REGIONAL DISTRICT of NORTH OKANAGAN

GRINDROD WATER UTILITY
Public Information Meeting
SUMMARY

File No.: 5630.1.3

Meeting Date: June 28, 2017

AGENDA

1. Introductions
2. Water System
3. Grindrod Water Utility Financials
4. Grindrod Water Utility Reserve Funds
5. Selling Water from the Utility
6. Work Completed
7. Work Scheduled for 2017
8. Grindrod Fire Flow System Evaluation
9. Legislative Requirements and Planning
10. Emergency Response Planning Update
11. Voluntary Water Restrictions
12. Emergencies – who to call

Material specified within this package as "see website" can be found on the Grindrod Water Utility site on the Regional District of North Okanagan (RDNO) website (www.rdno.ca).
Go to Services → Engineering → Community Water Utilities → Grindrod Water (http://www.rdno.ca/grindrod-water-utility)

Regional District of North Okanagan
9848 Aberdeen Road
Coldstream, BC V1B 2K9

Phone: 250-550-3700
Fax: 250-550-3701
Web: www.rdno.ca
E-mail: info@rdno.ca

NOTES ON AGENDA ITEMS

1. Introductions

Herman Halvorson, RDNO Director, Area "F"

Stephen Banmen, RDNO General Manager, Finance

Zee Marcolin, P. Eng., RDNO Manager, Utilities Operations

James de Pfyffer, RDNO Small Utilities Manager

See website for map of the Grindrod Water Utility (GRW).

2. Water System

The GRW was established in 1997 at the request of local residents after a year when their wells were very low or dry. In addition, the groundwater in the area was high in manganese and/or iron and the water quality was poor and had a yellow colour that stained fixtures and clothing.

The GRW is owned, operated and maintained by the Regional District of North Okanagan (RDNO) providing potable water to 55 customers, of which 46 are residential.

The RDNO employs a contract operator to complete daily operational tasks, and is available 24 hours a day, 7 days a week to provide emergency response. The contractor's back up operator is also available to respond if necessary.

The GRW system draws water from the Shuswap River through a screened intake line to a wet well from where it is pumped to a package water treatment plant. Treated water is then stored in a reservoir below ground before being pumped to customers in the distribution system. As there is no elevated storage the distribution pump(s) must run continuously to maintain pressure.

The Grindrod package water treatment plant has a filter flow rate of 66 U.S. gpm (4.2 litres per second), but is normally operated at about 53 U.S. gpm (3.3 Lps) which is the maximum operating speed of the pump in the wet well. The system is sometimes operated at slower speeds if the turbidity is high in the river to ensure adequate filtration time. The package treatment plant consists of a hydraulic flocculation chamber, a tube settler/clarifier and a mixed media filter. The plant discharge turbidity is typically below 0.2 NTU. Over the course of a year the turbidity in the river can range from less than 1 NTU to greater than 100 NTU during freshet.

Chlorine is added to the treated water after filtration to provide a second method of disinfection and residual in the distribution system.

There is no backup power at the water treatment plant/pump house, or the wet well site. Power outages at the pump house cause interruptions to water service.

3. Grindrod Water Utility Financials

In 2017, a three (3) year Rates Imposition Bylaw (No. 2735) was adopted to provide stability to the Grindrod water users and for operations. To see the full bylaw and Board report, see https://rdno.civicweb.net/document/68601.

The residential Consumption User Fee is $597 per annum in 2017.

A parcel tax of $742 is also included for all folio lots for debt financing.

Increases in the 2017 Budget were required for the following:

- Chlorine System Upgrades
- Installation of two (2) Turbidity Analyzers
- Upgrade of the Supervisory Control and Data Acquisition (SCADA) software
- Increased chemical costs
- Increased laboratory fees

Attachment 1 provides the Financial Summary for the Grindrod Water Utility, and the 2017 Budget.

