Municipality of Two Borders Lyleton Water Rate Study

October, 2015

Prepared by:

Dale Lyle, CGA, CMMA

Way To Go Consulting Inc.

MUNICIPALITY OF TWO BORDERS – LYLETON
WATER RATE STUDY

Executive Summary

Lyleton water rates were most recently set by Board Order Nos. 47/08 and 4/09.

The Lyleton water utility is currently unmetered and customers pay for water service based on residential equivalency units. The RM has purchased water meters and intends to install them in 2015. With the switch over from REU billed annually on property tax notices, to quarterly utility billings based on consumption, there will be a requirement to make the new metered rates effective January, 2015.

Proposed Water Utility Rates

The Utility Rate Study calculates the impact based on REUs and then translates that increase into metered water sales.

For purposes of the study, the treated water production volume was used, less 10% for estimated unaccounted for water. It is anticipated that metering water sales will result in lower water usage and a further reduction of 10% was calculated with the resulting volume being used to estimate water sales revenue.

For a single family residence (1 REU), the study proposes the following rates based on REUs:

Utility Billing	Water	Service Charge	Total	Increase $	Increase %
Increase based on REU					
Current Annual Rate per REU	$158.00	$5.00	$163.00		
January 1, 2016 Annual Rate per REU	$579.37	$20.81	$600.18	$437.18	268%

With the installation of water meters, these REU rates result in the following rates:

	Water Rate per 1,000 Gallons	Quarterly Service Charge
January 1, 2016 rates	$14.72	$5.20

Following are the impacts on a 5/8" meter minimum quarterly billing and an average quarterly billing:

Impact on a 5/8" meter minimum bill 3,000 gallons per quarter

	Annual costs based on current rates REU	Annual costs based on rates proposed January 1, 2016
Total Cost per Year	$163.00	$197.45
Annual Increase		$34.45
Quarterly Increase		$8.61
Increase in Percent		21%

Impact on a family using 10,000 gallons of water per quarter

	Annual costs based on current rates	Annual costs based on rates proposed January 1, 2016
Total Cost per Year	$163.00	$609.61
Annual Increase		$446.61
Quarterly Increase		$111.65
Increase in Percent		274%

Reason for Increase

The increase in billings is largely attributable to returning the utility to a breakeven position (66%). Introducing the contingency allowance accounts for a further 19% increase, and amortization of new water meters for a further 8%. Increase in treatment expenses account for the remaining 8%.

	2014	2018	Change	%
Increase in billing	$ 4,646	$17,711	$13,065	
Water Purification and Treatment	11,079	12,161	1,082	8%
Contingency allowance	0	2,432	2,432	19%
2014 Operating Deficit (before general fund transfer)	-8,677	0	8,677	66%
PSAB - Amortization	1,648	2,648	1,000	8%
Total:			$13,191	101%

Working Capital

Lyleton Utility's working capital surplus exceeds the PUB's minimum working capital requirements from 2014 to 2018. As of 2018 the Working Capital Surplus is projected to be $11,060 which exceeds the Board's minimum requirements of $3,087.

	2012	2013	2014	2015	2016	2017	2018
	Audited	Audited	Audited	Budget		Forecasts	
Working Capital Suplus/Deficit							
Fund Surplus		$ 40,920	$ 39,478	$ 45,830	$ 48,754	$ 51,433	$ 53,860
Less Tangible Capital Assets		(44,041)	(42,393)	(60,745)	(58,096)	(55,448)	(52,800)
Less Amortization of Capital Grants		-	-	-	-	-	-
Add Long term debt		-	-	-	-	-	-
Add Utility Reserve		0	30,000	10,000	10,000	10,000	10,000
Working Capital Surplus		-$3,121	$27,085	-$4,915	$658	$5,984	$11,060
Minimum working capital surplus = 20% of expenses		$2,760	$2,665	$3,830	$2,987	$3,037	$3,087

Inflationary Increase

The financial projections for 2017 and 2018 inclusive assume annual increases of 2% in expenses.

2018 Operating Surplus

There is an operating surplus forecast for 2018 of $2,428 calculated under PSAB accounting principles, adjusted in accordance with PUB requirements. The Lyleton Utility Reserve is forecast to have a balance of $10,000 by 2018.

Capital Cost Contingency Allowance and Transfer to Utility Reserve

The study includes contingency allowance of 20% of 2018 variable costs which equals $2,432. Variable costs were increased to 20% due to the relatively low level of variable costs compared to the costs that could be attributable to any significant water line breaks.

There is no Transfer to Utility Reserve proposed in this plan.

Cost Allocation

The RM proposes to continue with the current Cost Allocation which has averaged close to $600 per year with increases of 2% a year commencing in 2017. The small size of the water only utility and the magnitude of the proposed increase, coupled with the changeover to metered consumption, leads the RM to propose that the cost allocation be maintained at the same level for the time being. This should be further reviewed as part of the next utility rate study.

Rate Comparison

Following is a comparison of the Lyleton Utility's quarterly proposed water rates, with water rates, including service charges, of other communities with rates that have been set by the PUB in the last 3 years:

	Quarterly Billing Based on Minimum **3,000 gallons**
Lyleton proposed 2016 Rate	**$49.36**
Town of Lac du Bonnet	$51.37
Town of MacGregor	$51.45
Town of Gladstone	$51.65
Town of Emerson	$52.98
Town of Morris	$53.30
Town of Manitou	$55.55
Plum Coulee	$57.89
LUD of Holland	$58.70
City of Dauphin	$60.06
Town of Russell	$60.88
Town of Gretna	$62.20
RM of Morris – LUD Rate	$70.73
Dominion City	$74.15
LUD of Cypress River proposed	$80.08
Town of Gilbert Plains	$81.95
LUD of Oak River	$89.23
RM of Cornwallis	$93.43

	Quarterly Billing Based on Minimum **10,000 gallons**
Town of Lac du Bonnet	$115.01
Town of Emerson	$120.88
City of Dauphin	$121.79
Town of Gladstone	$124.38
Town of MacGregor	$136.72
Town of Russell	$151.60
Lyleton proposed 2016 Rate	**$152.40**
Town of Gretna	$153.90
Town of Morris	$156.20
Plum Coulee	$159.71
Town of Manitou	$159.85
LUD of Holland	$164.75
RM of Morris – LUD Rate	$189.10
Dominion City	$204.70
RM of Cornwallis	$221.65
Town of Gilbert Plains	$221.95
LUD of Cypress River proposed	$240.17
LUD of Oak River	$271.23

Municipality of Two Borders – Lyleton Water Utility

Water and Sewer Utilities – Minimum Filing Requirements (MFR) for Municipalities Filing Applications for Revised Rates with the Public Utilities Board

Application to the PUB must include 3 paper copies and an electronic copy.

Application and Financial:

1. Utility rates by-law, after first reading only, detailing rates, billing information, penalties, fees, etc. and rescinding past by-law. [X]
2. Rate study using Board guidelines as applicable. [X]
3. Commentary on the reasons for the rate increase. [X]

   The increase in billings is largely attributable to returning the utility to a breakeven position (66%). Introducing the contingency allowance accounts for a further 19% increase, and amortization of new water meters for a further 8%. Increase in treatment expenses account for the remaining 8%.

	2014	2018	Change	%
Increase in billing	$ 4,646	$17,711	$13,065	
Water Purification and Treatment	11,079	12,161	1,082	8%
Contingency allowance	0	2,432	2,432	19%
2014 Operating Deficit (before general fund transfer)	-8,677	0	8,677	66%
PSAB - Amortization	1,648	2,648	1,000	8%
Total:			$13,191	101%

4. Prior year's utility financial statements (audited, if available, noting Schedule 9 prepared for the Board's purposes is unaudited), current year's utility budget (page 6*)[1], current year capital plan (page 13*), 5 year utility capital plan (page 14*), utility debenture schedules (page 12) and operating forecast for the next 2 years. [X]


2014 Schedules 6, 8 & 9.pdf


Lyleton Utility 2015 Budget.pdf


Capital plan.pdf

5. Proposed method of financing 5 year Capital Plan and details of any capital grant applications being considered or proposed or outstanding Municipal Board approvals. [X]

   The 5 year Capital Plan includes $20,000 for the purchase of water meters in 2015. There are no capital expenditures for Lyleton Utility in the 5 year capital plan.
6. Cost Allocation Policy with respect to shared services and equipment between the utility and general operations.[2] [X]

   The Municipality proposes to continue with the current Cost Allocation which has averaged close to $600 per year with increases of 2% a year commencing in 2017. The small size of the water only utility and the magnitude of the proposed increase, coupled with the changeover to metered consumption, leads the Municipality to propose that the cost allocation be maintained at the same level for the time being. This should be further reviewed as part of the next utility rate study.
7. Management Representation Letter with respect to allocated costs. [X]

   There was no Management Representation Letter attached to the 2011 Audited Financial Statements.
8. Tangible Capital Asset (TCA) schedule for the utility. [X]


TCA.pdf

9. Any changes to the TCA with justification, noting all changes require the Board's approval.[3] [X]

   There were no changes to the TCA schedule.

