Item 6.3

Sechelt

FOR INFORMATION ONLY

TO:	Public Works, Parks and Environment Committee
REPORT DATE:	August 14, 2017
TARGET DECISION DATE:	September 20, 2017
FROM:	Director of Engineering and Operations
RE:	Reclaimed Water Reuse

RECOMMENDATION(S)

1. **That the report from the Director of Engineering and Operations dated August 14, 2017 regarding Reclaimed Water Reuse be received for information.**

DISCUSSION

Context/Background

The District of Sechelt provides numerous services to its ratepayers; however supplying potable water is not one of them. Potable water is provided by the Sunshine Coast Regional District (SCRD). The District of Sechelt has no control over this service. The SCRD manages and operates the utility. The SCRD will set the rates, maintain the system, plan, and construct Capital Programs.

In the last few years, the SCRD has had to restrict water use during the summer months. These restrictions are required to preserve supplies due to increased demand as our community grows and to combat the adverse effects of climate change.

As demand increases the need to increase infrastructure capacity will also occur. The SCRD will need to fund these improvements therefore it is certain that user rates will need to be increase.

Many municipalities, industrial, commercial and institutional users are looking at ways to reduce their overall water consumption.

One option that is being considered is the use of highly treated waste water for non-consumption purposes. British Columbia is the first province in Canada to establish a comprehensive waste water reclamation regulation which was recently revised as the Environmental Management Act- Municipal Sewage Regulation (2012).

The Federal Government has also recognized the importance of using reclaimed waste water for non-potable applications. In 2010, Health Canada published the Canadian

Guidelines for Domestic Reclaimed Water. This guideline speaks to the uses of reclaimed water with emphasis on the use in toilets and urinal flushing.

Reclaimed water has value; this water can be used to reduce potable water demands. A household using reclaimed water to flush toilets can save 30% in their yearly water consumption.

The Water Resource Centre (WRC) has been designed to treat 4000 cubic meters of effluent daily. The facility can be expanded to treat 8000 cubic meters of effluent. At present the WRC is producing 850,000 cubic meters or 850 million liters of reclaimed water per year. This water is currently being used in the facility for flushing equipment, to operate the water scrubbers and flush toilets; the remainder is discharged into the ocean.

As mentioned previously, British Columbia is a leader in Canada when it comes to using reclaimed water. The Dockside Green-Victoria, Vancouver Convention Centre (West Buildings) and the University of British Columbia's Centre for Interactive Research in Sustainability- Vancouver are buildings that use reclaimed water for toilet flushing and irrigation. Studies have shown that the flushing toilets and irrigating accounted for approximately 80% of the total water used in these facilities.

The British Columbia Ministry of Environment (MOE) has also published a document called Reclaimed Water Guidelines. This is a comprehensive document that addresses the acceptable uses of reclaimed water and the conditions that may accompany each use.

When it comes to discharging treated effluent in order to be in compliance with the Environmental Management Act (EMA) a municipality must be authorized under one of the following:

- An approved Liquid Waste Management Plan (LWMP)
- Registration under the Municipal Wastewater Regulations (MWR)
- Obtaining a specific permit or temporary approval

The District has an approved LWMP (2000). The District is also registered with MWR and the Wastewater Resource Center (WRC) has a Permit to Operate.

The MWR created and administered by the Province is a comprehensive regulation that governs all aspects of municipal wastewater management including the use of reclaimed water.

The MWR applies to all reclaimed water uses except reclaimed water from a sewage system that serves only a single family residence or duplex.

Reclaimed water can be used in many different ways. Each application is assigned to one of four categories; Low Exposure Potential, Moderate Exposure Potential, Greater Exposure Potential and Indirect Potable Reuse.

Exposure potential means the likelihood of the public coming into direct contact with reclaimed water or the likelihood of reclaimed water being a risk to the environment.

