4.10 NOISE

Would the proposal result in:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increases in existing noise levels?	☐	☐	☒	☐
b) Exposure of people to severe noise levels?	☐	☐	☒	☐

SETTING

Human response to noise is subjective and can vary greatly from person to person. Factors that can influence individual response include: intensity, frequency, and time pattern of the noise; the amount of background noise present prior to the intruding noise; and the nature of work or human activity that is exposed to the noise. The adverse effects of noise include interference with concentration, communication and sleep. At the highest levels, noise can induce hearing damage.

The unit of measurement of environmental noise is the decibel (dB). To better approximate the range of sensitivity of the human ear to sounds of different frequencies, the A-weighted decibel scale was devised. Because the human ear is less sensitive to low-frequency sounds, the A-scale de-emphasizes these frequencies by incorporating frequency weighting of the sound signal. When the A-scale is used, the decibel levels are shown as dBA. On this scale, the range of human hearing extends from about three dBA to about 140 dBA. A 10 dBA increase is perceived by most people as a doubling of the sound level. The smallest change that can be heard is about two to three dBA. Some representative noise sources, their associated dBA noise levels, and corresponding effects are shown in Figure 4.10.1.

Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Useful noise descriptors measure time-averaged noise levels; these descriptors include the energy-equivalent noise level (L_{eq})[1] and the Community Noise Equivalent Level (CNEL).[2] The L_{eq} is the actual time-averaged noise level, while CNEL

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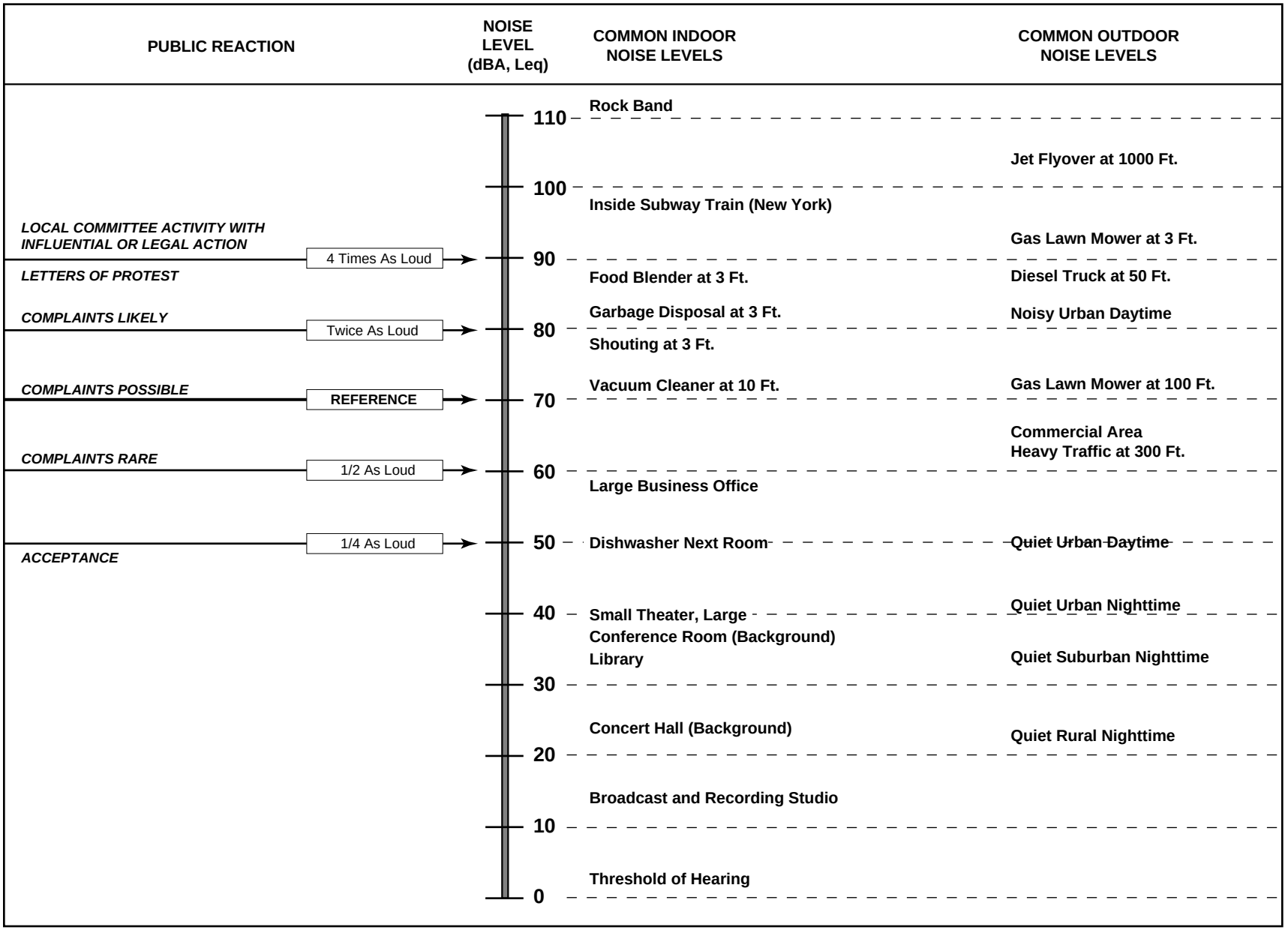
1 L_{eq} is the equivalent steady-state sound level which, in a stated period, would contain the same acoustic energy as the actual time-varying sound level during the same period.

