

## D.8 Noise and Vibration

This section addresses the Proposed Project and alternatives, as they would affect the community noise environment or cause disruptions from vibration. Section D.8.1 provides a description of the environmental setting, and the applicable noise ordinances and limitations are introduced in Section D.8.2. An analysis of the Proposed Project impacts is provided in Section D.8.3, and the noise and vibration impacts related to alternatives are described in Sections D.8.4 and D.8.5. Section D.8.6 provides mitigation monitoring, compliance, and reporting information.

### D.8.1 Environmental Setting for the Proposed Project

#### General Characteristics of Community Noise

To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is customarily used. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that can be used to conveniently compare wide ranges of sound intensities. Figure D.8-1 illustrates typical ranges of common sounds heard in the community noise environment.

Human activities cause community noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period ( $L_{eq}$ ) or by an average level occurring over a 24-hour day-night period ( $L_{dn}$ ). The  $L_{eq}$ , or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. The  $L_{dn}$ , or day-night average sound level, is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to nighttime sounds occurring between 10:00 p.m. and 7:00 a.m. The noise level that is exceeded 50 percent of the time ( $L_{50}$ ) is a level that is normally less than the  $L_{eq}$ , except for especially steady noise levels, in which case, it may be similar to or slightly greater than the  $L_{eq}$ .

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the  $L_{dn}$  noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the  $L_{dn}$  is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., areas located near downtown San Diego), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health. Figure D.8-2 illustrates the typical noise levels of varying types of land use.

The surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting

sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (U.S. EPA, 1974).

## **Noise Environment in the Project Area**

Sources of community noise are most common in areas of human activity. Ambient noise levels tend to be lowest in the rural and open areas away from the highways and industrial or commercial uses of the suburban areas. Noise levels in the project area are the highest near major transportation facilities, especially the highway and freeway crossings, and near other localized noise sources such as civilian airports and Qualcomm Stadium.

Ambient noise levels at the Herrick's Children's Center building in unincorporated San Diego County were monitored by SDG&E in May 2003 as part of the background studies for this project. The results of the SDG&E noise survey indicate that daytime noise levels near the transmission lines vary from about 44 dBA to 58 dBA on a short-term basis (less than 15 minutes), depending on the proximity of the monitor to surrounding traffic or other noise sources (SDG&E, 2003).

The existing 138 kV and 69 kV circuits between the Miguel Substation and Fanita Junction cause a certain amount of corona noise. This is audible power line noise that is generated from electric corona discharge, which is usually experienced as a random crackling or hissing sound. Corona noise is primarily audible during wet weather conditions such as fog and rain. Although SDG&E has not provided any estimates or calculations of existing corona noise, the CPUC anticipates that the noise created by the existing 138 kV and 69 kV circuits is compliant with local noise ordinances. For lines with these ratings, the maximum corona noise during wet weather conditions is usually less than 40 dBA at the edge of the ROW.

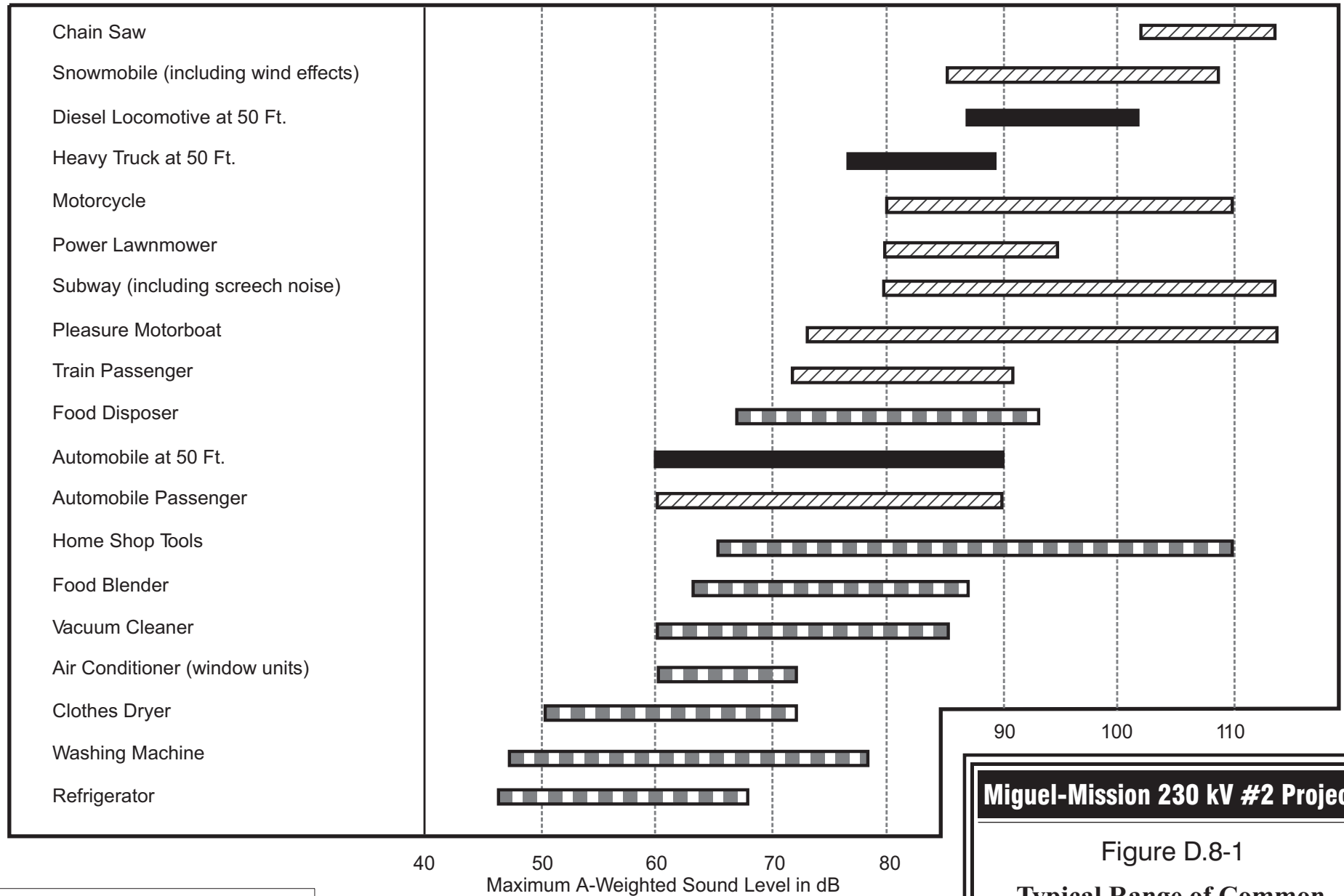
Noise sensitive receptors and noise sensitive areas are distributed throughout the project area. Low- and medium-density single-family residences can be found along the project alignment in San Diego County, El Cajon, and Santee. In some cases, residences occur immediately adjacent to the existing ROW. Schools, religious facilities, hospitals, and parks are also present near the alignment. Open space, industrial, and commercial areas are only considered noise sensitive if they are used for recreation.

