FORT CALGARY RESOURCES LTD.

Proposed East Manson Unit No.3

Application for Waterflood EOR
Manson, Manitoba

10/11/2013

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Introduction

In accordance to Section 71 of the Drilling and Production Regulations of Manitoba, Fort Calgary Resources Ltd. is requesting the board's approval of a newly proposed East Manson Unit No.3 (EMU No.3) in Sections 20 and 21 of Township 13 Range 28 W1 with the intent of further extending a waterflood in the Bakken pool. Since the first vertical discovery well in August 2010, Fort Calgary has drilled a total of 45 horizontal and 15 vertical wells targeting the Middle Bakken in the Manson area with a primary estimated ultimate recovery (EUR) expected to be approximately 7.2%. The proposed waterflood and unit area will further expand the SEC 29 pilot to Sections 20 and 21. Preliminary results of the approved SEC 29 pilot flood demonstrate considerable response in horizontal wells surrounding the Fort Calgary 2-29-13-28W1 injection well within approximately 15 days of initial injection.

The proposed SEC 20 & 21 waterflood is currently developed with 5 vertical and 9 horizontal wells. Following approval of the proposed unit, 6 new horizontals will be drilled to complete the waterflood scheme outlined in *Appendix D, figure 3.* Early results from the pilot SEC 29 waterflood and developed waterflood areas in analogous Bakken / Three Forks reservoirs in the Daly and Sinclair areas demonstrate that incremental recovery factors of over 13% can be attained.

Summary

1. The Proposed East Manson Unit No.3 will include all 32 legal subdivisions (LSD) in Section 20 & 21-13-28W1 where 5 vertical and 9 horizontal wells are completed in the Middle Bakken formation. A map of EMU No.3 can be seen in *Appendix A, figure 1*.

2. *Appendix C, figures 2 & 3* show current oil production from the proposed East Manson Unit No.3 of 28 m3/d and average water cut of 55% as of August 2013. It is to be noted that sections 20 and 21 are not yet fully developed. Additional production is expected from further infill drilling prior to injection.

3. Original oil in place (OOIP) for the proposed unit is 1839.2 e $^{3}m^{3}$ or 57 e $^{3}m^{3}$/ LSD. (see *Appendix C, figure 1*)

4. Cumulative oil production from the proposed unit as of August 31st 2013 is 33.8 e $^{3}m^{3}$, giving a current recovery factor (RF) of 1.83% within the unit boundary.

5. Declines for the 12 current producing wells show an estimated ultimate recovery (EUR) of 132.42 e $^{3}m^{3}$ and remaining recoverable oil in place as of August 31st of 98.62 e $^{3}m^{3}$. This gives an ultimate recovery factor of 7.2% under primary depletion.

6. Initial reservoir pressure (Pi) of the Middle Bakken reservoir was 5500 kPa. This value was consistent with three different static gradients taken in SEC 20, 29 and 28 TWP 13 RNG 28W1. Current reservoir pressure (Pr) is estimated to be approximately 2000 kPa.

7. The existing Daly Bakken A water flood in SEC 21, 28 and 29 TWP 10 RNG 29W1 can be used as an analogy with similar geology and reservoir characteristics where an 8% incremental waterflood recovery factor has been seen. Fort Calgary believes that favorable results can be achieved in EMU No.3 utilizing a horizontal injection pattern. Early results from the Fort Calgary SEC 29 pilot waterflood also show good waterflood response with a minimal response period. Post flood ultimate recovery of approximately 19.4% is forecasted for SEC 20 & 21 (*Appendix C, Figure 4)*.

8. Injector conversions will begin upon approval, beginning with a total of 1 horizontal and 3 vertical wells. Six infill horizontal wells will subsequently be drilled and produced for approximately 3 months before they are converted to injectors. A fully developed injection pattern is shown *Appendix D, figure 3*, with a target water injection date of January 15th, 2014.

Geological Discussion

Stratigraphy

The stratigraphy in EMU No. 3 is defined by the structural cross section A-A` seen in *Appendix B, figure 13.* Cross section A-A` can be observed on each of the Appendix B maps running from the Northwest to the Southeast of EMU No. 3. The section consists of the Upper Bakken Shale, the Middle Bakken Siltstone, the Torquay (Three Forks) Unit 3 shale and the Torquay (Three Forks) Unit 2 siltstone. The Torquay (Three Forks) Unit 2 siltstone, although highly variable, is an oxidized, silty reservoir layer with potential for contribution in areas of better facies development and thin overlying Unit 3. The Torquay (Three Forks) Unit 3 shale is a brick red, oxidized shale that forms the upper seal to Unit 2. Unit 3 is unconformably overlain by the Middle Bakken Siltstone which represents the main reservoir unit and will be later subdivided based on its lithological characteristics. The Upper Bakken Shale is a black, organic rich, platy shale that conformably overlies the Middle Bakken Siltstone to form the upper seal for the main Middle Bakken reservoir.

Reservoir Sedimentology

The Middle Bakken reservoir is composed of coarse grained siltstone to fine grained sandstone which can be subdivided into the upper, middle, and lower units.
The upper unit is generally a bioturbated, pale grey, medium to coarse silt. Although containing varying traces, the bioturbated beds are often represented by possible teichichnus and planolites with thin walled brachiopod shells occurring near the top of bedding surfaces. The upper unit was likely deposited in an offshore marine environment and is considered a non-reservoir unit in the majority of cases.
The middle unit is generally an interlaminated, tan to grey, coarse silt to very find sand and shale. There is an obvious lack of bioturbation in this unit indicating a restrictive environment. Overall, this unit contains multiple fining upwards successions that are dominated by coarse silt to very fine sand deposition near the base. This grades into interlaminated silts and shales near the top of each succession. Although the middle unit contains variability, it is considered a reservoir unit ranging from 0.5 to 1.5 meters thick. It is likely this unit represents a transitional stage between offshore marine and coastal environments.
The lower unit is generally a moderately to well sorted, tanish grey, coarse silt to fine sand with abundant ripple cross laminations. Occasional trough cross bedding and potential rip up clasts near the base indicates a higher energy influence. Lower unit thickness can vary, however it is generally between 2 and 4 meters thick and represents the main reservoir. This unit was likely deposited in a coastal, shoreface environment.

Structure

Structure maps for the Upper Bakken, Middle Bakken, Unit 3 (erosional unconformity of Middle Bakken) and Unit 2 can be seen *in Appendix B, Figures 1 to 4*. The structure in the area of the Bakken and Torquay (Three Forks) consists of a gentle dip to the southwest. As an exception, the southeast corner of Section 21 and southwest corner of Section 20 are structural lows causing slight variations in the

regional dip across EMU No. 3. These are likely the result of dissolution of the underlying prairie evaporites. It is important to note that while these localized lows are present, they do not represent barriers to lateral fluid flow within the reservoir. This can be seen in cross section A-A`, where lateral continuity of the reservoir beds is present *(Appendix B, Figure 13*).

Reservoir Continuity

The cross section A-A` and isopach, seen in *Appendix B, figures 13 & 5,* confirm there is no significant thinning of the reservoir units in the Middle Bakken within SEC 20-13-28W1. An on-lap edge can however be seen to the east in SEC 21-13-28W1 resulting in a pinching of the main reservoir unit (See well 100/09-21-13-28W1/0 on cross section A-A`).
Described briefly in stratigraphy, the Unit 2 siltstone reservoir is generally separated from the main Bakken Siltstone reservoir by the Unit 3 shale that acts as a pressure boundary between the two reservoirs. Although the Unit 2 siltstone is not the main target, it has shown to be productive with the aid of hydraulic fracture stimulation and in penetrating horizontal well paths.

Reservoir Quality

To examine reservoir quality, porosity (phi-h – por*m) and permeability (k-h – mD*m) maps for the main reservoir units are provided in *Appendix B, figures 7 to 10*. By separating each of the 24 cores by reservoir unit and compiling the porosity and permeability data, permeability-porosity cross plots were created to help with the prediction of permeability values for wells that were not cored. This core data was then subjected to a 1 mD permeability cut-off and the intervals greater than or equal to the criteria were multiplied by interval thickness to obtain phi-h and k-h values. A 1 mD permeability cut-off roughly correlates to a 12% porosity cut-off. It is important to note that a permeability cut-off was applied under the concept that contribution from intervals with permeabilities less than 1 mD will be limited. It is likely that there will be contribution from pore volume with less than 1mD of permeability; however the extent of contribution could prove difficult to predict and potentially result in unrealistic phi-h and k-h values. It is recommended the cut-off not be taken in the strictest sense and the absolute potential of the reservoir should still be explored. As a result, a bulk reservoir phi-h map was created and OOIP was calculated with a 1 mD cut-off.

Fluid Contacts

The oil-water contact of the Middle Bakken Reservoir has been interpreted from logs to be at approximately -192m subsea. Based on the structural mapping done, the contact is located too far down dip to appear on any of the EMU No. 3 maps, as the lowest structural elevation for the top of the Middle Bakken is approximately -175m subsea. Fluid contacts pose no risk to this reservoir.

Reservoir Characteristics and Current Recovery

Original Oil in Place

Porosity and water saturation values were taken from a combination of neutron- density logs and core samples where stratigraphic test holes are present. Petrophysical data such as open-hole logs and core analyses can be submitted upon request. Volumetric original oil in place (OOIP) was calculated for the proposed waterflood area using a combined beach (lower unit), marl (upper unit) and unit 2 phi*h map. Planimetered phi*h and an average initial Sw of 32.0% over SEC 20 & 21-13-28W1 equated to an OOIP of 1839.2 e3m3. Planimetered OOIP per LSD can be seen *in Appendix C, figure 1*.

Reservoir and Fluid Properties

Applicable reservoir and fluid properties are outlined in the following table. All information supporting the following values such as fluid analyses and static gradients can be submitted upon request.

Torquay Reservoir and Fluid Properties		
Reservoir:		**Comments**
Initial Reservoir Pressure (Pi)	5.5 MPa	From static Gradient
Current Reservoir Pressure (Pr)	2.2 MPa	August 2013 build-up
Formation Breakdown Pressure (Pfrac)	14 MPa	Average from fracs
Average Water Saturation (Sw)	0.32	From Core Samples
Core Wettability	Moderate water wet	From 15-20 Rel perms
Fluid:		
Oil API Gravity @ 15 C	40.29	From 4-21 Oil analysis
Total Sulphur Mass Fraction	0.00193	From 4-21 Oil analysis
Absolute Viscosity @ 25 C (cP)	2.45	From 4-21 Oil analysis
Formation Water Salinity (ppm)	22,000	8-21 water analysis
Formation Water Resistivity @ 25 C	0.312 Ohm*m	8-21 water analysis

Historical Production

Sections 20 & 21-13-28W1 have been developed with 5 vertical and 9 East-West horizontal wells. Spacing between horizontal wells varies between 200m to 400m as seen in *Appendix A, figure 1*. To date, 33.8 e3m3 of oil has been recovered from Sec 20 & 21 with production beginning in November 2010 and peaking in March 2012 at 56 m3/d oil and 41 m3/d water. A daily rate group plot showing section 20 & 21-13-28W1 wells can be seen in *Appendix C, figure 2*.

Primary Depletion

Fort Calgary believes maximum primary depletion can only be achieved with the utilization of multistage hydraulic fracturing. The current number of intervals in the existing horizontal wells in sections 20 & 21 vary from 12 to 25 stages per well. The amount of proppant has been limited between 2 and 5 tonnes per stage due to the risk of fracture growth into the overlaying water bearing Lower Lodgepole. Formation breakdown pressure for the proposed Torquay waterflood is on average 14 MPa.

After fracture estimated ultimate oil recovery (EUR) for SEC 20 & 21 is 132.42 e3m3 using decline analysis on individual wells and a 0.32 m3/d per well economic cut-off. Six additional horizontal wells are planned within the unit boundaries and are listed below:

UWI	Estimated Spud date
(4-21) 102/2-20-13-28W1 HZ	January 2014
(5-21) 100/6-20-13-28W1 HZ	April 2014
(12-21) 100/11-20-13-28W1 HZ	July 2014
(13-21) 103/15-20-13-28W1 HZ	September 2014
(1-20)102/2-21-13-28W1 HZ	November 2014
(9-20)102/10-21-13-28W1 HZ	January 2015

A group plot of declines for all SEC 20 & 21-13-28W1 wells can be seen in *Appendix C, figure 4*, where fractured horizontal wells have fitted to a hyperbolic decline with a hyperbolic exponent b of 0.5. An average yearly decline of 23% is expected in middle and later production periods.

No extensive PVT analysis has yet been conducted on reservoir fluids. Surface gas to oil ratio (GOR) has been measured to be between 2 and 5 m3/m3. Fort Calgary believes that due to the low GOR, all gas can be considered solution gas. Current reservoir pressure conditions are expected to be undersaturated or near bubble point where reservoir drive is largely limited to fluid and rock expansion.

This is further demonstrated with the pilot SEC 29 waterflood, where response has been seen in approximately 15 days in producers 200m from a pilot injector. Rapid response is seen primarily due low reservoir gas saturation. This dictates fluid volume considered for the voidage replacement ratio (VRR) seen in the 'Waterflood Operating Strategy' portion of this application.

Unitization

Unit name: Fort Calgary Resources Ltd. proposes that the name of the new unit will be East Manson Unit No.3 (EMU No.3).

Unit Operator: Fort Calgary Resources Ltd. will assume operatorship of East Manson Unit No.3.

Unitized Zone(s): The proposed unitized zones will be the Bakken and Torquay (Three Forks) formations.

Unit Lands: All of section 20 and 21 in township 13, range 28 west of the prime meridian will be included in the proposed Manson Unit No.3.

Unitized wells: East Manson Unit No.3 will consist of 10 injectors and 9 producing wells. Proposed injectors will be converted or drilled upon approval of the unit and according to the proposed development plan outlined in *Appendix D, figure 3*. Following is a list of wells within the unit area:

(4-21) 102/2-20-13-28W1 HZ	Injector (new drill)
(5-21) 100/6-20-13-28W1 HZ	Injector (new drill)
(12-21) 100/11-20-13-28W1 HZ	Injector (new drill)
(13-21) 103/15-20-13-28W1 HZ	Injector (new drill)
(1-20) 102/2-21-13-28W1 HZ	Injector (new drill)
(9-20) 102/10-21-13-28W1 HZ	Injector (new drill)
100/4-21-13-28W1 Vert	Injector (conversion)
100/1-20-13-28W1 Vert	Injector (conversion)
100/15-20-13-28W1 Vert	Injector (conversion)
(8-20) 100/7-21-13-28W1 HZ	Injector (conversion)
(4-21) 100/2-20-13-28W1 HZ	Producer
(1-19) 100/3-20-13-28W1 HZ	Producer
(5-21) 100/5-20-13-28W1 HZ	Producer
(12-21) 100/10-20-13-28W1 HZ	Producer
(13-21) 102/15-20-13-28W1 HZ	Producer
(1-20) 100/1-21-13-28W1 HZ	Producer
(8-20) 100/8-21-13-28W1 HZ	Producer
(9-20) 100/10-21-13-28W1 HZ	Producer
(16-20) 100/ 15-21-13-28W1 HZ	Producer (new drill)

Working interest and mineral owners: Fort Calgary is currently the 100% working interest holder in sections 20 & 21-13-28W1 and will be the single working interest holder in the East Manson Unit No.3. Mineral lessors are outlined below:

SEC 20-13-28W1M:

100% Crown

S/2 of SEC 21-13-28W1M excluding LSDs 1 and 8:

50% Maxine Grace Bell and Allan Dennis Jacobs
50% Canpar Holdings Ltd.

LSD 1 and 8 of SEC 21-13-28W1M:

47.5% Maxine Grace Bell and Allan Dennis Jacobs
50% Canpar Holdings Ltd.
2.5% Crown

N/2 of SEC 21-13-28W1M:

100% AMJ Campbell Inc.

Tract Factors: Tract factors will be determined as a factor of remaining oil in place per LSD and calculated with the following methodology:

- Original oil in place was first calculated on a per LSD basis.
- Horizontal production allocations per LSD were subsequently determined based on a 100m drainage area around each horizontal well. (Available upon request)
- Remaining oil in place per LSD was then determined and tabulated to calculate tract factors.

Tables outlining all 32 tracts calculations are shown in *Appendix A, figure 3*.

Waterflood Project Development

Proposed Water Injection Well Conversions and Timing

Fort Calgary proposes to convert a total of 7 horizontal and 3 vertical wells to Middle Bakken Injectors with injection set for Q1 of 2014 or upon the board's approval. A typical injector well schematic can be seen in *Appendix D, figure 1*.

Total daily injection demand for EMU#3 is expected to be approximately 500m3/d, as outlined in the table below. Source water injection demand both EMU#1 and 3 will be met from the following sources:

- 329 m3/d from existing pool-wide Manson production
- Reversal of the current 3-32-13-28W1 Lodgepole disposal well
- Proposed 15-30-13-28W1, 11-28-13-28W1 Lodgepole source wells
- Possible 3-21-13-28W1 and 2-21-13-28W1 Jurassic source wells (pending compatibility study)

An extensive study has been conducted by J.N. Fox & C.D. Martiniuk (1994) from Manitoba Energy and Mines on analogous Middle Bakken pools and waterfloods in the Daly area. Fox and Martiniuk outline waterflood compatibility and sensitivity studies indicate that produced water from the Lodgepole and Jurassic source water were compatible with Bakken formation fluids and would not cause clay swelling problems.

Currently, only Lodgepole source water is approved for injection. Fort Calgary will also be requesting approval for the use of Jurassic source water pending an updated Shaunavon water compatibility test.