2 CNEL, the Community Noise Equivalent Level, is based on human reaction to cumulative noise exposure over 24 hours. To calculate the CNEL, noise between 7:00 p.m. and 10:00 p.m. is weighted by adding approximately five dBA, and the noise between 10:00 p.m. and 7:00 a.m. is weighted by adding 10 dBA to take into account the greater annoyance of evening and nighttime noise.



SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982; and Modification by Environmental Science Associates

Figure 4.10.1
Noise Sources and Effects on People

is a 24-hour, "weighted" noise level which accounts for greater sensitivity of most people to evening and nighttime noise. The CNEL noise descriptor is commonly used in establishing noise exposure guidelines for specific land uses. In this report, noise levels reported in terms of L_{eq} or CNEL reflect "A-weighted" decibels (dBA).

Noise is typically characterized as a local condition given the fact that noise generated by a particular source decays rapidly as distance from the source increases. Typically, noise levels in rural and sparsely populated areas away from major roads are below 40 CNEL. In comparison, noise levels in developed and highly urbanized areas and/or along busy roadways can reach 70 CNEL or more.

Regional Setting

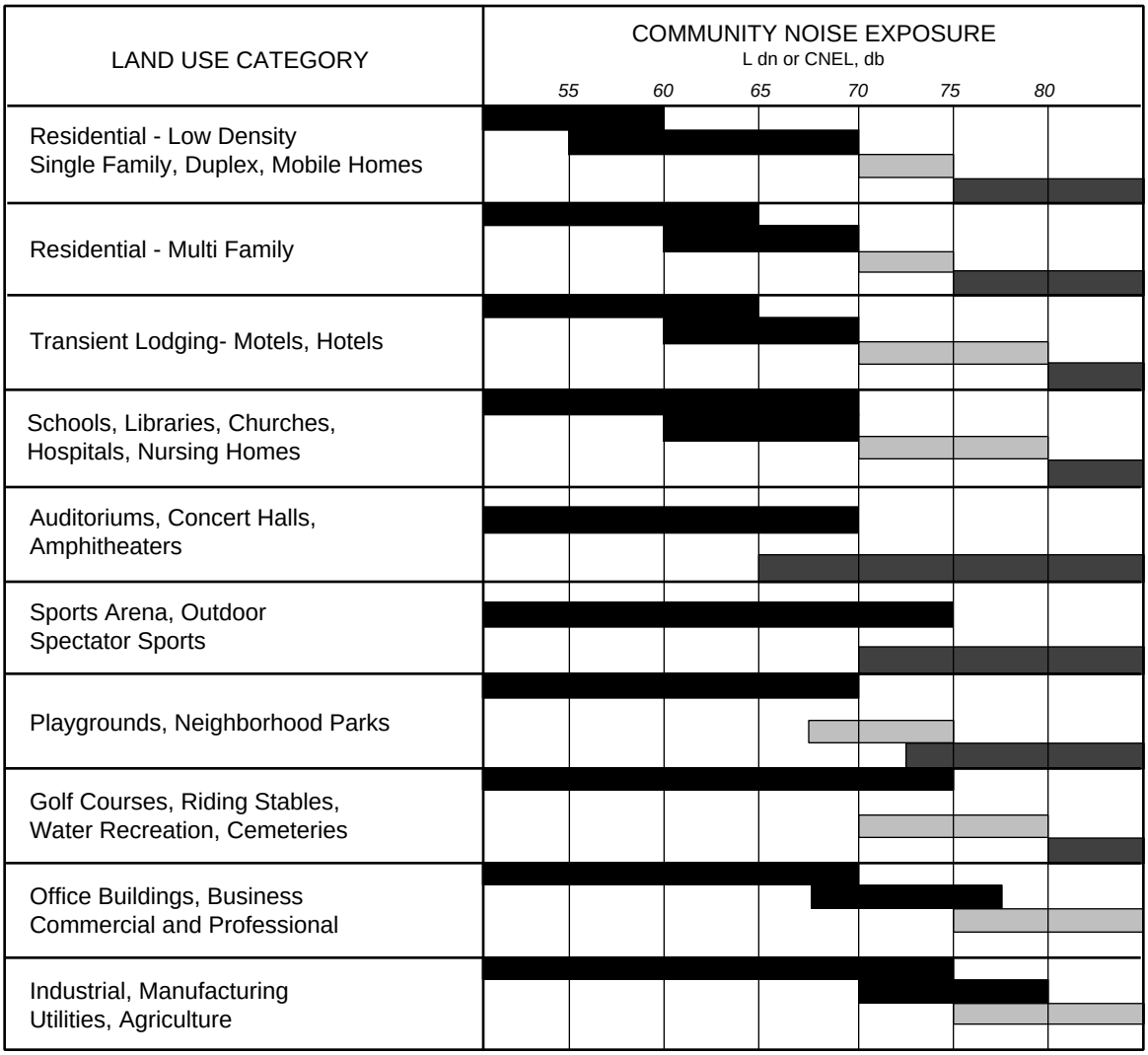
In most areas, automobile and truck traffic are the major source of environmental noise. Traffic activity generally produces an average sound level that remains fairly constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Various noise sources are associated with utility operations including stationary sources, such as turbines, compressors, generators, cooling towers, automatic safety relief valves, fans, and mobile sources, such as maintenance trucks.

