Proposed Kola Unit No. 4

Application for Enhanced Oil Recovery Waterflood Project

Middle Bakken

Daly, Manitoba

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Crescent Point Energy Corporation

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Introduction

The Daly Field, which is located in Township 11 and Range 29W1, first produced in 2008 from 00/12-09-011-29W1/0 targeting the Middle Bakken formation. In December 2008, Reliable Energy drilled the first well in the proposed unit at 00/05-10-011-29W1/0. The field was initially developed with vertical wells and now development has moved to horizontal wells. Crescent Point Energy Corporation (CPG) has since purchased Reliable Energy and is now the operator of the South Kirkella lands in the proposed unit.

CPG is proposing a unit be created in Sections 10 and the south half of 15, Township 11 and Range 29W1 and believes potential exists for incremental production and reserves from a waterflood EOR project in the Middle Bakken formation. Currently, there are 5 producing horizontal wells and 10 producing verticals in the proposed unit. CPG plans to drill 6 more horizontal producers. Vertical and horizontal injectors will both be tested and CPG will therefore convert 2 vertical wells and 4 horizontal wells to injection. CPG plans to produce the horizontal wells for a year before converting them to injectors. CPG hereby submits an application to establish Kola Unit No. 4 and implement an Enhanced Oil Recovery Waterflood Project within the Middle Bakken Formation (Figure 1).

The proposed Kola Unit No. 4 falls within the Daly Sinclair Bakken –Three Forks pool – 01-62Z (Figure 2).

Summary

1. The proposed Kola Unit No. 4 is to include 15 existing producing wells (5 horizontals and 10 verticals) within 24 legal subdivisions (LSD) that was completed in the Middle Bakken formation (Figure 1).

2. The original oil in place (OOIP) for the proposed Kola Unit No. 4 is 563.9 e^3m^3 (3,548.4 mbbl) for an average of 23.5 e^3m^3 (147.9 mbbl) per LSD.

3. Cumulative production in the proposed Kola Unit No. 4 up until the end of October 2014 is 54,238.9 m^3 (341.3 mbbl) of oil. This represents a 9.6% recovery factor of the total OOIP.

4. The expected ultimate oil recovery (EUR) of oil on primary production within the proposed Kola Unit No. 4 using decline analysis and a horizontal type well for the five remaining locations is 106.4 e^3m^3 (669.7 mbbl) with 52.2 e^3m^3 (328.3 mbbl) remaining as of October 2014. The expected recovery factor would be 18.9% of the OOIP.

5. In March 2011, production from the proposed Kola Unit No. 4 peaked at 56.8 m^3/d (357.3 bbl/d) or 3.8 m^3/d (23.8 bbl/d) per well with an 85% watercut (Figure 3).

6. Initial pressure of the Middle Bakken reservoir within the proposed Kola Unit No. 4 is 8.3 MPa.

7. The Kola Units No. 1 & 2, located in sections 20, 21, 28, 29, 32 and 33-10-29W1, were used as an analogy to predict the recovery factor under waterflood. With the implementation of a waterflood, an incremental reserves of 39.7 e^3m^3 (249.7 mbbl) for a total EUR of 146.1 e^3m^3 (919.0 mbbl) is expected. The incremental recovery factor is expected to be 7.0 % for a total recovery factor of 25.9%.

8. The development plan includes drilling 6 additional horizontal producing wells. 2 vertical wells and 4 of the future horizontal wells will be converted to injection for a total of 6 injectors (Figure 4). All wells in the proposed Kola Unit No. 4 have been completed with multi-stage hydraulic fractures.

Geology

<u>Stratigraphy</u>
The stratigraphy of the Bakken Formation in South Kirkella section 10-11-29W1 and the south half of section 15-11-29W1 are shown on the type log 6-10-11-29W1 in Appendix 1. The Bakken Formation in the 6-10-11-29W1 well consists of the Upper Bakken Shale and the Middle Bakken Sandstone. Underlying the Middle Bakken is the Torquay Formation with the contact between the two being an unconformable surface which CPG refers to as the Three Forks Unconformity. Overlying the Upper Bakken is the Basal Limestone of the Lodgepole Formation. The Middle Bakken Sandstone forms the reservoir for the South Kirkella pool. The cross-section in Appendix 2 shows the continuous reservoir across section 10 and south half of 15.

<u>Sedimentology</u>
The Middle Bakken over the proposed unit normally consists of a fine-grained sandstone to a siltstone. The upper portion of the Middle Bakken is often referred to as the "Brachiopod zone" and normally consists of an oxidized fine grained quartz siltstone. It often contains common thin walled Brachiopods and is usually quite bioturbated. This zone is indicative of a middle shoreface type deposit and does not normally form reservoir in the South Kirkella area. The lower portion of the Middle Bakken consists of fine-grained sandstone characterized by cross laminations; rip up clasts, and scouring. This zone is indicative of a higher energy environment likely representing the upper shoreface to beach facies. This zone is the main Middle Bakken producing reservoir. Permeability in this zone over the proposed unit ranges anywhere from 0.15 md in the 3-15-11-29W1 well (Appendix 3) to 17 md in the 6-10-11-29W1 well (Appendix 4). Porosity in this zone ranges from 14 to 18 percent.

