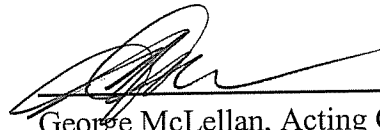

Halifax Regional Council
January 29, 2002

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



George McLellan, Acting Chief Administrative Officer

DATE: January 23, 2002

SUBJECT: Ecological Wastewater Treatment/Solar Aquatics

ORIGIN

HRM Council meetings of April 10, 2001 and December 11, 2001

RECOMMENDATION

It is recommended that Halifax Regional Council:

1. not dedicate an outfall in the Harbour Solutions Project to Solar Aquatics technology,
2. consider the use of Solar Aquatics technology in the future in a full cost/performance comparison with other innovative and conventional systems for a small plant, serving a small community.

BACKGROUND

On April 10, 2001, Halifax Regional Council requested a report on solar aquatics and further on December 11, 2001 as part of the approval of the Halifax Harbour Solutions Project requested staff to consider the use of Solar Aquatics on one outfall in the Halifax Harbour Solutions Project if financially and technically possible.

DISCUSSION

Ecological Wastewater Treatment (EWT) is essentially secondary sewage treatment with the addition of plants to help the treatment process. Solar Aquatics is a patented example of EWT, using patented clear-walled tanks, and Living Machine is another example of EWT.

Halifax Harbour Solutions Project (HHSP) has been open to proponents for any technology in addition to the conventional advanced primary treatment which was the minimum requirement. EWT or Solar Aquatics was not proposed by either Proponent (HREP or HWG) in their submissions. Staff has discussed this technology with the selected proponent (HREP). HREP is not keen to include EWT or Solar Aquatics, and advises that any costs for this would be added to its proposal, i.e. there would be no savings, also EWT or Solar Aquatics would involve risks in the form of performance uncertainties.

Staff has discussed with EDM, who are agents for Solar Aquatics in Nova Scotia, the use of Solar Aquatics. Very preliminary costings provided by EDM, without breakdowns, show that Solar Aquatics plants at Tufts Cove and Lyle Street would involve net capital costs which will be substantially higher than the HHSP costs. Also the operating costs for Solar Aquatics would be higher. Solar Aquatics is a modular treatment system which does not benefit from economies of scale in the way that applies to conventional sewage treatment plants.

In addition to higher costs, there are other issues which are of concern to staff and these are as follows:

1. Solar Aquatics plant at Tufts Cove would be in the order of 100 times larger than the largest EWT experience elsewhere.
2. On a unit flow basis, EWT plants require considerably more land which HRM would have to acquire. The HHSP technical team considers EWT or Solar Aquatics to be potentially more appropriate to small volume plants for local communities, where land is not at a premium.
3. The climate is a concern because of the requirement of heating the greenhouses in the Winter in order to maintain the sewage at a certain temperature.

4. The plant life in the EWT or Solar Aquatics system contributes only about 10% to the treatment process, as determined by a USEPA report in 1997. The report also found that life cycle costs for EWT (Living Machine) treatment plants were higher than for conventional plants for flows over 100,000 USgpd, which represents a very small STP.
5. Solar Aquatics in Nova Scotia would be sole-sourced, and if introduced at this late stage would delay the CEAA environmental process for the project, it would involve cost, financial guarantee, and performance guarantee issues, and would be expected to involve a transfer of financial and operating risks to HRM.
6. If an outfall is dedicated to Solar Aquatics, the required collection and treatment capacity would still have to be provided in order to cover future risks in the case of malfunctions in the Solar Aquatics system.

BUDGET IMPLICATIONS

There is no budget implication at this time.

FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budget, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

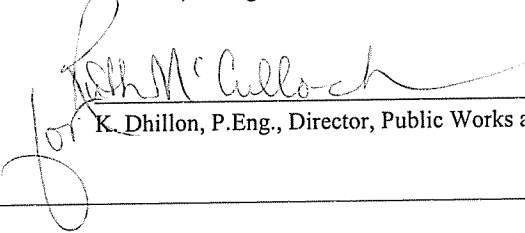
Council could instruct staff to include Solar Aquatics in the Halifax Harbour Solutions Project. Staff is not recommending this because of the higher costs and other reasons outlined in this report.

Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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