## **D.8.2 Applicable Regulations, Plans, and Standards**

Regulating environmental noise is generally the responsibility of local governments. U.S. EPA once published guidelines on recommended maximum noise levels to protect public health and welfare (U.S. EPA, 1974), and the State of California maintains recommendations for local jurisdictions in the General Plan Guidelines published by the Governor's Office of Planning and Research (OPR, 1998). The following summarizes the federal and State recommendations and the local requirements.

### **Federal and State Standards**

There are no federal noise standards that directly regulate environmental noise. No federal agencies have established thresholds for protecting wildlife or other biological resources. With regard to noise exposure and workers, the federal Occupational Safety and Health Administration (OSHA) establishes regulations to safeguard the hearing of workers exposed to occupational noise (29 CFR Section 1910.95, Code of Federal Regulations). OSHA specifies that sustained noise over 85 dBA can be a threat to workers' hearing.



**MEASUREMENT LOCATION**

- Outdoors
- Operator/Passenger
- In Home

Source: USEPA, 1978. Protective Noise Levels  
Condensed Version of EPA Levels Document

90      100      110

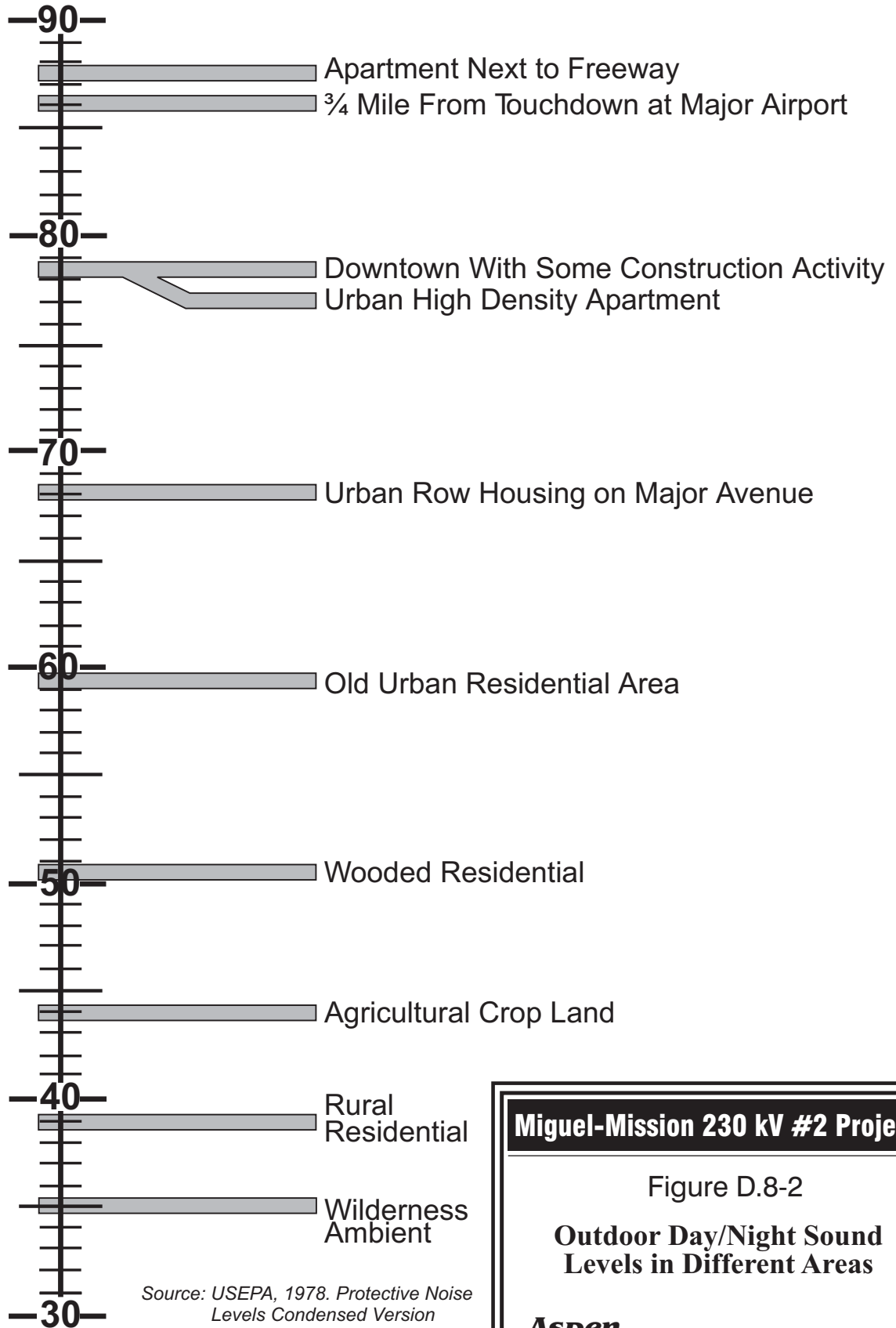
**Miguel-Mission 230 kV #2 Project**

Figure D.8-1  
**Typical Range of Common  
Sounds Heard in the  
Environment**

**Aspen**  
Environmental Group

$L_{dn}$  in dB

# Outdoor Locations



Source: USEPA, 1978. Protective Noise Levels Condensed Version of EPA Levels Document

**Miguel-Mission 230 kV #2 Project**

Figure D.8-2

**Outdoor Day/Night Sound Levels in Different Areas**

**Aspen**  
Environmental Group

The State of California requires each local government to perform noise surveys and implement a noise element as part of their general plan. Generally speaking, noise levels less than 60  $L_{dn}$  are acceptable for all land uses, including residences, schools, and other noise sensitive receptors. Sustained noise levels greater than 70  $L_{dn}$  are normally unacceptable for most noise sensitive land uses, and levels between 60 and 70  $L_{dn}$  are usually considered conditionally acceptable, because the structures where the receptors reside normally provide some level of insulation (OPR, 1998).

## Local Noise Ordinances and Policies

Each local government aims to protect its residents from intrusive noise. Most communities specifically restrict disturbing noises at night. Applicable local noise ordinances and policies are described below.

**San Diego County Code of Regulatory Ordinances.** Acceptable noise levels for construction activities are defined in the Section 36.410 of County Regulatory Ordinances. Except for emergency work, it is unlawful to operate construction equipment on Sundays, legal holidays, and between the hours of 7:00 p.m. and 7:00 a.m. for all other days. During daytime hours, construction equipment must not cause noise levels above 75 dBA for more than an 8-hour period at residential properties.

Noise from operation of public utilities in San Diego County is subject to the limitations of Section 36.404 of the Regulatory Ordinances. Transmission line noise in residential areas (including rural and low density residences) must not exceed 50 dBA  $L_{eq}$  during daytime hours, or 45 dBA  $L_{eq}$  between 10:00 p.m. and 7:00 a.m. These levels apply at or beyond six feet from the boundary of the easement for the transmission line

