SAN RAFAEL ROCK QUARRY VIBRATION REPORT

BLAST INFORMATION

Location: R1L1
Max. Charge Weight: 240
Date of Blast: 5/13/91
Northing: 39°56'41.1"N
Time of Blast: 2:40 PM
Easting: 122°21'46.8"W
Blast Duration: 6.34 sec.
Blast Number: 518

SEISMOGRAPH INFORMATION

<table>
<thead>
<tr>
<th>UNIT #1</th>
<th>UNIT #2</th>
<th>UNIT #3</th>
<th>UNIT #4</th>
<th>UNIT #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seismograph Model</td>
<td>2001A</td>
<td>2001A</td>
<td>2001A</td>
<td>2001A</td>
</tr>
<tr>
<td>Serial Number</td>
<td>25034</td>
<td>25034</td>
<td>25034</td>
<td>25034</td>
</tr>
</tbody>
</table>

LOCATION INFORMATION

<table>
<thead>
<tr>
<th>Location</th>
<th>Northing</th>
<th>Northing</th>
<th>Easting</th>
<th>Distance from Blast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rip Rap</td>
<td>39°56'40.0&quot;N</td>
<td>122°21'42.0&quot;W</td>
<td>122°21'42.0&quot;W</td>
<td>160 ft</td>
</tr>
</tbody>
</table>

VIBRATION INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Unit #1</th>
<th>Unit #2</th>
<th>Unit #3</th>
<th>Unit #4</th>
<th>Unit #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal Peak Particle Velocity (ips)</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longitudinal Peak Frequency (Hz)</td>
<td>26.3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Transverse Peak Particle Velocity (ips)</td>
<td>0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transverse Peak Frequency (Hz)</td>
<td>41.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Peak Particle Velocity (ips)</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Peak Frequency (Hz)</td>
<td>45.6</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Peak Vector Sum (ips)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Peak Air Overpressure (db)</td>
<td>169</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Rip Rap

Seismograph Operator: Peron Hopes
Signature: [Signature]

[Graph or diagram]
**SAN RAFAEL ROCK QUARRY BLAST REPORT**

**BASE DATA:**
- Location: [__] (___)
- Designed Bench Height (ft): [__] (___)
- Date: [__] (___)

- Northing: [__] (___)
- Rock Density (lbf/ft³): [__] (___)
- Time: [__] (___)

- Easting: [__] (___)
- Relative Rock Hardness: [__]
- Blast Number: [__] (___)

**DESIGN DATA:**
- Number of Holes Shot: [__]
- Hole Dia (in.): [__]
- Steaming (ft): [__]
- Loading Time Required (min hrs): [__]
- Deck Type: [__]

- Ave. Hole Depth (ft): [__]
- Burden (ft): [__]
- Kerf Type: [__]
- Staggered Pattern (y or n): [__]
- Length (ft): [__]

- Relative Confinement: [__]
- Spacing (ft): [__]
- Subburden (ft): [__]
- Number of Lost Holes: [__]
- Tone Shot: [__] (___)

**EXPLOSIVES DATA:**
- Bulk Explosive: [__]
- Weight: [__] (___)
- Boosters: [__] (___)
- Units: [__] (___)
- Delays: [__] (___)
- Misc. Units: [__] (___)

- Max (lb/hole): [__]
- Blast Duration (sec): [__]

- Total Charge Wt.: [__]

**VIBRATION DATA:**
- Nearest Structure: [__]
- Seismograph loc: [__]
- Temperature: [__]
- Max. Chrg. (lb/tns): [__]

- Northing: [__] (___)
- Northing: [__] (___)
- Sky Condition: [__]
- RPPV: [__] (___)

- Easting: [__] (___)
- Easting: [__] (___)
- Wind Direction: [__]
- Frequency: [__] (___)

- Distance Away: [__] (___)
- Distance Away: [__] (___)
- Wind Speed: [__] (___)
- Airblast: [__] (___)

**PERFORMANCE DATA:**
- Powder Factor (lb/tn): [__]
- Displacement: [__]
- Crushability: [__]

- Lb/ft³: [__]
- Vibration: [__]
- Fines: [__]

- Fragmentation: [__] (___)
- Digability: [__]

- Comments: [__] (___)

Blaster in Charge: [__] (___)
Vibra-Tech Inc. Seismic Analysis
Stop Event Report

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

Begin Date: 08/27/2013 07:00:50 (UTC-7)
End Date: 08/27/2013 20:00:00 (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: 8.6

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 September 10, 2013 at approximately 11:33 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 September 10, 2013 at approximately 11:33 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.