> *A question was raised regarding a grant of about $20,000 that was obtained when Mr. Bob Campbell was the Manager of the water system, and whether those funds had been used for the Grindrod Water Utility. We note that in 2007 an application was made for a Grant of $19,080 from the Community Works Project Funds of the Provincial Gas Tax Rebate Program to deal with operational problems caused by excessive sand in the intake at the Water Treatment Plant. The funds were intended for the purchase and installation of a new pump that had been subject to considerable wear due to the sand loading, a magnetic flow meter to replace the turbine meter that had also been worn out, an online residual chlorine residual analyzer, and two centrifugal sand separators to remove the sand before it reaches the treatment plant. A report to the board dated January 9, 2008 confirms that all of these items were installed in 2007. These items are still in use today, however, the two centrifugal sand separators have deteriorated from use and are currently in the process of being replaced. (See Attachment 3)*

4. Grindrod Water Utility Reserve Funds

Grindrod Water Utility is a function of the RDNO. All functions of the RDNO are managed on a user pay principal and each function has a separate budget, as provided in Attachment 1. The RDNO cannot legally make a profit on services nor does it have a “general revenue”. Any surplus revenue for a particular year for a particular function is transferred to reserves for that particular function. If a deficit occurs, the reserves are used to cover any short-falls. If there are no reserves, the RDNO must raise rates the following year to cover the short-fall and/or borrow on behalf of that function to offset the costs, or add to property taxes at an amortized rate. The goal of reserves is to stabilize rates and avoid large expenditures within a single year that can cause unacceptable increases in rates.

The objective of an operating reserve is to fund unbudgeted unexpected/emergency expenditures related to operations or maintenance works. The Sustaining Capital Reserve is to budget for the capital replacement costs of the utility amortized over 30 years. For example, the operating reserve may be used for the unexpected servicing of an existing pump whereas the sustaining capital reserve would be used to replace the pump. The Sustaining Capital Reserve is considered the consumption cost of a utility’s capital works.

5. Selling Water from the Utility

A decision was made in 2011 for the RDNO to sell water to one commercial venture located outside the Grindrod Water Utility boundary. Selling water to local area residents was seen as beneficial to both the buyer and the Water Utility. The RDNO has installed a temporary meter and backflow prevention box on Fourth Avenue for this purpose. This equipment protects the water supply from backflow contamination and measures water use for billing purposes.

Water is only sold from this location during frost free months. Currently, water capacity of the Grindrod Water Utility is sufficient to sell some water and to supply customers. Water use will be monitored closely when water is being sold and priority of water will be for customers connected. Water provided to outside parties will cease if water system capacity can not accommodate.

As the backflow equipment is unmanned, it will only be used by the one commercial venture at this time.

6. Work Completed

- Grindrod Fire Flow System Evaluation – A 2015 report was completed by Stantec Consulting Ltd. for providing fire flow protection that meets the Fire Underwriters Survey (FUS) standards. The report investigates two options, both for residential fire flow rates. Cost estimates: Option A: $848,000, and Option B: 645,500. For discussion, see section 8, below.
- Installation of Water Sample Stations – Two of these units have been installed, one on Fourth Avenue and one on James Street. The RDNO is required to take samples once every two weeks. The sample stations eliminate the need for staff to take samples from a hose bib on the side of a house, or from other locations that are not necessarily accessible year round, such as in the school.

7. Work Scheduled for 2017

- Programmable Logic Controller (PLC) Replacement – The RDNO received a Community Works Fund grant to replace the PLC in the Water Treatment Plant. The PLC is computer hardware that is programmed to automatically regulate the operation of the Water Treatment Plant. For example the level of water in the reservoir is maintained between two predetermined set points, and a pump is automatically turned on or off at each set point. When the pump comes on, the PLC is programmed to start up the Treatment Plant, including chlorine, etc. This reduces operating costs as the operator does not need to visit the site as frequently. The existing PLC is nearly 20 years old, and has managed to outlive the availability of technical support; therefore, it must be replaced.
- Modification of Intake Screen – The RDNO also received a CWF grant to assess and complete upgrades to the river intake. Upgrades are intended to address the problem of sand passing through the intake screen and entering the wet well from where it is pumped to the water treatment plant. In 2005, vortex sand separators were installed just before the treatment plant, reducing sand issues in the plant, but these are installed after the pump in the wet well, and as a result we are still having to deal with pump failures and operational issues.
- Chlorine Upgrade – A safer alternative to the current chlorination system, which requires shipments of sodium hypochlorite solution, is to produce chlorine as it's needed on site at the Water Treatment Plant. This may be achieved by installing a chlorinator unit that

