Vibration, Airblast and Community Relations

Stuart Brashear

QUARRY ACADEMY

Improving Processes. Instilling Expertise.

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Why is this so important????


DIESEL
DEATH
DIESEL
The QUARRY is a
BAD NEIGHBOR
Too Much DUST Traffic
NO
TOX
CHILDRENS'
HEALTH
FIRST!
KILLER ASTHMA!

Detroit Free Press
www.freep.com

Lawsuit says quarry's work hurts homes

Homeowners concerned blasting is bringing down their property values

June 29, 2007

BY ZLATI MEYER

FREE PRESS STAFF WRITER

Inside the four-bedroom colonial on a winding suburban street she's called home since 1985, Caren Chezick reels off problems with her No. 1 asset.

The garage, built atop a slab, is tilting away from the house. The door wall of the family room is bowing. A large crack jags through the garage's ceiling plaster. Gaps mar the fireplace facade.

The culprit isn't poor upkeep; she blames one of the neighbors.

Chezick is one of three dozen Riverview homeowners suing the nearby Sibley Limestone Quarry and Detroit Edison, claiming that their quality of life has been ruined and their property values decreased due to a falling water table, noise, sulfur-smelling wastewater and blasting so powerful it's knocked pictures off walls. The suit filed in Wayne County Circuit Court last week seeks $25,000 per household and injunction orders.

MONDAY: LaFarge quarry ordered to cease blastings (5:36 p.m.)

By Rick Forgione/forgioner@gnnewspaper.com
Lockport Union-Sun & Journal

The blasting at LaFarge stone quarry was silenced this morning after Town of Niagara officials served the business with an injunction ordering it to "cease and desist operations" detrimental to residents of the nearby Tuscarora Village mobile home community.

Signed by Town Building Inspector Charles E. Haseley, the order was delivered to LaFarge management at 10:30 a.m., Town Supervisor Steve Richards said.

"They were in violation of town law, so we closed them down," he said.

The order claims the quarry is causing adverse effects on persons living in the vicinity by creating dust and other safety hazards. In addition, the noise and vibrations from the blasting have harmed the residents' quality of life and has damaged portions of their homes, according to the order.

On Friday, a resident of Tuscarora Village suffered a concussion and a lower back sprain after falling in the shower while the quarry was blasting. She was treated at Mount St. Mary's Hospital and is now recovering back at her home.

Beware of Local Blasting

Right now your home is being damaged and you may be entitled to money from your homeowner's insurance policy.

Let us inspect the potential damages to your home with no obligation.

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NO RECOVERY

NO FEE

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Raquel Eugenia Linares
Licensed Public Adjuster

PrimeState Public Adjusters, Inc.
1390 South Dixie Highway, Suite 2104
Coral Gables, FL 33146

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What happens if the investigation finds the complaint to be justified?

The Division of State Fire Marshal has the authority to impose administrative penalties against a mining company that exceeds established blasting limits or violates other laws or rules. If the investigation indicates that a violation occurred, the Division can impose penalties ranging from a monetary fine to the suspension or revocation of the company's permit.

Will I be compensated for my losses as a result of filing this complaint?

The Division of State Fire Marshal does not have the authority to award monetary compensation. To seek compensation for losses, you may either request a hearing through the Florida Division of Administrative Hearings (DOAH) or hire an attorney to guide you through the process. DOAH can be reached by phone at (850) 488-9675 or via the Web at www.doah.state.fl.us.

Division of State Fire Marshal
Regulatory Licensing Section
200 East Gaines Street
Tallahassee, FL 32399-0342

FLORIDA DEPARTMENT OF FINANCIAL SERVICES

Blasting in Florida

A guide to filing complaints

Florida Department of Financial Services

Division of State Fire Marshal

If you have any further questions, contact the following environmental groups and government agencies.

Mountain Watershed Association, Inc.
www.mtwatershed.com
(724) 455-4200

TriState Citizens Mining Network
www.tristatecitizens.org
724-223-8644

PA Department of Environmental Protection (DEP)
www.dep.state.pa.us/
(724) 925-5500

OH Division of Natural Resources (ODNR)
www.dnr.state.oh.us/
614-265-6633

WV Department of Environmental Protection (DEP)
www.dep.state.wv.us/
(304) 759-0595

Office of Surface Mining (OSM)
www.osmre.gov/

The information in this brochure no way constitutes a legal opinion. It is a list of suggestions.

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Real Country Life Graphics & PrePress
724-433-7748 - mjmurphy@wanad.com
www.realcountrylife.com

For additional copies of this brochure and others in the series, contact the

Mountain Watershed Association
P.O. Box 408, Melcroft, PA 15462
Phone: (724) 455-4200 Fax: (724) 455-4201
Email: mwa@helicon.net
www.mtwatershed.com

In Case of Blasting Emergency!

Blasts need to be noted on your calendar.

Look for damage to windows, doors, plumbing, foundations & fixtures.

Acute stress caused by blasting is not healthy. Calm down and tend to others at risk.

Soap solution can be used to check for gas leaks.

Take careful notes. Decide where, how and to whom you want to complain.

Blast records should be secured as soon as possible.

Any public safety hazard, trespass or destruction of property caused by the mine's blasting should be reported to the police

Coordinate your local group's actions. Inform the press. TV cameras help focus regulators on their duty.

Keep track of documentation by your neighbors. Encourage your neighbors to keep records and keep track of documentation.

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Mountain Watershed Association
P.O. Box 408
Melcroft, PA 15462

We all live downstream... www.mtwatershed.com

10 Steps For

Blasting Back!

Mountain Watershed Association

We all live downstream...


12 January, 2003

Community Perception

- **Places significant limitations on blasting operations**
  - ✓ **Shot size**
  - ✓ **Number of shots**
  - ✓ **Bench height**
  - ✓ **Vibration levels**
  - ✓ **Weather conditions**
  - ✓ **Time of day**

Community Perception

- **Places increased risk on entire operation**
  - ✓ **Regulatory limitations**
  - ✓ **Potential litigation**
  - ✓ **Public perception of company**
- **All can result in increased cost of doing business**

Causes of Increased Risk

- Closer proximity of community
- NIMBY concept
- CAVE concept
- Sympathetic legal environment
- Increased community organization
- Legal “specialists”

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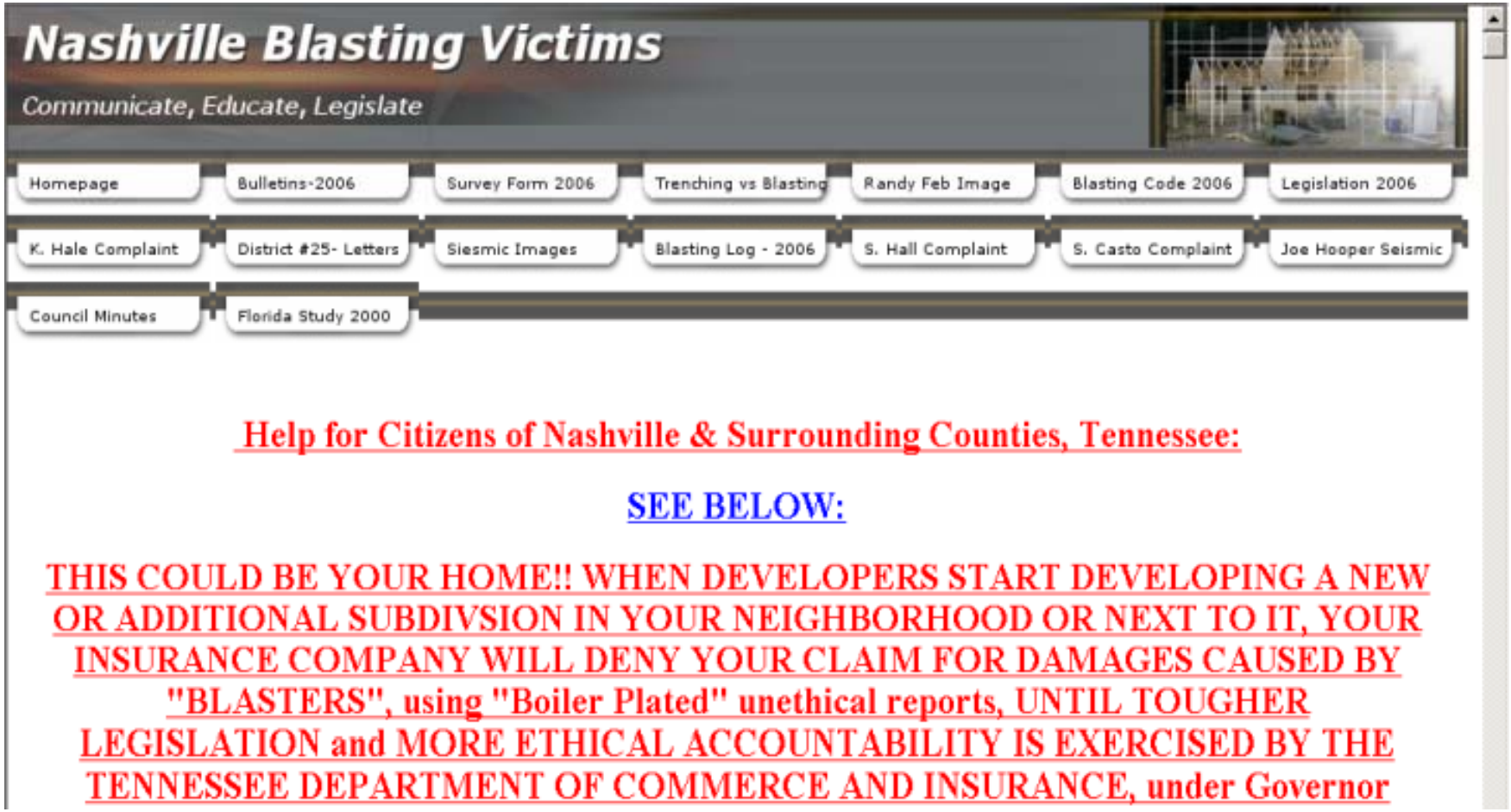

Nashville Blasting Victims
Communicate, Educate, Legislate
Homepage
Bulletins-2006
Survey Form 2006
Trenching vs Blasting
Randy Feb Image
Blasting Code 2006
Legislation 2006
K. Hale Complaint
District #25- Letters
Siesmic Images
Blasting Log - 2006
S. Hall Complaint
S. Casto Complaint
Joe Hooper Seismic
Council Minutes
Florida Study 2000
Help for Citizens of Nashville & Surrounding Counties, Tennessee:
SEE BELOW:
THIS COULD BE YOUR HOME!! WHEN DEVELOPERS START DEVELOPING A NEW OR ADDITIONAL SUBDIVSION IN YOUR NEIGHBORHOOD OR NEXT TO IT, YOUR INSURANCE COMPANY WILL DENY YOUR CLAIM FOR DAMAGES CAUSED BY "BLASTERS", using "Boiler Plated" unethical reports, UNTIL TOUGHER LEGISLATION and MORE ETHICAL ACCOUNTABILITY IS EXERCISED BY THE TENNESSEE DEPARTMENT OF COMMERCE AND INSURANCE, under Governor

Causes of Complaints

Table 2. Distribution of the complaints by type (Appendix A).

