

PROPOSED EWART UNIT NO. 9

Application for Enhanced Oil Recovery Waterflood Project

Lodgepole Formation

Lodgepole AA (01 59 AA) & Lodgepole DD (01 59DD)

Daly Sinclair Field, Manitoba

June 5th, 2015

Tundra Oil and Gas Partnership

INTRODUCTION

The Daly Sinclair oilfield is located in Townships 8, 9, 10 and 11, of Ranges 27, 28 & 29 WPM (Figure 1). Within the Daly Sinclair oilfield, most Lodgepole reservoirs have been developed with vertical producing wells on Primary Production and 40 acre spacing. Horizontal producing wells have recently been drilled by Tundra Oil and Gas (Tundra) in the southern part of the Daly field.

Within the area, potential exists for incremental production and reserves from a Waterflood Enhanced Oil Recovery (EOR) project in the Lodgepole oil reservoir. The following represents an application by Tundra Oil and Gas Partnership (Tundra) to establish Ewart Unit No. 9 and implement a Secondary Waterflood EOR scheme within the Lodgepole formation as outlined on Figure 2.

The proposed project area falls within the existing designated Lodgepole AA and Lodgepole DD Pools of the Daly Sinclair Oilfield (Figure 3).

SUMMARY

1. The proposed Ewart Unit No. 9 consists of 8 horizontal Lodgepole wells, 7 are currently producing and 1 is standing. The area of the proposed Ewart Unit No. 9 comprises 16 Legal Sub Divisions (LSD), and is located north of Sinclair Unit No. 12 and east of Ewart Unit No. 4 (Figure 2).
2. Total Original Oil in Place (OOIP) in the project area is estimated to be $2,797 \text{ e}^3\text{m}^3$ (17,593 Mbbbl) for an average of $\sim 174.8 \text{ e}^3\text{m}^3$ (1,099.6 Mbbbl) OOIP per 40 acre LSD. OOIP values were estimated by contouring $\phi \cdot h$ values and applying volumetric methods. A porosity cutoff of 9% was used to differentiate between reservoir and non-reservoir.
3. Cumulative production to the end of February 2015 from the 7 producing Lodgepole wells within the proposed Ewart Unit No. 9 project area is $38.0 \text{ e}^3\text{m}^3$ (239.0 Mbbbl) of oil and $5.7 \text{ e}^3\text{m}^3$ (35.7 Mbbbl) of water, representing a 1.3% Recovery Factor (RF) of the OOIP.
4. Estimated Ultimate Recovery (EUR) of Primary producing oil reserves in the proposed Ewart Unit No. 9 project area is estimated to be $182 \text{ e}^3\text{m}^3$ (1,145 Mbbbl), with $145 \text{ e}^3\text{m}^3$ (914 Mbbbl) remaining as of the end of February 2015.
5. Ultimate oil recovery of the proposed Ewart Unit No. 9 OOIP, under the current Primary production method, is forecasted to be **6.5%**.
6. Figure 4 shows that the oil production rate in the Ewart Unit No. 9 area peaked during July 2014 at 63.3 m^3 (398.5 bbl) of oil per day (OPD). As of February 2015, production was 16.7 m^3 (105.2 bbl) OPD, 3.4 m^3 (21.4 bbl) water per day (WPD) and a 19.6% water cut (WCUT).
7. In July 2014, production averaged 9.0 m^3 (91.3 bbl) OPD per well in the proposed Ewart Unit No. 9. As of February 2015, average per well production has declined to 2.4 m^3 (15.0 bbl) OPD. Decline analysis of the Primary production data forecasts the oil rate to continue declining at an annual rate of approximately 14% in the project area.
8. Estimated Ultimate Recovery (EUR) of oil under Secondary Waterflood EOR for the proposed Ewart Unit No. 9 is estimated to be $239.8 \text{ e}^3\text{m}^3$ (1,508 Mbbbl). An incremental $57.8 \text{ e}^3\text{m}^3$ (363.4 Mbbbl) of oil is forecasted to be recovered under the proposed Unitization and Secondary EOR production, versus the existing Primary production method.
9. Total RF under Secondary WF in the proposed Ewart Unit No. 9 is estimated to be **8.6%**.
10. There are no nearby Lodgepole Dolomite Water Flood analogues. However, based on simulation, results of Primary production and successful waterfloods in the Permian basin of carbonate reservoirs with similar reservoir characteristics the proposed project area is thought to be suitable reservoir for successful EOR trial.
11. Horizontal producers with multi-stage hydraulic fractures, will be converted to future injectors (Figure 5) within the proposed Ewart Unit No. 9, to complete waterflood patterns with 200m Horizontal to Horizontal spacing.

