# SAN RAFAEL ROCK QUARRY VIBRATION REPORT

**Blast Information**
- **Location:** PB-7 Field
- **Max. Charge Weight:** 2.58 lb
- **Date of Blast:** 1-9-94
- **Time of Blast:** 11:39
- **Blast Duration:** 3.53 sec
- **Blast Number:** 428

**Seismograph Information**
<table>
<thead>
<tr>
<th>Seismograph Model</th>
<th>Serial Number</th>
<th>Last Calibration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>580 Coat</td>
<td>93653</td>
<td>6-3-13</td>
</tr>
</tbody>
</table>

**Location Information**
- **Location:** Main Cut
- **Northing:** 35°57'0"W
- **Easting:** 122°32'22"W
- **Distance from Blast:** 1564 ft
- **Scaled Distance:** 44 ft

**Vibration Information**
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal Peak Particle Velocity (ips)</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Longitudinal Peak Frequency (Hz)</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Transverse Peak Particle Velocity (ips)</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Transverse Peak Frequency (Hz)</td>
<td>15.6</td>
<td></td>
</tr>
<tr>
<td>Vertical Peak Particle Velocity (ips)</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Vertical Peak Frequency (Hz)</td>
<td>14.2</td>
<td></td>
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<tr>
<td>Peak Vector Sum (ips)</td>
<td>0</td>
<td></td>
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<tr>
<td>Peak Air Overpressure (db)</td>
<td>106</td>
<td></td>
</tr>
</tbody>
</table>

**General Comments**
- **Seismograph Operator:** [Signature]
- **Signature:** [Signature]
# SAN RAFAEL ROCK QUARRY BLAST REPORT

**BASE DATA:**
- Location: [Coordinate]
- Designed Bench Height (ft): 32.2
- Northing: 30° 57' 15" N
- Rock Density (yd³): 8.73
- Easting: 120° 20' 12"
- Relative Rock Hardness:
- Time: 11:09
- Blast Number: [Number]

**DESIGN DATA:**
- Number of Holes Shot: 32
- Hole Dia. (in.): 3.74
- Stemming (ft): 7-12
- Loading Time Required (man hrs): [Time]
- Deck Type:
- Ave. Hole Depth (ft): [Depth]
- Burden (ft): 15
- Stern Type: [Type]
- Staggered Pattern (y or n): [Pattern]
- Length (ft): [Length]
- Relative Confinement: [Confinement]
- Spacing (ft): 16
- Subdrill (ft): 3
- Number of Lost Holes:
- Tons Shot: 506.8

**EXPLOSIVES DATA:**
<table>
<thead>
<tr>
<th>Bulk Explosive</th>
<th>Weight</th>
<th>Boosters</th>
<th>Unit</th>
<th>Delays</th>
<th>Units</th>
<th>Misc</th>
<th>Units</th>
<th>Max (lb/hole)</th>
<th>Blast Duration (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetryl 100%</td>
<td>52.6</td>
<td>45/8</td>
<td>5</td>
<td>86 E2E</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>383</td>
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</tbody>
</table>

**VIBRATION DATA:**
- Nearest Structure (ft): [Distance]
- Seismograph Loc.: 500 ft
- Temperature: 65°F
- Max. Chr. (lb/ft²): 280
- Northing: 37° 57' 49.1" N
- Sky Condition: Overcast
- RPPV: 0.6
- Easting: 120° 27' 22.0" W
- Wind Direction: N
- Frequency: 15 Hz
- Distance Away:
- Wind Speed: 15 mph
- Airblast: 45dB

**PERFORMANCE DATA:**
- Powder Factor (lb/ton): 0.9
- Displacement: 305.5
- Crushability:
- Lb/yard³: 9
- Vibration:
- Dig ability:
- Fragmentation:
- Comments: Part of报表的第3页
- Blaster in Charge: [Signature]
## San Rafael Quarry

<table>
<thead>
<tr>
<th>SEIS#</th>
<th>RESIDENCE</th>
<th>COORDINATES</th>
<th>DISTANCE IN METERS</th>
<th>DISTANCE IN FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>9591</td>
<td>16 Marin Bay</td>
<td>N 37 59 31.92</td>
<td>683.5312287</td>
<td>2242</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 122 27 18.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9808</td>
<td>Quarry Property</td>
<td>N 37 59 29.28</td>
<td>535.4519184</td>
<td>1756</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W 122 27 11.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multiply by 3.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blast Coordinates</td>
<td>37°</td>
<td>59'</td>
<td>11,000''</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-122°</td>
<td>27'</td>
<td>7,000''</td>
</tr>
</tbody>
</table>

Revised April 13, 2004
Serial No: 9591 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QRY
Location: 16 MARIN BAY PARK CT.
Distance: 
Operator: VIBRA-TECH GSM
Comment: WILLIAM HOSKEN RES.

Begin Date: 01/09/2014 07:05:12 (UTC-8)
End Date: 01/09/2014 20:00:00 (UTC-8)
Events over Trigger: 0 (6-5)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.7

Shaketable Calibrated: 02/20/2013
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 9591) did not trigger during the shot on January 9, 2014 at approximately 11:39 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.
The seismograph on Quarry Property (S/N 9808) did not trigger during the shot on January 9, 2014 at approximately 11:39 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.
Attached please find the seismic analysis for the blast at the San Rafael Quarry. Should you have any questions please feel free to contact me.

Thank you,

Maggie Heffelfinger
Administrative Assistant

570-455-5861 Office
570-455-6783 Fax

Vibra-Tech
109 E. 1st Street
PO Box 577
Hazleton, PA 18201
www.vibratechinc.com

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