

4.10 NOISE

Environmental noise usually is measured in A-weighted decibels (dBA).¹ Some representative noise sources and their corresponding noise levels (in dBA) are shown in Figure 4.10-1.

Environmental noise typically fluctuates over time, and different types of noise descriptors are used to account for this variability. Typical noise descriptors include the energy-equivalent noise level (L_{eq}) and the day-night average noise level (L_{dn}).² The L_{dn} is commonly used in establishing noise exposure guidelines for specific land uses. Generally, a 3-dBA increase in ambient noise levels represents the threshold at which most people can detect a change in the noise environment; an increase of 10 dBA is perceived as a doubling of loudness.

4.10.1 REGIONAL SETTING

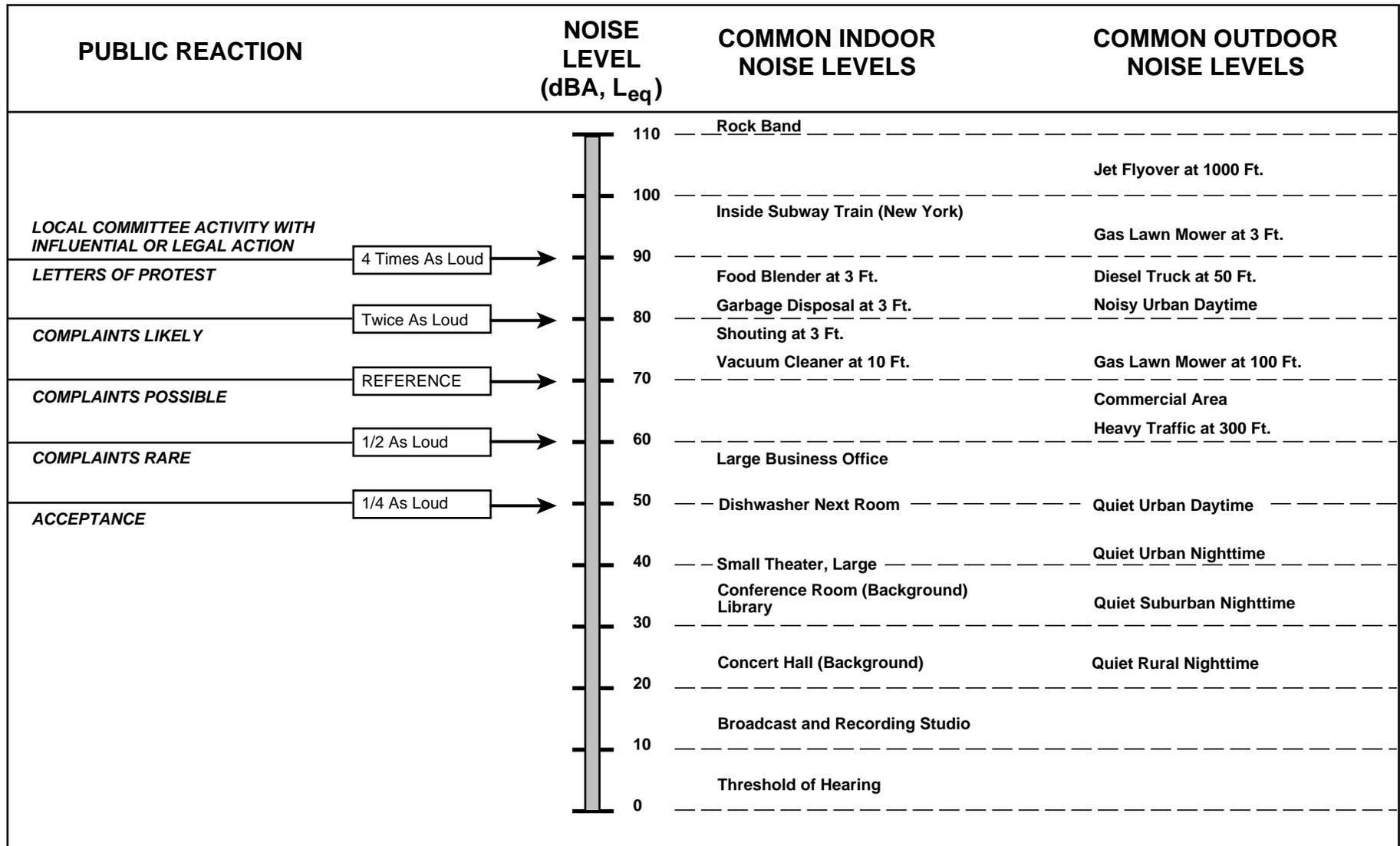
In most areas, automobile and truck traffic are the major sources of environmental noise. Traffic activity generally produces an average sound level that remains fairly constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Various noise sources are associated with utility operations including stationary sources, such as turbines, compressors, generators, cooling towers, and automatic safety release valves, 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. Each of the five power plants to be divested is governed by city or county ordinances.

