ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9204070295 DOC.DATE: 92/03/14 NOTARIZED: NO DOCKET #
FACIL:STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
AUTH.NAME AUTHOR AFFILIATION
CONWAY,W.F. Arizona Public Service Co. (formerly Arizona Nuclear Power
RECIP.NAME RECIPIENT AFFILIATION
MARTIN,J.B. Region 5 (Post 820201)

SUBJECT: Forwards revised request for temporary waiver of compliance from TS Limiting Conditions for Operation 3.5.2 re ECCS & 3.7.1.2 re auxiliary feedwater sys to allow Train A of each sys to be inoperable for 72 h beyond allowed outage time.

DISTRIBUTION CODE: IE01D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 10
TITLE: General (50 Dkt)-Insp Rept/Notice of Violation Response

NOTES:Standardized plant. 05000529

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD5 PD	1	1	TRAMMELL,C	1	1
	THOMPSON,M	1	1			
INTERNAL:	ACRS	2	2	AEOD	1	1
	AEOD/DEIIB	1	1	AEOD/DSP/TPAB	1	1
	DEDRO	1	1	NRR MORISSEAU,D	1	1
	NRR/DLPQ/LHFBPT	1	1	NRR/DLPQ/LPEB10	1	1
	NRR/DOEA/OEAB	1	1	NRR/DREP/PEPB9H	1	1
	NRR/DST/DIR 8E2	1	1	NRR/PMAS/ILRB12	1	1
	NUDOCS-ABSTRACT	1	1	OE DIR	1	1
	OGC/HDS1	1	1	REG FILE 02	1	1
	RGN5 FILE 01	1	1			
EXTERNAL:	EG&G/BRYCE,J.H.	1	1	NRC PDR	1	1
	NSIC	1	1			
NOTES:		1	1			

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 25 ENCL 25

Arizona Public Service Company
P.O. BOX 53999 • PHOENIX, ARIZONA 85072-3999

WILLIAM F. CONWAY
EXECUTIVE VICE PRESIDENT
NUCLEAR

161-04664-WFC/NLT
March 14, 1992

Mr. John B. Martin
Regional Administrator, Region V
U. S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Dear Mr. Martin:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529
Revised Request for Temporary Waiver of Compliance
from Technical Specifications
File: 92-056-026

Arizona Public Service Company (APS) hereby requests a Temporary Waiver of Compliance from the following PVNGS Unit 2 Technical Specifications' Limiting Conditions for Operation (LCO): 3.5.2 - Emergency Core Cooling System (ECCS), 3.6.2.1 - Containment Spray System (CSS), 3.7.1.2 - Auxiliary Feedwater System (AFS), 3.7.3 - Essential Cooling Water System (ECWS), and 3.7.11 - Shutdown Cooling System (SDCS). The existing LCOs allow one train for each system to be inoperable for a maximum of 72 hours. An additional 72 hours will be necessary to allow Unit 2 to perform diagnostic testing and corrective maintenance on the ECWS heat exchanger to repair tube leaks. The ECWS is a required support system for the determination of operability of the aforementioned systems. The Temporary Waiver of Compliance would allow Train A of each system to be inoperable for 72 hours beyond the currently allowed outage time.

The ECWS Train A also provides cooling for the Essential Chilled Water System Train A. LCO 3.7.6 currently allows one essential chilled water train to be inoperable for a maximum of 7 days. Hence, a Temporary Waiver of Compliance is not required for LCO 3.7.6. However, APS currently restricts operation with an inoperable train to no more than 72 hours as documented in Licensee Event Report 1-91-007-00. APS is currently preparing a Technical Specification amendment request to change the 7-day action requirement for operability to 72 hours for the Essential Chilled Water LCO 3.7.6, consistent with the operability requirements of the ECCS, CSS, and AFS LCOs.

