

# FORD 1

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 CONWAY, W. F. Arizona Public Service Co. (formerly Arizona Nuclear Power  
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SUBJECT: Forwards addl info on request for TS amend re safety valve  
 setpoint tolerances.

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102-02727-WFC/RAB/RKR

November 12, 1993

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Washington, DC 20555

Reference: Letter dated September 2, 1993, from C. M. Trammell, NRC, to  
W. F. Conway, APS

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)**  
**Units 1, 2, and 3**  
**Docket Nos. STN 50-528/529/530**  
**Reply to NRC Request for Information**  
**File: 93-070-026**

The referenced letter requested Arizona Public Service Company (APS) to provide additional information for NRC to complete their review of APS' request for a Technical Specification amendment related to safety valve setpoint tolerances. Enclosure 1 is APS' response to your request for additional information. Enclosure 2 provides a discussion of the differences in the information provided in this submittal and APS' May 13, 1993 submittal.

Should you have any questions, please contact Richard A. Bernier at (602) 393-5882.

Sincerely,



WFC/RAB/RKR/rv

Enclosures

cc: B. H. Faulkenberry  
J. A. Sloan

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**ENCLOSURE 1**

**APS RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
FOR SAFETY VALVE SETPOINT TOLERANCES**

## **REPLY TO REQUEST FOR INFORMATION**

### **GENERAL**

#### **NRC REQUEST #1**

Please explain why the two tables of the safety valve as-found setpoints presented in your May 27, 1992, letter (see pp. 7-8) listed only those valves that were found with positive tolerance.

#### **APS RESPONSE**

The two tables referenced in this request were part of a response to a question regarding the PVNGS Root Cause Program for safety valves. The two tables were focused on the events of potential concern to the limiting analysis. The event of concern in the limiting analysis is the Loss of Condenser Vacuum (LOCV) event. The safety valves of concern for the LOCV analysis are those with as-found setpoints greater than plus one percent. Safety valves with as-found setpoints less than plus one percent result in earlier event mitigation and have a beneficial effect on the LOCV analysis by minimizing reactor coolant system (RCS) and secondary system peak pressure. Therefore, the root cause program was primarily concerned with the safety valves with as-found setpoints greater than plus one percent, and these safety valves were the only ones listed in the tables.

#### **NRC REQUEST #2**

Please provide that data used to construct the tables in your May 27, 1992, letter.

#### **APS RESPONSE**

Attachment 1 provides the as-found data for main steam safety valve (MSSV) testing through April 1993 and pressurizer safety valve (PSV) testing through September 1993. APS is unable to determine the cause of the errors in the tables in the May 27, 1992 letter. The personnel involved in developing the tables in the submittal are no longer employed by APS. The files containing the background information for the submittal only contain the rough draft of the tables, without the corresponding data. Attachment 2 provides a summary of safety valve setpoint tolerances.



**GENERAL (cont.)**

**NRC REQUEST #3**

How many of the pressurizer safety valves are tested during each outage?

**APS RESPONSE**

Currently all four of each units PSVs are tested during each refueling outage.



## **MAIN STEAM SAFETY VALVES**

### **NRC REQUEST #1**

Please explain why the number of valves with the as-found tolerance between 1% and 2% tolerance is different for Unit 2 in your May 27, 1992, letter than in your May 13, 1993, letter (26 vs. 27, respectively).

### **APS RESPONSE**

The data for the Unit 2 MSSV testing has been reevaluated and 27 MSSVs with an as-found tolerance between 1% and 2% is correct (see the APS Response to NRC General Request #2).

### **NRC REQUEST #2**

Your May 27, 1992, letter indicated that the total number of valves that had been tested for Unit 3 is 62. During the Unit 3 outage in October 1992, 20 additional main steam safety valves (MSSVs) were tested (see LER 92-005-01). Your May 13, 1993, letter states that 80 valves were tested. Please explain the discrepancy (80 vs. 82).

### **APS RESPONSE**

The May 27, 1992 letter counted two MSSVs from the February 1989, Unit 3 refueling outage twice. These MSSVs were tested at PVNGS and then retested at the offsite test facility (Wyle Labs). The retests for these two MSSVs (at the offsite test facility) were incorrectly included in the total MSSVs tested, resulting in the two MSSVs difference.