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. Noise ordinances typically set forth standards related to construction activities, nuisance-type noise sources, and industrial property-line noise levels.

¹ A decibel (dB) is a unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called “sound level”) measured in dB. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels.

² L_{eq} , the energy-equivalent noise level (or “average” noise level), is the equivalent steady-state continuous noise level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level that actually occurs during the same period. L_{dn} , the day-night average noise level, is a weighted 24-hour noise level. With the L_{dn} descriptor, noise levels between 10:00 p.m. and 7:00 a.m. are adjusted upward by 10-dBA to take into account the greater annoyance of nighttime noise as compared to daytime noise.



4.10-2

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

Divestiture of Electric Generation Assets / 980125 ■

Figure 4.10-1
Effects of Noise on People

4.10.2 LOCAL SETTING

SENSITIVE RECEPTORS AND EXISTING NOISE ENVIRONMENT

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residential areas, schools, and hospitals generally are more sensitive to noise than are commercial and industrial land uses. Land uses near the power plants vary from industrial and commercial to residential and open space. Consequently, the following section discusses land uses and noise sources at the local level.

POTRERO POWER PLANT

The Potrero Power Plant is located in an industrial section of the San Francisco Waterfront between Islais Creek Channel and Central Basin. Noise sources in this area are predominantly the result of vehicle traffic on 3rd Street, operations of the power plant and adjacent industrial uses north and south of the plant. The nearest residential land uses are across 3rd Street, approximately 2,000 feet west of the plant. The only other existing noise sensitive land use near the plant includes Warm Water Cove Park, approximately 500 feet southwest of the plant. Visitors to Warm Water Cove Park would not be considered sensitive to noise because the park is a day-use area located in an industrial zone and is used primarily for access to the bay. The Plant has not received complaints regarding operational noise (Lyons, 1998)

Noise monitoring of the Potrero plant was conducted on March 19, 1998. During the monitoring event, Unit 3, which is a fossil-fueled unit that is typically in operation, was operating at full capacity (210 MW). The three combustion turbine units are standby units, operated during peak usage, and were not in operation during the monitoring event (but are the same age and size as Unit 1 at the Hunters Point Power Plant, which was monitored to operate at 86 dBA at a distance of 20 feet from the turbine). Assuming simultaneous operation of all three combustion turbines, resultant noise at the nearest property line would be 68 dBA.

Noise levels at a distance of 20 feet from Unit 3 were monitored to be 93 dBA. Noise levels within the turbine housing were monitored to be 102 dBA. Ambient noise levels decline with distance from the plant. Noise levels at the southern property line nearest Unit 3 were monitored to be 79 dBA. Noise levels at the eastern property line were monitored to be 80 to 85 dBA. Noise levels at the northern property line were observed to be influenced by plant operation and were monitored to be 62 dBA. The western property line is approximately 1,200 feet from the power plant and is buffered from it by several structures of substantial height. Ambient noise levels monitored at the western property line, which is the property line nearest existing sensitive receptors, were monitored to be 64 dBA. At the western property line, noise from power plant operation was not detectable to the technician at the time of noise monitoring and monitored noise levels were generally the result of vehicle operations on Illinois Street and 3rd Street, as well as industrial operations along Illinois Street.

CONTRA COST POWER PLANT

The Contra Costa Power Plant is located in an industrial area on the shore of the San Joaquin River in unincorporated Contra Costa County, just east of Antioch. Noise sources in this area are predominantly the result of vehicle traffic on Highway 160 and operations of the power plant and adjacent industrial uses east and west of the plant. The nearest residential land uses are over one mile south of the plant. Other existing noise sensitive land uses near the plant include Antioch Regional Shoreline Marina, approximately 1,000 feet east of the plant.

