UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

May 30, 2003

Duke Energy Corporation
ATTN: Mr. R. A. Jones
Vice President
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC SPECIAL INSPECTION REPORT 50-269/03-10, 50-270/03-10, AND 50-287/03-10

Dear Mr. Jones:

This refers to the special inspection conducted from April 29 to May 1, 2003, at your Oconee Nuclear Station. The inspection purpose was to inspect and assess the operational condition of the atmospheric dump valves (ADVs) following problems that were identified during testing of the Unit 3 valves during the week of April 21, 2003. These problems, in conjunction with similar ones previously identified, were viewed by the NRC as challenges to ADV reliability and availability. Consequently, the NRC determined that followup via a special inspection was warranted under the guidance of Management Directive 8.3. The enclosed report documents the inspection results which were discussed on May 1, 2003, with members of your staff.

The inspectors noted that all three Units at Oconee had documented problems in the manually operated, atmospheric dump valve system, including: steam leaks; use of non-optimal lubricants; and repeated examples of operating difficulties, some of which required the use of wrenches (cheater bars) to operate the valves during testing. Given the importance of the ADVs in mitigation response for various accident scenarios, the NRC wanted to assess your corrective actions for these problems to determine if the actions were commensurate with the safety significance of the ADVs. The inspectors found that your staff had only recently identified broader corrective actions to resolve problems with atmospheric dump valve operation. Because these actions have only recently been implemented, the overall effectiveness of these actions to preclude future problems has not yet been demonstrated.

Based on the results of this inspection, there was one NRC-identified finding of very low safety significance (Green). It was determined that this finding involved a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Oconee facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Document system (ADAMS). ADAMS is accessible from the NRC web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Loren R. Plisco, Director
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: Inspection Report 50-269/03-10, 50-270/03-10, and 50-287/03-10 w/attachments: (1) Supplemental Information; (2) Special Inspection Team Charter; and (3) Atmospheric Dump Valves - simplified flow diagram

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U.S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket Nos:	50-269, 50-270, 50-287
License Nos:	DPR-38, DPR-47, DPR-55
Report Nos:	50-269/03-10, 50-270/03-10, 50-287/03-10
Licensee:	Duke Energy Corporation
Facility:	Oconee Nuclear Station, Units 1, 2, and 3
Location:	7800 Rochester Highway Seneca, SC 29672
Dates:	April 29 - May 1, 2003
Inspectors:	J. Stewart, Senior Resident Inspector - (Team Leader) R. Moore, Senior Engineering Inspector
Approved by:	R. Haag, Chief Reactor Projects Branch 1

Enclosure

SUMMARY OF FINDINGS

IR 05000269-03-10, IR 05000270-03-10, IR 05000287-03-10; on 04/29 - 05/01/2003; Duke Energy Corporation; Oconee Nuclear Station, Units 1, 2, & 3; atmospheric dump valve (ADV) system special inspection.

This report covers a three-day special inspection conducted by a senior resident inspector and a senior engineering inspector to determine whether the ADV function is reliable and available to support various accident scenarios which credit ADV operation. One Green finding was identified during the inspection and was classified as a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using the Significance Determination Process (SDP) found in Inspection Manual Chapter 0609. Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding for the licensee's failure to identify and correct the operability impact of previously discovered downstream valve leakage on atmospheric vent valve 3MS-155. As a result, 3MS-155 could not be initially opened with its chain operator during testing on April 21, 2003.

