

**Proposed Unitization of Sinclair Unit No. 3**  
**Application for Enhanced Oil Recovery Waterflood Project**  
**Sinclair Unit No. 3**

**Lyleton member of the Three Forks Formation - Bakken B Pool**  
**Sinclair Field, Manitoba**

**May 25, 2009**  
**Tundra Oil and Gas Partnership**

## Proposed Sinclair Unit No. 3

### Application for Enhanced Oil Recovery Waterflood Project

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May 25, 2009

## **SUBJECT**

**Lyleton member of the Three Forks Formation - Bakken B Pool  
Sinclair Field, Manitoba**

**Proposed Unitization of Sinclair Unit No. 3**

**Application for Enhanced Oil Recovery Waterflood Project  
Sinclair Unit No. 3**

## **INTRODUCTION**

The Sinclair oilfield is located in Township 7, Ranges 28 & 29, and Township 8 Range 29 W1 (see Figure 1). Since discovery in 2004, the main portion of the field has been developed with vertical producing wells on 40 acre spacing. To date, most of the main oilfield has been on Primary Production, mainly from the Lyleton member of the Three Forks Formation.

Enhanced Oil Recovery (EOR) operations in the Sinclair Field began with a Unitized Pilot Waterflood (WF) within Sections 4 & 9 Township 8, Range 29 W1 (8-29 W1) in July 2006 (Figure 2). The Pilot was implemented by Tundra Oil and Gas (Tundra) to test reservoir response with Waterflood (EOR) operations and address depleting reservoir pressure in the Lyleton.

Water injection was initially implemented in the north half of Section 9-8-29 W1 by converting 4 existing vertical producer wells to injection forming a pilot waterflood on 40 acre spacing. A horizontal injector was then drilled in the south half of Section 9-8-29, between the vertical producers, resulting in 20 acre waterflood spacing. In late 2007, water injection commenced into 4 more newly drilled horizontal injectors in Section 4 of 8-29 W1. This completed the Pilot development on 20 acre spacing and further tested waterflood response to horizontal injection in the Lyleton member.

Producing well responses to the Pilot Waterflood were encouraging and resulted in a 2008 application by Tundra to expand the EOR pilot project area and form Sinclair Unit No. 1. Petroleum Branch Approval of the Unitization and EOR scheme for Sinclair Unit No. 1 was received by Tundra, as Operator, in January 2009. The Sinclair Unit No. 1 waterflood project now encompasses 9 sections and 138 producing wells within Township 8-29 W1 (Figure 3).

Unit 1 water injection commenced January 2009 into 3 drilled for purpose horizontal injection wells in Section 8-8-29 W1, continuing on the 20 acre spacing pattern design. Six (6) additional Unit 1 horizontal wells were also drilled and placed on injection in Q1 2009. Horizontal injection well development in Sinclair Unit 1 will continue throughout 2009 on plan as operating conditions allow.

Production responses to the waterflood EOR scheme within the Unit 1 Pilot continue to be encouraging and suggest waterflood expansion to additional similar quality producing lands will also improve ultimate oil recovery. The following represents an application by Tundra to establish Sinclair Unit No. 3 and initiate a Secondary Waterflood EOR scheme within additional lands of the main Lyleton and middle Bakken.

## **CONCLUSIONS**

1. The Sinclair Unit No. 3, as proposed (Figure 4), will include 96 producing wells and 6 additional sections of the main Lyleton - Three Forks / middle Bakken producing area, east of the existing Sinclair Unit No. 1 (Figure 5).
2. Total Original Oil in Place (OOIP) in the project area has been calculated to be 30,678,900 Barrels (bbls), for an average of 319,600 bbls per 40 acre LSD / well.
3. Cumulative production in the Sinclair Unit 3 area to end March 2009 was 2,068,000 bbls of oil, and 537,600 bbls of water, representing a 6.7 % Recovery Factor of the OOIP.
4. Ultimate Proved Producing Reserves in the Unit 3 project area under Primary production has been calculated to be 3,528,100 bbls, with 1,460,100 bbls remaining.
5. Ultimate oil recovery of the proposed Unit 3 OOIP, under the current Primary production method, is forecasted to be 11.5 %.
6. Production from the proposed area peaked during September 2006 at 2,944 bbls of oil per day (OPD) (Figure 6). Production averaged 31 bbls OPD per well, from 96 active wells.
7. As of December 2008, production was 942 bbls OPD, and 303 bbls water per day (WPD), at a relatively stable 24 % watercut (Figure 6). With 96 active wells, production averaged 10 bbls OPD per well.
8. Decline analysis of group production data forecasts total oil declining at an annual rate of 22.8 % in the project area.
9. Recent Lyleton reservoir pressure surveys confirm significant depletion continues with primary production from the vertical wells.
10. Based on the Secondary EOR performance with horizontal injectors in Sinclair Pilot Waterflood within Unit 1, the Lyleton is considered to be an acceptable reservoir for further expansion of waterflood operations.
11. Using production responses observed with similar pattern spacing in the Pilot area, ultimate Total Proved oil reserves for the proposed Unit 3 under Secondary Waterflood EOR, has been calculated to be 7,362,900 bbls, with 5,294,900 bbls remaining.
12. Ultimate Secondary Waterflood Recovery Factor in Unit 3 is forecasted to be 24 %, or an incremental 12.5 % of OOIP over primary production.
13. An incremental 3,834,800 bbls of oil reserves are forecasted to be recovered under the proposed Unitization and Secondary EOR production vs the existing Primary Production method.
14. Horizontal injectors, with multi-stage hydraulic fractures, will be constructed in 2 phases, between Unit 3 vertical producing wells, to complete waterflood patterns at an effective 20 acre spacing.



## **DISCUSSION**

### **RESOURCE POTENTIAL IN PROPOSED UNIT 3**

The Proposed Sinclair Unit No. 3 project area is located entirely within Township 8, Range 29 W1 (Figure 4). The proposed Unit 3 contains 96 producing wells within an area of 6 complete sections.

#### **Geology**

A stratigraphic cross-section of the Sinclair Lyleton A / Three Forks – Bakken has been plotted through the proposed Unit 3 and is attached as Appendix 1. The cross section provides evidence that there is reservoir continuity between the wells over the proposed Unit 3 area. This is an essential requirement to facilitate successful waterflood operations.

A Structure map for the project area based on the Middle Bakken formation is attached as Appendix 2.

Porosity ( $\Phi$ -h in por\*m) and Permeability (k-h in mD\*m) maps for the project area are also included as Appendices 3 and 4 respectively.

#### **OOIP Estimates**

The Lyleton / Three Forks formation volumetric OOIP within the proposed Sinclair Unit 3 area has been estimated at 30,678,900 bbls. Appendix 5 outlines the Unit 3 volumetric OOIP estimates on an individual LSD / Well basis. Average OOIP by Individual LSD was determined to be 319,600 bbls, while the average per Section is 5,113,200 bbls.

A complete listing of Lyleton / Three Forks formation rock and fluid properties used to characterize the reservoir and calculate the OOIP estimates are provided in Table 1.

The OOIP values were determined independently by GLJ Petroleum Consultants of Calgary.

#### **Historical Production**

A historical production history plot for the proposed Sinclair Unit No. 3 is shown as Figure 6. Oil production commenced from the proposed Unit area in November 2004 and peaked during September 2006 at 2944 bbls OPD. Production averaged approximately 31 bbls OPD per well as of September 2006.

As of December 2008, production was 942 bbls OPD and 303 bbls WPD, at a relatively stable 24 % watercut (wct), with oil production averaging approximately 10 bbls per well.

From peak production in September 2006 to date, oil production is declining at an annual rate of 22.8 % under the current Primary Production method as plotted to point A on Figure 7.

### **Unit 3 Reserves Recovery Profiles and Production Forecasts**

#### **Primary Production (current)**

Cumulative production in the Sinclair Unit 3 area, to end March 2009, was 2,068,000 bbls of oil, and 537,600 bbls of water for a recovery factor of 6.7 % of the OOIP.

Ultimate Proved Producing oil reserves recovery for Unit 3 has been estimated to be 3,528,100 bbls, or a 11.5 % Recovery Factor (RF) of OOIP (Table 2).

Remaining Proved Producing Primary Reserves to end March 2009 has been estimated to be 1,460,100 bbls. The expected production decline and forecasted cumulative oil recovery under continued Primary production is shown at point A on Figure 8.

#### **Secondary EOR Production (proposed)**

The forecasted project production profile under Secondary Waterflood over time is plotted to point C on Figure 7.

Total Proved EOR recoverable reserves in the proposed Unit 3 project area has been estimated at 7,362,900 bbls (point C on Figure 8), resulting in a 24.0 % RF of OOIP. Remaining Secondary Total Proved Reserves as of end March 2009 has been estimated at 5,294,900 bbls (Figure 8).

An incremental 3,834,800 bbls of oil reserves are forecasted to be recovered under the proposed Unitization and Secondary EOR production scheme vs. the existing Primary Production method. Incremental Secondary RF is forecasted to be 12.5 %. Incremental reserves recovery per project producing well is forecasted to average 39,950 bbls.

Production decline rate is forecasted to average 7.0 % through the life of the EOR project.

All reserves recoveries estimates were generated independently by GLJ Petroleum Consultants.

### **Sinclair Pilot Waterflood EOR Response**

The production and reservoir response in the Sinclair Pilot Waterflood EOR project has been deemed a direct analogy to forecast potential Unit 3 response.

Figure 9 outlines the historical group production plot for the 12 vertical producing wells from within Section 4 of the Sinclair Pilot WF project. All 12 producing wells are part of 4 waterflood patterns with horizontal (hz) injectors on an effective 20 acre spacing (Figure 2).

The group production plot consists of 12 vertical producing wells within LSD's 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, and 16 of Section 4-8-29 W1.

The 4 pattern injectors are 02/4-4, 02/12-04, 03/13-04, 02/4-9-8-29 W1.

The Section 4-8-29 Pilot Waterflood production response plotted on Figure 9 can be summarized as follows:

- Total Primary Production from the 12 vertical wells peaked in September 2005 at 745 bbls OPD
- Total production declined steadily with reservoir pressure depletion over the next 2 years to a low of 174 bbls OPD in September 2007
- Four (4) new horizontal wells were placed on injection between Section 4 vertical producers in September 2007 to complete 20 acre spaced Waterflood patterns. New HZ Injection wells started were; 02/4-4, 02/12-04, 03/13-04, 02/4-9-8-29 W1
- Oil production decline rate started to flatten within a few months of pattern injection giving definitive indication of waterflood response by end 2007
- Strong waterflood response is confirmed in Section 4 producers throughout 2008 as oil production rate increased while watercut and water production rate decreased
- Total oil production from the 12 wells has increased steadily to 367 bbls OPD as of December 2008
- Total water production, watercut %, and Water Oil Ratio (WOR) have trended down since September 2007

Similar to the Section 4 Pilot WF, the Sinclair Unit No. 3 waterflood is proposed with horizontal injection wells, placed between vertical producers, on an effective 20 acre pattern spacing (Figure 10).

Expected Secondary EOR reserves recovery forecasts for Sinclair Unit 3 have been based on the actual production response profile data from the Sinclair Pilot WF project.

### **Technical Studies**

The waterflood performance predictions for the proposed Unit 3 Lyleton / Three Forks formation are based on recent geological and engineering studies.

Geological work included internal Tundra and Independent reviews of the available open-hole logs, core data, seismic, and completion information. These were used to develop a suite of geological maps and establish reservoir parameters to support Unit 3 OOIP calculations (Appendices 1 – 4 ).

An Independent Engineering review was also conducted by GLJ Petroleum Consultants of Calgary to assess historical production rates and responses to the Pilot EOR Waterflood project now within Sinclair Unit No. 1. Sinclair Pilot Waterflood EOR response profiles and forecasts were developed and are believed to be analogous to the Unit 3 reservoir. This response profile was applied to the Unit 3 reservoir to generate ultimate reserves recovery estimates and corresponding production profiles for both Primary and Secondary Recovery schemes.

Reservoir simulation / modeling work has not been extended to the Unit 3 area to date.

No other Technical Studies relating to Unit 3, beyond those submitted with previous Sinclair Unit 1 EOR applications have been completed to date.

## **UNITIZATION and EOR DEVELOPMENT**

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

### **Unit Name**

Tundra proposes that the official name of the new Unit shall be Sinclair Unit No. 3.

### **Unit Operator**

Tundra Oil and Gas Partnership (Tundra) will be the Operator of record for Sinclair Unit No. 3.

### **Unitized Zone**

The unitized zone(s) to be waterflooded in the Sinclair Unit No. 3 will be the Lyleton / Bakken.

### **Unit Wells**

The 96 wells to be included in the proposed Sinclair Unit No. 3 are outlined in Table 3.

### **Unit Lands**

The Sinclair Unit No. 3 will consist of 6 Sections as follows:

Sections 1, 2, 3, 10, 11, 12 of Township 8, Range 29, W1M

Sinclair Unit No. 3 will consist of 96 LSD's. Production allocation will be based on 40 acre tracts so the proposed Unit will consist of 96 tracts. The lands included in the 40 acre tracts are outlined in Appendix 6.

### **Tract Factors**

The proposed Sinclair Unit No. 3 will consist of 96 Tracts, based on the 40 acre Legal Sub Divisions (LSD) containing the existing 96 vertical producing wells (Appendix 6). Total oil production from the first 90 operating days (2160 hours) for each LSD/well, and the OOIP by LSD/well, were used to determine all the proposed Unit tract factors. Both 90 day production volume and OOIP each received an equal 50 % weighting in calculating overall individual Tract Factors.

The initial 90 day Production Tract Factor contribution calculation for all individual LSD's are outlined within Appendix 7.

The OOIP Tract Factor contribution calculation for all individual LSD's are outlined within Appendix 8.

The Total Tract Factor calculation for each LSD / well, and the relative contribution of First 90 days Production and OOIP Factors to the Total, is also shown on Appendix 8.

All combined and recommended Unit 3 Tract Factors are listed by LSD per Section, complete with Working Interest and Royalty Interest per Tract, as shown in Appendix 6.

### **Working Interest Owners**

Appendix 6 also outlines the Working Interest % for each recommended Tract within the proposed Sinclair Unit No. 3. Tundra Oil and Gas Partnership holds 100 % Working Interest ownership in all the proposed Tracts.

Tundra Oil and Gas Partnership will have a 100 % working interest in Sinclair Unit No. 3 as proposed.

### **Waterflood Development**

Similar to the Sinclair Unit 1 EOR Waterflood Pilot development, new horizontal injection wells will be constructed between the existing vertical producing wells. At present, Tundra plans to ultimately construct up to 4 new horizontal injection wells per Section within Unit 3. This will ultimately result in development of up to 31 new horizontal injection wells within the proposed Unit.

A two phased injection well development program is planned for Unit 3 as shown in Figure 10. Injection well construction is proposed to occur over a 2 year period. This development plan will ultimately create 4 horizontal injection wells per Section and result in an effective 20 acre waterflood operation.

Any future revisions to the proposed waterflood development plan would be based on; new production or performance response data from Sinclair Unit No. 1 EOR, new technical studies, or revised reservoir behavior and reserves interpretations.

### **Waterflood Operating Strategy**

#### **Water Source and Injection Wells**

Unit 3 water will be supplied from the existing Sinclair Unit 1 source and injection water system. All Unit 1 injection water is obtained from the Lodgepole formation in the 102 / 16-32-7-29 W1 licensed water source well. Lodgepole water from the 102 / 16-32 source well is pumped to the main Unit 1 Water Plant at 3-4-8-29 W1. All source water is filtered at the 3-4 Water Plant and pumped up to injection system pressure. A simplified flow diagram for the existing Unit 1 water injection system is shown as Figure 11.

Produced water is not currently used for any water injection in Unit 1 and there are no current plans to use produced water as a source supply for Unit 3 injection.

Extensive compatibility testing between Lyleton produced water and 102/16-32 source Lodgepole water was previously conducted for the Unit 1 EOR project. All potential mixture ratios between the two waters, under a range of temperatures, have been simulated and evaluated for multiple scaling 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 injection is maintained into the source water stream for all Unit 1 water injection. Maintenance of the source water scale inhibition system is part of an existing routine maintenance program. Injection rates vs time plots are routinely monitored for evidence of any injection restriction due to scaling or other operational problems.

New Unit 3 water injection wells will be drilled, cleaned out, and configured downhole for injection as shown in Figure 12. All hz injection wells will be stimulated by multiple hydraulic fracture treatments to obtain suitable injection rates. 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 frac growth and thereby limit the potential for future out-of-zone injection.

New water injection wells will be placed on injection after Application and Approval to inject. Wellhead injection pressures will be maintained below the least value of either;

1. the area specific known and calculated fracture gradient, or
2. 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 will be surface equipped with injection volume metering and rate/pressure control (Figure 13). 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.

Unit 3 hz water injection well rates are forecasted to average 15 – 35 m3 WPD based on reservoir conditions and Unit 1 injection profile history.

#### Reservoir Pressure

No recent or representative pressure surveys are currently available for the Unit 3 project area. The extremely long shut in and build up times required to obtain any possible representative surveys from the vertical producing wells are economically prohibitive. However, reasonable reservoir pressure surveys were recently acquired in new Sinclair Unit 1 horizontal injection wells prior to first injection. Three (3) Unit 1 surveys measured the Lyleton reservoir pressure (Pr) between 2400 – 3000 kPa.

Based on Unit 1 cumulative production voidage and resultant pressure depletion, Unit 3 reservoir pressure has been estimated to range between 2500 – 4000 kPa. Initial Unit 3 project area reservoir pressure was 9500 kPa.

Tundra expects to inject water for a minimum 2 – 4 year period to re-pressurize the reservoir due to cumulative primary production voidage and pressure depletion. Initial Voidage Replacement Ratio (VRR) is expected to be approximately 1.25 to 1.75 by individual pattern during the fill up period. As the cumulative VRR approaches 1, Target reservoir operating pressure for Waterflood operations will be 75 – 90 % of original Pr (7000 – 8500 KPa).

