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5.7 Noise

This section presents an assessment of potential noise effects related to the MREC. Section 5.7.1 discusses the fundamentals of acoustics. Section 5.7.2 describes the affected environment, including baseline noise level survey methodology and results. Section 5.7.3 presents an environmental analysis of the construction and operation of the power plant and associated facilities. Section 5.7.4 discusses cumulative effects. Section 5.7.5 discusses mitigation measures. Section 5.7.6 presents applicable LORS. Section 5.7.7 presents agency contacts, and Section 5.7.8 presents permit requirements and schedules. Section 5.7.9 contains the references used to prepare this section.

5.7.1 Fundamentals of Acoustics

Acoustics is the study of sound, and noise is defined as unwanted sound. Airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave. Acoustical terms used in this section are summarized in Table 5.7-1.

Table 5.7-1 Definitions of Acoustical Terms

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise or sound at a given location. The ambient level is typically defined by the Leq level.
Background Noise Level	The underlying ever-present lower level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level.
Intrusive	Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level as well as the sensitivity of the receiver. The intrusive level is generally defined by the L10 percentile noise level.
Sound Pressure Level Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
A-Weighted Sound Pressure Level (dBA)	The sound level in dBs as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent Noise Level (L_{eq})	The average A-weighted noise level, on an equal energy basis, during the measurement period.
Percentile Noise Level (Ln)	The noise level exceeded during n percent of the measurement period, where n is a number between 0 and 100 (e.g., L90)
Day-Night Noise Level (L_{dn} or DNL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 dB from 10:00 p.m. to 7:00 a.m.

The most common metric is the overall dBA measurement that has been adopted by regulatory bodies worldwide. The A-weighting network measures sound in a similar fashion to the way in which a person perceives or hears sound. In this way, it provides a good measure for evaluating acceptable and unacceptable sound levels.

dBA are typically measured or presented as L_{eq}, and is commonly used to measure steady-state sound or noise that is usually dominant. Statistical methods are used to capture the dynamics of a changing

acoustical environment. Statistical measurements are typically denoted by $L_{xx,}$ where xx represents the percentile of time the sound level is exceeded. The L_{90} is a measurement that represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, the L_{10} represents the noise level exceeded for 10 percent of the measurement period.

Some metrics used in determining the impact of environmental noise consider the differences in response that people have to daytime and nighttime noise levels. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to nighttime noise levels, the L_{dn} or DNL was developed. L_{dn} is a noise index that accounts for the greater annoyance of noise during the nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a 24-hour period, and apply a weighting factor to nighttime L_{eq} values. The weighting factor, which reflects the increased sensitivity to noise during nighttime hours, is added to each hourly L_{eq} sound level before the 24-hour L_{dn} is calculated. For the purposes of assessing noise, the 24-hour day is divided into two time periods, with the following weightings:

- Daytime: 7 a.m. to 10 p.m. (15 hours) Weighting factor of 0 dB
- Nighttime: 10 p.m. to 7 a.m. (9 hours) Weighting factor of 10 dB

The two time periods are then averaged to compute the overall L_{dn} value. For a continuous noise source, the L_{dn} value is easily computed by adding 6.4 dB to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from the power plant were 60.0 dBA, the resulting L_{dn} from the plant would be 66.4 dBA.

The effects of noise on people can be listed in the following three general categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise produces effects in the first two categories only. However, workers in industrial plants may experience noise effects in the last category. No completely satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is primarily due to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparing it to the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

Table 5.7-2 shows the relative A-weighted noise levels of common sounds measured in the environment and in industry for various sound levels.

Table 5.7-2 Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	dBA	Noise Environments	Subjective Impression
Shotgun (at shooter's ear)	140	Carrier flight deck	Painfully loud
Civil defense siren (100 feet)	130		
Jet takeoff (200 feet)	120		Threshold of pain
Loud rock music	110	Rock music concert	
Pile driver (50 feet)	100		Very loud

Table 5.7-2 Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	dBA	Noise Environments	Subjective Impression
Ambulance siren (100 feet)	90	Boiler room	
Pneumatic drill (50 feet)	80	Noisy restaurant	
Busy traffic; hair dryer	70		Moderately loud
Normal conversation (5 feet)	60	Data processing center	
Light traffic (100 feet); rainfall	50	Private business office	
Bird calls (distant)	40	Average living room, library	Quiet
Soft whisper (5 feet); rustling leaves	30	Quiet bedroom	
	20	Recording studio	
Normal breathing	10		Threshold of hearing

Source: Beranek, 1998.

