprised of cream to tan microcrystalline limestone with varying amounts of chert and occasional vertical fracturing. This unit is typically biofragmental with minor argillaceous interbeds. Bioclastic components are dominated by crinoids and shell fragments. All of this indicates deposition in a relatively quiet shallow marine proximal ramp environment.

The wells in the proposed unit area do not go through the entire Scallion reservoir interval. Therefore, reservoir parameters and fluid contacts have been interpreted from the available data in these wells along with data in offset vertical wells. The Scallion reservoir thickness varies across the area, as seen from the isopach (gross pay) map (Appendix II), but is generally quite thick in the proposed unit area. The net pay values, using a 9% porosity cutoff and 1mD permeability cutoff, have an interpreted range of 8.5 to 12m with gross reservoir thickness ranging from 13 to 15m (Appendices III and II respectively). Porosity ranges from 9 to 20% and permeability ranges from 1 to over 100mD in the nearby wells with core analysis data. The Scallion is the primary target for horizontal wells drilled by Corex and for the proposed waterflood.

The Sandhill/Oolites is the next reservoir unit and consists of a package of five thin shallowing upwards cycles, indicating frequent sea level changes. Each cycle consists of an oil-bearing cream to tan oolitic wackestone that is capped by a barren pink to maroon argillaceous mudstone. Anhydrite is present in minor amounts, and in the proposed unit area the upper two cycles are more dolomitized. There is also occasional vertical fracturing. The oolitic wackestones are indicative of deposition in a relatively high energy but shallow water environment, while the argillaceous limestones are indicative of a relative sea level fall and the development of a lower energy, shallow, restricted environment. This is typical of a proximal to restricted ramp setting. The Sandhill/Oolites section thickens towards the southeast in the proposed unit area, with gross thickness values ranging from 11 to 18m (Appendix VI) and net pays from 4 to 6m (Appendix VII), using a 9% porosity cutoff and 1mD permeability cutoff. The wells with core analysis data show that porosity ranges from 9 to 17% and permeability ranges from 1 to 75mD in the reservoir zones. The Sandhill/Oolites are a secondary target for both drilling and waterflood in the proposed unit area.

The Virden is a cream to tan cryptocrystalline dolomite with varying amounts of anhydrite and minor argillaceous components. Deposition of this shallowing upward sequence occurred in a more lagoonal, shallow marine, restricted ramp environment. Although it does contain oil in the proposed unit area, it is generally very poor reservoir here and it is not currently considered a target for development. Porosity ranges from 6 to 15% and permeability ranges from 0.1 to 20mD in the wells with core analysis data. The unit varies in gross reservoir thickness from 6 to 8m (Appendix X) with net pays (Appendix XI) ranging from 0 to 3m using a 6% porosity cutoff and 0.4mD permeability cutoff.

The final cycle of the Lodgepole sequence in the proposed unit area is the Whitewater Lake. The Whitewater Lake is a cream to tan to grey micritic dolomudstone to cryptocrystalline dolomite. Anhydrite is common, as are minor argillaceous partings. There is a minor bioclastic component composed of skeletal fragments. Deposition of this cycle occurred in a very shallow water, nearshore lagoon, restricted ramp environment. Within the proposed unit area, the Whitewater Lake is tight and is considered non-reservoir. The gross isopach ranges from 10 to 15m.

Structure

The structure within the proposed unit area is generally relatively flat, but it dips down very quickly on the extreme east side of the proposed unit as the beds roll over into a structural low caused by dissolution of the underlying Prairie Evaporite. This dissolution event is mapped from proprietary 3D seismic and confirmed by both the 100/2-24-10-26W1 and 102/6-24-10-26W1 wells. There is no direct evidence from wells or seismic indicating significant faulting at the Lodgepole level in the vicinity of the proposed unit area. Structure maps for all three reservoir units are included in Appendices XIV to XVI.

Reservoir

Maps for each of the three reservoir units were generated using available open-hole logs and core data, and include net pay, porosity-thickness, and permeability-thickness. These maps are in Appendices III to V for the Scallion, VII to IX for the Sandhill/Oolites, and XI to XIII for the Virden. Pore volume and permeability-thickness values could only be calculated for wells with core analysis data, which is a very small number of the wells in and around the proposed unit area. Net pay for the Scallion and Sandhill/Oolites was calculated using a 9% porosity cutoff and a 1mD permeability cutoff. Both of these reservoir units are considered conventional reservoirs and are produced from open-hole completions. Net pay for the Virden was calculated using a 6% porosity cutoff and a 0.4mD permeability cutoff. This reservoir unit is considered an unconventional reservoir and must be hydraulically fractured to produce. Weighted average permeability and porosity were calculated using the same cutoffs as used for net pay.

Fluid Contacts

The oil-water contact in the unit area is interpreted at -197.5m SS from log and core data in offsetting wells that drilled through the contact. In the proposed unit area, this contact lies within the Scallion reservoir unit.

OIL IN PLACE, PRODUCTION HISTORY AND ESTIMATED RECOVERY

Original Oil in Place

The original-oil-in-place (OOIP) for the proposed Virden Roselea Unit No. 4 is 831.8 10^3m^3 (5,232 Mbbl), for the Lodgepole formation. The OOIP was calculated in-house. Values of thickness, porosity and water saturation of each LSD for the various reservoir zones are used to calculate the OOIP on an individual LSD basis. Details of the calculations are summarized in Table 1.

Historical Production

Figure 3 shows the production history of the wells within the proposed Virden Roselea Unit No. 4. There are four (4) vertical wells that have produced previously and are currently abandoned and one (1) abandoned vertical disposal well as well as one (1) horizontal well within the unit. Currently, only the horizontal well is on production. Historically, there has been no injection or disposal into the Lodgepole formation within the proposed Virden Roselea Unit No. 4. The producing wells have all produced from the Lodgepole formation.

To the end of December 2016, the proposed Virden Roselea Unit No. 4 has produced cumulative volumes of oil at 15.6 10^3m^3 (98.2 Mbbl) and water at 58 10^3m^3 (364.9 Mbbl). The current recovery factor is 1.9%.

Development began in July 1954, with two (2) vertical wells. In September 1956, the wells in the proposed Virden Roselea Unit No. 4 had a peak oil production rate of 7.6 m^3/d (47.7 b/d), along with 22.5 m^3/d (141.7 b/d) of water. The corresponding water cut is 74.9%. The last production from the original vertical wells was in August 2010. Currently, all four producing vertical wells, as well as the vertical disposal well are abandoned.

Currently (December 2016), the proposed Virden Roselea Unit No. 4 is producing 13.9 m^3/d (87.3 b/d) of oil and 6 m^3/d (37.7 b/d) of water, this is due to the drilling of a horizontal well within the proposed unit. Presently, there is no water injection or disposal; all fluids are taken to the Virden Roselea Unit No. 1 battery.

Primary Recovery

Table 3 lists the wells within the proposed unit area; together with the cumulative oil production to the end of December 2016 and the EUR estimated using decline analysis. The total EUR for the proposed Virden Roselea Unit No. 4 is 39.8 10^3m^3 (250.2 Mbbl), for a recovery factor of 4.8% of the total OOIP in the Lodgepole section.

Secondary Recovery

Within the Lodgepole formation, the proposed waterflood will target the Scallion member, which contains over 69% of the total OOIP. A section model of only the Scallion formation was built to estimate the expected recovery from waterflooding the Scallion member. This section model used average reservoir properties and was tuned to match the type production profile of a representative horizontal producer within the Scallion member. With three (3) horizontal wells at roughly 300m well spacing, model results suggest an EURF of 6.9% under primary depletion. With the middle horizontal well converted into injection, the section model yields an EURF of 11%, or an incremental recovery factor of 4.1%. Note that these recovery factors are based on the OOIP of the Scallion formation only and not the entire Lodgepole formation. Additional information on the section model is included in Appendix XVII.

UNITIZATION

The basis for unitization is to implement a waterflood to increase the ultimate recovery of the OOIP from the proposed project area.

Unit Name

Corex proposes that the name of the new unit shall be Virden Roselea Unit No. 4.

Unit Operator

Corex will be the Operator for Virden Roselea Unit No. 4.

Unitized Zones

The unitized zone to be waterflooded in the Virden Roselea Unit No. 4 will be the Lodgepole Formation.

Unit Wells

The six (6) wells (1 horizontal, 4 vertical, and 1 vertical disposal well) in the proposed Virden Roselea Unit No. 4 are outlined in Table 2 with their current status.

Unit Lands

The Virden Roselea Unit No. 4 will consist of all 4 LSDs within the South-West Quarter of Section 24, Township 10, Range 26W1. The lands included in the 40 acre tracts are outlined in Appendix XVIII.

Tract Factors

The proposed Virden Roselea Unit No. 4 will consist of four (4) tracts based on remaining OOIP using maps created internally by Corex per LSD, as of December 2016, with the production from the horizontal wells being divided according to the existing production allocation agreement. The calculation of the tract factors are outlined in Table 1.

Working Interest Owners

Appendix XVIII outlines the working interest for each recommended tract within the proposed Virden Roselea Unit No. 4. Corex will have a 100% WI across all tracts.

WATERFLOOD DEVELOPMENT

The objective of implementing a waterflood is to provide pressure support and improve recovery. The Lodgepole formation is relatively shallow, with undersaturated oil having low solution gas-oil ratios. As such, there is not much drive energy within the system. Corex believes that additional energy is required to improve the recovery. Waterflooding will enhance the recovery by providing pressure support as well as displacing the oil from the injectors towards the producers.

With the success of the recently drilled horizontal well another two horizontal wells are planned in the second half of 2017. After a period of primary recovery, Corex intends to convert the middle producer to injection to support the other existing wells and implement a waterflood. The conversion to injection is expected to occur in late 2018.

Rock and Fluid Properties

Rock and fluid properties for the Lodgepole formation are summarized in Table 4. These properties were estimated using standard correlations in the literature and using existing oil analysis and PVT data.

Using Corex's internal database on step rate tests in the Lodgepole, the fracture gradient for the Lodgepole formation in the Virden area is estimated to range between 19.0 kPa/m and 23.4 kPa/m, with an average of 21 kPa/m. The surface fracturing pressure is estimated to range between 5,357 kPa and 8,130 kPa. Based on the average fracture gradient a surface fracturing pressure of 6,617 kPa is anticipated. A step rate test will be conducted to confirm the fracturing pressure once the proposed injectors are converted.

Estimated Recovery

Using the results from a Scallion section model, the incremental reserves of 23.6 10^3m^3 (148.7 Mbbl) are expected. Based on the total OOIP for the Lodgepole formation, the incremental recovery factor is expected to be 2.8% for an overall recovery factor of 7.6%.

Economic Limit

The economic limit will be when the net oil rate and net oil price revenue stream becomes less than the current producing operating costs. Based on current price forecasts, the economic limit for the project would be 1 m^3/d.

Source of Injection Water and Waterflood Facilities

The source of the injection water will be from the Lodgepole formation. The water supply will come from the offsetting unit, Virden Roselea Unit No. 3 (VRU #3). This unit is also operated by Corex Resources. VRU #3 produces from the Lodgepole formation and already has facilities in place for water injection. A flowline will be run from the VRU #3 high pressure injection system to Virden Roselea Unit No.4. The flowline will be approximately 1,000 meters in length and ties into VRU #3 at 14-13-010-26W1. There will be no additional waterflood facilities required for Virden Roselea Unit No. 4.

A simplified process flow diagram of the system is located in Figure 6. All producing wells will flow to test separators before entering gathering systems in Roselea Units #1 and #3. All injection wells will have turbine meters (totalizers) at the wellhead to record water injection volumes.

Water injection volumes and balancing will be utilized to monitor the entire system measurement and integrity on a daily basis. The corrosion control program outlining the planned system design and operational practices to prevent corrosion is located in Figure 7.

Operating Strategy

The proposed injection scheme within the proposed Virden Roselea Unit No. 4 can be seen in Figure 4. At this time there is only one well that is foreseen to be converted to injection.

Injection rates are expected to be in the range of 45 m^3/d to 95 m^3/d, subject to a maximum injection pressure of 5,900 kPa at the well head. This maximum pressure is based on a fracture pressure of 6,617 kPa and a safety factor of 90%. The maximum pressure will be confirmed by a step rate test prior to conversion. Initially, injection will target a monthly voidage replacement ratio (VRR) between 1.25 and 1.75. This over-injection will serve to replace the existing voidage within the proposed unit area. Once a cumulative VRR of one is attained, the injection rate will be scaled back to maintain the VRR at one, both on a monthly basis and a cumulative basis.

All producers will be kept at pump-off condition.

Pressure

The initial pressure is estimated to be between 6,500 kPa and 6,800 kPa. This is based on the depth of the Scallion zone and a static gradient ranging between 10.5 kPa/m and 10.8 kPa/m. Recently, a pressure measurement was taken on the newly drilled horizontal well, as follows:

- A build-up test was conducted on Well 102/06-24-010-26W1/00 from November 2nd to November 4th, 2016. Results suggest a pressure of 4,024 kPa, when corrected to the datum.

The pressure is lower than the initial pressure due to offsetting production depleting the reservoir pressure. Waterflooding will help to re-pressurize and add energy to the reservoir. As seen by the recorded pressure, the reservoir pressure is below its initial value and with further drilling within the unit the pressure will drop further. Therefore, a waterflood scheme is deemed to be beneficial. Upon conversion, during the initial over-injection period, the reservoir pressure is expected to increase from the current level. Once the cumulative VRR reaches one, a monthly VRR of one will be maintained.

Wellbore and Surface Piping Specifications and Corrosion Control

All injection flowlines will have a maximum operating pressure of 8,000 kPa (consistent with VRU #1 and VRU #3). Typical operating pressure is expected to be around 6,000 kPa.

All emulsion flowlines will have a maximum operating pressure of 2,870 kPa (consistent with VRU #1 and VRU #3). Typical operating pressure is expected to be around 1,200 kPa. Maximum pump discharge from the VRU #3 injection pump is 7,000 kPa, limiting maximum wellhead pressure to 7,000 kPa. All wellheads are rated to 21 MPa.

Corex's planned corrosion control program is as follows:

Pipelines

- All pipelines are fiberglass. No corrosion inhibitor is required

Surface piping

- All above ground piping and wellheads will be internally coated for producing wells. Injection well piping will be either internally coated or stainless steel. No corrosion inhibitor is required.

