

Routledge Unit #1
2015 Update and Waterflood Development

2015 Update

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

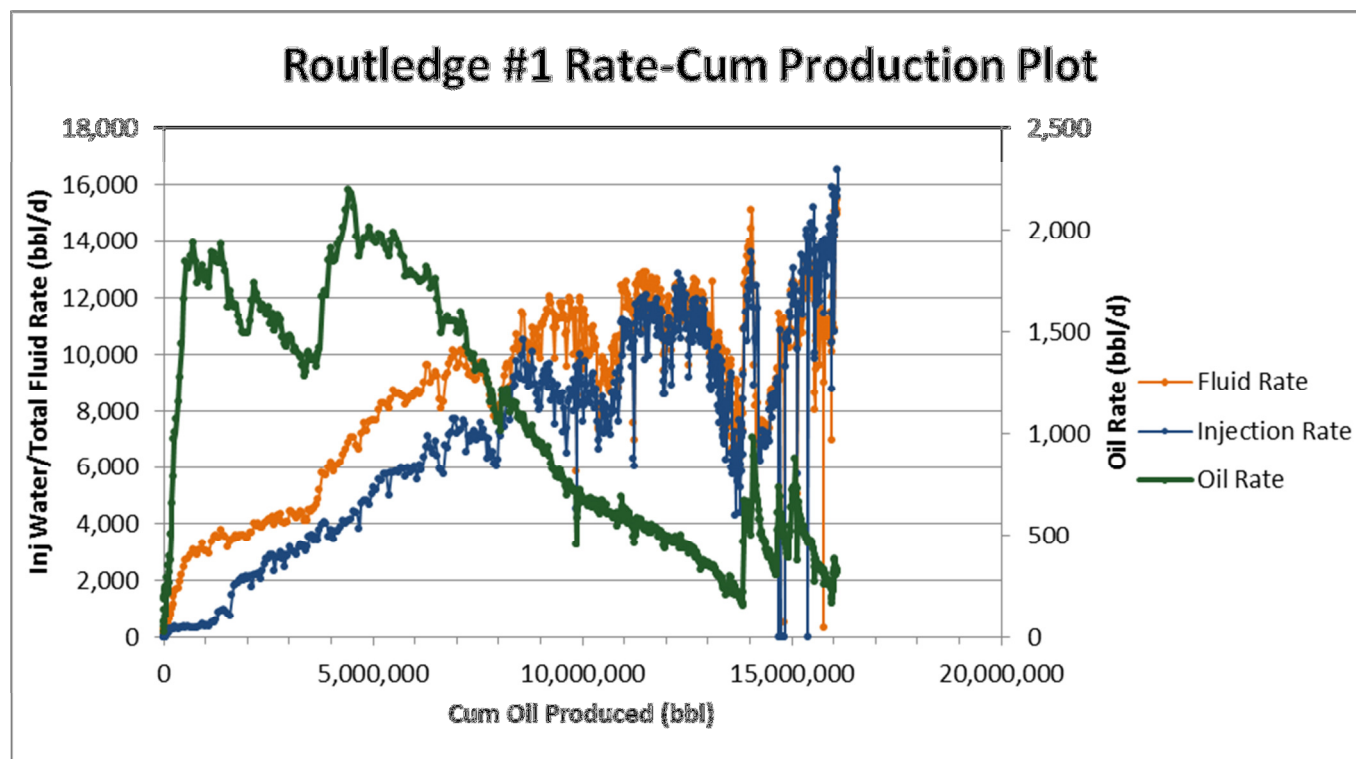


Figure 1: Routledge Unit #1 – Production History

In 2015 oil production from the Routledge Unit #1 was $44.9 \text{ m}^3/\text{d}$ (282 bbl/d), totaling $16.4 \times 10^3 \text{ m}^3$ (103.1 mbbbl). Annual production was up 15% from 2014 ($14.2 \times 10^3 \text{ m}^3$; 89.5 mbbbl). Cumulative oil production from the Routledge Unit #1 was $2,593 \times 10^3 \text{ m}^3$ (16.3 mmbbl) at the end of 2015. In December 2015, there were 49 active oil producers, two injection wells and two disposal wells.

