



# RED BEDS RESOURCES LIMITED

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March, 2014

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, 2013 to December 31, 2013**

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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.**

Darren Vande Graaf, P.Eng.  
Operations Manager



# **2013 Enhanced Oil Recovery Report**

## **Waskada Unit 6**

**March, 2014**

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 2013 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.	100.5	393.8	296.1	48	2.9
FEB.	82.9	331.4	260.9	48	3.1
MAR.	70.0	388.0	286.3	48	4.1
APRIL	52.0	372.2	263.8	48	5.1
MAY	25.2	252.4	180.1	48	7.1
JUNE	26.5	224.5	190.5	48	7.2
JULY	43.4	273.6	204.4	48	4.7
AUG.	40.0	214.2	168.8	48	4.2
SEPT.	31.8	212.4	139.5	48	4.4
OCT.	64.4	370.9	270.7	48	4.2
NOV.	72.1	423.7	335.9	48	4.7
DEC.	58.0	488.7	387.8	48	6.7

b) Cumulative 2013 volume of oil, gas and water produced and fluid injected

2013 PRODUCTION	
Produced Oil	20,243 m <sup>3</sup>
Produced Gas	971,664 m <sup>3</sup>
Produced Water	90,812 m <sup>3</sup>
Fluid Injected	120,094 m <sup>3</sup>
CUMMULATIVE PRODUCTION	
Produced Oil	288,979 m <sup>3</sup>
Produced Water	2,005,729 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	2754	2181	6305	3371	0	0	3148	2923	12207	2987
FEB	2397	1670	4749	1416	259	830	1874	1640	9279	1510
MAR	2121	3203	6235	1533	168	105	3504	1050	12028	1667
APR	2304	1931	5289	731	289	67	3283	465	11165	883
MAY	1911	677	4207	878	207	116	1499	618	7824	759
JUNE	1793	948	3417	815	31	23	1493	618	6734	803
JULY	1548	1725	4751	1250	207	171	1977	948	8483	1240
AUG	2354	2796	2431	572	1005	1474	850	1042	6640	1557
SEPT	1392	1210	3823	587	127	40	1031	600	6373	714
OCT	2120	1797	6371	1545	122	0	2886	957	11499	1427
NOV	2267	2737	7268	1995	300	543	2877	1820	12712	2053
DEC	2410	2290	8307	2048	1097	2910	3336	1816	15150	2098
TOTAL	25371	-	63153	-	3812	-	27758	-	<b>120094</b>	<b>1475</b>
AVG INJ P	-	1930	-	1395	-	523	-	1208	-	-

2013 WATER INJECTION SUMMARY												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
TOTAL(m3)	12207	9279	12028	11165	7824	6734	8483	6640	6373	11499	12712	15150
DAILY(m3/day)	394	331	388	372	252	224	274	214	212	371	424	489
2013 AVG. ANNUAL DAILY INJECTION = 329 m3/day												
CUMULATIVE INJECTION TO Dec 31, 2012 = 3,029,561 m3												
TOTAL 2013 ANNUAL INJECTION = 120,094 m3												
CUMULATIVE INJECTION TO DEC 31, 2012 = 3,149,655 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.

**100.15-07-001-25**

January 14, 2013; Solvent/15% HCL acid squeeze to the top of perforations. Achieved injectivity rate and pressure of 200 l/min at 1.5 MPa.

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

2013 VOIDAGE CALCULATIONS							
OIL FORMATION VOLUME FACTOR = 1.17 Rm3							
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.	3117	9180	3646	12827	12207	620	0.95
FEB.	2322	7304	2717	10020	9279	741	0.93
MAR.	2171	8875	2540	11416	12028	-612	1.05
APRIL	1560	7913	1825	9738	11165	-1427	1.15
MAY	782	5584	916	6500	7824	-1324	1.20
JUNE	794	5714	929	6643	6734	-91	1.01
JULY	1345	6336	1573	7909	8483	-574	1.07
AUG.	1241	5233	1452	6685	6640	45	0.99
SEPT.	954	4184	1116	5300	6373	-1073	1.20
OCT.	1996	8392	2336	10727	11499	-772	1.07
NOV.	2164	10076	2532	12609	12712	-103	1.01
DEC.	1797	12020	2103	14123	15150	-1027	1.07
TOTAL	20243	90812	23685	114497	120094	-5597	1.05

- 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



j) Well List

<b>Waskada Unit 6 - Well List</b>		
<b><u>Wells</u></b>	<b><u>Status</u></b>	<b><u>Future Plans</u></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	-
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 / 15-01-01-25 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 - Shut in	-
10-12-01-26	Producer	-
15-12-01-26	Injector	-
102/16-12-01-26	Producer	-
15-07 / 16-12-01-26	Producer	-
05-06 / 07-01-01-26	Producer	-
05-06 / A7-01-01-26	Producer	-
12-06 / 10-01-01-26	Producer	-
12-06 / A10-01-01-26	Producer	-
04-07 / A15-01-01-26	Producer	-
04-07 / 03-12-01-26	Producer	-
04-07 / A3-12-01-26	Producer	-
12-07 / 06-12-01-26	Producer	-
12-07 / 10-12-01-26	Producer	-
14-07 / A10-12-01-26	Producer	-
13-07 / 15-12-01-26	Producer	-
15-07 / 16-12-01-26	Producer	-



k) 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 2013 to continue testing of this concept:

1. The 12-07 battery water plant was upgraded to better handle the increase in both unit and nearby non-unit production growth.
2. Four new horizontal wells, drilled in Q4, came on production in 2013.

