

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: South Hill Max. Charge Weight: 330 Date of Blast: 5/20/12
 Northing: 37° 59' 03" N Time of Blast: 11:30
 Easting: 122° 27' 23" W Blast Duration: 343 ms Blast Number: 158

SEISMOGRAPH INFORMATION		UNIT INFORMATION	
Seismograph Model	2060	Micro	Micro
Serial Number	2481	4860	4775
Last Calibration Date	5/17/12	5/17/12	5/17/12

LOCATION INFORMATION		UNIT INFORMATION	
Location	Micro 46	564	Micro Peak
Northing	37° 59' 03" N	37° 59' 31" N	37° 59' 30" N
Easting	122° 27' 23" W	122° 27' 30" W	122° 27' 16" W
Distance from Blast	195	195	279.8
Scaled Distance	110	195	189

VIBRATION INFORMATION	
Longitudinal Peak Particle Velocity (ips)	/
Longitudinal Peak Frequency (Hz)	/
Transverse Peak Particle Velocity (ips)	/
Transverse Peak Frequency (Hz)	/
Vertical Peak Particle Velocity (ips)	/
Vertical Peak Frequency (Hz)	/
Peak Vector Sum (ips)	/
Peak Air Overpressure (db)	/

No Triggers
 Seismograph Operator: Deon Lopez Signature: [Signature]

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: SOUTH HILL Designed Bench Height (ft): 25 Date: 8-27-12
 Northing: 375903 N Rock Density (t/yd³): 2.23 Time: 11:35
 Easting: 122202 W Relative Rock Hardness: 7 Blast Number: 1585

DESIGN DATA:

Number of Holes Shot: 22 Hole Dia. (in.): 7 7/8 Loading Time Required (man hrs): 5 Deck Type: _____
 Ave. Hole Depth (ft): 23 Burden (ft): 14 Stem Type: 30' diam Staggered Pattern (y or n): Y Length (ft): _____
 Relative Confinement: _____ Spacing (ft): 11 Number of Lost Holes: 2 Tons Shot: 3.713

EXPLOSIVES DATA:

Bull: Explosive	Weight	Boosters	Units	Delays	Units	Misc.	Units	Max (lb./hole):
<u>TRAC 1000 G</u>	<u>4390</u>	<u>400</u>	<u>22</u>	<u>2002</u>	<u>22</u>			<u>270</u>
				<u>400</u>	<u>2</u>			
				<u>1700</u>	<u>2</u>			

Blast Duration (sec): 340.3

Total Charge Wt: 4362

VIBRATION DATA:

Nearest Structure: 1101 A Co Seismograph Loc: Seis Temperature: 81 Max. Chrg. (lb/8ins): 370
 Northing: 375919 N Northing: _____ Sky Condition: Clear RPPV: 5
 Easting: 122202 W Easting: _____ Wind Direction: N Frequency: 5
 Distance Away: 120' Distance Away: _____ Wind Speed: 0-2 Airblast: 5

PERFORMANCE DATA:

Powder Factor (lb/ton): 5 Displacement: 9 feet Crushability: _____
 Lb/yd³: 1.2 Vibration: 5 feet Fines: _____
 Fragmentation: good Dig ability: _____
 Comments: _____ Blaster in Charge: [Signature]

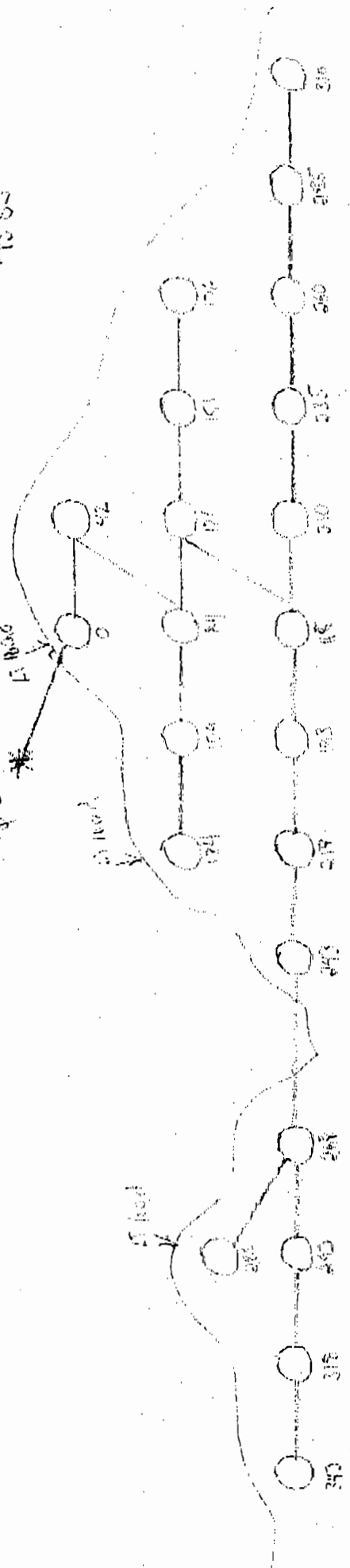
8.27.12
 South Hill
 #1585

Face HT 25'

90°
 F Node

G Node

F Node



1656
 2909
 2956
 2798

575.03 W
 122.27 22 W

Depth: 2.8'

15 stemings
 210 lbs per

3 holes ls. loaded
 150 #

22 Holes
 22 = 80' EZ
 5 = 42 ms
 2 = 17 ms
 22 = 450' year

GeoSonics Inc. Seismic Analysis

Stop Event Report

Serial No: 8021 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: 114 SAN MARINO DRIVE
Distance:
Operator: VIBRA-TECH GSM
Comment: VERONIQUE RASKIN*

Begin Date: 08/27/2012 07:03:38 (UTC-7)
End Date: 08/27/2012 20:00:00 (UTC-7)
Events over Trigger: 0 (16-15)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.9

Additional Info:
*RESIDENCE
j-GEO-01254
N37 59.395, W122 27.700

Shaketable Calibrated: 05/11/2012
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 at 114 San Marino Drive (S/N 8021) did not trigger during the shot on August 27, 2012 at approximately 11:30 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.

GeoSonics Inc. Seismic Analysis

Stop Event Report

Serial No: 8030 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: ON QUARRY PROPERTY
Distance:
Operator: VIBRA-TECH GSM
Comment:

Begin Date: 08/27/2012 06:00:50 (UTC-7)
End Date: 08/27/2012 20:00:00 (UTC-7)
Events over Trigger: 0 (7-6)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 9

Additional Info:

j-GEO-01253
N37 59.481, W122 27.256

Shaketable Calibrated: 05/14/2012
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 on Quarry Property (S/N 8030) did not trigger during the shot on August 27, 2012 at approximately 11:30 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.

GeoSonics Inc. Seismic Analysis

Stop Event Report

Serial No: 8056 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: 16 MARIN BAY PARK CT.
Distance:
Operator: VIBRA-TECH GSM
Comment: WILLIAM HOSKEN RES.

Begin Date: 08/27/2012 07:00:50 (UTC-7)
End Date: 08/27/2012 20:00:00 (UTC-7)
Events over Trigger: 0 (5-4)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 9.1

Additional Info:

j-GEO-01252
N37 59.524, W122 27 373

Shaketable Calibrated: 05/16/2012
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 across the street from 16 Marin Bay Park Court (S/N 8056) did not trigger during the blast on August 27, 2012 at approximately 11:30 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.