Producing Wells (Downhole)

- Continuous corrosion inhibition down annulus as required.
- Cathodic protection on casing

Injection Wells (Downhole)

- Inhibited fluid in annulus
- Internally coated packer and tubing
- Cathodic protection on casing

Waterflood Surveillance

Waterflood response within the proposed Virden Roselea Unit No. 4 will be closely monitored with the following:

- Regular production well testing to monitor fluid rate and water cut to watch for waterflood response
- Comparison of daily injection rates and pressure monitoring to targets
- Monitor monthly and cumulative voidage replacement ratio by pattern and overall unit
- Evaluation of Hall plots
- New injection targets will be sent to the field on a regular basis

Project Schedule

With the success of the recently drilled horizontal well another two horizontal wells are planned in the second half of 2017. After a period of primary recovery, Corex intends to convert the middle producer to injection to support the other existing wells and implement a waterflood.

NOTIFICATIONS

Corex has circulated notification letters to all surface and mineral owners of the proposed EOR project and formation of the Virden Roselea Unit No. 4 and has also provided notification to all offsetting surface and mineral owners to the application area. Copies of the Notices, and proof of service, to all surface rights owners will be forwarded to the Petroleum Branch, when available, to complete the Virden Roselea Unit No. 4 Application.

Unitization and execution of the formal Virden Roselea Unit No. 4 agreement by affected mineral owners will occur once the Petroleum Branch has reviewed the tract factors. Copies of the agreement will be forwarded to the Petroleum Branch to complete the Virden Roselea Unit No. 4 application.

Should you have any comments and/or questions regarding this application, please contact Peter Parkinson or Myles Simonar, Engineering, at (403) 718-6371 or peterp@corexresources.ca or (587) 390-0290 or myless@corexresources.ca, respectively.

COREX RESOURCES LTD.

[redacted]

David [redacted]
Executive VP Land

Table 1 – Summary of Original Oil In Place and Tract Factor Calculations

Proposed Virden Roselea Unit No. 4
Lodgepole Unit

Tract	Tract	Total	1	2	3	4
LSD	Weighting		03-24-010-26W1	04-24-010-26W1	05-24-010-26W1	06-24-010-26W1
Tract Factor		100.000000000%	22.571532996%	25.444583285%	26.164718612%	25.819165107%
Virden						
Area (ac)		160	40	40	40	40
h (m)			0.0	3.0	2.2	1.1
Vb (ac-ft)		827	0	394	289	144
phi			9.3%	9.2%	9.5%	9.5%
Sw			30%	30%	30%	30%
HCPV			0.000	0.193	0.146	0.073
OOIP (Mbbls)		420	0	197	149	74
OOIP (Mstb)		393	0	184	139	70
OOIP ($10^3 m^3$)		62	0	29	22	11
Sandhill						
Area (ac)		160	40.0	40.0	40.0	40.0
h (m)			2.3	2.0	1.1	1.2
Vb (ac-ft)		861	295	264	144	157
phi			12.8%	12.4%	10.3%	12.1%
Sw			30%	30%	30%	30%
HCPV		1	0.202	0.174	0.079	0.102
OOIP (Mbbls)		567	205	178	81	103
OOIP (Mstb)		530	192	166	75	97
OOIP ($10^3 m^3$)		84	30	26	12	15
Oolites						
Area (ac)		160	40.0	40.0	40.0	40.0
h (m)			3.2	3.5	2.8	3.2
Vb (ac-ft)		1,667	420	459	367	420
phi			11.1%	10.6%	11.2%	10.7%
Sw			30%	30%	30%	30%
HCPV		1	0.249	0.260	0.220	0.240
OOIP (Mbbls)		985	253	264	223	244
OOIP (Mstb)		921	237	247	209	228
OOIP ($10^3 m^3$)		146	38	39	33	36
Scallion						
Area (ac)		160	40.0	40.0	40.0	40.0
h (m)			8.5	9.5	11.8	11.2
Vb (ac-ft)		5,381	1,115	1,247	1,549	1,470
phi			12.9%	12.5%	11.8%	12.6%
Sw			30%	30%	30%	30%
HCPV		4	0.768	0.831	0.975	0.988
OOIP (Mbbls)		3,626	781	846	992	1,006
OOIP (Mstb)		3,389	730	791	927	940
OOIP ($10^3 m^3$)		539	116	126	147	149
Total Lodgepole						
Total OOIP (Mstb)		**5,232**	**1,159**	**1,388**	**1,351**	**1,334**
Total OOIP ($10^3 m^3$)		832	184	221	215	212
Cumulative Oil (Mstb)		**98**	**0.0**	**81.7**	**7.8**	**8.9**
OOIP-Cum Prd (Mstb)	**100%**	**5,134**	**1,159**	**1,306**	**1,343**	**1,325**
Comments:			**Cumulative production to December 2016**			
Bo			**1.07**			
Well 1			100/03-24-010-26W1/00	100/04-24-010-26W1/00	100/05-24-010-26W1/00	100/06-24-010-26W1/00
Factor			1	1	1	1
Cumulative Oil (Mstb)			0.0	15.2	6.3	7.4
Well 2				102/04-24-010-26W1/00	102/06-24-010-26W1/00	102/06-24-010-26W1/00
Factor				1	0.5	0.5
Cumulative Oil (Mstb)				66.4	2.8	2.8
Well 3						
Factor						
Cumulative Oil (Mstb)						

Table 2 – Well List – Status

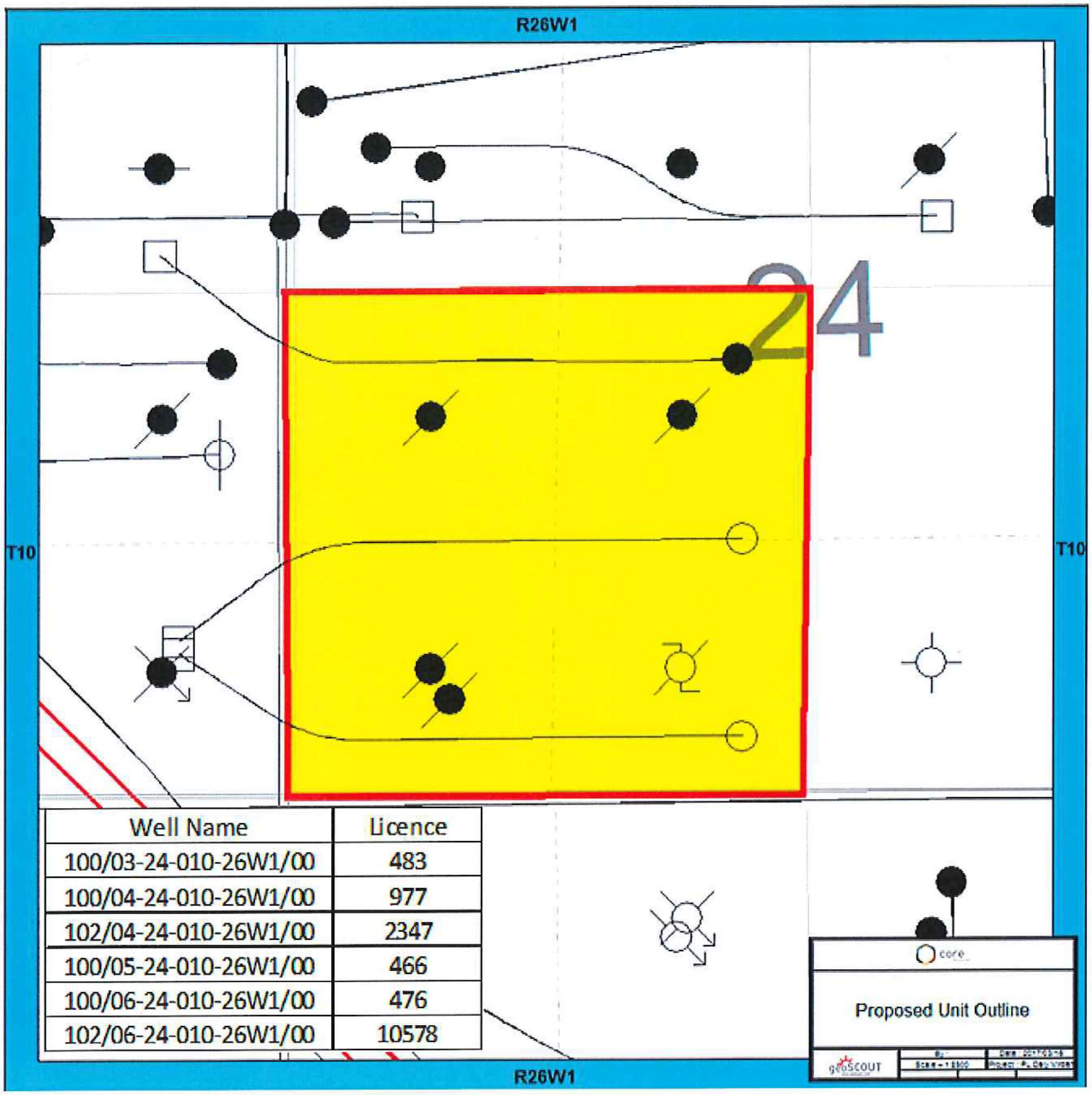
Well ID	Prod./Inject. Formation	First Prod YYYY/MM	Last Prod. YYYY/MM	Well Type
100/03-24-010-26W1/00	Kashville (Disposal)			Vertical
100/04-24-010-26W1/00	Mlodgepl	1955/10	1961/12	Vertical
102/04-24-010-26W1/00	Mlodgepl	1969/01	2010/08	Vertical
100/05-24-010-26W1/00	Mlodgepl	1954/07	1959/11	Vertical
100/06-24-010-26W1/00	Mlodgepl	1954/07	1958/11	Vertical
102/06-24-010-26W1/00	Mlodgepl	2016/11	2017/01	Horizontal

Table 3 – Cumulative Oil Production and Estimated Ultimate Recovery

Well	Type	Cumulative Oil (Mbbl)	Expected Ultimate Recovery (Mbbl)
100/03-24-010-26W1/00	Vertical (Disposal)	0.000	0.000
100/04-24-010-26W1/00	Vertical	15.208	15.208
102/04-24-010-26W1/00	Vertical	66.449	66.449
100/05-24-010-26W1/00	Vertical	6.345	6.345
100/06-24-010-26W1/00	Vertical	7.433	7.433
102/06-24-010-26W1/00	Horizontal	2.84	75.347

Table 4 – Summary of Rock and Fluid Properties

Proposed Virden Roselea Unit No. 4		
Rock and Fluid Properties		
Formation Pressure	kPa	6,500
Oil Gravity	°API	34.3
Solution Gas-Oil Ratio	m^3/m^3	22
Oil Formation Volume Factor	Rm^3/Sm^3	1.07
Average Porosity	fraction	0.125
Average Air Permeability	mD	19



Well Name	Licence
100/03-24-010-26W1/00	483
100/04-24-010-26W1/00	977
102/04-24-010-26W1/00	2347
100/05-24-010-26W1/00	466
100/06-24-010-26W1/00	476
102/06-24-010-26W1/00	10578

Figure 1 – Location of Proposed Virden Roselea Unit No. 4

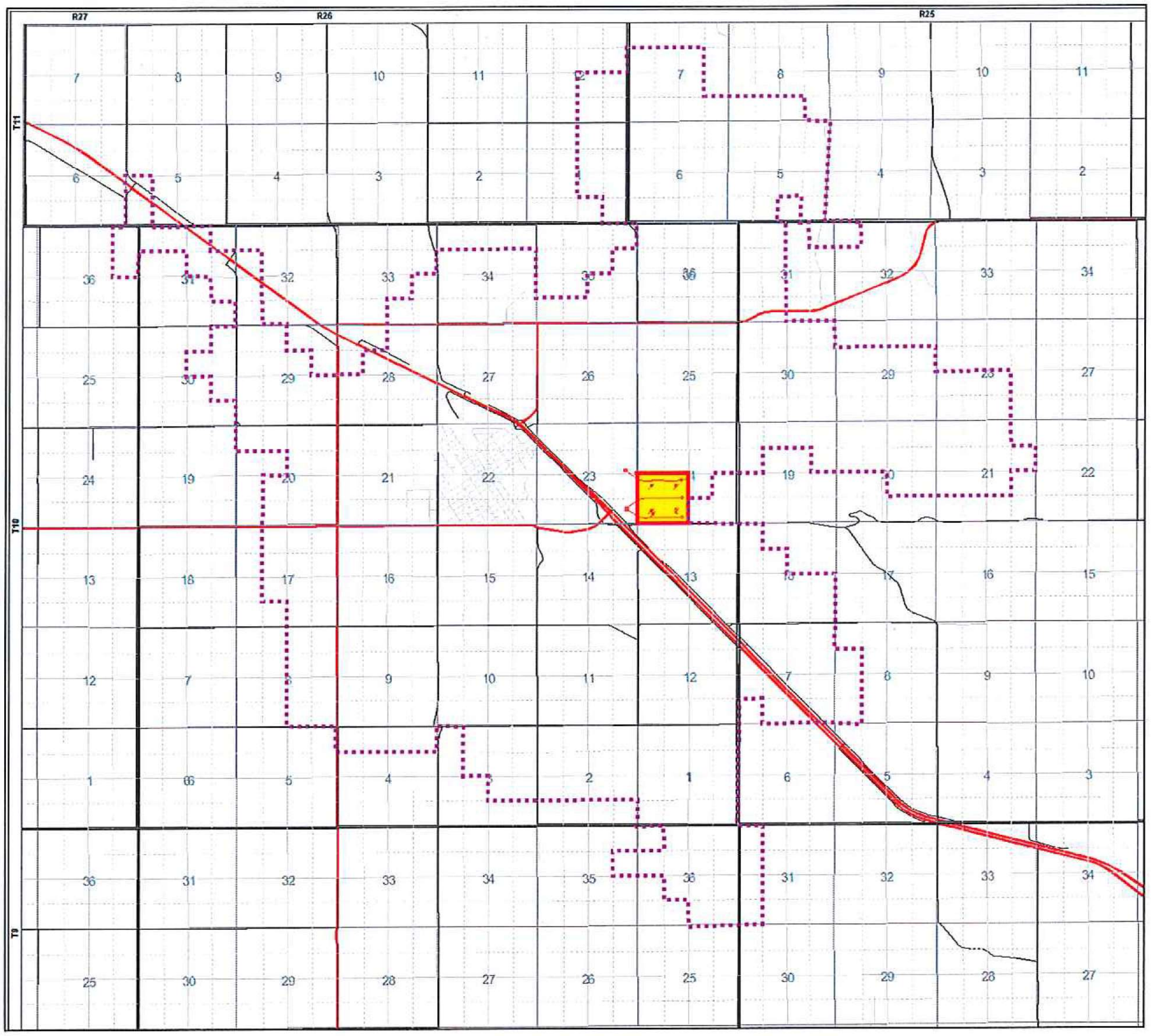


Figure 2 – Location of Proposed Virden Roselea Unit No. 4 within the Virden Lodgepole B Pool