5.7.2 Affected Environment

5.7.2.1 Local Land Use and Noise Sources

The MREC will be located on a 9.79-acre parcel in a designated industrial park that is currently used for recreational vehicle and boat storage and is zoned General Industrial (M3). Adjacent and nearby land uses include an asphalt plant and concrete recycling facility (operated by Granite Construction Company), agriculture, open space, an automobile dismantling and salvage facility, and an oil field operation support yard. The Todd Road Ventura County Jail is located approximately 0.18-mile to the northwest of the MREC site.

A caretaker dwelling is located approximately 941 feet to the east of the project site at the Canine Animal Rescue League's dog kennel. Two other dwellings are located approximately 1,125 feet to the northeast of the MREC site, adjacent to the asphalt plant and concrete recycling facility. Two of these three dwellings (R1b and R2) are non-conforming uses within the Mission Rock industrial area; one of the dwellings (R1a) is located within the designated Open Space zone bordering the General Industrial.

5.7.2.2 Ambient Noise Survey

Mission Rock conducted continuous ambient noise monitoring to determine the level of noise in the MREC area. Long-term (24 hours or more) measurements were collected at two locations (M1 and M2). Table 5.7-3 and Figure 5.7-1 describe the noise monitoring locations. Detailed measurement results for Location M1 and M2 are provided in Tables 5.7-4 and 5.7-5.

Table 5.7-3 Summary of Noise Survey Locations

Location Number	Location Description	Primary Noise Sources
M1	Northeast fence of asphalt plant	Heavy equipment, asphalt plant operations
M2	Caretaker dwelling for kennel	Dogs barking

Table 5.7-4 Summary of Measurements at M1 (dBA)

Date	Time	L_{eq}	L_{10}	L_{50}	L_{90}
2015-10-07	14:00:00	48.4	47.6	42.0	39.3
2015-10-07	15:00:00	49.6	49.8	45.0	41.5
2015-10-07	16:00:00	44.7	44.3	39.8	37.2
2015-10-07	17:00:00	45.2	42.8	38.6	36.1
2015-10-07	18:00:00	44.9	44.3	38.0	36.2
2015-10-07	19:00:00	43.1	40.5	38.9	37.5
2015-10-07	20:00:00	38.9	40.3	38.3	36.6
2015-10-07	21:00:00	39.8	41.2	38.9	37.0
2015-10-07	22:00:00	39.0	40.9	38.2	36.0
2015-10-07	23:00:00	39.2	41.4	38.2	35.4
2015-10-08	0:00:00	40.1	43.0	38.5	35.2
2015-10-08	1:00:00	39.6	42.4	37.8	35.1
2015-10-08	2:00:00	38.5	40.8	37.3	34.9
2015-10-08	3:00:00	40.1	42.4	39.0	36.5
2015-10-08	4:00:00	42.9	45.3	42.0	38.3
2015-10-08	5:00:00	50.2	53.8	47.6	43.4
2015-10-08	6:00:00	55.4	56.6	54.7	53.3
2015-10-08	7:00:00	54.8	56.6	54.0	52.4
2015-10-08	8:00:00	54.2	56.1	53.8	51.5
2015-10-08	9:00:00	53.0	54.6	52.7	50.7
2015-10-08	10:00:00	53.0	54.0	51.5	47.6
2015-10-08	11:00:00	51.2	53.1	48.6	43.2
2015-10-08	12:00:00	51.6	52.7	50.6	48.6
2015-10-08	13:00:00	45.4	47.6	42.3	39.3
2015-10-08	14:00:00	49.5	49.0	42.3	40.1

Table 5.7-5 Summary of Measurements at M2 (dBA)

Date	Time	L_{eq}	L_{10}	L_{50}	L_{90}
2015-10-07	14:00:00	55.3	57.1	47.5	42.1
2015-10-07	15:00:00	55.2	57.9	48.6	44.5
2015-10-07	16:00:00	54.6	57.1	49.7	45.0
2015-10-07	17:00:00	53.5	56.4	48.6	41.2
2015-10-07	18:00:00	53.9	57.2	46.6	40.3
2015-10-07	19:00:00	56.1	61.6	45.8	38.4
2015-10-07	20:00:00	56.3	61.8	46.8	40.4
2015-10-07	21:00:00	63.2	62.9	48.8	38.5
2015-10-07	22:00:00	57.7	62.8	49.3	43.2
2015-10-07	23:00:00	53.5	57.9	47.0	43.0
2015-10-08	0:00:00	49.4	52.5	45.2	40.7