In April 2015, two Scallion horizontal wells were converted to injection (102/11-21-009-25W1/00 and 102/04-27-009-25W1/00). The wells injected a total volume of $63.8 \times 10^3 \text{ m}^3$ (401.1 mbbbl) of water, at an average per annum rate of $174.9 \text{ m}^3/\text{d}$ (1,099 bbl/d) of water, totaling.

Water disposal in 2015 in the Routledge Unit #1 was $2,145 \text{ m}^3/\text{d}$ (13,490 bbl/d), totaling $783 \times 10^3 \text{ m}^3$ (4,925 mbbbl). Water was disposed into two wells (100/15-17-009-

25W1/00 predominantly and 100/16-17-009-25W1/00). Please note that data extracted from geoSCOUT incorrectly showed that water injection and disposal for May 2015 was zero. The injection volumes reported above were corrected to include the volumes injected in May.

In February 2015, 102/02-32-009-25W1/00 horizontal Scallion well was drilled in the unit. During April 2015, step rate tests were conducted on the two converted injectors to determine the fracture gradient and suitable injection pressures.

2015 Reservoir Pressure Surveys

Unit	UWI	License	Test Type	Date of Pressure	Duration of SI (days)	Datum BHP (kPaa)
Routledge	103/12-28-009-25W1/00	10227	BH BU	1/7/2015	19	4,695
Routledge	102/16-29-009-25W1/00	10226	BH BU	1/12/2015	1	4,843
Routledge	102/02-32-009-25W1/00	10316	BH BU	2/20/2015	2	4,429

Pressure measurements were taken in 2015 from three newly drilled Scallion wells prior to production. Note that the initial reservoir pressure was estimated at 6,700 kPa. The 2015 pressure data shows an average of 4,600 kPa. Pressure is lower than the initial reservoir pressure and higher than the pressure data recorded in 2014 (ranging between 1,057 kPa to 6,869 kPa, with an average of 3,842 kPa). Note that the 2015 pressures are all within a relatively small area, and likely indicate that this area is not as depleted as other areas in the unit. Overall, the low pressures of the unit relative to the initial reservoir pressure suggest that additional water injection is needed for pressure support and to improve recovery.

2015 Well Servicing

UWI	Licence	Unit	Operation	Date	Objective
100/10-21-009-25W1/00	001688	RU#1	Inhibitor Squeeze	24-SEP-15	
100/13-17-009-25W1/00	001572	RU#1	Pump Repair	07-MAR-15	
100/13-22-009-25W1/00	001506	RU#1	In Line Inspection	24-JUL-15	
102/02-32-009-25W1/00	10316	RU#1	Equip & Tie-In	12-FEB-15	
102/02-32-009-25W1/00	10316	RU#1	Initial Completion	21-FEB-15	SCALLION COMPLETION
102/02-32-009-25W1/00	10316	RU#1	Construction	04-FEB-15	
102/02-32-009-25W1/00	10316	RU#1	Drilling - original	13-FEB-15	
102/03-05-010-25W1/00	6561	RU#1	Pump Repair	17-JUN-15	
102/04-27-009-25W1/00	004999	RU#1	Injection Conversion	04-MAR-15	
102/09-29-009-25W1/00	6542	RU#1	Pump Repair	20-AUG-15	
102/09-29-009-25W1/00	6542	RU#1	Rod Repair	09-MAR-15	
102/11-21-009-25W1/00	005048	RU#1	Injection Conversion	17-FEB-15	
102/12-28-009-25W1/00	005104	RU#1	Pump Repair	11-MAR-15	
102/16-29-009-25W1/00	10226	RU#1	Equip & Tie-In	16-JAN-15	
102/16-29-009-25W1/00	10226	RU#1	Initial Completion	12-JAN-15	SCALLION COMPLETION
102/16-29-009-25W1/00	10226	RU#1	Drilling - original	05-JAN-15	
103/12-28-009-25W1/00	10227	RU#1	Equip & Tie-In	13-JAN-15	
103/12-28-009-25W1/00	10227	RU#1	Initial Completion	07-JAN-15	SCALLION COMPLETION
SATELLITE INSTALLATION	WF15-VR-02	RU#1	Satellite	09-MAR-15	
SATELLITE INSTALLATION	WF15-VR-03	RU#1	Satellite	09-MAR-15	
SATELLITE INSTALLATION	F15-VIR-04	RU#1	Satellite	10-FEB-15	
WATERFLOOD - PHASE 1	WF15-VR-01	RU#1	Waterflood	14-FEB-15	