## **MAIN STEAM SAFETY VALVES (cont.)**

### **NRC REQUEST #3**

Your letter of May 27, 1992, indicates that for Unit 3 the number of valves with the as-found tolerance between 2% and 3% is 4. According to LER 92-005-01, two additional valves with the as-found tolerance between 2% and 3% tolerance were found. Please clarify why your May 13, 1993, letter gives the number of valves with the as-found tolerance between 2% and 3% as 5 rather than 6.

### **APS RESPONSE**

The data for the Unit 3 MSSV testing has been reevaluated and 5 MSSVs with an as-found tolerance between 2% and 3% is correct (see the APS response to NRC General Request #2).



## **PRESSURIZER SAFETY VALVES**

### **NRC REQUEST #1**

Your May 27, 1992, letter indicates that the total number of valves tested for Unit 1 is 11. However, in your May 13, 1993, letter, the total number of valves tested has decreased to 8. Please explain the reason for the decreased testing.

### **APS RESPONSE**

In September 1990, a Unit 1 PSV was replaced after developing RCS identified leakage of approximately 1.5 gallons per minute. The leaking PSV was replaced by a PSV on loan from San Onofre Nuclear Generating Station (SONGS). The SONGS PSV was initially tested (including as-found setpoint) and reset in accordance with the temperature profile for Unit 1. The PSV removed from Unit 1 was tested (including as-found setpoint), rebuilt, and reset. During the January 1991 Unit 1 surveillance test (ST) outage, the SONGS PSV was replaced with the rebuilt Unit 1 PSV. The SONGS PSV was then tested (including as-found setpoint) and reset in accordance with the temperature profile for SONGS. The as-found setpoints for all three of these tests were included in the May 27, 1992 letter, but were omitted from the May 13, 1993 because they were not part of the normal testing. The initial testing of the SONGS PSV should not have been included in the May 27, 1992 letter, it was not an as-found setpoint for PVNGS. The as-found test results for the Unit 1 PSV and the SONGS PSV (after removal from Unit 1) have been included in the summary of PSV test results in Attachments 1 and 2.

### **NRC REQUEST #2**

Please provide an explanation regarding the omission of the Unit 3, April 1991 outage test data in your May 27, 1992, letter.

### **APS RESPONSE**

The Unit 3, April 1991 outage data was included in the May 27, 1992 letter. The inconsistency between the May 27, 1992 letter, and the May 13, 1993 letter resulted from the May 13, 1993 letter, incorrectly listing Unit 3 PSV data for April 1989. Unit 3 PSVs were not tested in April 1989.



## **PRESSURIZER SAFETY VALVES (cont.)**

### **NRC REQUEST #3**

Please explain the discrepancy in the number of valves with the as-found tolerance between 1% and 2% cited in your May 27, 1992, and May 13, 1993, letters (3 vs. 2, respectively). In addition, please explain why the number of valves with the as-found tolerance greater than 3% in your May 27, 1992, letter is 0 and the number of valves with the as-found tolerance between 3% and 4% is 1.

### **APS RESPONSE**

The data for the Unit 2 PSV testing has been reevaluated, and 2 PSVs with an as-found tolerance between 1% and 2% is correct and 1 PSV with an as-found tolerance between 3% and 4% is correct (see the APS response to NRC General Request #2).

#### **Attachments:**

1. AS-FOUND MSSV AND PSV SETPOINTS AND TOLERANCES
2. SUMMARY OF SAFETY VALVE SETPOINT TOLERANCES





**ATTACHMENT 1**

**AS-FOUND MSSV AND PSV SETPOINTS AND TOLERANCES**

# UNIT 1 - AS-FOUND MSSV SETPOINT DATA

| UNIT 1 - OCTOBER 1987 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                           |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                     | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1273/1.8%              | 555                       | 1266/-1.8%             | 556                       | 1331/1.2%              | 557                       | 1367/3.9%              |
| 561   | 1251/0.1%              | 560                       | 1300/0.8%              | 558                       | 1338/1.7%              | 559                       | 1313/-0.2%             |
| 572   | 1262/0.9%              | 573                       | 1304/1.1%              | 694                       | 1319/0.3%              | 695                       | 1316/0.1%              |
| 579   | 1185/-5.2%             | 578                       | 1296/0.5%              | 574                       | 1340/1.9%              | 575                       | 1330/1.1%              |
|   |                        |                           |                        | 576                       | 1314/-0.1%             | 577                       | 1309/-0.5%             |
|   |                        |                           |                        | 691                       | 1337/1.7%              | 692                       | 1336/1.6%              |

