# SAN RAFAEL ROCK QUARRY VIBRATION REPORT

**Location:** PB 8  
**Max Charge Weight:** 40 lbs  
**Date of Blast:** 3/12

**Northing:** 37°59'10" N  
**Time of Blast:** 11:31

**Easting:** 122°27'18" W  
**Blast Duration:** 67 ms

## Seismograph Information

<table>
<thead>
<tr>
<th>Seismograph Model</th>
<th>Micro</th>
<th>Micro</th>
<th>Micro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Number</td>
<td>2481</td>
<td>4567</td>
<td>4567</td>
</tr>
<tr>
<td>Last Calibration Date</td>
<td>5.24.11</td>
<td>5.26.11</td>
<td>5.26.11</td>
</tr>
</tbody>
</table>

## Location Information

<table>
<thead>
<tr>
<th>Location</th>
<th>Marvin G</th>
<th>Via Montebello</th>
<th>San Martin</th>
<th>Mill Pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northing</td>
<td>37°59'14&quot; N</td>
<td>37°57'18&quot; N</td>
<td>37°56'31&quot; N</td>
<td>37°59'30&quot; N</td>
</tr>
<tr>
<td>Easting</td>
<td>122°27'22&quot; W</td>
<td>122°27'53&quot; W</td>
<td>122°27'30&quot; W</td>
<td>122°27'16&quot; W</td>
</tr>
</tbody>
</table>

## Vibration Information

| Longitudinal Peak Particle Velocity (ips) | 0.05 |
| Longitudinal Peak Frequency (Hz)         | 38.7 |
| Transverse Peak Particle Velocity (ips)  | 0.04 |
| Transverse Peak Frequency (Hz)           | 38.4 |
| Vertical Peak Particle Velocity (ips)    | 0.03 |
| Vertical Peak Frequency (Hz)             | 62.5 |
| Peak Vector Sum (ips)                    | 0.06 |
| Peak Air Overpressure (db)               | 100 |

*Micro's did not trigger*

**Seismograph Operator:** Deron Lopes  
**Signature:** [Signature]
### SAN RAFAEL ROCK QUARRY BLAST REPORT

**BASE DATA:**
- Location: PB-8
- Designed Bench Height (ft): Sump
- Northing: 31°59'10"N
- Rock Density (t/yd^3): 2.23
- Easting: 122°22'18"W
- Relative Rock Hardness: 7
- Date: 1.30.12
- Time: 11:31
- Blast Number: 156c

**DESIGN DATA:**
- Number of Holes Shot: 5
- Hole Dia. (in.): 2.14
- Stemming (ft): 10
- Loading Time Required (man hrs): 6
- Ave. Hole Depth (ft): 2.3
- Burden (ft): 14
- Stem Type: 10
- Staggered Pattern (y or n): N
- Relative Confinement: -
- Spacing (ft): 14
- Subdrill (ft): -
- Number of Lost Holes: 4
- Tons Shot: 186.5

**EXPLOSIVES DATA:**
- Bulk Explosive
  - Weight
  - Boosters
  - Units
  - Delays
  - Units
  - Misc.
  - Units
- Dyno AP 3 x 1/2
  - 175 lbs
  - 450 yrs
  - 5
  - 80 ft
  - 10
- 25 g- (cord)
  - 130 lbs
  - 49 ms
  - 1

**VIBRATION DATA:**
- Nearest Structure: Blasting Area
- Seismograph Loc.: Same
- Temperature: 62°
- Max Chrg. (lb/8ms): 4 b
- Northing: 31°59'11"N
- Northing: -
- Sky Condition: Overcast
- RPPV: 0.6
- Easting: 122°22'18"W
- Easting: -
- Wind Direction: E0.5°
- Frequency: 69.5
- Distance Away: 1053
- Distance Away: -
- Wind Speed: 11
- Airblent: 140

**PERFORMANCE DATA:**
- Powder Factor (lb/ton): 2
- Displacement: 6K
- Crushability: 
- Lb/yard^3: 1
- Vibration: Great
- Fines: 
- Fragmentation: ok
- Dig ability: 
- Comments: Sump Shot Wet and Latty
- Blaster in Charge: [Signature]
Sump shot

5 holes
10:50' EZ
1° 41' ms
5.175 gram
5½ boxes Dyn. AP 3×16
975
25 grain cord 130'

Depth 33
10 stemming in
a decapped hole
6¾ in.
Holes very jet and
Ratty

Main 4056
Vigil 2957
SM 218
MEN 2659

32° 29' 10" N
122° 27' 18" W
The seismograph at 114 San Marino Drive (S/N 7334) did not trigger during the shot on January 30, 2012 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.
The seismograph on Quarry Property (S/N 7179) did not trigger during the shot on January 30, 2012 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.
The seismograph located across the street from 16 Marin Bay Park Court (S/N 7257) did not trigger during the blast on January 30, 2012 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.