**City of San Diego Municipal Code.** The City of San Diego Municipal Code (Chapter 5, Article 9.5, Division 4) restricts noise between properties. The most restrictive standard is approximately 50  $L_{dn}$ , for low-density residential areas (Section 59.5.0401). The limit during nighttime hours (between 10:00 p.m. and 7:00 a.m.) is 40 dBA  $L_{eq}$ . Construction noise must be limited to daytime hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday, and is generally required to cause less than an average 75 dBA at residential property boundaries during the 12-hour period. Nighttime construction noise would be allowed upon approval of the City Noise Abatement and Control Administrator.

**City of Santee Municipal Code.** Construction limitations in the City of Santee Municipal Code (Section 8.12.290) are similar to those of the San Diego Municipal Code, except the 75 dBA limitation applies to construction over any 8-hour period. Construction noise must be limited to daytime hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday. The City would require SDG&E to comply with Chapter 8.12 of the Municipal Code (noise abatement and control) by establishing appropriate construction times during daylight hours in an effort to minimize adverse effects, especially the effects of helicopter activity.

## Regulation of Construction-Related Vibration

Groundborne vibration is not commonly regulated by local municipalities. Although the San Diego County Zoning Ordinance has established limits on groundborne vibration (Section 6314), vibration that is caused by short-term, temporary construction is exempt from the standards. The City of San Diego Municipal Code restricts vibration from industrial facilities (Chapter 14, Article 1, Division 6). No other standards would apply to groundborne vibration related to construction.

## D.8.3 Environmental Impacts and Mitigation Measures

### D.8.3.1 Definition and Use of Significance Criteria

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if the project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels (more than five dBA) in the project vicinity above levels existing without the project; and
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

No land uses that would be especially sensitive to vibration (e.g., high-precision manufacturing facilities or research facilities with optical and electron microscopes) are known to occur in the immediate project area. As such, the significance threshold for construction-related ground-borne vibration depends on whether a nuisance or annoyance could occur.

### D.8.3.2 Project Protocols

Table D.8-1 shows the Project Protocols proposed by SDG&E for noise and vibration.