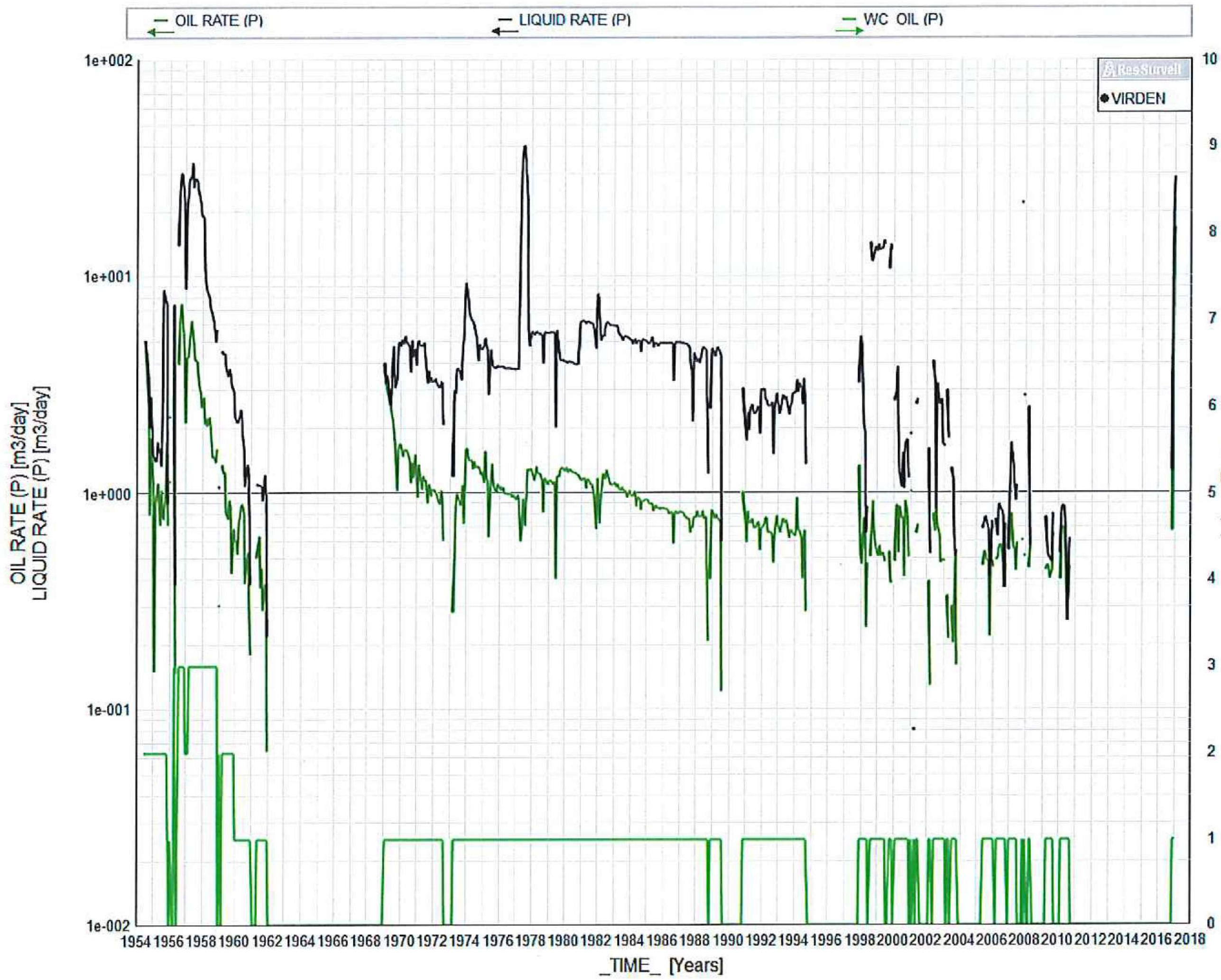


Figure 3 – Production History of Wells within Proposed Virden Roselea Unit No. 4

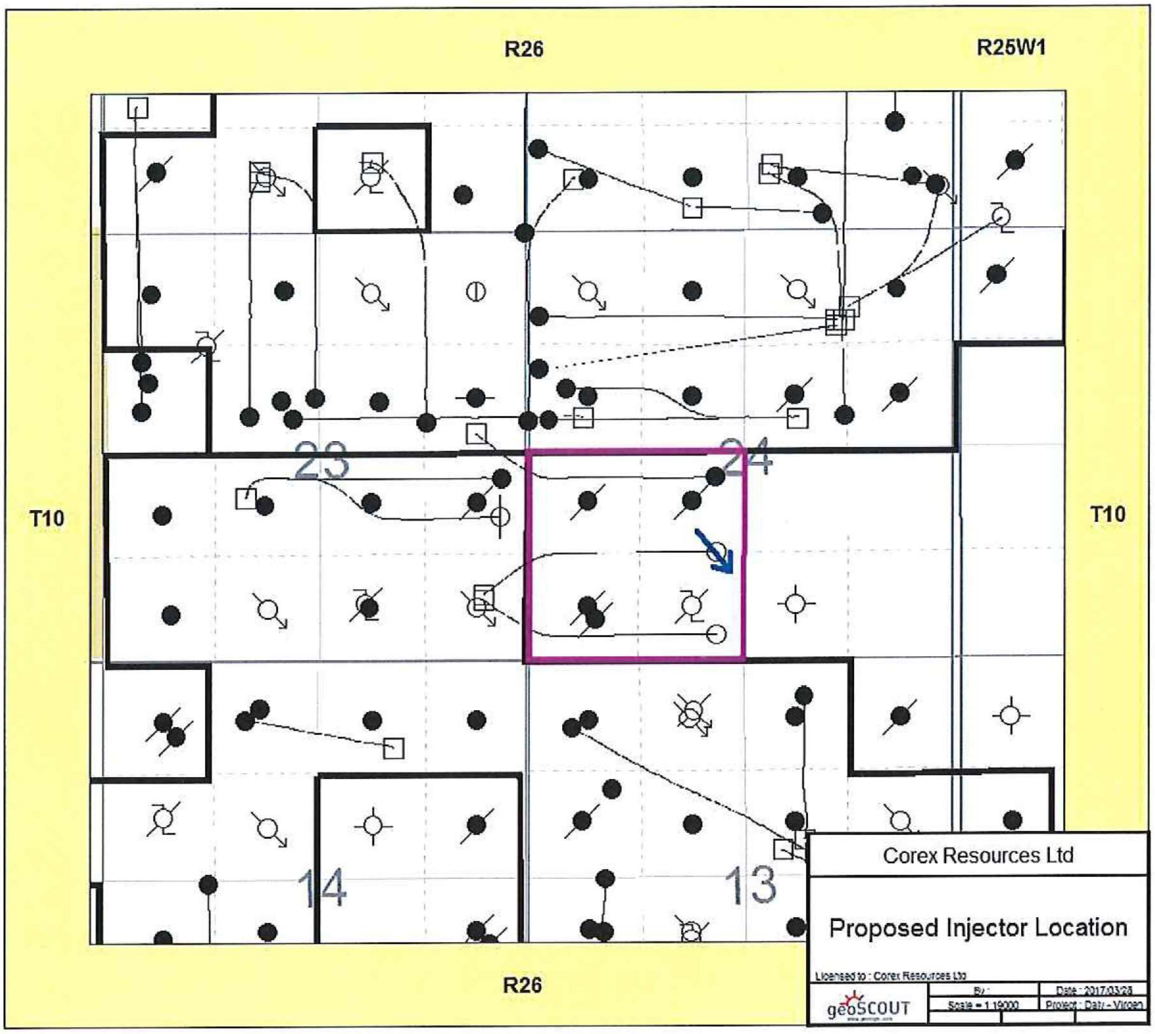


Figure 4 – Proposed Injector Location

Downhole Well Profile

Well Name: VIRDEN ROSELEA UNIT NO. 2 HZNTL A16-5-11-...

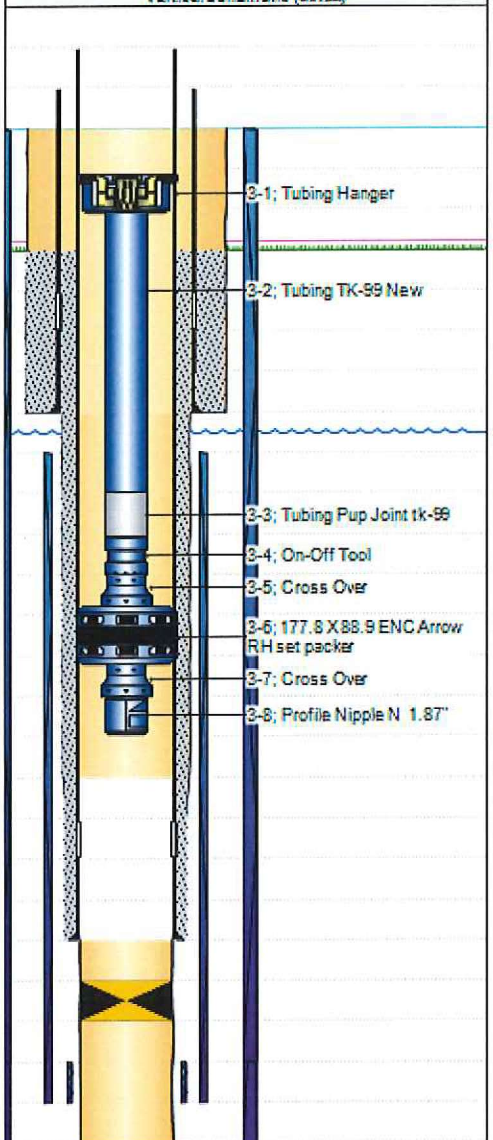
UWI	Surface Location	Field Name	License #	State/Province	Well Config
103/16-05-011-25W1/00	14-05-11-25	VIRDEN	10024	Manitoba	Horizontal
Original KB Elevation (m)	KB-TH (m)	Spud Date	Rig Release Date	PBTD (All) (mKB)	TD All (TVD) (mKB)

Type

Des	Make	Model	WP (kPa)	Service	WP Top (kPa)	Top Ring Gasket	Bore Min (mm)

Horizontal - Original Hole, 4/25/2017 2:59:46 PM

Vertical schematic (actual)



Casing Strings

Csg Des	OD (mm)	Wt/Len (kg/m)	Grade	Top Thread	Set Depth (mKB)
Surface	244.5	48.068	H-40	ST&C	373.00
Intermediate	177.8	34.228	J-55		738.00

Perforations

Date	Top (mKB)	Btm (mKB)	Zone

Tubing Strings

Tubing Description	Run Date	String Length (m)	Set Depth (mKB)
Tubing - Production	9/21/2015	693.43	695.97

Item Des	Jts	Make	Model	OD (mm)	Wt (kg/m)	Grade	Len (m)
Tubing Hanger	1			177.8			0.30
Tubing TK-99 New	72		T&C Upset	73.0	9.673	J-55	687.64
Tubing Pup Jointtk-99	1			73.0			2.44
On-Off Tool	1			73.0			0.67
Cross Over	1			88.9			0.09
177.8 X 88.9 ENC Arrow RH set packer	1	Baker		177.8			1.67
Cross Over	1			88.9			0.25
Profile Nipple N 1.87"	1			73.0			0.37

Rod Strings

Rod Description	Run Date	String Length (m)	Set Depth (mKB)

Item Des	Jts	Make	Model	OD (mm)	Wt (kg/m)	Grade	Len (m)	SN

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Figure 5 – Wellbore Schematic for Typical Injector