<u>Structure</u>
The Middle Bakken Structure Map in Appendix 5 shows the dip of the beds from a high in LSD 13-10-11-29W1 of -289.5 m to a low of ~-315 m in LSD 1-10-11-29W1 and LSD 8-15-11-29. The Three Forks Unconformity Map in Appendix 6 also shows the dip of

the beds in the same orientation from a high of -305 m to -320 m. CPG proprietary 3 dimensional seismic confirms the structure dipping in the orientation mentioned above.

Reservoir

Porosity (phi-h), permeability (k-h), and net pay maps are provided in the Appendices 7, 8, and 9. These maps were generated using the open hole logs and core data. The net pay map in Appendix 7 shows a maximum net pay thickness of 3.3 m on the west half of the unit, the pay degrades to zero along the east border of the unit. The porosity (phi- h) map in Appendix 8 demonstrates higher average porosity and net pay thickness associated with the well in 3-15-11-29W1 (Appendix 3) versus the 6-10-11-29 well (Appendix 4). The permeability (k-h) map in Appendix 9 demonstrates the much higher permeability associated with the 3-15-11-29W1 well versus the 6-10-11-29W1 well. As well, the permeability map demonstrates that the higher permeability is trending on the east half of the proposed Unit.

Reservoir Properties and Technical Discussion

Original Oil in Place (OOIP)

The OOIP for the Middle Bakken within the proposed Kola Unit No. 4 based on volumetrics is estimated to be 563.9 e^3m^3 (3,548.4 mbbl) for an average of 23.5 e^3m^3 (147.9 mbbl) per LSD. OOIP values were calculated using a 9% porosity net pay cutoff, which can be found in Figure 10. The OOIP was calculated internally from mapping created by Dave Sandy and Grant Jackson, who are both Professional Geologists with a number of years of experience.

PVT analysis was obtained from 00/05-15-011-29W1/0 and relative permeability analysis was obtained from a core at 00/06-10-011-29W1/0. The formation rock and fluid properties for the Middle Bakken have been summarized in Appendix 10.

Historical Production

The first well that was drilled was the vertical 00/05-10-011-29W1/0 and was placed on production in December 2008. In 2009, development continued with the drilling of 6 vertical wells. In 2010, 3 vertical wells and 2 horizontal wells were drilled and in 2011, 3 more horizontal wells were drilled (Figure 3). Production peaked in March 2011 at 56.8 m^3/d (357.3 bbl/d) or 3.8 m^3/d (23.8 bbl/d) per well with an 85% watercut. In 2015, CPG plans to drill the last 6 horizontals.

Primary Recovery

Cumulative production in the proposed Kola Unit No. 4 up until the end of October 2014 is 54,238.9 m^3 (341.3 mbbl) of oil and 359,896 m^3 (2,264.8 mbbl) of water. This represents a 9.6% recovery factor of the total OOIP. Based on decline analysis and a 4.0 e^3m^3 (25.0 mbbl) type well for the future horizontal locations, the EUR on primary production is 106.4 e^3m^3 (669.7 mbbl) with 52.2 e^3m^3 (328.3 mbbl) remaining as of October 2014 (Figures 8 and 9). The expected recovery factor would be 18.9% of the total OOIP (Figure 10).

Secondary Recovery

The Kola Units No. 1 & 2, located in sections 20, 21, 28, 29, 32 and 33-10-29W1, were used as an analogy to predict the recovery factor under waterflood (Figures 5, 6 and 7). Based on 1,256.0 e^3m^3 (7,900.0 mbbl) OOIP, the total recovery factor with waterflood is 26.7%.

With the implementation of a waterflood in the proposed Kola Unit No. 4, the incremental reserves would be 39.7 e^3m^3 (249.7 mbbl) for a total EUR of 146.1 e^3m^3 (919.0 mbbl) (Figures 8 and 9). The incremental recovery factor is expected to be 7.0% for a total recovery factor of 25.9%, which matches the analog in Kola (Figure 10).

Unitization

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

Unit Name

CPG proposes that the official name of the new unit shall be Kola Unit No. 4.

Unit Operator

CPG will be the Operator for Kola Unit No. 4.

Unitized Zones

The unitized zone to be waterflooded in the Kola Unit No. 4 will be the Middle Bakken Formation.

Unit Wells

The 15 producing wells (5 horizontal and 10 vertical) and 6 horizontal locations in the proposed Kola Unit No. 4 are outlined in Appendix 11 with their current status. The projected timing of the new drills and injector conversions is also included.

Unit Lands

The Kola Unit No. 4 will consist of all 24 LSDs in sections 10 and south half of 15, Township 11, Range 29W1. The lands included in the 40 acre tracts are outlined in Appendix 12.

