



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

November 22, 1999

**MEMORANDUM TO:** Stuart A. Richards, Director  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

**FROM:** Jack Cushing, Project Manager, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

*J. Cushing* /s/

**SUBJECT:** MEETING WITH ABB/CE ON TOPICAL REPORT CENPD-396-P,  
"COMMON QUALIFIED PLATFORM"

On September 30, 1999, a public meeting was held at the ABB-CE office in Rockville, Maryland, between members of ABB-CE and the NRC staff. A list of attendees is attached. The purpose of the meeting was to discuss issues related to ABB-CE topical report, CENPD-396-P, "Common Qualified Platform" (Common Q).

Mark Stofko of ABB-CE opened the meeting and introduced the participants. Mr. Stofko then reviewed the agenda and briefly summarized the status of the Common Q project. Keith Mortensen of the NRC then presented the following summary of the status of the staff's review of the Common Q Platform.

The Common Q Platform is the physical realization of the design that was proposed in the ABB-CE System 80+. The Common Q building blocks consist of:

- The AC 160 PLC including processor, communication and input/output modules,
- The AF 100 communications bus,
- The high-speed communications bus,
- The flat panel display with a single-board computer, and
- The modular power supply system.

ABB-CE has submitted six volumes of descriptive material for the Common Q platform. These volumes consist of:

- The Common Qualified Platform Topical Report (Main Body),
- The Software Program Manual for Common Q Systems (SPM),
- Appendix 1, Post Accident Monitoring Systems (PAMS),

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- Appendix 2, Core Protection Calculator System (CPCS),
- Appendix 3, Digital Plant Protection System (DPPS), and
- Appendix 4, Integrated Solution.

The staff is reviewing this material against the requirements of the Standard Review Plan. Some portions of the design will be evaluated in this review and some portions of the design will be evaluated later, due to the fact that the development of the Common Q is still ongoing.

ABB-CE has helped the staff locate within the submittals the design material the staff is ready to review and to provide the answers to questions by phone. This has been helpful in that it expedites the evaluation process. The staff has read and studied all of the material that has been submitted and believes that ABB-CE has a promising design in the Common Qualified Platform.

The staff is working to prepare a draft of the safety evaluation (SE) by November 30, 1999. Some of the details of the design will not be ready for evaluation in time to be included in the November SE and, therefore, will need to be evaluated later. A summary of known unresolved items is given below.

- Some items, such as some of the application software and some of the changes to the technical specifications, are site-specific. Some items have been identified in the ABB-CE volumes already submitted as designs not yet completed. These include the flat panel display, the single-board computer and the power supply modules.
- Some of the questions asked by the staff have resulted in ABB-CE making changes to the design. One of these changes involves the way the AF100 bus is to be used in the integrated solution. Another change involves the programming to assure the deterministic operation of the control modules. These changes will result in amendments to some of the volumes that have been submitted.
- ABB-CE has not completed the commercial grade dedication of the Common Q hardware and previously developed software (PDS). The process is specified in Chapter 11 of the Main Body. The staff has asked to see the documentation for the completed portions of the process. The staff wishes to complete as much of that evaluation as possible before the SE is issued.
- The staff will need to evaluate the design and commercial grade dedication of new AC160 I/O modules. The process for design and manufacture will be evaluated against the guidance in TR-107330, Section 7.2.B, "Application-specific design and development activities for dedication of the PLC product." There will need to be environmental testing and qualification for the new I/O modules.

- The SPM is undergoing revision.
- The application-specific software for nuclear I&C applications is now being written.
- Several unresolved items are identified in the ABB-CE comparison table, "EPRI TR-107330 Generic PLC Requirements." ABB-CE has said that they will resolve these items in forthcoming revisions to the submittals.

There are plant-specific items that must be addressed when referencing this topical report. These include, but are not limited to the following:

- V&V of site-specific application software,
- Characterization of the plant environment,
- Plant specific and topical report design differences,
- Site-specific TS changes,
- Setpoints and margins,
- Administrative controls for Common Q controls and functions, and
- Human factors review of control room changes and procedure changes.

The AC160 PLC has been used extensively in non-nuclear applications. Its operating history totals thousands of unit years. The AC160 is also the platform for I&C at Ulchin 5 and 6 in Korea and for an installation in Oskarshamn, Sweden. These factors contribute to the staff's assessment that the Common Q Platform has promising potential for application in nuclear power plants in the United States.

After Mr. Mortensen's presentation (above), the open portion of the meeting was closed and the proprietary portion began. During the proprietary portion of the meeting, information was exchanged on the following:

- The staff and ABB-CE discussed the completeness of the material that ABB-CE has submitted and identified material yet to be submitted.
- ABB-CE explained features of the Common Q that relate to the design for defense-in-depth and diversity.
- The discussion frequently led to questions from the staff for additional clarification about the Common Q design.

The staff found the exchange of information resulting from the meeting to be helpful to the review effort.

Project No. 692

Attachment: Attendance List

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**ATTENDANCE LIST FOR**  
**MEETING BETWEEN NRC AND ABB-CE ON COMMON QUALIFIED PLATFORM**  
**SEPTEMBER 30, 1999**

NAME	ORGANIZATION
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Angelo Marinos	NRC/NRR/DE/EEIB
Matt Chiramal	NRC/NRR/DE/EEIB
José Calvo	NRC/NRR/DE/EEIB
Francisco Gallardo	Censeto de Seguriuad Nuclear (Spain), Assignee to NRC/NRR/DE/EEIB
Jack Cushing	NRC/NRR
Marty Ryan	ABB Nuclear Automation
Mark Stofko	ABB Nuclear Automation
Warren Odess-Gillett	ABB Nuclear Automation
Alfred Hyde	ABB
Steve Lurie	ABB/CEOG