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SUBJECT: Forwards response to request for addl info on GL 88-14, D
 "Instrument Air Supply Sys Problems Affecting Safety....:" S

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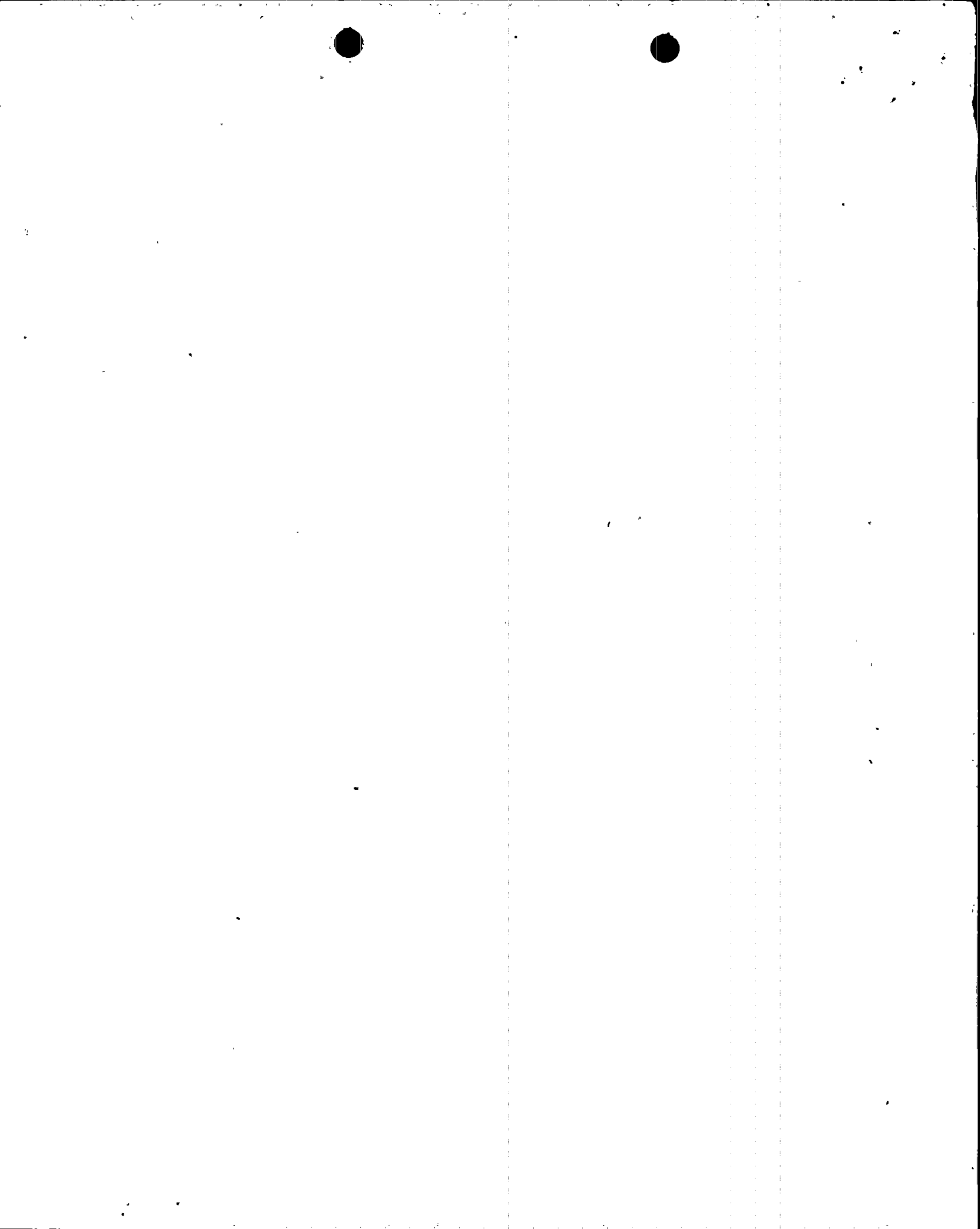
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161-03606-WFC/JMQ