Complaint Type	WV	KY	VA	TN	Total
Dust and Fumes	11	9	9	0	29
Flyrock	5	7	3	0	15
Annoyance/noise	278	177	75	4	534
Water Quantity/Quality	38	44	8	6	96
Structure Damage	85	110	38	3	236
Other	10	31	8	1	50
Total	427	378	141	14	**960**

Blasting Claims

- 2 types of complaints
- Negligence
  - ✓ Failure to use care
  - ✓ Conduct below established standards
  - ✓ Allows for financial awards even if no damage claimed or proven
- Strict Liability
  - ✓ Must prove cause and effect
  - ✓ Blasting = ultra hazardous activity
  - ✓ Allows for claims even if every rule and SOP followed correctly
  - ✓ Obligates property owner for all responsibilities of contractors

Risk Exposure is Rising

- What does it add up to?????
  - ✓ Lawyer - $20,000.00 +
  - ✓ Legal logistics - $5,000.00+
  - ✓ Blasting Consultant - $7,500.00+
  - ✓ Structural Engineer - $5,000.00+
  - ✓ Your time???????
  - ✓ Increased insurance rates
- Costs you pay regardless of if case is won, lost or settled out of court
- Lawsuits are routinely won with no real evidence of causing damage
  - ✓ Improper documentation
  - ✓ Nuisance
  - ✓ Failure to respond

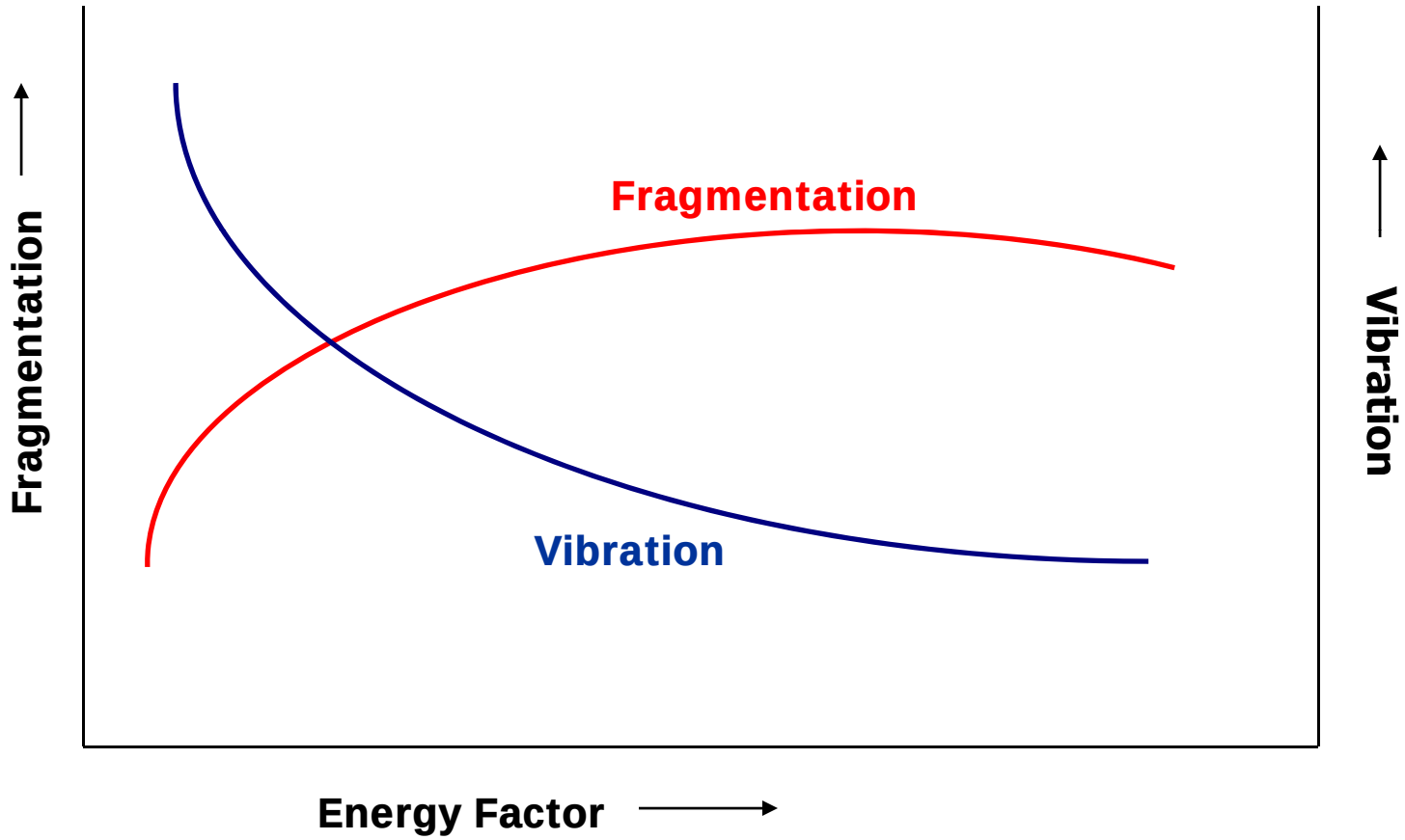
Minimizing Blasting Liability

- Optimize blasting program
- Utilization of blast/seismic technology
  - ✓ Regression
  - ✓ Signature hole analysis
  - ✓ Electronic detonators
- Insuring proper documentation
  - ✓ Seismographs
  - ✓ Blast reports/paperwork
- Immediate response to community concerns
  - ✓ Complaint response
  - ✓ Alternative monitoring techniques
- Maintain constant communication with community

Optimizing Blasting Operations

- **Understand how energy is utilized in blast**
- **For any given blast…….**
  - ✓ **Specific volume of rock to be blasted**
  - ✓ **Specific amount of energy released in shot**
  - ✓ **All energy will be utilized in one of four ways**
    - Fragmentation
    - Heave
    - Vibration
    - Overpressure
- **Proper use of explosive energy can minimize transient vibration**

Optimizing Blasting Operations



Optimizing Blasting Operations

- Proper energy factors
- Minimize subdrill
- Accurate face data
  - ✓ Burden
  - ✓ Bench height
- Proper energy distribution in front row
- Proper explosive application for conditions
  - ✓ Water
  - ✓ Rock type

Utilize Technical Tools

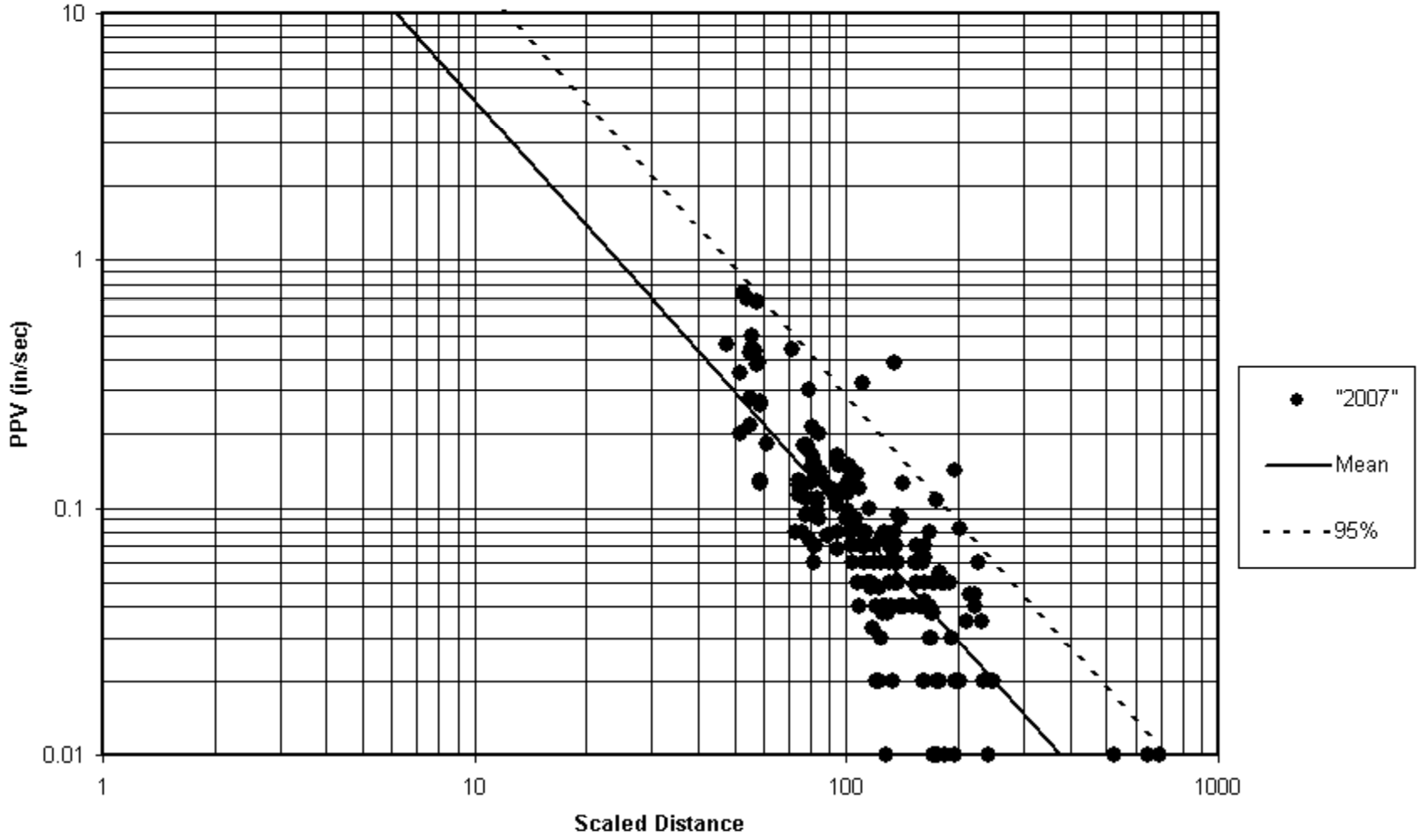
- **Vibration Modeling and Prediction**
  - ✓ **Regression analysis**
  - ✓ **Signature hole analysis**
- **Electronic Detonators**

Regression Analysis

- Simple
- Provides site specific prediction formula's
- Provides blaster with updated method of predicting blast results