**Table D.8-1. Project Protocols – Noise and Vibration**

PP No.	Description
8	SDG&E would respond to third-party complaints of radio or television interference generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures. As part of SDG&E's repair inspection and maintenance program, the transmission line would be patrolled and damaged insulators or other transmission line materials, which could cause interference, would be repaired or replaced.
9	Bundled configuration conductors would be used on the 230 kV circuit and relocated 138 kV and 69 kV lines to limit the audible noise, radio interference, and television interference due to corona. Caution would be exercised during construction to try to avoid scratching or nicking the conductor surface, which may provide points for corona to occur. In addition to the bundled configuration conductors, special hardware design would be used to limit corona potential.
60	To the extent feasible, unnecessary construction vehicle and idling time would be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project would apply a "common sense" approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine would be shut off. Construction foremen would include briefings to crews on vehicle use as a part of preconstruction conferences. Those briefings would include discussion of a "common sense" approach to vehicle use.

Source: SDG&E, 2002.

### D.8.3.3 Proposed Miguel-Mission 230 kV #2 Project

#### Impacts of Transmission Line Construction

##### Impact N-1: Construction Activity Would Temporarily Increase Local Noise Levels

Construction of the project would require short-term use of bulldozers, graders, drill rigs, cranes, compressors, generators, haul trucks, and other equipment. Concurrent construction activity would occur in the corridor because the various phases would somewhat overlap (see construction schedule in Section B.4.1). Construction activity for substation modifications would be focused at the Miguel and Mission Substations, and work for the new transmission circuits would be widely distributed along the 35-mile corridor between the Miguel, Los Coches, and Mission Substations. Typical noise levels at 50 feet for the types of construction equipment that would be used are listed in Table D.8-2.

Construction activities within the project ROW, staging areas, and substations would create both intermittent and continuous noises. The maximum intermittent construction noise levels would range from 84 to 94 dBA at 50 feet for foundation development activities and could range up to 98 dBA for rock drilling, if necessary. Rock blasting could also be needed to achieve the specified excavation at Los Coches and Miguel Substations and at Fanita Junction, and the Applicant would incorporate appropriate controls to minimize noise impacts of blasting. Helicopter noise for remote operations or line stringing would not affect any one location for long, but it could intermittently reach as high as 95 dBA for locations outside the project ROW. Continuous noise levels from construction would be lower because most equipment would not be operated steadily and at full load. At 50 feet, continuous noise levels could range from 70 to 82 dBA. At 100 feet, the levels could be between 64 to 76 dBA, and at 200 feet, between 58 to 70 dBA. These levels would diminish over additional distance and could be reduced further by intervening structures.

Construction would also cause noise offsite, primarily from commuting workers and from trucks and helicopters needed to bring materials to the construction sites. Workers would likely meet at various staging areas and then travel to the construction site in groups. Haul trucks would make trips to bring poles, conductor line, and other materials to the construction sites and remove excavated material and waste. The peak noise levels associated with passing trucks and commuting worker vehicles would be approximately 70 to 75 dBA at 50 feet.

**Table D.8-2. Typical Noise Levels of Construction Equipment**

Equipment Type	Range of Noise Level (dBA) at 50 feet
<b>Earthmoving</b>	
Front loaders	72-84
Backhoes	72-93
Tractors, Dozers	76-96
Scrapers, Graders	80-93
Pavers	86-88
Trucks	82-94
<b>Materials Handling</b>	
Concrete mixers	75-88
Concrete pumps	81-83
Cranes (movable)	75-86
Cranes (derrick)	86-88
Forklifts	76-82
<b>Stationary</b>	
Pumps	69-71
Generators	71-82
Compressors	74-86
Drill Rigs	70-85
<b>Project-specific</b>	
Helicopters (in flight, at 150 feet)	80-95
Jack hammers and rock drills	81-98

Source: SDG&E, 2002, p. 6-97.

Depending on the persistence of construction activity and its proximity to the numerous residential and other sensitive receptors in the project area and along haul routes, construction noise could exceed the 75 dBA standards of the local jurisdictions. This could occur at sensitive land uses within 200 feet of the construction equipment during only those days when heavy activity occurs. Without additional measures, this could cause a significant impact. The Applicant has proposed a Project Protocol (PP-60) to reduce noise from onsite and offsite construction activities. However, implementation of PP-60 would not ensure compliance with the 75 dBA standards established by the local jurisdictions.

***Mitigation Measure for Impact N-1, Construction Activity Would Temporarily Increase Local Noise Levels***

Implementation of PP-60 would reduce potentially significant onsite and offsite construction noise impacts. To ensure that the impact would be reduced to a level that is less than significant, the following mitigation measures (N-1a and N-1b) are recommended.

**N-1a Provide advance notice of construction.** SDG&E or its construction contractor shall provide advance notice, between two and four weeks prior to construction, by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice shall be made, either in person or by mail. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. The notice shall also advise the recipient on how to inform the Applicant/contractor if specific noise or vibration sensitive activities are scheduled so that construction can be rescheduled, if necessary, to avoid a conflict. SDG&E shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur.

**N-1b Provide liaison for construction nuisance complaints.** SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with Mitigation Measure N-1a. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers (procedures to be approved by the CPUC).

Construction-related noise is temporary and short-term, and because it could exceed the 75 dBA standards established by the local jurisdictions, mitigation would be necessary to reduce the impact to less than significant levels (Class II). Implementation of the Applicant's proposed PP-60 would reduce noise levels where possible, while Mitigation Measures N-1a and N-1b described above would ensure that neighboring receptors would be provided advanced notice of the construction activities and would provide means for SDG&E to respond to concerns of those receptors.

