# SAN RAFAEL ROCK QUARRY VIBRATION REPORT

**Location:** PB-7  
**Max. Charge Weight:** 400  
**Date of Blast:** 3.13.14  
**Northing:** 37°52'15" N  
**Time of Blast:** 12:09  
**Easting:** 112°21'07" W  
**Blast Number:** 5811

<table>
<thead>
<tr>
<th>Seismograph Information</th>
<th>UNIT #1</th>
<th>UNIT #2</th>
<th>UNIT #3</th>
<th>UNIT #4</th>
<th>UNIT #5</th>
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<tr>
<td>Seismograph Model</td>
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<td>Serial Number</td>
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<td>Last Calibration Date</td>
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## LOCATION INFORMATION

- **Location:** Main Rd - Via Bantelbeh, Cap flour, 3rd W (West Peak)
- **Northing:** 37°52'15" N  
- **Easting:** 112°21'07" W  
- **Distance from Blast:** 1.531  
- **Scaled Distance:** 76  

## VIBRATION INFORMATION

- **Longitudinal Peak Particle Velocity (ips):**  
- **Transverse Peak Particle Velocity (ips):**  
- **Vertical Peak Particle Velocity (ips):**  
- **Longitudinal Peak Frequency (Hz):**  
- **Transverse Peak Frequency (Hz):**  
- **Vertical Peak Frequency (Hz):**  
- **Peak Vector Sum (ips):**  
- **Peak Air Overpressure (db):**  

## GENERAL COMMENTS

- **No Triggers**

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Seismograph Operator: [Signature]

Signature: [Signature]
SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: __________  Designed Bench Height (ft): __________  Date: __________
Northing: __________ W  Rock Density (yd^3): __________  Time: ___________
Easting: __________ W  Relative Rock Hardness: __________  Blast Number: __________

DESIGN DATA:

Number of Holes Shot: __________  Hole Dia. (in.): __________  Stemming (ft): __________  Loading Time Required (man hrs): __________  Deck Type: __________
Ave. Hole Depth (ft): __________  Burden (ft): __________  Stem Type: __________  Pattern (ft): __________  Light (ft): __________
Relative Confinement: __________  Spacing (ft.): __________  Subdrill (ft): __________  Number of Lost Holes: __________  Tons Shot: __________

EXPLOSIVES DATA:

<table>
<thead>
<tr>
<th>Bulk Explosive</th>
<th>Weight</th>
<th>Boosters</th>
<th>Units</th>
<th>Delays</th>
<th>Units</th>
<th>Misc</th>
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<tbody>
<tr>
<td>titan 1000</td>
<td>9380</td>
<td>450/4</td>
<td>53</td>
<td>80/62</td>
<td>25</td>
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Max (lb/hole): 400  Blast Duration (sec): 94.3

VIBRATION DATA:

Northing: __________ N  Northing: __________ W  Sky Condition: __________  RPPV: __________
Easting: __________ W  Easting: __________ W  Wind Direction: __________  Frequency: __________
Distance Away: __________  Distance Away: __________  Wind Speed: __________  Airblast: __________

PERFORMANCE DATA:

Powder Factor (lb/ton): __________  Displacement: __________  Crushability: __________
Lb/yd^3: __________  Vibration: __________  Fines: __________
Fragmentation: __________  Dig ability: __________
Comments: __________  Ramp out: __________  Blaster in Charge: __________
Depth: 35.43'

29: Holes
29: 80 E2 det
29: 250 E2 det
4: 42 m3
58: 450 gr/m

29:03 N° 27° 07' W

Main 1631
Vitalh 3748
Sanim 2748
M²NP 2112
Vibra-Tech Inc. Seismic Analysis
Stop Event Report

Serial No: 8154 v5.11
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: 16 MARIN BAY PARK CT.
Distance: Operator: VIBRA-TECH IP2
Comment: WILLIAM HOSKEN RES.

Begin Date: 03/13/2014 07:00:47 (UTC-7)
End Date: 03/13/2014 13:23:30 (UTC-7)
Events over Trigger: 0 (3-2)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.3

Shaketable Calibrated: 01/23/2014
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40299 U.S.A.
TEL: 502.240.9900 FAX: 502.240.9902

Dynamic Calibration Graph:

Cal Test Results:
- Longitudinal: Pass
- Transverse: Pass
- Vertical: Pass
- Sound: Pass

The seismograph located at 16 Marin Bay Park Court (S/N 8154) did not trigger during the shot on March 13, 2014 at approximately 12:09 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.
The seismograph on Quarry Property (S/N 9668) did not trigger during the shot on March 13, 2014 at approximately 12:09 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.