



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

June 23, 2016

**LICENSEE:** Union Electric Company

**FACILITY:** Callaway Plant, Unit 1

**SUBJECT:** SUMMARY OF JUNE 1, 2016, PUBLIC MEETING WITH UNION ELECTRIC COMPANY TO DISCUSS GENERIC SAFETY ISSUE 191 AND DEBRIS TESTING PLAN FOR CALLAWAY, UNIT 1 (CAC NO. MC4671)

On June 1, 2016, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Union Electric Company, the licensee, at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss the licensee's debris testing plan to support technical resolution of Generic Safety Issue 191 for Callaway Plant, Unit 1. The meeting notice and agenda, dated May 17, 2016, are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML16138A297. A list of attendees is provided as Enclosure 1.

The licensee's presentation, available at ADAMS Accession No. ML16152A123, included the plan's Risk-Informed Approach, Plant Characteristics, Test Debris Loads, Test Plan Chemistry, and the plan's Testing Process.

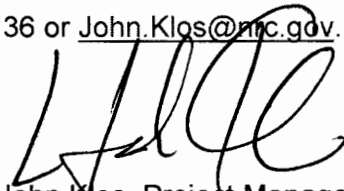
The NRC staff queried the licensee about numerous points related to the debris test plan. The staff's questions and corresponding licensee responses are as shown in the following table.

<b>NRC Staff Question</b>	<b>Licensee Response</b>
What is the proposed lab schedule and sequence for testing?	See the schedule shown on sheet 8 of the presentation.
How does the test plan account for submergence?	The licensee discussed pump operation related to submergence and tank water level.
What is the square footage of the strainer?	3,300 ft <sup>2</sup> per strainer.
How are the curbs accounted for in the test plan analysis?	No credit is taken for the curbs in the transport analysis.
When is small fiber added during the test?	Small fiber is after all fine fiber. Some particulate may be added with the small fiber.
Are sprays considered on for transport analysis?	Yes, for a conservative transport analysis.
What is the containment spray setpoint?	The setpoint is less than 4 inches.
What were the issues that occurred with the 2008 test?	The 2008 test did not conserve or properly address and consider volume accountability in the test.

<b>NRC Staff Question</b>	<b>Licensee Response</b>
Why is a surrogate matching considered based on the 2008 test?	Because the 2008 test is a basis for the test to be considered successful for the pilot plant.
How is pH determined?	It is based on pool volume and the maximum possible fiber load.
How long is the return to tank transition line on?	It is on for about one turnover period.
How much calcium phosphate is added?	The amount of calcium phosphate predicted for 24 hours (based on the largest fiberglass insulation exposure) is added using the higher test flow rate. After the testing flow is reduced to reflect the containment sprays being secured, the rest of the chemical precipitates (calcium phosphate and aluminum oxyhydroxide) are added.
What is maximum velocity for the test based on?	It is based on Callaway's specific maximum velocity.
When are sprays terminated?	Sprays are secured at 24 hours.
In the test analysis, are two strainers considered in service?	Yes as equipment states are determined by probability risk assessments.
Is the strainer subject to vortexing?	This is addressed in the test plan.
How will the test determine maximum particulate?	During the shakedown process.
How are hold points determined in the test plan?	They are determined by the hold point criteria stipulated in the test plan.
What percentage of the total predicted WCAP-16530 chemical precipitate load would be added to the licensee's head loss test?	The licensee responded that they would add WCAP-16530 chemical precipitate until no incremental head loss increase was observed (the exact quantity of precipitate was not specified since it would depend on the head loss stabilization). The NRC staff noted that they have observed many head loss tests where peak head loss is achieved during early precipitate addition and subsequent additions of chemical precipitate have not resulted in exceeding initial peak head loss value. The staff has also observed that head loss behavior with chemical precipitate addition varies and can be highly influenced by debris bed characteristics (e.g., bed thickness, types of debris, relative amounts of fiber/particulate). Therefore, the staff will be evaluating strainer head loss tests results on a case-by-case basis. The staff noted that any testing that relies on adding less than 100% of the predicted WCAP-16530 chemical precipitate needs a strong technical justification.

One member of the public was in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-5136 or [John.Klos@nrc.gov](mailto:John.Klos@nrc.gov).

A handwritten signature in black ink, appearing to read "L. John Klos". The signature is stylized and cursive.

L. John Klos, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:  
List of Attendees

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

JUNE 1, 2016, MEETING WITH UNION ELECTRIC COMPANY

TO DISCUSS GENERIC SAFETY ISSUE 191 AND

CALLAWAY PLANT, UNIT 1 DEBRIS TEST PLAN

DOCKET NO. 50-483

John Klos	U.S. Nuclear Regulatory Commission (NRC)
Matt Yoder	NRC
Ashley Smith	NRC
Steve Smith	NRC
Paul Klein	NRC
Marioly Diaz-Colon	NRC
Andrea Russell*	NRC
Tom Elwood	Union Electric Company (UEC)
Roger Andreasen	UEC
Bruce Letellier	Alion Science (AS)
Janet Leavitt	AS
Benjamin Bridges	AS
Ludwig Haber	Alden
Brian Krystek*	Engineering Planning and Management (EPM), Inc.
Eric Fulhage*	EPM
Marvin Lewis*	Member of the public, unaffiliated

\*participated via phone

Enclosure

One member of the public was in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-5136 or [John.Klos@nrc.gov](mailto:John.Klos@nrc.gov).

*/RA/*

L. John Klos, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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**ADAMS Accession Nos. Meeting Notice ML16138A297; Meeting Summary ML16165A004; Handouts ML16152A123**

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	JKlos	JBurkhardt	RPascarelli	JKlos
DATE	6/21/16	6/14/16	6/11/16	6/23/16

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