

# Project Profile

## *Continuum*<sup>TM</sup> Provides Safety-Training Verification for Thomas Jefferson National Accelerator



Jefferson Lab  
Newport News, Virginia

*"Andover was able to provide us with an interactive software interface between the two systems that would update six times a day — importing cardholder information and training information from our HR database and distributing cardholder access rights to Continuum's card readers . . . and all totally automated with no operator intervention required."*

*-David Kausch*

JLab's Fire Protection Engineer

Scientists from across the country and around the world visit the Thomas Jefferson National Accelerator Facility to advance mankind's understanding of the atom's nucleus — not only to research the make up of matter itself, but how to better produce new and stronger materials for the future. Funded by the U.S. Department of Energy (DOE), Jefferson Lab (JLab) is managed by a consortium of 53 universities called the Southeastern Universities Research Association, or SURA, under contract by DOE.

JLab's unique Continuous Electron Beam Accelerator is a machine in a racetrack-shaped concrete tunnel 7/8 of a mile long and 25 feet underground. It uses superconducting technology to deliver a continuous beam of electrons to targets, such as hydrogen, carbon, gold, or lead. When the beam collides with its target in one of the three large, hill-like experimental halls, the particles scatter. By studying the speed, direction, and energy of the scattered particles, scientists learn more about how the nucleus is put together. Each year over 1,550 scientists visit JLab, booking accelerator time *years* in advance.

In addition to particle physics, JLab works to educate the next generation of scientists and to partner with industry in utilizing JLab's advanced technologies.

### ***Searching for a Solution for Access Control/Training Verification***

One of several accelerators in the U.S., JLab, with 82 buildings situated on 210 acres, is located in Newport News, Virginia. The complex is comprised of the accelerator site, the administration campus, and a 44-unit residential facility for the visiting experimenters. A SURA staff of 550 manages the facility and the scientific program, and more than 1800 badge holders have daily access to the facilities.

The need for an access control system at JLab to protect everyone on site, to safeguard its very expensive assets, and to control access to areas where safety hazards exist, is no surprise. What is unique at JLab is that the predominant driving force behind the installation of an access control system was to automate the mandated DOE requirement that safety training records are verified before granting *any* personnel access to the accelerator site.



CEBAF Center

## **Safety Training — the Key that Unlocks . . .**

In a research facility of this type, there are two main hazards — radiation and oxygen deficiency. To prepare everyone to work in this environment, JLab requires all personnel to take safety-training classes. Four different levels of radiation safety training are offered, based on the access area and job to be accomplished, and must be repeated every two years. For example, any personnel requiring access to the accelerator site must be trained at the lowest level, General Employee Radiation Training (GERT), along with a general Orientation Class.

Oxygen Deficiency Hazard (ODH) training, when required, must also be repeated every two years. For access into Experimental Halls A, B, or C, all personnel must have completed the Orientation Class, at least the second level of radiation, plus ODH. Each employee is

responsible for scheduling and retaking classes before expiration occurs, and oftentimes, training and testing are available on-line. With these needs in mind, JLab administration searched for a system that could both control access *and* tie into their existing Human Resources/training database, which resides on their Central Information System, or CIS.

## **JLab Selects Andover Controls Continuum™**

In 1998, JLab put out a request for a comprehensive Central Alarm Notification System, or CANS. The spec called for a single front-end system that could not only tie their access control in with their existing CIS, but also integrate their existing fire alarm panels, CCTV, building automation system, and an array of alarm monitoring systems that had evolved over JLab's 10-year construction period. Solicitation packages were sent to representatives of every systems integrator that claimed to have any experience with fire protection and security. Ten manufacturers were represented at the site visit in August 1998.

*Conseps FMS, Inc.*, of Virginia Beach, Virginia, a local Andover Controls Representative, bid on the project, offering the Andover *Continuum* system as the solution to their integrated security management needs. "What was initially very appealing to JLab," according to Tony Damalas, President, CEO of *Conseps*, "was the fact that, in addition to access control, the *Continuum* system could integrate and centrally control their four Siemens Pyrotronics MXL analog fire alarm panels, as well as interface to the 16 conventional fire alarm panels using Andover Controls' *Plain English* drivers. This unique, two-way fire panel interface ultimately received a UL 864 site listing."

## **Powerful Two-way Communications between HR and Access System**

David Kausch, Fire Protection Engineer for JLab, says the facility presented a very tight spec for potential vendors to meet. "We were looking for an integrated system to monitor all existing Fire Alarm Control Units, a high level interface with addressable FACPs (Fire Alarm Control Panels), and an access control system that could link to our CIS system. Specifically, we needed a data interface between JLab's central HR database and the access control database."