Waterflood Performance

Corex has converted two horizontal producers into injectors in the first quarter of 2015, namely 102/04-27-009-25W1/00 and 102/11-21-009-25W1/00. Water injection started in April 2015. Response has been closely monitored through well testing. Figure 2 shows the production of 20 wells around the converted injectors for 2015. This figure shows increases in both oil production rate (from about 60 b/d prior to starting injection to about 65 b/d at the end of 2015) and liquid production rate (from about 2,640 b/d to 2,920 b/d).

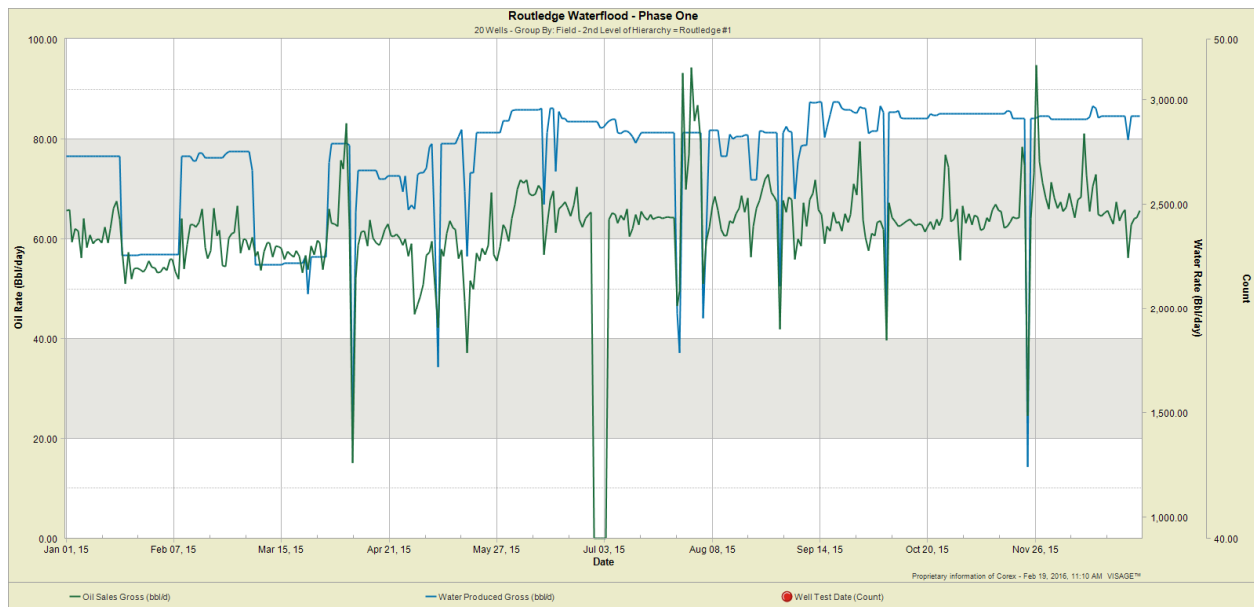


Figure 2: Routledge Unit #1 – Oil and Liquid Rate for 20 Wells around Converted Injectors

Figure 3 shows the streamlines between the two converted injectors and their neighboring producers. These streamlines show which producers are supported by the two injectors.