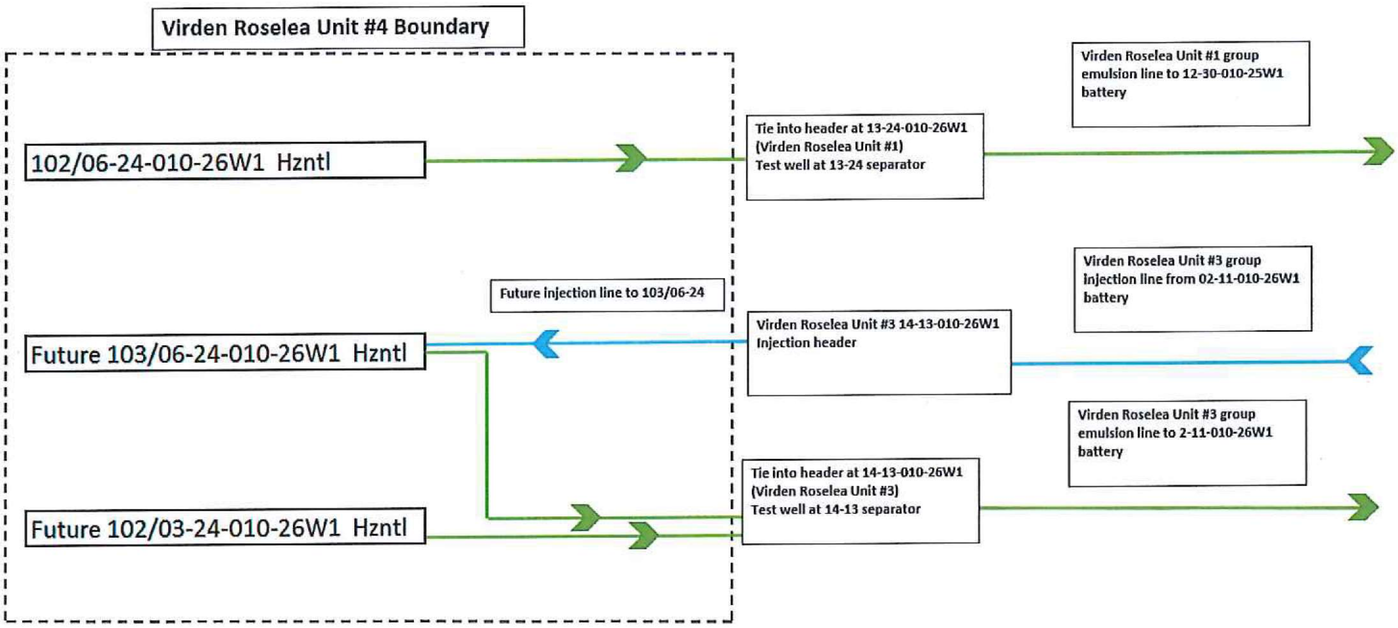


Figure 6 – Simplified Flow Diagram and Metering

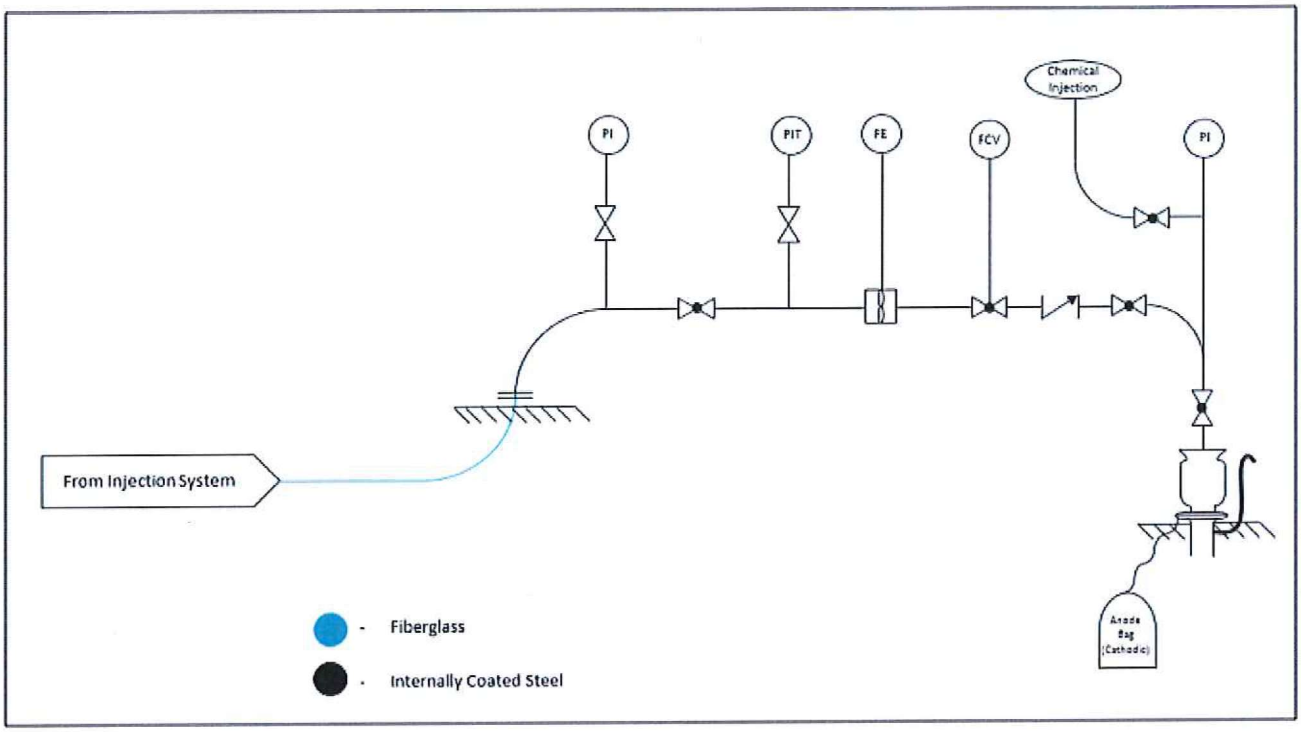
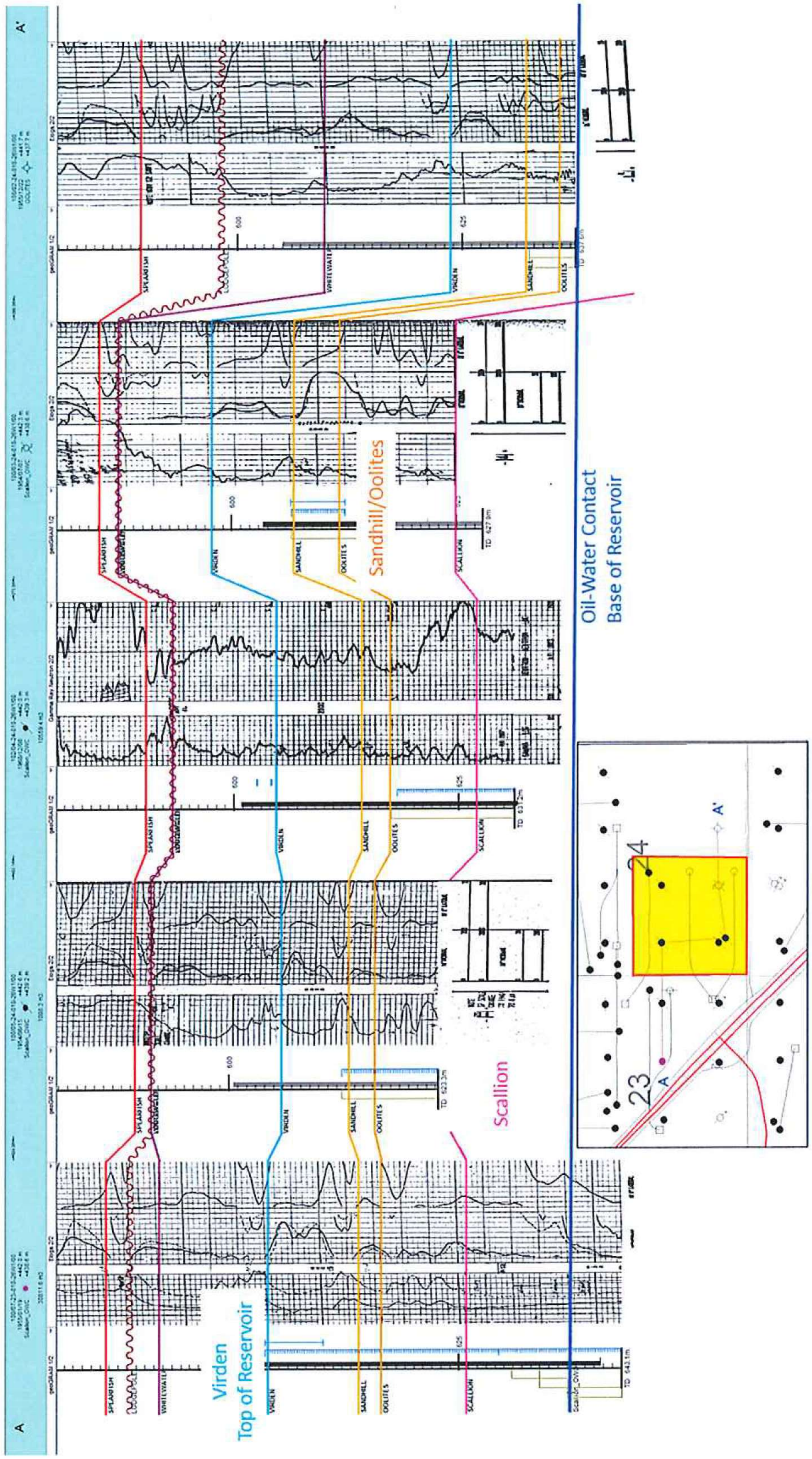
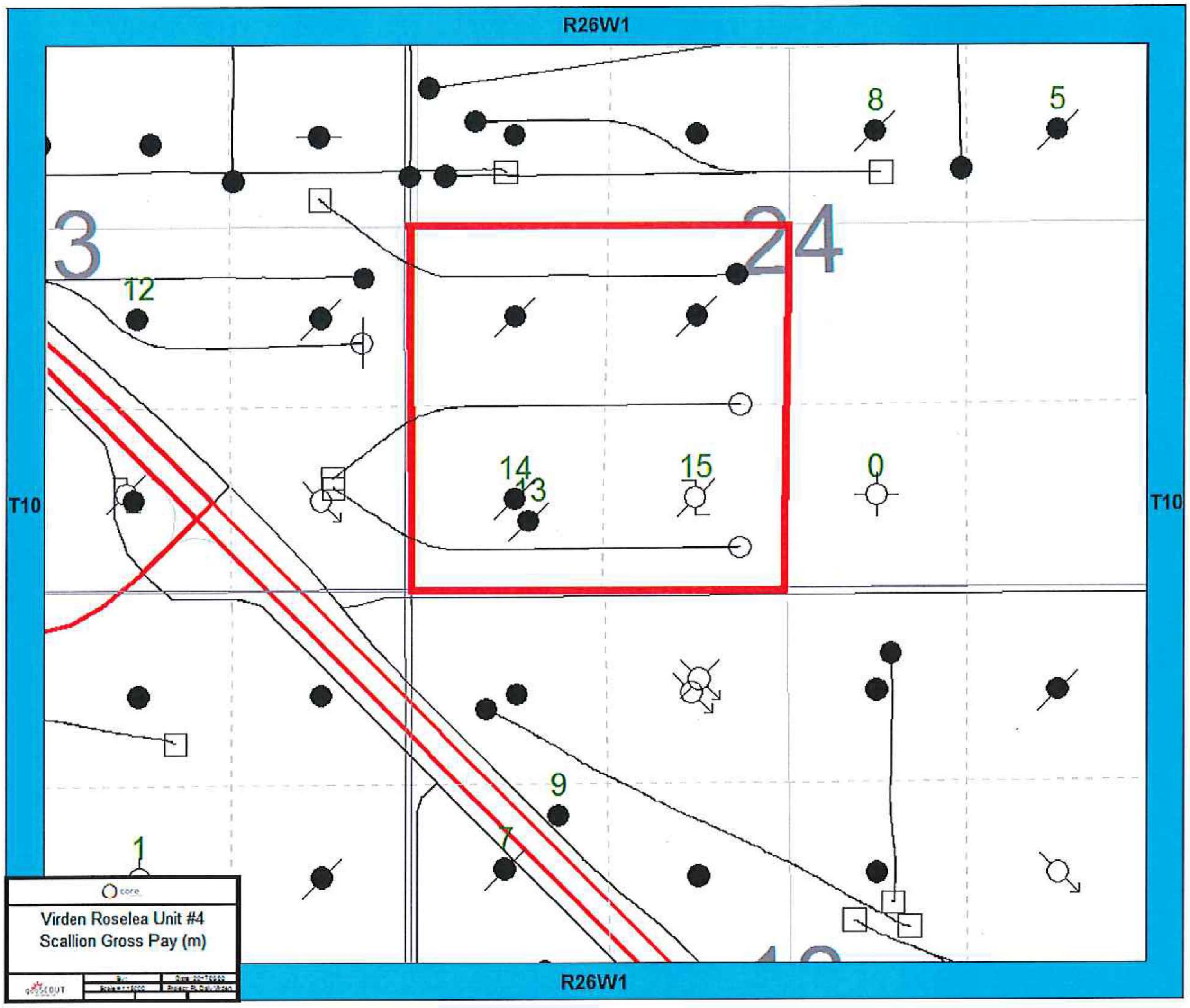


Figure 7 – Corrosion Control System

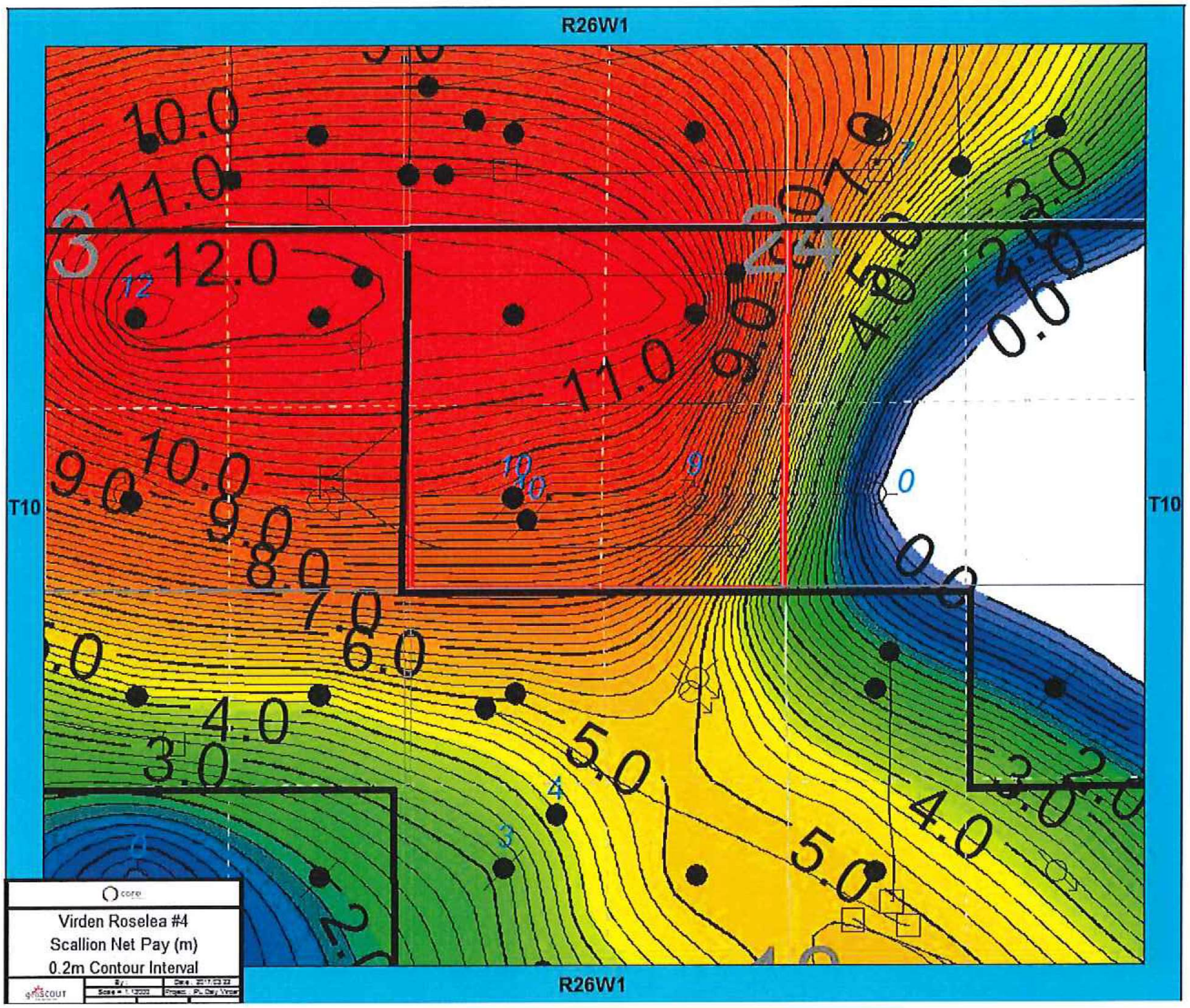
Appendix I – Stratigraphy of Lodgepole Formation