| UNIT 1 - APRIL 1989 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                         |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                   | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1269/1.5%              | 555                       | 1302/0.9%              | 556                       | 1344/2.2%              | 557                       | 1350/2.6%              |
| 561   | 1253/0.3%              | 560                       | 1325/2.7%              | 558                       | 1318/0.2%              | 559                       | 1321/0.5%              |
| 572   | 1275/1.9%              | 573                       | 1312/1.7%              | 694                       | 1330/1.2%              | 695                       | 1324/0.7%              |
| 579   | 1256/0.5%              | 578                       | 1333/3.3%              | 574                       | 1317/0.2%              | 575                       | 1341/1.9%              |
|   |                        |                           |                        | 576                       | 1318/0.3%              | 577                       | 1318/0.3%              |
|   |                        |                           |                        | 691                       | 1341/1.9%              | 692                       | 1331/1.2%              |



# UNIT 1 - AS-FOUND MSSV SETPOINT DATA (CONT.)

| UNIT 1 - APRIL 1990 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                         |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                   | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1239/-0.9%             | 555                       | 1285/-0.4%             | 556                       | 1240/-5.7%             | 557                       | 1315/0.0%              |
| 561   | 1259/0.7%              | 560                       | 1316/2.0%              | 558                       | 1333/1.3%              | 559                       | 1327/0.9%              |
| 572   | 1245/-0.4%             | 573                       | 1284/-0.5%             | 694                       | 1326/0.8%              | 695                       | 1335/1.5%              |
| 579   | 1282/2.5%              | 578                       | 1294/0.3%              | 574                       | 1311/-0.3%             | 575                       | 1324/0.7%              |
|   |                        |                           |                        | 576                       | 1324/0.7%              | 577                       | 1331/1.2%              |
|   |                        |                           |                        | 691                       | 1308/-0.6%             | 692                       | 1312/-0.2%             |

| UNIT 1 - MARCH 1992 - AS-FOUND MSSV SETPOINT DATA   |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG   |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER   | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1267/1.3%              | 555                       | 1300/0.8%              | 556                       | 1334/1.4%              | 557                       | 1319/0.3%              |
| 561   | 1268/1.4%              | 560                       | 1346/4.3%              | 558                       | 1325/0.8%              | 559                       | 1335/1.5%              |
| 572   | 1235/-1.2%             | 573                       | 1313/1.8%              | 694                       | 1335/1.5%              | 695                       | 1325/0.8%              |
| 579   | 1306/4.4%              | 578                       | 1337/3.6%              | 574                       | 1374/4.4%              | 575                       | 1329/1.1%              |
| Note: Valve Number 576 did not have as-found test data due to excessive leakage during testing. |                        |                           |                        | 576                       | See Note               | 577                       | 1320/0.4%              |
|   |                        |                           |                        | 691                       | 1305/-0.8%             | 692                       | 1339/1.8%              |



## UNIT 2 - AS-FOUND MSSV SETPOINT DATA

| UNIT 2 - FEBRUARY 1988 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|--|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                            |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                      | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554  | 1255/0.4%              | 555                       | 1272/-1.4%             | 556                       | 1358/3.2%              | 557                       | 1352/2.8%              |
| 561  | 1294/3.5%              | 560                       | 1294/0.3%              | 558                       | 1339/1.8%              | 559                       | 1345/2.3%              |
| 572  | 1225/-2.0%             | 573                       | 1323/2.5%              | 694                       | 1306/-0.7%             | 695                       | 1341/2.0%              |
| 579  | 1267/1.3%              | 578                       | 1316/2.0%              | 574                       | 1321/0.5%              | 575                       | 1304/-0.8%             |
|  |                        |                           |                        | 576                       | 1374/4.4%              | 577                       | 1342/2.03%             |
|  |                        |                           |                        | 691                       | 1307/-0.6%             | 692                       | 1345/2.3%              |

| UNIT 2 - JUNE 1989 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|--|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                        |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                  | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554  | 1261/0.9%              | 555                       | 1271/-1.4%             | 556                       | 1312/-0.2%             | 557                       | 1308/-0.5%             |
| 561  | 1257/0.6%              | 560                       | 1305/1.1%              | 558                       | 1300/-1.1%             | 559                       | 1307/-0.6%             |
| 572  | 1269/1.5%              | 573                       | 1281/-0.7%             | 694                       | 1296/-1.4%             | 695                       | 1312/-0.2%             |
| 579  | 1264/1.1%              | 578                       | 1288/-0.2%             | 574                       | 1335/1.5%              | 575                       | 1301/-1.1%             |
|  |                        |                           |                        | 576                       | 1331/1.2%              | 577                       | 1315/0.0%              |
|  |                        |                           |                        | 691                       | 1294/-1.6%             | 692                       | 1318/0.2%              |



