Sustainable Management of Wastewater and Energy in the Winery

- New York Regulations
  - T. Martinson
- General planning for wastewater treatment
  - William D. Smith, Rochester
- Winery Self-assessment worksheets from California
  - Chris Savage, E&J Gallo
  - Bob Chroback, Kennedy-Jenks Consulting
- Draft design for land application
  - Lisa Greenwood, RIT

Winery Wastewater Regulation in NY

- Wineries are industrial food processing facilities
- SPDES permit required
- <10% of 200 NYS wineries have one
- Wineries liable to enforcement, potential fines
- DEC enforcement responds to complaints

Don’t Ask, Don’t Tell

Providing NY wineries with basic information on winery wastewater permitting, management and design options

- Factsheets
  I. General issues and regulations:
  II. SPDES permits
  III. ‘Part 360’ Land Application
  IV. Design and treatment options, based on size and volume
  V. Practical First Steps (to reduce cost)
- Discussion of regulatory issues with DEC and stakeholders

Funding:
- NY Wine and Grape Foundation
- John Martini (Anthony Rd. Winery)

What this covers:

- Waste water generated by wine production only
- NOT sanitary wastes (eg. tasting room septic systems)
- Separate winery waste streams from septic sanitary wastes.

What water quality problems addressed?

- ‘Biochemical oxygen demand’ (BOD).
  - Presence can deplete oxygen in water.
- Winery wastes vs sanitary wastes
  - Winery: 2,000-5,000 mg/L (ppm) Winery
  - Household: 100-200 mg/L
  - 10 to 25x ‘potency’
- Inorganic Ions (N, K), inorganic salts (cleaning products)

SPDES Permits

Dave Kiser, Region IV presentation at Viticulture 2007

- Regulate discharge to surface or ground water
- Requires licensed engineer to develop treatment plans and design specifications.
- Review, Approval by DEC water quality engineer
- No ‘size’ threshold. Apply whether 300 or 300,000 gal of wine produced.
### Information to Support Design

- Volume of wastewater
- Composition of wastewater
- Seasonal flows
- Site characteristics (e.g. perc. rates)
- Beverage supplement:
  - Amount of grapes processed during crush
  - Volume of finished product (gal. produced)

### The Process

- Complete application (Licensed Engineer)
- DEC develops set of conditions and numerical limits for discharge
- Design and plan by licensed engineer reviewed and approved
- Permit issued (6 Month process?)

### Monitoring Reports

*After installation*

- Regularly sample, analyze and report discharges
- Quarterly, Monthly, or Annually
- Includes: testing by Dept. of Health-certified laboratory

### ‘Part 360 Land Application’

John Thompson, DEC Div. Solid Waste presentation at Viticulture 2007

- Land application of process water
- Registration (not 'Permit') by application
- No formal review, engineering
- Good for ‘life of facility’

### Registration requirements

- Fill out an application form
- USGS topographic map or soil map of site
- One representative analysis of wastes
  - Heavy metals
  - Organic constituents
- Send in the form to DEC
- Receive form back with registration number attached.

### Part 360 Application form
What this would require

• On-site storage (holding tank for liquid wastes)
• Land sufficient to apply wastes at ‘agronomic rates’
  – By N and/or P content
  – 25,000 gal/acre approx 60-70 lb/acre N
    (2.5% solids in waste water)

100,000 gal wastewater would require << 4 acres of land

Land Application Area Requirements

• Setbacks from property lines
• Depth to bedrock (>2 ft)
• Hydraulic loading (< 16,000 gal/acre per application – 2/3 in rain equivalent)
• Slope < 8%, <4% if frozen
• Soils: not gravelly
• ‘Agronomic rates’

Size Limits

There are no size limits.

Limitation is availability of sufficient land suitable for application at agronomic rates

A low-cost, simple solution to winery wastewater disposal?