

# STAFF REPORT

THE CORPORATION OF THE TOWN OF COBOURG



<b>Report to:</b>	Mayor and Councillors	<b>Priority:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Low
<b>Submitted by:</b>	Bill Peeples, Manager Environmental Services <a href="mailto:bpeeples@cobourg.ca">bpeeples@cobourg.ca</a>	<b>Meeting Type:</b>  Open Session <input checked="" type="checkbox"/> Closed Session <input type="checkbox"/>	
<b>Meeting Date:</b>	October 4, 2021		
<b>Report No.:</b>	Public Works-062-21		

**Subject/Title:** Gas Detection System – Plant #2

## RECOMMENDATION:

**THAT** Council approve the purchase of an MSA Fixed Gas Detection System for Plant #2 at a cost of \$42,281 including non-refundable taxes.

**FURTHER THAT** Council approve up to an additional \$30,000 for the removal of the old gas detection system, installation of the new system and its integration into the Plant SCADA system.

## 1. STRATEGIC PLAN

N/A

## 2. PUBLIC ENGAGEMENT

N/A

## 3. PURPOSE

To comply with the TSSA regulations regarding the detection of combustible gas in the Digester Building.

## 4. ORIGIN AND LEGISLATION

Environmental Services 2021 Capital Budget (Account No. 2140123)

## 5. BACKGROUND

The Digester Building at Plant #2 contains a network of piping that collects methane from the Primary Digesters, transfers it to the Secondary Digester where methane can be stored under a floating roof. The entire gas train is

located inside the Digester Building, where any leaking component of the system could discharge methane into to building. Methane is a combustible gas that may also serve as an asphyxiant in a contained area.

The Digester Gas Code (CSA B149.6.20, Section 10.4) requires any building containing methane, to be equipped with a fixed, gas detection system, capable of detecting and alarming in the presence of combustible gases (eg. Methane). The system is required to possess a sufficient number of remote sensors, strategically placed throughout the gas train area, to preclude any possibility of combustible gases accumulating without being detected by the system.

## 6. ANALYSIS

The existing MSA Gas Detection System at Plant #2 has been in use since 1984 (i.e. 37 years). It employs the antiquated *catalytic bead* technology, that becomes poisoned by compounds commonly found in digester gas and will not function in oxygen-depleted environments (i.e. A condition common in buildings where methane gas can displace oxygen). As such, these types of sensors required frequent calibration and replacement. The cost to replace a catalytic bead sensor can be several hundred dollars and must be tested frequently using expensive calibration gases.

Over the years, several components were replaced to keep the system functioning properly. Environmental Services purchased a supply of parts in 2015, prior to their being discontinued. In 2019, the last of these components (i.e. circuit board) was used. While the system is currently operating normally, should another part fail, it will leave Plant #2 without a functional Gas Detection System and non-compliant under Section 10.4 of the Digester Gas Code CSA B149.6.20.

## 7. FINANCIAL IMPLICATIONS/BUDGET IMPACTS

Quotes for a fixed Gas Detection System were obtained from MSA, Honeywell and Novatech.

Manufacturer	Cost	Comments
MSA	\$41,550	10 yr warranty, no calibrations required
Westech	\$38,136	5 yr warranty, semi-annual calibrations required
Novatech	\$34,616	5 yr warranty, semi-annual calibrations required

The MSA system is the highest bid at \$42,281 (i.e. This price includes non-refundable HST), however, it provides superior value to the Town. The MSA system provides the following unique features:

1. Sensors are infrared (i.e. not Catalytic Bead) based. As such, they last many years, require little maintenance or calibration.

2. A 10 year warranty (i.e. The other systems have 5 year warranties) on the sensors.
3. Continually monitors ambient conditions and automatically adjusts the readings to compensate for these variables.
4. Self-calibration eliminates the need for a third party technician to calibration each sensor twice per year at approximately \$400 per visit.
5. The MSA system also detects sensor blockages and sends an alarm to the Operator so that corrective action can be undertaken immediately. This safety feature ensures that Operators will never enter the area without proper gas monitoring in place.
6. The new Headworks Building at Plant #1 (commissioned in 2019) also uses an MSA Gas Detection System. Using the same manufacturer will allow the department to maintain a smaller inventory of replacement parts.

In addition to the purchase of the new equipment, it will also be necessary to hire an Electrician to remove all of the existing wires and equipment, install the new equipment and have a SCADA\* programmer integrate the alarms into the Plant's SCADA system. The installation and programming will be performed on a time and material basis by local contractors with an upset limit of \$30,000.

The total cost of the new equipment, including the non-refundable HST, is \$42,281. Installation will not exceed \$30,000, bringing the cost of the full project to a maximum of \$72,281. Council has approved \$75,000 for this project in the Environmental Services 2021 Capital Budget.

*\*SCADA – Acronym for “Supervisory Control and Data Acquisition” which is a computerized control system used to monitor and control the wastewater treatment process.*

## 8. CONCLUSION

The MSA Infrared Gas Detection system is deemed the best value and is recommended to replace the existing Catalytic Bead system that has been in use for the past 37 years at Plant #2.

## Report Approval Details

Document Title:	Gas Detection System - Plant 2 - Public Works-062-21.docx
Attachments:	
Final Approval Date:	Sep 22, 2021

This report and all of its attachments were approved and signed as outlined below:

**Tracey Vaughan, Chief Administrative Officer - Sep 22, 2021 - 9:54 AM**