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Napa County Board of Supervisors
1195 Third Street, Room 310
Napa, CA 94559

Re: Lynch Family Vineyards, Bennett Lane Winery, Use Permit Modification #P07-00299-MOD

Dear Mr. McDowell:

I am submitting these comments on behalf of Mr. Ellis Hamilton of Two Dog Vineyard. Mr. Hamilton's property lies to the east of the Bennett Lane winery. I served as the Hydrologist for the Mendocino County Water Agency from 1989 through 1994. I have a Master degree in Physical Science with an emphasis on Hydrology. I have been a private consultant since 1995.

I urge you to overturn the Planning Commission's approval of the Major Modification of Use Permit #P07-00299-MOD. The information presented in the Initial Study for this project does not support a Negative Declaration. The water availability analysis is flawed and ignores significant water uses and therefore shows an unrealistically low water demand. Extracting the true water demand has the potential to adversely impact the groundwater resources and neighboring wells. My specific comments follow the restatement of the Project Description.

Project Description

The Bennett Lane Winery is located on a 10 acre parcel at 3340 State Highway 128, approximately 1,000 feet southeast of Bennett Lane. The winery is on Assessor's Parcel number 017-160-002. The property is owned by the Lynch Family Vineyards, LLC. The project is an approval of a Major Modification to Use Permit #92452-UP to expand the existing winery structures and expand visitation and marketing. The project description was modified at the December 17, 2008 Planning Commission Hearing and now is as follows:

1. Remodel the existing approximate 8,900 sq-ft winery building including expansion of the offices
2. Construct a new approximately 3,650 sq-ft tasting room with offices
3. Construct a new approximately 5,000 sq-ft barrel storage building with commercial kitchen
4. Add an enclosed courtyard between the buildings with 18 foot high walls
5. Relocate and expand the customer parking lot, 25 parking spaces
6. Increase tours and tasting by appointment only to 32 visitors per day, with 200 visitors average per week
7. A marketing plan with 24 private wine, food and harvest events per year with a maximum of 40 people per event, and 4 Industry Open House events with a maximum of 50 people per event

8. Two Auction related events per year with a maximum of 125 people per event
9. No changes in the annual production limit of 50,000 gas/year.

Fire Storage

Riechers and Spence Associates, the project engineers for the Bennett Lane Winery, submitted a letter to John McDowell, Napa County Planning, dated October 1, 2008. The first paragraph notes that in their view the fire flow and storage requirements for the project are 300 gallons per minute for 60 minutes duration with storage of 9,000 gallons. This is substantially less than the fire flow and storage requirements specified in the December 2, 2008 Inter-Office Memo from Alicia Amaro, Fire Department. The *minimum* required fire flow is

- 500 gallons per minute for 60 minute duration at 20 pounds residual water pressure with a storage of 15,000 gallons
- storage was reduced 50% because the project will use automatic sprinkler system
- approved automatic sprinkler system required for all structures greater than 3,600 sq-ft
- 60 minutes of water storage is required for the sprinkler system (volume not specified)
- the barrel storage building will require an automatic sprinkler system
- the addition to the existing winery will require an automatic sprinkler system

The minimum water storage for the automatic sprinkler system has not been revealed. The water storage for the automatic sprinkler system is *in addition* to the 15,000 gallons of storage for the 500 gpm fire flow for 60 minutes. Failure to provide adequate storage for all of the required fire suppression water could result in an emergency need to use groundwater for fire suppression.

Water Availability

The August 2002 Phase I Water Availability Analysis (WAA) and the October 2008 revision of the WAA are deficient and should not be relied upon to determine if the Bennett Lane Winery has the potential to cause adverse impacts on the groundwater resources of Napa Valley or on neighboring wells. I strongly urge that an Environmental Impact Report (EIR) be required and that a detailed and realistic WAA be prepared for the Bennett Lane Winery as part of the EIR. There is no factual basis to for determining if the project has any adverse environmental impacts prior to preparing a realistic WAA.

The 2002 WAA was created for the Vigil Winery prior to it becoming the Bennett Lane Winery. The 2002 WAA is seriously deficient when applied to the Bennett Lane Winery project. The winery that became the Bennett Lane Winery was constructed in 1995 (Charter Oak Winery, Use Permit 92452-UP) with an annual production capacity of 20,000 gallons. After a change in ownership, in 2003, the Planning Commission approved an expansion in annual production capacity to 50,000 gallons (Use Permit Modification 02638-MOD) with *no changes* to visitation, marketing or the existing buildings. The Bennett Lane Winery project has proposed significant changes to the visitation, marketing and the existing buildings.