[1] Utility budgets must be on a PSAB basis – Board Order 93/09

[2] Changes to cost allocation matrix requires Board approval - Board Order 93/09

[3] Changes to TCA schedule methodology of amortization requires Board approval – Board Order 93/09

10. Details of other expenses capitalized and amortized with explanations. [X]

None.

11. Statement on the need for contingency. [X]

The study includes contingency allowance of 20% of 2018 variable costs which equals $2,432. Variable costs were increased to 20% due to the relatively low level of variable costs compared to the costs that could be attributable to any significant water line breaks.

12. Statement on the need for reserves, if requested. [X]

There is $10,000 in the Utility Reserve. Given the size of the Utility and the working capital position, this appears sufficient at present.

13. Statement on adequacy of equity position and plans to address if insufficient (below 20% of prior year's operating expenses).[4] [X]

Lyleton Utility's working capital surplus exceeds the PUB's minimum working capital requirements from 2014 to 2018. As of 2018 the Working Capital Surplus is projected to be $11,060 which exceeds the Board's minimum requirements of $3,087.

	2012	2013	2014	2015	2016	2017	2018
	Audited	Audited	Audited	Budget		Forecasts	
Working Capital Suplus/Deficit							
Fund Surplus		$ 40,920	$ 39,478	$ 45,830	$ 48,754	$ 51,433	$ 53,860
Less Tangible Capital Assets		(44,041)	(42,393)	(60,745)	(58,096)	(55,448)	(52,800)
Less Amortization of Capital Grants		-	-	-	-	-	-
Add Long term debt		-	-	-	-	-	-
Add Utility Reserve		0	30,000	10,000	10,000	10,000	10,000
Working Capital Surplus		-$3,121	$27,085	-$4,915	$658	$5,984	$11,060
Minimum working capital surplus = 20% of expenses		$2,760	$2,665	$3,830	$2,987	$3,037	$3,087

14. Summary of operating deficits in the last 5 years and method of recovery. [X]

The Lyleton Utility incurred the following deficits in 2012, 2013 and 2014:

2012	$6,577
2013	$9,153
2014	$8,677

15. If accumulated deficit is being reported as a result of conversion to PSAB, a rate plan is to be submitted with respect to recovery of the deficit. [X]

See answer to #14.

16. Details of any monies included in the rate proposal for continuing education of operators. [X]

Funding will be provided as required for operator certification.

17. Details of any incentives or special rate treatment provided to large volume users with an explanation. [X]

N/A

18. If rates are determined on a Residential Equivalent Unit basis, confirmation that the assessments have been reviewed and remain accurate. Comment on the potential use of meters. [X]

The Lyleton water utility is unmetered and customers currently pay for water service based on residential equivalency units. The Municipality has purchased and intends to proceed to install water meters in 2015.

19. Details of connection charges and developer agreements related to the extension of service. [X]

There is a $500 connection charge to connect to the existing distribution system. There are no developer agreements related to service extension.

Details of Operating System:

20. Description of the system(s) indicating age, condition and capacity to meet current and future needs of the ratepayers. [X]

See #25 for description of system.

[4] Target equity is established by Board – Board Order 93/09

21. Statement on compliance with drinking water standards including the most recent report from Water Stewardship and commentary on any recommendations therein. [X]

Lyleton 2014 Office of Drinking Water auc

22. Statement on compliance with Environmental License. [X]

See item #21.

23. Statement as to whether there are any color, taste or odour issues with respect to drinking water and plans to address. [X]

There are no issues with color, taste or odour of the drinking water. Treated water is slightly over the base guideline for pH.

24. A description as to where discharges are made. [X]

N/A – this is a water utility only.

25. File the Executive Summary and recommendations of the most recent engineering assessment and if not yet done, when it is expected to be done. [X]

Lyleton eng assessment.pdf

26. Details of operator certifications and whether they meet current requirements and if not, how is it to be addressed. [X]

The Municipality has one operator who requires further training to maintain his license and another operator who is who is in the process of getting his operator in training certification. The former utility foreman still assists the municipality when needed and is available 90% of the time. His license does not expire until 2017. The Municipality expects to have properly certified operators before the end of March, 2016.

27. Statement as to whether service is extended beyond the municipality or LID boundary and if so, details of any surcharges levied or proposed. [X]

The Lyleton Utility has one customer 2 miles north of the system who also uses treated water to water cows and who was previously counted as 1.75 REUs.

28. Details of any plant being decommissioned and any resulting expenses set up as an environmental liability to be collected in rates. [X]

N/A

29. Commentary on unaccounted for water if the amount exceed 10% and if related to a deteriorating system, provide a plan to address. [X]

The Lyleton Utility system is unmetered at present and unaccounted for water cannot therefore be calculated.

30. File a copy of the rules and regulations bylaw if existing. [X]

N/A

Other:

31. If a declining block rate is used, provide commentary on any consideration given to reducing or eliminating such blocks. [X]

N/A

32. Commentary as to whether an increased block rate has been considered. [X]

An increasing block rate has not been considered at this time.

33. Details of any notification of revised rates provided to customers and summary of response. [X]

The proposed rate increase will be advertised in accordance with PUB requirements and any responses will be summarized and reported to the PUB.

34. If utility rates are collected with tax bills, confirmation that utility operating costs are not being offset by the Education Property Tax Credit. [X]

With the changeover to consumption billing based on water meter readings, utility bills will be mailed out quarterly separate from property tax bills.

35. Report of disconnection for non-payment in the past years since the last study was filed. [X]
    There have been no customers disconnected for non-payment of outstanding utility bills in the last 5 years.
36. If a Special Services Plan hearing is required, details of the hearing and if not held when it will be held. [X]
    N/A
37. Details of any advertising and/or promotions conducted related to water conservation and/or sewer discharges. [X]
    There has not been any advertising or promotions related to water conservation.

RURAL MUNICIPALITY OF EDWARD
SCHEDULE 6 - SCHEDULE OF CHANGES IN RESERVE FUND BALANCES
For the year ended December 31, 2014

	2014							
	Conservancy Trail Reserve	Fire Equipment Reserve	LUD of Pierson	Lyleton Utility Reserve	Utility Reserve	Gas Tax Reserve	Municipal Well Reserve	Sub Total
REVENUE								
Investment income	$ 88	15			126	10	28	$ 267
Other Income								
Total revenue	88	15			126	10	28	267
EXPENSES								
Investment charges								
Other expenses								
Total expenses								
NET REVENUES	88	15			126	10	28	267
TRANSFERS								
Debt repayment		35,000	150,000	30,000	30,000	29,527	10,257	284,784
Transfers from operating fund					71,500			71,500
Transfers to operating fund								
Transfers from utility fund						(42,228)	(3,300)	(45,528)
Transfers to utility fund								
Acquisition of tangible capital assets								
CHANGE IN RESERVE FUND BALANCES	88	35,015	150,000	30,000	101,626	(12,701)	6,985	311,013
FUND SURPLUS, BEGINNING OF YEAR	19,010	12,657			6,635	12,701	6,617	57,620
FUND SURPLUS, END OF YEAR	$ 19,098	47,672	150,000	30,000	108,261		13,602	$ 368,633

RURAL MUNICIPALITY OF EDWARD
SCHEDULE 8- SCHEDULE OF FINANCIAL POSITION FOR UTILITY
For the year ended December 31, 2014

	2014			2013
	PIERSON	LYLETON	Total	Total
FINANCIAL ASSETS				
Cash and temporary investments	$ 11,768	$ 882	$ 12,650	$ 65,064
Amounts receivable (Note 4)	2,053	150	2,203	10,511
	13,821	1,032	14,853	75,575
LIABILITIES				
Accounts payable and accrued liabilities				5,705
Due to other funds	19,617	4,105	23,722	41,503
	19,617	4,105	23,722	47,208
NET FINANCIAL ASSETS (NET DEBT)	(5,796)	(3,073)	(8,869)	28,367
NON-FINANCIAL ASSETS				
Tangible capital assets (Schedule 1)	143,099	42,393	185,492	194,306
Inventories (Note 6)	7,863		7,863	8,500
Prepaid expenses	2,233	157	2,390	535
	153,195	42,550	195,745	203,341
FUND SURPLUS	$ 147,399	$ 39,477	$ 186,876	$ 231,708

RURAL MUNICIPALITY OF EDWARD
SCHEDULE 9 - SCHEDULE OF UTILITY OPERATIONS - LYLETON
For the year ended December 31, 2014

