



Generic Letter 2008-01

Palo Verde Nuclear
Generating Station

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102-06024-DCM/DFS
June 30, 2009

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Reference: Arizona Public Service Company (APS) letter no. 102-05955, "Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01," dated February 17, 2009 (Agencywide Document Access and Management System [ADAMS] Accession No. ML090580197)

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528, 50-529, and 50-530
Revision to Commitment Completion Date Associated with NRC
Generic Letter 2008-01, "Managing Gas Accumulation in Emergency
Core Cooling, Decay Heat Removal, and Containment Spray Systems"

APS previously reported the results of the laser templating performed in Unit 1 (Reference). Based on the results, APS committed to certain actions to further address the issues identified in NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." This letter provides notification that APS finds it necessary to extend the completion date for one of those actions and also to cancel another commitment.

Specifically, in the enclosure of the referenced letter, commitment no. 11, page 13, APS committed to:

"Applicable surveillance test procedures will be revised to include periodic ultrasonic inspection of the piping to identify and if necessary quantify the size of the voids in the piping. Acceptance criteria for each high point location will be specified. The procedures will require entry into the CAP when the acceptance criteria are exceeded. The need for sampling and analysis of gas will be determined through the CAP when abnormal conditions are detected. This

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corrective action will be phased in as acceptance criteria for each sub-system is developed."

This action to revise the applicable surveillance procedures was scheduled to be completed by June 30, 2009. The three surveillance test procedures that will implement the periodic verifications described by the commitment are: 40ST-9SI04, "RAS Line Fill Check," 40ST-9SI13, "LPSI and CS System Alignment Verification," and 40ST-9SI07, "High Pressure Safety Injection System Alignment Verification."

Procedure 40ST-9SI04 "RAS Line Fill Check" has been revised to perform the monthly ultrasonic inspection and includes the specified acceptance criteria at each high point location. The action to revise procedure 40ST-9SI13, "LPSI and CS System Alignment Verification," to perform the ultrasonic inspections has been partially completed and the remainder of the procedure revision will be completed by June 30, 2009.

Procedure 40ST-9SI07, "High Pressure Safety Injection System Alignment Verification," will not be revised as scheduled by June 30, 2009. The committed procedure change to perform monthly ultrasonic inspections with specified acceptance criteria for each discharge side high point location will be based on the recently determined acceptance criteria for each discharge side high point. APS has determined that the surveillance test procedure revision will not be completed until September 25, 2009. Delays in issuing this procedure are the result of delays in getting acceptance criteria finalized and converted to UT arc lengths as well as the greater than anticipated involvement in the recent refueling outage. Current surveillance tests and the current acceptance criteria of a clear stream of water from accessible high point vent valves are adequate to ensure unacceptable gas accumulation does not occur pending completion of this procedure revision. The extension of this completion date will not affect the completion of any other commitment.

Also in the enclosure of the referenced letter, commitment no. 12, page 14, APS committed to:

"Surveillance test procedures will be revised to redefine accessibility of piping inside containment based on actual expected radiation exposure and scaffolding requirements." (The commitment goes on to state that all piping inside containment except for that located within the bio-shield wall will be considered to be accessible for the purpose of the surveillance tests).

APS has reassessed this approach based on the NRC's May 28, 2009, letter to NEI, in which NRC clarifies that the "NRC staff will generally accept that locations inside containment are not accessible during power operation, unless such locations are routinely visited..."

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Page 3

In accordance with the NRC position, APS has determined that the piping inside containment is not accessible for routine monthly performance of this surveillance test. APS uses conditional monitoring of specific locations within the containment to identify conditions that could result in gas accumulation in the affected piping. Commitment 13 on page 11 of the enclosure to this letter is an example of this conditional monitoring.

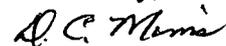
Finally, an update to the status of commitments provided in the reference letter is enclosed.

APS has evaluated these commitment changes and has determined these are consistent with internal commitment management procedures. APS makes no additional commitments in this correspondence. Should you need further information regarding this notification, please contact Russell Stroud, Licensing Section Leader, at (623) 393-5111.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 6/30/09

Sincerely,



DCM/SAB/RAS/DFS/gat

Enclosure: Updated Commitments for GL 2008-01

cc: E. E. Collins Jr. NRC Region IV Regional Administrator
J. R. Hall NRC NRR Project Manager
R. I. Treadway NRC Senior Resident Inspector for PVNGS

Enclosure

Updated Commitments for GL 2008-01

Corrective Action Updates

The following table provides updates to the list of commitments provided in Reference 2 of this enclosure.