Since significant changes are proposed to the visitation, marketing, buildings and landscaping a completely new WAA should be done that accurately reflects the water demand of the currently proposed Bennett Lane Winery project. An incomplete revision to the 2002 WAA was done in October 1, 2008 by Riechers and Spence. The only aspect of the WAA that Riechers and Spence apparently considered was

the change in the maximum number of visitors that could attend each of the three auction events which was changed from 75 to 125 visitors. At the December 17, 2008 Planning Commission Hearing several changes to the marketing plan that affect the annual total water demand were made. The changes made in December 2008 include increasing the weekly maximum number of visitors and reducing the number of auctions. Apparently, the applicant and the Planning Department staff have not assessed the impact of these changes on water demand.

The October 2008 revision to the WAA contains no detail describing what assumptions were made or what water demands were considered. The October 2008 apparently does not estimate the water demand for the increased maximum number of by-appointment-only weekly visitors (200 per week), nor does it appear to account for the visitors to the food-wine-and-harvest events or to the industry-open-house events. The October 2008 revision to the WAA also does not account for vineyard heat protection or for landscaping around the winery. These significant omissions are also missing from the August 2002 WAA. Neither the August 2002 WAA nor the October 2008 revision of the WAA reflect the true total annual water use of the Bennett Lane Winery.

I have prepared an alternative WAA based on information in the project file and from a study to estimate the County's water demand in 2050 for the WATRAC Technical Advisory Committee. The staff of the Napa County Flood Control and Water Conservation District (NCFWCWD) meets regularly with the WATRAC Technical Advisory Committee. In 2005, the WATRAC engaged West Yost and Associates to make projections about the 2050 water use for Napa County. As part of that effort, West Yost and Associates produced a series of Technical Memorandums (TM) discussing different aspects of the *2050 Napa Valley Water Resources Study (2050 NVWRS)*.

A summary of my Phase I WAA for the Bennett Lane Winery is given in the table below. My WAA shows that the annual water demand for the project to be 10.76 acre-feet per year. My estimate accounts for heat protection and landscaping around the winery which were neglected by the 2002 WAA and the October 2008 revision to the WAA. I have also accounted for the domestic water demand of the marketing events such as food preparation, cleanup and restroom use. I have also accounted for the water use by delivery truck drivers and tradesmen. And I have accounted for the 0.5 acre reduction in vineyard to make room for the winery expansion.

The Bennett Lane Winery is on a ten acre parcel and all of its water demands are met by groundwater so, its annual groundwater extraction rate would be 1.08 acre-feet per acre which exceeds the county's threshold of 1.0 acre-feet per acre per year for Napa Valley floor parcels. My water demand estimate shows that a Phase II WAA should have been prepared for the Bennett Lane Winery, according to the county's groundwater conservation ordinance. I have attached the details of my analysis as an appendix to this report.

The Phase I Water Availability Analysis (WAA) prepared on August 12, 2002 estimates that the annual water demand would be 4.96 acre-feet. The October 2008 revision of the WAA estimates the annual water demand to be 5.05 acre-feet. Neither estimate accounts for heat protection or for landscaping around the winery. The previous two WAA also do not fully account for the water demand of the proposed marketing events.

West Yost and Associates TM 3 (2005) notes that there is a greater need for frost and heat protection near Calistoga than in the southern portion of the Napa Valley. TM 3 estimates that 0.25 af/ac is required for both frost protection and heat protection. The Bennett Lane Winery uses a wind machine for frost protection but sprinklers for heat protection. So there WAA is deficient because it does not include the

Summary of Water Demands for the Bennett Lane Winery:

Water Demand	Annual Water Demand acre-feet per year
Dwelling:	0.75
Vineyard:	
Irrigation	4.85
Frost Protection	none
Heat Protection	1.65
Winery Process:	0.92
Winery Domestic:	
Employees	0.11
Marketing Plan	0.73
Landscaping	1.75
Total Water Demand	<u>10.76</u>

1.65 af (=0.25 af/ac x 6.6 ac) for heat protection. Attachment A of the County's WAA form also suggests 0.25 af/ac for heat protection.

West Yost and Associates TM 3 (2005) notes that there is a strong trend to increase the density of vines on Napa Valley vineyards. However, this is being done because the growers are stressing the vines by watering them less which produces a lower per acre yield. Increasing the vine density offsets the reduction in yield. TM 3 says that the increased vine density coupled with lower per vine watering rates leads to increase in per acre irrigation water demand. In 2050, when all vineyards were assumed to have a 1,815 vine per acre (current vine density is 726 vine per acre) the estimated increased water demand around American Canyon would be 0.34 acre-foot/acre/year (about a 250% increase).

