

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of people to severe noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 3 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 2 to 3 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 is a 24-hour, “weighted” noise level that accounts for greater sensitivity of most people to

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 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 5 dBA, and the noise between 10:00 p.m. and 7:00 a.m. is weighted by adding a 10 dBA increment, to take into account the greater annoyance of evening and nighttime noise.

**INSERT FIGURE 4.10.1
EFFECTS OF NOISE ON PEOPLE**

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 Leq 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 dBA, CNEL. In comparison, noise levels in developed and highly urbanized areas and/or along busy roadways can reach 70 dBA, CNEL or more.

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. Noise sources associated with utility operations include both stationary sources (such as turbines, compressors, generators, cooling towers, automatic safety relief valves, and 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 policies within the Noise Element of the General Plan and Noise Ordinance standards. Local General Plans identify general principles intended to guide and influence development and are required of all towns and cities within California, while 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 with respect to the noise environment; residential areas, schools, and hospitals are generally considered to be the most sensitive types of land use while industrial/commercial areas are generally considered to be the least sensitive. 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 two power plants located in San Diego County, California.

The types of operating units and power output are similar for 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 environments at the Encina and South Bay plants are summarized below.

Additionally, a total of 17 combustion turbines (CTs) at 9 locations throughout the County would be included as a part of the sale. The CTs only operate at times of peak loading or regional power failure. The noise environment of the CTs is also summarized below.

Encina Power Plant

The Encina Power Plant is located at the intersection of Carlsbad Boulevard and Cannon Road, within the City of Carlsbad. Carlsbad Boulevard 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, along with wave action of the Pacific Ocean and vehicle traffic on Interstate 5 (I-5) on the plant's eastern boundary. The total number of vehicles traveling to and from the plant is small compared to traffic along Carlsbad Boulevard and I-5.

The City of Carlsbad Noise Ordinance is codified in Chapter 8.48 of the City Municipal Code and addresses noise from construction activity only. The Noise Element of the General Plan identifies a noise level of 60 dBA, CNEL, as the exterior noise level to which all residential units outside of the McClellan-Palomar Airport noise contours should be mitigated. There are no standards cited in the Noise Element relative to commercial or industrial land uses.

The overall noise levels produced by the generating units while in operation are relatively constant, regardless of the load level. Periodically, the automatic safety relief valves for the boilers are activated, resulting in the release of high-pitched noise for a short period of time, but these events are now very infrequent (Waller, 1998).

The closest sensitive receptors to the Encina plant are residences on Tierra del Oro Street, across Carlsbad Boulevard and approximately 200 feet from the southwestern plant fence line (see Figure 4.1.1, Land Use). Historically, SDG&E addressed noise complaints received from neighboring land uses during initial construction by enclosing all units at the Encina plant.

Primary noise sources at the plant include the forced draft fans, circulating water pumps (seawater pumps), and steam turbines. The highest sound levels are associated with the fans, which are on the eastern side of the site. The sound level in this location was measured at 68 dBA at a distance of 75 feet from the eastern plant facade with all units operating. The CT on the Encina plant site was not operating at the time of monitoring.

Long-term (24-hour) noise measurements were conducted at the southwest plant boundary, nearest the residences on Tierra del Oro Street, which are the sensitive receptors nearest the Encina plant. Long-term noise was monitored to be 64 dBA, CNEL. Although this monitored noise level would exceed the standard for residential land uses, observations indicate that the predominant noise source during daytime is vehicle traffic on Carlsbad Boulevard, and not plant operations. Daytime noise measurements were taken at various locations along the perimeter of the plant property lines while all five units were operating. In the northwest corner of the plant, noise levels averaged 60 dBA, and plant noise was not audible to the monitoring technician. At the southeast corner of the property to be sold, noise levels were monitored to be 63 dBA, with traffic on I-5 dominating the noise environment. The daytime noise level at the northeast corner

of the plant property was monitored to be 65 dBA, with I-5 traffic dominating the noise environment and no audible plant noise.

