

### **3.3.12 Noise**

The discussion of noise is broken into four sections. First, the affected environment is discussed in Section 3.3.12.1. Second, the environmental effects are addressed in Section 3.3.12.2. Third, cumulative effects are listed in Section 3.3.12.3. Finally, proposed environmental conditions are addressed in Section 3.3.12.4.

Existing, relevant and reasonably available information is sufficient to determine the potential effects of the Project on noise. FERC's Study Determination, as amended, did not require YCWA to perform any studies related to noise.

#### **3.3.12.1 Affected Environment**

This section describes the existing regulatory context related to noise.

##### **3.3.12.1.1 Regulatory Context**

Noise is defined as unwanted sound. It is emitted from many sources including airplanes, factories, railroads, power generation plants and highway vehicles. The magnitude of noise is described by its sound pressure. Because the range of sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to a common reference level, the decibel (dBA). Sound pressures described in decibels are called sound pressure levels.

Sound levels, measured using an "A-weighted decibel scale", are expressed as dBA. This scale is frequency adjusted to represent the way the human ear responds to sounds. Throughout this analysis, all noise levels are expressed in dBA. The degree of disturbance or annoyance of unwanted sound depends essentially on three things:

- The amount and nature of the intruding noise
- The relationship between the background noise and the intruding noise
- The type of activity occurring where the noise is heard

In considering the first of these factors, it is important to note that individuals have different sensitivity to noise. Loud noises bother some people more than others. In addition, people react differently to various patterns of noise, often depending on whether such noise is viewed as uncomfortable or offensive.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (i.e., background noise). The blowing of a car horn at night when background noise levels are approximately 45-dBA generally would be more objectionable than the blowing of a car horn in the afternoon when background noises might be 55-dBA.

The third factor is related to the interference of noise with activities of individuals. In a 60-dBA environment, normal work activities requiring high levels of concentration may be interrupted by

loud noises, while activities requiring manual effort may not be interrupted to the same degree. Time-averaged descriptors are utilized to provide a better assessment of time-varying sound levels. The three most common noise descriptors used in community noise surveys are the equivalent sound level (Leq), percentile distributions of sound levels (L%), and the day-night average sound level (Ldn). The Leq is an energy-averaged sound level that includes both steady background sounds and transient short-term sounds. The Leq is equivalent in energy to the fluctuating sound level over the measurement period. The Leq is commonly used to describe traffic noise levels, which tend to be characterized by fluctuating sound levels.

The L% indicates the sound level exceeded for a percentage of the measurement period. For example, the L<sub>90</sub> is the sound level exceeded for 90 percent of the measurement period and is commonly used to represent background sound levels. The L<sub>10</sub> is the sound level exceeded for 10 percent of the measurement period and represents the peak sound levels present in the environment.

The Ldn is another descriptor used to evaluate community noise levels. The Ldn is a 24-hour average sound level, which includes a 10 dBA penalty added to nighttime sound levels (i.e., 10:00 p.m. to 7:00 a.m.) because people tend to be more sensitive to noise during the nighttime. The Ldn sound level is commonly used to describe aircraft and train noise levels.

For the State of California, noise intensity is also discussed in terms of Community Noise Equivalent Level, which presents a weighted average noise level that increases the relative significance of evening and nighttime noise. The Community Noise Equivalent Level descriptor is used to evaluate community noise levels, which includes a 5 and 10 dBA penalty added to evening (i.e., 7:00 p.m. to 10:00 a.m.) and nighttime sound levels, respectively, in consideration of people’s increased sensitivity to noise during the evening and nighttime periods.

County noise standards are generally established based on land use and zoning designations. This is done to ensure that acceptable noise levels are consistent with community development goals and policies. As such, there can be variability between various counties’ noise standards, as is the case with Sierra, Yuba and Nevada counties, the counties in which the Project is located, due to their individual development patterns. Table 3.3.12-1 summarizes the Sierra, Yuba and Nevada counties’ noise standards.

**Table 3.3.12-1. Sierra, Yuba and Nevada counties’ noise standards.**

On-site Sound Level Descriptor	Day (7 AM - 7 PM)	Evening (7 PM - 10 PM)	Night (10 PM - 7 AM)	Day (7 AM - 10 PM)	Night (10 PM - 7 AM)
<b>SIERRA COUNTY<sup>1</sup></b>					
Hourly Leq (dBA)	--	--	--	50	50
Maximum	--	--	--	60	60
<b>YUBA COUNTY<sup>2</sup></b>					
Hourly Leq (dBA)	--	--	--	55	50
Maximum	--	--	--	65	60
<b>NEVADA COUNTY<sup>3</sup></b>					
Hourly Leq (dBA)	55	50	40	--	--
Maximum	75	65	55	--	--

<sup>1</sup> Sierra County General Plan 2012 (Sierra County 1996)

<sup>2</sup> Yuba County Ordinance Code (Yuba County 2010b)

<sup>3</sup> Nevada County General Plan, Chapter 9 (Nevada County 1996)

### **3.3.12.2 Environmental Effects**

This section includes a description of the anticipated effects of YCWA's proposed Project, which includes YCWA's proposed PM&E measures (Appendix E2) on noise. The section is divided into the following areas: 1) effects of construction-related activities; 2) effects of continued Project O&M.

YCWA's proposed Project does not include any specific proposed conditions related to noise.

#### **3.3.12.2.1 Effects of Construction-Related Activities**

YCWA's proposed Project includes the construction of several facilities, including New Colgate Powerhouse TDS, the New Bullards Bar Dam Auxiliary Flood Control Outlet, modifications to Our House Diversion Dam and Log Cabin Diversion Dam fish release outlets, modifications to Lohman Ridge Diversion Tunnel Intake and the construction of various recreation facilities. The new facilities and anticipated construction are described in Section 2.2.1.

These are minor, short-term construction projects which are not anticipated to generate noise outside of the use of heavy equipment, and YCWA will consult with local agencies to obtain all necessary permits and approvals prior to initiating construction.

#### **3.3.12.2.2 Effects of Proposed Project Operations and Maintenance**

YCWA's Project would have a less than significant effect on noise. The vast majority of the Project is located in remote areas. Generally, noise from the Project powerhouses, which are the only main sources of ongoing Project noise, occur at very low levels and are mostly underground in relatively remote areas; no residences or commercial properties are near the powerhouses. There may be some increase in noise from the use of the new recreation facilities, but these would be consistent with other uses in the area and are expected to result in less than significant impacts due to noise.

### **3.3.12.3 Proposed Measures Recommended by Agencies or Other Relicensing Participants in Comments on DLA That Were Not Adopted by YCWA**

None of the comments that were filed on YCWA's DLA included proposed measures or additional studies regarding noise.

### **3.3.12.4 Unavoidable Adverse Effects**

Construction of YCWA's proposed New Bullards Bar Dam Auxiliary Flood Control Outlet, New Colgate Powerhouse TDS, modifications to Our House Diversion Dam and Log Cabin Diversion Dam fish release outlets, modifications to Lohman Ridge Diversion Tunnel Intake and various recreation facilities will result in short-term increases in noise levels. The use of the new facilities is also not expected to generate additional noise, with the exception of the new and modified recreation facilities. These are not anticipated to reach or even near current county limits. However, the impacts given the remote location of the facilities, brief period of work and

type of activity will be minor. In addition, when working on NFS land, YCWA will adhere to all applicable Limited Operating Procedures (LOPs). YCWA's proposed Project would not create any other short-term or any long-term adverse impacts related to noise.