

## Solving Shoot Blind QC Issues

Many crews are switching to cableless recorders with no built-in communications. These systems have some advantages in certain environments. But there are times on every project when it is imperative to see what is happening on the spread.

Birddogs need to know when changing environmental conditions create noise levels that are too high to comply with contract requirements. Clients want quick access to test data to pick source parameters simple as the number of pops for Weight Drops, or complex as designing vibroseis sweeps. And for security reasons, the observer may wish to monitor any vulnerable parts of the spread.

The Sigma cableless system is not just a stand-alone seismic recorder with a variety of in-built and optional communication technologies, it can also seamlessly work side by side any cableless (or cabled) system. Field crews can use its real time monitoring functionality on any operation that requires insight into their data and evolving field situations.



Seismic Line with Sigma Boxes and HyMesh Network

### Fast Results in the Field

#### Easy to Deploy Field Nodes

- Weight & space saving design is cheap to transport
- Cable-free means fewer maintenance issues
- Mesh networks ease node installation
- **Minimal interference with crew operation**

#### Easy to Use Software

- Once configured, requires minimal user intervention
- Bar Graphs for Noise Monitoring
- Seismic Data in Easy to View SEG-Y or SEG-D
- Compatible with MS Windows 7 and Windows 8
- **Maximum benefit for field crew**

#### Easy to Integrate into Operating Crews

- Uses SSC's Universal Encoder II
- Integrates with SSC's Source Link
- Uses crew's existing geophones
- Can use crew's existing batteries
- **Many crews are ready to use this equipment**

### Field Benefits

#### Fast Access to Test Data

- Rapid parameter selection for vibroseis data
- Quickly determine number of pops for AWD project
- No duplicate deployment of equipment
- No waiting to harvest data
- **Faster access to test data means a quicker first shot**

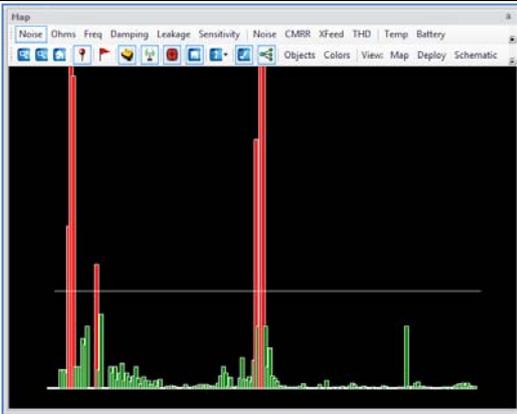
#### Rapid Response to Environmental Changes

- Easily monitor wind noise
- Watch for equipment on spread
- Better awareness of source performance
- **Shorter reaction times means better data**

#### Increased Security for Field Equipment

- Deployment in hazardous areas lets crew monitor equipment
- Deployment in risky areas lets crew retrieve and secure data
- **A few well placed channels may solve lots of problems**

## MRN-Based "LoMesh" Real-Time Status



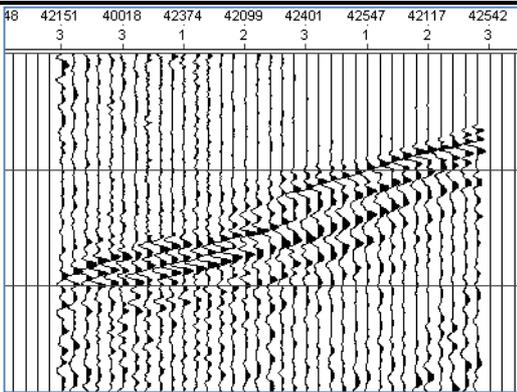
### Functions:

- "Mesh Radio Network" retrieves status
- Sigma Observer monitors status
- Sigma Observer displays RMS Noise

### Features:

- Sigma Boxes are in constant communication
- Sigma Observer color-codes bars based on amplitude
- LoMesh runs in low power mode to extend battery life
- Data can also be later offloaded and processed

## SRD-Based "HyMesh" Real-Time Data



### Functions:

- Includes all functions of LoMesh Network
- System records TB Information from UE2
- Network retrieves data upon operator request
- Software creates and displays data

### Features:

- System based on SRD Innovations technology
- Mesh design simple to deploy and use
- Software will vertically stack impulse data and cross-correlate vibroseis records
- Retrieved data can also be later processed

## System Hardware Details



Seismic Source Co.'s UE2

### UE2 Information:

- Seismic Source's Universal Encoder synchronizes Sigma equipment with master system
- Records and transfers Time Break information
- Records and transfers auxiliary channel data
- Generates vibroseis Pilot Trace
- UE2 will capture most PSS returns

### System Information:

- Works with most cableless systems including Unite, GSR, ZLand, AutoSeis.
- Works with most types of sources including Dynamite, AWD, EWG and Vibroseis
- Requires UE2 for TB capture
- Sigma can use crew's existing geophones
- Sigma can use any 12v battery



Sigma with Unite



Sigma with ZLand