



# Water Quality Improvement Project

INSIDE...

Proposed water quality solutions & costs



## Ensuring a reliable supply of safe, clean water

**A**fter years of research and customer consultation, SEKID trustees recommend a water quality solution that meets provincial drinking water standards while responding to ratepayers' demands for safe and clean water for all domestic uses. And now they want to hear from you...

The recommended Water Quality Improvement Project (WQIP) would supply treated groundwater (well water) for domestic use through a new delivery system, and untreated surface water for agricultural

use through the existing distribution network. Fire protection for the higher-density Gallagher's Canyon/McCulloch Road and Hall Road areas would be provided by the groundwater system, while the rural areas would continue to be protected by the existing surface water system. One of eight options

investigated, the proposed \$22.3-million groundwater solution provides the most effective and economical

response to SEKID's ongoing surface water quality challenges.

**// The proposed strategy is sound ...and would greatly reduce health risks. //**

—IH drinking water officer Rob Birtles

In keeping with stringent provincial water quality standards and treatment regulations, "the proposed strategy is sound," says IH

drinking water officer Rob Birtles. "Going to groundwater that offers adequate supply while ensuring good

[continues on page 2](#)

## Help Determine the Future of Your Drinking Water System!

SEKID trustees recommend a Water Quality Improvement Project that will vastly improve the quality of water for domestic use. Learn more about the project and its impact on water tolls and taxes—plan to attend one of the following open houses:

- Tuesday, **East Kelowna Community Hall**  
September 25th  
2704 East Kelowna Road  
Open House from 4 pm - 9 pm  
Presentations at 5 pm and 7 pm
- Monday, **Gallagher's Canyon Club House**  
October 1st  
4320 Gallagher's Drive West  
Open House from 2 pm - 9 pm  
Presentations at 3 pm, 5 pm, and 7 pm
- Wednesday, **Kelowna & District Fish & Game Club**  
October 3rd  
4041 Casorso Road  
Open House from 4 pm - 9 pm  
Presentations at 5 pm and 7 pm

SEKID general manager Toby Pike (left) and board chair Brian Wright.



FOR MORE INFORMATION CONTACT:

South East Kelowna Irrigation District  
PO Box 28064 RPO East Kelowna  
3235 Gully Road, Kelowna, BC V1W 4A6  
Phone: 250-861-4200 • Email: [info@sekid.ca](mailto:info@sekid.ca)  
Website: [www.sekid.ca](http://www.sekid.ca)

continued from page 1

water quality will greatly reduce health risks.”

Birtles goes on to say that, “the development of ground-water sources would reduce or remove the frequent use of water quality advisories and boil water notices which, in turn, would bolster public confidence in SEKID’s water system.”

## UNDERSTANDING THE SYSTEM...

Groundwater for domestic use in all areas, and fire protection in the higher-density areas, would be drawn from the Greater Kelowna Aquifer by way of two existing wells in the East Kelowna Road area, and two new wells along Dunster Road. After being treated minimally with chlorine, the groundwater would be distributed to more than 2,000 existing and domestic connections through a new distribution system.

Surface water for agricultural use and fire protection in the rural areas would continue to be drawn from Hydraulic Creek and distributed to SEKID’s more than 400 agricultural connections through the existing delivery network. A new distribution system would be parallel but completely separate, thereby eliminating the possibility of cross contamination and related public health risks.

The project would be phased over ten years. Each property in the higher-density residential areas of Gallagher’s Canyon/McCulloch Road and Hall Road would have its domestic and outdoor watering needs met through a single



If the project proceeds, monthly tolls for domestic connections would increase over seven years from the \$38 charged now to about \$72, as shown in the chart on page 3. Domestic customers would pay an estimated monthly water quality levy of \$42. After seven years, the combined domestic toll and water quality levy would be about \$114 per month. Each property one acre or less would also pay an estimated annual water tax of \$82.

connection in the first phase of the project. The rural residential areas would be similarly serviced as the project extends to cover the whole district within ten years. Agricultural properties with homes would have two connections — one household connection for domestic use, the other for irrigation — and would be serviced during later project phases.