uses dry tablets of calcium hypochlorite to produce a 1.5% solution of calcium hypochlorite. The RDNO uses this type of chlorinator at both Silver Star and Mabel Lake water utilities. This type of chlorine delivery will also assist in extending the life of the infrastructure in the pump house by reducing the corrosive fumes from the use of liquid sodium hypochlorite.

- On-line Turbidity Meters – On-line measuring and recording of water turbidity at the Water Treatment Plant is a requirement of the GRW Permit to Operate issued by Interior Health (IH), and improves system safety. The existing meter measures turbidity of the water after time spent in the reservoir, at the point where it is pumped to the distribution system. The proposed meters will measure the raw water as it enters the treatment plant, and the treated water as it leaves the plant, before it enters the reservoir.
- Updating the Emergency Response Plan (ongoing)
- Strategic Planning – to plan for required improvement works and potential upgrades (ongoing)

8. Grindrod Fire Flow System Evaluation

A preliminary design report was completed in 2015 by Stantec Consulting Ltd. for providing fire flow protection to Grindrod that meets the Fire Underwriters Survey (FUS) standards. The report investigates two options, both for residential fire flow rates.
Cost estimates: Option A: $848,000, and Option B: 645,500 (2015 costs).

We note that only residential fire protection was studied in this report. For commercial fire protection, the required reservoir storage volume is four times the existing, whereas the required storage for residential fire protection is two times the existing. Also, commercial fire flow rates are 150% of residential, which would require a much larger fire pump and power generator, and their associated maintenance costs. Industrial fire protection requirements are greater still, requiring more than 300% of residential fire flow rate, and 11 times the current storage volume. These parameters would increase project costs substantially.

With a 20 year loan, the annual cost per residential property for Option A is estimated to be approximately $1,360 per year, and for Option B the estimate is about $1,030 per year (based on 2015 costs). These costs need to be confirmed if this project moves ahead.

To proceed with this project, the customers of the Grindrod Water Utility must present the RDNO with a petition in favor of the project.

9. Legislative Requirements and Planning

The *BC Drinking Water Protection Act* (*"Act"*) was enacted in 2001 and under this *Act*, water suppliers are required to meet the expectations of the *Act* including meeting the Canadian Drinking Water Quality Guidelines (CDWQG). IH is the provincial government body tasked with overseeing the implementation of the *Act*. In response, IH has developed the 43210 objectives for clean drinking water (see website).

The 43210 IH objectives require two barriers to pathogens, with filtration preferred as one barrier for surface water sources. Grindrod's water source, being a river, is considered the most vulnerable water source with large seasonal fluctuations in water quality. Thus, filtration was required when the system was constructed to provide a safe source of water.

IH also issues Conditions on Permit as part of issuing the operating permit for all BC water systems. The RDNO must provide an annual report to provide progress on these conditions. The GRW annual report to IH is currently in progress, but will be posted on the GRW website when completed. The report provides information on the management, monitoring and operations of the system.

10. Emergency Response Planning Update

GRW has an Emergency Response Plan (ERP) that is reviewed and updated annually.

If there is a water quality issue for the Grindrod Water Utility, signboards will be placed at 2nd, 3rd and Fourth Avenues just off of the Highway. Information will also be posted at the post office, store and park washroom (if opened). The media will also be notified, and the RDNO website will also contain information regarding any advisories or notices.

A similar procedure for Boil Water Advisories will also be taken, although increased notification may occur depending on the specific situation and the risk.

The signboards will also be used when flushing is occurring.

