



ENVIRONMENTAL MANAGEMENT FOR THE WINE INDUSTRY

Today's winemakers face a complex set of management challenges. For small family-owned wineries and major corporate labels alike, it's an extremely competitive, capital-intensive business with inherent risks like bad weather, changing consumer tastes and evolving regulations.

For more than 60 years, winemakers have relied on Kennedy Jenks to design integrated, cost-saving solutions to meet their facility, water supply and wastewater management needs. We specialize in:

- Wastewater treatment, reuse and disposal
- Water supply development
- Stormwater management
- Solid waste management
- Hazardous materials minimization
- Air emissions and odor control
- Regulatory analysis and permitting
- Health and safety consultation

Kennedy Jenks founded in 1919, has assisted more than 100 wine industry clients since the 1950's. Our clients have ranged from boutique producers of less than 5,000 cases a year to large facilities bottling more than 120 million gallons per year. We have worked with wineries located throughout California, including:

- Napa and Sonoma Valleys
- North Coast
- San Francisco Bay Area
- Central Coast
- San Joaquin Valley

As a result, we have significant knowledge of the environmental conditions and regulatory constraints that apply across the winemaking regions. We have provided similar services to wineries in Washington and Oregon. Kennedy Jenks is committed to providing cost-effective solutions that satisfy the unique requirements of each client. Consider the following examples of our services, and contact us for more information.

WDR PERMITTING ASSISTANCE

When a Central Coast winery that bottles about 40,000 cases annually received an order to meet highly restrictive waste discharge requirements (WDR), the winery turned to Kennedy Jenks.

Kennedy Jenks negotiated with the State to delay their compliance deadline and evaluated facility data to assess whether the winery's process and domestic wastewater treatment and disposal systems were affecting groundwater quality.

Based on this evaluation, we concluded that the systems had no effect on groundwater, and that the winery should continue to land apply process wastewater. We advised them to continue managing a portion of the process wastewater and the domestic wastewater with separate septic tank and leach field systems. In addition, we recommended operational and stormwater management improvements.

Kennedy Jenks successfully negotiated terms for the new WDRs, and continued to assist with compliance monitoring for several years.



ENGINEERING SERVICES FOR WINERY EXPANSION

A large winery in the San Joaquin Valley wanted to expand their existing wine production capacity and add related facilities. Kennedy Jenks helped them achieve their goal with the following:

- Planning land use and environmental permitting support
- Conceptual design and cost estimation for the expanded wine processing and storage areas
- New raisin processing, alcohol production and storage facilities
- Wastewater management

Because the expansion would nearly triple the quantity and strength of the wastewater, Kennedy Jenks designed an innovative system that integrated the winery's wastewater treatment and water supply needs.

The new system routed treated wastewater for reuse in vineyard irrigation, cooling tower makeup and facility cleanup water. The system also included energy recovery features.



SOLVING ENVIRONMENTAL MANAGEMENT ISSUES FOR **WINERY CLIENTS**



WATER SUPPLY EVALUATION

Over the course of 4 decades, a large Napa Valley winery repeatedly turned to Kennedy Jenks for guidance on wastewater management and water supply improvement projects.

The winery was originally designed with a connection to the city water system but, in a recent project, Kennedy Jenks assessed the feasibility of replacing city water with groundwater from onsite wells.

The work included an engineering evaluation of the quality of the groundwater and various treatment options that would ensure the water met the winery's process needs and Safe Drinking Water Act requirements.

Kennedy Jenks' solution was a treatment system designed to remove iron and manganese and correct the corrosivity of the groundwater. With their own water supply, the winery will enjoy substantial utility and cost savings.



DOMESTIC WASTEWATER RECYCLING FOR VINEYARD IRRIGATION

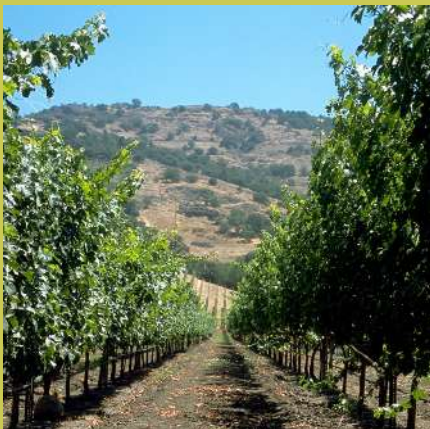
Kennedy Jenks was retained to evaluate the potential for reusing treated domestic wastewater for vineyard irrigation at several wineries.

The source of the wastewater was effluent from publicly owned treatment works (POTWs) and other domestic systems.

In these evaluations, Kennedy Jenks considered whether site-specific requirements for irrigation water quality, vineyard soil properties, and wastewater characteristics were compatible.

We found acceptable conditions for reuse at a number of sites. For these wineries, use of reclaimed water contributed to water conservation efforts.

The POTWs benefited from lower effluent disposal costs, and were able to comply with NPDES permit limits on discharges during dry months.



INTEGRATED WATER MANAGEMENT

Kennedy Jenks has provided engineering and design services for a high-production Napa Valley winery client over three decades.

Projects have included multiple expansions and upgrades. In particular, Kennedy Jenks designed a fully integrated water management plan for the winery, linking water supply, wastewater treatment and disposal, irrigation, and stormwater management needs.

By recycling treated wastewater to meet part of their supply needs, the winery solved disposal problems and lowered operating costs.

CONSULTING ENGINEERING SERVICES FOR THE WINE INDUSTRY

WASTEWATER TREATMENT, REUSE & DISPOSAL

- Process wastewater characterization and treatability
- Wastewater reuse for crop and vineyard irrigation
- Land application processes
- Reclaimed domestic wastewater management
- Odor control and air emissions
- Cogeneration and energy conservation

WATER SUPPLY

- Water System Permit
- Industrial process water treatment
- Water wells and water treatment
- Groundwater quality assessments
- Disinfection system design (including ozonation and UV)

STORMWATER

- Pollution prevention plans
- Notice of non-applicability
- Drainage control design

SOLID WASTE

- Waste characterization
- Minimization, reuse and disposal practices

HAZARDOUS MATERIALS

- Characterization, treatment and disposal
- Hazardous materials management plans
- Hazard analysis

ENVIRONMENTAL PERMITTING & COMPLIANCE

- Waste discharge reports
- Waste discharge requirements
- Stormwater management
- Hazardous material management
- Solid waste management
- Odor control
- Air emissions

FACILITY PLANNING & DESIGN

- Civil engineering site work
- Mechanical/electrical/instrumentation/controls engineering
- Structural engineering
- Architectural services
- Land use planning

INFORMATION & DATA MANAGEMENT

- Geographic Information Systems (GIS)
- Information Technology

HEALTH & SAFETY

- Process safety management and auditing
- Program development
- Employee training programs



Offices throughout the western U.S.

For more information call us at 415-243-2150 or visit our website at www.kennedyjenks.com/food-beverage/