

# Silverhawk Utilities Inc. Annual Newsletter



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## Silverhawk incorporates recycle and reuse technology into operations

Silverhawk Utilities is in the process of designing a membrane bioreactor (MBR) wastewater treatment system to reuse recycled water for cleaning purposes. MBR technology is comparable to ultrafiltration (UF) and microfiltration (MF) and is suitable for many reuse and recycle applications. The MBR and UF systems produce similar end results in that it is able to output superior quality water with solids less than 0.5 mg/L and often to 0.2 mg/L thus eliminating virtually all suspended solids, turbidity less than 0.2 NTU and up to a 4 log removal of viruses as well as removing certain pathogens like Cryptosporidium and Giardia. The technology and membranes are designed to take out most if not all bacteria and pathogens in the water and leave the product water up to standards that are applicable for human contact. The wastewater will go through primary treatment, a secondary level treatment and then to the MBR treatment process. Silverhawk Utilities is able to utilize this technology and apply this to a small system that will be built inside the current sewage treatment plant. The water from the MBR system will be used for general plant cleaning as well as to supply spray water for the new primary

screen system which will catch many solids before it hits the wastewater system. This increases the efficiency of the secondary systems thereby reducing a lot of the solids loading and sludge generation. Maintenance is also reduced by avoiding solids related issues with screens and mechanical equipment and other processes.



## Sewage Treatment Facility Expansion Update

The sewage treatment plant at Silverstar Mountain has undergone a million dollar expansion in the past year. Starting at the beginning of 2009, the expansion is near completion. Silverhawk has prepared the site and existing building for the ultrafiltration (UF) system that will be installed inside the sewage treatment plant. The sewage treatment plant at the moment has a primary treatment system, a secondary treatment using a trickling filter extended aeration (TFEA) system which uses a fixed film solids contact biological process followed by aeration. A tertiary treatment step is followed after with the ultrafiltration system. UF technology is being utilized worldwide for treating various sources of water and wastewater. UF membranes have a pore size between 0.01 and 0.10 microns are able to remove a high percentage of bacteria, viruses, silt and colloids. The water produced from UF technology is

very pure and meets with all government standards and regulations.

The design of the treatment system at Silverstar Mountain will incorporate the highest quality membranes and technology with minimum power consumption. The plan is to use the treated water for reuse and recycled purposes in irrigating public unrestricted areas.

Silverhawk has contracted Waterworks Technologies, a company based in Calgary to design the UF system for tertiary treatment. Waterworks has been in business for almost 25 years and has extensive experience in sewage treatment systems. In March 2009, Waterworks was awarded the Alberta Export Award for Sustainability. The award recognizes companies with exceptional exporting capabilities and for supplying clients with sustainable solutions. Silverhawk will have the UF system installed upon receiving all the necessary permits from the Ministry of Environment.

# Restaurants: Oil and Grease Interceptors must be installed and working

In the next few months, Silverhawk Utilities will be implementing new regulations. The regulations will call for all restaurants to install oil and grease interceptors. As with all sewer treatment systems, the accumulation of solids is a problem in the overall functioning of the system. Solids like fats, oils, grease, dirt, feminine hygiene products, debris, concrete and other materials that are dumped into toilets, sinks, bath tubs and all wash facilities could cause the sewer treatment system malfunction. This can cause the piping to back up and clog and can damage the whole system.

In the past few months, Silverhawk Utilities found a high percentage of oil and grease in the sewer system. The oil and grease that is dumped into the drain over time hardens, backs up and clogs the pipes causing the system to not function properly. There is also the potential that the sewage backups can cause homes and businesses to

