

July 25, 2016

MEMORANDUM TO: Kerri Kavanagh, Chief
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Division of Construction Inspection
and Operational Programs
Office of New Reactors

FROM: Andrea Keim, Reactor Operations Engineer **/RA/**
Quality Assurance Vendor Inspection Branch-3
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and Operational Programs
Office of New Reactors

SUBJECT: SUMMARY OF THE NUCLEAR REGULATORY COMMISSION
WORKSHOP ON VENDOR OVERSIGHT

On June 23, 2016, the Office of New Reactors (NRO), Division of Construction Inspection and Operational Programs (DCIP), hosted the Nuclear Regulatory Commission (NRC) Workshop on Vendor Oversight in St. Louis, Missouri. This workshop followed the Nuclear Procurement Issues Committee (NUPIC) vendor meeting to enable maximum participation by suppliers to the nuclear industry. The NRC Vendor Workshop included a keynote address by NRO Office Director, Jennifer Uhle, as well as presentations by members of the NRC staff, NUPIC, the Nuclear Energy Institute (NEI), the Electric Power Research Institute (EPRI), reactor licensees, and nuclear vendors. This was the 5th Workshop on Vendor Oversight.

The Workshop on Vendor Oversight included plenary discussions on such issues as industry guidance for commercial-grade dedication (CGD), industry guidance on Part 21 evaluation and reporting, Counterfeit, Fraudulent, and Suspect Items (CFSI), and Vendor Implementation of Cybersecurity Requirements. The workshop also included two break-out sessions on topics such as dedication of design and analysis computer programs, implementation of dedication guidance, reverse engineering, NRC's expanded recognition of International Laboratory Accreditation Cooperation (ILAC) accreditation process, and procurement documentation.

The audience included approximately 400 attendees representing companies and organizations from 8 countries including vendors, industry groups, government regulatory agencies, and both foreign and domestic utilities.

A list of registered attendees is provided in Enclosure 1. The list of speakers is provided in Enclosure 2. All presentations are available in the NRC's Agencywide Documents Access and Management System (ADAMS) at accession numbers ML16159A125, ML16159A126,

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ML16159A127, and ML16159A118 for the morning presentation slides. Track 1 presentation slides are at ADAMS accession numbers ML16159A131, ML16159A130, ML16159A132, and ML16159A133. Track 2 presentation slides are at ADAMS accession numbers ML16159A160, ML16159A161, ML16159A159, and ML16159A162. The presentations are also available on the NRC public website at <http://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-oversight.html>.

Morning Plenary Session

Ms. Kerri Kavanagh, Chief, Quality Assurance Vendor Inspection Branch-3 (QVIB-3), moderated the session, gave opening remarks, and introduced the speakers of the plenary session including the keynote speaker, Dr. Jennifer Uhle. Ms. Kavanagh welcomed the attendees to the 2016 Workshop and provided remarks about the responsibilities associated with the licensee's oversight of vendors and the NRC's inspection of vendors. A telephone bridge-line was available to remote attendees.

Dr. Jennifer Uhle, Director of NRO, provided the keynote speech to the attendees about the importance of maintaining confidence in the NRC as a competent, independent regulator while working cooperatively with stakeholders. She provided remarks on the role of the vendor and their importance to the nuclear industry. In addition, she touched on topics such as safety culture, and modular construction of new reactors. She also provided remarks for some of the topics for the day's workshop, such as, reverse engineering, CGD, CFSI, and cyber security.

Mr. Marc Tannenbaum, Technical Leader, EPRI, presentation covered updated guidance on CGD in EPRI technical report 3002002982. Mr. Tannenbaum highlighted scenarios and clarification of commercial-grade dedication using the updated guidance.

Mr. Marc Nichol, Senior Project Manager for Quality Issues and Licensing Actions, NEI discussed NEI 14-09, Revision 1, "Guidelines for Implementation of 10 CFR Part 21 Reporting of Defects and Noncompliance," which was submitted to the NRC in February of 2016. This document provides industry guidance on 10 CFR Part 20 evaluation and reporting.

James Gaslevic, Reactor Operations Engineer, Human Performance, Licensing and ITAAC Branch, provided a presentation on CFSI. Mr. Gaslevic discussed NRC documents that address CFSI and highlighted existing regulations and how they apply to CFSI. Specifically that vendors, suppliers, and nuclear power plants must verify the quality of items destined for safety-related functions in NRC-regulated activities. Verification includes extensive inspections of an item's critical physical characteristics, combined with rigorous performance testing, to provide reasonable assurance that parts will perform their intended safety functions when required to do so. The presentation included how licensees and vendors can report CFSI to the National Intellectual Property Rights Coordination Center (IPR Center).