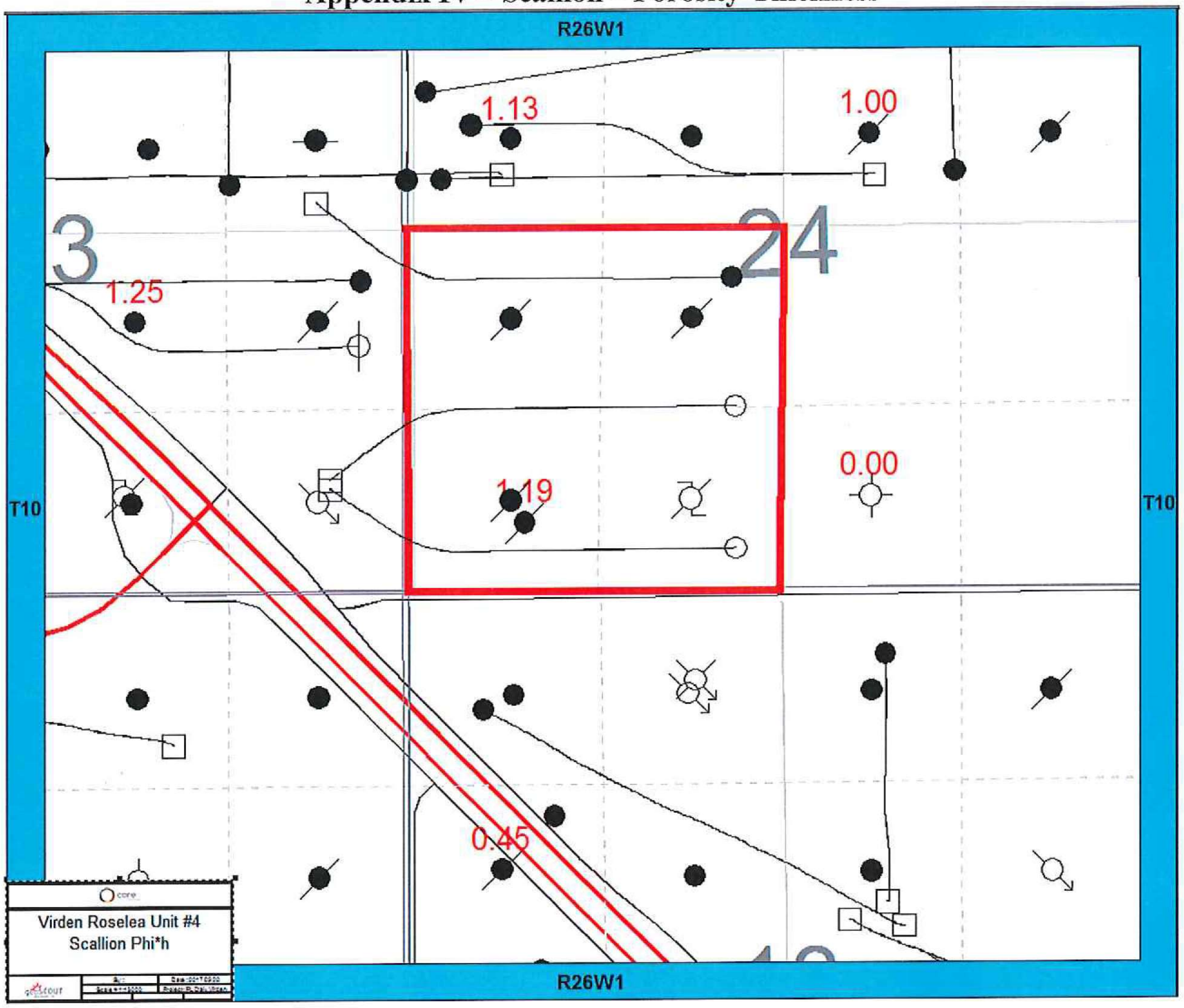
Appendix II – Scallion – Gross Pay



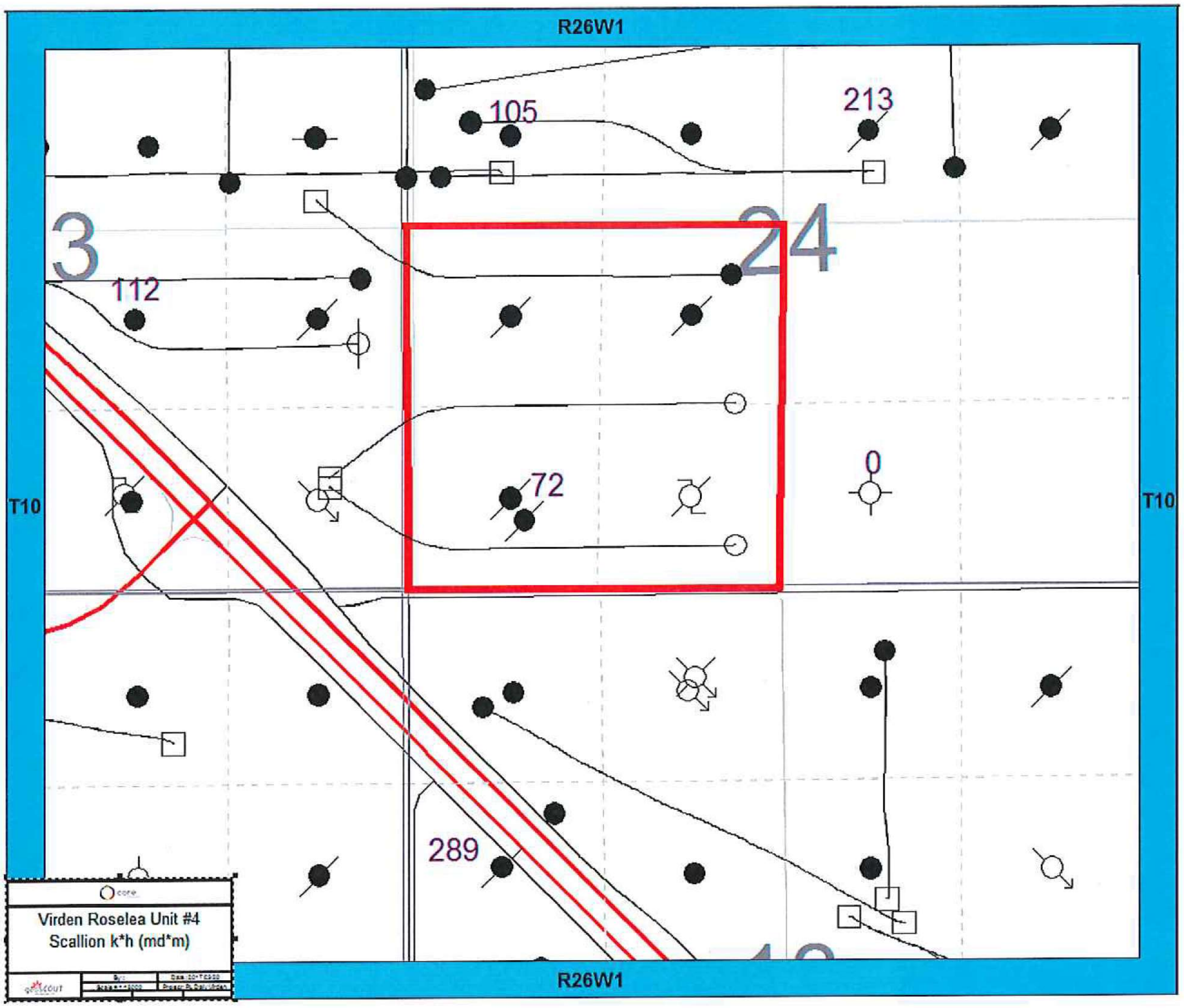
Appendix III – Scallion – Net Pay



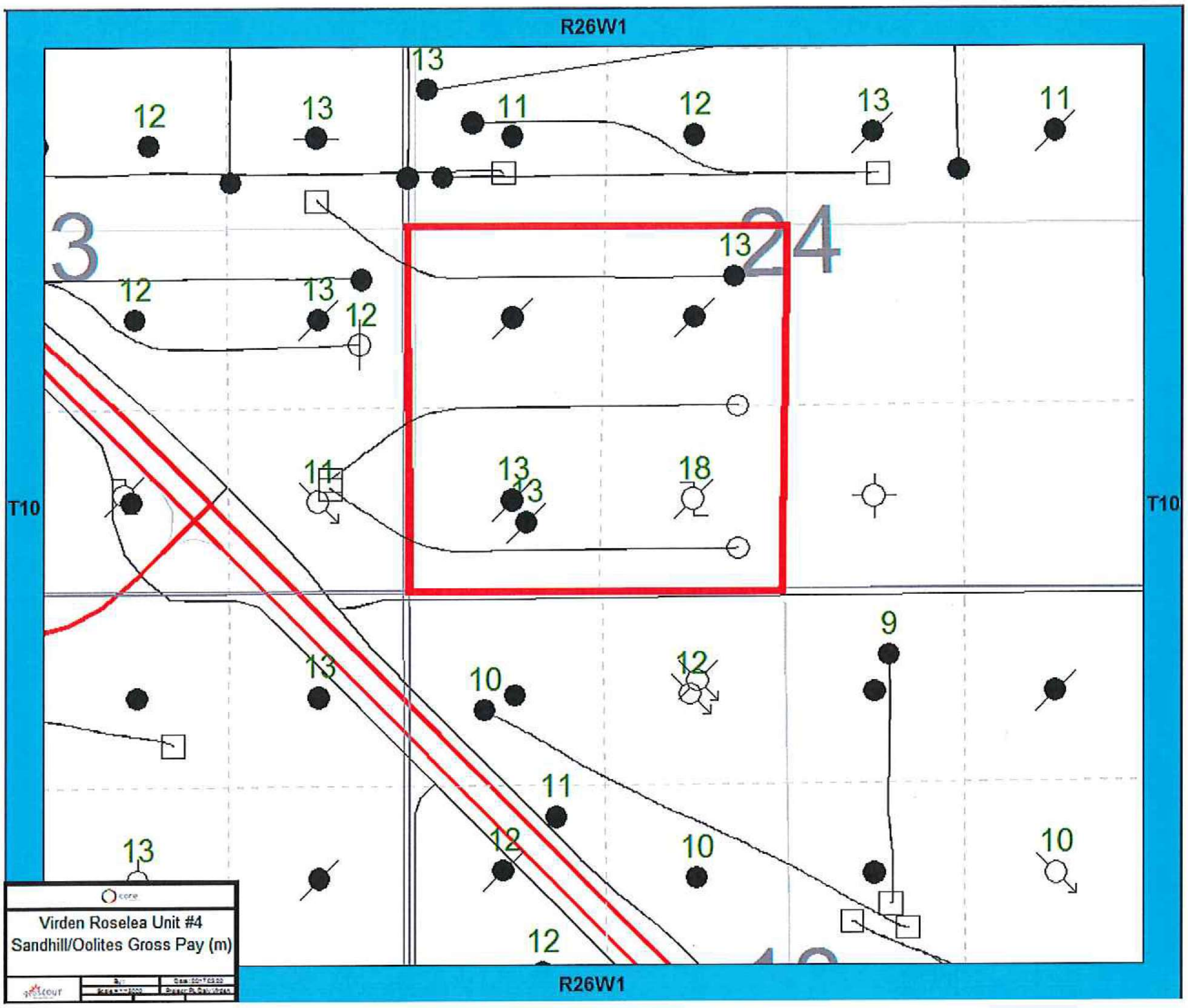
Appendix IV – Scallion – Porosity-Thickness



