

Doctor says chlorine risks negligible

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for cleaning water but do not carry residual disinfection to the distribution system.

In addition ozone is unstable in that it combines easily with other chemicals. Ozone is also much more expensive. Chlorine is delivered in large gas canisters which are simply attached to a regulator.

"Ozone is only applicable for problems at the source," said Dr. Nosal. "In Milton we don't have a source quality problem. Chlorine, bromine and iodine are the only real options."

Tony Smith, Halton's acting director of environmental services, admitted that chlorine presents a problem for people.

Dr. Nosal explained that high dose exposure to those working with it can be fatal.

said, explaining that the body needs small amounts of many elements which would be fatal in higher concentrations.

"The real problem is when chlorine combines with naturally occurring organic matter which is found in surface water," Dr. Nosal said.

"That can form certain chemicals (THM) known to be cancer causing. The allowable levels of these THMs used to be 350 parts per billion but that has been lowered to 100 parts per billion."

The doctor said in Milton and Georgetown THM levels are around 10 parts per billion. In the south of Halton they are about 25 parts per billion.

Dr. Nosal said risk assessments suggest

However, it is natural in low doses, he that the likelihood of someone getting cancer in Halton from the THMs "is far lower than one in one million, or essentially

He explained that the cancer from THMs would be in addition to those cancers which would already occur in a significant portion of the population.

He said the risk associated with not chlorinating the water is much higher and Halton Region must operate on the principle of "prudent avoidance."

The doctor said he authored a report in 1993 that suggested chlorination of Milton's water.

He said Milton has had problems with contamination in the 1990s including birds, nitrates and several breaks in the pipes.

"Without it people will get sick in a month, three months or three years. It will happen," he said. "So far we've been lucky."

Dr. Nosal added that chlorination was necessary before provincial standards on water quality became tougher. The higher standards "just clinched it."

Waste water treatments

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town grew the storm runoff was redirected into area creeks. The capacity being used to treat what was essentially clean water was better put to sewage, rather than building expensive plant expansions.

When the sewage first comes into the plant it is 99 per cent liquid. Mr. Arnold said he has removed a shovel and a toboggan from the effluent at this stage.

He said such objects must have been introduced to the system through sanitary sewers. In addition he has found frogs, toads and snakes in the system.

The stuff passes through a number of stages designed to remove solids. First, inorganic material such as cloth and small toys are skimmed, then the effluent is pumped into tanks which allow particles to settle. The resulting thick sludge is trucked to Burlington to be processed at the Skyway Wastewater Treatment Plant.

Mr. Arnold said the one or two truck loads per day which make the trek from Milton are hardly noticed in their large system. The remaining material is put into an anaerobic digester, where bacteria and oxygen break down the stuff into its basic chemical components.

The process is natural, according to Mr. Arnold, and would occur anyway but by agitating the liquid it is made to occur much more quickly.

Aluminum sulfate is added to break down phosphorus and nitrates. The chemical also helps particles bond and sink in holding tanks. Eventually, the fluid is filtered down through a mixture of charcoal and sand. The resulting water is relatively clean, with about five parts per million of solids remaining, down from about 10,000 parts per million when the sewage first entered the plant.

The water is given a final mix with chlorine gas, which is then removed before the water is released into 16 Mile Creek.

Plant supervisor George Prior said he has seen fingerlings swimming up the creek through the water streaming from the plant. He said salmon, which are extremely sensitive to chlorine, will make the run in about a month. If any chlorine is getting into the stream from the plant the salmon will be the first to know, he said.

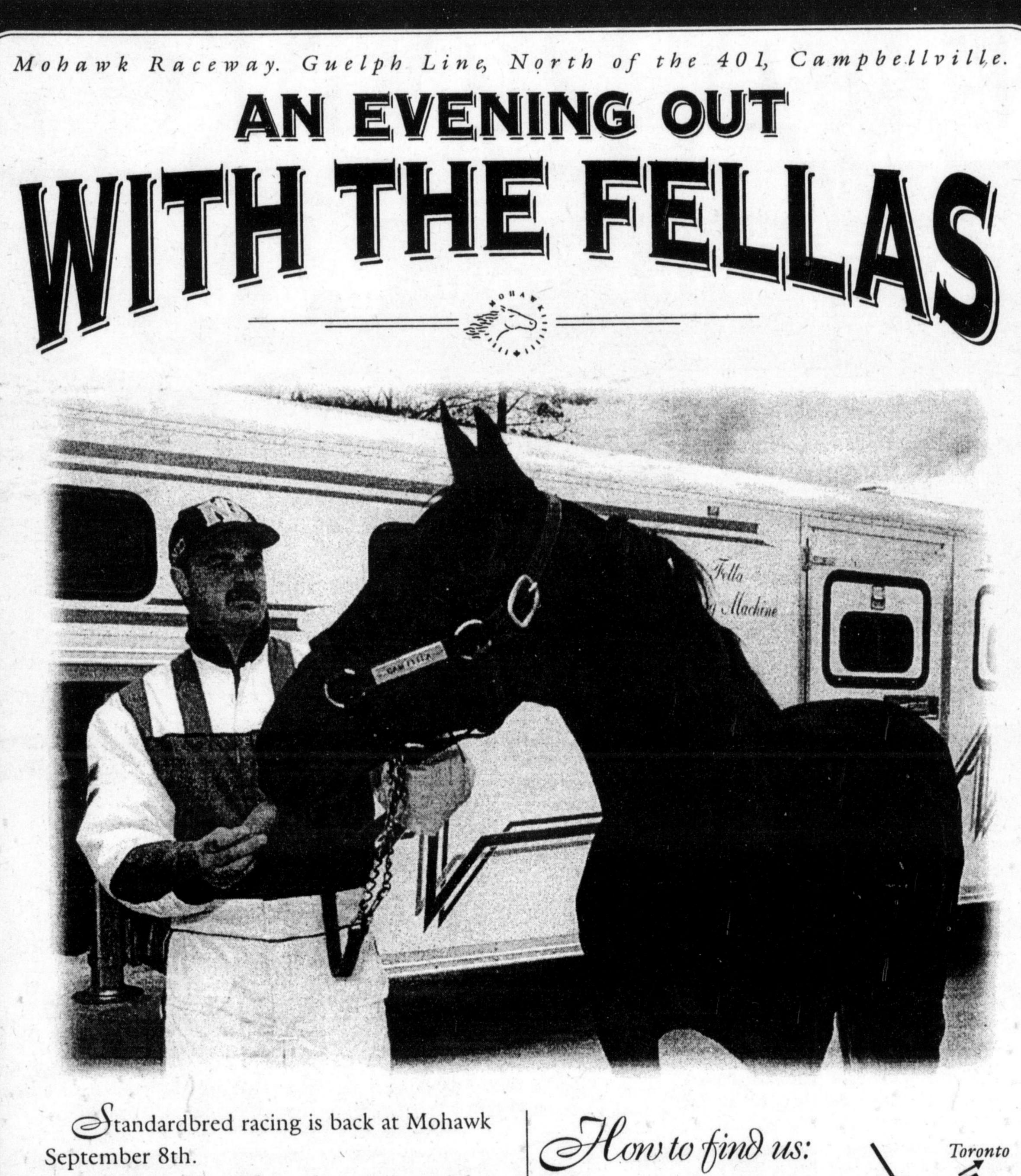
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Filters from the Burlington company Zenon have reduced emission of solids in the treated water to nil in some tests, Mr. Prior said.



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