Appendix A

Seismograph Reports for Ground Vibration and Airblast

Salls Construction
Unser Road Extension
array toward house
20 ft

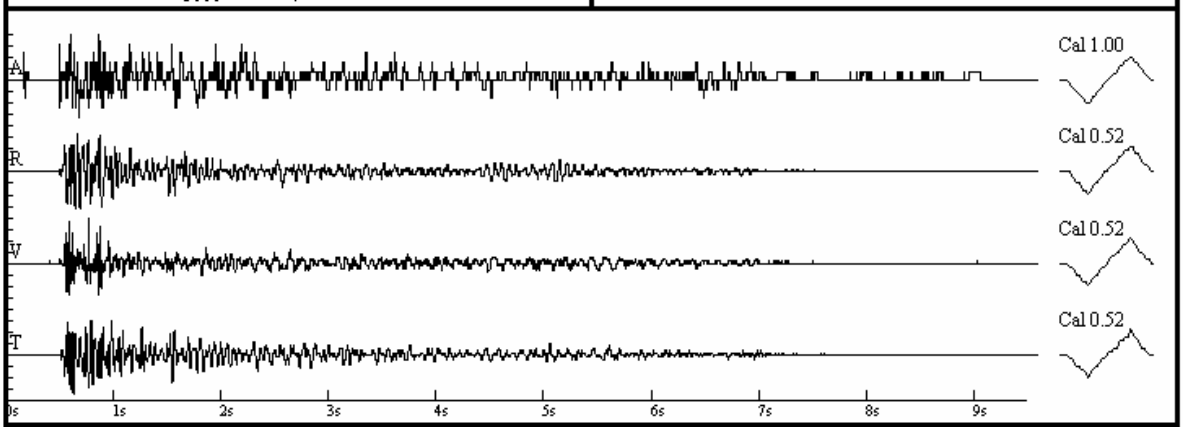
File: 01050335.DTB Event Number: 335 Date: 9/16/2004 Time: 15:42
Acoustic Trigger: 147 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 1050

Amplitudes and Frequencies

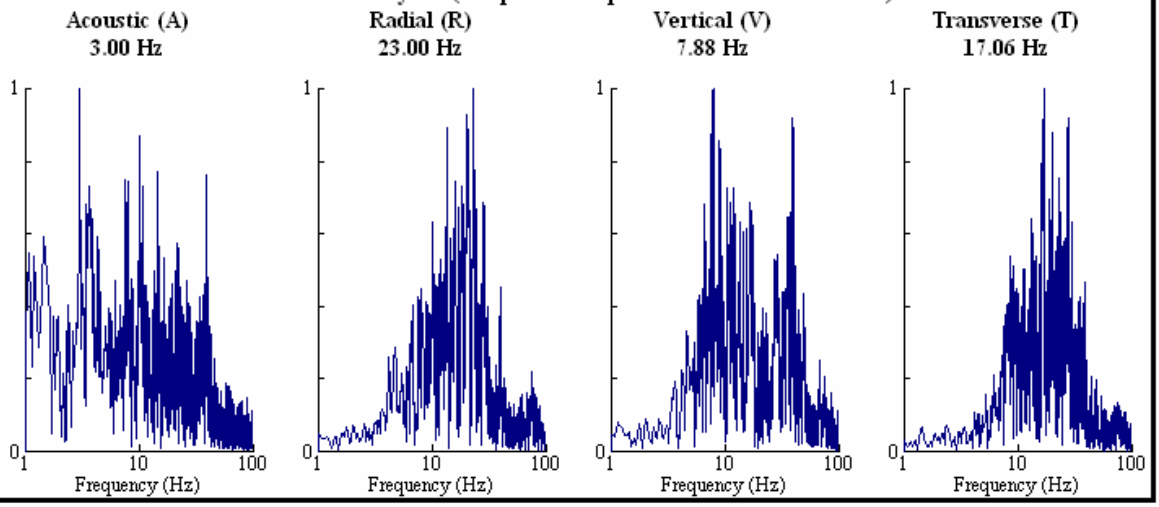
Acoustic (A): 120 dB @ 28.4 Hz
(0.20Mb 0.0029psi 0.0200kPa)
Radial (R): 0.68in/s 17.272mm/s @ 24.3Hz
***Vertical (V):* 0.80in/s 20.32mm/s @ 39.3Hz**
Transverse (T): 0.68in/s 17.272mm/s @ 46.5Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.80in/s (0.200in/s/div) 20.32mm/s (5.080mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
50 ft

File: 00930274.DTB Event Number: 274 Date: 9/16/2004 Time: 15:43
Acoustic Trigger: 148 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

Acoustic (A): 116 dB @ 24.3 Hz
(0.12Mb 0.0017psi 0.0120kPa)

***Radial (R):* 1.12in/s 28.448mm/s @ 25.6Hz**

Vertical (V): 0.52in/s 13.208mm/s @ 32.0Hz

Transverse (T): 0.79in/s 20.066mm/s @ 34.1Hz

Calibration Date (yyyy/mm/dd): 2000/10/31

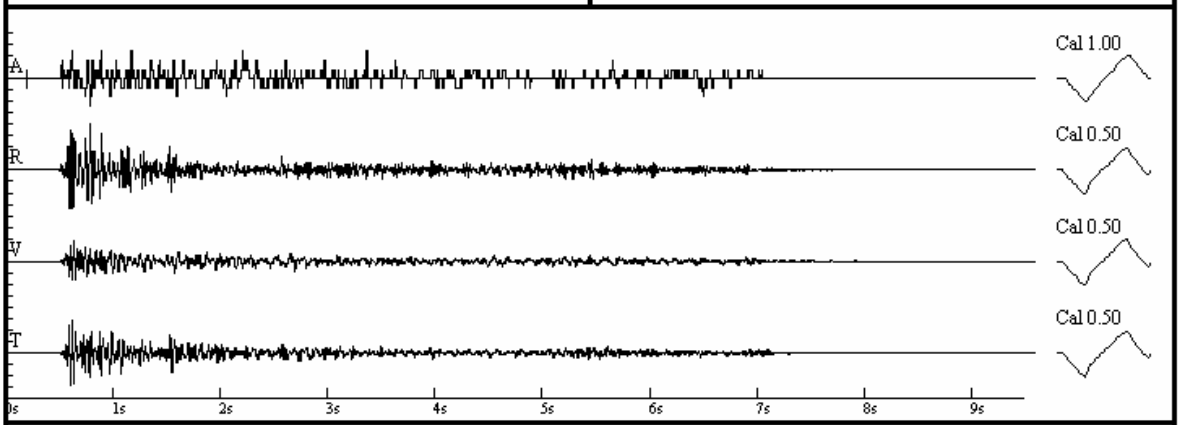
Graph Information

Duration: 0.000 sec To: 9.500 sec

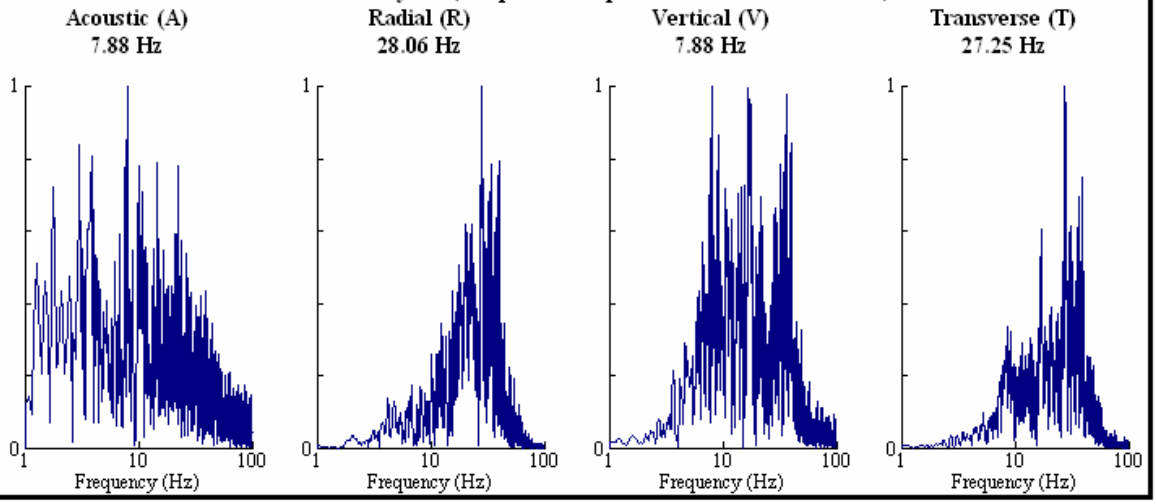
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
1.12in/s (0.280in/s/div) 28.45mm/s (7.112mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
150 ft

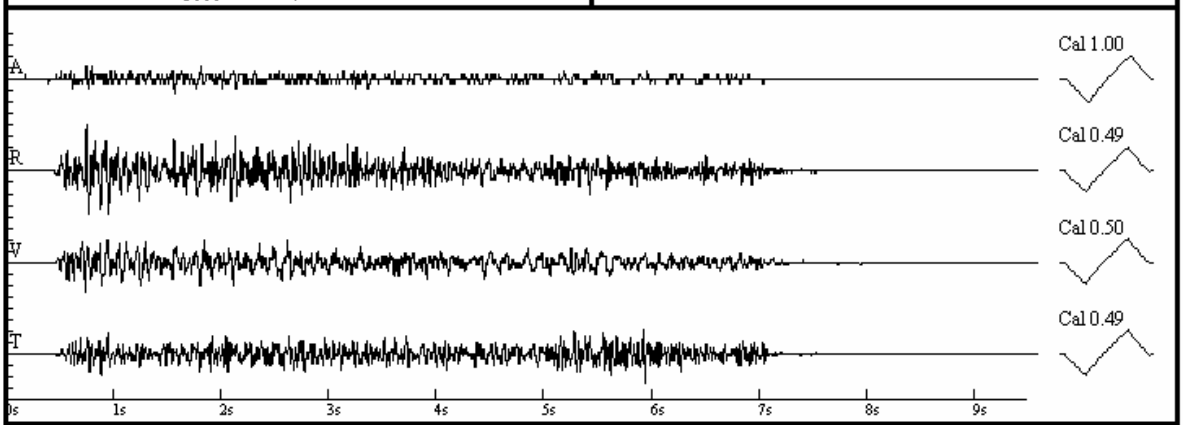
File: 01906120.DTB Event Number: 120 Date: 9/16/2004 Time: 15:44
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

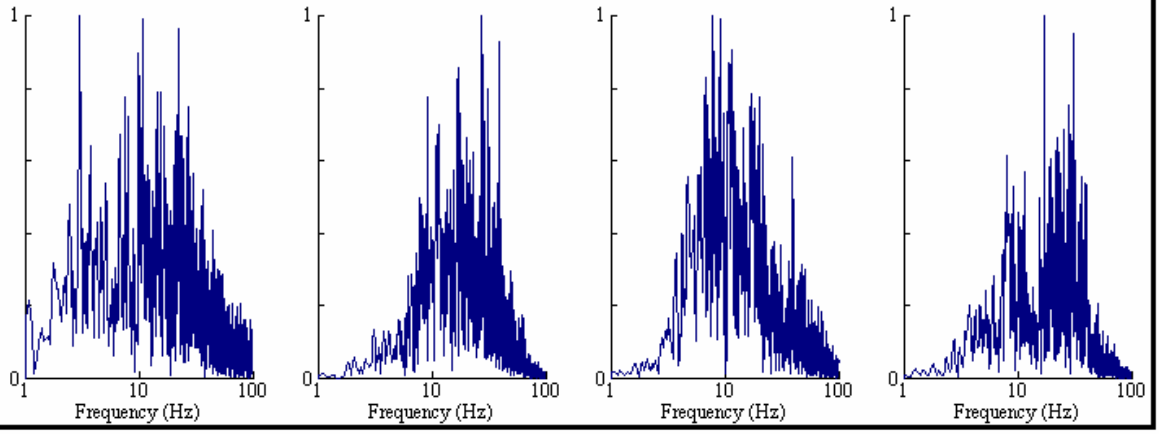
Acoustic (A): 110 dB @ 28.4 Hz
(0.06Mb 0.0009psi 0.0060kPa)
***Radial (R):* 0.20in/s 5.08mm/s @ 24.3Hz**
Vertical (V): 0.13in/s 3.302mm/s @ 22.2Hz
Transverse (T): 0.13in/s 3.302mm/s @ 32.0Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
300 ft

File: 02240117.DTB Event Number: 117 Date: 9/16/2004 Time: 15:43
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2240

Amplitudes and Frequencies

Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)

***Radial (R):* 0.115in/s 2.921mm/s @ 24.3Hz**

Vertical (V): 0.075in/s 1.905mm/s @ 8.5Hz

Transverse (T): 0.09in/s 2.286mm/s @ 20.4Hz

Calibration Date (yyyy/mm/dd): 2003/12/05

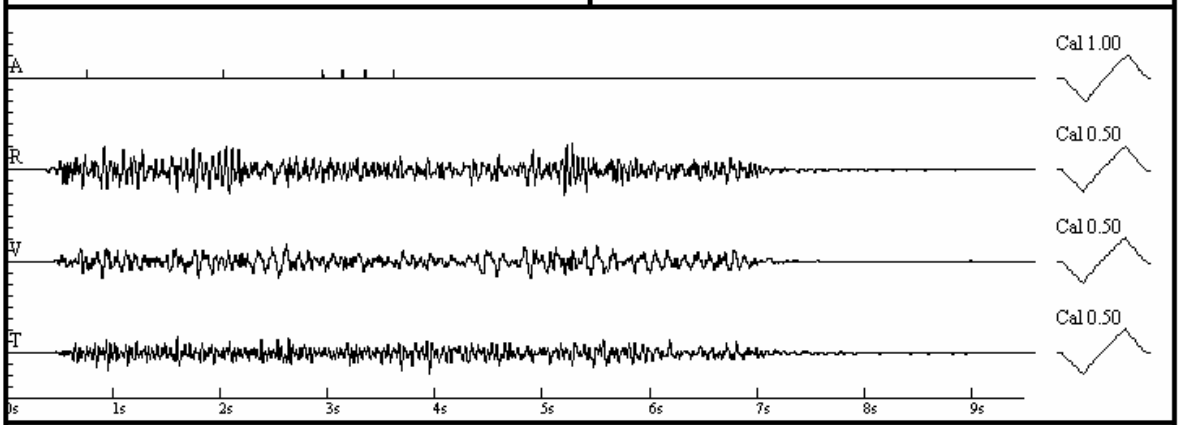
Graph Information

Duration: 0.000 sec To: 9.500 sec

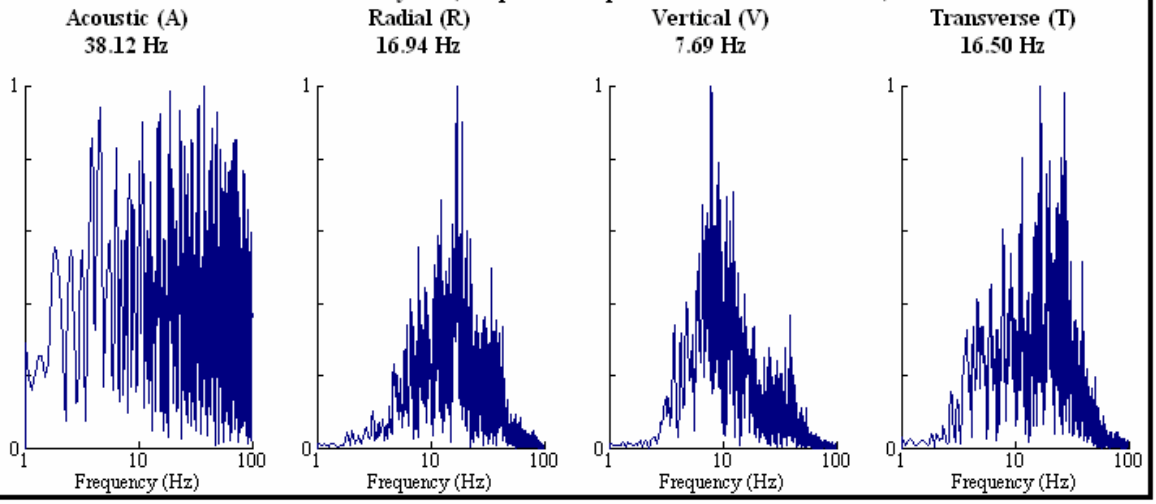
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
500 ft

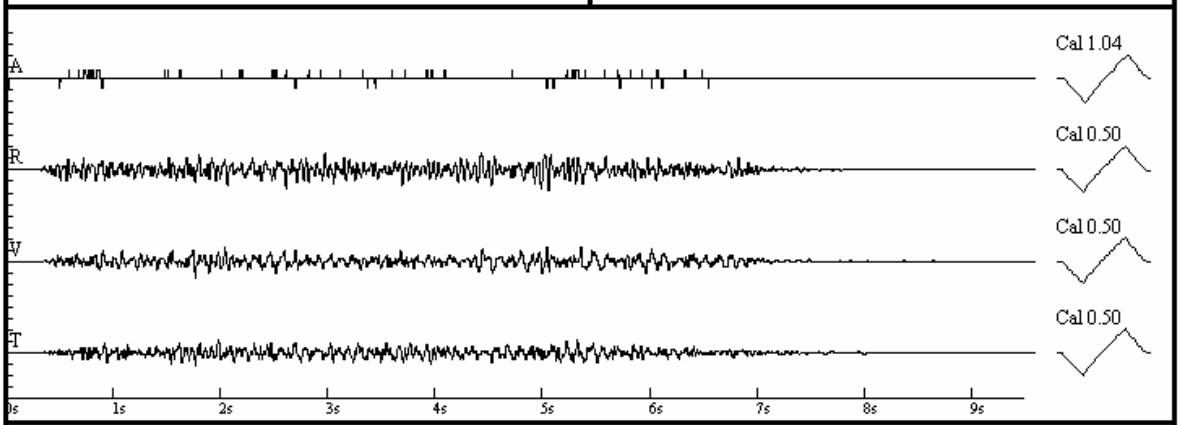
File: 01792208.DTB Event Number: 208 Date: 9/16/2004 Time: 15:43
Acoustic Trigger: 142 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1792

Amplitudes and Frequencies

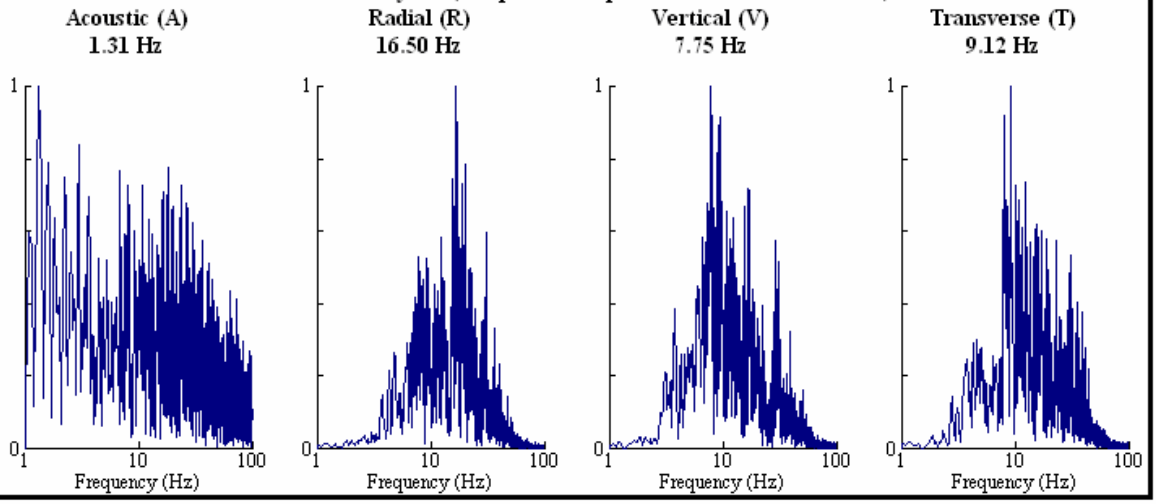
Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)
***Radial (R):* 0.09in/s 2.286mm/s @ 22.2Hz**
Vertical (V): 0.07in/s 1.778mm/s @ 21.3Hz
Transverse (T): 0.06in/s 1.524mm/s @ 20.4Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
13 ft

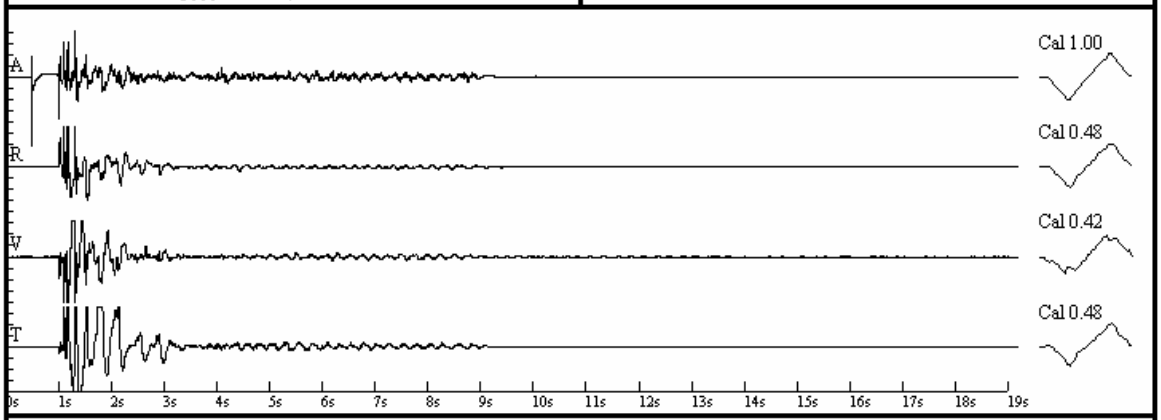
File: 01050340.DTB Event Number: 340 Date: 9/21/2004 Time: 15:56
Acoustic Trigger: 147 dB Seismic Trigger: 0.12in/s 3.048mm/s Serial Number: 1050

Amplitudes and Frequencies

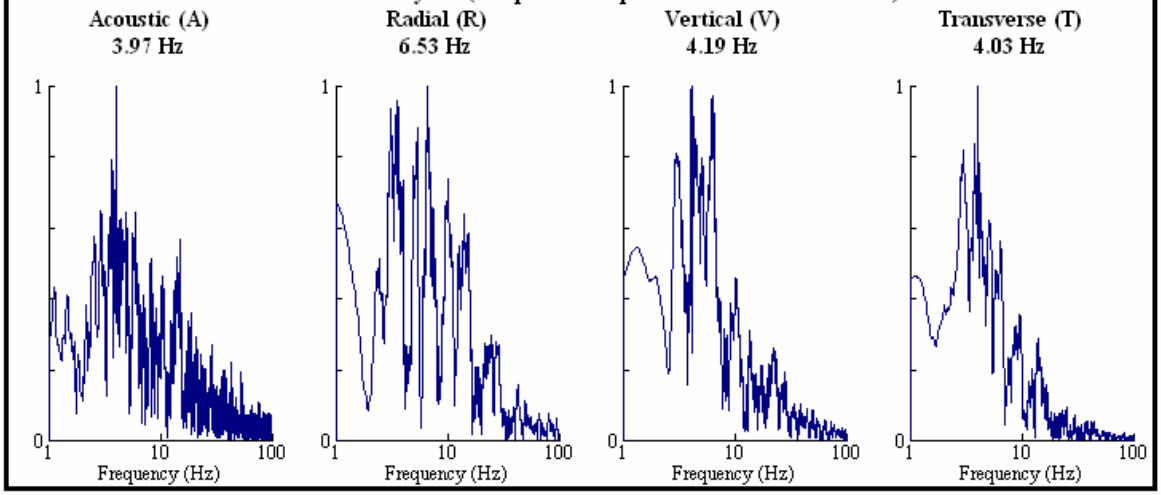
Acoustic (A): 135 dB @ 13.4 Hz
(1.16Mb 0.0168psi 0.1160kPa)
Radial (R): 9.12in/s 231.648mm/s @ 17.0Hz
***Vertical (V):* 10.24in/s 260.096mm/s @ 6.9Hz**
***Transverse (T):* 10.24in/s 260.096mm/s @ 3.5Hz**
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
135dB 1.12Mb (0.280Mb/div)
Seismic Scale:
10.20in/s (2.550in/s/div) 259.08mm/s (64.770mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
30 ft

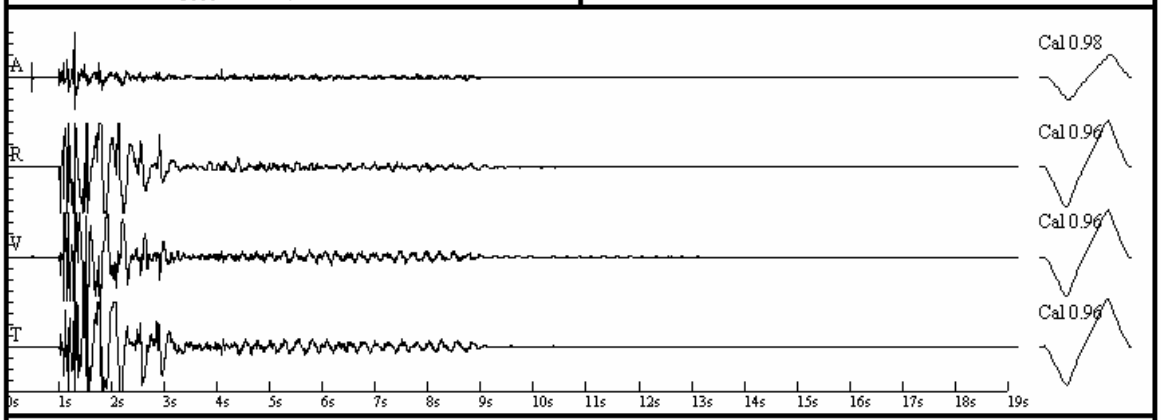
File: 02407080.DTB Event Number: 080 Date: 9/21/2004 Time: 15:58
Acoustic Trigger: 106 dB Seismic Trigger: 0.10in/s 2.54mm/s Serial Number: 2407

Amplitudes and Frequencies

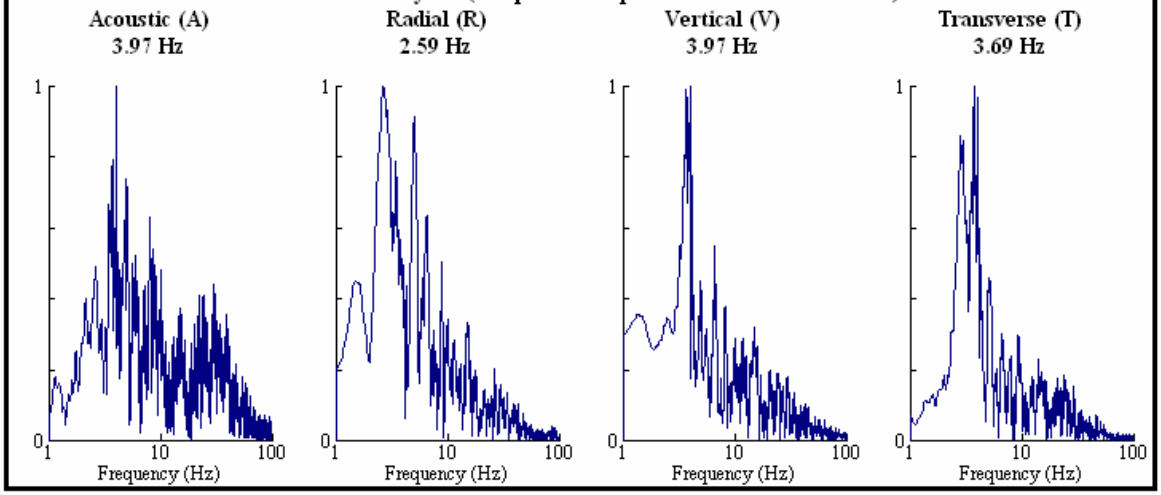
Acoustic (A): 142 dB @ 32.0 Hz
(2.52Mb 0.0365psi 0.2519kPa)
Radial (R): **10.24in/s 260.096mm/s @ 15.0Hz**
Vertical (V): 10.16in/s 258.064mm/s @ 36.5Hz
Transverse (T): **10.24in/s 260.096mm/s @ 18.2Hz**
Calibration Date (yyyy/mm/dd): 2003/03/17

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
142dB 2.52Mb (0.630Mb/div)
Seismic Scale:
10.20in/s (2.550in/s/div) 259.08mm/s (64.770mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
110 ft
in the ground between pipelines

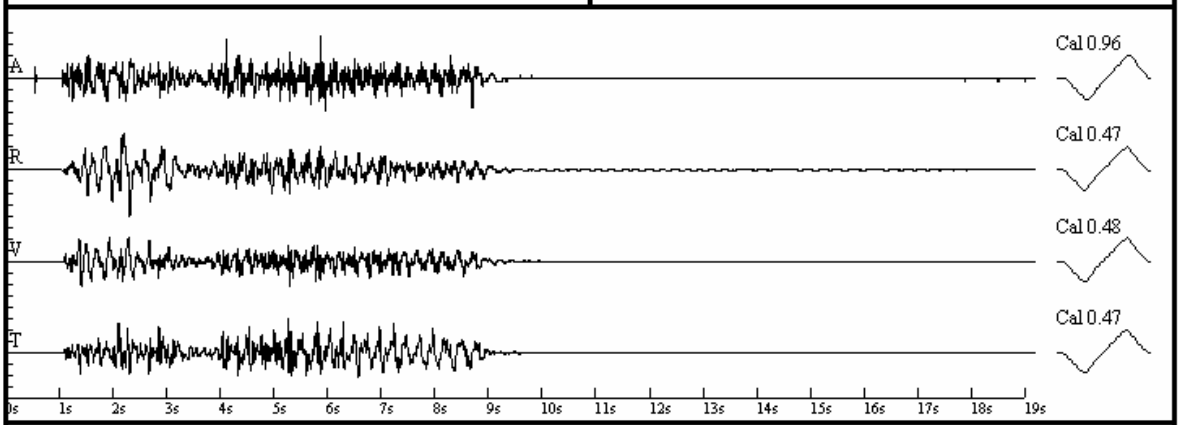
File: 01906125.DTB Event Number: 125 Date: 9/21/2004 Time: 15:58
Acoustic Trigger: 130 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 1906

Amplitudes and Frequencies

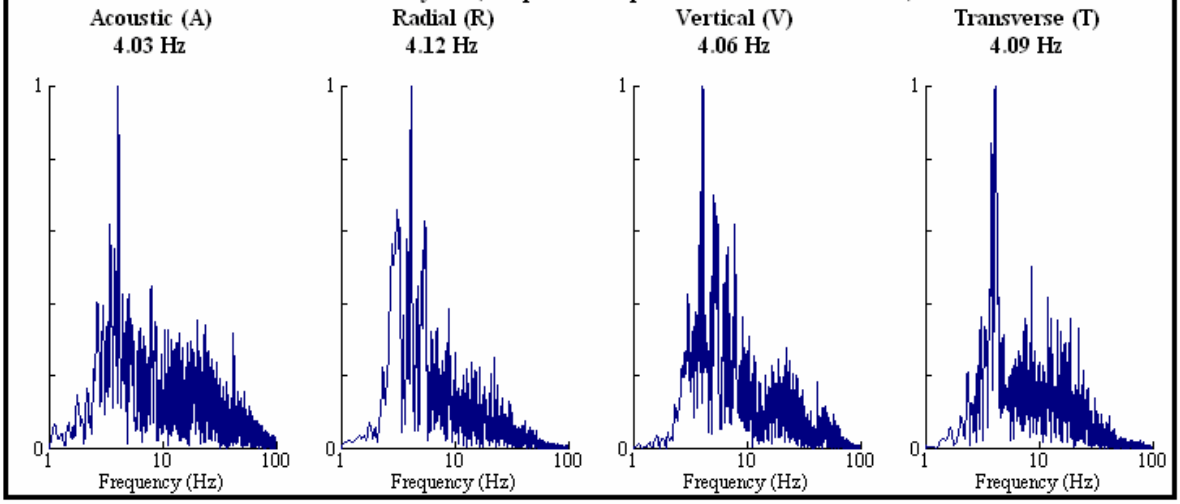
Acoustic (A): 124 dB @ 23.2 Hz
(0.30Mb 0.0044psi 0.0300kPa)
***Radial (R):* 1.96in/s 49.784mm/s @ 4.3Hz**
Vertical (V): 1.06in/s 26.924mm/s @ 36.5Hz
Transverse (T): 1.46in/s 37.084mm/s @ 16.0Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
124dB 0.32Mb (0.080Mb/div)
Seismic Scale:
1.96in/s (0.490in/s/div) 49.78mm/s (12.446mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
290 ft

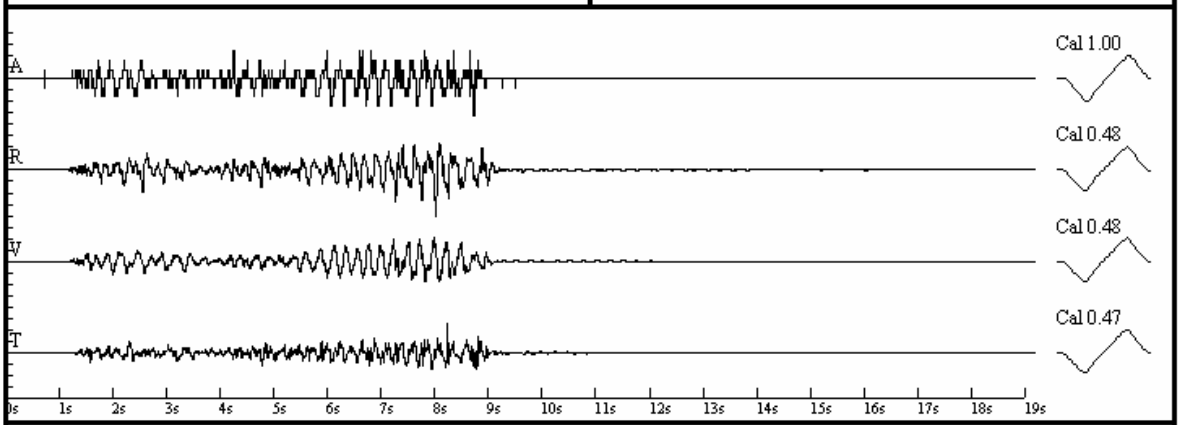
File: 02241165.DTB Event Number: 165 Date: 9/21/2004 Time: 15:56
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2241

Amplitudes and Frequencies

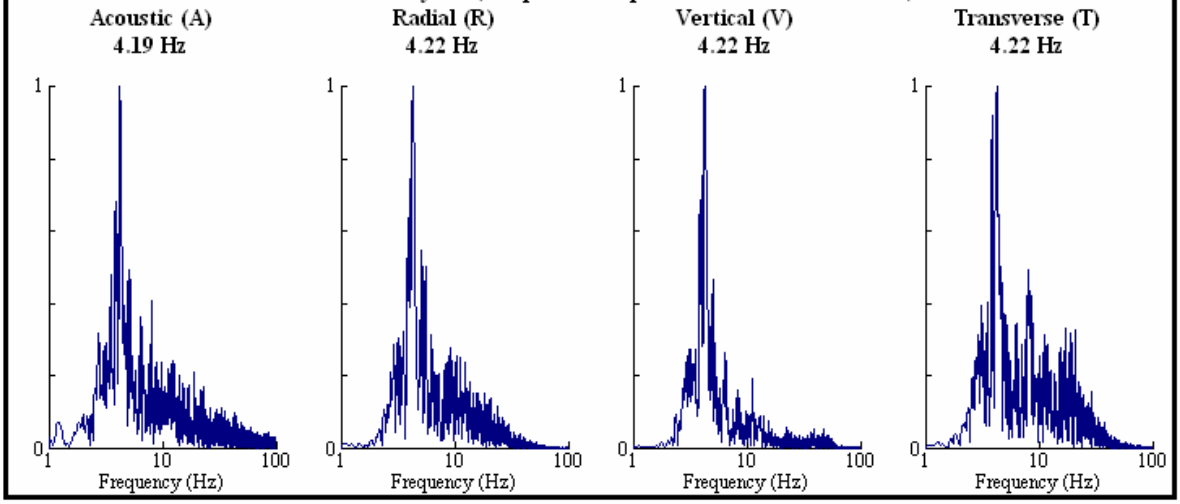
Acoustic (A): 118 dB @ 11.6 Hz
(0.16Mb 0.0023psi 0.0160kPa)
***Radial (R):* 1.34in/s 34.036mm/s @ 6.7Hz**
Vertical (V): 0.68in/s 17.272mm/s @ 4.6Hz
Transverse (T): 0.84in/s 21.336mm/s @ 19.6Hz
Calibration Date (yyyy/mm/dd): 2004/03/29

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
1.34in/s (0.335in/s/div) 34.04mm/s (8.509mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
400 ft

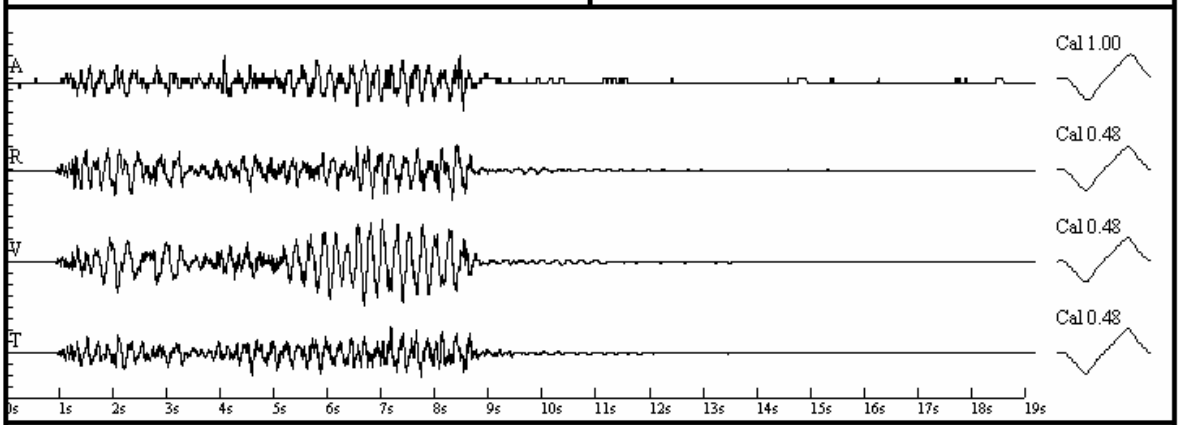
File: 01258084.DTB Event Number: 084 Date: 9/21/2004 Time: 15:56
Acoustic Trigger: 110 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1258

Amplitudes and Frequencies

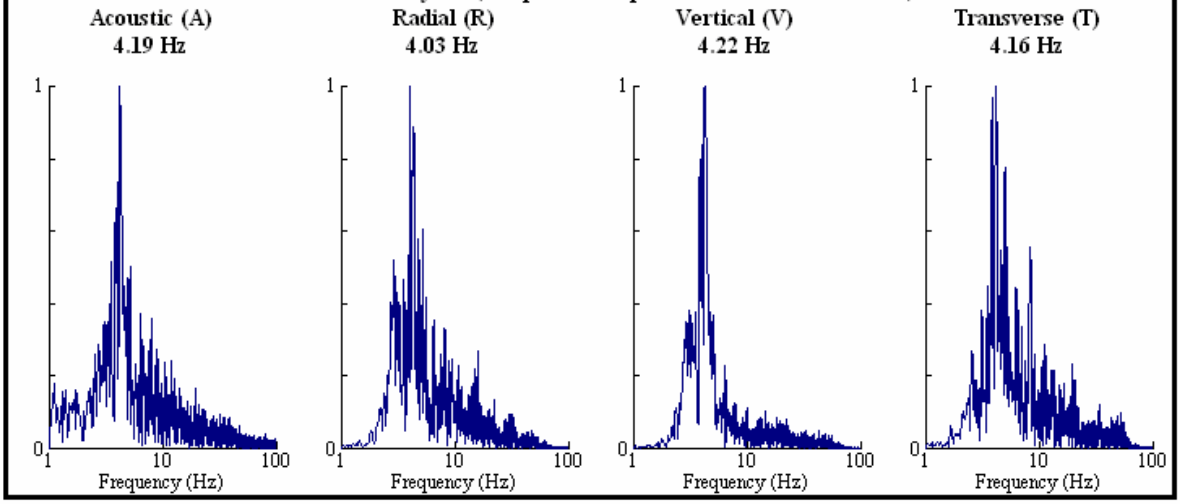
Acoustic (A): 117 dB @ 8.2 Hz
(0.14Mb 0.0020psi 0.0140kPa)
Radial (R): 0.22in/s 5.588mm/s @ 4.4Hz
***Vertical (V):* 0.335in/s 8.509mm/s @ 4.2Hz**
Transverse (T): 0.19in/s 4.826mm/s @ 9.8Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.34in/s (0.085in/s/div) 8.64mm/s (2.159mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
600 ft

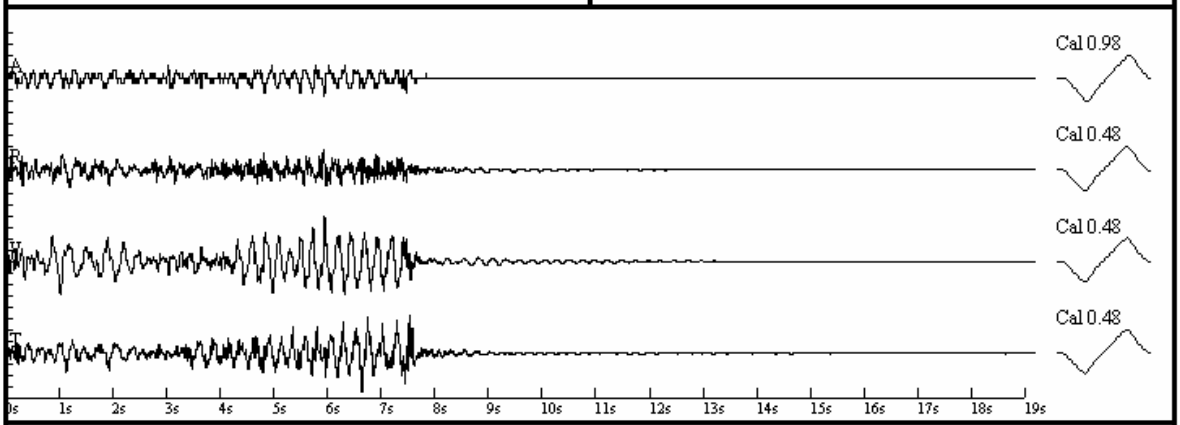
File: 02240143.DTB Event Number: 143 Date: 9/21/2004 Time: 15:57
Acoustic Trigger: 106 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2240

Amplitudes and Frequencies

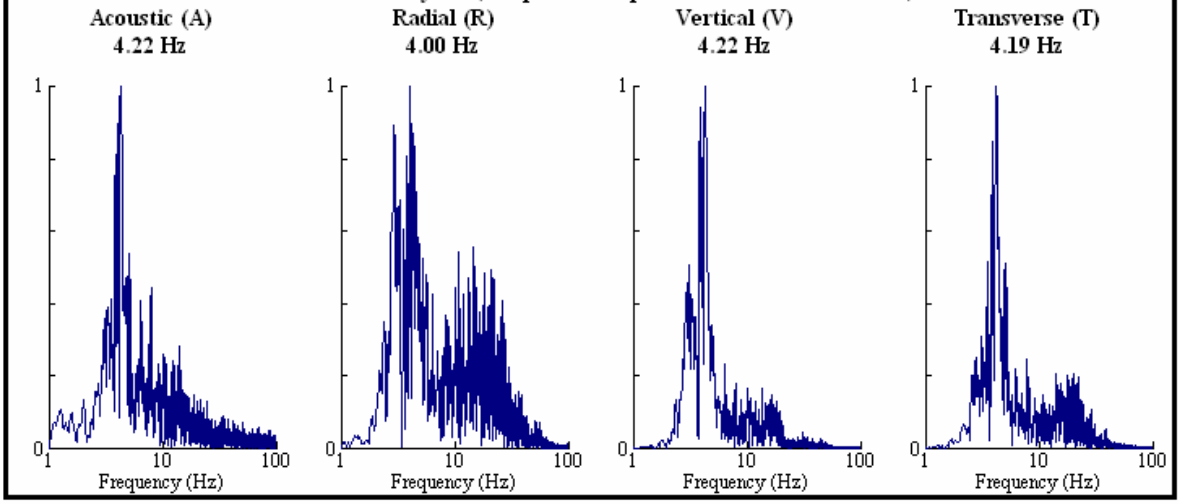
Acoustic (A): 112 dB @ 11.6 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.115in/s 2.921mm/s @ 10.2Hz
***Vertical (V):* 0.255in/s 6.477mm/s @ 5.8Hz**
Transverse (T): 0.225in/s 5.715mm/s @ 5.5Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.26in/s (0.065in/s/div) 6.60mm/s (1.651mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
house on Unser
1411 ft