The Napa County Conservation, Development and Planning Office uses a simple rule-of-thumb threshold to determine if a project has the potential to deplete groundwater supplies. For a parcel on the valley floor the rule-of-thumb is to limit groundwater extraction to no more than 1.0 acre-foot per year per acre. There is no evidence in the record that the groundwater extraction thresholds adopted by Napa County were given a peer review or subjected to the CEQA process. There is no guarantee that the County's groundwater extraction thresholds will prevent adverse impacts to the groundwater resource.

The groundwater extraction thresholds used by Napa County to determine if a project will have a significant impact on groundwater resources are inadequate because the County can not control changes in agricultural pumping rates. For example, West Yost and Associates TM 3 (2005) notes that re-planting grape vines at a higher density could lead to a 250% increase in vineyard water demand near American Canyon. An existing vineyard that re-plants its vines at a higher density and consequently higher water use would not be subject to County control. In addition, groundwater pumping from the Napa Valley

groundwater basin that occurs within the cities of Calistoga, St. Helena, Napa and American Canyon are not regulated by Napa County and so are not subject to the County's groundwater extraction threshold.

To claim that there are no cumulative impacts from groundwater extraction if a project conforms to the County's groundwater extraction threshold ignores the impact of changes in cultural practices on groundwater demand and ignores that pumping can occur within the cities. The County's groundwater extraction thresholds are not sufficient to limit total groundwater extraction rates to sustainable levels.

West Yost and Associates TM 5 (2005) states that:

There appears to be insufficient perennial groundwater supplies within the Main Basin to meet the projected increase in annual water demands in the Main Basin for the years 2020 and 2050".

This quote suggests that the County's groundwater extraction threshold of 1.0 af/ac/year for groundwater extraction from parcels on the Valley floor is not sufficient to protect the groundwater resource from overdraft. This suggests that any increase in pumping by the Bennett Lane Winery is a significant cumulative impact since it would contribute to the potential over-drafting of the groundwater basin. Since the groundwater basin is the resource at risk, the cumulative impact of all current and future projects that pump groundwater from the Napa Valley groundwater basin need to be assessed in the Cumulative Impact analysis for the Bennett Lane Winery, including the increased water demand due to re-planting vineyards at higher per acre densities.

Faye (USGS, 1973) simulated groundwater levels in the Napa Valley groundwater basin. His simulation model used the distributions of wells in 1970 and the estimated 1970 pumping rate of 5,900 acre-feet. Simulations of critical drought conditions with four times the 1970 pumping rate (4 x 5,900 af = 23,600 af) showed that:

The pumping depression near Maple Lane would expand and another depression would develop directly east of it. In the center of the valley, between Rutherford and Oakville, much of the upper 50 feet to 70 feet of the alluvial aquifer would be dewatered and a cone of depression would extend northward towards the periphery of the valley. Also, dewatering of the upper part of the alluvial aquifer would occur between Yountville and Oak Knoll Avenue. In the vicinity of Oak Knoll Avenue, large simulated withdrawals made between Highway 29 and the Napa River would cause a cone of depression to extend westward towards the periphery of the valley. South of St. Helena, relatively shallow wells having depths of 60 feet or less would be dry under such conditions.

West Yost and Associates TM 6 (2005) estimates that the groundwater extraction rate in 2005 was 24,856 acre-feet or 4.2 times the 1970 extraction rate. Faye (USGS, 1973) concludes that:

(1) groundwater levels should not decline significantly until groundwater pumpage exceeds 24,000 acre-feet per year; (2) after two consecutive years of little to no recharge, groundwater withdrawals in excess of 24,000 acre-feet per year could cause significant declines in groundwater levels and significantly redistribute the hydraulic gradients in the valley between Zinfandel Lane and Oak Knoll Avenue; and (3) the alluvial aquifer and the stream system can provide water sufficient to meet most projected groundwater requirements, even under protracted, adverse climatological conditions.

The actual groundwater extraction in 2005 exceeded 24,000 acre-feet per year views as the threshold when groundwater levels would begin to decline. Faye (USGS, 1973) notes that;

At the present time (1972), the Napa River is a gaining stream and contributes little recharge to the water table. Even during years of limited rainfall, when the river flows intermittently, water is discharged from the aquifer in those reaches where the river is flowing and water recharges the alluvium in reaches where the river channel is dry; thus net recharge to the alluvial aquifer is negligible.

