



**Comprehensive Guide to  
Sustainable Management of  
Winery Water & Associated Energy**

# Overview

The background of the slide is a close-up photograph of dark, ripe grapes on a vine. The grapes are clustered together, and some green leaves are visible, providing a natural, textured backdrop for the text.

- Background
- Guide Objectives
- Building Blocks
- Five-Step Process
- Examples
- Collaborators

# Background



- Responds to regulatory environment
- Reflects industry's commitment to sustainable winegrowing
- Leverages prior Wine Institute research
- Approach: cooperative and coordinated effort with regulators, science-based, practical
- Seed funding from 2007 American Vineyard Foundation grant

# Guide Objectives

The background of the slide features a close-up photograph of dark blue grapes on a vine, with green leaves visible. The image is dimly lit, creating a dark, moody atmosphere. The grapes are the primary focus, with some in sharp focus and others blurred in the background.

- Accelerate adoption of best practices for water, wastewater and energy resources
- Enhance potential for economic, environmental and social sustainability
- Provide a structured approach for self-assessment and improvement
- Adapt methods to work for wineries of all sizes and configurations

# Building Blocks for the Guide



- Wine Institute and CAWG:
  - Code of Sustainable Winegrowing Practices (2002)
  - Land Application Studies and Literature Review (2004)
  - Sustainable Winery Practices for Process Water Management (2007)

# Building Blocks for the Guide

- CLFP Manual of Good Practices for Land Application (2007)
- BEST Winery Guidebook, Ernest Orlando Lawrence Berkeley National Laboratory (2005)
- Environmental Protection Agency (1988) Waste Minimization Opportunity Assessment Manual (1988)

# Link to Code of Sustainable Practices Self-Assessment Workbook

- Viticulture
- Soil Management
- Vineyard Water Management
- Pest Management
- Wine Quality
- Ecosystem Management
- **Energy Efficiency**
- **Winery Water Conservation & Quality**
  - Material Handling
  - Solid Waste Reduction & Management
  - Environmentally Preferred Purchasing
  - Human Resources
  - Neighbors & Communities
  - Air Quality

# Development Timeline

Aug 2007

Jan 2008

Jan 2009

Develop detailed outline & identify sources

Synthesize and expand guidelines

Identify data gaps

Solicit & incorporate feedback on draft

Begin training

Extended outreach

# Guide Contents

The background of the slide is a close-up photograph of dark blue grapes on a vine. The grapes are in various stages of ripeness, with some showing a slight white bloom. Green leaves with prominent veins are visible, particularly on the right side of the frame. The lighting is soft, creating a natural, slightly moody atmosphere.

- Glossary
- Executive Summary (how-to-use)
- Five-Step Process
- Worksheets
- Guidelines
- Appendices

# Five-Step Process

## Conventional Operations



**Step 1: Planning and Organization**

**Step 2: Self-Assessment**

**Step 3: Data Evaluation & Option Identification**

**Step 4: Feasibility Analysis**

**Step 5: Implementation**



## Sustainable Operations

# Guide Example

## Step 2. Winery Self-Assessment

2.1 Compile existing facility information

2.2 Collect additional information

### Resources:

- Worksheets for data collection
- Case Study (Appendix A):
  - Examples of streams to monitor
  - Sample stream characterization data