Ms. Stacy Smith, Reactor Operations Engineer, QVIB-1, closed the morning session with a presentation on the role of vendors in the prevention of cyber threats. Ms. Smith's presentation addressed vendor implementation of cyber security requirements.

The afternoon included two tracks with topics as discussed below:

Track 1: Part 21 and Commercial-Grade Dedication Guidance

Mr. Richard McIntyre, Acting Chief, QVIB-2, moderated the sessions, providing opening remarks, and introduction of the panelists for Sessions A and B. A telephone bridge-line was available to remote attendees.

Session A: Dedication of Design and Analysis Software and Regulatory Guide 1.231, "Acceptance of Commercial-Grade Design and Analysis Computer Programs for Nuclear Power Plants."

Mr. Marc Tannenbaum of EPRI, and Mr. George Lipscomb, Reactor Operations Engineer, QVIB-1, delivered presentations on the regulatory perspective and industry perspective of the necessary elements that a CGD program needs to have when dedicating design and analysis computer programs. Mr. Tannenbaum's presentation explained how the current guidance in Revision 1 to EPRI NP-5652 and TR-102260, "Plant Engineering: Guideline for the Acceptance of Commercial-Grade Items In Nuclear Safety-Related Applications," provides a better explanation of the process that can be used for the acceptance of commercial-grade computer programs using the dedication process. During his presentation, Mr. Tannenbaum explained how to use this guidance and provided examples. The examples included sections of the guidance that the user can make reference to in order to determine if the commercial-grade computer program can be dedicated, as well as the process for dedication. Mr. Lipscomb's presentation outlined how the staff evaluated and endorsed the latest EPRI guideline on dedication of computer programs. Mr. Lipscomb highlighted the importance of Regulatory Guide (RG) 1.231, which approves Revision 1 of EPRI Technical Report 1025243, "Plant Engineering: Guideline for the Acceptance of Commercial-Grade Design and Analysis Computer Programs Used in Nuclear Safety-Related Applications," with respect to acceptance of commercial-grade design and analysis computer programs associated with basic components for nuclear power plants.

Session B: Implementing Dedication Guidance

Mr. Paul Prescott, Senior Reactor Operations Engineer, QVIB-3, Mr. Marc Tannenbaum of EPRI, and Mr. John Simmons of Luminant Power delivered presentations on the regulatory perspective and industry perspective of how to implement a CGD program. Mr. Prescott's presentation discussed the current status of the Part 21 rulemaking and the purpose of Draft Regulatory Guide (DG) – 1292 "Dedication of Commercial-Grade Items for Use in the Nuclear Power Plants." Mr. Prescott discussed the Commission's decision to stop the rulemaking process of Part 21, and what the staff is doing to compensate for this decision. Mr. Prescott explained the current status of DG-1292 and how this RG, once issued, will approve for use Revision 1 to NP-5652 and TR-102260. Mr. Tannenbaum's and Mr. Simmons' presentations discussed how to implement the new EPRI guidance (Revision 1 to NP-5652 and TR-102260) on CGD and provided examples of how and when to implement the guidance for CGD on an item or service.

Track 2: Key Vendor Issues

Mr. Greg Galletti, Senior Reactor Operations Engineer, QVIB-1, moderated the sessions, providing opening remarks, and introduction of the panelists for Sessions A and B. A telephone bridge-line was available to remote attendees.

Session A: Reverse Engineering

Mr. Jeff Jacobson, Senior Reactor Operations Engineer, QVIB-1, and Mr. Tad Gray of Nova Machine Products Cooperation, delivered presentations on the regulatory perspective and industry perspective on reverse engineering, respectively. Mr. Jacobson's presentation discussed the performance of equivalency evaluations, the responsibility for the development of design requirements, and NRC identified weaknesses in performing reverse engineering. During his presentation, Mr. Jacobson explained that all though there are no regulatory requirements that specifically address reverse engineering, the process is covered under Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Mr. Gray's presentation outlined the typical process for reverse engineering. Mr. Gray's presentation highlighted the importance of understanding the complexity of the item being reverse engineered and the importance of identifying the roles and coordination between the licensee and supplier.