The Napa River was a gaining stream in 1972 meaning that groundwater flowed into the river from the water table. Faye's (USGS, 1973) conclusions (1) and (2) and his simulation of pumping rates equal to four times the 1970 pumping rate show that groundwater extraction of more than 24,000 acre-feet has the potential to dry up portions of the Napa River during low rainfall years. The 2005 groundwater extraction rate of 24,856 acre-feet exceeded Faye's threshold of 24,000 acre-feet. Therefore, approval of additional groundwater extraction from the Napa Valley groundwater basin is likely to contribute to dewatering portions of the mainstem of the Napa River in dry years. Steelhead trout, a federally listed species, are known to inhabit the mainstem of the Napa River so dewatering portions of the mainstem of the Napa River by groundwater pumping would be a very significant adverse impact.

Faye (USGS, 1973) notes that groundwater levels may significantly decline during dry years when extraction rates exceed 24,000 acre-feet per year but that after a year with normal rainfall groundwater levels would recover. However, this ignores the very significant adverse environmental effects that groundwater pumping has on the flow of the mainstem of the Napa River and that diminished summertime flow in the river has the potential to result in juvenile steelhead trout mortality.

Napa County's simplistic groundwater extraction threshold of 1.0 acre-feet per acre per year does not account for the interaction between the Napa Valley groundwater basin and flow in the mainstem of the Napa River. In fact, approving any additional groundwater extraction will only worsen that adverse impacts on the flow in the Napa River. It is the County's responsibility to ensure that no adverse impacts to the steelhead trout in the Napa River occur due to groundwater extraction in dry years.

Faye (USGS, 1973) found that sodium chloride water can be drawn into wells when groundwater extraction rates exceed 23,600 acre-feet (about four times the volume pumped in 1970) during dry years. Thus, groundwater extraction at rates similar to those similar to 2005 during dry years can degrade water quality. Approving any additional groundwater extractions will only exacerbate the degrading of water quality.

The County's groundwater extraction threshold does not account for local variations in groundwater conditions. Three neighbors (Towne December 2007, Wilson December 2007 and Hillary January 2008) have submitted letters saying that they view the area around the Bennett Lane Winery to be an area with limited water supplies. Seven letters pointing out limited water supplies were also submitted regarding the Robert Pecota/Two Sisters Winery (Use Permit #03457-UP) in April 2004. The Robert Pecota/Two Sisters project (now owned by Kendall-Jackson) is located about 2,000 feet east of the Bennett Lane Winery.

Local wells tend to be about 200 to 300 feet deep and well logs show that there are clay layers which separate the groundwater supply into different layers. Each layer of the groundwater resource has its own characteristic water quality and rate of water movement through the layer.

The water temperatures, from wells in the vicinity of the Bennett Lane Winery, are around 76 degrees Fahrenheit indicating some geothermal heating and the potential for the presence of boron which is toxic to grapes. Faye (USGS, 1973) notes that;

In the Calistoga area, most wells containing sodium chloride water are located along the topographic axis of the valley from **Bennett Lane** to Maple Lane. (Emphasis added)

These factors suggest that the wells in the vicinity of the Bennett Lane Winery tap an aquifer that is separate from the shallow groundwater system. If this is the case the aquifer that is supplying the wells is not recharged by rain falling on the land surface above the well. If so, it is very likely that the County's

rule-of-thumb does not address the balance between pumping and recharge in the aquifer used by the Bennett Lane Winery and its neighbors.

If the wells in the vicinity of the Bennett Lane Winery tap a confined aquifer, it is possible that the radius-of-influence of the Bennett Lane Winery may be sufficiently large to potentially to directly affect the water level in neighboring wells during pumping. Lowering the water level (or pressure in the aquifer) in a neighbor's well is an adverse impact since it increases their pumping costs.

Conditions of Approval

The *Conditions of Approval* call for monitoring of extraction volumes and static water levels of on-site wells. The Condition 13 states, in part, that:

The permittee shall regularly monitor the on-site wells and provide such data to the Director of Environmental Management upon request. Well monitoring shall include, but may not be limited to, water extraction volumes and static water levels. If the applicant is unable to secure monitoring access to neighboring wells, onsite monitoring wells may need to be established to gage potential impacts on the groundwater resource utilized for the project proposed.