“SEKID has been working hard for several years to find the best way to upgrade its domestic water system,” says board chair Brian Wright. “We are pleased to recommend a solution that complies with Health Canada’s *Guidelines for Canadian Drinking Water Quality*, addresses ratepayers’ concerns about safety and aesthetics, and meets fire-flow requirements.

“Because it’s a costly venture,” adds Wright “we’ve taken the time needed to explore all options and to find

the most economical solution, which we believe we now have. It would be a costly upgrade, but we encourage ratepayers to give our recommended option their full consideration and support.”

## COVERING THE COSTS...

WQIP capital costs and operating costs would be covered by a combination of borrowing funds and increasing domestic and commercial tolls. An additional water quality levy would be introduced to users in the year they are scheduled to come

onto the new ground-water system. Financing the project this way would reduce the amount borrowed from \$23.3 million to \$15.3 million, and result in fewer financing

costs over the term of the project (the interest saved would be about \$2,000 per domestic unit). The new domestic system would be metered and the tolls and the water quality levy would be billed monthly, while connections not yet on the system would be billed quarterly.

SEKID worked with AquaVic Solutions to develop a rate modeling tool that analyzed overall project

revenue requirements. The tolls and the levy in the following table cover the capital costs, the operating costs of

“...we encourage ratepayers to give our recommended option their full consideration and support.”

— SEKID board chair Brian Wright

the new and existing system, as well as ongoing asset replacement. SEKID has been actively lobbying senior government for funding support. Funding assistance



## Projected Monthly Domestic Rates Over the Next Ten Years

|   | 2012 | 2013 | 2014 | 2015 | 2016 | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  |
|---|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| <b>DOMESTIC TOLL:</b><br>(Amount billed monthly to each domestic unit)                            | \$38 | \$42 | \$46 | \$51 | \$56 | \$62  | \$66  | \$72  | \$77  | \$83  | \$85  |
| <b>WATER QUALITY LEVY:</b><br>Additional levy billed monthly for each domestic unit on new system | N/A  | \$42 | \$42 | \$42 | \$42 | \$42  | \$42  | \$42  | \$42  | \$42  | \$42  |
| <b>TOTAL MONTHLY COST:</b><br>Domestic toll & water quality levy                                  | \$38 | \$84 | \$88 | \$93 | \$98 | \$104 | \$108 | \$114 | \$119 | \$125 | \$127 |

would reduce borrowing costs and water rates.

The tolls shown are projected and do not assume government funding. Following a detailed rate study there may be a redistribution of costs among customers depending on their classification (e.g., multi-family, commercial). What this means is that while all customers are paying the same toll now, in the future some customer classes may pay a little more and other customer classes a little less. The reason for this is that some customer classes place different demands on the system.

Ratepayers would continue to pay the annual water tax based on the size of their properties. The current charge for properties one acre or less is \$71.05, and for properties over one acre is \$71.05 multiplied by the number of acres with water rights. Trustees are also proposing an annual two-percent increase in water taxes to keep pace with inflation.

### SHARING YOUR THOUGHTS...

To move forward with the WQIP, we need landowner support for the required borrowing.

SEKID will use an Alternative Approval Process (AAP)

rather than a referendum to determine ratepayers' support for the borrowing bylaw needed to undertake the WQIP. This is a more practical and affordable way to obtain landowner approval for project financing.

You are entitled to vote during the AAP if you own land within SEKID boundaries. **If you support the borrowing bylaw, YOU DON'T HAVE TO DO ANYTHING.** If you are opposed to the borrowing bylaw, you must sign an Elector Response Form and submit the original to SEKID

at 3235 Gulley Road by 4:00 pm October 25th, 2012. Forms will be available at the open houses (see page 1 for details), at the SEKID office, and online at [www.sekid.ca](http://www.sekid.ca).

Voting is open between September 25th and October

25th. "If less than ten percent of the District's landowners oppose borrowing," explains general manager Toby Pike, "then SEKID will proceed with the borrowing bylaw. If more than ten percent oppose borrowing, trustees may choose to hold a referendum."