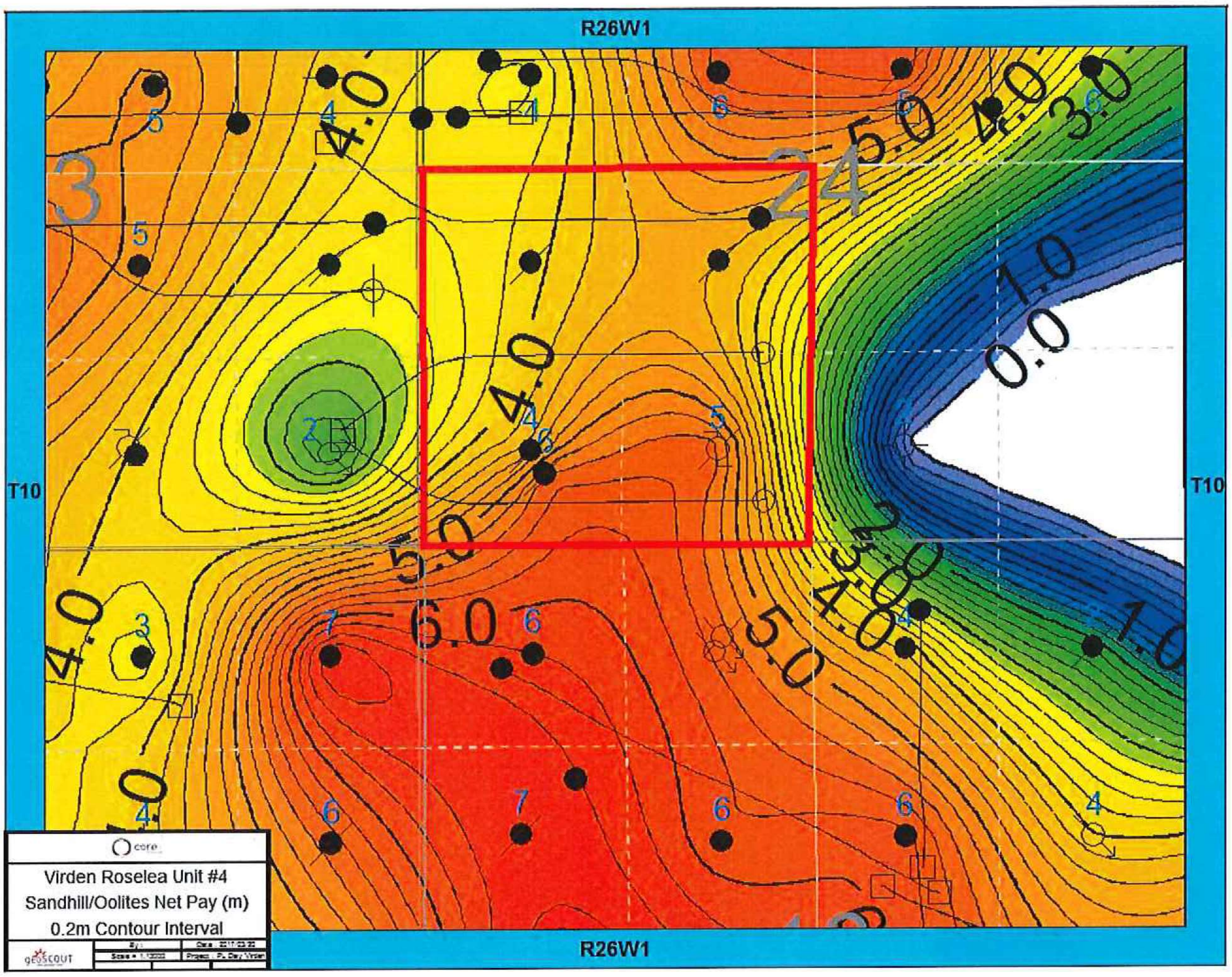
Appendix V – Scallion – Permeability-Thickness



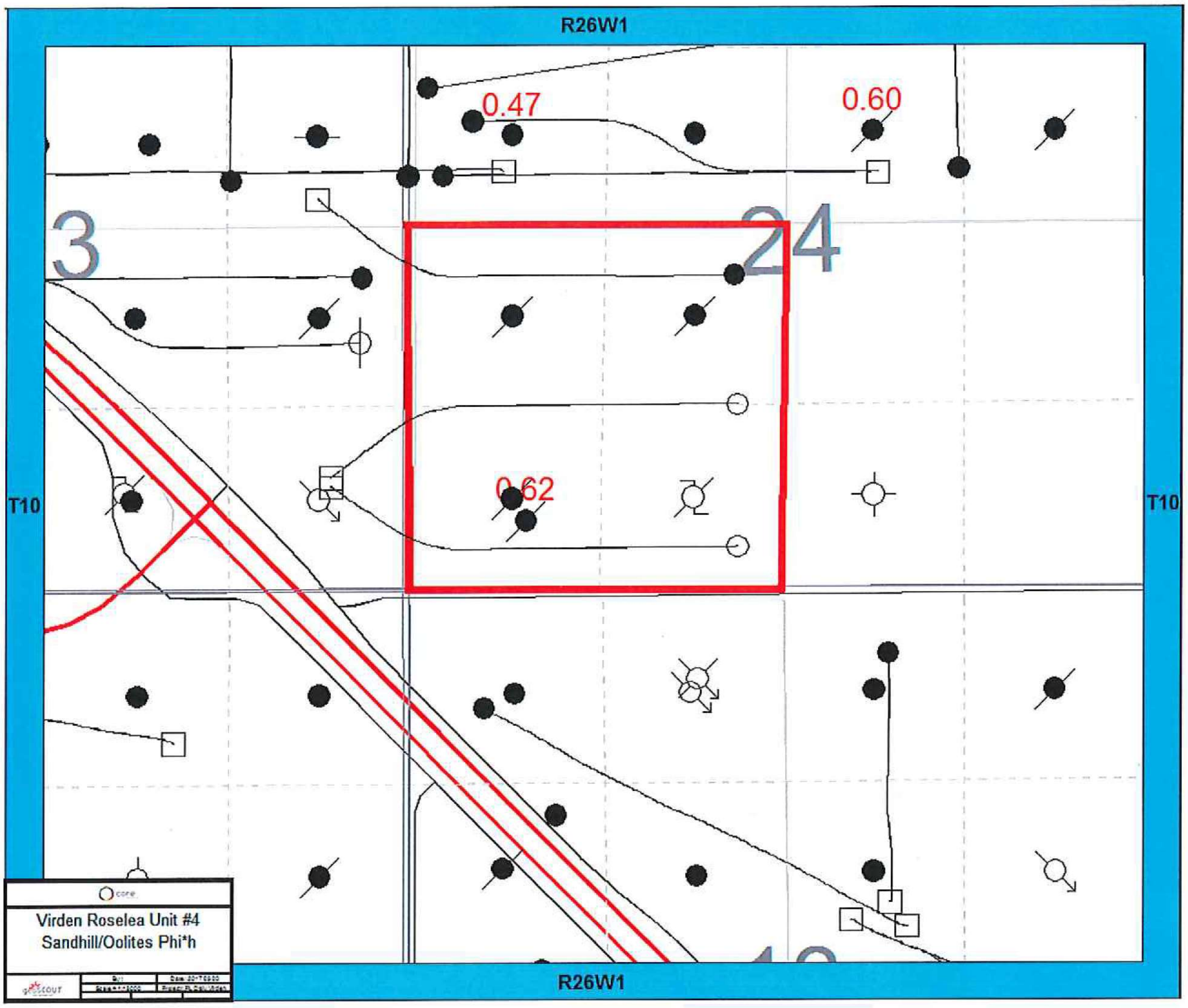
Appendix VI – Sandhill/Oolites – Gross Pay



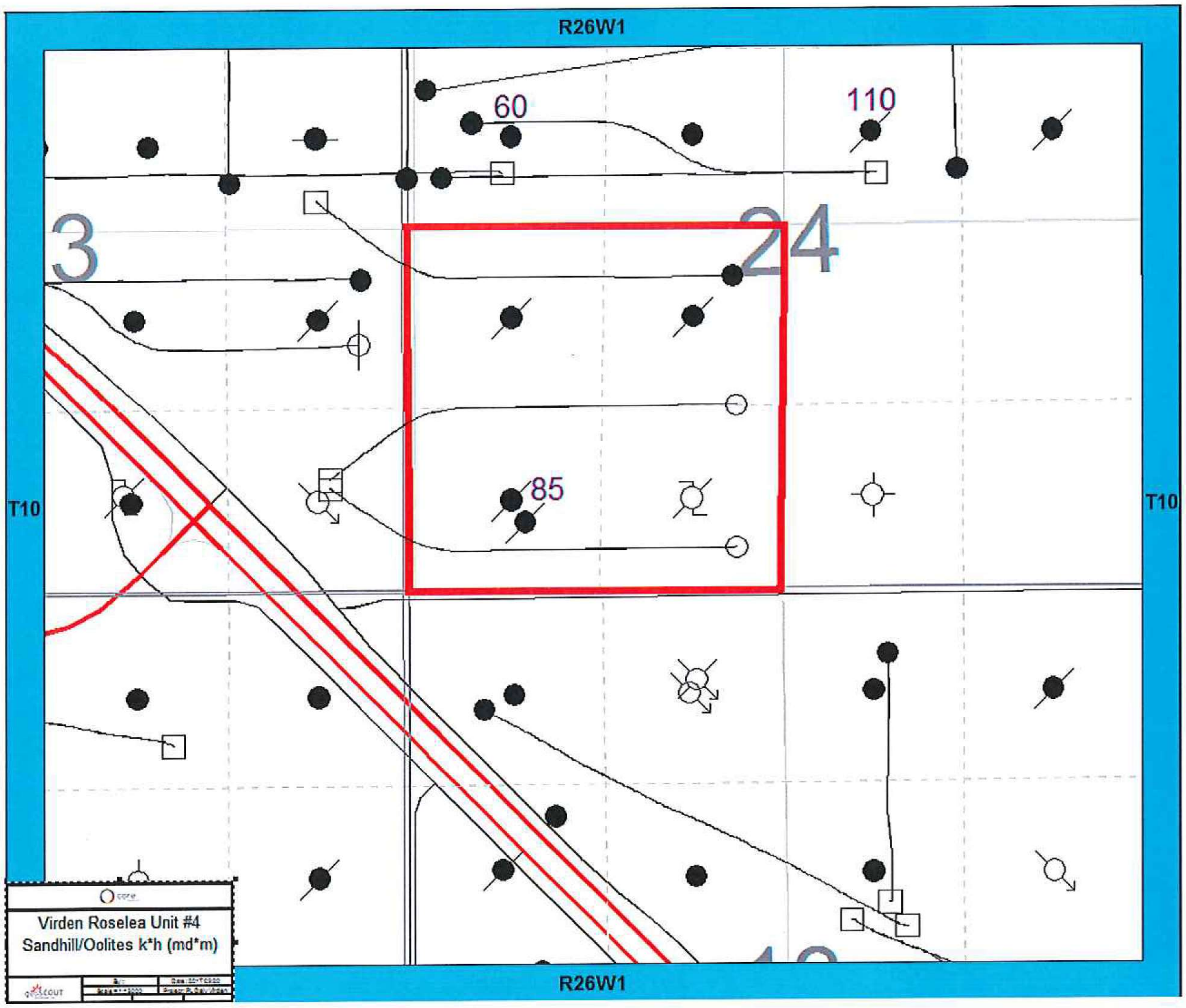
Appendix VII – Sandhill/Oolites – Net Pay



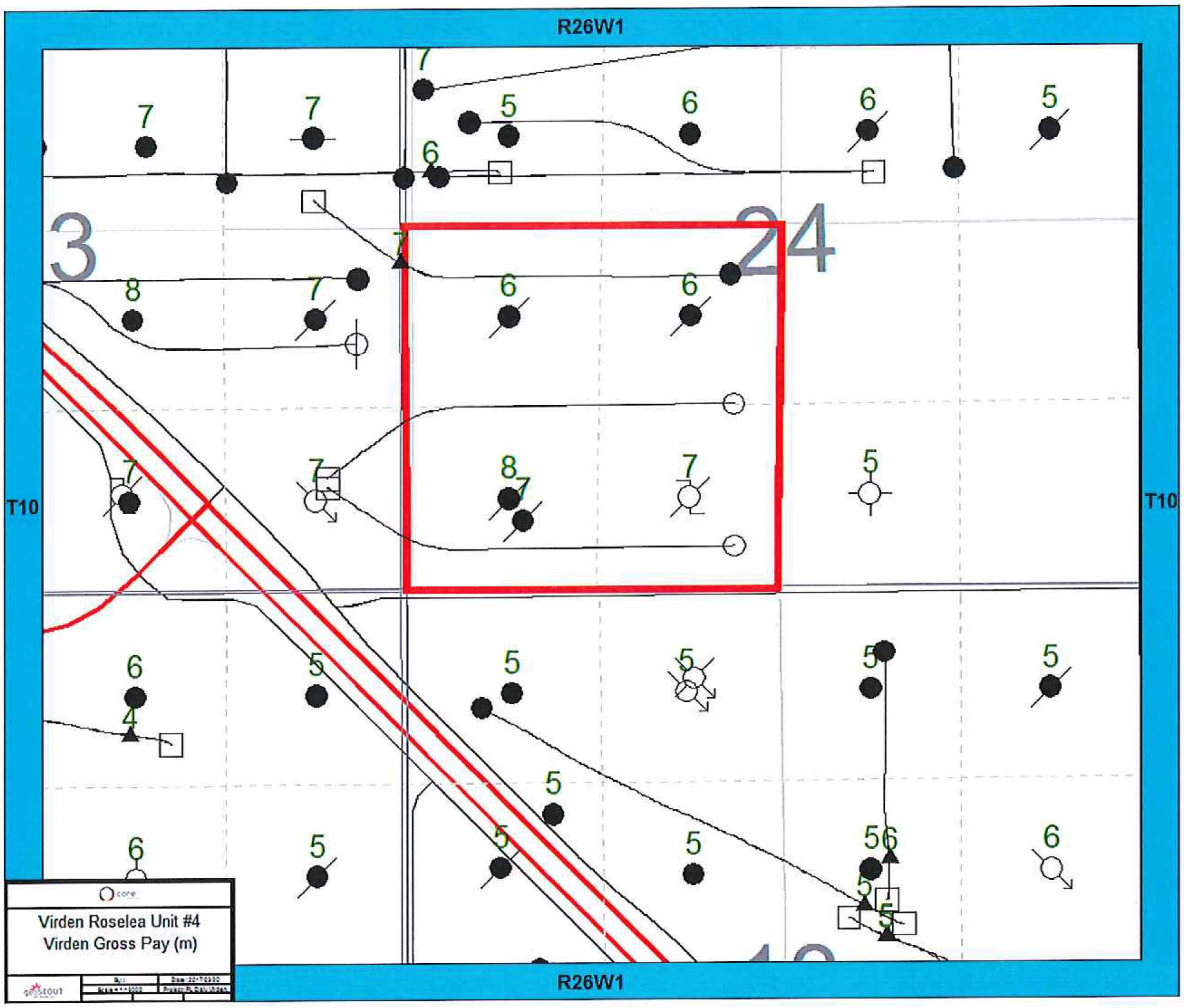
Appendix VIII – Sandhill/Oolite – Porosity-Thickness