The RDNO has a sensitive customer list where notification sent directly to the customer will occur. Sensitive customers can be notified by email or fax. Delivery of direct notification will also be considered. If you are interested in signing up on the sensitive customer list, please contact the RDNO front desk at 250-550-3700 and ask for a Water Quality representative.

11. Voluntary Water Restrictions

Residents are asked to conserve water and undertake voluntary water restrictions in the peak summer months. The RDNO is asking residents to comply with the following:

- Outdoor watering on an Odd-Even schedule (i.e. odd numbered addresses water only on odd numbered days, even number addresses water on even days);
- Do not water outdoors during the hot time of the day – water from 8:00 pm to 8:00 am; and
- Install water conservation devices whenever possible.

The following website provides excellent tips on how to conserve water: www.okwaterwise.ca

12. Grindrod Water Emergencies – Who to Call

Operator – Aberdeen Electric Ltd, Armstrong, B.C.

- Prime contact – Warren McKim - Cell: 250.558.8431
- Backup contact – Nicholas McKim - Cell: 250.306.2152

Other Inquiries:

- James de Pfyffer, Small Utilities Manager - 250.550.3748
- Zee Marcolin, P.Eng., General Manager, Utilities - 250.550.3660

Attachments

1. Grindrod Water Utility Financials
2. Rate Comparison Table for Small Water Utilities within BC
3. January 9, 2008 Report: Gas Tax – Community Works Projects – Grindrod Water System

Attachment 1

Finances – Grindrod Water Utility

	ACTUAL 2015	BUDGET 2016	FP 2017	VARIANCE	%
REVENUE					
PROPERTY VALUE TAXES	-	-	-	-	0.0%
PARCEL TAXES	(43,000)	(43,000)	(43,000)	-	0.0%
FEDERAL / PROVINCIALGRANTS	-	-	-	-	0.0%
GRANTS IN LIEU OF TAXES	-	-	-	-	0.0%
FEES, CHARGES & OTHER INCOME	(76,478)	(78,544)	(80,305)	(1,761)	2.2%
TRANSFERS FROM RESERVES	(17,592)	(69,500)	(105,000)	(35,500)	51.1%
TRANSFERS FROM NON-STATUTORY RESERVES	(5,985)	-	(2,870)	(2,870)	0.0%
CAPITAL BORROWING	-	-	-	-	0.0%
	(143,056)	(191,044)	(231,175)	(40,131)	21.0%
EXPENSES					
WAGES & BENEFITS	-	-	-	-	0.0%
OPERATING EXPENSES	110,998	88,847	88,444	(403)	(0.5%)
DEBT PAYMENTS	21,438	22,069	22,731	662	3.0%
TRANSFERS TO RESERVES	-	-	-	-	0.0%
TRANSFERS TO NON-STATUTORY RESERVES	1,028	10,628	-	(10,628)	(100.0%)
CAPITAL EXPENDITURES	9,592	69,500	120,000	50,500	72.7%
	143,056	191,044	231,175	40,131	21.0%
NET	-	-	-	-	0.0%

- 2017 Rate Increase = $17 (from $580 to $597 = 3%)
- 2017-2019 Capital Projects Plan: $105,000
- Outstanding debt: $24,000 (as of 2016) - matures 2017/2018

Reserve Balances

- 2015 - $54,000
- 2016 - $74,000
- 2017 - $71,000 (2017 projected)

Capital Program

The Capital Program has been developed for the next 3 years with a corresponding 3 year rates Bylaw to align with those future expenditures. However, this program may vary due to unknown circumstances.

2017 Capital Projects – Grindrod Water Utility	
Replace PLC Controller	$35,000 (Current Revenue)
Intake Modifications	$34,500 (Community Works Fund)
Intake Modifications – Part II	$35,500 (Community Works Fund)
Upgrade Chlorination System	$5,000 (Current Revenue)
Install Two Turbidity Analyzers	$10,000 (Current Revenue)

2018-2019 Capital Projects – Grindrod Water Utility		
2018	Supply and Install Standby Generator - CWF Project	$75,000
2018	Flow Meter @ WTP discharge	$12,000