DISCUSSION

The proposed Ewart Unit No. 9 project area is located within Township 8, Range 28 W1 of the Daly Sinclair oilfield (Figure 1). The proposed Ewart Unit No. 9 currently consists of 7 producing horizontal wells and 1 standing well within an area covering Section 29-8-28W1M (Figure 2). A project area well list complete with recent production statistics is attached as Table 3.

Within the proposed Unit, potential exists for incremental production and reserves from a Waterflood EOR project in the Lodgepole oil reservoir.

Geology

Stratigraphy:

The stratigraphy of the reservoir section in Ewart Unit 9 is shown on the Type Log attached as Appendix 1 and the cross-section (Appendix 2). The line of section is shown on each of the maps attached as appendices and runs SW-NE approximately through the mid-point of Unit 9. The stratigraphic nomenclature used for the Lodgepole is slightly different than standard and is based on facies associations rather than marker beds which are difficult to trace from well to well consistently. The Lodgepole section is subdivided into 4 facies units. In ascending order these are: the Basal Lodgepole Limestone, the Cromer Shale, the Lodgepole Limestone Facies and the Lodgepole Dolomite Facies. The Lodgepole Dolomite Facies is roughly equivalent to the Upper Daly Member and the Lodgepole Limestone Facies is more or less equivalent to the Middle Daly. All of the horizontal wells in Section 29 are drilled and completed in the Lodgepole dolomite and all of the Lodgepole production within Section 29 is from that unit. The Amaranth Red Beds of Triassic-Jurassic age unconformably overly the Lodgepole Formation and consists of red argillaceous siltstones and anhydrite which form an effective secondary seal for the Lodgepole reservoir. The structural cross-section (Appendix 2) shows the correlations of the various units in the Lodgepole section as well as the overlying Amaranth Red Beds and Amaranth Evaporite. Little structure is evident in the area of Ewart Unit 9 except for minor erosional relief on the Lodgepole unconformity surface and a gentle dip to the SW (Appendix 5).

Sedimentology:

The whole of the Lodgepole Formation in the Daly area consists of a single shallowing upward cycle which begins with the Upper Bakken transgressive cycle and continues to the Lodgepole Dolomite facies which represents the shallowest part of the cycle preserved. The Lodgepole Dolomite reservoir consists of a series of "brining upward" cycles consisting of 1-2 m sequences that begin with an erosional base with coarser grained carbonate grainstones which rapidly grade upward into fine-grained dolomitic mudstones that comprise the bulk of the cycle and the sequence is finally capped by an anhydrite layer of variable thickness. The coarser grained grainstones at the base of each cycle generally consist of fossil fragments which are often replaced by chert or are tightly cemented. The fine grained dolomitic mudstones bear rare fossils, generally fragmental, consisting of bryozoans, corals, brachiopods and crinoids. The intimate association of the anhydrites with the dolomitized part of the Upper Lodgepole suggests dolomitization by seepage reflux with the Mg rich brines provided by the deposition of the anhydrites which cap each cycle. Other diagenetic processes include mobilization and re-precipitation of silica in the form of chert which is present in the form of nodules of massive, dense grey chert or as white "chalky" chert which can have considerable micro-

porosity but is non-reservoir. The presence of the anhydrite beds within the Lodgepole Dolomite suggests deposition on the proximal part of a shallow carbonate ramp which was subject to desiccation between cycles.

Reservoir development within these cycles is due secondary processes, as most of the primary reservoir was likely cemented during deposition and early diagenesis. Reservoir in the Lodgepole dolomite was created by a variety of processes that likely operated while the Lodgepole was exhumed and eroded, but prior to deposition of the Amaranth Red Beds. These include leaching of fossils, grains and cements, conversion of anhydrite to gypsum and the leaching of the gypsum and leaching of anhydrite cements.