Produced injection water will be treated, separated at the Fort Calgary 13-29-13-28W1 battery then filtered and pumped to the proposed injection wells. Vacant fiber reinforced polyethylene lines are installed adjacent to current production lines and will be utilized for injection. A flow diagram of the proposed injection system and addition to the current 13-29-13-28W1 battery can be seen *in Appendix D, figure 2.* Corrosion mitigation measures will also be implemented throughout the duration of the proposed water flood and are outlined in *Appendix D, figure 4.* A schedule of injectors and anticipated injection rates can be seen below:

UWI	Conversion Timing	Anticipated Injection Rate
(4-21) 102/2-20-13-28W1 HZ	April 2014	60m3/d
(5-21) 100/6-20-13-28W1 HZ	July 2014	60m3/d
(12-21) 100/11-20-13-28W1 HZ	September 2014	60m3/d
(13-21) 103/15-20-13-28W1 HZ	November 2014	70m3/d
(1-20)102/2-21-13-28W1 HZ	January 2014	40m3/d
(9-20)102/10-21-13-28W1 HZ	March 2015	50m3/d
100/1-20-13-28W1 Vert	January 2014	30 m3/d
100/4-21-13-28W1 Vert	January 2014	30 m3/d
100/15-20-13-28W1 Vert	January 2014	40 m3/d
(8-20) 100/7-21-13-28W1 HZ	January 2014	60m3/d

Anticipated injection rates are based on historical fluid production for each well and will vary according to the following injection parameters:

Formation Fracture Pressure	14 MPa
Formation Fracture Wellhead Pressure	12.6 MPa
Injection line Maximum Working Pressure	10.3 MPa

Formation and wellhead fracture pressures were determined from extensive hydraulic fracture data throughout sections 20, 21 and the Manson field. The lowest limiting pressure will be approximately 10.3 MPa on the surface injection line. Therefore Fort Calgary requests a maximum injection pressure of 90% of the limiting pressure or 9 MPa.

Waterflood Operating Strategy

Injector conversions are proposed to begin in January 2014, where 4 wells will be initially converted. A fill-up period of less than 1 month is expected due to negligible gas saturation (Sg), and has been seen in the SEC 29 pilot. Target reservoir pressure will be 5.5 MPa, while maintaining a voidage replacement ratio (VRR) between 1 and 1.3. Some out of zone thieving to the Lower Lodgepole is expected as some

hydraulic fractures are believed to have reached porosity in the Lodgepole. Voidage replacement will be monitored and modeled throughout the injection process to maximize reserve recovery.
The following surveillance data and calculations will be acquired throughout the duration of the SEC 20 & 21 flood:

- Initial dye and chemical tracers to observe potential communication and breakthrough
- Frequent short-term pressure build-ups on both producers and injectors to monitor reservoir pressure.
- Wellhead flow meters on all wells to acquire daily rates
- Continuous wellhead injection pressure monitoring
- Weekly water cuts on all wells
- The use of fractional flow and Hall plots
- Analysis of acquired data and observation of trends in: water oil ratio (WOR), reservoir pressure (Pr), production rate, injection rate, cumulative production, etc.

In accordance to Section 73 of the Drilling and Production Regulations, an annual EOR report outlining the above data and calculations will be submitted within 60 days of initial injection and within 60 days after the end of each calendar year.

Technical Studies

Listed below are several technical studies have been carried out with respect to the Manson Bakken waterflood project.

Core Anaylses:

- 24 cores taken throughout the Manson field
- 8 cores within or adjacent to EMU No.3

Special Core Analysis (SCAL):

- Performed on 2 Middle Bakken core plugs from the 15-20-13-28W1 vertical well
- Relative permeability indicates that the core is water wet
- Calculated mobility ratio (M) of 0.7 with an oil viscosity of 2.48 cp
- Calculated response time of 10 days at r = 200m (neglecting Sg)

Numerical Simulation:

- Numerical simulation on-going (Petrel + Frontsim 2013), starting with SEC 29-13-28W1
- History matched primary production showing very rapid pressure depletion
- Preliminary waterflood runs showing recoveries upwards of 30% with near piston-like displacement

SEC 29-13-28W1 Pilot Data:

- 2-29-13-28W1 vertical well currently injecting on average 50 m3/d

- Pressure response in 15 days in 3 horizontal wells at a distance of 200m
- Watercuts in responding wells decreasing due to additional inflow from Middle Bakken beach
- Production plots of responding wells and a group plot can be seen in *Appendix E, Figures 1 to 4*

Analogous Pool:

- The Daly Bakken A pool and waterflood, operated by Tundra Oil & Gas Ltd., in Sections 21, 28 and 29 TWP 10 RNG 29W1 can be used as a direct analogue
- The Middle Bakken facies in both Daly and Manson area consist of the same upper bioturbated medium to fine silt, middle interlaminated silts and lower coarse silt to fine sand. In both cases, main reservoir thickness is 2 to 4 m. The regional Bakken Shale also offers a pressure boundary
- Daly A Bakken reservoir properties exhibiting similar permeability of 3 to 25md and average porosity of 17%.
- An incremental post-flood recovery factor of 8% was achieved in the Daly Bakken A pool with four vertical incomplete 9 spot injection patterns
- A map showing the Daly Bakken A analogue along with decline analysis for the pool can be seen in *Appendix C, figure 5 & 6* respectively

Secondary Recovery and Production Forecast

Fort Calgary believes that incremental recovery upwards of 13% can be forecasted in the Manson Section 20 & 21 flood with the proposed injection scheme where horizontal injectors will allow for uniform lateral sweep from well paths. Furthermore, inflatable packers will enable adaptable injection patterns by isolating chosen injection intervals and know heterogeneity or fractured areas can subsequently be avoided. Selective intervals can also be mirrored in the horizontal producers to isolate or delay breakthrough.

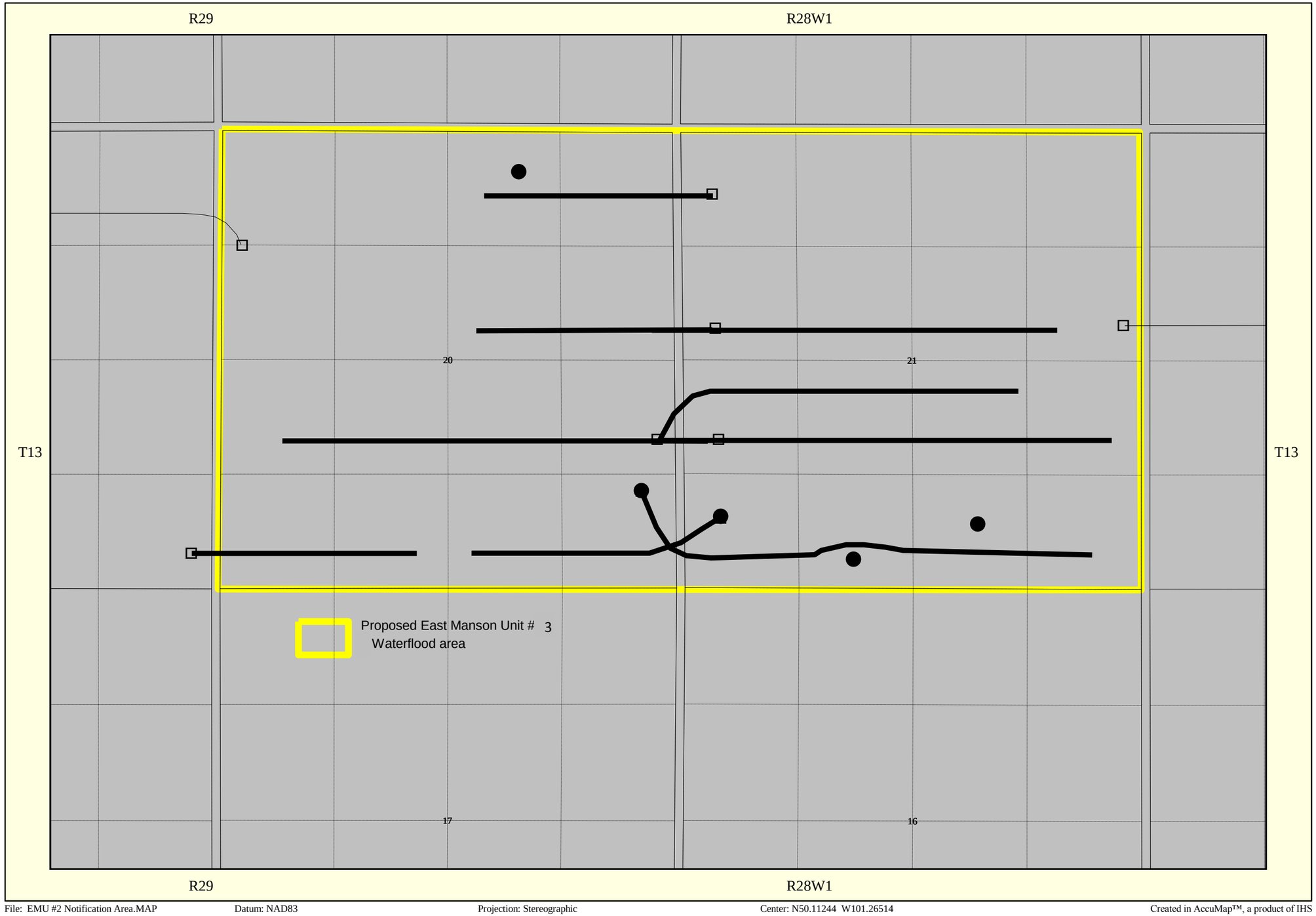
Recovery has been calculated for the WF area based on forecasted individual well declines under pressure support. An elevated economic cut-off of 0.4 m3/d of oil was used in this scenario as fixed injection well costs were allocated to the remaining producers. The resultant post flood EUR is 356.25 e3m3 which yields an incremental and ultimate post flood recovery factor of 12.2% and 19.4% respectively. Forecasted production profiles for both primary and waterflood can be seen in *Appendix C, figure 4*.

After water flood implementation, project success will be evaluated by:

- Recording continuous incremental recovery
- Recovery comparisons with adjacent sections, forecasted recovery and Sinclair analogues
- A regularly updated numerical model to predict breakthrough time, injection pattern etc.

Appendix A: Unit & Notification

Appendix A, Figure 1: East Manson Unit No.3 Map



File: EMU #2 Notification Area.MAP Datum: NAD83 Projection: Stereographic Center: N50.11244 W101.26514 Created in AccuMap™, a product of IHS

Appendix A, Figure 2: Sample Notification Letter

October 28th, 2013

Surface / Mineral Owner
360-1395 Ellice Avenue
Winnipeg, Manitoba
R3G 3 P2

Attention: Surface / Mineral Owner

RE: Fort Calgary SEC 20 & 21 TWP 13 RNG 28W1 East Manson Unit No.3 Proposal & Water Flood

Please be advised that Fort Calgary Resources Ltd. will be applying under Section 71 of the Manitoba Drilling and Production Regulations for a water flood in Sections 20 and 21 of TWP 13 RNG 28 W1 (see attached unit and waterflood area map). The previous notification for East Manson Unit No.2 should be disregarded as the name is already in use. Upon approval of the unit and waterflood application, the following wells will be converted or drilled as Three Forks water injectors:

(4-21) 102/2-20-13-28W1 HZ	Injector (new drill)
(5-21) 100/6-20-13-28W1 HZ	Injector (new drill)
(12-21) 100/11-20-13-28W1 HZ	Injector (new drill)
(13-21) 103/15-20-13-28W1 HZ	Injector (new drill)
(1-20) 102/2-21-13-28W1 HZ	Injector (new drill)
(9-20) 102/10-21-13-28W1 HZ	Injector (new drill)
100/4-21-13-28W1 Vert	Injector (conversion)
100/1-20-13-28W1 Vert	Injector (conversion)
100/15-20-13-28W1 Vert	Injector (conversion)
(8-20) 100/7-21-13-28W1 HZ	Injector (conversion)

Injected water will be transported via flow line to the above wells from the Fort Calgary 13-29-13-28W1 battery site. Source water will be Three Forks produced water along with Lodgepole water from the 3-32-13-28W1 and 15-30-13-28W1 source wells.

If you have any questions or concerns please contact me at 403-800-6601 or twillson@fortcal.com.

Sincerely,

FORT CALGARY RESOURCES LTD.

