

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: PB-7 Max. Charge Weight: 90 Date of Blast: 9-13-11
 Northing: 37° 59' 13.16" Blast Duration: 0.54 MS Time of Blast: 11:31
 Easting: 122° 27' 10.14" Blast Number: 1556

SEISMOGRAPH INFORMATION			
Seismograph Model	ALBERTO	MONTABELLO	MINEAR PARK
Serial Number	2481	4550	4570
Last Calibration Date	5-24-11	5-26-11	5-26-11

LOCATION INFORMATION			
Location	MINEAR	SAN RAFAEL	MINEAR PARK
Northing	37° 59' 19.14"	37° 59' 31.16"	37° 59' 30.16"
Easting	122° 27' 22.14"	122° 27' 53.14"	122° 27' 16.14"
Distance from Blast	1214	3537	1745
Scaled Distance	127	372	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)			

GENERAL COMMENTS
 Seismograph Operator: Deon Lopez Signature: [Signature]

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: PB-7 Designed Bench Height (ft): 18 Date: 9/13/11
 Northing: 37 Rock Density (lb/ft³): 2.7 Time: 11:31
 Easting: _____ Relative Rock Hardness: 7 Blast Number: 1556

DESIGN DATA:

Number of Holes Shot: 35 Hole Dia. (in.): 6 3/4 Stemming (ft): 15 Loading Time Required (min hrs): 5 Deck Type: _____
 Ave. Hole Depth (ft): 71 Stem Type: MC Staggered Pattern (y or n): N Length (ft): _____
 Relative Confinement: _____ Spacing (ft): 14 Subdrill (ft): 3 Number of Lost Holes: 0 Tons Shot: 192

EXPLOSIVES DATA:

Bulk Explosive	Weight	Boosters	Units	Delays	Units	Misc.	Thairs	Max (lb/hole):
<u>Titan 1000</u>	<u>3060</u>	<u>450/ton</u>	<u>35</u>	<u>50/22</u>	<u>35</u>			<u>90</u>
				<u>40ms/211</u>	<u>12</u>			<u>Blast Duration (sec): 654ms</u>
				<u>0ms</u>	<u>2</u>			

VIBRATION DATA:

Nearest Structure: Highway Seismograph Loc.: SATC Temperature: 75° Max. Chg. (lb/8ms): 90 Total Charge Wt.: 3095
 Northing: 375911N Easting: 1223720W Sky Condition: Clear RPPV: 0
 Distance Away: _____ Wind Direction: 0 Frequency: 0
 Wind Speed: 0-3 Airblast: 0

PERFORMANCE DATA:

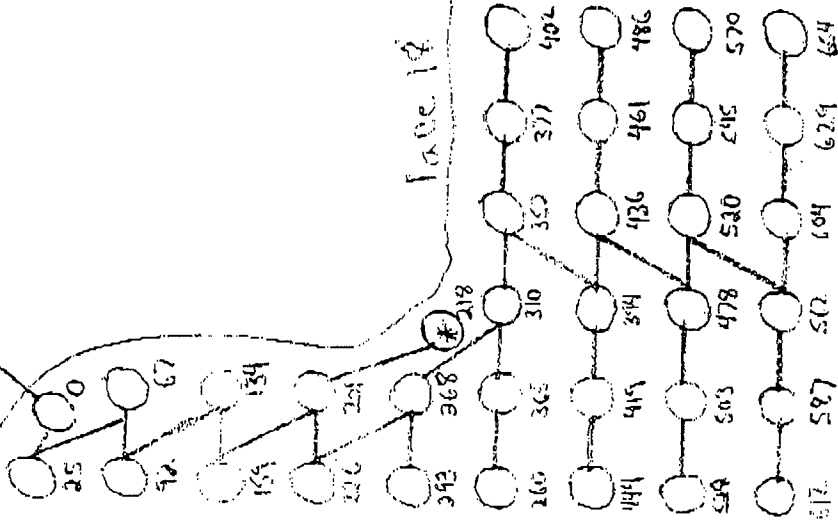
Powder Factor (lb/ton): 3 Displacement: fair Crushability: _____
 lb/yd³: 6 Vibration: Great Fines: _____
 Fragmentation: good Dig ability: _____
 Comments: _____ Blaster in Charge: Plaza Lopez

9.13.11
PB-7
1556

Depth. 21
15 stemming
90 lbs per max
Main 1214
Vial # 3537
GM 3451
MKN 1795
④ 37°59'13.11
122°07'10.11

35 Holes
35: 50' E 2' det
12: 42 ms E 2 TL
2: 17 ms
35: 450 grams
5060 lbs + Hon

P.O.I



GeoSonics Inc. Seismic Analysis

Stop Event Report

Serial No: 7155 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 RESIDENC

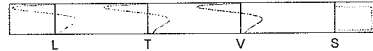
Begin Date: 09/13/2011 07:00:50 (UTC-7)
End Date: 09/13/2011 20:00:00 (UTC-7)
Events over Trigger: 0 (6-5)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.8

Additional Info:

j-GEO-01252
N37 59.524, W122 27.373

Shaketable Calibrated: 01/26/2011
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 7155) did not trigger during the blast on September 13, 2011 at approximately 11:31 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: 9856 v3.23
Client: COUNTY MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: ON QUARRY PROPERTY
Distance:
Operator: VIBRA-TECH GSM
Comment:

Begin Date: 09/13/2011 06:01:54 (UTC-7)
End Date: 09/13/2011 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: 8.7

Additional Info:

j-GEO-01253
N37 59.481, W122 27.256

Shaketable Calibrated: 01/27/2011
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 9856) did not trigger during the shot on September 13, 2011 at approximately 11:31 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: 9669 v3.23
Client: COUNTY MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: 114 SAN MARINO DRIVE
Distance:
Operator: VIBRA-TECH GSM
Comment: VERONIQUE RASKIN

Begin Date: 09/13/2011 07:00:50 (UTC-7)
End Date: 09/13/2011 19:00:00 (UTC-7)
Events over Trigger: 0 (2-1)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.9

Additional Info:

j-GEO-01254
N37 59.395, W122 27.700

Shaketable Calibrated: 01/26/2011
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 9669) did not trigger during the shot on September 13, 2011 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.