1/1
IE-01

A Temporary Waiver of Compliance is being requested to prevent an unnecessary plant shutdown to Mode 5 and to provide up to 72 hours beyond the currently allowed outage time to perform diagnostic testing and corrective maintenance on the ECWS Train A heat exchanger. However, should it become apparent that the work on the ECWS heat exchanger cannot be completed within the extended outage time, APS will immediately begin an orderly shutdown of PVNGS Unit 2. The Plant Review Board has reviewed this Request for Temporary Waiver of Compliance and determined that the extension does not constitute an unreviewed safety question or create a nuclear safety hazard.

APS began working on the ECWS at approximately 3:25 p.m. on March 12, 1992. Therefore, it is requested that the NRC review and approve the enclosed Temporary Waiver of Compliance prior to 3:25 p.m. on March 15, 1992, in order to allow work to extend beyond the currently allowed outage time.

Pursuant to 10 CFR 50.91(b)(1), a copy of this request is being forwarded to the Arizona Radiation Regulatory Agency.

If you have any questions, please contact Michael E. Powell at (602) 340-4981.

Sincerely,

WFC/MEP/NLT/pmm

Enclosure

cc: Document Control Desk
C. M. Trammell
D. H. Coe
A. H. Gutterman
W. A. Wright

ENCLOSURE

ARIZONA PUBLIC SERVICE COMPANY REQUEST FOR REVISED TEMPORARY WAIVER OF COMPLIANCE PALO VERDE NUCLEAR GENERATING STATION UNIT 2

LIMITING CONDITION FOR OPERATION

3.5.2	EMERGENCY CORE COOLING SYSTEM
3.6.2.1	CONTAINMENT SPRAY SYSTEM
3.7.1.2	AUXILIARY FEEDWATER SYSTEM
3.7.3	ESSENTIAL COOLING WATER SYSTEM
3.7.11	SHUTDOWN COOLING SYSTEM

161-04664-WFC/NLT
March 14, 1992

REVISED REQUEST FOR TEMPORARY WAIVER OF COMPLIANCE LIMITING CONDITION FOR OPERATION 3.5.2, 3.6.2.1, 3.7.1.2, 3.7.3, AND 3.7.11

REQUIREMENTS FOR WHICH THE WAIVER IS REQUESTED

Limiting Condition for Operation 3.5.2; Emergency Core Cooling System

Limiting Condition for Operation (LCO) 3.5.2 specifies that at least 2 Emergency Core Cooling System (ECCS) subsystems shall be operable while in Modes 1, 2, and 3. With one ECCS subsystem inoperable, action is required to restore at least two subsystems to operable status within 72 hours or be in at least hot standby within the next 6 hours and in hot shutdown within the following 6 hours.

The operability of two separate and independent ECCS subsystems with the reactor coolant system (RCS) temperature greater than or equal to 350 °F ensures that sufficient emergency core cooling capability will be available in the event of a loss of coolant accident assuming loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

Arizona Public Service Company (APS) requests a Temporary Waiver of Compliance to the requirement for the restoration of ECCS Train A subsystems within 72 hours. APS proposes to extend this requirement 72 hours beyond the currently allowed outage time. A Temporary Waiver of Compliance from LCO 3.5.2 action is required because support systems will be inoperable as a result of the workscope defined in this submittal.

Limiting Condition for Operation 3.6.2.1; Containment Spray System

LCO 3.6.2.1 specifies that at least two independent Containment Spray Systems (CSS) shall be operable during Modes 1, 2, 3, and 4. With one CSS inoperable, action is required to restore the inoperable spray system to operable status within 72 hours or be in at least hot standby within the next 6 hours; restore the inoperable spray system to operable status within the next 48 hours or be in cold shutdown within the following 30 hours.

The operability of the CSS ensures that containment depressurization and cooling capability will be available in the event of a loss of coolant accident. The CSS and the containment cooling system are redundant to each other in providing post-accident cooling of the containment atmosphere. The CSS also provides a mechanism for removing iodine from the containment atmosphere.

APS requests a Temporary Waiver of Compliance to the requirement for the restoration of the CSS Train A within 72 hours. APS proposes to extend this requirement 72 hours beyond the currently allowed outage time. A Temporary Waiver of Compliance is required from LCO 3.6.2.1 because support systems will be inoperable as a result of the workscope defined in this submittal.