No.	Commitments	Due
COM-1	APS commits to perform physical design verification walkdowns of the ECCS, shutdown cooling system (SCS) and containment spray system (CSS) to validate the as-built conditions for Unit 1 for GL 2008-01 prior to startup from the Unit 1 R14 refueling outage expected by 11/30/08	Complete
COM-2	APS commits to perform physical design verification walkdowns of the ECCS, SCS and CSS to validate the as-built conditions for Unit 3 for GL 2008-01 prior to startup from the Unit 3 R14 refueling outage expected by 05/31/09.	Complete
COM-3	APS commits to perform physical design verification walkdowns of the ECCS, SCS and CSS to validate the as-built conditions for Unit 2 for GL 2008-01 prior to startup from the Unit 2 R15 refueling outage expected by 11/30/09.	Prior to startup from the Unit 2 R15 refueling outage.
COM-4	APS commits to submit to the NRC any required additional corrective actions resulting from performing the design validation walkdowns for Unit 1, 90 days after completion of the Unit 1 R14 refueling outage. (Est. 2/28/09)	Complete.
COM-5	APS commits to submit to the NRC any required additional corrective actions resulting from performing the design validation walkdowns for Unit 3, 90 days after completion of the Unit 3 R14 refueling outage. (Est. 8/29/09)	90 days after completion of the Unit 3 R14 refueling outage.
COM-6	APS commits to submit to the NRC a final evaluation summarizing the findings and corrective actions resulting from the design validation walkdowns performed in all three PVNGS Units, 90 days after completion of the Unit 2 R15 refueling outage. (Est. 2/28/10)	90 days after completion of the Unit 2 R15 refueling outage.

The following table provides updates and additional commitments to the list of commitments provided in Reference 1 of this enclosure.

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-1	<p>APS is continuing to support the industry and NEI Gas Accumulation Management Team activities regarding the resolution of generic TS changes via the TSTF traveler process. APS will evaluate the resolution of TS issues with respect to the changes contained in the TSTF traveler, and submit a LAR based on this evaluation within one year following NRC approval of the CLIP Notice of Availability of the TSTF traveler. The basis changes associated with the TS changes will also be made.</p> <p>(Reference Sections: A 1.3.f)</p>	<p>One year following NRC approval of the CLIP Notice of Availability</p>

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-2	<p>Design change SI-1057 and associated design basis document changes will be developed to support a proposed TS amendment to preclude the possibility of air entrainment from the RWT into SI system suction piping during the transfer to recirculation. This change includes raising the RAS set point and associated design calculations and requires NRC approval of a LAR. The LAR will include a revision to the UFSAR describing the required closure of the RWT outlet valves by control room operators within a prescribed condition. Associated Licensing Bases changes include a revision to reflect that proper initiation of recirculation is required to preclude excessive air entrainment from either the RWT or the containment sump and to the UFSAR to describe the additional design requirements necessary to preclude the possibility of drawing air from the RWT to the safeguard pump suction during recirculation. The LAR will be submitted by 11/30/2009.</p> <p>The time frame for completion of this corrective action is justified due to the time required to develop the design modification and corresponding LAR. The condition associated with this corrective action has been evaluated for Operability in accordance with RIS 2005-20. Detailed dynamic hydraulic evaluations have been performed which demonstrate that during the transfer to recirculation, sufficient air is not transported to either the CS or HPSI pumps to degrade their performance. This evaluation provides the technical justification for the acceptability of operation until the corrective actions are completed.</p> <p>(Reference Sections: A 1.3.a, A 1.3.b, A 1.3.c, A 2.3.a)</p>	11/30/2009