Table 5.7-5 Summary of Measurements at M2 (dBA)

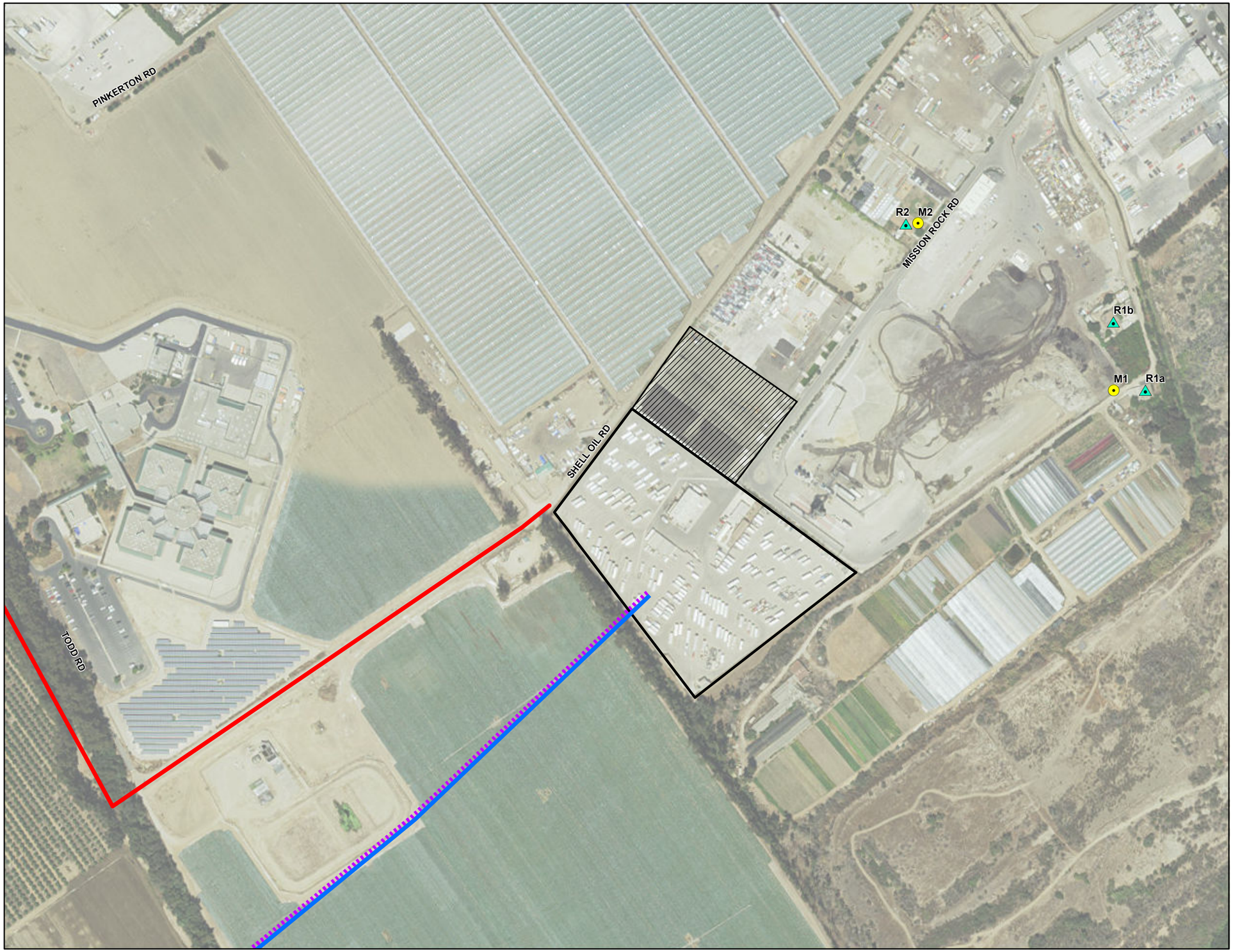
Date	Time	L_{eq}	L_{10}	L_{50}	L_{90}
2015-10-08	1:00:00	46.9	49.0	44.5	40.6
2015-10-08	2:00:00	46.3	48.0	44.0	41.0
2015-10-08	3:00:00	47.1	49.9	44.9	40.4
2015-10-08	4:00:00	50.5	52.7	49.8	46.1
2015-10-08	5:00:00	56.4	60.0	54.0	49.2
2015-10-08	6:00:00	59.6	62.9	57.6	54.3
2015-10-08	7:00:00	59.2	62.4	57.2	54.5
2015-10-08	8:00:00	59.6	62.6	57.3	53.8
2015-10-08	9:00:00	56.6	60.1	53.8	48.9
2015-10-08	10:00:00	56.1	60.0	51.0	46.3
2015-10-08	11:00:00	58.4	61.3	53.4	47.5
2015-10-08	12:00:00	56.3	59.6	52.6	47.0
2015-10-08	13:00:00	55.4	58.8	49.6	43.3
2015-10-08	14:00:00	54.9	59.4	48.5	41.8
2015-10-08	15:00:00	54.0	57.8	48.9	41.1

