SAN RAFAEL ROCK QUARRY VIBRATION REPORT

BLAST INFORMATION

Location: PB-7

Northing: 37°59' 10 N

Easting: 122° 27' 19W

Max. Charge Weight: 200

Blast Duration: 30 1/2 s

Date of Blast: 10 25 11

Time of Blast: 11:38

Blast Number: 1561

SEISMOGRAPH INFORMATION

Seismograph Model	2000	Micro	Micro	Micro	
Serial Number	2181	4550	4562	4570	
Last Calibration Date	5 26 11	5 26 11	5 26 11	5 26 11	

LOCATION INFORMATION

Location	Mar[illegible]	Mt Mont	San Marino	Mc Near Park	
Northing	37° 59' 12" N	37° 59' 18 N	37° 59' 31 N	37° 59' 50 N	
Easting	122° 27' 22 W	122° 27' 53 W	122° 27' 30 W	122° 27' 16 W	
Distance from Blast	1005	1951	2376	2006	
Scaled Distance	70	201	168	141	

VIBRATION INFORMATION

Longitudinal Peak Particle Velocity (ips)	.09		.05	.06	
Longitudinal Peak Frequency (Hz)	20.0		11.9	15.6	
Transverse Peak Particle Velocity (ips)	.1		.05	.05	
Transverse Peak Frequency (Hz)	31.7		12.8	17.2	
Vertical Peak Particle Velocity (ips)	.13		.06	.09	
Vertical Peak Frequency (Hz)	22.7		11.9	12.1	
Peak Vector Sum (ips)	.1		.08	.07	
Peak Air Overpressure (db)	111		106	106	

GENERAL COMMENTS

Seismograph Operator: Deron Lopes

Signature: Deron Lopes

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: PB-7 | Designed Bench Height (ft): 40 | Date: 10 25 11

Northing: 37°59' 10 N | Rock Density (lb/ft^3): 2.23 | Time: 11:38

Easting: 122° 27' 19 W | Relative Rock Hardness: 7 | Blast Number: 1561

DESIGN DATA:

Number of Holes Shot: 17 | Hole Dia.(in.): 6 3/4 | Stemming (ft): 15 | Loading Time Required (man hrs): 6 | Deck Type: 3/4" stone

Ave. Hole Depth (ft): 43 | Burden(ft): 15 | Stem Type: 3/4" stone | Staggered Pattern (y or n): Y | Length (ft): 5

Relative Confinement: - | Spacing (ft): 15 | Subdrill (ft): 3 | Number of Lost Holes: 0 | Tons Shot: 12,636

EXPLOSIVES DATA:

Bulk Explosive	Weight	Boosters	Units	Delays	Units	Misc.	Units
Titan 1000	6,406	450	34	8 E2	17		
				5 E2	17		
				4 ms	3		
				DM	1		

Max (lb/hole): 380

Blast Duration (sec): 3 0 ms

Total Charge Wt.: 6,434

VIBRATION DATA:

Nearest Structure: Main Office | Seismograph Loc.: Same | Temperature: 74° | Max. Chrg. (lb/8ms): 350

Northing: 37° 59' 19 N | Northing: | Sky Condition: Clear | RPPV: .13

Easting: 122° 27' 22 W | Easting: | Wind Direction: W | Frequency: 31.2

Distance Away: 1605 | Distance Away: | Wind Speed: 0-3 | Airblast: 114

PERFORMANCE DATA:

Powder Factor (lb/ton): .5 | Displacement: | Crushability:

Lb/yrd^3: 1.14 | Vibration: Good | Fines:

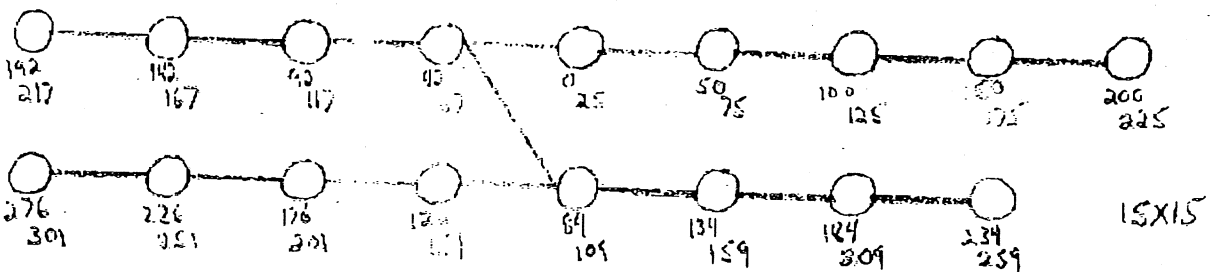
Fragmentation: Good | Digability:

Comments:

Blaster in Charge: [signature]

Face 40'

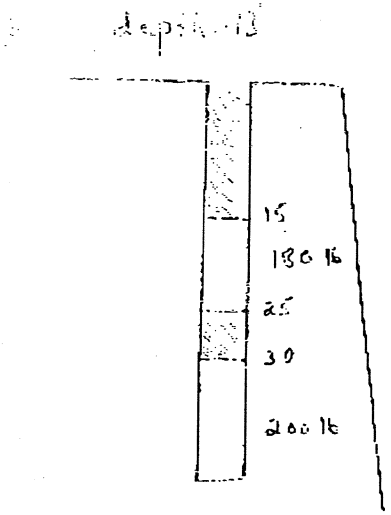
10.25.11
PB-7
#1561



15X15

17 holes
17: 80' E2
17: 56' E2
3: 42 lbs
1: 17 lbs
34: 350 grams

6,400 lbs fifteen



main: 1003
Main: 2851
SM: 2376
M'N = 2006

37°59'10"N
122°27'19"W

GeoSonics Inc. Seismic Analysis
Stop Event Report

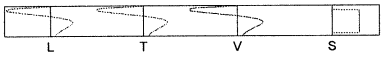
Serial No:	9856 v3.23	**Begin Date:**	10/25/2011 06:00:50 (UTC-7)
Client:	COUNTY MARIN	**End Date:**	10/25/2011 12:00:28 (UTC-7)
Operation:	SAN RAFAEL ROCK QUARRY	**Events over Trigger:**	0 (9-8)
Location:	ON QUARRY PROPERTY	**Record Time:**	5.0 s
Distance:		**Seismic Trigger:**	0.030 in/s
Operator:	VIBRA-TECH GSM	**Sound Trigger:**	N/A
Comment:		**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 October 25, 2011 at approximately 11:41 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.

GeoSonics Inc. Seismic Analysis
Stop Event Report

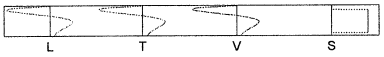
Serial No:	7155 v3.23	**Begin Date:**	10/25/2011 07:00:50 (UTC-7)
Client:	COUNTY OF MARIN	**End Date:**	10/25/2011 12:03:37 (UTC-7)
Operation:	SAN RAFAEL ROCK QUARRY	**Events over Trigger:**	0 (10-9)
Location:	16 MARIN BAY PARK CT.	**Record Time:**	5.0 s
Distance:		**Seismic Trigger:**	0.030 in/s
Operator:	VIBRA-TECH GSM	**Sound Trigger:**	N/A
Comment:	WILLIAM HOSKEN RESIDENC	**Battery Level:**	8.8

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

Additional Info:

j-GEO-01252
N37 59.524, W122 27.373

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 October 25, 2011 at approximately 11:41 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	**Begin Date:**	10/25/2011 07:00:50 (UTC-7)
Client:	COUNTY MARIN	**End Date:**	10/25/2011 12:03:46 (UTC-7)
Operation:	SAN RAFAEL ROCK QUARRY	**Events over Trigger:**	0 (2-1)
Location:	114 SAN MARINO DRIVE	**Record Time:**	5.0 s
Distance:		**Seismic Trigger:**	0.030 in/s
Operator:	VIBRA-TECH GSM	**Sound Trigger:**	N/A
Comment:	VERONIQUE RASKIN	**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 October 25, 2011 at approximately 11:41 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.