Please note that construction noise may have the potential to adversely affect avian communities inhabiting the coastal sage scrub habitat within or adjacent to project areas. Noise impacts to sensitive biological resources, including wildlife, are addressed in the Biological Resources section of this report (Section D.3).



## **Impact N-2: Construction Activity Would Temporarily Cause Groundborne Vibration**

Vibration levels from construction equipment and activities might be perceptible to receptors in the immediate vicinity of the construction sites. The activity that would be most likely to cause groundborne vibration would be rock drilling and blasting, where necessary to achieve the specified excavation. The level of groundborne vibration that could reach sensitive receptors would depend on what equipment is used and the soil conditions surrounding the construction site. The Applicant expects that short durations of rock blasting may be needed at the Los Coches and Miguel Substations and Fanita Junction. The Los Coches Substation is near residential uses that could be disturbed by this work. Blasting may also be necessary for installation of new poles between the Miguel Substation and Fanita Junction. No sources of groundborne noise would occur with the project. The impact from construction-related groundborne vibration would be potentially significant if additional measures would not be implemented (Class II).

### ***Mitigation Measure for Impact N-2, Construction Activity Would Temporarily Cause Groundborne Vibration***

Implementation of the previously identified Mitigation Measures N-1a and N-1b would ensure that neighboring receptors are provided advanced notice of the work and provide a means for SDG&E to respond to concerns of those receptors. The potential impact from construction-related groundborne vibration would be temporarily adverse, but less than significant with implementation of Mitigation Measures N-1a and N-1b (Class II).

## **Impacts of Transmission Line Operations**

### **Impact N-3: Operation of the Transmission Line Would Cause Corona Noise**

The permanent noise sources that would occur with the project are limited to the corona effect of the transmission line and routine inspection and maintenance of the line and substation. Audible power line noise is generated from corona discharge, which is usually experienced as a random crackling or hissing sound.

The potential for noise from corona discharge is greatest with high voltage lines during wet weather or near inconsistencies or cuts in the metal surface of the line itself. For example, the highest noise level generated by the 230 kV line during fair weather conditions would be around 15 dBA. This would be below the ambient noise levels in even the most pristine natural setting. During rain or fog, the highest noise level at the edge of the ROW of the Proposed Project would be 40.7 dBA  $L_{50}$  (PEA, 2002).

A nighttime limit of 45 dBA  $L_{eq}$  is established by the San Diego County Code of Regulatory Ordinances, and in the City of San Diego, noise must not exceed 40 dBA  $L_{eq}$  (Municipal Code §59.5.0401) in low-density residential areas at night. This means that if residential land uses are adjacent to the project ROW in the jurisdiction of the City of San Diego, at the location of highest corona noise, the corona noise caused by the project may exceed the most-stringent City standards. The precise location of highest possible corona noise is not known at this stage of project design and may not be known until after commencing operation. This is because conductor surface defects, damage, and inconsistencies can influence corona. The location of highest corona noise also depends on the configuration of transmission line segments, which varies within the ROW. This impact would be potentially significant only during the infrequent periods of adverse weather and at night, when the standards are most stringent. To reduce possible noise from the corona effect, the Applicant has proposed PP-8 and PP-9, which would result in the Applicant taking steps to preserve the quality of the conductor surface. With the

proposed Project Protocols, however, the maximum of 40.7 dBA L<sub>50</sub> could still exceed the City of San Diego limit. Because residential land uses are adjacent to the project in the City of San Diego, corona noise would be a potentially significant impact that warrants further mitigation (Class II).

***Mitigation Measure for Impact N-3, Operation of the Transmission Line Would Cause Corona Noise***

**N-3a Achieve compliance with City of San Diego noise abatement code.** SDG&E shall prepare a noise assessment report for review by the City of San Diego Neighborhood Code Compliance Department and the CPUC. The report shall identify the transmission line location(s) where it would be adjacent to residences and for those locations, the configuration of the transmission line sections, the expected maximum corona noise levels at the edge of the ROW (in terms of L<sub>50</sub> and L<sub>eq</sub>), and the locally applicable noise limits. SDG&E shall identify in the report whether any design features or changes in line configuration are available to reduce corona noise. The report shall be submitted to the City and the CPUC at least 90 days prior to commencing construction, and it shall include a request for a determination by the City of whether the project would comply with the local municipal code. Prior to commencing construction, SDG&E shall provide to the CPUC evidence of a successful determination of compliance from the local agency.

**N-3b Respond to complaints of corona noise.** SDG&E shall respond to third-party complaints of corona noise generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures. As part of SDG&E's repair inspection and maintenance program, the transmission line shall be patrolled, and damaged insulators or other transmission line materials, which could cause excessive noise, shall be repaired or replaced.

Because noise from operation of the transmission line from the corona effect may exceed the nighttime standards in the local noise ordinances, mitigation is recommended to engage the local agencies in the project review and solicit a determination of compliance with the local requirements. With the recommended mitigation, this potentially significant impact would be reduced to less than significant levels (Class II).

**Impact N-4: Inspection and Maintenance Activities Would Cause Occasional Noise**

Routine inspection and maintenance of the transmission lines would be accomplished with either ground access or helicopter fly-over. Visits to the substations would normally require one crew in a light utility truck weekly and approximately six visits per year by larger crews. Because the visits would be infrequent, no significant noise increase would be associated with this activity (Class III).