Tristan Willson

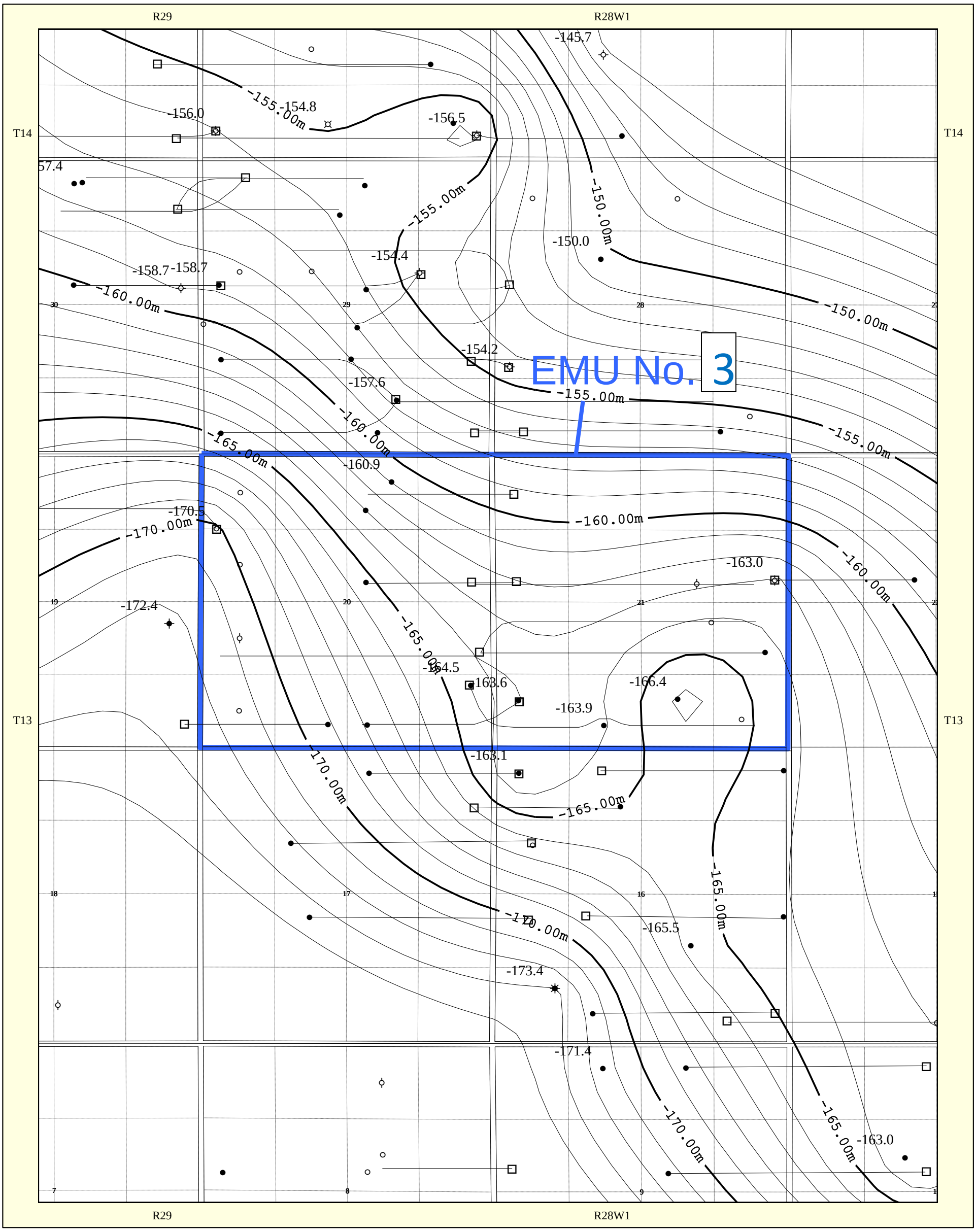
Tristan Willson
TW

Appendix A, Figure 3: Tract Factors

East Manson Unit No.3 Tract Factors								
				Oil Production			Volume Allocation (e3m3)	Tract Factor
Legal Desciption	Royalty Owner	Working Interest	OOIP (e3m3)	Wellbores	Cumulative Production per Well (e3m3)	Production Allocation		
1-21-13-28W1	2.5% Crown 47.5% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	4.43	100/01-21-13-28W1 HZ	1.10	17%	4.25	0.235295484%
2-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	16.99	100/01-21-13-28W1 HZ 100/02-21-13-28W1 Vert	~~1.10~~ ~~0.25~~	29% 100%	16.42	0.910312824%
3-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	83.57	100/01-21-13-28W1 HZ 100/03-21-13-28W1 Vert	1.10 3.77	28% 100%	79.49	4.405777941%
4-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	91.90	100/01-21-13-28W1 HZ 100/04-21-13-28W1 Vert	1.10 2.21	26% 100%	89.40	4.955246029%
5-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	104.34	100/08-21-13-28W1 HZ 100/10-21-13-28W1 HZ 100/07-21-13-28W1 HZ	5.26 1.70 1.85	22% 1% 28%	102.66	5.690015713%
6-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	83.76	100/08-21-13-28W1 HZ 100/10-21-13-28W1 HZ 100/07-21-13-28W1 HZ	5.26 1.70 1.85	27% 0% 33%	81.73	4.530087100%
7-21-13-28W1	50% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	23.18	100/08-21-13-28W1 HZ 100/10-21-13-28W1 HZ 100/07-21-13-28W1 HZ	5.26 1.70 1.85	27% 0% 33%	21.15	1.172437564%
8-21-13-28W1	2.5% Crown 47.5% M.G.Bell & D.Jacobs 50% Canpar Holdings	100% Fort Calgary Resources Ltd.	4.20	100/08-21-13-28W1 HZ 100/07-21-13-28W1 HZ	5.26 1.85	25% 6%	2.80	0.155362653%
9-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	5.19	100/10-21-13-28W1 HZ	1.70	0%	5.18	0.287277813%
10-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	25.25	100/10-21-13-28W1 HZ	1.70	34%	24.67	1.367500515%
11-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	78.23	100/10-21-13-28W1 HZ	1.70	34%	77.64	4.303356219%
12-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	112.44	100/10-21-13-28W1 HZ	1.70	30%	111.93	6.203813143%
13-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	100.98				100.98	5.596809061%
14-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	71.86				71.86	3.982835206%
15-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	27.96				27.96	1.549680940%
16-21-13-28W1	100% AMJ Campbell Inc.	100% Fort Calgary Resources Ltd.	7.08				7.08	0.392408478%
1-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	68.67	100/02-20-13-28W1 HZ 100/01-20-13-28W1 Vert 100/5-20-13-28W1 HZ	3.66 2.82 0.38	51% 100% 0%	63.97	3.545427979%
2-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	65.12	100/02-20-13-28W1 HZ 100/5-20-13-28W1 HZ	3.66 0.38	49% 1%	63.34	3.510602568%
3-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	52.69	100/03-20-13-28W1 HZ 100/5-20-13-28W1 HZ	0.36 0.38	51% 0%	52.50	2.910051382%
4-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	42.96	100/03-20-13-28W1 HZ 100/5-20-13-28W1 HZ	0.36 0.38	49% 0%	42.78	2.371076719%
5-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	40.50	100/5-20-13-28W1 HZ	0.38	22%	40.41	2.239959112%
6-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	49.48	100/5-20-13-28W1 HZ	0.38	26%	49.38	2.736793828%
7-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	61.29	100/5-20-13-28W1 HZ	0.38	26%	61.19	3.391430314%
8-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	73.72	100/5-20-13-28W1 HZ	0.38	24%	73.63	4.080855917%
9-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	88.75	100/10-20-13-28W1 HZ	3.87	51%	86.80	4.810649053%
10-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	73.37	100/10-20-13-28W1 HZ	3.87	49%	71.46	3.960400964%
11-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	56.86				56.86	3.151461311%
12-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	47.01				47.01	2.605525787%
13-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	53.33				53.33	2.955811321%
14-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	64.43				64.43	3.571028003%
15-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	70.51	100/15-20-13-28W1 Vert 102/15-20-13-28W1 HZ	2.28 4.31	100% 52%	66.00	3.657962344%
16-20-13-28W1	100% Crown	100% Fort Calgary Resources Ltd.	88.01	102/15-20-13-28W1 HZ	4.31	48%	85.93	4.762746713%
TOTAL			1838.06				1804.24	100.000000000%

Appendix B: Geological Maps

Appendix B, Figure 1: Upper Bakken Structure Contour Map



WELL LEGEND

Bottom Hole Locations:

- Location
- Service or Drain
- Dry & Abandoned
- Suspended
- Oil
- Abandoned Oil

Well Postings:

BKKN SHAL(U-Sub) (m)

PROPRIETARY DATA LEGEND

Points:

- Manson Surface Locations
- Manson Reliable+Tundra Surface

Lines:

- Manson FCR Wells
- Manson Reliable+Tundra wells
- Sask Seismic Lines

Fort Calgary Resources Ltd.

Top Upper Bakken Structure

Created in AccuMap™
Product of IHS
Datum: NAD83
Vol. 23 No. 08, Aug 1 2013
(403) 770-4646

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Author: David Rose
Date: September 16, 2013
File: Torq Waterflood Middle Bakken
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11465 W101.26453

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

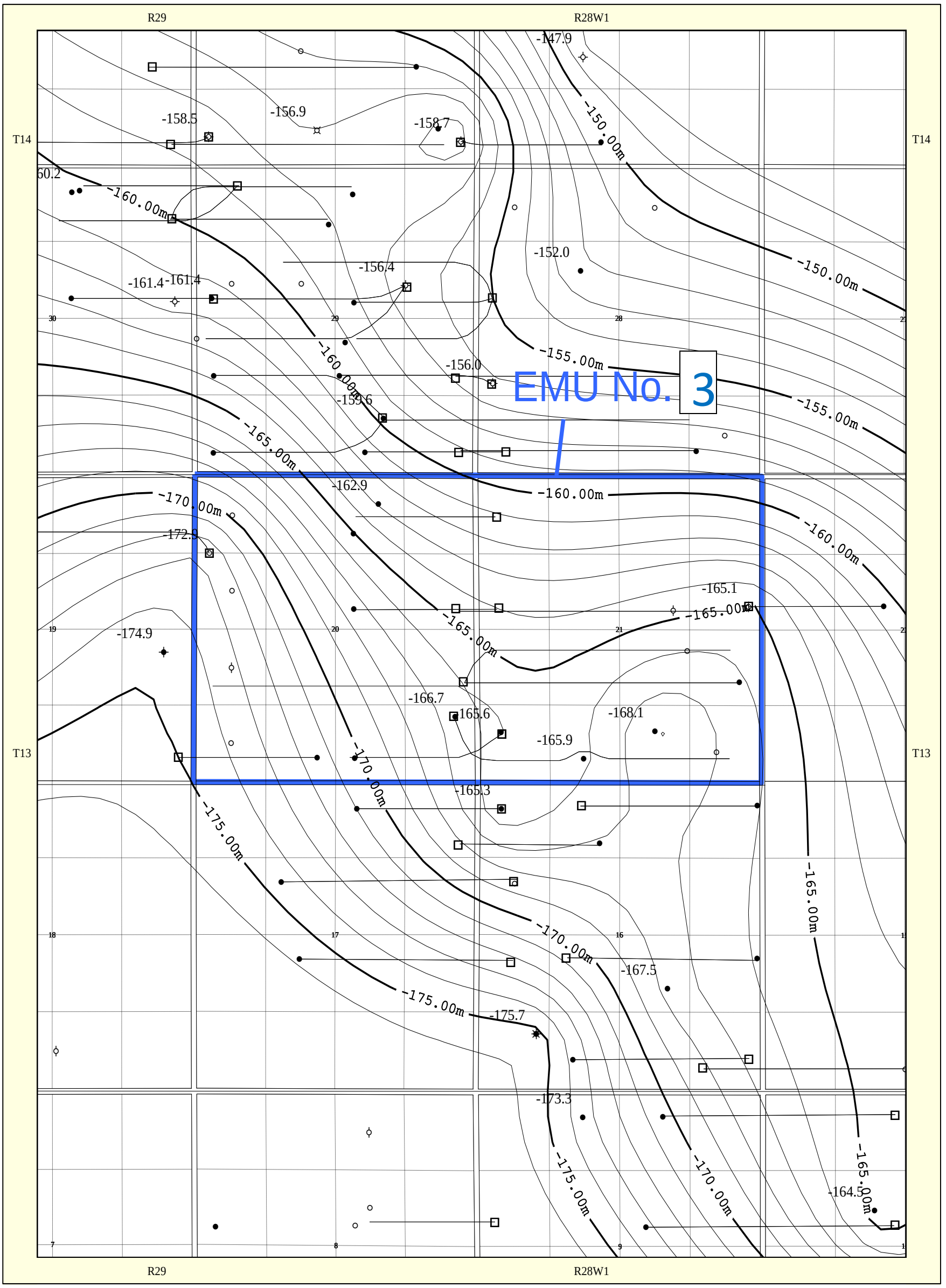
DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: ML107

Scale 1:20000

0 Kilometers 0.9
0 Miles 0.5

Contours: BKKN SHAL(U-Sub) (m)
Contour interval = 1m

Appendix B, Figure 2: Middle Bakken Structure Contour Map



WELL LEGEND

Bottom Hole Locations:

- Location
- Service or Drain
- Dry & Abandoned
- Suspended
- Oil
- Abandoned Oil

Well Postings:

Marl(U-Sub) (m)

PROPRIETARY DATA LEGEND

Points:

- Manson Surface Locations
- Manson Reliable+Tundra Surface
- Manson Reliable+Tundra Surface
- Manson Surface Locations

Lines:

- Manson FCR Wells
- Manson Reliable+Tundra wells
- Sask Seismic Lines
- Manson Reliable+Tundra wells
- Manson FCR Wells

Fort Calgary Resources Ltd.

Top Middle Bakken Structure

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(403) 770-4646

Author: David Rose
Date: September 16, 2013
File: Torq Waterflood Middle Bakken
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11465 W101.26453

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

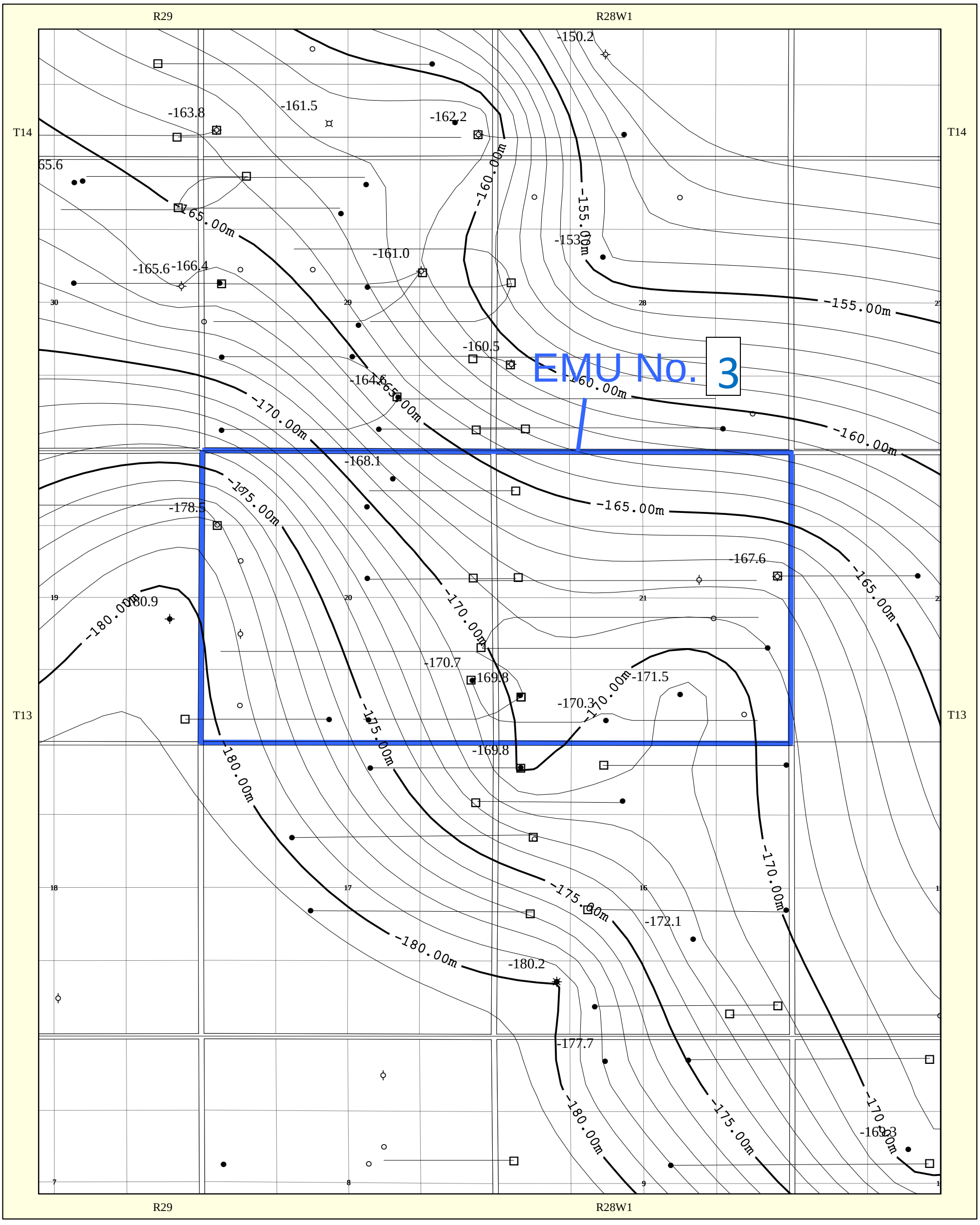
Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Contours: Marl(U-Sub) (m)
Contour interval = 1m

Appendix B, Figure 3: Torquay Unit 3 (Middle Bakken Unconformity) Structure Contour Map



WELL LEGEND

Bottom Hole Locations:

- Location
- Service or Drain
- Dry & Abandoned
- Suspended
- Oil
- Abandoned Oil

Well Postings:

Unit 3(U-Sub) (m)

PROPRIETARY DATA LEGEND

Points:

- Manson Surface Locations
- Manson Reliable+Tundra Surface

Lines:

- Manson FCR Wells
- Manson Reliable+Tundra wells
- Sask Seismic Lines

Fort Calgary Resources Ltd.

Top Torquay Unit 3 Structure

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Datum: NAD83

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(403) 770-4646

Author:	David Rose
Date:	September 16, 2013
File:	Torq Waterflood Middle Bakken
Scale:	1 : 20000
Projection:	Stereographic
Center:	N50.11465 W101.26453

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

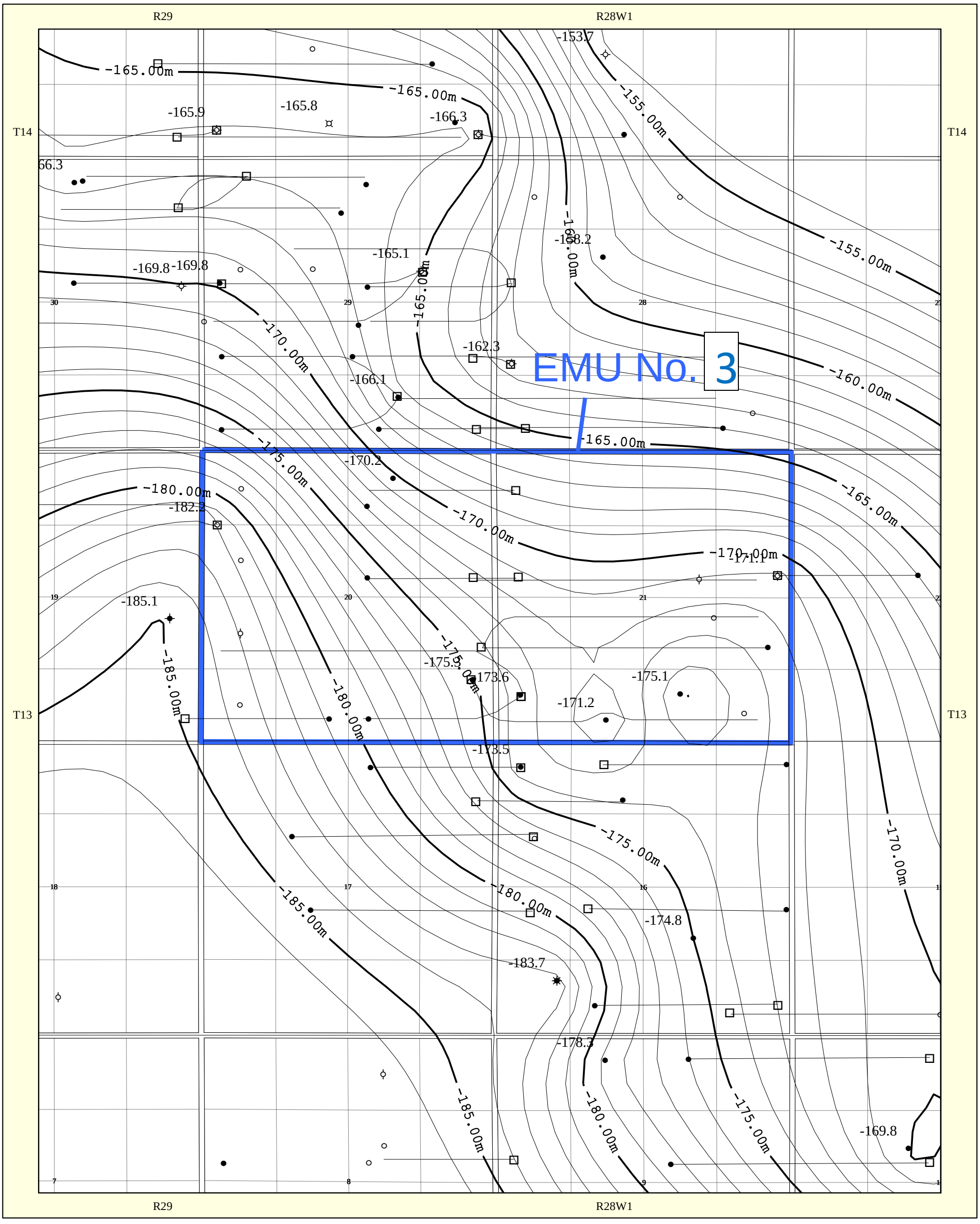
Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Contours: Unit 3(U-Sub) (m)
Contour interval = 1m

Appendix B, Figure 4: Torquay Unit 2 (Middle Bakken Unconformity) Structure Contour Map



WELL LEGEND	
Bottom Hole Locations:	
○ Location	⊙ Suspended
⌑ Service or Drain	● Oil
⊙ Dry & Abandoned	✦ Abandoned Oil
Well Postings:	
Unit 2(U-Sub) (m)	☼

PROPRIETARY DATA LEGEND	
Points:	
▫	Manson Surface Locations
▫	Manson Reliable+Tundra Surface
Lines:	
———	Manson FCR Wells
———	Manson Reliable+Tundra wells
———	Sask Seismic Lines

Fort Calgary Resources Ltd.