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-3	<p>The basis for TSR 3.5.202.4 and TRM Sections T3.6 and T3.5.201 will be revised to require the entire SI system suction piping to be verified full of water. This Corrective Action will be completed by January 15, 2009.</p> <p>This timeframe allows for the development of suction side acceptance criteria and the revision of surveillance test procedures. Operating procedures already contain requirements to vent the shutdown cooling suction piping and provide assurance these piping sections are full upon completion of this action. This Licensing Basis change will not require any additional suction piping needing to be verified full for ECCS or CS, since current surveillance test procedures already contain provisions for verifying the suction piping is full for these two systems.</p> <p>(Reference Sections: A 1.3.d)</p>	Complete
COM-4	<p>UFSAR Table 3.9-10 will be revised to reflect the appropriate combination of the water hammer loads associated with gas accumulation in SI piping and seismic loads for design of piping and pipe supports. The corrective action will be completed March 31, 2009.</p> <p>This timeframe allows for completion of UFSAR change documentation.</p> <p>(Reference Sections: A 1.3.e)</p>	Complete
COM-5	<p>Complete the PVNGS-specific evaluations to develop gas volume acceptance criteria for SI suction piping. This corrective action will be completed by October 30, 2008.</p> <p>Current acceptance criteria and surveillance test procedures are adequate to ensure the SI piping systems are sufficiently full to reliably perform the intended safety functions pending completion of these evaluations.</p> <p>(Reference Section: A 2.2.a)</p>	Complete

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-6	<p>Complete PVNGS-specific evaluations to develop gas volume acceptance criteria for each segment of SI discharge piping upstream of the normally closed containment isolation valves. This Corrective Action is scheduled to be completed by March 31, 2009.</p> <p>This timeframe allows for completion of detailed water hammer calculations of potential gas accumulations at all discharge piping high point locations, including resolution of the UFSAR Table 3.9-10 Loading Combinations, and subsequent revision to surveillance test procedures. Current surveillance test procedures that require opening of all pump discharge vent valves at the specified 31-day interval are adequate to ensure unacceptable gas accumulation does not occur pending completion of this corrective action.</p> <p>(Reference Section: A 2.2.b)</p>	Complete

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-7	<p>Complete PVNGS specific evaluations to develop gas volume acceptance criteria for each segment of SI discharge piping downstream of the normally closed isolation valves. The downstream piping includes the CS piping downstream of the isolation valve that is normally closed during power operation and opens on receipt of a Containment Spray Actuation Signal (CSAS), the hot leg injection piping downstream of the isolation valve that is normally closed during power operation and opened following switchover to this injection location, and cold leg injection piping downstream of the isolation valves that are normally closed and open upon receipt of a SIAS or CSAS. This Corrective Action is scheduled to be completed by March 31, 2009. Acceptance criteria for the hot leg injection piping may have an associated change to applicable Emergency Operating procedures to specify a different valve alignment sequence than currently prescribed.</p> <p>The completion date for development of acceptance criteria for the hot leg injection piping only is revised to June 30, 2009. This timeframe allows for completion of evaluation of options regarding changes to valve alignment sequence and completion of waterhammer calculations for this specific piping. Development of all other acceptance criteria will be completed by the original March 31, 2009 scheduled completion date.</p> <p>Current practices to fill and vent the piping inside containment, the low consequences associated with gas accumulation in piping inside containment, and the lack of current indication of on-going gas accumulation mechanisms such as SIT leakage past the containment isolation valves make the schedule for this action acceptable.</p> <p>(Reference Section: A 2.2.c)</p>	Complete

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-8	<p>Design modification SI-1057 will be implemented in each Unit's refueling outage that starts no sooner than one year following NRC approval of the associated LAR.</p> <p>The time frame for completion of this corrective action is justified due to the time required to develop the design modification. The condition associated with this corrective action has been evaluated for Operability in accordance with RIS 2005-20.</p> <p>Detailed dynamic hydraulic evaluations have been performed which demonstrate that during the transfer to recirculation, sufficient air is not transported to either the CS or HPSI pumps to degrade their performance. This evaluation provides the technical justification for the acceptability of operation until the corrective actions are completed.</p> <p>(Reference Section: A 2.3.a)</p>	<p>During scheduled refueling outages beginning with the first unit at least year after NRC approval of the associated LAR</p>
COM-9	<p>Develop a procedure or written instruction that will specify requirements for performance of confirmatory ultrasonic measurements that monitor or confirm the adequacy of system fill and vent. This corrective action is scheduled to be completed by March 31, 2009.</p> <p>Scheduled completion is revised to August 31, 2009. This schedule revision allows for evaluation of laser templating results and lessons learned from the upcoming 3R14 refueling outage (Spring 2009)</p> <p>This is currently a routine Engineering activity performed every refueling outage that is adequate pending incorporation into a procedure.</p> <p>(Reference Section: A 2.9)</p>	<p>3/31/2009 Revised to 8/31/2009</p>