### Waterflood Surveillance and Optimization

Unit 3 EOR response and waterflood surveillance will consist of the following;

- Regular production well rate and wct testing as done in Unit 1
- Daily water injection rates and pressures monitoring vs targets
- Water injection rate / pressure / time vs cumulative injection plots
- Reservoir pressure surveys on selected new injection wells prior to start of first injection
- Reservoir pressure trends
- VRR by pattern
- Selected 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, Pattern Balancing

The above surveillance methods will provide an ever increasing understanding of reservoir performance and provide data to continually control and optimize Unit 3 waterflood operations design. Controlling waterflood operations 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 injection well construction or waterflood operations may be altered to maximize ultimate secondary reserves recovery from Unit 3.

### Wells to be Converted

No existing producer wells within the proposed Unit 3 project are planned for conversion to water injection. All injection wells are planned to be drilled for purpose as described in Waterflood Development.

### Water Injection Facilities

The Sinclair Unit No. 3 waterflood operation will utilize the existing source well supply and water plant (WP) facilities located at 3-4-8-29 W1M and operated by Tundra. Low pressure water will be transferred from 3-4 water plant to new proposed Water Injection Pump Station (IP) to be located on the south side of the proposed Unit 3 project area. The Pump Station will increase the downstream system pressure to wellhead injection requirements, and deliver the water to a new Unit 3 high pressure pipeline system and each injection well. The proposed new water injection system, subject to future detailed engineering, is outlined on Figure 14.

Tundra proposes to construct the Pump Station and major water injection distribution pipelines in late 2009 – early 2010. Construction of in field water pipelines for individual wells will coincide with the injector well drilling schedule.

A complete description of all planned system design and operational practices to prevent corrosion related failures is shown on Figure 15.

### **Notification of Mineral and Surface Rights Owners**

Tundra is in the process of notifying all mineral rights and surface rights owners of the EOR project and the proposed formation of Sinclair Unit No. 3. 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 Unit 3 Application.

Sinclair No. 3 Unitization, and execution of the formal Unit 3 Agreement by affected Mineral Owners, is expected during Q3 2009. Copies of same will be forwarded to the Petroleum Branch, when available, to complete the Unit 3 Application.

### **TUNDRA OIL & GAS PARTNERSHIP**

wrj  
Calgary, AB



## **Proposed Sinclair Unit No. 3**

### **Application for Enhanced Oil Recovery Waterflood Project**

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### **Application for Enhanced Oil Recovery Waterflood Project**

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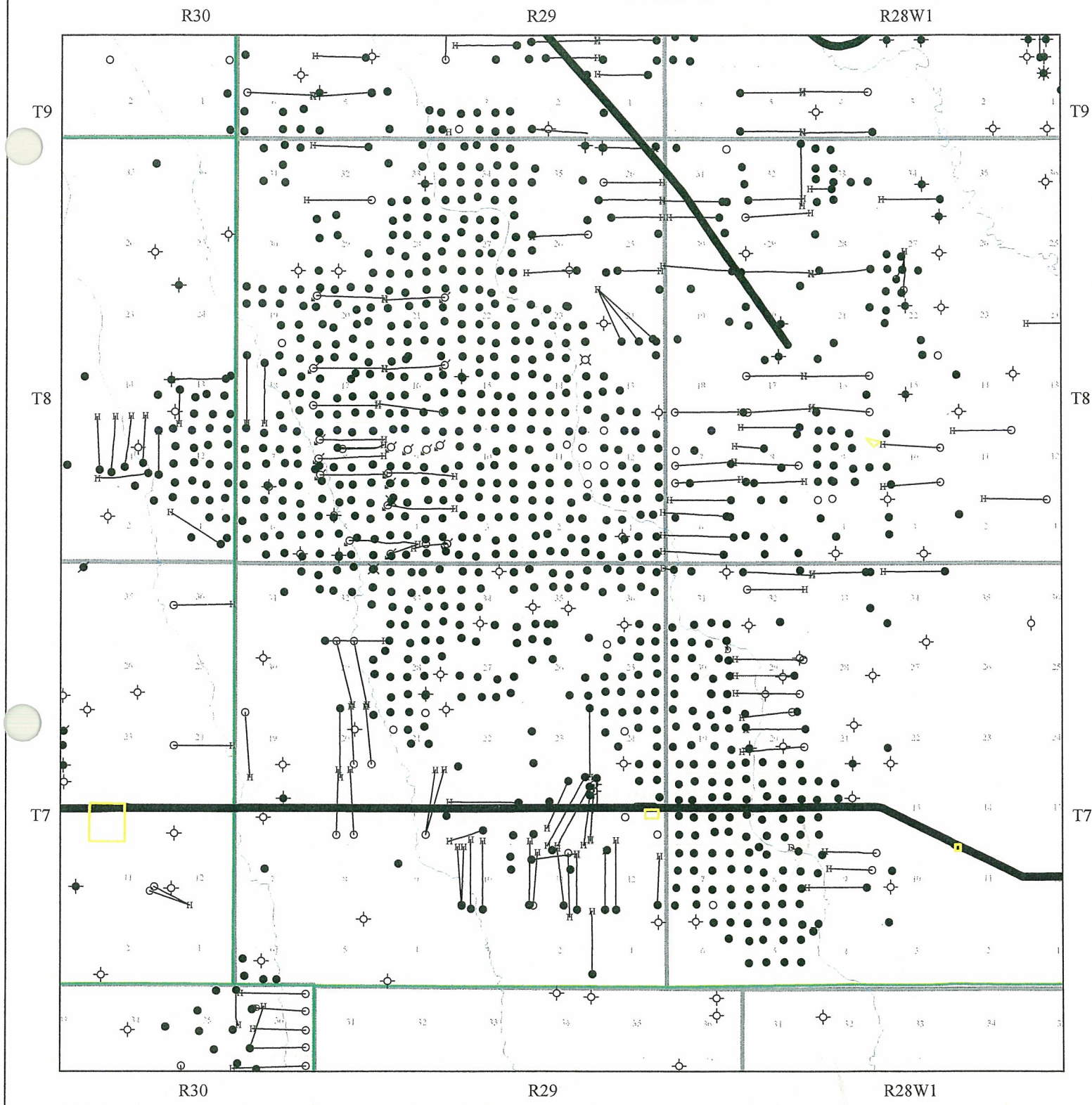
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### WELL LEGEND

#### Bottom Hole Locations:

- |                    |                     |
|--------------------|---------------------|
| ○ Location         | ◇ Suspended         |
| ⊠ Service or Drain | ● Oil               |
| ⊕ Dry & Abandoned  | ⊗ Suspended Oil     |
| ⊖ Abandoned Oil    | ⊘ Abandoned Service |
| ⊙ Injection        |                     |

#### Surface Hole Locations:

- |                |               |
|----------------|---------------|
| —○ Directional | —H Horizontal |
|----------------|---------------|

Manitoba

## Sinclair Oil Field Figure 1



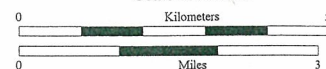
Created in AccuMap™  
Product of IHS  
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Vol. 19 No. 04, Apr 17 2009  
(403) 770-4646  
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Author: bill.jenkins  
Date: May 7, 2009  
File: Sinclair General.MAP  
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Projection: Stereographic  
Center: N49.62270 W101.31334

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

DLS Version Information:  
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BC: PRB 2.0  
SK: STS 2.5  
MB: MB 1.0

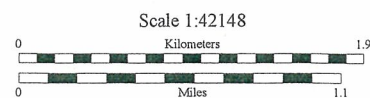
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| WELL LEGEND             |             |  |  |
|-------------------------|-------------|--|--|
| Bottom Hole Locations:  |             |  |  |
| ○ Location              | ◇ Suspended |  |  |
| ⊠ Service or Drain      | ● Oil       |  |  |
| ◆ Dry & Abandoned       | ⊗ Injection |  |  |
| Surface Hole Locations: |             |  |  |
| —H Horizontal           |             |  |  |

|  |  |   |  |
|--|--|---|--|
| Sinclair Pilot WF Project  |  |   |  |
| Prior to January 2009  |  |   |  |
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| Created in AccuMap™<br>Product of IHS<br>Datum: NAD27<br>Vol. 19 No. 04, Apr 17 2009<br>Copyright © 1991-2009 (403) 770-4646 |  | Author: bill.jenkins<br>Date: May 9, 2009<br>File: Sinclair WF Pilot.MAP<br>Scale: 1:42148<br>Projection: Stereographic<br>Center: N49.63591 W101.35996 |  |
| Grid Information:<br>DLS: IHS Enhanced Grid<br>NTS: Theoretical Grid<br>FPS: Theoretical Grid<br>US: IHS US Grid             |  | DLS Version Information:<br>AB: ATS 2.6<br>BC: PRB 2.0<br>SK: STS 2.5<br>MB: MB 1.0   |  |





R30

R29W1

T8

T8

R30

R29W1

## WELL LEGEND

## Bottom Hole Locations:

- |                    |             |
|--------------------|-------------|
| ○ Location         | ◇ Suspended |
| ⊠ Service or Drain | ● Oil       |
| ⊞ Dry & Abandoned  | ⊞ Injection |

## Surface Hole Locations:

- H Horizontal

## Sinclair Unit No. 1

Approved January 2009  
Figure 3



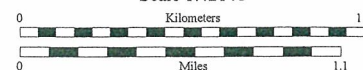
Created in AcquiMap™  
Product of IHS  
Datum: NAD27  
Vol. 19 No. 04, Apr 17 2009  
(403) 770-4646

Author: bill.jenkins  
Date: May 9, 2009  
File: Sinclair Unit 1.MAP  
Scale: 1:42148  
Projection: Stereographic  
Center: N49.65105 W101.37062

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

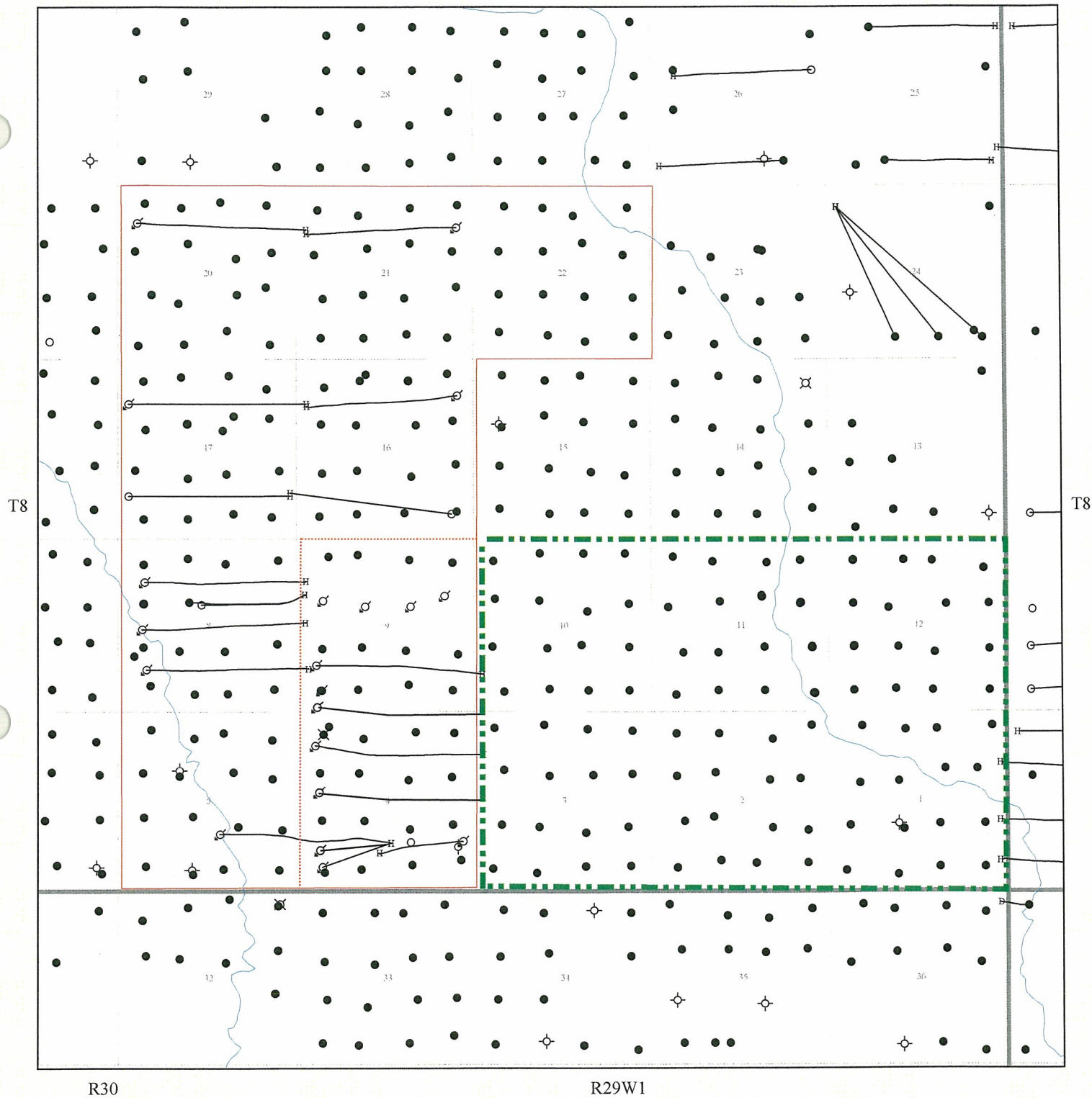
DLS Version Information:  
AB: ATS 2.6  
BC: PRB 2.0  
SK: STS 2.5  
MB: MB 1.0

Scale 1:42148



R30

R29W1



### WELL LEGEND

#### Bottom Hole Locations:


- |                    |             |
|--------------------|-------------|
| ○ Location         | ◇ Suspended |
| ⊠ Service or Drain | ● Oil       |
| ⊕ Dry & Abandoned  | ⊖ Injection |

#### Surface Hole Locations:

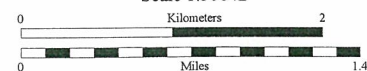
- |               |               |
|---------------|---------------|
| — Directional | —# Horizontal |
|---------------|---------------|

## Proposed Sinclair Unit No. 3

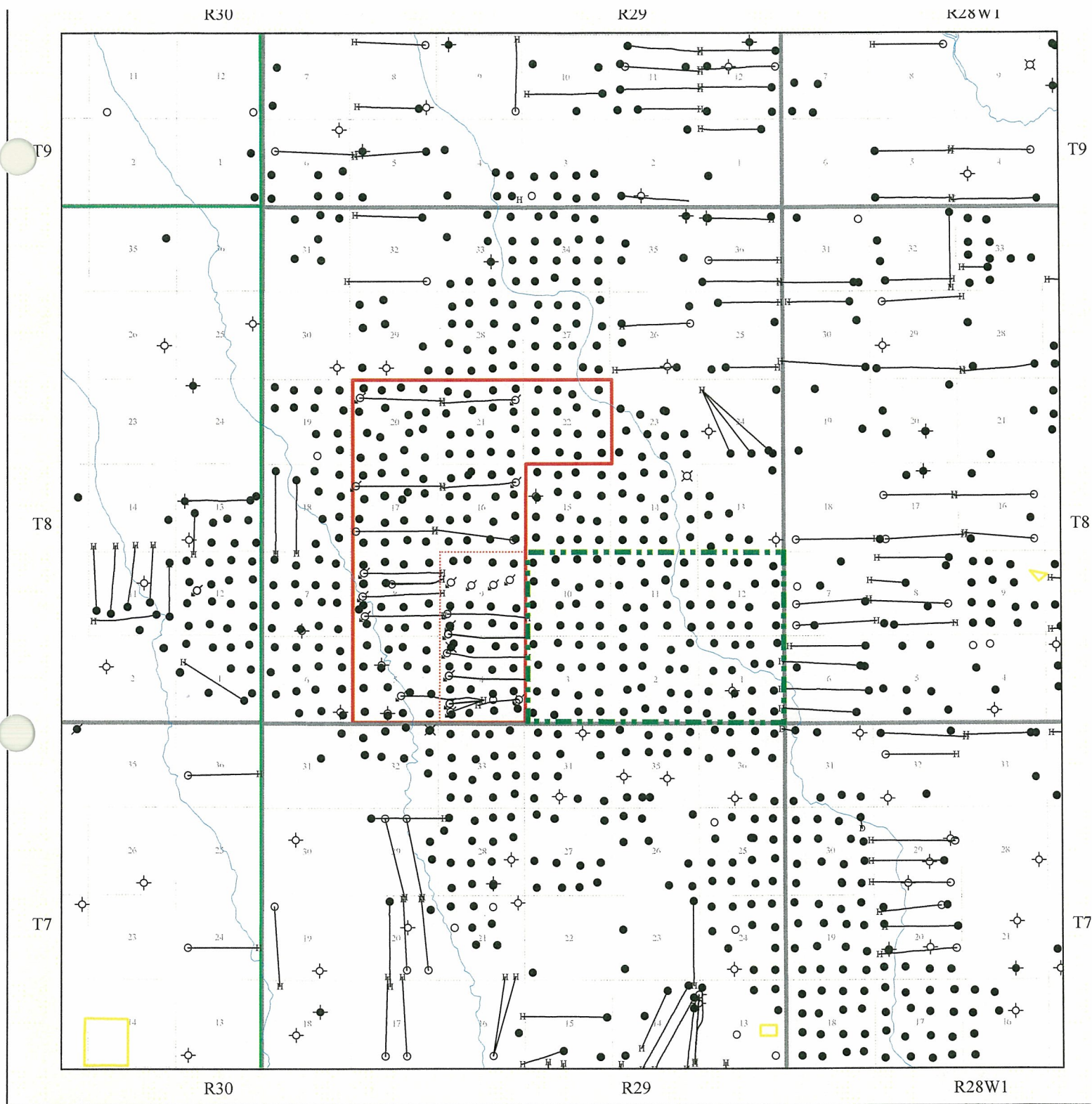
### Unit 3 Boundary Green Figure 4

|   |                             |                              |
|---|-----------------------------|------------------------------|
|  | Created in AcuMap™          | Author: bill.jenkins         |
|   | Product of IHS              | Date: May 22, 2009           |
|   | Datum: NAD27                | File: Sinclair Unit 3.MAP    |
|   | Vol. 19 No. 04, Apr 17 2009 | Scale: 1 : 50642             |
| Copyright © 1991-2009   | (403) 770-4646              | Projection: Stereographic    |
| Grid Information:   |                             | Center: N49.65049 W101.33914 |
| DLS: IHS Enhanced Grid  | DLS Version Information:    |                              |
| NTS: Theoretical Grid   | AB: A1S 2.6                 |                              |
| FPS: Theoretical Grid   | BC: FRB 2.0                 |                              |
| US: IHS US Grid   | SK: STS 2.5                 |                              |
|   | MB: MB 1.0                  |                              |