	Budget	2014	2013
REVENUE			
Property taxes	$ 4,646	$ 4,646	$ 4,646
Total revenue	4,646	4,646	4,646
EXPENSES			
General			
Billing and collection	300	596	570
Sub-Total - General	300	596	570
Water General			
Purification and treatment	6,000	11,079	11,581
Water Amortization & Interest			
Amortization		1,648	1,648
Total expenses	6,300	13,323	13,799
DEFICIT	$ (1,654)	(8,677)	(9,153)
TRANSFERS			
Transfers from operating fund		7,235	4,609
CHANGE IN UTILITY FUND BALANCE		(1,442)	(4,544)
FUND SURPLUS, BEGINNING OF YEAR		40,919	45,463
FUND SURPLUS, END OF YEAR		$ 39,477	$ 40,919

LYLETON UTILITY OPERATING FUND
BUDGETED REVENUE AND EXPENDITURE
Municipality of Two Borders

For the Year 2015

UTILITY REVENUE	2014 Budget	2014 Actual	2015 Budget	Next Year Budget
Water Rate By-Law5/2015	4,645.50	4,645.50	4,645.50	
Penalties				
Hydrant Rentals				
Connection Revenue				
Net Consumer Revenue - Sub Total	4,645.50	4,645.50	4,645.50	0.00
Other Revenue				
Provincial Grants				
Transfer from Lyleton Fiscal Services	1,654.50	1,654.50	854.50	
Transfer from Revenue Fund (from Page 7)	5,580.30	5,580.30		
Transfer from Reserves (from Page 13)			20,000.00	
Transfer from Accumulated Surplus				
TOTAL REVENUE	11,880.30	11,880.30	25,500.00	0.00
UTILITY EXPENDITURE				
WATER SUPPLY				
Service of Supply - Wages	5,000.00	5,046.96	4,500.00	
Customer Billings and Collections	300.00	585.30		
Contract Service - Assessment				
Service of Supply - Materials	1,000.00	6,032.52	1,000.00	
Seminars/Membership Fees		10.50		
Sub Total	6,300.00	11,675.28	5,500.00	0.00
TRANSFER TO CAPITAL (from Page 13)			20,000.00	
DEBENTURE DEBT CHARGES (from Page 12)				
OTHER LONG-TERM DEBT CHARGES				
TRANSFERS				
Deficit Recovery, 2003 (Page 9)	5,580.30	5,580.30		
Transfer to Utility Reserve			0.00	
Transfer to _____ Reserve				
TOTAL EXPENDITURE	11,880.30	17,255.58	25,500.00	0.00
NET OPERATING SURPLUS (DEFICIT)	0.00	(5,375.28)	0.00	0.00

CAPITAL BUDGET
(current year)

Municipality of Two Borders

For the Year 2015

Part 1 - CAPITAL EXPENDITURES

Particulars of Expenditure	Estimated Total Cost	Borne by General Fund	Borne by Utility Fund	Borne by Reserves	Borne by Borrowing
Melita Admin Office Upgrade	100,000.00	100,000.00			
Pierson Admin Office	20,000.00	20,000.00			
Office Computer Equipment	15,000.00	15,000.00			
Grader Packers	80,000.00	80,000.00			
23N Drainage upgrade	10,000.00	10,000.00			
Hammell Bridge Project	800,000.00	800,000.00			
Kilfoyle Bridge Project	90,000.00	90,000.00			
Coulter Park - Lawn Mower	6,000.00	6,000.00			
Tilston Shop - New Floor	25,000.00	25,000.00			
Pierson Drainage Project	150,000.00	150,000.00			
Lyleton Utility- Meter Project	20,000.00			20,000.00	
	1,316,000.00				
	TOTAL	1,296,000.00			
		Page 7 (acct. 9320)	0.00		
			Utility	20,000.00	
				Part 2	0.00
					Part 3

PART 2. GENERAL AND SPECIFIC PURPOSE RESERVE FUND WITHDRAWALS

Reserve Name and By-Law No.	General Fund Transfers		Utility Fund Transfers		Cash Resources
	To Operating	To Capital	To Operating	To Capital	(Opening Balance in Reserve)
LUD of Pierson Reserve	15,000.00				$150,000.00
Lyleton Utility Reserve				20,000.00	$30,000.00
Melita Arena Reserve	$129,719.33				$129,719.33
Mill Rate Stabilization Reserve	$934,915.82				$934,915.82
	1,079,635.15				
	Page 2	0.00			
		Part 1	0.00		
			Utility	20,000.00	
				Part 1	

PART 3. BORROWING (Subject to Municipal Board Approval)

	TEMPORARY FINANCING	REPAYMENT

FIVE YEAR CAPITAL EXPENDITURE PROGRAM

Municipality of Two Borders

For the Year 2015

PURPOSE	2016	2017	2018	2019	2020	Total	Operating	Reserves
Grader Purchase	400,000.00		400,000.00		400,000.00	1,200,000.00		1,200,000.0
Graham Creek Bridge Project	70,000.00					0.00 70,000.00		70,000.0
Melita Dump Upgrade		10,000.00	10,000.00	10,000.00	10,000.00	0.00 40,000.00		40,000.0
Road Reconstruction	180,000.00	180,000.00	180,000.00	180,000.00	180,000.00	0.00 900,000.00	900,000.00	
Pierson Town Subdivision Project	100,000.00	100,000.00	120,000.00			0.00 320,000.00	200,000.00	
Pierson Lift Station Upgrade	120,000.00					0.00 120,000.00		60,000.0
Melita Office - Exterior Upgrade	40,000.00	40,000.00				0.00 80,000.00	80,000.00	
Pierson Playpark	30,000.00					0.00 30,000.00	30,000.00	
						0.00		
						0.00		
						0.00		
						0.00		
						0.00		
						0.00		
						0.00		
						0.00		
	940,000.00	330,000.00	710,000.00	190,000.00	590,000.00	**2,760,000.00**	1,210,000.00	1,370,000.0
SOURCE OF FUNDS - ANNUAL						**TOTAL**		
OPERATING	350,000.00	320,000.00	180,000.00	180,000.00	180,000.00	1,210,000.00		
RESERVES	530,000.00	10,000.00	410,000.00	10,000.00	410,000.00	1,370,000.00		
BORROWING			120,000.00			120,000.00		
OTHER	60,000.00					60,000.00		
TOTAL	940,000.00	330,000.00	710,000.00	190,000.00	590,000.00	**2,760,000.00**		

Departmental Use Only

Adopted by Resolution of Council

(Head of Council)

20

(Chief Administrative Officer)

CAPITAL ASSETS / AMORTIZATION SCHEDULE
Water & Sewer Infrastructure - Buildings - Brick, Mortar & Steel
RURAL MUNICIPALITY OF EDWARD

For Fiscal Year Ended > 2014

Enter data in yellow shaded areas

Asset Description	PSAB Code	Calendar Year Acquired	Months to Amortize First Year	Capital Assets: Cost	Additions	Residual Value	Disposals	Date of Disposal	Closing Balance	Estimated Useful Life	December 31, 2014 Accumulated Amortization: Opening Balance	Current Year Amortization	Closing Balance	Net Book Value
TOTALS >				128,229.00	-	-	-		128,229.00		25,916.21	3,205.73	29,121.94	99,107.07
Pierson Cistern	Water	2006	4	80,045.00					80,045.00	40	14,674.93	2,001.13	16,676.05	63,368.95
Lyleton Cistern	Water	2004	4	48,184.00					48,184.00	40	11,241.28	1,204.60	12,445.88	35,738.12
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
									-	40	-	-	-	-
DO NOT INSERT BELOW THIS ROW									-	40	-	-	-	-

CAPITAL ASSETS / AMORTIZATION SCHEDULE

Water & Sewer Infrastructure - Water & Sewer Networks

For Fiscal Year Ended > 2014

Enter data in yellow shaded areas

RURAL MUNICIPALITY OF EDWARD

Asset Description	PSAB Code	Calendar Year Acquired	Months to Amortize First Year	Capital Assets						Estimated Useful Life	December 31, 2014 Accumulated Amortization			Net Book Value
				Cost	Additions	Residual Value	Disposals	Date of Disposal	Closing Balance		Opening Balance	Current Year Amortization	Closing Balance	
TOTALS >				256,195.00	-	-	-		256,195.00		138,284.91	5,123.90	193,408.81	62,786.19
Pierson Sewer System	Sewer	1986	9	70,000.00					70,000.00	50	66,385.48	1,400.00	67,785.48	2,214.52
Pierson Water System	Water	1986	12	54,846.00					54,846.00	50	52,949.70	1,096.92	53,746.60	1,099.40
4" line Pierson Water System	Water	1986	12	100,873.00					100,873.00	50	50,432.36	2,017.46	52,449.82	48,423.18
#8 well - Pierson	Water	1981	7	8,294.00					8,294.00	50	3,732.92	165.88	3,898.80	4,395.20
Lyleton Water Line	Water	1980	12	22,183.00					22,183.00	50	15,084.44	443.66	15,528.10	6,654.90
									-	50	-	-	-	-
									-	50	-	-	-	-
									-	50	-	-	-	-
									-	50	-	-	-	-
									-	50	-	-	-	-
									-	50	-	-	-	-
DO NOT INSERT BELOW THIS ROW									-	50	-	-	-	-

Manitoba
Conservation and Water Stewardship
Office of Drinking Water
1129 Queen's Ave, Brandon, Manitoba, R7A 1L9
T: 204-726-6563 F: 204-726-6567
Email: glen.robertson@gov.mb.ca
www.manitoba.ca/drinkingwater

November 28, 2014

PWS Code: 122.00

Lisa Pierce, CAO
Rural Municipality of Edward
Box 100
Pierson MB R0M 1S0

Lyleton Public Water Supply

Dear Ms. Pierce:

This letter is in follow-up to the November 6, 2014, inspection of the Lyleton public water system. The primary focus of the inspection was to confirm compliance with the terms and conditions of the Lyleton Public Water System Operating Licence PWS-08-221-01.