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-10	<p>Develop a procedure or process that controls the performance of system and pump performance tests or other high velocity flushes to ensure these routine activities are performed as necessary to preclude gas accumulation potentially resulting from an incomplete initial system fill. This corrective action is scheduled to be completed by August 1, 2009.</p> <p>These pump and system performance tests are performed every refueling outage and current outage scheduling is adequate pending completion of this action.</p> <p>(Reference Section: A 2.9)</p>	8/1/2009
COM-11	<p>Applicable surveillance test procedures will be revised to include periodic ultrasonic inspection of the piping to identify and if necessary quantify the size of the voids in the piping. Acceptance criteria for each high point location will be specified. The procedures will require entry into the CAP when the acceptance criteria are exceeded. The need for sampling and analysis of gas will be determined through the CAP when abnormal conditions are detected. This corrective action will be phased in as acceptance criteria for each sub-system is developed. Full implementation of this corrective action is scheduled to be completed by April 30, 2009.</p> <p>The schedule for full implementation of this action is revised to September 25, 2009. This timeframe allows for completion of acceptance criteria evaluations and revisions and subsequent revision to surveillance test procedures.</p> <p>Current surveillance tests and the current acceptance criteria of a clear stream of water from accessible high point vent valves are adequate to ensure unacceptable gas accumulation does not occur pending completion of this corrective action.</p> <p>(Reference Sections: A 2.2.d, A 3.2.a, A 3.6.a)</p>	6/30/2009 Revised to 9/25/2009

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-12	<p>Surveillance test procedures will be revised to redefine accessibility of piping inside containment based on actual expected radiation exposure and scaffolding requirements. This corrective action is scheduled to be completed by March 31, 2009.</p> <p>All piping inside containment except for that located within the bio-shield wall is considered to be accessible for the purpose of the surveillance tests. The revised timeframe allows for the extensive surveillance test procedure revisions necessitated by this redefinition.</p> <p>Evaluations of the consequences of gas accumulation in discharge side piping inside containment have been completed by a PWROG program and by Westinghouse for certain CE-designed plants, which demonstrate that voids in this piping will typically not cause a water hammer effect because of the slow-opening containment isolation valves and lack of downstream flow restrictions. In addition, delays in injecting flow to the RCS due to voids in the discharge piping have been determined in the PWROG program to be inconsequential. The only gas accumulation mechanism identified following successful initial fill and vent following maintenance is leakage from either the SI Tanks or the RCS into the low pressure upstream SI piping. This mechanism can be monitored with installed plant instrumentation and verified by surveillance of upstream piping. Considering the reduced consequences associated with gas accumulation in piping inside containment, and the ability to detect and verify the conditions necessary to promote gas accumulation in these piping sections, current practices are considered adequate pending completion of this action.</p> <p>(Reference Sections: A 3.2.b, A 3.6.b)</p>	Commitment cancelled.

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-13	<p>Procedure 40DP-9OP06 will be revised to provide guidance on the amount of SIT level change that should be considered abnormal and require entry into the CAP to assess the cause of the leak and the potential for void formation when the threshold is exceeded. This corrective action is scheduled to be completed by January 15, 2009.</p> <p>This time frame allows for determination of the appropriate threshold and specification of the appropriate response. The current procedure and practices at PVNGS have been adequate to ensure unacceptable gas accumulation does not occur pending completion of this corrective action.</p> <p>(Reference Sections: A 3.2.c, A 3.6.c)</p>	Complete
COM-14	<p>Revise surveillance test procedure 40ST-9SI13 to include verification that the SDC suction piping is sufficiently full of water. This corrective action is scheduled to be completed by January 15, 2009.</p> <p>This time frame allows for completion of acceptance criteria and subsequent procedure revision. Current procedures for restoring from SDC operations to standby SI alignment have been adequate to prevent unacceptable gas accumulation or formation. Operating procedures already contain requirements to vent the SDC suction piping and provide assurance these piping sections are full pending completion of this action.</p> <p>(Reference Sections: A 3.2.d, A 3.6.d)</p>	Complete