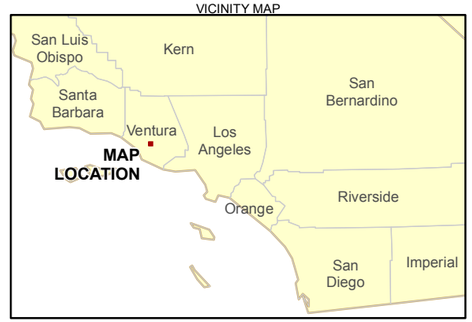
Larson Davis 831 ANSI Type 1 (precision) statistical sound level meters were used to conduct the continuous measurements. The sound level meters were field calibrated before and after the measurement with a Larson Davis CAL200 and were factory calibrated within the previous 24 months. Weather conditions during the noise survey were clear and sunny, the temperature ranged from approximately 60 to 90°F and the relative humidity varied between 25 and 85 percent.

Overall summary statistics of the monitoring results at M1 and M2 are presented in Table 5.7-6

Table 5.7-6 Overall Sound Level Summary Statistics, Monitoring Locations (dBA)

Parameter	M1	M2
L_{eq} (day)	50	57
L_{eq} (night)	48	54
L_{dn}	55	61
CNEL	55	62





LEGEND

- Existing Residential Use
- Sound Monitoring Locations
- Project Site
- Laydown Area
- Natural Gas Pipeline Route
- Generator Tie-Line
- Process Water Supply Line

N

0 150 300

Feet

Figure 5.7-1
Sound Monitoring Locations
Mission Rock Energy Center
Ventura County, California

5.7.3 Environmental Analysis

Noise will be produced during the construction and operation of the project. Potential noise impacts from construction and operation activities are assessed in this subsection.

5.7.3.1 Significance Criteria

Following the CEQA guidelines (CCR, Title 14, Appendix G, Section XI), the MREC would cause a significant impact if it would result in the following:

- Exposure of people to noise levels in excess of standards established in the local General Plan or noise ordinance
- Exposure of people to excessive ground-borne noise levels or vibration
- Substantial permanent increase in ambient noise levels in the project vicinity
- Substantial temporary or periodic increase in ambient noise levels in the project vicinity

Generally, the design basis for noise control is the minimum, or most stringent, noise level required by any of the applicable LORS. Therefore, noise from the project is evaluated against Ventura County's requirements. The County has established guidelines for determining appropriate noise levels for various land uses in the Noise Element of its General Plan.

The CEC has previously stated that an increase in background noise levels up to 5 dBA in a residential setting is insignificant; an increase of more than 10 dBA is generally considered significant; and an increase between 5 and 10 dBA may be either significant or insignificant, depending on the particular circumstances of the project.

The CEC also has concluded that construction noise is typically insignificant if the construction activity is temporary, use of heavy equipment and noisy activities is limited to daytime hours, and all feasible noise abatement measures are implemented for noise-producing equipment.

5.7.3.2 Construction Impacts

Plant Construction Noise

Construction of the MREC is expected to be typical of other power plants in terms of schedule, equipment used, and other types of activities. The noise level will vary during the construction period, depending on the construction phase. Construction of power plants can generally be divided into five phases that use different types of construction equipment. The five phases are demolition, site preparation, and excavation; concrete pouring; steel erection; mechanical; and clean-up (Miller et al., 1978).

