



Case Details

Our client – a major research organization – had a project where they were to compare the effects of various surfacing materials on a series of tanks and how efficient these surfaces were in reducing temperature losses. The temperature in the tanks was to be cycled up to 60°C by internal steam coils and allowed to cool. The temperatures were to be logged at all times with sensors at various depths within the tanks. Data collection needed to be simple, but remote communications were unnecessary.

Key Requirements

- Compact solution with large number of inputs
- Easy data download
- SDI-12 compatibility for a weather transmitter



Tanks in the sun: Various surface materials were used for water tanks to establish maximum thermal efficiency.

dataTaker DT85

- 1 A cost effective data logger expandable to 300 channels, 600 isolated or 900 single-ended analog inputs
- 2 Built-in web and FTP server allows for remote access to logged data, configuration and diagnostics
- 3 Modbus slave and master functionality allows connection to Modbus sensors and devices and to SCADA systems
- 4 Smart serial sensor channels capable of interfacing to RS232, RS485, RS422 and SDI-12 sensors
- 5 Rugged design and construction provides reliable operation under extreme conditions
- 6 Includes USB memory stick support for easy data and program transfer



dataTaker Solution

Equipment

- dataTaker DT85 data logger
- USB memory stick

Sensors

- Thermocouples
- Vaisala WXT-510 weather transmitter

Implementation Notes

Six thermocouples were mounted in each of the six tanks at varying levels. The 36 thermocouples were connected to a single DT85 data logger as was the weather transmitter (via SDI-12 communication). The DT85 allowed for a further 12 temperature sensors to be connected should the need arise.

The weather transmitter included sensors for wind speed, wind direction, rainfall, ambient temperature and humidity and was necessary to establish what effects the weather had on the internal temperatures of the tanks.

Data was collected manually each week by archiving to a USB memory stick. This was done over a period of several months before being analysed.

The results identified which tanks were more efficient and hence identified the more effective thermal insulating materials.