  A non-cited violation of 10 CFR50, Appendix B, Criterion XVI, Corrective Actions, was identified for the failure to identify and correct the operability impact on the safety-related function of 3MS-155. The finding was more than minor because it affected the availability, reliability, and capability of a mitigating system; specifically, the ability to align the atmospheric dump valve flow path within the required time to mitigate certain reactor accidents. The finding was of very low safety significance because, although affected, the function of 3MS-155 was not lost since it could have been opened (if needed) using an available valve wrench (cheater bar) and ladder. (Section 4OA3.5)

B. Licensee Identified Violations

None

Report Details

Introduction

The atmospheric dump valve flow paths provide a method of cooling the reactor plant to decay heat removal conditions should the preferred heat sink (i.e., the main condenser) not be available. Certain small break loss of coolant accidents (SBLOCA) require that the ADV flow path be established within 25 minutes of an engineered safeguards protective system actuation. The steam generator tube rupture (SGTR) analysis credits operator action to depressurize the steam generators by opening both ADV flow paths within 40 minutes of identifying the ruptured steam generator. Operability of the ADV flow path is required by Oconee Technical Specification 3.7.4. With one or both ADV flow paths inoperable, operators must restore operability to both trains within 12 hours, or plant shutdown is required.

Attachment 3 of this report illustrates the atmospheric dump valve (ADV) flow path for each Oconee steam generator/main steam line. As shown, it is comprised of: the atmospheric dump block valve bypass (1-inch bypass valves MS 161 and MS 163 for Train A and B, respectively); the atmospheric vent valve (12-inch vent valves MS 153 and MS 155, for Train A and B, respectively); the atmospheric dump control valve (10-inch throttle valves MS 162 and 164 for Train A and B, respectively); and the atmospheric vent block valve (12-inch isolation valves MS 154 and MS 156 for Train A and B, respectively). The throttle valve and the isolation valve are in parallel and are located downstream of the atmospheric vent valve. All of these valves are manual handwheel, chain operated valves.

The atmospheric vent valve is opened prior to opening the throttle valve or isolation valve. This is accomplished by first opening the bypass valve, which equalizes the differential pressure across the atmospheric vent valve. Once the atmospheric vent valve is opened, the plant cooldown rate is controlled using the throttle valve. The isolation valve is opened when additional relief capacity is needed.

On April 21, 2003, the licensee performed plant test PT/3/A/0251/019, Main Steam Atmospheric Dump Valve Functional Test, to demonstrate the ability to open the manually (chain) operated main steam atmospheric dump valves on Unit 3. The test was conducted at normal main steam system operating pressure. When the operators opened the 3A atmospheric vent valve 3MS-153, a steam leak was observed from the body of the valve, which was subsequently assessed not to interfere with the valve's manual operation. Since the valve body was forged, the licensee believed the leak was due to a sand inclusion, and was scheduled to be corrected once Unit 3 was shutdown to begin its refueling outage on April 26, 2003. Additionally, when operators opened the 3B atmospheric dump block valve bypass 3MS-163, steam leakage was observed from the flow path tailpipe, indicating leakage in either one or both downstream flow path valves (i.e., 3MS-164 and/or 3MS-156). The operators then attempted to open the 3B atmospheric vent valve 3MS-155; but three operators together were not able to break the valve off of its seat using the chain operator. The testing was delayed while operations and plant engineering reviewed the stuck valve condition and then concurred in using a 5 foot heavy carbon steel valve wrench (cheater bar) to assist in opening 3MS-155. However, when the test was resumed (approximately one hour later) a single operator was able to open the valve using the installed chain operator and the wrench was not needed.

During the previous refuel outage on Unit 2 in November 2002, neither isolation valve 2MS-154, nor bypass valve 2MS-161 could be opened manually without the use of a valve wrench (cheater bar). Similarly, Licensee Event Report 50-269/02-05, dated September 16, 2002, described a potential inability to operate the Unit 1 ADV system due to pressure locking.

The April 21, 2003, performance test problems were viewed by the NRC as a challenge to plant operators to operate the ADV system in the necessary time frame should the system be needed to mitigate an event. The special inspection was conducted to: (1) determine the facts surrounding the degraded conditions of the Oconee ADV system; (2) evaluate the licensee's response to previous problems experienced with the manual valves that comprise the ADV flowpath; and (3) assess the generic aspects of the degraded conditions and identify any design adequacy issues. A copy of the Special Inspection Team Charter is included as Attachment 2 to this report.

