

CASE STUDY

Water Use Reduction & Cost-Effective Wastewater Treatment at Wineries

TANTALUS VINEYARDS: Capital cost savings of more than \$50,000 were achieved by designing an end-of-pipe treatment system based on reducing the organic & hydraulic loading at source (prior to treatment).

INTRODUCTION

In 2009, Tantalus Vineyards constructed a state-of-the-art winery in Kelowna, British Columbia. In accordance with Tantalus' strong commitment to environmental stewardship, an effective phased approach for stewardship and compliance was designed and implemented by Enviro-Stewards Inc. The approach consisted of a balanced combination of:



TANTALUS VINEYARDS, KELOWNA, BC

- i) In-plant pollution prevention (P2) measures to reduce sanitary sewage and process wastewater by 40% and 25%, respectively;
- ii) Potable water pre-treatment system;
- iii) Design and implementation of an end-of-pipe wastewater treatment plant based on a reduced organic loading; and
- iv) Design of an air treatment system for odour control.



PROCESS TANKS

As required for Leadership in Environmental and Energy Design (LEED) certification, both sanitary sewage and process wastewater generated at the winery were required to meet tertiary quality levels as follows:

TBOD	less than 10 mg/L
TSS	less than 10 mg/L
Total Coliform Count	less than 400 per 100 mL

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TREATMENT APPROACH

The treatment system designed by Enviro-Stewards consisted of a fully automatic sequencing batch reactor (SBR) complemented with pre-equalization, neutralization, coarse solids screening, chemical addition, tertiary filtration, and ultraviolet (UV) disinfection. The combined treated effluent is finally discharged to an infiltration trench located in the vicinity of Lake Okanagan.

Given the proximity of the wastewater treatment building to the winery and wine tasting facilities, the treatment system was enclosed in a 25 ft x 30 ft pre-engineered building and equipped with an air quality management and odour control system based on bio-filtration technology.

Treatment Design Parameters

Parameter	Influent	Effluent
Peak Flow	6 m ³ /day	6 m ³ /day
Average TBOD	1,800 mg/L	< 10 mg/L
Peak TBOD	2,300 mg/L	< 10 mg/L
Average TSS	30 mg/L	< 10 mg/L
TKN	30 mg/L	< 5 mg/L
Total Coliform	-	< 200 col/100 m

CAPITAL COST AND O&M SAVINGS

A reduction of more than \$50,000 in capital cost savings was achieved by designing an end-of-pipe treatment system based on a reduced organic loading.

PLANT TREATMENT EFFICIENCY

The plant operates in an un-manned mode with periodic supervision. Since commissioning in October 2009, the facility has generated a final effluent in compliance with the British Columbia Sewerage Treatment Regulations.