Session B: ILAC and Procurement

Mr. Yamir Diaz-Castillo, Reactor Operations Engineer, QVIB-2, and Mr. Earl Mayhorn, of AmerenUE, delivered presentations on the NRC's expanding recognition of the ILAC accreditation process and ILAC customer procurement order issues, respectively. Mr. Diaz-Castillo's presentation discussed the regulatory position on the use of ILAC accreditation in lieu of performing a commercial-grade survey as part of the dedication. Mr. Diaz-Castillo discussed the 2016 Regulatory Issue Summary (RIS-2016-01), the Callaway Plant Unit 1 Safety Evaluation Report (SER), and provided clarification of continued use of the Arizona Public Service SER. In addition, Mr. Diaz-Castillo provided clarification on the NRC's position on the QA program requirements for international National Metrology Institute (NMI) as suppliers of primary reference standards and calibration services. Mr. Mayhorn's presentation discussed industry oversight of the ILAC process, revisions to the NUPIC checklist for CGD, and examples of procurement issues/operating experience involving implementation of NEI 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1.

Afternoon Plenary Session

Ms. Kerri Kavanagh, Chief, QVIB-3, provided closing remarks and opened the floor for questions to be answered by the panelists table. Several questions were received and answered during this session.

Summary and Conclusions

Several key messages were developed from the interactions during the workshop:

- Rigorous vendor oversight is crucial to maintaining the integrity of the global supply chain and nuclear safety. This oversight should start with you and your customers;
- A robust and positive Safety Culture promotes quality in the global supply chain;
- Comprehension and compliance with codes, standards, and quality requirements forms a foundation to the work you carry out;

- Vigilance is key in preventing the entry of CFSI into the global supply chain; and
- The licensee is ultimately responsible for quality.

Consistent with the four previous vendor workshops, the NRC staff received over 100 questions throughout the day, responding to all of these during the designated question and answer portions of each session, as well as the final plenary session at the close of the workshop. At this time, the NRC staff is not planning to provide additional written responses to these answered questions on the public website. Interested parties who would like further clarification on any of the topics discussed during the workshop are encouraged to utilize the Frequently Asked Questions section of the NRC public website, or to contact Andrea Keim at andrea.keim@nrc.gov to solicit more detailed responses.

In an effort to enhance the next vendor workshop, the NRC solicited suggestions from the attendees. The NRC included a solicitation for suggested topics at future workshops in the workshop program. NRC Public Meeting Feedback forms were also distributed to attendees, and numerous public meeting feedback forms were received at the close of the workshop. The general consensus was that the attendees appreciated the NRC being proactive in explaining its regulations and expectations for nuclear vendors. In addition, the attendees expressed interest in the NRC's continued conduct of similar outreach activities and suggested that the NRC continue to coordinate its workshop with the annual NUPIC Vendor Meeting. Additional feedback forms are expected by mail. These feedback forms will be used to improve future vendor workshops and to focus on the appropriate topics at future workshops.

In summary, the workshop brought together regulated utilities, government agencies, nuclear component vendors, and other interested stakeholders to discuss such issues as vendor oversight for new construction; safety culture; CGD; software QA; and CFSI.

Enclosures:

1. List of Attendees
2. List of Speakers

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NRC Workshop on Vendor Oversight for New Reactor Construction Mailing List

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NRC Workshop on Vendor Oversight
June 23, 2016

