

WINERY:  
WASTE WATER OPERATIONS

Integrated Engineers Inc., California, USA

# Winery Wastewater

- Background and Trends
- Existing Problems with Current Systems
- Current and Future Regulations
- Requirements for New or Expanding Wineries
- Past Technologies
- LOX Technologies that we Offer
- Oxygen versus Aeration hp
- Oxygen Usage vs Winery Size
- Where Praxair can increase sales
- Working with Integrated Engineers

# Background and Trends

- Growth of Wineries in California
- Growth in Population around Wineries
- Value of Land for more Grape Production

# Existing Problems with Current Systems

- ❑ Improper Design
- ❑ Systems Undersized
- ❑ Ponds oversized
- ❑ High BOD
- ❑ Odors
- ❑ Inadequate Mixing
- ❑ Wrong Aeration Equipment/Placement
- ❑ pH and Nutrient Control

# Current and Future Regulations

- RWQCB is now an Enforcer with \$ Penalties
- RWQCB targeting Wineries as a funding source
- No more Septic Tanks allowed
- BOD limited to 100 lbs/day/acre for land applications
- Any wine production increase over 25% needs a permit review and WW system approval
- Levels of TDS/EC are becoming more stringent

# Requirements for New or Expanding Wineries

- ❑ Before occupancy permit, need RWQCB approval
- ❑ Must increase WW capacity equal to production
- ❑ Must prove monthly compliance for 6 months after start
- ❑ Must have sufficient acreage to land apply
- ❑ Must have sufficient treated waste water storage
- ❑ Pond lining

# Past Technologies

- Septic Tanks/Leach fields
- Percolation Ponds w/o or minimal aeration
- Filtration Systems
- Anaerobic Digestions
- BioReactor Systems

# LOX Technologies Offered

- Advanced BioReactors
- Packaged BioReactors
- MVO's and Pond Renovation
- Retrofit Existing Systems for LOX



## Oxygen versus Aeration hp

- Electrical Costs average \$0.14-0.20/kw-hr
- LOX is cost effective at \$0.07/kw-hr
- O<sub>2</sub> Biodegradation rates are 3-4 times faster than air
- 10-20% of existing overall electrical load
- Increase Winery Wastewater Capacity w/Min Costs
- Eliminate Odors with Increased DO levels

## Oxygen Usage vs Winery Size

- Large Winery – 100,000 gpd – 3,500 lbs/day of LOX
- Medium Winery – 25,000 gpd – 900 lbs/day of LOX
- Small Winery – 10,000 gpd – 400 lbs/day of LOX

# How to Increase Sales

- Retrofit Existing Facilities for LOX w/ROI
- Sell new Systems based on LOX w/ROI
- Expanding facilities can meet requirements w/minimal cost
- Facilities that have Compliance or Odor Problems

# Working with Integrated Engineers



- Engineering Support for WW Systems
- Turn Key Design/Build/Start up/Train Customers
- Technical Proposals to Help Sell Systems
- Process Diagrams (P&ID)
- Detailed Engineering Drawings/Designs
- Permit Writing for RWQCB
- Licensed Engineers and Engineering Contractors

# Contact Us



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