NARAMATA WATER NEWSLETTER

Keeping the Region Informed-Community Meeting Summary

February 2015

The Regional District will be hosting a Stand-by Power Information Meeting on March 10th, 2015 at the OAP Hall. Doors open at 6pm. The meeting will start at 6:30pm. Snacks and refreshments will be served.

On Wednesday November 12, 2014, a Community Meeting was held at the Naramata Community Church to discuss important updates for the Naramata Water System including recently completed, current and future projects.

Summary of the Main Topics Presented:

Recently Completed and Current Projects:

During 2014 two adjoining replacement projects were undertaken on a critical section of watermain:

Project 1) Replacement of the watermain from Arawana Road to Juniper Road—Completion: July 2014:

- A 280m section of watermain was replaced using pipe bursting technology where the existing watermain is used as sleeve to pull the new watermain through. Project Cost: approximately $191,000.

Project 2) Watermain replacement on Arawana Road including Spruce Drive, Ponderosa Drive and Debeck Road: Final completion: Spring 2015:

- Approximately 1.1 km of watermain and related infrastructure was replaced using open excavation. This project was substantially completed in November 2014. The remaining landscaping and minor patch work will be completed in the spring of 2015. Estimated Project Cost: $710,000.

Capital Plan Summary:

- In 2013, an infrastructure assessment for the Naramata Water System was presented to the Naramata Residents. Included in this assessment was the water system replacement analysis detailing that approximately $6 Million in water infrastructure will require replacement by 2019.
- Also previously presented to the Residents was a cost-benefit analysis report on Twinning the water system. This report concluded that the twinning of the water system over a 20 year timeframe would be more costly than the provided benefit by approximately $3.3 Million.
- A final report that will prioritize capital upgrades in Naramata for next 20 years is expected to be completed in 2015. This report will be a rough guide for future water system replacements.

Flume Update:

- The RDOS is currently investigating options for replacing or decommissioning a wooden flume, approximately 730m long, which carries water from Robinson Creek to Naramata Creek. The purpose of this flume is to maintain fish flow during the dry months.

More information, including the presentation document and copies of the above mentioned reports, are available on the RDOS website under Engineering reports, on the Naramata Water System section.

Proposed Project-Stand-by Power:

What are the risks for which we may need stand-by power?

- Without backup power, in the event of a power failure lasting more than 6 hours during peak irrigation season, the reservoirs will likely be empty, no water will be available to residents and the Regional District would have to initiate the creek intakes.
- Typically during an interface fire, that is within the vicinity of a power supply, the power is turned off for safety reasons. As the Naramata water system requires power to operate this would mean that the only water available for fire suppression purposes, should this happen, would be the water stored in the reservoirs. Fire suppression requires an available and replenishable water source.
- In Naramata, the total reservoir storage volumes are insufficient to cover all the typical water requirements such as balancing the maximum water demands, fire suppression and emergency storage:
    - The Stonebrook Reservoir and Arawana Reservoir service approximately 20% of the system water demands. Both reservoirs have sufficient capacity for balancing and fire flow demands, however, Arawana Reservoir offers minimal emergency storage capacity.
    - The McKay Reservoir and Juniper Reservoir service approximately 80% of the system water demands. Neither reservoir meets the requirements and they rely upon the pumping infrastructure to help offset the emergency and balancing storage shortfalls. Additional storage and conveyance capacity improvements are required to satisfy current and future fire flow requirements.
- Should there be a loss of power during an extreme cold weather event, the potential for structural fires increases as residents use alternate heating methods. A backup power supply would aid in providing water for the fire suppression.

How long will the water last in a power outage during high usage in the summer?

- The Juniper Reservoir has approximately 1-2 hours of water available during peak irrigation season.
- The flow from the Arawana & Stonebrook Reservoirs can be reversed back into the Juniper Reservoir then the McKay Reservoir, prolonging the available water to a possible 3-4 hours for all three reservoirs.
- The McKay Reservoir would have approximately 6-8 hours water available as it supplies the village zone which has less agricultural water requirements than the upper areas.
- If fire flow is required times estimated above would be greatly reduced.

Why not use diesel drive engines instead of diesel generators?

Diesel drive engines are coupled directly to the water pump drive shaft using a right angled gear box followed by an electric motor which is installed on top of the pump drive shaft. Some of the benefits of diesel drive engines are that the electric motor can be used during normal operating conditions and the diesel drive is engaged manually during a power failure, the footprint of the device is small and the noise level is low as it could be installed inside the building. However, the use of a diesel drive motor would limit the number of pumps available to a single pump per facility which limits the amount of water able to be pumped. Also, the operations and maintenance costs of diesel drive engines are very high.

What about using the existing two creek intakes?

