Wine Waste Woes!

Collaborating to Clean up Crush

Wine grapes

Introduction

Have you ever thought about where your wine comes from? What about the type of wastewater that comes from making wine? Or about what wine wastewater discharges can do to the land or a wastewater treatment plant? Well, the Department of Ecology (Ecology), the Port of Mattawa, the Wahluke Winery, and J & S Crushing have!

Problem

Wastewater discharge from a winery has a high five-day biological oxygen demand (BOD_5) and low pH. BOD_5 is a measure of how much oxygen is used by microorganisms breaking down organic matter over a five-day period. The more organic matter there is in the wastewater to decompose, the lower the oxygen will be in the water that receives the discharge. In a stream, lowering the oxygen in the water is harmful for the fish and insects that live there. When a wastewater treatment plant receives wastewater with high BOD and low pH it can cause a *treatment upset*, which means the wastewater may not be treated to the proper level before it is discharged to the environment. Land application of winery wastewater is an option, but there is a potential for the high BOD to cause metals in the soils, as well as other toxins attached to the soil particles, to leach out to the groundwater supply. Moreover, land application is only an option during the summer growing season when the soil conditions are right and there is an actively growing crop.

The project

Wahluke Winery began operations in the Mattawa area in 2005, discharging wastewater to the city of Mattawa wastewater treatment plant. For the next two years, the city of Mattawa's treatment plant experienced many treatment upsets, especially from the end of September to mid-November. In the wine industry, this period is known as "crush," when tons of grapes arrive at the winery to have the juice squeezed from them, leaving stems and skins behind. The upsets at the treatment plant were causing it to violate its discharge permit, so the city and Ecology told Wahluke Winery it could no longer send its wastewater to the city's treatment plant.

Crusher at the Wahluke Winery

Port of Mattawa Aeration Basin

Wahluke Winery switched to land application of its wastewater, but because of the volume of discharge and the concerns described previously, another solution had to be found. During crush, the Mattawa wineries can produce 10,000 to 20,000 gallons of wastewater per day. Since the area is suitable for winery and fruit processing, the Port of Mattawa saw an opportunity to promote the growth of these industries so it stepped up to help. From 2006 to 2008, the Port of Mattawa worked with Ecology to develop a wastewater plant designed for winery wastewater with its high BOD and low pH.

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The Port of Mattawa wastewater treatment plant came online in 2008, and Wahluke Winery started hauling its wastewater there. J & S Crushing, a former potato-processing facility converted to a winery, also sends most of its wastewater to the new Port of Mattawa treatment plant while reserving some wastewater for land application for dust control. The Port of Mattawa built a sewer system to the Wahluke Winery in 2009 and to J & S Crushing in 2010. After the wastewater is treated at the Port of Mattawa, it is used to irrigate local crops.

Project highlights and outcomes

The Port of Mattawa saw a need where it could help its local industries and sought funding to build a treatment plant that could handle the unique qualities of its wastewater. After many meetings with Ecology, the wineries, and the funding sources and several years of construction, the Port now has a treatment plant that can attract businesses to the area and protect surface and groundwater quality.

Port of Mattawa Settling Pond

Winery wastewater went from causing permit violations at the city of Mattawa's wastewater treatment plant in 2005 and 2006, to turning into a renewable resource.

Partners

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