November 20, 1990

Docket 528/529/530

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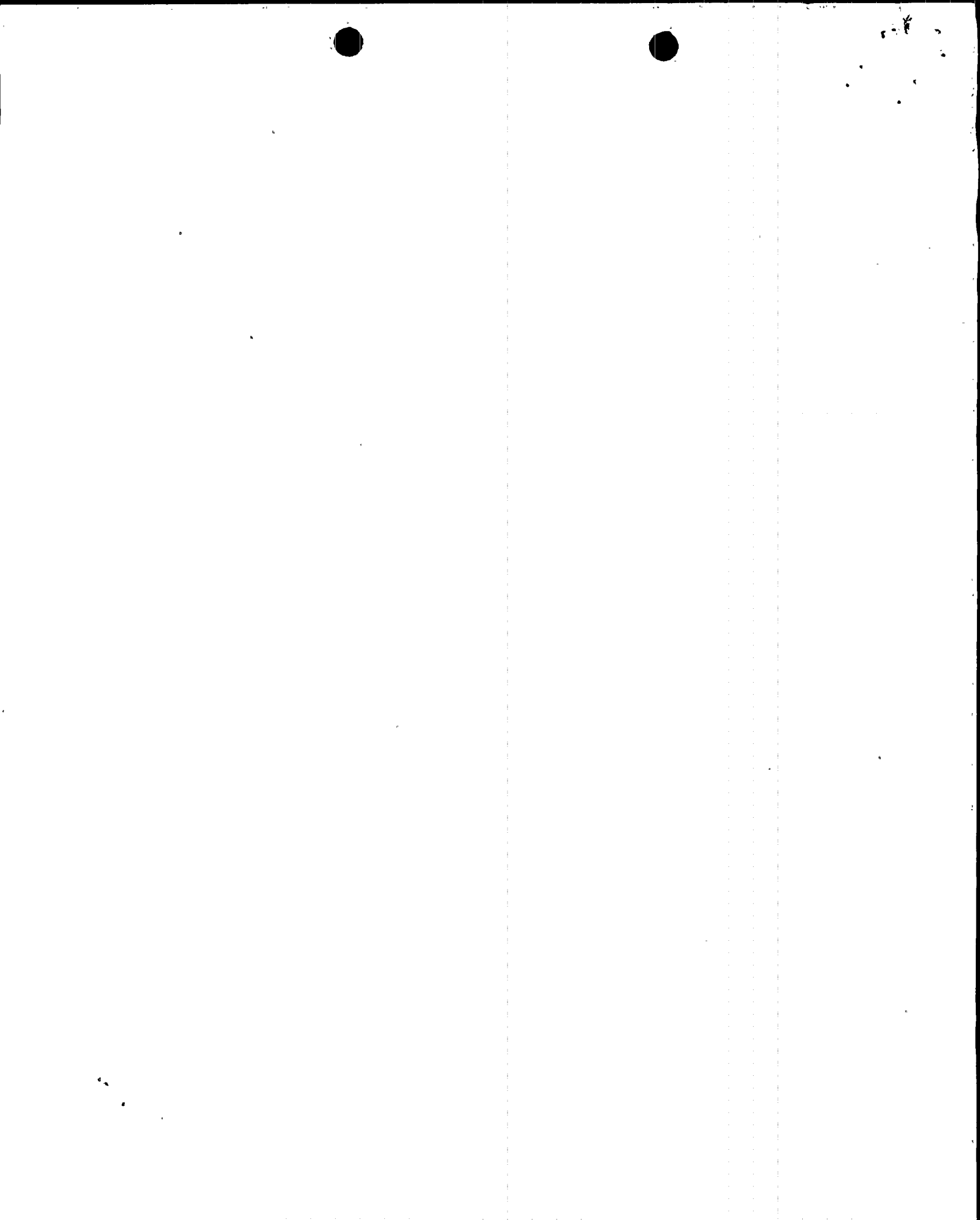
- References: A) Letter from NRC to W. F. Conway, APS dated September 18, 1990, Subject: 88-14 "Instrument Air Supply System Problems Affecting Safety Related Equipment," Request for Additional Information.
- B) Letter from D. B. Karner, APS to NRC dated February 20, 1989 (161-01697), Subject: "Generic Letter 88-14 "Instrument Air Supply System Problems Affecting Safety Related Equipment."
- C) Letter from D. B. Karner, APS to NRC dated April 27, 1989 (161-01881), Subject: Supplemental Response to Generic Letter 88-14 "Instrument Air Supply System Problems Affecting Safety Related Equipment."
- D) Letter from W. F. Conway, APS to NRC dated April 6, 1990 (161-03061), Subject: "Additional Information Requested on PVNGS Instrument Air System."
- E) Letter from J. N. Bailey, APS to J. B. Martin, NRC, (102-01474) dated October 16, 1989, Subject: "Updated Technical Report Addressing Unit 3 Trip Concerns."