File: 00930276.DTB Event Number: 276 Date: 9/21/2004 Time: 15:56
Acoustic Trigger: 122 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

Acoustic (A): 112 dB @ 21.3 Hz
(0.08Mb 0.0012psi 0.0080kPa)

***Radial (R):* 0.09in/s 2.286mm/s @ 5.5Hz**

Vertical (V): 0.08in/s 2.032mm/s @ 6.0Hz

Transverse (T): 0.08in/s 2.032mm/s @ 4.6Hz

Calibration Date (yyyy/mm/dd): 2000/10/31

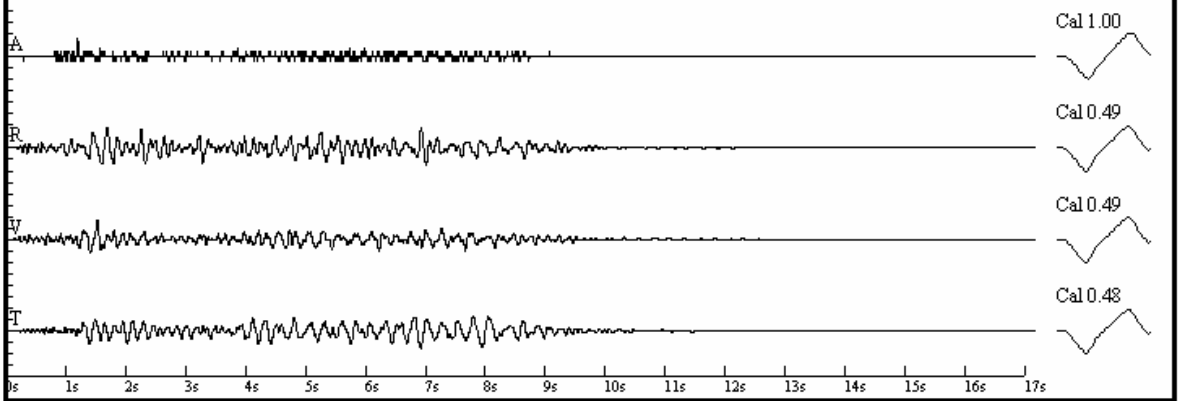
Graph Information

Duration: 0.000 sec To: 17.000 sec

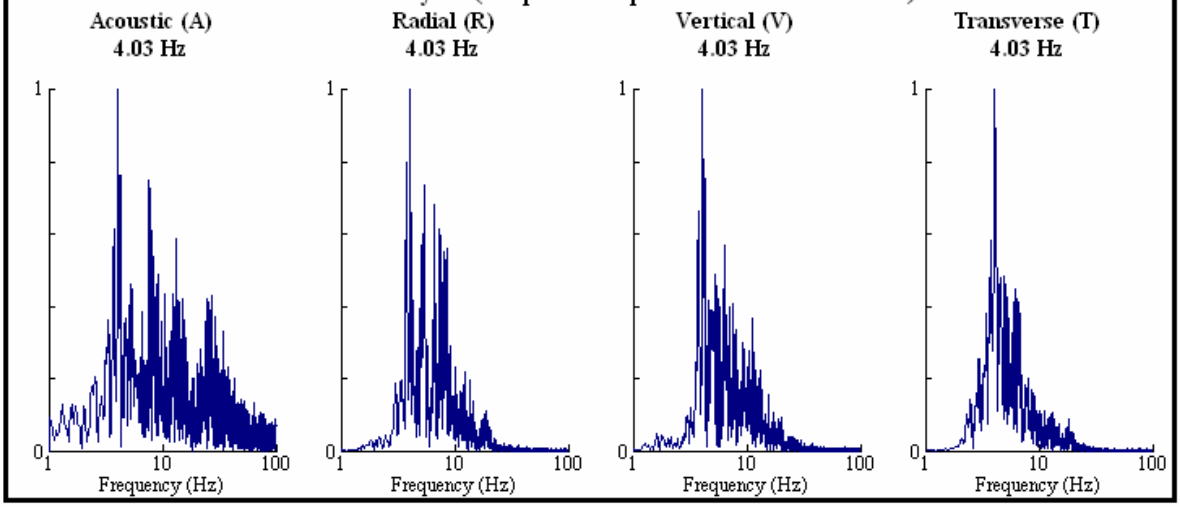
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
83 ft
blast 1

File: 02407084.DTB Event Number: 084 Date: 9/23/2004 Time: 14:49
Acoustic Trigger: 106 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2407

Amplitudes and Frequencies

Acoustic (A): 126 dB @ 17.0 Hz
(0.40Mb 0.0058psi 0.0400kPa)

***Radial (R):* 1.32in/s 33.528mm/s @ 32.0Hz**

Vertical (V): 0.75in/s 19.05mm/s @ 64.0Hz

Transverse (T): 0.47in/s 11.938mm/s @ 64.0Hz

Calibration Date (yyyy/mm/dd): 2003/03/17

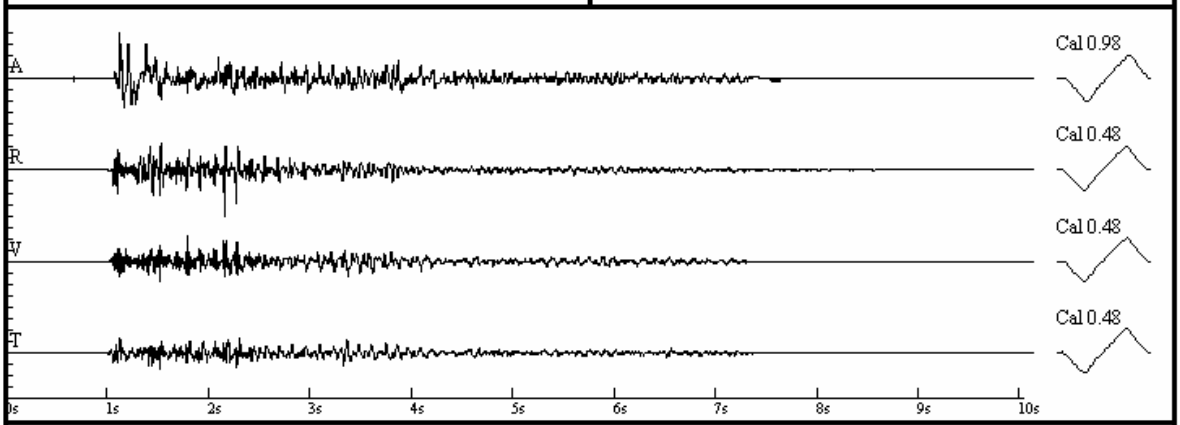
Graph Information

Duration: 0.000 sec To: 10.055 sec

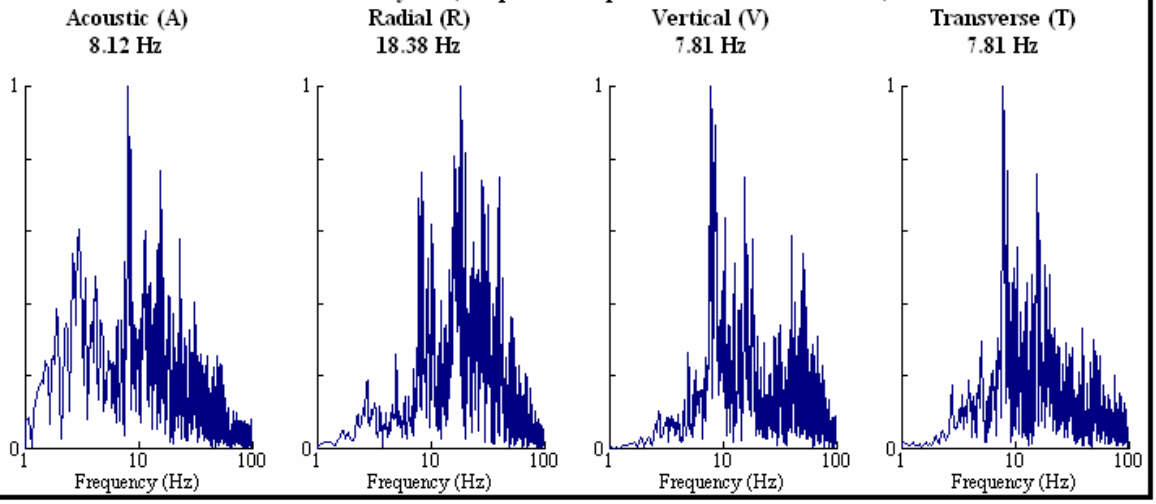
Acoustic Scale:
126dB 0.40Mb (0.100Mb/div)

Seismic Scale:
1.32in/s (0.330in/s/div) 33.53mm/s (8.382mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
close to the end of the shot
113 ft from POI
blast 1

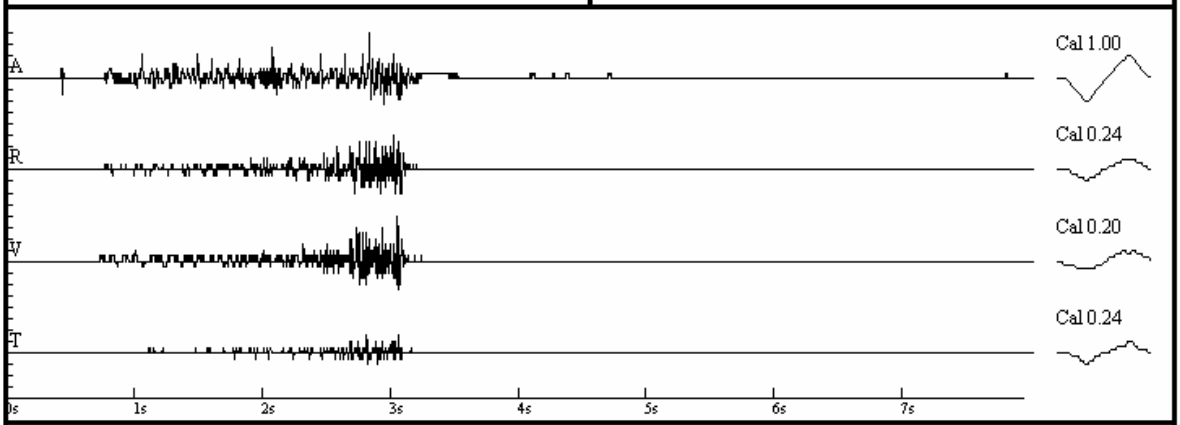
File: 01050003.DTB Event Number: 003 Date: 9/23/2004 Time: 16:01
Acoustic Trigger: 147 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 1050

Amplitudes and Frequencies

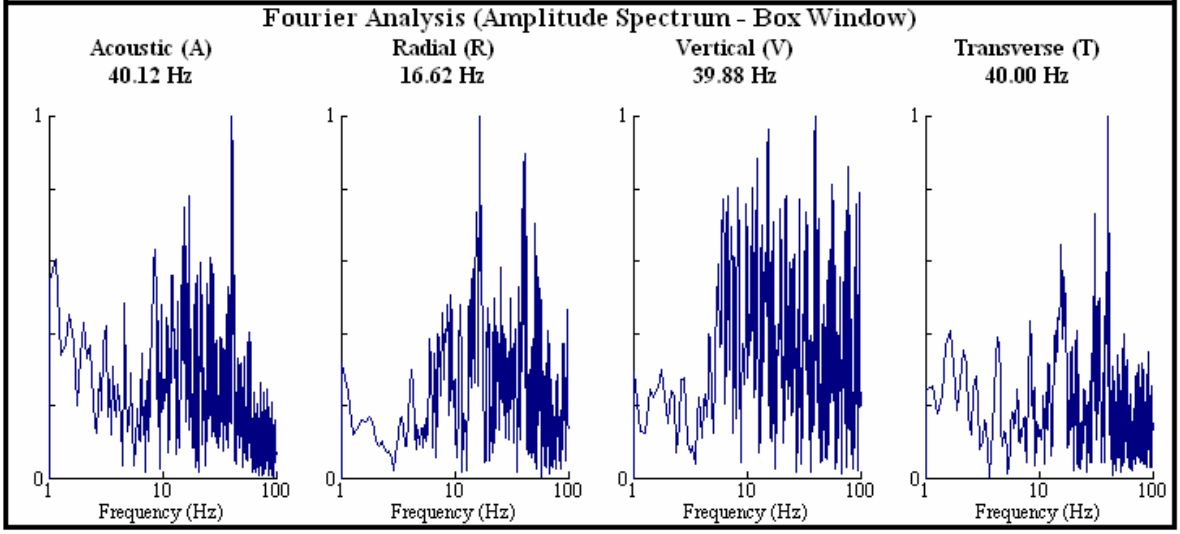
Acoustic (A): 125 dB @ 36.5 Hz
(0.36Mb 0.0052psi 0.0360kPa)
Radial (R): 0.24in/s 6.096mm/s @ 64.0Hz
***Vertical (V):* 0.32in/s 8.128mm/s @ 85.3Hz**
Transverse (T): 0.12in/s 3.048mm/s @ 128.0Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 7.959 sec
Acoustic Scale:
125dB 0.36Mb (0.090Mb/div)
Seismic Scale:
0.32in/s (0.080in/s/div) 8.13mm/s (2.032mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
164 ft
blast 1

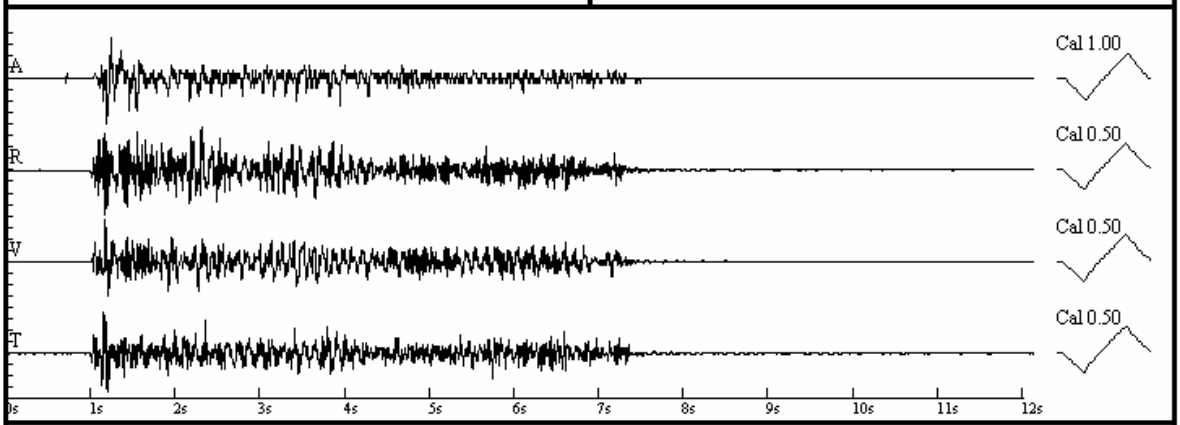
File: 01100007.DTB Event Number: 007 Date: 9/23/2004 Time: 14:48
Acoustic Trigger: 124 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1100

Amplitudes and Frequencies

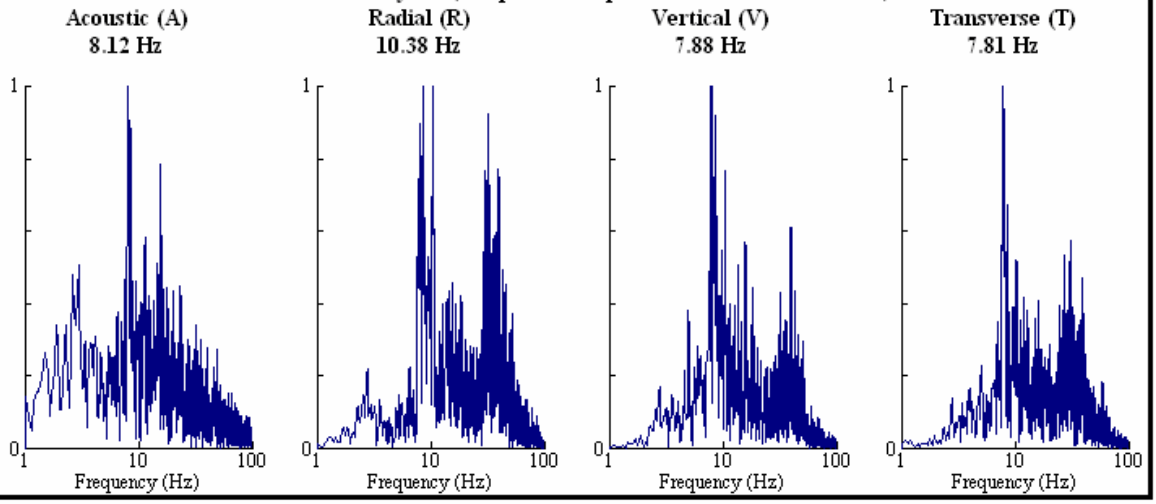
Acoustic (A): 120 dB @ 18.2 Hz
(0.20Mb 0.0029psi 0.0200kPa)
***Radial (R):* 0.255in/s 6.477mm/s @ 36.5Hz**
Vertical (V): 0.235in/s 5.969mm/s @ 25.6Hz
Transverse (T): 0.23in/s 5.842mm/s @ 16.0Hz
Calibration Date (yyyy/mm/dd): 2004/09/21

Graph Information

Duration: 0.000 sec To: 12.039 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.26in/s (0.065in/s/div) 6.60mm/s (1.651mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
254 ft
blast 1

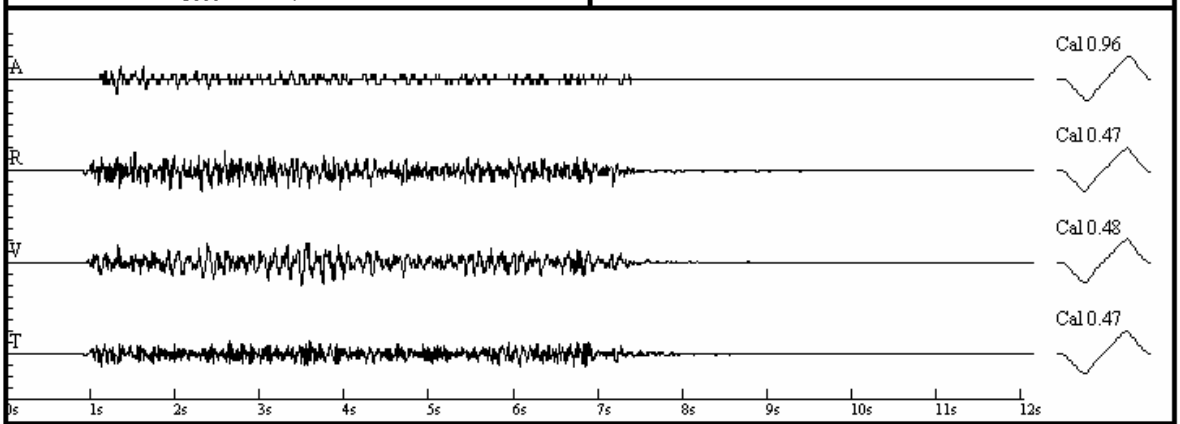
File: 01906127.DTB Event Number: 127 Date: 9/23/2004 Time: 14:49
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

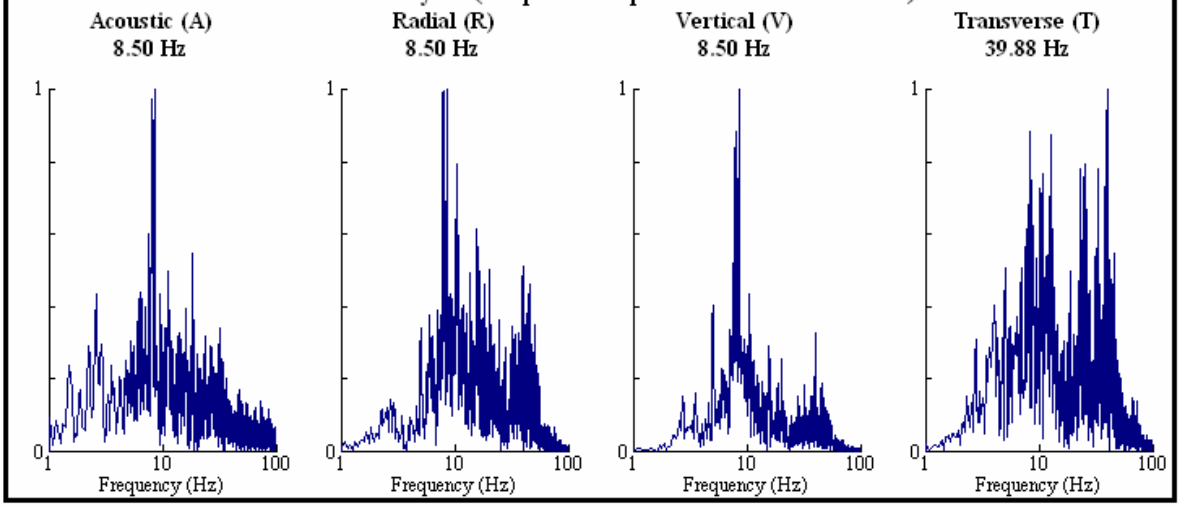
Acoustic (A): 110 dB @ 17.0 Hz
(0.06Mb 0.0009psi 0.0060kPa)
Radial (R): 0.09in/s 2.286mm/s @ 19.6Hz
***Vertical (V):* 0.10in/s 2.54mm/s @ 8.8Hz**
Transverse (T): 0.06in/s 1.524mm/s @ 36.5Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 12.051 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
254 ft
blast 2

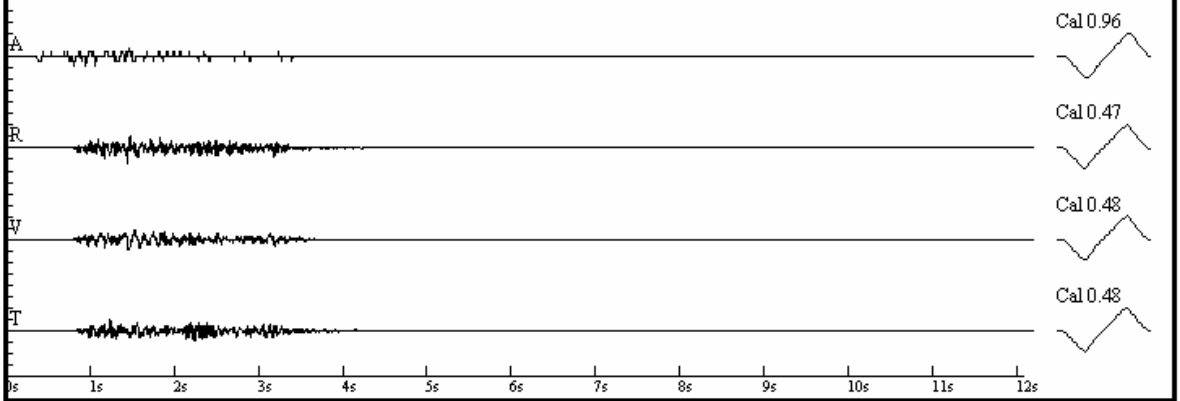
File: 01906128.DTB Event Number: 128 Date: 9/23/2004 Time: 16:01
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

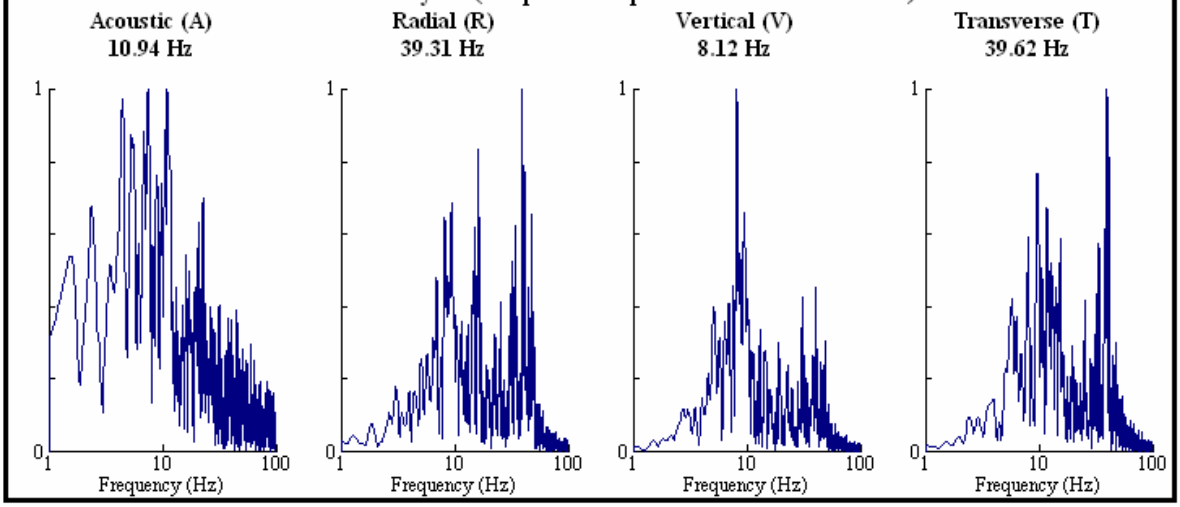
Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)
***Radial (R):* 0.065in/s 1.651mm/s @ 25.6Hz**
Vertical (V): 0.045in/s 1.143mm/s @ 12.1Hz
Transverse (T): 0.05in/s 1.27mm/s @ 28.4Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 12.100 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
close to start of blast
5 ft

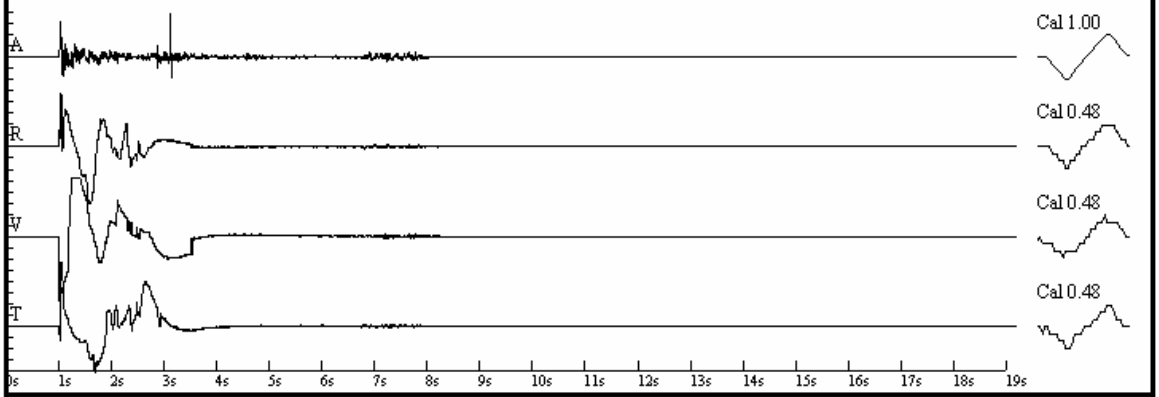
File: 01050006.DTB Event Number: 006 Date: 9/30/2004 Time: 15:00
Acoustic Trigger: 147 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 1050

Amplitudes and Frequencies

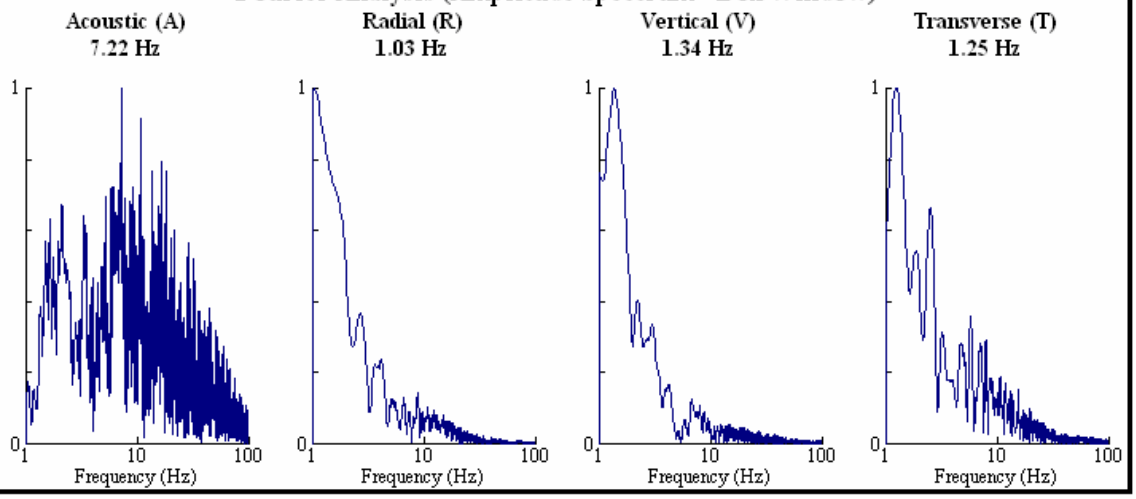
Acoustic (A): 140 dB @ 42.6 Hz
(1.92Mb 0.0278psi 0.1920kPa)
Radial (R): 31.36in/s 796.544mm/s @ 1.2Hz
***Vertical (V):* 35.84in/s 910.336mm/s @ 2.7Hz**
Transverse (T): 35.52in/s 902.208mm/s @ 2.9Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
140dB 2.00Mb (0.500Mb/div)
Seismic Scale:
25.00in/s (6.250in/s/div) 635.00mm/s (158.750mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
close to end of blast
8 ft

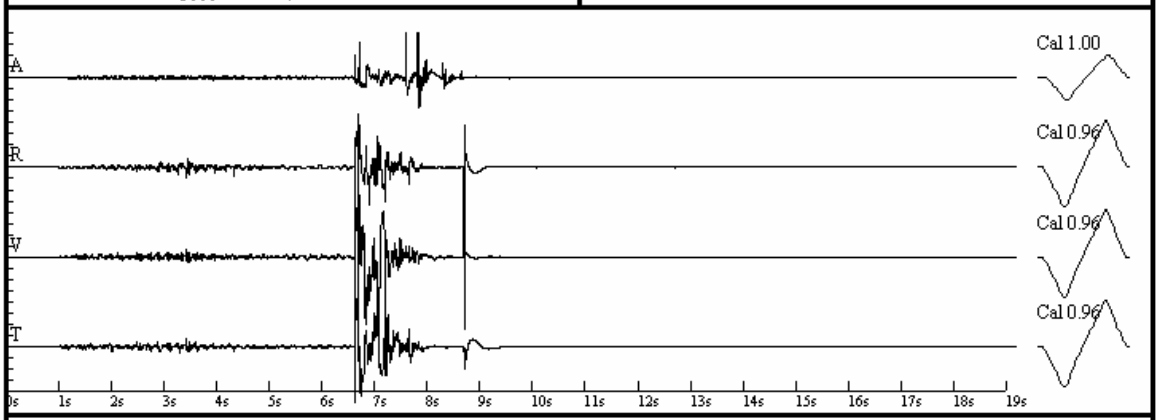
File: 02241179.DTB Event Number: 179 Date: 9/30/2004 Time: 14:59
Acoustic Trigger: 130 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 2241

Amplitudes and Frequencies

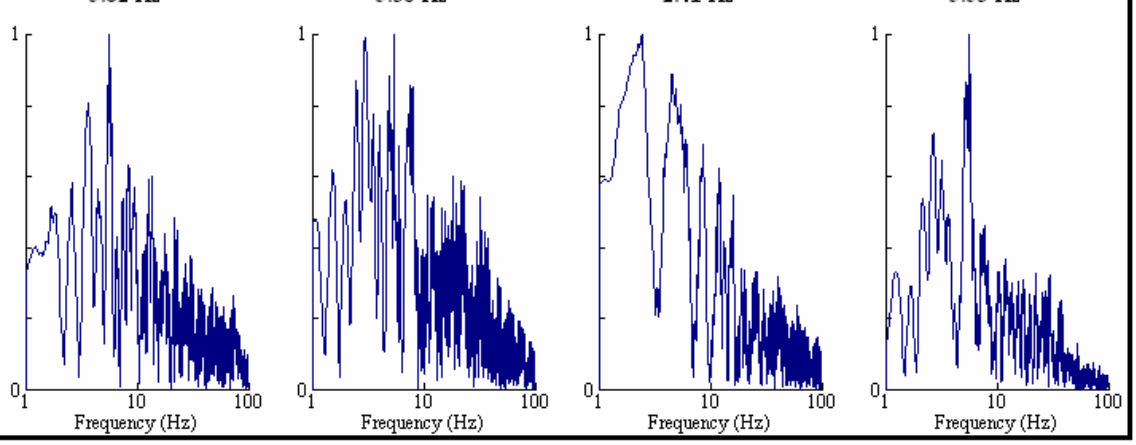
Acoustic (A): 148 dB @ 25.6 Hz
(4.96Mb 0.0719psi 0.4959kPa)
Radial (R): 19.84in/s 503.936mm/s @ 28.4Hz
***Vertical (V):* 20.48in/s 520.192mm/s @ 64.0Hz**
Transverse (T): 19.84in/s 503.936mm/s @ 4.2Hz
Calibration Date (yyyy/mm/dd): 2004/03/29

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
148dB 5.02Mb (1.255Mb/div)
Seismic Scale:
12.50in/s (3.125in/s/div) 317.50mm/s (79.375mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
143 ft

File: 01906130.DTB Event Number: 130 Date: 9/30/2004 Time: 14:59
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

Acoustic (A): 120 dB @ 15.0 Hz
(0.20Mb 0.0029psi 0.0200kPa)

***Radial (R):* 0.70in/s 17.78mm/s @ 4.8Hz**

Vertical (V): 0.64in/s 16.256mm/s @ 5.8Hz

Transverse (T): 0.60in/s 15.24mm/s @ 7.7Hz

Calibration Date (yyyy/mm/dd): 2003/12/05

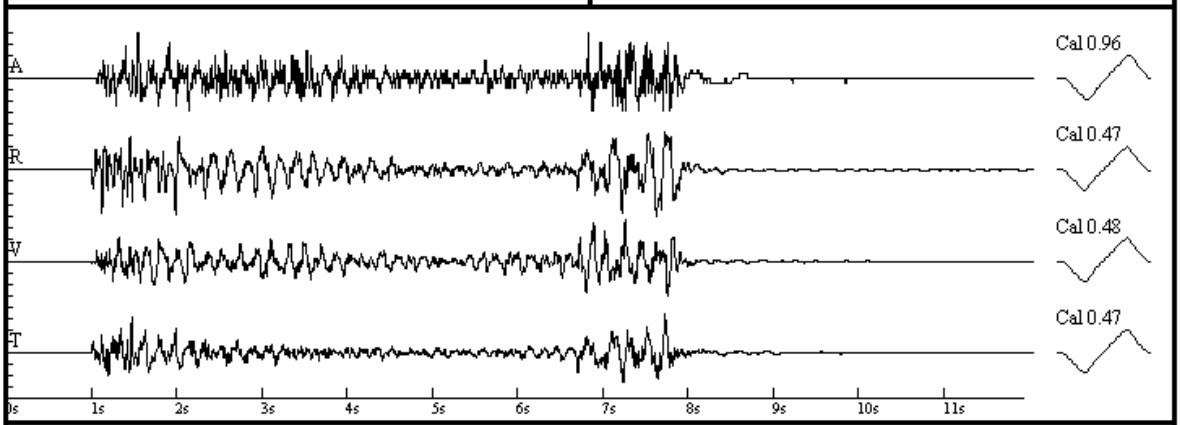
Graph Information

Duration: 0.000 sec To: 11.951 sec

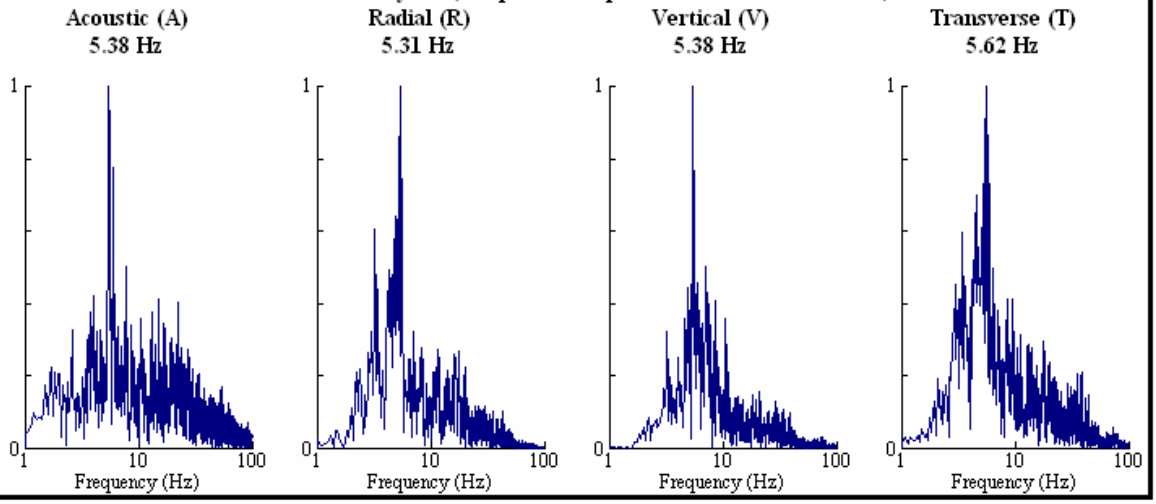
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
0.70in/s (0.175in/s/div) 17.78mm/s (4.445mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array in trench
15 ft
blast 1

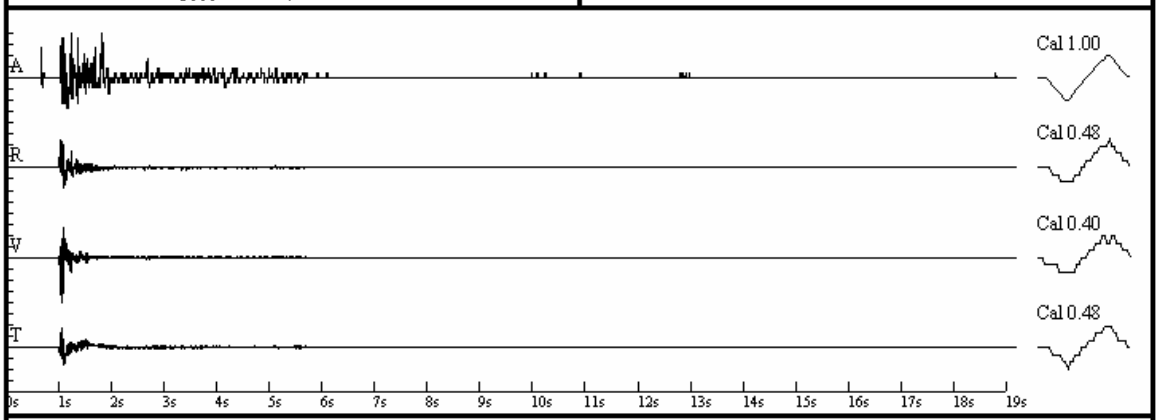
File: 01050009.DTB Event Number: 009 Date: 10/7/2004 Time: 17:13
Acoustic Trigger: 147 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 1050

Amplitudes and Frequencies

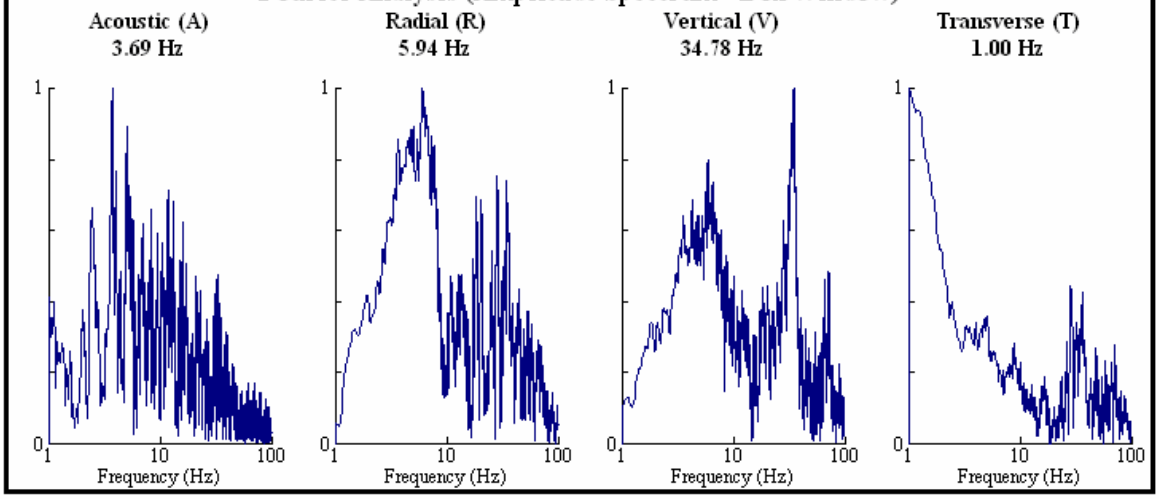
Acoustic (A): 125 dB @ 21.3 Hz
(0.36Mb 0.0052psi 0.0360kPa)
Radial (R): 2.40in/s 60.96mm/s @ 28.4Hz
***Vertical (V):* 3.92in/s 99.568mm/s @ 32.0Hz**
Transverse (T): 1.68in/s 42.672mm/s @ 51.2Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
125dB 0.36Mb (0.090Mb/div)
Seismic Scale:
3.92in/s (0.980in/s/div) 99.57mm/s (24.892mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array in trench (blast 1)
35 ft
ground motions actually 1/2
R = 1.24 ips V = 0.92 ips T = 0.77 ips

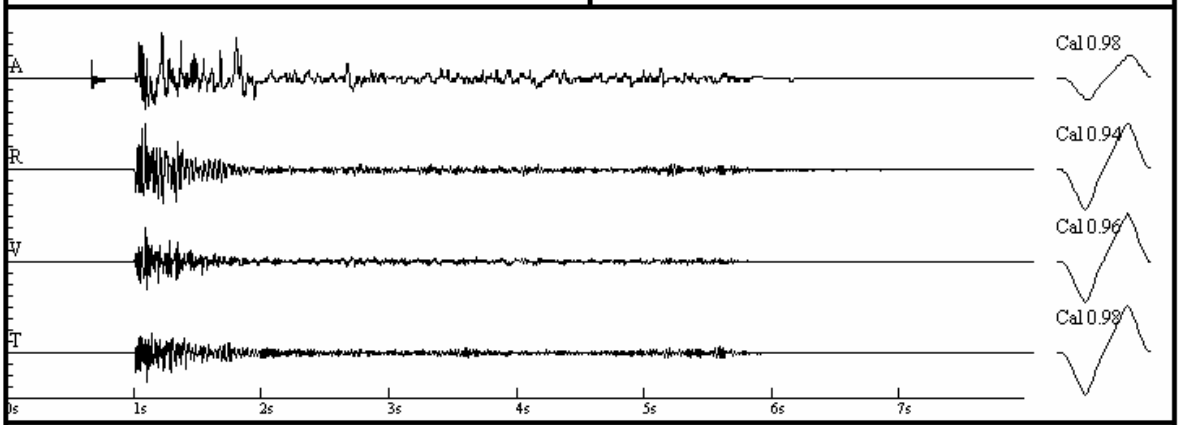
File: 00930290.DTB Event Number: 290 Date: 10/7/2004 Time: 17:11
Acoustic Trigger: 125 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 930