We continue to test production performance in different parts of the Unit: In previous years, the wells south of the 12-07-01-25 battery proved to have better production and reservoir pressure. We are now seeing evidence that may not support this theory. In efforts to improve oil recovery moving forward, we have kicked off a more detailed EOR study of the Unit and will continue to monitor production to determine future infill drilling locations and water injection configurations. This study will encompass a detailed look at geological, completion and production data over the history of the Unit, in hopes of developing an improved EOR strategy.

The overall results were an 18% production increase and a 5% decrease in WOR. Injected water volumes were up 5% 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.

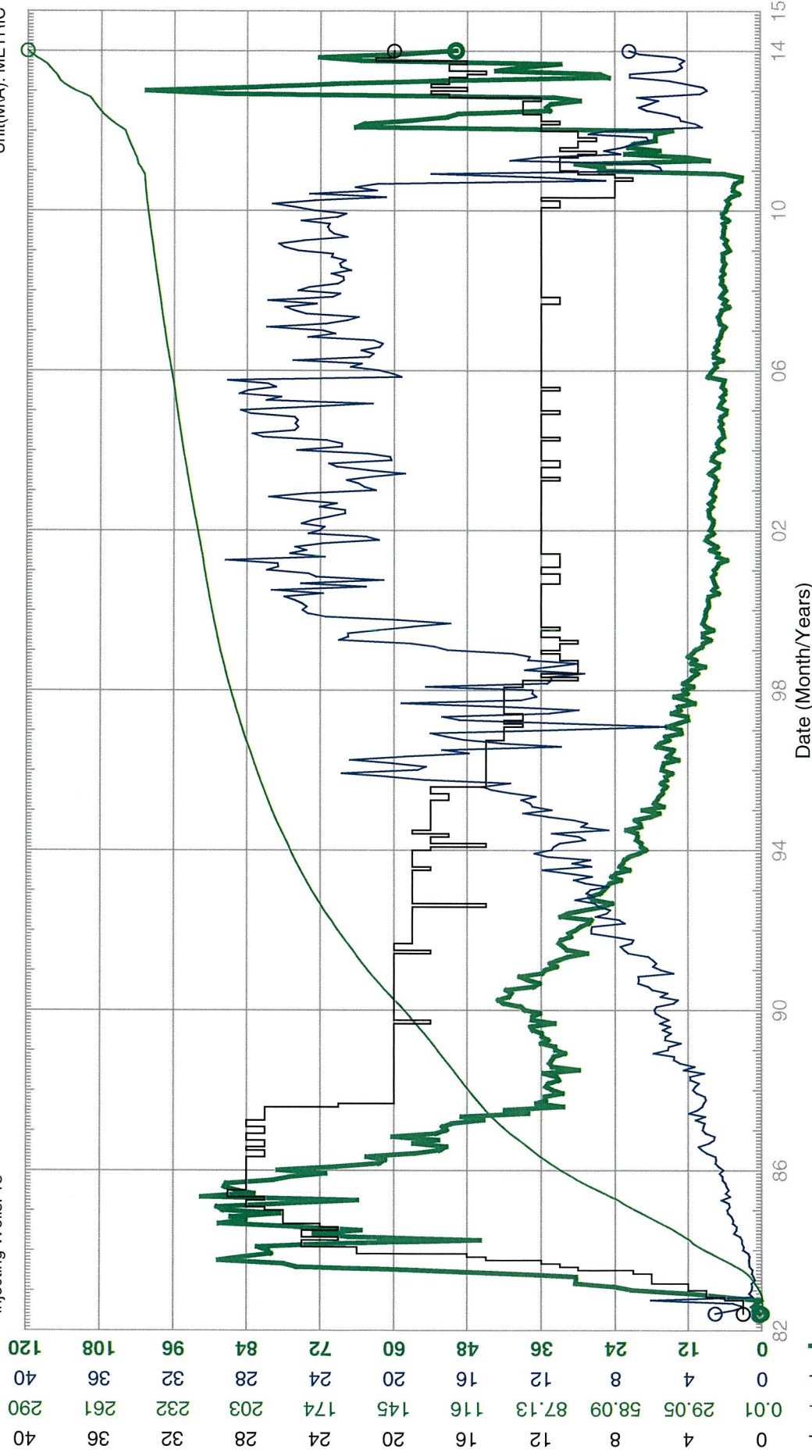


# **APPENDIX**

# Waskada Unit No. 6: Production

From: 1982-06  
To: 2014-01  
Unit(MVA): METRIC

Producing Wells: 53  
Injecting Wells: 13



Cum PRD OIL	290.4	e3m3
Cum PRD GAS	0.0	e3m3
Cum PRD WTR	2.0	e6m3
Cum PRD HRS	4,056,259.2	Hour
Cum INJ WTR	3.2	e6m3

PRD Cal-Day Avg OIL  
PRD Ratio: WTR/OIL  
PRD Cum OIL  
PRD Well Count

# Waskada Unit No. 6: Injection

From: 1982-06  
To: 2014-01  
Unit(MA): METRIC

Producing Wells: 53  
Injecting Wells: 13