Top Torquay Unit 2 Structure

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(403) 770-4646

Author: David Rose
Date: September 16, 2013
File: Torq Waterflood Middle Bakken
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11465 W101.26453

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

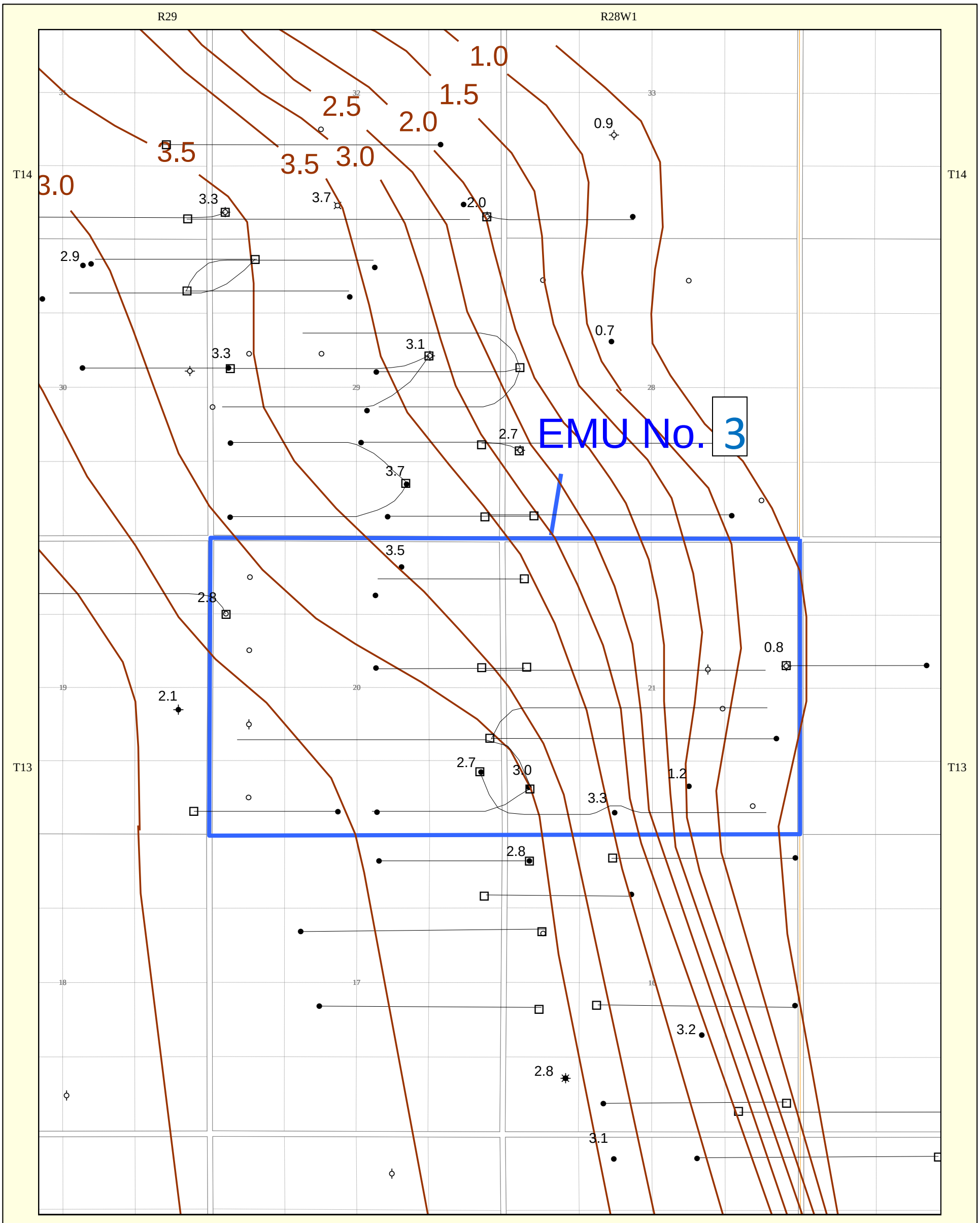
Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Contours: Unit 2(U-Sub) (m)
Contour interval = 1m

Appendix B, Figure 5: Middle Bakken Reservoir Isopach Including Middle and Lower Units



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil

PROPRIETARY DATA LEGEND	
Points:	
	Manson Reliable+Tundra Surface
Lines:	
	Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Middle Bakken Reservoir
Isopach 0.5 m Contour Interv

Created in AccuMap™
Product of IHS
Datum: NAD83
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(403) 770-4646

Author:	David Rose
Date:	September 16, 2013
File:	Torq Waterflood Reservoir Isop
Scale:	1 : 20000
Projection:	Stereographic
Center:	N50.11861 W101.26519

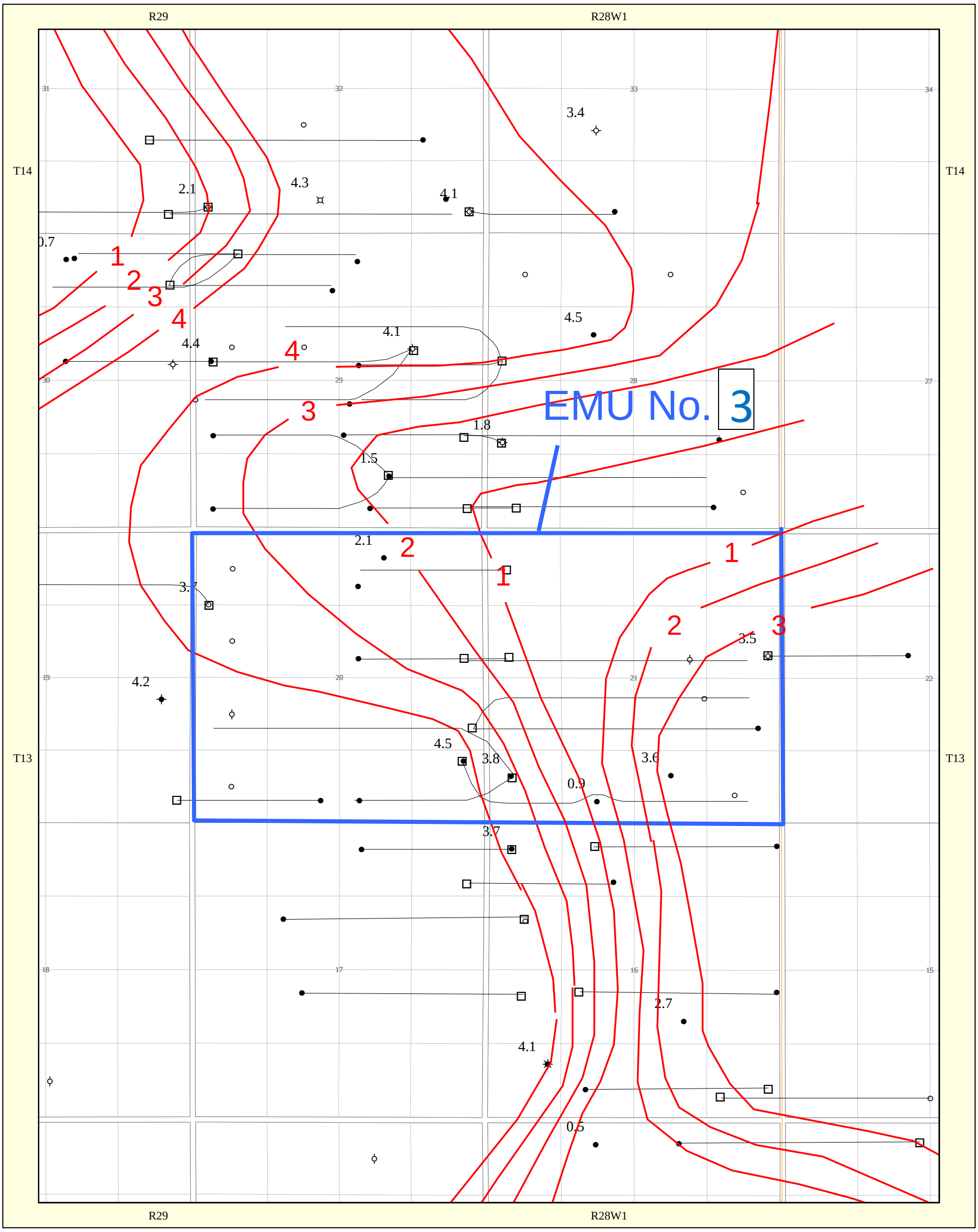
Grid Information:	DLS Version Information:
DLS: IHS Enhanced Grid	AB: ATS 4.1
NTS: Theoretical Grid	BC: PRB 2.0
FPS: Theoretical Grid	SK: STS 2.5
US: IHS US Grid	MB: ML07

Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Appendix B, Figure 6: Torquay Unit 3 Isopach Map



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil
Well Postings:	
Unit 3(U-Iso) (m)	

PROPRIETARY DATA LEGEND
Points:
Manson Reliable+Tundra Surface
Manson Surface Locations
Lines:
Manson Reliable+Tundra wells
Manson FCR Wells

Fort Calgary Resources Ltd.

Torquay Unit 3 Isopach
1 m Contour Interval

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Author: David Rose
Date: September 16, 2013
File: Torq Waterflood Unit 3 Isopach
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11845 W101.26389

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

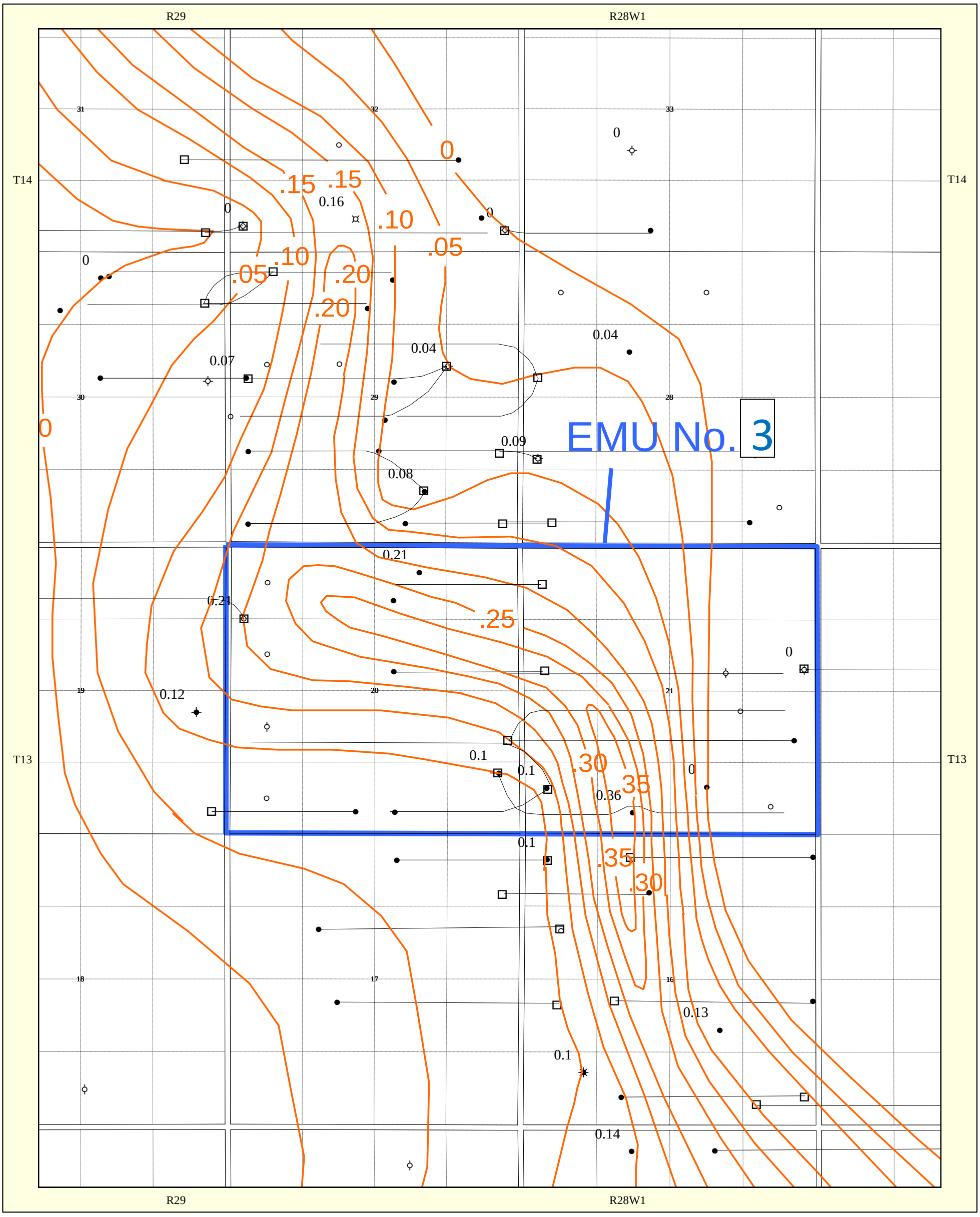
DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Appendix B, Figure 7: Phi-h Map of Middle Unit of the Middle Bakken Reservoir (1 md Cutoff)



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil
Well Postings:	
Column 4	

PROPRIETARY DATA LEGEND	
Points:	
	Manson Reliable+Tundra Surface
Lines:	
	Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Middle Unit - Middle Bakken
0.05 por*m Contour Interval

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(403) 770-4646

Author:	David Rose
Date:	September 16, 2013
File:	Torq Rythmite phi-h 1md cutoff
Scale:	1 : 20000
Projection:	Stereographic
Center:	N50.11954 W101.26659

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

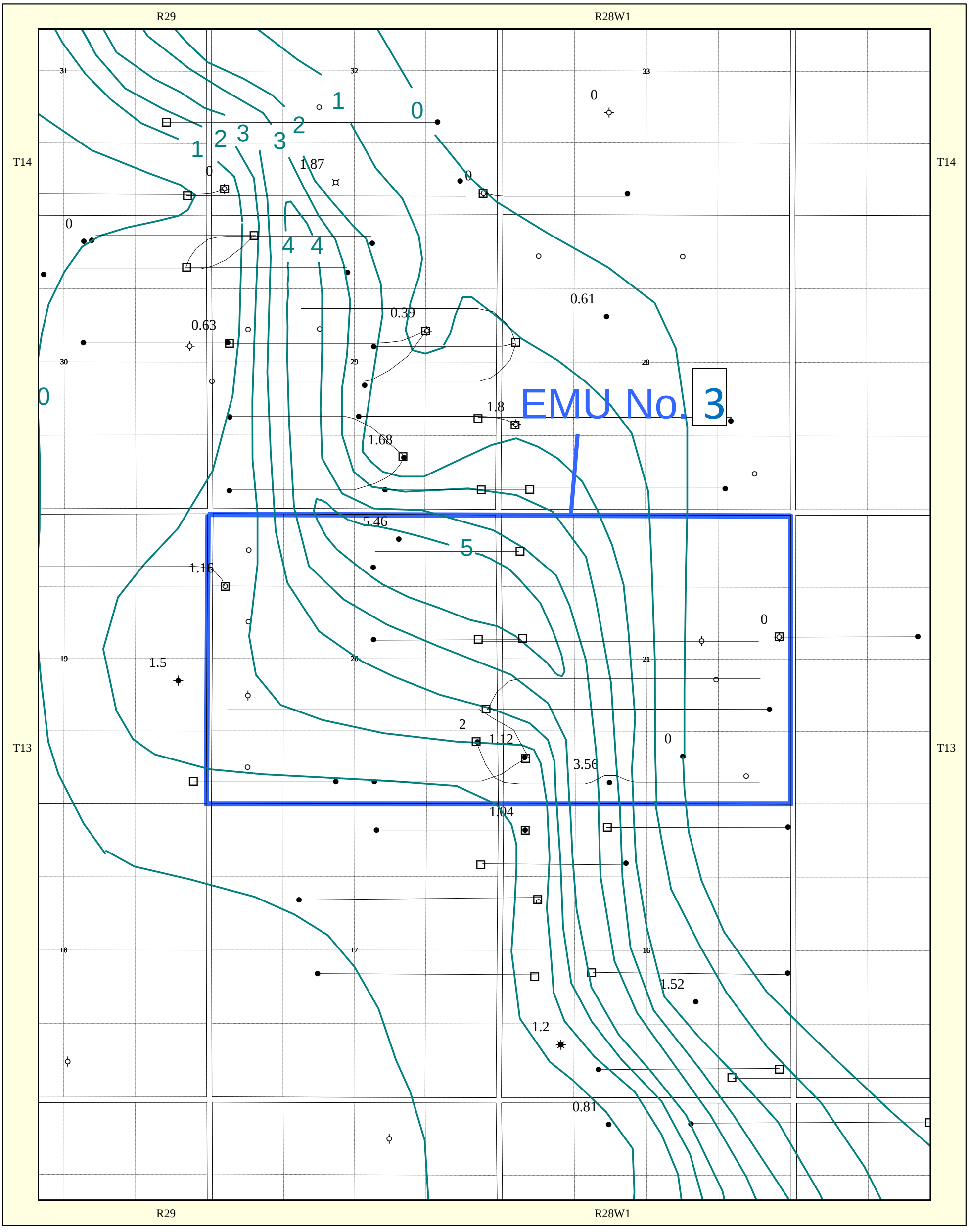
DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

Scale 1:20000

0 Kilometers 0.9

0 Miles 0.5

Appendix B, Figure 8: K-h Map of the Middle Unit of the Middle Bakken Reservoir (1 md Cutoff)



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil
Well Postings:	
Column 7	

PROPRIETARY DATA LEGEND	
Points:	
	Manson Reliable+Tundra Surface
Lines:	
	Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Middle Unit - Middle Bakken
1 md*m Contour Interval

