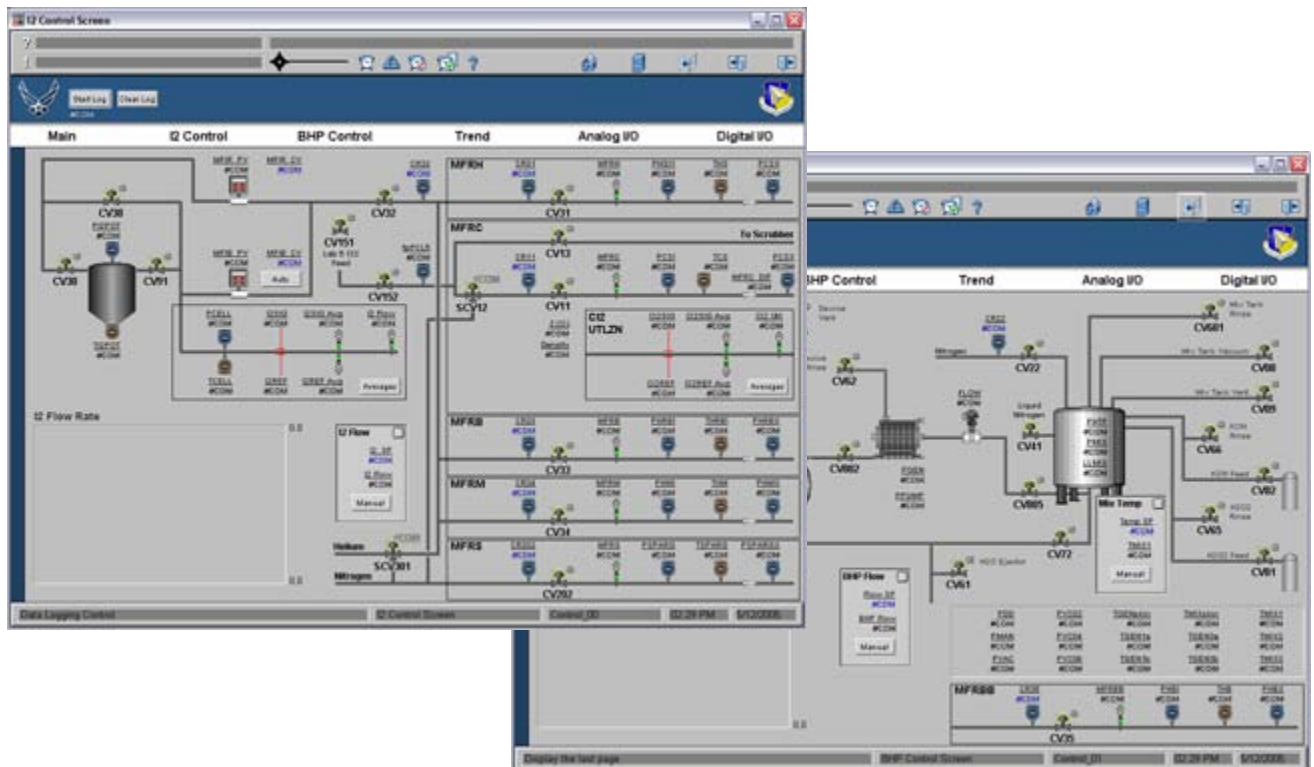


### Overview

The Air Force Research Laboratory (AFRL) is located at Kirtland Air Force Base in Albuquerque NM. This facility tests high power lasers and the effects of high power lasers on materials. In late 2002 AFRL went out for bid for a high speed data acquisition and control system. The first project required complete electrical design and fabrication, CitectSCADA programming of the operator interface, Think and Do programming of the controls and high speed time stamped data (10ms samples), and OIT programming for remote control of the system. Enterprise Automation has now completed a number of these projects for AFRL and helps on a regular basis with maintenance and change requests. The most recent project has added numerous I/O and control features. Enterprise Automation also provided formal training classes to AFRL engineers so that they can make changes to their programs without Enterprise Automation's assistance.

### Solution

The highest risk portion of this job was to accurately collect 10ms data with a true timestamp. This requirement was met using Think and Do's data logging capabilities and customized Think and Do programming. CitectSCADA was key to the success of this project due to its ability to record data at very high sample rates. Although the data files used for detailed analysis were the Think and Do log files, the engineers on the project routinely use CitectSCADA's data for a quick analysis of each lase. It is also very important that CitectSCADA is able to display large amounts of information on screen (dual monitors) at a very fast rate. This allows engineers to quickly react to system changes.



### Technology

CitectSCADA's high speed OPC communications were used to communicate with Think and Do's OPC server which communicated via Ethernet to the Automation Direct I/O. Typically, all 500 tags in the system were updated in less than 10ms. An EZTouch OIT talking Modbus TCP was used to allow operators to monitor the system remotely from the CitectSCADA system. The first system was placed in service mid 2003, the second in 2004, and the third in 2005. All systems remain in service.