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The Regional Municipality of Durham Report

To:	Works Committee
From:	Commissioner of Works
Report:	#2025-W-24
Date:	June 4, 2025

Subject:

Sole Source Procurement of Varec Biogas 244 Series Waste Gas Burner and Ignition System at Port Darlington Water Pollution Control Plant (WPCP) in the Municipality of Clarington

Recommendation:

That the Works Committee recommends to Regional Council that Regional staff be authorized to sole source the Varec Biogas 244 Series Waste Gas Burner through specifications in the contract tender documents for Plant 1 and Waste Gas Burner Upgrades at the Port Darlington Water Pollution Control Plant.

Report:

1. Purpose

1.1 The purpose of this report is to obtain Regional Municipality of Durham (Region) Council approval for the sole sourcing of a Varec Biogas 244 Series Waste Gas Burner (WGB) unit through specifications in the contract tender documents for Plant 1 and WGB upgrades at the Port Darlington Water Pollution Control Plant (WPCP) in Bowmanville.

2. Background

2.1 The Water and Wastewater Infrastructure Design (WWID) Division of the Works Department's Capital Projects Delivery Branch is managing the capital project for the Plant 1 and WGB upgrades project at Port Darlington WPCP.

2.2 Surplus biogas generated by the digestion complex at the Port Darlington WPCP is burned off on-site by an existing waste gas burner. This practice is common to most of the Region's WPCPs.

2.3 The existing WGB at the Port Darlington WPCP was installed in 1981 under Contract D79-45 and it operates 24 hours per day, 7 days a week.

2.4 A condition assessment completed in 2019 identified that the existing WGB was corroded and was at the end of its service life. The recommendation was provided for it to be planned for replacement.

2.5 Furthermore, the open-flame design of the current WGB has led to public concerns and multiple false emergency calls to the Municipality of Clarington's Fire Department, further supporting the need for a replacement with a concealed flame unit.

2.6 The Region has planned and budgeted for a project to tender and construct a new enclosed WGB at the Plant. The Contract will involve replacing the existing WGB with a single-duty enclosed flare-type WGB, including all associated electrical and SCADA connections. The digester gas pipe running from the digestion complex to the WGB will also be replaced as part of this project.

2.7 The detailed design for the Contract is currently at the 60 per cent complete stage and tender documents are scheduled to be finalized in time for a Fall 2025 tender.

2.8 The WGB enclosure building needs to be designed to accommodate the specific make and model of a WGB product to finalize complete tender documents.

2.9 The Region's Design Consultant has evaluated multiple WGB products and has recommended for the Region to pre-select, and therefore effectively sole source, a Varec Biogas 244 Series WGB.

2.10 Refer to Attachment #1 for a picture of a typical Varec WGB installation.

2.11 There are several manufacturers that provide enclosed-flare WGBs capable of combusting digester gas. The following manufacturers were evaluated for this project:

- Varec Biogas
- John Zink Hamworthy Combustion Technology

- Shand & Jurs, represented by Vector Process Equipment in Ontario
- Tornado Combustion Technologies

3. Previous Reports and Decisions

3.1 There have not been any previous reports and decisions applicable to this work.

4. Justification for the Sole Source

4.1 The Varec Biogas 244 Series WGB is recommended to be pre-selected for the Port Darlington WPCP site for the following reasons:

a. Varec's WGB is not a temperature-controlled flare, which means it does not require operation at elevated temperatures for a specified retention time to ensure complete combustion. This is advantageous for the climatic conditions in the Region where temperatures can vary greatly during the course of a day. Therefore, the unit does not need to be enclosed in a temperature-controlled building, resulting in a simpler structural design for the enclosure and energy efficiencies, therefore both short- and long-term cost savings are achieved. The Region's Design Consultant has been unable to source an alternative WGB products that has this operating characteristic.

b. Varec's design allows the unit to operate at a lower temperature while maintaining a high combustion efficiency. This eliminates the need for a refractory lining in the combustion chamber. Other manufacturers' designs require elevated temperatures for the burner to operate, therefore there is a need for refractory linings in the combustion chamber, which in turn, increases both health and safety risks for Operators for the inspection, maintenance and repair of these refractory linings. The Region's Design Consultant has been unable to source an alternative WGB product that has this operating characteristic.