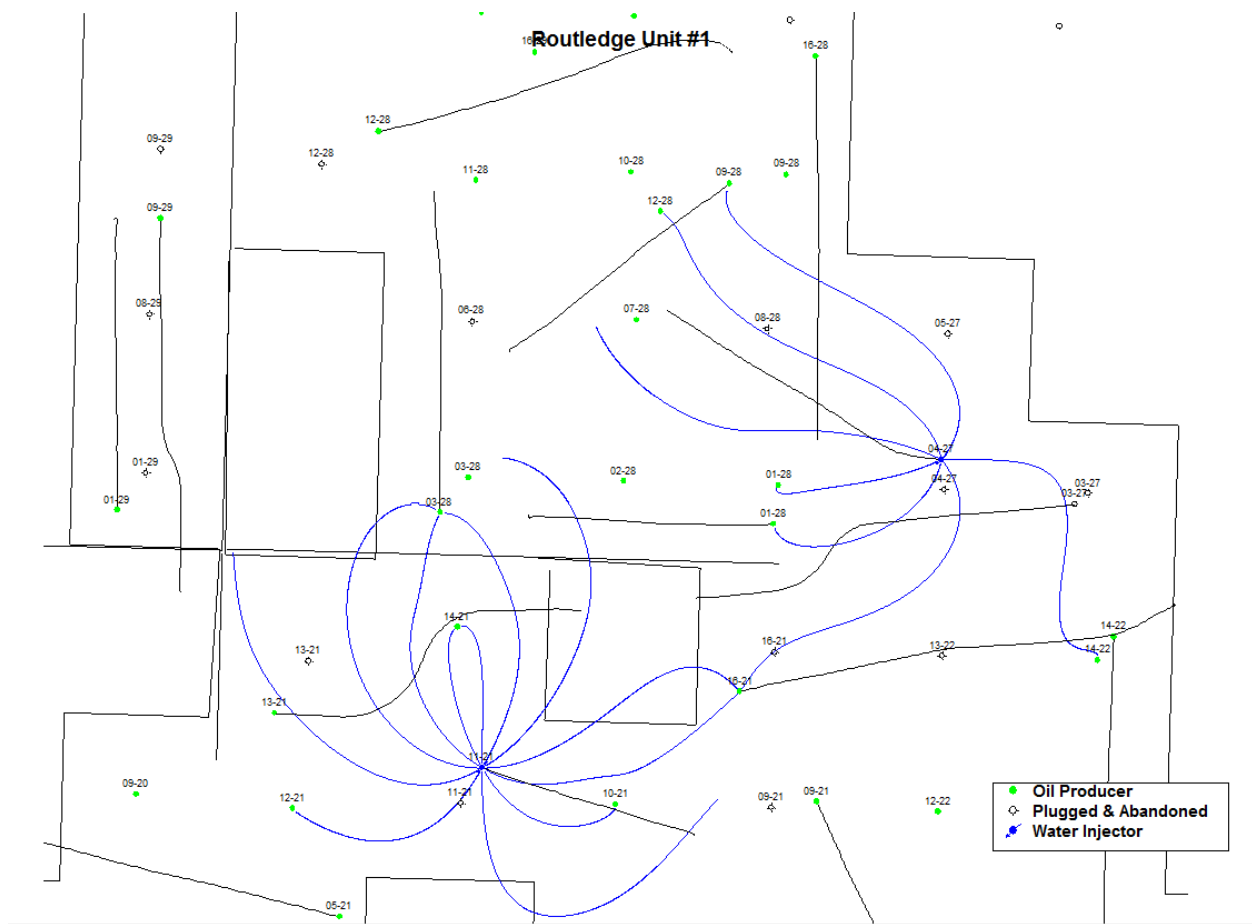


Figure 3: Routledge Unit #1 – Streamlines around Converted Injectors

Corex will continue to monitor the waterflood performance.

Waterflood Development

A full field development plan for waterflooding the Scallion formation in the Routledge Unit #1 is being considered. The full field plan will include nine new horizontal producers, seven new horizontal injectors and seven injector conversions, and consist of three phases of developments. With Routledge Unit #1 being winter-only access, the full field development plan will likely be completely implemented by 2020.