

February, 2013

Manitoba Innovation, Energy and Mines  
Petroleum Branch  
Box 1359 – 227 King Street West  
Virden, MB R0M 2C0

Attention: **Mrs. J. Abel**  
**Chief Petroleum Engineer**

Dear Jennifer,

**RE: Waskada Unit No.6**  
**Progress Report January 1, 2012 to December 31, 2012**

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Please find attached the referenced document outlining the production performance of the Waskada Unit No.6 EOR operation for the aforementioned period.

Should you have any questions, please contact me at (204) 934-5829.

Yours truly,

**RED BEDS RESOURCES LTD.**

A handwritten signature in black ink, appearing to read 'DVG', is positioned above the printed name of the sender.

Darren Vande Graaf, P.Eng.  
Operations Manager



# **2012 Enhanced Oil Recovery Report**

## **Waskada Unit 6**

**February, 2013**

**Darren Vande Graaf, P.Eng  
Operations Manager  
Red Beds Resources Ltd.**

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Attention: **Mrs. J. Abel**  
**Chief Petroleum Engineer**

**RE: Waskada Unit No.6**

Red Beds Resources Ltd, as the operator of the Waskada Unit 6 Enhanced Oil Recovery (EOR) project hereby submits the 2012 EOR report as per section 73 of the Drilling and Production Regulations.

a) Monthly oil and water production rates, injection rate, GOR and WOR

MONTH	AVERAGE OIL PRODUCTION m <sup>3</sup> /day	AVERAGE FLUID INJECTION RATE m <sup>3</sup> /day	AVERAGE WATER PRODUCTION m <sup>3</sup> /day	GOR m <sup>3</sup> /m <sup>3</sup>	WOR m <sup>3</sup> /m <sup>3</sup>
JAN.	18.5	183.1	128.1	44	6.9
FEB.	66.3	302.7	212.1	44	3.2
MAR.	63.1	321.6	257.6	44	4.1
APRIL	57.5	339.1	234.7	44	4.1
MAY	51.5	304.4	230.4	44	4.5
JUNE	49.9	341.0	258.3	44	5.2
JULY	34.7	351.8	216.4	44	6.2
AUG.	36.0	365.6	235.9	44	6.5
SEPT.	34.5	319.8	211.0	44	6.1
OCT.	29.9	251.8	168.8	44	5.7
NOV.	35.0	333.0	230.9	44	6.6
DEC.	87.2	340.5	287.9	44	3.3

b) Cumulative 2012 volume of oil, gas and water produced and fluid injected

<b>2012 PRODUCTION</b>	
Produced Oil	17,178 m <sup>3</sup>
Produced Gas	748,501 m <sup>3</sup>
Produced Water	81,456 m <sup>3</sup>
Fluid Injected	114,448 m <sup>3</sup>
<b>CUMMULATIVE PRODUCTION</b>	
Produced Oil	268,736 m <sup>3</sup>
Produced Water	1,914,917 m <sup>3</sup>

c) Monthly wellhead injection pressure for each injection well

MONTHLY INJECTION VOLUMES AND PRESSURES										
	100/13-06-01-25		102/13-07-01-25		100/15-07-01-25		100/15-12-01-26		Waskada Unit 6	
	Inj Water (m <sup>3</sup> )	Avg Inj P (kPa)	Inj Water (m <sup>3</sup> )	Avg Inj P (kPa)	Inj Water (m <sup>3</sup> )	Avg Inj P (kPa)	Inj Water (m <sup>3</sup> )	Avg Inj P (kPa)	Total Inj Water (m <sup>3</sup> )	Avg Inj P (kPa)
JAN	1170	1274	3448	1611	0	1268	1059	1413	5678	1391
FEB	1819	2380	4501	2279	828	2902	1629	2309	8778	2467
MAR	2113	3211	4952	1674	776	3390	2128	2194	9969	2617
APR	2255	2262	5141	2927	727	3532	2049	2717	10172	2859
MAY	2134	2542	5012	3326	296	3507	1994	3097	9435	3118
JUNE	2202	2600	5183	3300	1	3500	2845	3200	10231	3150
JULY	2235	3865	5675	3571	1	3500	2994	3381	10904	3579
AUG	1941	4000	6179	3600	0	3500	3214	3400	11334	3625
SEPT	1521	2493	4866	3747	0	3500	3206	3533	9593	3318
OCT	2105	1600	3493	4000	0	3500	2210	3600	7807	3175
NOV	1955	1600	5760	4000	0	3500	2275	3600	9990	3175
DEC	2110	1600	5734	4000	0	3500	2712	3600	10556	3175
TOTAL	23559	-	59945	-	2629	-	28315	-	114448	2971
AVG INJ P	-	2452	-	3170	-	3258	-	3004	-	-

