February 15, 2008

MEMORANDUM TO: Michael L. Scott, Chief
Safety Issues Resolution Branch
Division of Safety Systems
Office of Nuclear Reactor Regulation

FROM: Joseph A. Golla, Project Manager ***/RA/***
Generic Communications and Power Uprate Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF FEBRUARY 1, 2008, PHONE CALLS WITH LICENSEES CONCERNINIG SUMP STRAINER HEAD LOSS TESTING

On February 1, 2008, phone calls were held with licensees concerning outstanding issues related to head loss testing of their modified sump strainers. The calls involved certain licensees who are clients of Performance Contracting, Inc. (PCI) and Alion Science and Technology. These vendors are performing mockup head loss testing of their clients' containment sump strainers. The purpose of the calls was to discuss issues with the vendors' test procedures that were raised by NRC technical staff members. Two phone calls were made, one with licensee-clients of PCI and one with licensee-clients of Alion. Mr. William Ruland, Director, Division of Safety Systems (DSS), Office of Nuclear Reactor Regulation, led the call. Several other staff members were present and also participated in the call. Phone call participants are listed in the enclosures to this memorandum.

The DSS Division Director initiated each call with talking points that included an introduction, background, key technical issues, and conclusion. These are enclosed with this memorandum. For each call, after the talking points were made there was general discussion. The conclusions reached from the discussion for each call were essentially the same. It was decided that a more rigorous method for the vendors and licensees to reply to the staff's concerns was needed. Also, Mr. John Butler of the Nuclear Energy Institute, Director, Safety Focused Regulation, stated that while each issue will be addressed, the manner of the resolution for some of the issues may be plant specific and other issues may be addressed in a manner that is different than that currently being pursued by NRC staff. Mr. Butler indicated that he would work with PCI, Alion, and their licensee-clients to develop a method of communicating proposed resolutions, including their justification, to the NRC.

Enclosure 1: NRC Talking Points for PCI Phone Call
Enclosure 2: NRC Talking Points for Alion Phone Call
Enclosure 3: List of Participants for PCI Phone Call
Enclosure 4: List of Participants for Alion Phone Call

NRC/DSS Talking Points for PCI Phone Call February 1, 2008

Introduction

- The NRC's schedule for completing corrective actions in response to Generic Letter 2004-02 was December 31, 2007
    - (However, 62 of 69 units have been approved for extensions)
- Currently, it is February 2008, and the staff has a number of outstanding issues associated with certain vendor head loss test protocols, including the PCI protocol
- To complete the resolution of GSI-191 in a timely manner, expeditious action is necessary to resolve the outstanding issues on vendor testing protocols

Background

- Initial meeting on new PCI test approach occurred in April 2007
- Series of 10 phone calls on the new test approach occurred between May and September 2007.
- Staff provided detailed technical feedback on the new PCI test approach during the meeting and subsequent phone calls
- Although PCI and the staff reached agreement in many areas of the test procedure at the conclusion of interactions, disagreement remained on a number of key issues.
- Testing with the new PCI protocol, which was originally expected to begin in late August 2007, actually began in January 2008
    - Delays due to construction of new test facility, collecting plant-specific information from plants needed to perform testing, and addressing staff issues
- Staff observation of initial testing with new PCI test protocol led to identification of outstanding issues
    - Some issues were known disagreements based on earlier phone calls (e.g., thin-bed test procedure)
    - Some issues were items the staff identified as potential issues that could only be evaluated through test observation (e.g., preparation of fine fibrous debris)
    - Some issues were associated with parts of the test protocol that PCI had not discussed with the staff during the phone calls (e.g., assumed plant-specific fibrous debris size distribution used for testing)

Key Technical Issues with Testing Protocol

- The thin-bed test protocol is inconsistent with the staff's head loss review guidance, chemical effects review guidance, and testing experience from other vendor facilities
    - The $1/8^{th}$-inch fiber bed thickness criterion has been demonstrated to be inadequate for chemical testing
    - Thin bed testing should not be truncated prior to the addition of particulate and chemical debris
- The plant-specific percentage of fibrous fines specified for the test debris was significantly lower than guidance in NEI 04-07 and the staff's SE
- The process used to prepare the test debris appeared to have not generated test debris that is consistent with the size categories specified in NEI 04-07 and the staff's SE, due to overly concentrated debris slurries and agglomeration
- Additional issues associated with other aspects of the test protocol may be significant for some plants (e.g., ensuring no boreholes prior to temperature extrapolation and computational fluid dynamics modeling)

Conclusion

- Number and significance of outstanding issues makes it difficult to conclude test results are acceptable, particularly for plants with low net positive suction head safety margins
- It is not clear that adequate progress is being made to resolve outstanding issues
- Expeditious resolution of outstanding issues is needed to support the timely closure of GSI-191

NRC/DSS Talking Points for Alion/VUEZ Phone Call February 1, 2008

Introduction

- The NRC's schedule for completing corrective actions in response to Generic Letter 2004-02 was December 31, 2007
    - (However, 62 of 69 units have been approved for extensions)
- Currently, it is February 2008, and the staff has a number of outstanding issues associated with certain vendor head loss test protocols, including the Alion/VUEZ protocol
- To complete the resolution of GSI-191 in a timely manner, expeditious action is necessary to resolve the outstanding issues on vendor testing protocols