Attachment 2

RDNO Small Utilities - Proposed Rates

	# Units/ Connect-ions	Residential User Fee $/yr	Base Rate / parcel fee $/yr	Total Residential Rates/yr	Residential Rates with Discount/yr[1]	Disinfection/ Treatment	System
Silver Star Water[2]	742	$344	$265	**$609**	**$548**	Chlorination, future UV	8 Wells, 3 reservoirs,
Mabel Lake Water	310	$202	$202	**$404**	**$364**	Chlorination, future UV	Lake Intake + reservoir
Grindrod Water	52	$597	$742	**$1,339**	**$1,205**	Treatment Plant + Clorination	Shuswap River intake + reservoir
Whitevale Water	92	$480		**$480**	**$432**	Chlorination	Well + reservoir
Gunter-Ellison Water	10	$795	$386	**$1,181**	**$1,063**	Same as Enderby	Extension of Enderby Supply

1. Approximately 70 % to 90 % of residents take advantage of the early payment discounts
2. Silver Star is metered and the residential rate calculation is based on first 100 m^3 water rate and annual consumption of 200m^3/yr

Rate Comparison with Small Utilities within the Okanagan Valley

WATER SYSTEM	Connect-ions	User Fee	Parcel Fee	Total Residential Rates/yr	Disinfection/ Treatment	District - SOURCE
Anglemont	approx. 430	$700	$505	**$1,205**	Unmetered	
Cedar Heights	400	$230	$142	**$372**	UV / Chlorination-Metered	CSRD - Shuswap Lake
Eagle Bay	75	$255	$263	**$518**	Chlorination / Unmetered	CSRD - Shuswap Lake
Falkland	230	$168	$156	**$324**	No Treatment / Unmetered	CSRD - Well
Mac/Reed	97	$510	$200	**$710**	Filtration / UV / Chlorination / Unmetered	CSRD - Shuswap Lake
Sorrento/Copperview	248	$350	$178	**$528**	UV / Chlorination / Unmetered	CSRD - Shuswap Lake
Saratoga	99	$185	$536	**$721**	UV / Chlorination / Unmetered	CSRD - Shuswap Lake
Woodsdale	29	$468	$1,357	**$1,825**	Extension of DLC	DLC - Okanagan Lk
Olalla	approx. 200	$381		**$381**	Chlorination / Unmetered	RDOS - Well + Reservoir
Falcon Ridge	57	$548	$459 (asset rnwl fee)	**$1,007**	Chlorination / Metered	CORD - Well
Killiney Beach	280	$466	$657 (asset rnwl fee)	**$1,123**	Chlorination / Metered	CORD - Okanagan Lk
Trepanier Bench	8	$1,612	$757 (asset rnwl fee)	**$2,369**	Filtration / Chlorination / Metered	CORD - Creek
Westshore	235	$550	$582 (asset rnwl fee)	**$1,132**	Chlorination / Metered	CORD - Okanagan Lk
Sunset Ranch	200	$360	$219 (asset rnwl fee	**$579**	Chlorination / Metered	CORD - Well

Attachment 3

REGIONAL DISTRICT
of
NORTH OKANAGAN

REPORT

File #: 5639.0.2

TO: Grindrod Water Standing Committee

Agenda No.: 7.E.4.a.

FROM: Bob Campbell
Infrastructure Services Manager

☑ Regular ☐ I/C

Date: January 16/08

DATE: January 9, 2008

SUBJECT: **Gas Tax – Community Works Projects – Grindrod Water System**

Recommendation: It is recommended that this report be received for information purposes.

Background: Early in 2007, the Grindrod Water Utility applied to the Regional District Electoral Area Services Committee for $19,080. from the Community Works Project Funds of the Federal Provincial Gas Tax Rebate Program. The funding was approved and used for the supply and installation of a new larger intake pump, two centrifugal sand separators, a magnetic flowmeter, and residual chlorine analyzer.

Discussion: All equipment has been received and is now in operation. Since the installation was completed, the plant has consistently produced excellent quality water.

Respectfully submitted,

Bob Campbell

Bob Campbell