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Response to Request for Additional Information
on Generic Letter 88-14
File: 90-056-026

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November 20, 1990

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Attached is the APS response to the Reference A request for additional information. If you have any questions, please contact M. E. Powell of my staff at (602) 340-4981.

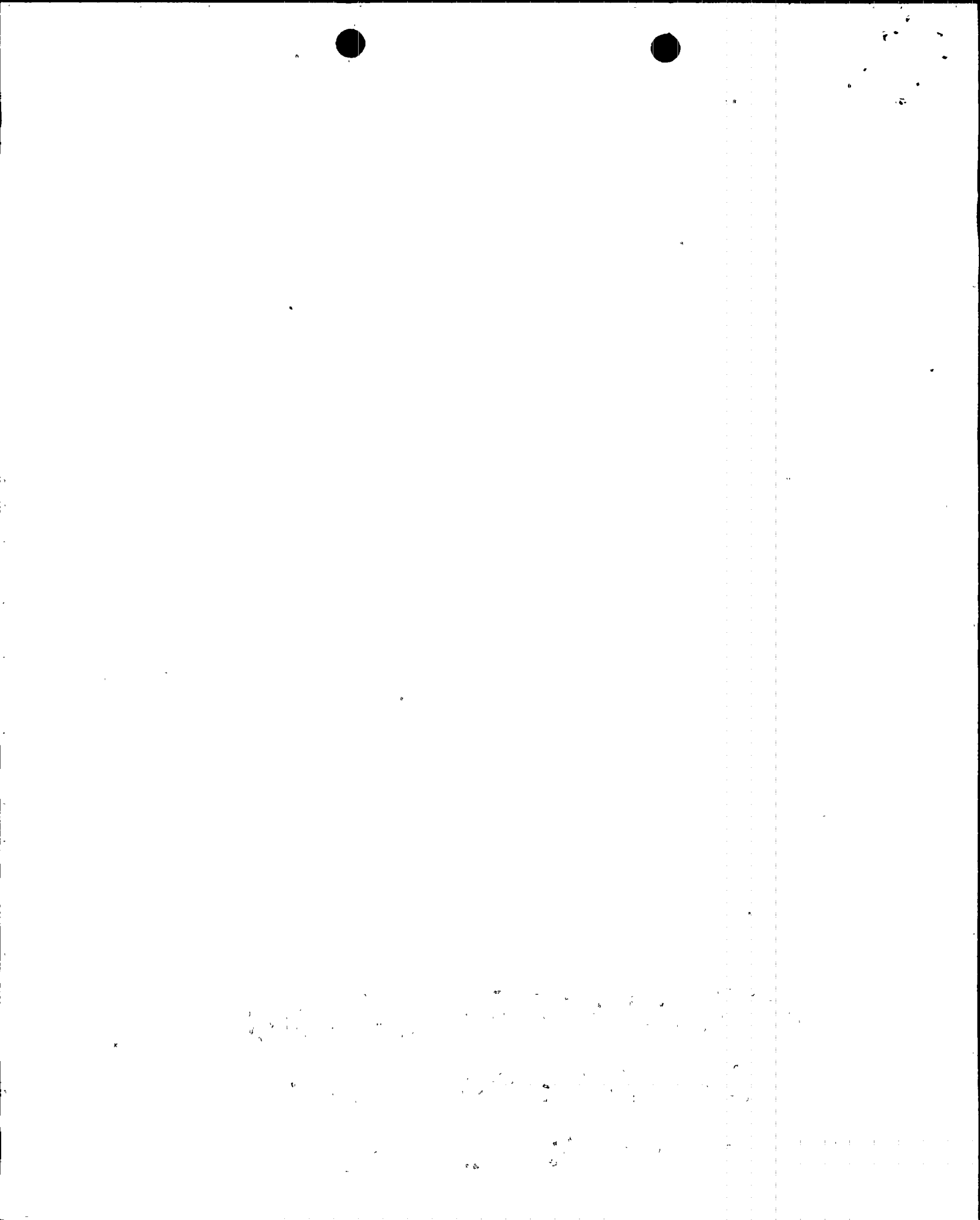
Sincerely,



WFC/JMQ/pmm

Attachments

cc: D. H. Coe
J. B. Martin
A. C. Gehr
A. H. Gutterman



RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION ON GENERIC LETTER 88-14

NRC QUESTION 1.

Your initial letter of February 20, 1989, disclosed that the measured dew point at Unit 2 was greater than the design value and that compensatory measures had been put in place to prevent moisture accumulation. You also stated that because all three units are of standard design, the test results are expected to be similar. This would lead to the conclusion that moisture may also be a problem on Units 1 and 3 as well.

