

# LOCAL NEWS

## A BUG'S LIFE

# Bugs 'given the Lance Armstrong treatment' at lagoons

In part two of a three-part series on how Cranbrook turns sewage into water, we learn how the city turbo-charges microorganisms

**SALLY MACDONALD**  
Township Staff

When you flush the toilet or drain water from your sink, pipes carry the messy debris from your home to Cranbrook's wastewater lagoons on the northern edge of town.

Here, Cranbrook Public Works staff prepare the wastewater to be digested by billions of tiny bugs. First, anything that floats - grease and fats, mostly - is siphoned off, then anything solid - flushable wipes, last night's leftovers you put down the garbage bin - is lifted out.

What's left is an appetizing buffet for microorganisms, explains Cranbrook Director of Public Works Joe McGowan, who has me perched on the edge of a sewage lagoon in the name of research.

Once the wastewater has been cleared of floating inorganics and

solids that don't belong, it flows into the first of three wastewater lagoons. This is where those bugs get to work.

"You flush, the lumpy comes down, and 8 billion bugs consume the organic material," McGowan summarized.

There are two types of bugs that live in the lagoons: aerobic microorganisms, and anaerobic microorganisms.

The first kind, aerobic microorganisms, are the useful ones. Energetic and hardworking, they're the ones that feed on organic material, and the city creates conditions in the lagoons that will breed and nurture these kinds of bugs. They consume body waste and food waste, while dirt - which comes off you in the shower and your clothes in the washer - sinks to the bottom of the pond.

Anaerobic microorganisms are less helpful



SALLY MACDONALD PHOTO

Three wastewater lagoons each harbour a unique collection of microorganisms that break down Cranbrook's organic material.

- they produce carbon dioxide and sulphates, and they are responsible for making the lagoons smell sometimes.

Fortunately, there's a surefire way to encourage aerobic bugs, while stopping the anaerobic bugs in their tracks: oxygen. Anaerobic microorganisms don't like it; while aerobic bugs thrive on it.

"When bugs are working, like you and I they need oxygen," said McGowan. "As the bug eats the organic material, it consumes oxygen. That is taken out of the water and the water becomes devoid of oxygen, so the bugs die."

To stop them from dying off, the city pumps oxygen into the lagoons. A series of pipes about 30 feet apart contain

nozzles about 20 feet apart that are on the end of diffusers lowered five feet into the water - almost at the bottom of the pond.

These diffusers take a large volume of air and break it into bubbles.

"We shear the air so there are billions of little tiny bubbles every second," said McGowan.

Because the bugs are small, the bubbles need to be small. And then the aerobic microorganisms really start to party.

"It has the same affect on aerobic bacteria

as blood doping did on Lance Armstrong," said McGowan.

"We take mediocre performing microorganisms and give them the Lance Armstrong treatment. As a result, they perform a lot better."

The helpful bugs also like sunlight - which is why the ponds are only six feet deep, and why this kind of wastewater system prospers best in sunny climates.

Cranbrook, as we know, is the sunniest city in B.C., and this is another case where that

works in our favour. We're also helped by the natural geography of the city, which for the most part has a gentle slope so everything runs downhill from south to north.

What's more, when the lagoons were built in 1973, the city used a large piece of property. That means that Cranbrook can simplify its wastewater system by using three ponds and breeding the bugs inside the ponds, rather than circling them back into the wastewater as it arrives, as the City of

Kimberley needs to do.

In Cranbrook, there's no chemical treatment of the wastewater at the lagoons.

"All we are using is hard-working bugs," said McGowan.

"We've gone back to basics - we are using basic scientific concepts. We are able to do it because we have the land area."

See tomorrow's Township for the conclusion of A Bug's Life, a feature on Cranbrook's hardest working employees.

## Weather Outlook

<b>TONIGHT</b>	<b>TOMORROW</b>	<b>WEDNESDAY</b>
12 POP 20%	23 12 POP 20%	25 13 POP 30%
<b>THURSDAY</b>	<b>FRIDAY</b>	<b>SATURDAY</b>
17 11 POP 30%	24 10 POP 10%	26 10 POP 10%

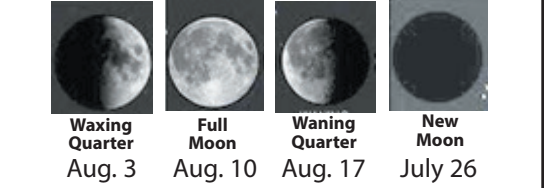
### Temperatures/Almanac

	<b>High</b>	<b>Low</b>
<b>Normal</b>	27°	9°
<b>Record</b>	35.9° 1979	4.6° 1996
<b>Saturday</b>	26.6°	18.7°

**Precipitation Saturday** Trace

**Sunrise** 5:59 am

**Sunset** 21:40 pm



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# Hydro to replace 250 poles in Cranbrook, be patient with outages

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The company is planning to spend \$1.4 billion on the transmission and distribution. Last year BC Hydro spent \$1.4 billion as well - the year before it was \$1.2 billion.

"We have a 10 year, \$10 billion capital plan," he said.

He said they are seeing load growth throughout the province. Some areas of the province are growing at different paces.

"We've done a lot of investment here in the East Kootenays in the last five years," he said. "We've invested about \$200 million in the distribution system here in the last five years."

He noted some of the projects around the

area.

The Columbia Valley transmission project, which is a transmission line between Invermere and Golden, was completed in 2013.

Hydro has also done substantial upgrades to some of the substations in Cranbrook, Golden and Radium.

He said one of the important measures they look to as a transmission and distribution business group is BC Hydro's system reliability.

"So how reliable is our system for our customers, what's our customer experience?" he said.

The reliability numbers for Cranbrook are quite good, he said.

"They're better than our system average, so our system is performing pretty well here."

He said the system has about 10 years worth of growth left on the system in this area.

"So as economic development takes hold and more development happens we'll be able to meet that development fairly easily," he said.

Reimer also mentioned Powerex, a subsidiary of BC Hydro that trades in surplus energy with Alberta. A 500 kV link passes near Cranbrook.

"The profits from that are used to lower electricity prices for our customers in B.C.," he said.

BC Hydro is also replacing power poles.

"We've got an active program with test and treat," he said.

"This last year we replaced 12,000 poles throughout British Columbia. I believe in the Cranbrook area we're going to replace 250 poles this year."

He noted the cost to replace 250 poles is about \$2 million and usually necessitates power outages.

"We just ask that our customers are aware that we're taking maintenance outages in order to keep the system running when we need the system to run," he said.

Reimer added that the company works with customers in local communities to give adequate notice about the outages.