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Author: David Rose
Date: September 16, 2013
File: Torq Rythmite k-h 1 md cutoff.
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11757 W101.26534

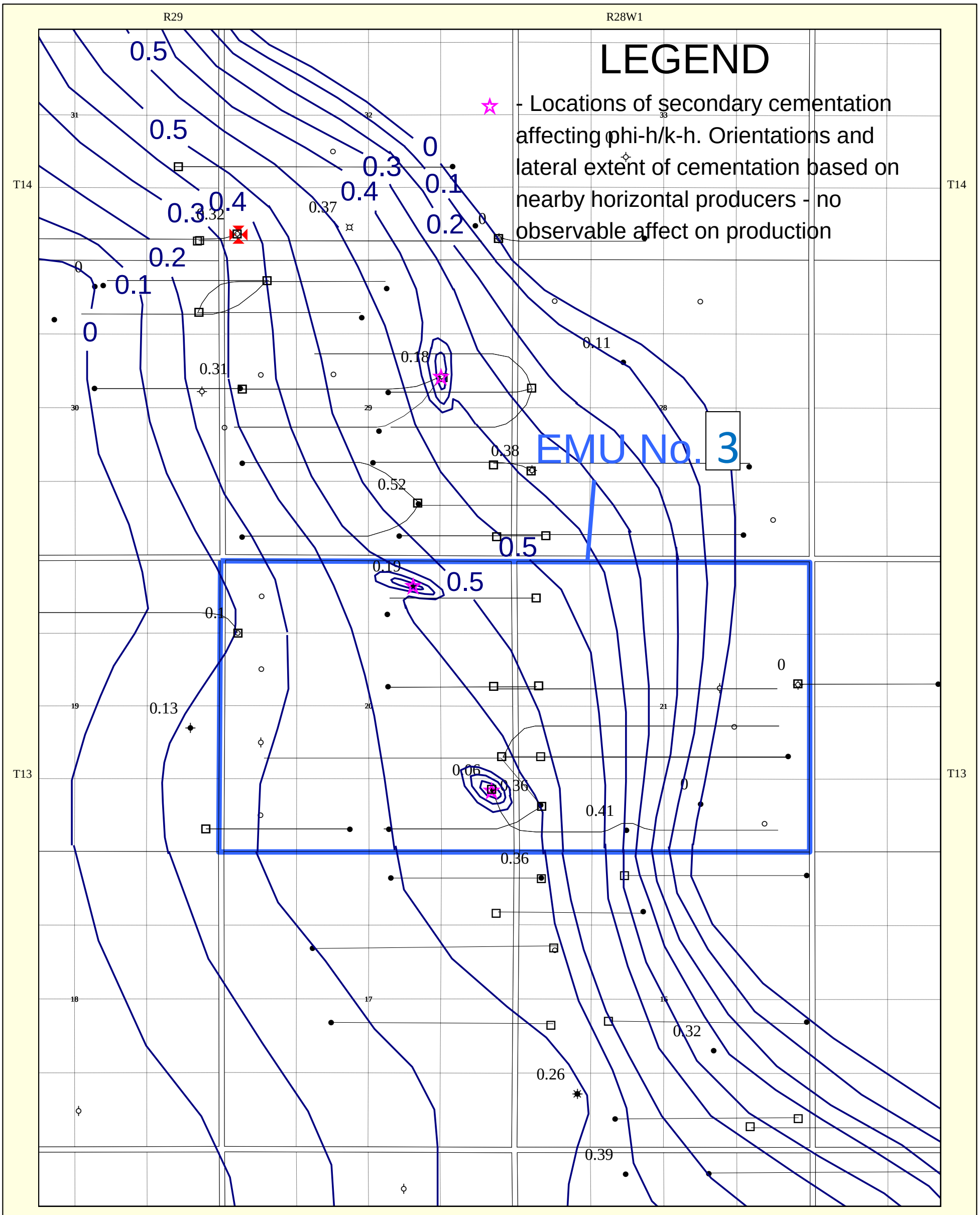
Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

Scale 1:20000

0 Kilometers 0.9
0 Miles 0.5

Appendix B, Figure 9: Phi-h Map of the Lower Unit of the Middle Bakken Reservoir (1 md Cutoff)



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil
Well Postings:	
Column 3	

PROPRIETARY DATA LEGEND
Points:
Manson Surface Locations
Manson Reliable+Tundra Surface
Lines:
Manson FCR Wells
Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Lower Unit - Middle Bakken
0.1 por*m Contour Interval

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Datum: NAD83
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(403) 770-4646
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Author:	David Rose
Date:	September 16, 2013
File:	Torq Waterflood Beach+Hz Phi-h
Scale:	1 : 20000
Projection:	Stereographic
Center:	N50.11976 W101.26613

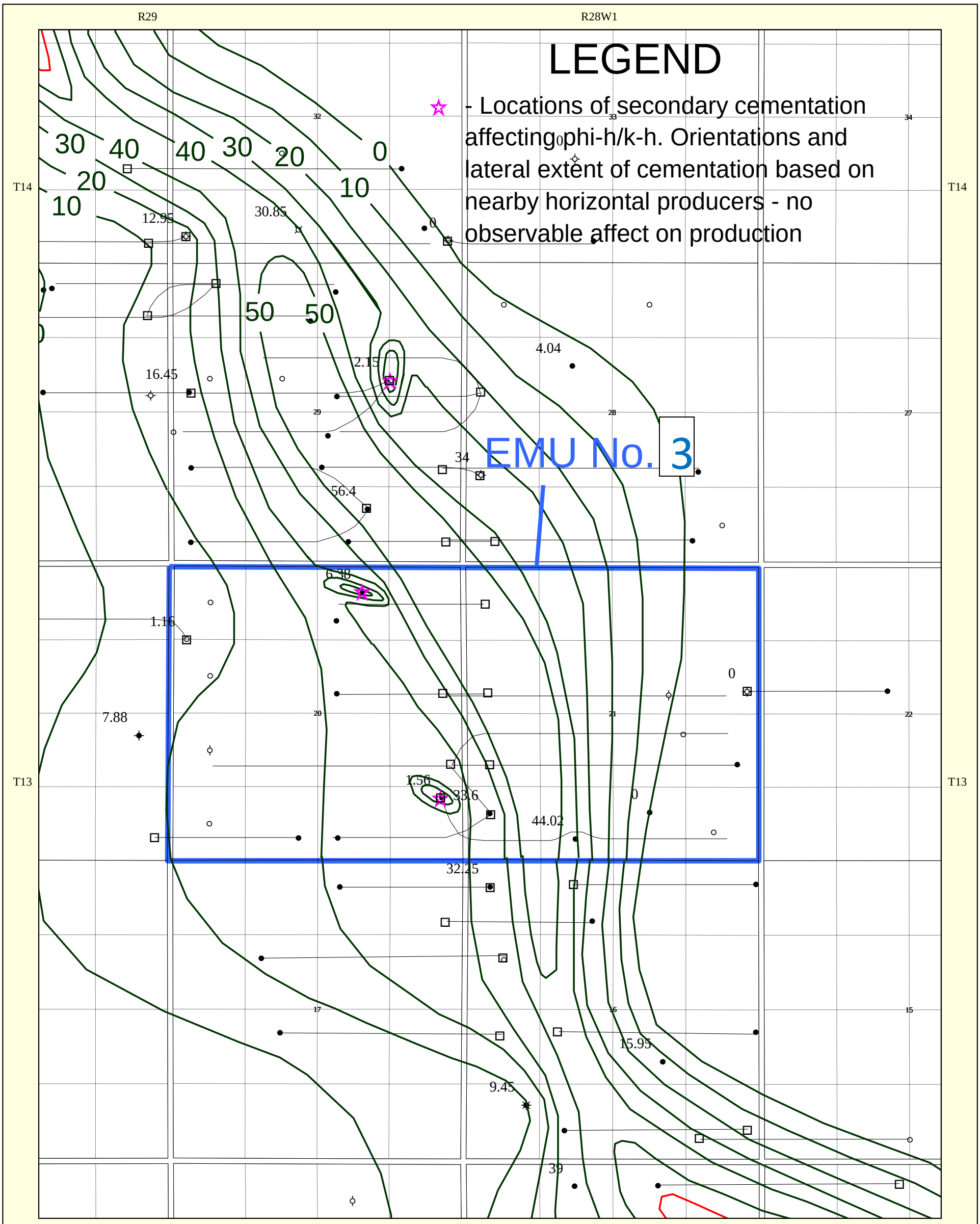
Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: ML07

Scale 1:20000

0 Kilometers 0.9
0 Miles 0.5

Appendix B, Figure 10: k-h Map of the Lower Unit of the Middle Bakken Reservoir (1 md Cutoff)



WELL LEGEND	
Bottom Hole Locations:	
Location	Suspended
Service or Drain	Oil
Dry & Abandoned	Abandoned Oil
Well Postings:	
Column 6	

PROPRIETARY DATA LEGEND	
Points:	
	Manson Reliable+Tundra Surface
Lines:	
	Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Lower Unit - Middle Bakken
10 md*m Contour Interval

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Author: David Rose
Date: September 16, 2013
File: Torq Waterflood Beach k-h 1 md
Scale: 1 : 20000
Projection: Stereographic
Center: N50.11976 W101.26214

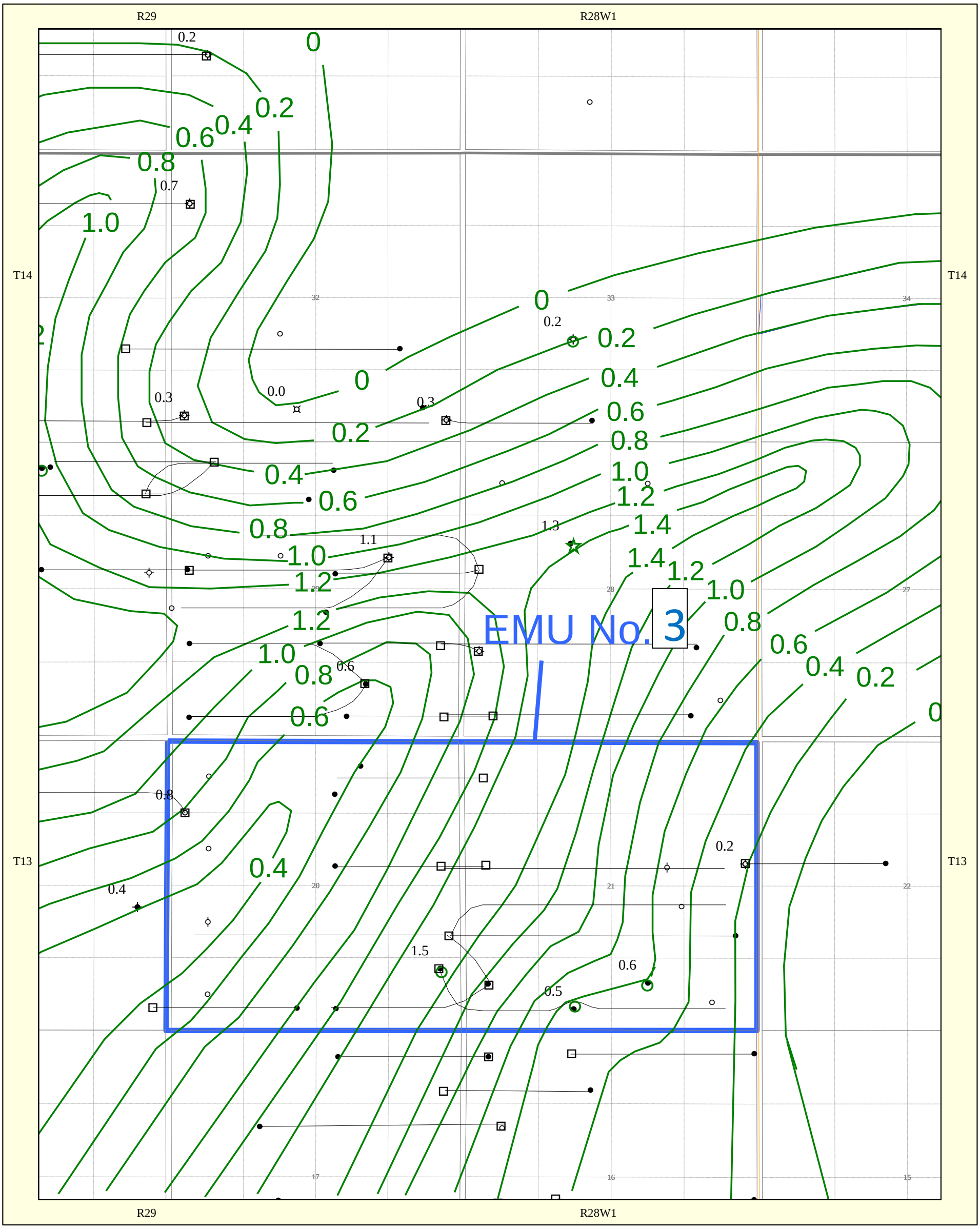
Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

Scale 1:20000

0 Kilometers 0.9
0 Miles 0.5

Appendix B, Figure 11: Torquay Unit 2 Net Pay Map



WELL LEGEND	WELL LISTS	PROPRIETARY DATA LEGEND
Bottom Hole Locations: Location Service or Drain Dry & Abandoned Suspended Oil Abandoned Oil Well Postings: Unit 2(U-NPy) (m)	Has Unit 2 Pay	Points: Manson Reliable+Tundra Surface Lines: Manson Reliable+Tundra wells

Fort Calgary Resources Ltd.

Torquay Unit 2 Net Pay
0.2m Contour Interval

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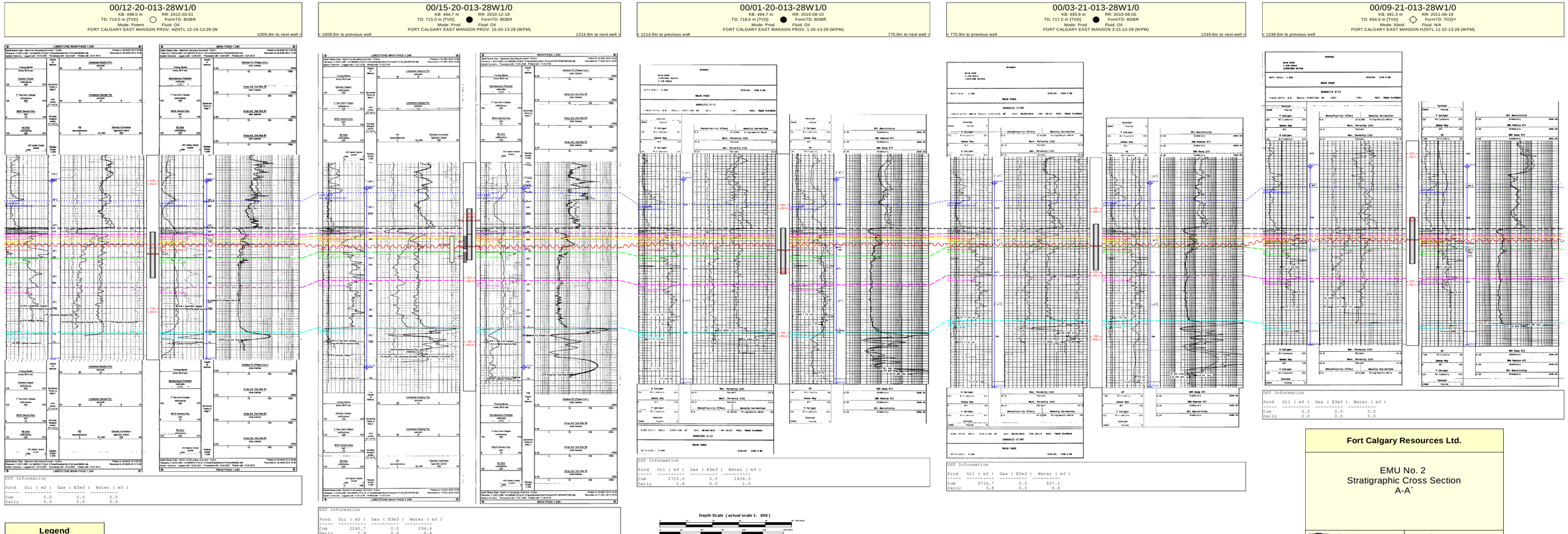
Author: David Rose
Date: September 16, 2013
File: Manson Unit 2 Net Pay.MAP
Scale: 1 : 20000
Projection: Stereographic
Center: N50.12895 W101.26201