The EPA Office of Noise Abatement and Control and the Empire State Electric Energy Research Company have extensively studied noise from individual pieces of construction equipment, as well as from construction sites of power plants and other types of facilities (EPA, 1971; Barnes et al., 1976). Because specific information on types, quantities, and operating schedules of construction equipment is not available at this point in the MREC development, information from these documents for similarly sized industrial projects will be used. Use of these data, which are more than 30 years old, is conservative because the evolution of construction equipment has been toward quieter designs to protect operators from exposure to high noise levels.

The loudest equipment types generally operating at a site during each phase of construction are presented in Table 5.7-7. The composite average or equivalent site noise level, representing noise from all equipment, also is presented for each phase.

Table 5.7-7 Construction Equipment and Composite Site Noise Levels

Construction Phase	Loudest Construction Equipment	Equipment Noise Level (dBA) at 50 feet	Composite Site Noise Level (dBA) at 50 feet
Demolition, Site Clearing, and Excavation	Dump Truck Backhoe	91 85	89
Concrete Pouring	Truck Concrete Mixer	91 85	78
Steel Erection	Derrick Crane Jack Hammer	88 88	87
Mechanical	Derrick Crane Pneumatic Tools	88 86	87
Cleanup	Rock Drill Truck	98 91	89

Source: EPA, 1971; Barnes et al., 1976.

Average or equivalent construction noise levels projected at various distances from the MREC are presented in Table 5.7-8. These results are conservative because the only attenuating mechanism considered was divergence of the sound waves in open air. The noisiest construction activities will be confined to the daytime hours. Table 5.7-9 presents noise levels from common construction equipment at various distances.

Table 5.7-8 Average Construction Noise Levels at Various Distances

	Sound Pressure Level (dBA)		
Construction Phase	375 feet	1,500 feet	3,000 feet
Demolition, Site Clearing, and Excavation	71	59	53
Concrete Pouring	60	48	42
Steel Erection	69	57	51
Mechanical	69	57	51
Clean-Up	71	59	53

Table 5.7-9 Noise Levels from Common Construction Equipment at Various Distances

Construction Equipment	Typical Sound Pressure Level at 50 feet (dBA)	Typical Sound Pressure Level at 375 feet (dBA)	Typical Sound Pressure Level at 1,500 feet (dBA)
Pile Drivers (20,000-32,000 ft-lbs/blow)	104	86	74
Dozer (250-700 hp)	88	70	58
Front End Loader (6-15 cubic yards)	88	70	58
Trucks (200-400 hp)	86	68	56
Grader (13 to 16 feet blade)	85	67	55
Shovels (2-5 cubic yards)	84	66	54
Portable Generators (50-200 kW)	84	66	54

Table 5.7-9 Noise Levels from Common Construction Equipment at Various Distances

Construction Equipment	Typical Sound Pressure Level at 50 feet (dBA)	Typical Sound Pressure Level at 375 feet (dBA)	Typical Sound Pressure Level at 1,500 feet (dBA)
Derrick Crane (11-20 tons)	83	65	53
Mobile Crane (11-20 tons)	83	65	53
Concrete Pumps (30-150 cubic yards)	81	63	51
Tractor (3/4 to 2 cubic yards)	80	62	50
Unquieted Paving Breaker	80	62	50
Quieted Paving Breaker	73	55	43

ft-lbs/blow = foot pounds per blow

Noise generated during the testing and commissioning phase of the project is not expected to be substantially different from that produced during normal full-load operation. Starts and abrupt stops are more frequent during this period, but they are usually short lived.

Construction Vibration

Construction vibrations can be divided into three classes, based on the wave form and its source (see Table 5.7-10). If pile driving is required, it will be limited to normal construction hours (during the daytime) and will be of short duration.

Table 5.7-10 Construction Vibrations

Wave Form	Example Source
Impact	Impact pile driver or blasting
Steady state	Vibratory pile driver
Pseudo steady state	Double acting pile hammer

Worker Exposure to Noise

Worker exposure levels during construction of the MREC will vary depending on the phase of the MREC and the proximity of the workers to the noise-generating activities. The MREC will develop a Hearing Protection Plan, which complies with Cal-OSHA requirements. This Hearing Protection Plan will be incorporated into the MREC construction Health and Safety Plan. The plan will require appropriate hearing protection for workers and visitors throughout the duration of the construction period.