# Guide Example

## Step 2. Winery Self-Assessment

### Worksheets

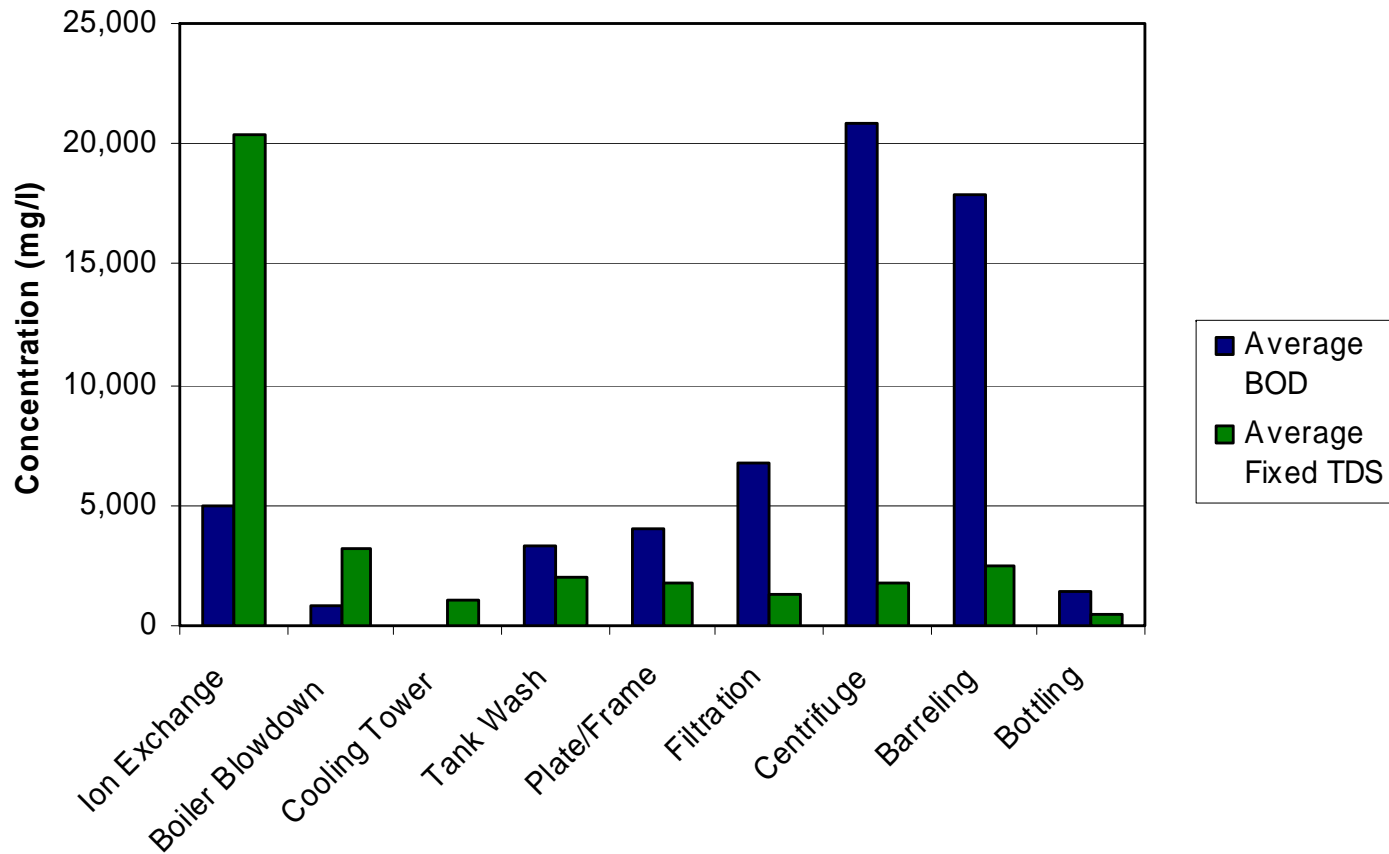
- 2-1 Water use inventory
- 2-2 Sanitation inventory
- 2-3 Equipment inventory
- 2-4 Flow monitoring plan
- 2-5 Flow monitoring results
- 2-6 Analytical monitoring plan
- 2-7 Analytical monitoring results

# Worksheet Example: Water Use Inventory

Operation	Source Description			
Winery Process	Water-Using Task	Flow Type	Flow Duration (mins)	No. of Parallel Lines
Crush	Bin sanitation	Batch	5	2
Bottling	Line sanitation	Batch	10	3

# Guide Case Study Results

Figure A-1: Average Wastewater Concentrations of BOD and Fixed Dissolved Solids at Several Large Wineries



# About Training Workshops



- Learn why and how to use the Guide
- Understand the connections between water management and energy use
- Review five-steps in winery self-assessment process and get started more easily
- Hear case studies and learn from other participants
- Get information on local utility rebates, incentives
- Complete follow-up survey

# Food Processing Example

The background of the slide features a close-up photograph of several clusters of ripe, dark blueberries. The berries are in sharp focus in the foreground, with some green leaves and stems visible behind them. The lighting is soft, highlighting the texture of the berries and the veins on the leaves.

## Step 2 – Facility Self-Assessment

- Unloading flume area
- Product rinsing area
- Process room CIP
- Peeling process effluent
- Can washer effluent
- Cooling tower blowdown
- Total effluent discharge

# Food Processing Example



## Step 3 – Option Identification/Brainstorming

- Upgrade standard operating practices
- Modify or replace equipment to improve water use efficiency and reduce discharge volume
- Add treatment steps within facility to allow greater recycling
- Segregate high strength waste streams to allow reuse of bulk flow
- Match reuses to water quality of wastestreams

# Winery Guide Collaborators



- American Vineyard Foundation
- Wine Institute
- California Association of Winegrape Growers
- California Sustainable Winegrowing Alliance
- National Grape and Wine Initiative
- Pacific Gas and Electric
- Kennedy/Jenks Consultants