Routledge Unit #1

2014 Update and Waterflood Development

2014 Update

Figure 1 shows the production history of Routledge Unit #1.

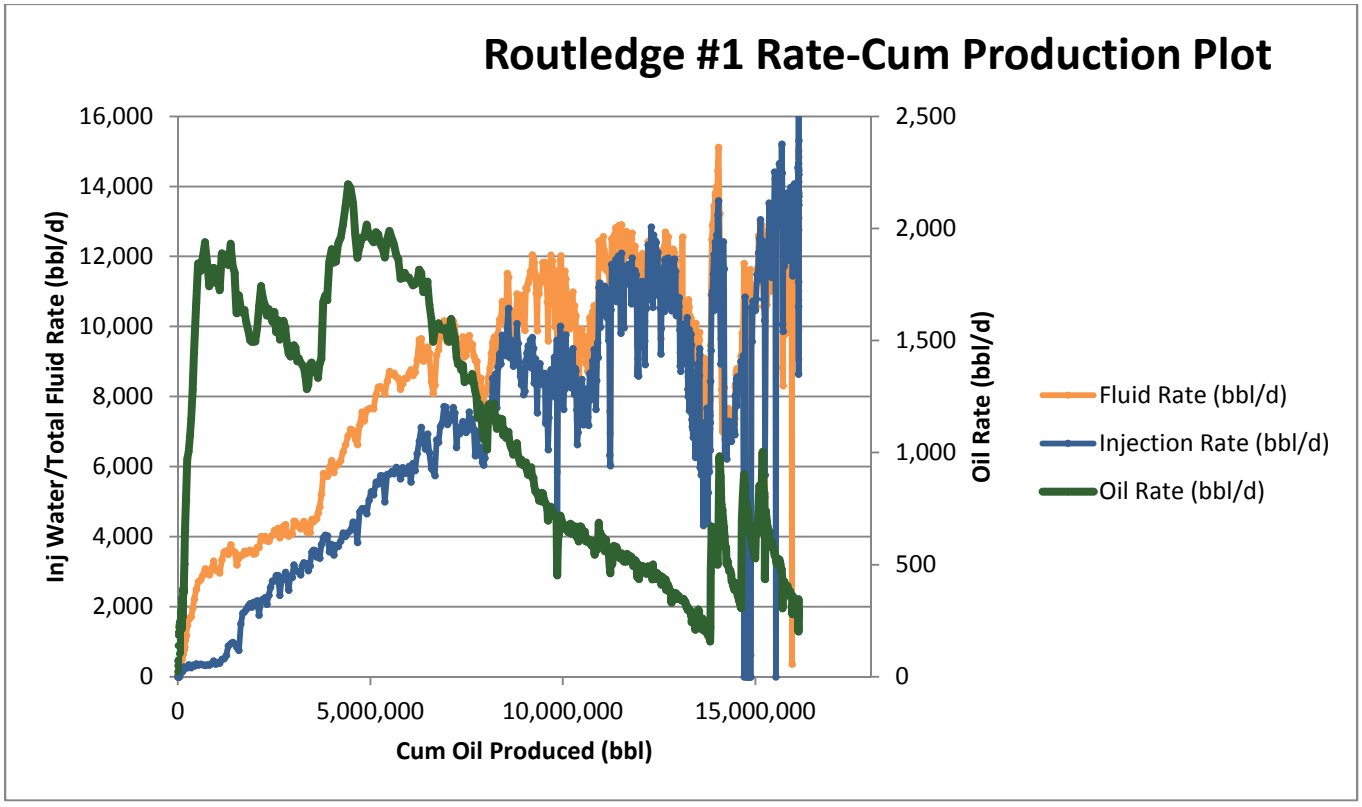

Figure 1: Routledge Unit #1 – Production History

In 2014 oil production from the Routledge Unit #1 was 45.3 m^3/d (285 bbl/d), totaling 16.5 10^3m^3 (103.9 mbbl). Annual production was down 5.4% from 2013 (17.5 10^3m^3; 109.9 mbbl), less than annual production decreases in previous years. Cumulative oil production from the Routledge Unit #1 was 2,580 10^3m^3 (16.2 mmbbl) at the end of 2014. In December 2014, there were 50 active oil producers and two disposal wells.

Water disposal in 2014 in the Routledge Unit #1 was 2,129 m^3/d (13,390 bbl/d), totaling 777 10^3m^3 (4,888 mbbl). Water was disposed into two wells (100/15-17-009-25W1/00 predominantly and 100/16-17-009-25W1/00).