Mr. Jamie Halliday, water plant operator, was in attendance.

Water System Overview:

The source water at this facility is a 30 inch diameter, 24 foot deep well, identified as well #4. Treatment consists of chlorination at the well house with contact time provided in the 75,000 litre reservoir in Lyleton, for the purpose of disinfecting the water.

Compliance:

- Water samples for bacteriological analysis are being submitted on a bi-weekly basis, which is consistent with the operating licence.
- Monthly monitoring report forms are being submitted to this office at the end of each month.
- The free chlorine was measured as 1.41 mg/L, within the minimum requirement of 0.5 mg/L after 20 minutes of contact time.
- Treated chemical samples were collected at the water plant by the Drinking Water Officer, fulfilling the requirement for chemical sampling in Table 2 of the Operating Licence.
- Water meter readings are being recorded at least weekly. I have attached an optional form for recording meter reading.

Required for Compliance:

- The engineering re-assessment is due March 1, 2015 (clause 2.4, PWS-08-221-01). A terms of reference document is available on the Office of Drinking Water web site to assist with the completion of your re-assessment.
- The water quality monitoring equipment must be properly maintained and calibrated according to manufacturer recommendations (clause 5.2, PWS-08-221-01).

Sample results:

The chemistry results were compared to the Guidelines for Canadian Drinking Water Quality and the provincial drinking water standards. A copy of the results are attached for your information.

- There were no parameters exceeding a provincial health based standard.
- The only parameter exceeding an aesthetic based guideline was **pH**. The pH of the treated water entering the water distribution system was found to be basic (8.61). The acceptable pH range for drinking water is 6.5 to 8.5. The main purpose of controlling pH is to reduce the potential for the water to be corrosive or to lead to incrustation (scaling) of distribution and plumbing systems. In addition, there is a progressive decrease in the effectiveness of chlorine disinfection with increasing pH levels. Your treated water continues to be scale-forming as indicated by the water's saturation index of 1.1 to 1.9. The presence of scale will reduce the hydraulic flow capacity of distribution and plumbing systems.

If you have any questions, please do not hesitate to contact me at 204-726-6563.

Sincerely,

Glen Robertson
Drinking Water Officer

c: Jamie Halliday, Water Treatment Plant Operator

Manitoba
Conservation and Water Stewardship

TO BE COMPLETED BY THE ENGINEER:	Date of Report: *(yyyy/mm/dd)*
Name of Water System: Lyleton Public Water System	PWS Code: 122.00
Name of Company: Samson Engineering Inc.	Telephone number of Engineer: (204) 727-0747
Address: 162-10th Street, Brandon, MB	Email address of Engineer: psumner@samsonengineering.com

I certify that:

1. I prepared this Re-Assessment Report for this Public Water System.
2. I am a Professional Engineer registered in the Province of Manitoba with good standing.
3. I have relevant experience in environmental engineering relating to drinking water supplies.
4. This Report was prepared in accordance with the "Terms of Reference for Re-Assessment of a Public Water System".

DECLARATION OF ENGINEER SIGNING AND SEALING REPORT

"I, the undersigned, hereby declare that to the best of my knowledge, the information contained herein and the information in support of this submission is complete and accurate in accordance with my obligations under *The Engineering and Geoscientific Professions Act* and its regulations.

I further declare that this submission has been prepared in reasonable accordance with the published Terms of Reference for this submission, despite any qualifications in the agreement contracting me, and I acknowledge that the Office of Drinking Water and the Owner will be

Name of Engineer: Pam Sumner, P.Eng.

Signature of Engineer: PJSumner

Date Signed: 2015-03-12

Professional Engineer's seal and Certificate of Authorization to be affixed in the space below and signed by the Professional Engineer who prepared this Report.

APEGM
Certificate of Authorization
Samson Engineering Inc.
No. 3050 Date: 2015-03-12

PROVINCE OF MANITOBA
P. J. SUMNER
Member
23895
REGISTERED PROFESSIONAL ENGINEER
2015-03-12

ODW-AF-01B

1 Water System Description

1.1 General System Characteristics

Lyleton's public water system serves approximately 25 service connections. The water system has been in operation year-round since 1978. However, many components of the original system have been replaced or upgraded since. The raw water source for the water system is groundwater from an unnamed aquifer. There are currently no water advisories in place for the water system however an information bulletin was issued warning users, specifically pregnant women and infants, of elevated nitrate/nitrite levels in the water. A handout from Manitoba Water Stewardship and Manitoba Health entitled "Nitrate in Manitoba Water Supplies" was also provided to the users along with the information bulletin.

The current average day demand (ADD) is 20.8m³/day (4574 imp. Gallons/day)

The calculated maximum or peak day demand (MDD) using an assumed peaking factor (f_d) of 4.9 is:

$$MDD = f_d * ADD = 102.0 m^3/day \text{ (22413 imp. Gallons/day)}$$

The maximum daily usage from the 2014 usage data was 70.0m³ (15400 imp. Gallons) as measured on March 4, 2014 (outlier data from February 4-5, 2014 not used).

The peak hourly demand (PHD) was calculated using an assumed peaking factor (f_h) of 7.4 is:

$$PHD = f_h * ADD/24 = 6.4 m^3/hr \text{ (1410 imp. Gallons/hr)}$$

The per service daily water usage (Lpsd) is:

$$Lpsd = ADD/25 \text{ services} = 832 \text{ L/day (183 imp. Gallons/day)}$$

It is worth noting that the 'per service' daily water usage is not representative of 25 residences, as the truck fill station draws water from same source as the rest of the distribution system.

1.2 Water Source

The raw water source for Lyleton's public water system is groundwater obtained from a well field located at SW 30-01-28 WPM. The well field encompasses four wells and the well house. Of the four wells in the well field only three are connected to the system, that being Well #2, #3, and #4. At the time of our site review only Well #4 was feeding the system and Well #2 and #3 are available for backup if required. The remaining well, Well #1, is not used at all. Well #1, #2, and #3 were drilled in October of 1978 and are all 127mm (5") in diameter and 6.1m (20') deep. Well #4 was drilled in November of 2008 and is 24" in diameter and 7.3m (24') deep.

The well house and wells are accessible by Provincial Road 251 to the south. All the wells are located in close proximity to the well house.

In our opinion, the wells are geographically protected from most sources of potential contamination. The wells are however located in an unfenced area adjacent to cultivated land. If the water source is ever deemed GUDI then the agricultural activities, including the application of fertilizers could increase the nitrates in the water source. In order to reduce the risk of fertilizer contamination, we recommend that the buffer for agricultural use around the wells be increased to 15.2m by 15.2m (50' by 50')

A description of each well is provided below, a copy of the well logs, a sketch of the well field, and copies of the well production for 2014 are included in Appendix F.

1.2.1 Well #1

We understand that Well #1 is not being used and is off-line.

1.2.2 Well #2

Well #2 is connected to the system however it is not being actively used.

1.2.3 Well #3

Well #2 is connected to the system however it is not being actively used.

1.2.4 Well #4

Well #4 is the most recently drilled well and is currently the only well being used as the raw water supply to Lyleton's Public Water System. It is a 30" diameter well that is 7.3m (24') deep.

The recommended rate that water is to be pumped from the well is 0.076m³/min (20 usgpm). At the time of the review we could not confirm the maximum pumping rate of the submersible pump in Well #4. To accommodate calculations in this report, we assumed the pumping rate was the recommended pumping rate of 0.076m³/min (20 usgpm).