Location	Shot	OFFSET DISTANCE	VECTOR DISTANCE	MAX CHARGE WEIGHT	PPV
Acme	8/21/-1	1848	1848	332	0.15
Bunnell	8/21/-1	2059	2059	332	0.07
Wooster	8/21/-1	2957	2957	332	0.07
Acme	8/21/-2	845	845	233	0.28
Bunnell	8/21/-2	1109	1109	233	0.08
Wooster	8/21/-2	2059	2059	233	0.08
Acme	8/9/-1	1796	1796	319	0.12
Bunnell	8/9/-1	2079	2079	319	0.05
Wooster	8/9/-1	2900	2900	319	0.06
Acme	8/9-2	943	943	258	0.13
Bunnell	8/9-2	1275	1275	258	0.08
Wooster	8/9-2	2143	2143	258	0.02
Acme	8/1-1	1795	1795	282	0.14
Bunnell	8/1-1	2095	2095	282	0.08
Wooster	8/1-1	2925	2925	282	0.11
Acme	8/1-2	771	771	222	0.35
Bunnell	8/1-2	1164	1164	222	0.18
Wooster	8/1-2	2050	2050	222	0.05
Acme	7/27/-1	1315	1315	247	0.1
Bunnell	7/27/-1	1856	1856	247	0.03
Wooster	7/27/-1	2746	2746	247	0.02
Acme	7/27-2	3117	3117	319	0.02
Bunnell	7/27-2	3519	3519	319	0.02
Wooster	7/27-2	4372	4372	319	0.02

Regression Analysis



SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.804071							
R Square	0.646529							
Adjusted F	0.644619							
Standard E	0.244355							
Observatio	187							
ANOVA								
	df	*SS*	*MS*	*F*	*gnificance F*			
Regressior	1	20.20463	20.20463	338.3816	1.21E-43			
Residual	185	11.04628	0.05971					
Total	186	31.2509						
	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	2.321713	0.189733	12.23675	1.31E-25	1.947395	2.696032	1.947395	2.696032
X Variable	-1.67679	0.091154	-18.3952	1.21E-43	-1.85663	-1.49696	-1.85663	-1.49696
Mean Intercept		**95% Intercept**		**Slope**		**log 95% Intercept**		
209.7554		**646.2849**		**-1.67679**		**2.810424**		
Mean			95%					
SD	PPV		SD	PPV				
377.8932	0.01		739.3072	0.01				
6.140997	10		12.0142	10				
1	209.7554		1	646.2849				
1000	0.001956		1000	0.006026				

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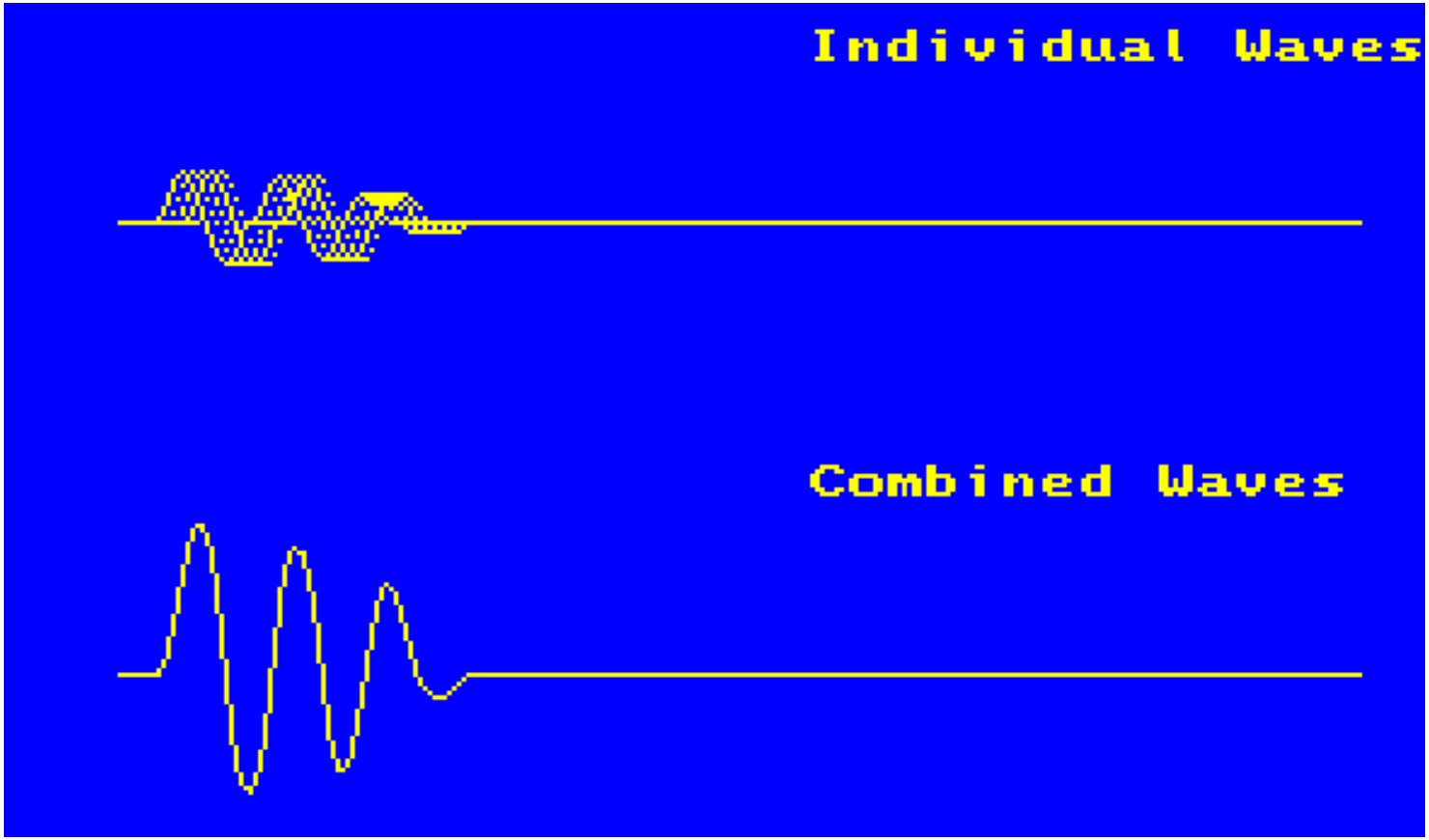
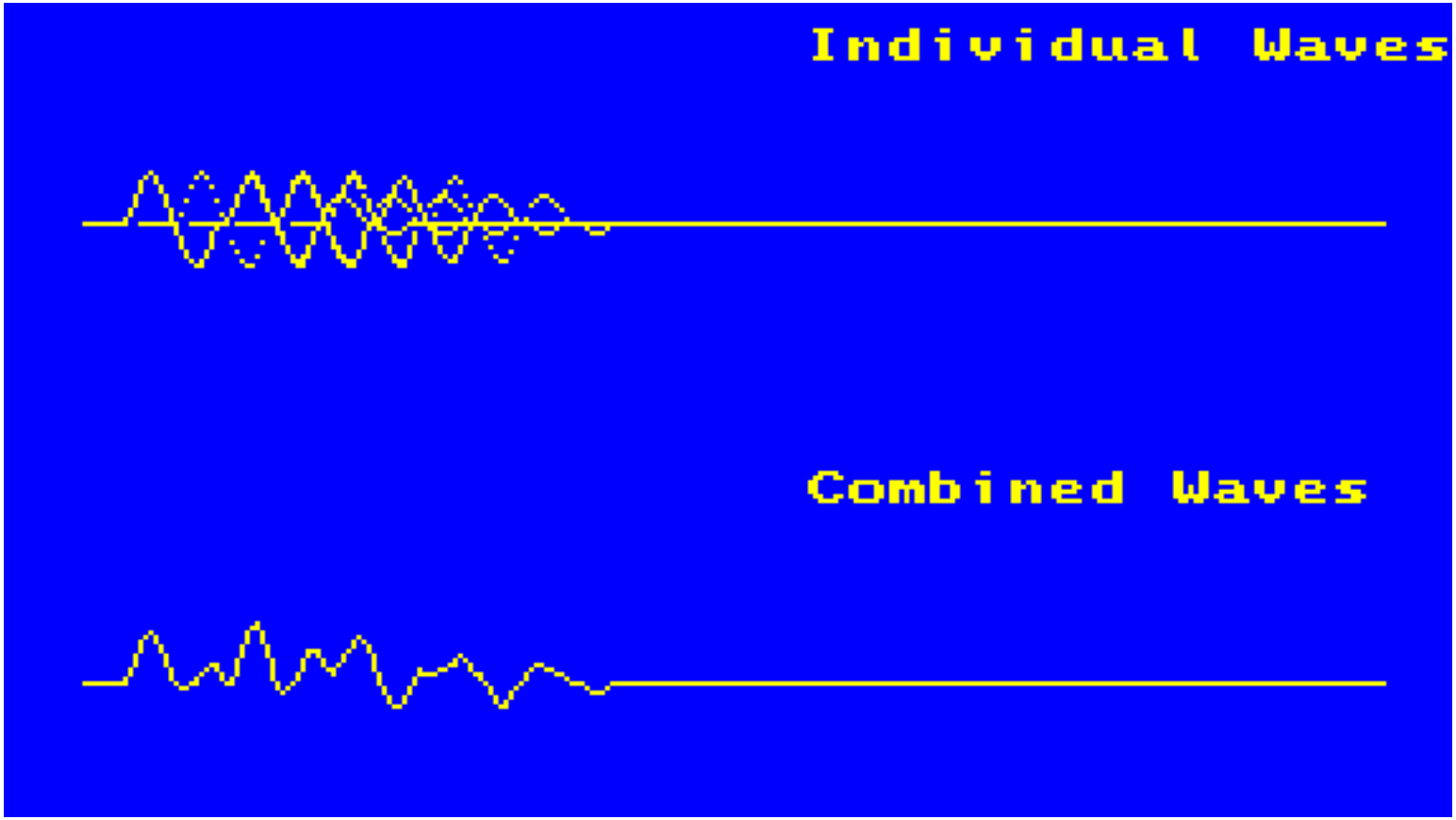
Distance (ft)	Pounds per delay	Scaled Distance	PPV (Mean)	PPV (95%)
1000	100	100	0.093	0.286
1000	125	89	0.112	0.345
1000	150	82	0.131	0.402
1000	175	76	0.149	0.458
1000	200	71	0.166	0.512
1000	225	67	0.183	0.565
1000	250	63	0.200	0.617
1000	275	60	0.217	0.669
1000	300	58	0.233	0.719
1000	325	55	0.250	0.769
1000	350	53	0.266	0.818
1000	375	52	0.281	0.867
1000	400	50	0.297	0.915

Distance (ft)	Pounds per delay	Scaled Distance	PPV (Mean)	PPV (95%)
200	275	12	3.225	9.936
250	275	15	2.218	6.834
300	275	18	1.634	5.034
350	275	21	1.262	3.888
400	275	24	1.009	3.108
450	275	27	0.828	2.551
500	275	30	0.694	2.138
550	275	33	0.591	1.822
600	275	36	0.511	1.575
650	275	39	0.447	1.377
700	275	42	0.395	1.216
750	275	45	0.352	1.083
800	275	48	0.315	0.972
850	275	51	0.285	0.878
900	275	54	0.259	0.798
950	275	57	0.236	0.729
1000	275	60	0.217	0.669

