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SUBJECT: Forwards revised relief requests PRR-05,PRR-06 & PRR-11 to clarify that proposed design flow testing for LPSI,HPSI & containment spray pumps will be performed using instruments that comply with Code requirements,per 990226 telcon.

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References: 1) APS Letter 102-04060-JML/SAB/JRP, from James M. Levine to the NRC, "Inservice Testing (IST) Second 10 year Program", dated January 13, 1998

2) APS Letter 102-04212-JML/AKK/SAB/MLG, from James M. Levine to the NRC, "Revision to Pump and Valve Inservice Testing Program", dated November 23, 1998

3) APS Letter 102-04222-WEI/AKK/MLG, from William E. Ide to the NRC, "Pump and Valve Inservice Testing Program Revised Relief Requests", dated December 10, 1998

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Pump and Valve Inservice Testing Program Revised Relief Requests
PRR-05, PRR-06, and PRR-11

On February 26, 1999, APS participated in a conference call with members of the NRC staff regarding the PVNGS Inservice Testing (IST) Program for the second 10-year interval (previously submitted by Reference 1). During the conference call, APS agreed to revise pump relief requests PRR-05, PRR-06, and PRR-11 to clarify that the proposed design flow testing for the LPSI, HPSI, and Containment Spray pumps will be performed using instruments that comply with Code requirements.

APS has completed these revisions and the revised relief requests are enclosed.

No commitments are being made to the NRC by this letter.

A047

Should you have any questions, please contact Scott A. Bauer of my staff at (602) 393-5978.

Sincerely,

WEI/AKK/MLG/rlh
Enclosure

cc: E. W. Merschoff
M. B. Fields
J. H. Moorman

ENCLOSURE

Revised Relief Requests
PRR-05, PRR-06, and PRR-11

Pump Relief Request No. 5 (PRR-05)

LPSI Pump Flow Rate Measurement

Pump ID	Pump Description	Code Class	Drawing / Coord.
SIA-P01	Low Pressure Safety Injection (LPSI) Pump	2	SIP-001 / F11
SIB-P01	Low Pressure Safety Injection (LPSI) Pump	2	SIP-001 / B11

Function

LPSI pumps SIA-P01 and SIB-P01 provide low-pressure coolant injection of borated water into the reactor coolant system under accident conditions. They also provide shutdown cooling flow post-accident and during normal reactor startup and shutdown.

Test Requirement

Where system resistance cannot be varied, flow rate and pressure shall be determined and compared to their respective reference value. (OM-6, Para. 5.2(c))

Alternate Testing

LPSI pumps SIA-P01 and SIB-P01 will be tested at mini-flow conditions during plant operation per OM-6 para. 5.2(c), but flow rate will not be measured. SIA-P01 and SIB-P01 will be tested at design flow on a Cold Shutdown frequency. During design flow testing, the flow rate will be measured using instruments whose range and accuracy meet Code requirements, and the Code-required parameters will be measured and evaluated per OM-6 para. 5.2(d).

Basis for Relief

During normal power operation, the LPSI pumps cannot develop sufficient discharge pressure to overcome RCS pressure and allow flow through the safety injection headers. Thus, during quarterly testing, LPSI flow is routed through a minimum flow recirculation line to the refueling water tanks. The minimum-flow recirculation flowpath is a fixed resistance circuit containing a flow-limiting orifice capable of passing only a small fraction of the design flow. The installed flow instrumentation (permanently mounted ultrasonic flowmeter) has only limited capability, and its accuracy is not sufficient to meet OM-6 accuracy requirements. A larger recirculation flowpath is available; however, it uses the same flow instrument as the minimum-recirculation line.

During cold shutdowns, the shutdown cooling flowpath is available for LPSI pump testing. The shutdown cooling flowpath includes an orifice-type flow meter that complies with the range and accuracy requirements of OM-6 para. 4.6.1.1 and 4.6.1.2 respectively. This flow meter will be used to measure flow during the design flow test.

The LPSI pumps are normally used to provide shutdown cooling flow during shutdown operations, and occasionally for recirculating the refueling water tank when the unit is at power. Little degradation is expected during power operation. Thus, the alternate testing will adequately monitor these pumps to ensure continued operability and availability for accident mitigation.

Approval

This relief request complies with the requirements of Generic Letter 89-04 Position 9. No additional approval is required.

Note: This relief was previously granted during the first 10-year IST interval per SER dated November 15, 1988, TER section 3.2.3, PRR No. 6.

Pump Relief Request No. 6 (PRR-06)

HPSI Pump Flow Rate Measurement

Pump ID	Pump Description	Code Class	Drawing / Coord.
SIA-P02	High Pressure Safety Injection (HPSI) Pump	2	SIP-001 / E11
SIB-P02	High Pressure Safety Injection (HPSI) Pump	2	SIP-001 / A11

Function

The HPSI pumps provide high-pressure coolant injection of borated water into the reactor coolant system under accident conditions. They also provide flow for long-term cooling and flushing to prevent boron precipitation.

Test Requirement

Where system resistance cannot be varied, flow rate and pressure shall be determined and compared to their respective reference value. (OM- 6, Para. 5.2(c))

Alternate Testing

HPSI pumps SIA-P02 and SIB-P02 will be tested at mini-flow conditions during plant operation per OM-6 para. 5.2(c), but flow rate will not be measured. SIA-P02 and SIB-P02 will be tested at design flow on a Refueling frequency. During design flow testing, the flow rate will be measured using instruments whose range and accuracy meet Code requirements, and the Code-required parameters will be measured and evaluated per OM-6 para. 5.2(d).

