UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-327/94-30 and 50-328/94-30

Licensee: Tennessee Valley Authority
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1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-327 and 50-328 License Nos.: DPR-77 and DPR-79

Facility Name: Sequoyah Nuclear Plant Units 1 and 2

Inspection Conducted: September 12 - 16, 1994

Lead Inspector: for E. Girard 10/14/94
Date Signed

Accompanying Personnel: M. Miller, Reactor Inspector

Approved by: 10/14/94
C. Casto, Chief
Test Programs Section
Engineering Branch
Division of Reactor Safety
Date Signed

SUMMARY

Scope:

This routine, announced inspection was performed to assess valve maintenance. Motor operated valves were not addressed but will be addressed separately in an inspection of the licensee's actions for Generic Letter 89-10.

The assessment considered the following:

(1) Past failures of manual, check, relief, and air operated valves.

(2) The current programs for maintaining check, relief, and air operated valves.

(3) The actions of system and component engineers in support of valve programs.

(4) Related Site Improvement Plan items.

Enclosure

Results:

The inspectors found the sample of valve maintenance activities generally satisfactory; however, weaknesses were noted in implementation of the check valve program and one example of inadequate preventive maintenance performed on manual valves were identified, as specified below:

(1) The check valve program was not being performed in accordance with the program guidelines. Specified periodic reports had not been issued. A check valve computer database was not updated as intended. Further, information in the database as to flow disturbances that might effect check valve performance was incorrect. (Section 2.b)

(2) The preventive maintenance (PM) performed on three manual reach rod valves was inadequate the inspectors concluded based on their review. The maintenance instruction remained open for almost two months after completion of all the steps except a final stroking and adjustment to verify correct closure indication. The maintenance instruction stated if Operations would not allow the stroking, the reason for the non-stroke was to be recorded. The stroking was not performed and the reason recorded was "cannot stroke per Ops." On the day the PM was closed (considered complete) the licensee found that one of the valves (2-VLV-72-623) was open, although the position indication indicated closed, and about 60,000 gallons of water had leaked to the passive sump. Proper testing and adjustment would have prevented the leakage. The inspectors concluded that corrective actions were not completed relative to the Performance Evaluation Report for the event described above. (Section 2.c)

The licensee is to respond to the weaknesses described above, indicating the causes, planned corrections, and the schedule for the corrections. The weaknesses will be identified as:

Inspector Followup Item 50-327, 328/94-30-01, Deficiencies in Check Valve Program Implementation. (Section 2.b)

Inspector Followup Item 50-327, 328/94-30-02, Inadequate preventive maintenance on reach rod valves. (Section 2.c)

REPORT DETAILS

1.0 Persons Contacted

Licensee Employees

L. Alexander, System Engineer (Relief Valves)
*J. Basraszenski, Licensing Engineer
*D. Brock, Maintenance Manager
*E. Barels, Lead Systems Engineer, Balance of Plant Systems
F. Bodine, System Engineer (Check Valves)
*D. Chapman, Nuclear Steam Supply System Systems Supervisor
*M. Cooper, Technical Support Manager
*M. Cooper, Maintenance-Component Engineering Manager
I. DiBiase, Planning and Technical
*G. Enterline, Operations Manager
*J. Klein, Preventive Maintenance Program Manager
H. Koehler, System Engineer, Common Systems
*K. Meade, Acting Compliance Manager
*T. Messer, Mechanical Engineer, Component Engineering
*A. Seaborn, Electrical/I&C Lead Engineer, Component Engineering
S. Wilburn, System Engineer (Main Steam)
*O. Zeringue, Senior Vice President, Nuclear Operations

NRC Resident Inspectors

*W. Holland, Senior Resident Inspector
*S. Shaffer, Resident Inspector
D. Starkey, Resident Inspector

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2.0 Valve Maintenance (25151109)

The inspectors assessed valve maintenance through a review of inspection and work records, a review of programs, observation of hardware, and discussions with the involved engineering and supervisory personnel. Motor operated valves were not addressed but will be addressed separately in an inspection of the licensee's actions for Generic Letter 89-10.

The licensee's valve maintenance was evaluated for conformance with NRC regulations and licensee commitments.

