

---

**SAN DIEGO GAS & ELECTRIC COMPANY  
EAST COUNTY SUBSTATION PROJECT  
BLASTING PLAN**

---

**PREPARED  
NOVEMBER 12, 2012**

PREPARED BY:



PREPARED FOR:





**TABLE OF CONTENTS**

**1 – INTRODUCTION..... 1**  
**2 – OBJECTIVES ..... 1**  
**3 – APPLICABLE REGULATIONS ..... 1**  
**4 – MITIGATION MEASURE..... 2**  
**5 – MEASURE IMPLEMENTATION ..... 4**  
    5.0 Blasting Subcontractor.....4  
    5.1 Site-specific Blasting Plan .....4  
    5.2 Blast Noise and Vibration.....5  
    5.3 Notifications and Public Liaison.....6  
    5.4 Record Keeping .....6  
**6 – REFERENCES..... 6**



## **1 – INTRODUCTION**

This Blasting Plan (Plan) describes how San Diego Gas & Electric Company's (SDG&E's) Construction Contractor, Beta Engineering California LP (Beta), and its subcontractors plan to reduce impacts associated with construction-related noise and vibrations from blasting. The East County (ECO) Substation Project (Project) involves the construction of a new 500/230/138 kilovolt (kV) ECO Substation, rebuild of the Boulevard Substation in a new location, and construction of an approximately 14-mile-long 138 kV transmission line, consisting of overhead and underground segments in southeastern San Diego County (County).

This Plan was prepared in accordance with Mitigation Measures (MMs) NOI-1, NOI-4, and HAZ-4b of the Mitigation, Monitoring, Compliance, and Reporting Program (MMCRP) for the Project, which includes guidelines for reducing impacts associated with construction-related noise, vibrations, and other potential hazards associated with blasting.

Construction of the ECO Substation is anticipated to require approximately 16 months to complete, while construction of the 138 kV transmission line and the Boulevard Substation rebuild and demolition of the existing substation would each require approximately 14 months. This Plan pertains to all Project construction sites where blasting may be necessary during construction.

## **2 – OBJECTIVES**

The purpose of this Plan is to support compliance with the MMCRP in the event that blasting is conducted during construction. The blasting practices in this Plan are intended to accomplish the following objectives:

- Reduce impacts associated with construction-related noise and vibrations related to blasting.
- Maintain consistency with MMs NOI-1, NOI-4 and HAZ-4b, as well as with relevant County ordinances.
- Restrict the use of explosives to assist with the excavation of rock near areas zoned for occupied parcels or agricultural use.
- Provide procedures for conducting a pre-blast survey and preparing a site-specific blasting plan.

## **3 – APPLICABLE REGULATIONS**

The following regulations establish minimum standards for the manufacture, assembly, possession, storage, transportation, repacking and distribution, and use of explosive materials at places of employment:

- California Occupational Safety and Health Standards Title 8, Group 18 “Sections 5236-5374”

- California Department of Transportation Standard Specifications “Sections 7-10, 19-2.03”
- Title 3, Divisions 5, Chapter III of the County Code of Regulatory Ordinances, “Section 35.377.101-35.377.306”

## 4 – MITIGATION MEASURE

### MM NOI-1: Blasting Plan

“SDG&E will prepare a blasting plan that will reduce impacts associated with construction-related noise and vibrations related to blasting. The blasting plan will be site specific, based on general and exact locations of required blasting and the results of a project-specific geotechnical investigation. The blasting plan will include a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and calculations to determine the area affected by the planned blasting. Noise calculations in the blasting plan will account for blasting activities and all supplemental construction equipment. The final blasting plan and pre-blast survey shall meet the requirements provided below, as well as those outlined in Mitigation Measure HAZ-4b.

The blasting plan will include a schedule to demonstrate, where feasible, construction blasting to occur infrequently enough that it will not exceed the County’s impulsive noise standard because blasting would not occur for more than 25% (15 minutes) during a 1-hour period due to the short time duration of a blast. Where this is not possible, other construction blasting would be coordinated with impacted building occupants to occur in their absence, or at other acceptable times, to avoid nuisance or annoyance complaints. If necessary, the applicant will temporarily relocate impacted residents on an as-needed basis for the duration of the blasting activities. The applicant will be responsible for temporary relocation expenses (i.e.; expenses for temporary housing) incurred by impacted residents if relocation is necessary during blasting activities. To ensure that potentially impacted residents are informed, the applicant will provide notice by mail to all property owners within 300 feet of the project at least 1 week prior to the start of construction activities.