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

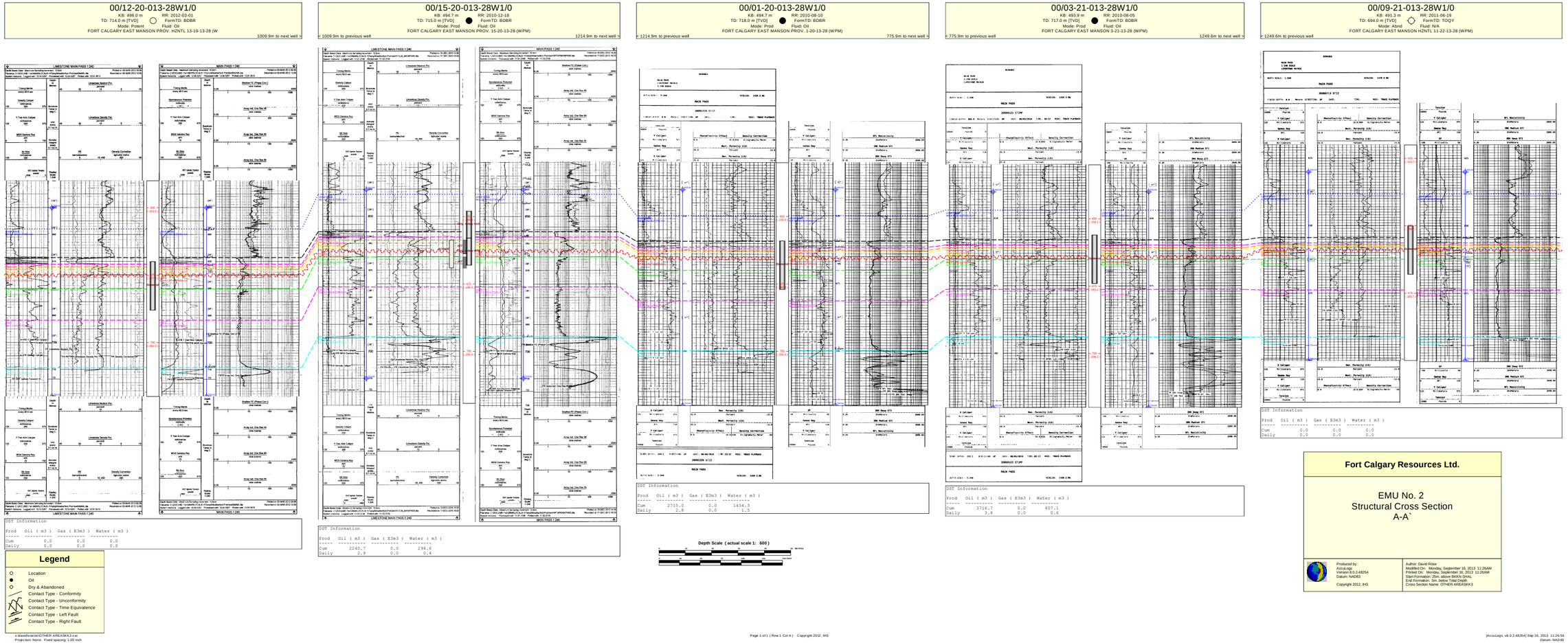
Scale 1:20000
0 Kilometers 0.9
0 Miles 0.5

Appendix B, Figure 12: Stratigraphic Cross Section A-A' (Northwest to Southeast) across EMU No.3



**Orange and Yellow tops represent subdivision of Middle Bakken into the middle and lower reservoir units, respectively.

Appendix B, Figure 13: Structural Cross Section A-A' (Northwest to Southeast) across EMU No.3



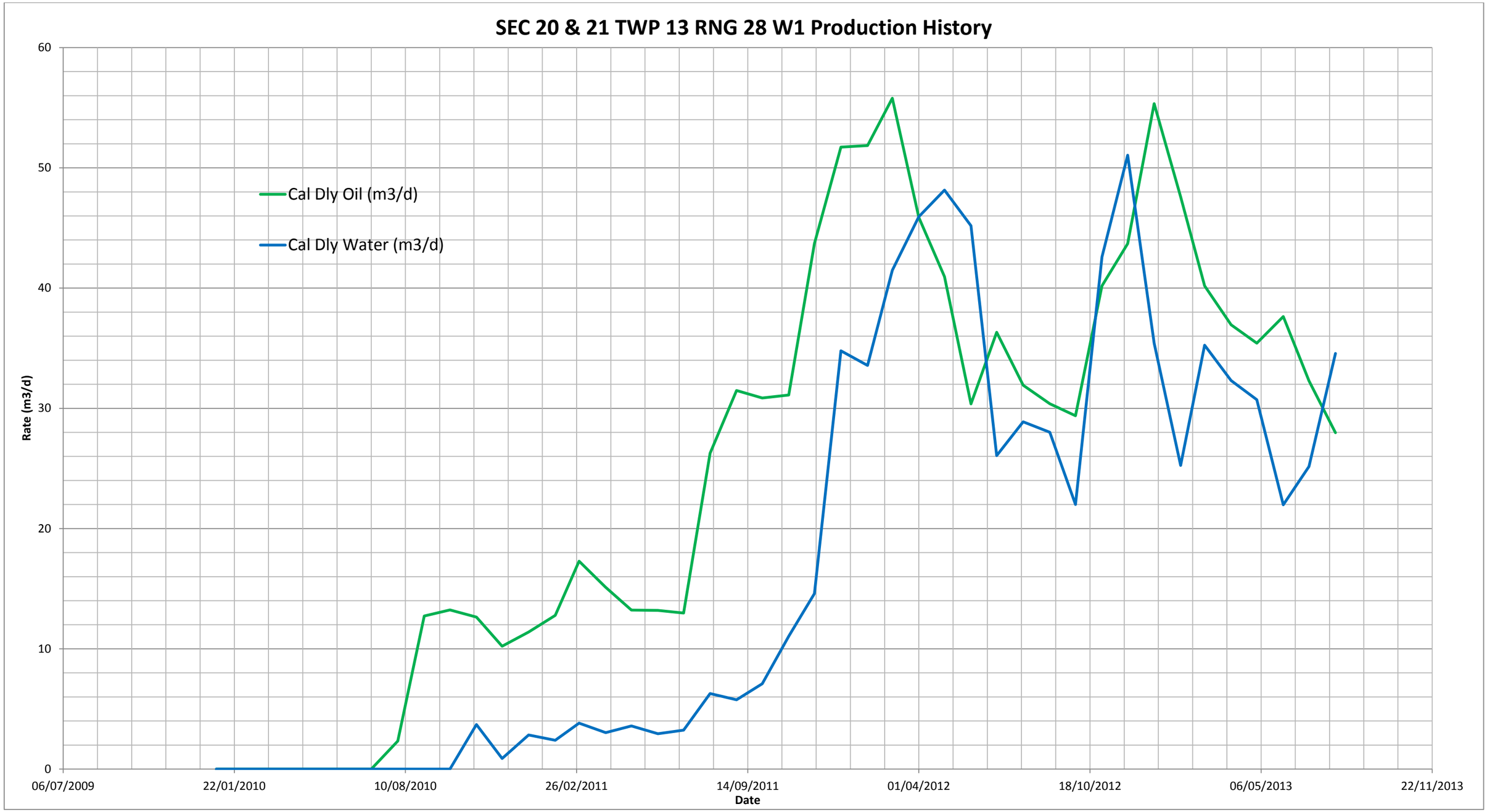
**Orange and Yellow tops represent subdivision of Middle Bakken into the middle and lower reservoir units, respectively.

Appendix C: Reservoir Characteristics & Recovery

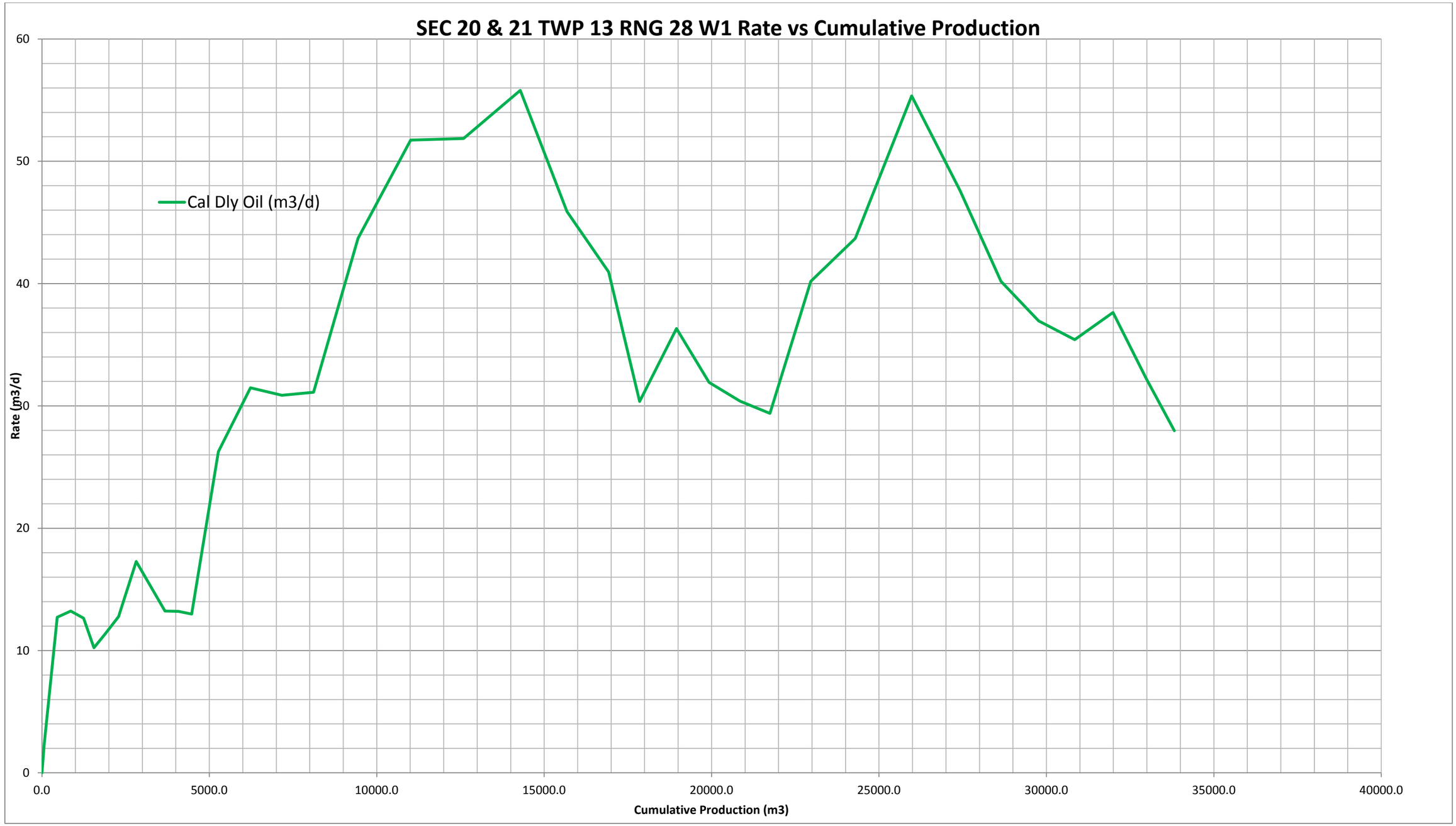
Appendix C, Figure 1: East Manson Unit No.3 (SEC 20 & 21-13-28W1) OOIP

East Manson Unit No.3 OOIP Calculation						
	Beach / Breccia Unit		Rythmite Unit		Unit 2	
Legal Desciption	Total Pore Volume (e3m3)	OOIP (e3m3)	Total Pore Volume (e3m3)	OOIP (e3m3)	Total Pore Volume	OOIP (e3m3)
SEC 20						
1-20-13-28W1	56.99	37.99	12.95	7.62	39.26	23.10
2-20-13-28W1	55.01	36.68	13.95	8.21	34.58	20.34
3-20-13-28W1	45.61	30.41	13.20	7.76	24.73	14.55
4-20-13-28W1	37.70	25.13	13.33	7.84	17.02	10.01
5-20-13-28W1	32.56	21.71	21.22	12.48	10.77	6.33
6-20-13-28W1	41.99	27.99	20.32	11.95	16.26	9.56
7-20-13-28W1	51.93	34.62	20.34	11.96	25.06	14.74
8-20-13-28W1	59.23	39.49	23.49	13.82	34.79	20.46
9-20-13-28W1	69.91	46.61	42.56	25.03	29.18	17.16
10-20-13-28W1	56.73	37.82	41.40	24.35	19.11	11.24
11-20-13-28W1	42.10	28.07	37.89	22.29	11.11	6.53
12-20-13-28W1	27.07	18.05	34.20	20.12	15.07	8.87
13-20-13-28W1	27.19	18.12	37.19	21.88	22.71	13.36
14-20-13-28W1	45.91	30.61	44.42	26.13	13.13	7.73
15-20-13-28W1	56.72	37.81	40.62	23.89	15.03	8.84
16-20-13-28W1	79.15	52.77	36.30	21.35	23.68	13.93
SEC 21						
1-21-13-28W1	0.00	0.00	0.00	0.00	7.55	4.44
2-21-13-28W1	5.44	3.63	7.97	4.69	14.77	8.69
3-21-13-28W1	62.75	41.83	52.41	30.83	18.62	10.95
4-21-13-28W1	83.30	55.53	30.59	17.99	31.33	18.43
5-21-13-28W1	85.44	56.96	43.04	25.32	37.62	22.13
6-21-13-28W1	63.14	42.09	44.20	26.00	26.73	15.72
7-21-13-28W1	13.64	9.09	7.02	4.13	16.95	9.97
8-21-13-28W1	0.00	0.00	0.00	0.00	7.15	4.20
9-21-13-28W1	0.00	0.00	0.00	0.00	8.82	5.19
10-21-13-28W1	17.17	11.45	5.11	3.00	18.39	10.82
11-21-13-28W1	62.99	42.00	30.96	18.21	30.71	18.07
12-21-13-28W1	90.34	60.23	49.18	28.93	39.69	23.35
13-21-13-28W1	89.14	59.43	33.22	19.54	37.52	22.07
14-21-13-28W1	58.95	39.30	21.13	12.43	34.29	20.17
15-21-13-28W1	19.27	12.84	4.21	2.47	21.52	12.66
16-21-13-28W1	0.00	0.00	0.00	0.00	12.04	7.09
Total	1437.38	958.25	782.39	460.23	715.20	420.71
	Average Swi	32%	Average Swi	40%	Average Swi	40%
	Boi (res m3/m3)	1.02	Boi (res m3/m3)	1.02	Boi (res m3/m3)	1.02
** 1 md cut-off used for phi * h interpretation						
			Total Section 20 & 21 OOIP (e3m3)	1839.2		
			Total Section 20 & 21 OOIP (mbbl)	11567.7		

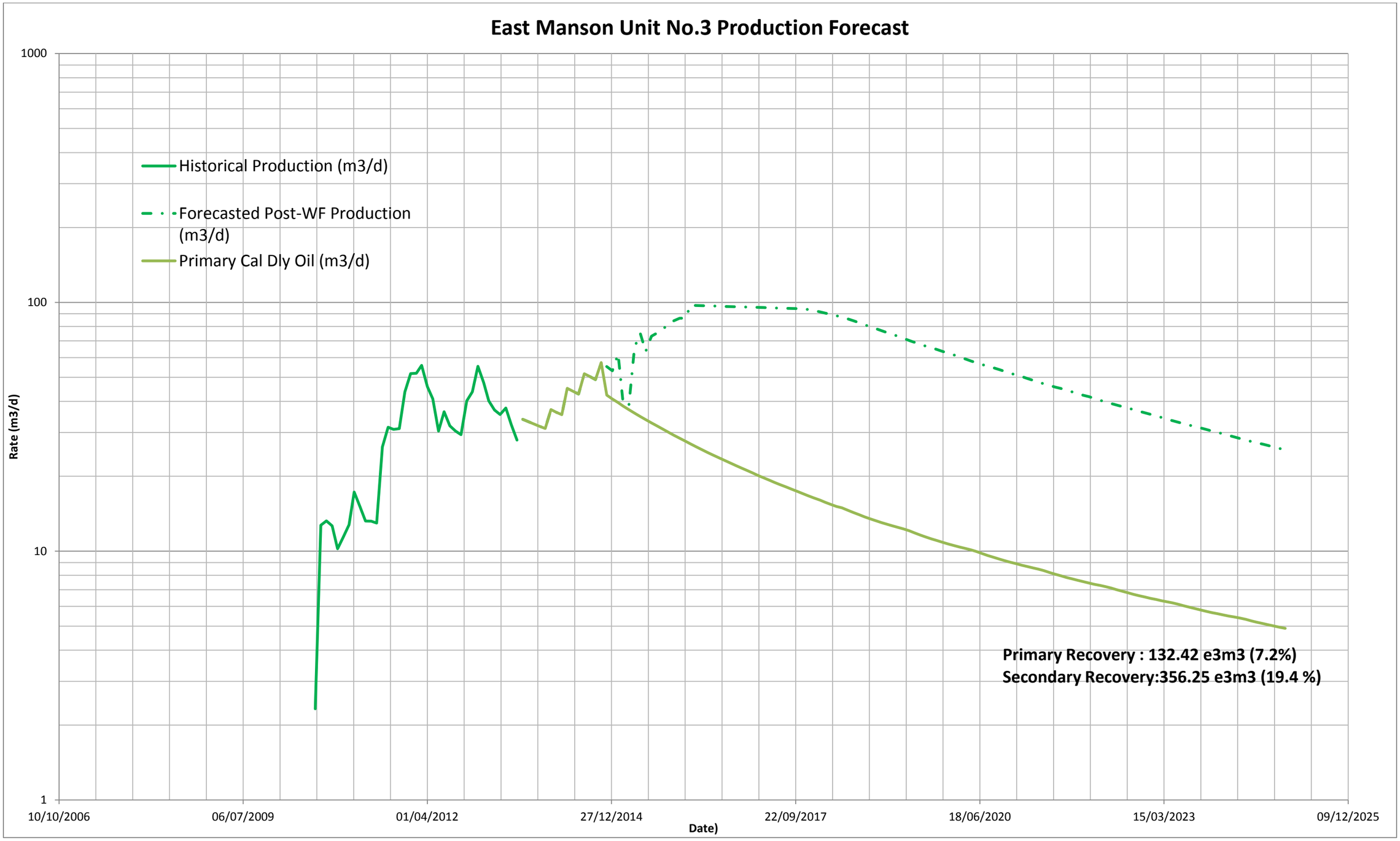
Appendix C, Figure 2: SEC 20 & 21-13-28W1 Production History