Scale 1:50642

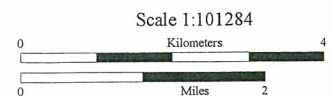






| WELL LEGEND             |                 |
|-------------------------|-----------------|
| Bottom Hole Locations:  |                 |
| ○ Location              | ◊ Suspended     |
| ⊗ Service or Drain      | ● Oil           |
| ⊕ Dry & Abandoned       | ⊗ Suspended Oil |
| ⊙ Abandoned Oil         | ⊖ Injection     |
| Surface Hole Locations: |                 |
| → Directional           | — Horizontal    |

| Proposed Sinclair Unit No. 3  |  |
|---|--|
| Unit 3 Boundary Green   |  |
| Figure 5  |  |
| <p>Created in ArcMap™<br/>Product of IHS<br/>Datum: NAD27<br/>Vol. 19 No. 04, Apr 17 2009<br/>(403) 770-4646</p> <p>Copyright © 1991-2009</p> | <p>Author: bill.jenkins<br/>Date: May 22, 2009<br/>File: Proposed Unit 3 Rev 1.MA<br/>Scale: 1 : 101284<br/>Projection: Stereographic<br/>Center: N49.65049 W101.33916</p> |
| <p>Grid Information:<br/>DLS: IHS Enhanced Grid<br/>NTS: Theoretical Grid<br/>FPS: Theoretical Grid<br/>US: IHS US Grid</p>                   | <p>DLS Version Information:<br/>AB: AITS 2.6<br/>BC: PRB 2.0<br/>SK: STS 2.5<br/>MB: MB 1.0</p>  |



Unit 3 well list.WLS  
May 21, 2009

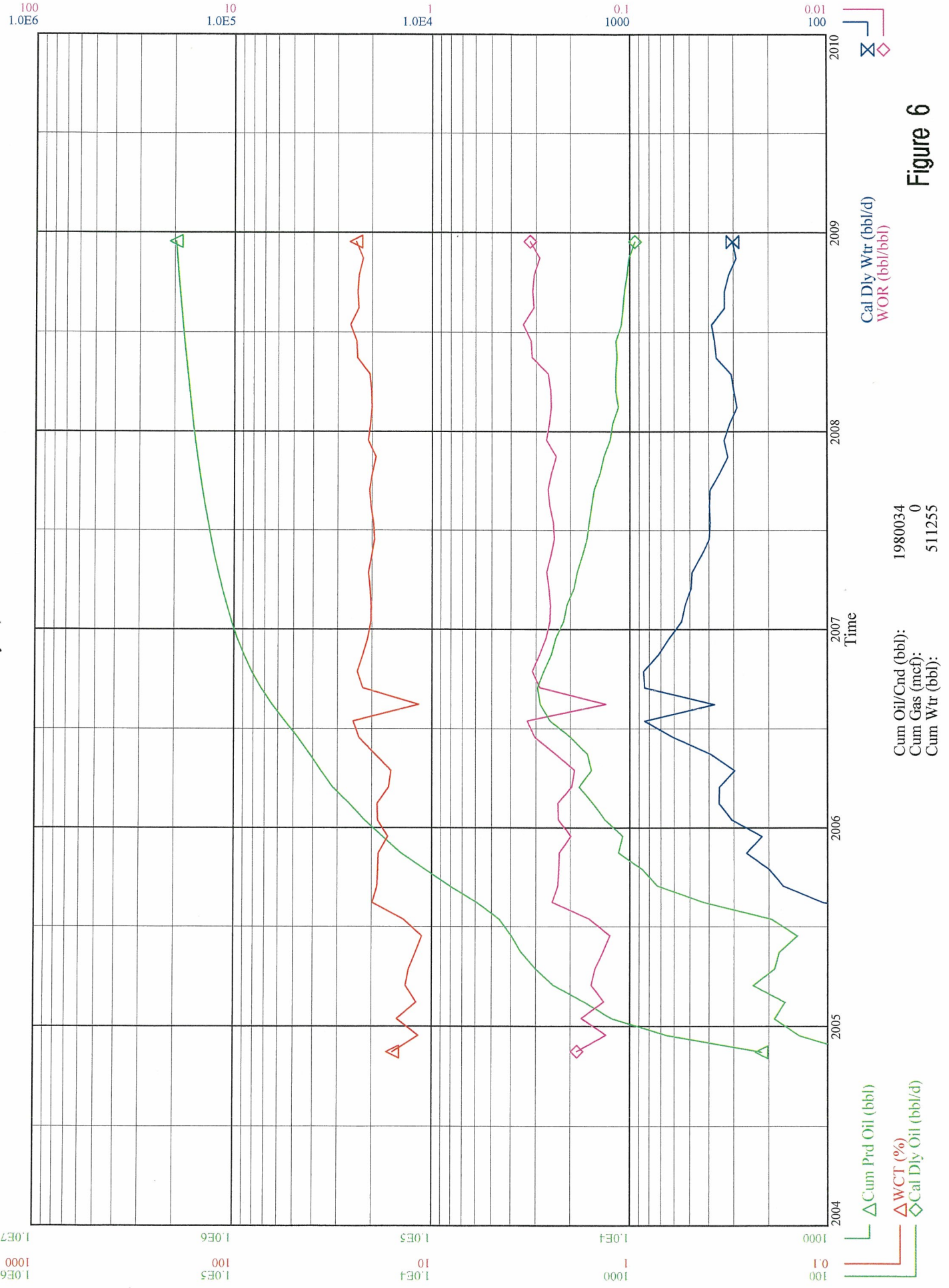


Figure 6



# Historical and Forecast Production Sinclair Unit No. 3 - Proposed

Property : Sinclair Unit No. 2 (Proposed) & Unit No. 3 (Proposed)

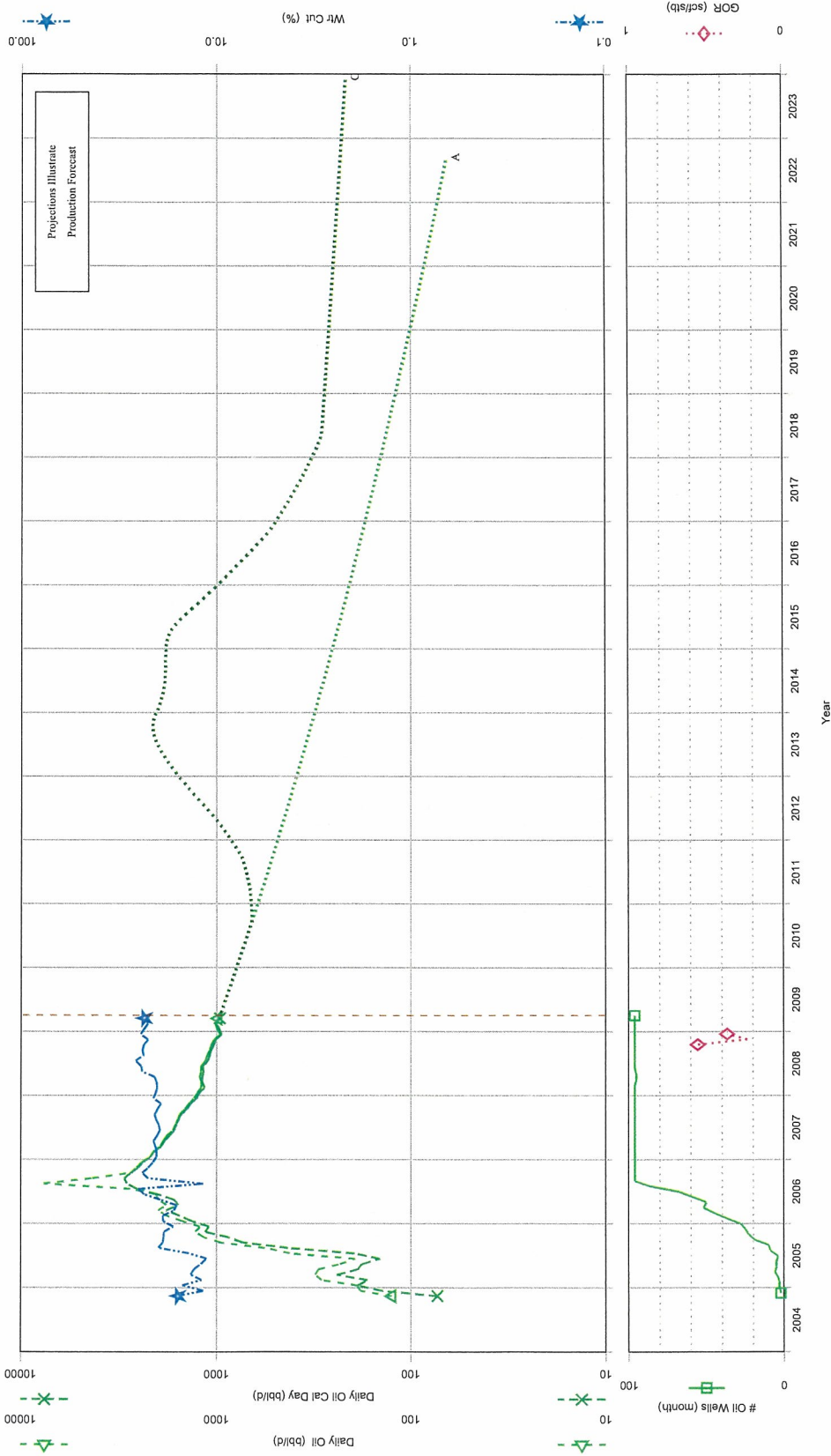


Figure 7

| Decline Analysis Summary @ 2009/04/01 |         |                 |         |       |         |          |  |  |  | Average Production Rates (Last 12 months ending 2009/03/31) |              |             |                       |               |        |              |          |             |  |
|---------------------------------------|---------|-----------------|---------|-------|---------|----------|--|--|--|---|--------------|-------------|-----------------------|---------------|--------|--------------|----------|-------------|--|
| Reserves (Mbbbl)                      |         | Rates ( bbl/d ) |         |       |         | Decline  |  |  |  | Gas :   | Oil :        | Avg Wells : | Cumulative Production |               |        | Oil :        | Gas :    | Water :     |  |
| Ultimate                              | Cum Prd | Remain          | Initial | Final | Initial | Exponent |  |  |  | 0.4 Mcf/d   | 1084.0 bbl/d | 93.6        | 0.2 Mcf/cd            | 1058.7 bbl/cd | 23.5 % | 2068.0 Mbbbl | 0.0 MMcf | 537.6 Mbbbl |  |
| Pv Prd                                | A(R)    |                 |         |       |         |          |  |  |  |   |              |             |                       |               |        |              |          |             |  |
| Total Pv                              | C(R)    |                 |         |       |         |          |  |  |  |   |              |             |                       |               |        |              |          |             |  |
| 3528                                  | 2068    | 1460            | 960     | 65    | 22.8%   | 0.20     |  |  |  |   |              |             |                       |               |        |              |          |             |  |
| 7363                                  | 2068    | 5295            | 960     | 65    | 7.0%    | 0.20     |  |  |  |   |              |             |                       |               |        |              |          |             |  |

(2009-Apr-21) OOIP for Unit 3 of 30,678.9 Mbbbl is determined from planimetry porosity\*net pay mapping for the Lyleton A (GLJ map), Lyleton B (Tundra map) and Mid Bakken (Tundra map) intervals.  
Sinclair Unit No. 3 - Proposed  
1099448 / May 19, 2009

# Historical and Forecast Production Sinclair Unit No. 3 - Proposed

Property : Sinclair Unit No. 2 (Proposed) & Unit No. 3 (Proposed)

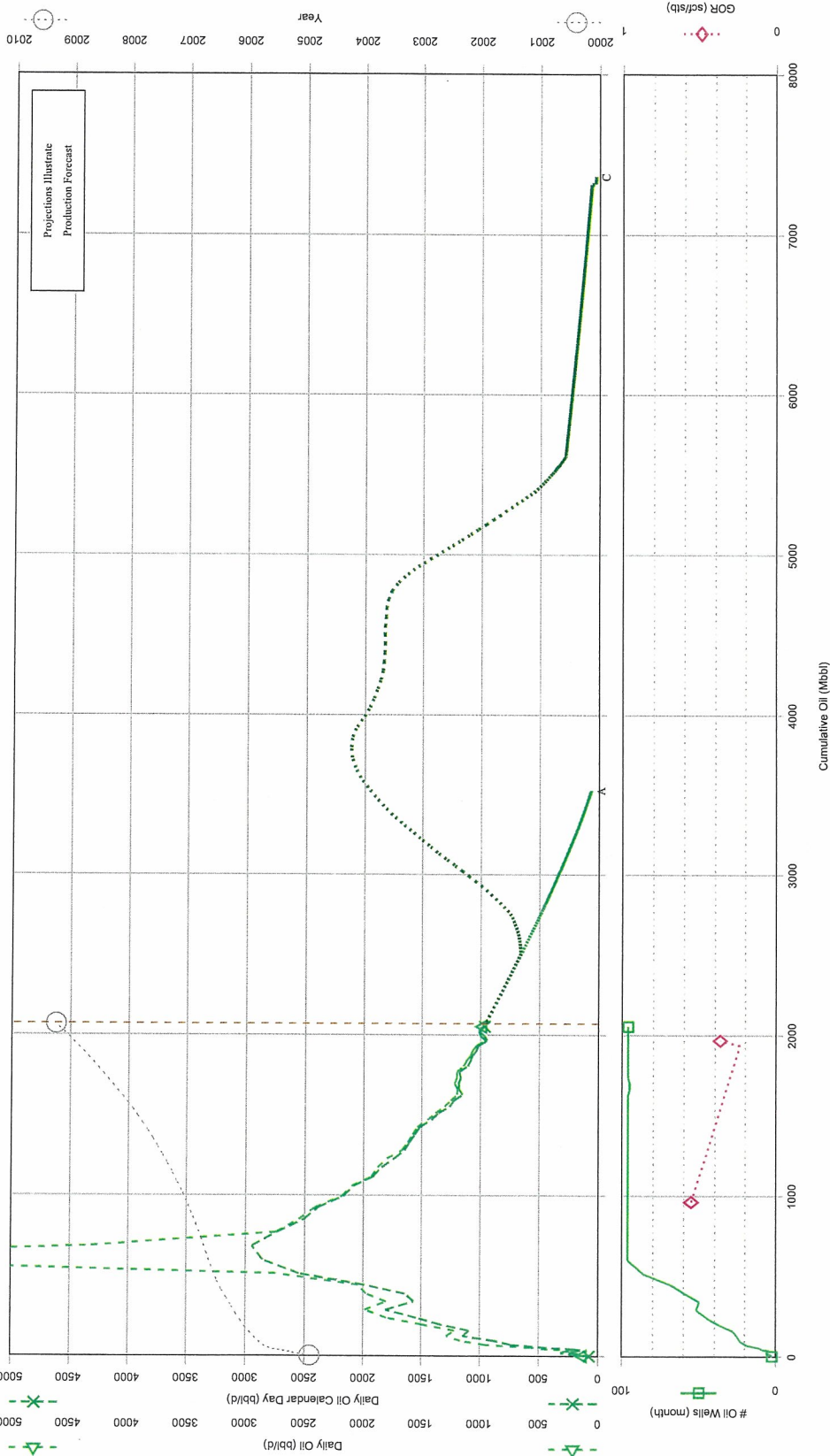


Figure 8

| Decline Analysis Summary @ 2009/04/01 |          |               |        |         |         |         | Average Production Rates (Last 12 months ending 2009/03/31) |             |             |              |         |            |
|---------------------------------------|----------|---------------|--------|---------|---------|---------|---|-------------|-------------|--------------|---------|------------|
| Reserves (Mbbbl)                      |          | Rates (bbl/d) |        |         | Decline |         | Cumulative Production                                       |             |             |              |         |            |
| Classification                        | Ultimate | Cum Prd       | Remain | Initial | Final   | Initial | Exponent  | Gas :       | Oil :       | Avg Wells :  |         |            |
| Pv Prd                                | 3528     | 2068          | 1460   | 960     | 65      | 22.8%   | 0.20  | 0.4Mcf/d    | 1084.0bbl/d | 1058.7bbl/cd |         |            |
| Total Pv                              | 7363     | 2068          | 5295   | 960     | 65      | 7.0%    | 0.20  | 93.6        |             | 23.5%        |         |            |
|                                       |          |               |        |         |         |         | Cumulative Production                                       |             |             |              |         |            |
|                                       |          |               |        |         |         |         | Oil :   | 2068.0Mbbbl | Gas :       | 0.0MMcf      | Water : | 537.6Mbbbl |