Blasting would be completed between 7 a.m. and 7 p.m. to be compliant with County of San Diego noise ordinances.

A rock anchoring or min-pile system may be used to reduce the risk of damage to structures during blasting activities. Fair compensation for lost use will be provided to the property owner. Physical damage to potentially vulnerable structures will be addressed by avoiding construction blasting near the structures wherever possible, and, if necessary, non-blasting construction methods will be evaluated. If adversely affected, structures shall be restored to an equivalent condition, and fair compensation for lost use will be provided to the owner.

If necessary, the use of portable noise barriers to reduce excessive noise impacts shall be used between the source and affected occupied properties. Noise barriers that break the line of sight would provide 5 dB attenuation. Increasing the height of the barrier would increase the attenuation of the barrier. A 5 dBA to 10 dBA attenuation is considered reasonably feasible.

Supplemental construction equipment, such as drill rigs, may be used to support blasting. At a distance of 80 feet, drill rig noise emissions are approximately 75 DBA <sub>LEQ</sub>. Drill rigs, without mitigation, have the potential to cause temporary noise impacts if used less than 80 feet from the property line of an occupied residence. The blasting plan will include measures to reduce noise impacts resulting from the use of drill rigs at less than 80 feet from a property line. Such measures may include temporary noise barriers or limited hours of operation to reduce the impact to within the County standard.”

#### **MM ECO-NOI-4**

“The use of explosives to assist with the excavation of rock will be prohibited within 600 feet of the boundary of any occupied parcels zoned for residential use and within 430 feet of the boundary of any occupied parcels zoned for agricultural use. If the use of explosives cannot be avoided in these locations, SDG&E will temporarily relocate the impacted occupants on an as-needed basis for the duration of the explosive use in their locations.”

#### **MM HAZ-4b: Blasting Plan**

“If blasting is deemed necessary for the construction of project components, SDG&E shall conduct a pre-blast survey and prepare a blasting plan. A written report of the pre-blast survey and final blasting plan shall be provided to the appropriate regulatory agency and approved prior to any rock removal using explosives. In addition to any other requirements established by the appropriate regulatory agencies, the pre-blast survey and blasting plan shall meet the following conditions, as well as those outlined in Mitigation Measure NOI-1:

- The pre-blast survey shall be conducted for structures within a minimum radius of 1,000 feet from the identified blast site to be specified by SDG&E. Sensitive receptors that could reasonably be affected by blasting shall be surveyed as part of the pre-blast survey. Notification that blasting would occur shall be provided to all owners of the identified structures to be surveyed prior to commencement of blasting. The pre-blast survey shall be included in the final blasting plan.
- The final blasting plan shall address air-blast limits, ground vibrations, and maximum peak particle velocity for ground movement, including provisions to monitor and assess compliance with the air-blast, ground vibration, and peak particle velocity requirements. The blasting plan shall meet criteria established in Chapter 3 (Control of Adverse Effects) in the Blasting Guidance Manual of the U.S. Department of Interior Office of Surface Mining Reclamation and Enforcement.

- The blasting plan shall outline the anticipated blasting procedures for the removal of rock material at the proposed turbine foundation locations. The blasting procedures shall incorporate line control to full depth and controlled blasting techniques to create minimum breakage outside the line control and maximum rock fragmentation within the target area. Prior to blasting, all applicable regulatory measures shall be met. SDG&E, or its subcontractor (as appropriate) shall keep a record of each blast for at least 1 year from the date of the last blast.”<sup>1</sup>

## **5 – MEASURE IMPLEMENTATION**

### **5.0 BLASTING SUBCONTRACTOR**

If blasting is required, SDG&E will submit the following information to the CPUC seven days prior to blasting:

- Blasting Subcontractor Name and Address
- Certificate of Liability Insurance
- Licensed Blaster Credentials
- Contact Person for Project Blasting
- Blast Plan Designer Contact Information
- Safety Officer Contact Information
- Local Fire and Law Enforcement Agencies Responsible for Project Blasting
- Explosives Storage Plan
- Subcontractor’s Blasting Procedures
- Material Safety Data Sheets and Manufacturer Data Sheets for Explosives
- Demonstration of Capability

### **5.1 SITE-SPECIFIC BLASTING PLAN**

In addition, to the items addressed in Section 5 – Measure Implementation, a site-specific Blasting Plan will be prepared and submitted to the CPUC seven days prior to conducting blasting activities. The site-specific blasting plan will be prepared in compliance with Chapter 3 (Control of Adverse Effects) in the Blasting Guidance Manual of the U.S. Department of Interior Office of Surface Mining Reclamation and Enforcement, and will address the following:

- The locations of the proposed blasting
- A description of the planned blasting methods
- A pre-blast survey of receptors structures within a minimum radius of 1,000 feet from the identified blast site, along with other sensitive receptors that could reasonably be affected by blasting

---

<sup>1</sup> No turbine foundations are included as part the ECO Substation Project.