South Bay Power Plant

The South Bay plant is located in the City of Chula Vista. I-5 runs along the eastern boundary of the power plant. The project site is surrounded by light industrial, open space, marine, and recreational land uses (see Figure 4.1.3, Land Use). Residential land uses are located on the opposite side of the I-5 freeway, approximately one mile east of the generating units. The closest sensitive receptors to the generating units are boat owners who reside in the Chula Vista Harbor, approximately 1,500 feet northwest of the power building that houses the four generating units.

Single-family residences nearest the project site are exposed to an ambient noise environment that results primarily from traffic on I-5 and other local roadways, boat motors, and operations at industrial land uses.

Chula Vista has a Noise Ordinance, published in Section 17.24 of the City Municipal Code and Chapter 19.68 of the Zoning Ordinance, that governs noise from the plant. Section 17.24 of the Municipal Code prohibits nuisance noise, determined based on the observations of a peace officer. Chapter 19.68 of the Zoning Ordinance establishes both daytime and nighttime exterior noise limits for various land uses. For heavy industrial land uses, an exterior noise level of 80 dBA is not to be exceeded at the property line. For residential land uses, a daytime (7 a.m. to 10:00 p.m. weekdays and 8 a.m. to 10 p.m. weekends) noise level of 55 dBA and a nighttime noise level of 45 dBA are not to be exceeded at the property line.

Power plant 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 given time. Ambient noise levels west of the power plant are influenced by plant operations and are generally lower than sound levels near the north property line, where traffic along I-5 clearly influences ambient noise levels. The power building that houses the four units serves to attenuate some of the noise produced during electrical generating activities.

Primary sources of plant noise affecting the nearby areas are the forced draft fans and gas regulators. Sound measurement samples were taken at ground level approximately 100 feet from the plant facades. Typical results were about 82 dBA adjacent to the fans and 80 dBA 50 feet from the gas regulators. 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 30 to 40 feet. Silencers have been applied to all 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 and a wastewater facility on the southern side. Automatic safety relief valves are another noise source, but as reported by plant personnel, the vents operate infrequently in order to prevent catastrophic events. Three of the four generating units were operating on the day of the sound measurements.

A CT on the South Bay plant site was operating and was monitored to operate at a noise level of 76 dBA at a distance of 50 feet.

Long-term (24-hour) noise measurements were conducted at the northwest plant boundary, nearest the Marina, which is the sensitive receptor nearest the South Bay plant. Long-term noise was monitored to be 61 dBA, CNEL. Daytime noise measurements were taken at various locations along the perimeter of the plant property lines. In the southwest corner of the plant, noise levels averaged 60 dBA, with plant noise being the dominant source. At the southeast corner of the property to be sold, noise levels were monitored to be 61 dBA, with traffic on I-5 dominating the noise environment. Daytime noise levels at the northeast corner of the plant property were monitored to range from 54 to 60 dBA, with I-5 traffic dominating the noise environment and no audible plant noise. Long-term monitoring at the property line of the plant indicates that existing plant operations are in compliance with the Chula Vista Noise Ordinance relative to heavy industrial land uses. Because of the distance to residential land uses, plant noise would be less than 45 dBA at the nearest residential land uses, which are located across I-5.

El Cajon Substation CT

The El Cajon CT is located in a commercial area of the City of El Cajon. The nearest sensitive receptors are residential units located approximately 400 feet to the south on Richfield Avenue. The CTs only operate during periods of peak electrical demand and are generally in operation less than 100 hours per year. The El Cajon CT was not in operation during the site visit. Monitoring conducted during operation of the CT at the South Bay plant indicates that a single CT operates at a noise level of 76 dBA at a distance of 50 feet.

Kearny Construction and Operation Center CTs

Nine CTs are located at two proximate locations at the Kearny site. Land uses in the area are industrial and commercial, and sensitive noise receptors are not located within one-half mile of either facility. The CTs were not in operation during the site visit, and localized vehicle traffic was the main source of noise at these locations.

