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SUBJECT: Submits post accident sampling sys requirements of interest,
 summarized in mod of post accident sampling sys commitments
 topical rept, followed by licensee currently using to comply
 w/requirements. S

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EXECUTIVE VICE PRESIDENT
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April 29, 1994

U. S. Nuclear Regulatory Commission
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Reference: Licensing Topical Report No. CEN-415, Revision 1-A, "Modification of Post Accident Sampling System Requirements," dated September 1993

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Modification of Post Accident Sampling System Commitments
File: 94-009-545

Arizona Public Service Company (APS) has reviewed the Post Accident Sampling System (PASS) commitments made during initial licensing and has identified some commitments that could be relaxed or modified based on the referenced Licensing Topical Report and associated Safety Evaluation Report (TAC No. M82498). The enclosure lists the PASS requirements of interest, as summarized in the referenced topical report, followed by the methods APS is currently using to comply with the requirements, the methods that APS intends to use in the future, and a brief justification for any change (detailed justification is provided in the referenced topical report).

Should you have any questions, please contact Angela K. Krainik at (602) 393-5421.

Sincerely,



WFC/AKK/DLK/rv
Enclosure

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ENCLOSURE

MODIFICATION OF POST ACCIDENT SAMPLING SYSTEM (PASS)

COMMITMENTS

Modification of Post Accident Sampling System Commitments

Arizona Public Service Company (APS) is seeking relief from several commitments that were made during initial licensing to comply with the requirements listed in NUREG-0737, Section II.B.3. The NRC recently reviewed Licensing Topical Report CEN-415, Revision 1, and issued a Safety Evaluation Report (SER), TAC No. M82498, that approved proposed modifications for the following topics: measurement of reactor coolant pH, measurement of containment hydrogen concentration, heat tracing of sample lines, oxygen analysis of reactor coolant, and required sample points.

APS has reviewed the current Palo Verde Nuclear Generating Station (PVNGS) licensing and design basis for the PASS against the proposed modifications discussed in the referenced topical report, and found that some of the approved modifications would be beneficial. APS intends to proceed with the following PASS commitment modifications under the provisions of 10 CFR 50.59.

1.0 Measurement of Reactor Coolant pH

1.1 Requirement

NUREG-0737, Section II.B.3

There is no specific requirement to monitor Reactor Coolant System (RCS) pH. Measurement of RCS and containment sump pH, however, is recommended by Regulatory Guide 1.97.

1.2 Current Condition

APS measures the RCS, the Safety Injection (SI) system, and the auxiliary building and containment sump pH to comply with the licensing commitments for the PASS. Operability is demonstrated through the performance of 74ST-9SS03, "Post Accident Sampling System Surveillance."

1.3 Proposed Modification

APS intends to delete the requirement to measure the RCS, the SI system, and the auxiliary building and containment sump pH and rely on trisodium phosphate (TSP) baskets, installed in the containment sump, to control $\text{pH} \geq 7$. The portions of 74ST-9SS03 that verify the capability to measure pH will be deleted.

1.4 Justification

Controlling pH in the containment sump at ≥ 7 in a post accident condition is necessary to minimize corrosion of RCS components and ensure that re-evolution of dissolved iodine does not occur. The containment sumps at PVNGS are designed with storage baskets containing 464 ft³ of TSP. The containment sump system, as described in the PVNGS Updated Final Safety Analysis Report, Section 6.1, was designed and analyzed to raise the containment sump solution to pH ≥ 7 . Operability will be demonstrated through the performance of 74ST-9SI03, "Emergency Core Cooling System Trisodium Phosphate Surveillance Test," which satisfies Technical Specification Surveillance Requirement 4.5.2.d.3.

2.0 Measurement of Containment Hydrogen Concentration

2.1 Requirement

NUREG-0737, Section II.B.3, Criteria 2b and 8

Criterion 2b requires PASS to have the capability to quantify hydrogen levels in the containment atmosphere. Criterion 8 states in part, "If in-line monitoring is used for any sampling and analytical capability specified herein, the licensee shall provide backup sampling through grab samples...."

