Conestoga-Rovers & Associates

Project Summary

WOODWARD AVE. WWTP DIGESTER GAS COGENERATION PLANT

HAMILTON, ONTARIO

KEY PROJECT ELEMENTS

- **Detailed Design**
- **Approvals**
- **Construction Services**
- **Commissioning**
- **Digester Gas Cogeneration System**
- **Hot Water Thermal Energy**
- **Utility Interconnection**
- **Full Automation and Remotely Monitored (SCADA)**

CLIENT: HAMILTON RENEWABLE POWER INC.
DURATION: AUGUST 2005 TO JUNE 2006

Hamilton Renewable Power Inc. (HRPI) contracted Toromont Power Systems (Toromont) to undertake a turnkey project to utilize available digester gas from the Woodward Avenue Wastewater Treatment Plant in the City of Hamilton for the purposes of electricity generation and heat recovery.

Toromont retained CRA Contractors Ltd. (CRACL) to integrate the generation equipment into existing infrastructure. CRACL was responsible to undertake the detailed design, construct and commission the digester gas cogeneration system.

CRACL's scope of work generally included geotechnical investigation, foundation design, structural analysis, fuel gas conditioning system design, thermal recovery integration design, electrical integration design and utility interconnection coordination. Furthermore, CRACL was responsible to oversee and undertake all on site construction activities and mentor the plant commissioning process.

The 1.6 MW facility consists of one containerized Caterpillar G3520C reciprocating gas generator set. The system includes a jacket water/aftercooler waste heat radiator, digester gas drying and filtration equipment, hot water pumping systems, electrical switchgear, motor controls, and electrical protection systems. Electricity is generated at 4160V and stepped up to the utility distribution voltage of 13.8kV.

In addition to the electricity output, the facility produces thermal energy in the form of hot water that is distributed back to the water and wastewater treatment facilities which will be utilized for facility space heating as well as the wastewater digesters. Heat generation consists of recovery of thermal energy from engine lube oil, engine after-cooler, engine jacket water and engine exhaust. The plant is fully automated and remotely monitored.

This facility opened on September 20, 2006. HRPI currently holds a 20 year contract with Ontario Power Authority (OPA) to sell its renewable energy.

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