Limiting Condition for Operation 3.7.1.2; Auxiliary Feedwater System

LCO 3.7.1.2 specifies that at least three independent steam generator auxiliary feedwater pumps in the Auxiliary Feedwater System (AFS) and associated flow paths shall be operable during Modes 1, 2, 3, and 4. With one AFS pump inoperable, action is required to restore the required auxiliary feedwater pumps to operable status within 72 hours or be in at least hot standby within the next 6 hours and in hot shutdown within the following 6 hours.

The operability of the AFS ensures that the RCS can be cooled down to less than 350 °F from normal operating conditions in the event of a total loss of offsite power.

APS requests a Temporary Waiver of Compliance to the requirement for the restoration of the AFS Train A Pump within 72 hours. APS proposes to extend this requirement 72 hours beyond the currently allowed outage time. A Temporary Waiver of Compliance is required from LCO 3.7.1.2 because support systems will be inoperable as a result of the workscope defined in this submittal.

Limiting Condition for Operation 3.7.3; Essential Cooling Water System

LCO 3.7.3 specifies that at least two independent Essential Cooling Water System (ECWS) loops shall be operable while in Modes 1, 2, 3, and 4. With only one essential cooling water loop operable, action is required to restore at least two loops to operable status within 72 hours or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

The operability of the ECWS ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The design of the system includes two separate, independent, redundant, closed loop, safety-related trains. Either train of the ECWS is capable for supporting 100% of the cooling functions required for a safe reactor shutdown or following a loss of coolant accident. The ECWS operates at a lower pressure than the Essential Spray Pond System (ESPS) as protection against leakage into the ESPS from the ECWS in case of tube leakage in the ECWS heat exchanger.

APS requests a Temporary Waiver of Compliance to the requirement for the restoration of the ECWS Train A within 72 hours. APS proposes to extend this requirement 72 hours beyond the currently allowed outage time. A Temporary Waiver of Compliance is required to allow for work to be performed on the ECWS Train A heat exchanger.

Limiting Condition for Operation 3.7.11; Shutdown Cooling System

LCO 3.7.11 specifies that at least two independent Shutdown Cooling Systems (SDCS) shall be operable, with one operable low pressure safety injection pump, and an independent operable flow path capable of taking suction from the RCS hot leg and discharging coolant through the shutdown cooling heat exchanger and back to the RCS through the cold leg injection lines during Modes 1, 2, and 3. With one SDCS inoperable, action is required to restore the inoperable subsystem to operable status within 72 hours or be in at least hot standby within 1 hour and be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

The operability of two separate and independent shutdown cooling subsystems ensures that the capability of initiating shutdown cooling in the event of an accident exists even assuming the most limiting single failure. The shutdown cooling system is one means of providing long-term post-accident reactor cooling. One shutdown cooling subsystem, capable of supporting the entire heat load, would be initiated during the accident recovery period with the RCS temperature less than 350 °F.

APS requests a Temporary Waiver of Compliance to the requirement for the restoration of the SDCS Train A within 72 hours. APS proposes to extend this requirement for 72 hours beyond the currently allowed outage time. A Temporary Waiver of Compliance from LCO 3.7.11 is required since the ECWS is a support system for the SDCS heat exchanger.

NEED FOR PROMPT ACTION

On March 4, 1992, the ECWS chloride and sulfate ions were at maximum concentrations of 6.6 and 18.3 parts per million (ppm), respectively. These concentrations exceed the closed cooling water chemistry procedure acceptance criteria of less than or equal to 5 ppm. Attempts to restore the out-of-specification parameters utilizing feed and bleed were unsuccessful. Unit 2 Chemistry was informed that the ECWS expansion tank level had increased when running the pumps on the Essential Spray Pond System (ESPS) without the ECWS pumps running.

Though the heat exchanger water quality was well within Updated Final Safety Analysis Report Table 9.2-5 specifications, there was an increase in chlorides and sulfates. These anions were believed to have been introduced into the ECWS from the ESPS due to heat exchanger tube leaks. The heat exchanger is of the shell and tube type. The tube side is furnished with cooling water from the ESPS. The shell side carries the ECWS

cooling water. This closed-loop, shell-side water is initially supplied with demineralized water from the demineralized water system. The effect of sulfates and chlorides on system corrosion will increase as contaminant levels increase, although the ECWS is normally at ambient temperature which will minimize the potential corrosive effects.