## UNIT 2 - AS-FOUND MSSV SETPOINT DATA (CONT.)

| UNIT 2 - SEPTEMBER 1989 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                             |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                       | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1258/0.7%              | 555                       | 1299/0.7%              | 556                       | 1326/0.9%              | 557                       | 1322/0.6%              |
| 561   | 1252/0.2%              | 560                       | 1297/0.5%              | 558                       | 1328/1.1%              | 559                       | 1300/-1.1%             |
| 572   | 1264/1.1%              | 573                       | 1318/2.2%              | 694                       | 1333/1.3%              | 695                       | 1312/-0.3%             |
| 579   | 1268/1.4%              | 578                       | 1299/0.7%              | 574                       | 1324/0.7%              | 575                       | 1324/0.7%              |
|   |                        |                           |                        | 576                       | 1348/2.5%              | 577                       | 1326/0.9%              |
|   |                        |                           |                        | 691                       | 1338/1.7%              | 692                       | 1331/1.2%              |

| UNIT 2 - JULY 1990 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|--|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                        |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                  | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554  | 1259/0.7%              | 555                       | 1293/0.2%              | 556                       | 1328/0.9%              | 557                       | 1320/0.4%              |
| 561  | 1255/0.4%              | 560                       | 1284/-0.5%             | 558                       | 1325/0.7%              | 559                       | 1304/-0.8%             |
| 572  | 1249/-0.1%             | 573                       | 1294/0.3%              | 694                       | 1318/0.2%              | 695                       | 1320/0.4%              |
| 579  | 1254/0.3%              | 578                       | 1305/1.2%              | 574                       | 1341/1.9%              | 575                       | 1312/-0.2%             |
|  |                        |                           |                        | 576                       | 1331/1.2%              | 577                       | 1320/0.4%              |
|  |                        |                           |                        | 691                       | 1335/1.5%              | 692                       | 1321/0.5%              |





## UNIT 2 - AS-FOUND MSSV SETPOINT DATA (CONT.)

| UNIT 2 - OCTOBER 1991 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                           |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                     | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1269/1.5%              | 555                       | 1332/3.2%              | 556                       | 1336/1.6%              | 557                       | 1334/1.4%              |
| 561   | 1255/0.4%              | 560                       | 1263/-2.1%             | 558                       | 1328/1.0%              | 559                       | 1313/-0.2%             |
| 572   | 1259/0.7%              | 573                       | 1298/0.6%              | 694                       | 1320/0.4%              | 695                       | 1329/1.04%             |
| 579   | 1265/1.2%              | 578                       | 1287/-0.2%             | 574                       | 1313/-0.2%             | 575                       | 1314/-0.1%             |
|   |                        |                           |                        | 576                       | 1332/1.3%              | 577                       | 1336/1.6%              |
|   |                        |                           |                        | 691                       | 1338/1.7%              | 692                       | 1346/2.3%              |

| UNIT 2 - APRIL 1993 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                         |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                   | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1242/-0.6%             | 555                       | 1274/-1.2%             | 556                       | 1353/2.9%              | 557                       | 1344/2.2%              |
| 561   | 1280/2.4%              | 560                       | 1333/3.3%              | 558                       | 1348/2.5%              | 559                       | 1350/2.6%              |
| 572   | 1238/-1.0%             | 573                       | 1272/-1.4%             | 694                       | 1345/2.3%              | 695                       | 1338/1.7%              |
| 579   | 1280/2.4%              | 578                       | 1289/-0.1              | 574                       | 1321/0.5%              | 575                       | 1360/3.4%              |
|   |                        |                           |                        | 576                       | 1302/-1.0              | 577                       | 1332/1.3%              |
|   |                        |                           |                        | 691                       | 1333/1.4%              | 692                       | 1329/1.1%              |



