

# Vibration Monitoring



## with Real-Time PPV Alerts

### MONITOR OUTPUT FORCE IN THE FIELD

The **Event Monitoring System with PPV Monitoring and Alerts** provides a cutting edge tool for monitoring the energy output by the seismic source. The tool alerts the crew to possible contract violations before they happen.

This system uses a Sigma 4 seismograph node and an Android-based tablet in the field. The system operator positions the node in front of the source, in a location that protects a structure or other resource. They watch this tablet, monitoring the energy output by the Vibrator, warning the operator that their source is close to violation status.



Monitors Vibrator Output Force during Data Acquisition

### SYSTEM BENEFITS

- PPV Monitor Operator sees Potential Violations in real time and can Alert the Source Operator
- System also Logs Non-Violations
- System Creates Daily Reports

### SYSTEM FEATURES

- Real-Time Data
- Real-Time Alerts
- Uses an Android Tablet
- Easily Moved and Quickly Deployed



Protects Structures and Assets and Contract Compliance



Sigma 4+

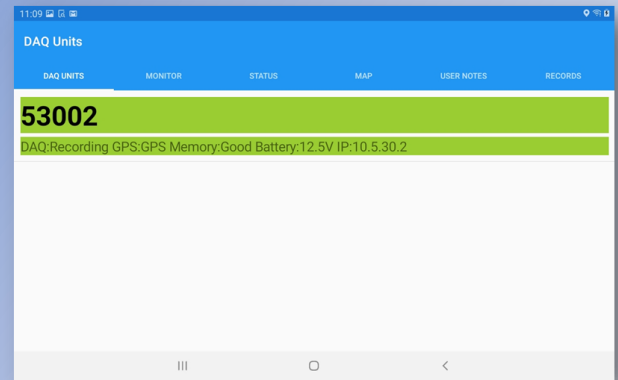
# Vibration Monitoring



## User-Friendly Android Tablet

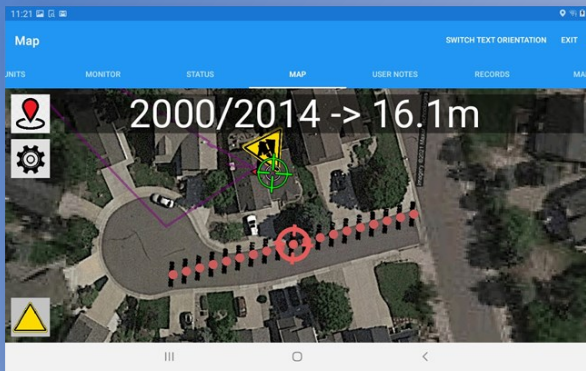
### DEPLOY SIGMA NODE

Use the Android tablet to monitor and control individual or multiple Sigma 4 seismographs



### REAL TIME LOCATION

Download background maps for unit location and finding source flags, plus drop markers for hazards and comments



### REAL-TIME INFORMATION

One-screen operation for monitoring shot, red bars indicate potential contract violations



### USES ANDROID TABLET

Places rugged yet inexpensive equipment in the field.



*Sigma 4+*

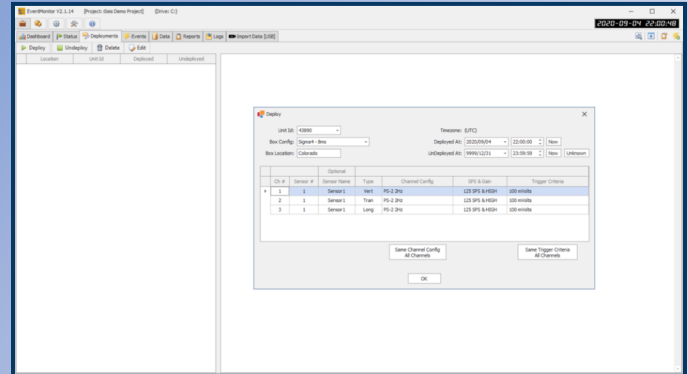
# Vibration Monitoring



# Quality Control in Event Monitor

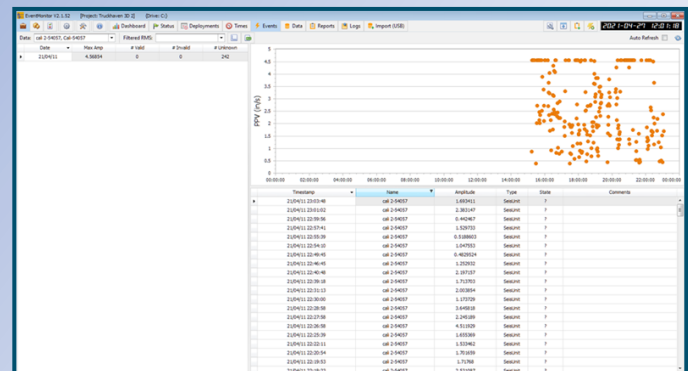
## REGISTER SIGMA 4 UNIT

After the Sigma 4 units are returned from the field, they are logged into the Event Monitor Program for Quality Control. Once they are entered into the system, their data is downloaded and analyzed.