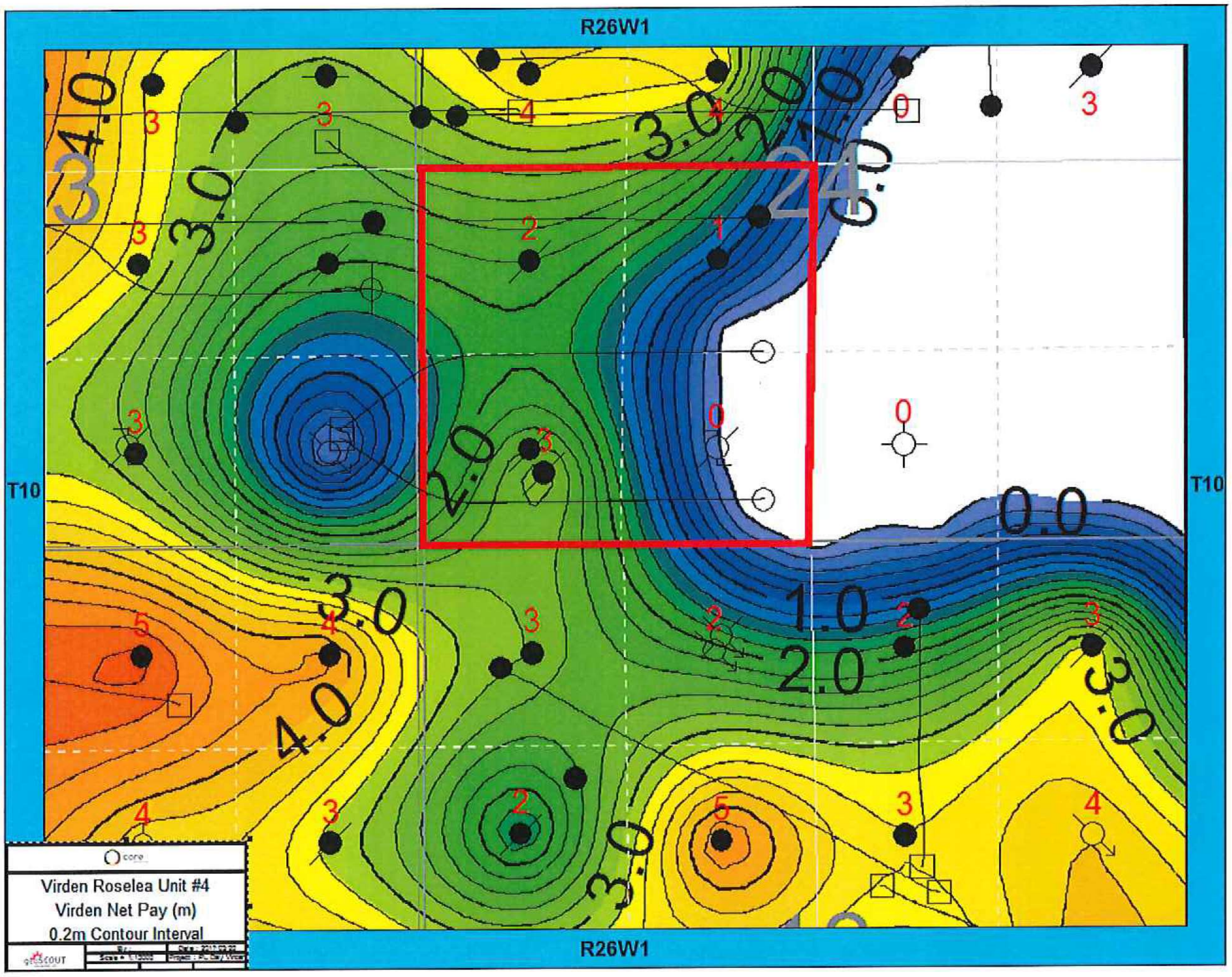
Appendix IX – Sandhill/Oolites – Permeability-Thickness



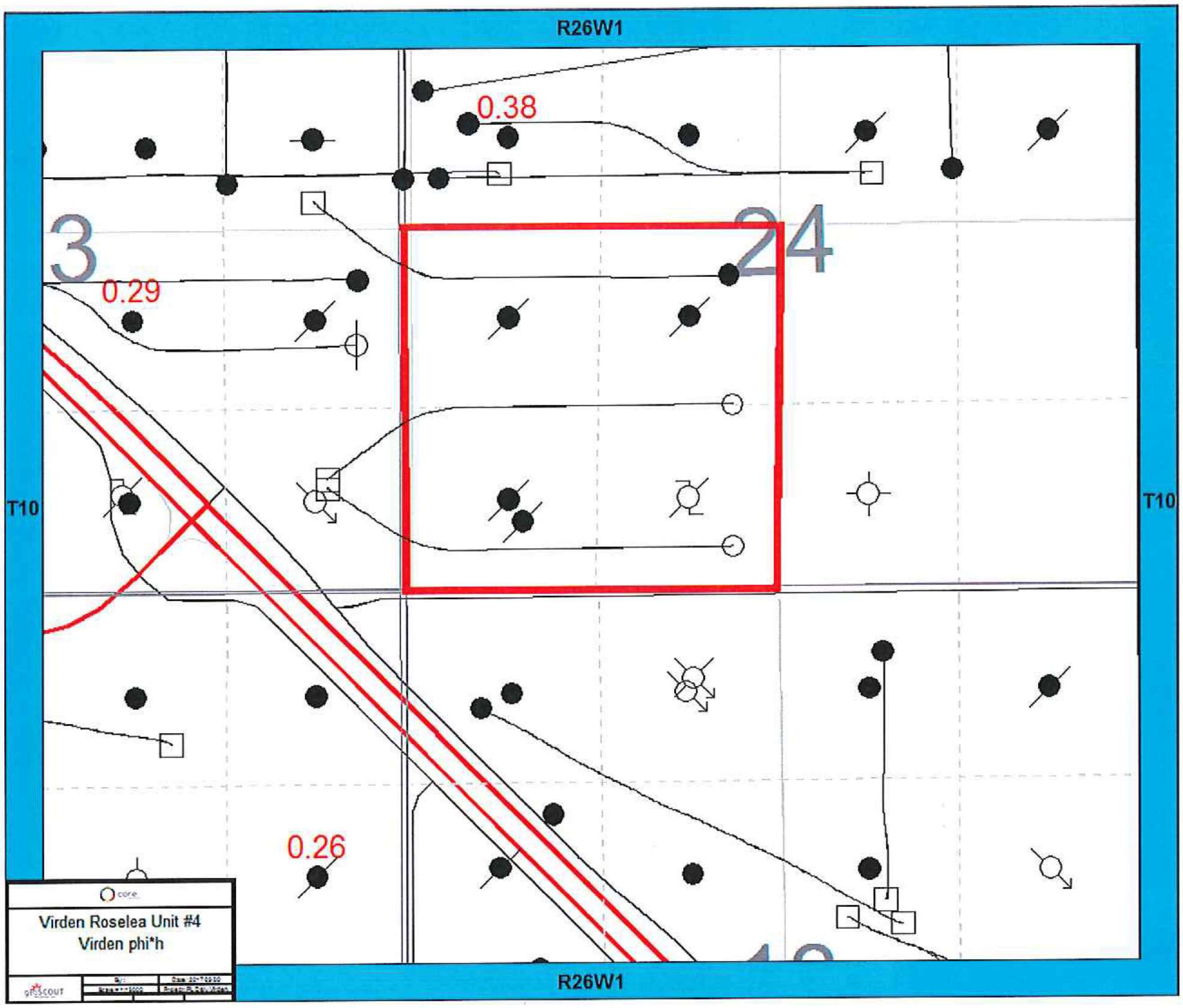
Appendix X – Virden – Gross Pay



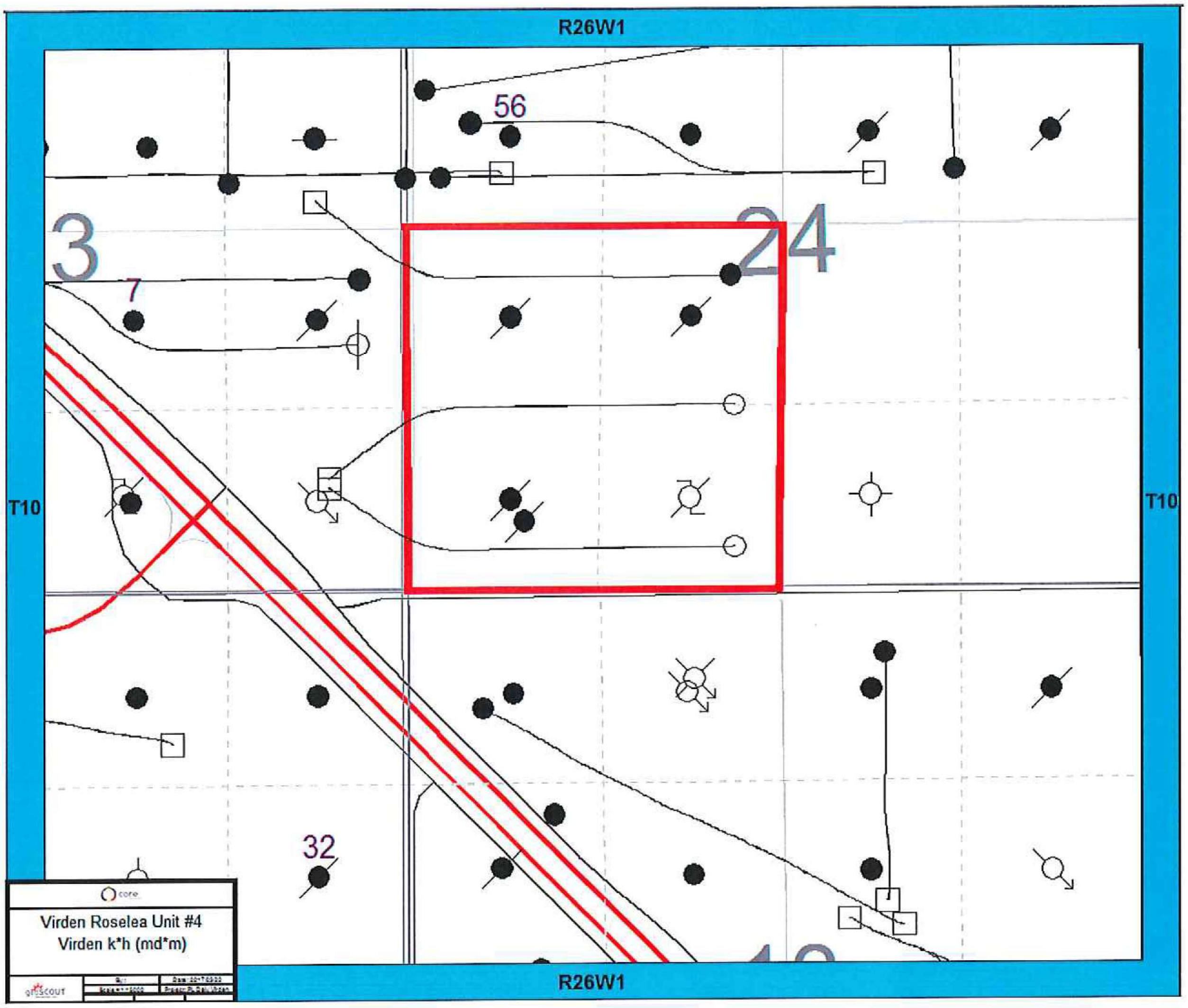
Appendix XI – Virden – Net Pay



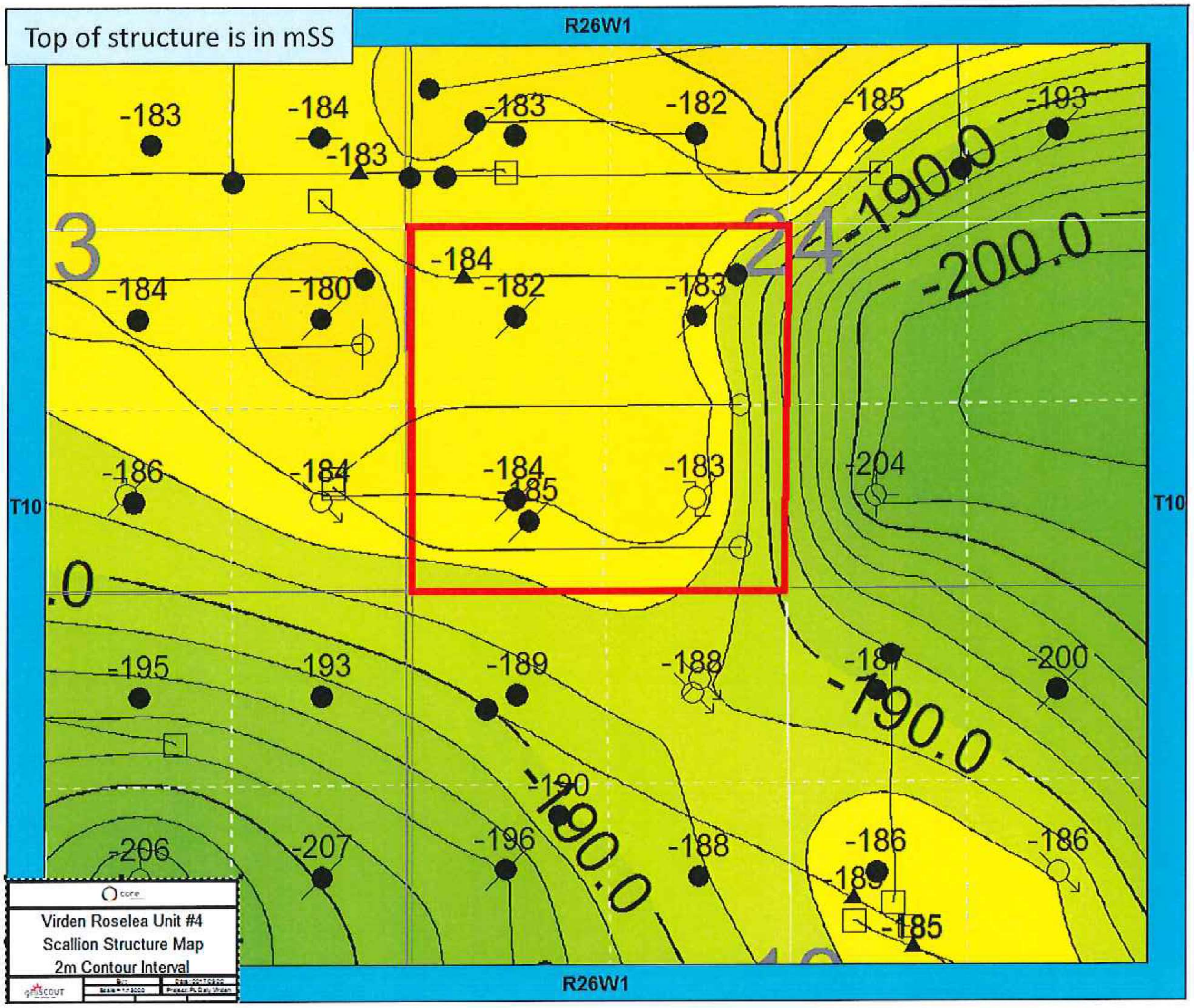
Appendix XII – Virden – Porosity-Thickness