### UNIT 3 - AS-FOUND MSSV SETPOINT DATA

| UNIT 3 - FEBRUARY 1989 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|--|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                            |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                      | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554  | 1258/0.6%              | 555                       | 1300/0.8%              | 556                       | 1348/2.5%              | 557                       | 1316/0.0%              |
| 561  | 1259/0.7%              | 560                       | 1320/2.3%              | 558                       | 1322/0.5%              | 559                       | 1322/0.5%              |
| 572  | 1279/2.3%              | 573                       | 1289/-0.1%             | 694                       | 1292/-1.7%             | 695                       | 1333/1.3%              |
| 579  | 1218/-2.5%             | 578                       | 1289/-0.1%             | 574                       | 1316/0.0%              | 575                       | 1331/1.2%              |
|  |                        |                           |                        | 576                       | 1293/-1.7%             | 577                       | 1359/3.3%              |
|  |                        |                           |                        | 691                       | 1310/-0.4%             | 692                       | 1326/0.8%              |

| UNIT 3 - OCTOBER 1989 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                           |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                     | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1248/-0.1%             | 555                       | 1269/-1.7%             | 556                       | 1309/-0.4%             | 557                       | 1315/-0.02%            |
| 561   | 1260/0.8%              | 560                       | 1307/1.1%              | 558                       | 1307/-0.6%             | 559                       | 1309/-0.5%             |
| 572   | 1252/0.1%              | 573                       | 1298/0.6%              | 694                       | 1329/1.1%              | 695                       | 1318/0.2%              |
| 579   | 1227/-1.8%             | 578                       | 1270/-1.6%             | 574                       | 1325/0.8%              | 575                       | 1300/-1.1%             |
|   |                        |                           |                        | 576                       | 1295/-1.5%             | 577                       | 1289/-2.0%             |
|   |                        |                           |                        | 691                       | 1306/-0.7%             | 692                       | 1300/-1.1%             |



### UNIT 3 - AS-FOUND MSSV SETPOINT DATA (CONT.)

| UNIT 3 - MARCH 1991 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                         |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                   | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1267/1.4%              | 555                       | 1292/0.1%              | 556                       | 1320/0.4%              | 557                       | 1326/0.8%              |
| 561   | 1261/0.9%              | 560                       | 1304/1.1%              | 558                       | 1333/1.4%              | 559                       | 1324/0.7%              |
| 572   | 1215/-2.7%             | 573                       | 1282/-0.6%             | 694                       | 1329/1.1%              | 695                       | 1313/-0.2%             |
| 579   | 1265/1.2%              | 578                       | 1282/-0.6%             | 574                       | 1286/-2.2%             | 575                       | 1337/1.7%              |
|   |                        |                           |                        | 576                       | 1332/1.3%              | 577                       | 1325/0.8%              |
|   |                        |                           |                        | 691                       | 1328/1.0%              | 692                       | 1336/1.6%              |

| UNIT 3 - OCTOBER 1992 - AS-FOUND MSSV SETPOINT DATA |                        |                           |                        |                           |                        |                           |                        |
|---|------------------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| LIFT SETTING<br>1250 PSIG                           |                        | LIFT SETTING<br>1290 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        | LIFT SETTING<br>1315 PSIG |                        |
| VALVE<br>NUMBER                                     | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION | VALVE<br>NUMBER           | AS-FOUND/<br>DEVIATION |
| 554   | 1280/2.4%              | 555                       | 1313/1.8%              | 556                       | 1320/0.4%              | 557                       | 1318/0.2%              |
| 561   | 1265/1.2%              | 560                       | 1297/0.5%              | 558                       | 1333/1.4%              | 559                       | 1324/0.7%              |
| 572   | 1257/0.6%              | 573                       | 1297/0.5%              | 694                       | 1341/2.0%              | 695                       | 1327/0.9%              |
| 579   | 1291/3.2%              | 578                       | 1289/-0.1%             | 574                       | 1359/3.3%              | 575                       | 1345/2.3%              |
|   |                        |                           |                        | 576                       | 1327/0.9%              | 577                       | 1338/1.7%              |
|   |                        |                           |                        | 691                       | 1333/1.4%              | 692                       | 1333/1.4%              |



**UNIT 1 - AS-FOUND PSV SETPOINT DATA**

| UNIT 1 - APRIL 1989 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                         |                    |              |                    |
| VALVE NUMBER                                     | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2503/0.7%          | RC202        | 2533/1.9%          |
| RC201  | 2542/2.3%          | RC203        | 2510/1.01%         |

| UNIT 1 - OCTOBER 1990 - AS-FOUND PSV SETPOINT DATA (SEE NOTE) |                    |
|---|--------------------|
| LIFT SETTING - 2485 PSIG                                      |                    |
| VALVE NUMBER  | AS-FOUND/DEVIATION |
| RC202   | 2467/-0.7%         |

