



31 August 2020

Bob Barbarick
Balloons Above the Valley
5360 Washington Street
Napa, CA

Subject: Balloon Inflation Fans Operating Prior to 7 A.M.
Project: Balloons Above the Valley, Napa, CA
RGD #: 19-086

Dear Bob,

As requested, we performed additional analysis to determine if the balloon inflation fans can be operated prior to 7:00 am and comply with the County noise ordinance at location R1 (southern property line).

In summary, our calculations indicate that the inflation fans can be operated prior to 7:00 am and comply with the County ordinance at location R1 if they are operated a total duration of 15 minutes or less (e.g. limit operation of inflation fans to between 6:45 a.m. and 7:00 a.m.)

Background

RGD Acoustics, Inc. prepared an Outdoor Sound Study for Balloons Above the Valley on 12/31/2019. The Sound Study evaluated noise levels at three locations with respect to the County Noise Ordinance limits: two residential locations to the south and west of the site (R2 and R3) and one location at the southern property line of the site (R1). The Sound Study determined that the noise level from multiple balloon launches would not exceed the noise ordinance limits at locations R-1, R-2 and R-3 during the daytime. The study also concluded that the multiple balloon launches would not exceed the nighttime ordinance limits at locations R2 and R3. However, the study did conclude that the noise levels would exceed the nighttime limit at location R1 if the entire operation lasted one hour.

Acoustical Criteria

Chapter 8.16 of Napa County Code of Ordinances contains noise regulations which regulate the noise generation of land uses by specifying noise limits for potentially affected land uses. The exterior noise limits are excerpted below.

8.16.070 - Exterior noise limits.

A. Maximum Permissible Sound Levels by Receiving Land Use.

- 1. The noise standards for the various categories of land use identified by the noise control officer, as presented in Tables 8.16.060 and 8.16.070 shall, unless otherwise specifically indicated, apply to all such property within a designated zone.*
- 2. No person shall operate, or cause to be operated, any source of sound at any location within the unincorporated area of the county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed:*

- a) *The noise standard for that land use as specified in Table 8.16.070 for a cumulative period of more than thirty minutes in any hour [L₅₀]; or*
 - b) *The noise standard plus five dB for a cumulative period of more than fifteen minutes in any hour [L₂₅]; or*
 - c) *The noise standard plus ten dB for a cumulative period of more than five minutes in any hour [L₈]; or*
 - d) *The noise standard plus fifteen dB for a cumulative period of more than one minute in any hour [L₂];*
 - e) *The noise standard plus twenty dB or the maximum measured ambient level, for any period of time [L_{max}].*
3. *If the measured ambient noise level differs from that permissible within any of the first four noise limit categories above, the allowable noise exposure standard shall be the ambient noise level.*
 4. *If the measurement location is on a boundary between two different zones, the sound level limit applicable to the quieter noise zone shall apply.*
 5. *Wherever possible, the ambient noise level shall be measured at the same location along the property line utilized in subsection (A)(2) with the alleged offending noise source inoperative. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period sufficient to measure the ambient noise level, the ambient noise level may be determined by traveling away from the noise source to a point where a steady-state decibel reading is achieved. If this test is not possible, the noise level measured while the source is in operation shall be compared directly to the noise level standards.*
- B. *Correction for Character of Sound. In the event the alleged offensive noise, as judged by the noise control officer, contains a steady, audible tone such as a whine, screech or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech, the standard limits set forth in Tables 8.16.060 and 8.16.070 shall be reduced by five dB, but not lower than forty-five.*

**Table 1 Exterior Noise Limits [Napa Code of Ordinances Table 8.16.070]
 (Levels not to be exceeded more than 30 minutes in any hour)**

Land Use Type	Time Period	Noise Level (dBA) By Noise Zone Classification		
		Rural	Suburban	Urban
Residential Single and Double	10 p.m. to 7 a.m.	45	45	50
	7 a.m. to 10 p.m.	50	55	60
Residential multiple and country	10 p.m. to 7 a.m.	45	50	55
	7 a.m. to 10 p.m.	50	55	60
Commercial	10 p.m. to 7 a.m.	60		
	7 a.m. to 10 p.m.	65		
Industrial, including wineries	Anytime	75		

Analysis of Balloon Inflation prior to 7:00 a.m.

The process of preparing for flight begins with the partial inflation of the balloon using two eight horsepower Briggs & Stratton inflation fans. The two fans run approximately seven minutes until the balloon is partially inflated and then the air inside the balloon is heated using the balloon's F1 Mirage, Zone 3 burners. The entire process from start of inflation to lift off lasts approximately 15 minutes.

The County's maximum permissible sound levels are defined in terms of five statistical sound level descriptors to account for the time varying characteristics of noise sources. The standard effectively allows higher noise levels for shorter duration noise sources. In addition, the nighttime (10 p.m. to 7 a.m.) noise limits are more restrictive than the daytime (7 a.m. to 10 p.m.) noise limits.

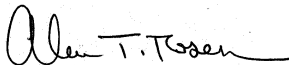
To determine if the inflation fans could be operated prior to 7 a.m. and meet the noise ordinance limit at the southern property line (Location R1 from our Sound Study) we used the noise levels we measured during the balloon inflation on December 16, 2019. We used this data to calculate the maximum amount of time the fans could operate prior to 7:00 a.m. and still comply with the noise ordinance limit at R1.

Our calculations show that if the fans were to operate for up to 15 minutes (e.g. 6:45 a.m. to 7:00 a.m.), they would generate a noise level (L_9) at location R1 of 54 dBA. This complies with the noise ordinance limit of 55 dBA for sounds lasting more than five minutes but no more than 15 minutes in an hour (L_9). At locations R2 and R3, the noise from the inflation fans operating prior to 7:00 a.m. would be 40 dBA and 39 dBA, respectively. These noise levels would also comply with the County noise ordinance limits.

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Should you have any questions in the meantime, please do not hesitate to contact our office.

Sincerely,



Alan Rosen
Principal
RGD Acoustics, Inc.

cc: Scott Greenwood-Meinert
Coblentz Patch Duffy & Bass, LLP