Valves and programs were selected for the inspection based on a review of the following sources:

- The Site Improvement Plan (TVA Post Restart Plan, dated November 29, 1993)

- Maintenance and corrective action report history database entries (Nuclear Plant Reliability Data System 1993 and 1994 Component Cooling Water System valve entries; Plant Activity Listing for the current Unit 2, Cycle 6 outage; Problem Evaluation Reports issued since January 1, 1992; and valve maintenance since January 1, 1992)

- Nuclear Experience Review No. 930123, dated April 30, 1993

- System Engineering Quarterly Report dated May 13, 1994

Details of the inspection, findings, and conclusions are described below:

a. Site Improvement Plan

The inspectors selected two items from the licensee's Site Improvement Plan which might impact valve maintenance. They discussed the items with licensee personnel and reviewed related documentation to determine if they had been properly accomplished. The items and the inspectors' findings are described below:

Item DD8-546, Perform a reliability centered maintenance evaluation for points of single failure (Completion scheduled November 30, 1993) -

The inspectors were informed that an engineering study had been completed to identify single point balance of plant valve failures that would result in a plant trip or secondary side transient. The inspectors reviewed a report of the study, which was identified B25 930913 001 and entitled BOP Single Point Failure Study. They found that it did identify several valve failures which might cause trips but it was not clear how plausible the failures were. The Report did not propose any changes in valve maintenance.

Item DD13-503, Initiate a non-ASME safety valve inspection program (Completion scheduled September 30, 1994) -

The inspectors verified that the related program had been initiated and found that it consisted of testing the valves to verify acceptable performance. The licensee's program review, transmitted in an internal memo dated June 29, 1993, and identified B38 930629 809, indicated that the program was implemented with issuance of Maintenance Good Practice MGP-M-160, Testing and Maintaining Safety, Relief, and Safety/Relief Valves. A copy of this document was attached to the memo and had been approved May 25, 1993. The inspectors noted that the licensee's review highlighted the importance of non-ASME Emergency Diesel Generator air start accumulator relief valves and recommended

their replacement and testing. The inspectors verified replacements were installed on the accumulator tanks and testing as described in 2.d below.

The inspectors concluded that the two Site Improvement Plan items reviewed were satisfactorily accomplished.

b. Check Valves

(1) Program

The licensee had established a program for check valve maintenance and trending. The program guidelines were documented in Site Standard Practice (SSP) 8.53, Rev. 0, Check Valve Program, effective July 5, 1993. The SSP incorporated the recommendations of INPO SOER 86-03 in minimizing the possibility of check valve failures or degradation. Among the items specified by the SSP were the following:

- Preparation of a quarterly check valve program performance report giving a summary of tests, inspections, and maintenance performed during the quarter; major program changes; and check valves with incomplete maintenance for more than 90 days.

- Establishment and maintenance of a check valve database, grouping and giving information on the valves including failures and information on upstream flow disturbances and their locations.

The inspectors requested a copy of the quarterly check valve report and the database for review. The licensee provided a copy of the database on computer disk, no quarterly reports had been prepared. The inspectors reviewed the database and noted that it was updated, although the latest result entries were dated 1991. Also, the inspectors observed that the flow disturbance locations recorded in the database were incorrect for the Main Steam Check Valves (MSCVs). The database indicated the nearest upstream flow disturbances for MSCVs -623, -624 and -625 were valves two pipe diameters away, whereas the nearest flow disturbances are actually the Main Steam Isolation Valves welded directly to the MSCVs.

The licensee provided no justification for the lack of quarterly reports. The responsible licensee engineer stated that the computer database was not being maintained because he planned to convert it to a different software format. Regarding the incorrect location of flow disturbances, the engineer stated that the locations were provided by System Engineers and may have been incorrectly determined. In reviewing the licensee's audit (Assessment of Check Valve Program, NA-SQ-93-009, approved April 1, 1993) the inspectors found that the assessment included a concern that the check valve computer database had not been

updated since September 1991. The assessment report noted that the database was being manually maintained and if it were lost a significant effort would be required to recreate it.

The licensee's failure to issue quarterly reports and update the check valve database and the incorrect flow disturbance locations given in the database were considered weaknesses in the licensee's implementation of the check valve program. These program activities were not required by NRC regulations, but rather, were undertaken to address check valve issues in accordance with industry recommendations. Because of this, the licensee is to provide a written response to this matter, identified as Inspector Followup Item 50-327, 328/94-30-01, Deficiencies in Check Valve Program Implementation.

