

May 23, 2006

MEMORANDUM TO: David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Mel B. Fields, Senior Project Manager **/RA/**
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNIT 1 -
SUMMARY OF MEETING HELD ON MAY 11, 2006, HIGH-LEVEL
VIBRATION ISSUE IN SHUTDOWN COOLING LINE

On May 11, 2006, Arizona Public Service Company (APS), the licensee for Palo Verde Nuclear Generating Station (Palo Verde), Units 1, 2, and 3, met with the Nuclear Regulatory Commission (NRC) staff at NRC Headquarters in Rockville, Maryland. The purpose of the meeting was to discuss the vibration issue present in the Palo Verde Unit 1 shutdown cooling (SDC) lines.

The discussions included a description of the vibration history, the phenomena that the licensee believes is causing the high vibrations, and the physical modifications underway to eliminate the high-level vibration. The vibrations were detected several fuel cycles ago but did not prevent the unit from operating at normal power levels until it exited the fall 2005 refueling outage. Since exiting this outage, the licensee has not operated the unit above approximately 32% power due to the vibration levels in this SDC line. Unit 1 is currently shutdown and defueled to implement modifications to eliminate the high-level vibrations.

The licensee believes that the direct cause of the vibration condition is the development of pressure pulsations in the SDC line resulting from coupling between the fundamental acoustic frequency of the SDC suction line and the shear layer instability (vortex shedding) due to reactor coolant system flow over the SDC suction nozzle.

The physical modifications underway to eliminate the high-level vibration consist of relocating the isolation valve closest to the reactor coolant system hot leg to a location closer to the hot leg. The licensee believes that this modification will increase the acoustical frequency away from shedding modes and pipe modes.

A list of attendees is provided as an enclosure to this memorandum. There were no members of the public represented at the meeting. The slides used during the meeting by APS are available in the Agencywide Documents Access and Management System under Accession Number ML061360368.

Docket No. 50-528

Enclosure: As stated

cc w/encl: See next page

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NRC-001

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MAY 11, 2006

ARIZONA PUBLIC SERVICE COMPANY

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

HIGH-LEVEL VIBRATION ISSUE IN SHUTDOWN COOLING LINE

LIST OF ATTENDEES

Arizona Public Service Company

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Enclosure

Palo Verde Generating Station,
Units 1, 2 & 3

cc:

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March 2006

Palo Verde Generating Station,
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March 2006