Due to the distance to sensitive noise receptors, noise from plant operations does not contribute substantially to the ambient noise environment of sensitive receptors. According to the Plant Manager for the Contra Costa Power Plant, plant operations have not resulted in noise complaints from the surrounding community (Gouveia, 1998).

Noise monitoring was conducted at the Contra Costa Power Plant on March 12, 1998. At the time of monitoring, Units 6 and 7 were not in operation and only the two synchronous condensers (Units 4 and 5) were in operation. The turbines for the synchronous condensers are located within a building enclosure. Interior noise levels were monitored to be 90 dBA at a distance of 20 feet from the condenser units. Exterior noise levels at the southern property line were not observed to be influenced by plant operations.

PITTSBURG POWER PLANT

The Pittsburg Power Plant is located in an industrial area on the shore of the San Joaquin River in unincorporated Contra Costa County. The plant is adjacent to the City of Pittsburg, and is within its sphere of influence. Noise sources in this area are predominantly the power plant operations and adjacent industrial uses south of the plant. The nearest residential land uses are located within the City of Pittsburg, approximately 800 feet east of Units 1 through 4. Other existing noise sensitive land uses near the plant include Marina Park and Riverview Park, approximately 1,000 feet east of the plant.

Daytime ambient noise measurements were conducted around the perimeter of the plant on July 2, 1998. At the time of monitoring, Units 5 and 7 were operating. Monitoring data indicated a daytime noise level of 59 dBA at the eastern property line, adjacent to residences and a church at the terminus of Front Street. Long-term monitoring of the eastern property line resulted in a recorded noise level of 66 dBA, L_{dn} .

At the northern property line adjacent to the San Joaquin River, noise levels were monitored to be 81 dBA across from Unit 7, and 79 dBA across from Unit 5. Plant operational noise was not noticeable to the technician at the western property line at the terminus of the canal, where wind and distant industrial forklift operations were the predominant noise source. At the southern property line, plant noise was not noticeable to the technician and was monitored to be 58 dBA.

According to the Plant Manager for the Pittsburg Power Plant, noise complaints from plant operations have primarily been the result of safety relief valves (Gouveia, 1998). 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. Currently, safety relief valves are activated very infrequently (less than 10 days per year) (Gouveia, 1998).

GEYSERS POWER PLANT

The Geysers Power Plant consists of 14 operating units, two of which are in Lake County and 12 of which are in Sonoma County. The predominant land use within their location in the Mayacmas Mountains is exploration, development, and utilization of geothermal energy. In addition, surrounding land uses in the vicinity of the Geysers plant are primarily recreation and mining. Rural residential receptors are generally very distant from plant units and present at very low densities.

Noise related to power plant operation will occur nearly continuously for the estimated 30-year life of each unit. The major noise sources associated with unit operations are cooling towers, turbine generators, and pumping gear. The cooling tower, because of its large size and wide band frequency spectrum, is the most significant source of noise at distances greater than 200 feet from the perimeter of the unit. Noise related to pumps and the turbine/generator unit decreases more rapidly with distance than noise from a cooling tower due to their small radiating surface and high frequency content. Total noise from a single unit is estimated to be approximately 60 dBA at 500 feet based on measurements of Unit 11 (Lake County, 1981). Measurements conducted by ESA in March of 1998 indicated noise from cooling towers to range from 75 to 85 dBA at a distance of 50 feet. Accounting for attenuation of noise with distance, this recently monitored noise level is consistent with earlier estimates. Units are spaced apart to the degree that there is no overlap of typical operational noise.

4.10.3 REGULATORY FRAMEWORK

NOISE REGULATIONS, PLANS, AND POLICIES

City and County of San Francisco

Figure 4.10-2 sets forth the recommended noise levels compatible with different types of land use, based on guidelines of the Office of Noise Control, State Department of Health Services and published in the Environmental Protection Element of the San Francisco General Plan.

San Francisco Noise Ordinance

Article 29 of the San Francisco Police Code prohibits unnecessary, excessive, and offensive noises from all sources subject to its power. Section 2909 of the Code restricts noise levels generated by fixed noise sources, such as power plants. This section states that it is unlawful for any person to operate any fixed machinery or equipment, or similar mechanical device, in any manner so as to create any noise which would cause the noise level measured at the property line of the affected property to exceed the standards for a given zoning designation shown in Table 4.10-1.