The Lodgepole Limestone Facies lies between the Cromer Shale and the Lodgepole Dolomite and also shows evidence of cyclic deposition but is generally more open marine in character, lacking the anhydrite beds that characterize the Dolomite Facies. The Limestone facies cycles generally contain more grainstones, especially at the base of each cycle and grade up into finer grained wackestones or mudstones. The reservoir quality can be better in the Lodgepole Limestone than in the Dolomite, but the grainstone beds, especially the crinoidal grainstones, are frequently tightly cemented by chert. In the area of Ewart Unit 9 the Lodgepole Limestone is generally below the O/W contact (See Structural Cross-Section Appendix 2) and not much of this facies is considered reservoir. The lack of anhydrite beds and the presence of significantly more grainstones suggest deposition on a more distal and open marine part of the carbonate ramp than the Lodgepole Dolomite facies.

The Cromer Shale is an argillaceous carbonate that appears as a higher GR unit on logs and lies between the Lodgepole Limestone and the Basal Limestone. Typically the Cromer Shale is considered non-reservoir.

The Basal Lodgepole Limestone lies between the Cromer Shale and the Upper Bakken Shale. Where cored the Basal Limestone consists of a nodular lime mudstone to wackestone with numerous fossil fragments including crinoids, corals and brachiopods. The Basal Limestone is thought to represent deeper water conditions following the Upper Bakken transgression. The Basal Lodgepole Limestone is also considered non-reservoir.

Isopach maps are provided for the total Lodgepole as well as for the Lodgepole dolomite facies as Appendices 3 and 4.

Structure:

Structure contour maps are provided for the top of the Lodgepole Dolomite reservoir and the top of the Lodgepole Limestone unit (Appendices 5 and 6). Structure on the top of the Lodgepole Dolomite reflects the erosional relief at the Unconformity surface. Structure within the Unit consists of a minor structural nose on the unconformity surface that plunges to the SSW with flanking lows on the NE and SE sides of the feature. Structure on the top of the Lodgepole Limestone show a more muted version of the structure on the Unconformity and mostly shows a SE dip on this surface. The similarity between the erosional surface and the internal structure suggests in part the internal structure may have influenced the erosion at the unconformity.

Reservoir Quality:

Porosity (Φ -h in por*m), permeability (k-h in md*m), SW and oil/water contact maps for the Lodgepole Dolomite Facies are provided (Appendices 7-10). These maps are generated using both core and log data. A permeability cutoff of 0.5 md was used on the core data to differentiate reservoir from non-reservoir. Where logs are used to determine net pay a 9% porosity cut-off was used to approximate the 0.5 md permeability cutoff used in the core data. A plot of the porosity-permeability relationship from cores adjacent to Ewart Unit 9 is included as Appendix 11. Considerable scatter in the core data make it impossible to determine a direct relationship between porosity and permeability. The 9 percent porosity cutoff is shown by the vertical red line in the graph. The horizontal red line defines the 0.5 md cutoff used in the core data. The intersection is in roughly the middle of the data cloud and it appears reasonable to use this cutoff for the log data. Only one abandoned vertical well (1950's vintage) is present within the Unit 9 area. This well was cored, but no analysis is indicated in the well records. The porosity-permeability graph is generated from cores taken in the area surrounding the Unit area. A list of the cored wells and the cores used in the graph is provided as Appendix 12. The map of SW is included as Appendix 9 and the O/W contact structure is Appendix 10.

Fluid Contacts:

The oil/water contact for the Lodgepole is determined from petro-physical log analysis and is shown on the cross-section (Appendix 2). The O/W contact generally correlates with the base of the Lodgepole Dolomite in this area and shows a gentle dip to the SW (Appendix 10). This apparent dip of the oil-water contact is very likely due to the vertical compartmentalization of the dolomite reservoir by the cycle capping anhydrite beds.

OOIP Estimates

OOIP was calculated by Tundra Geologist Barry Larson who holds a BSc. in Geology from the U of S and has 35 years of industry experience, 19 of which are in the Williston Basin. The dataset used to determine the OOIP values for Ewart Unit No. 9 consists of conventional core analysis of all available core in the Sinclair area.