- Calculations to determine the area affected by the planned blasting in accordance with the County of San Diego Ordinance No. 9962 and the “County of San Diego Guidelines for Determining Significance- Noise,” dated January 27, 2009.
- Noise calculations associated with blasting activities and all supplemental construction equipment that demonstrate, where feasible, construction blasting to occur infrequently enough that it will not exceed the County’s impulsive noise standard because blasting will not occur for more than 25 percent (15 minutes) during a one-hour period due to the short time duration of a blast. If this is not possible, the Plan will discuss coordination of blasting to occur in absence of residents, or at other acceptable times, to avoid nuisance or annoyance complaints.
- Air-blast limits, ground vibrations, and maximum peak particle velocity for ground movement, including provisions to monitor and assess compliance with the air-blast, ground vibration, and peak particle velocity requirements.
- Procedures to address line control to full depth and controlled blasting techniques to create minimum breakage outside the line control and maximum rock fragmentation within the target area.
- Measures to reduce noise impacts resulting from the use of drill rigs at less than 80 feet from a property line. These measures may include temporary noise barriers or limited hours of operation to reduce the impact to within the County standard.
- Verification that explosives are not being proposed for use within 600 feet of the boundary of any occupied parcels zoned for residential use and/or within 430 feet of the boundary of any occupied parcels zoned for agricultural use. In the event that blasting activities are proposed within the aforementioned distances, SDG&E will provide verification to the CPUC that occupants were relocated during blasting activities, in accordance with applicant-proposed measure ECO-NOI-4.

## 5.2 BLAST NOISE AND VIBRATION

To reduce impacts related to noise, blasting would be completed between 7 a.m. and 7 p.m. in compliance with County noise ordinances.

In addition, a rock-anchoring or min-pile system may be used to reduce the risk of damage to structures during blasting activities. If damage to structures occurs, fair compensation for lost use will be provided to the property owner. Physical damage to potentially vulnerable structures will be addressed by avoiding construction blasting near the structures wherever possible, and if necessary, non-blasting construction methods will be evaluated. If adversely affected, structures will be restored to an equivalent condition, and fair compensation for lost use will be provided to the owner.

If necessary, the use of portable noise barriers to reduce excessive noise impacts will be used between the source and affected occupied properties. Noise barriers that break the line of sight would provide 5 A-weighted decibel (dBA) attenuation. Increasing the height of the barrier would

increase the attenuation of the barrier. A 5 to 10 dBA attenuation is considered reasonably feasible.

Blasting will be prohibited within 600 feet of the boundary of any occupied parcels zoned for residential use, and within 430 feet of the boundary of any occupied parcels zoned for agricultural use. If the use of explosives cannot be avoided in these locations, SDG&E will temporarily relocate the impacted occupants on an as-needed basis for the duration of the explosive use in their locations.

### **5.3 NOTIFICATIONS AND PUBLIC LIAISON**

As stated in the Project's Construction Notification Plan (CNP), SDG&E will provide a public liaison and a toll-free hotline number for responding to concerns of neighboring property owners related to construction disturbances. Contact information for the public liaison will be included in the construction notices sent to all property owners (occupied and unoccupied) within 1,000 feet of Project component locations, as required by MM LU-1 and the CNP. Verification of mailings to all property owners within 1,000 feet of blasting activities will be provided to the CPUC prior to the start of construction.

### **5.4 RECORD KEEPING**

SDG&E will keep a record of each blast for a period of at least one year from the date of the last blast that is conducted for the Project. These records will be available to the CPUC upon request.

## **6 – REFERENCES**

County of San Diego. Zoning Ordinance. Online.  
<http://www.sdcounty.ca.gov/dplu/zoning/index.html>.

County of San Diego Ordinance No. 9962. Online.  
<http://www.sdcounty.ca.gov/pds/ce5/Noise.html>.