Tract Factors

The proposed Kola Unit No. 4 will consist of 24 tracts based on remaining OOIP using maps created internally by CPG per LSD, as of October 2014. The production from the horizontal wells was divided according to the existing production allocation agreement. The calculation of the tract factors are outlined in Appendix 13.

Working Interest Owners

Appendix 12 outlines the working interest for each recommended tract within the proposed Kola Unit No. 4. CPG will have a 97.936900481% WI with Dragon Energy Services as a partner with a 2.063099519% WI across all tracts.

Waterflood Development

The remaining 6 horizontal locations will be drilled and placed on production in 2015. CPG is planning on testing both vertical and horizontal injectors. There will be a total of 2 vertical wells and 4 horizontal wells converted to injection after being produced for one year (Figure 4). The 2 vertical wells, 00/15-10-011-29W1/0 and 00/02-15-011-29W1/0, will be converted in 2015 and the 4 horizontal wells, 02/01-10-011-29W1/0, 02/08-10-011-29W1/0, 02/05-15-011-29W1/0 and 02/06-15-011-29W1/0, will be converted in 2016. After full development and the implementation of the waterflood, there will be 7 horizontal producers, 8 vertical producers, 4 horizontal injectors and 2 vertical injectors.

Waterflood Operating Strategy

The proposed Kola Unit No. 4 will be tied into CPG's battery at 14-10-11-29W1. Injected water will be a combination of Middle Bakken produced water and Lower Lodgepole water from a future source well located at 02/15-10-011-29W1/0. Production is sent to the battery at 14-10-11-29W1, where the water is separated, filtered and distributed to the injection system. A simplified process flow diagram of the system from the 14-10-11-29W1 to the injectors is located in Figure 16.

Compatibility testing will occur once the source well at 02/15-10-011-29W1/0 has been drilled. All potential mixture ratios between the source water and produced water will be simulated and evaluated for scaling and precipitate producing tendencies.

The injector wells will be equipped with injection volume metering and rate/pressure control (Figures 13 and 14). Water injection volumes and metre balancing will be utilized to monitor the entire system measurement and integrity on a daily basis.

The corrosion control program outlining the planned system design and operational practices to prevent corrosion is located in Figure 15.

Reservoir Pressure

The initial pressure taken at 00/01-14-011-29W1/0 was measured to be 8.3 MPa. The saturation pressure from PVT analysis done on 00/05-15-011-29W1/0 is 7.3 MPa. With the saturation pressure only slightly lower than the initial pressure, CPG estimates that the reservoir pressure has dropped below the bubble point in the unit. The PVT analysis has also indicated a low solution GOR of 31 m^3/m^3. The combination of the potential drop below the bubble point with almost no gas in solution means that there is very little energy in the reservoir. CPG believes a waterflood is required to provide energy for the reservoir and increase oil recovery. Reservoir pressure will be increased back to original reservoir pressure by maintaining a monthly voidage replacement ratio (VRR) of 1.3-1.5 until a cumulative VRR of 1.0 is reached.

Waterflood Surveillance and Optimization

The response and waterflood surveillance of Kola Unit No. 4 will consist of the following:

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

Injector Conversions

The producing wells that will be converted to injection will be produced for a full year before conversion. The 2 vertical wells, 00/15-10-011-29W1/0 and 00/02-15-011-29W1/0, will be converted in 2015 and the 4 horizontal wells, 02/01-10-011-29W1/0, 02/08-10-011-29W1/0, 02/05-15-011-29W1/0 and 02/06-15-011-29W1/0, will be converted in 2016. The tubing and rods will be removed and replaced with internally coated tubing. A typical injector schematic for a horizontal injector is shown in Figure 11 and for a vertical injector is shown in Figure 12.

Injection Rates and Pressures

CPG plans to inject water into the Middle Bakken to re-pressurize and add energy to the reservoir. Initial instantaneous VRR targets will be between 1.3 and 1.5 until a cumulative VRR of 1.0 is reached. Initial forecasts suggest the injection requirements will be between 250 m^3/d (1,573 bbl/d) and 300 m^3/d (1,887 bbl/d) or 42 m^3/d (262 bbl/d) and 50 m^3/d (315 bbl/d) per injector.

Completion data from wells that have been stimulated by hydraulic fractures in the South Kirkella area indicates a fracture gradient of 20.0 kPa/m. This works out to a fracture pressure at the sandface 16,800 kPa or 8,400 kPa at the wellhead. The requested maximum wellhead injection pressure will be 90% of the fracture pressure which is 7,500 kPa.

Economic Limit

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

Notifications

CPG has notified all surface and mineral owners within the proposed unit and the surrounding 500 m of the unit boundary about the application for unitization and waterflood of sections 10 and south half of 15-11-29W1 by mail (Appendices 14-18). Copies of receipts and delivery notifications to all stakeholders are attached in Appendix 19.

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

Please contact Jeff Smith at 403-767-6946, by email at jsmith@crescentpointenergy.com or at Suite 2000, 585-8th Ave SW, Calgary, Alberta, T2P 1G1 for any other questions or clarification.

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Appendix 19 Delivery Notices for the Proposed Kola Unit No. 4 and within 500m