Amplitudes and Frequencies

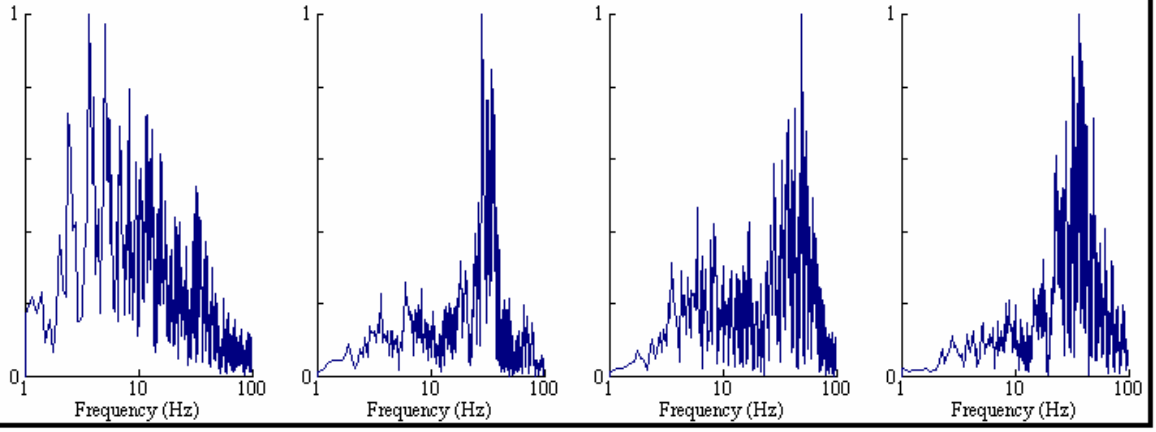
Acoustic (A): 125 dB @ 13.4 Hz
(0.36Mb 0.0052psi 0.0360kPa)
***Radial (R):* 2.48in/s 62.992mm/s @ 32.0Hz**
Vertical (V): 1.84in/s 46.736mm/s @ 42.6Hz
Transverse (T): 1.54in/s 39.116mm/s @ 42.6Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 7.984 sec
Acoustic Scale:
125dB 0.36Mb (0.090Mb/div)
Seismic Scale:
2.48in/s (0.620in/s/div) 62.99mm/s (15.748mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array in trench
60 ft
blast 1

File: 01100013.DTB Event Number: 013 Date: 10/7/2004 Time: 17:12
Acoustic Trigger: 130 dB Seismic Trigger: 0.06in/s 1.524mm/s Serial Number: 1100

Amplitudes and Frequencies

Acoustic (A): 124 dB @ 19.6 Hz
(0.32Mb 0.0046psi 0.0320kPa)

***Radial (R):* 0.34in/s 8.636mm/s @ 42.6Hz**

Vertical (V): 0.30in/s 7.62mm/s @ 64.0Hz

Transverse (T): 0.31in/s 7.874mm/s @ 36.5Hz

Calibration Date (yyyy/mm/dd): 2004/09/21

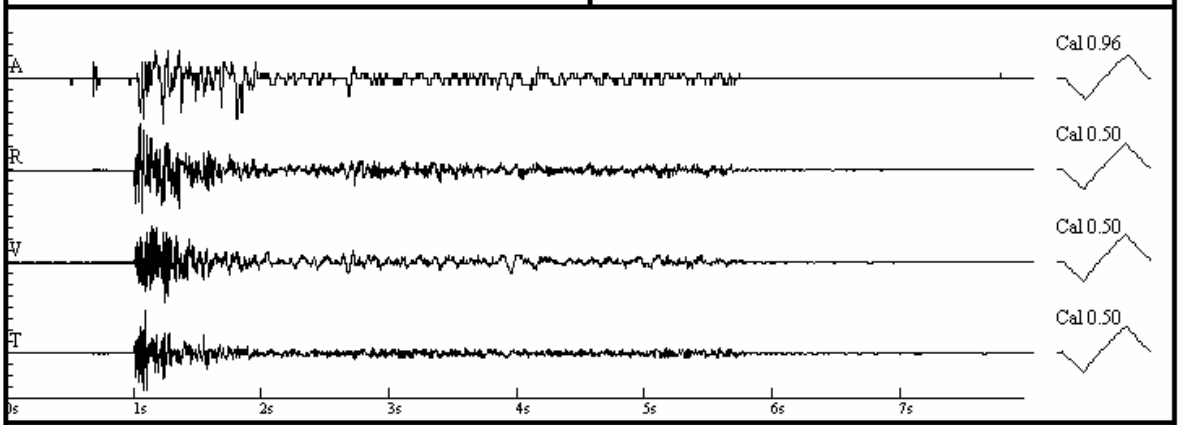
Graph Information

Duration: 0.000 sec To: 7.982 sec

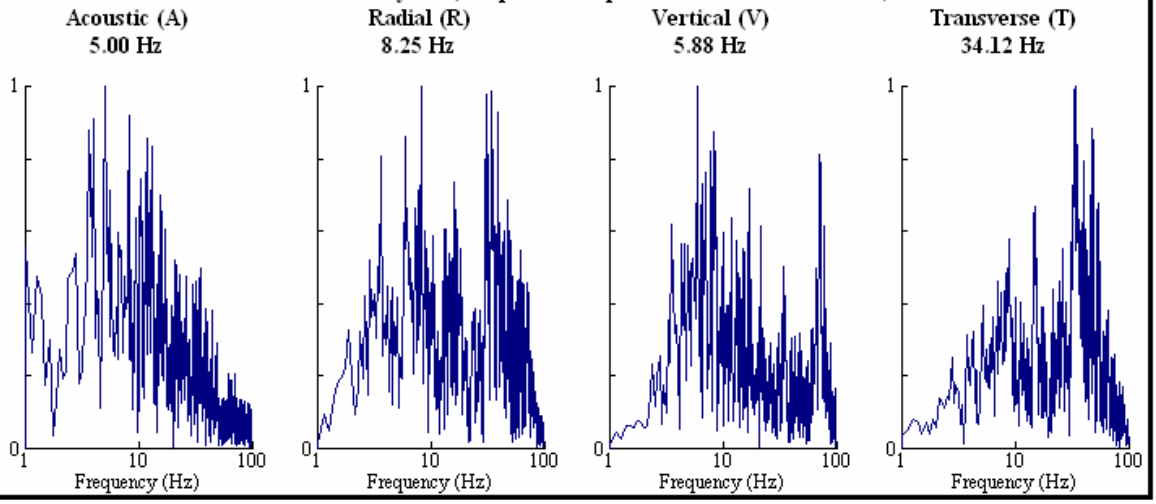
Acoustic Scale:
124dB 0.32Mb (0.080Mb/div)

Seismic Scale:
0.34in/s (0.085in/s/div) 8.64mm/s (2.159mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
8 ft. from POI
80 ips geophone - multiply readings by 2
R = 17.28 ips V = 33.92 ips T = 19.84 ips
blast 1

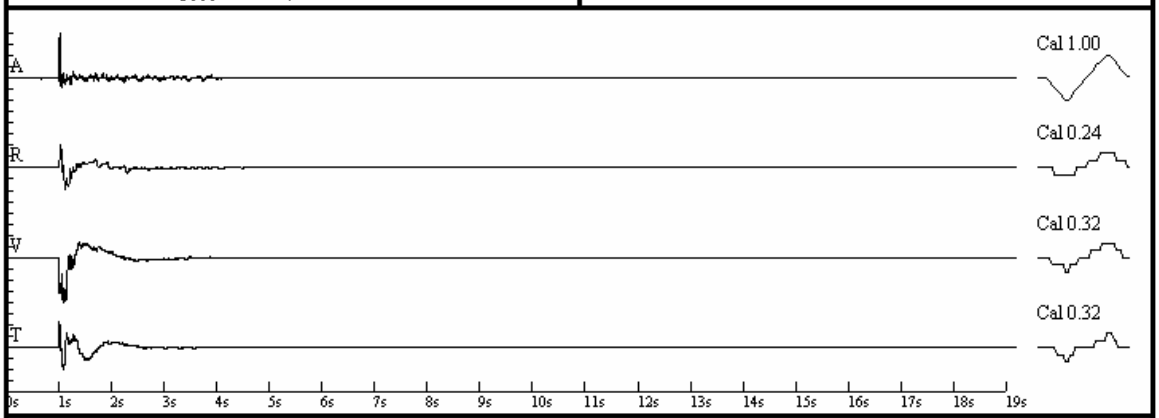
File: 01050012.DTB Event Number: 012 Date: 10/14/2004 Time: 14:39
Acoustic Trigger: 147 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 1050

Amplitudes and Frequencies

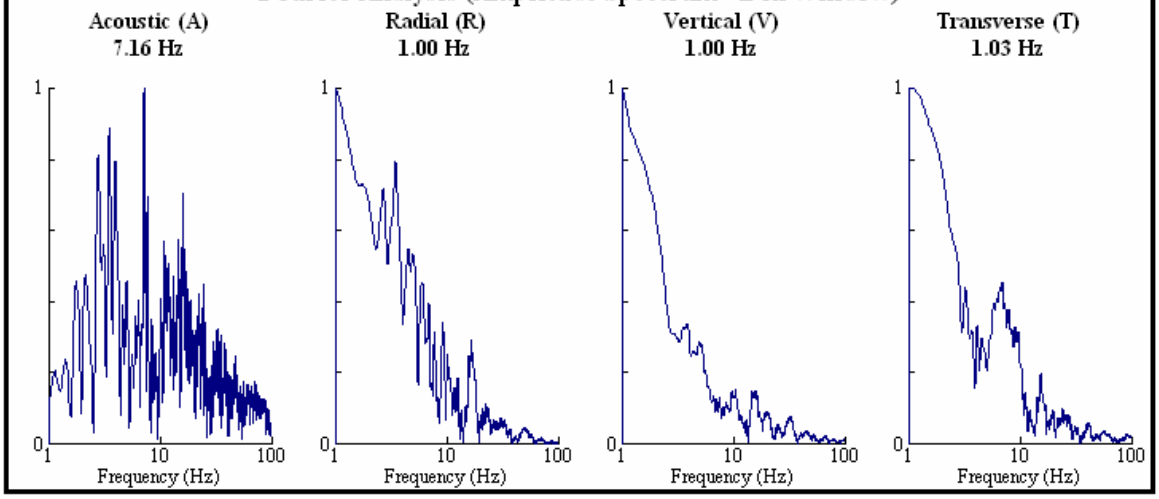
Acoustic (A): 145 dB @ 28.4 Hz
(3.56Mb 0.0516psi 0.3559kPa)
Radial (R): 8.64in/s 219.456mm/s @ 9.4Hz
***Vertical (V):* 16.96in/s 430.784mm/s @ 2.7Hz**
Transverse (T): 9.92in/s 251.968mm/s @ 17.0Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
145dB 3.56Mb (0.890Mb/div)
Seismic Scale:
16.90in/s (4.225in/s/div) 429.26mm/s (107.315mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
18 ft. from POI
(vertical not reliable)
blast 1

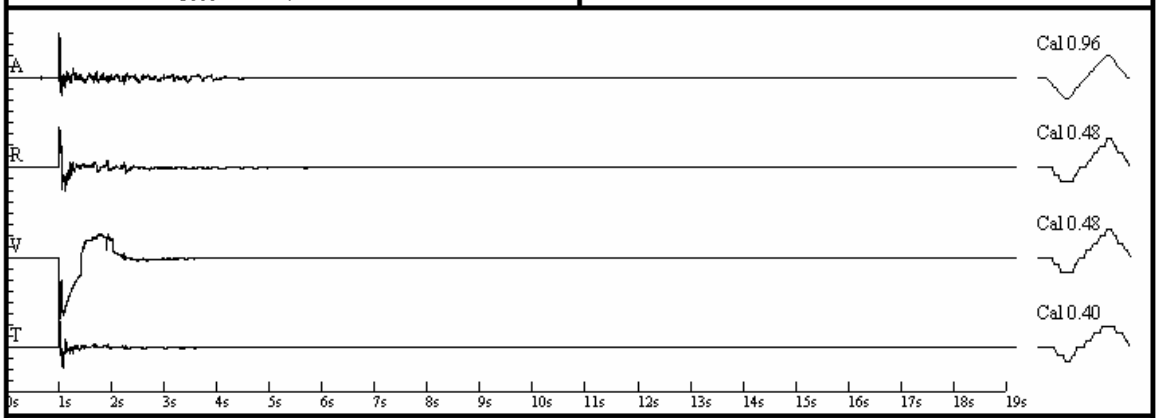
File: 02408003.DTB Event Number: 003 Date: 10/14/2004 Time: 13:33
Acoustic Trigger: 141 dB Seismic Trigger: 0.08in/s 2.032mm/s Serial Number: 2408

Amplitudes and Frequencies

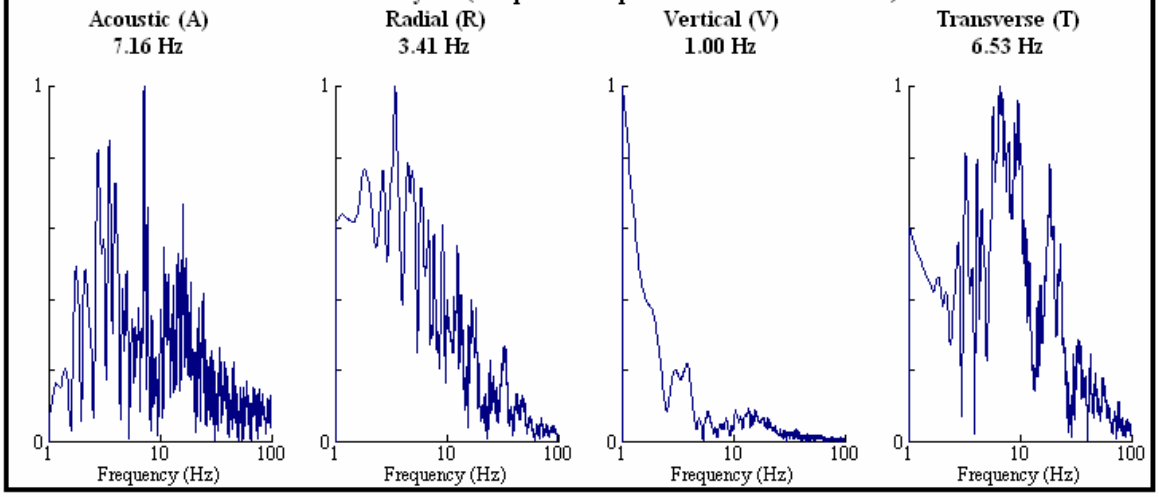
Acoustic (A): 142 dB @ 28.4 Hz
(2.48Mb 0.0360psi 0.2479kPa)
Radial (R): 23.04in/s 585.216mm/s @ 10.6Hz
***Vertical (V):* 35.20in/s 894.08mm/s @ 1.2Hz**
Transverse (T): 16.00in/s 406.40mm/s @ 16.0Hz
Calibration Date (yyyy/mm/dd): 2004/10/04

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
142dB 2.52Mb (0.630Mb/div)
Seismic Scale:
25.00in/s (6.250in/s/div) 635.00mm/s (158.750mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
608 ft

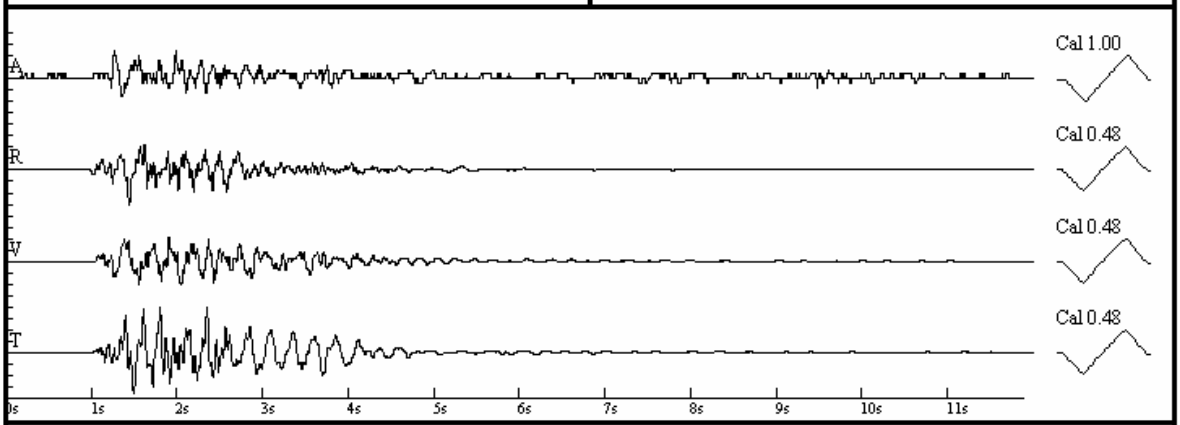
File: 00704181.DTB Event Number: 181 Date: 12/15/2004 Time: 15:10
Acoustic Trigger: 124 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 704

Amplitudes and Frequencies

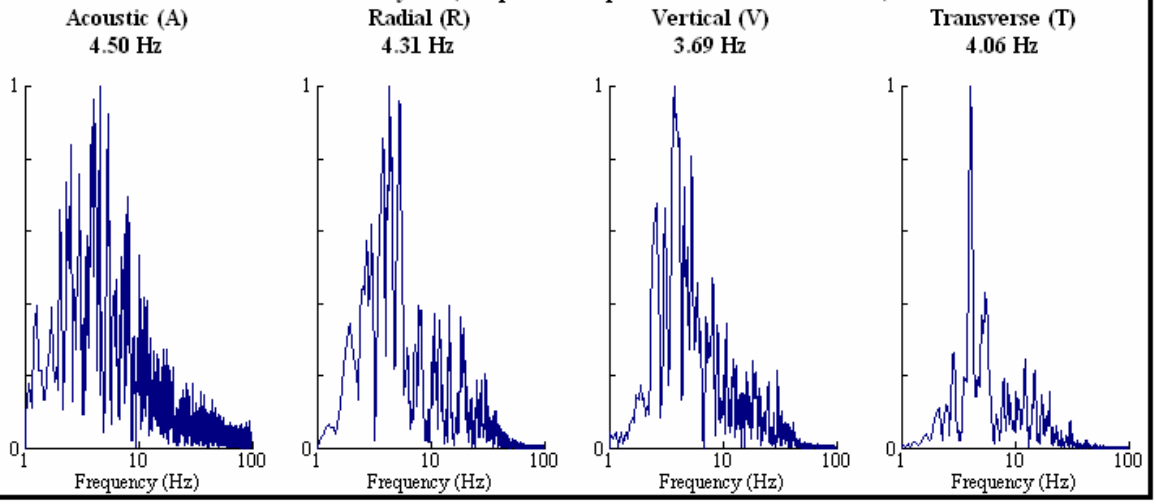
Acoustic (A): 116 dB @ 6.2 Hz
(0.12Mb 0.0017psi 0.0120kPa)
Radial (R): 0.32in/s 8.128mm/s @ 4.1Hz
Vertical (V): 0.22in/s 5.588mm/s @ 5.5Hz
***Transverse (T):* 0.41in/s 10.414mm/s @ 6.4Hz**
Calibration Date (yyyy/mm/dd): 2004/10/06

Graph Information

Duration: 0.000 sec To: 11.902 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.41in/s (0.102in/s/div) 10.41mm/s (2.604mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
340 ft
blast 1

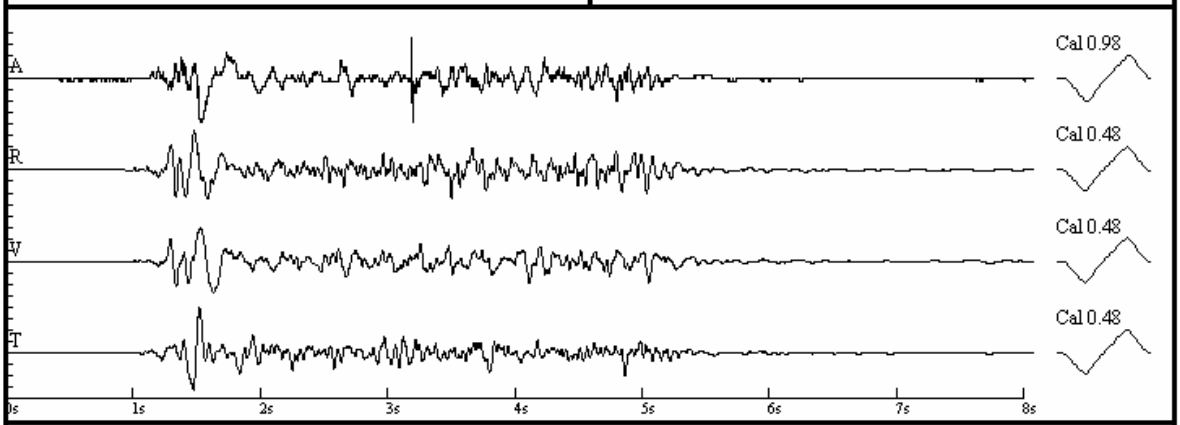
File: 01792020.DTB Event Number: 020 Date: 12/30/2004 Time: 15:46
Acoustic Trigger: 125 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1792

Amplitudes and Frequencies

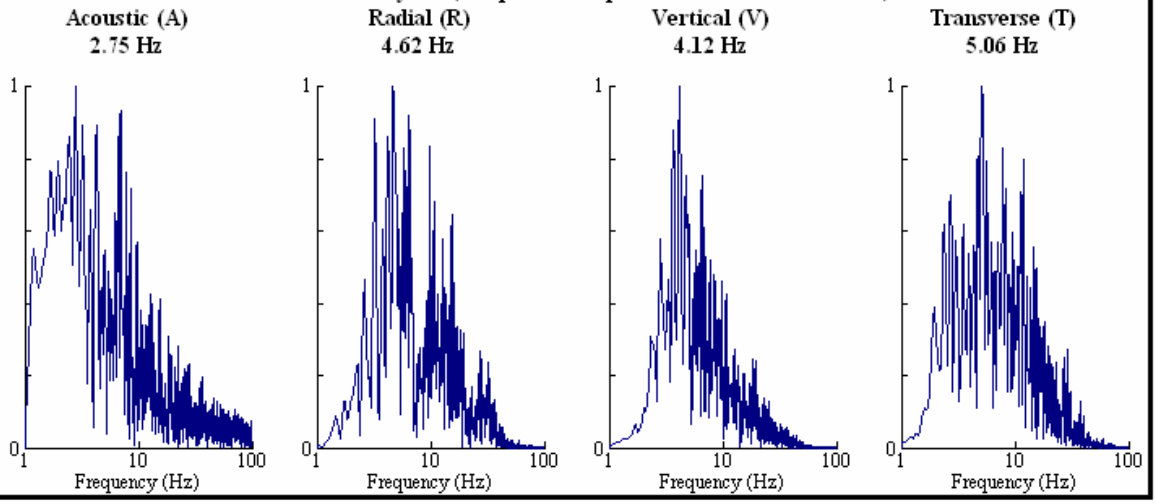
Acoustic (A): 122 dB @ 4.4 Hz
(0.24Mb 0.0035psi 0.0240kPa)
Radial (R): 0.68in/s 17.272mm/s @ 6.4Hz
Vertical (V): 0.58in/s 14.732mm/s @ 5.1Hz
***Transverse (T):* 0.78in/s 19.812mm/s @ 8.5Hz**
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 8.010 sec
Acoustic Scale:
122dB 0.25Mb (0.062Mb/div)
Seismic Scale:
0.78in/s (0.195in/s/div) 19.81mm/s (4.953mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
340 ft
blast 2

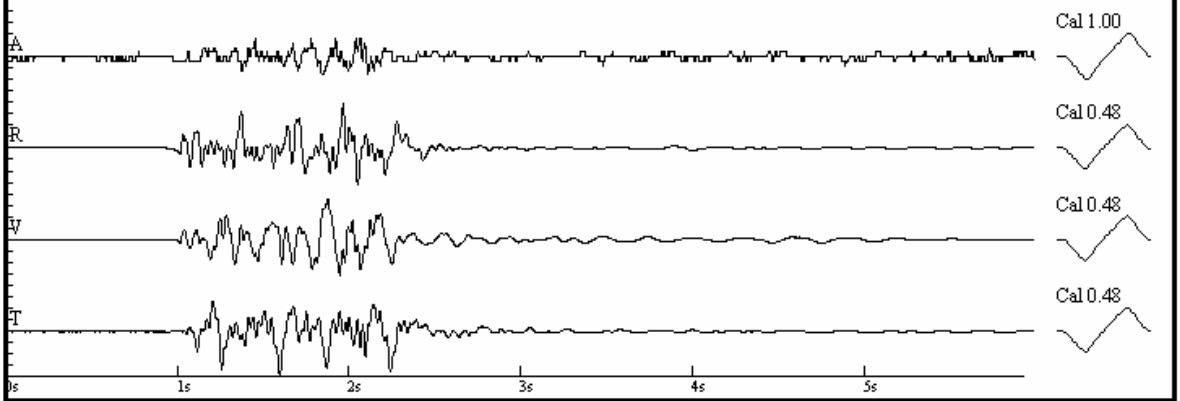
File: 01792021.DTB Event Number: 021 Date: 12/30/2004 Time: 16:24
Acoustic Trigger: 125 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1792

Amplitudes and Frequencies

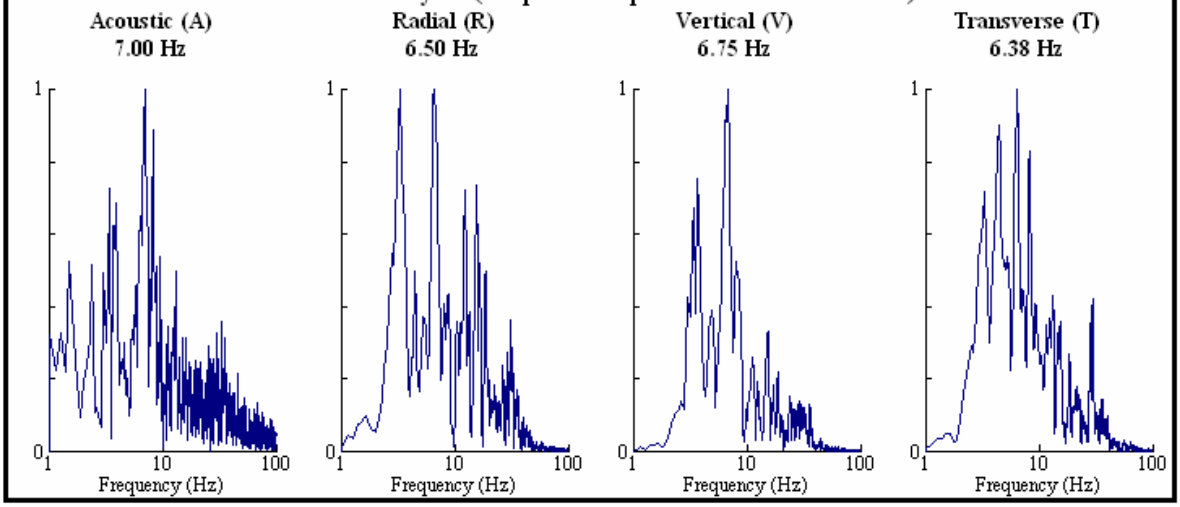
Acoustic (A): 112 dB @ 19.6 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.29in/s 7.366mm/s @ 11.6Hz
Vertical (V): 0.26in/s 6.604mm/s @ 5.9Hz
***Transverse (T):* 0.30in/s 7.62mm/s @ 6.7Hz**
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 5.939 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.30in/s (0.075in/s/div) 7.62mm/s (1.905mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
438 ft

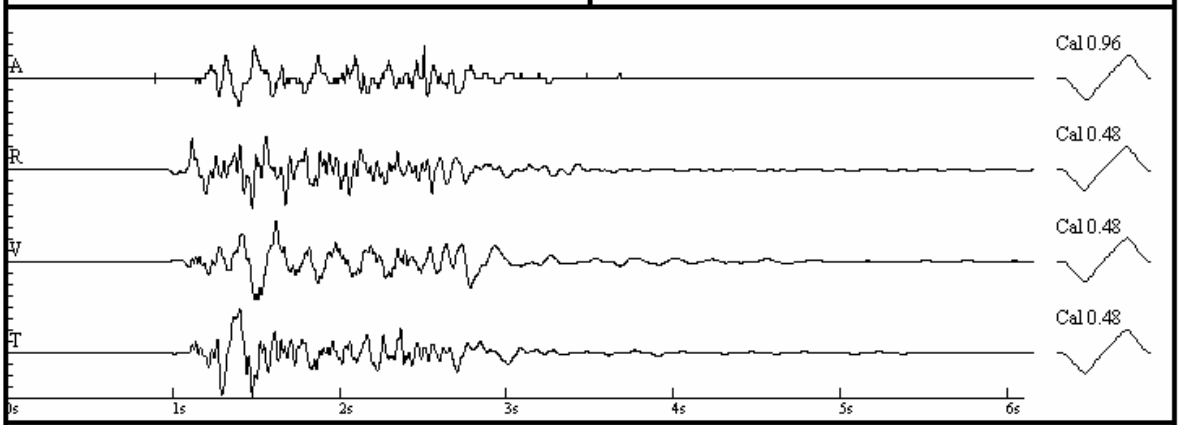
File: 01769020.DTB Event Number: 020 Date: 1/7/2005 Time: 13:14
Acoustic Trigger: 116 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

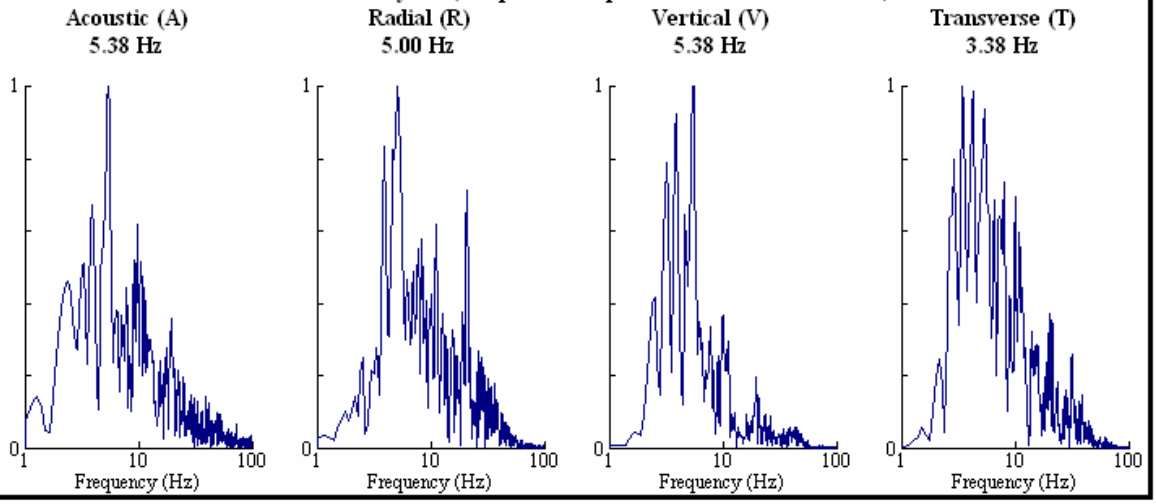
Acoustic (A): 117 dB @ 4.7 Hz
(0.14Mb 0.0020psi 0.0140kPa)
Radial (R): 0.265in/s 6.731mm/s @ 6.5Hz
Vertical (V): 0.285in/s 7.239mm/s @ 4.3Hz
***Transverse (T):* 0.315in/s 8.001mm/s @ 5.9Hz**
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 6.105 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.32in/s (0.080in/s/div) 8.13mm/s (2.032mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
at Unser road
1623 ft

File: 02407163.DTB Event Number: 163 Date: 1/7/2005 Time: 12:19
Acoustic Trigger: 116 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2407

Amplitudes and Frequencies

Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)

***Radial (R):* 0.05in/s 1.27mm/s @ 6.2Hz**

Vertical (V): 0.045in/s 1.143mm/s @ 7.3Hz

Transverse (T): 0.04in/s 1.016mm/s @ 5.1Hz

Calibration Date (yyyy/mm/dd): 2003/03/17

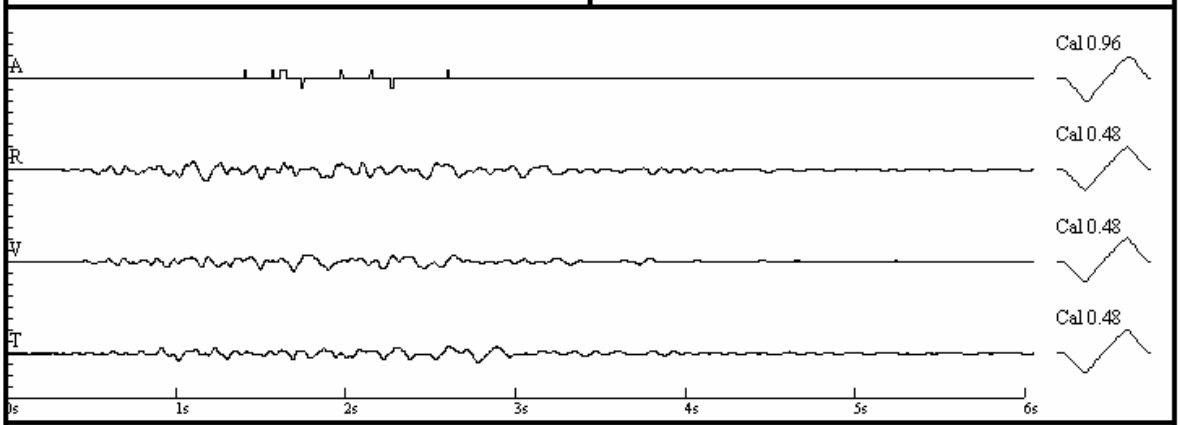
Graph Information

Duration: 0.000 sec To: 6.000 sec

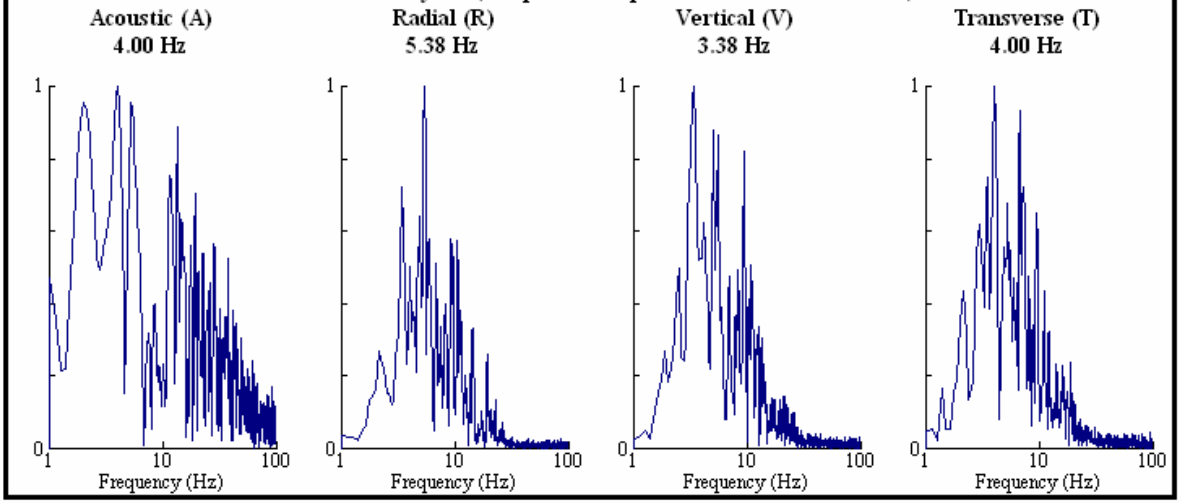
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
348 ft
blast 1 (road cut)

File: 01769031.DTB Event Number: 031 Date: 1/12/2005 Time: 15:22
Acoustic Trigger: 135 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

Acoustic (A): 112 dB @ 51.2 Hz
(0.08Mb 0.0012psi 0.0080kPa)

***Radial (R):* 0.26in/s 6.604mm/s @ 13.4Hz**

Vertical (V): 0.245in/s 6.223mm/s @ 13.4Hz

Transverse (T): 0.23in/s 5.842mm/s @ 17.0Hz

Calibration Date (yyyy/mm/dd): 2000/09/22

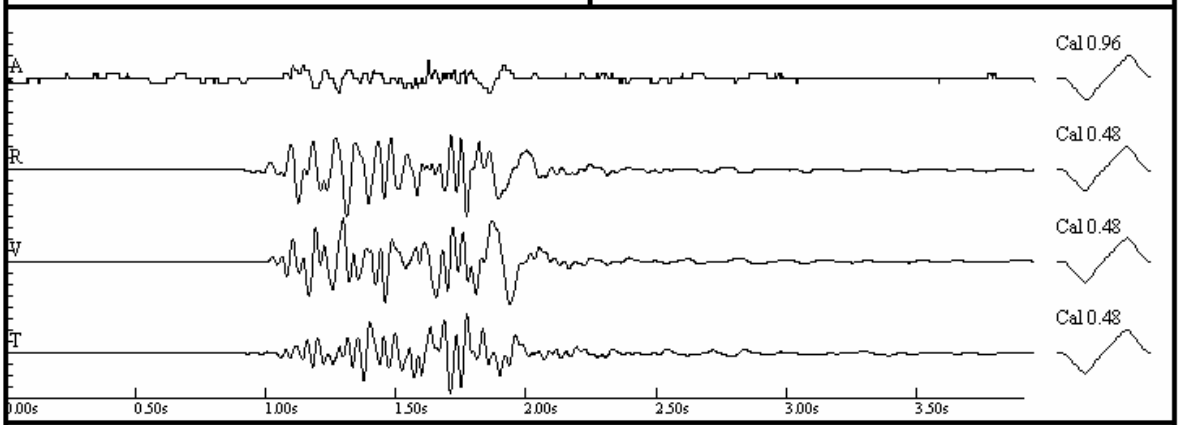
Graph Information

Duration: 0.000 sec To: 3.918 sec

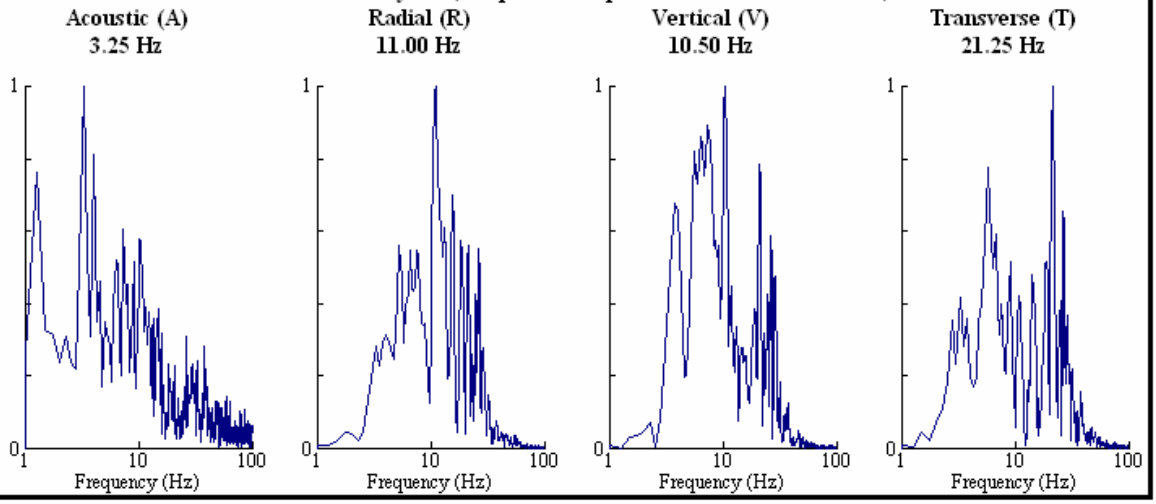
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)

Seismic Scale:
0.26in/s (0.065in/s/div) 6.60mm/s (1.651mm/s/div)

Time Line Intervals at: 0.50 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
array toward house
242 ft
blast 2 (trench blast)

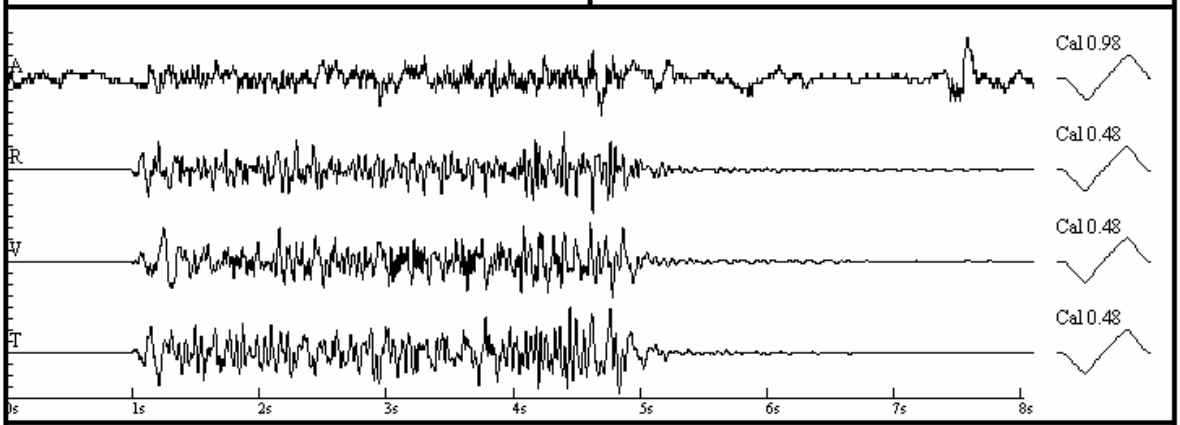
File: 01769032.DTB Event Number: 032 Date: 1/12/2005 Time: 15:26
Acoustic Trigger: 135 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

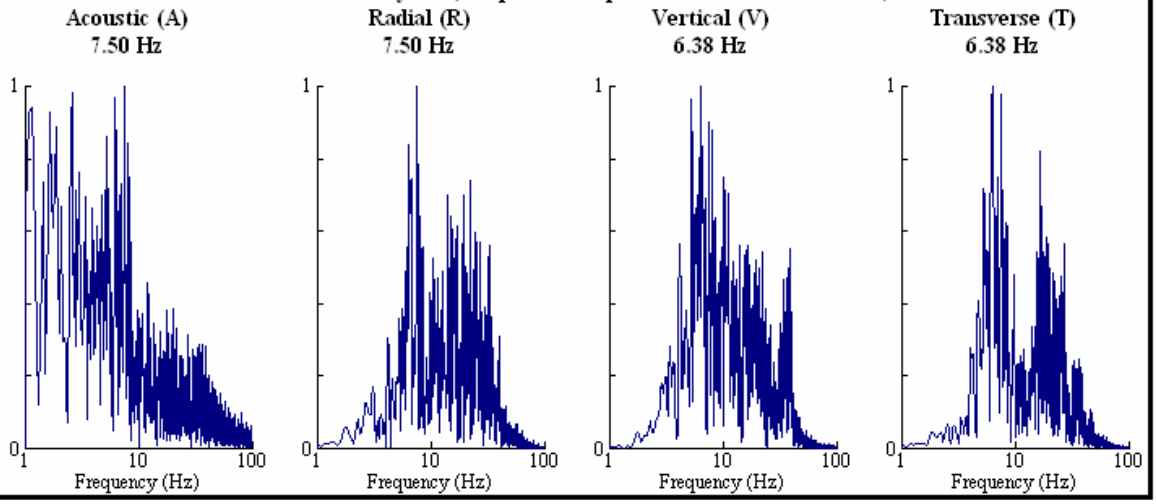
Acoustic (A): 119 dB @ 5.0 Hz
(0.18Mb 0.0026psi 0.0180kPa)
Radial (R): 0.325in/s 8.255mm/s @ 18.2Hz
Vertical (V): 0.29in/s 7.366mm/s @ 16.0Hz
***Transverse (T):* 0.35in/s 8.89mm/s @ 23.2Hz**
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 8.033 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.35in/s (0.088in/s/div) 8.89mm/s (2.222mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Appendix B

Seismograph Reports for Structure Response

Salls Construction
Unser Road Extension
Master at house
970 ft

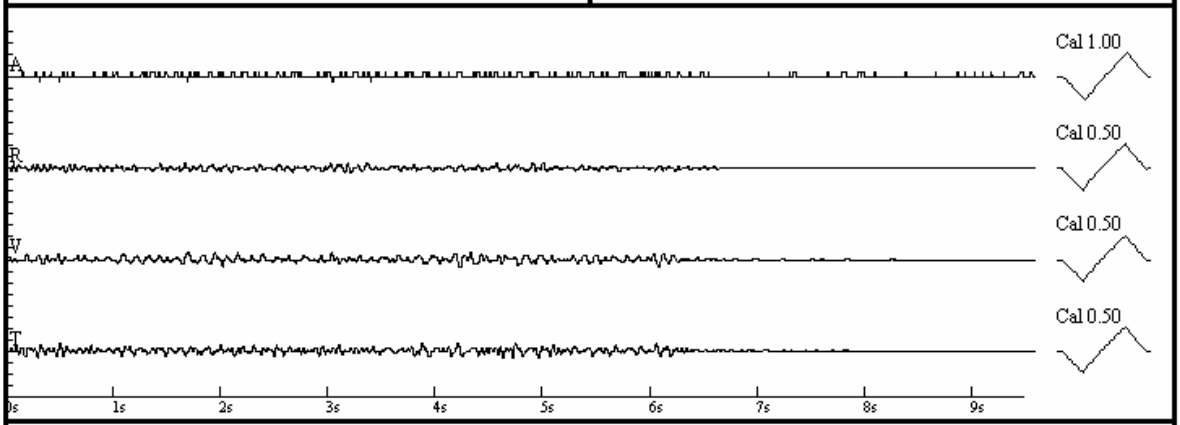
File: 01769026.DTB Event Number: 026 Date: 9/16/2004 Time: 15:44
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