5.7.3.3 Operational Impacts

Worker Exposure

Nearly all components will be specified not to exceed near-field maximum noise levels of 90 dBA at 3 feet (or 85 dBA at 3 feet where available as a vendor standard). Because there are no permanent or semi-permanent workstations located near any piece of noisy plant equipment, no worker's time-weighted average exposure to noise should routinely approach the level allowable under OSHA 1970 guidelines. Nevertheless, signs requiring the use of hearing protection devices will be posted in all areas where noise levels commonly exceed 85 dBA, such as inside acoustical enclosures, and the MREC will comply with applicable Cal-OSHA requirements. Outdoor levels throughout the plant will typically range from 90 dBA near certain equipment to roughly 65 dBA in areas more distant from any major noise source. Therefore, noise impacts to workers during operation will be less than significant.

Transmission Line and Switchyard Noise Levels

One of the electrical effects of high-voltage transmission lines is corona. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. Corona is generally a principle concern with transmission lines of 345 kV and greater and with lines that are at higher elevations. Corona noise is also generally associated with foul weather conditions. As stated in Section 3, the MREC will be connected at 230-kV voltage level and it is expected that no corona-related design issues will be encountered, and any related impacts will be less than significant.

Plant Operational Noise Levels

A preliminary noise model of the proposed MREC has been developed. The sound propagation factors used in the model have been adopted from ISO 9613-2 *Acoustics - Sound Attenuation during Propagation Outdoors* (ISO, 1996). The model divides the proposed facility into a list of individual noise sources representing each piece of equipment that produces a significant amount of noise. Using these sound power levels as a basis, the model calculates the sound pressure level that would occur at each receptor from each source after losses from distance, air absorption, blockages, etc. are considered. The sum of all these individual levels is the total plant level at the modeling point.

The dBA power levels for the major noise sources used in the model are summarized in Table 5.7-11. The specific equipment to be used at the plant has not yet been determined. Therefore, typical noise levels for equipment associated with LM6000 peaker plants have been assumed and an allowance was made for additional battery storage equipment sound emissions.

Table 5.7-11 Summary of Sound Power Levels Used to Model MREC Plant Operations

Plant Component	Sound Power Level (dBA)
Stacks	101
LM6000 CTG	112
Fuel Gas Compressors	112
Generator Step-up Transformers	93
SCR Duct Walls	102
Chiller	101
Battery Storage Equipment	93

As discussed in Section 5.7.6.3, the County's policies limit noise to the greater of a fixed level during the day, evening or nighttime period (55, 50 or 45 dBA, respectively) or a 3 dBA increase over the existing level for noise generators proposed to be located near a noise sensitive use. Noise sensitive uses include residential, educational, and health facilities, research institutions, certain recreational, and entertainment facilities, and churches, but do not include commercial and industrial facilities. It is not clear from the County's policies whether isolated and non-conforming residences located in industrial, and not residential zones, constitute a noise sensitive use, or what distance from a noise generator to a potential noise sensitive use constitutes "near", particularly where there are other noise generators between the two uses. In any case, noise from the MREC, with additional noise control incorporated in the design, will not exceed 49 dBA in the vicinity of M1 or 60 dBA at M2, and will comply with Ventura County's day, evening and nighttime guidelines. Table 5.7-12 presents an analysis of the measured existing sound levels and the County guidelines.

Table 5.7-12 Existing Sound Levels in Relation to County Guidelines

Map ID	Description	Day	Evening	Night
M1	Existing Hourly, L_{eq} (dBA)	55	43	55
	3 dBA Increase over Existing	58	46	58
	Fixed Limit	55	50	45
	Greater of Fixed or 3 dBA Increase	*58*	*50*	*58*
	Allowed Plant Contribution	*55*	*49*	*55*
M2	Existing Hourly, L_{eq} (dBA)	60	63	60
	3 dBA Increase over Existing	63	66	63
	Fixed Limit	55	50	45
	Greater of Fixed or 3 dBA Increase	*63*	*66*	*63*
	Allowed Plant Contribution	*60*	*63*	*60*

The evening criterion is controlling for M1, as the existing evening sound levels did not exceed the fixed limit, the 50 dBA fixed limit is applicable. At M1, a project level of 49 dBA combined with the existing level of 43 dBA results in 50 dBA. At M2, the existing sound level exceeds the fixed criteria for all periods. To comply with the 3 dBA increase criteria, the allowed project level is equivalent to the existing level. That is, a project level of 60 dBA combined with an existing level of 60 dBA results in 63 dBA at M2.

