# Acquisition and Delivery of High Density Vibroseis Seismic Data for Inversion Processing

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## Summary

The need to acquire non-correlated vibroseis and vibrator signature data for use in the inversion of raw vibroseis data presents obstacles for both the correlation of files and the delivery of extraordinary volumes of data.

With the help of North American Oil Sands Corporation, solutions for both these problems have been developed which allow for enhanced delivery and quality control of the acquired seismic and reference data.

## Problems

1) High quality digitized vibrator signature traces are recorded at each vibrator while the raw earth response from the vibrator's signal is recorded in the seismic crew's Central Recording Unit. Correctly matching the source signature data with the corresponding seismic data is imperitive.
2) The quantity of data generated on a high production 3D vibroseis crew when recording raw, (non-correlated), data can be 10 times or more than that of conventional correlated vibroseis data.

## Solutions

The solution to matching corresponding signature and seismic response data requires enhanced handshake and file identification protocols between the seismic recording system and the Vibrator control / digitizing system. Once this is achieved, software and hardware can be developed to verify and even combine the two data sets into single output files for delivery to the seismic processor. Utilizing state-of-the-art PC hardware solutions, these large data volumes can be transferred more efficiently with removable hard drive technology as apposed to convention digital tape technology.

## Case Study and Conclusions

In 2006 North American Oil Sands Corporation (NAOSC) contracted the recording of raw vibroseis data and vibrator signatures with data delivered to the processor as separate data sets on large capacity tape and digital disc (CD). Potential delays caused by matching data sets were discovered during this project. During a similar acquisition program recorded in 2007 a more efficient method for data matching was implemented both are presented in this paper.

### References

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