PALO VERDE NUCLEAR GENERATING STATION UNIT 3
POST ACCIDENT SAMPLING SYSTEM INOPERABLE
GREATER THAN SEVEN DAYS

Docket No. 50-530

License No. NPF-74

Special Report No. 3-SR-92-006-02

INITIAL CONDITIONS:

This Special Report is being submitted pursuant to Technical Specifications (TS) 3.3.3.1 ACTION 28 and TS 6.9.2 to report an event in which the Post Accident Sampling System (PASS) was inoperable for a period greater than seven (7) days. The seven-day period for returning PASS to service was exceeded at approximately 1515 MST on December 24, 1992.

BACKGROUND INFORMATION:

PASS is designed to sample reactor coolant and containment atmosphere under post accident conditions. The liquid sample portion of the system provides pressurized and depressurized reactor coolant samples as required for analysis. The gas sample portion of the system provides containment atmosphere samples as required for analysis.

ACTIONS TAKEN:

On December 17, 1992, Palo Verde Unit 3 was in Mode 1 (POWER OPERATION) when Control Room personnel declared PASS inoperable at approximately 1515 MST following the failure to meet the pressurized sample portion of the acceptance criteria for the monthly functional surveillance requirement. On December 19, 1992, following troubleshooting, two valves (HV-22 and HV-23) were replaced due to suspected leakage. An additional valve (PSV-101) was replaced when Chemistry technicians could not establish a vacuum on the PASS pressurized sample flask. When Chemistry technicians were unable to obtain the proper flow for the PASS pressurized sample, following troubleshooting, it was discovered that an incorrect actuator was installed during the replacement of HV-22. Following replacement of the actuator, at approximately 1625 MST on December 22, 1992, a pressurized sample was obtained and the acceptance criteria for the monthly functional surveillance requirement was met.

However, on December 22, 1992, a new revision of the monthly functional surveillance procedure, which included intent changes, became effective and Unit 3 Chemistry management determined that the pressurized portion of the surveillance testing (ST) should be reperformed using the new ST procedure. PASS failed to meet the pressurized sample portion of the new acceptance criteria for the monthly functional surveillance requirement.

On December 23, 1992, during attempts to reperform the PASS pressurized sample portion of the ST, Chemistry technicians discovered seat leakage on valve HV-22 and packing leakage on HV-23. Further troubleshooting, performed on December 24, 1992, discovered that HV-22 had been installed backwards. At approximately 1815 MST on December 24, 1992, the Preplanned Alternate Sampling Program was initiated in accordance with TS 3.3.3.1 ACTION 28. On December 26, 1992, following replacement of HV-22 and restoration of PASS, a pressurized sample was obtained and the acceptance criteria for the monthly functional surveillance requirement was met.

PLANS AND SCHEDULE FOR RESTORING THE SYSTEM TO SERVICE:

Following satisfactory completion of repairs and required surveillance testing, PASS was returned to OPERABLE status at approximately 1100 MST on December 26, 1992.

ENCLOSURE 2

CAUSE OF POST ACCIDENT SAMPLING SYSTEM INOPERABILITY

CAUSE OF THE INOPERABILITY

An evaluation was performed in accordance with the PVNGS Incident Investigation Program. The evaluation identified that several weaknesses existed in the processes used in testing, troubleshooting, and repairing PASS that contributed to delays in returning PASS to an operable status within the seven day period allowed by the TS ACTION statement. The evaluation determined that these weaknesses have persisted because management attention was not adequately applied to ensure that personnel had the adequate tools and/or training available to restore PASS to an operable status. The following weaknesses were identified by the evaluation:

1. Inadequate documentation (i.e., system description and technical manuals) and drawings resulted in the development of work documents which did not provide sufficient guidance for troubleshooting and repair for PASS restoration.

2. Chemistry technicians responsible for the operation of PASS had not been expected to possess specific PASS system/component design knowledge required to assist in troubleshooting, thereby impeding their ability to communicate pertinent information to the work group and expedite the return of PASS to an operable status.

3. Schedulers, planners, and maintenance technicians had not been expected to possess specific PASS system/component design knowledge, thereby impeding their ability to generate, as well as implement, work documents necessary to return PASS to an operable status. The improper valve installations that occurred during recent PASS repair activities are not only attributable to personnel error or poor work practices, but also to insufficient understanding of PASS 3-way valve orientation and PASS flow paths.

4. Due to PASS complexity and restricted access, regular maintenance, troubleshooting, and repairs are time-consuming. This weakness has been discussed, however, an evaluation to examine PASS configuration as well as component reliability to determine if practical upgrades to facilitate PASS maintenance activities were feasible and cost beneficial was not initiated.

The items discussed above are indicative of a lack of management attention to the longstanding problems with PASS. To address these issues, the following corrective actions are being implemented to ensure PASS is restored to an operable status in a timely manner:

1. A memo was distributed to Site Chemistry personnel stating that PASS troubleshooting and repair is to be coordinated with the responsible work group rather than through the system engineer.

2. Existing training for chemistry technicians, maintenance technicians, schedulers, and planners was evaluated and upgraded as necessary to ensure that enhanced PASS system/component information is incorporated. The evaluation was completed on June 28, 1993.

3. APS Engineering reviewed past corrective maintenance documents and concurred that design upgrades (see corrective action 4) and a model work order document (see corrective action 5) should increase component reliability. This review was completed on July 30, 1993.

4. APS Engineering evaluated the current PASS configuration and submitted suggested upgrades to appropriate personnel on July 30, 1993.

5. On December 16, 1993, PASS training was provided to personnel responsible for developing a model work order document. The model work order document, which should significantly reduce the process to troubleshoot and repair PASS, is expected to be completed by January 31, 1994. Furthermore, a review of existing PASS documentation and drawings and their accessibility is being performed in parallel with the development of the model work order document.