The Indirect Potable Reuse category is the most stringent category of reclaimed water reuse. Projects in this category require prior approval by MOE's regional director. Indirect Potable Reuse approval process must include a comprehensive consultation process with other ministries, agencies, local government, local residents, landowners and businesses with a focus on individuals and organizations that may be impacted.

Typical uses may include the replenishment of a potable water source or potential source and any other application where a very high level of quality is warranted.

The next category for reuse of reclaimed water is the Greater Exposure Potential category. Some reclaimed water uses under this category are:

- Irrigating agricultural crops
- Golf courses
- Cemeteries
- Residential lawns
- Green houses
- Silviculture operations
- Urban reuse
- Landscaping around Parks, Playgrounds, Schools, Irrigation for frost protection and crop cooling

Moderate Exposure Potential means public contact with reclaimed water is unlikely. Uses may include application to certain agricultural crops that are commercially processed, pasture land, nurseries, silviculture operations and some construction and industrial applications. Drip irrigation where the water does not make contact with the plant is also an acceptable practice. Crop cooling and autumn frost protection are not acceptable uses.

Low Exposure Potential reclaimed water is used in commercial or industrial application. Common uses are irrigation for pasture, fodder, nurseries, and forest land where public access is limited. Uses may also include industrial process water, soil compaction, dust control, aggregate washing and concrete production.

Whatever the use, there must be no detrimental impact to the receiving environment.

With the introduction of MWR regulating municipal wastewater discharge permits are no longer being issued.

When it comes to the actual reuse of reclaimed water it is the responsibility of the End User (EU) to make application to the ministry. The EU must employ a Qualified Professional (QP) who will identify specific requirements in the required Environmental Impact Study. Every issue that is identified in this study must be addressed in the design of the proposed project.

The QP must also develop monitoring programs, plans and technical documents. All designs must follow good engineering practice as defined in the Engineers and Geoscientists Act. Public health and safety and protecting the environment must always be paramount.

Being the last point of control for reclaimed water before it is used; the EU must exercise responsibility and accountability for protecting public health and the environment.

The EU must maintain close communication with their reclaimed water provider and keep up to date with all procedures, training and guidelines for the safe use of reclaimed water.

The EU is expected to be aware of their obligations under the MWR and be in compliance with the EMA. Their operators must be trained and certified in cross connection control.

The EU application process begins with an email to the Regional Health Officer (RHO). The RHO must receive notification at least sixty (60) days prior to the applicant registering under the MWR. These sixty (60) days are needed for the RHO to review the proposal and to make recommendation to MOE, if the project should move forward or not. Once the RHO approves the proposal, application is made under the MWR triggering MOE to commence their review process.

The Health Officer’s notification can be waived if the reclaimed water use is authorized under a local service area bylaw and the municipality ensures that the EU will be in compliance with the MWR and that proper operation and maintenance will occur to the EU’s system.

Notification can also be waived if reclaimed water use is authorized by an approved Liquid Waste Management Plan.

Once RHO has approved the project an application to MOE can go forward. The EU must hire a QP to prepare a comprehensive list of documents and studies to be provided to MOE for their review. This list of required documents will change for each project depending on the reclaimed water use and its exposure potential level.

Once the EU submits an application for registration, MOE can deny the application or consult with other agencies to develop operating regulations.

It should be noted that all operating regulations are site specific and may differ considerably even though the application is similar. MOE is also responsible for measuring compliance with the MWR and taking appropriate enforcement when necessary.

Providers of reclaimed water play a major role in its reuse. They are expected to be stewards and must exercise responsibility, accountability and leadership in protecting public health and the environment.

With the new regulations in place it is not the District of Sechelt who will make application for the reuse of reclaimed water, it is the end users responsibility. However the District can make it easier for end uses by developing the appropriate bylaws.

The District can also be the end user. We would have to hire a qualified professional who would do an environmental impact study, complete all the required reports and possibly the design. However before proceeding one must consider the cost of installing a separate system to supply reclaimed water.

Respectfully submitted;

Darwyn Kutney
Director of Engineering and Operations