2.2 Current Condition

Each unit at PVNGS is designed with two in-line safety related containment post-LOCA (Loss of Coolant Accident) hydrogen monitors, capable of measuring containment hydrogen concentration following an accident to comply with licensing commitments for the PASS. In addition, containment atmosphere grab sample capability is provided to measure containment hydrogen concentration. Both the containment post-LOCA hydrogen monitors and containment atmosphere grab sample capability are verified operable through the performance of the following tests:

- 36ST-9HP03, "Containment Hydrogen Monitoring System Calibration Test, Channel A";
- 36ST-9HP04, "Containment Hydrogen Monitoring System Calibration Test, Channel B";
- 36ST-9HP05, "Containment Hydrogen Monitoring System Functional Test, Channel A";

- 36ST-9HP06, "Containment Hydrogen Monitoring System Functional Test, Channel B";
- 74ST-9SS03, "Post Accident Sampling System Surveillance";
- 74ST-9SS04, "PASS Functional Test";
- 40ST-9ZZ32, "Mode 2 Surveillance Logs"; and
- 40ST-9ZZ33, "Mode 1 Surveillance Logs"

2.3 Proposed Modification

APS intends to delete the requirement to measure containment hydrogen concentration by way of grab samples and rely on the in-line safety related containment post-LOCA hydrogen monitors. The portions of 74ST-9SS03 and 74ST-9SS04 that verify the operability of grab sample capability to measure containment hydrogen concentration will be deleted.

2.4 Justification

The two containment post-LOCA hydrogen monitors are qualified safety-related equipment located in independent trains. This design provides adequate reliability, in a post accident condition, to ensure that the hydrogen content of the containment atmosphere is known on a real time basis for operators to prevent the formation of an explosive atmosphere, and for use in core damage assessment. Operability will be demonstrated through the performance of 36ST-9HP03, 36ST-9HP04, 36ST-9HP05, 36ST-9HP06, 40ST-9ZZ32 and, 40ST-9ZZ33 which satisfy Technical Specification Surveillance Requirement 4.6.4.1.

3.0 RCS Oxygen Analysis

3.1 NUREG-0737, Section II.B.3, Criteria 2 and 4

Criterion 2 states in part that on-site radiological and chemical analysis capability be established for quantification of "(c) dissolved gases (e.g., hydrogen), chloride" Criterion 4 states in part, "Measuring the oxygen concentration is recommended, but not mandatory."

3.2 Current Condition

APS measures dissolved oxygen in the RCS to minimize the corrosive effects oxygen has on austenitic stainless steel. The dissolved oxygen measurement is a licensing commitment for the PASS. Operability is demonstrated through the performance of 74ST-9SS03.

3.3 Proposed Modification

APS intends to delete the requirement to measure dissolved oxygen in the RCS and use the oxygen concentration of the Refueling Water Tank (RWT) or containment atmosphere (depending on whether the accident is a small or large break LOCA).

3.4 Justification

During a small break LOCA, the borated water source is the RWT. The oxygen concentration of the RWT can be determined by direct analysis or calculation.

During a large break LOCA, the reactor coolant fills the containment sump and is circulated into the containment atmosphere through the containment spray header and into the RCS via the Low Pressure SI system. Using containment pressure and temperature, and assuming the air-steam-hydrogen atmosphere in containment is at saturation, the oxygen concentration can be calculated.

4.0 Required Sample Points

4.1 Requirement

NUREG-0737, Section II.B.3, Criteria 1 and 11a

Criterion 1 requires the PASS to "... have the capability to promptly obtain reactor coolant samples and containment atmosphere samples." Criterion 11a states in part, "The post accident reactor coolant and containment atmosphere samples should be representative of the reactor coolant in the core area and the containment atmosphere following a transient or accident."

4.2 Current Condition

The Unit 1 PASS sample points are the "A" train SI, RCS hot leg, containment atmosphere, auxiliary building radwaste sump, and containment sump. In addition to the sample points listed for Unit 1, Units 2 and 3 have sample points on "B" train SI and letdown. Operability of the sample points is demonstrated through the performance of 74ST-9SS03 and 74ST-9SS04.

4.3 Proposed Modification

APS intends to define the following set of uniform sampling points for Units 1, 2, and 3: "A" train SI, RCS hot leg, and containment atmosphere. An evaluation of the current Unit 1 design is necessary prior to establishing the "B" train SI as a PASS sample point (a system hardware modification may be needed). The portions of 74ST-9SS03 and 74ST-9SS04, that verify operability of the auxiliary building radwaste sump, the containment sump, and the letdown sample points, will be deleted.

4.4 Justification

The primary function of the PASS is to evaluate the condition of the core under post accident conditions. The proposed sample points provide the means necessary for sampling the reactor coolant and containment atmosphere in order for the control room operators to assess and maintain RCS and containment integrity for the purpose of mitigating the accident and preventing radioactive releases to the public. Operability will be demonstrated through the performance of 74ST-9ZZ03 and 74ST-9ZZ04 which satisfy Technical Specification Surveillance Requirement 4.3.3.1, Table 4.3-3.