2012 WATER INJECTION SUMMARY												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
TOTAL(m3)	5678	8777	9969	10172	9435	10231	10904	11334	9593	7807	9990	10557
DAILY(m3/day)	183	303	322	328	304	341	352	366	320	252	333	341
2012 AVG. ANNUAL DAILY INJECTION = 312 m3/day												
CUMULATIVE INJECTION TO Dec 31, 2011 = 2,915,113 m3												
TOTAL 2012 ANNUAL INJECTION = 114,448 m3												
CUMULATIVE INJECTION TO DEC 31, 2012 = 3,029,561 m3												

d) Summary of the result of any survey of reservoir pressure conducted in 2012. N/A

e) Date and type of any well servicing.

**100.13-06-001-25**

November 08, 2012; Solvent/15% HCL acid squeeze to the top of perforations. Achieved injectivity rate and pressure of 90 l/min at 3.2 MPa.

**102.13-07-001-25**

November 08, 2012; Solvent/15%HCL acid squeeze to the top of perforations. Achieved injectivity rate and pressure of 150 l/min at 1.0 MPa. Fifteen minute monitoring of the disposal rate was 150 m3 /d @ 413 kPa

**100.15-12-001-26**

November 22, 2012; Solvent/15%HCL acid squeeze to the top of perforations. Achieved injectivity rate and pressure of 115 l/min at 3.2 MPa. Ten minute monitoring of the disposal rate was 160 m3 /day @ 2620 kPa.

**100.15-01-001-25**

November 22, 2012; Unsuccessful solvent/acid squeeze treatment. Well tubing pressured up to 10.3 MPa and attempts to flow back the restriction were also unsuccessful. Well workover is planned for January 2013.

f) Calculations of voidage replacement ratio on a monthly and cumulative basis

<b>2012 VOIDAGE CALCULATIONS</b>							
<b>OIL FORMATION VOLUME FACTOR = 1.17 Rm3</b>							
MONTH	OIL PRODUCTION	WATER PRODUCTION	OIL VOIDAGE	TOTAL VOIDAGE	TOTAL INJECTION	NET VOIDAGE	VOIDAGE REPLACEMENT RATIO
	m3	m3	Rm3	Rm3	Rm3	Rm3	VRR (Rm3/m3)
JAN.	573	3970	670	4640	5678	-1037	1.22
FEB.	1921	6152	2248	8400	8778	-377	1.04
MAR.	1958	7985	2290	10275	9969	306	0.97
APRIL	1725	7041	2018	9059	10172	-1113	1.12
MAY	1597	7141	1869	9010	9435	-425	1.05
JUNE	1498	7750	1752	9502	10231	-729	1.08
JULY	1075	6708	1257	7965	10904	-2940	1.37
AUG.	1117	7312	1307	8619	11334	-2715	1.31
SEPT.	1035	6329	1211	7540	9593	-2053	1.27
OCT.	926	5232	1083	6316	7807	-1491	1.24
NOV.	1049	6928	1227	8155	9990	-1835	1.22
DEC.	2703	8926	3163	12089	10556	1533	0.87
TOTAL	17177	81475	20097	101572	114448	-12876	1.13

