January 23, 2003

Mr. John F. Sauter
Office of Fusion Energy Sciences (ER-55)
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

Fax: (301) 903-1225

Re: DOE Grant DE-FG03-99ER54560, “Object Approaches to Data Access, Controls, and Remote and Distributed Computing”

Dear John:

Accompanying this letter is our final report.

Sincerely,

John R. Cary, CEO
Tech-X Corporation
We submitted a progress report covering the first year of work on this grant on October 10, 2000. Though originally envisioned as a three-year grant, this work was not, in fact, funded after the first year. Thus, we hereby submit a report that is basically the same as the report submitted on October 10, 2000.

In the first year of this project we prepared the groundwork for moving to automatic discovery, secure access to data servers, applications and controls, and migration to object approaches to data storage. We built and installed the secure Apache web server. It can be accessed at https://fusion.txcorp.com. We are able to configure this web server so that access is limited to a set of persons based on their Public Key Infrastructure certificates.

Secondly, we developed signed applets for the National Transport Code Collaboration Demonstration Code, as are needed for secure access to the data and physics servers being developed by that project. Signed applets assure the user that the applet is the official version, and so it will not corrupt their machine. The also assure the server that the commands that come over are from a valid applet.

In addition we began working with the CORBA naming daemon for configuring it to provide automatic discovery of data and physics servers.

Finally, we spent significant time working on the NTCC project to ensure that its components were robust and useful, so that the remainder of this project would have a valuable tool to implement.