4. OTHER ACTIVITIES

4OA3 Event Followup

.1 Performance History of ADV Flowpath

a. Inspection Scope

The inspectors assessed the operating performance history of the ADV flowpath (captured in the Problem Identification Process reports and work orders listed in Attachment 1 to this report) to determine if any conditions contrary to Technical Specification (TS) requirements had been identified. The performance history of the manual valves that comprise the ADV flowpath was specifically reviewed to assess continuity of the ADV function and ability to meet accident analysis assumptions for operation of the valves within the required time constraints.

b. Observations and Findings

Except as discussed in section 4OA3.5, there were no findings of significance.

.2 ADV Design Adequacy

a. Inspection Scope

The inspectors reviewed the associated ADV drawings and specifications to assess the adequacy of this equipment to operate under various system conditions. Identified valve and operational problems were assessed for impact on the design and licensing basis function. The limiting time critical functions described in the plant TS bases were evaluated during plant walkdowns and in discussions with personnel to assure the ADV flow path could be established within the design time limits.

The inspectors reviewed historical modifications to the ADV system for consistency with the design bases. This included an assessment of the 1997 modifications/replacements of the Unit 1 12-inch ADVs (i.e., 1MS-153, 1MS-155, and 1MS-156) and operators, which allowed greater ease of operation. The inspectors also reviewed historic

maintenance and testing on the ADVs and assessed the testing used to determine baseline valve opening times.

b. Observations and Findings

The original two valves in series design was modified in 1986 and 1987 to include a throttle valve and bypass valve around the vent valve, which improved the functional capability of the ADV flow path and ability to maintain adequate cooldown rate to achieve low pressure injection (LPI) entry conditions. The inspectors verified that except for infrequent operation for testing, the ADVs remain closed.

The 12-inch Unit 1 valves were changed to a flexible wedge valve (as opposed to solid wedge) in 1997. Subsequently, the licensee identified a design deficiency of potential for pressure locking. It was reported to the NRC in Licensee Event Report 50-269/02-05, and addressed in NRC Inspection Report 50-269,270,287/02-05. This problem was resolved by a modification to install a pressure relief device on the valve bonnet.

There has been a gradual increase in the level of maintenance and testing of ADV equipment as the station has taken increased credit for the ADV function. In 1972, the ADV flow path was credited for tornado mitigation to provide steam generator (SG) depressurization to allow for feeding the SG with the low pressure auxiliary service water system. In 2000, the ADV flow path was credited for Final Safety Analysis Report Chapter 15 events, including SGTR and SBLOCA to provide a method of reactor coolant system (RCS) cooldown to low pressure injection entry conditions. In 2001, time critical tasks were defined for establishment of the ADV flow path, the most limiting being 25 minutes after engineered safeguards actuation for the SBLOCA. No maintenance or testing records were found dated prior to 1987. In 2001, a Plant Test was established to perform timed testing of the ADVs at a no pressure condition during outages. The licensee informed the inspectors that as of the recent Unit 3 testing, the bypass and vent valves on each train were stroke tested at full plant temperature and pressure per PT/A/0152/015, Main Steam System Valve Stroke Test, to demonstrate as-found operability.

.3 Assessment of Operator Actions

a. Inspection Scope

The inspectors walked down the ADV flowpaths on all three Oconee Units and discussed operation of the ADVs with plant operators and engineering personnel. The inspectors checked accessibility of valve chain operators and availability of locally staged emergency operating procedures for valve operation. The inspectors determined if expectations for operators establishing and completing the ADV function had been evaluated and were consistent with design assumptions using the standards of 10 CFR 50, Appendix B, and TS assumptions. The inspectors also determined if ladders and valve wrenches (cheater bars) were available/staged to support operation of the valves for manual assist operation if needed.

b. Observations and Findings

The licensee's expectation is that the ADV function can be completed by one operator (using only the manual chain operators) within the required time frames assumed in the

plant accident analysis. It is currently recognized, however, that if one individual can not open a valve or otherwise complete an ADV operation, a second operator would provide assistance. If a valve still can not be operated with the chain operator, a heavy, five foot valve wrench (cheater bar) has been staged to assist in moving the valve. This was confirmed by the inspectors to be the understanding of the operators. The licensee informed the inspectors that a determination had been done revealing that the wrench (cheater bar) would provide the operators enough torque to open any Unit's ADV, against the highest expected differential pressure (full steam pressure).