In May 2014 there was a spill at the battery which interrupted production for the year.

In December 2014, Corex drilled Well 103/12-28-009-25W1/00 and Well 102/16-29-009-25W1/00 was drilled in January 2015. Both wells are in the Scallion formation. They did not come on production until January 2015 and so did not contribute to unit production in 2014.

Corex Resources has operated the Routledge Unit #1 since December 19, 2012.

2014 Reservoir Pressure Surveys

Unit	UWI	License	Test Type	Date of Pressure	Duration of SI (days)	Datum BHP (kPaa)
Routledge	100/13-17-009-25W1/00	1572	FL Shot	5/30/2014	7	6,248
Routledge	100/14-17-009-25W1/00	1623	FL Shot	5/30/2014	7	6,828
Routledge	100/06-20-009-25W1/00	1636	FL Shot	5/30/2014	7	6,652
Routledge	100/09-20-009-25W1/00	1705	FL Shot	5/30/2014	7	6,097
Routledge	100/15-20-009-25W1/00	6543	FL Shot	5/30/2014	7	6,821
Routledge	100/01-21-009-25W1/00	1559	FL Shot	5/29/2014	7	4,509
Routledge	102/01-21-009-25W1/00	5701	FL Shot	5/30/2014	7	4,060
Routledge	102/05-21-009-25W1/00	6469	FL Shot	5/30/2014	7	1,467
Routledge	102/09-21-009-25W1/00	5010	FL Shot	5/29/2014	7	3,352
Routledge	100/10-21-009-25W1/00	1688	FL Shot	5/29/2014	7	6,565
Routledge	102/11-21-009-25W1/00	5048	FL Shot	5/29/2014	7	4,876
Routledge	100/12-21-009-25W1/00	1687	FL Shot	5/29/2014	7	6,839
Routledge	100/14-21-009-25W1/00	1673	FL Shot	5/30/2014	7	6,840
Routledge	102/16-21-009-25W1/00	6432	FL Shot	5/30/2014	7	2,999
Routledge	100/03-22-009-25W1/00	1621	FL Shot	5/30/2014	7	3,320
Routledge	100/04-22-009-25W1/00	1622	FL Shot	5/30/2014	7	3,421
Routledge	102/04-22-009-25W1/00	5681	FL Shot	5/30/2014	7	2,893
Routledge	100/05-22-009-25W1/00	1569	FL Shot	5/30/2014	7	3,197
Routledge	100/06-22-009-25W1/00	1570	FL Shot	5/30/2014	7	1,057
Routledge	102/07-22-009-25W1/00	6445	FL Shot	5/30/2014	7	3,256
Routledge	100/11-22-009-25W1/00	1520	FL Shot	5/30/2014	7	2,238
Routledge	100/12-22-009-25W1/00	1515	FL Shot	5/30/2014	7	2,737
Routledge	100/14-22-009-25W1/00	1528	FL Shot	5/30/2014	7	3,060
Routledge	102/14-22-009-25W1/00	5103	FL Shot	5/30/2014	7	2,842
Routledge	102/03-27-009-25W1/00	5649	FL Shot	5/30/2014	7	3,029
Routledge	102/04-27-009-25W1/00	4999	FL Shot	5/31/2014	7	3,287
Routledge	100/01-28-009-25W1/00	1445	FL Shot	5/30/2014	7	5,057
Routledge	102/01-28-009-25W1/00	5097	FL Shot	5/31/2014	7	3,779
Routledge	100/02-28-009-25W1/00	1358	FL Shot	5/31/2014	7	4,085
Routledge	102/03-28-009-25W1/00	6258	FL Shot	5/31/2014	7	5,199
Routledge	100/03-28-009-25W1/00	1365	FL Shot	5/31/2014	7	4,719
Routledge	100/04-28-009-25W1/00	6292	FL Shot	5/31/2014	7	5,729
Routledge	100/09-28-009-25W1/00	1557	FL Shot	5/29/2014	7	3,439
Routledge	102/09-28-009-25W1/00	5004	FL Shot	5/31/2014	7	3,492
Routledge	102/12-28-009-25W1/00	5104	FL Shot	5/30/2014	7	3,189
Routledge	102/14-28-009-25W1/00	5772	FL Shot	5/31/2014	7	3,375
Routledge	100/14-28-009-25W1/00	888	FL Shot	5/31/2014	7	3,717
Routledge	100/15-28-009-25W1/00	985	FL Shot	5/31/2014	7	3,192
Routledge	102/16-28-009-25W1/00	6446	FL Shot	5/30/2014	7	2,910