Signature Hole Analysis

- Based on concept of linear superpositioning
- Each hole creates similar seismic waves
- The overall vibration event created by blast is determined by interaction of waves from each hole in blast
- The sequencing of holes can radically impact transient vibration effects in the community


Individual Waves
Combined Waves



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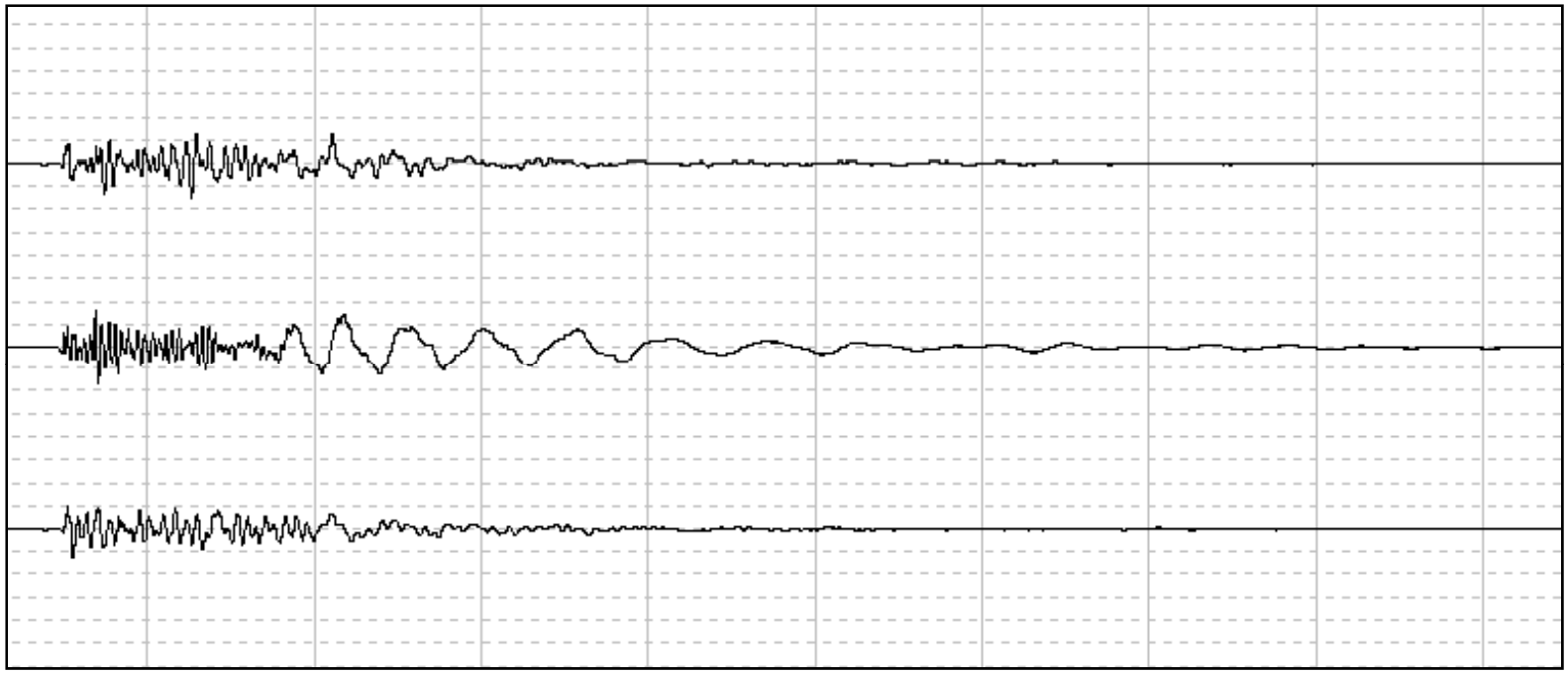
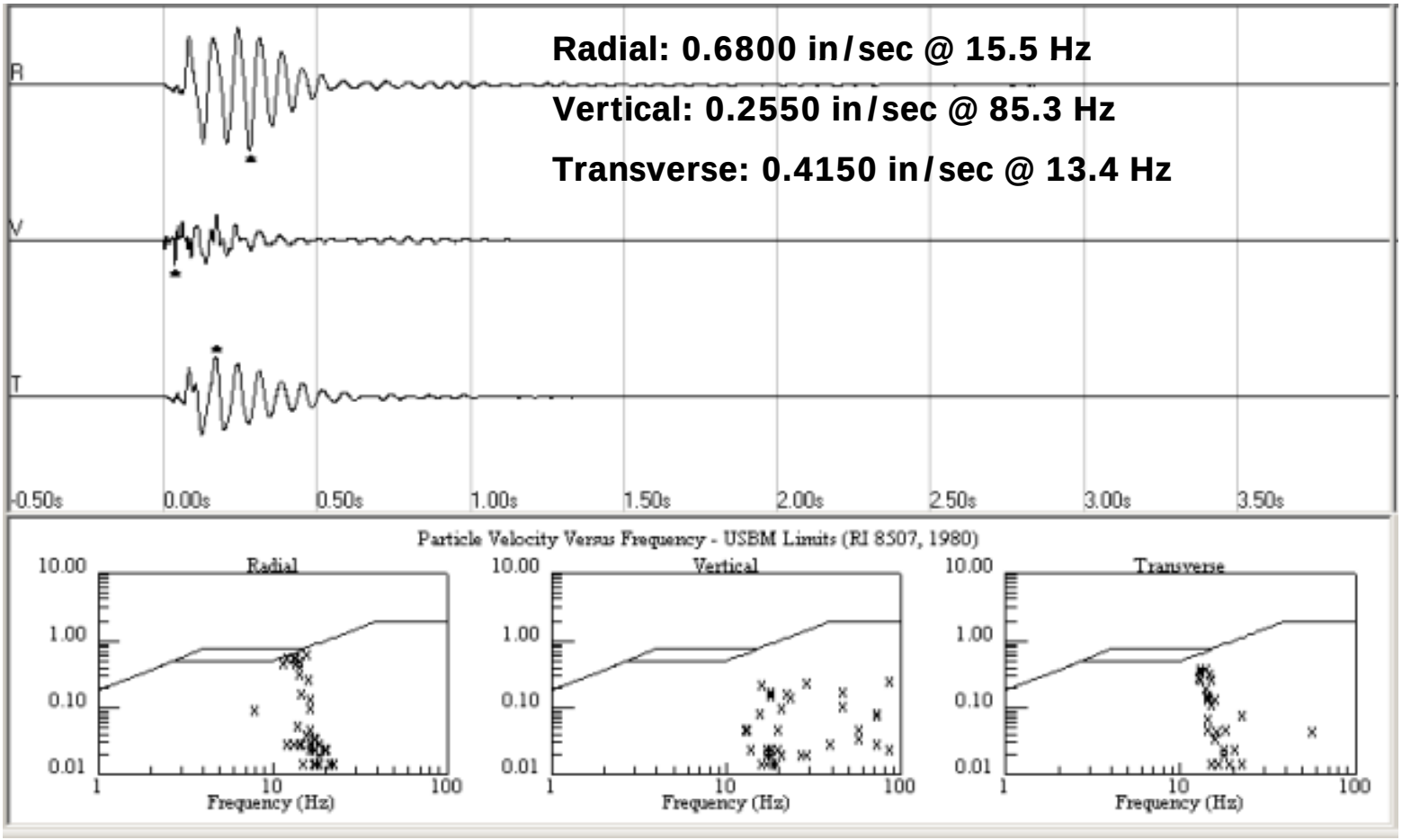


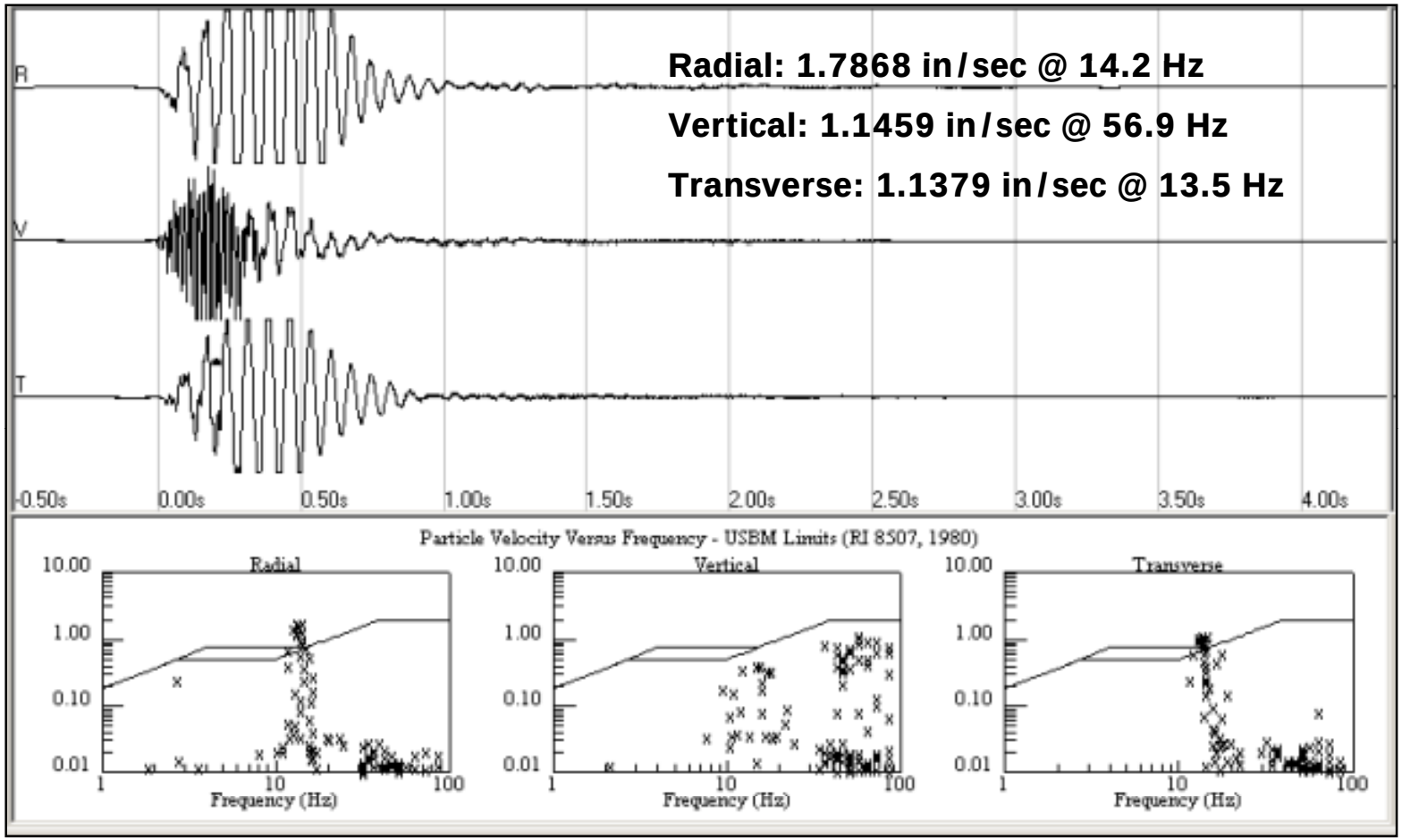
Single hole at 3,500 ft.