**Impact N-5: Operation of Modifications to Substations Would Increase Local Noise Levels**

Substation modifications would include few new sources. The project includes only new circuit breakers and connections, with no new transformers. Noise may be generated at the substations by activation of circuit breakers, which would create an instantaneous sound in the range of 70 to 90 dBA. This noise would be similar to the existing noise at the Miguel and Mission Substations. The noise from operation of the substations would not exceed the local noise ordinances; therefore, this would be a less than significant impact (Class III).

### **D.8.3.4 Future 230 kV Circuit within Miguel-Mission ROW**

Construction activity associated with installing the future 230 kV circuit would result in additional noise and vibration, occurring at a future time period. Impacts N-1 and N-2 would occur, and as with the project, they would be temporary, but would adversely affect receptors along the alignment. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during these construction activities to a level that would be less than significant (Class II).

Operation of the future circuit would likely result in increased corona noise for all receptors along the alignment. Impact N-3 would likely be more severe than it would be with the Proposed Project, and along with the potentially significant project-related impact within the City of San Diego, additional impacts could occur to other communities. As with the Proposed Project, implementation of PP-8 and PP-9 and Mitigation Measures N-3a and N-3b would be necessary to minimize the impact. There is also a possibility that increased corona noise associated with an additional circuit could adversely affect receptors outside of the City in unincorporated San Diego County. Although it would be speculative to characterize the impact to San Diego County, if a significant impact would occur, Mitigation Measures N-3a and N-3b would be recommended (with minor revisions) to reduce this impact to less than significant levels (Class II). Impact N-4 would remain similar to inspection and maintenance impacts under the Proposed Project (Class III), but Impact N-5 could increase and possibly become significant and warrant additional unforeseeable mitigation if additional transformers would be needed at the substations. Although it would be speculative to characterize the impact from additional transformer noise, mitigation measures would likely be available to reduce this impact to less than significant levels (Class II).

## **D.8.4 Project Alternatives**

### **D.8.4.1 Jamacha Valley 138 kV/69 kV Underground Alternative**

#### **Environmental Setting**

Section D.8.1 describes the general noise environment along this alternative route because it would be near the Proposed Project. Jamacha Valley 138 kV/69 kV Underground Alternative would be located along Willow Glen Drive. There are scattered rural residences along Willow Glen Drive and the alignment would pass near the Singing Hills Memorial Park cemetery.

#### **Environmental Impacts and Mitigation Measures**

Construction of Jamacha Valley 138 kV/69 kV Underground Alternative would require short-term use of backhoes, boring equipment, trenchers, dump trucks, mobile cranes, haul trucks, and street sweepers. Night work could be necessary where daytime traffic cannot be rerouted. The noise levels of this equipment and other similar necessary equipment are included in Table D.8-2, above. Noise from work related to installing new poles in Jamacha Valley would be avoided, but this would be substituted with a longer duration of more intense noise from underground work along Willow Glen Drive and near the Singing Hills Memorial Park cemetery. Impacts N-1 and N-2 would occur temporarily, and would adversely affect scattered rural residences along Willow Glen Drive and the visitors to the cemetery. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during the construction phase to a level that would be less than significant (Class II).

Operation of the transmission line under the Jamacha Valley 138 kV/69 kV Underground Alternative would cause corona noise (Impact N-3) at levels slightly less than the project because some of the transmission line would be underground (Class II), but similar noise impacts to those described for the project would occur because of inspection and maintenance activities and operation of the line and substations (Impacts N-4 and N-5, both Class III).

### **Comparison to Proposed Project**

Compared to the Proposed Project, this alternative would cause increased construction activities along Willow Glen Drive, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, long-term impacts related to corona noise would be slightly reduced.

### **Comparison to Proposed Project with Future Circuit**

Compared to the Proposed Project with future circuit, this alternative with the future circuit would cause increased construction activities along Willow Glen Drive, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, long-term impacts related to corona noise would be slightly reduced.

## **D.8.4.2 Jamacha Valley Overhead A Alternative**

### **Environmental Setting**

Section D.8.1 describes the general noise environment along this alternative route because it would be within the existing SDG&E ROW, as would the Proposed Project.

### **Environmental Impacts and Mitigation Measures**

Construction of the 138 kV/69 kV circuit near the east edge of the ROW would require short-term use of equipment to install the new steel mono-poles. The noise levels of this equipment and other similar necessary equipment are included in Table D.8-2, above. Noise from work related to installing the poles near the east edge of the ROW would be similar in duration and intensity to the noise necessary for installing the new 138 kV/69 kV poles of the Proposed Project. This would occur in conjunction with noise from tower modifications that would occur under the Proposed Project for the 230 kV circuit. Impacts N-1 and N-2 would occur temporarily, and would adversely affect sensitive receptors along the route. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during the construction phase to a level that would be less than significant (Class II).

Operation of the transmission line in this configuration would cause corona noise (Impact N-3) at levels that would be similar to that associated with the Proposed Project (Class II). Mitigation Measures N-3a and N-3b would be required to reduce this impact to less than significant levels. Noise impacts similar to those described for the Proposed Project would occur because of inspection and maintenance activities and operation of the line and substations (Impacts N-4 and N-5, both Class III).