1.3 Water Treatment System

The raw water collected from Well #4 is conditioned with a Sodium Hypochlorite solution at the well house. The solution is injected into the raw water stream with an IWAKI EZB11D1-VC chlorine injection pump. The pump has a capacity of 27 L/day (0.6 GPH) and is currently set to administer approximately 0.241 L/day consistent with the quantity of raw water.

After the water is extracted from the wells and chlorinated it is conveyed approximately 2 miles east from the well house in 76mm (3") diameter PVC pipe to the storage reservoir in Lyleton. There is one property connected to the treated water line between the well house and the reservoir. There is a tee in the waterline 1 mile east of the well house where a 38mm (1.5") diameter line continues north for 3.2km (2 miles) to the Artz residence on the SE corner of 6-2-28WPM. This water enters a private cistern and is distributed from the cistern to the residence and to the cattle.

A schematic of the Pierson public water system, including the well house, reservoir house, and reservoir is provided in Appendix A.

1.4 Treated Water Storage

Lyleton has an 86 cubic meter two cell reinforced concrete storage reservoir, and an attached 3.7m by 3.7m (12′ by 12′) reservoir house. The reservoir and reservoir house are located on Railway Avenue in Lyleton. The ground surrounding the reservoir is sloped away for positive drainage. The storage reservoir has capacity for approximately 4 days of average daily water consumption of 20.8m³/day (4574 imp. Gallons/day), which does not include fire fighting demands as the Lyleton water system is not used for fire control.

The reservoir is split into two cells; Cell #1 is a 16 cubic meter cell to the south and Cell #2 is a 70 cubic meter cell to the north end of the reservoir. These cells are separated by a concrete wall. The pipe conveying the conditioned water from the well house enters Cell #1 and surfaces through the lid of the reservoir into the reservoir house. The reservoir is fitted with a float system which controls an electronically actuated valve on the inlet pipeline. Low water levels trigger the actuator to open the valve which causes pressure in the inlet pipe drop, which in turn signals raw water to be withdrawn from the wells, treated at the well house, and conveyed to the reservoir. The float in Cell #1 also signals the actuator to close the valve when the water in Cell #1 reaches a set level.

Black staining was observed in both cells of the storage reservoir which is a result of Manganese deposits. Cell #1 is utilized to collect the majority of Manganese that settles from the water as it can be cleaned without interrupting the supply of water to the distribution system from Cell #2. An isolation valve is installed on the pipe between Cell #1 and Cell #2 in the concrete dividing wall between the two cells to control water flow between cells. This permits isolation of Cell #1 for repairs and cleaning while still maintaining service from Cell #2. The pipe between Cell #1 and Cell #2 has been configured to collect water from the top of the small cell so as to avoid conveying the settled Manganese from Cell #1 to Cell #2.

The estimated water residence time under ADD is 4 days, and under peak hourly flow rates (PHD) is 13.5 hours. The total storage of the reservoir is approximately 400% of the daily usage. The town of Lyleton does not use the treated water from the reservoir for fire protection.

1.5 Distribution

There is one submersible pump and one above grade pump that convey treated water from reservoir Cell #2 to the distribution system. The submersible pump functions as the primary and the other as a back-up. A high/low pressure switch is located on the piping leaving the reservoir to maintain pressure in the distribution system. The primary pump is configured to begin pumping when pressure in the distribution system drops below 262 kPa (38 psi). The back-up pump is triggered when the primary pump cannot maintain the minimum pressure. Once the back-up pump is triggered, both pumps will continue to work until pressure in the distribution system reaches 414 kPa (60 psi). The treated water is metered prior to entering the distribution system.

A third pump, a Franklin electric 2FPDB1-½-S pump , is located in the northwest corner of the reservoir house, is used to supply water to the truck fill located on the south side of the reservoir building.

3 Owner and DWO Concerns

In speaking with the Owner of the Water System, the Municipality of Two Borders, there were no concerns raised by them for the water system. We also spoke with Mr. Glen Robertson, the Drinking Water Officer, and his only concerns were the past issues with high nitrates in the treated water and the high pH. The Uranium concentrations have been a concern from 2011 to 2013 and he suggested that the Owner continues to monitor this and take appropriate actions, including submitting a Compliance Plan.

4 Site Inspection Findings

The following buildings were reviewed on-site as part of the Lyleton public water system Re-assessment.

4.1 Well House

The well house, located on the southwest ¼ of 30-01-28 WPM, receives raw water from Well #4 (on-line), Well #2 (back-up), and Well #3 (back-up). The raw water is treated in the well house then pumped to the reservoir in Lyleton. The well house was insulated, weather tight, clean and noted to be in very good overall condition.

4.2 Reservoir and Reservoir House

The Lyleton reservoir and reservoir house receive the treated water from the well house, provide storage capacity and contact time for the treated water, then pump the treated water into the distribution system. At the time of the on-site review, the reservoir and reservoir house were both in good overall condition. We recommend that the reservoir tanks be cleaned, as there is a build-up of Manganese on the walls, and that the reservoir house be thoroughly cleaned and disinfected as a preventative measure for treated water contamination. Also, we noted that the wall was not weather tight where the truck fill distribution pipe penetrates the south wall of the reservoir house. We recommend that this penetration be sealed and weather tight.

5 Ability of Meet Regulatory Requirements

The Lyleton public water system meets all of the required health-related standards of the Guideline for Canadian Drinking Water Quality and the provincial drinking water standards. This section discusses the water system disinfection process as well as the results of the recent raw and treated water testing.

5.1 Disinfection Requirements

The raw water for the Lyleton public water system is conditioned with a Sodium Hypochlorite solution at the well house, and then piped into the town of Lyleton storage reservoir. Between the well house and the reservoir, a single residence is directly connected to the main water line. Therefore, the contact time (CT) calculations for the chlorine disinfectant were calculated both at the direct connection to the main line, as well at the Lyleton reservoir.

5.1.1 Contact time - Single Residential Connection

Sodium Hypochlorite solution is injected into the raw water at the large well house. Therefore the contact time for the single residence directly connected to the main line is solely from the pipe flow to the residence, and has the following properties:

i) Minimum water temperature = 5°C (assumed)
ii) Maximum pH of water = 8.61 (2014 Annual Audit)
iii) Required log inactivation by disinfection = 0.5 log (assumed)
iv) Minimum free chlorine residual concentration = 0.5 mg/L
v) Length of 76mm pipe from Chlorine source to Tee = 1610 m
vi) Length of 38mm pipe from Tee to Residence = 3220 m
vii) Max. pump rate from well house = 0.076 m^3/min (Well #4)
viii) Baffling Factor, F_{sc} = 1.0 (Piping)

Using the values found in Table 1-A-2 from the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems, April 2012:*

$$CT_{required} = 41.8 \text{ mg} \bullet \text{min/L}$$

And using the formula for $CT_{achieved}$ as obtained from the paper *CT Disinfection Made Simple* by Brock Rush, M.Eng., P.Eng., Alberta Environment:

$$CT_{achieved} = \text{Conc. } Cl_2 \times F_{sc} \times \frac{\text{(Pipe cross sectional area)(Pipe length)}}{\text{max hourly flow rate } (m^3/\text{min})}$$

$$CT_{achieved} = 0.5\text{mg/L} \times 1.0 \times \left[\frac{(.076\text{m}/2)^2\pi(1610\text{m})}{0.076\ m^3/\text{min}} + \frac{(.038\text{m}/2)^2\pi(3220\text{m})}{0.076\ m^3/\text{min}} \right]$$

$$CT_{achieved} = 72.1 \text{ mg} \bullet \text{min/L} \quad > \quad CT_{required} = 41.8 \text{ mg} \bullet \text{min/L}$$

The current configuration of the residence directly connected to the main line meets the required CT calculations and as such the configuration of the connection is acceptable.

