

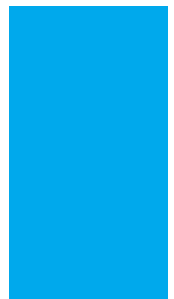
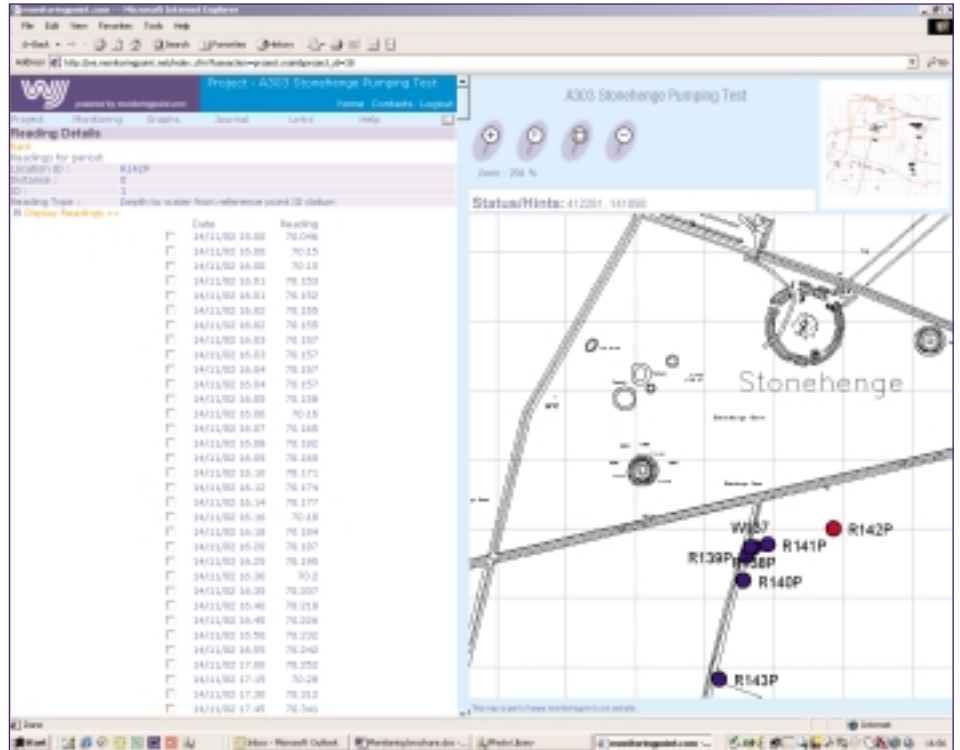


Instrumentation and monitoring systems are employed to read and record data on site, and then process and present this data in a usable format. WJ have considerable technical expertise in the design, supply, installation and operation of instrumentation and monitoring systems for a range of applications.

#### **Application**

Instrumentation and monitoring systems can be used on almost any site, from those with just a single borehole, to major projects that may have several thousand instruments installed. Typically instrumentation could be used to monitor parameters such as groundwater level, wall movements and prop loads. Dataloggers are often utilised to automate the reading of instruments and the collection of data. It is possible to communicate with the loggers remotely, via GSM modems, to enable the data to be collected and for the logger to send alarm signals if certain trigger levels are exceeded. The data can then be processed and presented, in graphical and tabular form, on a secure website where relevant staff can access the data from wherever and whenever they wish.

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**Monitoring systems**

Monitoring systems are used to automatically read and record information. WJ can offer a wide range of datalogging capabilities, from single channel loggers to multi-channel loggers linked via a phone line to the internet. On larger sites where extensive monitoring is required, the whole system of data collection, processing and presentation would be automated. Where necessary the data presented on the web can be updated at intervals of less than 10 minutes. It is then vital that the collected information is processed and presented in a readily understood format. This is achieved by predefined graphs that can be viewed from anywhere in the world with internet access.

**Types of Instrumentation**

- Standpipe piezometers
- Vibrating wire pressure transducers to measure groundwater levels and pore pressure
- Electro-magnetic flowmeters
- Strap-on ultra-sonic flowmeters, can be retro-fitted with no disturbance to pipeline
- Inclinometers
- Vibrating wire strain gauges
- Earth pressure cells
- Extensometers
- Automatic weather stations

**Key features**

- Full range of datalogging equipment
- Remote data collection
- Alarm systems
- Data management
- Data presentation
- Data available via the internet
- Easy to use software
- Export of data in AGS-M format