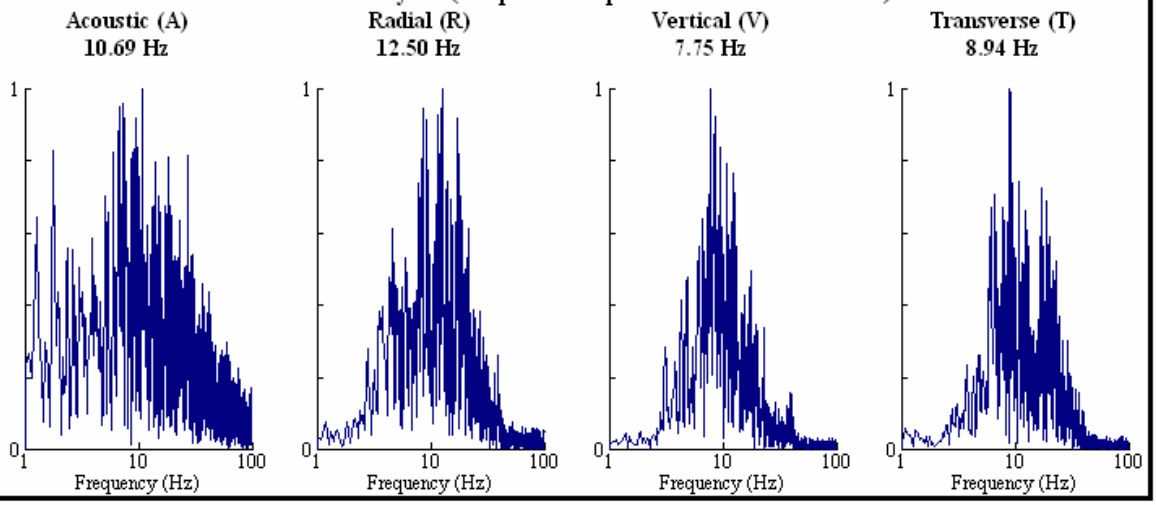
Acoustic (A): 100 dB @ 0.0 Hz
(0.02Mb 0.0003psi 0.0020kPa)
Radial (R): 0.025in/s 0.635mm/s @ 17.6Hz
Vertical (V): **0.035in/s 0.889mm/s @ 12.4Hz**
Transverse (T): **0.035in/s 0.889mm/s @ 8.5Hz**
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

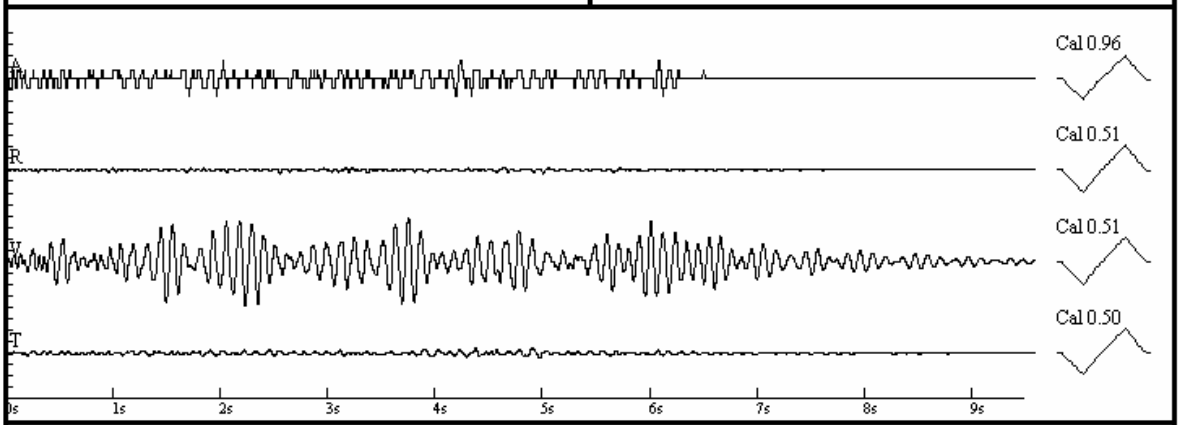
File: 01793002.DTB Event Number: 002 Date: 9/16/2004 Time: 15:43
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

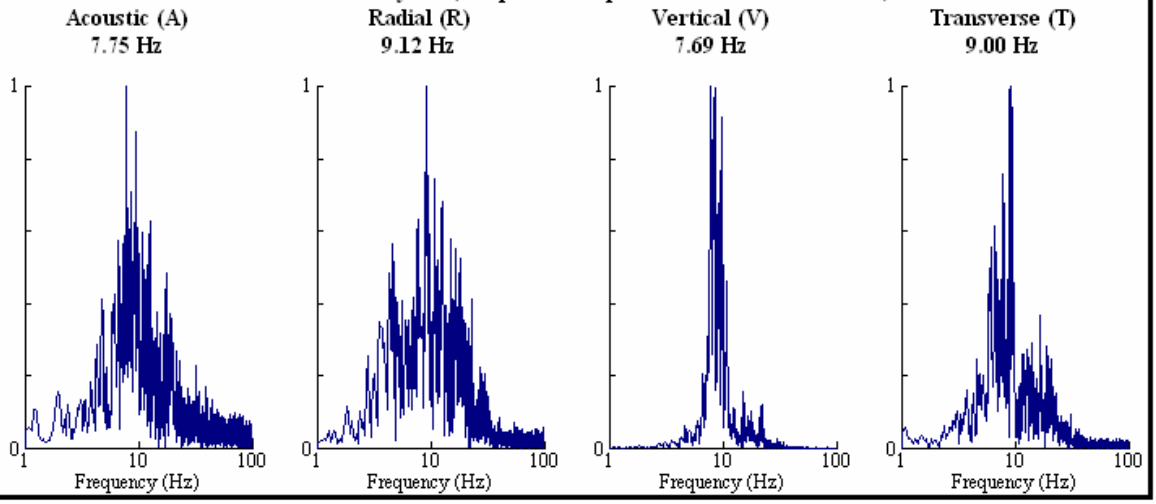
Acoustic (A): 112 dB @ 0.0 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.025in/s 0.635mm/s @ 15.0Hz
***Vertical (V):* 0.295in/s 7.493mm/s @ 8.9Hz**
Transverse (T): 0.035in/s 0.889mm/s @ 11.6Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.30in/s (0.075in/s/div) 7.62mm/s (1.905mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

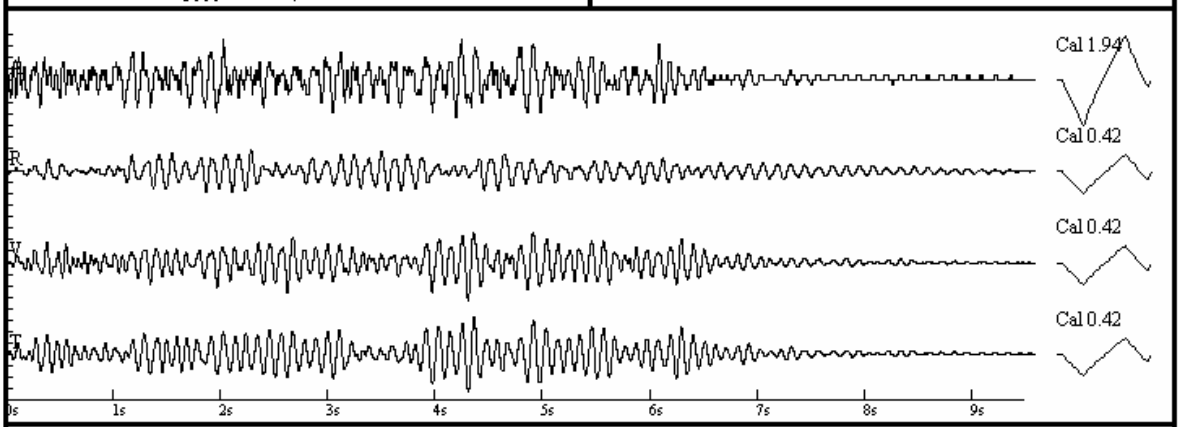
File: 02279082.DTB Event Number: 082 Date: 9/16/2004 Time: 15:44
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

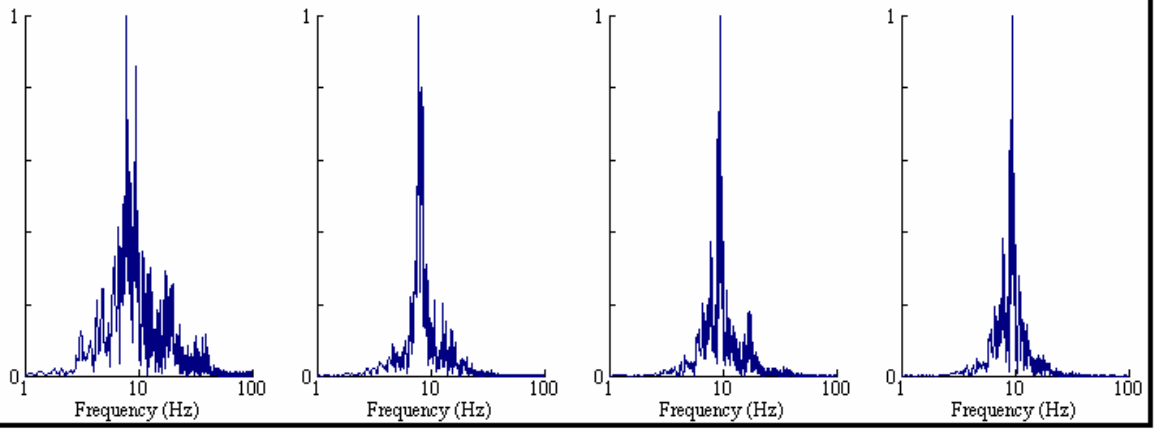
Acoustic (A): 119 dB @ 10.6 Hz
(0.18Mb 0.0026psi 0.0180kPa)
Radial (R): 0.095in/s 2.413mm/s @ 9.6Hz
***Vertical (V):* 0.165in/s 4.191mm/s @ 9.6Hz**
***Transverse (T):* 0.165in/s 4.191mm/s @ 9.1Hz**
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
reshot from previous day
assumed distance 970 ft

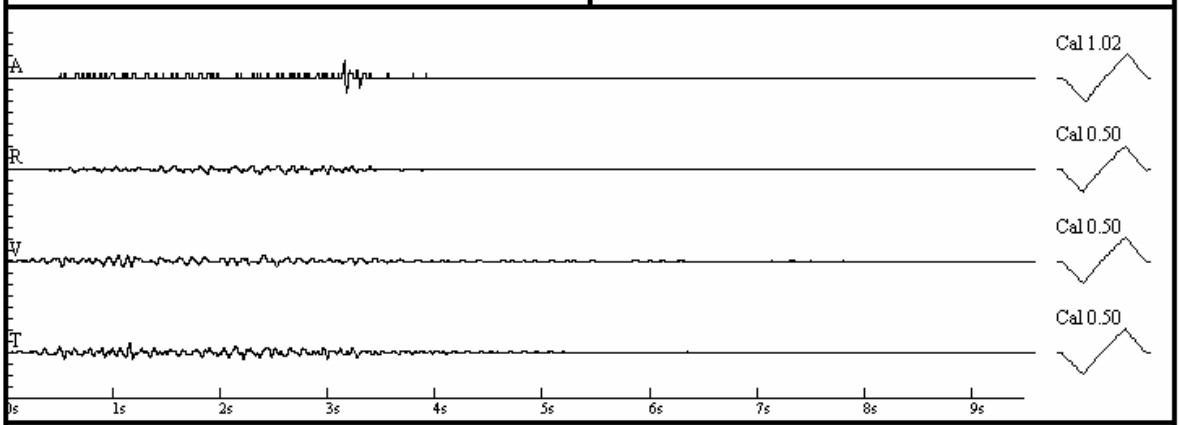
File: 01769027.DTB Event Number: 027 Date: 9/17/2004 Time: 08:59
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

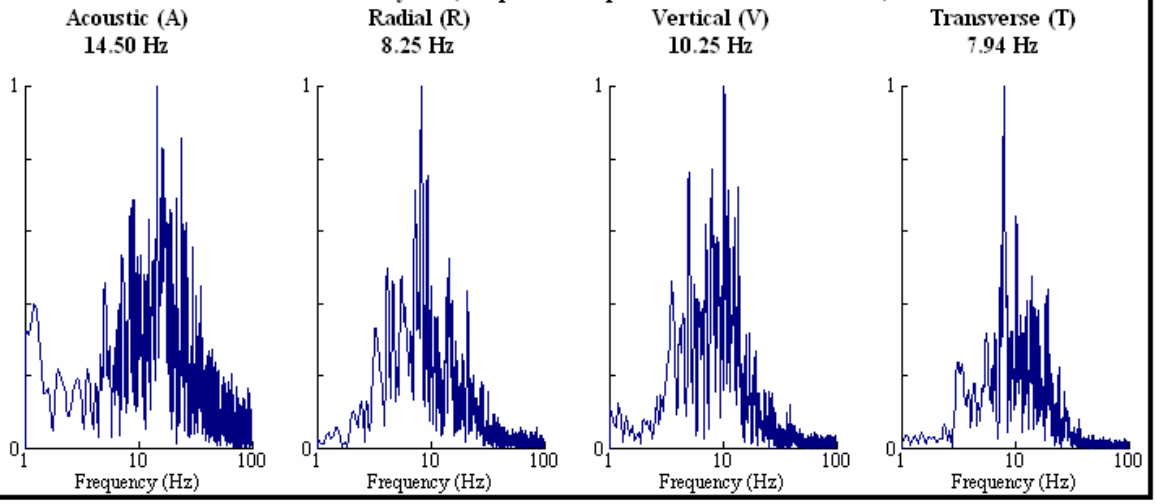
Acoustic (A): 112 dB @ 34.1 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.02in/s 0.508mm/s @ 17.0Hz
Vertical (V): 0.03in/s 0.762mm/s @ 12.1Hz
***Transverse (T):* 0.04in/s 1.016mm/s @ 14.6Hz**
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

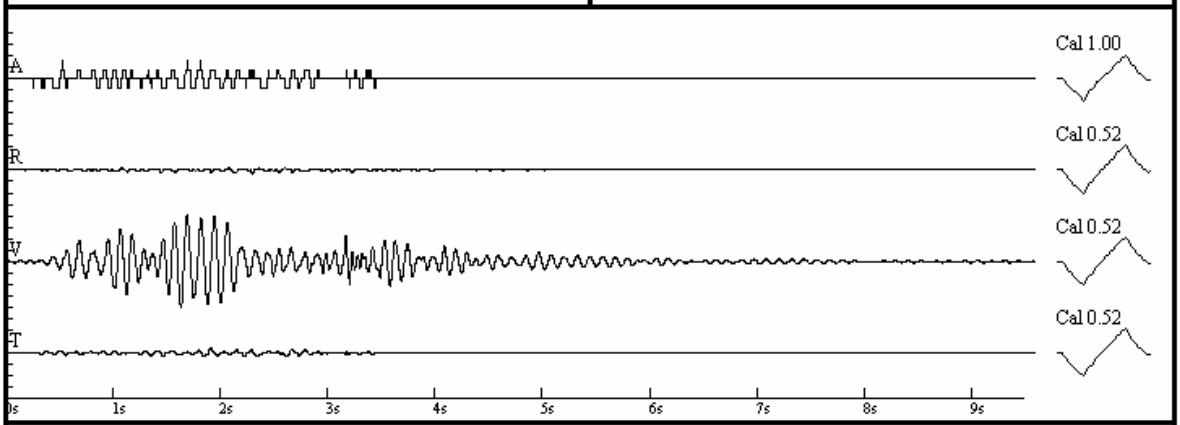
File: 01793003.DTB Event Number: 003 Date: 9/17/2004 Time: 08:58
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

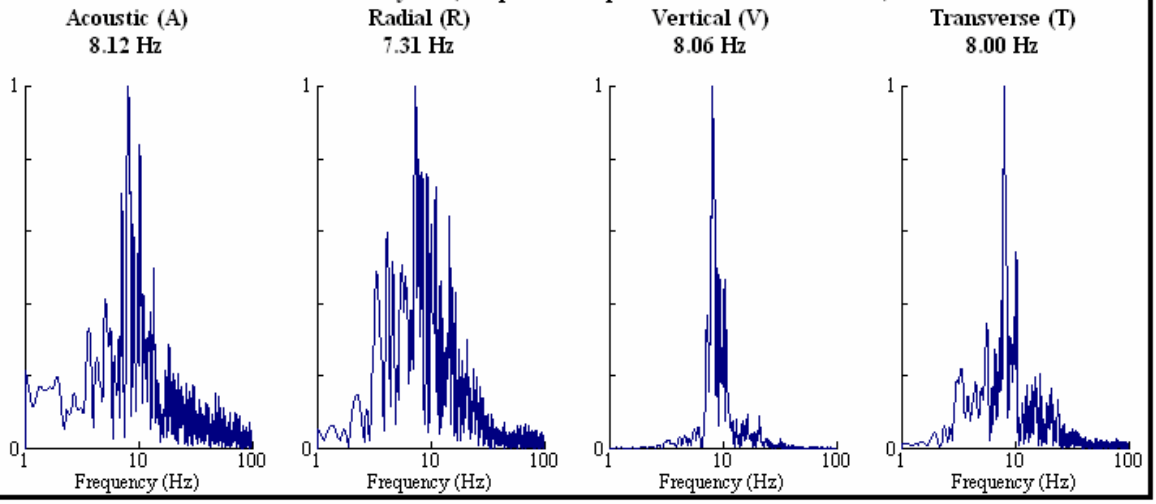
Acoustic (A): 112 dB @ 0.0 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.025in/s 0.635mm/s @ 15.0Hz
***Vertical (V):* 0.325in/s 8.255mm/s @ 8.3Hz**
Transverse (T): 0.03in/s 0.762mm/s @ 10.0Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.32in/s (0.080in/s/div) 8.13mm/s (2.032mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb - 0.5 ips)

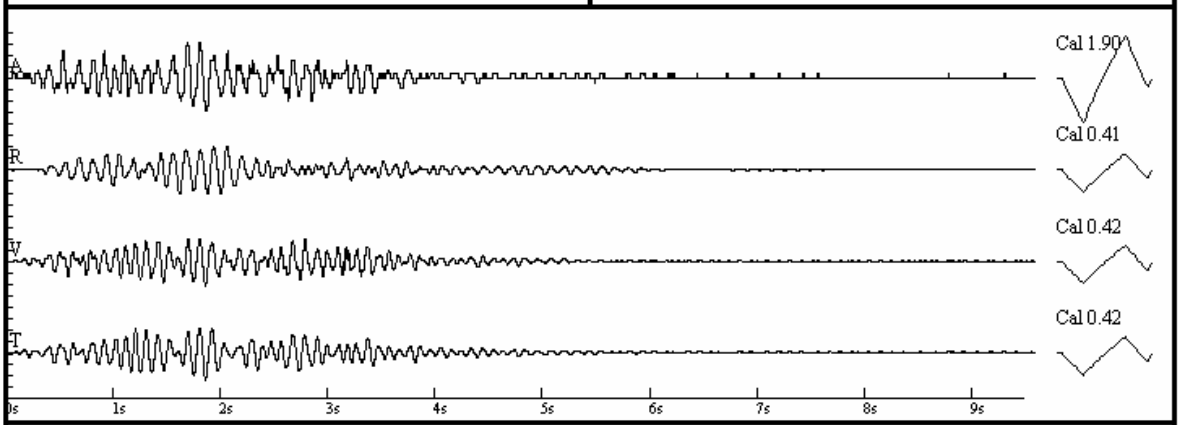
File: 02279083.DTB Event Number: 083 Date: 9/17/2004 Time: 08:59
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

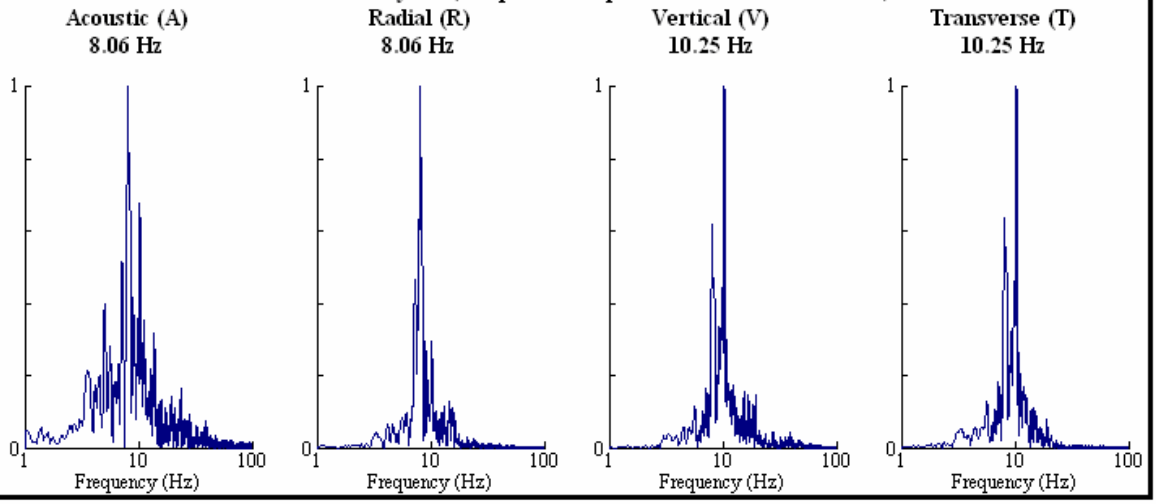
Acoustic (A): 118 dB @ 9.4 Hz
(0.16Mb 0.0023psi 0.0160kPa)
Radial (R): 0.105in/s 2.667mm/s @ 8.3Hz
Vertical (V): 0.11in/s 2.794mm/s @ 9.6Hz
***Transverse (T):* 0.12in/s 3.048mm/s @ 9.3Hz**
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
1208 ft

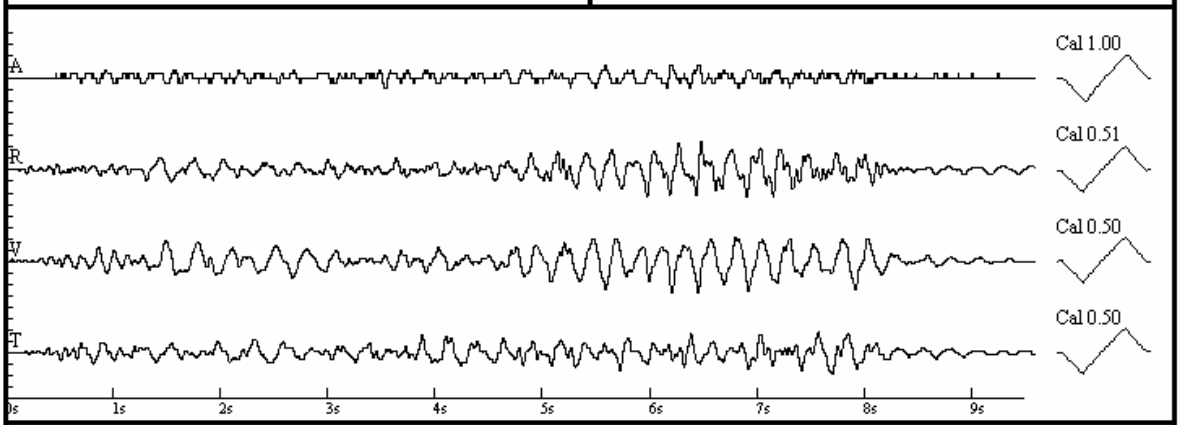
File: 01769030.DTB Event Number: 030 Date: 9/21/2004 Time: 15:57
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

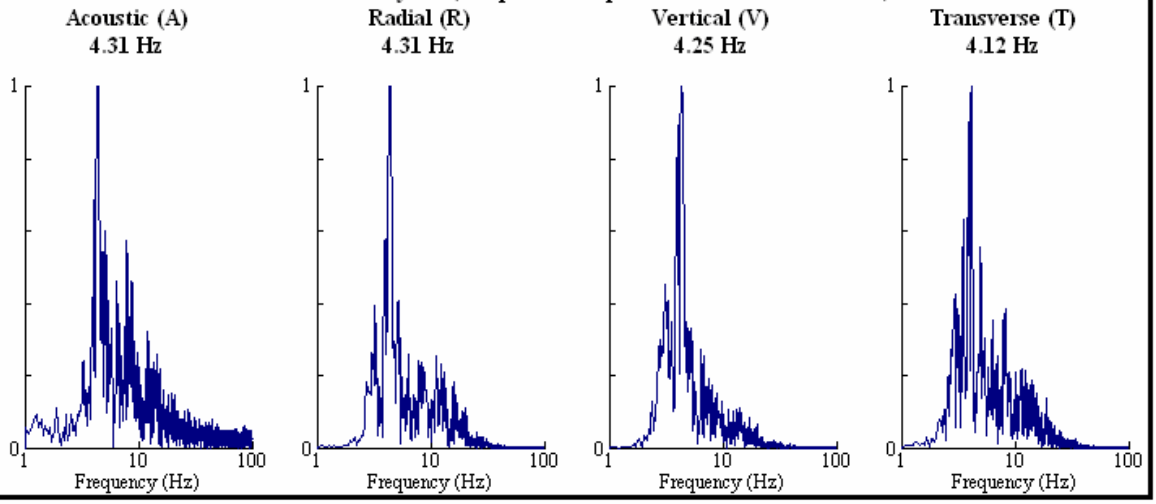
Acoustic (A): 110 dB @ 6.6 Hz
(0.06Mb 0.0009psi 0.0060kPa)
Radial (R): 0.125in/s 3.175mm/s @ 3.7Hz
***Vertical (V):* 0.135in/s 3.429mm/s @ 6.6Hz**
Transverse (T): 0.095in/s 2.413mm/s @ 5.0Hz
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

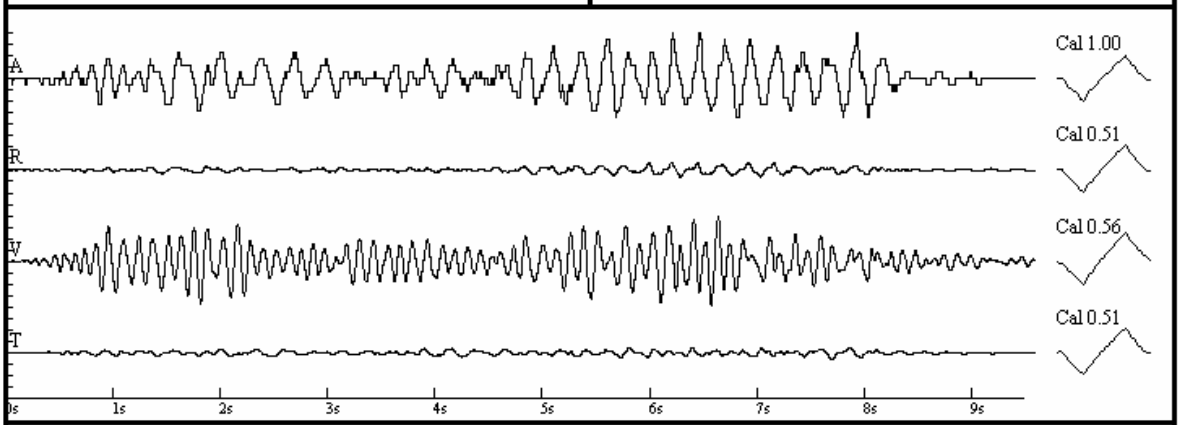
File: 01793006.DTB Event Number: 006 Date: 9/21/2004 Time: 15:56
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

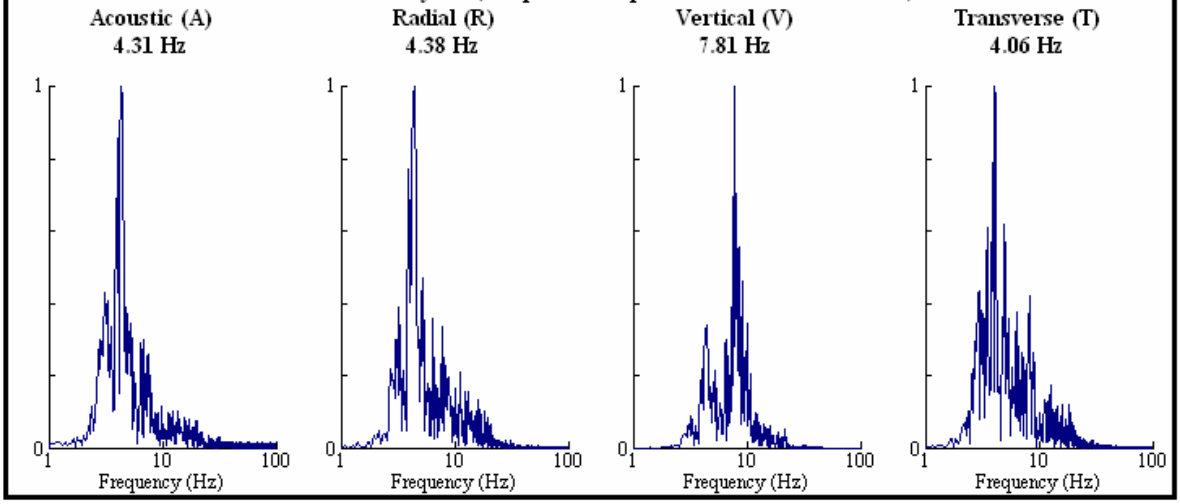
Acoustic (A): 123 dB @ 5.5 Hz
(0.28Mb 0.0041psi 0.0280kPa)
Radial (R): 0.12in/s 3.048mm/s @ 6.3Hz
***Vertical (V):* 0.74in/s 18.796mm/s @ 8.0Hz**
Transverse (T): 0.115in/s 2.921mm/s @ 4.9Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
123dB 0.28Mb (0.070Mb/div)
Seismic Scale:
0.74in/s (0.185in/s/div) 18.80mm/s (4.699mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

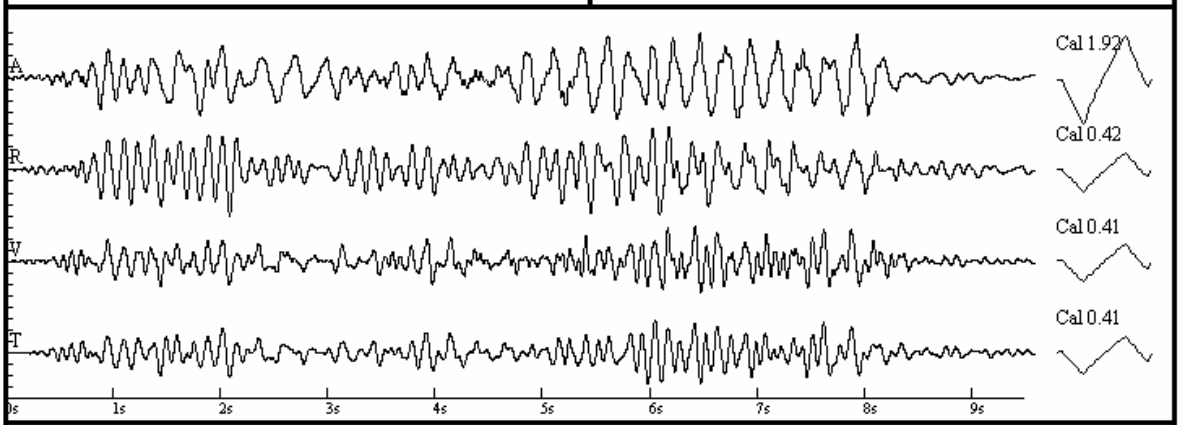
File: 02279086.DTB Event Number: 086 Date: 9/21/2004 Time: 15:57
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

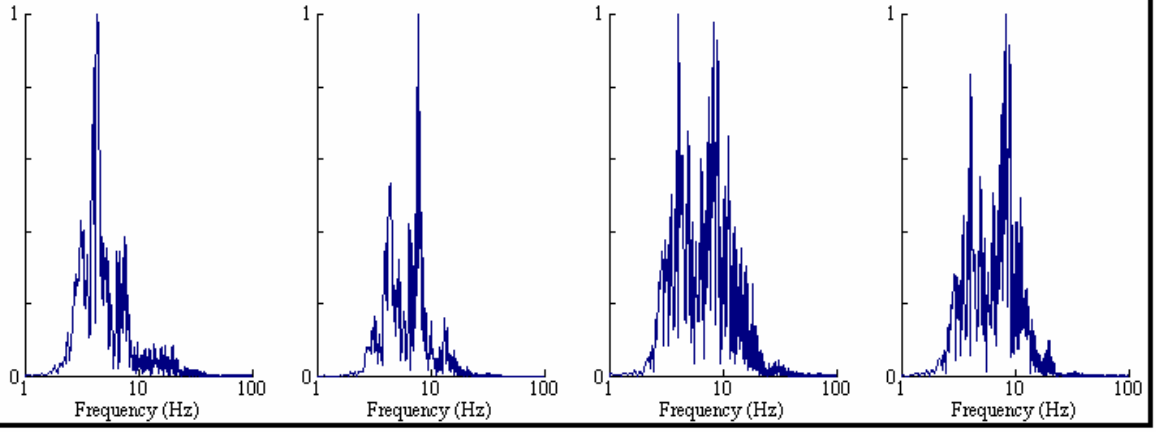
Acoustic (A): 129 dB @ 4.3 Hz
(0.56Mb 0.0081psi 0.0560kPa)
***Radial (R):* 0.34in/s 8.636mm/s @ 7.3Hz**
Vertical (V): 0.26in/s 6.604mm/s @ 7.4Hz
Transverse (T): 0.245in/s 6.223mm/s @ 7.8Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 9.500 sec
Acoustic Scale:
129dB 0.56Mb (0.140Mb/div)
Seismic Scale:
0.34in/s (0.085in/s/div) 8.64mm/s (2.159mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
980 ft
blast 1

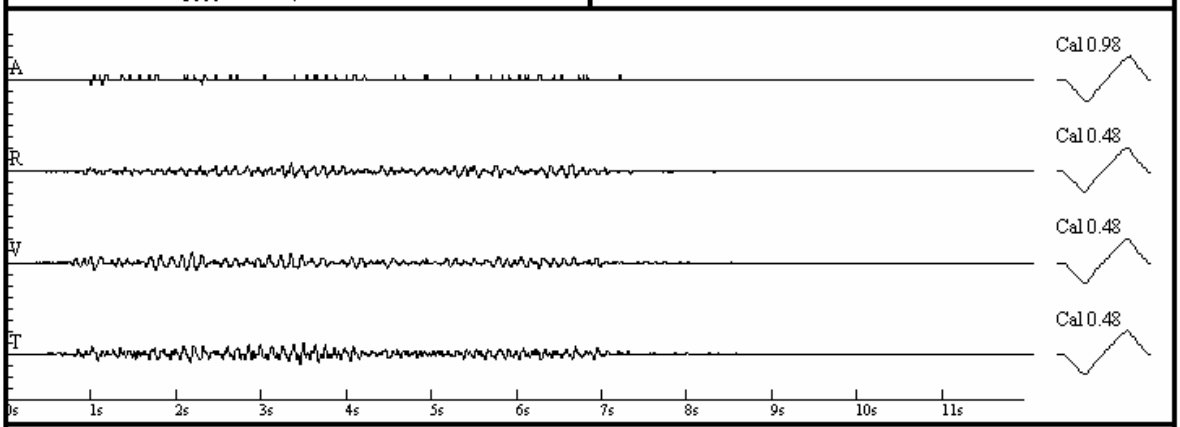
File: 01769038.DTB Event Number: 038 Date: 9/23/2004 Time: 14:49
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

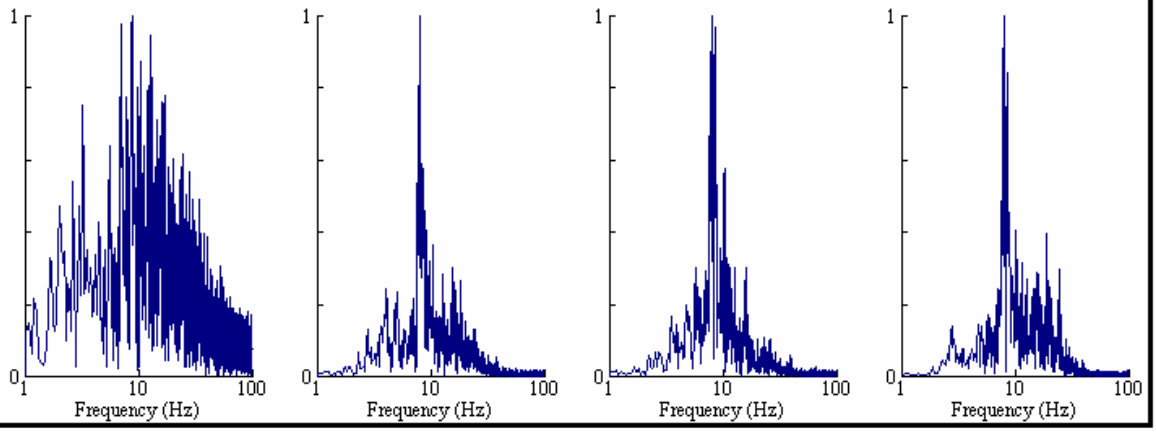
Acoustic (A): 100 dB @ 0.0 Hz
(0.02Mb 0.0003psi 0.0020kPa)
Radial (R): 0.035in/s 0.889mm/s @ 14.2Hz
***Vertical (V):* 0.045in/s 1.143mm/s @ 10.2Hz**
***Transverse (T):* 0.045in/s 1.143mm/s @ 14.2Hz**
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 11.977 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)
blast 1

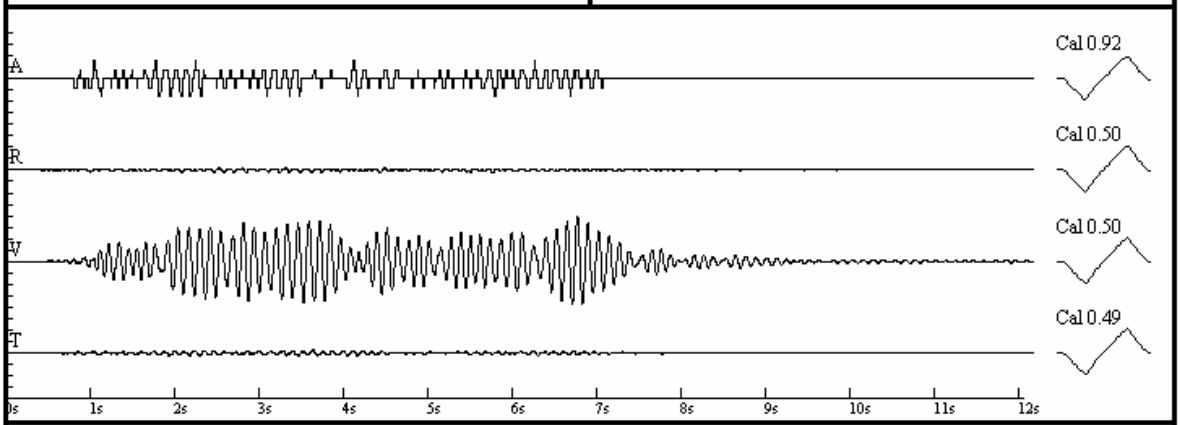
File: 01793030.DTB Event Number: 030 Date: 9/23/2004 Time: 14:50
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

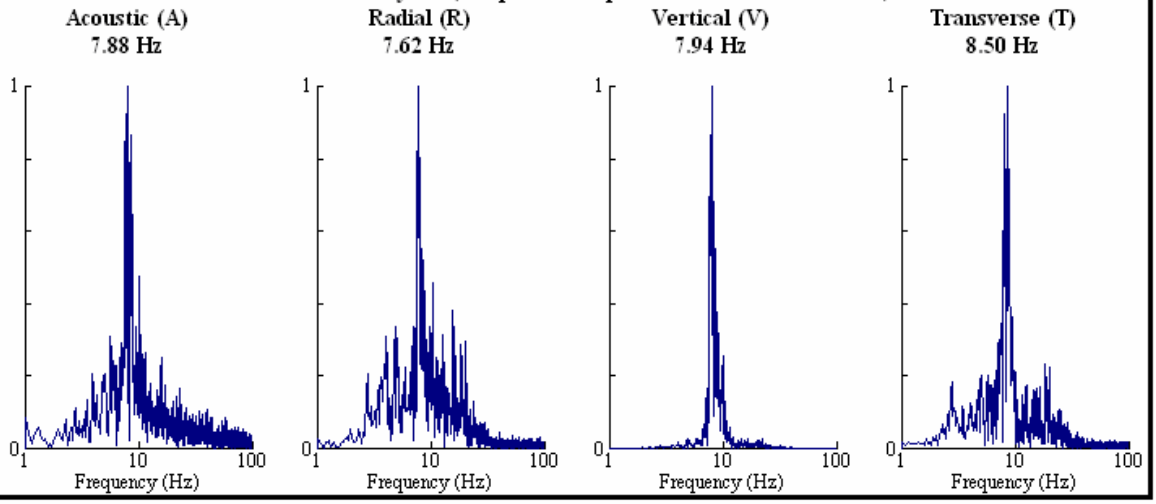
Acoustic (A): 112 dB @ 0.0 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.03in/s 0.762mm/s @ 11.6Hz
***Vertical (V):* 0.475in/s 12.065mm/s @ 8.2Hz**
Transverse (T): 0.035in/s 0.889mm/s @ 12.1Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 12.076 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.48in/s (0.120in/s/div) 12.19mm/s (3.048mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)
blast 1

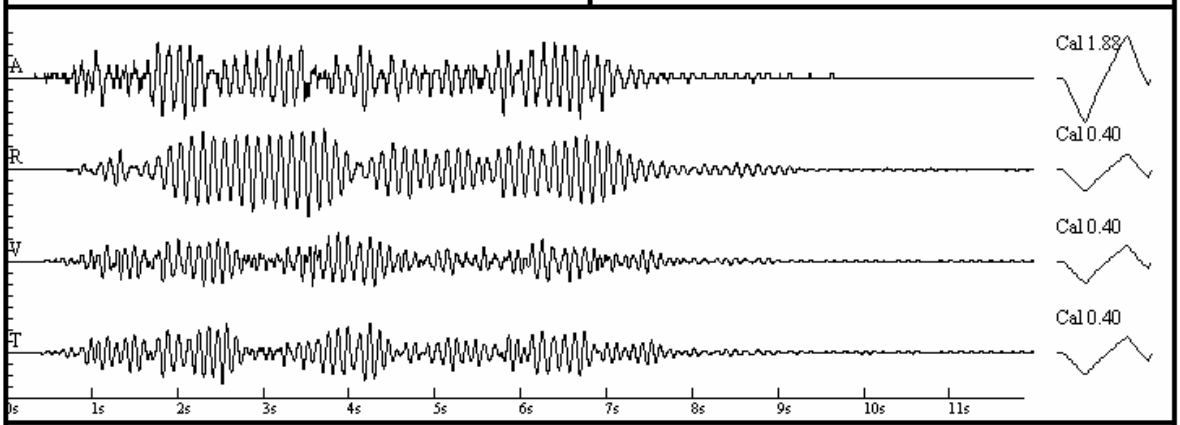
File: 02279101.DTB Event Number: 101 Date: 9/23/2004 Time: 14:49
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