Unit	UWI	License	Test Type	Date of Pressure	Duration of SI (days)	Datum BHP (kPaa)
Routledge	102/01-29-009-25W1/00	5773	FL Shot	5/31/2014	7	5,763
Routledge	102/09-29-009-25W1/00	6542	FL Shot	5/30/2014	7	6,869
Routledge	102/01-32-009-25W1/00	5774	FL Shot	5/31/2014	7	4,375
Routledge	102/06-32-009-25W1/00	5650	FL Shot	5/31/2014	7	4,207
Routledge	102/10-32-009-25W1/00	5049	FL Shot	5/31/2014	7	2,652
Routledge	102/11-32-009-25W1/00	6267	FL Shot	5/31/2014	7	2,035
Routledge	100/11-32-009-25W1/00	1938	FL Shot	5/31/2014	7	2,295
Routledge	102/15-32-009-25W1/00	5096	FL Shot	5/31/2014	7	2,169
Routledge	100/03-33-009-25W1/00	807	FL Shot	5/31/2014	7	3,039
Routledge	100/12-33-009-25W1/00	2091	FL Shot	5/31/2014	7	4,886
Routledge	102/13-33-009-25W1/00	6271	FL Shot	5/31/2014	7	2,606
Routledge	102/03-05-010-25W1/00	6561	FL Shot	5/29/2014	7	1,875
Routledge	102/03-05-010-25W1/00	6561	FL Shot	5/31/2014	7	1,902

A large amount of pressure data was obtained in 2014, taken while the battery was down due to a small spill. Note that the initial reservoir pressure was estimated at 6,700 kPa. The 2014 pressure data shows a wide range, from 1,057 kPa to 6,869 kPa, with an average of 3,842 kPa. This range of pressure is consistent with pressure data previously recorded. The overall low pressure of the unit relative to the initial reservoir pressure attests to the fact that water injection is needed for pressure support and to improve the recovery.

2014 Well Servicing

UWI	Licence	Unit	Operation	Date	Objective
100/07-28-009-25W1/00	001339	RU#1	Cathodic		
100/10-21-009-25W1/00	001688	RU#1	Inhibitor Squeeze	07-FEB-14	
100/10-21-009-25W1/00	001688	RU#1	Scale Removal		
100/13-17-009-25W1/00	001572	RU#1	Rod Repair	02-FEB-14	
100/14-28-009-25W1/00	000888	RU#1	Pump Repair	01-APR-14	
102/03-27-009-25W1/00	005649	RU#1	Pump Repair	20-MAR-14	
102/03-28-009-25W1/00	006258	RU#1	Pump Repair	03-FEB-14	
102/06-32-009-25W1/00	005650	RU#1	Pump Repair	20-DEC-14	
102/06-32-009-25W1/00	005650	RU#1	Pump Repair	02-APR-14	
102/15-32-009-25W1/00	005096	RU#1	Pump Repair	13-JUL-14	
102/16-29-009-25W1/00	10226	RU#1	Construction		
103/12-28-009-25W1/00	10227	RU#1	Construction		
103/12-28-009-25W1/00	10227	RU#1	Drilling - original	20-DEC-14	

Waterflood Study

In 2013, a waterflood study was initiated. This study focused on a sub-area of the Routledge Unit #1 (see Figure 2).

