

## **Operation and Monitoring of a Bioreactor Landfill in Sainte Sophie, Quebec**

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This paper will present the details of construction, operation, and monitoring of a 30-acre, two million cubic meter bioreactor landfill area at Intersan's Sainte Sophie Landfill in Quebec, Canada (Intersan is a subsidiary of Waste Management, Inc.). The bioreactor area is divided into three, 10-acre phases designated A, B, and C. The Phase A double liner and LCS was constructed in the fall of 2000, and started receiving over 3,000 tonnes of waste per day in December 2000. Three layers of horizontal recirculation piping and gas collection piping have been installed and recirculation and gas collection began in May 2002. Presently, there are over 1,000,000 tonnes of waste in place. The remaining 20 acres of liner and LCS were completed in 2001 and started receiving waste in December 2001. The bottom level of recirculation and gas collection piping has been installed in both Phases B and C.

Design of the bioreactor areas will be summarized in the presentation. Preliminary operating experience in liquid recirculation, and gas collection will be presented.

Sensors to monitor various bioreactor performance indicators have been installed and monitored since placement of the liner in November 2000. The bioreactor monitoring program includes measurements of head-on-liner, waste temperature and moisture content, waste composition, leachate flow rate and composition, gas flow rate and composition, and settlement rates. Significant monitoring data will be presented.