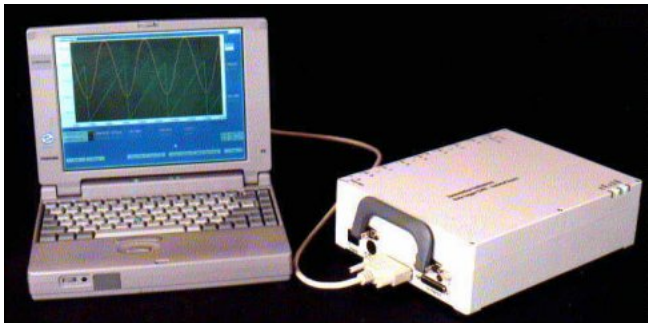


## LEAN STOCK SYSTEM SURVEYS

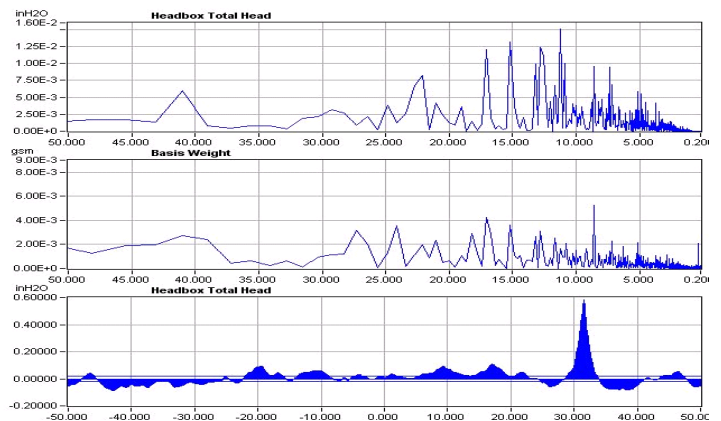
The Lean Stock system is very often a major contributor to BW and Moisture variability on the paper machine. Unfortunately the task of minimizing lean stock system variability does not always get the attention that it deserves. One common impediment to minimizing lean stock system variability is the lack of field instrumentation. The *best and most direct* measurements are flowrates and consistencies but too often only local pressure sensors and level indicators are available. This makes the job of diagnostics that much more difficult, lengthening the time to a real solution. Moreover, the complex process dynamics that result from mixing of process streams of different consistencies and the multiple recirculation paths increase the degree of difficulty.

### ProNamics Field Surveys

ProNamics has conducted over 20 lean stock system surveys in the past 5 years. These 1-week surveys are very often successful in pinpointing the lean stock sources of BW and Moisture variability. We have developed a 'toolkit' to assist us in making these surveys successful. Our high speed data collection equipment, hooked directly to field sensors, is used to gather the process



signals. We supplement the mill sensors with some of our own, including a portable (LC100) lean stock sensor and high bandwidth pressure transmitters. The LC100 is an important diagnostic tool for isolating the source of consistency variation within the lean stock system. The high bandwidth pressure transmitters identify important pressure variations that are beyond the capability of typical mill pressure sensors. The collected data is analysed using time series techniques such as the power spectrum and cross correlation analysis to identify and quantify their impact on BW and Moisture variability.



**ProNamics Control Inc** is a Vancouver, B.C based pulp and paper process control consulting company. The company conducts process and control optimization surveys, provides a range of training courses related to process control optimization, and markets process variability software and training tools.