Signature Hole Analysis

- Deploy seismographs at critical structures
- Initiate single hole test shots at current/future mining areas
- Test hole creates sound waves in ground
- Shape of recorded seismic wave is directly related to geology between pit and critical structures
- Utilize software to determine delays that create destructive interference between waves created by each hole in production blast



Signature Hole Seismogram

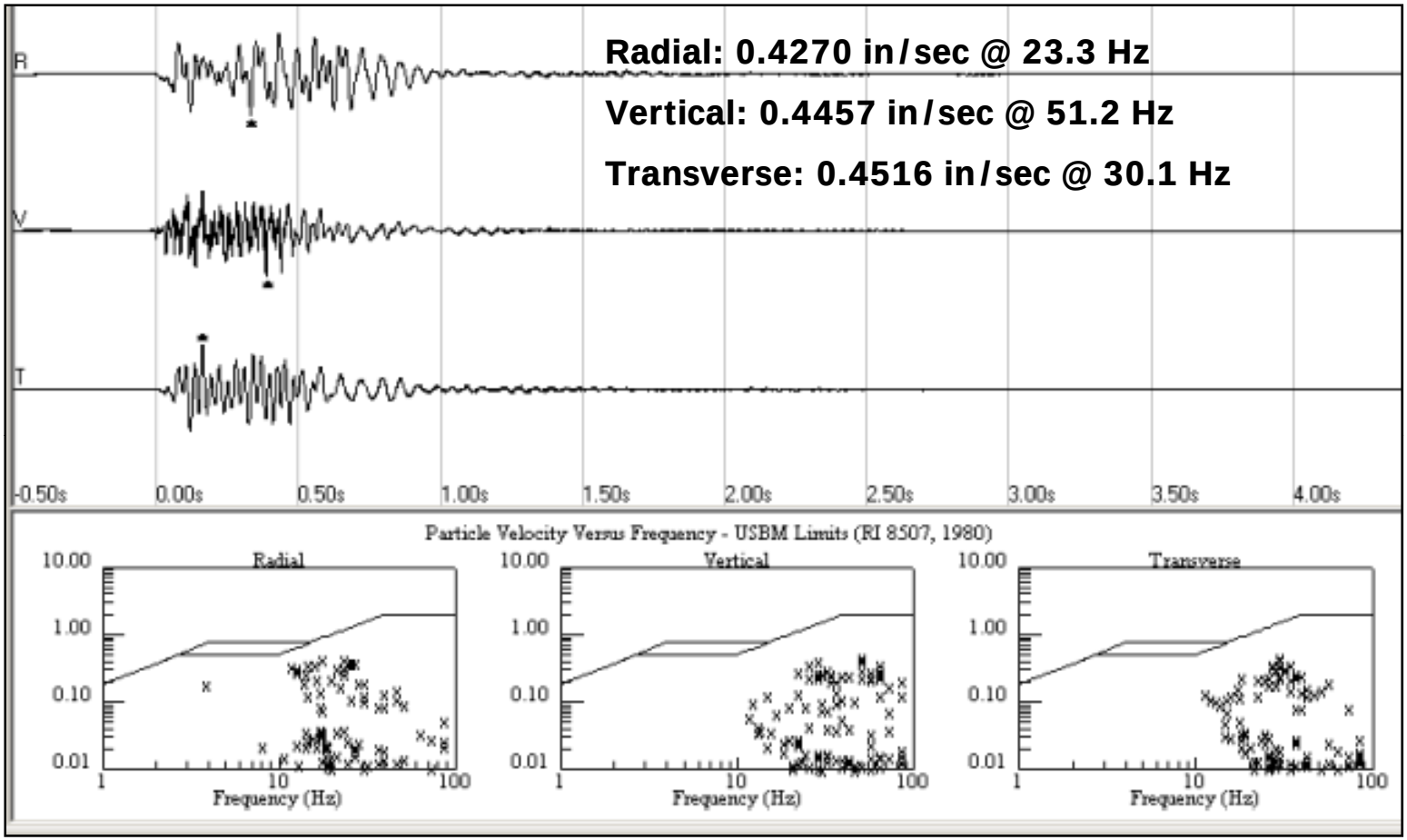


Synthetic Waveform for Current Design – 25ms/67ms

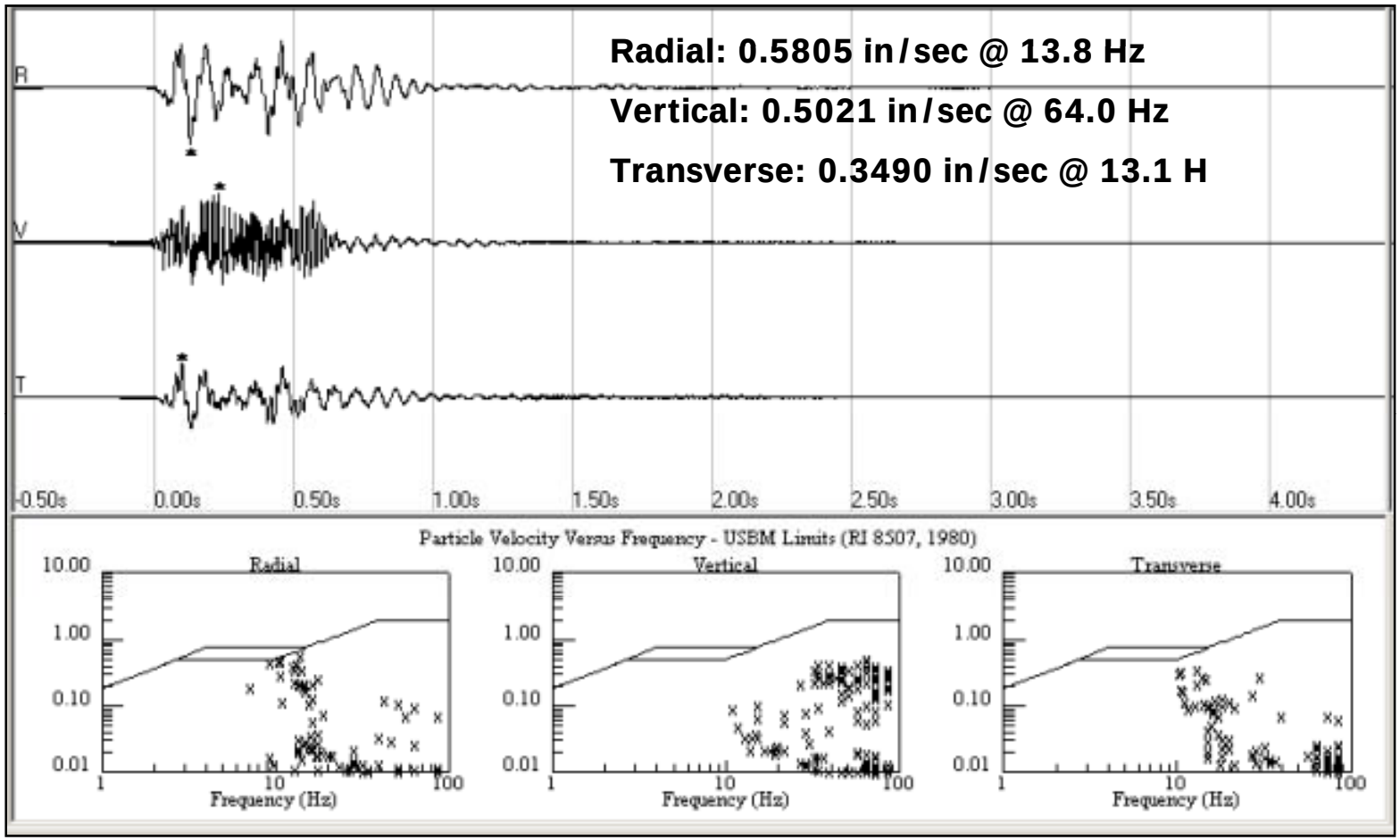
Number of Holes per Row	11	Number of Rows	3	Display Values	Process
Starting Delay	20	Starting Delay	50	Display Colors	Stop
Ending Delay	50	Ending Delay	125	Display Graphs	Sort
Resolution	2	Resolution	2		

		Radial Amplitudes	Vertical Amplitudes	Transverse Amplitudes
Hole Delay	Row Delay	Peak	Peak	Peak
30	52	0.43	0.45	0.45
30	50	0.39	0.48	0.37
20	54	0.47	0.48	0.43
32	50	0.42	0.49	0.45
38	50	0.43	0.50	0.28
24	54	0.47	0.51	0.44
36	50	0.53	0.50	0.44
22	52	0.48	0.53	0.39
46	106	0.50	0.54	0.31
28	118	0.50	0.52	0.54
48	116	0.55	0.48	0.47
46	108	0.54	0.56	0.31
24	52	0.32	0.57	0.50
38	52	0.47	0.57	0.29
22	50	0.49	0.57	0.35
34	54	0.57	0.57	0.43
30	104	0.58	0.56	0.46
20	110	0.58	0.50	0.35
26	114	0.58	0.44	0.38
30	108	0.59	0.57	0.57
20	108	0.59	0.56	0.40
22	118	0.58	0.59	0.37
30	110	0.59	0.44	0.58
20	114	0.59	0.57	0.35
20	112	0.59	0.55	0.35
44	116	0.50	0.59	0.42
48	114	0.60	0.54	0.44
48	124	0.61	0.53	0.39