(2) Performance of Maintenance and Related Periodic Inspections and Tests

The inspectors examined examples of check valve maintenance and of the periodic inspections and testing used ensure that functional capabilities were maintained:

Main Steam Check Valves (1-VLV-1-623, -624, and -625)

As described in NRC Inspection Report 50-327, 328/94-26, the licensee has repeatedly experienced cracking in or at threaded stud which connects the disc and swing arm in these swing check valves. On two occasions the cracking progressed to complete failure of the connections and discs were carried downstream by the steam flow. The most recent cracking, discovered on the Unit 2 valves during the current refueling outage, had not progressed to disc separation.

Past disc losses were not readily identified. After the recent cracking the licensee informed Region II that they would monitor the operating unit (Unit 1) monthly to ensure that a disc loss would be detected. As described in a letter to Region II dated September 9, 1994, the monitoring would consist of checking the position of the valve counterweight arm to ensure that it had not lowered (indicating loss of the disc weight). The inspectors verified a record of the monitoring dated September 8, 1994, and observed the System Engineer demonstrate how the monitoring was conducted at the valves. The inspectors concluded that appropriate monitoring was being performed to ensure that loss of a disc would be detected within a period of one month.

Emergency Diesel Generator (EDG) Air Start Check Valves

The licensee's check valve program stated that valves less than 2-inches in diameter were excluded unless specific failure data warranted inclusion. The inspectors noted that the licensee's Nuclear Experience Review No. 930123 stated that, because of check

valve failures in the EDG Air Start System, these valves had been included in the check valve program even though they were smaller than 2-inches. The inspectors reviewed documentation and verified air start check valves were tested to demonstrate their capabilities to close in the event of an upstream line failure. The documentation selected and reviewed by the inspectors consisted of completed Surveillance Instructions (SI-166.36.2, .4, .6, and .8) covering testing completed in August 1994 on valves 0-FCV-529-1A2, 2A2, 1B2, and 2B2. The inspectors found that the instructions provided appropriate alignments for leak testing the check valves to ensure closure and provided leakage acceptance limits. The testing demonstrated that these limits were met. The inspectors concluded that appropriate testing of these valves had been implemented.

Feedwater Check Valves 2-3-510 and 511

In reviewing work history entries, the inspectors found that these valves had experienced repeated external steam leaks and that the leaks had been repaired with injected sealants. The inspectors reviewed work description entries on Work Order (WO) 93-10719 (initiated December 1, 1993), which documented corrections for the most recent valve 2-3-511 steam leaks. Sealant had been injected into the valve to correct the leaks while the plant was in service. The WO noted injections on July 13, 1992, November 1, 1993, December 1, 1993, and December 23, 1993. Valve disassembly and repairs were performed during the current refueling outage. The WO was still open.

Because of the repeated leaks, the inspectors questioned why a more effective corrective action had not been implemented, as the repairs might eventually affect the integrity or capabilities of the valves. Component Engineering personnel informed the inspectors that there had been previous modifications to prevent leakage on these valves but that they had not been successful. They stated that this was an industry problem and that it was currently identified for correction on Problem Evaluation Report (PER) SQ930678PER. The inspectors reviewed this PER, initiated November 1, 1993, and found that it identified the problem of leaks occurring for more than 10 years. The PER described information obtained from other plants and from vendors regarding their experience with similar valves. It specified trial recurrence control actions involving installation of different style gaskets on two of the Unit 1 valves. If the gaskets proved effective, it indicated they should be installed on the other valves, including 2-3-510 and 511. The PER had not been closed. As Unit 1 had only been in service for a few months since installation of the new gaskets, the inspectors could not judge whether the licensee's current actions were effective. The problem was properly identified and actions had been initiated to obtain correction.

Component Cooling Water Thermal Barrier Booster Pump Discharge Valves 1-VLV-070-0676A and B

The System Engineering Quarterly Report described failures of these valves to close, causing unavailability of the standby pumps. To further assess licensee actions to monitor and trend the conditions of these valves and to determine if effective corrective actions were being instituted, the inspectors requested the licensee's check valve coordinator to provide the trending information maintained for the check valves in this system, as required by the check valve program. Additionally, the inspectors held discussions with the responsible system engineer to discuss valve conditions and planned corrective actions. A computer printout of check valve trend data for the Component Cooling System was provided by the coordinator. The inspectors reviewed the printout and found that it contained brief descriptive information on the valves followed by entries of results from past inspections and tests. It appeared to have been developed from the database referred to in (1) above and contained no computer printed entries later than 1991. The results of subsequent failures, corrective actions taken, and planned modifications were briefly hand-written onto the printout. Written entries of the failures identified and planned corrections were consistent with information obtained from the System Engineering Quarterly Report and through the inspectors' discussions with the responsible System Engineer. The printout date of the database was September 9, 1994. Based on the documents reviewed and discussions with the coordinator, the inspectors concluded that the valves were being monitored to assure they properly functioned and that the need for modifications was identified. However, their review also provided further evidence that computer database information was not being maintained as intended for the check valve program.

