CASE STUDY – TEMPERATURE MONITORING

PREAMBLE

Monitoring temperature is critical in a variety of commercial and academic applications. In many instances either significant value of goods or years of painstaking work can be lost if a serious temperature failure occurs. In commercial applications, monitored temperatures most often relate to food storage, sanitizing temperature, blood storage or storage of vital organs required for human transplant.

In March 2009 Data Acquisition Networks installed temperature monitoring equipment into an environment where food storage and sanitising temperatures were being monitored and some astonishing results were achieved. **The difference between DAN equipment in use and alternative systems is the real-time alarm capability of the DAN system and the ability to use the data to decide actions then take those actions and deliver improved results.**

FOOD STORAGE & SANTISING

The institution that is the focus of this case study is a nursing home that is required to store chilled and frozen foods for re-heat & serve application to their vulnerable, aged care population. The facility also needs to ensure the rinse cycle in a dishwasher is providing satisfactory sanitising temperature for plates and eating utensils.

Prior to installing DAN Temperature Monitoring equipment the facility was aware of some minor issues only. Twice each day, a designated staff member would visually check gauges located on the outside of storage rooms and on a digital display located on the side of the dishwasher. Generally, the temperatures recorded manually were within reasonable limits. The Area Superviser did have concerns during some days that coldroom doors were left ajar for reasons of convenience but the manual data sheets still showed the HACCP control points were being achieved and each 6-months the facility ensured that probes were calibrated. Overall, everyone believed the right job was being done!

DAN installed a stand-alone probe attached to the ‘water-in’ point of the dishwasher rinse cycle and set up records to show when the dishwasher was started and when it ended and what the maximum temperature was that was reached during the cycle. DAN placed sensors on the coldroom doors that were originally set up to send an alarm if the doors were left open for more than 10 minutes. Alarms were also set up on the DAN website to alert when chilled storage areas reached greater than 5DegC and when freezer storage exceeded -15DegC as the target was -18DegC.

In an environment that was believed to be in good order and HACCP compliant the alarms almost immediately started flowing thick and fast. Doors were left open far too long as the Area Superviser had suspected and taking remedial action not only improved the integrity of the storage temperatures but also reduced energy consumption. The dishwasher maintenance schedule was revised as it became apparent that failures in reaching sanitising temperature occurred too often. During the evening the chiller door was key-locked and the DAN system enabled the facility to learn that the key locking mechanism in fact caused the door to be slightly ajar overnight allowing the ingress of warm air when no-one was at the kitchen facility.

In addition to immediate improvements the facility now has its HACCP records automatically taken and no longer requires a staff member to manually record data which is now constantly recorded 24/7.

THE OUTCOME

The facility now gets less than 10 alarms a day whereas initially it received over 1,000 in the first week. Staff at the facility has embraced the automation of data collection and now act upon alarms when they are received.

The facilities food science personnel have been able to correlate temperature abuse over time with microbiological testing to better understand the need to throw-away or reduce shelf life when temperature failures occur and the management of the facility now boasts of the exceptional standards their business maintains.