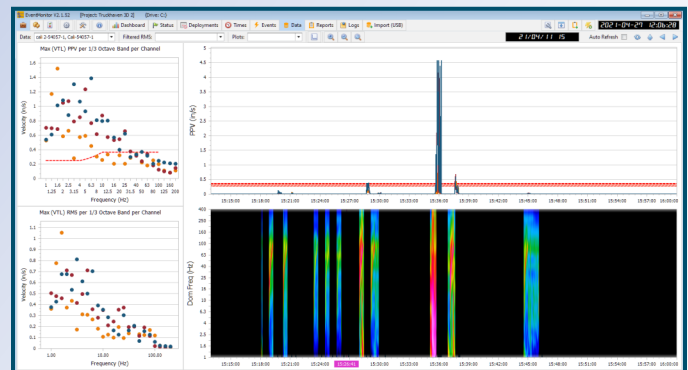
## DETECT EVENTS

As Event Monitor then reviews the recorded data for maximum amplitudes, and compares those amplitudes against the tolerances from the contract.



## ANALYZE DATA

Acquired data can also be review for and anomalies that occurred between shots for comparison to shots.



Sigma 4+

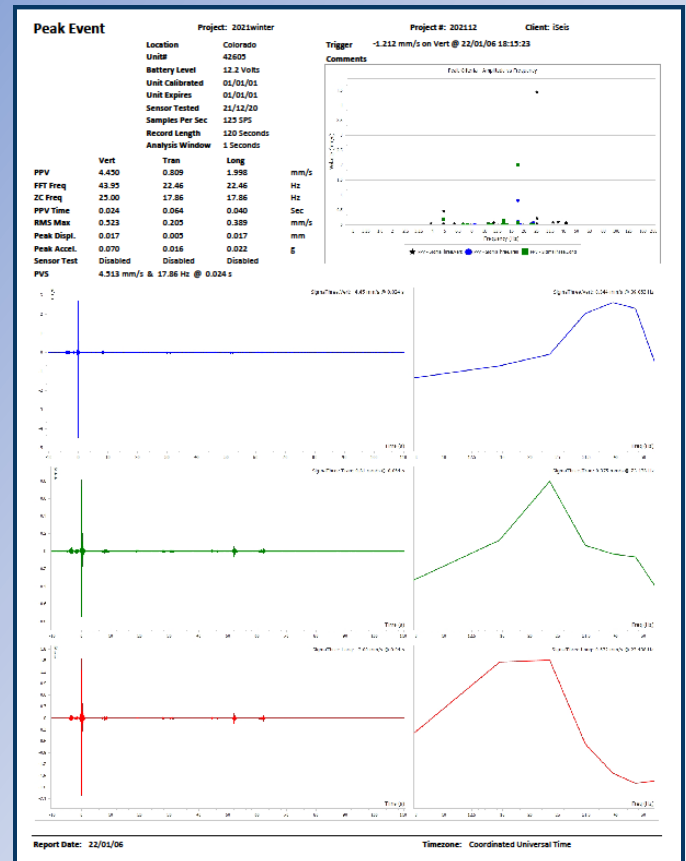
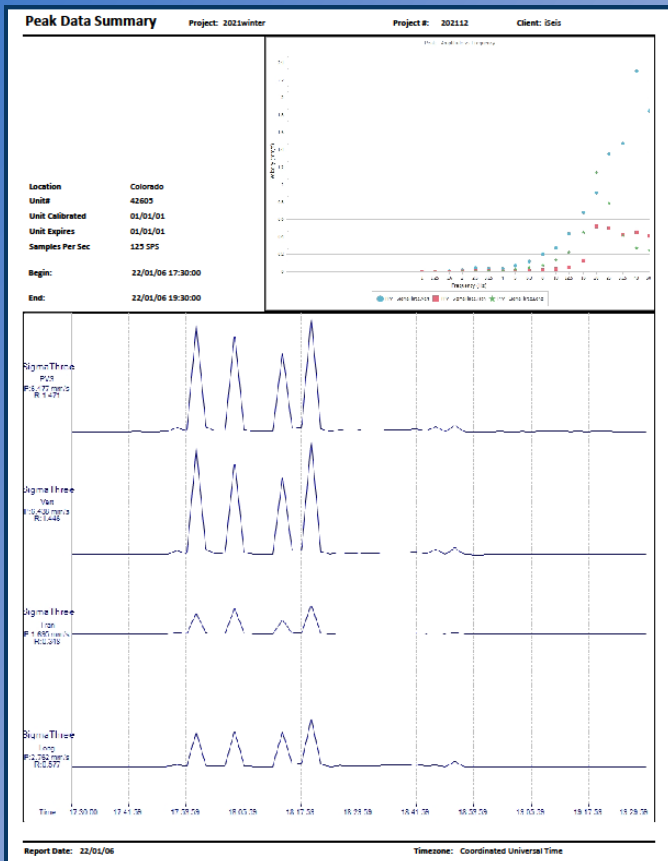
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## Create Logs & Reports

### EVENT LOG

### EVENT REPORT



## ALL EVENTS DETECTED

The **Peak Data Summary** log shows the number of events detected per user-defined time slot. It includes:

- A title block with a report description
- A graph of amplitudes at each frequency
- Line charts for each sensor element and the PPV sum.

## QC INDIVIDUAL EVENTS

The **Peak Event** report provides an analysis for a selected event. It includes:

- A title block with a report description and event analysis
- A graph of amplitudes at each frequency
- WTVA graphs of each sensor element
- Amplitude spectra for each sensor element.



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