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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON DECEMBER 19, 2011
FROM:	RON STANDISH, P. ENG. DIRECTOR – WASTEWATER AND TREATMENT PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES
SUBJECT:	REQUEST TO EXTEND THE US PEROXIDE PRI-SC™ ODOUR CONTROL SYSTEM TRIAL ON THE DINGMAN, WONDERLAND AND GORDON AVENUE SEWER SYSTEM

RECOMMENDATION

That, on the recommendation of the Director-Wastewater and Treatment, Planning, Environmental and Engineering Services, the following action **BE TAKEN** with respect to continuing a trial using US Peroxide PRI-SC™ odour control system.

Extend the US Peroxide PRI-SC™ trial as required under section 14.4 (d) of the Procurement of Goods and Services Policy. Total cost of the pilot extension will not exceed \$290,000 and will be funded through the existing operating budgets 450901.425100.5000 and 450901.425100.5050

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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None

BACKGROUND

Purpose:

The City has budgeted \$220,000 in 2012 to purchase iron and nitrate salts to control hydrogen sulphide levels in the Dingman, Wonderland and Gordon Avenue sewer system. Hydrogen sulphides have caused millions of dollars in damage to this system and pose significant odour and potential health concerns. Wastewater Treatment Operations has started a pilot project with US Peroxide's patented PRI-SC™ system which offers tighter hydrogen sulphide control along with potential savings in phosphate control chemical at the Greenway plant. The initial trial demonstrated adequate control of hydrogen sulphide levels and further optimization is possible. Costs to extend the trial for one year include \$17,000 for equipment rental and technical support and up to \$270,000 for chemical, noting that chemicals used in the trial will replace the \$220,000 budgeted for iron and nitrate salts. Annual savings of \$100,000 are also possible through reduced phosphorus control chemical usage at Greenway. The total cost for the extension will not exceed \$290,000 and council approval is required under 14.4 (d) of the Procurement of Goods and Services Policy.

Discussion:

Hydrogen sulfide production has been controlled in the Dingman, Wonderland and Gordon Avenue systems through the use of iron salts, which precipitate hydrogen sulphides, and calcium nitrate, which helps control hydrogen sulphide production. Even though these chemicals are reasonably effective in controlling the base levels of hydrogen sulphide, they are not effective in controlling spikes which frequently occur in the system.

The PRI-SC™ system controls hydrogen sulphide levels through the use of iron salts and hydrogen peroxide which oxidizes both hydrogen sulphide and the hydrogen sulphide-iron precipitate. Hydrogen peroxide can regenerate close to 100% of the iron added for odour control, making this iron available for further odour control and phosphorus removal at the plant.

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Regenerating the iron at the plant could potentially save \$100,000 in phosphorus control chemicals and will be evaluated during the trial extension. The proposal from US Peroxide also includes online hydrogen sulphide monitoring which can be used to adjust dosage rates allowing treatment of both the baseline levels and spikes. Chemical metering, storage, ongoing optimization and support are also offered by US Peroxide as part of the proposal.

Conclusions:

It is recommended that council approve the extension of the US Peroxide PRI-SC™ pilot to control hydrogen sulphide levels in the Dingman, Wonderland and Gordon Avenue sewer system. The PRI-SC system is based on a proprietary combination of chemicals and control systems which potentially offers better odour control at a lower cost than the existing chemical system. An extended contract is needed to implement the online monitoring and control system, to evaluate its ability to adapt to seasonal changes, and to quantify the ongoing costs of the system.

Acknowledgements:

This report was prepared by Geordie Gauld, Division Manager, Wastewater and Treatment Operations.

SUBMITTED BY:	RECOMMENDED BY:
GEORDIE GAULD DIVISION MANAGER, WASTEWATER AND TREATMENT OPERATIONS	RON STANDISH, P. ENG. DIRECTOR, WASTEWATER AND TREATMENT PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES
REVIEWED & CONCURRED BY:	
PAT MCNALLY, P.ENG. EXECUTIVE DIRECTOR OF PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES	

Attach:

- c.c. John Braam-City Engineer
- Mary Goss-Budget Analyst