c. Manual Valves

Emergency Raw Cooling Water Valve 2-VLV-067-704B

This valve would not close to isolate flow to the Centrifugal Charging Pump oil cooler. The inspectors reviewed the corrective maintenance on this valve described in WO 91-05496. The work involved replacement of the valve due to a broken stem. The inspectors observed that the work was satisfactorily documented. The valve was replaced and proper functional testing (stroking) was performed.

Containment Spray Pump Casing Drain Valve 2-VLV-072-523

The inspectors found that the licensee had experienced a large loss (about 60,000 gallons) of water from the Containment Spray System through this valve during the current outage. The loss was documented in PER SQ940720PER (initiated September 7, 1994). This

PER stated that the position indicator on this 1-inch manual reach rod valve indicated it was closed, but that it had actually been open. According to maintenance personnel, operators were informed not to rely on the position indication for reach rod valves. The valve was difficult to close, which apparently contributed to the perception that it was closed. (Note: "Reach rods" refer to rods or flexible drive cables attached to valves to permit operation from behind a heavy wall and limit personnel radiation exposure.)

The inspectors found no previous record of corrective maintenance for this specific Unit 2 valve, but they identified two Work Orders to correct improper position indication on the identical Unit 1 valve. Additionally, the licensee's maintenance database and the inspectors conversations with licensee engineers indicated an ongoing history of reach rod valve problems, with position indication specifically noted. In addition to the 60,000 gallon water loss described above, there had been at least two other serious incidents involving reach rod valve deficiencies. These resulted in a site "Alert" in 1992 and a spray down and contamination of plant personnel in 1989 (Reference PER SQ940106PER).

In reviewing licensee databases the inspectors discovered that Preventive Maintenance (PM) No. 033082023, Rev. 01, had been performed on valve 2-VLV-072-523 during the current outage. The PM instruction, which covered three reach rod valves, was obtained and reviewed by the inspectors to determine if its performance was either directly or indirectly involved in the water loss. They found that it provided for inspecting and lubricating the reach rod assembles on valves 2-VLV-72-0515, -522, and -523 (pump vent and drain valves). The last two steps of the PM specified stroking each valve to verify the operability of the reach rod assembly, followed by adjustment to verify proper position indication in the closed position. The instructions stated that, if Operations would not allow the stroking, the reason for the non-stroke was to be recorded. PM No. 033082023 was completed, except for the final stroking and adjustment, on July 12, 1994. The PM was subsequently closed (as complete) on September 7, 1994, without these final operations and without giving a reason other than "cannot stroke per Ops." On that same day the licensee found that 2-VLV-72-523 was open, though the position indication indicated closed, resulting in the previously described loss of about 60,000 gallons of water to the passive sump. The inspectors observed that the loss might not have occurred if proper testing and adjustment had been performed. (Note that the Unit was in a refueling outage at the time.) The inadequate completion of this PM indicates a performance weakness requiring attention.

The inspectors questioned responsible supervisory and engineering personnel as to whether actions were being taken to address the continuing problems with reach rod valves. They were informed that the overall problem had been assigned to one individual and

was documented on PER SQ940106PER, initiated February 9, 1994. The inspectors verified that this PER documented for resolution the historic problems with reach rod valves. It was still open. The inspectors concluded that the problem had been appropriately identified for resolution, but that actual correction had not been performed.

