

# Wastewater Win-Win

By Kerry Freek

An unlikely resource could cut costs for industry and have municipalities seeing dollar signs.

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# How do you turn a Gold Bar into a gold mine?

At the same time as municipalities struggle to work within austere budgets, industry is pressured to find better ways to make use of limited water resources. Working primarily with energy and industry clients, Jan Dell, a vice president at CH2M HILL, says finding sustainable water sources for operations is one of their biggest challenges. “We often get to the point, especially in water-stressed regions, where industry isn’t allowed to use fresh water, and they’re looking for alternatives,” Dell says.

In the mid-2000s, the City of Edmonton saw opportunity in the struggle and offered industry an unlikely treasure: its municipal wastewater. Since many industrial operations don’t require potable water for its refinery operations, partnership seemed obvious.

In 2007, Petro-Canada and the City’s Gold Bar Wastewater Treatment Plant put the final touches on a system that helps the company extract 5.5 million litres per day from the North Saskatchewan River.

Under the water line arrangement, Strathcona County purchases Gold Bar’s recycled water, operates and maintains a 5.5-kilometre pipeline on behalf of Petro-Canada, and delivers the water to the refinery. In 2010, the project provided about 50 per cent of the refinery’s water needs, and about 30 per cent of the water used in the processes was treated and returned to the river.

The public-private partnership between the City of

Edmonton, Petro-Canada, and Strathcona County was funded by Petro-Canada for approximately \$25 million.

In addition to solving the company’s water needs challenge, the benefits include enhanced water quality and improved plant capacity with no extra costs to taxpayers. The project has also won several awards.

## Sharing costs and resources

While both parties agree that the partnership makes great business sense, at the time the project was an anomaly in Canada. Now, it’s no wonder others are hoping to strike gold, too.

In June 2012, the City of Regina approved a recommendation for a 45-year deal to supply Western Potash Corp with 40 per cent of the City’s treated wastewater. The arrangement to supply treated wastewater for use in mine processing would be a first for the City, and it is one that Stella Matheson, director of water and sewer services, calls a “win-win for everybody.”

Matheson says the \$228-million deal is in line with City’s mandate to find innovative and sustainable ways to increase revenues, streamline efficiencies, and narrow the infrastructure gap.

As part of the arrangement, the City would provide Western Potash Corp with access to up to 60,000 cubic metres of recycled water per day for the first six years of mine operation, and up to 42,240 cubic metres per day for the remaining 39 years of the contract.



*The municipal waste water treatment plant in Gold Bar, a suburb of Edmonton, AB*

Small communities don't often have the economic means to build large infrastructure projects, so this sort of innovative partnership makes a great deal of sense for places like the City of Dawson Creek, British Columbia.

In recent years, the combination of drought, residential and commercial needs, and demand from nearby natural gas and oil-producing fields has placed significant strain on the City's supply of potable water.

Instead of trying to limit the oil and gas industry's use of expensively treated water in its operations, the City elected to treat and trade its own effluent.

The solution made sense to Shell Canada Energy, which also felt the pressure of dwindling water supplies. In exchange for 3,400 of the 4,000 cubic metres (m<sup>3</sup>) of treated water the facility produces each day, the company agreed to commit \$9.75 million to a new \$12-million facility that further treats the outflow from the City's primary lagoon system.

Dawson Creek covered the remaining \$2.25 million—a price which includes access to the remainder of the treated water, a resource that can be used for watering parks and sports fields or sold to other industrial users for an estimated \$500,000 a year.

This past September, the partnership celebrated the opening of its new facility.

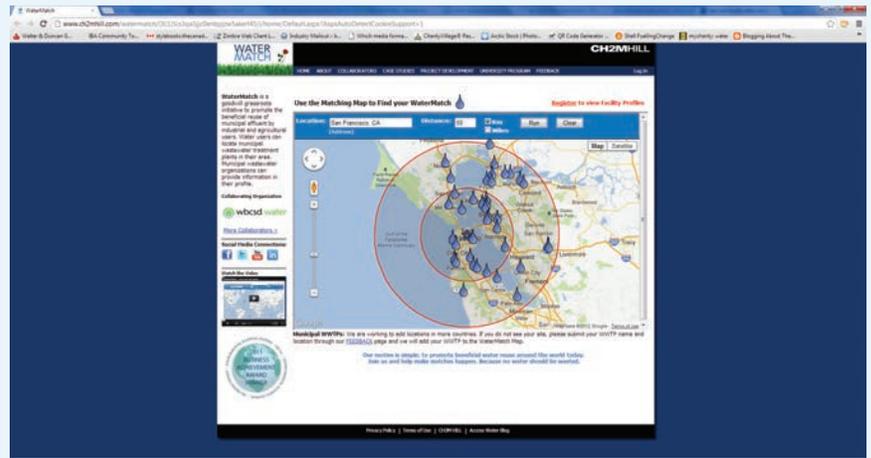
Shell pipes its share of the water to the Groundbirch gas field operations, some 48 kilometres west of Dawson Creek. There, the company uses its own distribution systems to transport the water within its operations.

"Where the reclaimed water fits into our operations, we use it as a make-up source," explains Shawn Baxter, a water project manager for Shell Canada Energy's Groundbirch venture team. "Our primary source is recycled water from our operations."

Baxter notes that another major benefit for Shell is reduced costs of road transportation and, therefore, fewer carbon emissions. "By using the city facility, we take 100 water hauling trucks per day off the road. We reduce wear and tear and community disturbances."

## Using social networks to find matches

If the wastewater solution makes good business sense, why aren't more partnerships underway?



WaterMatch website

Dell says part of the trouble is a lack of communication. "We have to get industry, agriculture, and municipalities outside of their own fences," she says. "Like-minded people need to meet each other, but we need new approaches."

With that in mind, CH2M HILL launched [WaterMatch](#), a public domain "virtual meeting space" that uses social networking and geospatial mapping to connect water generators with water users.

Once registered, industrial water users use a map to find wastewater treatment plants close to their current and potential future operations. Then, they use the social networking function to connect with the utilities operating those plants. If the plant is available to provide effluent, the two are encouraged to connect offline and explore the possibilities.

Currently, says Dell, the WaterMatch map also contains about 20,000 treatment plants from around the world, but Canada has been a challenge because no public list of wastewater plants is available. Dell says that once the word gets out, she hopes municipalities will check to see if they're plotted. If they're not, they're encouraged to submit their information.

Dell is hopeful that matches will be made. "We're all working so hard on solving water issues," she says. "Water reuse is a win-win for municipalities and industry. When that happens, there are lots of benefits to the ecosystem and otherwise. We're trying this approach because we think no water should be wasted." ■

—With files from Water Canada.  
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