5.1.2 Contact Time - Lyleton Water Reservoir

Sodium Hypochlorite solution is injected into the raw water at the well house. The treated water is then piped to the Lyleton Water Reservoir. Therefore the contact time for the Lyleton reservoir is comprised of the pipe flow to the reservoir as well as the retention time in the reservoir, and has the following properties:

Using the values found in Table 1-A-2 from the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems, April 2012:*

$CT_{required}$ = 41.8 mg•min/L

i) Minimum water temperature = 5°C (assumed)
ii) Maximum pH of water = 8.61 (2014 Annual Audit)
iii) Required log inactivation by disinfection = 0.5 log (assumed)
iv) Minimum free chlorine residual concentration = 0.5 mg/L
v) Length of 76mm pipe from well house to reservoir = 3220 m
vi) Max. pump rate from well house = 0.076 m^3/min (Well #4)
vii) Total storage reservoir volume = 86 m^3
viii) Minimum storage reservoir volume = 70 m^3 (80% capacity)
ix) Max. pump rate from storage reservoir = 100 usgpm = 0.379 m^3/min (assumed since pump capacity not provided)
x) Baffling Factor,
   a. F_{sc} = 1.0 (pipe flow)
   b. F_{sc} = 0.30 (poor - no intrabasin baffles)

And using the formula for $CT_{achieved}$ as obtained from the paper *CT Disinfection Made Simple* by Brock Rush, M.Eng., P.Eng., Alberta Environment:

$$CT_{achieved} = \text{Conc. } Cl_2 \times \left[F_{sc} \times \frac{\text{(Pipe cross sectional area)(Pipe length)}}{\text{max hourly flow rate } (m^3/\text{min})} + F_{sc} \times \frac{\text{min. water in the storage reservoir}(m^3)}{\text{max hourly flow rate } (m^3/\text{min})} \right]$$

$$CT_{achieved} = 0.5 \text{ mg/L} \times \left[1.0 \times \frac{(.076m/2)^2\pi(3220m)}{0.076 \text{ m}^3/\text{min}} + 0.3 \times \frac{70.0 \text{ m}^3}{0.379 \text{ m}^3/\text{min}} \right]$$

$CT_{achieved}$ = 123.8 mg•min/L >> $CT_{required}$ = 41.8 mg•min/L

The contact times for both the single direct connection and the Lyleton reservoir are above the minimum requirement and are therefore acceptable.

5.2 Log Reduction Credits

The raw water source for the Lyleton public water system is groundwater which is not under the direct influence of surface water and as such, there are no required Log Reduction Credits for pathogen removal. The disinfection CT calculations in section 5.1 of this report used an assumed requirement of 0.5 log.

5.3 Turbidity Standards

Lyleton regularly monitors the turbidity of the raw at the sampling tap in the well house. The GCDWQ guideline does not state a maximum allowable turbidity level for ground water; however, turbid water can be an aesthetically displeasing. We are unaware of any times that the Lyleton water turbidity has been problematic.

5.4 Chemical Standards

The raw and treated water for the Lyleton public water system was sampled by the DWO on November 6th, 2014 and tested on November 7th, 2014. The results from the analysis were compared to the GCDWQ and the provincial water standards as shown on the ODW report dated November 24th, 2014. The results showed that there were no chemical parameters that exceeded the health based standards or aesthetic objectives.

The Nitrate level was above the GCDWQ maximum acceptable concentration (MAC) when tested in 2011, 2012 and 2013 (see section 2.5 of this report). The 2014 water analysis showed Nitrate levels of 9.64 mg/L, just below the GCDWQ MAC of 10 mg/L.

6 Ability to Meet Industry Best Practices

This section discusses the ability of the Lyleton public water system to meet the industry best practices in terms of the Ten State Standards, cross connection control, and aesthetic objectives.

6.1 Ten State Standards

The following points were noted to deviate from the Ten State Standards - Recommended Standards for Water Works.

- No real-time water quality monitoring or alarm system in place
- No standard procedures in place for delivery, handling and storage of chemicals
- There is no standby equipment available to replace chlorination system, however, some misc. spare parts are available on-site. Additionally, Cell #1 can provide contact time for treatment in the event of a chlorination system failure at the large well house.
- Ventilation of chlorine feed/storage room is poor
- Reservoir hatch is not water tight

6.2 Cross Connection Control

The Lyleton water distribution system is comprised of small diameter piping ranging from 25mm (1") to 32mm (1¼") supplying water to approximately 25 service connections. The distribution system does not have cross connection control, however, due to the small diameter of the piping we are not concerned with contamination or stagnant water. The distribution pumps and the truck fill pumps act as check valves preventing back-flow of distributed water into the reservoir.

6.3 Aesthetic Objectives

The Lyleton public water system raw and treated water was tested in fall of 2014 at which time the pH parameter exceeded the GCDWQ guidelines for aesthetic objectives as shown in **Table 2**.

Table 2: Lyleton water aesthetic objectives

Parameter	AO	Results	Units
pH	6.5 - 8.5	8.61	pH units

The Lyleton public water systems operator relayed to us that no point of use devices are commonly used in the community of Lyleton.

6.4 Other Industry Best Practices

In addition to sections 6.1, 6.2 and 6.3 of this report, other industry best practices include:

- installing power failure, pump failure, and low water level alarms
- having a backup power supply
- establish protocol to test, monitor, and calibrate the in-house equipment
- generate Standard Operating Procedures

7 Ability to Meet Demands

This section discusses the ability of the Lyleton public water system to meet the demands of the consumer in regards to both the capacity and reliability of the system.

7.1 Capacity

The Lyleton public water system has adequate capacity to serve the existing consumers with satisfactory water source, treatment, storage and distribution capacity. Currently, only one well (Well #4) is used as a source, with two wells (#2 and #3) used as backup supply. The chemical treatment pump for treating the raw water at the large well house is currently operating at ~2% capacity. The storage of the reservoir at full capacity is approximately 400% of the ADD, and approximately 85% of the MDD. The distribution pumps currently serve the distribution system with no reported strain or poor serviceability during peak operating hours.

7.2 Reliability

The reliability of the water source was reviewed on-site as well as in discussion with the operators. The water supply was deemed to have good overall reliability. In addition to Well #4 which is used for the main water source, Well #2 and #3 are readily used as a backup as they are connected to the system and available for production by opening the ball valve and running the Well #2 and #3 pumps.

The reliability of the treatment system was determined by the availability of Sodium Hypochlorite solution, and the contact time before distribution. The operator relayed to us that there is approximately a four week supply of Sodium Hypochlorite solution available on-site at all times which meets the Ten State Standards recommended 30-days of storage. The contact time was acceptable for the single residence directly connected to the main line, and was well above the required time for the rest of the distribution system. Additionally, if the chemical dispensers were to fail, the Cell #1 in the reservoir could be used as a treatment cell, providing contact time before the treated water was transferred to Cell #2 for distribution.

The reliability of the pumping and distribution system largely depends on the reliability of the distribution pumps. At the time of the on-site review, the main distribution pump was in good running condition, and the backup pump was said to be in good running condition. Additionally, the truck supply distribution pump was in good running condition. The operator informed us that they did not have backup

equipment on-site for the big-ticket items, such as the pumps and chlorine dispensers. However, there was a supply of miscellaneous small parts including valves and piping available on-site at the time of the review. Overall, the condition of the equipment appeared to be good, with some minor corrosion noted at the valves and connections. There was no major cracking or leaking noted on-site.

Overall, the reliability of the Pierson public water system was noted to be fair to good. Some redundancies and backup systems are in place to ensure that the system can reliably produce safe drinking water. We recommend that the RM explores the possibility of a backup power supply and alarm systems for water quality and levels in order to increase the reliability of the system.

8 Recommended Upgrades and Actions

The following items were noted during our interviews with the operator of the Lyleton public water system and DWO, our review of the previous Assessment and available documentation, and our on-site reviews of the system:

- installing power failure, pump failure, and low water level alarms
- installing real-time water monitoring or alarm systems
- exploring the possibility of having a backup power supply
- establishing protocol to test, monitor, and calibrate the in-house equipment
- generate Standard Operating Procedures including standard procedures for delivery, handling and storage of chemicals
- thorough cleaning and disinfection of the well house, reservoir house and reservoir
- sealing and insulating the penetration of the truck fill line through the south wall of the reservoir house
- providing ventilation for chlorination feed and storage areas
- install a water meter at either end of the pipeline to accurately measure the volume of water being consumed
- developing an Emergency Contingency Plan and Operating Instructions
- generating a new Compliance Plan

9 Report Limitations

This Re-Assessment of a Public Water System has been completed according to the requirements of the Terms of Reference for a Re-Assessment of a Public Water System prepared by the Office of Drinking Water.

This report is based on the information collected from the Municipality of Two Borders, the Office of Drinking Water, and the site visits conducted by SEI. All information which was provided by individuals noted in the report has been collected by SEI in good faith with the assumption that the information is correct or to the best of their knowledge. SEI accepts no responsibility for any inaccurate information in this report as a result of omissions or misinterpretations of information that was provided by persons interviewed or contacted. Unless otherwise noted within the report, SEI renounces any obligations to update this report with information that becomes available after the time during which SEI conducted the Re-Assessment of the Public Water System.

This report has been prepared exclusively for the Municipality of Two Borders and the Office of Drinking Water. Should this report be used by a third party, any reliance or decisions made based on this report shall be the responsibility of the third party. Written authorization from SEI will be required should an additional party require reliance upon this report. SEI makes no representation concerning the legal significance of the findings or the information contained within this report.

MUNICIPALITY OF TWO BORDERS

By-Law No.

BEING A BY-LAW OF THE MUNICIPALITY OF TWO BORDERS TO PROVIDE FOR WATER RATES IN LYLETON AND THE COLLECTION THEREOF.