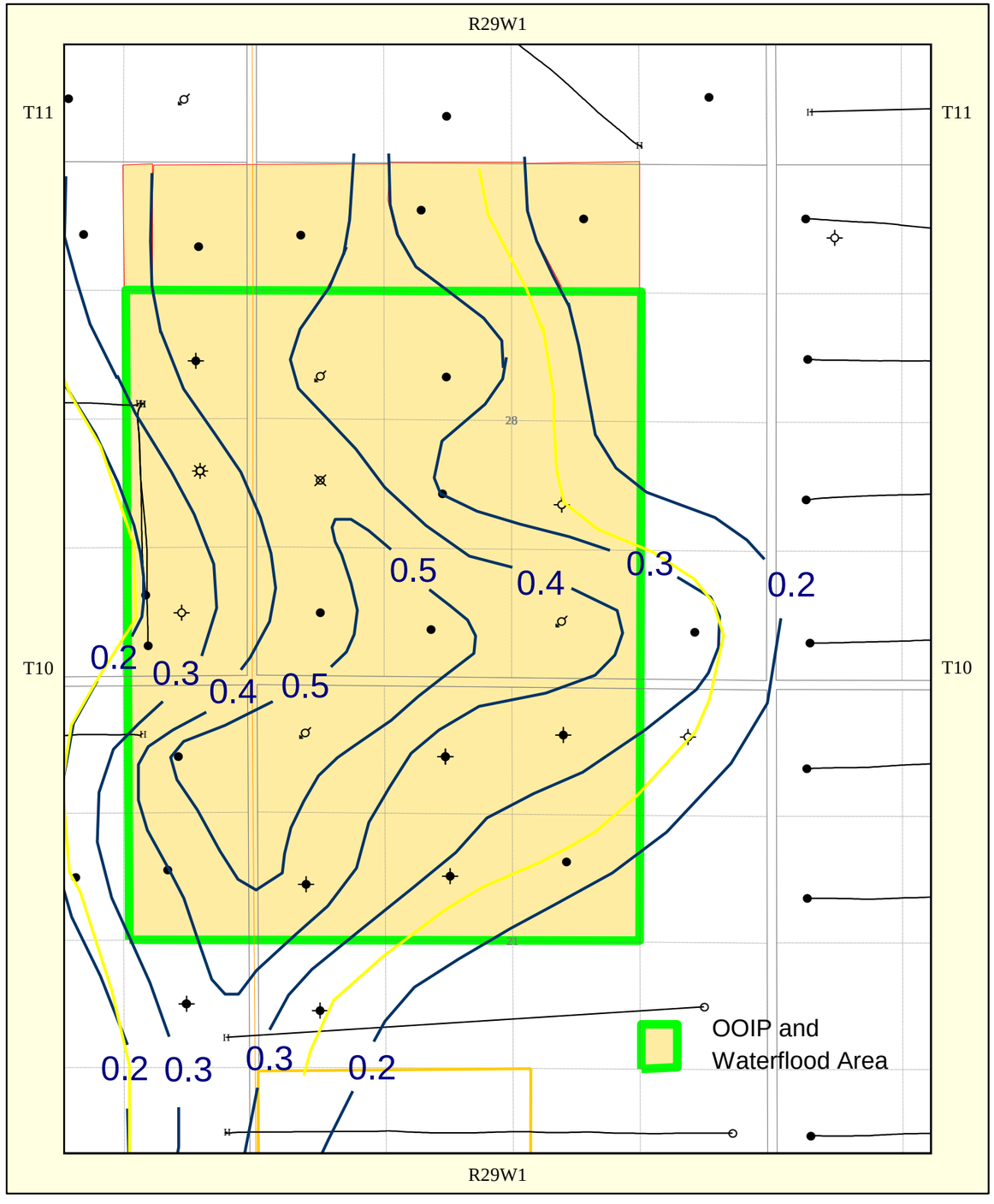
Appendix C, Figure 3: SEC 20 & 21-13-28W1 Production Rate vs Cumulative Production



Appendix C, Figure 4: East Manson Unit No.3 Production Forecasts



Appendix C, Figure 5: Daly Bakken A Analogue Map



WELL LEGEND

Bottom Hole Locations:

- Location
- Oil
- Abandoned Oil
- Injection
- Service or Drain
- Dry & Abandoned
- Abandoned Service

Surface Hole Locations:

- Horizontal

PROPRIETARY DATA LEGEND

Regions:

- Fort Calgary Land

Scale 1:18329

0 Kilometers 0.8

0 Miles 0.5

Fort Calgary Resources Ltd.

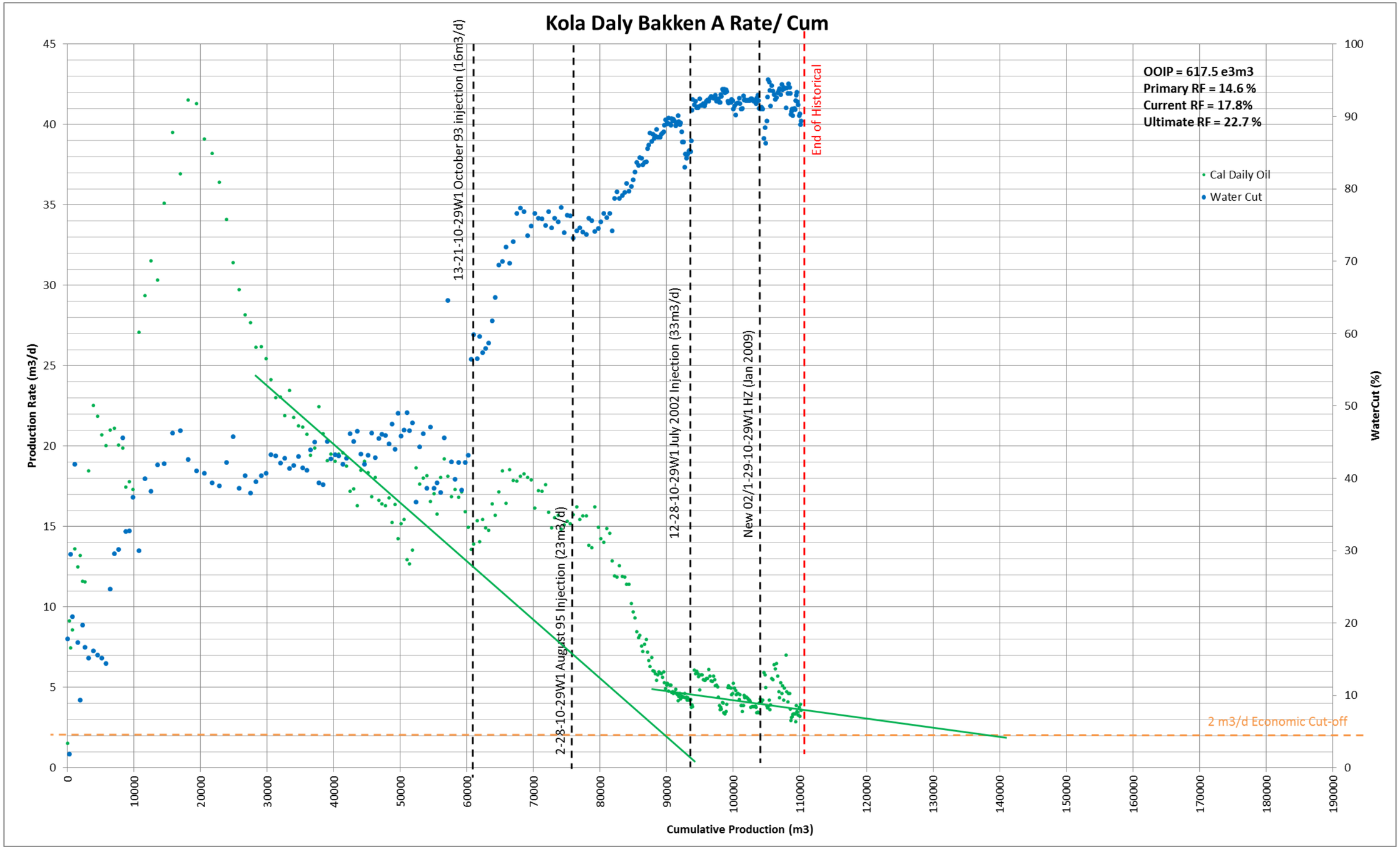
Created in AccuMap™
Product of IHS
Datum: NAD83
Vol. 22 No. 11, Nov 12 2012
(403) 770-4646

Author: David Rose
Date: December 13, 2012
File: Kola phi-h.MAP
Scale: 1 : 18329
Projection: Stereographic
Center: N49.85959 W101.36174

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: MLI07

Appendix C, Figure 6: Daly Bakken A Analogue Recovery



Appendix D: Proposed Waterflood Design

Appendix D, Figure 1: Typical Injector

FORT CALGARY RESOURCES LTD.

Downhole Well Profile				Year (yyyy)	Mth (Mon)	Day (dd)
WELL NAME	Fort Calgary East Manson Typical HZ Injector		DATE	2012	Oct	23
UWI			Licence #	N/A		

KB ELEV (m)	GL ELEV (m)	KB TO THF (m)	KB TO SCF (m)	KB TO GL (m)	PBTD (m)
494.94	490.81	0.38		4.13	1500

CASING DESCRIPTION	OD (mm)	LANDED DEPTH	WEIGHT (kg/m)	Grade
Surface Casing	244.5	140	48.07	H-40 ST&C
Intermediate Casing	177.8	775	34.23	J-55 LT&C
Tubing	73.02	700	9.67	J-55

Perf Date	Zones	Top Shot	Bottom Shot	Status	Gun Data
MM/DD/YYYY	Torquay	775.00	1500.00	Open-Hole	N/A

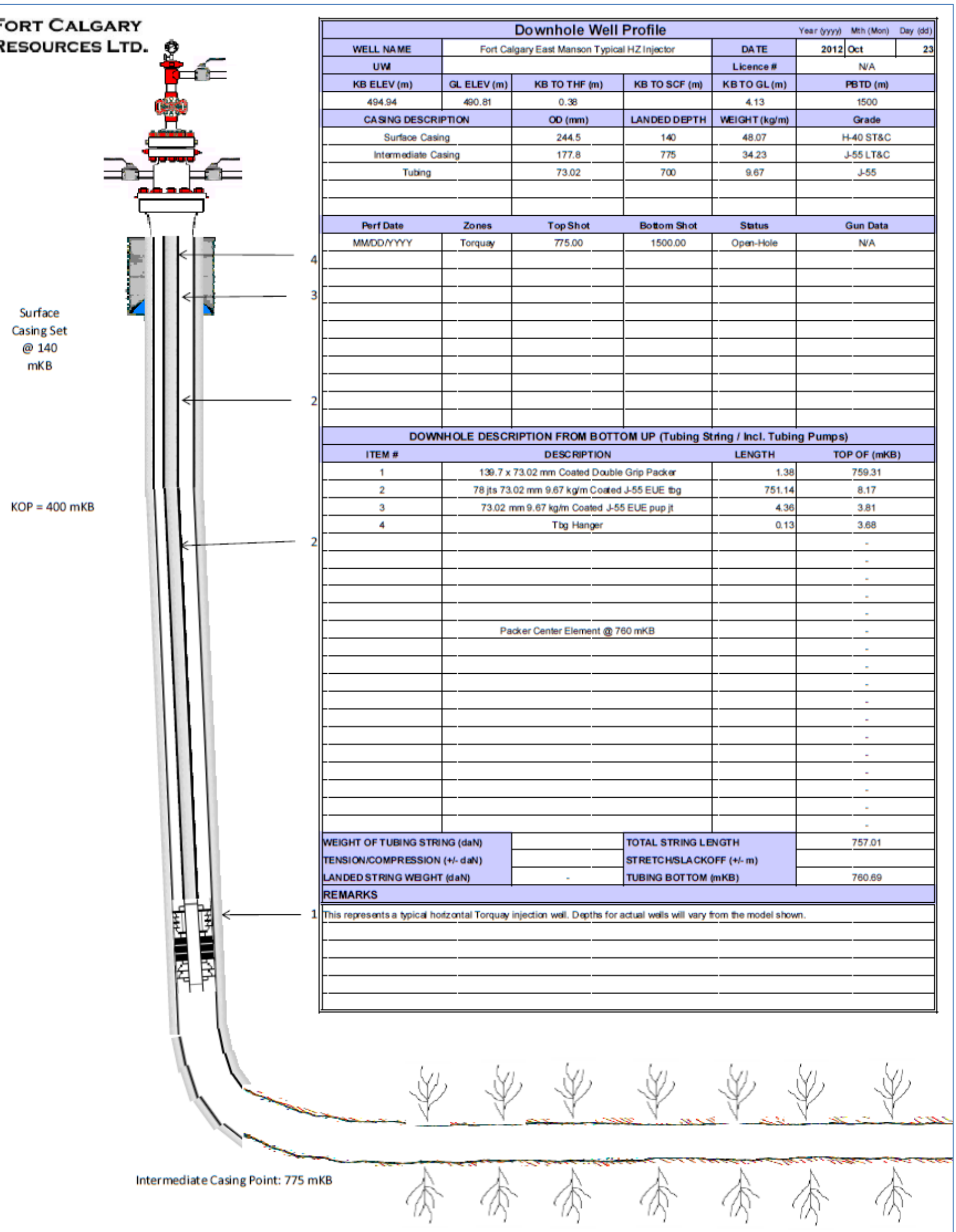
DOWNHOLE DESCRIPTION FROM BOTTOM UP (Tubing String / Incl. Tubing Pumps)

ITEM #	DESCRIPTION	LENGTH	TOP OF (mKB)
1	139.7 x 73.02 mm Coated Double Grip Packer	1.38	759.31
2	78 jts 73.02 mm 9.67 kg/m Coated J-55 EUE tbg	751.14	8.17
3	73.02 mm 9.67 kg/m Coated J-55 EUE pup jt	4.36	3.81
4	Tbg Hanger	0.13	3.68
			-
			-
			-
			-
			-
	Packer Center Element @ 760 mKB		-
			-
			-
			-
			-
			-
			-
			-
			-
			-
			-
			-
			-

WEIGHT OF TUBING STRING (daN)		TOTAL STRING LENGTH	757.01
TENSION/COMPRESSION (+/- daN)		STRETCH/SLACKOFF (+/- m)	
LANDED STRING WEIGHT (daN)	-	TUBING BOTTOM (mKB)	760.69