Total volumetric OOIP for the Lodgepole, within the proposed Ewart Unit No. 9 area, has been estimated at 2,797 e^3m^3 . Table 4 provides gross volumetric OOIP estimates on an individual LSD basis. The OOIP values were estimated using Tundra internally created maps. Average OOIP by individual LSD was determined to be 174.8 e^3m^3 .

A complete listing of Lodgepole formation rock and fluid properties used to characterize the reservoir and calculate the OOIP estimates are provided in Table 5.

Historical Production

A historical group production history plot for the proposed Ewart Unit No. 9 is shown as Figure 4. Oil production commenced from the proposed Unit area in November 2011 and peaked during July 2014 at 63.3 m³ OPD. As of February 2015, production was 16.7 m³ OPD, 3.4 m³ water per day (WPD) and a 19.6% WCUT.

From peak production in July 2014 to date, oil production is declining at an annual rate of approximately 14% under the current Primary Production method.

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

UNITIZATION

Unitization and implementation of a Waterflood EOR project is forecasted to increase overall recovery of OOIP from the proposed project area by 32% (from a recovery factor of 6.5% to 8.6%). The basis for unitization is to develop the lands in an effective manner that will be conducive to waterflooding. Unitizing will enable the reservoir to have a higher recovery of oil by allowing the development of additional drilling and injector conversions over time. In addition, Unitizing will facilitate a pressure maintenance scheme, and overall will increase oil production over time.

Unit Name

Tundra proposes that the official name of the new Unit shall be Ewart Unit No. 9.

Unit Operator

Tundra Oil and Gas Partnership (Tundra) will be the Operator of record for Ewart Unit No. 9.

Unitized Zone

The unitized zone(s) to be waterflooded in Ewart Unit No. 9 will be the Lodgepole formation.

Unit Wells

The 8 wells to be included in the proposed Ewart Unit No. 9 are outlined in Table 3.

Unit Lands

The Ewart Unit No. 9 will consist of 16 LSDs as follows:

Section 29, of Township 8, Range 28, W1M

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

Tract Factors

The proposed Ewart Unit No. 9 will consist of 16 Tracts, based on the 40 acre Legal Sub Divisions (LSD) within Section 29-8-28 W1.

The Tract Factor contribution for each of the LSD's within the proposed Ewart Unit No. 9 was calculated as follows:

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

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

Working Interest Owners

Table 1 outlines the working interest % (WI) for each recommended Tract within the proposed Ewart Unit No. 9.

Tundra Oil and Gas Partnership will have a 100% working interest in the proposed Ewart Unit No. 9.

WATERFLOOD EOR DEVELOPMENT

The waterflood performance predictions for the proposed Ewart Unit No. 9 Lodgepole project are based on internal engineering assessments. Project area specific reservoir and geological parameters were used to guide the overall Secondary Waterflood recovery factor.

Based on the geological descriptions, primary production decline rate, and positive waterflood response in the analog Clearfork formation in the Permian Basin of West Texas, the Lodgepole formation in the project area is deemed to be a suitable trial for waterflood EOR operations.

Pre-Production of New Horizontal Injection Wells

Primary production from the horizontal producing wells in the proposed Ewart Unit No. 9 has declined significantly from peak rate indicating a need for secondary pressure support. Three (3) of the existing producing horizontal wells will be converted to horizontal injection wells upon approval as shown in Figure 5. This will result in 200m Horizontal to Horizontal waterflood patterns within Ewart Unit No. 9. Since the proposed horizontal injection wells have already been on production for a period of time there will not be a need for an additional pre-production period within this unit.

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

Reserves Recovery Profiles and Production Forecasts

The primary waterflood performance predictions for the proposed Sinclair Unit No. 18 are based on oil production decline curve analysis, and the secondary predictions are based on internal engineering analysis performed by the Tundra reservoir engineering group using numerical simulation in combination with analogue studies of successful waterfloods in the Clearfork formation.

Primary Production Forecast

Cumulative production to the end of February 2015 from the 7 producing Lodgepole wells within the proposed Ewart Unit No. 9 project area is 38.0 e³m³ of oil and 5.7 e³m³ of water for a recovery factor of 1.3% of the total OOIP.

Based on decline curve analysis of the wells currently on production, the estimated ultimate recovery (EUR) for the proposed Unit with no further development is estimated to be 182 e³m³, representing a recovery factor of 6.5% of the total OOIP.