This condition is generic and is impossible for the applicant to follow since the frequency of monitoring is not stated and what is to be monitored is not clearly stated. This generic condition should be replaced with a real groundwater monitoring program with clear data collection and reporting requirements.

Summary

The County's groundwater extraction threshold of 1.0 acre-feet per acre per year does not prevent adverse environmental impacts. Faye (USGS, 1973) showed that groundwater levels would significantly lower when groundwater extraction rates are greater than 24,000 acre-feet during dry years. West Yost and Associates Technical Memorandum No. 6 (2005) showed that groundwater extraction, from the Napa Valley groundwater basin, was 24,856 acre-feet in 2005. So, during dry years, the current level of pumping can significantly lower groundwater levels. Since the summertime flow in the Napa River is from the groundwater table, significantly lowering the water table will diminish the flow or even dry up portions of the mainstem of the Napa River in dry years. Diminished flow in the Napa River in dry years has the potential to adversely impact steelhead trout, a federally listed species, in the Napa River.

Faye (USGS, 1973) noted that groundwater levels would significantly decline during dry years if the pumping rate exceeded 24,000 acre-feet per year and that groundwater levels would recover after a normal rainfall year. The recovery of groundwater levels after normal rainfall does not prevent the adverse environmental impacts from diminished streamflow in the Napa River as the result of the lower groundwater levels. The interaction between the flow in the Napa River and the groundwater system must be taken into consideration when determining if groundwater pumping has adverse environmental impacts.

Faye (USGS, 1973) notes that sodium chloride could be drawn into some wells during dry years when pumping exceeded 24,000 acre-feet per year. Since pumping was about 24,856 acre-feet in 2005 the water quality at some wells may already be drawing sodium chloride during dry years. Again, the County's groundwater extraction threshold is insufficient to prevent adverse water quality impacts due to pumping in dry years.

Allowing any further groundwater extraction will exacerbate the adverse impact groundwater extraction has on Napa River streamflow in dry years. Therefore, the County's groundwater extraction threshold does not prevent adverse environmental impacts.

In addition, the County's groundwater extraction threshold is not sufficient to limit pumping to the estimated "perennial extraction rate" since changing agricultural practices, such as increasing the density of vines, can increase groundwater pumping at established vineyards with existing wells and would not be subject to county control. Also, groundwater extraction could occur within the cities in the Napa Valley and not be subject to county control.

The August 2002 Phase I Water Availability Analysis (WAA) and the October 2008 revision to the WAA did not account for heat protection or landscaping around the winery. An independent WAA was prepared that showed the total project groundwater pumping would be about 10.8 acre-feet per year. So, approval of the Bennett Lane Winery project would result in an increase in groundwater extraction. Approving increased groundwater pumping will cumulatively impact the dry year flow in the Napa River potentially resulting in a "take" of juvenile steelhead trout, a federally listed species.

I urge you to overturn the Planning Commission decision to approve the Bennett Lane Winery expansion.

Sincerely,

A handwritten signature in black ink that reads "Dennis Jackson". The signature is written in a cursive style with a large, sweeping initial "D".

Dennis Jackson
Hydrologist

References

Faye, Robert E., November 1973, Ground-Water Hydrology of the Northern Napa Valley, U.S> Geological Survey, Water-Resources Investigations 13-73.

Redwood City Engineering Design Standards Attachment Q

<http://www.redwoodcity.org/cds/engineering/standards/design/Attachment-Q.pdf>

West Yost & Associates, Gerry Nakano, J. J. Westra, October 19, 2005, TECHNICAL MEMORANDUM NO. 1. for Napa County Flood Control and Water Conservation District,

<http://www.napawatersheds.org/docs.php?ogid=10610>

West Yost & Associates, Gerry Nakano, J. J. Westra, October 19, 2005, TECHNICAL MEMORANDUM NO. 3. for Napa County Flood Control and Water Conservation District,

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West Yost & Associates, Gerry Nakano, J. J. Westra, October 19, 2005, TECHNICAL MEMORANDUM NO. 5. for Napa County Flood Control and Water Conservation District,

<http://www.napawatersheds.org/docs.php?ogid=10610>

Index of West Yost and Associates Technical Memorandums

TM 1: Review of 1991 and 1992 Studies

TM2: Napa County Municipal and Industrial Demands, Incorporated Areas

TM 3: Unincorporated Water Demands

TM 4: Napa County Incorporated Area Water Supplies

TM 5: Unincorporated Area Water Supplies

TM 6: Comparison of Demand Projections and Supply Capabilities

TM 7: Potential Local and Regional Water Supply Projects