TORONTO

STAFF REPORT
INFORMATION ONLY

Update on the Supply Shortage of Iron Salts for Wastewater Treatment

Date:	October 16, 2009
To:	Public Works and Infrastructure Committee
From:	General Manager, Toronto Water
Wards:	All
Reference Number:	P:\2009\Cluster B\TW\pw09026

SUMMARY

The purpose of this report is to provide an update to the Public Works and Infrastructure Committee as directed regarding the number and value of contracts entered into for alternative chemicals, services and related equipment due to the sudden shortage of iron salts in the market. The City has been using iron salts (in the form of ferrous chloride) for many years as a method to treat sewage received at the plants in accordance with the Certificates of Approval as issued by the Ministry of the Environment.

Iron salts are a by-product of the steel manufacturing process and are used by municipal wastewater treatment plants across North America to remove phosphorus. Phosphorus is a nutrient that if not controlled, can lead to a significant increase in algae growth within water bodies.

Financial Impact

To date, there have been no financial impacts as a result of the iron salts supply shortage. The cost variations due to the limited use of alternative chemicals have been contained within the 2009 budget amounts.

DECISION HISTORY

At its May 25, 26 and 27, 2009 meeting, Council adopted the Public Works and Infrastructure Committee recommendations and authorized the General Manager, Toronto Water, to procure the supply of alternate chemicals, services and related equipment required for the removal of phosphorus from sewage at all four wastewater treatment plants, either on a sole source basis or by such other means of procurement.

The decision document can be found at:
http://www.toronto.ca/legdocs/mmis/2009/cc/decisions/2009-05-25-cc36-dd.htm

ISSUE BACKGROUND

Phosphorus is a major contributor to the growth of algae in Lake Ontario. The Ministry of Environment Certificate of Approval for each of the City's wastewater treatment plants requires that the monthly average concentration of phosphorus in the final effluent remain below 1.0 mg/l. Iron salt in the form of ferrous chloride has traditionally been used by the City of Toronto largely due to its reliability, relatively low cost and abundant supply.

Iron salts are received at the plants in a liquid form and are also known as "waste pickle liquor" and are recycled from the steel industry. Kemira Water Canada is the current supplier of iron salts to the City's wastewater treatment plants. Their five year contract with the City expires on December 31, 2010. Due to the economic slowdown in steel production across North America, a market wide reduction in the availability of iron salts occurred in late 2008 and persisted into mid 2009. Kemira advised its customers in late 2008 and early 2009 that market conditions were tightening and as such some municipalities commenced the process of sourcing alternate chemicals.

COMMENTS

To date, the actions taken by Toronto Water are as follows:

1. Amended the existing Kemira contract by $2,500,000 to include the supply of proven alternative chemicals and any related technical services or equipment required to modify the existing dosing systems; and

2. Awarded a sole source open contract to Fanchem Ltd. for $200,000 as an alternate supplier of ferrous chloride in instances where Kemira can not meet the City's needs.

Currently, the steel industry is recovering and the supply of ferrous chloride from Kemira has for the most part stabilized. With the amendment to the Kemira contract and the addition of Fanchem as an alternate supplier, the City has greater flexibility and is better positioned to adapt to any further iron salt supply shortages that may occur to the end of the current contract.

The amendment to the existing contract with Kemira was needed to facilitate the conversion of the Humber Treatment Plant from ferrous chloride to a blended product of aluminium sulphate and ferric sulphate for a period of approximately four months and also allowed the use of ferric chloride at the Highland Creek Treatment Plant for several weeks. These alternative chemicals were required in order to maintain regulatory compliance during the iron salts supply shortage.

The sole source agreement with Fanchem was required during contingency planning just prior to the start of the recent city wide labour disruption. Kemira was unable to provide the full quantity of ferrous chloride through their supply chain at a time when the wastewater treatment plants were stockpiling chemicals. Fanchem was able to supply the remaining volume that Kemira could not deliver.

City staff continue to work closely with Kemira to monitor the recovery of the steel industry and the related availability of iron salts.

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