Sinclair Section 4 WF Pilot Producers.wls  
May 21, 2009

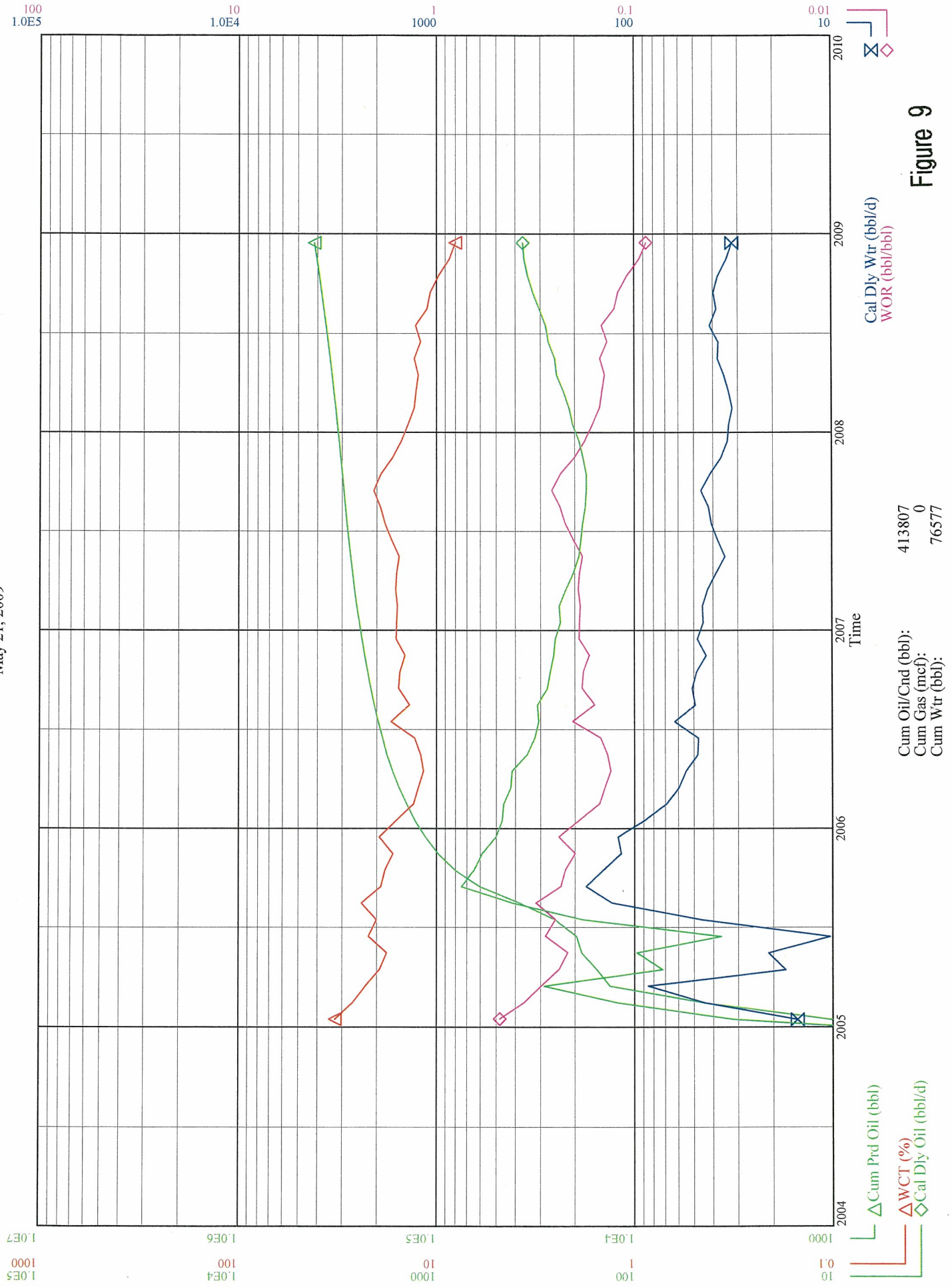
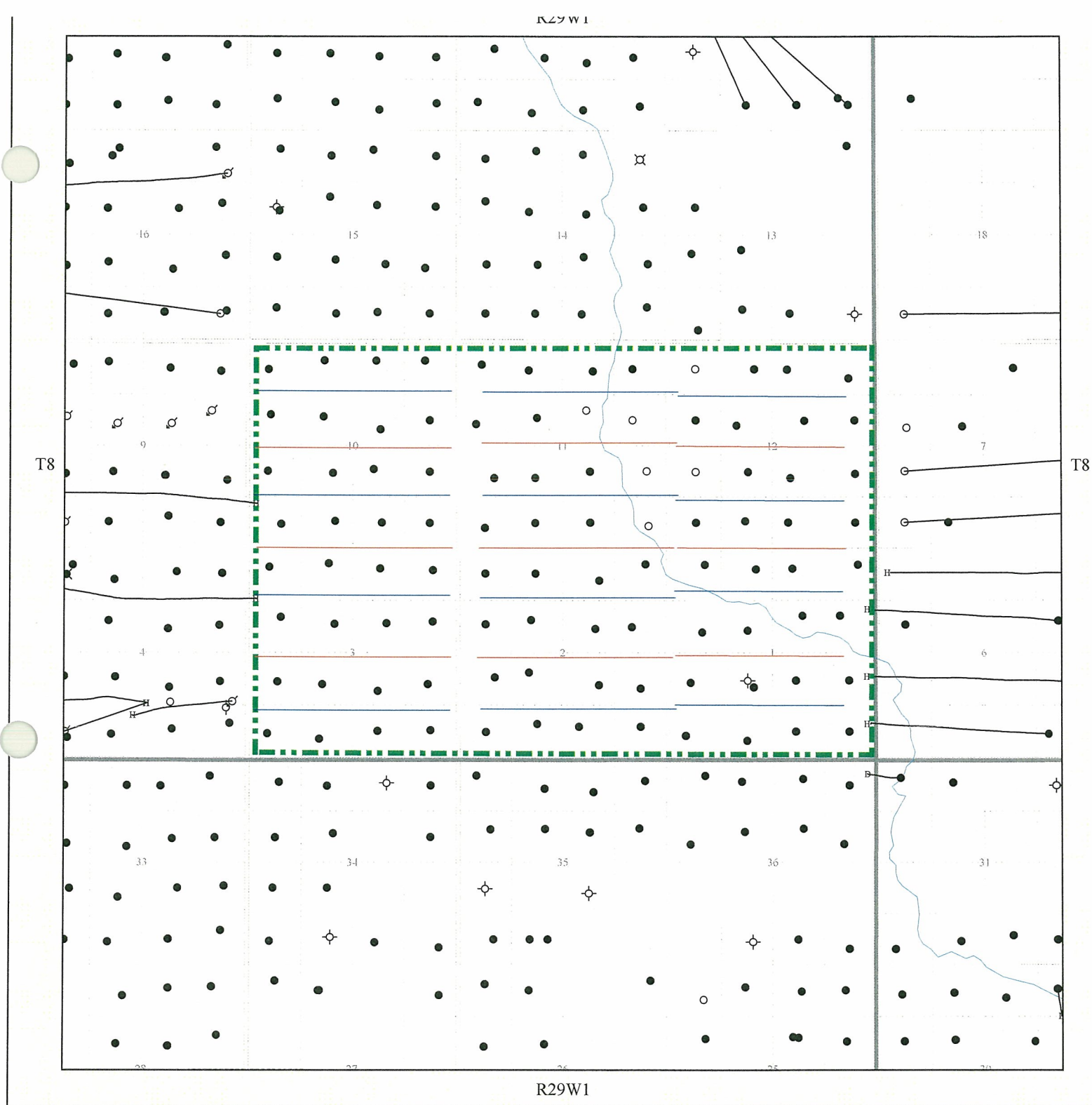



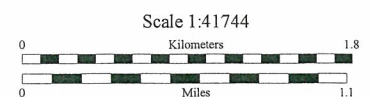
Figure 9





| WELL LEGEND             |               |  |  |
|-------------------------|---------------|--|--|
| Bottom Hole Locations:  |               |  |  |
| ○ Location              | ◇ Suspended   |  |  |
| ⊠ Service or Drain      | ● Oil         |  |  |
| ⬠ Dry & Abandoned       | ⬢ Injection   |  |  |
| Surface Hole Locations: |               |  |  |
| —○ Directional          | —H Horizontal |  |  |

| Unit 3 Planned HZ Injectors  |  |  |  |
|--|--|--|--|
| Blue Phase I - Red Phase II  |  |  |  |
| Figure 10  |  |  |  |
|  Created in AccuMap™<br>Product of IHS<br>Datum: NAD27<br>Vol. 19 No. 04, Apr 17 2009<br>(403) 770-4646 |  | Author: WRJ<br>Date: May 22, 2009<br>File: Proposed Unit 3 Phased Inj<br>Scale: 1 : 41744<br>Projection: Stereographic<br>Center: N49.63555 W101.31466 |  |
| Grid Information:<br>DLS: IHS Enhanced Grid<br>NTS: Theoretical Grid<br>FPS: Theoretical Grid<br>US: IHS US Grid   |  | DLS Version Information:<br>AB: ATS 2.6<br>BC: PRB 2.0<br>SK: STS 2.5<br>MB: MR 1.0  |  |



# Sinclair Water Injection System

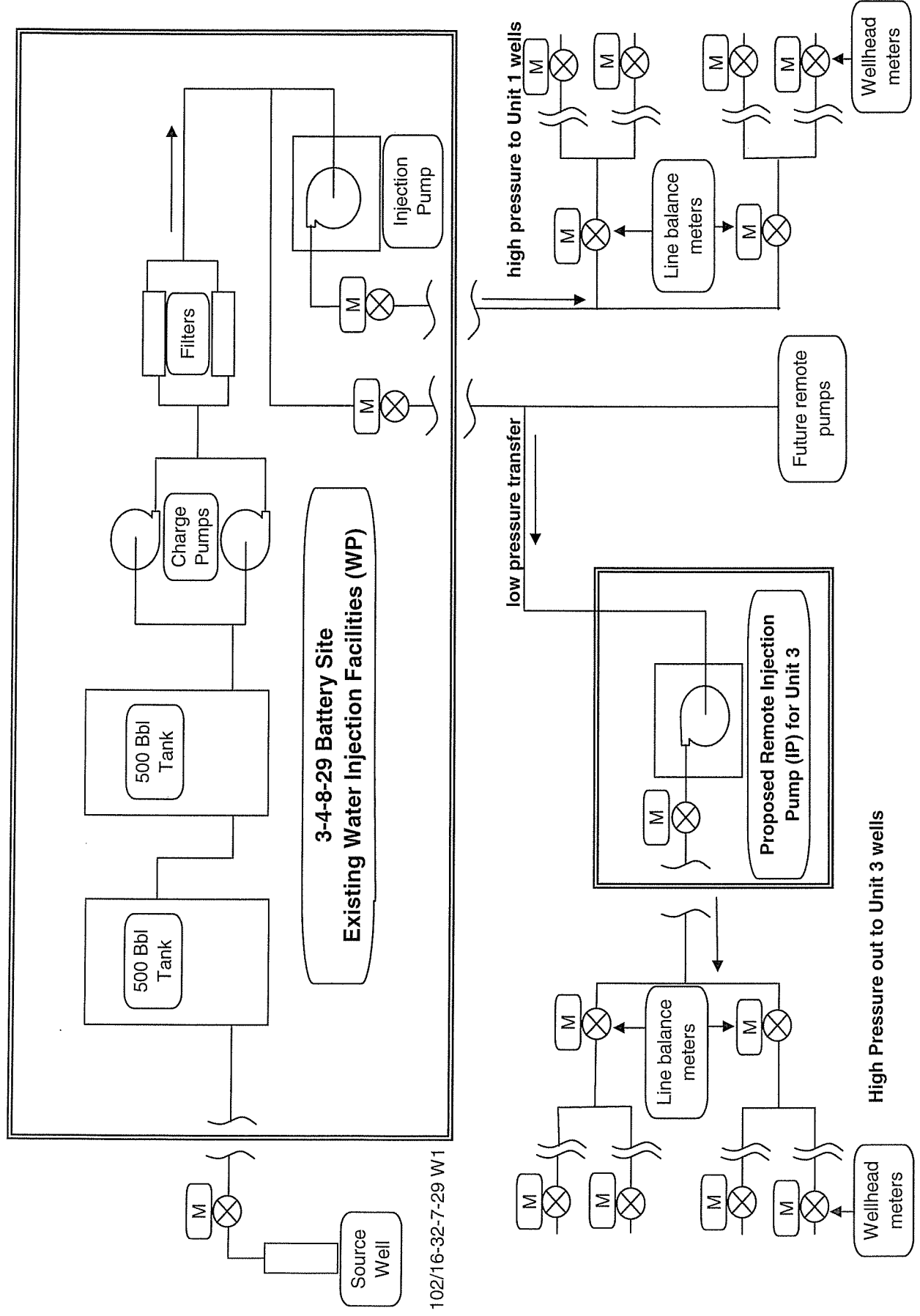
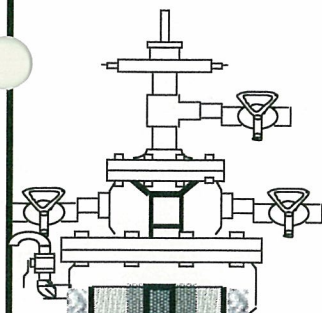


Figure 11

## TYPICAL WATER INJECTION WELL DOWNHOLE DIAGRAM



SC = 140mKB

KOP = 783mMD

Tubing bottom @ 1092.22mKB  
Packer set @ 1091.34mKB (COE)

Production Casing = 1102.0mKB

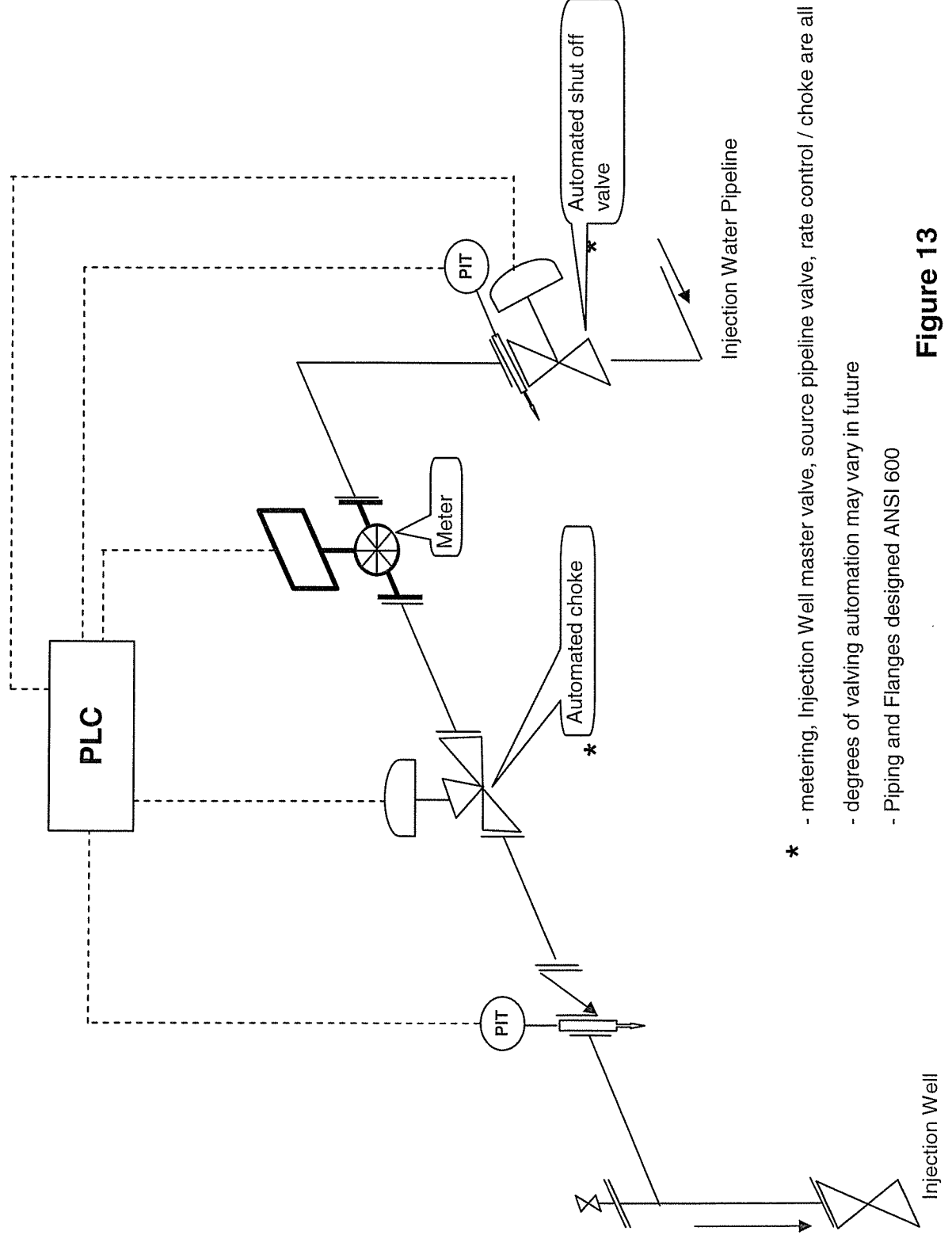
[illegible]