As a simple-cycle peaking power plant, the MREC will be likely to operate mostly during times of very high electrical load, when baseload plants are not operating, when balancing renewables is necessary, or during emergency conditions. The most common times of operation will likely be afternoons during hot weather episodes. Nighttime operation of MREC, while it may occur, will be relatively rare and full-load nighttime operation will be even less frequent.

Several design elements may be necessary to control noise emissions to meet the anticipated project noise limits. The specific types of noise control will be determined during the detailed project design phase. Potential noise control measures include the following:

- Increasing combustion turbine air inlet and ventilation silencing
- Additional noise barriers at specific locations on the property line or near equipment (such as the SCR inlet, expansion joint or various equipment skids)
- Increasing stack silencing
- Shroud for the SCR
- Increasing the thickness of the SCR plate steel
- Low noise fans and motors
- Silencers, barriers, lagging, and partial or full enclosures for auxiliary equipment

Tonal Noise

At the nearby residential locations, no significant tones are anticipated. That is not to say that audible tones are impossible—certain sources within the plant, such as the combustion turbine inlets, transformers, pump motors, and cooling tower fan gearboxes, have been known to sometimes produce

significant tones. Mission Rock will anticipate the potential for audible tones in the final design and specification of the plant's equipment and take necessary steps to prevent sources from emitting tones that might be disturbing at the nearest receptors.

Ground and Airborne Vibration

Similar simple-cycle facilities have not resulted in ground or airborne vibration impacts. The MREC is primarily driven by gas turbines exhausting into a SCR duct and a stack silencer. These large ducts reduce low-frequency noise, which is the main source of airborne-induced vibration of structures. It is the Applicant's intention to anticipate the potential for low-frequency noise in the design and specification of the project equipment and take necessary steps to prevent ground or airborne vibration impacts.

The equipment that will be used in the MREC is well-balanced and is designed to produce very low vibration levels throughout the life of the project. An imbalance could contribute to ground vibration levels in the vicinity of the equipment. However, vibration-monitoring systems installed in the equipment are designed to ensure that the equipment remains balanced. Should an imbalance occur, the event would be detected and the equipment would automatically shut down. Given these protective measures, impacts related to ground and airborne vibrations will be less than significant.

5.7.4 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (PRC§ 21083; CCR, Title 14, §§15064[h], 15065[c], 15130, and 15355).

The MREC will involve the construction and operation of a new electric generation facility on a parcel zoned for General Industrial uses which will be consistent with other uses within the Existing Community designation. There are no other pending projects whose operation is expected to result in additional noise in the immediate area. For these reasons, the MREC will not cause a significant cumulative noise impact.

5.7.5 Mitigation Measures

Mission Rock proposes to implement the following measures to minimize any potential noise impacts of the MREC.

5.7.5.1 Noise Hot Line

Mission Rock will establish a telephone number for use by the public to report any significant undesirable noise conditions associated with the construction and operation of the MREC. If the telephone is not staffed 24 hours per day, Mission Rock will include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number will be posted at the MREC site during construction in a manner visible to passersby. This telephone number will be maintained until the MREC has been operational for at least 1 year.

5.7.5.2 Noise Complaint Resolution

Throughout the construction and operation of the MREC, Mission Rock will document, investigate, evaluate, and attempt to resolve all legitimate MREC-related noise complaints.

Mission Rock or the authorized agent will take the following actions in the event of an MREC-related noise complaint:

- Use the Noise Complaint Resolution Form typically suggested by CEC or functionally equivalent procedure to document and respond to each noise complaint.
- Attempt to contact the person(s) making the noise complaint within 24 hours.

- Conduct an investigation to attempt to determine the source of noise related to the complaint.
- If the noise complaint is legitimate, take all feasible measures to reduce the noise at its source.

5.7.5.3 Construction Hours

Noisy construction or demolition work (that which causes offsite annoyance as evidenced by the filing of a legitimate noise complaint) will be restricted to Monday through Friday from 7 a.m. to 7:00 p.m., and Saturdays, Sundays, and holidays from 9:00 a.m. to 7:00 p.m.