The inspectors noted that the compensatory use of the five foot valve wrench (cheater bar) had not been evaluated. The licensee had manufactured and staged the heavy, five foot wrenches (cheater bars) at each Unit's ADV manifolds. Prior to the special inspection, the licensee had not determined the adequacy of the wrenches for the application of opening the valves, except by informal engineering judgement. The licensee had determined that the vent valves could be opened with the large valve wrench (cheater bar) under maximum expected pressure differential. However, the "weak link" valve component analysis was still in progress. During the inspection, the licensee initiated a procedure change request to include the staging of the wrenches at the ADVs in their periodic EOP equipment walkdowns. The inspectors were informed that smaller, commercially available valve wrenches were staged with inventoried emergency operating equipment in the vicinity of the valve manifolds and that these wrenches could be used if required in an emergency and the larger (five foot) wrench was not available.

.4 Maintenance and Testing of the Atmospheric Dump Function

a. Inspection Scope

The inspectors reviewed the maintenance and testing of the ADV systems to assess compliance with TSs, 10 CFR Part 50, Appendix B, and licensee procedural requirements. The testing was also checked for consistency with the Final Safety Analysis Report. The inspectors assessed whether the testing demonstrated that the ADV systems were capable to perform their intended safety functions.

b. Observations and Findings

The licensee had initiated maintenance actions to address the valve stroke problems, which included reducing the periodic maintenance (PM) frequency for lubrication of the valve stems to each refueling outage from each fifth outage. An additional PM task was included to inspect the valve operators and evaluate lubrication conditions. In 2002, the licensee found that the stem lubricant used on all ADVs was not the optimal type for the high temperature application and replacement was scheduled. The compound in use was an anti-seize compound (loctite), which dried and hardened at high temperatures, such as seen in main steam applications. The replacement lubricant (Mobil 28) was being substituted on all manual valve applications, including the ADVs. During the inspection, the licensee stated that some amount of the non-optimal lubricant remained on some Unit 3 valves (3-MS-155, 156, 153).

The licensee plans to complete a five year PM on the Unit 3 ADVs during the 2003 refueling outage. This PM includes: disassembly, inspection, lubrication, and repacking all valves. The inspectors were informed that after completion in Unit 3, this five year PM will have been performed on the ADVs in all three Units. Additionally, the inspectors were informed that starting in 2003, the valves were tested at normal operating pressure prior to unit shutdown (Unit 3), per plant test PT/1,2,3/A/0251/019, Main Steam Atmospheric Dump Valve Functional Test.

The inspectors observed that use of a non-optimal lubricant on the atmospheric dump valves had contributed to difficulty in manually operating the valves. As documented in Problem Investigation Process report (PIP) O-01-4349, the licensee had identified the inability to fully open isolation valve 3MS-156 during a timed test, due to an excessive amount of dried graphite on the valve stem and poor lubrication. Actions to fully correct this problem had not been completed, but were planned for the 2003 Unit 3 refueling outage.

.5 Problem Identification and Corrective Actions

a. Inspection Scope

The inspectors assessed if licensee personnel were documenting ADV problems in the corrective action program in accordance with the requirements of 10 CFR Part 50, Appendix B, Criterion XVI. The inspectors conducted detailed reviews of the PIPs listed in Attachment 1 of this report. The PIPs were examined to verify whether: problem identification was timely, complete and accurate; safety concerns were properly classified and prioritized for resolution; technical issues were evaluated and dispositioned to address operability and reportability; root cause or apparent cause determinations were sufficiently thorough; extent of condition, generic implications, common causes, and previous history were adequately considered; and appropriate corrective actions (short and long-term) were implemented or planned in a manner consistent with safety.

b. Observations and Findings

Introduction: A Green, non-cited violation (NCV) was identified for the failure to identify and correct the adverse impact of previously discovered steam leakage (past 3MS-156 and/or 3MS-164) on the timely opening of 3MS-155.