**Figure 12**

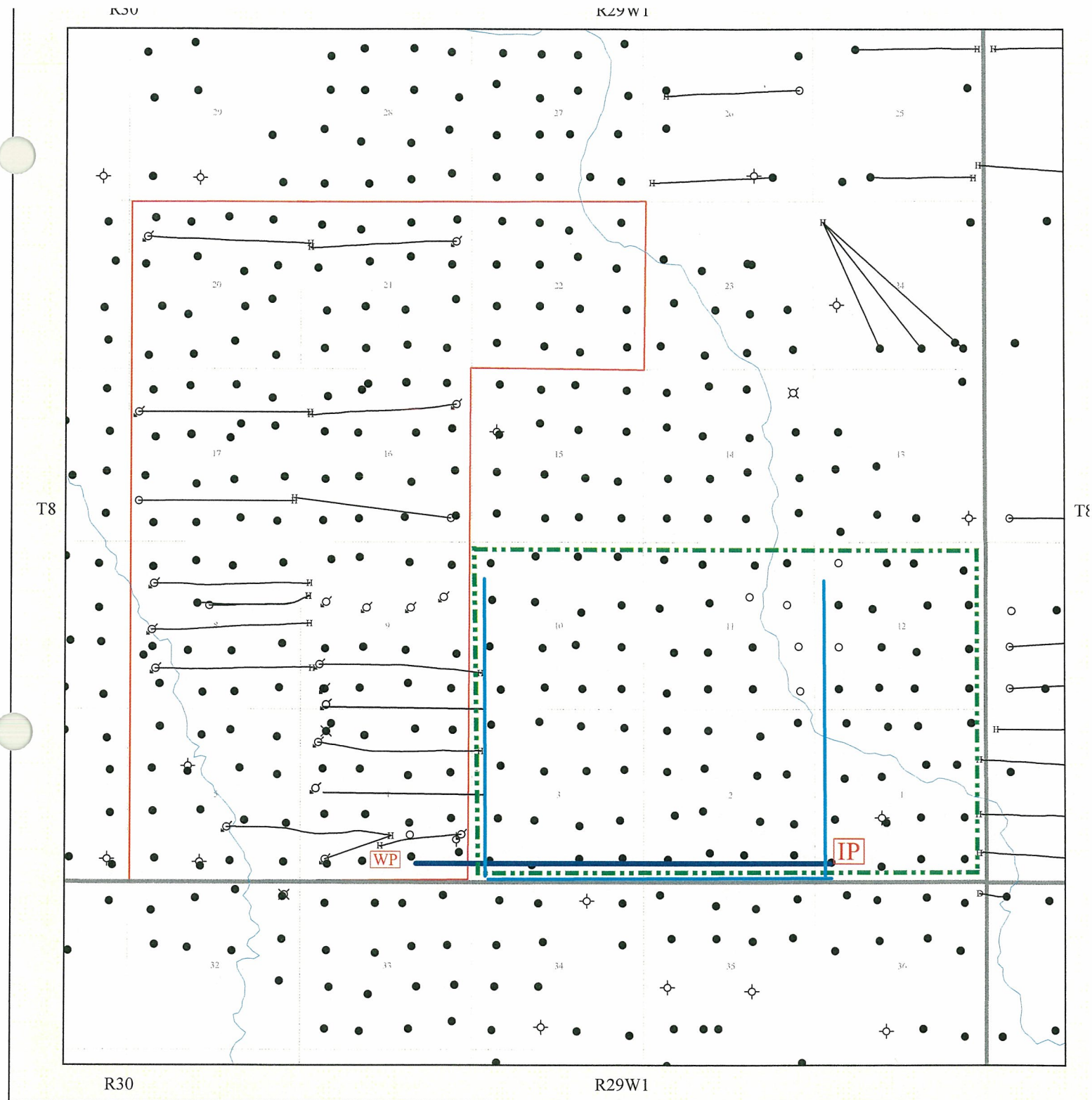


## Sinclair Unit No. 3

### Proposed Injection Well Surface Piping P&ID



**Figure 13**



### WELL LEGEND

#### Bottom Hole Locations:

- |                    |             |
|--------------------|-------------|
| ○ Location         | ◇ Suspended |
| ⊠ Service or Drain | ● Oil       |
| ◇ Dry & Abandoned  | ⊠ Injection |

#### Surface Hole Locations:

- |                |               |
|----------------|---------------|
| —○ Directional | —H Horizontal |
|----------------|---------------|

## Unit 3 Water Inject'n System

### New Pipe & Injection Plant Figure 14



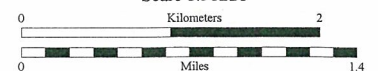
Created in AccuMap™  
Product of IHS  
Datum: NAD27  
Vol. 19 No. 04, Apr 17 2009  
(403) 770-4646

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

Author: WRJ  
Date: May 22, 2009  
File: Sinclair Unit 1 to Proposed  
Scale: 1:51221  
Projection: Stereographic  
Center: N49.64996 W101.33657

DLS Version Information:  
AB: ATS 2.6  
BC: PRB 2.0  
SK: STS 2.5  
MB: MB 1.0

Scale 1:51221



# Sinclair Unit No. 3

## 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
- 3-4 Water plant to New Injection Pump Station (IP) – Low pressure Fiberglass or HDPE
- New IP Station to Unit 3 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
  - Pumping – Ceramic plungers, stainless steel disc valves
  - Tanks – Fiberglass shell, corrosion resistant valves

#### Injection Wellhead / Surface Piping

- Corrosion resistant valves and internally coated surface piping

#### Injection Wells

- 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 15**

\*\* subject to final design and engineering

## **Proposed Sinclair Unit No. 3**

### **Application for Enhanced Oil Recovery Waterflood Project**

#### **LIST OF TABLES**

|         |   |
|---------|---|
| Table 1 | Lyleton / Three Forks Formation Rock & Fluid Parameters   |
| Table 2 | Proposed Unit 3 Oil Volumetric Reservoir Parameters<br>Original Oil in Place Estimate<br>Proved Producing Reserves Recovery Forecast<br>Total Proved Reserves Recovery Forecast |
| Table 3 | Proposed Sinclair Unit 3 Well List  |

**TABLE 1**

**LYLETON / THREE FORKS FORMATION ROCK & FLUID PARAMETERS  
SINCLAIR UNIT NO. 3 PROJECT AREA**

|                          |           |                    |                                    |
|--------------------------|-----------|--------------------|------------------------------------|
| Formation Pressure       |           | 9500 kPa           | Initial Average Reservoir Pressure |
| Formation Temperature    |           | 35 deg C           |                                    |
| Saturation Pressure      |           | 2,124 kPa          | Bubble Point                       |
| GOR                      |           | 6.38 m3/m3         | Gas Oil Ratio                      |
| Oil Gravity              |           | 41 API             |                                    |
| Oil Viscosity            |           | 2.31 cp            |                                    |
| Soi (fraction)           |           | 0.60               | Initial Oil Saturation             |
| Swi (fraction)           |           | 0.40               | Initial Water Daturation           |
| Sor (fraction)           | stack 1   | 0.247              | Residual Oil Saturation            |
|                          | stack 2   | 0.278              |                                    |
| Swirr (fraction)         | stack 1   | 0.225              | Irreducible Water Saturation       |
|                          | stack 2   | 0.273              |                                    |
| Wettability              |           | Moderately oil-wet |                                    |
| Average Air Permeability | stack 1   | 8.12 mD            | From Core Data                     |
|                          | stack 2   | 1.43 mD            |                                    |
| koi (effective)          | stack 1   | 0.0708 mD          | Initial Permeability to oil        |
|                          | stack 2   | 0.0826 mD          |                                    |
| kwf (effective)          | stack 1   | 0.011 mD           | Final Permeability to water        |
|                          | stack 2   | 0.0166 mD          |                                    |
| Average Porosity         | stack 1   | 12.0%              | Core Derived Average Porosity      |
|                          | stack 2   | 11.5%              |                                    |
|                          | 2 samples | 4 samples          |                                    |
| Micropores <1 micron     | 100       | 59 - 89%           | Pore Size Distribution of Total    |
| Mesopores 1 - 3 microns  | 0         | 8 - 23%            | Pore Size Distribution of Total    |
| Macropores > 3 microns   | 0         | 3 - 18%            | Pore Size Distribution of Total    |

Entity: Sinclair Unit No. 3 - Proposed  
 Zone: BAKKEN-THREE FORKS B

# Table 2

Effective date: April 01, 2009

## Oil Volumetric Reservoir Parameters

|                           |      | A<br>Proved Producing | C<br>Total Proved |
|---------------------------|------|-----------------------|-------------------|
| Original Oil In-Place     | Mbbl | 30679                 | 30679             |
| Recovery Factor           | %    | 11.5                  | 24.0              |
| Original Oil Resources    | Mbbl | 3528.1                | 7362.9            |
| Cumulative Oil Production | Mbbl | 2068.0                | 2068.0            |
| Remaining Oil Resources   | Mbbl | 1460.1                | 5294.9            |

### Notes

1. <sup>2009-Apr-2</sup><sub>1</sub> OOIP for Unit 3 of 30,678.9 Mbbl is determined from planimetering porosity\*net pay mapping for the Lyleton A (GLJ map), Lyleton B (Tundra map) and Mid Bakken (Tundra map) intervals.

# TABLE 3

## TUNDRA OIL & GAS PARTNERSHIP SINCLAIR UNIT NO. 3 WELL LIST

| Section        | Well       | Section        | Well      | Section        | Well      | Section         | Well       | Section         | Well       |                 |            |
|----------------|------------|----------------|-----------|----------------|-----------|-----------------|------------|-----------------|------------|-----------------|------------|
| Section 1-8-29 | 1-1-8-29   | Section 2-8-29 | 1-2-8-29  | Section 3-8-29 | 1-3-8-29  | Section 10-8-29 | 1-10-8-29  | Section 11-8-29 | 1-11-8-29  | Section 12-8-29 | 1-12-8-29  |
|                | 2-1-8-29   |                | 2-2-8-29  |                | 2-3-8-29  |                 | 2-10-8-29  |                 | 2-11-8-29  |                 | 2-12-8-29  |
|                | 3-1-8-29   |                | 3-2-8-29  |                | 3-3-8-29  |                 | 3-10-8-29  |                 | 3-11-8-29  |                 | 3-12-8-29  |
|                | 4-1-8-29   |                | 4-2-8-29  |                | 4-3-8-29  |                 | 4-10-8-29  |                 | 4-11-8-29  |                 | 4-12-8-29  |
|                | 5-1-8-29   |                | 5-2-8-29  |                | 5-3-8-29  |                 | 5-10-8-29  |                 | 5-11-8-29  |                 | 5-12-8-29  |
|                | 2/6-1-8-29 |                | 6-2-8-29  |                | 6-3-8-29  |                 | 6-10-8-29  |                 | 6-11-8-29  |                 | 6-12-8-29  |
|                | 6-1-8-29   |                | 7-2-8-29  |                | 7-3-8-29  |                 | 7-10-8-29  |                 | 7-11-8-29  |                 | 7-12-8-29  |
|                | 7-1-8-29   |                | 8-2-8-29  |                | 8-3-8-29  |                 | 8-10-8-29  |                 | 8-11-8-29  |                 | 8-12-8-29  |
|                | 8-1-8-29   |                | 9-2-8-29  |                | 9-3-8-29  |                 | 9-10-8-29  |                 | 9-11-8-29  |                 | 9-12-8-29  |
|                | 9-1-8-29   |                | 10-2-8-29 |                | 10-3-8-29 |                 | 10-10-8-29 |                 | 10-11-8-29 |                 | 10-12-8-29 |
|                | 10-1-8-29  |                | 11-2-8-29 |                | 11-3-8-29 |                 | 11-10-8-29 |                 | 11-11-8-29 |                 | 11-12-8-29 |
|                | 11-1-8-29  |                | 12-2-8-29 |                | 12-3-8-29 |                 | 12-10-8-29 |                 | 12-11-8-29 |                 | 12-12-8-29 |
|                | 12-1-8-29  |                | 13-2-8-29 |                | 13-3-8-29 |                 | 13-10-8-29 |                 | 13-11-8-29 |                 | 13-12-8-29 |
|                | 13-1-8-29  |                | 14-2-8-29 |                | 14-3-8-29 |                 | 14-10-8-29 |                 | 14-11-8-29 |                 | 14-12-8-29 |
|                | 14-1-8-29  |                | 15-2-8-29 |                | 15-3-8-29 |                 | 15-10-8-29 |                 | 15-11-8-29 |                 | 15-12-8-29 |
|                | 15-1-8-29  |                | 16-2-8-29 |                | 16-3-8-29 |                 | 16-10-8-29 |                 | 16-11-8-29 |                 | 16-12-8-29 |
| 16-1-8-29      |            |                |           |                |           |                 |            |                 |            |                 |            |

All Locations are W1M

## **Proposed Sinclair Unit No. 3**

### **Application for Enhanced Oil Recovery Waterflood Project**

#### **LIST OF APPENDICES**

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| Appendix 2 | Geological Structure Map Unit 3   |
| Appendix 3 | Unit 3 Porosity Map ( $\Phi - h$ )  |
| Appendix 4 | Unit 3 Permeability Map ( $k - h$ )   |
| Appendix 5 | Original Oil in Place Estimates by Well / LSD in Unit 3   |
| Appendix 6 | 40 acre Tracts Land and Ownership Listing   |
| Appendix 7 | Tract Factors Based on First 90 Days Production<br>Methodology and Calculations to Determine Production Contribution    |
| Appendix 8 | Tract Factors Based on Oil in Place (OOIP) by Well / LSD<br>Methodology and Calculations to Determine OOIP Contribution |



# Sinclair Field Manitoba

## Proposed Unit No. 3 OOIP Calculations

Appendix 5

| UWI                 | Logs/Core Analysis | Lyleton A           |                    | Lyleton B           |                    | TOGL Planimetered Values - Lyleton A |                    | TOGL Planimetered Values - Lyleton B |                    | TOGL Planimetered Values - Mid Bakken |             | Total OOIP (all zones) Mbbl |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|--------------------------------------|--------------------|--------------------------------------|--------------------|---------------------------------------|-------------|-----------------------------|
|                     |                    | GLJ                 | phi*ht*a (Acre-ft) | OOIP (Mbbl)         | phi*ht*a (Acre-ft) | OOIP (Mbbl)                          | phi*ht*a (Acre-ft) | OOIP (Mbbl)                          | phi*ht*a (Acre-ft) | OOIP (Mbbl)                           | OOIP (Mbbl) |                             |
| 00/01-01-008-29W1/0 |                    | 57.17               | 261.4              | 11.16               | 51.0               | 0.03                                 | 0.1                | 312.6                                |                    |                                       |             |                             |
| 00/02-01-008-29W1/0 | CA                 | 64.42               | 294.6              | 4.07                | 18.6               | 0.00                                 | 0.0                | 313.2                                |                    |                                       |             |                             |
| 00/03-01-008-29W1/0 | L                  | 72.32               | 330.7              | 7.53                | 34.4               | 0.02                                 | 0.1                | 365.2                                |                    |                                       |             |                             |
| 00/04-01-008-29W1/0 |                    | 80.32               | 367.3              | 9.24                | 42.2               | 0.00                                 | 0.0                | 409.5                                |                    |                                       |             |                             |
| 00/05-01-008-29W1/0 |                    | 78.68               | 359.8              | 18.40               | 84.1               | 0.00                                 | 0.0                | 443.9                                |                    |                                       |             |                             |
| 02/06-01-008-29W1/0 |                    | 72.82               | 333.0              | 15.10               | 69.0               | 0.00                                 | 0.0                | 402.0                                |                    |                                       |             |                             |
| 00/07-01-008-29W1/0 |                    | 66.80               | 305.4              | 7.29                | 33.3               | 0.00                                 | 0.0                | 338.8                                |                    |                                       |             |                             |
| 00/08-01-008-29W1/0 |                    | 54.91               | 251.1              | 5.80                | 26.5               | 0.00                                 | 0.0                | 277.6                                |                    |                                       |             |                             |
| 00/09-01-008-29W1/0 | L                  | 55.48               | 253.7              | 7.11                | 32.5               | 0.04                                 | 0.2                | 286.4                                |                    |                                       |             |                             |
| 00/10-01-008-29W1/0 |                    | 64.20               | 293.6              | 13.57               | 62.0               | 0.02                                 | 0.1                | 355.7                                |                    |                                       |             |                             |
| 00/11-01-008-29W1/0 |                    | 67.49               | 308.6              | 21.28               | 97.3               | 0.00                                 | 0.0                | 405.9                                |                    |                                       |             |                             |
| 00/12-01-008-29W1/0 | CA                 | 68.19               | 311.8              | 25.17               | 115.1              | 0.00                                 | 0.0                | 426.9                                |                    |                                       |             |                             |
| 00/13-01-008-29W1/0 |                    | 67.55               | 308.9              | 21.25               | 97.2               | 0.01                                 | 0.0                | 406.1                                |                    |                                       |             |                             |
| 00/14-01-008-29W1/0 |                    | 62.87               | 287.5              | 20.28               | 92.7               | 0.29                                 | 1.3                | 381.5                                |                    |                                       |             |                             |
| 00/15-01-008-29W1/0 |                    | 51.56               | 235.8              | 16.34               | 74.7               | 0.66                                 | 3.0                | 313.5                                |                    |                                       |             |                             |
| 00/16-01-008-29W1/0 |                    | 33.31               | 152.3              | 11.92               | 54.5               | 0.93                                 | 4.3                | 211.1                                |                    |                                       |             |                             |
|                     |                    | Section 01-008-29W1 |                    | Section 01-008-29W1 |                    | Section 01-008-29W1                  |                    | Section 01-008-29W1                  |                    | Section 01-008-29W1                   |             |                             |
| 00/01-02-008-29W1/0 | CA                 | 32.49               | 377.2              | 4.59                | 21.0               | 0.27                                 | 1.2                | 399.4                                |                    |                                       |             |                             |
| 00/02-02-008-29W1/0 |                    | 71.02               | 324.7              | 4.94                | 22.6               | 3.05                                 | 13.9               | 361.3                                |                    |                                       |             |                             |
| 00/03-02-008-29W1/0 |                    | 58.49               | 267.4              | 4.26                | 19.5               | 9.40                                 | 43.0               | 329.9                                |                    |                                       |             |                             |
| 00/04-02-008-29W1/0 | CA                 | 59.19               | 270.6              | 1.14                | 5.2                | 16.04                                | 73.3               | 349.2                                |                    |                                       |             |                             |
| 00/05-02-008-29W1/0 |                    | 61.52               | 281.3              | 0.07                | 0.3                | 11.33                                | 51.8               | 333.4                                |                    |                                       |             |                             |
| 00/06-02-008-29W1/0 |                    | 64.27               | 293.9              | 2.37                | 10.8               | 7.78                                 | 35.6               | 340.3                                |                    |                                       |             |                             |
| 00/07-02-008-29W1/0 |                    | 69.42               | 317.4              | 4.61                | 21.1               | 2.75                                 | 12.6               | 351.1                                |                    |                                       |             |                             |
| 00/08-02-008-29W1/0 |                    | 78.15               | 357.3              | 9.12                | 41.7               | 0.13                                 | 0.6                | 399.6                                |                    |                                       |             |                             |
| 00/09-02-008-29W1/0 |                    | 65.43               | 299.2              | 16.82               | 76.9               | 0.12                                 | 0.5                | 376.6                                |                    |                                       |             |                             |
| 00/10-02-008-29W1/0 | L                  | 59.37               | 271.5              | 7.58                | 34.7               | 1.47                                 | 6.7                | 312.9                                |                    |                                       |             |                             |
| 00/11-02-008-29W1/0 |                    | 57.94               | 264.9              | 2.88                | 13.2               | 3.37                                 | 15.4               | 293.5                                |                    |                                       |             |                             |
| 00/12-02-008-29W1/0 | CA                 | 56.60               | 258.8              | 0.11                | 0.5                | 4.49                                 | 20.5               | 279.8                                |                    |                                       |             |                             |
| 00/13-02-008-29W1/0 |                    | 49.01               | 224.1              | 0.16                | 0.7                | 1.15                                 | 5.3                | 230.1                                |                    |                                       |             |                             |
| 00/14-02-008-29W1/0 |                    | 51.89               | 237.3              | 3.09                | 14.1               | 0.81                                 | 3.7                | 255.1                                |                    |                                       |             |                             |
| 00/15-02-008-29W1/0 |                    | 57.12               | 261.2              | 7.56                | 34.6               | 0.26                                 | 1.2                | 296.9                                |                    |                                       |             |                             |
| 00/16-02-008-29W1/0 |                    | 63.64               | 291.0              | 15.49               | 70.8               | 0.00                                 | 0.0                | 361.8                                |                    |                                       |             |                             |
|                     |                    | Section 02-008-29W1 |                    | Section 02-008-29W1 |                    | Section 02-008-29W1                  |                    | Section 02-008-29W1                  |                    | Section 02-008-29W1                   |             |                             |
| 00/01-03-008-29W1/0 | L                  | 54.31               | 4597.9             | 0.56                | 2.6                | 11.81                                | 285.4              | 5271.0                               |                    |                                       |             |                             |
| 00/02-03-008-29W1/0 | L                  | 47.98               | 248.3              | 0.12                | 0.5                | 9.03                                 | 54.0               | 304.9                                |                    |                                       |             |                             |
| 00/03-03-008-29W1/0 | CA                 | 67.52               | 308.7              | 0.00                | 0.0                | 7.15                                 | 41.3               | 261.2                                |                    |                                       |             |                             |
| 00/04-03-008-29W1/0 |                    | 89.29               | 408.3              | 0.00                | 0.0                | 3.95                                 | 32.7               | 341.4                                |                    |                                       |             |                             |
| 00/05-03-008-29W1/0 |                    | 93.76               | 428.7              | 0.00                | 0.0                | 1.39                                 | 18.1               | 426.3                                |                    |                                       |             |                             |
| 00/06-03-008-29W1/0 |                    | 75.64               | 345.9              | 0.00                | 0.0                | 4.12                                 | 6.4                | 435.1                                |                    |                                       |             |                             |
| 00/07-03-008-29W1/0 | L                  | 59.24               | 270.9              | 0.00                | 0.0                | 6.72                                 | 18.8               | 364.7                                |                    |                                       |             |                             |
| 00/08-03-008-29W1/0 | L                  | 57.05               | 260.9              | 0.00                | 0.0                | 9.64                                 | 30.7               | 301.6                                |                    |                                       |             |                             |
| 00/09-03-008-29W1/0 | L                  | 52.48               | 240.0              | 0.00                | 0.0                | 4.95                                 | 44.1               | 304.9                                |                    |                                       |             |                             |
|                     |                    |                     |                    |                     |                    |                                      |                    | 262.6                                |                    |                                       |             |                             |