**Note:**

All oil and water produced in Waskada Unit 6 is from the Spearfish formation

g) An outline of the method used for quality control and treatment of the injected fluid

The injected fluid is treated by filtration.

h) A report of any unusual performance problems and remedial measures taken or being considered. N/A



- i) Any other information necessary to evaluate the project  
 1) Well List

<b>Waskada Unit 6 - Well List</b>		
<b>Wells</b>	<b>Status</b>	<b>Future Plans</b>
12-06-01-25	Abandoned	-
13-06-01-25	Injector	-
04-07-01-25	Abandoned	-
102/05-07-01-25	Injector - Abandoned	-
05-07 / 07-12-01-26 HZ	Producer	-
11-07-01-25	Abandoned	-
103/12-07-01-25	Producer	-
102/13-07-01-25	Injector	-
102/14-07-01-25	Producer - Shut in	Future Inj
15-07-01-25	Injector - Suspended	-
16-07-01-25	Producer	-
02-18 / 04-18-01-25 HZ	Producer	-
03-18-01-25	Abandoned - Q4 2011	-
04-18-01-25	Abandoned	-
05-18-01-25	Injector - Abandoned	-
06-18-01-25	Abandoned	-
07-01-01-26	Abandoned - Q4 2011	-
08-01-01-26	Abandoned - Q4 2011	-
09-01-01-26	Abandoned - Q4 2011	-
10-01-01-26	Abandoned - Q4 2011	-
15-01-01-26	Abandoned - Q4 2011	-
13-06 / 15-01-01-26 HZ	Producer	-
16-01-01-26	Abandoned - Q4 2011	-
01-12-01-26	Abandoned - Q4 2011	-
02-12-01-26	Abandoned	-
102/02-12-01-26	Abandoned	-
03-12-01-26	Abandoned	-
05-12-01-26	Abandoned Injector	-
06-12-01-26	Producer	-
07-12-01-26	Abandoned Injector	-
08-12-01-26	Producer	-
102/09-12-01-26	Producer	-
10-12-01-26	Producer	-
15-12-01-26	Injector	-
102/16-12-01-26	Producer	-
04-07 / 03-12-01-26 HZ	Producer	-
04-07 / A03-12-01-26 HZ	Producer	-
04-07 / A15-01-01-26 HZ	Producer	-
12-07 / 06-12-01-26 HZ	Producer	-
12-07 / 10-12-01-26 HZ	Producer	-
12-06 / 10-01-01-26 HZ	Producer	-
12-06 / A10-01-01-26 HZ	Producer	-

## 2) Discussion

The Waskada Unit No. 6 field has been producing with Lower Amaranth redevelopment with infill horizontal wells. The following operations were carried out in 2012 to continue testing of this concept:

1. The 12-07 battery was significantly upgraded in Q1 2012 to better handle the increase in both unit and nearby non-unit production growth.
2. Three new horizontal wells, drilled in Q4, came on production in early 2011. Four of five wells drilled in Q4, 2012 came on production in Dec 2012. The remaining well is expected on production in Q1, 2013.

In 2012, the Unit performed as forecast. We continue to test production performance in different parts of the Unit: the wells south of the 12-07-01-25 battery continue to be superior and prove to have better production and reservoir pressure. Production results will continue to be assessed to determine future infill drilling locations and water injection configuration. The overall results were a 135% year to year production increase and a 3% decrease in WOR. Injected water volumes were up by 125% due to higher produced volumes and an increase in non-unit wells treated at the 12-07-01-25 battery. No significant changes in producing well performance were noted in association with changes in injection.