Indeed, the compressed gas report states (page 55) that "...a number of observations of excessive moisture in the compressed gas lines have been documented at all three units." Additional problems with moisture are documented in NRC Inspection 90-03 issued on April 13, 1990.

With this as background, we would have expected some discussion in your supplemental letter of April 27, 1989, about the moisture problem reported on Unit 2 on February 20, 1989, and how it was resolved. It also raises questions about the other units, which, because of their similarity, would be expected to have the same problem.

Accordingly, you are requested to provide this information, including any available test results on moisture for Units 1 and 3.

APS RESPONSE:

The initial response to Generic Letter 88-14, Reference B stated that an air quality test was currently being conducted in Unit 2 with preliminary results after four days showing the dew point approximately -10°F at 120 psig. Our preliminary values indicated that the design dew point value of -40°F at 125 psig were not being met. Additional testing, as provided in the Reference C letter indicated that the measured dew point ranged between -58°F and -85°F at 125 psig. Therefore, the Reference C test results are within the requirement for dew point. Test results conducted during the most humid months are provided in the APS Response to NRC Question 2. These results are also within the requirement for dew point.

As stated in the PVNGS Design Basis Manual, APS utilizes ISA-S7.3-1975 "Quality Standard for Instrument Air" as guidance for controlling air quality. The ISA-S7.3-1975 recommends that the dew point at line pressure be at least 18°F below the minimum design temperature to which any part of the instrument air system is exposed. According to UFSAR Table 9.5-1, the winter minimum temperature is 11°F . The winter design temperature at PVNGS is 28°F at a .6 percent annual variance (52.5 h/yr) as stated in UFSAR. The lowest design temperature utilized at PVNGS is 25°F at a .2 percent annual temperature variance (17.4 h/yr) using the ASHRAE guide for Buckeye, Arizona. Therefore, 25°F was determined more appropriate to use instead of 11°F (as stated in the supplemental response of the Reference C letter) or the 28°F (as stated in UFSAR Table 9.5-1).

As described in the Compressed Gas Report, Reference E, the excessive moisture found in the instrument air lines was identified through a historical review of Engineering Evaluation Reports. Appendix B of the Compressed Gas Report provides a summary of this review. To ensure that the Compressed Gas System and its interfaces with safety related components are designed and maintained to appropriate standards, an action plan as described in the Compressed Gas Report, was developed. This action plan addressed improved maintenance practices, revised procedures, the review and verification of the system design basis, and air quality checks.

The problems discussed in the NRC Inspection Report 90-03, are primarily related to the actual hardware of the desiccant air dryers and their associated equipment. The Plant Modification Committee has authorized a preliminary engineering effort to be performed on a plant change package that is intended to replace or improve the existing air dryers and filters. A final action plan will be developed based upon the results of the preliminary engineering effort. The expected benefits from such a change would be an increase in system capacity with the ability to handle higher air flows expected during transient events, as well as improved controls, actuators and drain traps.

See the response to item 2, for air quality test results for Units 1, 2, and 3.

NRC QUESTION 2.

Your letter of April 27, 1989, stated that additional tests (for moisture) would be conducted during your most humid months to verify that dew points can be maintained within the design value. You are requested to provide the results of these additional tests.