Sinclair Field Manitoba

Proposed Unit No. 3 OOIP Calculations

Appendix 5

| UWI                 | Logs/Core Analysis | GLJ Planimetered Values - Lyleton A |             | TOGL Planimetered Values - Lyleton B |             | TOGL Planimetered Values - Mid Bakken |             | Total OOIP (all zones) Mbbl |
|---------------------|--------------------|-------------------------------------|-------------|--------------------------------------|-------------|---------------------------------------|-------------|-----------------------------|
|                     |                    | phi*ht'a (Acre-ft)                  | OOIP (Mbbl) | phi*ht'a (Acre-ft)                   | OOIP (Mbbl) | phi*ht'a (Acre-ft)                    | OOIP (Mbbl) |                             |
| 00/10-03-008-29W1/0 | CA                 | 53.73                               | 245.7       | 0.00                                 | 0.0         | 3.91                                  | 17.9        | 263.6                       |
| 00/11-03-008-29W1/0 | L                  | 69.91                               | 319.7       | 0.00                                 | 0.0         | 2.61                                  | 11.9        | 331.6                       |
| 00/12-03-008-29W1/0 | L                  | 81.11                               | 370.9       | 0.00                                 | 0.0         | 1.06                                  | 4.8         | 375.7                       |
| 00/13-03-008-29W1/0 | L                  | 82.52                               | 377.3       | 0.00                                 | 0.0         | 1.94                                  | 8.9         | 386.2                       |
| 00/14-03-008-29W1/0 | L                  | 67.37                               | 308.0       | 0.00                                 | 0.0         | 1.99                                  | 9.1         | 317.1                       |
| 00/15-03-008-29W1/0 | L                  | 54.00                               | 246.9       | 0.00                                 | 0.0         | 2.01                                  | 9.2         | 256.1                       |
| 00/16-03-008-29W1/0 | L                  | 48.46                               | 221.6       | 0.00                                 | 0.0         | 1.71                                  | 7.8         | 229.4                       |
| Section 03-008-29W1 |                    |                                     | 4821.1      | Section 03-008-29W1                  |             |                                       | 338.3       | 5162.5                      |
| 00/01-10-008-29W1/0 | L                  | 41.82                               | 191.2       | 0.00                                 | 0.0         | 0.23                                  | 1.1         | 192.3                       |
| 00/02-10-008-29W1/0 | L                  | 50.48                               | 230.8       | 0.00                                 | 0.0         | 0.79                                  | 3.6         | 234.4                       |
| 00/03-10-008-29W1/0 |                    | 66.52                               | 304.2       | 0.00                                 | 0.0         | 1.57                                  | 7.2         | 311.3                       |
| 00/04-10-008-29W1/0 |                    | 85.21                               | 389.6       | 0.00                                 | 0.0         | 2.75                                  | 12.6        | 402.2                       |
| 00/05-10-008-29W1/0 |                    | 86.15                               | 393.9       | 0.00                                 | 0.0         | 1.60                                  | 7.3         | 401.2                       |
| 00/06-10-008-29W1/0 |                    | 65.77                               | 300.7       | 0.00                                 | 0.0         | 0.54                                  | 2.5         | 303.2                       |
| 00/07-10-008-29W1/0 | L                  | 53.04                               | 242.5       | 0.00                                 | 0.0         | 0.08                                  | 0.4         | 242.9                       |
| 00/08-10-008-29W1/0 | CA                 | 60.36                               | 276.0       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 276.0                       |
| 00/09-10-008-29W1/0 | L                  | 70.82                               | 323.8       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 323.8                       |
| 00/10-10-008-29W1/0 | L                  | 65.39                               | 299.0       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 299.0                       |
| 00/11-10-008-29W1/0 | L                  | 66.71                               | 305.0       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 305.0                       |
| 00/12-10-008-29W1/0 |                    | 88.77                               | 405.9       | 0.00                                 | 0.0         | 0.06                                  | 0.3         | 406.2                       |
| 00/13-10-008-29W1/0 |                    | 86.25                               | 394.4       | 0.01                                 | 0.0         | 0.00                                  | 0.0         | 394.4                       |
| 00/14-10-008-29W1/0 | L                  | 73.27                               | 335.0       | 0.05                                 | 0.2         | 0.00                                  | 0.0         | 335.3                       |
| 00/15-10-008-29W1/0 | L                  | 67.60                               | 309.1       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 309.1                       |
| 00/16-10-008-29W1/0 | L                  | 63.97                               | 292.5       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 292.5                       |
| Section 10-008-29W1 |                    |                                     | 4993.8      | Section 10-008-29W1                  |             |                                       | 34.8        | 5028.9                      |
| 00/01-11-008-29W1/0 |                    | 70.12                               | 320.6       | 10.29                                | 47.1        | 0.00                                  | 0.0         | 367.7                       |
| 00/02-11-008-29W1/0 |                    | 60.91                               | 278.5       | 5.63                                 | 25.7        | 0.00                                  | 0.0         | 304.3                       |
| 00/03-11-008-29W1/0 |                    | 51.75                               | 236.6       | 2.47                                 | 11.3        | 0.00                                  | 0.0         | 247.9                       |
| 00/04-11-008-29W1/0 | CA                 | 43.23                               | 197.7       | 0.08                                 | 0.4         | 0.01                                  | 0.0         | 198.1                       |
| 00/05-11-008-29W1/0 |                    | 57.58                               | 263.3       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 263.3                       |
| 00/06-11-008-29W1/0 |                    | 55.57                               | 254.1       | 0.81                                 | 3.7         | 0.00                                  | 0.0         | 257.8                       |
| 00/07-11-008-29W1/0 |                    | 63.80                               | 291.7       | 2.85                                 | 13.0        | 0.00                                  | 0.0         | 304.8                       |
| 00/08-11-008-29W1/0 |                    | 78.67                               | 359.7       | 4.37                                 | 20.0        | 0.00                                  | 0.0         | 379.7                       |
| 00/09-11-008-29W1/0 |                    | 76.80                               | 351.2       | 0.61                                 | 2.8         | 0.00                                  | 0.0         | 354.0                       |
| 00/10-11-008-29W1/0 |                    | 59.96                               | 274.2       | 0.24                                 | 1.1         | 0.00                                  | 0.0         | 275.3                       |
| 00/11-11-008-29W1/0 | CA                 | 54.07                               | 247.2       | 0.01                                 | 0.0         | 0.00                                  | 0.0         | 247.3                       |
| 00/12-11-008-29W1/0 |                    | 62.26                               | 284.7       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 284.7                       |
| 00/13-11-008-29W1/0 |                    | 58.51                               | 267.5       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 267.5                       |
| 00/14-11-008-29W1/0 |                    | 54.94                               | 251.2       | 0.00                                 | 0.0         | 0.00                                  | 0.0         | 251.2                       |
| 00/15-11-008-29W1/0 |                    | 57.07                               | 261.0       | 0.00                                 | 0.0         | 0.15                                  | 0.7         | 261.6                       |
| 00/16-11-008-29W1/0 | L                  | 65.45                               | 299.3       | 0.00                                 | 0.0         | 0.57                                  | 2.6         | 301.9                       |
| Section 11-008-29W1 |                    |                                     | 4438.5      | Section 11-008-29W1                  |             |                                       | 3.3         | 4566.9                      |
| 00/01-12-008-29W1/0 | CA                 | 11.10                               | 50.8        | 16.69                                | 76.3        | 2.16                                  | 9.9         | 136.9                       |



# Sinclair Field Manitoba

## Proposed Unit No. 3 OOIP Calculations

Appendix 5

| UWI                 | Logs/Core Analysis | GLJ Planimetered Values - Lyleton A |             | TOGL Planimetered Values - Lyleton B |             | TOGL Planimetered Values - Mid Bakken |             | Total OOIP (all zones) Mbbl |
|---------------------|--------------------|-------------------------------------|-------------|--------------------------------------|-------------|---------------------------------------|-------------|-----------------------------|
|                     |                    | phi*h'a (Acre-ft)                   | OOIP (Mbbl) | phi'h'a (Acre-ft)                    | OOIP (Mbbl) | phi'h'a (Acre-ft)                     | OOIP (Mbbl) |                             |
| 00/02-12-008-29W1/0 | L                  | 42.62                               | 194.9       | 16.92                                | 77.4        | 1.31                                  | 6.0         | 278.2                       |
| 00/03-12-008-29W1/0 |                    | 64.88                               | 296.7       | 16.96                                | 77.5        | 0.61                                  | 2.8         | 377.0                       |
| 00/04-12-008-29W1/0 |                    | 75.27                               | 344.2       | 15.25                                | 69.7        | 0.04                                  | 0.2         | 414.1                       |
| 00/05-12-008-29W1/0 |                    | 90.13                               | 412.1       | 6.73                                 | 30.8        | 0.03                                  | 0.1         | 443.0                       |
| 00/06-12-008-29W1/0 |                    | 76.18                               | 348.3       | 9.95                                 | 45.5        | 0.78                                  | 3.6         | 397.4                       |
| 00/07-12-008-29W1/0 | L                  | 52.07                               | 238.1       | 13.22                                | 60.4        | 1.87                                  | 8.6         | 307.1                       |
| 00/08-12-008-29W1/0 |                    | 32.84                               | 150.2       | 14.56                                | 66.6        | 3.06                                  | 14.0        | 230.7                       |
| 00/09-12-008-29W1/0 |                    | 50.76                               | 232.1       | 7.96                                 | 36.4        | 3.82                                  | 17.5        | 286.0                       |
| 00/10-12-008-29W1/0 |                    | 56.18                               | 256.9       | 6.61                                 | 30.2        | 2.62                                  | 12.0        | 299.1                       |
| 00/11-12-008-29W1/0 |                    | 76.58                               | 350.2       | 4.19                                 | 19.2        | 1.21                                  | 5.5         | 374.9                       |
| 00/12-12-008-29W1/0 | CA                 | 95.09                               | 434.8       | 1.14                                 | 5.2         | 0.10                                  | 0.5         | 440.5                       |
| 00/13-12-008-29W1/0 |                    | 71.18                               | 325.5       | 0.04                                 | 0.2         | 1.28                                  | 5.9         | 331.5                       |
| 00/14-12-008-29W1/0 |                    | 52.03                               | 237.9       | 2.07                                 | 9.5         | 2.67                                  | 12.2        | 259.6                       |
| 00/15-12-008-29W1/0 |                    | 38.15                               | 174.4       | 4.55                                 | 20.8        | 4.10                                  | 18.7        | 214.0                       |
| 00/16-12-008-29W1/0 |                    | 35.34                               | 161.6       | 5.45                                 | 24.9        | 5.11                                  | 23.4        | 209.9                       |
| Section 12-008-29W1 |                    | 4208.5                              |             | 650.6                                |             | 140.7                                 |             | 4999.8                      |
| Total OOIP (Mbbl) = |                    | 27714.9                             |             | 2152.2                               |             | 811.8                                 |             | 30678.9                     |
| Avg SW (%) =        |                    | 0.4000                              |             | 0.4000                               |             | 0.4000                                |             |                             |

# EXHIBIT 'A': TRACT PARTICIPATION

## Appendix 6

Attached to and made part of an Agreement Entitled  
Sinclair Unit No. 3 - Unit Agreement

| Tract No. | Land Description  | Working Interest             |           | Royalty Interest   |           | Tract Participation % |
|-----------|-------------------|------------------------------|-----------|--|-----------|-----------------------|
|           |                   | Owner                        | Share (%) | Owner  | Share (%) |                       |
| 1         | LSD 1-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rural Municipality of Pipestone                            | 100%      | 1.064300677           |
| 2         | LSD 2-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rural Municipality of Pipestone                            | 100%      | 1.414740347           |
| 3         | LSD 3-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rhodes Family Enterprises Ltd.                             | 100%      | 1.401516880           |
| 4         | LSD 4-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rhodes Family Enterprises Ltd.                             | 100%      | 1.350696595           |
| 5         | LSD 5-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rhodes Family Enterprises Ltd.                             | 100%      | 1.278421511           |
| 6         | LSD 6-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rhodes Family Enterprises Ltd.                             | 100%      | 1.380460595           |
| 7         | LSD 7-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rural Municipality of Pipestone                            | 100%      | 1.264471112           |
| 8         | LSD 8-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | Rural Municipality of Pipestone                            | 100%      | 1.103339417           |
| 9         | LSD 9-1-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | MDL Roadside Ltd.  | 100%      | 1.084436538           |
| 10        | LSD 10-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 4943091 Manitoba Ltd.                                      | 100%      | 1.304592657           |
| 11        | LSD 11-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 1268052 Alberta Ltd.                                       | 100%      | 1.311787019           |
| 12        | LSD 12-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 1268052 Alberta Ltd.                                       | 100%      | 1.276456857           |
| 13        | LSD 13-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 1268052 Alberta Ltd.                                       | 100%      | 1.347088805           |
| 14        | LSD 14-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 1268052 Alberta Ltd.                                       | 100%      | 1.117522292           |
| 15        | LSD 15-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | 4943091 Manitoba Ltd.                                      | 100%      | 1.136175907           |
| 16        | LSD 16-1-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | MDL Roadside Ltd.  | 100%      | 0.888200873           |
| 17        | LSD 1-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.598689192           |
| 18        | LSD 2-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.280567605           |
| 19        | LSD 3-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.125566780           |
| 20        | LSD 4-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.104933986           |
| 21        | LSD 5-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.037710160           |
| 22        | LSD 6-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.315992117           |
| 23        | LSD 7-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.167429621           |
| 24        | LSD 8-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.251194857           |
| 25        | LSD 9-2-8-29 WPM  | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.279660778           |
| 26        | LSD 10-2-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA | 100%      | 1.137019595           |
| 27        | LSD 11-2-8-29 WPM | Tundra Oil & Gas Partnership | 100%      | HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF          | 100%      | 1.507897900           |

|    |                   |                              |      |   |                   |             |
|----|-------------------|------------------------------|------|---|-------------------|-------------|
|    |                   |                              |      | MANITOBA  |                   |             |
| 28 | LSD 12-2-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.998960701 |
| 29 | LSD 13-2-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.719369489 |
| 30 | LSD 14-2-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.946850732 |
| 31 | LSD 15-2-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.275065614 |
| 32 | LSD 16-2-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.501673813 |
| 33 | LSD 1-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | 5126291 Manitoba Ltd.   | 100%              | 0.645606030 |
| 34 | LSD 2-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | 5126291 Manitoba Ltd.   | 100%              | 0.550850354 |
| 35 | LSD 3-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | Penner, Barry L. & Brenda D.<br>Penner, Randall I. & Frances G.       | 50%<br>50%        | 1.324365283 |
| 36 | LSD 4-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | Penner, Barry L. & Brenda D.<br>Penner, Randall I. & Frances G.       | 50%<br>50%        | 1.468790559 |
| 37 | LSD 5-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | Penner, Barry L. & Brenda D.<br>Penner, Randall I. & Frances G.       | 50%<br>50%        | 1.811455143 |
| 38 | LSD 6-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | Penner, Barry L. & Brenda D.<br>Penner, Randall I. & Frances G.       | 50%<br>50%        | 1.363617752 |
| 39 | LSD 7-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | 5126291 Manitoba Ltd.   | 100%              | 0.625238878 |
| 40 | LSD 8-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | 5126291 Manitoba Ltd.   | 100%              | 0.701441160 |
| 41 | LSD 9-3-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.713197264 |
| 42 | LSD 10-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.617204743 |
| 43 | LSD 11-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.781589335 |
| 44 | LSD 12-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.872467098 |
| 45 | LSD 13-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.853302337 |
| 46 | LSD 14-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.715394445 |
| 47 | LSD 15-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.579583307 |
| 48 | LSD 16-3-8-29 WPM | Tundra Oil & Gas Partnership | 100% | Bartel Seven Ltd.   | 100%              | 0.522948008 |
| 49 | LSD 1-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.484136748 |
| 50 | LSD 2-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.551430563 |
| 51 | LSD 3-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.245421147 |
| 52 | LSD 4-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.453407868 |
| 53 | LSD 5-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.699887987 |
| 54 | LSD 6-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.166488958 |
| 55 | LSD 7-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.507192089 |
| 56 | LSD 8-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.678328034 |