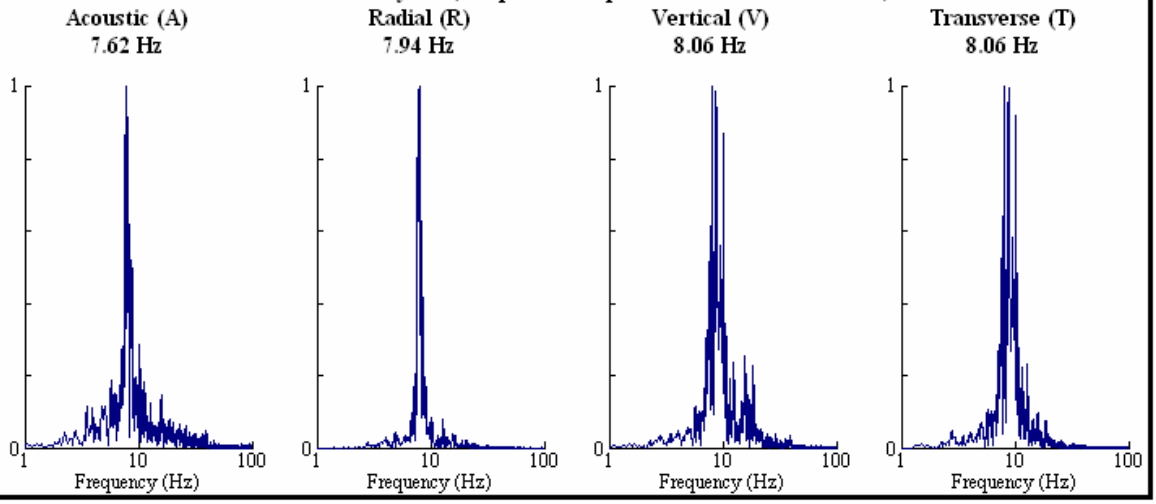
Acoustic (A): 119 dB @ 10.6 Hz
(0.18Mb 0.0026psi 0.0180kPa)
Radial (R): **0.20in/s 5.08mm/s @ 8.5Hz**
Vertical (V): 0.125in/s 3.175mm/s @ 10.6Hz
Transverse (T): 0.135in/s 3.429mm/s @ 10.2Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 11.879 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
950 ft

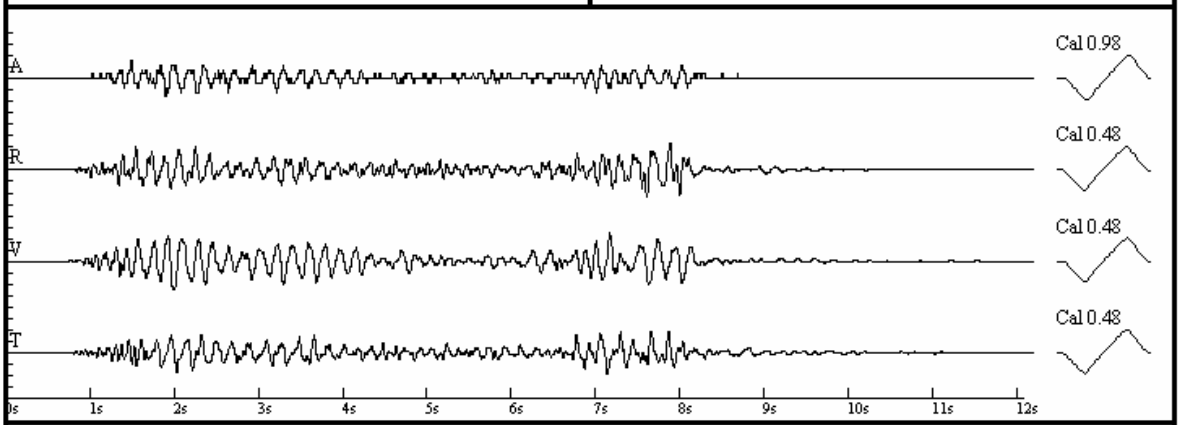
File: 01769043.DTB Event Number: 043 Date: 9/30/2004 Time: 14:59
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1769

Amplitudes and Frequencies

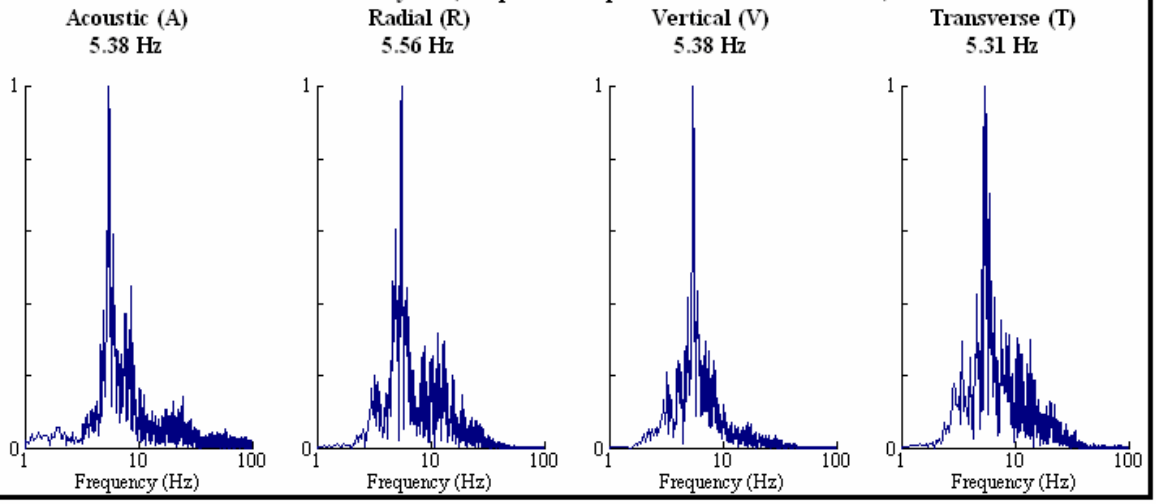
Acoustic (A): 112 dB @ 11.6 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.12in/s 3.048mm/s @ 7.7Hz
***Vertical (V):* 0.125in/s 3.175mm/s @ 7.3Hz**
Transverse (T): 0.095in/s 2.413mm/s @ 9.8Hz
Calibration Date (yyyy/mm/dd): 2000/09/22

Graph Information

Duration: 0.000 sec To: 12.100 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

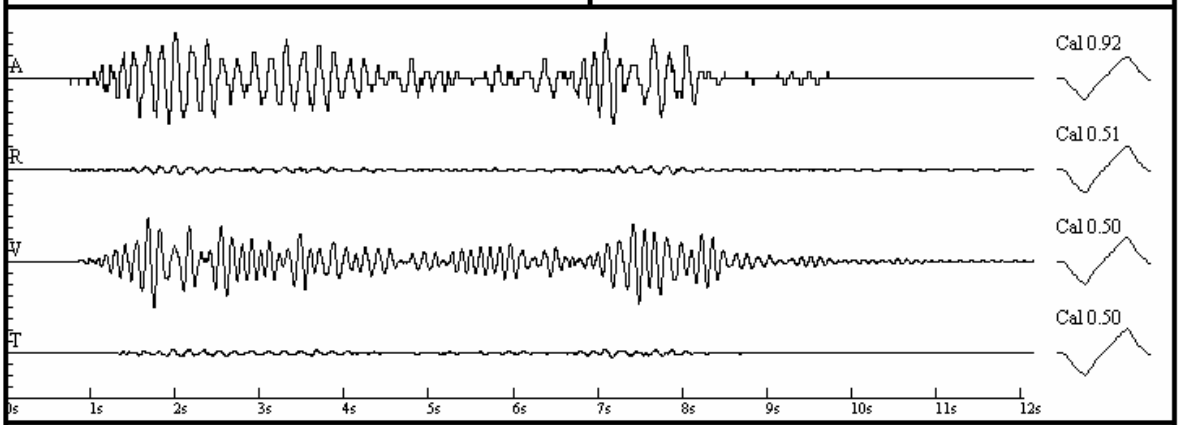
File: 01793035.DTB Event Number: 035 Date: 9/30/2004 Time: 15:00
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

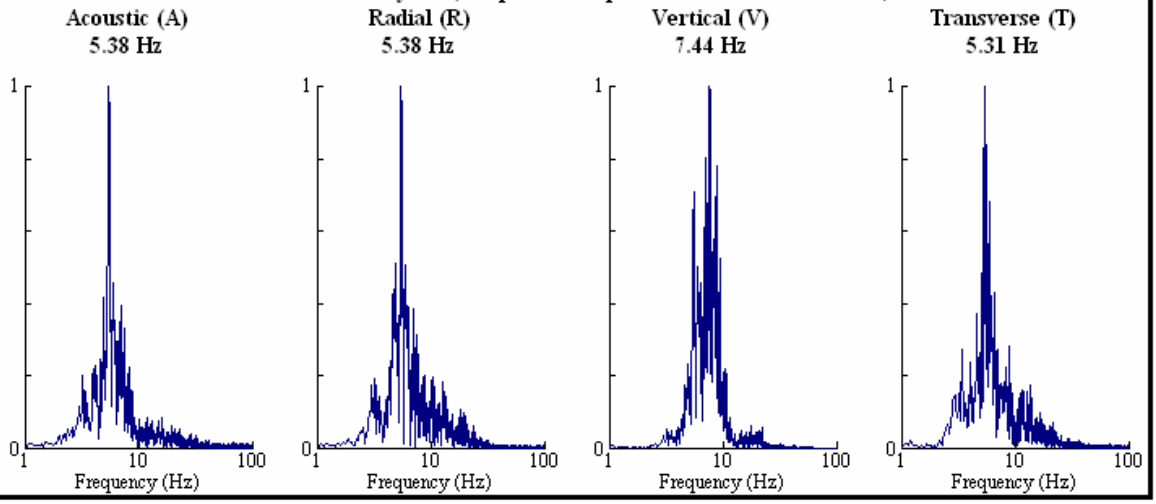
Acoustic (A): 123 dB @ 6.2 Hz
(0.28Mb 0.0041psi 0.0280kPa)
Radial (R): 0.10in/s 2.54mm/s @ 6.7Hz
***Vertical (V):* 1.12in/s 28.448mm/s @ 7.1Hz**
Transverse (T): 0.115in/s 2.921mm/s @ 6.0Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 12.051 sec
Acoustic Scale:
123dB 0.28Mb (0.070Mb/div)
Seismic Scale:
1.12in/s (0.280in/s/div) 28.45mm/s (7.112mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

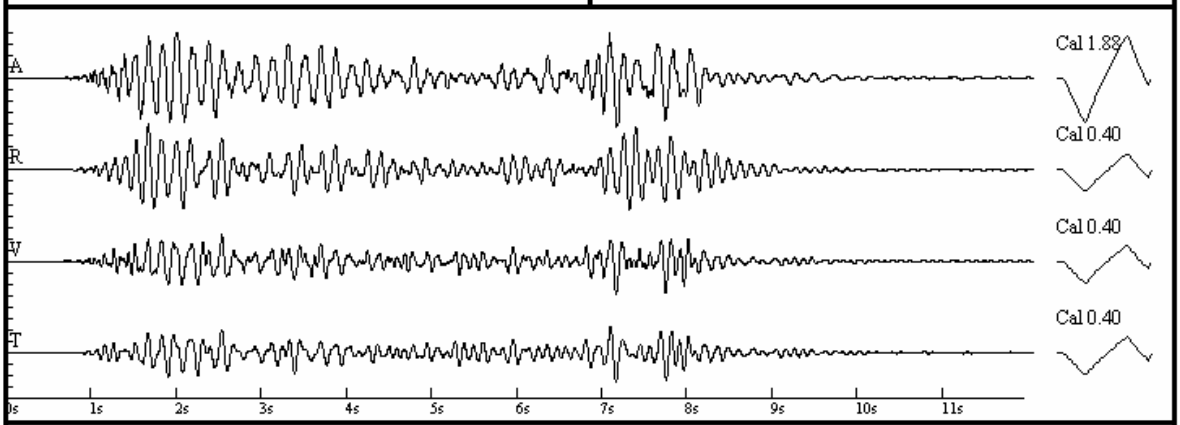
File: 02279106.DTB Event Number: 106 Date: 9/30/2004 Time: 14:59
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

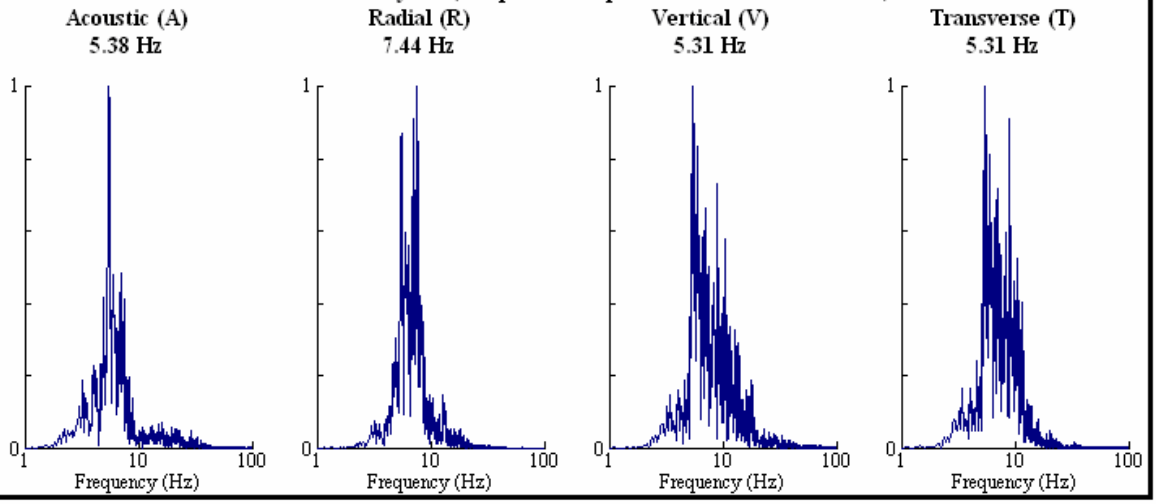
Acoustic (A): 130 dB @ 6.9 Hz
(0.66Mb 0.0096psi 0.0660kPa)
Radial (R): **0.50in/s 12.70mm/s @ 7.1Hz**
Vertical (V): 0.355in/s 9.017mm/s @ 7.5Hz
Transverse (T): 0.32in/s 8.128mm/s @ 6.9Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 11.977 sec
Acoustic Scale:
130dB 0.63Mb (0.158Mb/div)
Seismic Scale:
0.50in/s (0.125in/s/div) 12.70mm/s (3.175mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
1137 ft

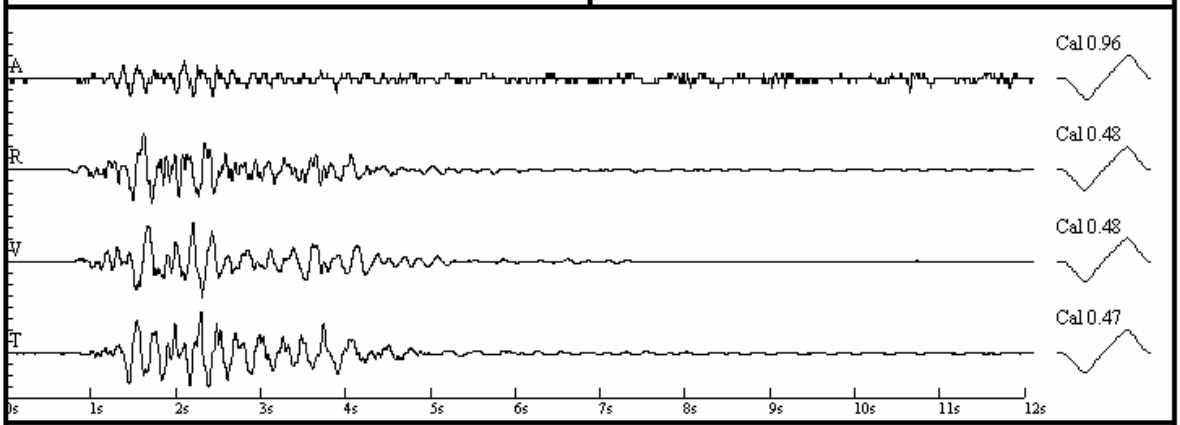
File: 01906192.DTB Event Number: 192 Date: 12/15/2004 Time: 15:10
Acoustic Trigger: 125 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

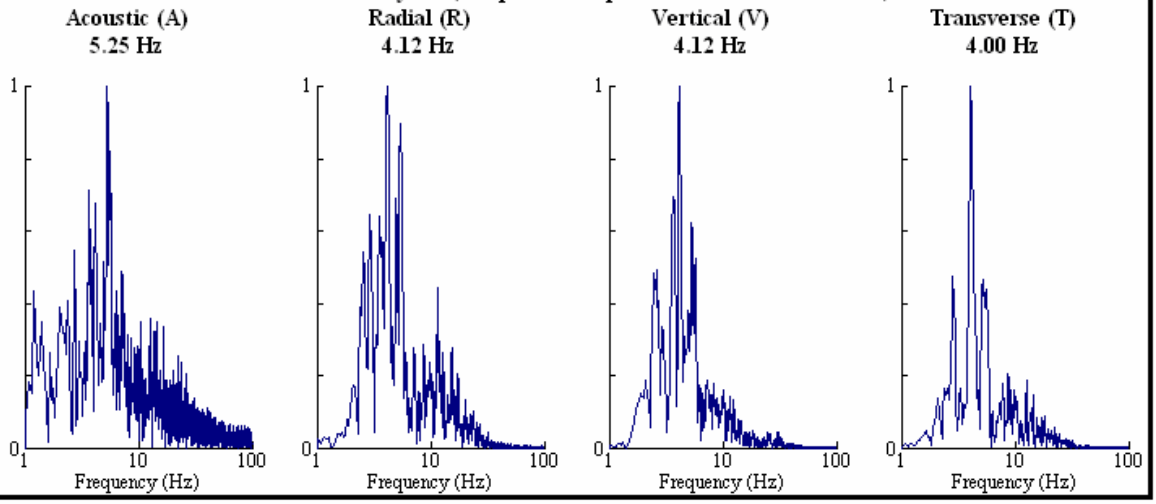
Acoustic (A): 112 dB @ 6.9 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.16in/s 4.064mm/s @ 3.9Hz
Vertical (V): 0.17in/s 4.318mm/s @ 5.9Hz
***Transverse (T):* 0.175in/s 4.445mm/s @ 4.4Hz**
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 12.002 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb == 0.5 ips)

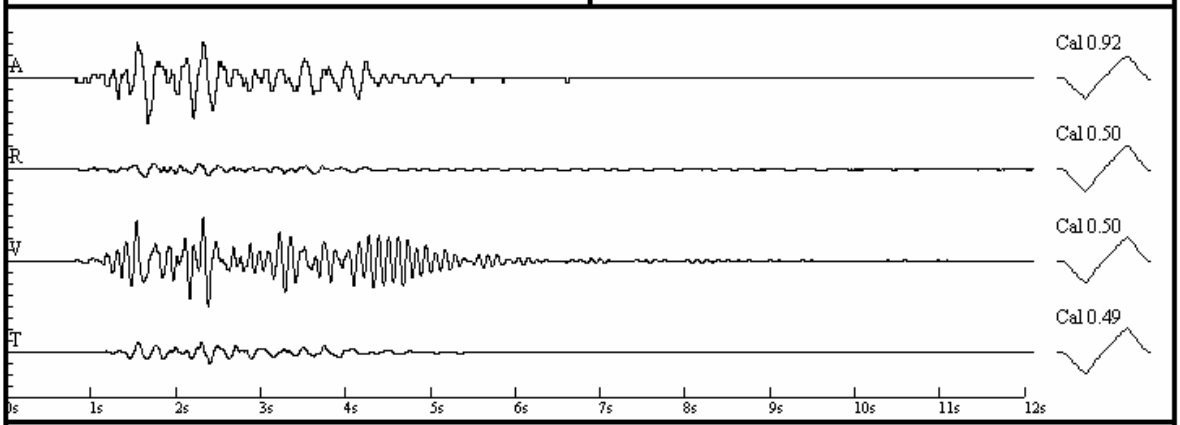
File: 01793118.DTB Event Number: 118 Date: 12/15/2004 Time: 15:10
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

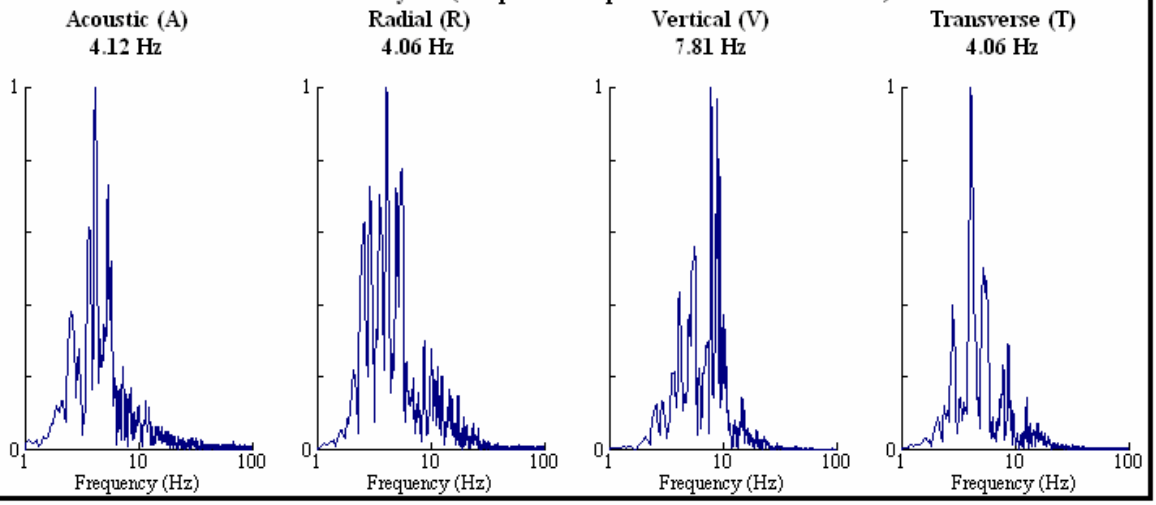
Acoustic (A): 127 dB @ 4.7 Hz
(0.44Mb 0.0064psi 0.0440kPa)
Radial (R): 0.15in/s 3.81mm/s @ 4.1Hz
***Vertical (V):* 0.86in/s 21.844mm/s @ 6.7Hz**
Transverse (T): 0.22in/s 5.588mm/s @ 4.7Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 12.002 sec
Acoustic Scale:
127dB 0.45Mb (0.112Mb/div)
Seismic Scale:
0.86in/s (0.215in/s/div) 21.84mm/s (5.461mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

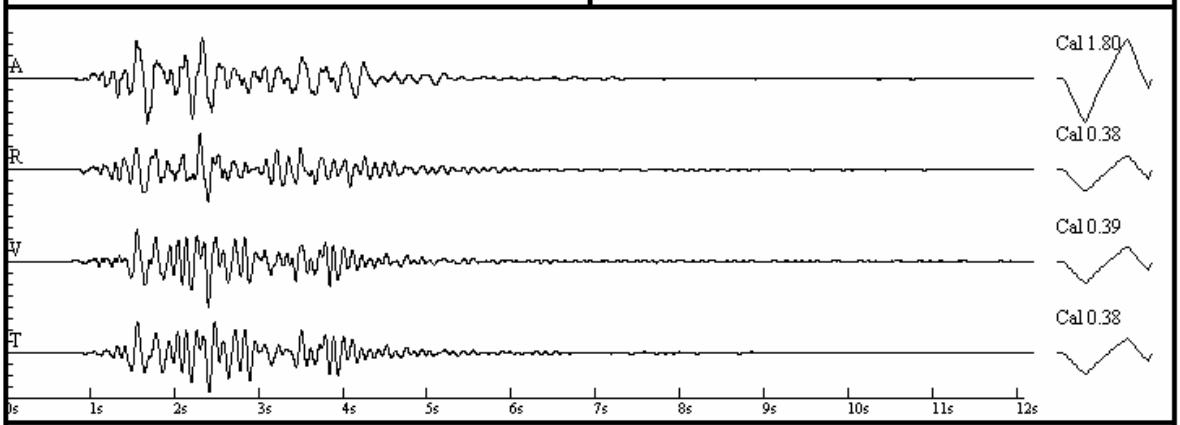
File: 02279153.DTB Event Number: 153 Date: 12/15/2004 Time: 15:09
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

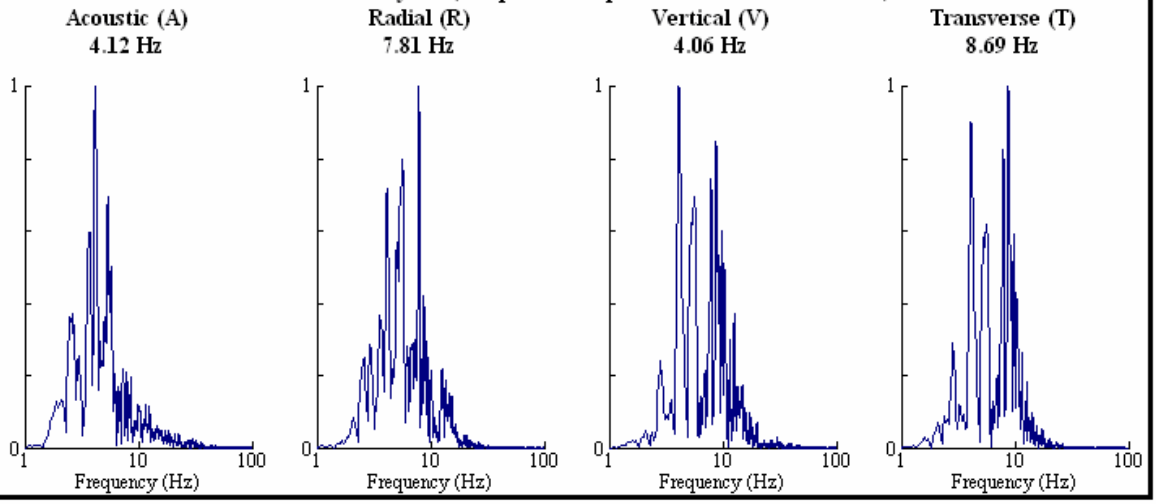
Acoustic (A): 133 dB @ 4.5 Hz
(0.88Mb 0.0128psi 0.0880kPa)
Radial (R): 0.44in/s 11.176mm/s @ 6.5Hz
***Vertical (V):* 0.565in/s 14.351mm/s @ 6.9Hz**
Transverse (T): 0.485in/s 12.319mm/s @ 6.5Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 12.100 sec
Acoustic Scale:
133dB 0.89Mb (0.222Mb/div)
Seismic Scale:
0.56in/s (0.140in/s/div) 14.22mm/s (3.556mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
962 ft
blast 1

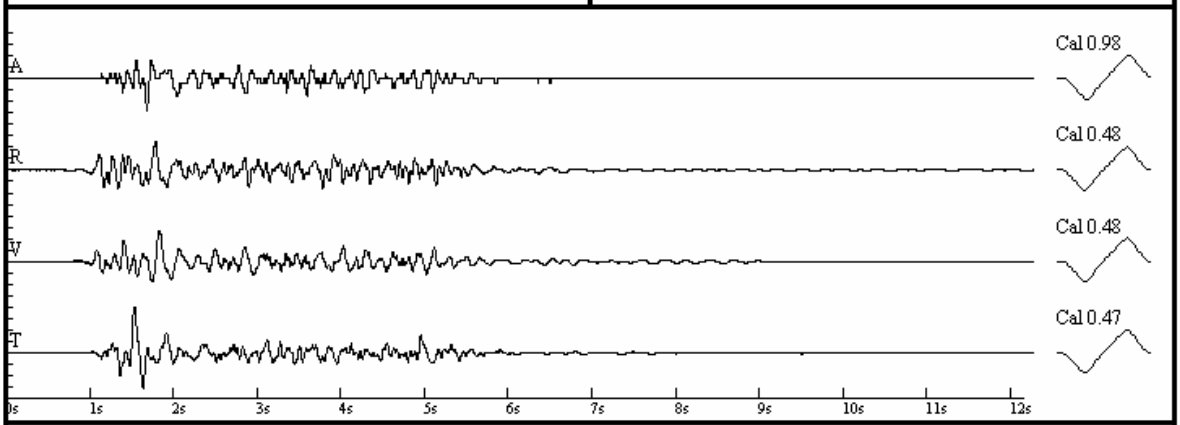
File: 01906203.DTB Event Number: 203 Date: 12/30/2004 Time: 15:46
Acoustic Trigger: 125 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

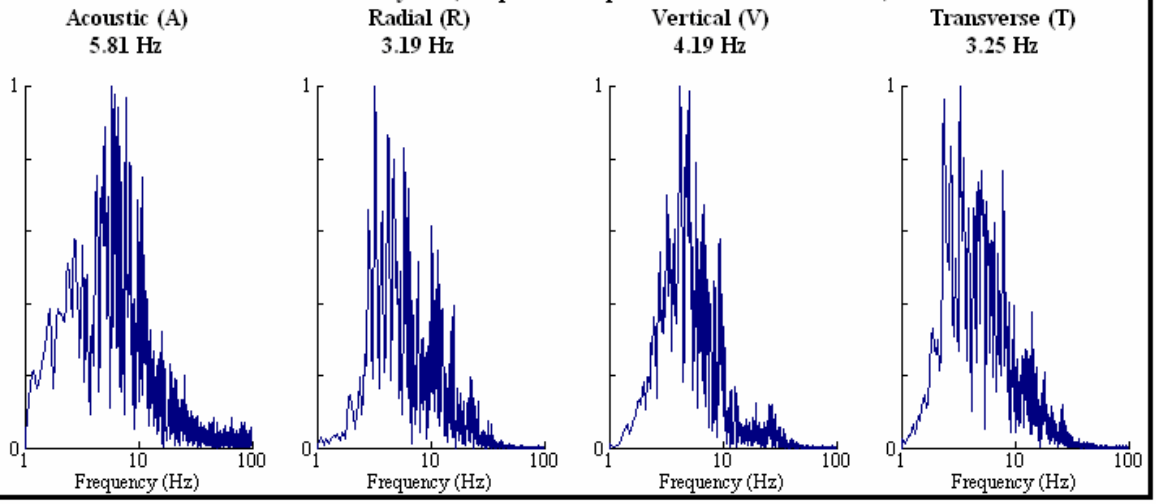
Acoustic (A): 117 dB @ 10.2 Hz
(0.14Mb 0.0020psi 0.0140kPa)
Radial (R): 0.225in/s 5.715mm/s @ 5.2Hz
Vertical (V): 0.235in/s 5.969mm/s @ 5.2Hz
***Transverse (T):* 0.365in/s 9.271mm/s @ 5.2Hz**
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 12.174 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.36in/s (0.090in/s/div) 9.14mm/s (2.286mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

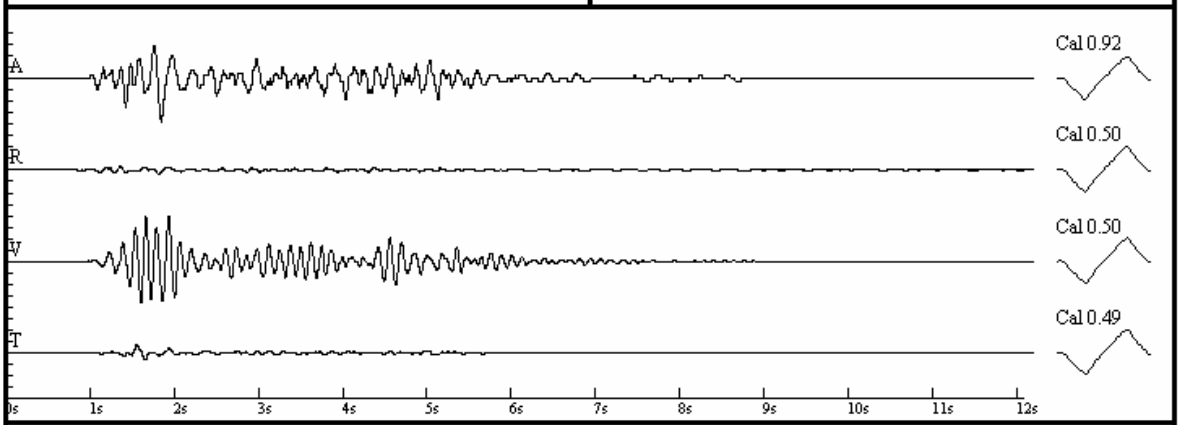
File: 01793130.DTB Event Number: 130 Date: 12/30/2004 Time: 15:47
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

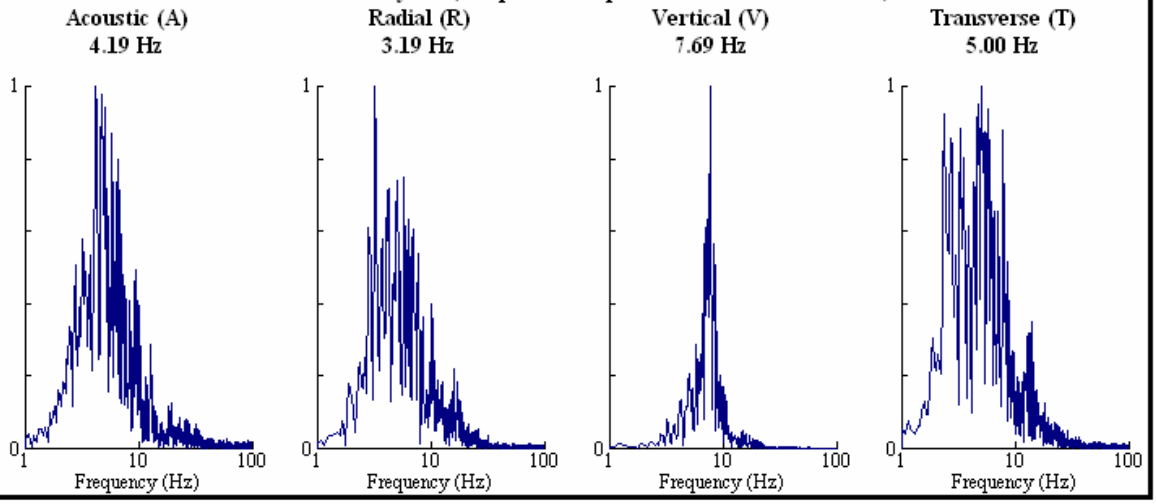
Acoustic (A): 130 dB @ 5.1 Hz
(0.60Mb 0.0087psi 0.0600kPa)
Radial (R): 0.22in/s 5.588mm/s @ 5.2Hz
***Vertical (V):* 2.22in/s 56.388mm/s @ 6.9Hz**
Transverse (T): 0.40in/s 10.16mm/s @ 5.2Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 12.100 sec
Acoustic Scale:
130dB 0.63Mb (0.158Mb/div)
Seismic Scale:
2.22in/s (0.555in/s/div) 56.39mm/s (14.097mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

File: 02279160.DTB Event Number: 160 Date: 12/30/2004 Time: 15:46
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

Acoustic (A): 136 dB @ 5.1 Hz
(1.26Mb 0.0183psi 0.1260kPa)

***Radial (R):* 0.88in/s 22.352mm/s @ 6.5Hz**

Vertical (V): 0.70in/s 17.78mm/s @ 6.4Hz

Transverse (T): 0.70in/s 17.78mm/s @ 6.9Hz

Calibration Date (yyyy/mm/dd): 2004/01/15

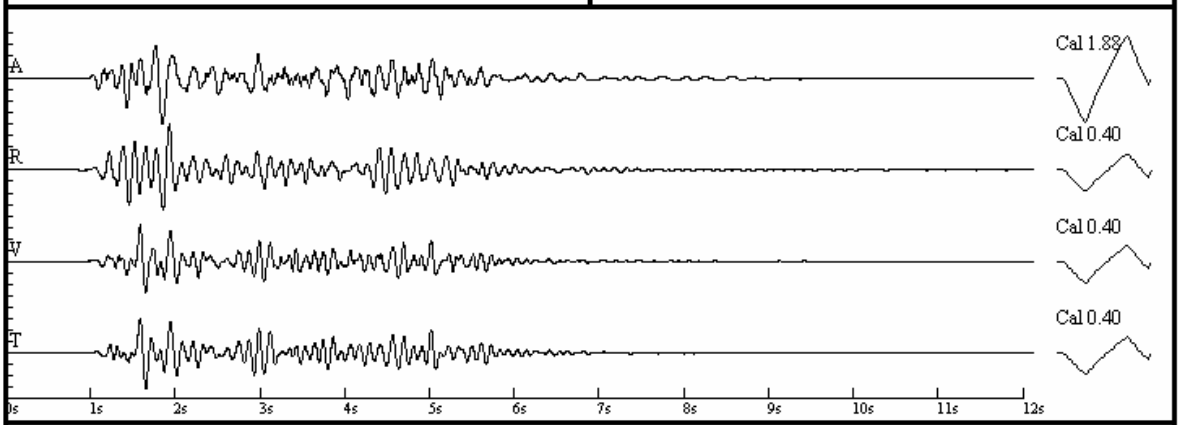
Graph Information

Duration: 0.000 sec To: 12.025 sec

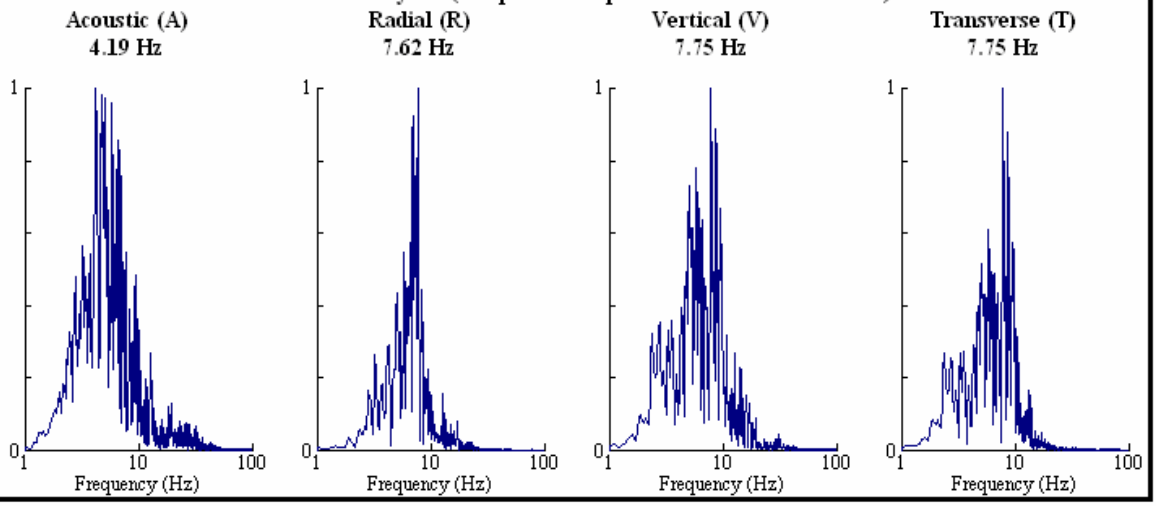
Acoustic Scale:
136dB 1.26Mb (0.315Mb/div)

Seismic Scale:
0.88in/s (0.220in/s/div) 22.35mm/s (5.588mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
962 ft
blast 2

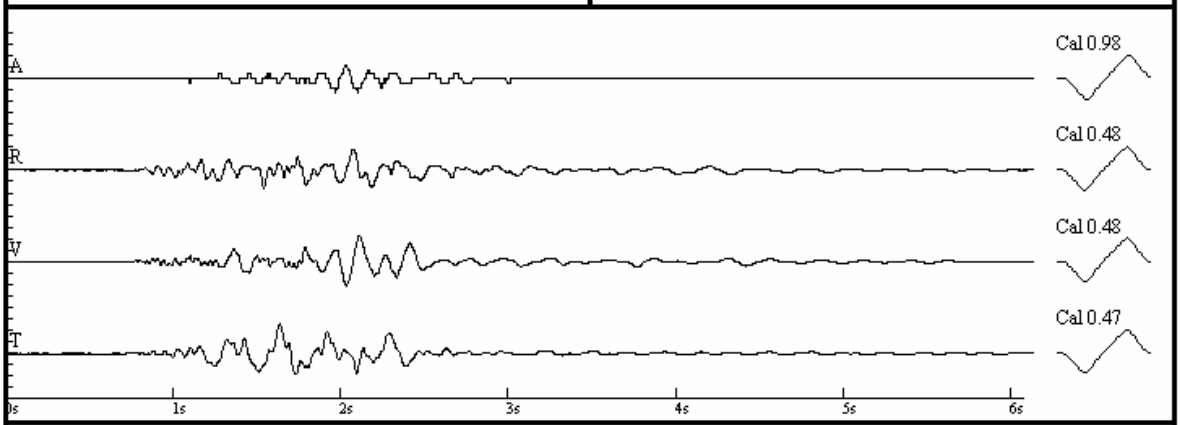
File: 01906204.DTB Event Number: 204 Date: 12/30/2004 Time: 16:24
Acoustic Trigger: 125 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

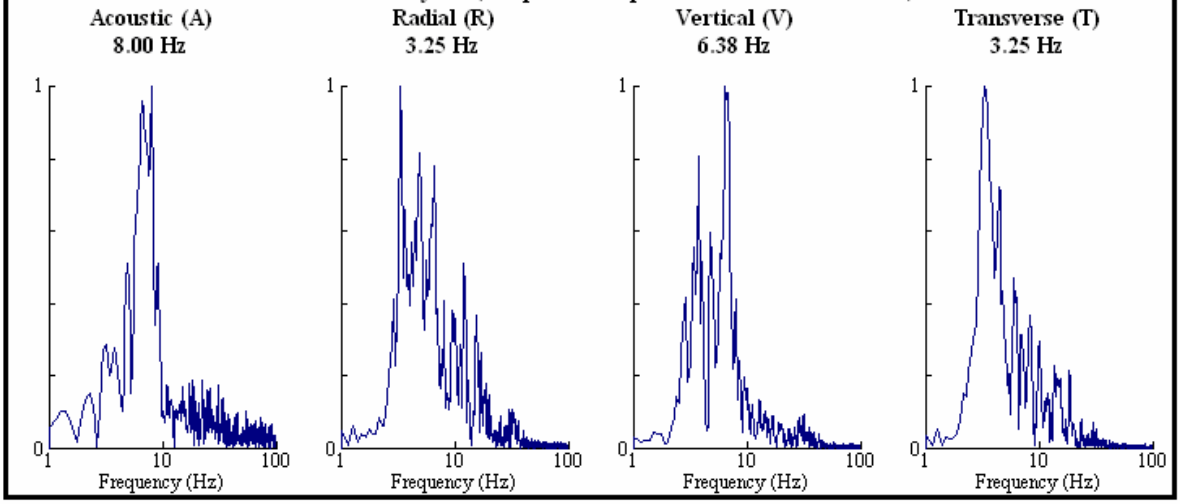
Acoustic (A): 110 dB @ 10.6 Hz
(0.06Mb 0.0009psi 0.0060kPa)
Radial (R): 0.09in/s 2.286mm/s @ 7.1Hz
Vertical (V): 0.11in/s 2.794mm/s @ 5.6Hz
***Transverse (T):* 0.125in/s 3.175mm/s @ 4.5Hz**
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 6.086 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

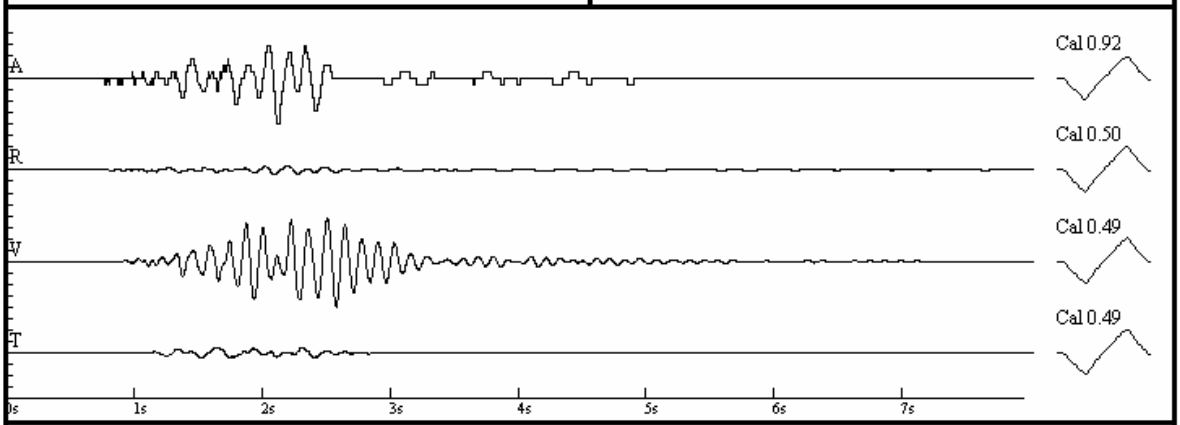
File: 01793132.DTB Event Number: 132 Date: 12/30/2004 Time: 16:24
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