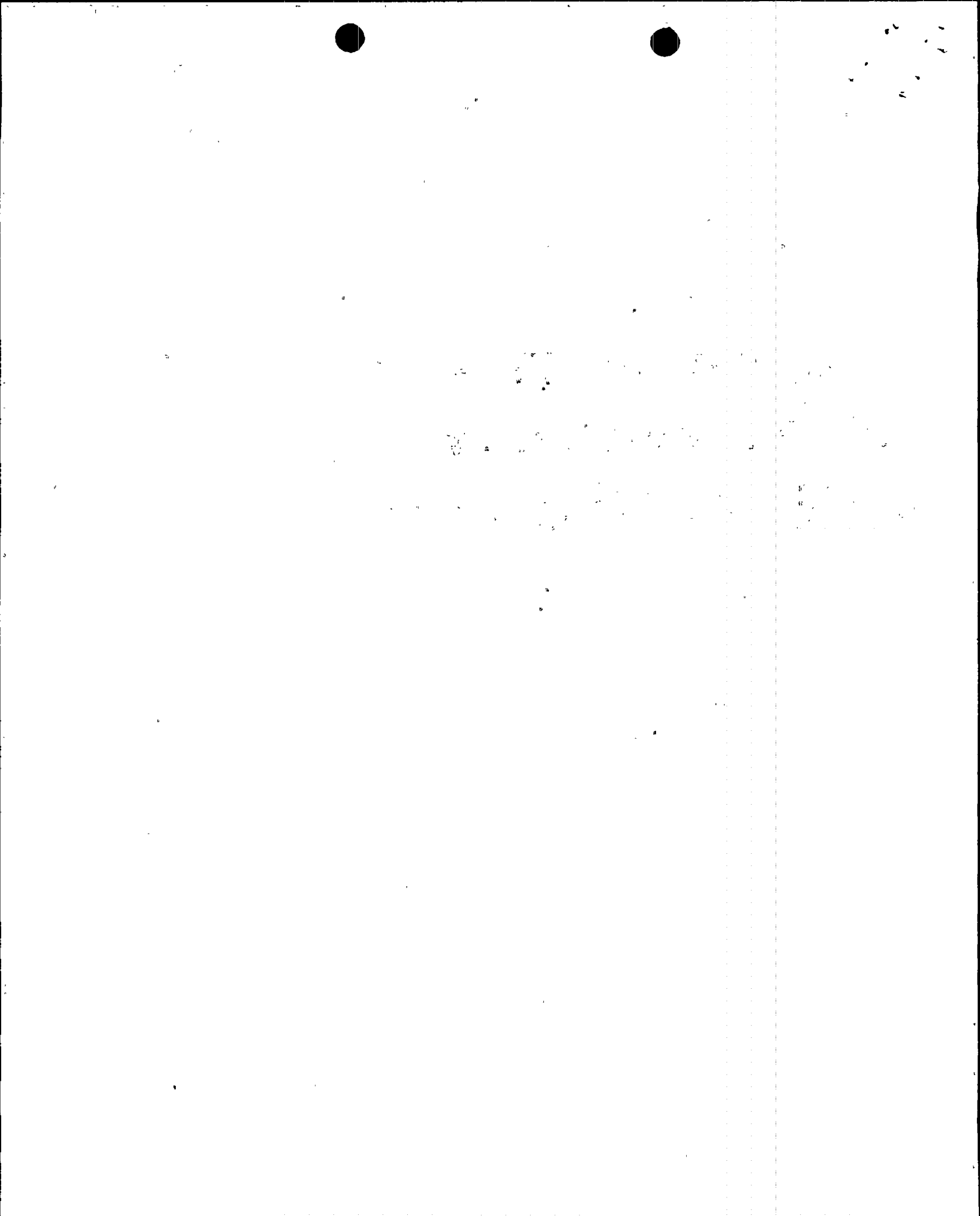
APS RESPONSE:

Air quality testing was conducted in August 1989 for all three units in an effort to ensure acceptable dew points during the most humid months. The testing was conducted over several days. The range of results for each unit are as follows:

Unit 1 "A" Train	-67°F to -101°F
Unit 1 "B" Train	-101.1°F to -104.8°F
Unit 2 "A" Train	-81.4°F to -88.6°F
Unit 2 "B" Train	-70.6°F to -76°F
Unit 3 "A" Train	-83.2°F to -97.6°F
Unit 3 "B" Train	-97.6°F*

These values are well with the guidelines of ISA-S7.3-1975.

*a number of readings yielded the same value, therefore no range was provided.



NRC QUESTION 3.

Your letter of April 27, 1989, also stated that the complete review for the adequacy of the existing design basis and development of the Design Basis Manual for instrument air would be completed during the first quarter of 1990. You are requested to provide the verification requested in GL 88-14 that this activity has been completed.

APS RESPONSE:

The review for the adequacy of the existing design basis and development of Design Basis Manual for instrument air has been completed.

NRC QUESTION 4.

As stated in the generic letter, when all requirements of the letter have been implemented, a written notification should be provided that all actions are completed.

APS RESPONSE:

All requirements of Generic Letter 88-14 have not been implemented. The open items from the Reference B, C and D letters are restated below:

February 20, 1989 letter - Reference B
(Action 2 - Training)

Instrument Air malfunction scenarios for initial licensed operator and licensed operator requalification simulator training have been developed in conjunction with the simulator certification under 10CFR55. Simulator certification scheduled for March 26, 1991 will allow for further upgrade of this scenario for all licensed operators.

April 27, 1989 - Reference C NO OPEN ITEMS

April 6, 1990 - Reference D
(Concern 3 - Table E-3)

Preventative Maintenance will be scheduled upon completion of a design change to install a pressure indicator of the service breathing air compressor JIANPI0214. Design changes are scheduled for implementation by the completion of the fourth operating cycle for each unit.