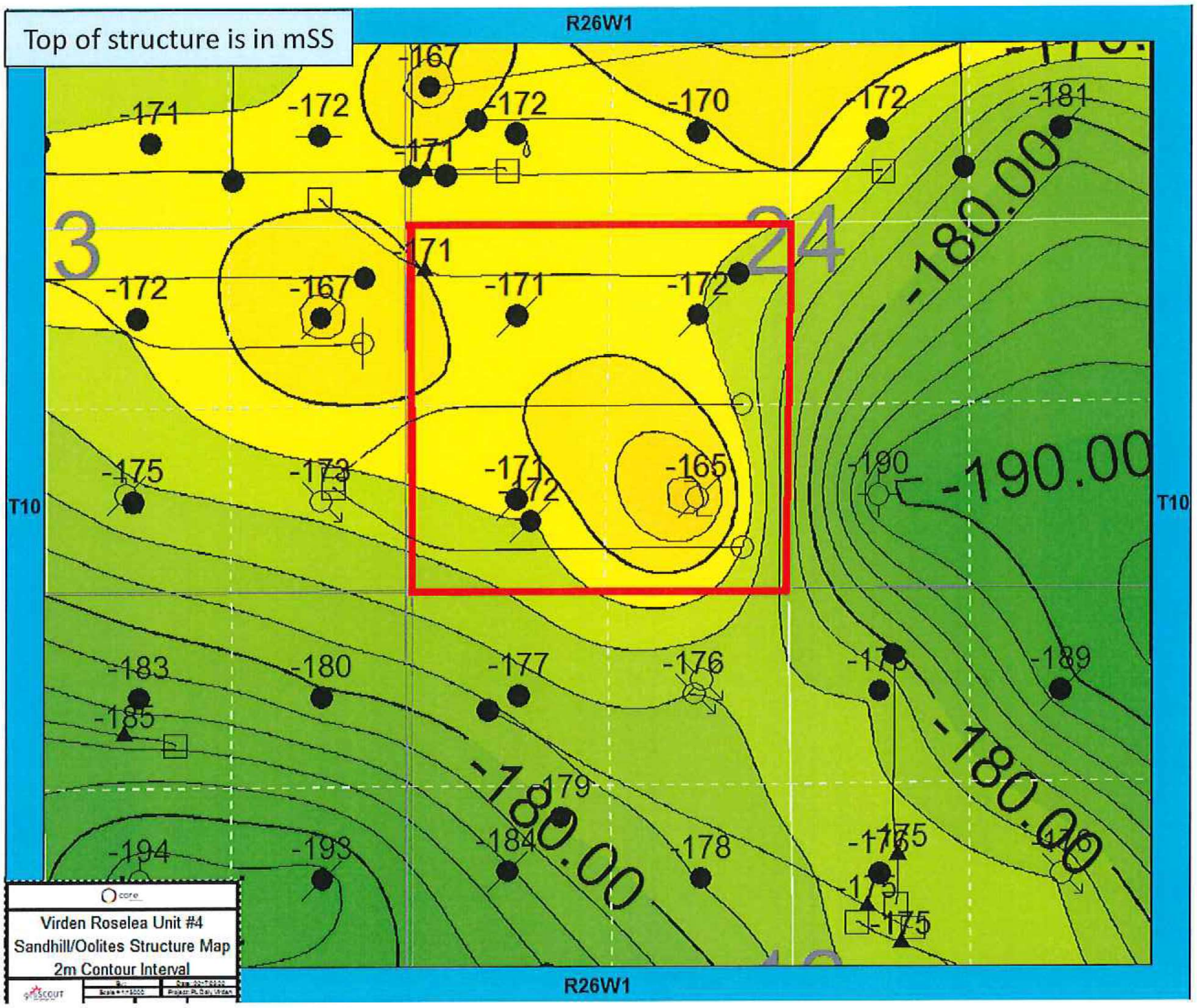
Appendix XIII – Virden – Permeability-Thickness



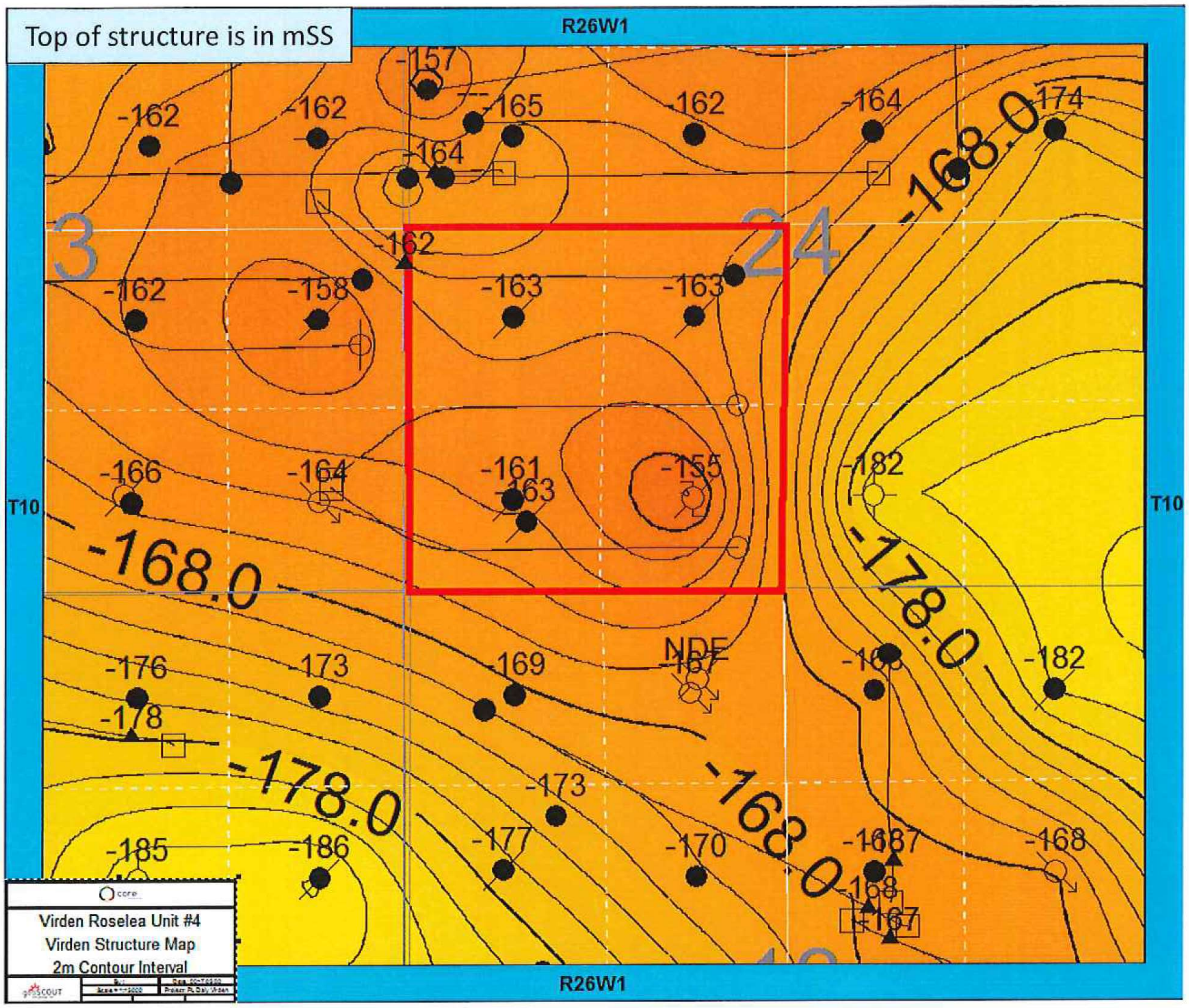
Appendix XIV – Scallion – Top of Structure



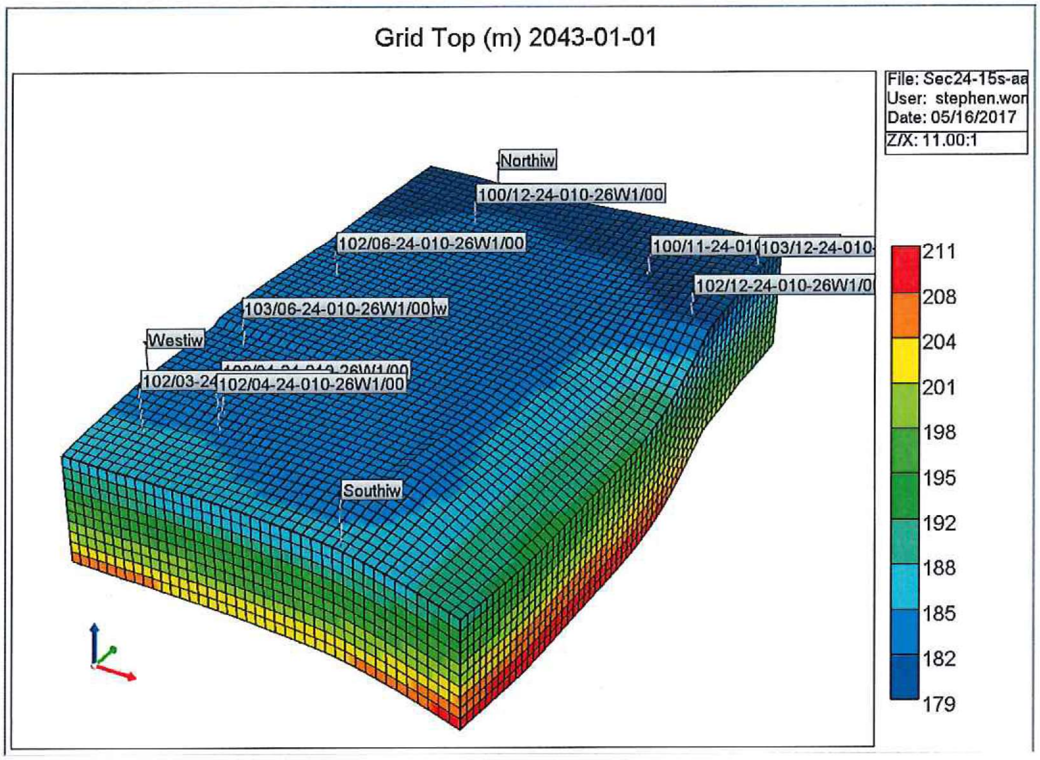
Appendix XV – Sandhill/Oolites – Top of Structure



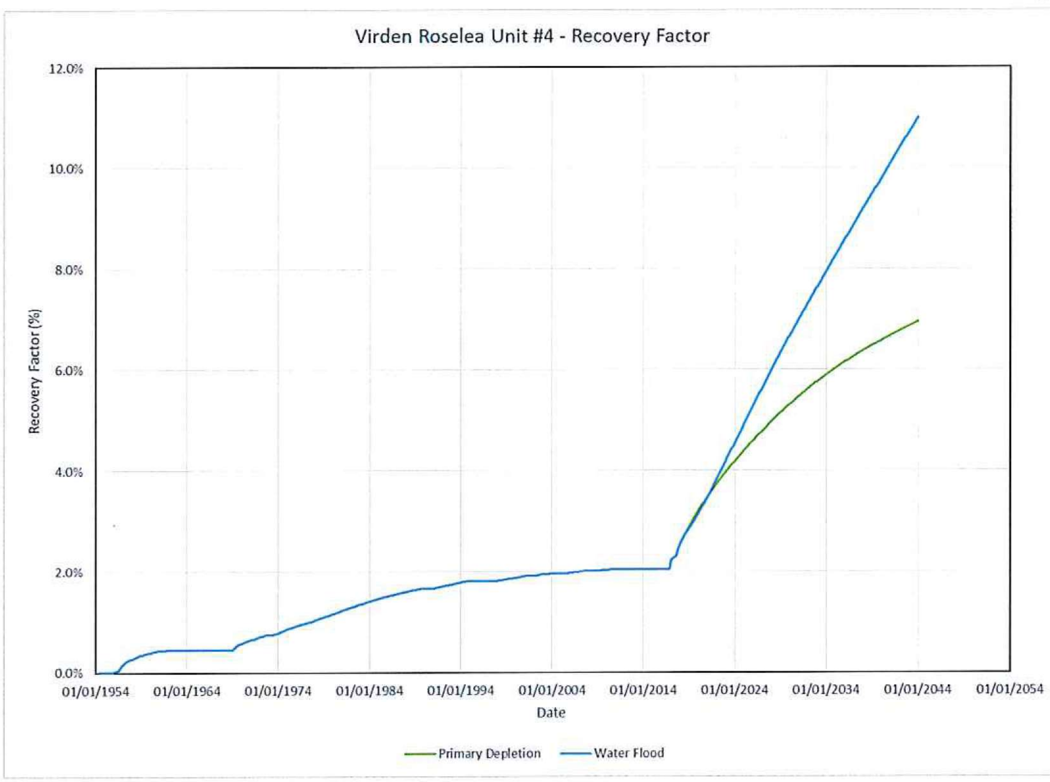
Appendix XVI – Virden – Top of Structure



Appendix XVII – Flossie Lake – Section Model



Section Model – Scallion – 3D View



Section Model – Scallion – Primary and Secondary Forecast –Recovery Factor versus Time

Appendix XVIII – Tract Description and Working Interest Owners

Tract	Land Description	Tract Factor	W.I. Owner	W.I. Percent	Mineral Owner
1	3-24-010-26W1	22.571532996%	Corex	100%	Baron/Computershare (1)
2	4-24-010-26W1	25.444583285%	Corex	100%	Baron/Computershare (1)
3	5-24-010-26W1	26.164718612%	Corex	100%	Baron/Computershare (1)
4	6-24-010-26W1	25.819165107%	Corex	100%	Baron/Computershare (1)
Total		**100.000000000%**			

Notes:

1. Carole [redacted] (12.5%), Computershare Trust Company of Canada (25%), Charles [redacted] 25%), Katherine [redacted] (25%), Donald [redacted] Mac [redacted] (12.5%)