c. The venturi nozzle design used in the Varec WGB draws in air and mixes it with the gas before the fuel reaches the burner. The naturally aspirated air also cools the main chamber, further negating the need for a refractory lining, which can become a cumbersome maintenance item due to wear over time from thermal degradation, as noted above. The Region's Design Consultant has been unable to source alternative WGB products that have this operating characteristic.

d. Other WGB manufacturers rely on motor-driven blowers and adjustable louvres to regulate airflow to the units within the buildings that they are contained in, adding to both operational and maintenance complexity of the building. The Varec WGB does not require these elements. The Region's Design Consultant has been unable to source an alternative WGB products that has this operating characteristic.

4.2 The Consultant for the project has evaluated different procurement options, including pre-selection and pre-purchase of the unit. It has been determined that there are no significant schedule benefits to pre-purchasing the WGB in advance of the general contract.

4.3 As such, it is recommended that the preferred procurement option for the WGB would be to sole source the unit through the tendered contract specifications. This method will facilitate the integration of the unit into the final design, allow for an expedited review of shop drawings during construction and therefore equipment manufacturing can begin promptly after shop drawing approval, thus expediting the construction schedule.

4.4 Process mechanical, electrical, civil, and structural drawings and specifications will be developed using Varec's preliminary submittal package, ensuring that design requirements specific to Varec are integrated into the final Contract drawings and specifications.

4.5 Varec is based in California and does not have a Canadian manufacturing location. However, Westech Industrial, the distributor representing Varec for technical and sales support, is located in London, Ontario.

5. Financial Implications

5.1 Section 7.2 of the Region's Purchasing By-Law #16-2020 permits the acquisition of goods and services through sole source negotiations under specific circumstances outlined in Appendix 'C'. Section 1.1 of Appendix 'C' permits negotiations for goods or services to be supplied only by a particular supplier if no reasonable alternative or substitute goods exist due to the absence of competition for technical reasons.

5.2 The Region's Purchasing By-law also requires Regional Council approval for any negotiated purchases of $100,000 and greater in value.

5.3 The Vendor, Westech Industrial, has provided a quotation in March 2025 for a Varec Biogas 244 Series WGB unit at approximately $800,000 (CAD).

5.4 The Varec Biogas 244 Series WGB unit will be specified as the required WGB product in the Contract specifications at the time of tendering the Construction Contract.

6. Relationship to Strategic Plan

6.1 This report aligns with the following Strategic Direction(s) and Pathway(s) in Durham Region's 2025-2035 Strategic Plan:

a. Connected and Vibrant Communities

- C1. Align Regional infrastructure and asset management with projected growth, climate impacts, and community needs.

b. Environmental Sustainability and Climate Action

- E1. Reduce corporate greenhouse gas emissions to meet established targets.

c. Strong Relationships

- S5. Ensure accountable and transparent decision-making to serve community needs, while responsibly managing available resources.

6.2 This report aligns with/addresses the following Foundation(s) in Durham Region's 2025-2035 Strategic Plan:

a. Technology: Keeping pace with technological change to ensure efficient and effective service delivery.

7. Conclusion

7.1 It is recommended that Staff be authorized to sole source the Varec Biogas 244 Series Waste Gas Burner (WGB) through the contract tender documents for Plant 1 and WGB upgrades at the Port Darlington Water Pollution Control Plant (WPCP).

7.2 This Report has been reviewed by the Finance Department, and the Commissioner of Finance concurs with the financial recommendations.

7.3 For additional information, contact: Michael Harris, Manager, Water and Wastewater Infrastructure Design Division, at 905-668-4113 extension 3458.

8. Attachments

Attachment #1: Representative Varec Biogas Waste Gas Burner Installation

Respectfully Submitted,

Original signed by:

Ramesh Jagannathan, MBA, M.Eng., P.Eng., PTOE
Commissioner of Works

Recommended for Presentation to Committee

Original signed by:

Elaine C. Baxter-Trahair
Chief Administrative Officer

Attachment #1 to Report #2025-W-24

Attachment 1 – Representative Varec Biogas Waste Gas Burner Installation

(Source [www.varec-biogas.com/244w-waste-gas-burner-ignition-system)](www.varec-biogas.com/244w-waste-gas-burner-ignition-system)