Pike goes on to say that, "Either way, improvements

will still need to be made to ensure water quality standards are met. We encourage everyone to attend an open house to learn more about the recommended

**// We encourage everyone to attend an open house to learn more about the recommended option, and to help us make the best decision for the future of our water system. //**

— SEKID general manager Toby Pike

option, and to help us make the best decision for the future of our water system."



A property one acre and larger with water rights and a home, after seven years, would pay an estimated monthly toll for the domestic connection (\$72), a monthly quality levy (\$42), and a water tax of \$82/acre/year.

# Stringent standards drive proposed water quality upgrade

**SEKID** and all other water suppliers with more than 500 people are required to meet the Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in BC. These include:

- 4-log (99.99%) reduction or inactivation of viruses
- 3-log (99.9%) reduction or inactivation of *Giardia* and *Cryptosporidium*
- Two treatment processes for surface water
- Less than or equal to one NTU (nephelometric turbidity unit) of turbidity
- Zero *E. coli* and fecal coliforms.

SEKID's Hydraulic Creek surface water source has posed water quality challenges since it was first tapped in 1920. For example, the suspended particles of clay and silt (turbidity) present during spring runoff shield protozoa such as *Giardia* and *Cryptosporidium* from chlorine. They can cause serious gastrointestinal illness, particularly in people who are very young and very old, and who are receiving treatment for diseases such as cancer.



"SEKID is on a constant Water Quality Advisory," says SEKID general manager Toby

Pike, "meaning that people who are immunocompromised should always protect themselves. Add to that the fact that we have protozoa in the water from wildlife and agricultural activity in the watershed—and that we are vulnerable to natural events such as wildfires, landslides, and spring runoff—and you have a water supply that's at continual risk."

The proposed groundwater supply system, on the other hand, would provide pristine water with none of the above-mentioned risks. And because groundwater requires only minimal disinfection

with chlorine, treatment costs would be relatively low.

"Water from a contained aquifer is less likely to contain pathogenic organisms," says IH drinking water officer Rob Birtles. "Small amounts of chlorine would be used as a monitoring tool and as precaution against bacterial regrowth in the distribution system. It would also reduce the risk of contamination from cross-connections or water main breaks."

---

***The proposed groundwater system would provide pristine water ...and would require only minimal disinfection with chlorine...***



# Preferred option one of eight explored by trustees

Located on Kelowna's east bench and bordered on the north by Mission Creek, SEKID is BC's second largest improvement district. With more than 2,000 domestic connections, 420 agricultural connections, and 25 commercial and institutional connections, it supplies water to about 20 percent of Kelowna residents over an area of 2,400 Ha (9,000 acres).

South Kelowna and the Gallagher's Canyon and McCulloch Road areas are supplied with chlorinated surface water collected by the McCulloch Reservoir/Hydraulic Lake diversion system and diverted to about 1,200 connections through a complex 90-kilometre network of underground pipes.

SEKID has three existing wells. The Hall Road area's 171 connections are supplied by groundwater from the O'Reilly Well. East Kelowna Road Wells #1 and #2 are used only to supplement the Hydraulic Creek surface water supply in drought years. If the project proceeds, however, the East Kelowna wells would be used to supply the domestic system, along with two new wells that would be built in the Dunster Road area.

## Trustees Sought Groundwater Solution

Considering the proven superiority of groundwater over surface water, trustees were looking for an option that optimized the use of groundwater from the extensive reserves found in the Greater Kelowna Aquifer. They were also looking for a solution that met provincial standards and regulations through the use of proven treatment technologies and best practices.

To that end, SEKID hired Associated Engineering in 2007 to conduct the *South East Kelowna Domestic Water Supply and Treatment Cost/Benefit Review Study*. The resulting report outlined eight options for the trustees' review. These included variations of:

- continued use of the existing Hydraulic

Creek supply and distribution system with enhanced treatment

- continued use of the existing Hydraulic Creek supply and distribution system with enhanced treatment for higher-density areas and point-of-entry treatment for rural connections
- continued use of the Hydraulic Creek source with two distribution systems (one treated for domestic connections, the other untreated for agricultural connections)
- groundwater supply for domestic use and surface water supply for agricultural irrigation, each with a separate distribution system.