Analysis Software Predictions



Synthetic Waveform – 30ms/52ms



Synthetic Waveform – 20ms/110ms

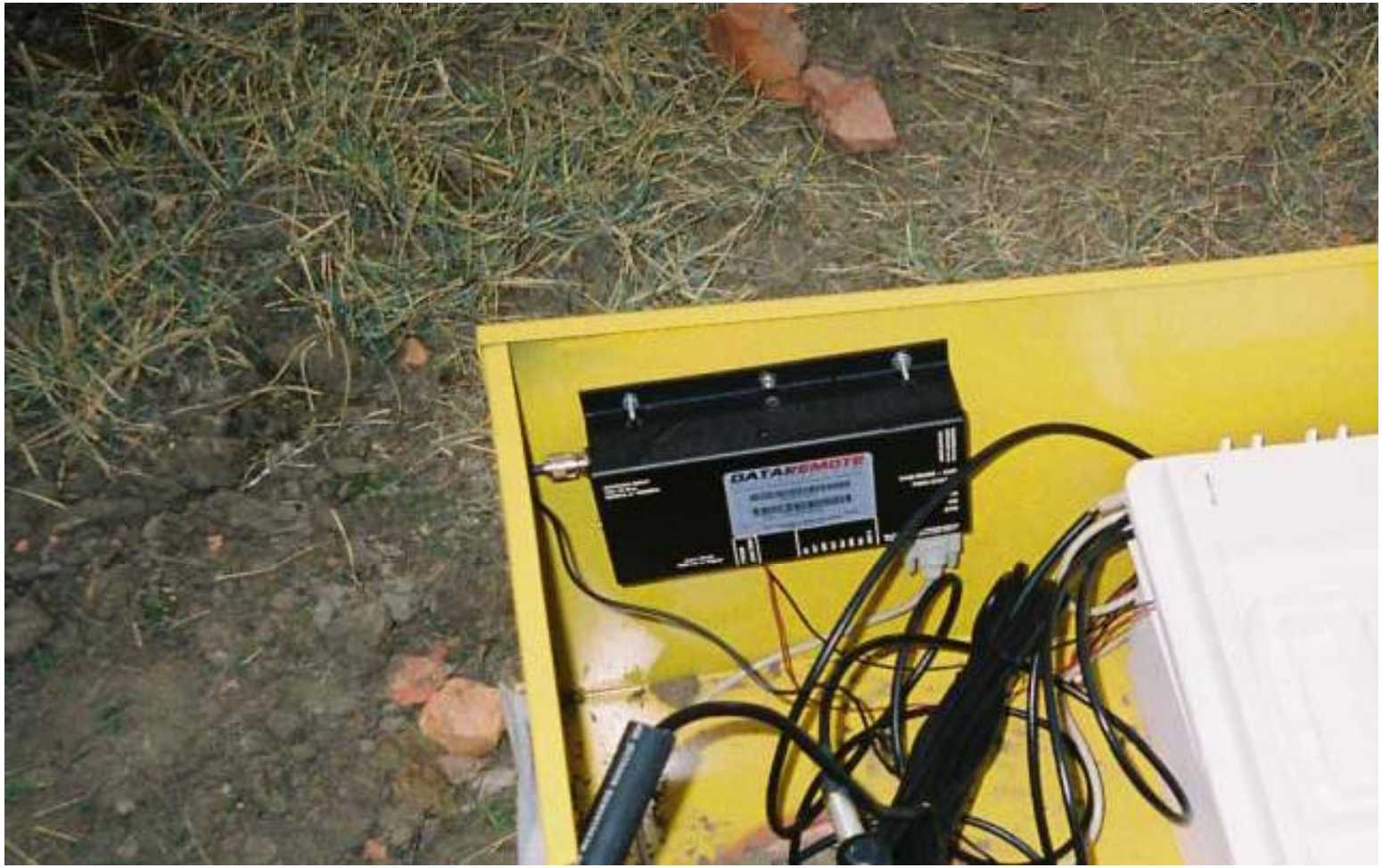
Electronic Detonators

- **Radically increases efficiency of waveform analysis**
  - ✓ **Precision firing at desired delay intervals**
  - ✓ **Increases number of possible solutions**
- **Effectiveness widely reported**
- **Sometimes critical to be using latest technology for community perception of operation**

Insure Proper Documentation

- **Insure seismic data collection for EVERY shot**
- **Closest non-company owned structure**
  - ✓ **Definition varies by state**
    - Inhabited structure
    - Road, bridge highway or structure
    - Any type of non-company owned building
- **Make sure data is correct**
  - ✓ **Date/Time**
  - ✓ **Location/Distance**
- **Many monitoring systems available**


WARNING
JOBSITE



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GREENLEE


STORAGE

Insure Proper Documentation

- **Shot Reports**
  - ✓ **Considered the most important documentation by courts**
  - ✓ **Are the most highly scrutinized documents in litigation**
  - ✓ **Considered a business record**
  - ✓ **Will be subject to discovery in litigation**
- **A large number of blast litigation cases are won or lost on accuracy of shot reports**

Insure Proper Documentation

- Shot Report has three parts
- Prediction
  - ✓ How is shot designed ?
  - ✓ How is effect on community calculated BEFORE drilling and loading shot ?
  - ✓ What precautions are taken to insure shot is loaded correctly ?
- Application
  - ✓ What controls are in place to insure shot loaded correctly
  - ✓ What modifications were required to meet changing conditions?
- Confirmation and Comments
  - ✓ Special conditions, concerns ?

Dyno Nobel North America
Southeast Region

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Blaster's Pre/Post-Blast Checklist

Customer _____ Location _____

Blaster _____ Date _____

Pre-Blast Checks:	***Yes***	***No***
Performed a pre-use inspection of all equipment and vehicles?	___	___
Signed in and notified quarry management that we're on site and ready to load shot?	___	___
Review driller's log?	___	___
Review seismic report from previous blast in this area?	___	___
Confirm seismic monitoring and instrument placement for this shot?	___	___
Inspected the blast area for personnel working, equipment broken down or other items that need to be addressed before loading?	___	___
Established blast site security and high wall safety zone by use of cones, markers, tape, blasting signs or yellow blasting men?	___	___
Inspected the face for cracks, caves, overhangs or light burden areas?	___	___
Inspected the blast site surface for cracks, slippery conditions and highwall hazards?	___	___
Checked for stray current, if applicable?	___	___
Placed stemming materials next to holes?	___	___
Checked actual layout vs. diagram and measured burdens and spacing at various points in shot?	___	___
Held a tailgate meeting with crew to assign duties and discuss the specifics of the shot?	___	___
Tape and check holes for proper depth, blockage & water?	___	___
Profile front row of holes for burden?	___	___

Scale Distance Factor: _____ Expected Vibration: _____

Loading Checks:	***Yes***	***No***
Density checks for bulk products? #1 _____ #2 _____ #3 _____	___	___
Adjust front row loading to prevent excessive face movement?	___	___
Cleared the blast site of unnecessary personnel and equipment?	___	___
Completed a final inspection of blast to check for proper initiation sequence. Each connection physically checked by Blaster-in-Charge and helper? Blaster _____ Helper _____	___	___
Establish setback markers and noted the distance?	___	___
Set a blast time, cleared Safety Zone, posted guards and established communication with them?	___	___
Protection provided for blaster and observers?	___	___
Post Blast Checks:	***Yes***	***No***
Waited for fumes to clear & checked for misfire?	___	___
Given "All Clear" signal?	___	___
Review seismic data?	___	___
Review video of shot?	___	___
Complete Blast Report?	___	___

Revised 08/26/02

Insure Proper Documentation

- **Shot report train wrecks**
  - ✓ **Erasures, improper corrections**
  - ✓ **Date on SR does not match seismogram**
  - ✓ **Time on SR does not match time on seismogram**
  - ✓ **Location printed on seismogram from another quarry**
  - ✓ **Distance from shot to closest structure never changes**
  - ✓ **No seismograph data**

Insure Proper Documentation

- **More issues…**
  - ✓ **Number of detonators doesn't match number of holes**
  - ✓ **Pounds used per hole does not match total used in shot**
  - ✓ **Pounds used for shot does not match bulk truck weigh ticket**
  - ✓ **Booster and detonator count does not match**

Immediate Response to Community Concerns

- First Response is critical
- Sense of being ignored always creates heightened tension
- Follow up often requred
- All actions must be documented

Blast Complaint Response Form

Date _____ Time _____

Complaint Received By _____

Complaint Received From _____

Address _____

Phone Number _____

Nature of Complaint _____

_____

_____

_____

First Response By _____

Date _____ Time _____

Type of Response phone ☐ visit ☐

Summary of Communications _____

_____

_____

Further Actions to be Taken _____

_____

_____

Complaint Closed yes ☐ no ☐

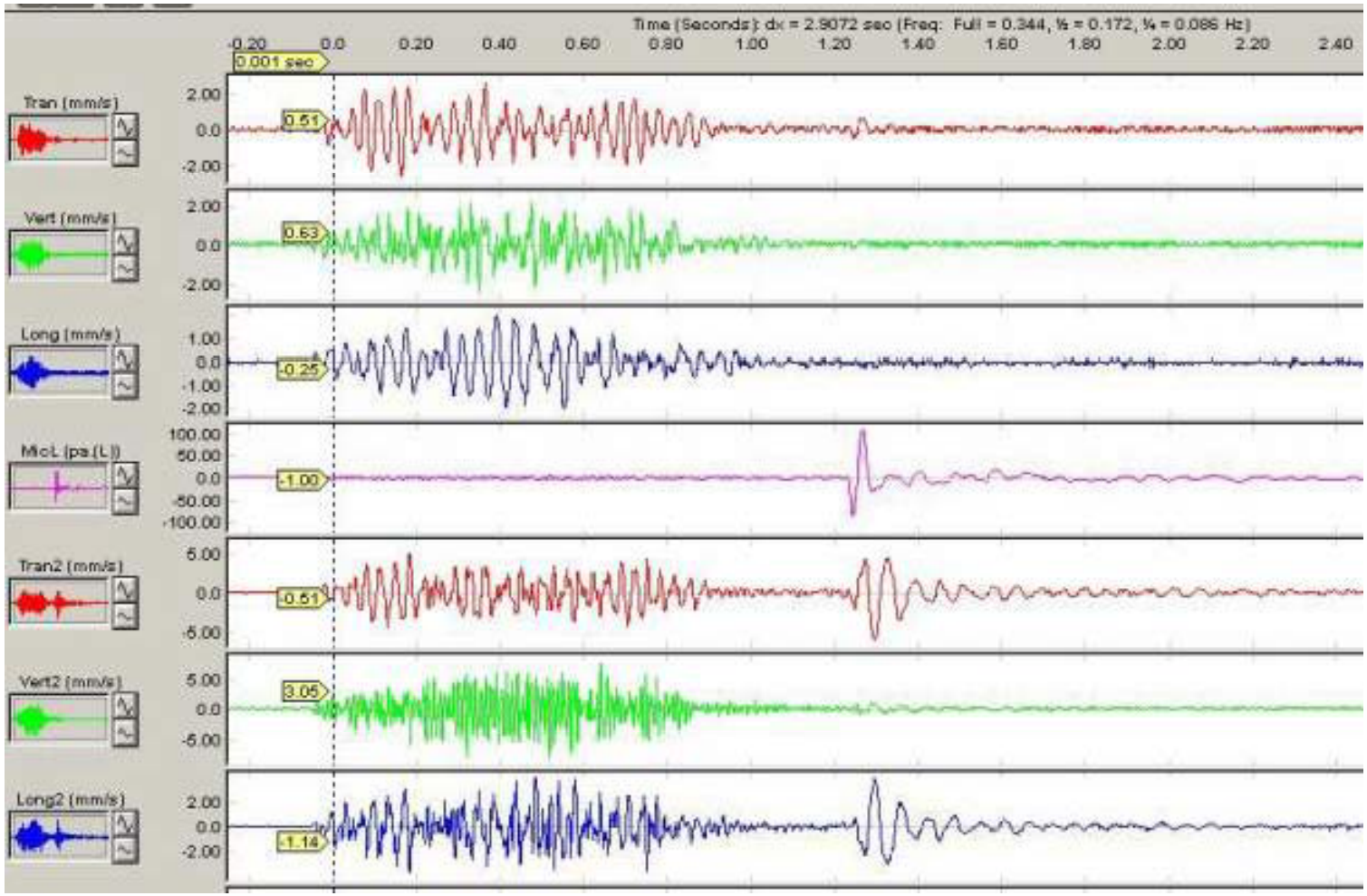
Date _____

Immediate Response to Community Concerns

- **Alternative monitoring methods can provide remediation to complaints**
  - ✓ **Split cable monitoring**
  - ✓ **Long term monitoring**
  - ✓ **Autonomous crack monitoring**
- **Aids in perception of response to community concerns**
- **Adds to documentation of blasting non-effect on structure**