- In Naramata, there are currently two creek intakes, a South Intake and a North Intake, which could be utilized during a prolonged power outage to provide water to the community.
- The process for bringing the creek intakes online is difficult and time consuming. It is estimated that it would take two operators 4-6 hours per intake to get them up and running. During high demand times, the storage available in the reservoirs is not enough to supply uninterrupted water to Naramata while the intakes are being brought online.
- There are many challenges to a creek intake start-up including issuance of a boil water notice, installation of chlorine cylinders to add disinfection to the water and cleaning out sediment in the settling basin.
- In the event of an interface fire it is likely that the Upland Reservoirs and creek intakes will be inaccessible and chlorine will have to be removed from these locations. If we are able to utilize the South Intake during an event, it can supply the majority of the water system (except Stonebrook). However this is not the case with the North Intake which does not have the same capability. Therefore, the North Intake is reliant on the Flume. Should there be any damage to the Flume there would be complications in using the North Intake.
- It may not be possible to access the water sources. During extreme cold weather there are many issues that could prevent activating a creek intake such as the creek may be frozen and unable to supply the required volume of water. Similarly, during extreme hot weather there may be challenges such as working with drought conditions and restrictions.
- After power has been restored and the Regional District is able to shut down the intakes there is an extensive disinfection/flushing process for the entire water system that must be implemented:
    - This process will take a minimum of 2 weeks to complete during which time the water users will continue to be on a 'boil water advisory' and experience intermittent shutdowns.
- A critical concern is that the Stonebrook Reservoir is lower than the creek intakes so users supplied by this reservoir will not receive water in the event that the creek intakes are brought online. This area will be without water until the power is restored.
- As referred to in the Twinning Study, the creek intakes infrastructures are aging and require work to make them a reliable secondary water supply. Therefore, in order to utilize the creek intakes as a backup source, there is costly upgrades and extensive maintenance required. Additionally, work and maintenance will also be required at the Naramata Dam.
- In the event that the Regional District needs to utilize the creek intakes residents must follow a 'boil water advisory'. Ensuring that all residents are aware of the Advisory can be especially difficult during an emergency. Therefore for safety reasons, relying on a 'boil water advisory' as part of the planning process is not recommended.

Why do we have to chlorinate the water from the creek intakes?

The Provincial *Drinking Water Protection Regulation* sets out requirements for drinking water quality including treatment, construction and operation of water systems, monitoring, reporting, and public notification in the event that water becomes undrinkable. Schedule A of the *Regulation*, Water Quality Standards for Potable Water sets the standards for potable water quality as no detectable fecal coliforms or *Escherichia coli* per 100 ml sample. The *Regulation* also requires that all drinking water that originates from a surface water source be disinfected by a water supplier. For these reasons the water from the creek intakes

Reserve Funds:

Capital Reserve: Bylaw No. 1788, 1997 created to permit capital reserve contribution:

- Capital reserve contribution is $65.50 per quarter or $262 per year;
- Contribution is included in the general water fees of $200.66 quarterly or $802.64 annually;
- Typically about $250,000 is contributed into reserves each year.

Twinning Reserve: Bylaw No. 2355, 2005 created to permit collection of funds for separating the water system into a treated domestic system and an untreated irrigation system:

- Contribution is listed as a separate item on Quarterly Utility Statement;
- Reserve contribution is $32.75 per quarter or $131 per year;
- Typically about $125,000 is contributed to the reserve each year.

As the twinning project is no longer moving forward, the RDOS is working on changes to the Bylaws to incorporate the Twinning contribution into the existing Capital Reserve contribution. This is expected to be completed in 2015.

What is the importance of reserves and why would we not want to borrow for every project?

Reserves are an important long term capital management tool. They provide a method to maintain existing infrastructure and ensure unusual or unforeseen repairs can be met without the need for extraordinary tax or user fee increases.

Reserves also ensure repairs can be made in a timely fashion. The process needed to put borrowing in place is lengthy and takes time and money to complete. Reserves allow repairs to occur when needed without delay.

Reserves are also important because if a project is to be eligible for grant funding, we need to provide some level of matching funds. Reserves allow us to take advantage of grants as they become available.

What is the cost of installing new stand-by diesel generators for the water system?

The following three sites are proposed to have stand-by generators installed at the estimate costs:

- Raw Water Pump station: $500,000 (includes $50,000 in extra sound dampening);
- McKay Treatment Plant: $506,000;
- Juniper Reservoir and Pump station: $166,000;
- Estimates include generators, electrical, instrumentation, site work (excavation, fencing, etc.), engineering and contingency.

The total cost for this project would be approximately: $ 1.2 Million
The amount available to offset these costs: $ 1.1 Million from Water System Reserve

Email List & Text Message List

One of the questions asked was whether we have, or could have, a text message list for emergencies. The RDOS has compiled a list of emails from residents who have provided it for receiving emergency notifications through email. Anyone wishing to be added to the list please contact the Public Works Administrative Assistant at 250-490-4135 or email jburton@rdos.bc.ca .

If anyone wishes to receive text messages to cell phones in case of emergency, particularly agriculture water users, please provide your information as above so you may be informed quickly .

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