Description: The inspectors found that the licensee had identified a number of problems with the manually operated ADVs, including: steam leaks, inadequate valve lubrication, and examples of an inability to manually operate the ADVs without the use of a valve wrench (cheater bar). Problems were experienced on the ADV systems of all three Units since the ADV Flow Path Technical Specification (TS 3.7.4) was incorporated in 2000. The inspectors found that the licensee had not, until recently, aggressively taken action to identify and correct the aforementioned operational problems.

Per PIP O-03-2212, the apparent cause for the inability to initially operate vent valve 3MS-155, on April 22, 2003, was the longer than expected time for steam pressure equalization after opening bypass valve 3MS-163. The longer time for pressure

equalization was caused by steam leakage past the closed throttle (3MS-164) and/or isolation (3MS-156) valves. The inspectors found that although this steam leakage had been identified during testing in 2001, the licensee had not considered the affect of the leakage on stroke times for 3MS-155 during the operating cycle.

Analysis: The licensee performance deficiency was the failure to identify and implement appropriate corrective actions to assure the reliability and availability of the 3B ADV flow path used to mitigate various reactor events. Consequently, this deficiency allowed a degraded condition (i.e., steam leakage past 3MS-164 and/or 3MS-156) to persist, which prevented the initial opening of 3MS-155 with its chain operator. The finding was more than minor because it affected the availability, reliability, and capability of the safety-related function of a mitigating system; specifically, the ability to align the ADV flow path within the required time to mitigate certain reactor accidents. The finding was of very low safety significance because, although affected, the function of 3MS-155 was not lost since it could have been opened (if needed) using an available valve wrench (cheater bar) and ladder.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires that measures be established to assure that conditions adverse to quality, such as malfunctions, deficiencies, and non-conformances are promptly identified and corrected. Contrary to the above, although steam leakage past 3MS-164 and/or 3MS-156 was discovered during testing in 2001, the affects of the leakage on pressure equalization to facilitate the timely opening of 3MS-155 were not identified. As a result, corrective actions were not taken to preclude the initial failure to open of 3MS-155 during testing on April 21, 2003. Because this failure to promptly identify and correct deficiencies with the ADV flow paths is of very low safety significance and has been entered into the licensee's corrective action program (PIP O-03-2212), this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. It is identified as: NCV 50-287/03-10-01: Failure to Identify and Correct the Operability Impact of Previously Discovered Downstream Valve Leakage on Atmospheric Vent Valve 3MS-155.

.6 Safety Assessment

a. Inspection Scope

The inspectors assessed the safety implications of identified problems with the ADV function to depressurize the steam generators within the prescribed time restraints in the event that the preferred heat sink was unavailable.

b. Observations and Findings

Taking into account the availability/use of staged valve wrenches (cheater bars), the inspectors found no occurrences where the ADV function had been lost because a valve would not/could not be operated if needed.

4OA6 Management Meetings

Exit Meeting Summary

The team leader presented the inspection results to Mr. D. Baxter and other members of licensee management on May 1, 2003. The inspection findings were re-exited with Mr. L. Nicholson on May 29, 2003. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Baxter, Engineering Manager
E. Burchfield, Engineering Supervisor
L. Nicholson, Regulatory Compliance Manager
M. Dunton, Operations Shift Manager
G. Davenport, Engineering Supervisor
D. Garland, Plant Operations
S. Manning, System Engineer
J. Kiser, Senior Engineer - Valves
N. Clarkson, Regulatory Compliance Engineer
P. Street, Engineering Supervisor - Valves
J. Weast, Regulatory Compliance Engineer

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

50-287/03-10-01	NCV	Failure to Identify and Correct the Operability Impact of Previously Discovered Downstream Valve Leakage on Atmospheric Vent Valve 3MS-155 (Section 4OA3.5)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Procedures, Reports, and Specifications