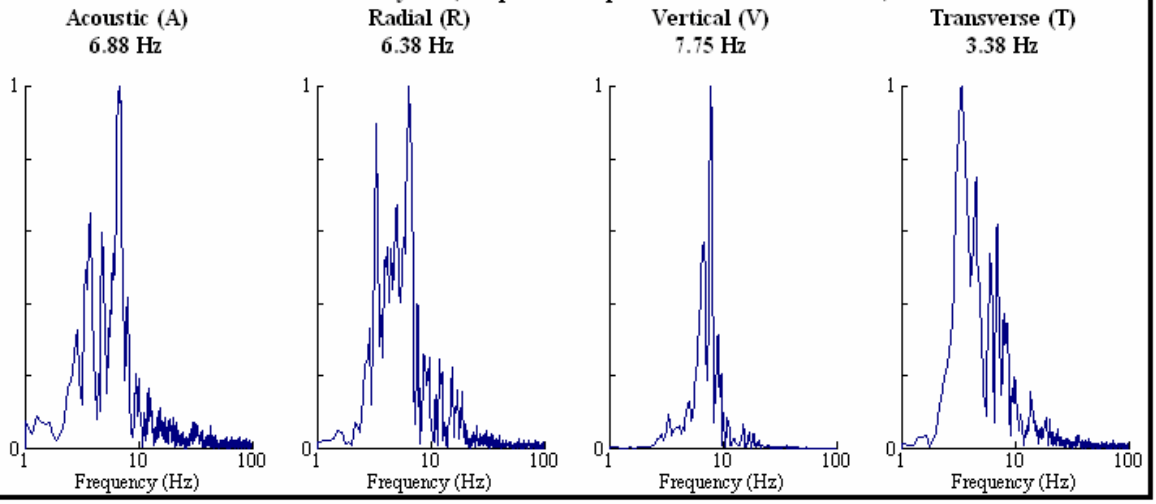
Acoustic (A): 123 dB @ 6.4 Hz
(0.28Mb 0.0041psi 0.0280kPa)
Radial (R): 0.095in/s 2.413mm/s @ 6.4Hz
***Vertical (V):* 0.88in/s 22.352mm/s @ 7.3Hz**
Transverse (T): 0.10in/s 2.54mm/s @ 4.0Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 7.959 sec
Acoustic Scale:
123dB 0.28Mb (0.070Mb/div)
Seismic Scale:
0.88in/s (0.220in/s/div) 22.35mm/s (5.588mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

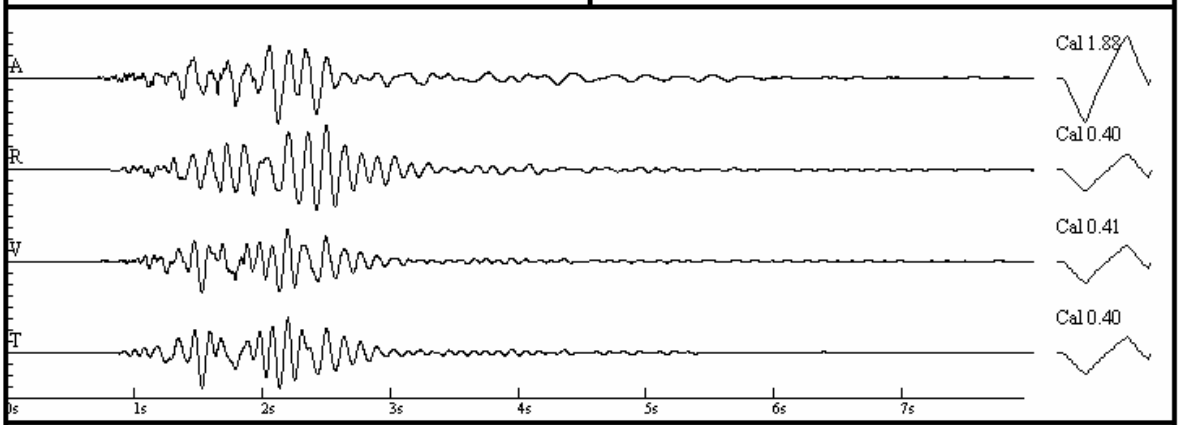
File: 02279162.DTB Event Number: 162 Date: 12/30/2004 Time: 16:24
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

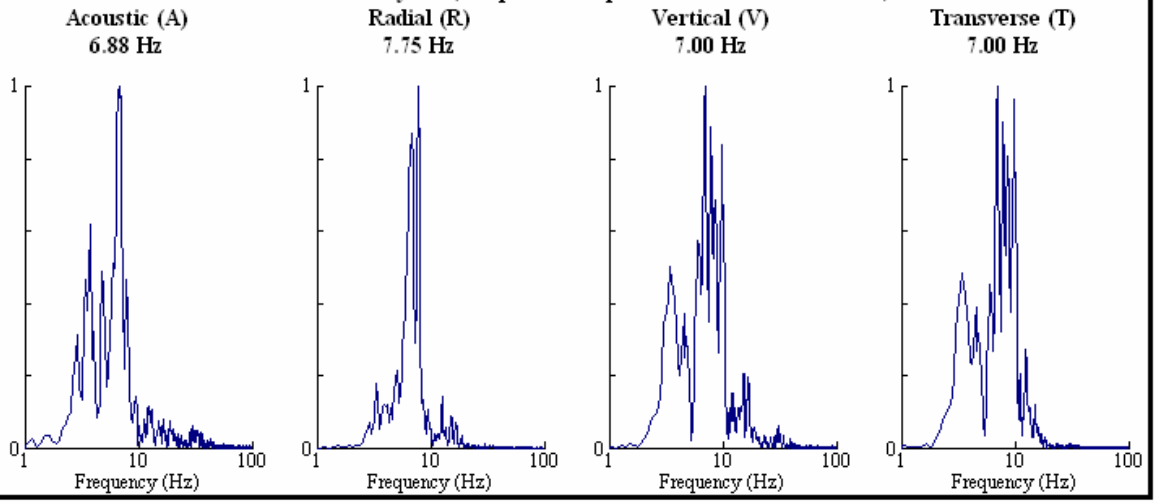
Acoustic (A): 130 dB @ 6.0 Hz
(0.62Mb 0.0090psi 0.0620kPa)
Radial (R): **0.415in/s 10.541mm/s @ 6.9Hz**
Vertical (V): 0.295in/s 7.493mm/s @ 8.2Hz
Transverse (T): 0.33in/s 8.382mm/s @ 7.7Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 7.959 sec
Acoustic Scale:
130dB 0.63Mb (0.158Mb/div)
Seismic Scale:
0.42in/s (0.105in/s/div) 10.67mm/s (2.667mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
758.6 ft

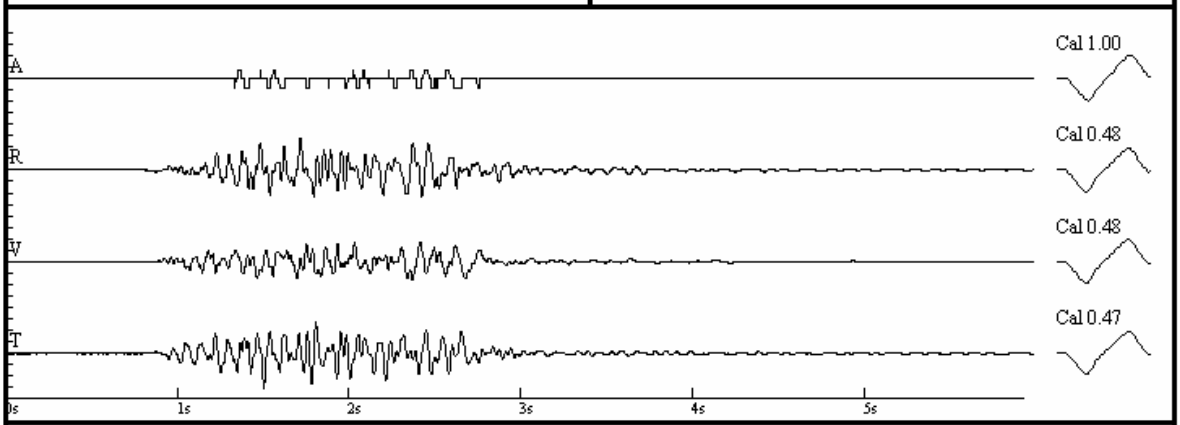
File: 00930175.DTB Event Number: 175 Date: 1/27/2005 Time: 13:50
Acoustic Trigger: 137 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

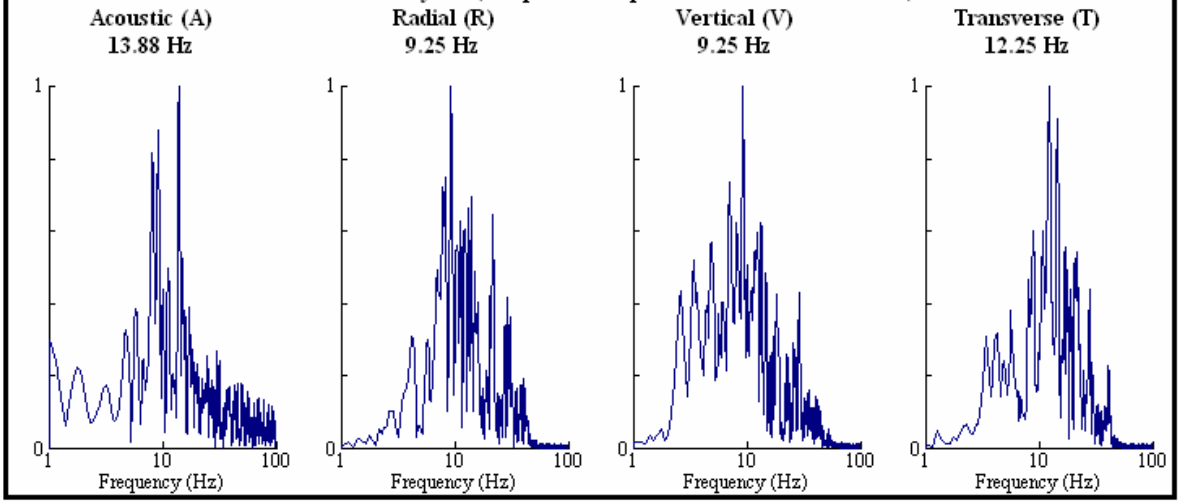
Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)
Radial (R): 0.14in/s 3.556mm/s @ 15.0Hz
Vertical (V): 0.085in/s 2.159mm/s @ 12.1Hz
***Transverse (T):* 0.155in/s 3.937mm/s @ 18.2Hz**
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 5.939 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

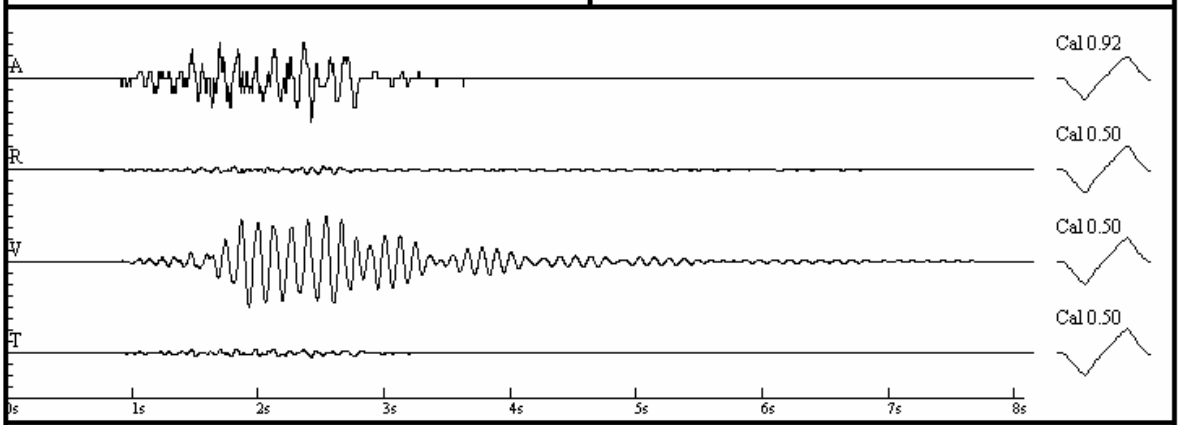
File: 01793183.DTB Event Number: 183 Date: 1/27/2005 Time: 13:54
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

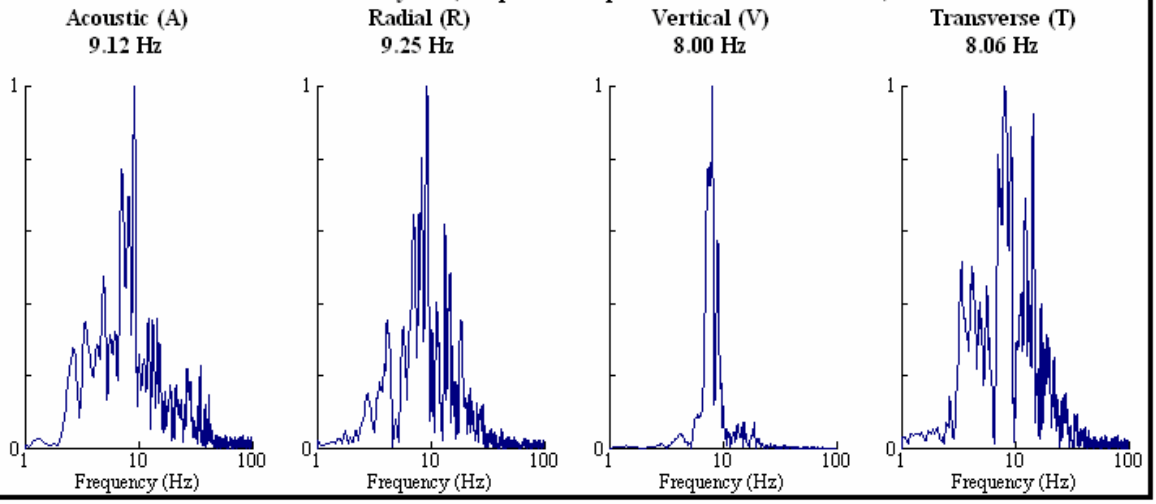
Acoustic (A): 122 dB @ 12.8 Hz
(0.24Mb 0.0035psi 0.0240kPa)
Radial (R): 0.10in/s 2.54mm/s @ 11.6Hz
***Vertical (V):* 1.04in/s 26.416mm/s @ 7.5Hz**
Transverse (T): 0.115in/s 2.921mm/s @ 11.6Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 8.084 sec
Acoustic Scale:
122dB 0.25Mb (0.062Mb/div)
Seismic Scale:
1.04in/s (0.260in/s/div) 26.42mm/s (6.604mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

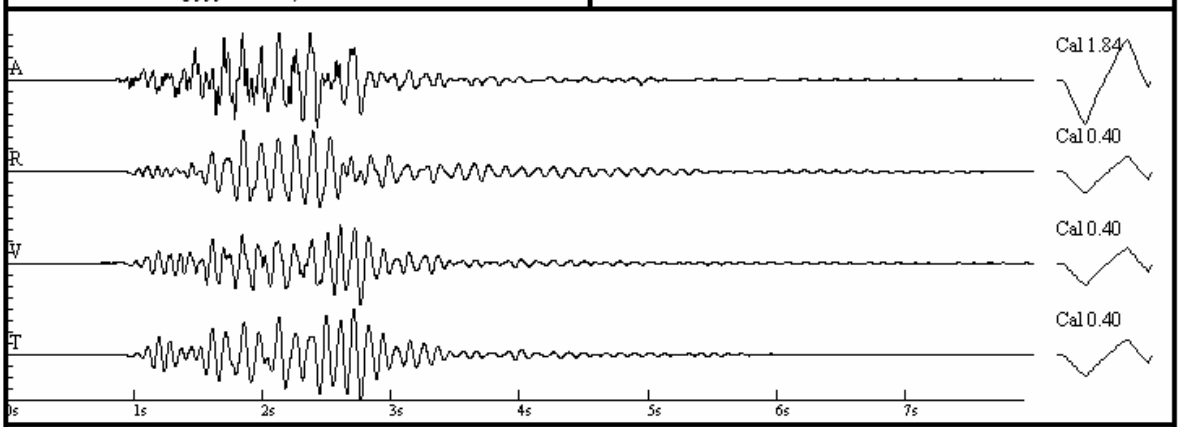
File: 02279209.DTB Event Number: 209 Date: 1/27/2005 Time: 13:52
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

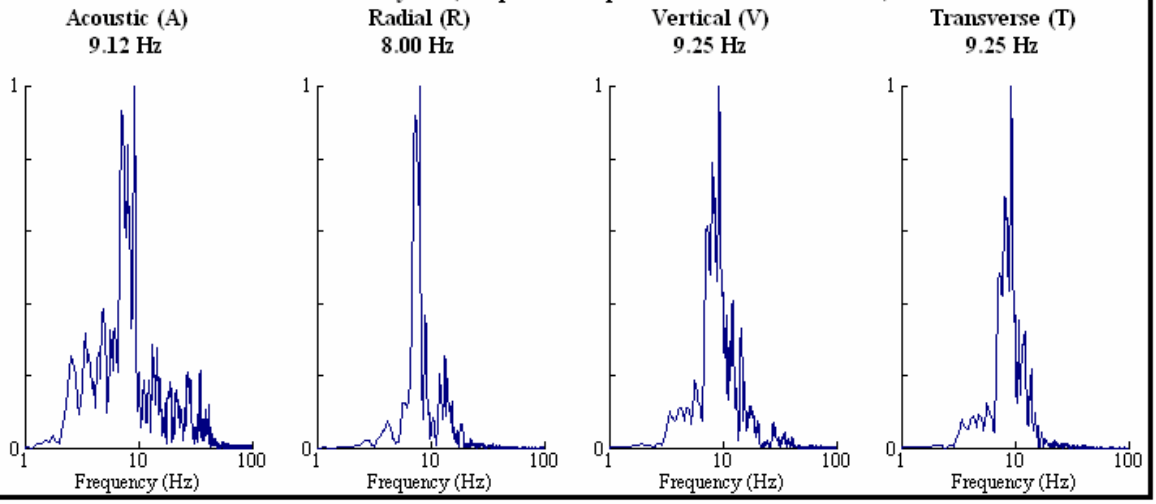
Acoustic (A): 127 dB @ 11.6 Hz
(0.46Mb 0.0067psi 0.0460kPa)
Radial (R): 0.40in/s 10.16mm/s @ 8.2Hz
Vertical (V): 0.395in/s 10.033mm/s @ 8.5Hz
***Transverse (T):* 0.44in/s 11.176mm/s @ 8.8Hz**
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 7.936 sec
Acoustic Scale:
127dB 0.45Mb (0.112Mb/div)
Seismic Scale:
0.44in/s (0.110in/s/div) 11.18mm/s (2.794mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
758.6 ft
re-shoot from previous blast

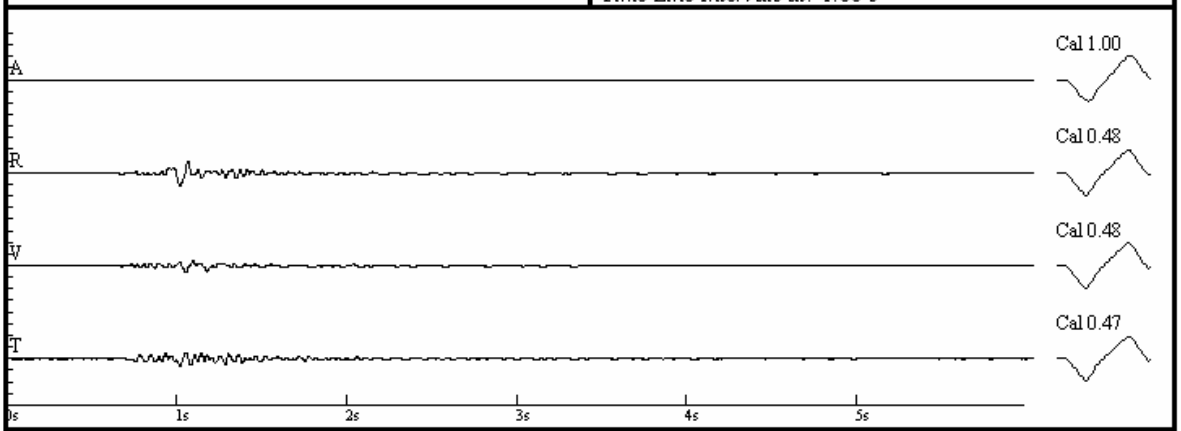
File: 00930176.DTB Event Number: 176 Date: 1/27/2005 Time: 14:15
Acoustic Trigger: 137 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

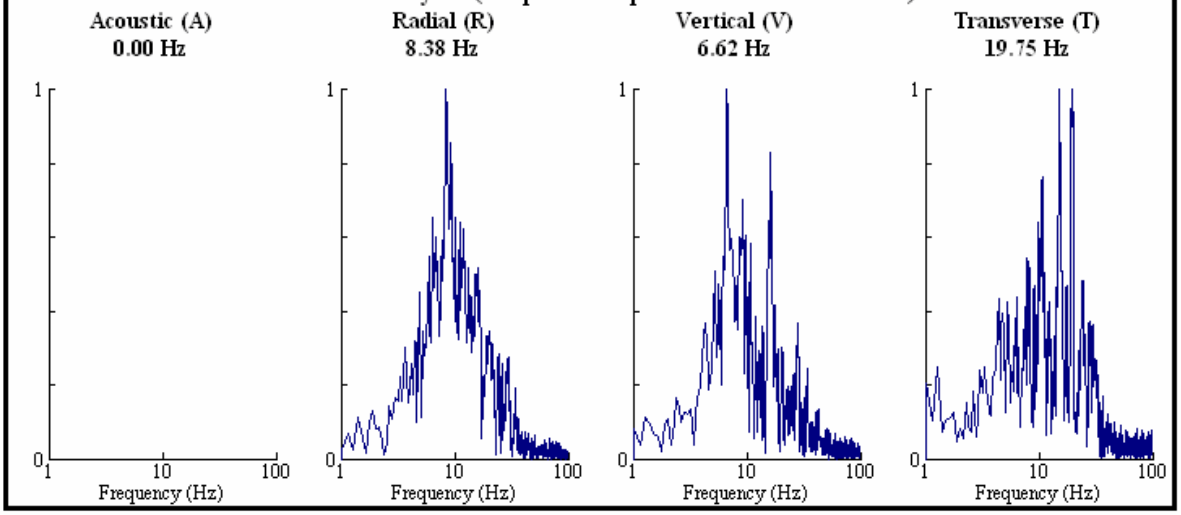
Acoustic (A): <100 dB
***Radial (R):* 0.055in/s 1.397mm/s @ 9.8Hz**
Vertical (V): 0.025in/s 0.635mm/s @ 14.2Hz
Transverse (T): 0.035in/s 0.889mm/s @ 13.4Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 5.988 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)
re-shoot from previous blast

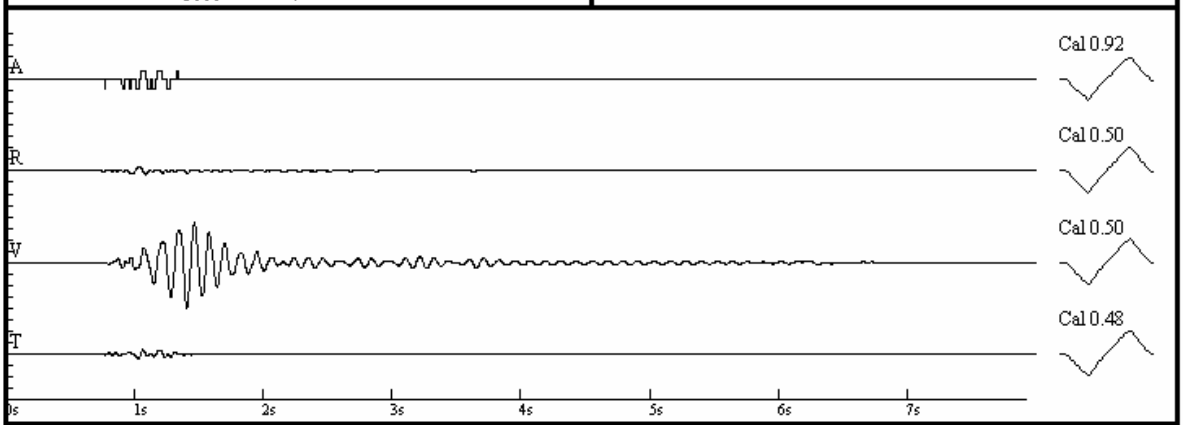
File: 01793184.DTB Event Number: 184 Date: 1/27/2005 Time: 14:19
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

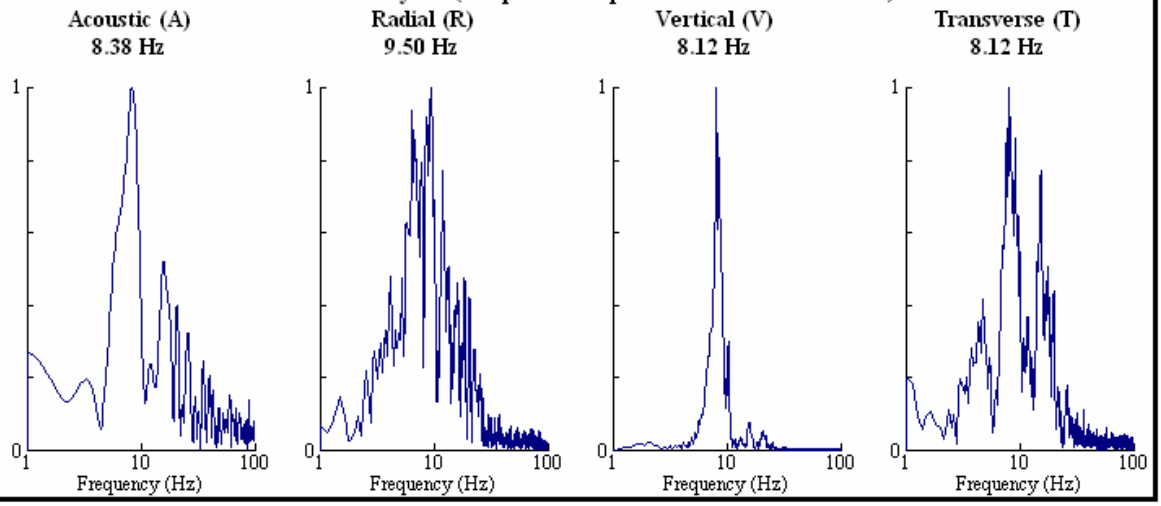
Acoustic (A): 106 dB @ 0.0 Hz
(0.04Mb 0.0006psi 0.0040kPa)
Radial (R): 0.035in/s 0.889mm/s @ 9.8Hz
***Vertical (V):* 0.35in/s 8.89mm/s @ 9.1Hz**
Transverse (T): 0.04in/s 1.016mm/s @ 10.6Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 7.936 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.35in/s (0.088in/s/div) 8.89mm/s (2.222mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)
re-shoot from previous blast

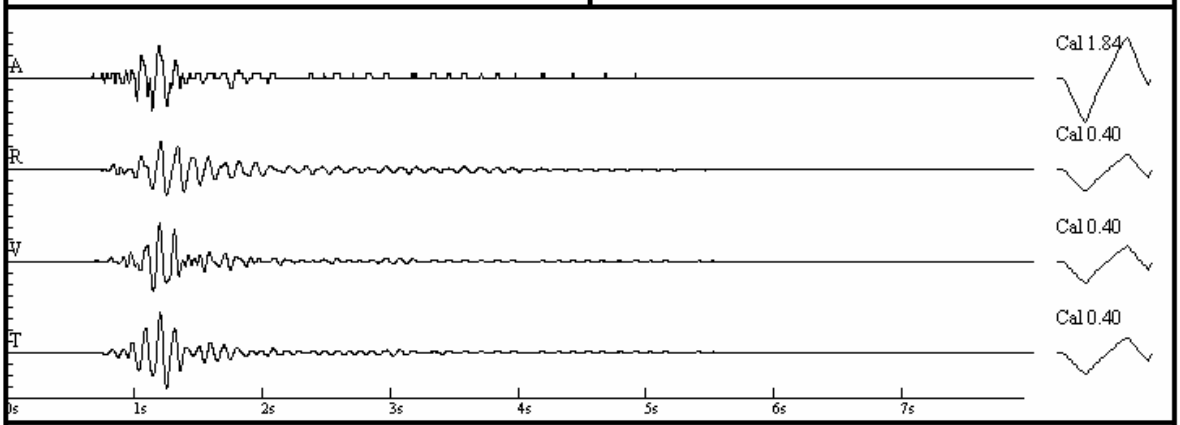
File: 02279210.DTB Event Number: 210 Date: 1/27/2005 Time: 14:17
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

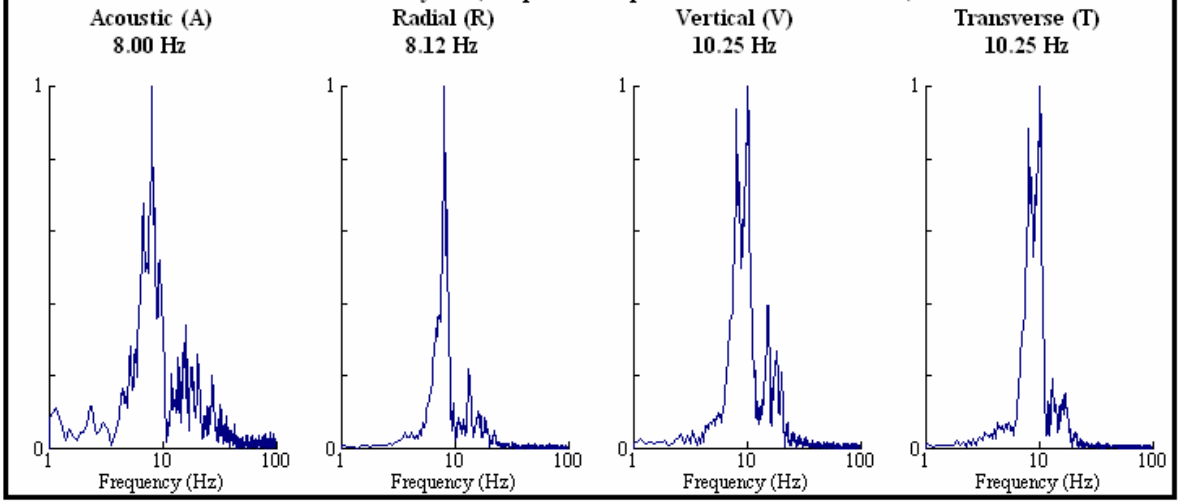
Acoustic (A): 117 dB @ 8.2 Hz
(0.14Mb 0.0020psi 0.0140kPa)
Radial (R): 0.125in/s 3.175mm/s @ 8.5Hz
Vertical (V): 0.17in/s 4.318mm/s @ 10.2Hz
***Transverse (T):* 0.175in/s 4.445mm/s @ 9.4Hz**
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 7.959 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
master at house
1031.8 ft

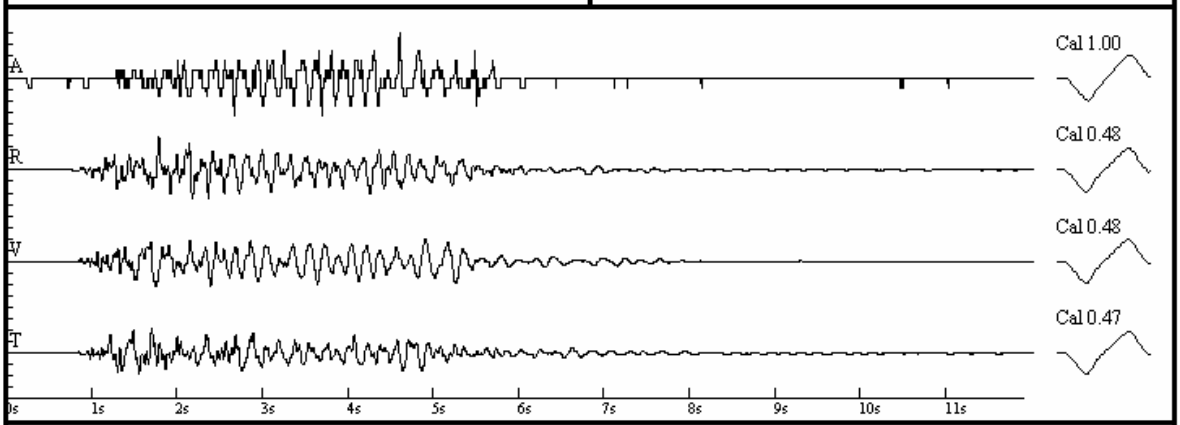
File: 00930178.DTB Event Number: 178 Date: 1/28/2005 Time: 15:17
Acoustic Trigger: 137 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

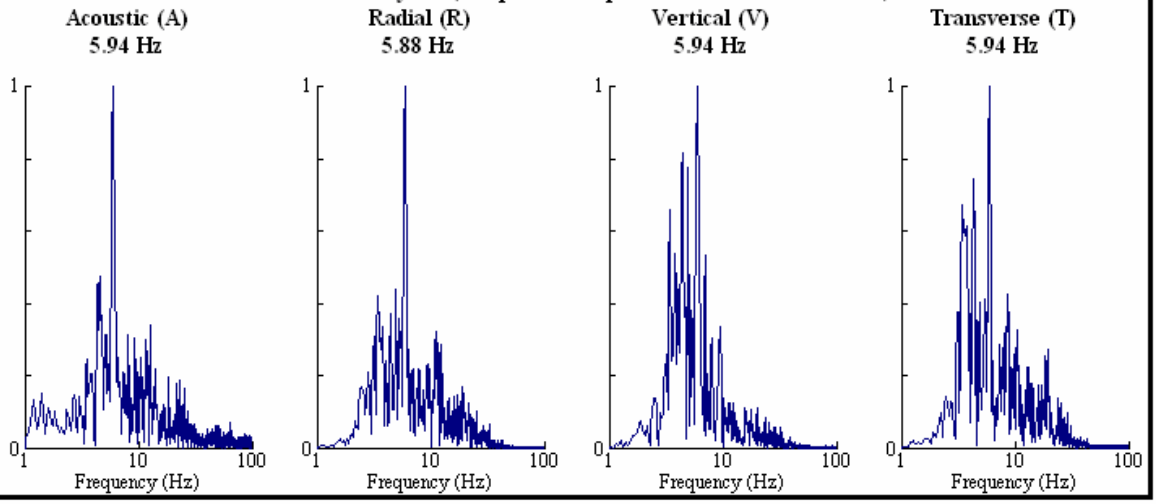
Acoustic (A): 120 dB @ 13.4 Hz
(0.20Mb 0.0029psi 0.0200kPa)
***Radial (R):* 0.145in/s 3.683mm/s @ 10.2Hz**
Vertical (V): 0.11in/s 2.794mm/s @ 5.3Hz
Transverse (T): 0.105in/s 2.667mm/s @ 7.5Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 11.928 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S1
east mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

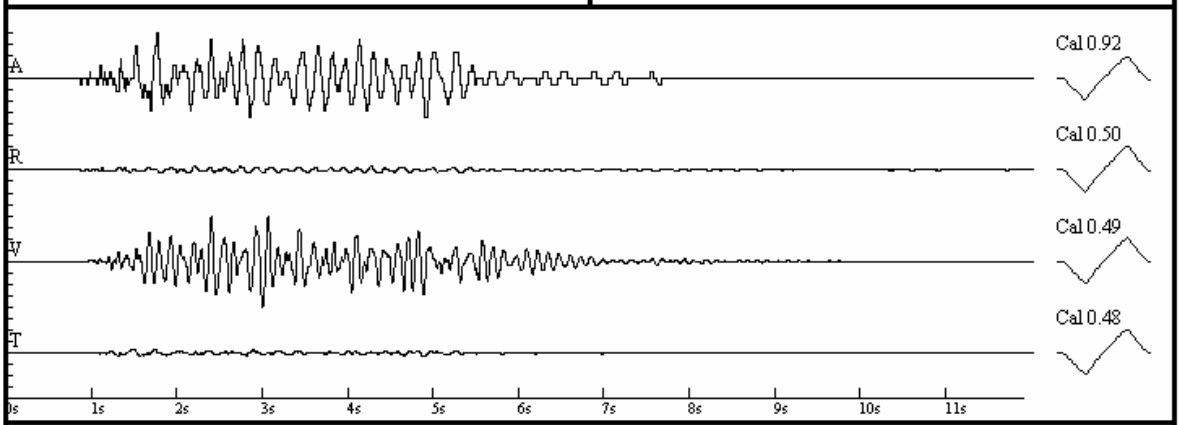
File: 01793186.DTB Event Number: 186 Date: 1/28/2005 Time: 15:21
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1793

Amplitudes and Frequencies

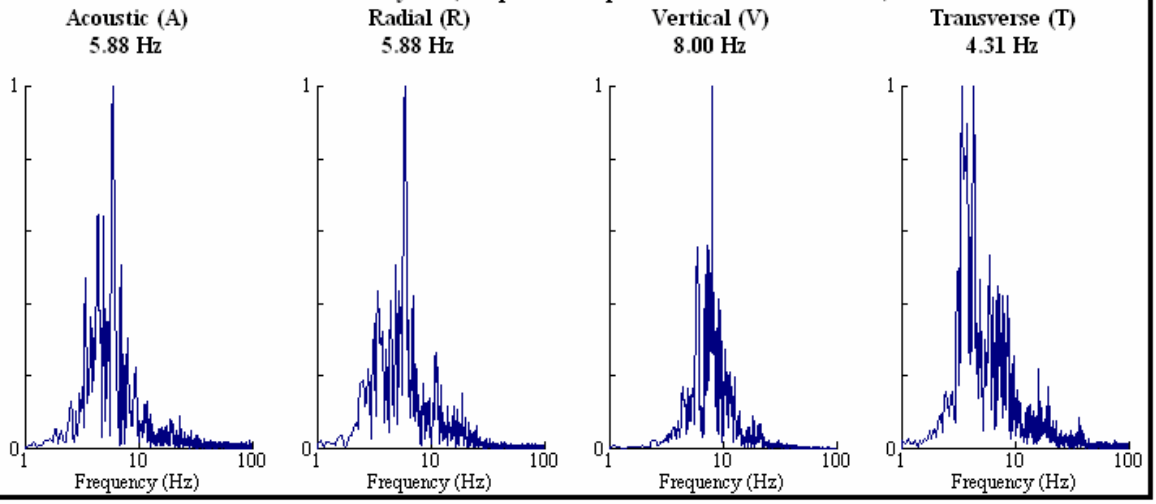
Acoustic (A): 123 dB @ 6.4 Hz
(0.28Mb 0.0041psi 0.0280kPa)
Radial (R): 0.115in/s 2.921mm/s @ 5.8Hz
***Vertical (V):* 1.18in/s 29.972mm/s @ 8.2Hz**
Transverse (T): 0.10in/s 2.54mm/s @ 4.9Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 11.928 sec
Acoustic Scale:
123dB 0.28Mb (0.070Mb/div)
Seismic Scale:
1.18in/s (0.295in/s/div) 29.97mm/s (7.493mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
S2
north mid-wall on V
vertical on Air (1 Mb = 0.5 ips)

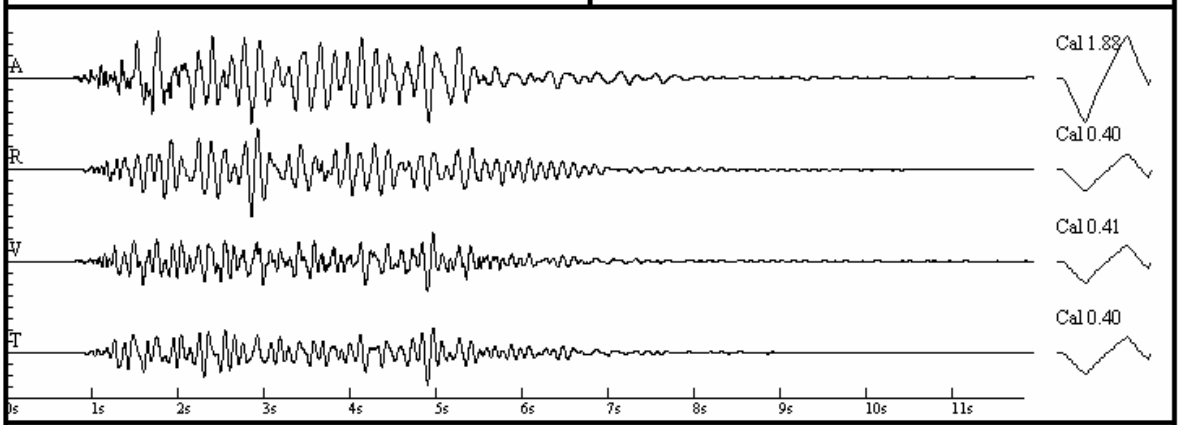
File: 02279212.DTB Event Number: 212 Date: 1/28/2005 Time: 15:19
Acoustic Trigger: 106 dB Seismic Trigger: 0.26in/s 6.604mm/s Serial Number: 2279

Amplitudes and Frequencies

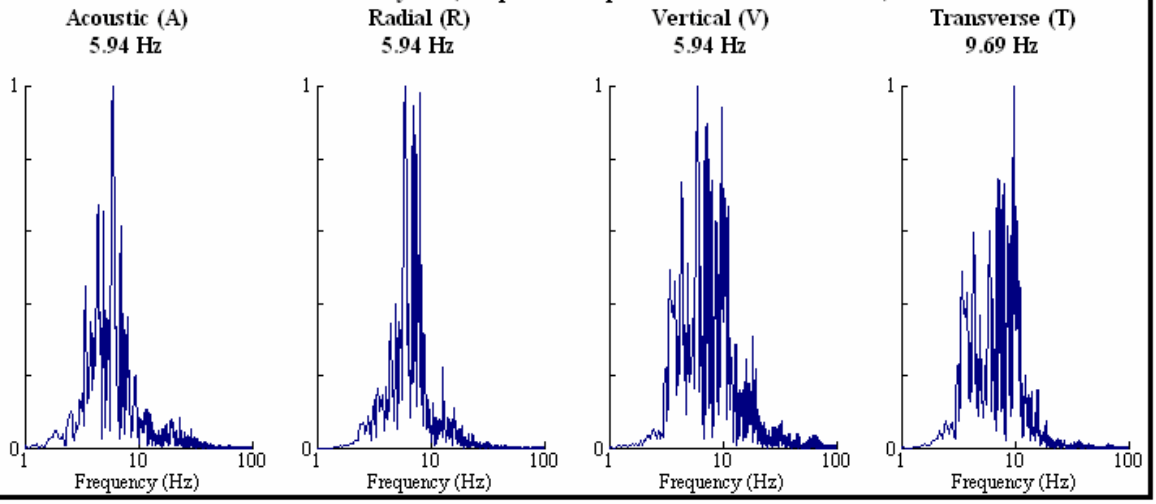
Acoustic (A): 129 dB @ 5.9 Hz
(0.58Mb 0.0084psi 0.0580kPa)
***Radial (R):* 0.44in/s 11.176mm/s @ 7.3Hz**
Vertical (V): 0.28in/s 7.112mm/s @ 6.9Hz
Transverse (T): 0.305in/s 7.747mm/s @ 7.5Hz
Calibration Date (yyyy/mm/dd): 2004/01/15

Graph Information

Duration: 0.000 sec To: 11.854 sec
Acoustic Scale:
129dB 0.56Mb (0.140Mb/div)
Seismic Scale:
0.44in/s (0.110in/s/div) 11.18mm/s (2.794mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Appendix C

Seismograph Reports for Pipeline Response

Salls Construction
Unser Road Extension
on pig launcher
357 ft

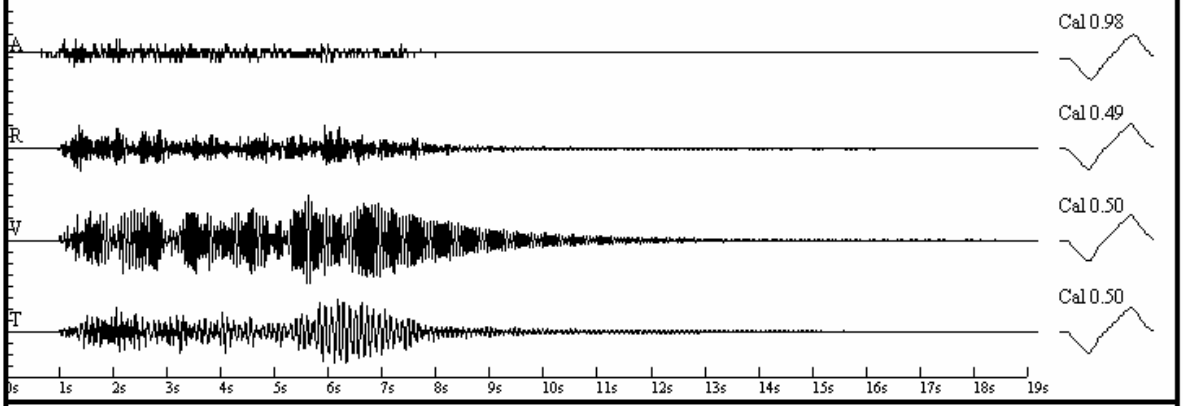
File: 01010236.DTB Event Number: 236 Date: 9/16/2004 Time: 15:43
Acoustic Trigger: 125 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 1010