LAND USE CATEGORY	Sound Levels and Land Use Consequences (see explanation below)						
	L _{dn} Value in Decibels						
	55	60	65	70	75	80	85
RESIDENTIAL All Dwellings, Group Quarters			Light Gray	Dark Gray	Black		
TRANSIENT LODGING Hotels, Motels			Light Gray	Dark Gray	Black		
SCHOOL CLASSROOMS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES, ETC.			Light Gray	Dark Gray	Black		
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES, MUSIC SHELLS			Light Gray	Dark Gray	Black		
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS			Light Gray	Dark Gray	Black		
PLAYGROUNDS, PARKS			Light Gray	Dark Gray	Black		
GOLF COURSES, RIDING STABLES, WATER-BASED RECREATION AREAS, CEMETERIES			Light Gray	Dark Gray	Black		
OFFICE BUILDINGS Personal, Business, and Professional Services			Light Gray	Dark Gray	Black		
COMMERCIAL Retail, Movie Theatres, Restaurants			Light Gray	Dark Gray	Black		
COMMERCIAL Wholesale and Some Retail, Industrial/Manufacturing, Transportation, Communications and Utilities			Light Gray	Dark Gray	Black		
MANUFACTURING Noise-Sensitive COMMUNICATIONS Noise-Sensitive			Light Gray	Dark Gray	Black		

-  Satisfactory, with no special noise insulation requirements.
-  New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features in the design.
-  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.
-  New construction or development should generally not be undertaken.

SOURCE: Environmental Science Associates, based on San Francisco General (Master) Plan, Environmental Protection Element.

Figure 4.10-2
Land Use Compatibility Chart
for Community Noise

**TABLE 4.10-1
FIXED SOURCE NOISE STANDARD DESIGNATED BY
THE SAN FRANCISCO NOISE ORDINANCE**

Zoning District	Time Period	Sound Level (dBA)
R-1-D; R-1;R-2	10 p.m. - 7 a.m.	50
	7 a.m. - 10 p.m.	55
R-3; R-3.5; R-4 R-5; R-3-C; R-3.5-C; R-4-C; R-5-C	10 p.m. - 7 a.m.	55
	7 a.m. - 10 p.m.	60
C-1; C-2; C-3-O; C-3-R; C-3-G	10 p.m. - 7 a.m.	60
	7 a.m. - 10 p.m.	70
M-1	Anytime	70
M-2	Anytime	75

SOURCE: San Francisco Police Code Article 29

Land uses adjacent to the Potrero Power Plant are located in M-2 zoning districts. Application of the San Francisco Noise Ordinance to the Potrero Plant results in a property line noise limit of 75 dBA at all property lines, at all times. Noise monitoring indicates that plant noise violated standards of the noise ordinance at the eastern property line (undeveloped bayfront) and southern property line (a vacant asphalt storage area of HMR Global Recycling).

Contra Costa County

The Contra Costa and Pittsburg Plants are located in unincorporated portions of Contra Costa County. The County's 1996 General Plan contains a Noise Element that establishes noise exposure standards for land use compatibility (see Figure 4.10-3). The Pittsburg plant is located in an area zoned for industrial land uses but is contiguous to parcels zoned for low density residential land uses within the City of Pittsburg. For industrial land uses within the County, the normally acceptable noise level is in the range of 50 to 75 dBA, L_{dn} and the conditionally acceptable range is 70 to 80 dBA, L_{dn} . For low density residential land uses, the normally acceptable noise level is in the range of 50 to 60 dBA, L_{dn} and the conditionally acceptable range is 55 to 70 dBA, L_{dn} . Based on monitoring at the Pittsburg plant, operations are consistent (conditionally acceptable) with the County Noise Element, except for the northern bayfront property line, which was monitored to be 81 dBA, L_{eq} .

Contra Costa County does not currently have a Noise Ordinance. Noise complaints within the County are addressed through application of peace disturbance sections of the County Police Code (Forsythe, 1998). Other than the Marina, sensitive land uses are not located within a one mile radius of the Contra Costa plant.