It was not clear to the inspectors how the proper operation of these valves would be ensured pending determination and implementation of long-term corrective actions. The failure to properly complete the PM for valve 2-VLV-72-523, the subsequent large water loss, and the history of past reach rod valve incidents support this concern. The licensee is to provide a written response to this matter, which is being identified as Inspector Followup Item 50-327, 328/94-30-02, Inadequate preventive maintenance on reach rod valves.

d. Relief Valves

The inspectors reviewed Work Orders (WOs) and verified replacement and testing of a sample of the EDG Accumulator relief valves. Testing and replacement of these valves had been recommended as described in 2.a above. The WOs reviewed were as follows: WO 93-02957 (Valve 0-VLV-082-535-1A2), WO 93-02965 (Valve 0-VLV-082-535-1B2), WO 93-02960 (Valve 0-VLV-082-534-1B2), and WO 93-02958 (Valve 0-VLV-082-508-1B1). The inspectors verified that the replacement and testing were properly controlled and documented through the WOs and associated test procedures.

e. Air Operated Valves (AOVs)

The maintenance program and activities, the deficiencies, the engineering evaluations, and corrective actions were inspected for air operated modulating control valves and for air operated open/shut control valves. The effort was directed towards the air operators and associated instruments although stem packing, leak through, and leak repair was reviewed for the valves. The open/shut AOVs have two positions, open and closed. The modulating control valves open or close to a variable position dictated by a signal from an instrument. The standard air operator used for both types of control valves was the diaphragm-opposing spring type. The air pressure on the diaphragm provides a force in one direction. The opposing spring provides the force in the opposite direction.

The inspectors reviewed the preventive maintenance (PM) program for the AOVs to determine its adequacy. In addition, the "Reliability Centered Maintenance" program (RCM) for AOVs was also reviewed for PM. The RCM program identified PM items which were to be incorporated into the regular PM program. The RCM database PM items and their categories included the following:

- AOV Identification Number
- Diaphragm Replacement Date
- Diaphragm PM, Frequency, and Start Date
- Air Regulator Replacement Date
- Air Regulator PM, Frequency, and Start Date
- Stem Packing Replacement/Adjustment PM, Frequency, and Start Date

The list of PM procedures for AOVs was reviewed to determine the adequacy of the PM. The valve PM program was reviewed for three systems, System 3 - Feedwater (Auxiliary FW), System 67 - Essential Raw Cooling Water, and System 70 - Component Cooling. This valve PM program list included the valve ID number, work description, PM package number (PM procedure, work instructions), PM frequency, and source document (requirements). The inspectors concluded that the AOV PM program and the RCM AOV program were adequate to maintain the AOVs.

Maintenance activities for the AOVs were performed by all three groups in the maintenance department: electrical, instrument, and mechanical. The instrument group (I&C) was responsible for providing surveillance and calibration of the modulating AOVs. I&C activities included adjusting and calibrating the loop instruments, the air regulator, I-P (current to pneumatic) converter, valve positioner, position (limit) switches, and valve stroke. The electrical group was responsible for open/shut AOVs. Electrical activities included adjusting the position (limit) switches, control switches, indicating lights and solenoid pilot valves on the AOVs. Mechanical maintenance was responsible for replacing the diaphragms, stem lubrication, stem packing, leak repair, and valve body maintenance. The inspectors postulated that lack of coordination between the different maintenance groups could affect adequate maintenance. The licensee informed the inspectors that the AOV Component Engineering Group would provide the necessary coordination for maintenance activities.

The licensee's Component Engineering Group was in the process of setting up an "AOV program" with several component engineering personnel assigned to address both engineering and maintenance for the AOVs. The Component Engineering AOV Group had recently (June 1994) joined the National AOV Users Group. At the present time, the inspectors noted very little progress in the AOV program area. A specific AOV database was not yet set up. However, the AOV component engineers were knowledgeable concerning what was needed to set up and implement an effective AOV maintenance program. In another area, a component engineer was assigned to address the most common problems associated with all valves including the AOVs, stem packing and leak repair. The licensee was in the process of implementing a valve repacking program using the EPRI packing arrangement of a high quality 5-ring packing set. The inspectors verified the repacking program by reviewing Site Maintenance Management Directive, SMMD No. 91-006-MM0 and the

implementing engineering design change notices, DCN Nos. G-03074-C and F-10329-A for Units 1 and 2. The leak repair practice included both temporary leak repair using leak sealants and the preferred permanent leak repair. Leak repair also addressed "leak through" caused when the valves were not fully seated. This program also included trending leak problems.