# **APPENDIX**

# Waskada Unit No. 6: Production

Well List: Default Well List

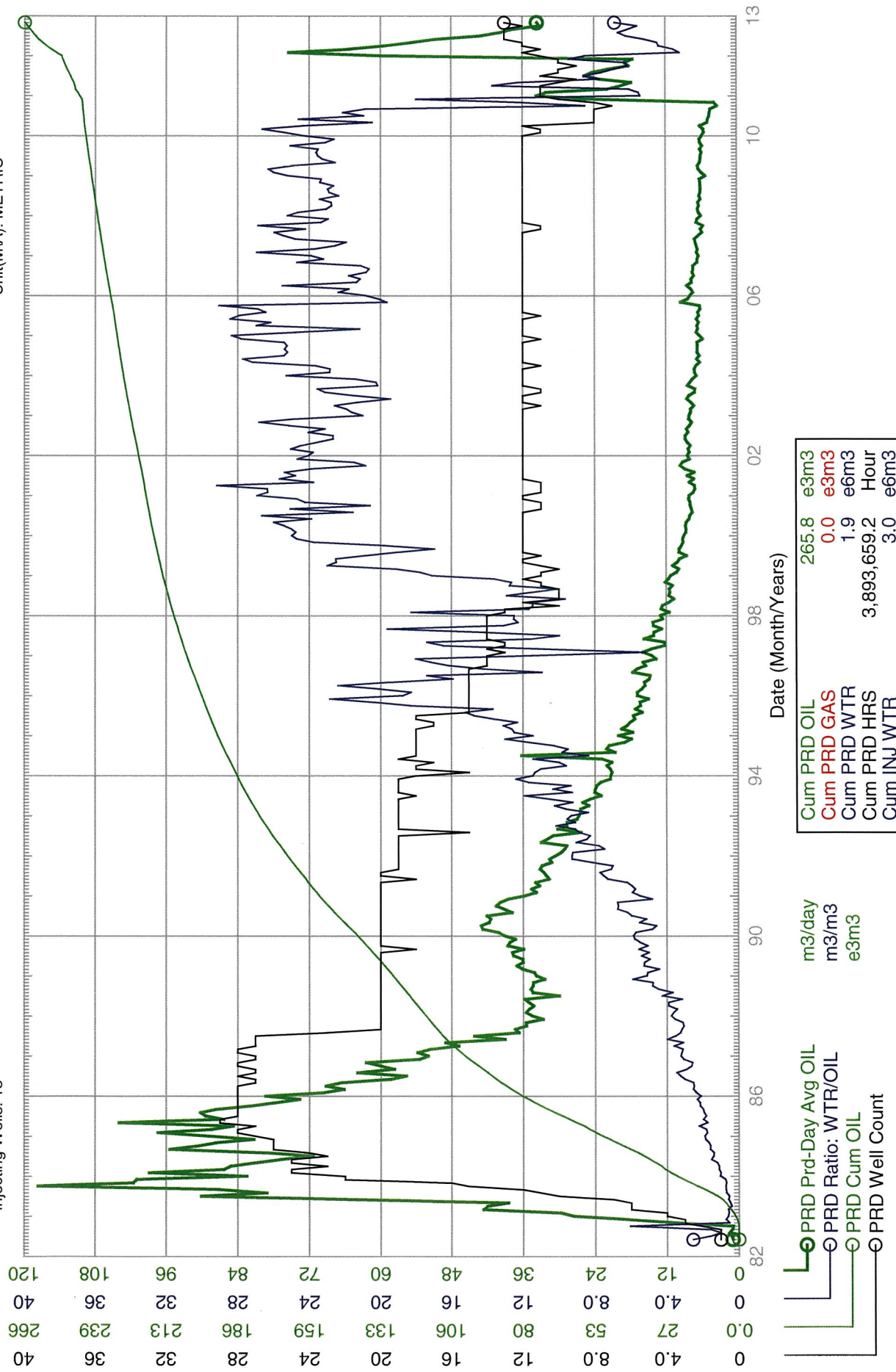
Producing Wells: 44

Injecting Wells: 13

From: 1982-06

To: 2012-11

Unit(MVA): METRIC



# Waskada Unit No. 6: Injection

Well List: Default Well List

Producing Wells: 44

Injecting Wells: 13

From: 1982-06

To: 2012-11

Unit(M/A): METRIC

