June 24, 2010

MEMORANDUM TO: John R. Jolicoeur, Chief
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Eric E. Bowman, Project Manager **/RA/**
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MAY 26, 2010, PARTIALLY CLOSED MEETING WITH LOCKHEED MARTIN CORPORATION, NUCLEAR SYSTEMS & SOLUTIONS, TO DISCUSS INFORMATION REGARDING A POTENTIAL TOPICAL REPORT SUBMISSION

On May 26, 2010, a Category 2 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Lockheed Martin Corporation (LMCO), Nuclear Systems & Solutions (NS&S) at NRC Headquarters, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss information regarding a potential topical report submission. A list of attendees is provided as Enclosure 1.

Scope

NS&S presented details on the planned topical report submittals for their safety system development process and platform. A nonproprietary version of their presentation is available in the Agencywide Document Access and Management System (ADAMS) as Accession No. ML101720034. NS&S stated that they have an industry sponsor for their platform. The NRC Staff advised NS&S to forward the letter of sponsorship so that it can be docketed for consideration of review priority.

Product Development Process/Quality Assurance

NS&S informed the NRC Staff that they were currently undergoing a Capability Maturity Model Integration (CMMI) inspection for certification. NS&S follows the CMMI level 5 processes. The NRC Staff advised NS&S that CMMI certification is not currently considered in the NRC review processes. The NRC Staff further advised NS&S that their topical report should address the status of their quality assurance program with respect to meeting the guidelines of ANSI/ASME NQA-1-1983, "Quality Assurance Program Requirements for Nuclear Power Plants," and its addenda as endorsed by Regulatory Guide (RG) 1.28, "Quality Assurance Program Requirements (Design and Construction)." This notation should include whether NS&S is an approved supplier under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50,

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Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and the identity of the entity that performed the satisfactory audit of their program.

Platform Design and Process

NS&S provided a list of key issues for the platform review as follows:

1. Potential software common-cause failure. At the time of the meeting, NS&S had not decided whether they would seek approval of built-in diversity. The NRC Staff advised that the Wolf Creek safety evaluation for Main Steam and Feedwater Isolation System (MSFIS) was plant specific, but the limitations for accepting a built-in diversity were clearly explained in it.
2. Inter-channel communication. NS&S does not propose to include inter-channel communication in the topical report.
3. Cyber Security. The NRC Staff advised NS&S that cyber security would no longer be reviewed as part of 10 CFR Part 50 reviews. Site specific cyber security will be handled by the Regional Offices per 10 CFR 73.54 and the guidance of RG 5.71, "Cyber Security Programs for Nuclear Facilities." 10 CFR Part 50 reviews will address the secure development and operating environment as explained in the Regulatory Information Conference (RIC) 2010 presentation. In addition, the NRC Staff expects to issue for public comment Draft Revision 3 of RG 1.152 (DG-1249), "Criteria for Digital Computers in Safety Systems of Nuclear Power Plants," in the very near future and NS&S could use it for developing their secure platform.
4. Communication between safety and non-safety systems. NS&S indicated that they plan to have one-way communication from safety to non-safety systems. The NRC Staff noted that the system has the capability for two-way communications, so the topical report will need to address the measures taken to restrict the communications to one-way.
5. Dedication of commercial off-the-shelf (COTS) equipment. NS&S stated that all COTS hardware and any safety related software will be dedicated using the guidance of Electric Power Research Institute (EPRI) technical report (TR) 107330, "Generic Requirements Specification for Qualifying a Commercially Available [Programmable Logic Controller] PLC for Safety-Related Applications in Nuclear Power Plants," along with the associated safety evaluation. The NRC Staff advised that any commercial software in safety related applications must also follow the guidance of EPRI TR-106439, "Guideline on Evaluation and Acceptance of Commercial-Grade Digital Equipment for Nuclear Safety Applications," and the associated safety evaluation.

NS&S stated that they follow the guidance of IEEE Standard (Std.) 1012-1998, "IEEE Standard for Software Verification and Validation Plans," as endorsed by RG 1.168, Revision 1, "Verification, Validation, Reviews, and Audits for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," IEEE Std. 1042-1987, "IEEE Guide to Software Configuration Management," as endorsed by RG 1.169, "Configuration Management Plans for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," and IEEE Std. 1074, "IEEE Standard for Developing Software Life Cycle Process," as endorsed by RG 1.173, "Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants." NS&S will maintain any software used for testing under configuration control and will track by version number.

The NRC Staff asked NS&S to clarify and expand on how the independent verification and validation (IV&V) is carried out such that independence of personnel assigned to IV&V activities is maintained. This was not explained fully during the meeting.

NS&S stated that equipment qualification will be based on qualification of a fully loaded chassis. Two chassis will be used for the test. NS&S intends to follow the regulatory guidance for equipment qualification tests including the guidance of EPRI TR 107330. The rack in which the chassis is to be mounted is not qualified as part of the equipment qualification testing.

The NRC Staff requested that NS&S include the application guidance document as one of the documents to be provided as part of the topical report. This will provide the reviewing staff and the future users with a better understanding of how a safety related nuclear application will be implemented in the proposed system. NS&S agreed to this request.

NS&S agreed to provide a mapping document to correlate the guidance of Draft Digital Instrumentation and Controls Interim Staff Guidance (DI&C-ISG-06), "Licensing Process," Enclosure 2 to ADAMS Accession No. ML093491083. NS&S indicated that they may request another phase zero meeting to go over the document list. To conserve resources and to facilitate a quicker review, the NRC Staff suggested that NS&S provide the mapping document for review and if a common understanding is not achieved, another meeting may be requested.

Topical Reports

NS&S indicated that they plan to submit two separate topical reports, one for the development process and one for the platform. The NRC Staff replied that it would be more appropriate for them to submit one topical report to cover both the process and the platform; if NS&S uses the same processes for a future application they could refer to the processes used in the accepted topical report and the associated safety evaluation. NS&S agreed to submit a single topical report.

Miscellaneous
No members of the public were in attendance.

Please direct any inquiries to me at 301-415-2963, or Eric.Bowman@nrc.gov.

Enclosure:
List of Attendees

cc w/encls: See next page

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ADAMS ACCESSION NO.: ML101730102(Package) ML101730059 (Summary) ML101250046 (Notice) ML101720034 (Presentation) NRR-106 * By e-mail

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DATE	06/22/10	06/22/10	06/22/10	06/24/10	06/24/10

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Date: June 24, 2010

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PARTIALLY CLOSED MEETING WITH LOCKHEED MARTIN

NUCLEAR SYSTEMS & SOLUTIONS TO DISCUSS INFORMATION

REGARDING A POTENTIAL TOPICAL REPORT SUBMISSION BY LMCO-NS&S

MAY 26, 2010

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ENCLOSURE