



### Customer Requirements

An oil company drills a horizontal well into an oil reserve containing heavy crude oil. Steam is injected into the well to heat the bitumen and allow it to flow more easily. A second horizontal well is drilled below the first to collect the oil and pump it to the surface. This is known as Steam Assisted Gravity Drainage (SAGD). A logging solution is required to monitor the temperature of the oil well for both efficiency and safety reasons. An increase in temperature could cause a blowout and a decrease in temperature leads to pumping inefficiencies. Given the volume of oil that is pumped from these reservoirs, efficiency of harvest is critical. Modern connectivity is also required for connecting loggers to a central computer.



**Oil Refinery:** Connects to SAGD wells via long pipelines. There are many places within one of these refineries to use dataTaker products.

### 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  
dataTaker Channel Expansion Modules (CEM) x2  
dataTaker NEMA4 Enclosure  
Solar panel and solar conditioner  
External battery  
Radio Modem

#### Sensors

Thermocouples

#### Implementation Notes

The dataTaker DT85, with 2 CEMs can be located at a central point at the top of the observation well in a NEMA 4 enclosure along with solar conditioner and battery. The DT85 and CEMs connect to thermocouples which are down-hole at 30 points. The dataTaker transmits recorded data via a radio modem to the master unit that correlates the data from several observation wells.

To achieve optimum results, the user puts thermocouples down-hole at regular distances. The temperature is measured and the steam injection adjusted to meet parameters required for optimum oil pumping.

The benefits of the dataTaker solution are:

1. **Low power**-The cost of solar panels and battery for power for this system is low
2. **Full channel to channel isolation**-When thermocouples break down a reduction in accuracy will result. The DT85 has fully isolated channels to prevent cross-channel interference as a result of this.
3. **Flexibility of data**-The DT85 can store data in delimited (CSV) or binary (DBD) format
4. **Easy install**-dataTaker data loggers are provided with free technical support to help users get started. Alternatively the logging system can be provided completely pre-configured for a nominal fee, so all the field personnel have to do is connect the power and sensors and let the dataTaker do the rest.