### **Comparison to Proposed Project**

Compared to the Proposed Project, construction of the 138 kV/69 kV poles near the east edge of the ROW under this alternative would result in similar construction activities. Although the noise for installing the poles would be further from some homes along the west side of the ROW, the construction activity would generally have a similar ability to cause noise or vibration nuisances. During operation of this alternative, impacts related to corona noise would be similar.

### **Comparison to Proposed Project with Future Circuit**

Compared to the Proposed Project with future circuit, construction of the 138 kV/69 kV poles near the east edge of the ROW under this alternative with the future circuit would result in similar construction activities, which have a similar ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

## **D.8.4.3 Jamacha Valley Overhead B Alternative**

### **Environmental Setting**

Section D.8.1 describes the general noise environment along this alternative route because it would be within the existing ROW, as would the Proposed Project.

### **Environmental Impacts and Mitigation Measures**

Construction of the 230 kV circuit in the center of the ROW would require short-term use of equipment to install the new 230 kV steel mono-poles, with additional work being necessary to install the poles for the 138 kV/69 kV line near the west edge of the ROW. The noise levels of this equipment and other similar necessary equipment are included in Table D.8-2, above. Noise from work related to installing new poles would be of a longer duration and more intense than noise necessary for tower modifications that would occur under the Proposed Project for the 230 kV circuit, and additional noise would occur during installation of the new 138 kV/69 kV steel poles. Impacts N-1 and N-2 would occur temporarily, and would adversely affect sensitive receptors along the route. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during the construction phase to a level that would be less than significant (Class II).

Operation of the transmission line in this configuration would cause corona noise (Impact N-3) at levels that would be similar to that associated with the project (Class II), and noise impacts similar to those described for the project would occur because of inspection and maintenance activities and operation of the line and substations (Impacts N-4 and N-5, both Class III).

### **Comparison to Proposed Project**

Compared to the Proposed Project, construction of additional poles under this alternative would result in longer construction activities in the Jamacha Valley, which have a greater ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

## **Comparison to Proposed Project with Future Circuit**

Compared to the Proposed Project with future circuit, construction of additional poles under this alternative with the future circuit would result in longer construction activities in the Jamacha Valley, which have a similar ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

### **D.8.4.4 City of Santee 138 kV/69 kV Underground Alternative**

#### **Environmental Setting**

Section D.8.1 describes the general noise environment along this alternative route because it would be near the Proposed Project route. The City of Santee 138 kV/69 kV Underground Alternative would be located along an access road, Magnolia Avenue, and Princess Joann Road. The neighborhood along these roads would be bisected by the underground portion of this alignment. Numerous residences (approximately 50) would be on either side of the route.

#### **Environmental Impacts and Mitigation Measures**

Construction of City of Santee 138 kV/69 kV Underground Alternative would require short-term use of backhoes, boring equipment, trenchers, dump trucks, mobile cranes, haul trucks, and street sweepers. The noise levels of this equipment and other similar necessary equipment are included in Table D.8-2, above. Noise from work related to installing new poles in the City of Santee would be avoided, but this would be substituted with a longer duration of more intense noise from underground work along the neighborhood streets. Impacts N-1 and N-2 would occur temporarily, and would adversely affect approximately 50 residences along the route. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during the construction phase to a level that would be less than significant (Class II).

Operation of the transmission line under the City of Santee 138 kV/69 kV Underground Alternative would cause corona noise (Impact N-3) at levels slightly less than the project because some of the transmission lines would be underground (Class II), but noise impacts similar to those described for the project would occur because of inspection and maintenance activities and operation of the line and substations (Impacts N-4 and N-5, both Class III).

#### **Comparison to Proposed Project**

Compared to the Proposed Project, this alternative would cause increased construction activities along Magnolia Avenue and Princess Joann Road, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, impacts related to corona noise would be slightly reduced.

#### **Comparison to Proposed Project with Future Circuit**

Compared to the Proposed Project with future circuit, this alternative with the future circuit would result in increased construction activities along Magnolia Avenue and Princess Joann Road, which would result in a greater number of residences experiencing temporary construction noise. During operation of this alternative, impacts related to corona noise would be slightly reduced.

### **D.8.4.5 City of Santee 230 kV Overhead Northern ROW Boundary Alternative**

#### **Environmental Setting**

Section D.8.1 describes the general noise environment along this alternative route because it would be adjacent to the alignment of the Proposed Project.

#### **Environmental Impacts and Mitigation Measures**

Construction of the 230 kV circuit on the north side of the ROW would require short-term use of equipment to install the new steel mono-poles. The noise levels of this equipment and other similar necessary equipment are included in Table D.8-2, above. Noise from installing the 230 kV poles would be similar in duration and intensity to the noise necessary for installing the new 138 kV/69 kV poles of the Proposed Project. Noise related to tower modifications that would occur under the Proposed Project for the 230 kV circuit would not occur with this alternative. Impacts N-1 and N-2 would occur temporarily, and would adversely affect sensitive receptors along the route. Implementation of PP-60 and Mitigation Measures N-1a and N-1b would reduce potentially significant noise and vibration impacts during the construction phase to a level that would be less than significant (Class II).

Operation of the transmission line in this configuration would cause corona noise (Impact N-3) at levels that would be similar to that associated with the Proposed Project (Class II), requiring implementation of Mitigation Measures N-3a and N-3b. Noise impacts similar to those described for the Proposed Project would occur because of inspection and maintenance activities and operation of the line and substations (Impacts N-4 and N-5, both Class III).