Alternative Monitoring Techniques

- **Split Cable Monitoring**
  - ✓ **Determines structure response from ground vibration and/or over pressure**
  - ✓ **Modified seismograph**
    - Microphone and single transducer on exterior
    - One or more transducers on interior
  - ✓ **Allow for comparison of multiple locations with the same time history reference**



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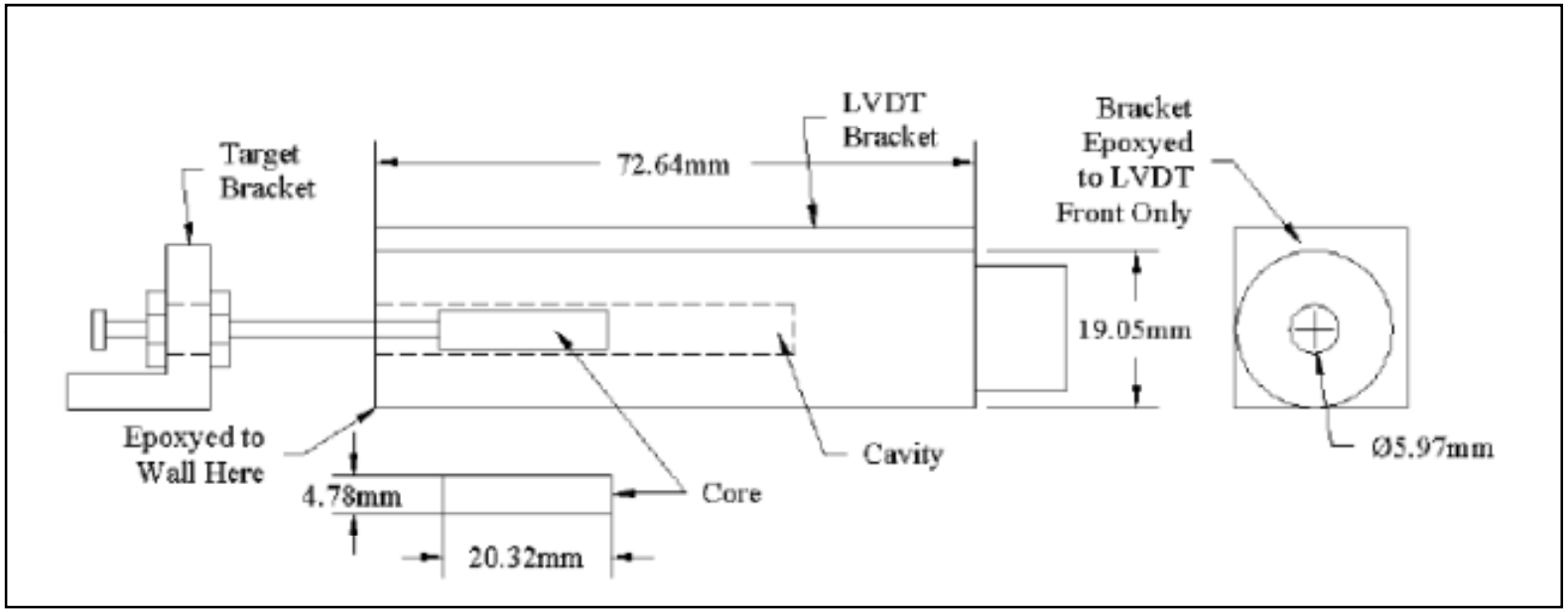
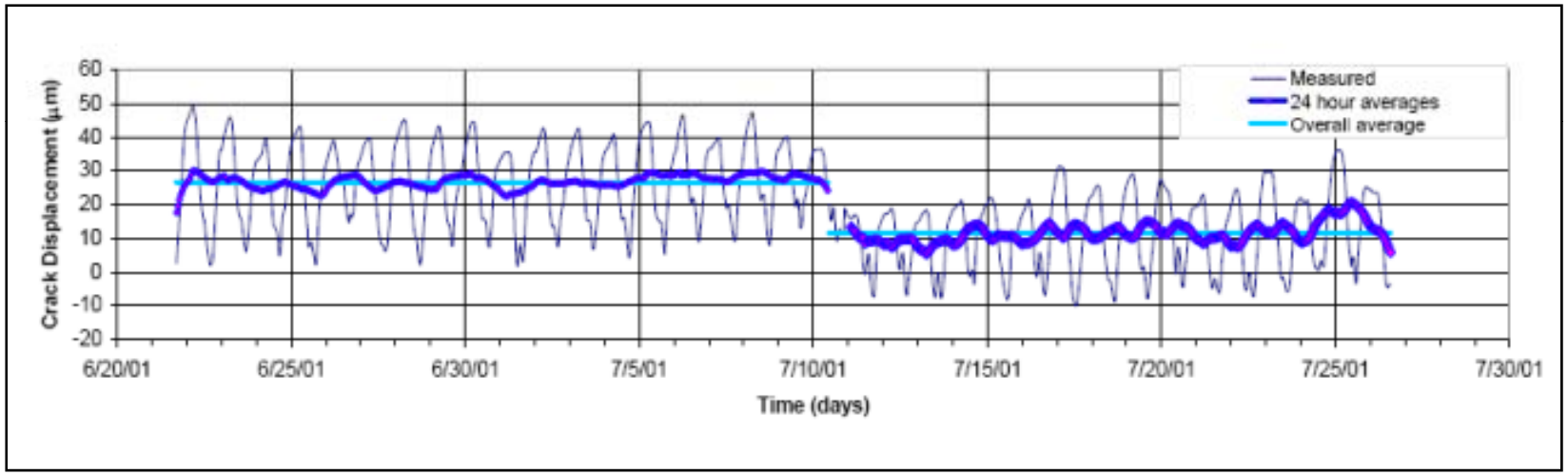
Alternative Monitoring Techniques

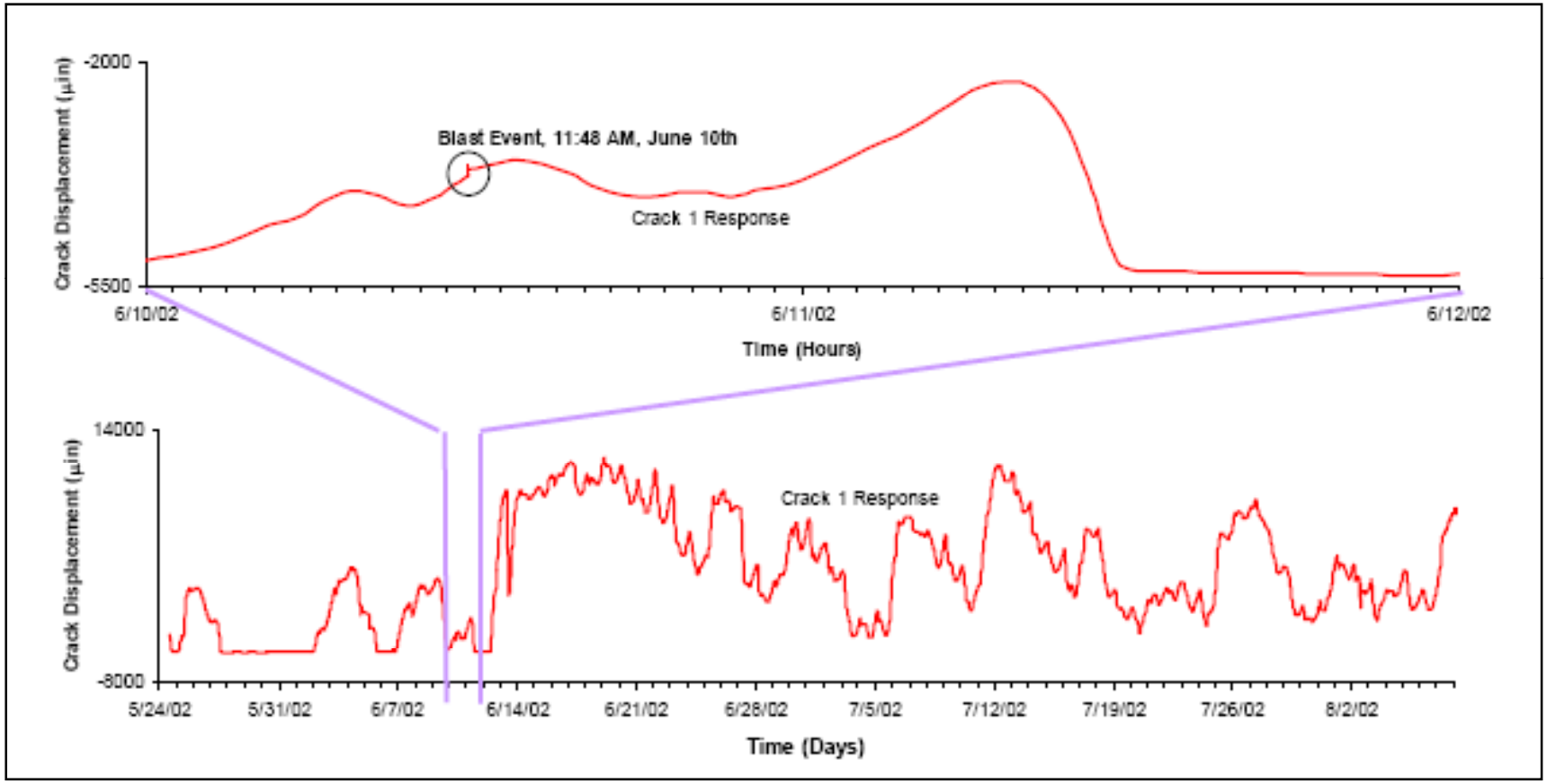
- **Long term monitoring program**
  - ✓ **Installation of continuous recording seismograph on the interior of target structure**
    - Does not replace regulatory monitoring
    - Records structure response to blast events
    - Records localized vibration from household activities
  - ✓ **Effective in responding to complaints**
    - Compares blasting to regular events
    - Requires continuous contact with property owner
    - Provides monitoring where property owner is concerned, in the structure