Based on the closed cooling water chemistry analysis and expansion tank level increases, APS suspected that the ECWS Train A heat exchanger had tube leaks. This was confirmed on March 13, 1992. A Temporary Waiver of Compliance is being requested to prevent an unnecessary plant shutdown to Mode 5 and to provide up to 72 hours beyond the currently allowed outage time to perform diagnostic testing and corrective maintenance on the ECWS Train A heat exchanger.

COMPENSATORY MEASURES

Unit 2 Operations will maintain operability of the Train A ESPS and Emergency Diesel Generator (EDG) while in these LCO actions. Train B safe-shutdown components and the Non-essential Auxiliary Feedwater Pump will be verified and maintained fully operable, and no non-emergent work will be performed on these components while in these LCO action statements. These components will be verified and maintained operable, and work will be controlled in accordance with PVNGS Technical Specifications, administrative controls, and temporary instructions which have been provided.

APS has entered Technical Specification LCO 3.7.6, ACTIONS a and b for the Essential Chilled Water System Train A. LCO ACTION b requires verification that the Normal Heating, Ventilation, and Air-conditioning System (HVAC) is providing space cooling to the vital power distribution rooms that depend on the inoperable Essential Chilled Water System for space cooling. Upon positive verification of the Normal HVAC cooling, no further cascading of the Unit 2 Technical Specifications is required (i.e., the 2-hour LCO 3.8.2.1 for loss of direct current sources is not applicable with the verification of the Normal HVAC).

Switchyard (525 kilovolt and startup yards) activities are performed under the cognizance and direction of the Unit 1 Shift Supervisor. Temporary instructions have been provided to Unit 1 to ensure that no interruption of offsite power to Unit 2 occurs while in these LCO action statements. APS and Salt River Project (SRP) responsible control centers have been notified to take necessary special precautions. SRP has been authorized to continue work on the Unit 1 main generator breakers; however, this work is electrically isolated from the switchyard. Specific routes are established by SRP for vehicles in the switchyard to avoid risk to Unit 2 power supplies. Scheduled Unit 1 outage work which may affect the supply of offsite power to Unit 2 has been delayed. No additional work will be performed in the switchyard without specific review and approval by the Unit 1 Shift Supervisor and Outage Manager. Vehicle access to the switchyard is being restricted and must be authorized by the Unit 1 Outage Manager in accordance with established PVNGS guidance.

JUSTIFICATION FOR AND DURATION OF THE REQUEST

The extension of the LCO for 72 hours beyond the allowed outage time, for one inoperable train of the ECWS and resulting systems, will provide the opportunity to perform diagnostic testing and corrective maintenance on Unit 2 ECWS Train A heat exchanger. Failure to grant relief for the additional 72 hours may result in an unnecessary plant shutdown and a consequent plant transient.

Work on the ECWS Train A heat exchanger will require entering the 72-hour action statements. Work will entail clearing the system for work, draining the system, visual inspection, and eddy current inspection. Visual inspection may be performed using a camera and/or a boroscope. Eddy current testing will be performed on suspect tubes, as required. Results of the eddy current examination will be evaluated and the determination of additional eddy current examinations will be determined. In the event additional testing is required, the ECWS may not be returned to service in the time required by LCO 3.7.3. Consequently, the request for a Temporary Waiver of Compliance from LCO 3.5.2, 3.6.2.1, 3.7.1.2, 3.7.3 and 3.7.11 to allow Train A systems to be inoperable for 72 hours beyond the allowed outage time, has been evaluated and it has been determined that this request will not impact public health and safety.