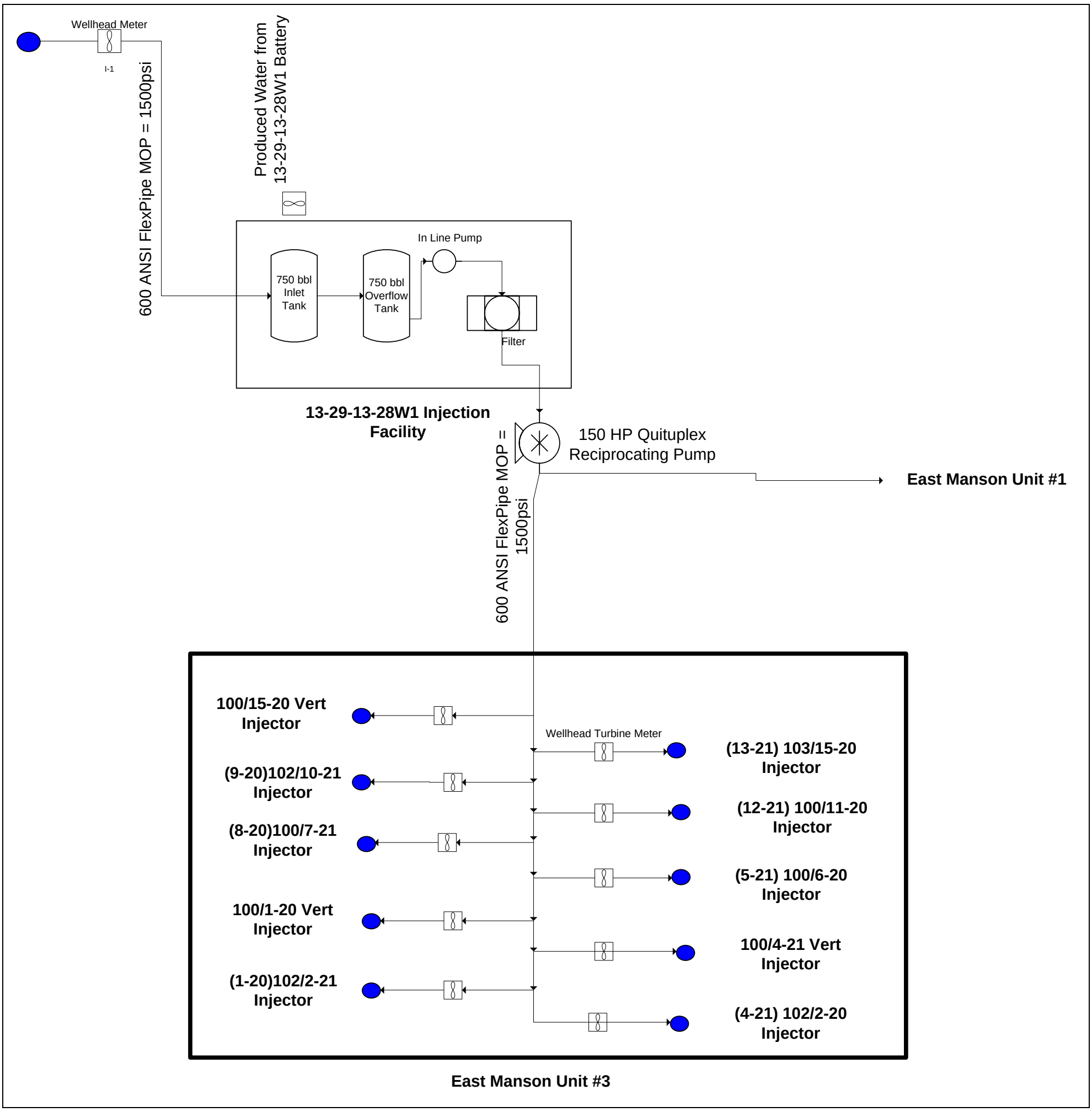
REMARKS

1 This represents a typical horizontal Torquay injection well. Depths for actual wells will vary from the model shown.

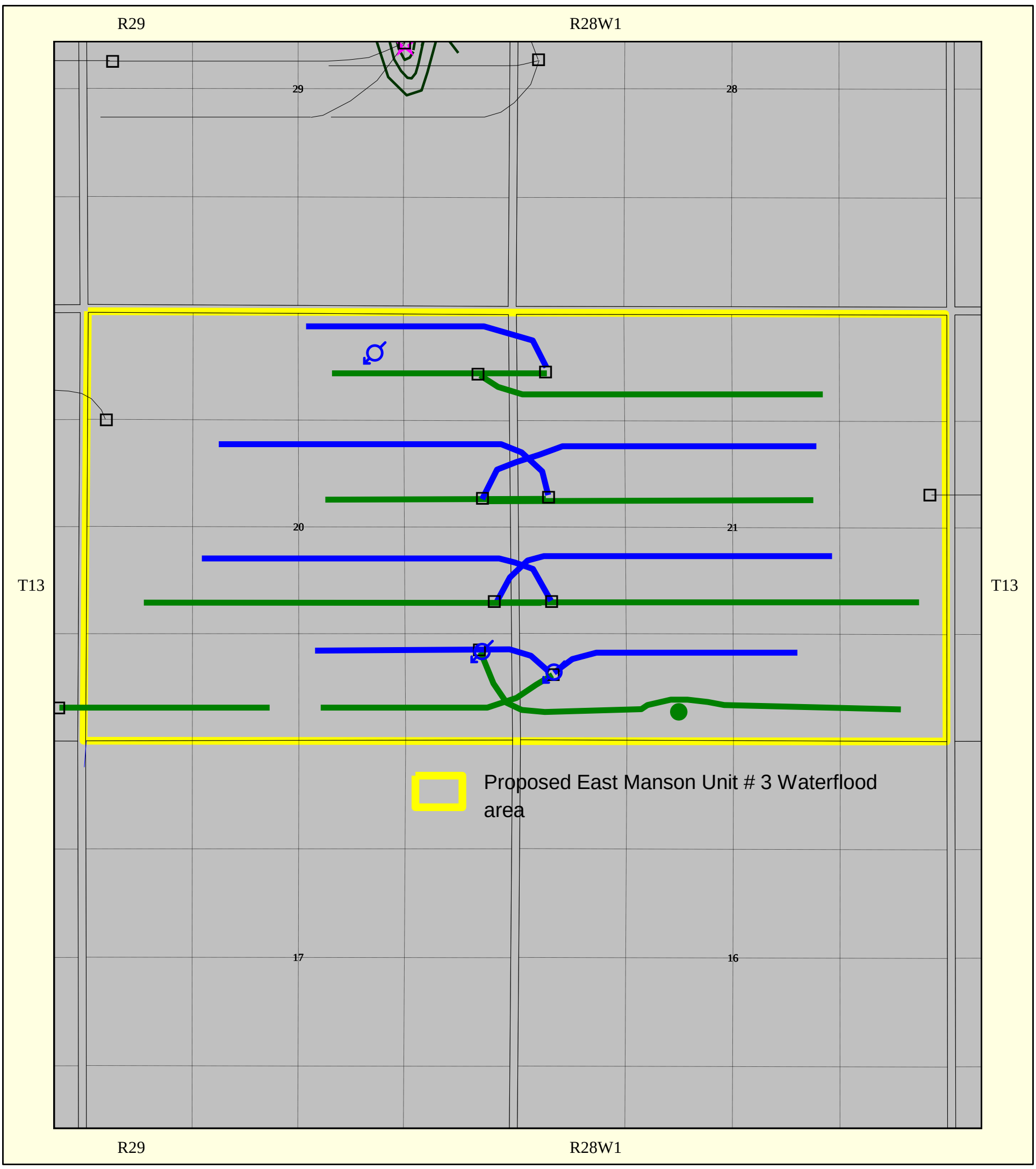


Appendix D, Figure 2: Injection Diagram

East Manson Unit No.3 Injection Diagram



Appendix D, Figure 3: Injection Scheme



Fort Calgary Resources Ltd.

East Manson Unit #3

Created in AccuMap™
Product of IHS
Datum: NAD83
Vol. 23 No. 09, Sep 4 2013
(403) 770-4646

Author: Tristan Willson
Date: October 25, 2013
File: EMU #2 Notification Area.MAP
Scale: 1 : 19396
Projection: Stereographic
Center: N50.11339 W101.26394

Grid Information:
DLS: IHS Enhanced Grid
NTS: Theoretical Grid
FPS: Theoretical Grid
US: IHS US Grid

DLS Version Information:
AB: ATS 4.1
BC: PRB 2.0
SK: STS 2.5
MB: ML107

Scale 1:19396

0 Kilometers 0.8

0 Miles 0.5

Appendix D, Figure 4: Corrosion Control

East Manson Unit No.3 Corrosion Control Program

Surface Lines:

- All surface flow lines will consists of Flexpipe fiberglass reinforced polyethylene pipe.
- Surface lines to injection wells will be have a maximum allowable pressure of 1500 psi
- Stainless steel valves and fittings
- Isolation valves at wellheads and injection facility
- High a low pressure shut-down

Injection Facilities

- Internally coated storage tanks
- Stainless steel filtration system
- Pump unit consisting of ceramic plungers, stainless steel disc valves

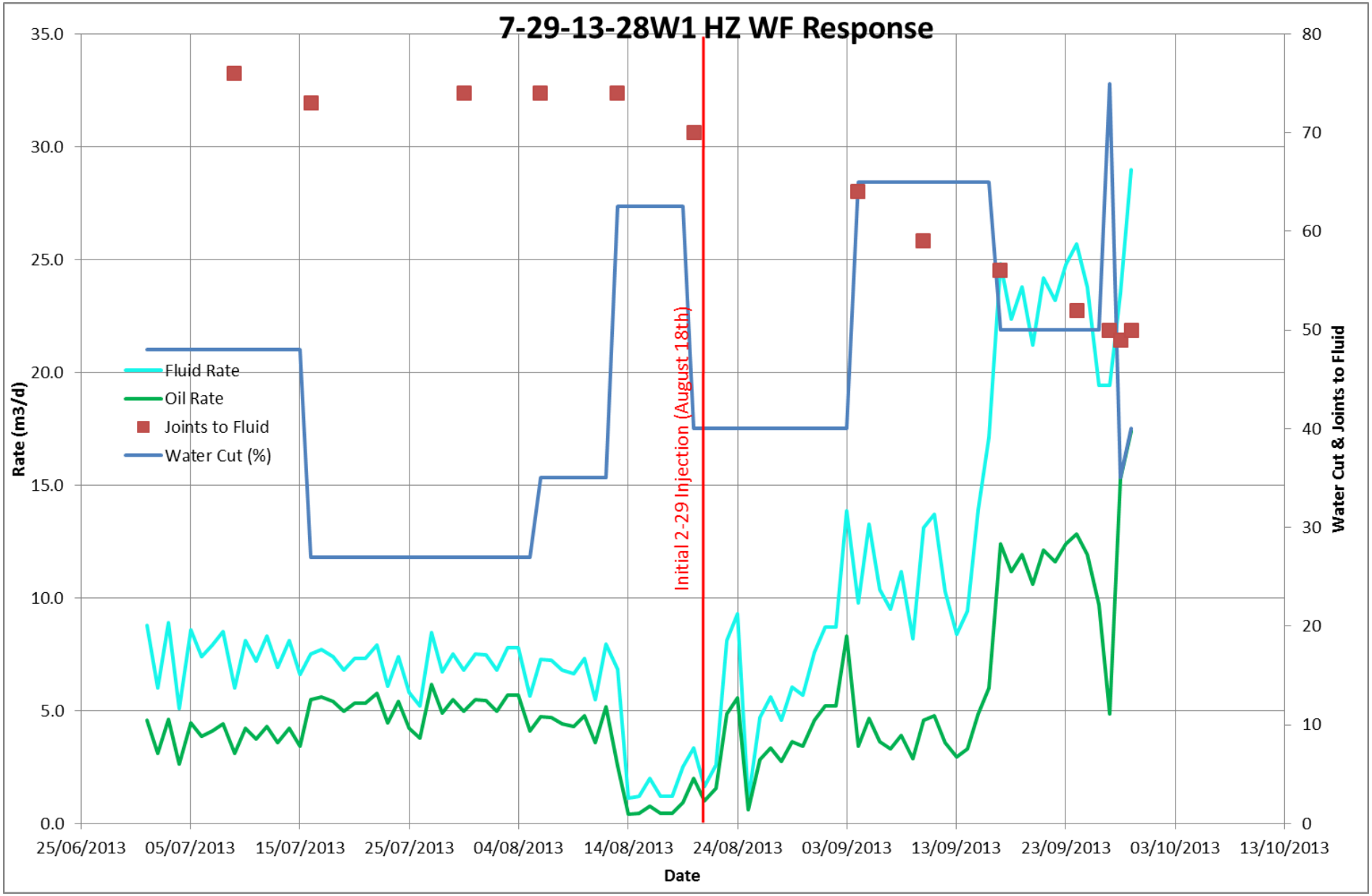
Injection Wells

- Injector tubing will be fusion epoxy coated (FBE)
- Casing, tubing and wellhead cathodic protection
- Corrosion resistant surface line and master valves
- Inhibited water in annular space

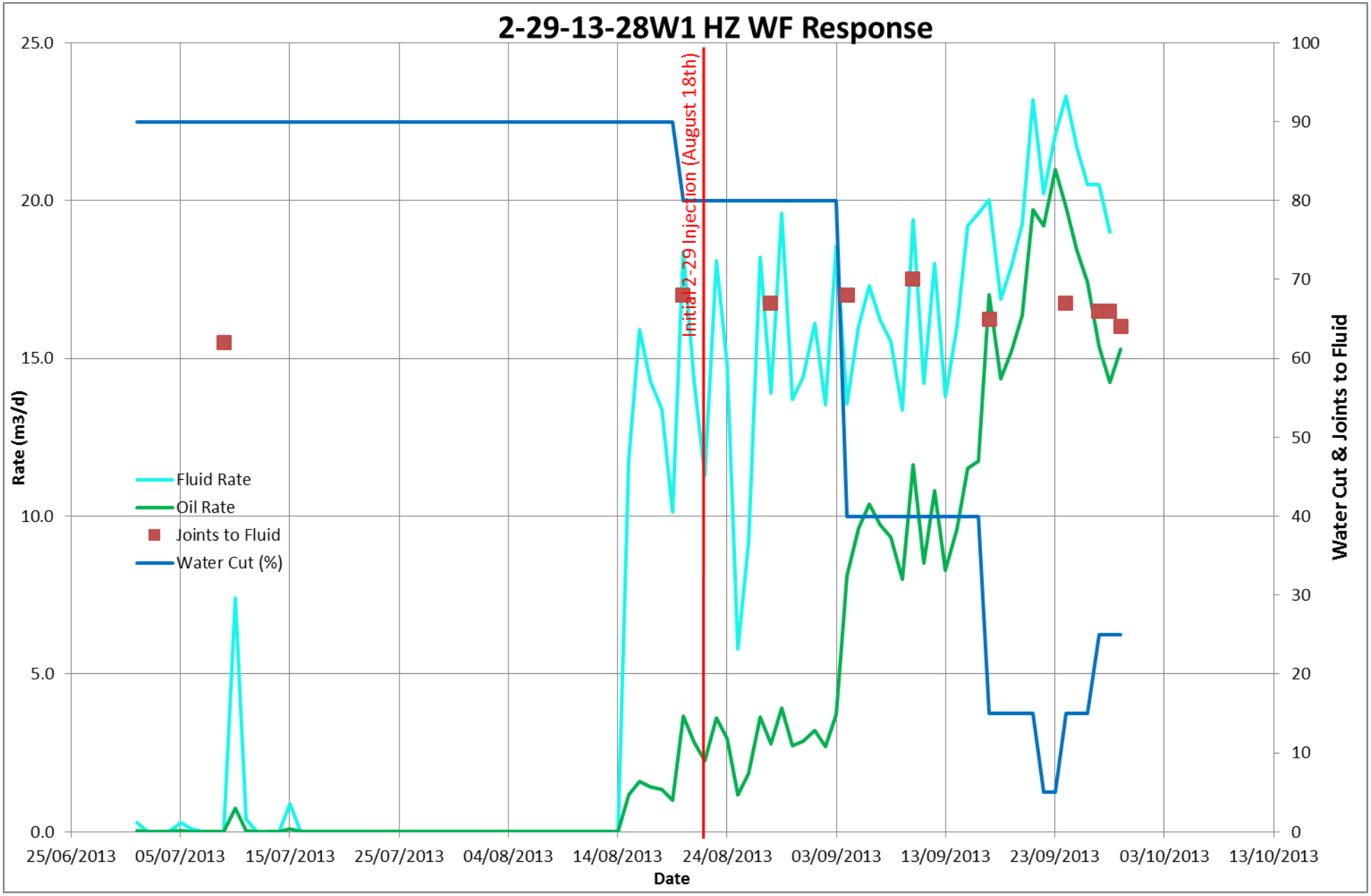
Producing and Source Wells

- Fusion epoxy coated tubing
- Downhole corrosion inhibitor batch treatments
- Cathodic protection

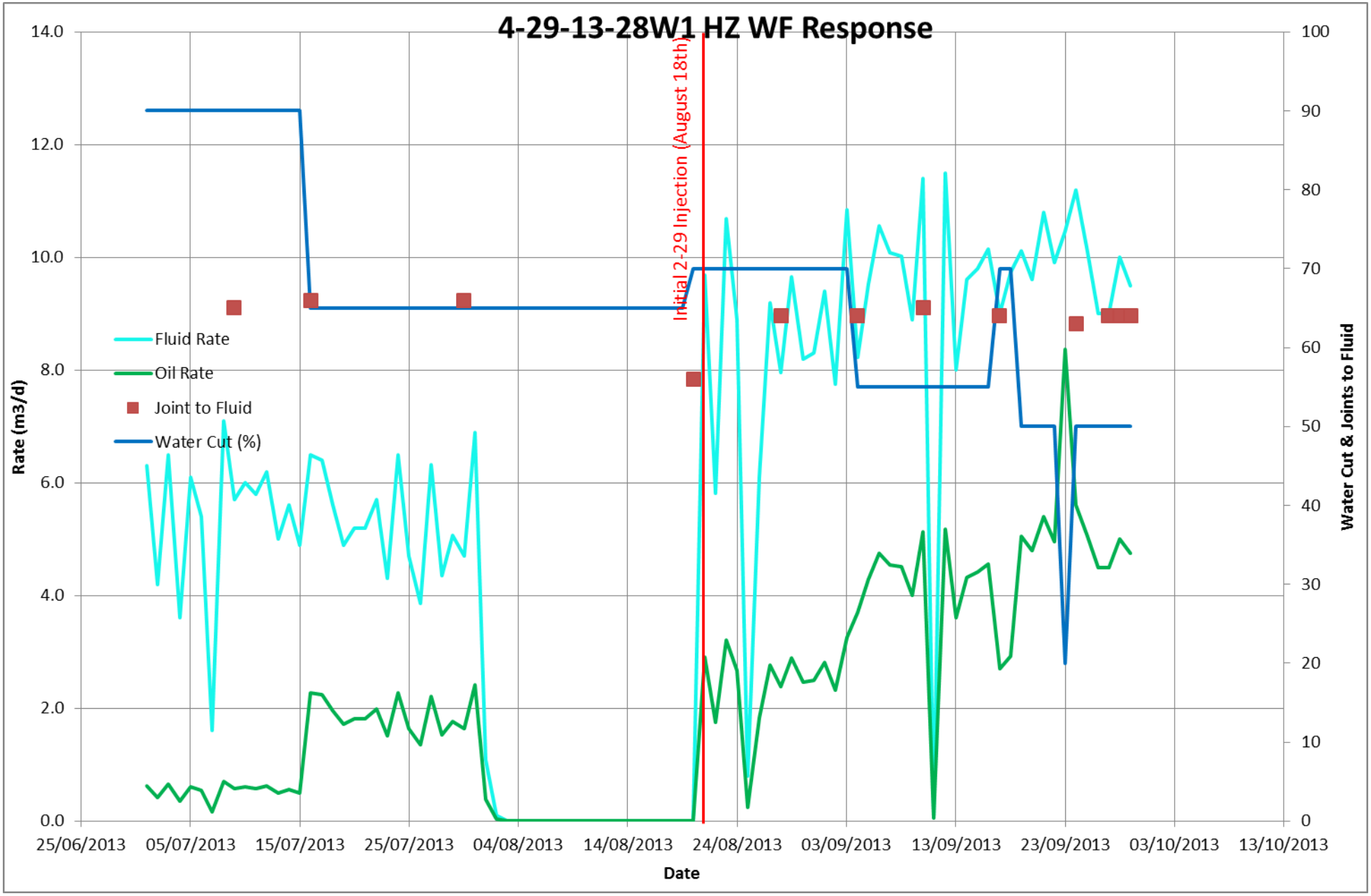
Appendix E, Figure 1: 7-29-13-28W1 HZ (2-29 Vert Pilot Response)



Appendix E, Figure 2: 2-29-13-28W1 HZ (2-29 Vert Pilot Response)



Appendix E, Figure 3: 4-29-13-28W1 HZ (2-29 Vert Pilot Response)



Appendix E, Figure 3 Well Group Plot (2-29 Vert Pilot Response)