WHEREAS The Municipality of Two Borders has undertaken a water rate study for the Lyleton Water Utility that indicates water rates require to be increased;

And WHEREAS Section 232 (1) and (2) of the "Municipal Act", S.M. 1996, c. 58, provides in part as follows:

232(1) A council may pass by-laws for municipal purposes respecting the following matters:

(l) public utilities;

232(2) Without limiting the generality of subsection (1), a council may in a by-law passed under this Division....

(d) establish fees or other charges for services, activities or things provided or done by the municipality or for the use of property under the ownership, direction, management or control of the municipality;

AND WHEREAS it is deemed advisable to provide rates for 2016 and thereafter to be paid by persons to whom water is supplied by the by the Municipality of Two Borders in Lyleton and to provide for the collection thereof;

NOW THEREFORE THE COUNCIL OF THE MUNICIPALITY OF TWO BORDERS IN SESSION DULY ASSEMBLED, HEREBY ENACTS A BY-LAW AS FOLLOWS:

1) THAT consumers in Lyleton shall pay for water services supplied to them at the rates and under the terms set out in Schedule "A" attached hereto and forming part of this by-law. Connected customers shall be billed quarterly charges for water services as set forth in Schedule "A".

2) THAT the meter shut off valve inside premises serviced with water by the RM, shall be readily accessible and not used by the owner except for the protection of the premises. All pipes and valves inside the premises shall be kept in good repair by the owner or occupant. Any damage through neglect or otherwise, by a contractor for the owner or occupant, to the water service pipes from the street to the premises shall be the responsibility of the owner or occupant.

3) THAT no person shall wilfully or maliciously hinder or cause to hinder the RM or its' representative in the exercise of their duties in relation to the operation and maintenance of the water system.

4) THAT any person violating any provision of this by-law shall:
   a) be guilty of an offence and, upon conviction, liable to a fine not exceeding five hundred dollars ($500) and costs for each violation;
   b) be liable to the Municipality of Two Borders for any expense, loss or damage suffered by the Municipality as a result of the violation;
   c) be liable for the repairs and costs of the repairs to the system as a result of the violation. If that person is in default of effecting the repairs, the Municipality may effect the repairs and charge the cost thereof to that persons, or add the cost to property taxes and collect those property taxes in the same manner as other property taxes.

5) This by-law and rates for 2016 and thereafter, shall come into force and be effective on, from and after both approval of the Public Utilities Board of Manitoba and receipt of third and final reading thereof.

6) That By-law No 8-2008 be repealed as of January 1, 2016 and upon final approval of this By-law by the Public Utilities Board of Manitoba.

PASSED AND ENACTED BY THE MUNICIPALITY OF TWO BORDERS IN COUNCIL DULY ASSEMBLED THIS day of , 2015.

Reeve

Chief Administrative Officer

Read a first time this day of , 2015.
Read a second time day of , 2016.
Read a third time day of , 2016.

MUNICIPALITY OF TWO BORDERS
LYLETON
WATER RATES BY-LAW NO.
SCHEDULE "A"

SCHEDULE OF QUARTERLY RATES

January 1, 2016

1. Rates per 1,000 Gallons

1,000 Gallons per Quarter
Water
$14.72

2. Minimum Charges per Quarter

Notwithstanding the rates set forth in paragraph 1, all customers will pay the applicable minimum charges set out below, which includes the water allowance as listed.

a. Water Customers

Meter Size	Group Capacity Ratio	Water Included Gallons	Customer Service Charge	Water Commodity Charge	Total Quarterly Minimum
5/8 inch	1	3,000	$5.20	$44.16	$49.36
3/4 inch	2	6,000	$5.20	$88.32	$93.52
1 inch	4	12,000	$5.20	$176.64	$181.84

The Following Clauses are Effective January 1, 2016

1. Service to Customers outside Lyleton limits

The Council of the Municipality of Two Borders may sign agreements with customers for the provision of water and sewer services to properties located outside the legal boundaries of Lyleton. Such agreements shall provide for payment of the appropriate rates set out in the schedule, as well as a surcharge, set by resolution of Council which shall be equivalent to the frontage levy, general taxes and special taxes for utility purposes in effect at the time, or may be in effect from time to time, and which would be levied on the property concerned if it were within these boundaries. In addition, all costs of connection to the Utility's mains and installing and maintaining service connections will be paid by the customer.

2. Billings and Penalties

Accounts shall be billed quarterly based on water used. A late payment penalty charge of 1 ¼% compounded monthly shall be charged on the dollar amount owing after the billing due date. The due date will be at least twenty (20) days after the mailing of the bills.

3. Disconnections

The Public Utilities Board has approved the Conditions Precedent to be followed by the Municipality with respect to the disconnection of service for non-payment including such matters as notice and the right to appeal such action to the Public Utilities Board. A copy of the Conditions Precedent are available for inspection at the Municipal office.

4. Reconnection

Any service disconnected due to non-payment of account shall not be reconnected until all arrears, penalties and a reconnection fee of $50.00 have been paid.

Seasonal residents requiring a reconnection for the period of time they are using the water system will be levied a $50.00 reconnection fee.

5. Outstanding Bills

Pursuant to Section 252(2) of the Municipal Act, the amount of all outstanding charges for water and sewer services, including fines and penalties, are a lien and charge upon the land serviced, and shall be collected in the same manner in which ordinary taxes upon the land are collectible, and with like remedies. Where charges and penalties pursuant to this by-law are not paid within sixty (60) days from the date when they were incurred, said charges and penalties shall be added to the taxes on the property and collected in the same manner as other taxes.

6. Hydrant Rentals

An annual charge of seventy five hundred dollars ($75.00) per hydrant shall be made by the said utility to Lyleton for fire protection services, which annual charge shall include water used.

7. Municipality to be Notified of Failure of Meter

In the case of breakage, stoppage or irregularity in a water meter, the customer shall notify the Designated Officer immediately upon such condition being discovered. All installation, repair and disconnection of any water meter shall be performed only by those authorized to do such work by the municipality.

8. Meter Testing

Any customer wishing to have a meter tested for accuracy will pay in advance a fee of $100, plus any applicable meter testing costs. In the event the meter tests prove that the meter is recording water flows in excess of actual flows, the meter testing fee and associated costs will be refunded to the customer and the customer's account will be reviewed and adjusted accordingly.

9. Meter Tampering

Where there is evidence of meter tampering a minimum charge of $500 will be applied to the customer's account in addition to an amount calculated to adjust for the tampering based on historical usage.

10. Cross Connections

No customer or person shall connect, cause to be connected or allow to remain connected any piping, fixture, fitting, container or appliance in a manner which under any circumstances may allow water, wastewater or any harmful liquid or substance to enter the Municipality's water system.

If a condition is found to exist which, in the opinion of the Municipality, is contrary to the aforesaid, the Municipality may either:

- Shut off the service or services; or
- Give notice to the customer to correct the fault at his or her own expense within a specified time period. If the customer fails to comply with such notice the Municipality shall proceed in accordance with clause 4 of this by-law.

11. Authorization for Officer to Enter Upon Premises

The Public Works Foreman, or other employee authorized by the Municipality in the absence of the Public Works Foreman, shall be authorized to enter upon any premise for the purpose of:

affixing to any pipe, wire or apparatus connected with any such utility, a meter or any other measuring or testing device; or

taking readings from, repairing, inspecting or removing any meter or apparatus belonging to the Municipality.

12. New Connections

Any person wishing to connect to eh water distribution system must make arrangements with the municipal office. A connection fee of $500.00 will be levied for any new connection with the connection fee including the

Schedule "B"

Lyleton
Water Rate Study

Customers

Water Only	2015
	30
	30

Residential Equivalency Units

	Total REUs	# of Customers
Regular Resident (1 REU)	27.00	27
Rural Resident (1.75 REUs)	1.75	1
Seasonal Resident - Summer (0.5 REUs)	0.50	1
Seasonal Resident - Winter (.25 REUs)	0.25	1
	29.50	30

Contingency-10% of variable operating costs

	2018 Var. Op. Exp.	%	Contingency Allowance
Projected 2018 Variable Operating Expenses	12,161	20%	$2,432

Annual Debenture Cost

Utility Operating Fund Debenture Debt, Jan. 1, 2015	$0
2015 Debenture costs	$0

Water Purchased/Sold

At present this is an Unmetered water system and unaccounted for water cannot be computed.
However, the RM has purchased and is installing water meters this year.

