



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

September 9, 2015

**LICENSEE:** Arizona Public Service Company

**FACILITY:** Palo Verde Nuclear Generating Station, Units 1, 2, and 3

**SUBJECT:** SUMMARY OF JUNE 10, 2015, MEETING WITH ARIZONA PUBLIC SERVICE COMPANY REGARDING THE ONGOING RESOLUTION OF GENERIC LETTER 2004-02 FOR PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 (TAC NOS. MC4702, MC4703, and MC4704)

On June 10, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff hosted a Category 1 public meeting conference call with staff from Arizona Public Service Company (APS, the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of this meeting was to discuss the recent insulation discovery and resolution options relating to Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The meeting notice and agenda, dated May 28, 2015 are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML15149A033. The licensee provided presentation slides, which are available at ADAMS Accession No. ML15156B352. The enclosure contains the meeting attendance list.

The licensee presented an overview of the recent insulation discovery and provided information regarding resolution of GL 2004-02 for PVNGS. On December 18, 2013, APS submitted Revision 2 to the supplemental response to GL 2004-02 (ADAMS Accession No. ML13357A218). On April 15, 2015, APS entered into its corrective action program its failure to identify and evaluate microtherm on the reactor vessel. The microtherm was discovered in several locations on the reactor vessel, including an approximately 10 foot band encompassing the hot and cold leg elevation, during an unrelated review of plant drawings. The licensee confirmed that the insulation is assumed to be the same on all three units at PVNGS. The licensee stated microtherm was previously removed on the reactor vessel head; however, the recently identified microtherm is at different locations. The licensee discussed the possible reactor vessel microtherm break locations and identified the hot leg nozzle off the steam generator as the most limiting break location. The NRC staff noted that the breaks that could result in damage to the insulation are within the region of the reactor annulus. The staff also noted that the locations of the breaks may be restrained, which would result in smaller damage zones than fully separated breaks.

The licensee compared the latent and additional fiber for the limiting break location and the microtherm break location. The licensee stated that APS likely has not performed extensive plant-specific tests but noted that industry testing indicated that the microtherm will block flow if a fiber bed is present on the strainer, and in the absence of fiber, microtherm will act as a particulate and flow through open strainer areas. The licensee then discussed the pocket

strainer configuration at PVNGS and the results of sump strainer performance testing. The NRC staff asked if the results from the strainer testing resulted in bare strainer area. The licensee stated the results were based on net positive suction head, not open strainer area. The licensee stated APS would include more information regarding the potential effects of microtherm debris in a future submittal. The NRC staff noted that Beaver Valley Power Station had a similar microtherm situation and suggested APS look at the response to NRC's request for information dated September 28, 2010 (ADAMS Accession No. ML102770023).

The NRC staff suggested that it would be beneficial if the cause for the oversight was shared with industry so that other licensees could ensure that similar issues had not occurred at their facilities.

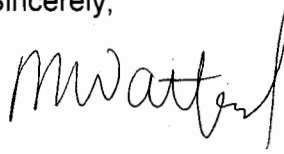
APS presented three potential outcomes for a path forward to resolve GL 2004-02. The first outcome is to demonstrate the reactor vessel break is not limiting with respect to ECCS strainer performance in order to determine if the current submittal is still bounding. The second outcome is to remove the insulation. The third outcome is to justify the current configuration using a risk-informed approach or further evaluation and testing. APS stated that a third-party vendor will evaluate the potential effects of the newly discovered microtherm insulation. After further analysis, APS would like to schedule another public meeting to discuss the resolution of GL 2004-02, including a revised supplemental response.

The NRC did not receive any public meeting feedback forms and there were no comments from the public.

- 3 -

If you have any questions, please contact me at (301) 415-1233 or via e-mail at Margaret.Watford@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'mwatford', with a stylized flourish at the end.

Margaret M. Watford, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. STN 50-529

Enclosure:  
As stated

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

JUNE 10, 2015, PUBLIC MEETING WITH ARIZONA PUBLIC SERVICE COMPANY

REGARDING ONGOING RESOLUTION OF GL 2004-02

PALO VERDE, UNITS 1, 2, AND 3

<b>Name</b>	<b>Affiliation</b>
Margaret Watford	NRC
Victor Cusumano	NRC
Matthew Yoder	NRC
Stephen Smith	NRC
John Stang	NRC
Paul Klein	NRC
Marioly Diaz	NRC
Lindsay Robinson	NRC
Andrea Russell	NRC
Thomas Weber	APS
Mark McGhee	APS
Michael Dilocenzo	APS
Don Vogt	APS
Domenic Macedonia	APS
Carl Stafford	APS
Jenny Tolar	APS
Jorge Rodriguez	APS
Delbert Elkington	APS
Megan Stachowiak	Alion
Andrew Roudenko	Alion
Bruce Letelliar	Alion

Enclosure

If you have any questions, please contact me at (301) 415-1233 or via e-mail at [Margaret.Watford@nrc.gov](mailto:Margaret.Watford@nrc.gov).

Sincerely,

/RA/

Margaret M. Watford, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. STN 50-529

Enclosure:  
As stated

cc w/encl: Distribution via Listserv

DISTRIBUTION

PUBLIC  
LPL4-1 r/f  
RidsNrrDssSsib Resource  
RidsNrrDeEsGb Resource  
MDiaz, NRR/DE/ESGB  
RidsAcrsAcnw\_MailCTR Resource

MYoder, NRR/DE/ESGB  
PKlein, NRR/DE/ESGB  
SSmith, NRR/DSS/SSIB  
JStang, NRR/DSS/SSIB  
LRobinson, NRR/DSS/SSIB

ARussell, NRR/DSS/SSIB  
RidsNrrDorLpl4-1 Resource  
RidsNrrPMPaloVerde Resource  
RidsNrrLAJBurkhardt Resource  
RidsRgn4MailCenter Resource

ADAMS Accession No. ML15239B322

\*concurrence via email

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DE/ESGB/BC
NAME	MWatford	JBurkhardt (KGoldstein for)	GKulesa*
DATE	08/27/15	08/27/15	08/31/15
OFFICE	NRR/DSS/SSIB	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	VCusumano*	MMarkley	MWatford
DATE	08/28/15	9/9/15	9/9/15

OFFICIAL RECORD COPY