## Research Supports Groundwater Option

The report concluded that:

- SEKID's existing surface and groundwater supply sources provide the most practical and economical water supply solution. The existing well-field could be expanded to supply projected domestic demands, and would require an environmental impact assessment before project design and construction could begin.
- Surface water for domestic use would require pre-treatment (clarification), filtration, and disinfection to meet IH water quality standards. Options including these required treatment approaches could cost up to \$55 million. Estimated costs for the groundwater options were considerably lower, as they require only disinfection throughout the domestic distribution system.
- Point-of-entry systems for all rural connections would pose significant regulatory, operational, and maintenance challenges and, therefore, wouldn't guarantee water quality standards are met.
- Groundwater from the Greater Kelowna Aquifer is considerably harder than water drawn from the Hydraulic Creek source. While there are many communities in Canada with domestic

water harder than the SEKID groundwater supply, customers with aesthetic concerns could use in-home softeners.

- Metered domestic connections, along with consumption-based billing (paying for what you use), would enable and encourage water conservation throughout the system.

The report also concluded that the groundwater/surface water option with separate distribution systems was the best of all compliant options. A recent pre-design report prepared by CTQ Consultants analyzed the project in more detail, and estimated the overall cost to be \$22.3 million.

## SEKID Plans for Next Steps

After considering the options and report conclusions carefully, SEKID trustees agreed that using groundwater/surface water sources with separate distribution systems for domestic and agriculture connections was the most practical, effective, and economical solution. As recommended in the Associated Engineering report, SEKID has been lobbying senior governments about potential project funding, despite knowing that as an improvement district it is not eligible for the same funding that's accessible to municipal and regional governments.

"SEKID trustees believe the project must proceed with or without senior government funding support," says board chair Brian Wright. "We have provincial standards and customer expectations to meet, and our proposed Water Quality Improvement Project accomplishes both in the most economical way possible."

If the project is supported by the majority of ratepayers, SEKID will proceed with the borrowing bylaw, get IH sign-off, conduct an environmental impact assessment, get provincial approvals for the two new wells, develop an implementation strategy, and then proceed with detailed project design. Actual construction will be phased in over the next ten years.

# WQIP FAQs



**Q:** I've been drinking SEKID water for years and have never had a problem. So, why should we spend so much money on a new system?

**A:** It is a regulatory requirement. As a large water supplier, SEKID must meet provincial water quality standards and treatment regulations. Water systems serving more than 500 people within IH's jurisdiction must meet BC water treatment objectives for surface water (see page 4), and or disinfection requirements for groundwater influenced by surface water. While about one-third of these water systems have upgraded their systems to meet provincial requirements, the rest are in various stages of planning, design, and implementation.



**Q:** Is there proof that an upgraded system would reduce health risks?

**A:** The Hydraulic Creek surface water source is often turbid (cloudy), especially during spring runoff. The current treatment (chlorination) can not treat the water effectively when it is turbid. In addition, chlorination alone does not treat for *Cryptosporidium*. Surface water with only one form of treatment increases the risk of gastrointestinal illness, particularly among the very young, the very old, and people with compromised immune systems (e.g., cancer patients undergoing chemotherapy). While SEKID constantly monitors water quality and adjusts treatment accordingly, the water does not meet regulatory requirements.

**Q:** Why is surface water not as safe to drink as groundwater?

**A:** Surface water originates in a watershed, so it is impacted by all natural and human activities and events within the watershed. Natural impacts such as landslides, flooding, and wildlife defecating in streams — combined with the human impacts from logging, agriculture, recreation, and climate change — result in raw water that is compromised by erosion and contamination. In keeping with federal, provincial, and regional drinking water standards and treatment regulations, water from surface water sources must often be treated aggressively to protect consumers from disease-causing bacteria, viruses, and protozoa such as *Giardia* and *Cryptosporidium*. Groundwater from a contained aquifer that is free of sediment and contaminants, would have minimal treatment requirements.

**Q:** I live in the Hall Road area. Why do I have to pay for a new system when I'm already being supplied by a groundwater source?