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of General Plan policies and Noise Ordinance standards. Local General Plans identify general principles intended to guide and influence development plans, and Noise Ordinances set forth specific standards and procedures for addressing particular noise sources and activities.

General Plans recognize that different types of land uses have different sensitivities towards their noise environment; residential areas are generally considered to be the most sensitive type of land use to noise and industrial/commercial areas are generally considered to be the least sensitive. Figure 4.10.2 presents typical noise compatibility guidelines for a variety of land uses. Local noise ordinances typically set forth standards related to construction activities, nuisance-type noise sources, and industrial property-line noise levels.

Local Setting

The project involves three power plants located in northern and central California. Noise from power plants located a distance of more than 0.5 miles from an existing or anticipated noise-sensitive land use (e.g., residences, schools, hospitals, and convalescent homes) would not be expected to affect such sensitive uses.



INTERPRETATION

Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

SOURCE: California Office of Planning and Research. 1990, *General Plan Guidelines.*

Divestiture of Electric Generating Assets / 970110 ■

Figure 4.10.2
Land Use Compatibility for
Community Noise Environments

The types of operating units and power output are similar for some of the affected power plants; however, the plant layouts, the amount of noise abatement incorporated into the plant design, and the existing community noise environment are different at each plant, thereby precluding general classification of the existing noise environment around the plants. The noise environment at each of the three sale plants is summarized.

Morro Bay

The Morro Bay Power Plant is located in the City of Morro Bay. Highway 1 runs along the eastern boundary of the power plant. The project site is surrounded by light industrial, commercial, marine, residential and recreational land uses. A mobile home park (Morro Dunes) and the Lila Kaiser Park are located on the northern portion of the site. Other residential land uses are located just south of the power plant. The closest sensitive receptors to the generating units are boat owners located in the Harbor directly across Embarcadero Road, approximately 300 feet west of the power building that houses the four generating units. Residences at the westerly end of Surf Street are adjacent to the plant boundary and are an estimated 500 feet from the generating units. The offsite fuel tank farm is located about 3.8 miles northeast of Morro Bay.

Residences in the vicinity of the project site are exposed to an ambient noise environment consisting of noise primarily resulting from traffic on Highway 1 and other local roadways, the ocean surf, boat motors, and operations at commercial and industrial land uses.

