

Section 8 Technical Reports

8.k Noise Analysis

This section addresses *Larimer County Procedural Guide for 1041 Permits*, Item 8.k, and the criteria and standards described in LUC Sections 14.10.D.6 and 14.10.D.11.

During construction of the TWP, the TWP will comply with Larimer County's then-existing Noise Level Ordinance (currently Ordinance No. 97-03). Noise from construction equipment will be of short duration during construction. Noise levels from equipment will be controlled through the use of standard maintenance procedures and the use of appropriate mufflers. Construction hours will typically be from 7:00 a.m. to 7:00 p.m., Monday through Saturday unless otherwise approved by Larimer County. Construction may extend beyond these hours on an as-required and case-by-case approved basis. For example, some construction activities may be required to complete uninterruptible tasks, meet an in-service date, or minimize short-term impacts to traffic.

No noises related to the water pipeline and water tank operation are anticipated.

Source Water Pump Station

As discussed with Larimer County Planning staff at the Pre-Application Conference, the source water pump station is not part of this 1041 permit application, but will be separately permitted through the Site Plan Review permit process. Information on the source water pump station provided in this application is of a general nature and is included to present a more complete scope of the TWP. To date, no design has been completed for the source water pump station; Thornton will submit a Site Plan Review permit application to Larimer County in accordance with LUC Section 6.0. At the request of Larimer County staff, general information regarding noise and the source water pump station is provided.

Post-construction, noise at the source water pump station is anticipated to come from the permanent emergency backup generator if included, air conditioning unit(s), and from equipment inside the building such as pumps and motors. It may be possible for PVREA to extend a second, redundant power feed to the source water pump station for emergency backup power. If a second feed is feasible and cost-effective, an emergency diesel powered backup generator will not be required. Thornton will continue to coordinate with PVREA to determine specific requirements for power service to the source water pump station. Should on-site generation be chosen for backup power, a diesel generator would be required and will be operated only as needed for emergency backup power and for short durations for routine maintenance and testing. The source water pump station is anticipated to house pumps and associated equipment. The facility will be designed to meet the then-existing Larimer County Noise Level Ordinance. A Larimer County Site Plan Review permit application will be submitted to Larimer County for the source water pump station after design.

As TWP design progresses, an acoustical engineer will be engaged to evaluate noise mitigation measures for the source water pump station to meet the then-existing Larimer County Noise Level Ordinance. These may include, building acoustically rated walls, ceilings and doors in addition to attenuation for building louvers, heating, ventilation, and air conditioning (HVAC) equipment, and other building penetrations. If appropriate, absorptive interior acoustical treatments may be evaluated and emergency generator acoustical enclosures and exhaust silencing may be specified.

General Noise Information

Current Larimer County Code, Ordinance No. 97-03, establishes quantitative sound level limits for permanent or continuous operations. The code establishes the sound limits in A-weighted decibels (dBA) for residential property land use as follows:

- Maximum noise (dBA) 7:00 a.m. to next 7:00 p.m. – 55 dBA
- Maximum noise (dBA) 7:00 p.m. to next 7:00 a.m. – 50 dBA

Table 8.k, Typical Sound Levels Measured in the Environment and Industry, presents A-weighted sound levels associated with common sources of noise in the physical environment. Based on the table below, a qualitative description of Larimer County’s sound limits close to 50 and 55 dBA are light auto traffic (50 feet) and air-conditioning unit (20 feet).

TABLE 8.k
Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Carrier deck jet operation	140	
	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1,000 feet) Shout (0.5 foot)	100	
New York subway station Heavy truck (50 feet)	90	Very annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70 to 80 70	Intrusive (telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	
	10	Just audible

Source: Adapted from Table E, “Assessing and Mitigating Noise Impacts” (New York Department of Environmental Conservation, 2001).