

August 29, 2000

Dr. J. C. Niel
Department d'Evaluation de Surete
Institut de Protection et de Surete
Nucleaire (IPSN)
B.P. 6 - 92265 Fontenay-aux-Roses
CEDEX
France

Dear Mr. Niel,

I am enclosing a proposed Plan of Work for Mr. Pascal Regnier for his assignment at NRC. We anticipate that he will split his one year, equally, between the Office of Nuclear Reactor Regulation and the Office of Nuclear Regulatory Research. Please review the proposed program and provide any comments.

We are hopeful of having Mr. Regnier's processing complete so that he may start around October 1, 2000.

Sincerely,

/RA/

Howard J. Faulkner
Office of International Programs

Enclosure: As stated

cc: J.P. Clausner, DSIN
T. Foult, IPSN

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*Previously concurred

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OFFICE	OIP/Team A	OIP	NRR	RES
NAME	*MCarter	*HFaulkner	MCullingford	*SZukiewicz
DATE	08/23/00	08/29/00	08/23/00	08/28/00

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PROPOSED PLAN OF WORK

NRR

1. Become familiar with the applicable software standards used by US industry, such as IEEE 603, IEEE 7.4.3.2, and Branch Technical Position 14 from the NRC Standard Review Plan (SRP).
2. Assist in the review of the Triconex Tricon PLC digital I&C upgrade system. Evaluate portions of the design and provide input to the Safety Evaluation Report (SER).
3. Become familiar with the two digital I&C upgrade systems previously reviewed, the Siemens Teleprem XS and CE Common Q, with particular attention to the SER sections on software. Compare these with the software sections of the SER on the Tricon PLC for consistency in requirements, software quality, and level of detail.
4. Review the vendor supplied information on the Triconex Tricon PLC, and compare the software qualifications to the applicable standard. Provide written input to the lead reviews on the quality of Triconex software and firmware, with particular attention to:
 - a. Approach to verification and validation (V&V) of software.
 - b. Levels of independence of the design teams and the V&V teams.

RES

1. Month 7 through Month 8: Software Development and Safety Standards

Review and evaluate the current international, industrial, professional society, industry, and military standards for software development and safety. Write a report that compares and contrasts the standards with the NRC positions. Give a presentation on this work.
2. Month 9 through Month 11: COTS Operating Systems

Investigate the characteristics and performance of the COTS operating system Windows as used in real-time embedded digital control and monitoring applications in other industries. Propose the technical basis for tests to determine the strengths and weaknesses of this COTS operating system. Propose the technical basis for methods to evaluate operational history and determine adequacy for use in risk significant nuclear power plant systems. Write a report and give a presentation on this work.
3. Month 12: Digital System Dependability Analysis Using Probabilistic Fault Injection

Become familiar with current technology of digital systems safety assessment by being a resident at one of RES contractors in this field. Participate in the formulation and test of a case study.