**A:** The existing Hall Road system does not comply with regulatory requirements, and must be upgraded as part of the WQIP. In 2000, Hall Road residents paid the capital cost of having the well in their area upgraded to provide better quality water. The well water they receive is called "interruptible," meaning that if the well shuts down, or if there is a fire in the area, affected residents will then receive water from Hydraulic Creek, which does not meet provincial health standards. Hall Road ratepayers have been paying an extra charge monthly, which will be discontinued and replaced with the water quality levy.

**Q:** SEKID is only one of five water suppliers operating within City of Kelowna boundaries. Wouldn't it be easier and less expensive to amalgamate with one or more of the other suppliers so that capital, operational, and maintenance budgets could be shared?

**A:** Each supplier uses raw water from a different source, making the sharing of collection, treatment, and distribution infrastructure unlikely in the short term. However, the suppliers do communicate and collaborate through an organization called the Kelowna Joint Water Committee, which developed the *Kelowna Integrated Water Supply Plan* in 2010. As stated by IH drinking water officer Rob Birtles, "Planning for the delivery of high quality source water will streamline integration of the SEKID distribution network with other key water suppliers in the Kelowna area should it occur in the future."

**Q:** Why isn't SEKID considering in-home point-of-entry systems?

**A:** Associated Engineering did examine the possibility of point-of-entry (POE) systems for all rural connections in its 2007 report, but concluded that they pose significant regulatory, operational, and maintenance challenges. BC's *Drinking Water Protection Act*, for example, doesn't allow for the widespread use of POEs for large systems. And there is also concern that POEs not properly maintained can't be trusted to provide quality water consistently.



**Q:** Is there enough water in the aquifer to supply SEKID's projected water demand needs?

**A:** The Greater Kelowna Aquifer extends from the South Kelowna area to Wood Lake in Lake Country. Hydrological studies have shown that the aquifer is healthy, and that SEKID is ideally situated to benefit from its ample supply of quality water.

**Q:** Twinning the water distribution systems seems like a big task. Is it really necessary?

**A:** Using groundwater for domestic purposes—and building a separate system to distribute it—is not only the best technical solution, but is also among the least expensive options. All water used domestically must meet provincial water quality standards. So, if one system distributes surface water for domestic and

continues on page 8





## FAQs continued from page 7

agricultural uses, then all the water must be treated accordingly. Given that domestic use accounts for only 20 percent of total water demand, it would be redundant and costly to treat all water to meet the domestic standard. Having two distribution systems also eliminates the possibility of cross contamination. Other Okanagan communities have bought into the benefits of dual distribution. The City of Penticton and the Town of Oliver, for example, now have twinned systems, while the District of Summerland is currently in construction, and the City of Vernon is in the planning stage.



### Q: What about water meters?

**A:** All domestic connections will be metered, as are all agricultural connections now. Metering provides many benefits. 1) It enables and encourages water conservation. Since SEKID introduced metering to its 420 agricultural connections in 1993 water use has dropped 40 percent. 2) It delays the need for costly infrastructure upgrades and expansions, because less water is being collected, treated, and distributed. 3) It enables consumption-based billing (you pay for what you use), which is considered the most equitable form of payment. 4) The proposed use of

radio-read meters would cut operational costs by reducing the time needed for meter reading from days to hours. These wireless devices use radio frequency (RF) signals to inform utilities how much water is being used.

### Q: If the project is approved by ratepayers, why will it take ten years to complete?

**A:** Trustees examined three implementation options: over three years, five years, and ten years. They found that the ten-year strategy would save landowners more than \$4 million in borrowing costs.

### Q: Why will SEKID's rates be higher than other Kelowna water suppliers' rates?

**A:** Regulations require SEKID to improve the quality of water it supplies to customers for domestic use. Of the five water suppliers in Kelowna, each is responsible for its own water quality upgrades. Geographically, SEKID is one of the largest suppliers. But unlike most other suppliers, more than 80 percent of its service area is agricultural land. This leaves a small domestic base to pay for required improvements. And because the Agricultural Land Reserve restricts development in the area, SEKID is not able to increase the number of domestic customers.