Note: This PSV was replaced in September 1990 by a SONGS PSV.

| UNIT 1 - MARCH 1991 - AS-FOUND PSV SETPOINT DATA (SEE NOTE) |                    |
|---|--------------------|
| LIFT SETTING - 2485 PSIG                                    |                    |
| VALVE NUMBER  | AS-FOUND/DEVIATION |
| RC202   | 2470/-0.6%         |

Note: This is the SONGS PSV that was replaced during the January 1991 ST outage. The SONGS PSV replaced the Unit 1 PSV tested in October 1990.

| UNIT 1 - MARCH 1992 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                         |                    |              |                    |
| VALVE NUMBER                                     | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2424/-2.5%         | RC202        | 2526/1.6%          |
| RC201  | 2480/-0.2%         | RC203        | 2468/-0.7%         |

| UNIT 1 - SEPTEMBER 1993 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                             |                    |              |                    |
| VALVE NUMBER   | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2544/2.4%          | RC202        | 2519/1.4%          |
| RC201  | 2553/2.7%          | RC203        | 2525/1.2%          |





## UNIT 2 - AS-FOUND PSV SETPOINT DATA

| UNIT 2 - APRIL 1990 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                         |                    |              |                    |
| VALVE NUMBER                                     | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2520/1.4%          | RC202        | 2552/2.7%          |
| RC201  | 2540/2.2%          | RC203        | 2576/3.6%          |

| UNIT 2 - OCTOBER 1991 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                           |                    |              |                    |
| VALVE NUMBER                                       | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2520/1.4%          | RC202        | 2495/0.4%          |
| RC201  | 2537/2.1%          | RC203        | 2459/-1.1%         |

| UNIT 2 - APRIL 1993 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                         |                    |              |                    |
| VALVE NUMBER                                     | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2453/-1.3%         | RC202        | 2543/2.3%          |
| RC201  | 2538/2.1%          | RC203        | 2531/1.8%          |

### UNIT 3 - AS-FOUND PSV SETPOINT DATA

| UNIT 3 - APRIL 1991 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                         |                    |              |                    |
| VALVE NUMBER                                     | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2566/3.2%          | RC202        | 2548/2.5%          |
| RC201  | 2569/3.4%          | RC203        | 2478/-0.3%         |

| UNIT 3 - OCTOBER 1992 - AS-FOUND PSV SETPOINT DATA |                    |              |                    |
|--|--------------------|--------------|--------------------|
| LIFT SETTING - 2485 PSIG                           |                    |              |                    |
| VALVE NUMBER                                       | AS-FOUND/DEVIATION | VALVE NUMBER | AS-FOUND/DEVIATION |
| RC200  | 2500/0.6%          | RC202        | 2504/0.8%          |
| RC201  | 2499/0.6%          | RC203        | 2479/-0.3%         |



**ATTACHMENT 2**

**SUMMARY OF SAFETY VALVE SETPOINT TOLERANCES**

### PSV AND MSSV SETPOINT TOLERANCE DATA

| PSV SETPOINT TOLERANCE DATA |                       |                       |                    |                 |                     |                     |                     |
|-----------------------------|-----------------------|-----------------------|--------------------|-----------------|---------------------|---------------------|---------------------|
| UNIT - TOTAL TESTED         | > -3%<br>AND<br>< -2% | ≥ -2%<br>AND<br>< -1% | TS TOLERANCE (±1%) |                 | > 1%<br>AND<br>≤ 2% | > 2%<br>AND<br>≤ 3% | > 3%<br>AND<br>< 4% |
|                             |                       |                       | ≥ -1%<br>AND < 0   | ≥ 0 AND<br>≤ 1% |                     |                     |                     |
| UNIT 1 - 14                 | 1                     | 0                     | 4                  | 1               | 5                   | 3                   | 0                   |
| UNIT 2 - 12                 | 0                     | 2                     | 0                  | 1               | 3                   | 5                   | 1                   |
| UNIT 3 - 8                  | 0                     | 0                     | 2                  | 3               | 0                   | 1                   | 2                   |