Amplitudes and Frequencies

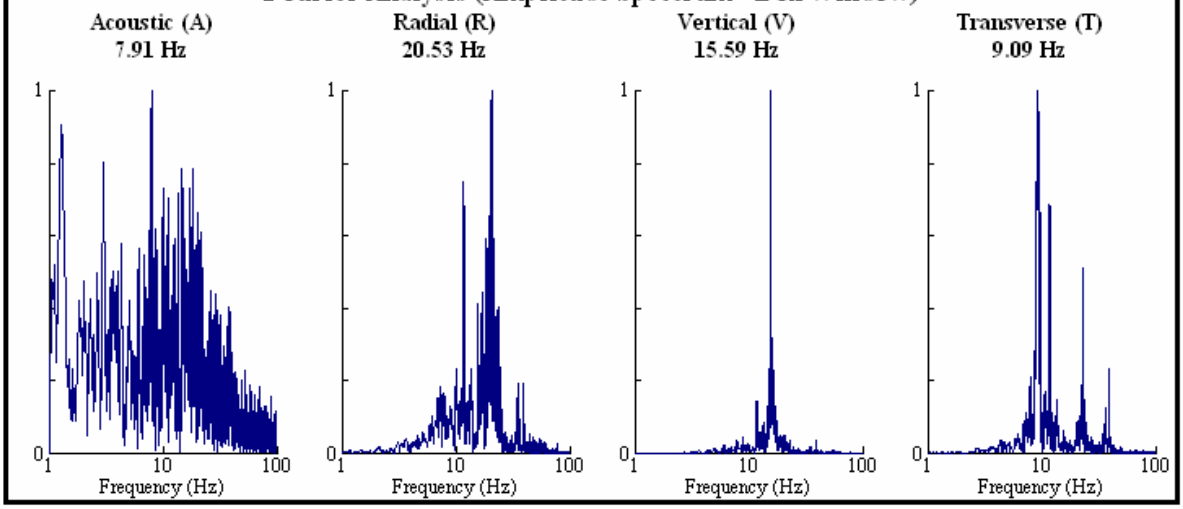
Acoustic (A): 112 dB @ 15.0 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): 0.335in/s 8.509mm/s @ 18.2Hz
***Vertical (V):* 0.64in/s 16.256mm/s @ 15.0Hz**
Transverse (T): 0.455in/s 11.557mm/s @ 8.8Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.64in/s (0.160in/s/div) 16.26mm/s (4.064mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
110 ft
in the ground between pipelines

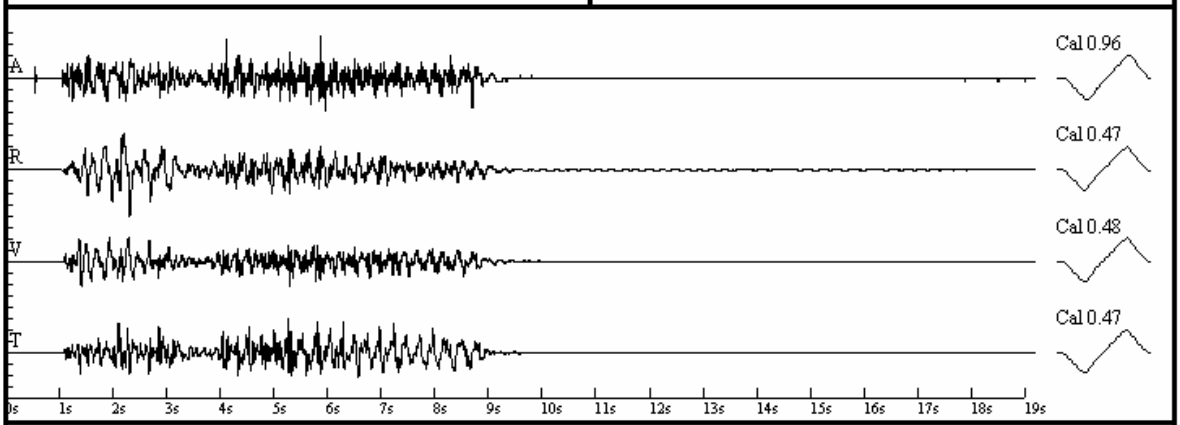
File: 01906125.DTB Event Number: 125 Date: 9/21/2004 Time: 15:58
Acoustic Trigger: 130 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 1906

Amplitudes and Frequencies

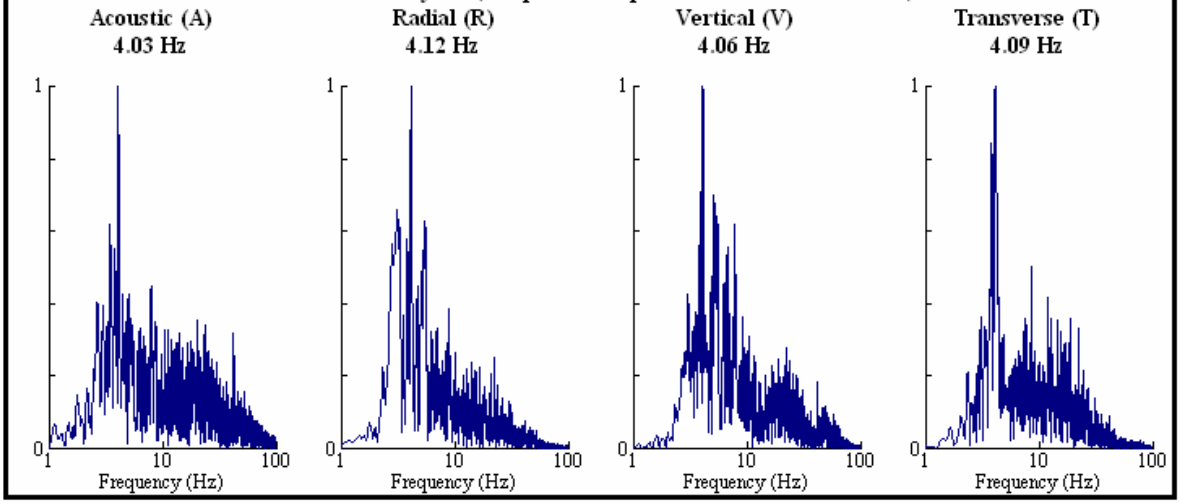
Acoustic (A): 124 dB @ 23.2 Hz
(0.30Mb 0.0044psi 0.0300kPa)
***Radial (R):* 1.96in/s 49.784mm/s @ 4.3Hz**
Vertical (V): 1.06in/s 26.924mm/s @ 36.5Hz
Transverse (T): 1.46in/s 37.084mm/s @ 16.0Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 19.000 sec
Acoustic Scale:
124dB 0.32Mb (0.080Mb/div)
Seismic Scale:
1.96in/s (0.490in/s/div) 49.78mm/s (12.446mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
on 12 in. pipeline
115 ft

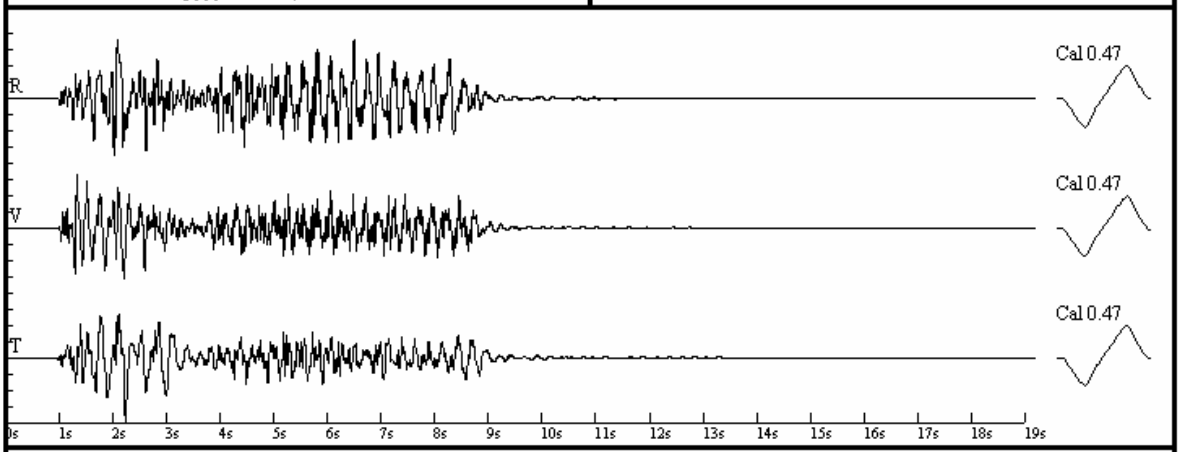
File: 01792258.DTB Event Number: 258 Date: 9/21/2004 Time: 15:57
Acoustic Trigger: 106 dB Seismic Trigger: 0.12in/s 3.048mm/s Serial Number: 1792

Amplitudes and Frequencies

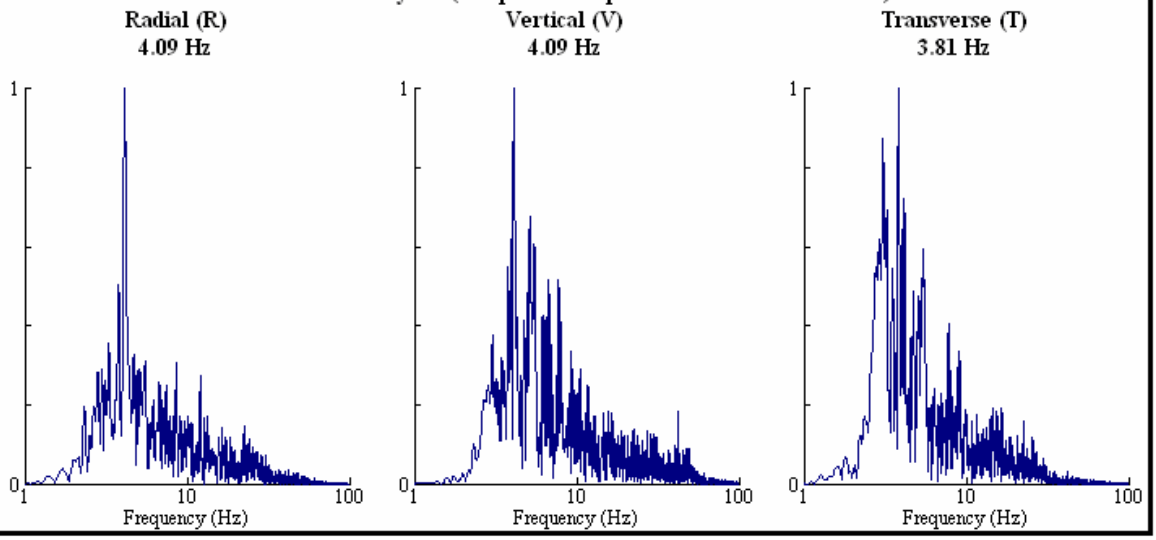
Radial (R): 1.14in/s 28.956mm/s @ 4.5Hz
Vertical (V): 1.06in/s 26.924mm/s @ 6.9Hz
Transverse (T): **1.28in/s 32.512mm/s @ 5.0Hz**
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 19.000 sec
Seismic Scale:
1.28in/s (0.320in/s/div) 32.51mm/s (8.128mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
on 20 in. pipeline
108 ft

File: 02276227.DTB Event Number: 227 Date: 9/21/2004 Time: 15:57
Acoustic Trigger: 125 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 2276

Amplitudes and Frequencies

Acoustic (A): 144 dB @ 5.9 Hz
(3.32Mb 0.0481psi 0.3319kPa)

Radial (R): **1.82in/s 46.228mm/s @ 10.2Hz**

Transverse (T): 1.24in/s 31.496mm/s @ 4.4Hz

Calibration Date (yyyy/mm/dd): 2003/01/06

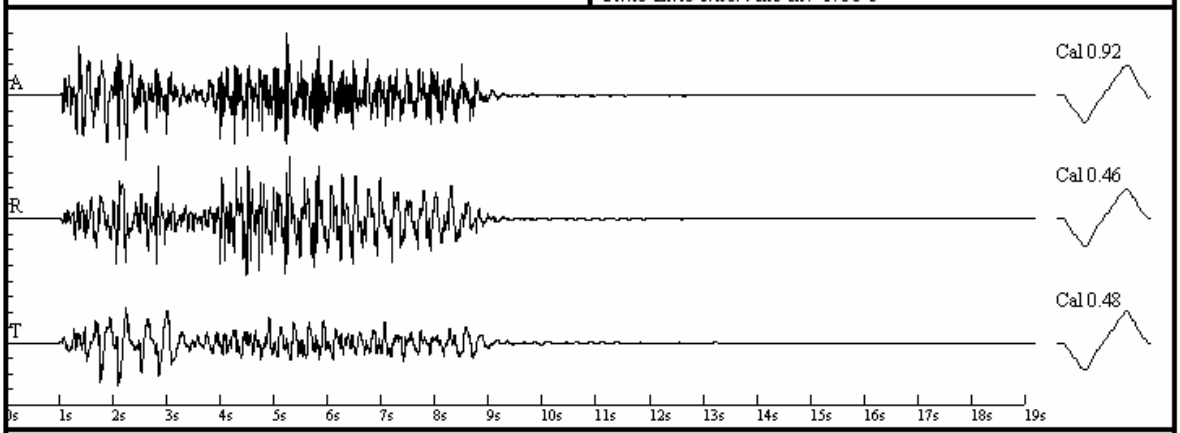
Graph Information

Duration: 0.000 sec To: 19.000 sec

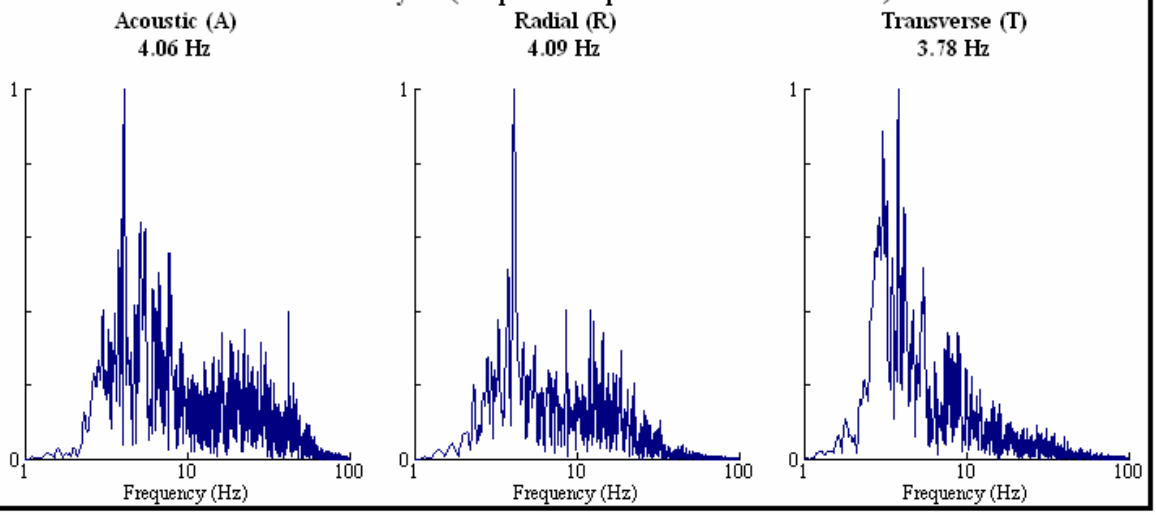
Acoustic Scale:
144dB 3.17Mb (0.792Mb/div)

Seismic Scale:
1.82in/s (0.455in/s/div) 46.23mm/s (11.557mm/s/div)

Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
NW pipeline
master in ground
201 ft
blast 1

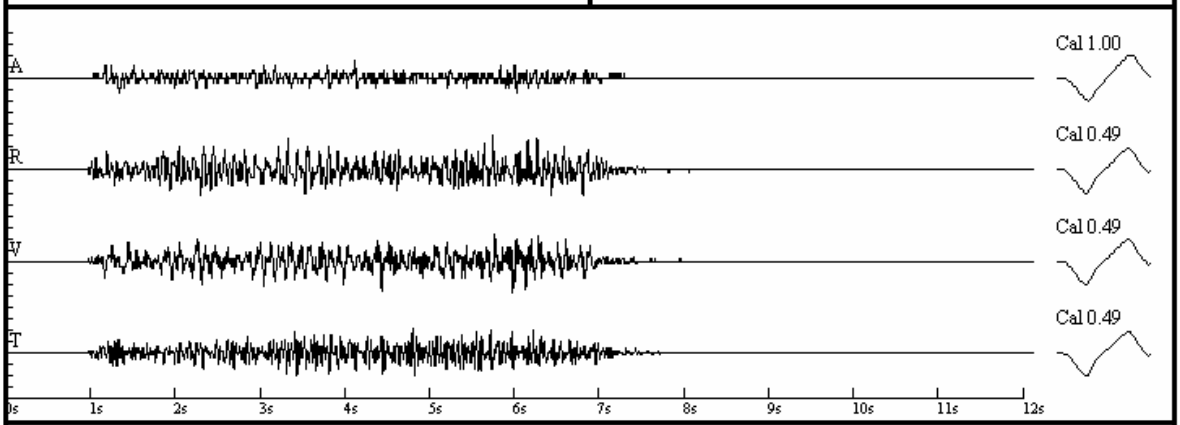
File: 00930283.DTB Event Number: 283 Date: 9/23/2004 Time: 14:48
Acoustic Trigger: 122 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

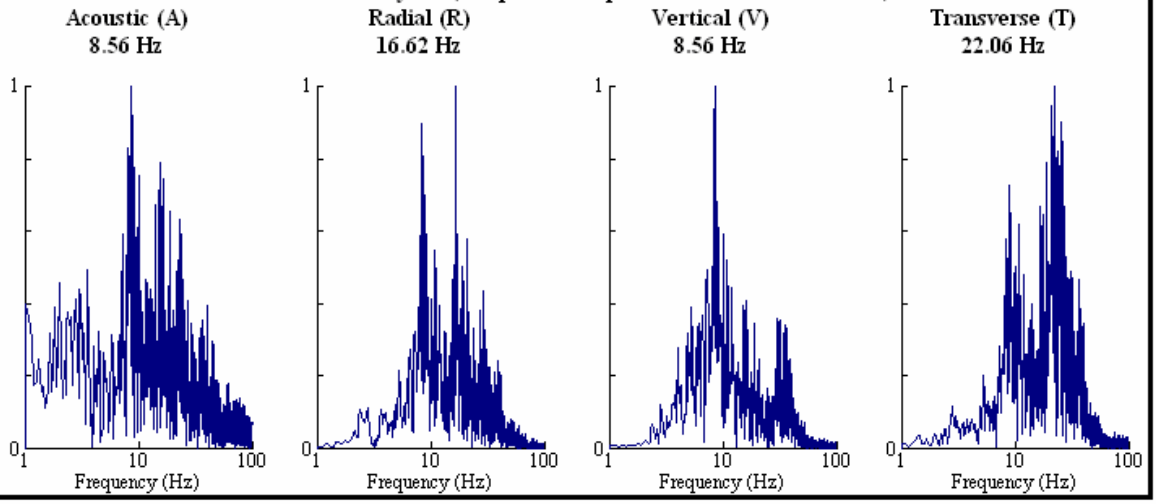
Acoustic (A): 112 dB @ 28.4 Hz
(0.08Mb 0.0012psi 0.0080kPa)
Radial (R): **0.15in/s 3.81mm/s @ 17.0Hz**
Vertical (V): 0.14in/s 3.556mm/s @ 11.1Hz
Transverse (T): 0.11in/s 2.794mm/s @ 21.3Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 12.025 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
12 in. pipeline (NW)
196 ft
blast 1

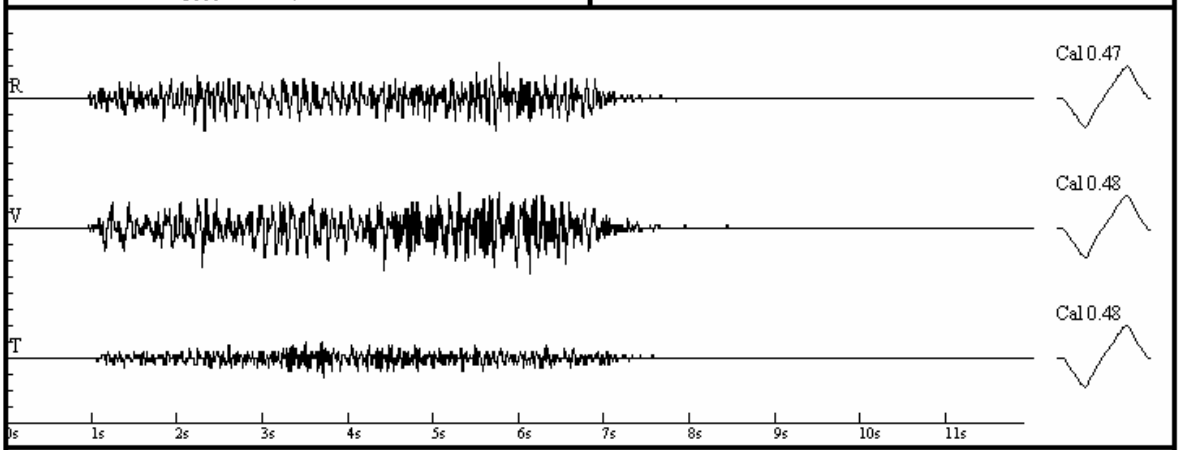
File: 02241168.DTB Event Number: 168 Date: 9/23/2004 Time: 14:49
Acoustic Trigger: 130 dB Seismic Trigger: 0.02in/s 0.508mm/s Serial Number: 2241

Amplitudes and Frequencies

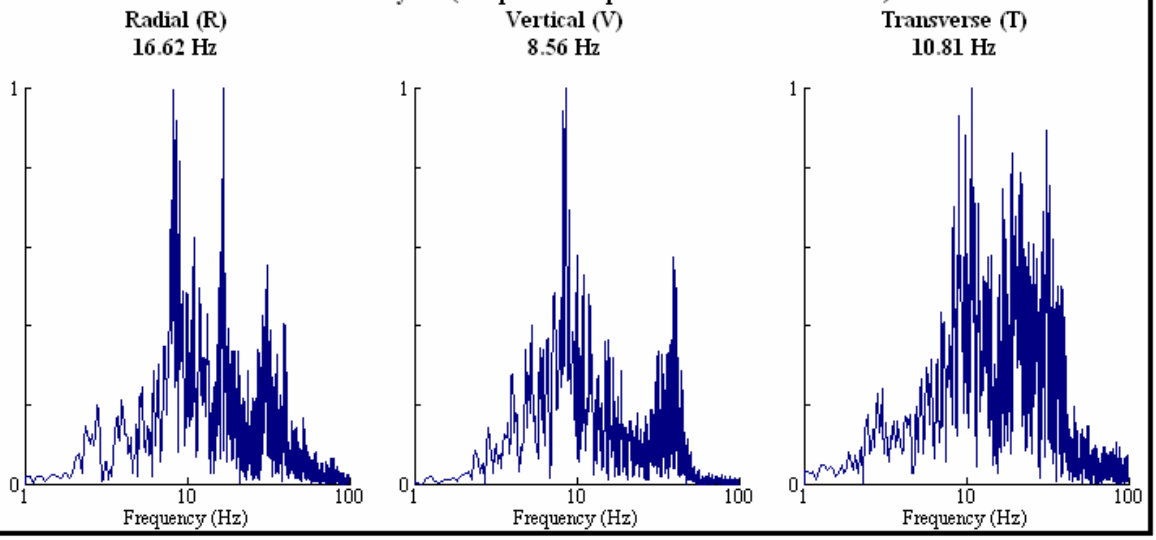
Radial (R): 0.11in/s 2.794mm/s @ 28.4Hz
***Vertical (V):* 0.14in/s 3.556mm/s @ 28.4Hz**
Transverse (T): 0.06in/s 1.524mm/s @ 28.4Hz
Calibration Date (yyyy/mm/dd): 2004/03/29

Graph Information

Duration: 0.000 sec To: 11.928 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
20 in. pipeline (NW)
206 ft
blast 1

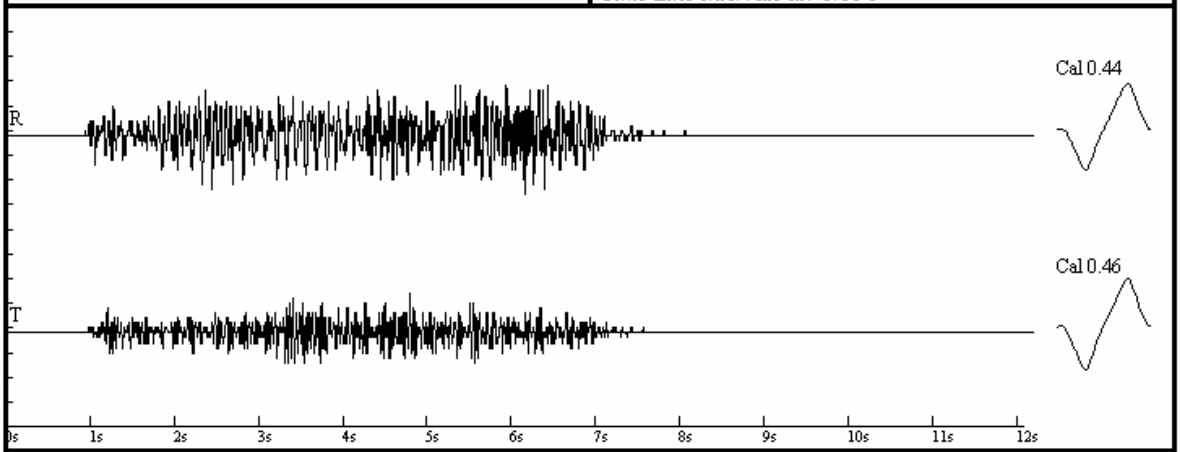
File: 01258087.DTB Event Number: 087 Date: 9/23/2004 Time: 14:48
Acoustic Trigger: 110 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1258

Amplitudes and Frequencies

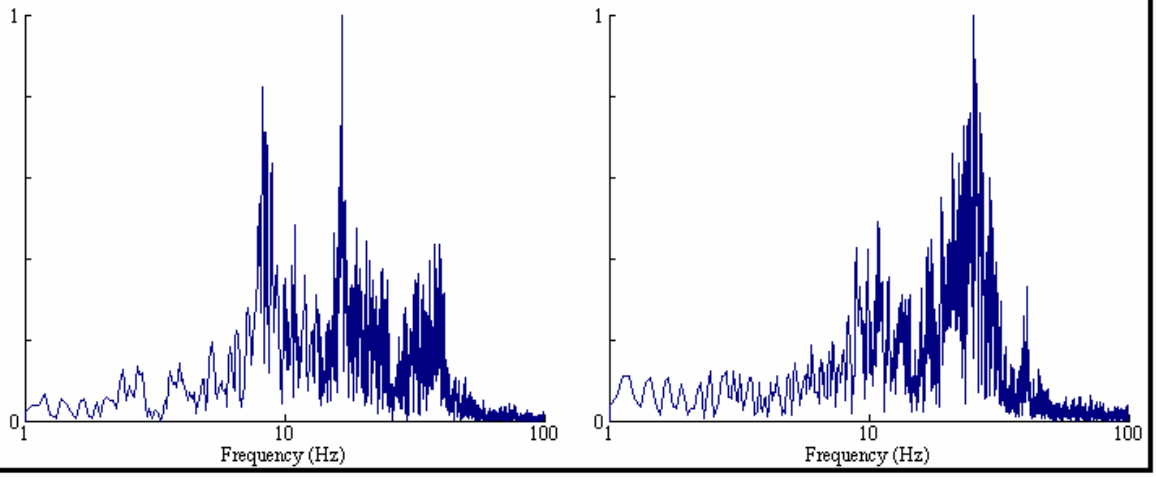
Radial (R): **0.13in/s 3.302mm/s @ 25.6Hz**
Transverse (T): 0.07in/s 1.778mm/s @ 28.4Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 12.100 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
at pig laungher in ground
357 ft
blast 1

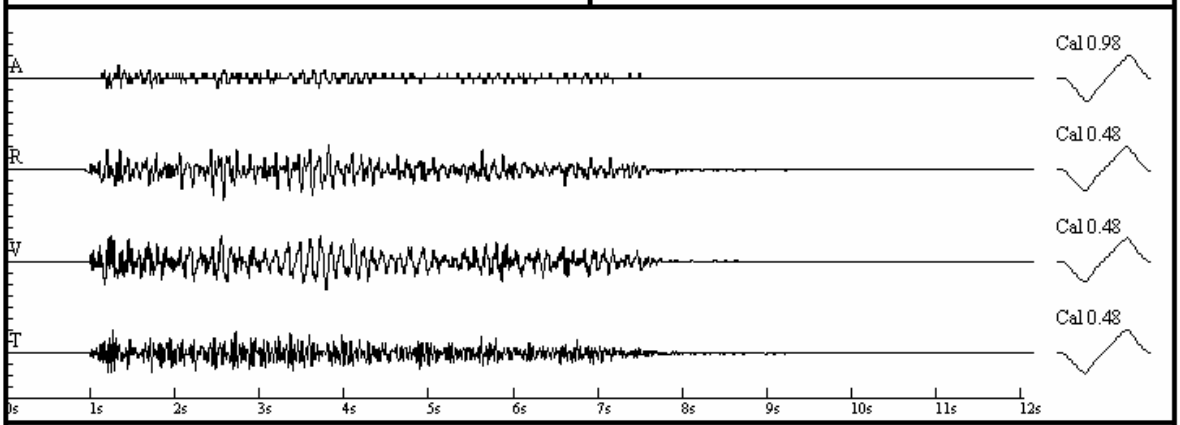
File: 02240147.DTB Event Number: 147 Date: 9/23/2004 Time: 14:50
Acoustic Trigger: 106 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2240

Amplitudes and Frequencies

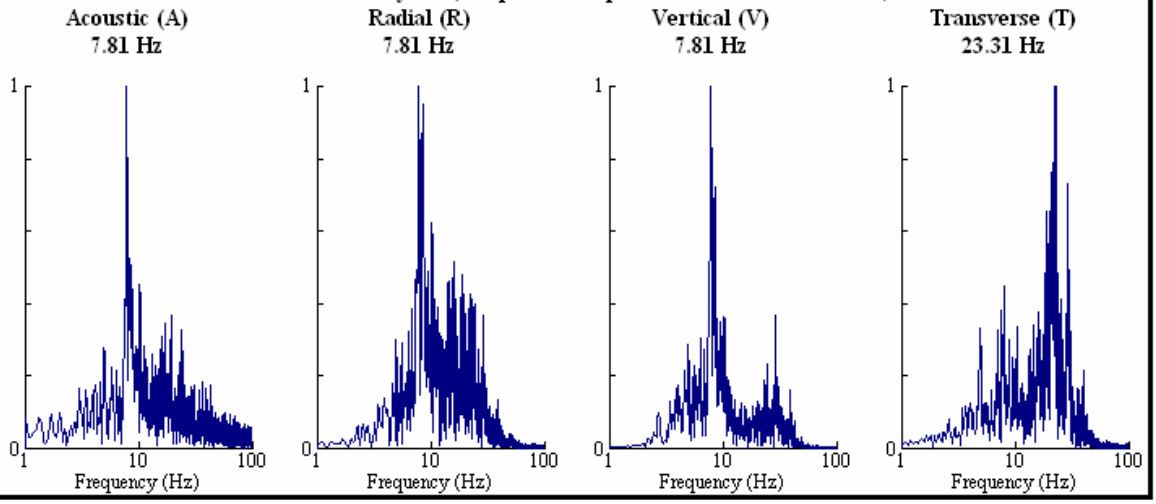
Acoustic (A): 110 dB @ 36.5 Hz
(0.06Mb 0.0009psi 0.0060kPa)
***Radial (R):* 0.135in/s 3.429mm/s @ 13.4Hz**
Vertical (V): 0.125in/s 3.175mm/s @ 9.4Hz
Transverse (T): 0.10in/s 2.54mm/s @ 28.4Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 12.051 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
mounted on pig launcher
357 ft
blast 1

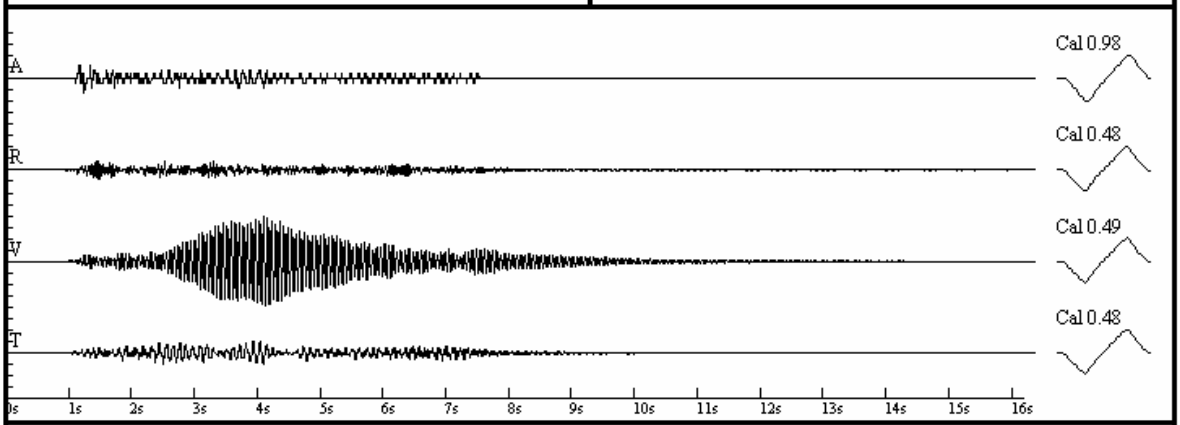
File: 01792268.DTB Event Number: 268 Date: 9/23/2004 Time: 14:50
Acoustic Trigger: 106 dB Seismic Trigger: 0.12in/s 3.048mm/s Serial Number: 1792

Amplitudes and Frequencies

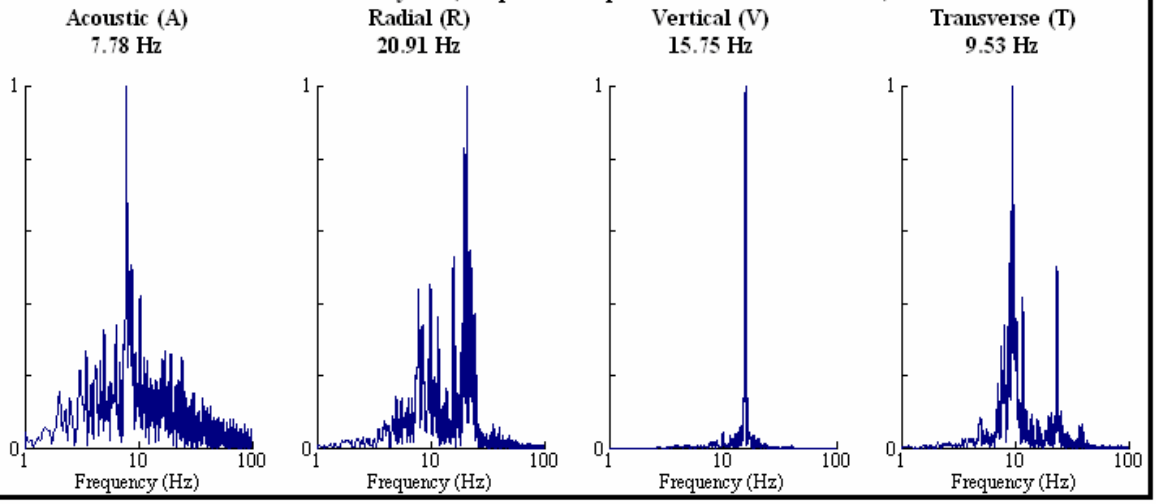
Acoustic (A): 110 dB @ 21.3 Hz
(0.06Mb 0.0009psi 0.0060kPa)
Radial (R): 0.20in/s 5.08mm/s @ 21.3Hz
***Vertical (V):* 1.07in/s 27.178mm/s @ 16.0Hz**
Transverse (T): 0.27in/s 6.858mm/s @ 11.6Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 16.215 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
1.07in/s (0.268in/s/div) 27.18mm/s (6.794mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
NW pipeline
master in ground
161 ft
blast 2

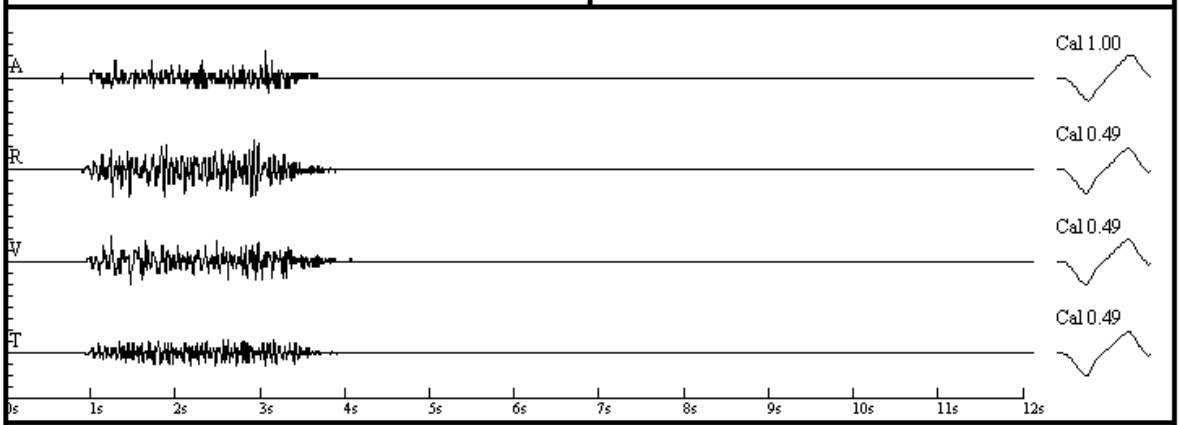
File: 00930286.DTB Event Number: 286 Date: 9/23/2004 Time: 16:00
Acoustic Trigger: 122 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 930

Amplitudes and Frequencies

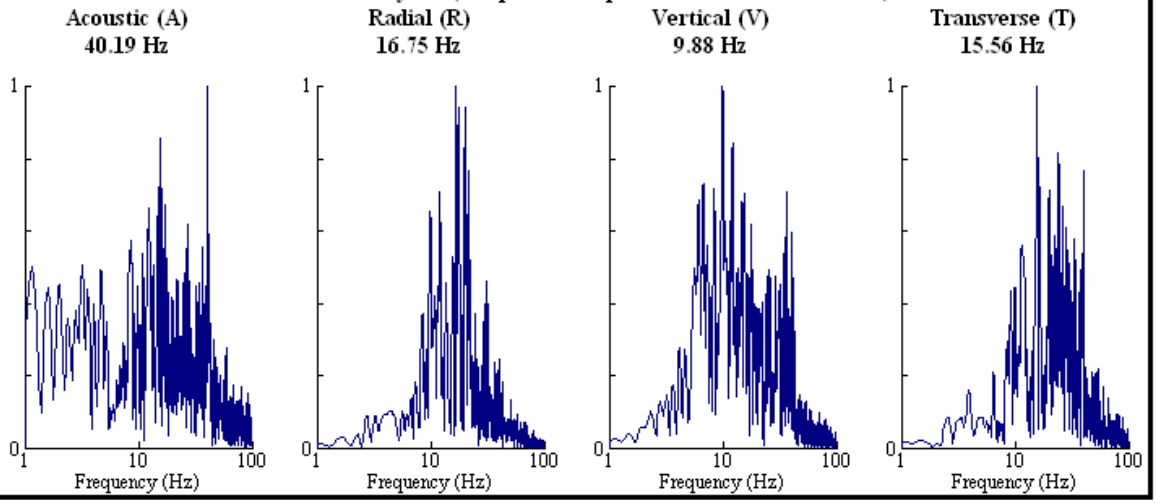
Acoustic (A): 116 dB @ 42.6 Hz
(0.12Mb 0.0017psi 0.0120kPa)
Radial (R): **0.13in/s 3.302mm/s @ 21.3Hz**
Vertical (V): 0.11in/s 2.794mm/s @ 18.2Hz
Transverse (T): 0.06in/s 1.524mm/s @ 25.6Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 12.025 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
12 in. pipeline (NW)
156 ft
blast 2

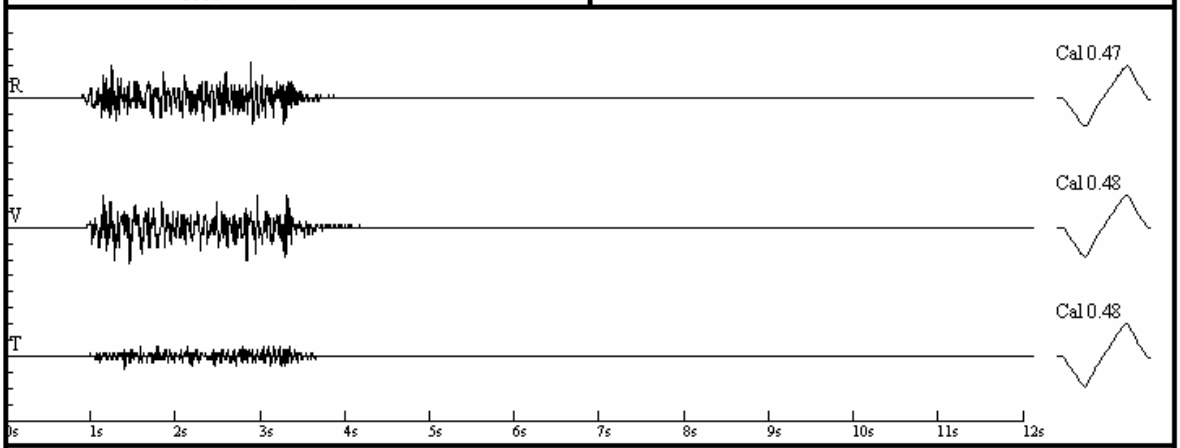
File: 02241170.DTB Event Number: 170 Date: 9/23/2004 Time: 16:01
Acoustic Trigger: 130 dB Seismic Trigger: 0.02in/s 0.508mm/s Serial Number: 2241

Amplitudes and Frequencies

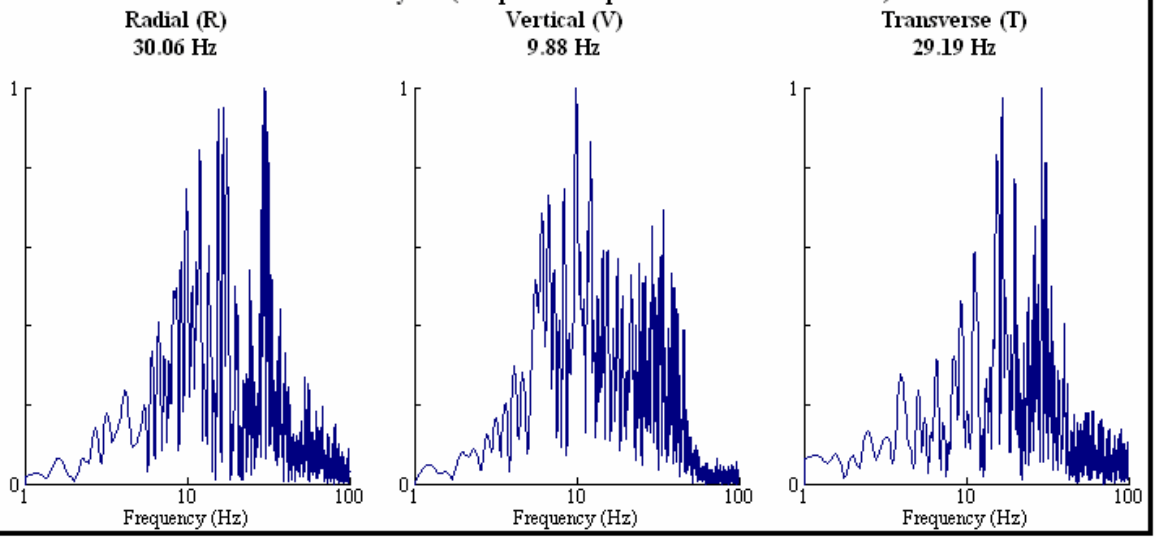
Radial (R): **0.11in/s 2.794mm/s @ 21.3Hz**
Vertical (V): **0.11in/s 2.794mm/s @ 11.1Hz**
Transverse (T): 0.04in/s 1.016mm/s @ 42.6Hz
Calibration Date (yyyy/mm/dd): 2004/03/29