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE					
	L _{dn} or CNEL, dB					
	55	60	65	70	75	80
RESIDENTIAL <i>Low Density Single Family, Duplex, Mobile Homes</i>	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
RESIDENTIAL <i>Multi Family</i>	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
TRANSIENT LODGING <i>Hotels, Hotels</i>	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
AUDITORIUMS, CONCERT HALLS, AMPHITHEATERS	[Hatched]		[Hatched]		[Solid Black]	[Solid Black]
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS	[Hatched]		[Hatched]		[Solid Black]	[Solid Black]
PLAYGROUNDS, NEIGHBORHOOD PARKS	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETARIES	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
OFFICE BUILDINGS, BUSINESS, COMMERCIAL AND PROFESSIONAL	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]
INDUSTRIAL, MANUFACTURING, UTILITIES, AGRICULTURE	[Hatched]		[Hatched]		[Solid Grey]	[Solid Black]

NORMALLY ACCEPTABLE
 Specific 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.

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 clearly should not be undertaken.

For lands within 3 miles of Buchanan Field and the East Contra Costa County Airports noise compatibility shall be adjusted to those of the ALUC which are roughly 5 CNEL lower than shown on this table.

SOURCE: Environmental Science Associates, based on San Francisco General (Master) Plan, Environmental Protection Element.

Figure 4.10-3
 Land Use Compatibility for Community Noise Environments in Contra Costa County

Lake County

Two of the geothermal units of the Geysers plant are located within Lake County. The Lake County General Plan identifies 55 dBA, L_{dn} as the maximum noise level normally acceptable for residential areas (Lake County, 1981). However, the County now recognizes that a 55 dBA, L_{dn} standard is largely insufficient to ensure noise/land use compatibility, given the very low background noise levels over much of the County. For example, the performance standard commonly applied to new geothermal projects is 50 dBA, L_{dn} at the nearest sensitive receptor (Lake County Air Quality Management District, 1991). In recognition of the particularly annoying qualities of noise with a pure tone, the County implements the 50 dBA, L_{dn} standard with the added provision that tonal noise is to be removed to the greatest degree possible. For land uses designated for utilities, the General Plan recognizes a noise environment of 50 to 65 dBA, L_{dn} as normally acceptable and 65 to 75 dBA as conditionally acceptable. Monitored noise at the property line of geothermal units would fall in the conditionally acceptable land use category for utility land uses.

Lake County also has a Noise Ordinance which limits the hourly noise levels in a low density residential neighborhood to 55 dBA, L_{eq} from 7 a.m. to 10 p.m., and to 45 dBA, L_{eq} from 10 p.m. to 7 a.m. (Kauper, 1994). The Lake County Air Quality Management District serves as the technical and enforcement agency of the County for noise control. Because of the lack of sensitive noise receptors proximate to units of the Geysers plant, typical operational noise can be considered to be consistent with the General Plan standards.

Sonoma County

The Sonoma County General Plan cites a noise limit of 65 dBA at the boundary of each leasehold related to geothermal power plants, based on the absence of nearby residential areas near the geothermal plants (Sonoma County, 1989).

4.10.4 SIGNIFICANCE CRITERIA

Based on the California Environmental Quality Act (CEQA) Guidelines (Governor's Office, 1997), a project may be deemed to have a significant effect on the environment if it would increase substantially the ambient noise levels for adjoining areas. A change in noise levels of less than 3 dBA is not discernible to the general population; an increase in average noise levels of from 3 to 5 dBA is clearly discernible to most people (California Department of Transportation, 1991). An increase in the noise environment of 5 dBA or greater is considered to be the minimum required increase for a change in community reaction (U.S. Department of Transportation, 1990) and, for the purposes of this analysis, constitutes a significant noise impact. With temporary noise impacts, identification of "substantial increases" depends upon the duration of the impact, the temporal daily nature of the impact, as well as the absolute change in dBA levels.

For operational impacts, operational noise that would exceed the "normally acceptable" land use compatibility noise range of the General Plan in the jurisdiction where a project element is

proposed would be considered a significant noise impact. If a land use already exists in a “conditionally acceptable” or “normally unacceptable” noise compatibility environment, as designated in the General Plan, then an increase in operational noise that would result in a change of land use compatibility category would be considered a significant noise impact. For land uses designated as within a “clearly unacceptable” noise compatibility environment, operational noise that would result in a 3 dBA or greater increase to the existing noise environment would be considered significant, if sensitive receptors are present that would be affected. If sensitive receptors would not be present but the land use is considered sensitive to noise, then a 5 dBA increase would be considered significant. Otherwise, an increase would only be considered significant if it violated a local noise ordinance or substantially contributed to an existing violation of a noise ordinance.