Miramar Yard CTs

Two units are located at the Miramar site, which is surrounded by industrial land uses. There are no sensitive noise receptors located within one-half mile of the Miramar station. The CTs were not in operation during the site visit.

Naval Station CT

The Naval Station CT is located on the San Diego Naval Base, under the jurisdiction of the Department of the Navy. The CT is located within an industrial steam energy complex operated by an independent operator (Sithe Energies). Operations of Sithe dominate the noise environment of the Naval Station site, which was monitored to be 69 dBA at the property line. The CT was not in operation during the site visit. This CT is not located proximate to sensitive noise receptors.

Division Substation CT

The Division Substation CT is located approximately 500 feet from the Naval Station CT in a parking lot adjacent to industrial land uses. Vehicle traffic dominates the noise environment of the Division site, which was monitored to be 58 dBA at the property line. The CT was not in operation during the site visit. This CT is not located proximate to sensitive noise receptors.

Naval Training Center CT

The Naval Training Center site is located adjacent to the San Diego Airport, which contributes substantially to the noise environment. The CT is located within an industrial steam energy complex operated by Sithe Energies. Operations of Sithe dominate the noise environment of the Naval Training Center site, which was monitored to be 72 dBA at the property line. The CT was not in operation during monitoring. Non-military sensitive receptors are not located within the vicinity of the Naval Training Center site. Military structures, which may include barracks, exist approximately 1,000 feet from the CT site.

North Island Naval Air Station CTs

The North Island site is located on Coronado Island at the U.S. Naval Air Station, under the jurisdiction of the Department of the Navy. The CT is located within an industrial steam energy complex operated by an independent operator (Sithe Energies). Operations of Sithe dominate the noise environment of the North Island site, which was monitored to be 79 dBA at the property line. The CT was not in operation during monitoring. No sensitive land uses are located near the CT, which is in an industrial area of the air station.

24th Street Terminal Refueling Facility

The 24th Street Terminal is a fuel storage facility located in an industrial area of National City. The noise environment of the terminal is dominated by vehicle traffic and noise from surrounding industrial operations. The terminal itself is not a substantial source of noise. Ambient noise levels were monitored to be 58 to 65 dBA. Sensitive noise receptors are not located within a one-half-mile radius of the facility.

CHECKLIST ISSUES

a) INCREASES IN EXISTING NOISE LEVELS

An important part of a noise analysis is the identification of noise-sensitive land uses, such as residential properties and schools, that may be affected by a project. As described under "Setting," above, one of the two power plants (Encina) 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 anywhere from 25 to 100 percent 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 multiple boilers are occasionally 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). Inasmuch 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 were to operate at higher capacity levels, this would also not be significant because (as discussed earlier) noise produced by a single unit is fairly constant over a range of loads.

CTs are operated only to meet peak demand needs because they have inherent inefficiencies. While the potential exists for CTs to operate more frequently in the future, this potential would be the result of increased power demands or restructuring and not due to the simple divestiture of the CTs.

Additionally, the transfer of ownership may require relatively minor construction (i.e., construction of fences or driveways), 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 SDG&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 the 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 cause relatively small noise level increases at some locations; these would not be significant. Accordingly, mitigation measures addressing noise 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 facilities to be divested or in their vicinities. "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 Encina and South Bay 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 would not be anticipated to expose sensitive receptors to severe noise levels.

Conclusion

The project could increase the occasional occurrence of automatic safety valve releases; however, these occurrences would continue to be rare and silencers are installed on all power plant units, therefore this impact would be considered less than significant.

REFERENCES — Noise

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

Waller, Don, HazMat Fueling Administrator and BU Environmental Compliance, SDG&E, personal communication, June 15, 1998.

Weatherwax, personal communication regarding Initial Study for Pacific Gas & Electric Divestiture Application (CPUC A.96-11-020), 1997.

Williams, Don, SDG&E Hazardous Materials Fueling Administrator, personal communication, June 15, 1998.