

## Water Demand Estimate

Croix Estate Winery

July 15, 2024

Winery Demand	Existing	Proposed
Wine Production	5,000 cases/year	10,000 cases/year
	12,000 gallons wine/year	24,000 gallons wine/year
Production Demand Rate	10 gal water/case wine	10 gal water/case wine
<b>Annual Demand</b>	<b>50,000 gal</b>	<b>100,000 gal</b>
Harvest-Only Demand Rate <sup>1</sup>	1.5 gal water/gal wine	1.5 gal water/gal wine
Total Harvest Water Demand	18,000 gallons	36,000 gallons
Harvest Duration	45 days	45 days
Harvest Average Day Demand	400 gpd	800 gpd
Peaking Factor	1.2	1.2
<b>Peak Day Demand</b>	<b>480 gal</b>	<b>960 gal</b>

<sup>1</sup> Per Sonoma County OWTS Manual peak winery flow calculation guidance.

Employee Demand	Existing	Proposed
Full Time Employees	2	7
Work Days	260 work days/year	260 work days/year
Seasonal Employees	15	15
Maximum Work Days (seasonal)	130 work days/year	130 work days/year
Demand Per Employee	15 gal/employee	15 gal/employee
<b>Peak Day Demand</b>	<b>255 gal</b>	<b>330 gal</b>
<b>Annual Demand</b>	<b>37,050 gal</b>	<b>56,550 gal</b>

Visitor Demand	Existing	Proposed
Daily Tasting Room Visitors	20 guests	20 guests
Demand Per Tasting Room Visitor	2.5 gal/guest	2.5 gal/guest
Operating Days	260 days/year	260 days/year
Largest Event Visitors	60 guests	60 guests
Demand Per Event Visitor	5 gal/guest	5 gal/guest
Industry-Wide Events	10 days/year	10 days/year
<b>Peak Day Demand</b>	<b>300 gal</b>	<b>300 gal</b>
<b>Annual Demand</b>	<b>16,000 gal</b>	<b>16,000 gal</b>

Irrigation Demand	Existing	Proposed
Landscape Irrigation (assumed)	10,000 gal/year	10,000 gal/year
Vineyard Area	7.3 acres	6.4 acres
Vineyard Irrigation Rate	0.33 acre-ft/acre	0.33 acre-ft/acre
	107,531 gal/acre	107,531 gal/acre
Vineyard Irrigation	784,975 acre-ft/acre	688,197 acre-ft/acre
<b>Annual Demand</b>	<b>794,975 gal</b>	<b>698,197 gal</b>

TOTAL	Existing	Proposed
Total Peak Day Demand <sup>2</sup>	1,035 gal	1,590 gal
Total Annual Demand	898,025 gal	870,747 gal
	2.76 acre-ft	2.67 acre-ft

<sup>2</sup> Excludes irrigation demands.



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March 21, 2018

## Water Use Worksheet for Croix Winery

### EXISTING CONDITION

#### Winery & Tasting Room

1. Tasting Room Open to Public, 100 tasters per week (assumed)
2. 2 full time employees
3. 15 part-time seasonal employees
4. 10 Industry Wide Events @ 20 visitors/event (assumed)
5. Winery Landscaping

#### Employee Water Use

2 employees x 15 GPD = **30 GPD**

260 work days/yr = 7800 GPY

#### Industry Event

20 Visitors x 5 GPD = **100 GPE (Event)**

100 GPE x 10 events = 1000 GPY

#### Wine Tasting Facility

20 Tasting Max/day x 2.5 GPD per person x 5 days/week = **250 GPW**

Assume tasting room is open 50 weeks/year = 12,500 GPY

#### Landscaping

Total landscape water = 10,000 GPY (assumed)

#### Vineyard Irrigation

Total vineyard area = 7.3 acres

Irrigation = 0.33 acre-ft / acre → 0.33 acre-feet x 7.3 acres

1 acre-ft = 326,000 gal

Total vineyard irrigation water = 785,300 GPY

#### Process Waste - Winemaking

Process wastewater use = 2.4 gal/case of wine

Total cases = 5000/year

Total process wastewater = 12,000 GPY

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**Total Annual Water Use = 828,600 gal**

**Gallon/Acre Ft Water Conversion 326,000 Gal = 1 Acre-Ft**

**Total Existing Annual Use = 2.5 Acre-Feet**

## **PROPOSED CONDITION**

### **Winery & Tasting Room**

1. Tasting Room Open to Public, 100 tasters per week (assumed)
2. 2 full time employees
3. 15 part-time seasonal employees
4. 10 Industry Wide Events @ 20 visitors/event
5. Winery Landscaping

### **Employee Water Use**

2 employees x 15 GPD = **30 GPD**

260 work days/yr = 7800 GPY

### **Industry Event**

20 Visitors x 5 GPD = **100 GPE (Event)**

100 GPE x 10 events = 1000 GPY

### **Wine Tasting Facility**

20 Tasting Max/day x 2.5 GPD per person x 5 days/week = **250 GPW**

Assume tasting room is open 50 weeks/year = 12,500 GPY

### **Landscaping**

Total landscape water = **10,000 GPY** (assumed)

### **Vineyard Irrigation**

Total vineyard area = 6.4 acres

Irrigation = 0.33 acre-ft / acre → 0.33 acre-feet x 6.4 acres

1 acre-ft = 326,000 gal

Total vineyard irrigation water = 688,500 GPY

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**Process Waste - Winemaking**

Process wastewater use = 2.4 gal/case of wine

Total cases = 10,000/year

Total process wastewater = **24,000 GPY**

**Total Annual Water Use = 743,800 gal**

**Gallon/Acre Ft Water Conversion 326,000 Gal = 1 Acre-Ft**

**Total Proposed Annual Use = 2.3 Acre-Feet**

**Conclusion:**

**The new Use Permit will add 5000 cases of wine production per year. The new winery building and driveway will require removal of 0.8 acres of vineyard. All other aspects of the Tasting Room (employees, visitors, events, etc.) remain the same. The net result is a reduction in total water usage by 0.3 acre-ft per year.**

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