Haul trucks and other engine-powered equipment will be equipped with adequate mufflers. Haul trucks will be operated in accordance with posted speed limits. Truck engine exhaust brake use will be limited to emergencies.

5.7.6 Laws, Ordinances, Regulations, and Standards

Table 5.7-13 presents the LORS that apply to noise.

Table 5.7-13 LORS for Noise

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Federal			
EPA	Guidelines for state and local governments	EPA	5.7.6.1.1
OSHA 1970	Exposure of workers over 8-hour shift limited to 90 dBA	OSHA	5.7.6.1.2
State			
Cal-OSHA, 8 CCR Article 105 Sections 095 et seq.	Exposure of workers over 8-hour shift limited to 90 dBA	Cal-OSHA	5.7.6.2.1
CVC Sections 23130 and 23130.5	Regulates vehicle noise limits on California highways	Caltrans, CHP, and the County Sheriff's Office	5.7.6.2.2
Local			
California Government Code Section 65302	Requires local government to prepare plans that contain noise provisions	California OPR	5.7.6.3
County of Ventura General Plan	The General Plan provides quantitative compatibility goals and policy	County of Ventura	5.7.6.3

5.7.6.1 Federal LORS

EPA

Guidelines are available from EPA (1974) to assist state and local government entities in development of state and local LORS for noise. Because there are local LORS that apply to this MREC, these guidelines are not applicable.

OSHA

Onsite noise levels are regulated through OSHA. The noise exposure level of workers is regulated at 90 dBA, over an 8-hour work shift to protect hearing (29 CFR 1910.95). Onsite noise levels will generally be in the 70- to 85-dBA range. Areas above 85 dBA will be posted as high noise level areas and hearing

protection will be required. The power plant will implement a hearing conservation program for applicable employees and maintain exposure levels below 90 dBA.

5.7.6.2 State LORS

Cal-OSHA

The California Department of Industrial Relations, Division of Occupational Safety and Health enforces Cal-OSHA regulations, which are the same as the federal OSHA regulations described previously. The regulations are contained in Title 8 of the CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Sections 5095, et seq.

California Vehicle Code

Noise limits for highway vehicles are regulated under the CVC, Sections 23130 and 23130.5. The limits are enforceable on the highways by the CHP and the County Sheriff offices.

5.7.6.3 Local LORS

The California State Planning Law (California Government Code Section 65302) requires that all cities, counties, and entities (such as multi-city port authorities) prepare and adopt a General Plan to guide community development. The County of Ventura General Plan Goals, Policy and Programs (September, 2015) establishes policy 2.16.2.1(4) that identifies the following sound level limits from noise generators located near a noise sensitive use in terms of 1 hour L_{eq} at the noise sensitive location:

> 55 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
>
> 50 dBA or ambient noise level plus 3dBA, whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.
>
> 45 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

While the General Plan does not directly establish construction noise requirements, Policy 2.16.2.1(5) states that:

> Construction noise shall be evaluated and, if necessary, mitigated in accordance with the County Construction Noise Threshold Criteria and Control Plan.

Ventura County's Construction Noise Threshold Criteria and Control Plan (2010) acknowledges that "specific construction noise limits for noise-sensitive locations are not currently specified in the General Plan or administrative code of the County of Ventura. This document, therefore, is intended to establish construction noise thresholds and standard noise monitoring and control measures."

For construction activity lasting 8 weeks or more, the following thresholds are established terms of 1 hour L_{eq} at noise-sensitive locations:

> 55 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
>
> 50 dBA or ambient noise level plus 3dBA, whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.
>
> 45 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

Short duration events are permitted as follows:

- Daytime – instantaneous maximum sound level (L_{max}) shall not exceed the limit (55 dBA L_{eq1h} or ambient plus 3 dBA) by 20 dBA more than eight times per daytime hour
- Evening – instantaneous L_{max} shall not exceed the limit (50 dBA L_{eq1h} or ambient plus 3 dBA) by 20 dBA more than six times per daytime hour
- Nighttime – instantaneous L_{max} shall not exceed the limit (45 dBA L_{eq1h} or ambient plus 3 dBA) by 20 dBA more than four times per daytime hour

5.7.7 Agencies and Agency Contacts

No agencies were contacted directly to specifically discuss project noise.

5.7.8 Permits and Permit Schedule

No permits are required; therefore, there is no permit schedule.

5.7.9 References

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