

## **CASE STUDIES** IVF Unit needing 24 hour monitoring, alarms and reporting

This hospital infertility centre provides IVF treatment including Ovum Donation, GIFT and ICSI and undertakes ~500 to 800 IVF cycles a year. In common with many facilities, expansion and logistics are not easy because of space restrictions. Planer plc were approached to provide a solution that would: monitor equipment and rooms in the labs; be able to access data from the Internet; alarm with audibles, phone calls, emails and SMS; be able to graph and log all data; comply with prevailing regulations.

Initial observations showed that skilled staff were spending time taking daily manual readings on temperature and CO2 within incubators, refrigerated equipment; weekly readings on LN2 tanks; additionally they were on call out in the evenings and weekends. Additionally items had to be calibrated at least once a year. The customer needed a simple to use, reliable alarm and monitoring system for sample, equipment and safety which could monitor (or have the ability of monitoring) practically everything in the lab including dewars/tanks, large and bench-top incubators, workstations and room environments etc.

It was decided that the system had to be modular so the users could expand it as their labs grew and additionally it would have to comply with all European regulations including compliance with FDA 21 CFR Part 11.

It was felt that just a simple alarm system might be a wasted opportunity to improve the management of equipment, data and people's time and also miss an opportunity for easier compliance with the Tissue Directive – which requires all samples stored using Liquid Nitrogen to reside in an independently monitored and alarmed environment.

The solution proposed allowed the user to automatically monitor all equipment using reliable and independent sensors and ones which would alarm via various methods if equipment was not performing as expected. Information could be accessed securely from any browser desktop and alerts – pre alarm conditions defined by the user - could be provided to unlimited users using different methods: text messages, phone calls emails and numerous visual/audible alarms. The solution proposed could: collect data from eg liquid nitrogen dewars, incubators, room oxygen/temp/humidity monitors and refrigerators; pass that data in real time to Planer's management equipment; process the data and inform users of condition and alarms in user defined ways.

The alerts and alarms would be able to 'cascade' in both their importance and their routing to individuals, depending on the equipment involved and severity of the problem. The opportunity was taken to integrate safety equipment and monitor Oxygen levels within areas containing liquid nitrogen to provide external sounding alarms. After a pre-site survey a plan was drawn up along with a project timetable, proposed options and various costs. Subsequent to installation the system was checked and bedded down over a period of a month or so. With client's permission some maintenance could be carried out remotely if and when needed.

The monitoring and alarm solutions have been designed with expansion in mind. The system installed could house a large amount of data and could cope with many thousands of readings per cycle, automatically backing-up data onto an independent drive. The cost was comparable to other systems that had initially appeared similar but provided flexibility efficiencies, in addition to those of safety and compliance, and these could be offset. A system such as this above also shows the start of Risk Management and may satisfy many insurance companies who can instruct users that critical samples are to be appropriately managed regarding risk.