Background

- Alion provided test procedures for the VUEZ integrated chemical effects head loss testing in July 2007
- The staff provided feedback on these test procedures in phone calls during September and October 2007
- The staff observed testing performed at VUEZ for Indian Point and Three Mile Island during November 2007
- A conference call was held with Alion and affected licensees in November 2007, and a list of outstanding issues on the VUEZ testing was provided to Alion and licensees
- Outstanding issues were further discussed with Alion during the audit of Indian Point that occurred between December 3—6, 2007
- No significant interaction has occurred on the outstanding issues since the Indian Point audit
    - Approach for licensees/vendor to resolve issues is unclear
    - Timeline for resolving issues is unclear

Key Technical Issues with Testing Protocol

- Staff identified a significant number of outstanding issues associated with both chemical and non-chemical aspects of the testing
- Among the most significant non-chemical issues:
    - Testing experience has shown that head loss results with poured debris beds formed at VUEZ are not representative of debris beds formed under prototypical plant flow conditions
    - The methodology used to scale the VUEZ head loss results using a bump-up factor has not been supported with an adequate technical basis
    - The size distribution of the debris added to a VUEZ test observed by the staff contained agglomerated clumps that were not consistent with the plant debris transport calculation and which led to lower head loss than expected with representative fine debris
- Among the most significant chemical issues:
    - Demonstrating that a conservative pH profile was chosen for the test with respect to both material corrosion and chemical precipitate formation
    - Ensuring representative interaction between the fluid in the test tank and the materials added to the tank in sample baskets

Conclusion

- Number and significance of outstanding issues makes it difficult to conclude test results are acceptable, particularly for plants with low net positive suction head safety margins
- It is not clear that adequate progress is being made to resolve outstanding issues
- Expeditious resolution of outstanding issues is needed to support the timely closure of GSI-191

List of Participants on Phone Call with PCI Licensee-Clients

Brian Holderness	AmerenUE (Callaway)
Tim Hermit	AmerenUE (Callaway)
Matt Brandes	AmerenUE (Callaway)
Jimmy Seawright	Luminant (Comanche Peak)
John Meyer	Luminant (Comanche Peak)
Chuck Feist	Luminant (Comanche Peak)
Ken House	South Texas Project
Wayne Harrison	South Texas Project
Wes Schultz	South Texas Project
Maurice Dingler	WCNOC (Wolf Creek)
Ron Holloway	WCNOC (Wolf Creek)
Terry Garrett	WCNOC (Wolf Creek)
Brian Dunn	FPL (St. Lucie 2)
Pete Hopkins	FPL (St. Lucie 2)
Bruce Bisler	FPL (St. Lucie 2)
George Goralski	Palisades
Alan Blind	Palisades
Tom Kendall	Point Beach
Craig Butcher	Point Beach
Ken Petersen	STARS
Jim Bleigh	PCI
John Butler	NEI
William Ruland	NRC
John Lehning	NRC
Ralph Architzel	NRC
Matt Yoder	NRC
Joe Golla	NRC
Mohan Thadani	NRC

Enclosure 3

List of Participants on Phone Call with Alion Licensee-Clients

Paul Leonard	AEP (Cook)
Paul Scoepf	AEP (Cook)
Tom Orlando	Entergy (Indian Point)
Pat Conroy	Entergy (Indian Point)
Roger Waters	Entergy (Indian Point)
Lee Cerra	Entergy (Indian Point)
Val Cambiganis	Entergy (Indian Point)
Steve Munoz	Entergy (Indian Point)
Tom McCaffrey	Entergy (Indian Point)
Wendi Rapisarda	Exelon (TMI)
Mark Manoleras	First Energy (Beaver Valley)
Mike Teast	First Energy (Beaver Valley)
Vic Linnenbom	First Energy (Beaver Valley)
Ted Sockaci	First Energy (Beaver Valley)
Brian Dunn	FPL (St. Lucie 1, Turkey Point)
Pete Hopkins	FPL (St. Lucie 1, Turkey Point)
Greg Fergusen	Entergy (Waterford)
Ken Johnson	SCE (San Onofre)
Mehrdad Hojati	SCE (San Onofre)
Pete Wilkens	SCE (San Onofre)
Ed Kimoto	SCE (San Onofre)
Jim Furman	GE
Joe Betsill	GE
John Butler	NEI
William Ruland	NRC
John Lehning	NRC
Ralph Architzel	NRC
Joe Golla	NRC
Matt Yoder	NRC
Mohan Thadani	NRC

Enclosure 4

Memorandum to Michael L. Scott from Joseph A. Golla

SUBJECT: SUMMARY OF FEBRUARY 1, 2008, PHONE CALLS WITH LICENSEES CONCERNING SUMP STRAINER HEAD LOSS TESTING

ADAMS ACCESSION NUMBER: ML080370262

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DATE	02/06/2008	02/06/2008	02/10/2008	02/07/2008	02/15/2008

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