|    |                    |                              |      |   |                   |             |
|----|--------------------|------------------------------|------|---|-------------------|-------------|
| 57 | LSD 9-10-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.675325842 |
| 58 | LSD 10-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.618443699 |
| 59 | LSD 11-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.160034869 |
| 60 | LSD 12-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.240056712 |
| 61 | LSD 13-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.343276041 |
| 62 | LSD 14-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.241561311 |
| 63 | LSD 15-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.664161381 |
| 64 | LSD 16-10-8-29 WPM | Tundra Oil & Gas Partnership | 100% | FA&J Resources Ltd.<br>4996420 Manitoba Ltd.<br>4996438 Manitoba Ltd. | 50%<br>25%<br>25% | 0.601917585 |
| 65 | LSD 1-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.996535575 |
| 66 | LSD 2-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.036773978 |
| 67 | LSD 3-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.889957361 |
| 68 | LSD 4-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.879585190 |
| 69 | LSD 5-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.770264398 |
| 70 | LSD 6-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.613947725 |
| 71 | LSD 7-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.688405878 |
| 72 | LSD 8-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.084726951 |
| 73 | LSD 9-11-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.144480061 |
| 74 | LSD 10-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.868099259 |
| 75 | LSD 11-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 0.915426292 |
| 76 | LSD 12-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA      | 100%              | 1.080169640 |

|    |                    |                              |      |  |      |             |
|----|--------------------|------------------------------|------|--|------|-------------|
| 77 | LSD 13-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.086284184 |
| 78 | LSD 14-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.086663900 |
| 79 | LSD 15-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.311884409 |
| 80 | LSD 16-11-8-29 WPM | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.298681646 |
| 81 | LSD 1-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 0.444442454 |
| 82 | LSD 2-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 0.851337117 |
| 83 | LSD 3-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.432631542 |
| 84 | LSD 4-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.226814139 |
| 85 | LSD 5-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.209451290 |
| 86 | LSD 6-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 1.048843051 |
| 87 | LSD 7-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 0.715416487 |
| 88 | LSD 8-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | HER MAJESTY THE QUEEN IN<br>RIGHT OF THE PROVINCE OF<br>MANITOBA | 100% | 0.653707632 |
| 89 | LSD 9-12-8-29 WPM  | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 0.614565323 |
| 90 | LSD 10-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 0.896263591 |
| 91 | LSD 11-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 1.082582970 |
| 92 | LSD 12-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 1.769299931 |
| 93 | LSD 13-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 1.376786215 |
| 94 | LSD 14-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 0.981609595 |
| 95 | LSD 15-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 0.796167585 |
| 96 | LSD 16-12-8-29 WPM | Tundra Oil & Gas Partnership | 100% | 711889 Alberta Ltd   | 100% | 0.697281075 |

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# TUNDRA OIL & GAS LIMITED

## Appendix 7

Scenario 5 - 50% OOIP 50% 1st 2160 hours

### SINCLAIR UNIT NO. 3

#### DETERMINATION OF TRACT FACTORS BASED ON FIRST 90 PRODUCING DAYS

| Section         | Well / LSD | First 90 Days of Production |                     |                    | Tract Factor<br>100% Production<br>(%) | Tract Factor<br>50% Production<br>(%) |
|-----------------|------------|-----------------------------|---------------------|--------------------|--|---------------------------------------|
|                 |            | Oil Volume<br>(m3)          | Produced<br>(hours) | Produced<br>(days) |  |                                       |
| 1-8-29          | 1-1-8-29   | 588.1                       | 2,160.0             | 90                 | 1.109739897                            | 0.554869949                           |
|                 | 2-1-8-29   | 958.5                       | 2,160.0             | 90                 | 1.808681672                            | 0.904340836                           |
|                 | 3-1-8-29   | 854.6                       | 2,160.0             | 90                 | 1.612623221                            | 0.806311610                           |
|                 | 4-1-8-29   | 724.2                       | 2,160.0             | 90                 | 1.366559486                            | 0.683279743                           |
|                 | 5-1-8-29   | 588.2                       | 2,160.0             | 90                 | 1.109928596                            | 0.554964298                           |
|                 | 6-1-8-29   | 768.7                       | 2,160.0             | 90                 | 1.450530622                            | 0.725265311                           |
|                 | 7-1-8-29   | 755.0                       | 2,160.0             | 90                 | 1.424678834                            | 0.712339417                           |
|                 | 8-1-8-29   | 689.9                       | 2,160.0             | 90                 | 1.301835666                            | 0.650917833                           |
|                 | 9-1-8-29   | 654.7                       | 2,160.0             | 90                 | 1.235413553                            | 0.617706777                           |
|                 | 10-1-8-29  | 768.3                       | 2,160.0             | 90                 | 1.449775825                            | 0.724887913                           |
|                 | 11-1-8-29  | 689.2                       | 2,160.0             | 90                 | 1.300514771                            | 0.650257386                           |
|                 | 12-1-8-29  | 615.5                       | 2,160.0             | 90                 | 1.161443473                            | 0.580721737                           |
|                 | 13-1-8-29  | 726.3                       | 2,160.0             | 90                 | 1.370522168                            | 0.685261084                           |
|                 | 14-1-8-29  | 525.4                       | 2,160.0             | 90                 | 0.991425509                            | 0.495712755                           |
|                 | 15-1-8-29  | 662.7                       | 2,160.0             | 90                 | 1.250509488                            | 0.625254744                           |
|                 | 16-1-8-29  | 576.8                       | 2,160.0             | 90                 | 1.088416889                            | 0.544208445                           |
| Total           |            | 11146.1                     |                     |                    |  |                                       |
| % of Total Unit |            | 21.0                        |                     |                    | 21.032599671                           | 10.516299835                          |
| 2-8-29          | 1-2-8-29   | 1004.5                      | 2,160.0             | 90                 | 1.895483296                            | 0.947741648                           |
|                 | 2-2-8-29   | 733.2                       | 2,160.0             | 90                 | 1.383542412                            | 0.691771206                           |
|                 | 3-2-8-29   | 623.1                       | 2,160.0             | 90                 | 1.175784611                            | 0.587892306                           |
|                 | 4-2-8-29   | 567.9                       | 2,160.0             | 90                 | 1.071622662                            | 0.535811331                           |
|                 | 5-2-8-29   | 523.9                       | 2,160.0             | 90                 | 0.988595021                            | 0.494297511                           |
|                 | 6-2-8-29   | 807.0                       | 2,160.0             | 90                 | 1.522802409                            | 0.761401205                           |
|                 | 7-2-8-29   | 630.9                       | 2,160.0             | 90                 | 1.190503148                            | 0.595251574                           |
|                 | 8-2-8-29   | 635.8                       | 2,160.0             | 90                 | 1.199749407                            | 0.599874704                           |
|                 | 9-2-8-29   | 705.7                       | 2,160.0             | 90                 | 1.331650137                            | 0.665825068                           |
|                 | 10-2-8-29  | 664.7                       | 2,160.0             | 90                 | 1.254283471                            | 0.627141736                           |
|                 | 11-2-8-29  | 1091.2                      | 2,160.0             | 90                 | 2.059085488                            | 1.029542744                           |
|                 | 12-2-8-29  | 575.4                       | 2,160.0             | 90                 | 1.085775101                            | 0.542887550                           |
|                 | 13-2-8-29  | 365.0                       | 2,160.0             | 90                 | 0.688752019                            | 0.344376010                           |
|                 | 14-2-8-29  | 562.9                       | 2,160.0             | 90                 | 1.062187703                            | 0.531093851                           |
|                 | 15-2-8-29  | 838.5                       | 2,160.0             | 90                 | 1.582242652                            | 0.791121326                           |
|                 | 16-2-8-29  | 966.6                       | 2,160.0             | 90                 | 1.823966306                            | 0.911983153                           |
| Total           |            | 11296.3                     |                     |                    |  |                                       |
| % of Total Unit |            | 21.3                        |                     |                    | 21.316025844                           | 10.658012922                          |
| 3-8-29          | 1-3-8-29   | 157.6                       | 2,160.0             | 90                 | 0.297389913                            | 0.148694956                           |
|                 | 2-3-8-29   | 132.6                       | 2,160.0             | 90                 | 0.250215117                            | 0.125107559                           |
|                 | 3-3-8-29   | 813.9                       | 2,160.0             | 90                 | 1.535822653                            | 0.767911326                           |
|                 | 4-3-8-29   | 820.3                       | 2,160.0             | 90                 | 1.547899401                            | 0.773949700                           |
|                 | 5-3-8-29   | 1168.4                      | 2,160.0             | 90                 | 2.204761258                            | 1.102380629                           |
|                 | 6-3-8-29   | 815.3                       | 2,160.0             | 90                 | 1.538464442                            | 0.769232221                           |
|                 | 7-3-8-29   | 141.7                       | 2,160.0             | 90                 | 0.267386743                            | 0.133693371                           |
|                 | 8-3-8-29   | 216.7                       | 2,160.0             | 90                 | 0.408911130                            | 0.204455565                           |
|                 | 9-3-8-29   | 302.3                       | 2,160.0             | 90                 | 0.570437631                            | 0.285218816                           |
|                 | 10-3-8-29  | 198.9                       | 2,160.0             | 90                 | 0.375322676                            | 0.187661338                           |



|           |       |         |    |             |             |
|-----------|-------|---------|----|-------------|-------------|
| 11-3-8-29 | 255.6 | 2,160.0 | 90 | 0.482315113 | 0.241157556 |
| 12-3-8-29 | 275.7 | 2,160.0 | 90 | 0.520243648 | 0.260121824 |
| 13-3-8-29 | 237.3 | 2,160.0 | 90 | 0.447783162 | 0.223891581 |
| 14-3-8-29 | 210.4 | 2,160.0 | 90 | 0.397023082 | 0.198511541 |
| 15-3-8-29 | 171.9 | 2,160.0 | 90 | 0.324373896 | 0.162186948 |
| 16-3-8-29 | 158.0 | 2,160.0 | 90 | 0.298144710 | 0.149072355 |

|                        |               |  |  |                     |                    |
|------------------------|---------------|--|--|---------------------|--------------------|
| <b>Total</b>           | <b>6076.6</b> |  |  |                     |                    |
| <b>% of Total Unit</b> | <b>11.5</b>   |  |  | <b>11.466494573</b> | <b>5.733247287</b> |

|                |            |        |         |    |             |             |
|----------------|------------|--------|---------|----|-------------|-------------|
| <b>10-8-29</b> | 1-10-8-29  | 181.0  | 2,160.0 | 90 | 0.341545522 | 0.170772761 |
|                | 2-10-8-29  | 179.5  | 2,160.0 | 90 | 0.338715034 | 0.169357517 |
|                | 3-10-8-29  | 782.2  | 2,160.0 | 90 | 1.476005012 | 0.738002506 |
|                | 4-10-8-29  | 845.7  | 2,160.0 | 90 | 1.595828993 | 0.797914497 |
|                | 5-10-8-29  | 1108.6 | 2,160.0 | 90 | 2.091919146 | 1.045959573 |
|                | 6-10-8-29  | 712.6  | 2,160.0 | 90 | 1.344670380 | 0.672335190 |
|                | 7-10-8-29  | 118.0  | 2,160.0 | 90 | 0.222665036 | 0.111332518 |
|                | 8-10-8-29  | 242.2  | 2,160.0 | 90 | 0.457029422 | 0.228514711 |
|                | 9-10-8-29  | 156.4  | 2,160.0 | 90 | 0.295125523 | 0.147562761 |
|                | 10-10-8-29 | 139.0  | 2,160.0 | 90 | 0.262291865 | 0.131145932 |
|                | 11-10-8-29 | 702.6  | 2,160.0 | 90 | 1.325800462 | 0.662900231 |
|                | 12-10-8-29 | 612.7  | 2,160.0 | 90 | 1.156159896 | 0.578079948 |
|                | 13-10-8-29 | 742.4  | 2,160.0 | 90 | 1.400902737 | 0.700451368 |
|                | 14-10-8-29 | 736.8  | 2,160.0 | 90 | 1.390335583 | 0.695167791 |
|                | 15-10-8-29 | 170.0  | 2,160.0 | 90 | 0.320788612 | 0.160394306 |
|                | 16-10-8-29 | 132.7  | 2,160.0 | 90 | 0.250403816 | 0.125201908 |

|                        |               |  |  |                     |                    |
|------------------------|---------------|--|--|---------------------|--------------------|
| <b>Total</b>           | <b>7562.4</b> |  |  |                     |                    |
| <b>% of Total Unit</b> | <b>14.3</b>   |  |  | <b>14.270187039</b> | <b>7.135093519</b> |

|              |            |       |         |    |             |             |
|--------------|------------|-------|---------|----|-------------|-------------|
| <b>-8-29</b> | 1-11-8-29  | 421.1 | 2,160.0 | 90 | 0.794612261 | 0.397306130 |
|              | 2-11-8-29  | 573.3 | 2,160.0 | 90 | 1.081812418 | 0.540906209 |
|              | 3-11-8-29  | 515.0 | 2,160.0 | 90 | 0.971800794 | 0.485900397 |
|              | 4-11-8-29  | 590.1 | 2,160.0 | 90 | 1.113513881 | 0.556756940 |
|              | 5-11-8-29  | 361.6 | 2,160.0 | 90 | 0.682336247 | 0.341168123 |
|              | 6-11-8-29  | 205.4 | 2,160.0 | 90 | 0.387588123 | 0.193794061 |
|              | 7-11-8-29  | 203.2 | 2,160.0 | 90 | 0.383436740 | 0.191718370 |
|              | 8-11-8-29  | 493.8 | 2,160.0 | 90 | 0.931796567 | 0.465898284 |
|              | 9-11-8-29  | 601.6 | 2,160.0 | 90 | 1.135214287 | 0.567607143 |
|              | 10-11-8-29 | 444.6 | 2,160.0 | 90 | 0.838956569 | 0.419478284 |
|              | 11-11-8-29 | 543.1 | 2,160.0 | 90 | 1.024825265 | 0.512412632 |
|              | 12-11-8-29 | 653.1 | 2,160.0 | 90 | 1.232394366 | 0.616197183 |
|              | 13-11-8-29 | 689.2 | 2,160.0 | 90 | 1.300514771 | 0.650257386 |
|              | 14-11-8-29 | 717.8 | 2,160.0 | 90 | 1.354482738 | 0.677241369 |
|              | 15-11-8-29 | 938.5 | 2,160.0 | 90 | 1.770941835 | 0.885470918 |
|              | 16-11-8-29 | 855.0 | 2,160.0 | 90 | 1.613378017 | 0.806689009 |

|                        |               |  |  |                     |                    |
|------------------------|---------------|--|--|---------------------|--------------------|
| <b>Total</b>           | <b>8806.4</b> |  |  |                     |                    |
| <b>% of Total Unit</b> | <b>16.6</b>   |  |  | <b>16.617604879</b> | <b>8.308802440</b> |

|                |            |       |         |    |             |             |
|----------------|------------|-------|---------|----|-------------|-------------|
| <b>12-8-29</b> | 1-12-8-29  | 234.5 | 2,160.0 | 90 | 0.442499585 | 0.221249792 |
|                | 2-12-8-29  | 421.7 | 2,160.0 | 90 | 0.795744456 | 0.397872228 |
|                | 3-12-8-29  | 867.2 | 2,160.0 | 90 | 1.636399318 | 0.818199659 |
|                | 4-12-8-29  | 585.0 | 2,160.0 | 90 | 1.103890222 | 0.551945111 |
|                | 5-12-8-29  | 516.6 | 2,160.0 | 90 | 0.974819981 | 0.487409990 |
|                | 6-12-8-29  | 425.2 | 2,160.0 | 90 | 0.802348927 | 0.401174464 |
|                | 7-12-8-29  | 227.8 | 2,160.0 | 90 | 0.429856740 | 0.214928370 |
|                | 8-12-8-29  | 294.3 | 2,160.0 | 90 | 0.555341696 | 0.277670848 |
|                | 9-12-8-29  | 157.4 | 2,160.0 | 90 | 0.297012515 | 0.148506257 |
|                | 10-12-8-29 | 433.3 | 2,160.0 | 90 | 0.817633561 | 0.408816781 |

|            |        |         |    |             |             |
|------------|--------|---------|----|-------------|-------------|
| 11-12-8-29 | 499.9  | 2,160.0 | 90 | 0.943307217 | 0.471653609 |
| 12-12-8-29 | 1114.4 | 2,160.0 | 90 | 2.102863699 | 1.051431849 |
| 13-12-8-29 | 886.6  | 2,160.0 | 90 | 1.673006959 | 0.836503480 |
| 14-12-8-29 | 592.0  | 2,160.0 | 90 | 1.117099165 | 0.558549583 |
| 15-12-8-29 | 474.2  | 2,160.0 | 90 | 0.894811527 | 0.447405764 |
| 16-12-8-29 | 376.5  | 2,160.0 | 90 | 0.710452425 | 0.355226213 |