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-15	<p>A formalized trending process (or procedure) will be developed to document the results of the monthly surveillance tests and ensure Operability to the next surveillance test. This action is scheduled to be completed by April 15, 2009.</p> <p>The schedule to complete this action is revised to complete by July 31, 2009. The revised timeframe allows for completion of all related surveillance test procedures (see revised scheduled completion date for COM-12).</p> <p>This action proceduralizes trending activities recommended by the GL and industry practices, but does not have a direct impact on Operability.</p> <p>(Reference Sections: A 3.5, A 3.6.e)</p>	<p style="text-align: center;">4/15/2009 Revised to 7/31/2009</p>
COM-16	<p>Revise the PVNGS-specific evaluation of allowable gas volume acceptance criteria for SI suction piping to determine criteria specific to the Unit 1 "A" train to account for the actual measured pipe slope of the common suction header. This action is scheduled to be completed by June 30, 2009.</p> <p>The timeframe allows for completion of the evaluation revision. The common suction header has been shown to be full of water by UT such that reliable performance of the intended safety function remains assured pending completion of these actions.</p> <p>(Reference Sections: A.1, B.1.c of Nine-Month Supplemental Response)</p>	<p style="text-align: center;">Complete</p>

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
COM-17	<p>Revise the applicable surveillance test procedure to account for reduced allowable gas accumulation acceptance criteria specific to the Unit 1 "A" train suction piping. The surveillance test procedures will be revised to add verification that the pipe is full at the two locations which may have an inherent vulnerability to air/gas accumulation due to the identified pipe slope on the "A" train common suction header and the "B" train shutdown cooling line. This action is scheduled to be completed by September 30, 2009.</p> <p>The timeframe allows for completion of the evaluation revision and revision to the test procedures. The common suction header has been shown to be full of water by UT such that reliable performance of the intended safety function remains assured pending completion of these actions.</p> <p>(Reference Sections: A.4.a, B.1.c of Nine-Month Supplemental Response)</p>	9/30/2009
COM-18	<p>Complete UT examination of all remaining Priority 2, 3, and 4 locations identified by laser templating as deviating by more than one quarter inch (¼") from horizontal. This action will be completed by April 30, 2009.</p> <p>This timeframe allows for completion of the activity including scheduling of insulation removal within the Palo Verde work management system and associated risk evaluations. The location and potential gas accumulation volumes are such that there is minimal risk that an actual gas accumulation that would challenge system operability exists at these locations. The current acceptance criteria, surveillance test procedures and operating procedures are adequate to ensure the SI piping systems are sufficiently full to reliably perform the intended safety functions pending completion of the confirmatory UTs.</p> <p>(Reference Sections: A.2, B.1.a of Nine-Month Supplemental Response.)</p>	Complete
COM-19	Complete evaluation of installing or relocating vent valves at two locations identified by	6/30/2009

No.	Commitments - Corrective Actions to be completed including the scope and basis for the schedule	Due
	<p>laser templating as being vulnerable to gas accumulation that cannot currently be easily vented or flushed. This action will be completed by June 30, 2009.</p> <p>This timeframe allows for determination of feasibility and necessity of vent valve installation, and evaluation of programmatic control options. These locations have been confirmed by UT to be full of water and appear not to be subject to any of the gas accumulation mechanisms identified during the original evaluations performed in response to the Generic Letter.</p> <p>(Reference Sections: A.3, B.1.b of Nine-Month Supplemental Response.</p>	
COM-20	<p>If evaluation concludes that the installation of a vent valve is feasible and warranted, the vent valve installation will be completed no later than the completion of the next refueling outage (1R15 scheduled for the Spring of 2010). If vent valve installation is not feasible or is not warranted, an appropriate programmatic control to ensure these locations remain filled with water will be implemented by completion of the next refueling outage. This commitment applies to both locations identified in COM-19.</p> <p>This timeframe allows for determination of feasibility and necessity of vent valve installation, and evaluation of programmatic control options. These locations have been confirmed by UT to be full of water and not subject to any of the gas accumulation mechanisms identified during the original evaluations performed in response to the Generic Letter.</p> <p>Reference Sections: A.3, B.1.b of Nine-Month Supplemental Response.</p>	5/30/2010

References

1. APS Letter No. 102-05910, dated October 14, 2008, PVNGS Nuclear Generating Station (PVNGS) Units 1, 2 and 3 Docket Nos. STN 50-528/529/530 Nine-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (ADAMS Accession No. ML08294032)
2. APS letter No. 102-05857, dated May 09, 2008, Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, Docket Nos. STN 50-528, 50-529, and 50-530, Three-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (ADAMS Accession No. ML08120363).