Production plots of the forecasted oil rate v. time and oil rate v. cumulative oil produced are shown in Figures 6 & 7, respectively.

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

Tundra will plan an injection conversion schedule to allow for the most expeditious development of the waterflood within the proposed Ewart Unit No. 9, while maximizing reservoir knowledge.

Criteria for Conversion to Water Injection Well

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

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

- Measured reservoir pressures at start of and/or through primary production
- Fluid production rates and any changes in decline rate
- Any observed production interference effects with adjacent vertical and horizontal wells
- Pattern mass balance and/or oil recovery factor estimates
- Reservoir pressure relative to bubble point pressure

The above schedule allows for the proposed Ewart Unit No. 9 project to be developed equitably, efficiently, and moves to project to the best condition for the start of waterflood as quickly as possible. It also provides the Unit Operator flexibility to manage the reservoir conditions and response to help ensure maximum ultimate recovery of OOIP.

Secondary EOR Production Forecast

The proposed project oil production profile under Secondary Waterflood has been developed based on numerical simulation in combination with analogue studies of successful waterfloods in the Clearfork formation.

The proposed Ewart Unit No. 9 Secondary Waterflood oil production forecast over time is plotted on Figure 6. Total EOR recoverable volumes in the proposed Ewart Unit No. 9 project under Secondary WF has been estimated at $239.8 \text{ e}^3\text{m}^3$, resulting in an 8.6% overall RF of calculated Net OOIP.

An incremental $57.8 \text{ e}^3\text{m}^3$ of oil is forecast to be recovered under the proposed Unitization and Secondary EOR production scheme vs. the existing Primary Production method. This relates to an incremental 2.1% recovery factor as a result of secondary EOR implementation.

Estimated Fracture Pressure

The estimated fracture gradient for the Lodgepole is 21 kPa/m based on DFIT ISIP data in the area. The horizontal wells in section 29-008-28 are ~ 785mTVD. Therefore, the estimated frac pressure would be 16.5MPa.

WATERFLOOD OPERATING STRATEGY

Water Source

The injection water for the proposed Ewart Unit No. 9 will be supplied from the existing source and injection water system at the Sinclair 3-4-8-29 Battery. All existing injection water is obtained from the Lodgepole formation in the 102/16-32-007-29W1 licensed water source well. Lodgepole water from the 102/16-32 source well is pumped to the main Water Plant at 3-4-8-29W1, filtered, and pumped up to injection system pressure. A diagram of the Daly Sinclair water injection system and new pipeline connection to the proposed Ewart Unit No. 9 project area is shown as Figure 8.

Produced water is not currently used for any water injection in the Tundra-operated Daly Sinclair Units and there are no current plans to use produced water as a source supply for Ewart Unit No. 9.

Injection Wells

The water injection wells for the proposed Ewart Unit No. 9 have been drilled, are currently producing and plans are in progress to re-configure the wells for downhole injection after approval for waterflood has been received (Figure 9). The horizontal injection wells have been stimulated by multiple hydraulic fracture treatments to obtain suitable injection. Tundra has extensive experience with horizontal fracturing in the area, and all jobs are rigorously programmed and monitored during execution. This helps ensure optimum placement of each fracture stage to prevent, or minimize, the potential for out-of-zone fracture growth and thereby limit the potential for future out-of-zone injection.

The new water injection well will be placed on injection after the pre-production period 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 implemented 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. An operating procedure for monitoring water injection volumes and meter balancing will also be utilized to monitor the entire system measurement and integrity on a daily basis.

The proposed Ewart Unit No. 9 horizontal water injection well rate is estimated to average 10 – 25 m³ WPD, based on expected reservoir permeability and pressure.

Reservoir Pressure

There is no initial pressure measurement for Section 29-008-28. However, there was a pressure survey performed on 02/13-29-008-28W1/0 from December 20, 2013 to January 13, 2014 after 24 months of production. The results of the survey estimates that the reservoir pressure at that time was 5.5 MPa. The initial reservoir pressure is estimated to be significantly higher at approximately 8.5MPa. There is currently a pressure survey being taken on the 04/13-29-008-28W1/0 location. This well was drilled in February 2015, but never put on production. No other recent or representative initial pressure surveys are available for the proposed Ewart Unit No. 9 project area in the Lodgepole producing zone.