4.10.5 IMPACTS AND MITIGATION MEASURES

Impact 4.10-1: Minor construction activities that could be associated with transfer of ownership would temporarily increase noise levels above existing ambient levels in the project vicinities. (Less than Significant)

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, primarily at the Pittsburg Power Plant, where sensitive receptors are located within 1,000 feet of the nearest units. However, such noise is anticipated to be short-term, and anticipated to occur during the daytime. Construction activities would be subject to specific requirements in local noise and peace disturbance ordinances. Therefore, such potential construction impacts would not create significant effects on sensitive receptors in the vicinity of the power plants.

Mitigation Measures Proposed as Part of Project

None.

Mitigation Measures Identified in This Report

None required.

Impact 4.10-2: Potential changes in operational activities by a new owner would generate noise levels above existing ambient levels in the project vicinities. (Less than Significant)

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, one of the four power plants (Pittsburg) is 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 percent, 50 percent, or 100 percent of its maximum capacity would produce a similar noise level whenever it is turned on. Consequently, changes in the load factor for a particular unit will not greatly affect noise levels, whereas increases in the hours per day a unit is operated and increases in the number of units operating could greatly affect a noise environment. The plants would have a tendency to operate at or closer to their analytical maximum capacities under new ownership. As a result, although noise levels from operating units are not expected to increase, individual units may operate more often, or the frequency of multiple units in operation simultaneously could increase, which would increase, to some degree, the overall noise environment near the power plants.

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). Because multiple units are operated at night under existing conditions at most locations within the applicable noise ordinance criteria, the operation of multiple units at night under divestiture would not constitute a significant impact (violate the noise ordinance). If multiple units operating at night operated at higher capacity, this would also not be significant because noise produced by a single unit is fairly constant over a range of loads.

On occasion (estimated at two to three occurrences per year by the plant manager at the Pittsburg plant), automatic safety relief valves, installed on boilers are activated, resulting in a high-pitched whistling sound that lasts for a short period of time. If operations at the Pittsburg plant increase as a result of divestiture, the frequency of these releases may increase. However, this would not be a constant occurrence and would not be anticipated to expose sensitive receptors to severe noise levels

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.

Potrero Power Plant

Typical operations at the Potrero Power Plant consist of operation of Unit 3. Units 4, 5, and 6 are two-engine combustion turbines with a maximum output of 52 MW, and each currently runs about 500 hours per year during peak electrical demand. Units 4, 5, and 6 are restricted by permit from operating more than 877 hours per year. Because of inefficiency factors in operation, increased operation of Units 4, 5, and 6 is not considered to be a probable result of divestiture. Modeling results of the expected capacity were the same for Units 4, 5, and 6 under both the 1999 Baseline and the 1999 Analytical Maximum scenarios. Consequently, the potential for increased operation at the Potrero plant would involve Unit 3 operating at a higher capacity

factor. Modeling results found that the 1999 Baseline of 25 percent capacity could rise to an Analytical Maximum of 44 percent.

The Potrero plant is located over 2,000 feet east of the nearest residential receptors. Land uses south and north are all heavy industrial, while San Francisco Bay lies to the east. Warm Water Cove Park, which is located approximately 500 feet from the Potrero Plant would not be considered sensitive to noise because the park is a day-use area located in an industrial zone and is used primarily used for access to the bay. Noise monitoring at the western property line revealed the noise from power plant operations 1,800 feet away is not noticeable in the presence of vehicle traffic and other adjacent industrial operations of the area. Given the remote location of the plant with respect to sensitive receptors, increased operation of Unit 3 would not contribute appreciably to the noise environment at sensitive noise receptors, particularly given the presence of substantial intervening structures and the ambient noise levels of the urban environment. Consequently, potential increased operations by a new owner of the plant would not result in a significant impact to the noise environment.