	Gallons	
2014 water production	1,433,062	
less 10% estimated unaccounted for water	(143,306)	
	1,289,756	
Divided by # of REU's	29.5	
Average consumption per REU	43,721	
It is anticipated that conversion to water meters will reduce water consumption. Assume a 10% reduction	-4,372	
Adjusted average annual consumption per REU	**39,348**	**9,837** gallons per quarter
# of REU's	29.5	
Adjusted Water consumption for rate calculations	1,160,780	

Calculation of Customer Service Charge

		Annually
Current annual customer service charge - By-law #8/2008		$5.00
Administration costs - 2018 budget	$624	
Number of customers	30	
Annual customer service charge	$20.81	

January 1, 2016 Customer Service Charge	Annually	Quarterly
	$20.81	**$5.20**

Caclulation of Water Rates - 2018 Budget

Water Rate - all customers			
Net water rate costs	14,659	100%	14,659
Contingency allowance	2,432	100%	2,432
Transfer to Utility Reserve	0	100%	0
Less amortization of capital grants - water	0	100%	0
Less tsf from Gen Optg for debenture debt			
			$17,091
Current annual water charge per REU - By-law #8/2008			$158.00
Proposed January 1, 2016 Water Rate per REU			**$579.37**

Rate per 1,000 gallons January 1, 2016

January 1, 2016 Water Rate per 1,000 gallons	**$14.72**

Utility Billing

Increase based on REU	Water	Service Charge	Total	Increase $	Increase %
Current Annual Rate per REU	$158.00	$5.00	$163.00		
January 1, 2016 Annual Rate per REU	$579.37	$20.81	$600.18	$437.18	268%

	Water Rate per 1,000 Gallons	Quarterly Service Charge
January 1, 2016 rates	$14.72	$5.20

Impact on a 5/8" meter minimum bill 3,000 gallons per quarter

	Annual costs based on current rates REU	Annual costs based on rates proposed January 1, 2016
Total Cost per Year	$163.00	$197.45
Annual Increase		$34.45
Quarterly Increase		$8.61
Increase in Percent		21%

Impact on a family using 10,000 gallons of water per quarter

	Annual costs based on current rates	Annual costs based on rates proposed January 1, 2016
Total Cost per Year	$163.00	$609.61
Annual Increase		$446.61
Quarterly Increase		$111.65
Increase in Percent		274%

Schedule "C"

Lyleton
Estimated Annual Revenue from Water Rates
Rate Increase to take effect January 1, 2016

2016 Water billing revenues

January 1 to December 31, 2016				
Service Charges	30 customers	$5.20 annually		$ 624
Water Commodity Charges		1,000 Gallons	Rate	
		1,161	14.72	$17,087
2016 billing revenues				**$17,711**

SCHEDULE OF UTILITY RATE REQUIREMENTS - MUNICIPALITY OF TWO BORDERS (Lyleton)
FOR PUBLIC UTILITIES USE ONLY
2012 to 2014 Audited, 2015 Budget and 2016 to 2018 Forecasts

Inflation rate 2

		2012 Audited	2013 Audited	2014 Audited	2015 Budget	2016	2017 Forecasts	2018
General								
Expenses:								
Billing and Collection		$508	$570	$596	$0	$600	$612	$624
Administration		-	-	-	-	-	-	-
Working Capital		-	-	-	-	-	-	-
2014 Deficit Recovery		-	-	-	-	-	-	-
Utilities (telephone, electricity, etc)		-	-	-	-	-	-	-
Total general expenses		508	570	596	-	$600	612	624
Revenue								
Penalties		-	-	-	-	-	-	-
Other income		151	-	-	-	-	-	-
Total general revenues		151	-	-	-	-	-	-
Net Costs General		357	570	596	-	600	612	624
Water								
Expenses								
Staffing		-	-	-	-	-	-	-
Service of Supply		-	-	-	-	-	-	-
Purification and Treatment	1	9,218	11,581	11,079	5,500	$11,689	$11,922	$12,161
Other Water Supply Costs	2	-	-	-	12,000	-	-	-
Connection costs		-	-	-	-	-	-	-
Amortization	3	1,648	1,648	1,648	1,648	2,648	2,648	2,648
Interest on long term debt		-	-	-	-	-	-	-
Total water expenses		10,866	13,229	12,727	19,148	14,337	14,571	14,809
Revenue								
Hydrant rentals	4	-	-	-	-	150	150	150
Bulk Water fees		-	-	-	-	-	-	-
Total revenue		-	-	-	-	150	150	150
Net rate costs - Water		10,866	13,229	12,727	19,148	14,187	14,421	14,659
Water Billing Revenues								
Water billings		4,646	4,646	4,646	4,646	17,711	17,711	17,711
Property Taxes								
Transfer from Gen. Optg. Property Taxes for Debt Payments		-	-	-	-	-	-	-
Capital Grants (see Capital Grants listing)								
Amortization of water capital grants		-	-	-	-	-	-	-

	2012 Audited	2013 Audited	2014 Audited	2015 Budget	2016	2017 Forecasts	2018
Amortization of sewer capital grants	-	-	-	-	-	-	-
Amortization of Capital Grants	-	-	-	-	-	-	-
Net Revenue/(Expenses)	**(6,577)**	**(9,153)**	**(8,677)**	**(14,503)**	**2,924**	**2,678**	**2,428**
Deduct Contributed TCAs Current Year	-	-	-	-	-	-	-
Deduct Capital Grants Current year	-	-	-	-	-	-	-
Net Operating Surplus (Deficit) with PUB Adjustments	**(6,577)**	**(9,153)**	**(8,677)**	**(14,503)**	**2,924**	**2,678**	**2,428**
Transfers							
Transfers from (to) General Operating	4,798	4,609	7,235	855	-	-	-
3 Transfers from (to) Utility Reserve	-	-	-	20,000	-	-	-
Change in Utility Fund Balance after Surplus Transfers	**(1,779)**	**(4,544)**	**(1,442)**	**6,352**	**2,924**	**2,678**	**2,428**
Reverse PUB Adjustments to Adjust Surplus to PSAB							
Capital Grants - Reverse PUB Adjustments	-	-	-	-	-	-	-
Deduct Amortization of Contributed TCAs	-	-	-	-	-	-	-
Add Capital Grants	-	-	-	-	-	-	-
FUND SURPLUS, BEGINNING OF YEAR	**47,243**	**45,464**	**40,920**	**39,478**	**45,830**	**48,754**	**51,433**
FUND SURPLUS, END OF YEAR	**$ 45,464**	**$ 40,920**	**$ 39,478**	**$ 45,830**	**$ 48,754**	**$ 51,433**	**$ 53,860**
Working Capital Suplus/Deficit							
Fund Surplus		$ 40,920	$ 39,478	$ 45,830	$ 48,754	$ 51,433	$ 53,860
Less Tangible Capital Assets		(44,041)	(42,393)	(60,745)	(58,096)	(55,448)	(52,800)
Add Long term debt		-	-	-	-	-	-
Add Utility Reserve		0	30,000	10,000	10,000	10,000	10,000
Working Capital Surplus		-$3,121	$27,085	-$4,915	$658	$5,984	$11,060
Minimum working capital surplus = 20% of expenses		$2,760	$2,665	$3,830	$2,987	$3,037	$3,087

Note 1:
2016 costs reflect the average of the 2012-14 costs increased by 10%

Note 2:
Other Water Supply Costs for 2015 include $10,200 for Water System Assessment and $1,800 for Utility Rate Study

Note 3:
Water meters were purchased to be installed in 2015 with amortization to begin in 2016

Note 4:
Order 57/08 included $75 for the rental of each of two hydrants which had not been charged

Municipality of Two Borders – Lyleton
Allocation Plan for Non-Direct Shared services

September, 2015

Category	Sub-category	Options		
1.0 Administrative Staff, office, legal and audit costs		Flat Rate		$600
	1.1 Billing services – meter reading to receipting and collection.			
	1.2 Accounting/ auditing/ including bylaw making and enforcement.			
	1.3 Common office space			
	1.4 Office overheads (telephone, photocopier, computer, etc)			
2.0 Operating, construction and maintenance costs				
	2.1 Vehicle – fuel, maintenance, lease costs, capital costs	Costs that could be charged to the Utility are minimal and at present nothing is allocated to the Utility		
	2.2 Labour – full time, part time, on call, sick time, vacation, Note 2			Actual time worked is charged off to the Utility.
	2.3 Public works building and property.	Costs that could be charged to the Utility are minimal and at present nothing is allocated to the Utility		
	2.4 Road repairs and alike (Note 3)	Based on actual costs		
3.0 Major projects				
	Interest/ financing			N/A
	Labour	Based on actual costs		
	External costs	Direct charge (dedicated consulting)		

Note 1: Allocation must be updated periodically to reflect the impacts of inflation.
Note 2: Including salaries and benefits.
Note 3: If a project involves work benefitting both the utility and general operations, the costs may be shared e.g. re-constructing a road and replacing services at the same timed – a portion of the road work may be allocated to the utility.

Due to the very small size of the Utility combined with the significant proposed increase in utility rates, the Municipality proposes to maintain the flat rate cost allocation of $600 per year to the Utility and increase it by 2% a year thereafter. The Municipality will review cost allocation to the Lyleton Utility the next time a rate study is required.