Morro Bay does not have a noise ordinance that would govern noise from the plant. As with most power plants, noise levels are fairly constant across a range of loading levels at any individual generating unit, while the overall noise generated by the plant is affected by the number of generating units in operation at a give time. Ambient noise levels west of the power building are influenced by plant operations, traffic on Embarcadero Road, and the ocean, and are generally lower than sound levels near the north property line, where traffic along Highway 1 clearly influences ambient noise levels. The power building that houses the four units serves to attenuate some of the noise produced during electric generating activities.

Primary sources of plant noise affecting the nearby areas are the forced draft fans. Sound measurement samples were taken in the vicinity of the fans. Typical results were above 90 dBA adjacent to the fans. The fans are at an elevation of approximately 8 to 10 feet above the ground, however the ducting complex extends to a height of approximately thirty to forty feet. Silencers have been applied to one of the four fan units. Silencers have also been installed on the flash tank pipes. Other noise sources include the transformers on the northerly side of the main building complex. Also, there is a pump complex on the easterly side and gas metering and gas regulating facilities on the northerly side of the plant. Automatic safety relief valves are another noise source, but as reported by plant personnel, the vents operate infrequently in order to

prevent catastrophic events. All four generating units were operating on the day of the sound measurements.

There is a sound wall approximately 12 feet high along the southerly boundary of the site separating the plant from Embarcadero Street and commercial facilities, which does provide some noise shielding.

Daytime noise measurements were taken at various locations in the neighborhood, including the western end of Surf Street adjacent to residences. On the north side of Surf Street, adjacent to the measurement location, is a small residential complex consisting of several multi-family units and a single family house in back. These dwellings are one story and have a stucco exterior and a gable roof. The building on the south side of Surf Street, adjacent to the sound measurement location, is a one-story residence with a stucco exterior and a flat roof.

The measurement at the western end of Surf Street yielded a value of 60 dBA due primarily to the plant. At Surf and West Streets, one block farther from the plant, the sound level adjacent to a residence was measured at 52 dBA. Measurements at the Morro Dunes Trailer Park, Kaiser Park, Morro Rock, boat docks and other sensitive receptor locations in the plant neighborhood also yielded lower sound levels than at the western end of Surf Street.

Moss Landing

The Moss Landing Power Plant is located at the intersection of Highway 1 and Dolan Road, east of the community of Moss Landing. Highway 1 runs along the western boundary of the project site and is considered to be the major source of noise in the vicinity of the project site. Traffic to and from the plant is small compared to the total number of vehicles traveling along Highway 1.

The Monterey County Noise Ordinance governs noise levels at the plant. The overall noise levels produced by the generating units while in operation is relatively constant, regardless of the load level, but is lower when only one of the two units is in operation. Periodically, the automatic safety relief valves for the boilers are activated resulting in the release of high-pitched noise levels for a short period of time. The high-pitched noise levels from automatic safety relief valves were a problem at this facility about 10 years ago, but through efforts of PG&E, these events are now very infrequent (Dias, 1997).

Approximately 50 residences are located within one mile of the plant. The closest sensitive receptors are boat owners in the Moss Landing Harbor Area, approximately 600 feet southwest of the building that houses Units 6 and 7, and several single residences adjacent to the north boundary of the site. Historically, PG&E has addressed noise complaints received from neighboring land uses.

Primary noise sources at the plant include: the forced draft fans, circulating water pumps (seawater pumps), the steam turbines, and the extensive network of pipe lines in the high rise

structure complex. Highest sound levels are associated with the fans, which are on the southern side of the site. The sound level due to the fans was measured at 81 dBA at the gate along Dolan Road near Unit 7. Safety relief valves are also a noise source but are reported to operate infrequently (Hays, 1997).

Sound levels were measured at up to 60 dBA, due to plant and highway sources, in the daytime along the common property line with the house directly north of the plant site. Fans at the transformers on the north side of the site contributed prominently to the sound levels at this residence. The measurement data indicated that the plant-generated sound level was up to approximately 55 dBA at the residential property line.

Sound levels at the boat docks nearest the plant were measured at approximately 60 dBA due to highway and plant sources. Circulating feedwater pumps (seawater pumps) were important contributors to the sound levels measured at the docks. The measurement data indicated that the plant-generated sound level was approximately 55 dBA. Sound levels were also measured at several dwellings near the boat docks, yielding values of 56 to 58 dBA.

Sound levels at other residential locations surveyed in the plant region were lower than 60 dBA. All sound measurements were taken in the daytime.

Generating units 6 and 7 were both operating on the day of the sound measurements.