Alternative Monitoring Techniques

- **Autonomous crack monitoring**
  - ✓ **Relatively new technique**
  - ✓ **Similar to long term monitoring program**
  - ✓ **Measures actual movement of existing cracks over time**
  - ✓ **Documents none blast impact on cracks in structures**


Target
Bracket
72.64mm
LVDT
Bracket
Bracket
Epoxyed
to LVDT
Front Only
19.05mm
Epoxyed to
Wall Here
4.78mm
20.32mm
Core
Cavity
Ø5.97mm


Crack Displacement (µm)
60
50
40
30
20
10
0
-10
-20
6/20/01
6/25/01
6/30/01
7/5/01
7/10/01
7/15/01
7/20/01
7/25/01
7/30/01
Time (days)
Measured
24 hour averages
Overall average

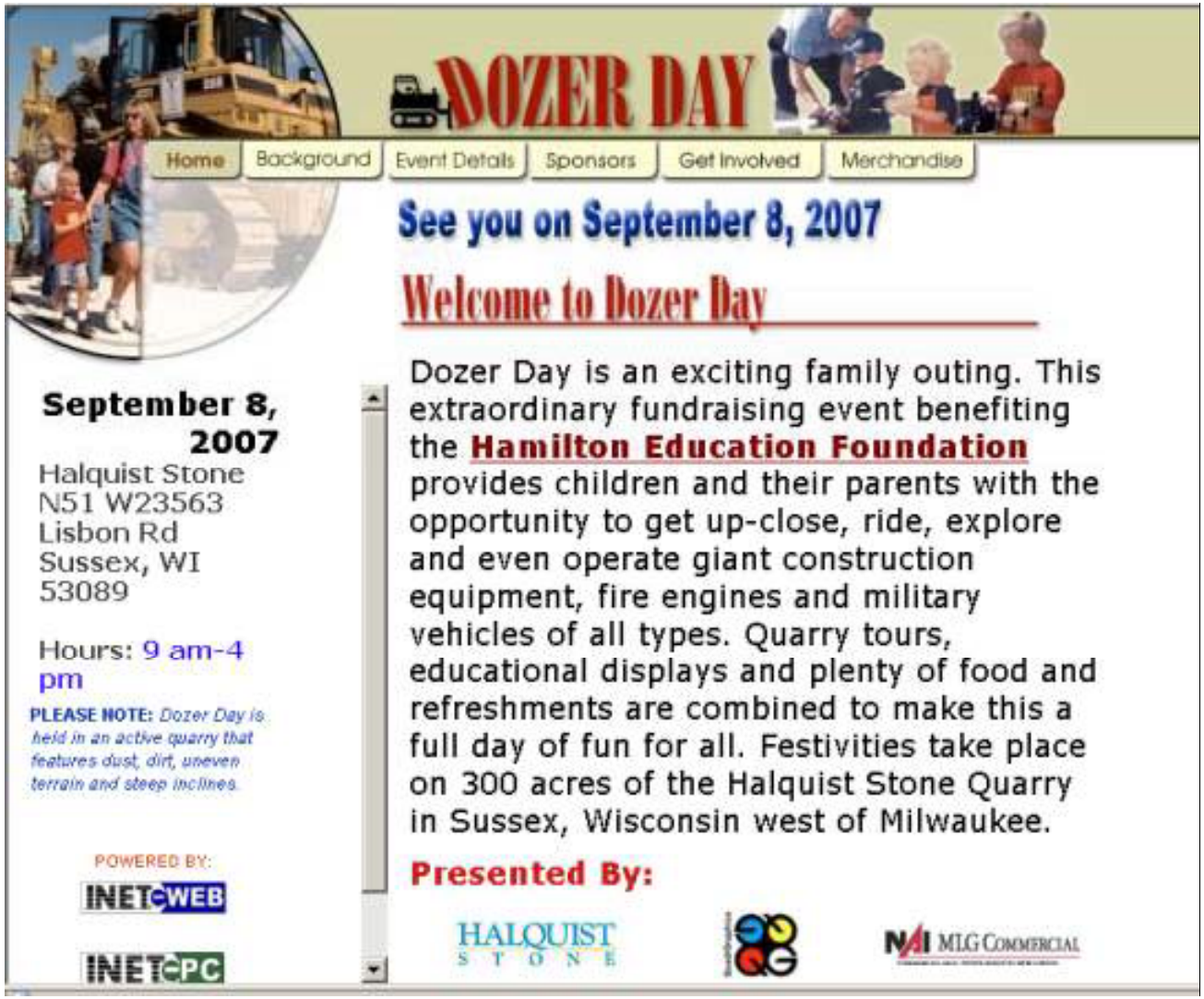

Crack Displacement (µin)
-2000
-5500
Blast Event, 11:48 AM, June 10th
Crack 1 Response
6/10/02
6/11/02
6/12/02
Time (Hours)
Crack Displacement (µin)
14000
-8000
Crack 1 Response
5/24/02
5/31/02
6/7/02
6/14/02
6/21/02
6/28/02
7/5/02
7/12/02
7/19/02
7/26/02
8/2/02
Time (Days)

Maintain Communication….

- **Proactive approach**
- **Once complaints begin, reaching a consensus with community becomes difficult**
  - ✓ **Emotionally charged communication**
  - ✓ **Lack of trust**
  - ✓ **All responses will be viewed as means of pacifying community**
- **Time spent on the front side will always pay benefits**

Maintain Communication….

- Adopt a school
  - ✓ Employee mentoring/tutoring
  - ✓ Sponsor a science room
  - ✓ Assist with athletic field development
- Open door policy with neighbors
- Invite to view blast
- Sponsor Open House


DOZER DAY
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Event Details
Sponsors
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Merchandise
See you on September 8, 2007
Welcome to Dozer Day
September 8, 2007
Halquist Stone
N51 W23563
Lisbon Rd
Sussex, WI
53089
Hours: 9 am-4 pm
PLEASE NOTE: Dozer Day is held in an active quarry that features dust, dirt, uneven terrain and steep inclines.
POWERED BY:
INETeWEB
INETePC
Dozer Day is an exciting family outing. This extraordinary fundraising event benefiting the Hamilton Education Foundation provides children and their parents with the opportunity to get up-close, ride, explore and even operate giant construction equipment, fire engines and military vehicles of all types. Quarry tours, educational displays and plenty of food and refreshments are combined to make this a full day of fun for all. Festivities take place on 300 acres of the Halquist Stone Quarry in Sussex, Wisconsin west of Milwaukee.
Presented By:
HALQUIST STONE
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Don't miss Dozer Days in Sussex Wi
Just wanted to make use that everyone know it will be Dozer Days in Sussex on Sept. 8th 2007.
This event was created in 1997. It is a fundraising event for Hamilton Education foundation. This event run from 9am to 4 pm. It is an event for the whole family. Children and their parents with the opportunity to get up-close, ride, explore and even operate giant construction equipment, fire engines and military vehicles of all types. Festivities take place on 300 acres of the Halquist Stone Quarry in Sussex, Wisconsin west of Milwaukee. There will also be food and refreshments. So don't miss this great event.
Posted by Debby Thompson on 09/04/2007 10:42 PM | Comments (1) |


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Dozer Day
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Sussex
Dozer Day is a unique, exciting family outing and fundraising event benefiting the Hamilton Education Foundation. The Halquist Stone Company opens its Town of Lisbon quarry to the public for tours and an opportunity to learn more about the quarry, military and heavy construction equipment.Kids of all ages are able to participate in a wide variety of activities
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Doozy of a Dozer Day
Love of rock 'n' roar expected to draw thousands to fund-raiser
By ERIN RICHARDS
erichards@journalsentinel.com
Posted: Sept. 6, 2007
Lisbon - With temperatures in the 70s predicted, organizers of Dozer Day at Halquist Stone Co. expect to welcome 15,000 to 20,000 people to a real rumbling, roaring rock quarry on Saturday.
Advertisement
but guess what it comes with.
Dozer Day, which is from 9 a.m. to 4 p.m., began as annual event in 1997. Since 2003, it has been held every other year.
Dozer Day

Home remedies that work
Health Researchers Cured a Two-Day Migraine in Minutes
boardroom.com/remedies

House Payments Fall Again
$180,000 Mortgage for $999/Mo. Paying too much? No credit check reqd.
www.lowermybills.com

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It raises money for the Hamilton Education Foundation by charging visitors a fee to climb on giant tractor tires, sit in the cab with operators of the giant machines, ride on the bed of a monster dump truck and see a Civil War cannon explode multiple times during the day.

Joy Czarnik of Sussex said her three children, ages 7, 9 and 10, get so excited about Dozer Day that she and her husband try not to talk about it too much beforehand.

"One year, they had these things that were like garbage-can lids set up and the kids could take big rocks and throw them at the targets," Czarnik said. "They love it because you're always saying things to them like, 'Stop throwing rocks!' "

Since the first Dozer Day, the event has raised a total of $551,410, said Anita Weier, the executive director of the foundation. The money funds various programs and educational items for students and teachers in the district.

"We've got the (Wisconsin Army National) Guard bringing in a Black Hawk helicopter, we'll have six fire departments here with fire hoses, and there's millions and millions of dollars worth of quarry machinery that people can play on," said company President Tom Halquist, who's taken to riding a bike on the day of the event because a golf cart is too

Photo/William Meyer

Miguel Ortiz of Landworks Inc. of Sussex works Thursday on stone edging at the Halquist Stone Co. quarry.

Photo/William Meyer

Jason Drallmeier of FABCO Equipment Inc. walks Thursday past equipment for display at Dozer Day on Saturday at the Halquist Stone Co. quarry in Lisbon. The quarry's tough terrain is being transformed into a 300-acre playground to raise money for the Hamilton Education Foundation.

If You Go

- **Admission:** $6 for ages 2 to 12 and $8 for age 13 and older


WELCOME
GREYSTONE
RESIDENTS
DYNO
DYNO

Putting It All together

- With increased scrutiny in many communities, just doing it right is not enough.
- Liability risks from blasting can be a company killer, shortcuts cannot be tolerated on the bench.
- Accuracy in documentation is often the difference in winning lawsuits or deflecting potential litigation.
- We can no longer hide behind the berms. A commitment to be active in the community will always pay dividends far beyond the cost of proactive programs.

Putting It All together

“There are few issues or costs that can override the ability of any operation to be profitable and successful. The only thing that can force us to lock the front gate Is the people who live around us”

- Jim Smack, President – Vulcan Materials’ Mid-East Division

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