PT/1,2,3/A/0251/019, Main Steam Atmospheric Dump Valve (ADV) Functional Test, Revs. 7,8,9

PT/3/A/0152/015, Main Steam System Valve Stroke Test, Rev. 7

LER 50-269/05, Potential Failure of Manual ADV Due to Pressure Locking, dated 9/16/02

Specification OSS-0254.00-1037, Design Basis Document - Main Steam System, Rev. 21

OMP-1-02, Rules of Practice, Rev. 40

Specification OSS-0254.00-00-4005, Design Basis Document - Design Base Events, Rev. 7

Calculation DPC-1205.19-00-0001, Evaluation of Stem Factor and Stem Coefficient Assumptions, Rev. 1

NUREG/CR-6750, Performance of MOV Stem Lubricants at Elevated Temperatures

EPRI TR-102135, EPRI MOV Performance Prediction Program, Stem/Stem-nut Lubrication Test Report, dated Aug. 1993

Oconee Technical Specification 3.7.4, Atmospheric Dump Valve Flow Paths (and Bases)

PIPs

PIP O-01-04349, 3MS-156 could not be fully opened, dated 11/14/2001

PIP O-02-02199, While stroking 1MS-155, the chain came off the operator numerous times, dated 4/18/02

PIP O-02-5606, Difficulty in opening 2MS-154, dated 10/17/02

PIP O-02-5609, Difficulty in opening 2MS-161, dated 10/17/02

PIP O-03-02200, Valve Body Steam Leak on 3MS-153, dated 4/21/03

PIP O-03-02212, 3MS-155 Would Not Initially Open, Unit 3 TS 3.7.4 12 Hour Action Statement Entered, dated 4/21/03

PIP O-03-02381, 3MS-155 Could not be Initially Opened When Attempting to Depressurize the Steam Generator to Secure Hot Soak, dated 4/27/03

PIP O-02-03626, Valves 1,2,3 MS-154 and 156 Need More than One person to operate, Unit 1 MS-156 is susceptible to Pressure Locking, dated 7/8/02

Work Orders (WO)

WO 95014050, Repair Seat Leak on 3MS-156, dated 2/14/95

WO 98595189, 3MS-156 Seat Leak, dated 4/28/03

WO 98455607, Repair 3MS-156 Seat Leak and Replace Bonnet, dated 12/12/01

WO 98455605, Repair 3MS-164 Seat Leak, dated 12/12/01

WO 98209809, Inspect 3MS-156, dated 4/30/03

OM-245.-1891.001, Velan 12" Bolted Bonnet Gate Valve (1MS-153, -154), Rev. D

OM 245.-2272.001, Velan NPS 10/DN250 Cast Steel Gate Valves, (1MS-156), Rev. D1

OM 245.-0454, Crane Co. 600 lb. Cast Steel Gate Valve, 6"-12",
(1MS-154, MS-153,-154, 3MS-153,-154,-155,-156), Rev. D8

OM 248.-0577-0012, Kerotest ½" - 2" Bent Bellows Glove Valve (2MS-163), Rev.1

OM-255.-0940, Anchor/Darling 1" Stainless Steel Double Disc Gate Valve with 8" Diameter Handwheel, (1MS-163, 3MS-163), Rev. C

OM-248.-0314-001, Control Components Inc. Drag Valve, Atmoshphric Steam Vent, (1MS-164, 2MS-164, 3MS-164), Rev. C

OM 245.-2195-002, Flowserve 1" 800 lb. Globe Valve, with 4" Handwheel, (2MS-161, 3MS-161), Rev. D

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NUCLEAR REGULATORY COMMISSION
REGION II
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April 25, 2003

MEMORANDUM TO: Scott Stewart
Team Leader
Special Inspection Team

FROM: Luis A. Reyes ***/RA/***
Regional Administrator

SUBJECT: SPECIAL INSPECTION TEAM CHARTER

A Special Inspection Team (SIT) has been established to inspect and assess the degraded conditions of the Oconee Unit 3 Atmospheric Dump Valve (ADV) isolation valves that were identified by the licensee on April 21, 2003. In addition, the SIT is to assess previous ADV problems and the adequacy of corresponding corrective actions. The specific issue of concern is: Does adequate assurance exist that the ADVs will perform their design basis function given the number of previous problems and corrective actions taken by the licensee?