The Monterey County Noise Ordinance specifies that fixed sources which emit a sound level greater than 85 dBA at a fifty foot distance constitute a noise nuisance to houses within 2500 feet of the source. The primary noise source(s) affecting the houses adjacent to the north property line of the plant site are the fans for the transformers near that property line. The sound level from these fans was measured at approximately 65 dBA at a distance of 50 feet.

Houses one-quarter mile south of the plant site are shielded from the plant noise by intervening buildings. Other houses observed in the plant area are at a distance greater than 2500 feet.

Existing sound levels as indicated by the measurement samples were consistent with the County's Noise Ordinance.

Oakland

The Oakland Power Plant is located on Martin Luther King Junior Way in the western part of the City of Oakland. Highway 880 is located five blocks east of the plant and major rail lines run just north of the plant along Embarcadero Street. The areas immediately surrounding the plant include industrial and commercial land uses. No noise-sensitive land uses are located near the project site. The closest sensitive receptors are located north and northeast of Highway 880, over 600 feet from the project site.

Noise at the Oakland Power Plant is governed by the Oakland Noise Ordinance. Ambient noise levels in the vicinity of the project are influenced by noise generated by other commercial and industrial establishments, vehicular traffic, and activities at the Port of Oakland. The plant typically operates less than 100 hours per year and is limited to a total of 877 hours of operation per year by its air permit from the Bay Area Air Quality Management District (BAAQMD).

CHECKLIST ISSUES

a) Increases in Existing Noise Levels

An important part of a noise analysis is the identification of noise-sensitive land uses that may be affected by a project. This would include any residential properties, schools, or other noise-sensitive land uses adjacent to the project site. As described under "Setting" above, two of the three power plants (Moss Landing and Morro Bay) are located near a number of residential areas and other noise-sensitive land uses.

As a general rule, noise produced by a single generating unit is fairly constant over a range of loads (PG&E, 1996). This means that a unit operating at 25%, 50%, or 100% of its maximum capacity would produce a similar noise level. The plants would have a tendency to operate at a higher capacity under new ownership. As a result, although noise levels from a single operating unit are not expected to increase during increased plant operations, individual units may operate more often, or the frequency of multiple units in operation simultaneously could increase, which would increase the overall noise environment near the power plants to some degree.

Night is the most sensitive time for noise effects. The expected result of potential increases in generation would be that multiple units are operated at night (two units would be expected to produce a noise level about 3 dBA higher than one unit). However, current information indicates that, sometimes, multiple boilers are left on at night, but at a somewhat lower capacity than during the daytime (which does not affect the noise levels). Steam boilers are generally started during daytime hours; nighttime start-ups are not expected as a reasonably foreseeable consequence of divestiture (Weatherwax, 1997). In as much as multiple units are sometimes operated at night under existing conditions without identified noise impacts and within the applicable noise ordinance criteria, the operation of multiple units at night under divestiture would not constitute a significant impact. If multiple units operating at night operated at higher capacity, this would also not be significant because (as discussed earlier) noise produced by a single unit is fairly constant over a range of loads.

Additionally, the transfer of ownership may require relatively minor construction, which would likely be limited to activities necessary to separate the divested generating units from on-site transmission and distribution equipment, ownership of which would be retained by PG&E. New construction may generate noise levels that are unacceptable to noise-sensitive land uses. However, such noise is anticipated to be short-term, would occur during the daytime and would

cease at the completion of the minor construction activities. Construction activities would be subject to specific requirements in local noise ordinances. Therefore, potential construction impacts would not create significant effects on sensitive receptors in the vicinity of the power plants.

Conclusion

Increased operations resulting from the project could result in relatively small noise level increases at some locations; these would not be significant. Accordingly, mitigation measures are not required to be incorporated into the project.

b) Exposure to Severe Noise

The project would not expose people to severe noise levels at any of the three power plants to be divested and their vicinity. "Severe" noise levels are generally regarded as those levels that can produce hearing damage or other health effects. Typically, severe noise levels are associated with such activities as pile driving, blasting, or military jet operations. The project would not result in the types of activities that would produce severe noise levels.

On occasion, automatic safety relief valves, installed on boilers at the power plants, are activated resulting in a high-pitched whistling sound that lasts for a short period of time. If operations at the power plants increase from divestiture, the frequency of these releases may increase. However, this would not be a constant occurrence and not be anticipated to expose sensitive receptors to severe noise levels.

Conclusion

Although the project could increase the occasional occurrence of automatic safety valve releases, because these occurrences would continue to be rare, this impact would be considered less than significant.