

4.7 Noise

SIGNIFICANCE CRITERIA

The Noise Element of the Modoc County General Plan (Modoc County 1988) identifies a maximum noise level 60 dBA L_{dn} ¹ for residential uses. The Noise compatibility standard on Modoc County is 54 dBA L_{eq} ², based on an L_{dn} of 60 dBA. A noise effect would be considered significant if the level of noise from operation equals or exceeds 54 dBA L_{eq} at the receptors.

METHODOLOGY

Noise analysis for the proposed action is based on projected emissions from construction and operation compared against existing conditions. Noise emissions are assumed to attenuate at a rate of 6 dB per doubling of distance. Surrounding receptors are considered and impacts to these receptors are based on projected source emissions and the assumed rate of attenuation. Measures to minimize noise emissions are recommended as applicable.

IMPACT OVERVIEW

Construction would have temporary significant impacts on receptors within the ISOT community. Measures are recommended to reduce emission levels during construction. Operational noise emissions would not be significant.

EFFECTS OF ALTERNATIVE A

Construction Noise

Operation of heavy equipment would be the primary source of noise during the construction of the food service/laundry and mechanical and control buildings. Surrounding receptors would be affected during construction hours (daytime hours) for about 3.5 months. Implementation of Mitigation Measure 4.7-1 below would reduce noise emissions from construction equipment.

Conservative estimates of noise emissions from constructing the distribution and discharge pipelines are presented in Table 4.7-1. Pipeline construction would significantly affect receptors within the ISOT community as well as agricultural workers within just over 200 feet of the construction activities.

Operation Noise

The district heating system is anticipated to have a 40- to 50-year life cycle. Any noise emissions resulting from project operation would last as long as operations take place. All noise emissions would affect only the occupants of the ISOT community on a regular basis for the duration of the project.

¹ L_{dn} , the day-night average noise level, is based on human reaction to cumulative noise exposure over a 24-hour period. L_{dn} accounts for community receptors' greater sensitivity to unwanted noise intrusion during the night. Noise between 10:00 p.m. and 7:00 a.m. is weighted by 10 dBA to take into account the greater annoyance of nighttime noise.

² L_{eq} , equivalent steady-state sound level, is a single value of sound level for any desired duration that includes all time-varying sound energy occurring during the measurement period.

Table 4.7-1: Estimated Peak Pipeline Construction Noise Emissions

Construction Phase	Loudest Equipment	Distance from Equipment & Noise Level (dBA) at Receiver		
		50 ft	100 ft	200 ft
Clearing/grubbing	Bulldozer	85	79	73
Trenching/earthwork	Bulldozer/backhoe	80	74	68
Positioning Pipe	Sideboom/tractor	85	79	73
Backfilling	Bulldozer/backhoe	85	79	73

NOTE: Assumes a basic sound level drop-off rate of 6.0 dB per doubling of distance.

SOURCE: Federal Transit Administration 1995

Geothermal Well. A 7.5-hp electric lineshaft turbine well pump would push geothermal fluid through mechanical equipment designed to extract energy in order to heat 53,000 ft² of residential housing. An open, drip-proof motor set at the surface would power the pump. This motor would be located inside a removable 8 x 6-foot building attached to the main mechanical building. The motor would be housed and noise would thus be muffled. Noise emissions from the motor would not be significant.

Backup Boiler System. The backup boiler system would be located in the mechanical and control building. Noise emissions from the boiler would not be significant.

Water Circulation Pumps. The two water circulation pumps would be located in the mechanical control building. One pump would be used at a time and the other would be used for backup. The pumps for water circulation would be sized for up to 80 gpm each with three-horsepower high efficiency inverter motors. The pumps and motors would be housed and noise would thus be muffled. Noise emissions from the pumps and inverter motors would not be significant.

Traffic Noise

Traffic noise would be induced during the construction phase of the project. Vehicles associated with construction would generate intermittent noise throughout the vicinity of the proposed action. Vehicle noise would occur sporadically during weekdays and daytime hours for 3.5 months. The project noise would not represent a significant increase in noise.

Noise Effects on Animal Species

During construction activities, some animals may avoid habitats in the vicinity of the proposed project due to the increased noise levels, particularly if a species is sensitive to a frequency range that the construction activities would generate. Any avoidance of habitats in the vicinity of the proposed project by wildlife species during construction would be temporary and not significant. Section 3.3 Biological Resources provides a listing of the species in the project vicinity. Noise impacts during operation would be less than significant.

MITIGATION MEASURES

Mitigation Measure 4.7-1

I'SOT will ensure that muffler systems shall be used on all heavy equipment during construction activities.

Mitigation Measure 4.7-2

As required by the Modoc County General Plan, I'SOT will submit building permits for the project to the Modoc County Planning Department for review for consistency with the noise element and other elements.

EFFECTS OF THE NO ACTION ALTERNATIVE

If the project were not constructed due to lack of DOE funding, there would be no adverse effects related to noise from Alternative B, the "No Action" alternative; however, the project could proceed without DOE funding contingent upon alternative funding, with effects from Alternative A potentially worse without DOE participation because no mitigation would be required (except NPDES required items). The following measures would not be implemented without DOE involvement: 4.7-1 and 4.7-2. Without funding by DOE, I'SOT would not be reimbursed for costs resulting from permitting efforts, engineering consultation, and system installation costs. No data gathering system would be installed for DOE research and development (R&D) purposes.