A Probabilistic Risk Analysis was performed to determine the impact on plant risk associated with a one-time extension of the LCOs for 72 hours beyond the allowed outage time. The analysis assummed that all Train B components and the Non-essential Auxiliary Feedwater Pump remain operable through the duration of the action statement, and the ESPS Train A cooling to the Train A EDG would be available through the duration of the action statement. The nominal core damage probability for a 72 hour period of normal operation is 7.4E-7 (based on a core damage frequency of 9E-5/year). The core damage probability increases by 2.5E-6 for the 72-hour period currently allowed by Technical Specifications when an ECWS heat exchanger is out of service. The additional 72 hours allowed by the Temporary Waiver of Compliance would result in another increase in core damage probability of 2.5E-6, resulting in a total increase in core damage probability of 5.0E-6 for the six day period. The increase of 2.5E-6 in core damage probability associated with taking an ECWS Train out of service an additional 72 hours is considered acceptable as it is approximately equal to the core damage probability associated with a plant shutdown of 2.9E-6.

EVALUATION OF THE SAFETY SIGNIFICANCE AND BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION

The required corrective action can be performed successfully at power on Train A. During normal plant operation, the ECWS, ECCS, CSS, AFS, SDCS, and Essential Chilled Water System are not operating. The redundant features of these systems allow testing of one train without violation of Technical Specifications. When the action statement for LCO 3.7.3 is entered, the action statements for the aforementioned systems must be entered since these systems can perform their functions only if all necessary support

systems are capable of performing their related support functions. When a support system is determined to be inoperable, all systems for which that support system is required for system operability are declared inoperable and the LCOs for those systems are entered.

Normal HVAC supplies space cooling to Train A and B systems and components while the plant is operating. Essential cooling is used to maintain space temperatures within limits when shutdown cooling is operating and reactor coolant system temperatures are above approximately 100 °F or when the Train A auxiliary feedwater pump is operating. Based upon current seasonal conditions at PVNGS and compensatory measures which could be taken to restore room cooling, if a non-Loss of Coolant Accident event were to occur, the unavailability of essential cooling water and essential chilled water is not expected to result in the failure of Train A components necessary for safely shutting down the plant (e.g., Train A auxiliary feedwater pump, Train A vital power). Train A low pressure safety injection and containment spray pumps would exceed safe operational temperature requirements after approximately six hours.

In the event there is a loss of a support system on Train B during the period of time that Train A ECWS is out-of-service, PVNGS procedures exist for operating the SDCS Train A with Train B auxiliaries, and vice-versa (reference Loss of Shutdown Cooling Procedure 42AO-2ZZ22). If neither train of auxiliaries is available to support shutdown cooling, and nuclear cooling water (NCW) is available, NCW can be cross-tied to the desired essential cooling water to support shutdown cooling (reference Functional Recovery Procedure, 42RO-2ZZ10).

The Temporary Waiver of Compliance only impacts the time allowed for Train A to be inoperable and does not change the equipment which is allowed to be inoperable. Therefore, the consequences of a previously evaluated accident remain unchanged.

Increasing the allowed out-of-service time of the aforementioned LCOs for an additional 72 hours on a one-time only basis for the purpose of performing diagnostic testing and corrective maintenance is the safest course of action other than placing the unit in cold shutdown. The safety function of Train A can be performed by the 100% redundant Train B. The possibility of a new or different kind of accident from any accident previously evaluated will not be created by the increase in time allowed for an inoperable train.

Extension of the 72-hour limit would not involve a significant reduction in the margin of safety because there are no new or common failure modes being created by the extension. The performance of the associated safety systems will not be degraded by the extended out-of-service time.

ENVIRONMENTAL IMPACT CONSIDERATION DETERMINATION

The proposed Temporary Waiver of Compliance request does not involve an unreviewed environmental question because operation of PVNGS Unit 2 with the LCO extensions would not:

A. Result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement as modified by the Staff's testimony to the Atomic Safety and Licensing Board; or

B. Result in a significant change in effluent or power levels; or

C. Result in matters not previously reviewed in the licensing basis for PVNGS which may have a significant environmental impact.

As discussed above, no significant reduction in the margin of safety and no new accidents are introduced by this Temporary Waiver of Compliance. This Temporary Waiver of Compliance does not significantly affect effluent or power levels, and has no environmental impact.