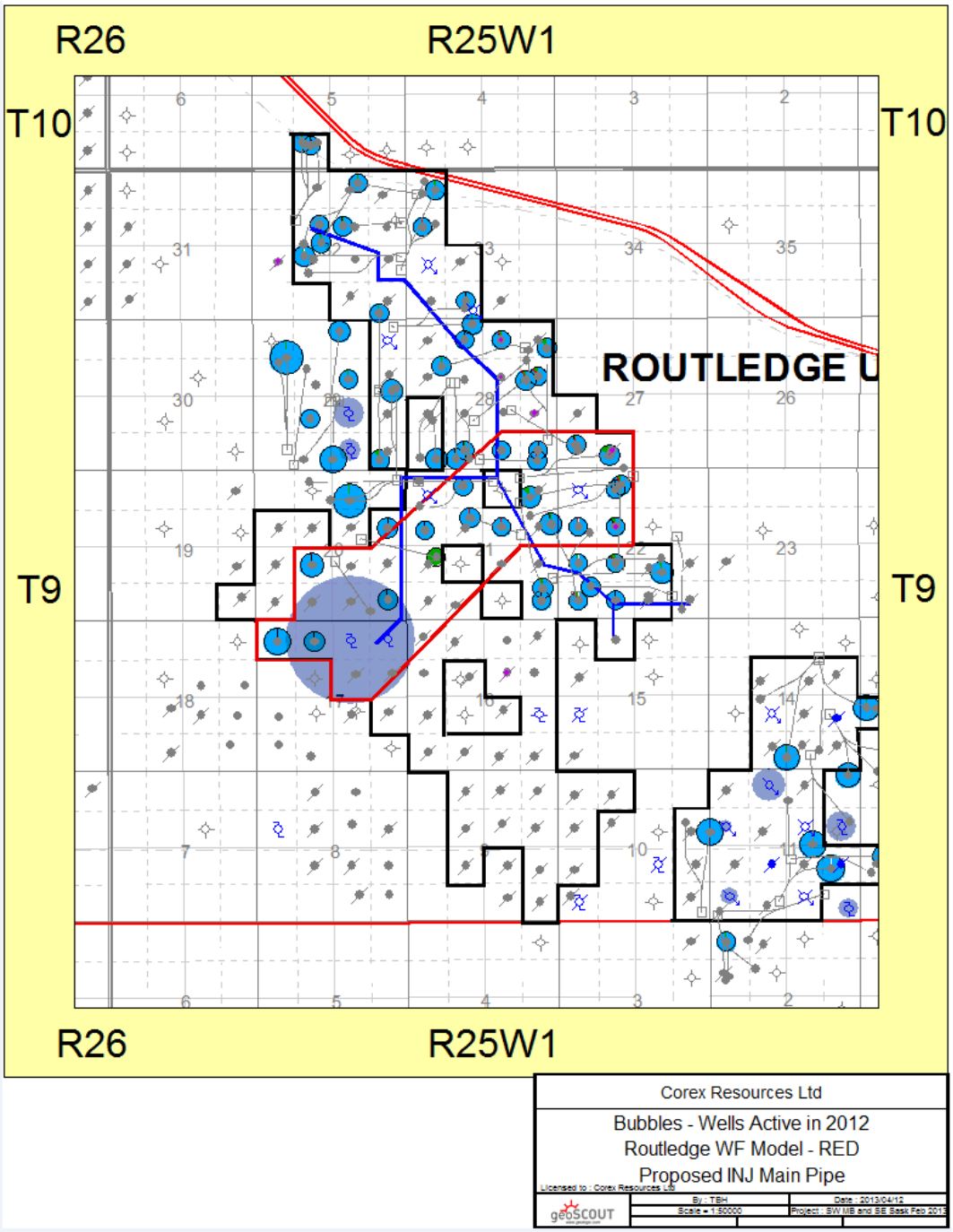

Figure 2: Routledge Unit #1 – Study Area

As part of this study, a geological model was built using all the available data and information, including the extensive core data. The geological model was calibrated against the historical performance of the Unit. During this process, the various rock and fluid properties were adjusted, including permeability, relative permeability, capillary pressure, oil-water contacts, etc. The long production history and the multiple producing zones rendered the calibration process a complex and difficult one, and the amount of time required for history matching exceeded the amount originally anticipated. An excellent match has been obtained.

The calibrated model was used to assess the recovery potential of several infill locations, and the upside of implementing a waterflood in the Scallion formation. Economics for the various development scenarios and their recovery potentials were evaluated and all modelled scenarios showed promise.

In addition to model results, analog field results also lend support to waterflooding the Routledge Unit #1. The NVSU #1, VRU #1, 2, 3 and E. Routledge #1 Units have all been under long term pattern waterflood. The various units were operated under primary production for two to 17 years, then waterfloods were implemented. Increases to recovery were 1.5 to 4 times primary recovery.

Waterflood Development

Corex plans to convert two horizontal wells into injectors in the first quarter of 2015, namely 102/04-27-009-25W1/00 and 102/11-21-009-25W1/00. Water injection is expected to start in April or May. Response will be closely monitored and an appropriate follow up plan will be brought forward in the fall of 2015.

A full field development plan for waterflooding the Scallion formation in the Routledge Unit #1 is being considered. The full field plan will include 20 to 25 infill horizontal wells, 15 to 20 injector conversions, and consist of 3 to 4 phases of developments. With Routledge Unit #1 being winter-only access, the full field development plan will likely be completely implemented by the end of 2017.