"Using their *Plain English* programming language," says Kausch, "Andover was able to provide us with an interactive software interface between the two systems that would update six times a day — importing cardholder information and training information from our HR database and distributing cardholder access rights to *Continuum's* card readers . . . and all totally automated with *no* operator intervention required. Now we know that each person using this DOE facility has

satisfied the various training requirements, and the two-way communications between the two systems makes meeting this DOE mandate much simpler!”

In addition, notes Kausch, the Lab’s population now has immediate access to buildings that were previously locked with a key after normal business hours.

“And not to mention the fact that the *Continuum* installation has greatly improved our confidence level that our security staff will respond correctly and rapidly to a fire emergency,” Kausch adds.

### **Custom Applications and Reporting Capabilities**

The DOE sometimes requests reports from all the National Labs of the names and citizenship of their visiting scientists. Previous to *Continuum*, says Kausch, it took two students an entire summer to review a stack of paper sign-in sheets eight feet high “And they never did finish,” notes Kausch. “Now with *Continuum*, we can generate and run this report for DOE in minutes!”

*Continuum* has also helped to automate the withdrawal process for spare parts from JLab’s technician stockroom. The JLab experimental schedule runs 24/7, and now at any time day or night, any of the 300 technicians with a stockroom account can withdraw needed repair parts. The technicians simply present their cards to the reader outside the stockroom door and then again inside to a reader on the stock room inventory control computer system. The *Continuum* access control system and dual technology video ID badges eliminate the expense of a 24-hour stockroom attendant and the delays associated with contacting a security guard to unlock the stockroom.

### **Phase II Plans**

Kausch says Phase II plans for JLab’s CANS will include the installation of additional card readers to control access to smaller areas within existing controlled areas, computer rooms, clean rooms and chemical rooms, and the machine shops. JLab is also taking a hard look at integrating digital video recording using Andover’s new digital CCTV system, *XPress DVX*.



Nobium Cavity Pair Assembly in Clean Room



Injector



## PROJECT AT A GLANCE:

**Project Type:**

Security/Safety

**Project Name:**

Thomas Jefferson National Accelerator Facility  
(Jefferson Lab)

**Location:**

Newport News, VA

**Market Segment:**

Research

**Number of Buildings:**

110+

**Total Square Feet:**

555,000 (51,556 m<sup>2</sup>)

**Continuum Equipment Installed:**

20 – NetControllers  
6 – CyberStation Workstations  
90 – I/O Modules

**Network:**

Fiber Optic WAN (Ethernet TCP/IP)

**Applications:**

Access control  
Security management  
Training record verification  
Fire alarm monitoring  
Photo badging  
Automatic pager notification

**Third-party equipment and/or drivers:**

Siemens Pyrotronics Fire Alarm Control Panels  
Pre-existing personnel and training database

**Number of Controlled Doors:**

65 total, 31 with card readers

**Number of Controlled Vehicles Gates:**

4

**Number of Cardholders:**

1,988

**Andover Controls Representative:**

*Conseps FMS, Inc.*

**Andover Controls Corp.  
World Headquarters**

300 Brickstone Square  
Andover, Massachusetts  
01810 USA  
Tel: +1 978 470 0555  
Fax: +1 978 470 0946  
www.andovercontrols.com

**Andover Controls Ltd.**

Smisby Road  
Ashby-de-la-Zouch  
Leicestershire LE65 2UG  
England  
Tel: +44 1530 417733  
Fax: +44 1530 415436

**Andover Controls  
GmbH**

Am Seerhein 8  
D-78467 Konstanz  
Germany  
Tel: +49 7531 99370  
Fax: +49 7531 993710

**Andover Controls S.A.**

Immeuble Dolomites 2  
58 Rue Roger Salengro  
94126 Fontenay Sous  
Bois Cedex, France  
Tel: +33 1 53 99 16 16  
Fax: +33 1 53 99 16 15

**Andover Controls Asia**

Unit 1201-02, Phase 1,  
Cheuk Nang Centre  
9 Hillwood Road,  
Tsim Sha Tsui East  
Kowloon, Hong Kong  
Tel: +852 2739 5497  
Fax: +852 2739 7350

**Andover Controls  
Mexico**

Insurgentes Sur 1722-501  
Col. Florida  
Mexico D.F. 01030, Mexico  
Tel: +525 661 56 72  
Fax: +525 661 54 15