Graph Information

Duration: 0.000 sec To: 12.025 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
20 in. pipeline (NW)
60 ft
blast 2

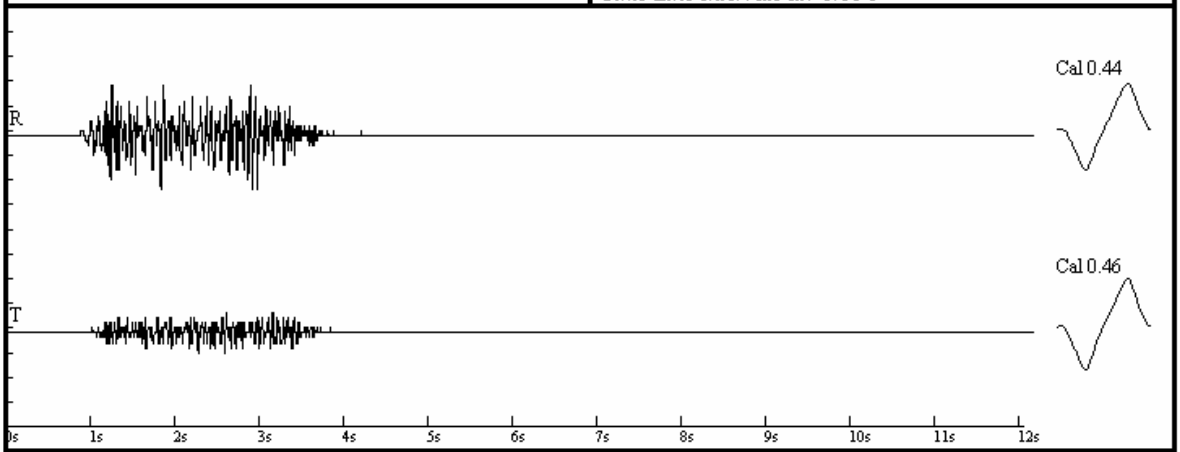
File: 01258089.DTB Event Number: 089 Date: 9/23/2004 Time: 16:00
Acoustic Trigger: 110 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1258

Amplitudes and Frequencies

Radial (R): **0.12in/s 3.048mm/s @ 17.0Hz**
Transverse (T): 0.05in/s 1.27mm/s @ 14.2Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

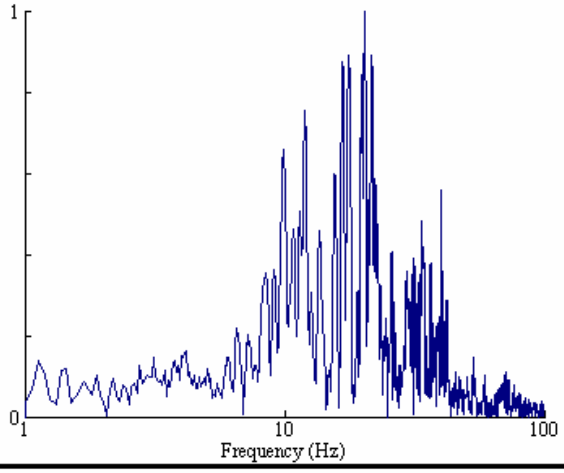
Graph Information

Duration: 0.000 sec To: 12.076 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s

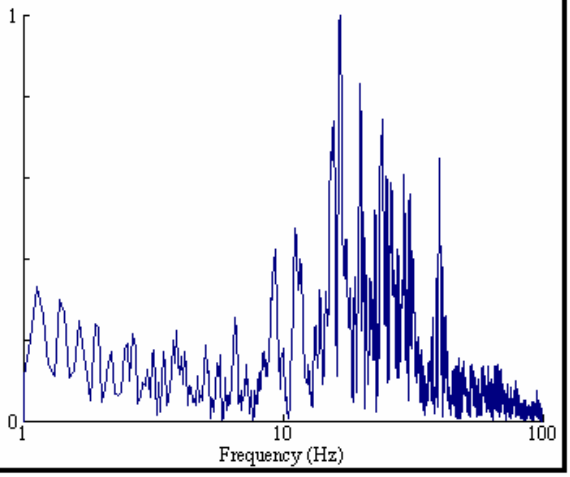


Fourier Analysis (Amplitude Spectrum - Box Window)

Radial (R)
20.31 Hz



Transverse (T)
16.56 Hz



Salls Construction
Unser Road Extension
SE pipeline
master in ground
165 ft

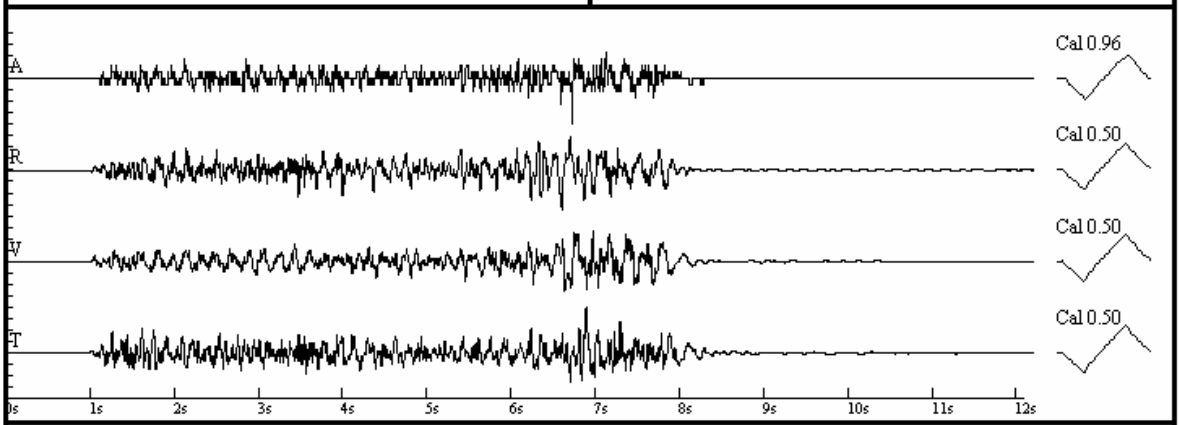
File: 01100011.DTB Event Number: 011 Date: 9/30/2004 Time: 14:59
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1100

Amplitudes and Frequencies

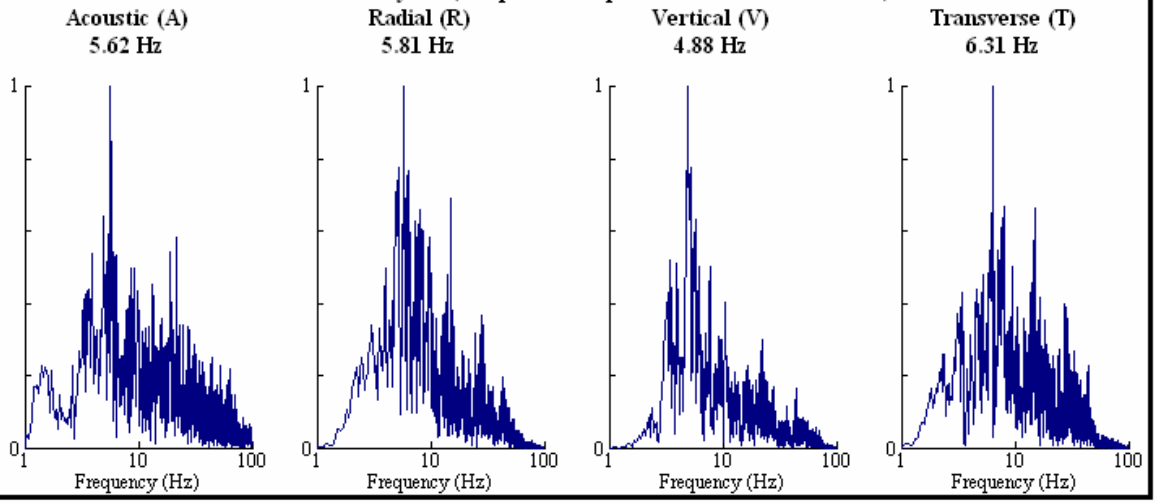
Acoustic (A): 123 dB @ 23.2 Hz
(0.28Mb 0.0041psi 0.0280kPa)
Radial (R): 0.74in/s 18.796mm/s @ 6.4Hz
Vertical (V): 0.545in/s 13.843mm/s @ 15.0Hz
***Transverse (T):* 0.84in/s 21.336mm/s @ 6.2Hz**
Calibration Date (yyyy/mm/dd): 2004/09/21

Graph Information

Duration: 0.000 sec To: 12.105 sec
Acoustic Scale:
123dB 0.28Mb (0.070Mb/div)
Seismic Scale:
0.84in/s (0.210in/s/div) 21.34mm/s (5.334mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
12 in. pipeline (SE)
165 ft

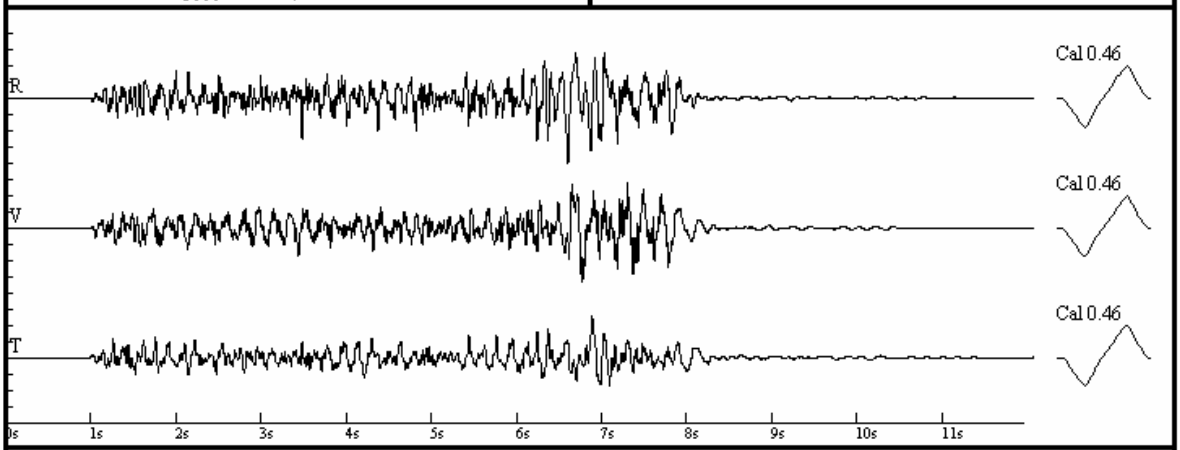
File: 01792287.DTB Event Number: 287 Date: 9/30/2004 Time: 15:00
Acoustic Trigger: 106 dB Seismic Trigger: 0.06in/s 1.524mm/s Serial Number: 1792

Amplitudes and Frequencies

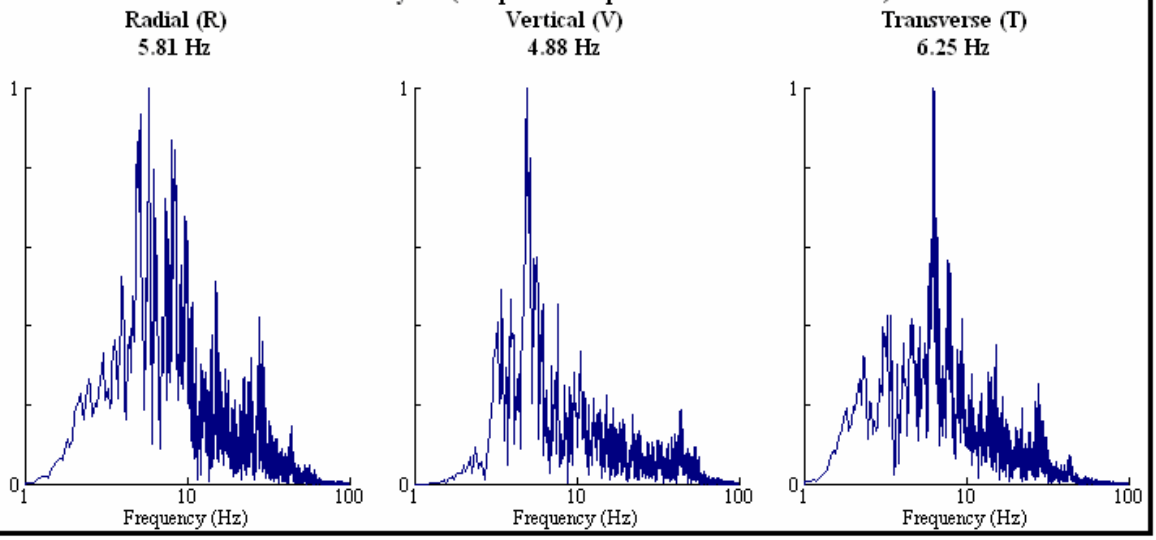
Radial (R): **0.72in/s 18.288mm/s @ 7.1Hz**
Vertical (V): 0.60in/s 15.24mm/s @ 5.6Hz
Transverse (T): 0.455in/s 11.557mm/s @ 6.0Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 0.000 sec To: 11.977 sec
Seismic Scale:
0.72in/s (0.180in/s/div) 18.29mm/s (4.572mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
20 in. pipeline (SE)
165 ft

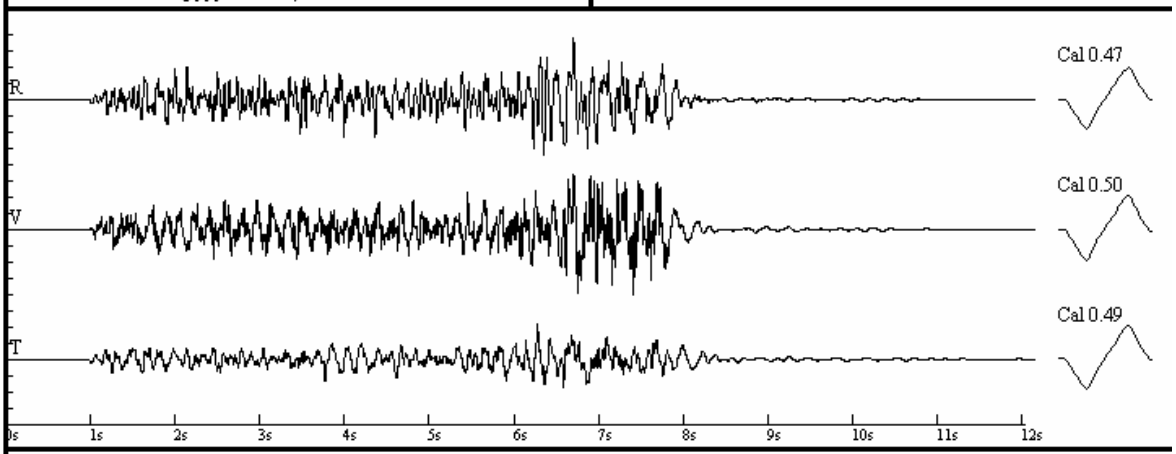
File: 02407100.DTB Event Number: 100 Date: 9/30/2004 Time: 14:58
Acoustic Trigger: 106 dB Seismic Trigger: 0.015in/s 0.381mm/s Serial Number: 2407

Amplitudes and Frequencies

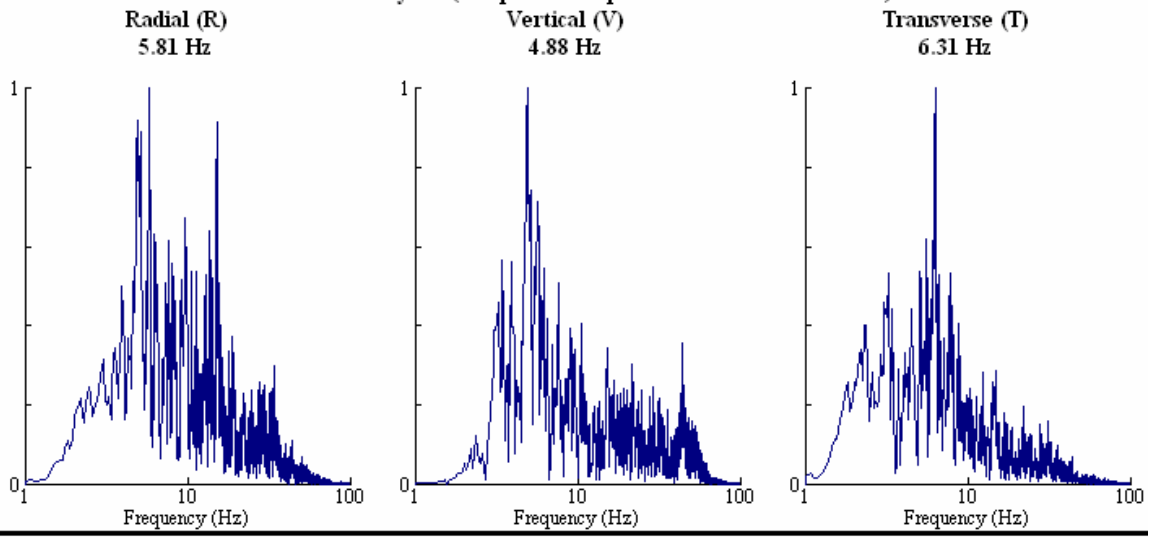
Radial (R): 0.72in/s 18.288mm/s @ 4.4Hz
***Vertical (V):* 0.76in/s 19.304mm/s @ 6.0Hz**
Transverse (T): 0.415in/s 10.541mm/s @ 6.7Hz
Calibration Date (yyyy/mm/dd): 2003/03/17

Graph Information

Duration: 0.000 sec To: 12.051 sec
Seismic Scale:
0.76in/s (0.190in/s/div) 19.30mm/s (4.826mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
NW pipeline - master in ground (blast 1)
160 ft
ground motions actually times 2
R = 0.16 ips V = 0.19 ips T = 0.16 ips

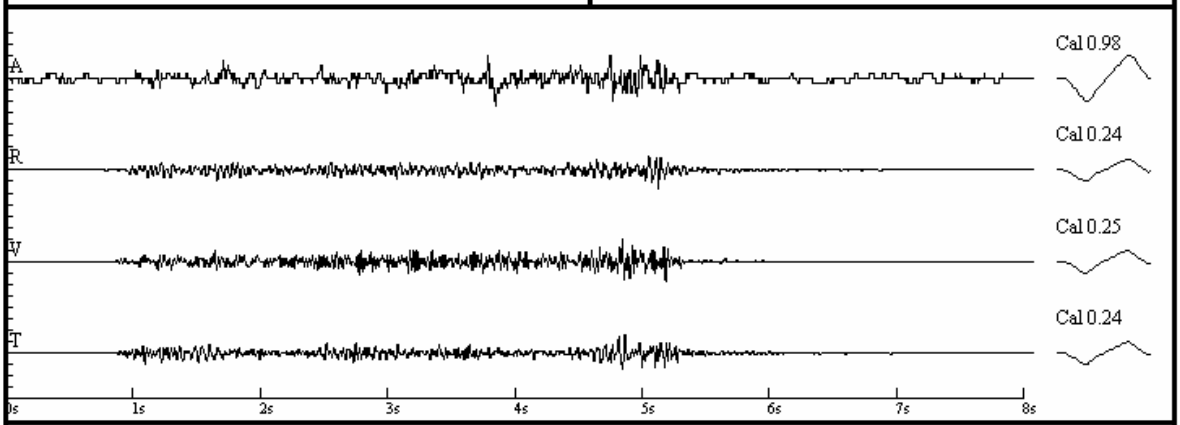
File: 01906133.DTB Event Number: 133 Date: 10/7/2004 Time: 17:13
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 1906

Amplitudes and Frequencies

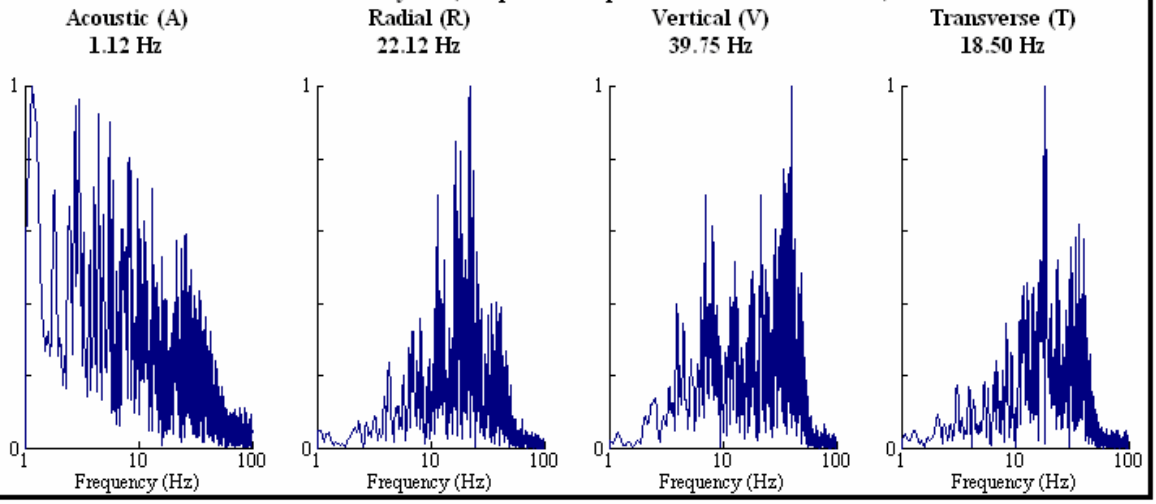
Acoustic (A): 116 dB @ 6.0 Hz
(0.12Mb 0.0017psi 0.0120kPa)
Radial (R): 0.08in/s 2.032mm/s @ 32.0Hz
***Vertical (V):* 0.095in/s 2.413mm/s @ 32.0Hz**
Transverse (T): 0.08in/s 2.032mm/s @ 25.6Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

Graph Information

Duration: 0.000 sec To: 8.010 sec
Acoustic Scale:
120dB 0.20Mb (0.050Mb/div)
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
12 in. pipeline (NW)
158 ft
blast 1

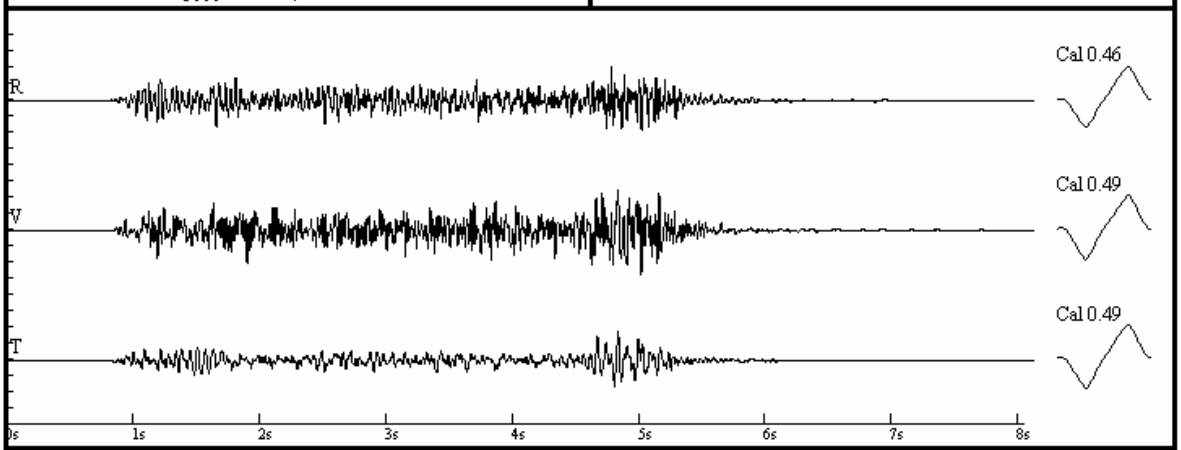
File: 01258097.DTB Event Number: 097 Date: 10/7/2004 Time: 17:11
Acoustic Trigger: 125 dB Seismic Trigger: 0.015in/s 0.381mm/s Serial Number: 1258

Amplitudes and Frequencies

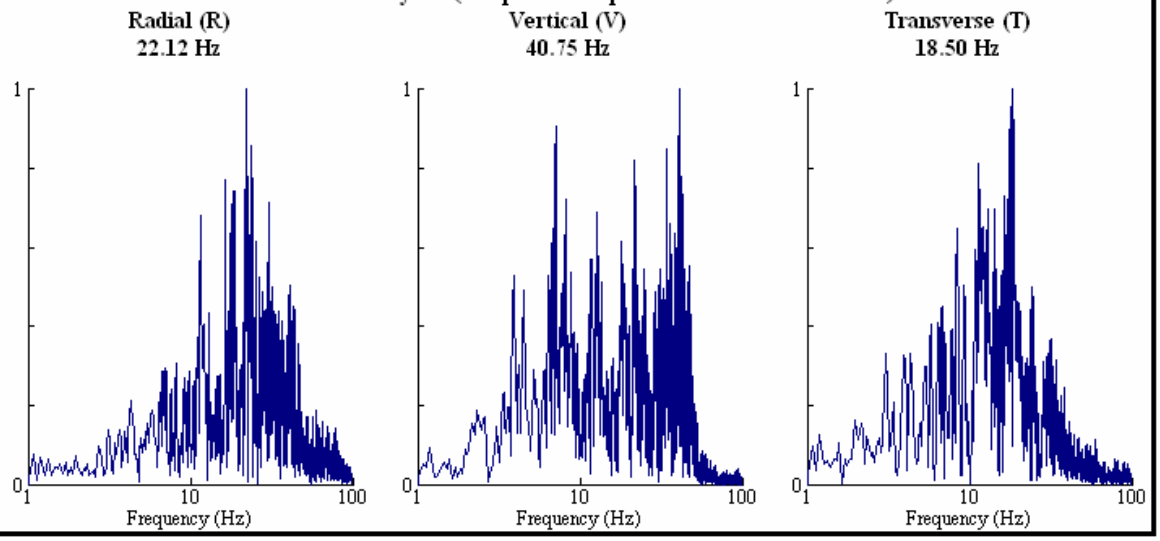
Radial (R): 0.10in/s 2.54mm/s @ 51.2Hz
***Vertical (V):* 0.14in/s 3.556mm/s @ 32.0Hz**
Transverse (T): 0.085in/s 2.159mm/s @ 21.3Hz
Calibration Date (yyyy/mm/dd): 2000/10/31

Graph Information

Duration: 0.000 sec To: 8.059 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
20 in. pipeline (NW)
154 ft
blast 1

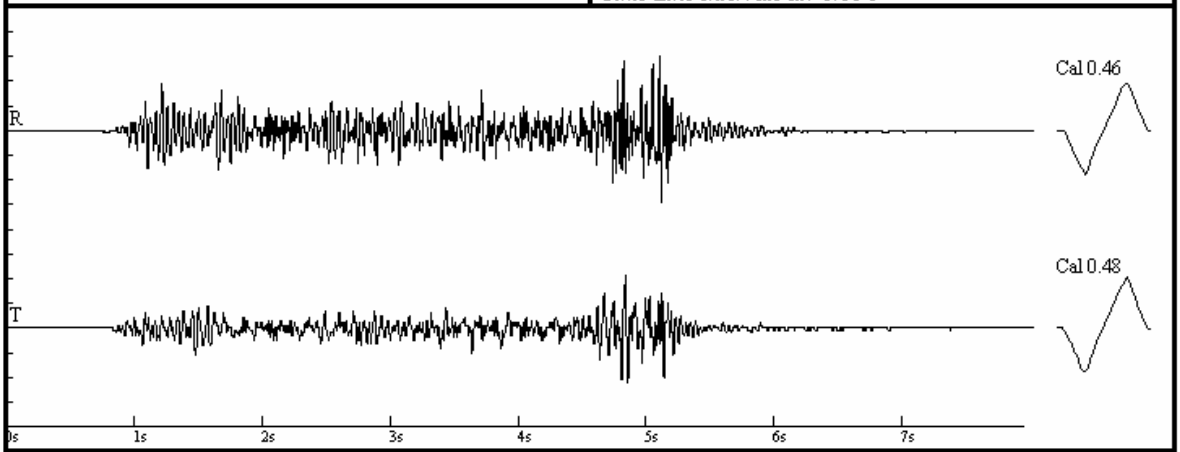
File: 02240155.DTB Event Number: 155 Date: 10/7/2004 Time: 17:14
Acoustic Trigger: 106 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2240

Amplitudes and Frequencies

Radial (R): **0.15in/s 3.81mm/s @ 32.0Hz**
Transverse (T): 0.11in/s 2.794mm/s @ 25.6Hz
Calibration Date (yyyy/mm/dd): 2003/12/05

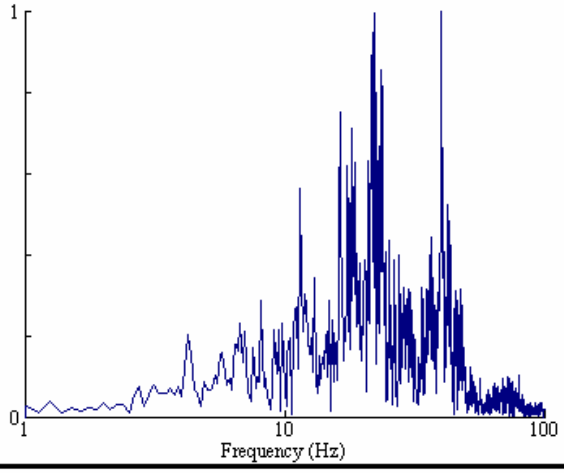
Graph Information

Duration: 0.000 sec To: 7.959 sec
Seismic Scale:
0.20in/s (0.050in/s/div) 5.08mm/s (1.270mm/s/div)
Time Line Intervals at: 1.00 s

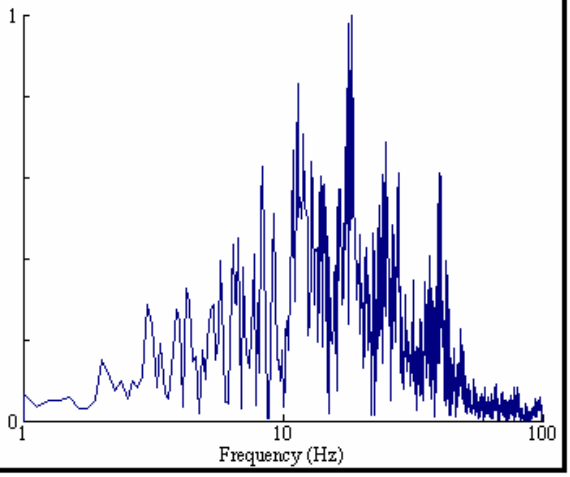


Fourier Analysis (Amplitude Spectrum - Box Window)

Radial (R)
40.12 Hz



Transverse (T)
18.50 Hz



Salls Construction
Unser Road Extension
SE pipeline
master in ground
116 ft
blast 2

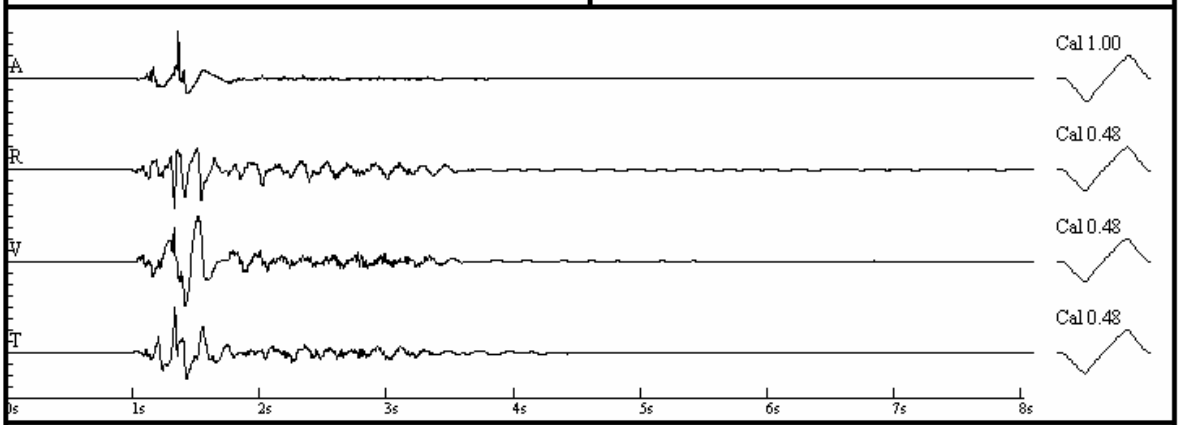
File: 02241183.DTB Event Number: 183 Date: 10/7/2004 Time: 17:29
Acoustic Trigger: 130 dB Seismic Trigger: 0.03in/s 0.762mm/s Serial Number: 2241

Amplitudes and Frequencies

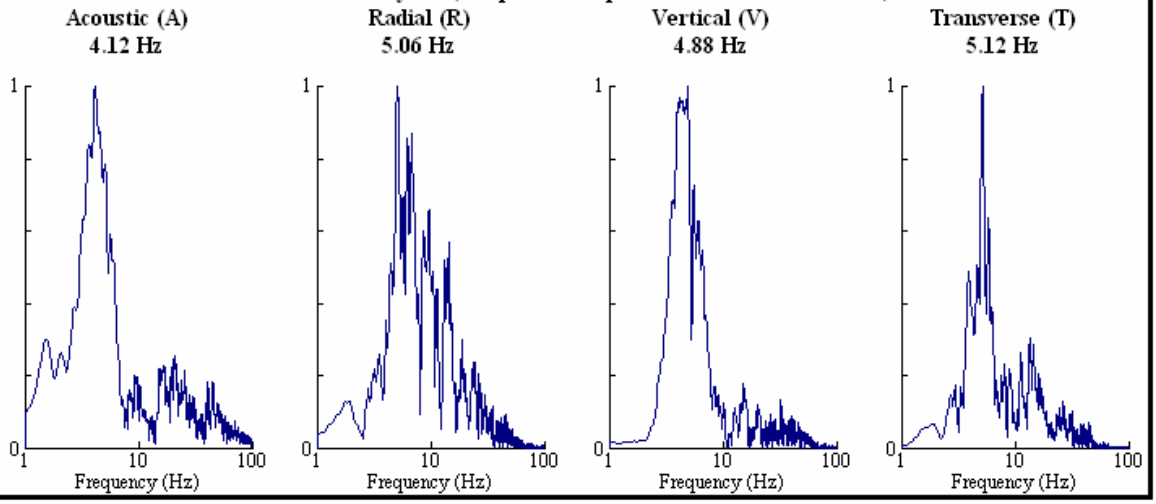
Acoustic (A): 140 dB @ 7.1 Hz
(2.04Mb 0.0296psi 0.2040kPa)
Radial (R): 1.36in/s 34.544mm/s @ 17.0Hz
Vertical (V): 1.62in/s 41.148mm/s @ 5.3Hz
***Transverse (T):* 1.66in/s 42.164mm/s @ 11.6Hz**
Calibration Date (yyyy/mm/dd): 2004/03/29

Graph Information

Duration: 0.000 sec To: 8.033 sec
Acoustic Scale:
140dB 2.00Mb (0.500Mb/div)
Seismic Scale:
1.66in/s (0.415in/s/div) 42.16mm/s (10.541mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
12 in. pipeline (SE)
122 ft
blast 2

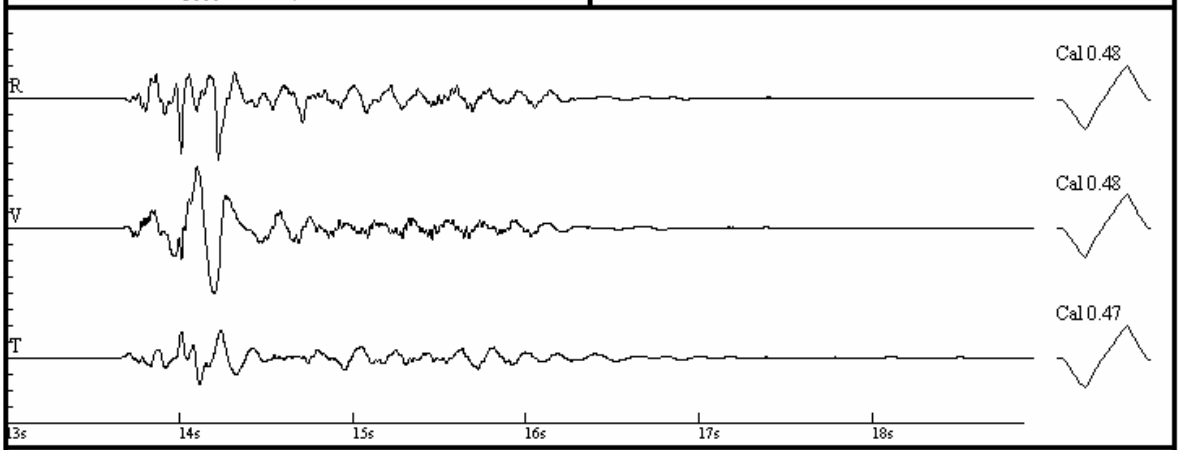
File: 01792284.DTB Event Number: 284 Date: 10/7/2004 Time: 17:29
Acoustic Trigger: 142 dB Seismic Trigger: 0.04in/s 1.016mm/s Serial Number: 1792

Amplitudes and Frequencies

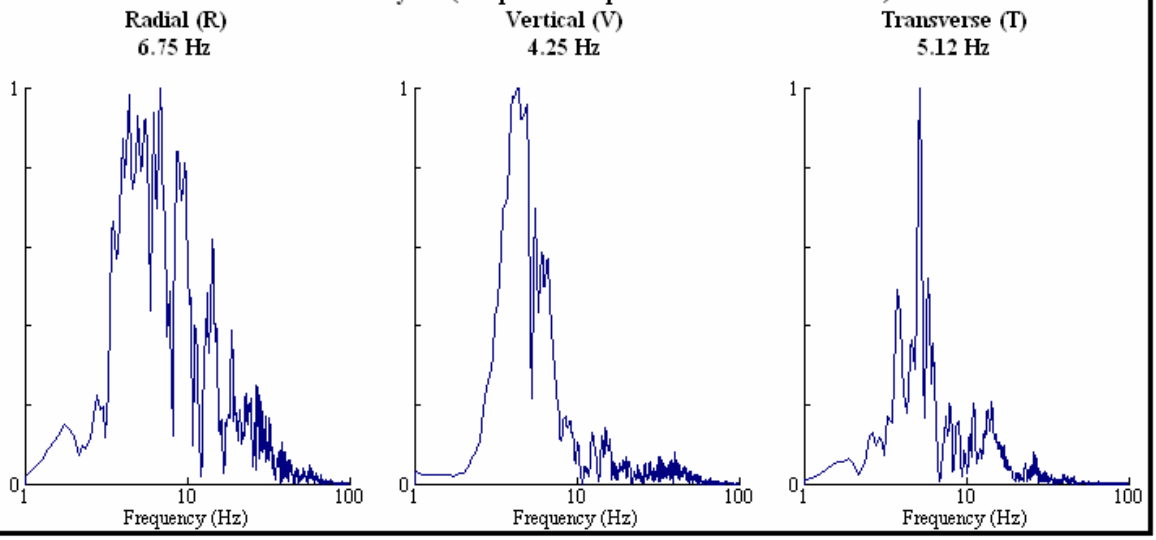
Radial (R): 1.36in/s 34.544mm/s @ 7.3Hz
***Vertical (V):* 1.42in/s 36.068mm/s @ 5.2Hz**
Transverse (T): 0.60in/s 15.24mm/s @ 6.0Hz
Calibration Date (yyyy/mm/dd): 2000/12/28

Graph Information

Duration: 13.119 sec To: 19.000 sec
Seismic Scale:
1.42in/s (0.355in/s/div) 36.07mm/s (9.017mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)



Salls Construction
Unser Road Extension
20 in. pipeline (SE)
110 ft
blast 2

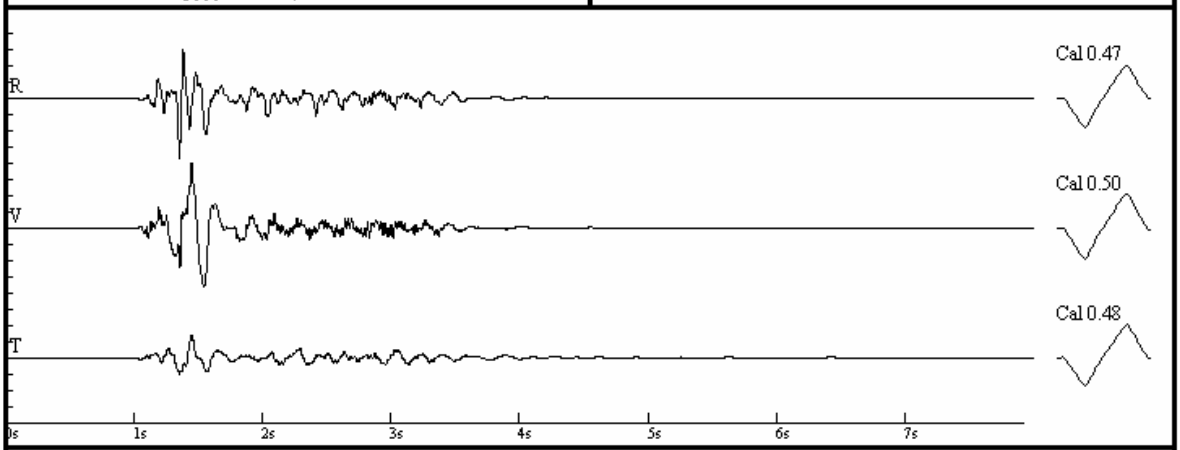
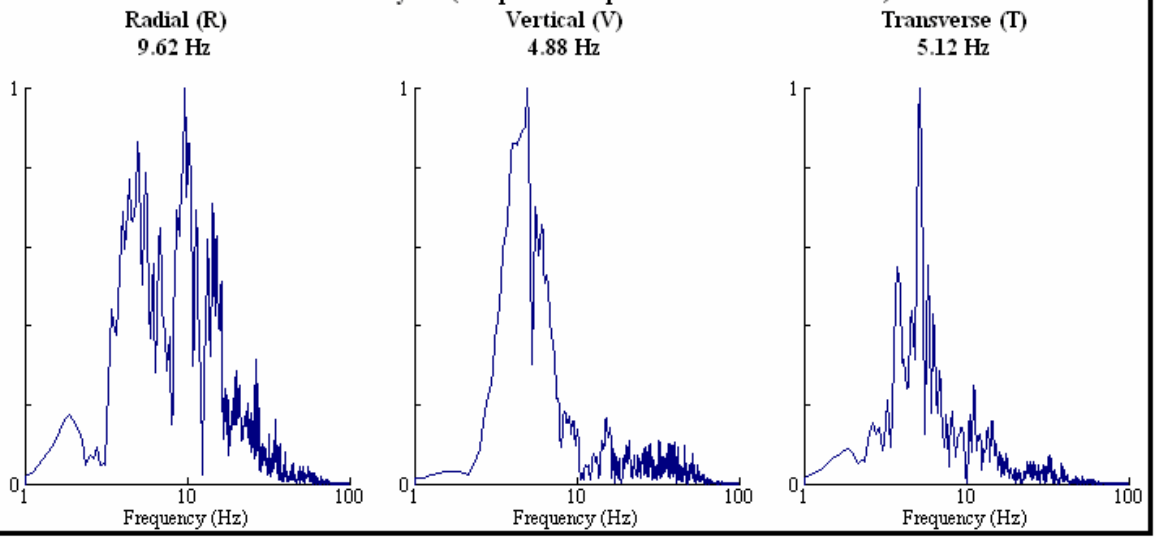
File: 02407103.DTB Event Number: 103 Date: 10/7/2004 Time: 17:29
Acoustic Trigger: 106 dB Seismic Trigger: 0.015in/s 0.381mm/s Serial Number: 2407

Amplitudes and Frequencies

Radial (R): 2.04in/s 51.816mm/s @ 13.4Hz
***Vertical (V):* 2.22in/s 56.388mm/s @ 4.0Hz**
Transverse (T): 0.74in/s 18.796mm/s @ 6.9Hz
Calibration Date (yyyy/mm/dd): 2003/03/17

Graph Information

Duration: 0.000 sec To: 7.936 sec
Seismic Scale:
2.22in/s (0.555in/s/div) 56.39mm/s (14.097mm/s/div)
Time Line Intervals at: 1.00 s



Fourier Analysis (Amplitude Spectrum - Box Window)