The San Francisco Noise Ordinance regarding fixed-point noise sources allows for a property line noise environment of up to 75 dBA at anytime. Existing monitored noise levels at the northern (62 dBA) and western (62 dBA) property lines are consistent with the Noise Ordinance. Existing monitored noise levels at the southern property lines (adjacent to industrial uses) varies from 60 to 79 dBA, depending on the proximity to Unit 3. Monitored noise levels on the eastern property line (adjacent to the San Francisco Bay) vary from 65 to 85 dBA, also depending on the proximity to Unit 3. While these existing noise levels are inconsistent with the Noise Ordinance, there is currently no public access to these property lines.

The potential for increased operation at the Potrero plant would involve the increased frequency of operation of Unit 3 at or near capacity. This unit currently operates under typical operations.

Increased output of this unit would be unlikely to affect noise environments of the western and northern property lines, but could increase the frequency of existing excesses of the Noise Ordinance standard at the southern (industrial) and eastern (bayfront) property lines. However, given the fact that doubling of sound energy is required to raise a noise environment by 3 dBA, and further that the plant currently operates Unit 3 approximately 83 percent of the time, a 5 dBA increase in noise levels would not occur at these property lines due to increased frequency of operation under divestiture. Also, the public does not currently have access to these areas, and would not be affected by a potential increase in the frequency of high noise levels. Consequently, this impact would be less than significant and no mitigation would be required.

Contra Costa Power Plant

Operations at the Contra Costa Power Plant vary greatly during the year. The two synchronous condensers are typically always operating, while operation of Units 6 and 7 vary, but can occur at full capacity, particularly in summer months (Gouveia, 1998). The air permits for retired units (including the synchronous generators) have expired, and a separate environmental review would be required for any potential buyer who proposed to bring them back into operation.

Consequently, the potential for increased operation at the Contra Costa Plant would involve the more constant operation of Units 6 and 7 throughout the year. Modeling results found the 1999 Baseline of 36 percent capacity could rise to an Analytical Maximum capacity of 79 percent. Existing noise levels at the plant boundaries were monitored to range from 41 to 48 dBA.

The Contra Costa Power Plant is located over one mile north of the nearest residential receptors and 1,000 feet west of the marina. Land uses south are heavy industrial, while the San Joaquin River lies to the north. The relevant community noise standard for the Contra Costa plant would be the land use compatibility guidelines of the Noise Element of the County General Plan. As discussed in the Setting section, the normally acceptable noise level for industrial land uses within the County is in the range of 50 to 75 dBA, L_{dn} and the conditionally acceptable range is 70 to 80 dBA, L_{dn} . Given the remote location of the plant with respect to sensitive receptors and existing noise levels, increased operation of Units 6 and 7 would not contribute appreciably to the noise environment at sensitive noise receptors, particularly given the presence of intervening structures and the ambient noise levels of the urban environment.

Because of substantial land buffers around the Contra Costa Plant (1,200 feet from Unit 7 to the nearest property line), it is not reasonably expected that noise levels would exceed the normally acceptable range. Consequently, potential increased operations by a new owner of the plant would not result in a significant impact to the noise environment.

Pittsburg Power Plant

Operations at the Pittsburg Power Plant vary greatly during the year. Any of the seven units may be operating at a given time, depending on region-wide power demand. Operation of all seven units at full capacity, can occur in summer months (Gouveia, 1998). Consequently, the potential for increased operation at the Pittsburg plant would involve more use of the seven units throughout the year.

The residences nearest the Pittsburg plant are located approximately 800 feet east of Unit 1, and are separated from it by a line of oil tanks. Noise monitoring at the property line with these residences was conducted during operation of Units 5 and 7 and reflected a daytime noise level of 59 dBA and a long-term noise level of 66 dBA, L_{dn} . The units would have a tendency to operate at higher capacities 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, to some degree, the overall noise environment near the power plant.

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 the same distance from a location 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). Because multiple units are sometimes operated at night under existing conditions within the applicable noise ordinance criteria, the operation of multiple units at night under divestiture would not constitute a significant impact (violate the noise ordinance). If multiple units operating at night operated at higher capacity, this would also not be significant because noise produced by a single unit is fairly constant over a range of loads. Modeling results found that the 1999 Baseline of 31 percent capacity could rise to an Analytical Maximum capacity of 68 percent.