Registered Attendee List

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Hussain	Al Jaber	Emirates Nuclear Energy Cooperation
Christopher	Alar	Super Radiator Coils
Harold	Alewine	Duke Energy
Gregory	Alexander	IPS Cleveland
Carmen	Alonso	GE Hitachi Nuclear Energy
Tanya	Ambrose	International Quality Consultants
Changyun	An	KoFONS (Korea Foundation of Nuclear Safety)
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David	Bannister	ENEC
Eva	Barg	Electronuclear
Ken	Barley	Bruce Power
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Russell	Bastyr	Westinghouse Electric Company
Scott	Bauer	STARS Alliance
Jeff	Baysinger	Tampa Armature Works (TAW)
George	Beidler	Whiting Corporation
Aixa	Belen	US NRC
Sarah	Berardini	Archon Engineering, PC
Sham	Beri	PGE Trojan Plant
Jacob	Billingsley	PPG Protective and Marine Coatings
Peter	Blattner	KTA-Tator
Jacob	Bolden	Ellis & Watts Global Industries, Inc.
Tracy	Bolt	AZZ/Nuclear Logistics
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Brad	Boothe	Acuity Quality Assurance
Scott	Borland	HydroAire Service Inc.
Eric	Brand	Mirion Technology (IST) Corporation
Steven	Braun	BNL Industries, Inc.
David	Breneman	Dominion
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John	Carlson	Tampa Armature Works
Robert	Carvel	Pacific Gas & Electric
Terry	Casteel	Toshiba America Nuclear Energy Corp
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Takayoshi	Hashimoto	Toshiba
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Joe	Robbins	Consolidated Power Supply
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Christopher	Robinson	Flowserve
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Daniel	Shaw	Henkel
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Roger	Sims	JENSEN HUGHES, Inc.
Stacy	Smith	US NRC
Tyson	Smith	Winston & Strawn LLP
Lori	Smith	Ritepro Corporation
Ed	Smithers	Mistras Group
Dennis	Snow	Xylem Inc.
Hyong Mok	Son	KHNP
David	Soward	Xcel Energy
Doug	Sparr	Ameren
Marikay	Speckert	Carboline Company
John	Speyer	Howden North America
William	Stendebach	Burns & McDonnell Engineering Company
Scott	Stewart	Southern Nuclear Operating Company, Inc
Thomas	Stomberski	Schneider Electric - Gutor Technology
Ken	Stoops	Becht Engineering Co.
Ziad	Subh	Global Quality Assurance, Inc.
Phillip	Sullivan	STP Nuclear Operating Company
Matthew	Sunseri	Zeus Enterprises LLC
Robert	Sweeney	IBEX
Mike	Swirad	Valcor Engineering Corp.
Anthony	Sykes	TECO-Westinghouse Motor Company
Gary	Szabatura	AREVA Inc.
Amy	Szymanski	United Controls International
Les	Taggart	AZZ NLI
Masaya	Takatsugu	Mitsubishi Heavy Industries, LTD.
Marc	Tannenbaum	Electric Power Research Institute (EPRI)
Joseph	Tapia	Mitsubishi Nuclear Energy Systems
Lauri	Tarkkonen	Wartsila
Pranavi	Tella	Ameren Missouri/Callaway Plant
Robert	Thompson	FENOC
Christian	Tiani	Dynamic Solutions USA, Inc
Clayton	Timbs	Cameron a Schlumberger Company
Kazuyuki	Tomoda	IHI Corporation
Andre	Torralba	Iberdrola
Karla	True	Fairbanks Morse Engine
Robert	Tuttle	Devar Inc.
Andreas	Uebleis	Hilti Corporation
Jennifer	Uhle	US NRC
Herb	Vahldick	Atkore International

Patricia	Valdez	APS
Martin	Van Staden	X-Energy
Doug	VanTassel	ATC Nuclear
Doug	Vickery	DuBose National Energy Services
Brian	Vickery	Duke Energy
Roberto	Villegas	Electric Power Research Institute (EPRI)
Janet	Vining	ATS
Richard	VonRoble	Theseus Professional Services
Hung	Vu	AmerenUE
Doug	Walker	Energy and Process Corp
Timothy	Walsh	PCI Promatec
Marie-Luise	Ward	Kalsi Engineering, Inc.
William	Ware	Southern Nuclear Operating Co.
Robert (Steve)	Wasz	Atkore International
Kenneth	Watkins	TransWare Enterprises Inc.
Dennis	Weaver	Greenberry Fabrication
Josh	Weil	Sigma
Peter	Wenaweser	Hilti Corp.
Tara	Werner	Westinghouse Electric Company
Troy	Wetzel	American Crane & Equipment Co
Bruce	Wheeler	NuSource LLC
Kevin	Wheelwright	Zachry Nuclear Engineering, Inc.
Darrell	White	Winston and Strawn
David	White	AREVA
Ryan	Whitford	Asnger Industrial
Nicola	Willey	Electric Motor & Contracting Co Inc
Tracy	Wills	AECOM
Nate	Wilson	Homewood Energy Services
Don	Wiwczar	Zachry Nuclear Engineering Inc.
Robert	Wright	Entergy Services, Inc.
Douglas	Yates	Areva Federal Services
Ok Gi	Ye	KHNP
Cernal	Yilmaz	Schneider Electric/Gutor Electronic LLC
Sam	Yousif	Dynamic Solutions USA, Inc
Frank	Yurich	American Crane & Equipment Corporation
Jill	Zenner	Fauske & Associates, LLC
Jian	Zhou	ASCO Valve
Gary	Zink	STP Nuclear Operating Company

List of Speakers

Speaker	Affiliation
Kerri Kavanagh	U.S. Nuclear Regulatory Commission
Jennifer Uhle	U.S. Nuclear Regulatory Commission
James Gaslevic	U.S. Nuclear Regulatory Commission
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Richard McIntyre	U.S. Nuclear Regulatory Commission
Greg Galletti	U.S. Nuclear Regulatory Commission
Stacy Smith	U.S. Nuclear Regulatory Commission
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John Simmons	Luminant Power
Tad Gray	Nova Machine Products Corporation
Earl Mayhorn	AmerenUE