**Total**  
**% of Total Unit**

**8106.6**  
**15.3**

**15.297087994**

**7.648543997**

**Total Production**    **52,994.4**    **m3**  
**100.0000**    **%**

Tract Factors  
100% Production  
(%)

Tract Factors  
50% Production  
(%)

**100.000000000**

**50.000000000**

# TUNDRA OIL & GAS LIMITED

## Appendix 8

Scenario 5 - 50% OOIP 50% 1st 2160 hours

### SINCLAIR UNIT NO. 3

#### TRACT FACTORS BASED ON OIL-In-Place & PRODUCTION LAST 90 PRODUCING DAYS

##### Determination of Working Interests in Expanded Unit

| Section                     | OOIP<br>(Mbbbl) | Tract Factor<br>100% OOIP | Tract Factor<br>50% OOIP | Well      | Tract Factor<br>100% Prod. | Tract Factor<br>50% Prod. | Total<br>Tract Factor |
|-----------------------------|-----------------|---------------------------|--------------------------|-----------|----------------------------|---------------------------|-----------------------|
| <b>SEC. 1-8-29</b>          | 312.6           | 1.018861457               | 0.509430728              | 1-1-8-29  | 1.109739897                | 0.554869949               | 1.064300677           |
|                             | 313.2           | 1.020799022               | 0.510399511              | 2-1-8-29  | 1.808681672                | 0.904340836               | 1.414740347           |
|                             | 365.2           | 1.190410540               | 0.595205270              | 3-1-8-29  | 1.612623221                | 0.806311610               | 1.401516880           |
|                             | 409.5           | 1.334833705               | 0.667416852              | 4-1-8-29  | 1.366559486                | 0.683279743               | 1.350696595           |
|                             | 443.9           | 1.446914427               | 0.723457213              | 5-1-8-29  | 1.109928596                | 0.554964298               | 1.278421511           |
|                             | 402.0           | 1.310390569               | 0.655195284              | 6-1-8-29  | 1.450530622                | 0.725265311               | 1.380460595           |
|                             | 338.8           | 1.104263390               | 0.552131695              | 7-1-8-29  | 1.424678834                | 0.712339417               | 1.264471112           |
|                             | 277.6           | 0.904843169               | 0.452421584              | 8-1-8-29  | 1.301835666                | 0.650917833               | 1.103339417           |
|                             | 286.4           | 0.933459524               | 0.466729762              | 9-1-8-29  | 1.235413553                | 0.617706777               | 1.084436538           |
|                             | 355.7           | 1.159409490               | 0.579704745              | 10-1-8-29 | 1.449775825                | 0.724887913               | 1.304592657           |
|                             | 405.9           | 1.323059267               | 0.661529634              | 11-1-8-29 | 1.300514771                | 0.650257386               | 1.311787019           |
|                             | 426.9           | 1.391470240               | 0.695735120              | 12-1-8-29 | 1.161443473                | 0.580721737               | 1.276456857           |
|                             | 406.1           | 1.323655441               | 0.661827721              | 13-1-8-29 | 1.370522168                | 0.685261084               | 1.347088805           |
|                             | 381.5           | 1.243619075               | 0.621809537              | 14-1-8-29 | 0.991425509                | 0.495712755               | 1.117522292           |
|                             | 313.5           | 1.021842327               | 0.510921163              | 15-1-8-29 | 1.250509488                | 0.625254744               | 1.136175907           |
|                             | 211.1           | 0.687984857               | 0.343992429              | 16-1-8-29 | 1.088416889                | 0.544208445               | 0.888200873           |
| <b>Total Section 1-8-29</b> | <b>5649.8</b>   | <b>18.415816498</b>       | <b>9.207908249</b>       |           | <b>21.032599671</b>        | <b>10.516299835</b>       | <b>19.724208084</b>   |
| <b>SEC. 2-8-29</b>          | 399.4           | 1.301895088               | 0.650947544              | 1-2-8-29  | 1.895483296                | 0.947741648               | 1.598689192           |
|                             | 361.3           | 1.177592798               | 0.588796399              | 2-2-8-29  | 1.383542412                | 0.691771206               | 1.280567605           |
|                             | 329.9           | 1.075348948               | 0.537674474              | 3-2-8-29  | 1.175784611                | 0.587892306               | 1.125566780           |
|                             | 349.2           | 1.138245311               | 0.569122655              | 4-2-8-29  | 1.071622662                | 0.535811331               | 1.104933986           |
|                             | 333.4           | 1.086825299               | 0.543412649              | 5-2-8-29  | 0.988595021                | 0.494297511               | 1.037710160           |
|                             | 340.3           | 1.109181826               | 0.554590913              | 6-2-8-29  | 1.522802409                | 0.761401205               | 1.315992117           |
|                             | 351.1           | 1.144356095               | 0.572178047              | 7-2-8-29  | 1.190503148                | 0.595251574               | 1.167429621           |
|                             | 399.6           | 1.302640306               | 0.651320153              | 8-2-8-29  | 1.199749407                | 0.599874704               | 1.251194857           |
|                             | 376.6           | 1.227671419               | 0.613835709              | 9-2-8-29  | 1.331650137                | 0.665825068               | 1.279660778           |
|                             | 312.9           | 1.019755718               | 0.509877859              | 10-2-8-29 | 1.254283471                | 0.627141736               | 1.137019595           |
|                             | 293.5           | 0.956710312               | 0.478355156              | 11-2-8-29 | 2.059085488                | 1.029542744               | 1.507897900           |
|                             | 279.8           | 0.912146301               | 0.456073151              | 12-2-8-29 | 1.085775101                | 0.542887550               | 0.998960701           |
|                             | 230.1           | 0.749986959               | 0.374993479              | 13-2-8-29 | 0.688752019                | 0.344376010               | 0.719369489           |
|                             | 255.1           | 0.831513760               | 0.415756880              | 14-2-8-29 | 1.062187703                | 0.531093851               | 0.946850732           |
|                             | 296.9           | 0.967888575               | 0.483944288              | 15-2-8-29 | 1.582242652                | 0.791121326               | 1.275065614           |
|                             | 361.8           | 1.179381320               | 0.589690660              | 16-2-8-29 | 1.823966306                | 0.911983153               | 1.501673813           |
| <b>Total Section 2-8-29</b> | <b>5271.0</b>   | <b>17.181140034</b>       | <b>8.590570017</b>       |           | <b>21.316025844</b>        | <b>10.658012922</b>       | <b>19.248582939</b>   |
| <b>SEC. 3-8-29</b>          | 304.9           | 0.993822146               | 0.496911073              | 1-3-8-29  | 0.297389913                | 0.148694956               | 0.645606030           |
|                             | 261.2           | 0.851485591               | 0.425742796              | 2-3-8-29  | 0.250215117                | 0.125107559               | 0.550850354           |
|                             | 341.4           | 1.112907913               | 0.556453957              | 3-3-8-29  | 1.535822653                | 0.767911326               | 1.324365283           |
|                             | 426.3           | 1.389681718               | 0.694840859              | 4-3-8-29  | 1.547899401                | 0.773949700               | 1.468790559           |
|                             | 435.1           | 1.418149029               | 0.709074514              | 5-3-8-29  | 2.204761258                | 1.102380629               | 1.811455143           |
|                             | 364.7           | 1.188771062               | 0.594385531              | 6-3-8-29  | 1.538464442                | 0.769232221               | 1.363617752           |
|                             | 301.6           | 0.983091013               | 0.491545507              | 7-3-8-29  | 0.267386743                | 0.133693371               | 0.625238878           |

|       |             |             |           |             |             |             |
|-------|-------------|-------------|-----------|-------------|-------------|-------------|
| 304.9 | 0.993971190 | 0.496985595 | 8-3-8-29  | 0.408911130 | 0.204455565 | 0.701441160 |
| 262.6 | 0.855956897 | 0.427978448 | 9-3-8-29  | 0.570437631 | 0.285218816 | 0.713197264 |
| 263.6 | 0.859086810 | 0.429543405 | 10-3-8-29 | 0.375322676 | 0.187661338 | 0.617204743 |
| 331.6 | 1.080863558 | 0.540431779 | 11-3-8-29 | 0.482315113 | 0.241157556 | 0.781589335 |
| 375.7 | 1.224690548 | 0.612345274 | 12-3-8-29 | 0.520243648 | 0.260121824 | 0.872467098 |
| 386.2 | 1.258821513 | 0.629410756 | 13-3-8-29 | 0.447783162 | 0.223891581 | 0.853302337 |
| 317.1 | 1.033765808 | 0.516882904 | 14-3-8-29 | 0.397023082 | 0.198511541 | 0.715394445 |
| 256.1 | 0.834792718 | 0.417396359 | 15-3-8-29 | 0.324373896 | 0.162186948 | 0.579583307 |
| 229.4 | 0.747751306 | 0.373875653 | 16-3-8-29 | 0.298144710 | 0.149072355 | 0.522948008 |

|                             |               |                     |                    |                     |                    |                     |
|-----------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Total Section 3-8-29</b> | <b>5162.5</b> | <b>16.827608820</b> | <b>8.413804410</b> | <b>11.466494573</b> | <b>5.733247287</b> | <b>14.147051697</b> |
|-----------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|

**SEC. 10-8-29**

|       |             |             |            |             |             |             |
|-------|-------------|-------------|------------|-------------|-------------|-------------|
| 192.3 | 0.626727973 | 0.313363987 | 1-10-8-29  | 0.341545522 | 0.170772761 | 0.484136748 |
| 234.4 | 0.764146092 | 0.382073046 | 2-10-8-29  | 0.338715034 | 0.169357517 | 0.551430563 |
| 311.3 | 1.014837282 | 0.507418641 | 3-10-8-29  | 1.476005012 | 0.738002506 | 1.245421147 |
| 402.2 | 1.310986743 | 0.655493371 | 4-10-8-29  | 1.595828993 | 0.797914497 | 1.453407868 |
| 401.2 | 1.307856829 | 0.653928414 | 5-10-8-29  | 2.091919146 | 1.045959573 | 1.699887987 |
| 303.2 | 0.988307536 | 0.494153768 | 6-10-8-29  | 1.344670380 | 0.672335190 | 1.166488958 |
| 242.9 | 0.791719142 | 0.395859571 | 7-10-8-29  | 0.222665036 | 0.111332518 | 0.507192089 |
| 276.0 | 0.899626646 | 0.449813323 | 8-10-8-29  | 0.457029422 | 0.228514711 | 0.678328034 |
| 323.8 | 1.055526161 | 0.527763080 | 9-10-8-29  | 0.295125523 | 0.147562761 | 0.675325842 |
| 299.0 | 0.974595533 | 0.487297767 | 10-10-8-29 | 0.262291865 | 0.131145932 | 0.618443699 |
| 305.0 | 0.994269277 | 0.497134638 | 11-10-8-29 | 1.325800462 | 0.662900231 | 1.160034869 |
| 406.2 | 1.323953528 | 0.661976764 | 12-10-8-29 | 1.156159896 | 0.578079948 | 1.240056712 |
| 394.4 | 1.285649345 | 0.642824673 | 13-10-8-29 | 1.400902737 | 0.700451368 | 1.343276041 |
| 335.3 | 1.092787039 | 0.546393520 | 14-10-8-29 | 1.390335583 | 0.695167791 | 1.241561311 |
| 309.1 | 1.007534150 | 0.503767075 | 15-10-8-29 | 0.320788612 | 0.160394306 | 0.664161381 |
| 292.5 | 0.953431354 | 0.476715677 | 16-10-8-29 | 0.250403816 | 0.125201908 | 0.601917585 |

|                              |               |                     |                    |                     |                    |                     |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Total Section 10-8-29</b> | <b>5028.9</b> | <b>16.391954631</b> | <b>8.195977316</b> | <b>14.270187039</b> | <b>7.135093519</b> | <b>15.331070835</b> |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|

**SEC. 11-8-29**

|       |             |             |            |             |             |             |
|-------|-------------|-------------|------------|-------------|-------------|-------------|
| 367.7 | 1.198458890 | 0.599229445 | 1-11-8-29  | 0.794612261 | 0.397306130 | 0.996535575 |
| 304.3 | 0.991735537 | 0.495867769 | 2-11-8-29  | 1.081812418 | 0.540906209 | 1.036773978 |
| 247.9 | 0.808113929 | 0.404056964 | 3-11-8-29  | 0.971800794 | 0.485900397 | 0.889957361 |
| 198.1 | 0.645656499 | 0.322828250 | 4-11-8-29  | 1.113513881 | 0.556756940 | 0.879585190 |
| 263.3 | 0.858192549 | 0.429096275 | 5-11-8-29  | 0.682336247 | 0.341168123 | 0.770264398 |
| 257.8 | 0.840307328 | 0.420153664 | 6-11-8-29  | 0.387588123 | 0.193794061 | 0.613947725 |
| 304.8 | 0.993375016 | 0.496687508 | 7-11-8-29  | 0.383436740 | 0.191718370 | 0.688405878 |
| 379.7 | 1.237657334 | 0.618828667 | 8-11-8-29  | 0.931796567 | 0.465898284 | 1.084726951 |
| 354.0 | 1.153745836 | 0.576872918 | 9-11-8-29  | 1.135214287 | 0.567607143 | 1.144480061 |
| 275.3 | 0.897241950 | 0.448620975 | 10-11-8-29 | 0.838956569 | 0.419478284 | 0.868099259 |
| 247.3 | 0.806027320 | 0.403013660 | 11-11-8-29 | 1.024825265 | 0.512412632 | 0.915426292 |
| 284.7 | 0.927944914 | 0.463972457 | 12-11-8-29 | 1.232394366 | 0.616197183 | 1.080169640 |
| 267.5 | 0.872053596 | 0.436026798 | 13-11-8-29 | 1.300514771 | 0.650257386 | 1.086284184 |
| 251.2 | 0.818845062 | 0.409422531 | 14-11-8-29 | 1.354482738 | 0.677241369 | 1.086663900 |
| 261.6 | 0.852826983 | 0.426413491 | 15-11-8-29 | 1.770941835 | 0.885470918 | 1.311884409 |
| 301.9 | 0.983985275 | 0.491992637 | 16-11-8-29 | 1.613378017 | 0.806689009 | 1.298681646 |

|                              |               |                     |                    |                     |                    |                     |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Total Section 11-8-29</b> | <b>4566.9</b> | <b>14.886168017</b> | <b>7.443084008</b> | <b>16.617604879</b> | <b>8.308802440</b> | <b>15.751886448</b> |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|

**SEC. 12-8-29**

|       |             |             |           |             |             |             |
|-------|-------------|-------------|-----------|-------------|-------------|-------------|
| 136.9 | 0.446385322 | 0.223192661 | 1-12-8-29 | 0.442499585 | 0.221249792 | 0.444442454 |
| 278.2 | 0.906929778 | 0.453464889 | 2-12-8-29 | 0.795744456 | 0.397872228 | 0.851337117 |
| 377.0 | 1.228863767 | 0.614431883 | 3-12-8-29 | 1.636399318 | 0.818199659 | 1.432631542 |
| 414.1 | 1.349738056 | 0.674869028 | 4-12-8-29 | 1.103890222 | 0.551945111 | 1.226814139 |
| 443.0 | 1.444082600 | 0.722041300 | 5-12-8-29 | 0.974819981 | 0.487409990 | 1.209451290 |
| 397.4 | 1.295337174 | 0.647668587 | 6-12-8-29 | 0.802348927 | 0.401174464 | 1.048843051 |
| 307.1 | 1.000976235 | 0.500488118 | 7-12-8-29 | 0.429856740 | 0.214928370 | 0.715416487 |

|       |             |             |            |             |             |             |
|-------|-------------|-------------|------------|-------------|-------------|-------------|
| 230.7 | 0.752073568 | 0.376036784 | 8-12-8-29  | 0.555341696 | 0.277670848 | 0.653707632 |
| 286.0 | 0.932118132 | 0.466059066 | 9-12-8-29  | 0.297012515 | 0.148506257 | 0.614565323 |
| 299.1 | 0.974893620 | 0.487446810 | 10-12-8-29 | 0.817633561 | 0.408816781 | 0.896263591 |
| 374.9 | 1.221858722 | 0.610929361 | 11-12-8-29 | 0.943307217 | 0.471653609 | 1.082582970 |
| 440.5 | 1.435736163 | 0.717868082 | 12-12-8-29 | 2.102863699 | 1.051431849 | 1.769299931 |
| 331.5 | 1.080565471 | 0.540282736 | 13-12-8-29 | 1.673006959 | 0.836503480 | 1.376786215 |
| 259.6 | 0.846120025 | 0.423060012 | 14-12-8-29 | 1.117099165 | 0.558549583 | 0.981609595 |
| 214.0 | 0.697523642 | 0.348761821 | 15-12-8-29 | 0.894811527 | 0.447405764 | 0.796167585 |
| 209.9 | 0.684109726 | 0.342054863 | 16-12-8-29 | 0.710452425 | 0.355226213 | 0.697281075 |

|                              |               |                     |                    |                     |                    |                     |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|
| <b>Total Section 12-8-29</b> | <b>4999.8</b> | <b>16.297312000</b> | <b>8.148656000</b> | <b>15.297087994</b> | <b>7.648543997</b> | <b>15.797199997</b> |
|------------------------------|---------------|---------------------|--------------------|---------------------|--------------------|---------------------|

|              |                |                      |                     |                      |                     |                      |
|--------------|----------------|----------------------|---------------------|----------------------|---------------------|----------------------|
| <b>Total</b> | <b>30678.9</b> | <b>100.000000000</b> | <b>50.000000000</b> | <b>100.000000000</b> | <b>50.000000000</b> | <b>100.000000000</b> |
|--------------|----------------|----------------------|---------------------|----------------------|---------------------|----------------------|

|                            |           |
|----------------------------|-----------|
| <b>Total Wells / LSD's</b> | <b>96</b> |
|----------------------------|-----------|

|                                    |                     |
|------------------------------------|---------------------|
| <b>Average OOIP per Well / LSD</b> | <b>319,572 bbls</b> |
|------------------------------------|---------------------|

|                             |                       |
|-----------------------------|-----------------------|
| <b>Ave OOIP per Section</b> | <b>5,113,155 bbls</b> |
|-----------------------------|-----------------------|