Basis for Relief

During normal power operation, the HPSI pumps cannot develop sufficient discharge pressure to overcome RCS pressure and allow flow through the safety injection headers. Thus, during quarterly testing, HPSI flow is routed through a minimum flow recirculation line to the refueling water tanks. The minimum-flow recirculation flowpath is a fixed resistance circuit containing a flow-limiting orifice capable of passing only a small fraction of the design flow. The installed flow instrumentation (permanently mounted ultrasonic flowmeter) has only limited capability, and its accuracy is not sufficient to meet OM-6 accuracy requirements.

During cold shutdown conditions, full flow operation of the HPSI pumps to the RCS is restricted to preclude RCS pressure transients that could result in exceeding Technical Specification pressure-temperature limits (LTOP).

During refueling outages, the RCS injection flowpath is available for HPSI pump testing. The RCS injection flowpath includes orifice-type flow meters that comply with the range and accuracy requirements of OM-6 para. 4.6.1.1 and 4.6.1.2 respectively. These flow meters will be used to measure flow during the design flow test.

The HPSI pumps are standby pumps. SIB-P02 is used only occasionally

to recharge the safety injection tanks. Little degradation is expected during power operation. Thus, the alternate testing will adequately monitor these pumps to ensure continued operability and availability for accident mitigation.

Approval

This relief request complies with the requirements of Generic Letter 89-04 Position 9. No additional approval is required.

Note: This relief was previously granted during the first 10-year IST interval per SER dated November 15, 1988, TER section 3.2.3, PRR No. 6.

Pump Relief Request No. 11 (PRR-11)

Containment Spray Pump Flow Rate Measurement

Pump ID	Pump Description	Code Class	Drawing / Coord.
SIA-P03	Containment Spray (CS) Pump	2	SIP-001 / H11
SIB-P03	Containment Spray (CS) Pump	2	SIP-001 / C11

Function

CS pumps SIA-P03 and SIB-P03 deliver borated water to the containment spray headers, providing containment cooling and pressure control during accident conditions. The CS pumps can also be lined up to provide flow for shutdown cooling.

Test Requirement

The full-scale range of each analog instrument shall be not greater than three times the reference value. (OM-6, para. 4.6.1.2(a))

Where system resistance cannot be varied, flow rate and pressure shall be determined and compared to their respective reference value. (OM-6, para. 5.2(c))

Alternate Testing

CS pumps SIA-P03 and SIB-P03 will be tested at mini-flow conditions during plant operation per OM-6 para. 5.2(c), but flow rate will not be measured. SIA-P03 and SIB-P03 will be tested at design flow on a Cold Shutdown frequency. During design flow testing, the flow rate will be measured using instruments whose range and accuracy meet Code requirements, and the Code-required parameters will be measured and evaluated per OM-6 para. 5.2(d).

Basis for Relief

The containment spray pumps are single stage, vertical pumps normally lined up to the containment spray headers. The "rumble range" of the pumps, where operation is unstable due to flow oscillations, is approximately 1800-2800 gpm. Each CS pump has two possible recirculation flowpaths: a minimum-flow recirculation flowpath with a flow-limiting orifice capable of passing only a small fraction of the design flow, and a larger flowpath used mainly for RWT mixing. All the flowpaths pass through the flowmeter just downstream of the CS pump discharge. The recirculation flowpaths also pass through a common recirculation line flowmeter. The CS pump discharge flowmeter is an orifice-type analog flowmeter with a range of 0-5000 gpm. The common recirculation line flowmeter is a permanently-mounted ultrasonic flowmeter which has only limited capability. The accuracy of the ultrasonic flowmeter is not sufficient to meet OM-6 accuracy requirements or to be relied upon for determining pump operability.

The normal containment spray flow path cannot be used for testing the CS pumps without spraying down the inside of the containment building and risking damage to important equipment. The RCS injection portion of the shutdown cooling flow path cannot be used for testing during power

operation because the CS pumps are unable to develop sufficient discharge pressure to overcome RCS pressure.

The flow rate through the pump discharge flowmeter must be at least 1634 gpm to satisfy the full-scale range requirement of OM-6 para. 4.6.1.2(a). The flow capacity of the minimum-flow recirculation line is well below 1634 gpm. The larger recirculation flowpath is capable of carrying more than 1634 gpm, but routine surveillance testing at flow rates above this value is not practical because of the pump rumble range (1800-2800 gpm). Testing in or near the rumble range is not practical because of the potential for equipment damage. Testing at flow rates above the rumble range (> 2800 gpm) is not practical because flow velocities in the recirculation piping would exceed the design criteria.

During cold shutdowns, the shutdown cooling flowpath is available for CS pump testing. At design flow, the CS pump discharge flowmeter meets the range requirements of OM-6 para. 4.6.1.1. It also meets the accuracy requirements of OM-6 para. 4.6.1.2. This flowmeter will be used to measure flow during the design flow test.

The CS pumps are standby pumps. Little degradation is expected during power operation. The alternate testing will adequately monitor these pumps to ensure continued operability and availability for accident mitigation.

Approval

This relief request complies with the requirements of Generic Letter 89-04 Position 9. No additional approval is required.

This relief request is similar to Pump Relief Request No. 6 previously approved during the first 10-year IST interval per SER dated November 15, 1988, TER section 3.2.3, except that design flow testing will be performed on a Cold Shutdown frequency rather than a Refueling frequency.