Reservoir Pressure Management during Waterflood

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 within the 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 reservoir pressure.

Waterflood Surveillance and Optimization

Ewart Unit No. 9 EOR response and waterflood surveillance will consist of the following:

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

The above surveillance methods will provide an ever increasing understanding of reservoir performance, and provide data to continually control and optimize the Ewart Unit No. 9 waterflood operation. Controlling the waterflood operation will significantly reduce or eliminate the potential for out-of-zone injection, undesired channeling or water breakthrough, or out-of-Unit migration. The monitoring and surveillance will also provide early indicators of any such issues so that waterflood operations may be altered to maximize ultimate secondary reserves recovery from the proposed Ewart Unit No. 9.

Economic Justification

Due to the initial high capital investment, Tundra does not expect the project to be economic in the short-term using current oil price decks. However, if technically successful, this project will enhance the oil recovery and help prove up the area for EOR developments in the Lodgepole reservoir.

WATER INJECTION FACILITIES

The Ewart Unit No. 9 waterflood operation will utilize the existing Tundra operated source well supply and water plant (WP) facilities located at 3-4-8-29 W1M Battery. Injection wells will be connected to the existing high pressure water pipeline system supplying other Tundra-operated Waterflood Units.

A complete description of all planned system design and operational practices to prevent corrosion related failures is shown on Figure 10.

NOTIFICATION OF MINERAL AND SURFACE RIGHTS OWNERS

Tundra will notify all mineral rights and surface rights owners of the proposed EOR project and formation of Ewart Unit No. 9. 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 Ewart Unit No. 9 Application.

Ewart Unit No. 9 Unitization, and execution of the formal Ewart Unit No. 9 Agreement by affected Mineral Owners, is expected during Q2 2015. Copies of same will be forwarded to the Petroleum Branch, when available, to complete the Ewart Unit No. 9 Application.

Should the Petroleum Branch have further questions or require more information, please contact Lindsey Snyder at 403.910.1665 or by email at lindsey.snyder@tundraoilandgas.com.

TUNDRA OIL & GAS PARTNERSHIP

Original Signed by Lindsey Snyder, June 5th, 2015, in Calgary, AB

Proposed Ewart Unit No. 9
Application for Enhanced Oil Recovery Waterflood Project

List of Figures

Figure 1	Daly Sinclair Field Map
Figure 2	Ewart Unit No. 9 Proposed Boundary
Figure 3	Lodgepole Pool Boundaries
Figure 4	Ewart Unit No. 9 Historical Production
Figure 5	Ewart Unit No. 9 Proposed Injectors
Figure 6	Ewart Unit No. 9 Production Forecast – Rate vs. Time
Figure 7	Ewart Unit No. 9 Production Forecast – Rate vs. Cumulative Oil
Figure 8	Ewart Unit No. 9 Injection Facilities Process Flow Diagram
Figure 9	Typical Injector Downhole Schematic
Figure 10	Corrosion Control

Proposed Ewart Unit No. 9
Application for Enhanced Oil Recovery Waterflood Project

List of Tables

Table 1	Land Information and Tract Participation
Table 2	Original Oil in Place and Recovery Factors
Table 3	Current Well List and Status
Table 4	Original Oil in Place
Table 5	Reservoir PVT Properties

Proposed Ewart Unit No. 9
Application for Enhanced Oil Recovery Waterflood Project

List of Appendices

Appendix 1	Ewart Unit No. 9 Type Log
Appendix 2	Stratigraphic Cross Section Map
Appendix 3	Lodgepole – Upper Bakken Shale Isopach
Appendix 4	Lodgepole Dolomite Isopach
Appendix 5	Top of Lodgepole Structure
Appendix 6	Top of Lodgepole Limestone Structure
Appendix 7	Lodgepole Dolomite phi-h Map
Appendix 8	Lodgepole Dolomite k-h Map
Appendix 9	Lodgepole Dolomite SW Map
Appendix 10	Lodgepole O/W Contact Structure Map
Appendix 11	Porosity-Perm Plot (From Core)
Appendix 12	List of Core used in Appendix 11