#### **Comparison to Proposed Project**

Compared to the Proposed Project, construction of the poles on the north side of the ROW under this alternative would result in similar construction activities. Although the noise for installing the poles would be further from homes along the south side of the ROW, the construction activities would have a similar ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

#### **Comparison to Proposed Project with Future Circuit**

Compared to the Proposed Project with future circuit, construction of the poles on the north side of the ROW under this alternative with the future circuit would result in similar construction activities, which have a similar ability to cause noise or vibration nuisances during construction. During operation of this alternative, impacts related to corona noise would be similar.

### **D.8.5 Environmental Impacts of the No Project Alternative**

Under the No Project Alternative, the Proposed Project would not be constructed, eliminating the noise impacts discussed in Section D.8.3. The No Project Alternative could result in new generation capacity being installed in San Diego County or elsewhere to compensate for existing transmission system limitations and anticipated loads. Although new power plants may be necessary, their location and schedule for development cannot be predicted. New generation would need to comply with local noise ordinances and the local licensing process, which would be likely to reduce noise impacts to less than significant levels.

## D.8.6 Mitigation Monitoring, Compliance, and Reporting Table

Table D.8-3 shows the mitigation monitoring, compliance, and reporting program for Noise and Vibration.

**Table D.8-3. Mitigation Monitoring Program – Noise and Vibration**

<b>IMPACT N-1</b>	<b>Construction Activity Would Temporarily Increase Local Noise Level (Class II)</b>
<b>MITIGATION MEASURE</b>	<b>N-1a: Provide advance notice of construction.</b> SDG&E or its construction contractor shall provide advance notice, between two and four weeks prior to construction, by mail to all sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice shall be made, either in person or by mail. Notices shall provide tips on reducing noise intrusion, for example, by closing windows facing the planned construction. The notice shall also advise the recipient on how to inform the Applicant/contractor if specific noise or vibration sensitive activities are scheduled so that construction can be rescheduled, if necessary, to avoid a conflict. SDG&E shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur.
<b>Location</b>	All project work areas
<b>Monitoring / Reporting Action</b>	Provide notice of construction activity
<b>Effectiveness Criteria</b>	Evidence of advance notice
<b>Responsible Agency</b>	CPUC
<b>Timing</b>	Prior to and during construction
<b>MITIGATION MEASURE</b>	<b>N-1b: Provide liaison for construction nuisance complaints.</b> SDG&E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring receptors, including residents about noise construction disturbance. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with Mitigation Measure N-1a. SDG&E shall also establish a toll-free telephone number for receiving questions or complaints during construction and develop procedures for responding to callers (procedures to be approved by the CPUC).
<b>Location</b>	All project work areas
<b>Monitoring / Reporting Action</b>	Provide procedures for complaint resolution, and report complaints and resolution
<b>Effectiveness Criteria</b>	Evidence of resolved complaints
<b>Responsible Agency</b>	CPUC
<b>Timing</b>	During construction
<b>IMPACT N-3</b>	<b>Operation of the Transmission Line Would Cause Corona Noise (Class II)</b>
<b>MITIGATION MEASURE</b>	<b>N-3a: Achieve compliance with City of San Diego noise abatement code.</b> SDG&E shall prepare a noise assessment report for review by the City of San Diego Neighborhood Code Compliance Department and the CPUC. The report shall identify the transmission line location(s) where it would be adjacent to residences and for those locations, the configuration of the transmission line sections, the expected maximum corona noise levels at the edge of the ROW (in terms of L50 and Leq), and the locally applicable noise limits. SDG&E shall identify in the report whether any design features or changes in line configuration are available to reduce corona noise. The report shall be submitted to the City and the CPUC at least 90 days prior to commencing construction, and it shall include a request for a determination by the City of whether the project would comply with the local municipal code. Prior to commencing construction, SDG&E shall provide to the CPUC evidence of a successful determination of compliance from the local agency.



**Table D.8-3. Mitigation Monitoring Program – Noise and Vibration**

<b>Location</b>	Within City of San Diego
<b>Monitoring / Reporting Action</b>	Prepare noise assessment report and provide evidence of compliance from City of San Diego.
<b>Effectiveness Criteria</b>	Evidence of successful determination of compliance.
<b>Responsible Agency</b>	CPUC, City of San Diego
<b>Timing</b>	Prior to construction
<b>MITIGATION MEASURE</b>	<b>N-3b: Respond to complaints of corona noise.</b> SDG&E shall respond to third-party complaints of corona noise generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures. As part of SDG&E's repair inspection and maintenance program, the transmission line shall be patrolled, and damaged insulators or other transmission line materials, which could cause excessive noise, shall be repaired or replaced.
<b>Location</b>	Entire route
<b>Monitoring / Reporting Action</b>	Report complaints and resolution
<b>Effectiveness Criteria</b>	Evidence of resolved complaints
<b>Responsible Agency</b>	CPUC
<b>Timing</b>	During operating life

## D.8.7 References

- OPR. 1998. State of California, Governor's Office of Planning and Research. General Plan Guidelines. November.
- SDG&E. 2003. Response to CPUC Information Request. May 30.
- \_\_\_\_\_. 2002. Miguel-Mission 230 kV #2 Project: Proponent's Environmental Assessment (PEA). Prepared by Essex Environmental for SDG&E. Submitted to the California Public Utilities Commission, July 2002.
- U.S. EPA. 1974. U.S. Environmental Protection Agency. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." March.