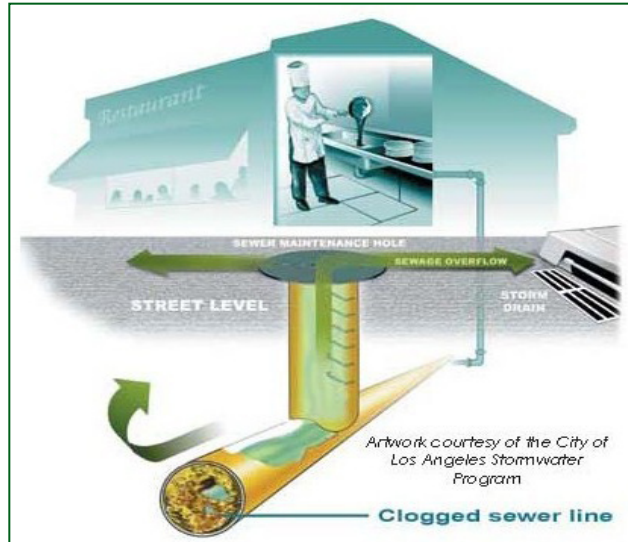
flood. This increases maintenance costs and is in direct violation of the BC Health Act if the sewage overflows into the environment.

There are two types of oil and grease. The inorganic type is often called hydrocarbons. This includes machine oil or hydraulic grease. These hydrocarbons are not allowed into the system. It is in strict violation as the materials are not capable of normal biological treatment and are deemed to be hazardous to the wastewater treatment plant's biological system. They can reduce or eliminate necessary bio mass as well as affect the working components in the system. The organic type is from meat and oil used in kitchens. This includes fats, oils, waxes and other sources that come from meats and poultry, dairy and pas-

ta, vegetable and plant oils, soups, gravies, sauces, condiments, food scraps, baking goods, butter, lard and margarines. Grease accumulation continues to cause problems with the sewer collection and treatment systems.

This problem is not only the restaurants and food service facilities but it is everyone's problem.

In July 2009 the village sewer pipeline was blocked by an accumulation of grease and during the 2008 and 2009 winter season, grease built up at the Silverhawk sewage treatment plant. The village sewer lines required repeated flushing in July to remove this excessive accumulation. It is imperative that the grease traps in each restaurant be in working order and properly maintained to prevent future sewer main blockages at the plant. Grease can not only disrupt the flow at the treatment plant

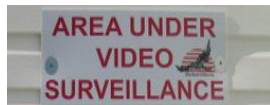


but it can also affect the biological treatment. It is in the best interest of all involved that the Silverhawk sewage treatment plant be working to its full potential. Please ensure all grease traps are working properly and are maintained regularly. Also, Silverhawk will be issuing an official letter to each restaurant or food service facility requesting a Silverhawk employee be granted permission to inspect their grease traps and confirm that they are in working order. If restaurants and food service facilities do not have grease traps then they will need to have one installed as soon as possible. Further questions on the workings of grease traps and interceptors, preventative maintenance, can be referred to Silverhawk Utilities office.


## Security Cameras to be Installed


Silverhawk Utilities will be installing a security system in and around the area of the treatment plant. Due to the restricted area of the site and surrounding area, the installation of the security cameras is for

the safety and protection of people and animals. Silverhawk is implementing measures to protect people and animals from harm. The Ministry of Environment requires Silverhawk to ensure that unauthorized persons and domestic animals do not enter the restricted areas which include the wastewater treatment plant area and the irrigation in the sewage right of way area.



## Changes to Terms and Conditions and Rates

 The Terms and conditions for use and connection to the sewer system have changed. Please make note of the changes. They are on the back side of the invoice and the Silverhawk website at [www.silverhawkutilities.com](http://www.silverhawkutilities.com)

 The sewer rates have changed. The new rates have been implemented for this current billing period. Please note the new rates. Any questions about the rates can be directed to Silverhawk Utilities accounting office at (403) 289-3198.

## Educational Tours Offered Year Round

Silverhawk Utilities will be offering educational tours. The educational tours will include a comprehensive description of the process that is involved in treating wastewater, tour of the inside of the plant and what regulations and laws are being fol-

lowed to treat effluent to the highest standards. The tour will be conducted by a certified water and wastewater operator with over 20 years of experience with operating water and wastewater treatment systems. Please contact Jim at (250) 309-2827.