The inspectors examined the Problem Evaluation Reports (PER) from January 1992 to the present to determine the types of problems or deficiencies identified for AOVs. The eight areas used to categorize the problems and the number of problems that were identified in each area were:

AREA	NUMBER of PROBLEMS
Electrical	8
Instrumentation	6
Solenoid Pilot Valves	4
Water Intrusion	2
Air or Regulator Failure	5
Stem Rotation	1
Mechanical Damage	1
Testing Failures	4

Several PERs were examined in detail to assess the evaluation, the corrective action, and to determine if the problems were adequately addressed in a timely manner. The PERs are briefly listed as follows:

SQ 930730 PER - The air regulator for AOV 2-FCV-62-93 in Unit 2 was not set correctly due to an incorrect instrument data package (IDP).

The licensee indicated the root cause was an error in the vendor manual for setting the regulator. However, a similar problem in Unit 1 was identified one month earlier. I&C failed to followup on the Unit 1 problem to determine if a similar problem existed in Unit 2.

SQ 940149 PER - Maseneilan globe valves Model #37-10173 had a history of stem rotation. Stem rotation caused the attached diaphragm to become twisted which could result in premature failure.

The Maseneilan valve actuator has a limit switch striker arm mounted on the actuator stem. The strong springs in the NAMCO limit switches can cause the striker arm to bend/misalign/rotate the stem. In addition, the stem nut can come loose causing stem rotation. These problems indicate that actuator design may be inadequate. Also, the actuators have had a problem that was not identified and corrected. An extensive engineering evaluation in the PER

listed stem rotation problems in seven previous work orders for Masemeilan AOVs. Most of the evaluation discussed what the problems were not, instead of addressing corrective action for stem rotation.

S11 920428 801 - Vendor technical manual for certain types of ASCO solenoids valves requires the solenoids to be mounted in the vertical position.

The licensee corrected this problem in a timely manner and conducted walkdowns to identify any other ASCO solenoid mounting problems.

S13 940213 801 - Closure of Incident Investigation II-S-92-078. In October 1992, approximately 1000 gallons of water was introduced into the Service Air System.

The licensee had two opportunities for action that could have prevented or reduced the consequences of this event; 1) implementation of GL 88-14 , and 2) correct drain line problem identified by II-S-91 74.

The inspectors reviewed other PERs from January 1992 to the present to examine the engineering evaluations and recommended corrective action. From these reviews, the inspectors concluded that although problems were identified, not all the engineering evaluation effort was focused directly on fixing the problem and following up in a timely manner. The engineering evaluations focused more on what the problem was not. However, the establishment of an dedicated AOV program with knowledgeable component engineers should provide improvement in engineering evaluations and corrective action.

f. Overall Conclusions

The inspectors found the sample of valve maintenance activities inspected generally satisfactory, but noted weaknesses in implementation of the check valve program and one example of inadequate preventive maintenance performed on manual valves. The licensee is being requested to respond to these weaknesses, which are described in 2.b and 2.c above and are identified as Inspector Followup Items 50-327, 328/94-30-01 and -02.

The inspectors noted several instances of longstanding problems that remained to be corrected (e.g., Feedwater check valve leakage and reach rod valve indication). The licensee had appropriately identified these problems for correction. At this point, these problems do not indicate a trend of inadequate valve maintenance.

3.0 Exit Interview

The inspection scope and findings were summarized on September 16, 1994, with those persons indicated in Section 1 of this report. In a telephone call on September 23, 1994, the licensee provided additional information regarding preventive maintenance performed on valve 2-VLV-72-0523. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. Dissenting comments were not received from the licensee. Proprietary information was not reviewed or contained in the Report.

Item Number	Description and Reference
IFI 50-327, 328/94-30-01	Deficiencies in Check Valve Program Implementation. (Section 2.b)
IFI 50-327, 328/94-30-02	Inadequate preventive maintenance on reach rod valves. (Section 2.c)

Proprietary information is not contained in this report.

4.0 Acronyms and Initialisms

AOV - Air Operated Valve
ASME - American Society for Mechanical Engineers
CFR - Code of Federal Regulations
DCN - Design Change Notice
EDG - Emergency Diesel Generator
EPRI - Electric Power Research Institute
FW - Feedwater
GL - Generic Letter
I-P - Current to Pneumatic Converter
IDP - Instrument Data Package
IFI - Inspector Followup Item
INPO - Institute of Nuclear Power Operations
MSCV - Main Steam Check Valve
NRC - Nuclear Regulatory Commission
PER - Problem Evaluation Report
PM - Preventive Maintenance
RCM - Reliability Centered Maintenance
SOER - Significant Operating Event Report
SSP - Site Standard Practice
TVA - Tennessee Valley Authority
WO - Work Order