The team composition is as follows:

Team Leader: S. Stewart (RII)

Team Members: R. Moore (RII)

The objectives of the inspection are to: (1) determine the facts surrounding the degraded conditions of the Oconee ADV isolation valves; (2) evaluate previous problems experienced with the manual valves that comprise the ADV flowpath and corrective actions in response to these problems; and (3) assess the generic aspects of the degraded conditions and any design adequacy issues that are highlighted.

For the period during which you are leading this inspection and documenting the results, you will report directly to me. The guidance of NRC Inspection Procedure 93812, “Special Inspection,” and Management Directive 8.3, “NRC Incident Investigation Procedures,” apply to your inspection. If you have any questions regarding the objectives of the attached charter, contact me.

Attachment: SIT Charter

SPECIAL INSPECTION TEAM CHARTER
OCONEE NUCLEAR STATION
ATMOSPHERIC DUMP VALVE DEGRADED CONDITION

Basis for the formation of the SIT - While testing ADVs prior to Unit 3 shutting down for its refueling outage, the licensee identified a steam leak in the bonnet of ADV isolation valve (3MS-153) for the "A" mainsteam header. In addition, the ADV isolation valve (3MS-155) for the "B" mainsteam header could not be opened when initially tested. Approximately 1.5 hours later the licensee was able to open 3MS-155; however, this was outside the 40-minute window that the ADVs are required to operate for certain accident mitigation sequences. The licensee concluded that the steam leak on 3MS-153 would not adversely impact operation of the valve. Compensatory actions taken for 3MS-155 included: (1) keeping the bypass valve (3MS-163) open to maintain pressure equalized across 3MS-155 and (2) verifying every 24-hours that 3MS-155 can be opened. The licensee stated that these actions are to remain in place until the ADV function is no longer required following the unit shutdown on April 26, 2003. The manual valves which comprise the ADV flowpath have experienced a number previous problems that have either impacted or would have prevented the ADVs from operating.

These conditions appear to have the characteristics which meet the criteria of Management Directive 8.3, in that repetitive failures and problems have occurred involving safety-related equipment (the manual valves that comprise the ADV flowpath) during plant operations.

The objectives of the inspection are to: (1) determine the facts surrounding the degraded conditions of the Oconee ADV isolation valves; (2) evaluate previous problems experienced with the manual valves that comprise the ADV flowpath and corrective actions in response to these problems; and (3) assess the generic aspects of the degraded conditions and any design adequacy issues that are highlighted. To accomplish these objectives, the following will be performed:

- Determine the facts surrounding the failure of ADV isolation valve 3MS-155 to open within the required time interval and the steam leak on ADV isolation valve 3MS-153.

- Review the performance history of the manual valves that comprise the ADV flowpath, to assess the effectiveness of the licensee's corrective actions for previous problems with these valves.

- Review any implication this failure may have on the design adequacy of ADVs, including any interaction that ADV seat leakage may have on the ability to equalize pressure across its associated isolation valve.

- For the operator actions that are required to operate these manual valves, determine if expectations: (1) have been properly evaluated; (2) are reasonable; and (3) are consistent with design basis assumptions. Consider the staging of cheater bars and step ladders, which the licensee views as another option for opening the valves.

- Review maintenance and testing that is routinely performed for these manual valves to assess their adequacy and any related effects on the material condition of the valves.

- Assess the licensee's activities related to the problem investigation performed to date (e.g., root cause analysis, extent of condition, additional equipment failure mechanisms, etc.).

- Document the inspection findings and conclusions in an inspection report within 30 days of the inspection.

- Conduct an exit meeting.

ATMOSPHERIC DUMP VALVES - TRAIN A (B)