The relevant community noise standard for the Pittsburg plant would be the land use compatibility guidelines of the Noise Element of the County General Plan. As discussed in the Setting section, the normally acceptable noise level for industrial land uses within the County is in the range of 50 to 75 dBA, L_{dn} and the conditionally acceptable range is 70 to 80 dBA, L_{dn} . For low density residential land uses, the normally acceptable noise level is in the range of 50 to 60 dBA, L_{dn} and the conditionally acceptable range is 55 to 70 dBA, L_{dn} .

The potential for increased operation at the Pittsburg plant would involve the increased capacity of operation of the seven units throughout the year. The existing noise level of 66dBA, L_{dn} , measured at the nearest residences is within the County Noise Element guidelines for residential land uses (conditionally acceptable). An increase of operations to the Analytical Maximum would result in units now in operation operating at higher capacity and in more frequent simultaneous operation of multiple units. Since power plant noise would not change substantially over a range of loads for each unit, the potential for increased noise would result from more frequent operation of multiple units. A new operator would have the choice of increasing plant output to the analytical maximum capacity by either operating units at a higher capacity or operating more units simultaneously. However, given the time required to bring additional units on-line, an operator would have a tendency to increase output of units in operation before bringing additional units on-line. Because multiple unit operations currently occur within the land use compatibility guidelines of the County General Plan Noise Element, potential increases in multiple unit operations would be minimal and would be considered a less than significant impact.

Geysers Power Plant

The relevant noise standards for the geothermal units at the Geysers plant would be the 65 dBA property line limit set by Sonoma County and the residential property impact threshold of 50 L_{dn} set by Lake County. Each of the 14 units that comprise the Geysers Power Plant act as discrete noise sources within a rural environment. These sources are already established and operation by a new owner would not appreciably change the noise generated by the units. Sale of the units is not projected to increase the output of these units. Consequently, operational noise levels are not expected to change, or exceed land use standards as a result of operation by a new owner and no operational noise impacts are expected to occur as a result of operation by a new owner.

Occasionally, “stacking” of steam within units occurs and it becomes necessary to vent pressurized steam accumulations to the atmosphere. These steam releases are partially mitigated by the use of rock filters that aid attenuation of the noise that results from the dispersion of the

steam. Stacking can result in brief, yet substantial, noise events that can be heard up to six miles away. Operational techniques have reduced stacking events at the Geysers from as much as 39 events per year in 1986 to less than 7 events per year in 1988 (Lake County Air Quality Management District, 1991), mainly as the result of air quality related restrictions on blowdown events. Given that the Analytical Maximum capacity would not appreciably change from the existing Baseline, divestiture is not expected to increase the frequency of stacking events.

Mitigation Measures Proposed as Part of Project

None.

Mitigation Measures Identified in This Report

None required.

REFERENCES - Noise

Antioch, City of, *Antioch General Plan*, 1988.

California Department of Transportation, *Noise, Technical Analysis Notes*, Second Draft, 1991.

Forsythe, Tim, Deputy Sheriff, Contra Costa County Sheriff's Department, telephone communication, March 17, 1998.

Governor's Office of Planning and Research, *CEQA Statutes and Guidelines*, 1997.

Gouveia, Mark, Plant Manager, PG&E Pittsburg Power Plant, personal communication, March 12, 1998.

Kaupar, Ross, Deputy Noise Control Officer, Lake County Air Quality Management District, telephone communication, September, 1994.

Lake County, *Lake County General Plan*, 1981.

Lake County Air Quality Management District, *Cumulative Geothermal Noise Study*, May 1991.

Lyons, Mike, PG&E Plant Manager, personal communication, March 19, 1998.

PG&E, *Proponent's Environmental Assessment, Pacific Gas and Electric Company's Proposed Sale of Four Generating Plants*, November 15, 1996.

PG&E, *Proponent's Environmental Assessment: Pacific Gas and Electric Company's Proposed Sale of Four Electric Generating Plants*, before the Public Utilities Commission of the State of California, January 14, 1998.

Pittsburg, City of, *Pittsburg General Plan*, 1988.

Sahm, Barbara, Environmental Review Officer, City of San Francisco, Office of Environmental Review, personal communication, 1990.

Sonoma County, *Sonoma County General Plan*, 1989.

U.S. Department of Transportation, Urban Mass Transportation Administration, *Guidance Manual for Transportation, Noise and Vibration Impact Assessment*, July 1990.

U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

Weatherwax, Robert, President, Sierra Energy and Risk Assessment, Inc., personal communications, August 1997.