| MSSV SETPOINT TOLERANCE DATA |                      |                       |                       |                       |                 |                     |                     |                     |                     |
|------------------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------|---------------------|---------------------|---------------------|---------------------|
| UNIT -<br>TOTAL TESTED       | < -3%                | ≥ -3%<br>AND<br>< -2% | ≥ -2%<br>AND<br>< -1% | TS TOLERANCE<br>(±1%) |                 | > 1%<br>AND<br>≤ 2% | > 2%<br>AND<br>≤ 3% | > 3%<br>AND<br>≤ 4% | > 4%<br>AND<br>< 5% |
|                              |                      |                       |                       | ≥ -1%<br>AND < 0      | ≥ 0 AND<br>≤ 1% |                     |                     |                     |                     |
| UNIT 1 - 80<br>(See Note)    | 2 (-5.2%<br>& -5.7%) | 0                     | 2                     | 11                    | 27              | 27                  | 4                   | 3                   | 3                   |
| UNIT 2 - 120                 | 0                    | 1                     | 10                    | 22                    | 35              | 31                  | 15                  | 5                   | 1                   |
| UNIT 3 - 80                  | 0                    | 3                     | 9                     | 13                    | 28              | 19                  | 5                   | 3                   | 0                   |

Note: One valve did not have as-found test data due to excessive leakage during testing.



**ENCLOSURE 2**

**DISCUSSION OF DIFFERENCES IN THE**

**INFORMATION PROVIDED IN ATTACHMENTS 1 AND 2**

**TO ENCLOSURE 1 AND THE MAY 13, 1993 SUBMITTAL**





## DISCUSSION OF DIFFERENCES

The tables for the May 27, 1992 submittal and the as-found data used to construct the tables in the May 13, 1993 submittal were provided informally to APS Licensing and were submitted to the NRC. The data and tables were not independently checked to ensure accuracy. For this submittal, APS engineering has provided formally the as-found data for MSSV and PSV testing used to develop the tables in Attachments 1 and 2. The as-found data provided by APS engineering has also been independently checked by APS Nuclear Regulatory Affairs. The following explains the differences in the information provided in this submittal and APS' May 13, 1993 submittal.

### MSSVs

#### Unit 1:

- \* One MSSV from the October 1987 testing that was listed with an as-found setpoint tolerance between 0% and 1% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between 3% and 4%. Another MSSV identified as having an as-found setpoint tolerance between 0% and 1% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between 1% and 2%.
- \* One MSSV from the March 1992 testing was listed with an as-found setpoint tolerance between 1% and 2%. The as-found setpoint for this MSSV could not be determined due to excessive leakage during the testing. Therefore, a tolerance should not have been listed for this MSSV.

#### Unit 2:

- \* The as-found setpoint tolerance data for the April 1993 MSSV testing has been added in this submittal.
- \* One MSSV identified as having an as-found setpoint tolerance between 2% and 3% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between 3% and 4%.



## DISCUSSION OF DIFFERENCES (cont.)

### MSSVs (cont.)

#### Unit 3:

- \* One MSSV from the December 1989 testing that was listed with an as-found setpoint tolerance of 6.1% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between -1% and -2%.

### PSVs

#### Unit 1:

- \* One PSV from the April 1989 testing that was listed with an as-found setpoint tolerance between 3% and 4%, should have been listed as having an as-found setpoint tolerance between 2% and 3%. Another PSV from the April 1989 testing that was listed with an as-found setpoint tolerance between 0% and 1% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between 1% and 2%.
- \* The data for the October 1990 and March 1991 PSV testing was added in this submittal.
- \* One PSV from the March 1992 testing that was listed with an as-found setpoint tolerance between 1% and 2% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between -2% and -3%.
- \* The as-found setpoint tolerance data for the September 1993 PSV testing has been added in this submittal.

#### Unit 2:

- \* One PSV from the October 1991 testing that was listed with an as-found setpoint tolerance between -1% and 0% in the May 13, 1993 submittal, should have been listed as having an as-found setpoint tolerance between 0% and 1%.
- \* The as-found setpoint tolerance data for the April 1993 PSV testing has been added in this submittal.



## DISCUSSION OF DIFFERENCES (cont.)

### PSVs (cont.)

#### Unit 3:

- \* The May 13, 1993 letter, incorrectly listed April 1989, Unit 3 PSV as-found setpoint tolerance data. Unit 3 PSVs were not tested in April 1989 and this PSV as-found setpoint tolerance data has been removed from the table.

